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Sent: Tuesday, March 21, 2023 3:20 PM
To: CityClerk <CityClerk@longbeach.gov>
Subject: CBD Sources Part 1.1

-EXTERNAL-

Part 1.1

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Submitted via email to cityclerk@longbeach.gov

References available at https://centerforbiologicald-my.sharepoint.com/:f:/g/personal/celkins_biologicaldiversity_org/EnKgnCor99lGuuLZ09VgLJEBe1qZCkB-L3ApueGIIPlwhQ?e=glc5NS

References also submitted via USB flash drive

Long Beach City Council
411 W. OCEAN BOULEVARD
Long Beach, CA 90802

Re: City Council Agenda Item: Recommendation to approve and adopt the Long Beach Unit Annual Plan (July 1, 2023 to June 30, 2024) and Program Plan (July 1, 2023 to June 30, 2028). (Citywide)

Dear Long Beach City Council:

The Center for Biological Diversity submits the following comments in response to the City of Long Beach's ("the City") draft five-year Program Plan for the Long Beach Unit ("LBU"), covering years 2023-28, and the related one-year draft Annual Plan for the LBU, covering July 1, 2023-June 30, 2024. The City posted both plans to its website for review by the public on Monday, March 13, 2023, and consideration by the City Council on March 21, 2023.

First, as a threshold matter, the City's plans must be subject to environmental review and public comment under the California Environmental Quality Act ("CEQA"). CEQA requires only that a discretionary activity *may* either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment, for review to be triggered. As plans that propose over 100 drilling activities and open the door to other actions such as use of enhanced oil recovery, the plans meet this low-bar test. Long Beach oil and gas drilling, as we discuss below, impacts air quality, climate emissions, water quality, subsidence, species, environmental justice, energy use, and other areas of consequence. CEQA was intended to be interpreted in such a manner as to afford the fullest possible protection to the environment and the City must take action to comply by subjecting the plans to full review.

Second, we urge the City to adhere to its own plans to eliminate oil and gas by phasing down production. Inexplicably, the draft plans project over 26.2 million barrels of oil and over 12 billion cubic feet of natural gas production—an *increase* over the previous five-year Program

Plan's production numbers. This comes despite the City "know[ing] and support[ing] the position that oil production is not in [its] long-term future."[1]

Third, the City must end all oil and gas operations within 3200 feet of homes, schools, nursing homes, and hospitals, as established by Senate Bill 1137 (2022). Governor Newsom signed SB 1137 into law, and while its enactment is delayed because of a referendum, it is a vital public health protection that begins to address the environmental health disparities experienced by frontline communities. The City must not perpetuate the harms that the legislature already declared "disproportionately impact[s] Black, indigenous, and people of color in California."[2] Instead of pushing forward its plans that lead to continued harms and increased drilling, the City should create a plan for alternative sources of revenue, consistent with a five-year phaseout of oil drilling, that supports a just transition for impacted workers.

Finally, one week is an appallingly short amount of time for the public to review the proposed plans that will have consequences for years to come. In addition to pausing approvals for CEQA review, the City must provide the public with adequate time (at least 30 days) for review and public comment.

I. Because the plans are projects, CEQA review is required

The City of Long Beach is proposing in its five-year Program Plan for 2023-28 and associated Annual Plan to conduct oil and gas drilling activities in the LBU that are likely to cause adverse environmental impacts, as described in greater detail below. That neither the City nor any affiliated agencies have conducted CEQA review on the plans runs counter to law and deprives the public and other officials of information necessary to make informed decisions and formulate project alternatives and mitigations.[3]

CEQA directs state and local agencies to "take all action necessary to protect, rehabilitate, and enhance the environmental quality of the state" and to "[e]nsure that the long-term protection of the environment . . . shall be the guiding criterion in public decisions."[4] "CEQA was intended to be interpreted in such a manner as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language," and "[t]he purpose of CEQA is . . . to compel government at all levels to make decisions with environmental consequences in mind."[5] By "requir[ing] full environmental disclosure," the Act

[1] City of Long Beach, Recommendation from the Sustainable City Commission (March 15, 2022) at 19, https://www.longbeach.gov/globalassets/city-manager/media-library/documents/memos-to-the-mayor-tabbed-file-list-folders/2022/march-15--2022---recommendation-from-the-sustainable-city-commission; *see also* City of Long Beach, Recommendation from the Sustainable City Commission & Reducing Reliance on City Revenue from Oil Production (Jan. 2022 and Oct. 2021) at 4, http://longbeach.legistar.com/View.ashx?M=F&ID=10423777&GUID=CE2373C6-1897-4A8F-9FE8-858224EC882E.
[2] SB 1137 (Gonzalez, 2022), approved and filed Sept. 16, 2022.
[3] Cal. Pub. Res. Code § 21002.
[4] *Id.* § 21001.
[5] Cal. Code Regs. tit. 14, § 15003 (hereinafter, "CEQA Guidelines").

ensures public awareness and participation in decisions with the potential for environmental consequences.[6]

The LBU plans are projects under CEQA and therefore warrant environmental review. CEQA applies to all "discretionary projects proposed to be carried out or approved by public agencies."[7] CEQA defines "project" as "the whole of an action" directly undertaken, supported or authorized by a public agency, "which *may cause* either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment."[8] The bar for what constitutes a direct or reasonably foreseeable indirect physical change in the environment is low. According to the California Supreme Court, the "likely *actual* impact of an activity is not at issue when determining its status as a project."[9] Instead, the threshold question is whether an activity, "by its general nature" may be "capable, at least in theory, of causing" direct or "reasonably foreseeable indirect" environmental changes.[10]

The LBU plans easily meet the test for what constitutes a "project" under CEQA. The draft Program Plan, covering years 2023-28, prescribes discretionary activities such as redrilling and possible new drilling, potential use of enhanced oil recovery, and other activities that could be capable of producing environmental impacts on air quality, water quality, noise, species, and more. The Annual Plan is not only "based upon 33 replacement wells" described in the Program Plan, but also pledges to undertake discretionary activities related to "facilities piping, tanks, and vessels" as well as to "plug[] wells to surface, in-zone, and conditional abandonments."[11] These are all activities that are capable of causing environmental changes and must be subject to environmental review. Further, just because the City is projecting to end its reliance on revenue from oil production by 2035,[12] that does not preclude the current plans (which extend to 2028) or future plans from triggering CEQA, given that the plans are capable of causing environmental impacts for many years to come.

Once CEQA review begins for the plans, it is likely that a full environmental impact report ("EIR") will be warranted because oil drilling activities may cause significant

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[6] *Cmtys. for a Better Env't v. City of Richmond*, 108 Cal. Rptr. 3d 478, 491 (Cal. Ct. App. 2010).
[7] Cal. Pub. Res. Code § 21080(a). Note that just because "further governmental decisions need to be made before . . . actual environmental impacts can be determined" does not mean an activity is not a project triggering CEQA review. *Muzzy Ranch Co. v. Solano Cnty. Airport Land Use Com.*, 41 Cal. 4th 372, 383 (2007), *as modified* (Sept. 12, 2007); *see also Save Tara v. City of W. Hollywood*, 45 Cal. 4th 116, 194 P.3d 344 (2008), *as modified* (Dec. 10, 2008) ("CEQA review may not always be postponed until the last governmental step is taken, because postponing the environmental review may incentivize ignoring environmental concerns.").
[8] Cal. Pub. Res. Code. § 21065 (emphasis added); CEQA Guidelines § 15378.
[9] *Union of Med. Marijuana Patients, Inc. v. City of San Diego*, 7 Cal. 5th 1171, 1199 (2019) (emphasis in original).
[10] *Id.* at 1197.
[11] Annual Plan 2023-24 at 3-5.
[12] *See* City of Long Beach, Recommendation from the Sustainable City Commission & Reducing Reliance on City Revenue from Oil Production (Jan. 2022 and Oct. 2021), http://longbeach.legistar.com/View.ashx?M=F&ID=10423777&GUID=CE2373C6-1897-4A8F-9FE8-858224EC882E.

environmental effects.[13] That EIR must present "feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such" activities.[14]

The foundational components of CEQA—transparency, analysis and information sharing, alternatives and enforceable mitigation measures, public comments and agency responses[15]—are vitally important to environmental protection and civic participation. Notably, *all* such components are absent in the City's current process for Program and Annual Plans. The draft plans provide no impacts analysis, offer no alternatives, and prescribe no mitigations. Moreover, the City provided only one week between release of the draft plans and the hearing date before City Council—hardly enough time for the public, and particularly those in overburdened and frontline communities—to digest the plans and offer comment. As such, the City is running afoul of CEQA and undermining public participation.

II. Impacts of Plan Activities

The plans prescribe drilling and operations activities that will lead to the production of over 26.2 million barrels of oil and over 12 billion cubic feet of natural gas. These activities will cause a range of direct and indirect environmental impacts. The drilling will put communities and ecosystems at risk of oil spills and other accidents, degrade groundwater aquifers, and cause subsidence which can lead to flooding and increased seismicity. The plan activities will lead to harmful air pollution as well as approximately the same greenhouse gas emissions as two coal-fired powerplants. The activities also perpetuate environmental injustice since much of the operations are within the health and safety buffer researchers have identified as necessary to avoid frontline communities at risk. Because of these foreseeable impacts, and others, the City must conduct a robust CEQA review.

A. The Plans Risk Harmful Oil Spills and Other Accidents

Oil spills are an inevitable consequence of oil drilling and can occur during every phase of onshore and offshore drilling, from exploration to extraction to transportation and refinement. California has seen spill after spill during the decades oil companies have been drilling on land and in our ocean. In the last two years alone, Orange County has seen multiple oil spills discharge tens of thousands of gallons of oil into the ocean, from breaks in pipes connecting offshore drilling operations to shore. And in 2015, the Plains All American pipeline ruptured and spilled up to 142,000 gallons of oil on the Santa Barbara coastline. While there are inherent risks in any drilling, the infrastructure in waters off California is especially susceptible to causing another disaster due to its age and condition, including Long Beach's oil islands and pipelines. Long Beach must consider the risk and mitigate the risk oil spills pose to the local community, the coastal ecosystem, endangered wildlife, and the economy.

In addition to the risks inherent in drilling for oil, hazards from climate change, such as increased severity of storms and sea level rise, increase the risk of oil spills and other accidents

[13] Cal. Pub. Res. Code § 21080(d); *see also* CEQA Guidelines §§ 15063(b)(1), 15064.
[14] Cal. Pub. Res. Code § 21002.
[15] *See* Cal. Pub. Res. Code § 21002, 21003.1; *see generally* CEQA Guidelines § 15002.

from aging infrastructure. Their old age also increases the risk of spills. For example, according to scientists, aging poses risks of corrosion, erosion and fatigue stress to subsea pipelines.[16] Subsea pipeline corrosion appears to accelerate over time,[17] and can act synergistically with fatigue stress to increase the rate of crack propagation.[18] Marine environments are especially known to produce significant corrosion on steel surfaces, and when a steel structure is at or beyond its elastic limit, the rate of corrosion increases 10 to 15 percent.[19] One offshore pipeline study found that after 20 years the annual probability of pipeline failure increases rapidly, with values in the range of 0.1 to 1.0, which equates to a probability of failure of 10 to 100 percent per year.[20]

The U.S. Department of Transportation itself found that offshore pipelines can be more vulnerable than onshore pipelines. They have a greater vulnerability to severe weather conditions than onshore pipelines, especially during hurricane events. And massive wave action can alter the pipeline stability, causing gradual displacement, especially in small diameter pipelines.[21] Offshore pipelines can also face more corrosion than onshore pipelines due to higher temperature and pressure conditions that occur during the laying of these pipelines.[22]

Oil spills have a wide array of lethal and sublethal impacts on terrestrial and marine species, both immediate and long-term. For example, a growing body of evidence demonstrate that even brief exposures to crude oil and its components can have severe impacts on fish and invertebrate species. Schlenker et al. (2022) investigated the response of wild mahi-mahi (*Coryphaena hippurus*) to crude oil exposure and found:

> profound effects on survival and reproduction in the wild. In addition to significant changes in gene expression profiles and predation mortality, we documented altered acceleration and habitat use in the first 8 days oil-exposed individuals were at liberty as well as a cessation of apparent spawning activity for at least 37 days. These data reveal that even a brief and low-dose exposure to crude oil impairs fitness in wild mahi-mahi.[23]

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[16] Petroleum Safety Authority Norway, Material Risk – Ageing offshore installations (2006) ("PSA Norway").
[17] Mohd, M.H. and J.K. Paik, *Investigation of the corrosion progress characteristics offshore oil well tubes*, 67 Corrosion Science 130-141 (2013).
[18] PSA Norway 2006.
[19] Mohd and J.K. Paik, *Pitting corrosion in pipeline steel weld zones*, 53:12 Corros. Sci. 4026–4032 (2011); R.E. Melchers, et al., *Statistical characterization of surfaces of corroded steel plates*, 23 Mar. Struct. 274–287 (2010).
[20] Bea, R., C. Smith, et al., Real-time Reliability Assessment & Management of Marine Pipelines, ASME, 21st Int'l Conference on Offshore Mechanics & Arctic Engineering (2002), https://asmedigitalcollection.asme.org/OMAE/proceedings-abstract/OMAE2002/36142/133/294825.
[21] U.S. Dep't of Transportation: Federal Highway Administration. Impacts of Climate Change and Variability on Transportation Systems and Infrastructure: The Gulf Coast Study, Phase 2 (2014).
[22] Keuter, J., In-line Inspection of Pipes Using Corrosion Resistant Alloys (CRA) (2014), Rosen Technology and Research Center GmbH, Rosen Group, Germany; Standard Oil Company (1981) Drilling fluid bypass for marine riser. U.S. Grant. US4291772 A.
[23] Schlenker, Lela S. et al., *Brief oil exposure reduces fitness in wild Gulf of Mexico mahi-mahi* (*Coryphaena hippurus*), 56 Envt'l Sci. & Tech. 13019, 13019 (2022). *See also* Ek-Huchim, Juan Pablo et al., *Red blood cell cytotoxicity associated to heavy metals and hydrocarbons exposure in flouder fish from two regions of the Gulf of Mexico*, 108 Bull. Envt'l Contamination & Toxicology 78 (2022); McDonald, Ashley M. et al., *Prior*

Recent research demonstrates that fish exposure to oil and gas from any given lease—exposure that contributes to the cumulative stresses experienced by individual animals—rises to the level of significance. For example, Pulster et al. (2021) found that 99 percent of red snapper (*Lutjanus campechanus*) sampled throughout the Gulf of Mexico between 2011–2017 showed signs of liver damage (*e.g.*, inflammation, neoplasms and other lesions, parasites) associated with exposure to PAHs.[24] And Lawson et al. (2021) found that deep-sea invertebrate species including sea anemones, sea cucumbers, and sea pens bioaccumulate PAHs.[25]

Oil pollution poses a well-known and significant threat to seabirds.[26] Seabirds are particularly vulnerable to offshore oil and gas development because of their frequent contact with the water's surface, their myriad foraging strategies, and the propensity of oil—even the thinnest sheen—to adhere to the birds' plumage.[27] Birds may be exposed to oil through acute events like spills, and chronically through routine discharges and leaks.[28] Chronic oil exposure is more challenging to measure, but can have pervasive lethal, sublethal, and cascading effects that

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exposure to weathered oil influences foraging of an ecologically important saltmarsh resident fish, 10 PeerJ e12593 (2022).

[24] Pulster, Erin L. et al., *Hepatobiliary PAHs and prevalence of pathological changes in Red Snapper*, 230 Aquatic Toxicology 105714 (2021). Previous research has demonstrated that fish exposed to PAHs may experience reduced growth, endocrine disruption, reproductive harms, embryonic malformations, behavioral impairment, suppressed immune system function, skeletal and skin disorders, abnormal liver growths, cancer, and death. Peter Albers, Petroleum and Individual Polycyclic Aromatic Hydrocarbons, Ch. 14 *in* David J. Hoffman *et al.* (eds), Handbook of Ecotoxicology 352, 353 (2d ed. 2002); Tracy K. Collier et al., *Effects on fish of polycyclic aromatic hydrocarbons (PAHs) and naphthenic acid exposures*, 33 Organic Chemical Toxicology of Fishes 195, 197-98, 200-06, 211-22, 224-30 (2014); Ronald Eisler, Polycyclic aromatic hydrocarbon hazards to fish, wildlife, and invertebrates: a synoptic review, U.S. Fish & Wildlife Serv. Biological Report 85 (1.11) 32 (May 1987); Xavier Cousin & Jerome Cachot, *PAHs and fish—exposure monitoring and adverse effects—from molecular to individual level*, 21 Envtl. Sci. and Pollution Research 13685, 13688 (2014); Canadian Water Quality Guidelines for the Protection of Aquatic Life: Polycyclic Aromatic Hydrocarbons (PAHs) 5, 6, 8 (1999); Britton C. Goodale, Ph.D., Dissertation: Developmental toxicity of Polycyclic Aromatic Hydrocarbons: Defining Mechanisms with Systems-Based Transcriptional Profiling 8 (2013); Jerry F. Payne et al., Ecotoxicological Studies Focusing on Marine and Freshwater Fish, Ch. 11 *in* Peter E.T. Douben (ed.), PAHs: An Ecotoxicological Perspective 192, 201-06, 208-09 (2003). The harms of exposure may be passed down through the generations. Collier et al. at 222-24; Cousin & Cachot 16389; Payne et al. at 205-06.

[25] Lawson, M. Chase, et al. *PAH and PCB body-burdens in epibenthic deep-sea invertebrates from the northern Gulf of Mexico*, Marine Pollution Bulletin 162 (2021): 111825.

[26] Dias, M.P. et al., *Threats to seabirds: a global assessment*, 237 Biological Conservation 525 (2019).

[27] O'Hara, Patrick D. & Lora A. Morandin, *Effects of sheens associated with offshore oil and gas development on the feather microstructure of pelagic seabirds*, 60 Marine Pollution Bull. 672 (2010); Haney, J.C. et al., *Challenges to oil spill assessment for seabirds in the deep ocean*, 73 Arch. Environ. Contam. Toxicol. 33, 33 (2017).

[28] Jodice, P. G. R., et al., GoMAMN Strategic Bird Monitoring Guidelines: Seabirds, at 129-170 in R. R. Wilson, A. M. V. Fournier, J. S. Gleason, J. E. Lyons, and M. S. Woodrey (Eds.) (2019), Strategic Bird Monitoring Guidelines for the Northern Gulf of Mexico, Mississippi Agricultural and Forestry Experiment Station Research Bulletin 1228, Mississippi State University; Lamb, Juliet S., et al., *Seasonal variation in environmental and behavioural drivers of annual-cycle habitat selection in a nearshore seabird*, 26 Diversity & Distributions 254 (2020).

hinder species and ecosystem recovery.[29] Sublethal effects can occur even when oil is not visible.[30]

Marine mammals can be exposed to oil internally by inhaling volatile compounds at the surface, swallowing oil, consuming oil-contaminated prey, and externally by swimming in oil.[31] Exposure to toxic fumes from petroleum hydrocarbons during oil spills have been recently linked to mortality in cetaceans, even years after such accidents.[32] Studies have determined, for example, that the Deepwater Horizon oil spill caused adrenal and lung lesions in bottlenose dolphins which led to an unusual mortality event in which dolphins died over the course of several years.[33]

Oil spills can harm a wide variety of wildlife, which includes species protected under the Endangered Species Act ("ESA"). For example, ESA-listed sea otters are particularly vulnerable to contamination from oil spills. When sea otters come into contact with oil, it causes their fur to mat, which prevents the fur from insulating their bodies. Without this natural protection from the cold water temperature, sea otters can quickly die from hypothermia. The toxicity of oil can also be harmful to sea otters, causing liver and kidney failure and damage to their lungs and eyes.[34] ESA-listed western snowy plovers and the California least tern are extremely sensitive to disturbances such as oil spills, especially during the nesting season.[35]

ESA-listed fish also may be affected by the lease extensions. Tidewater goby is a small, endangered coastal fish that inhabits the coastal areas of California. Steelhead trout are an anadromous fish, and the southern California population is listed as endangered. They both have designated critical habitat in areas along the Southern California Coast.[36] Oil field pollution degrades tidewater goby habitat.[37] Fish are vulnerable to offshore oil and gas pollution and oil spills at all life stages.[38] For example, oil induced developmental abnormalities in laboratory

[29] Peterson, Charles H. et al., *Long-term ecosystem response to the Exxon Valdez oil spill*, 302 Sci. 2082 (2003).
[30] Fallon, J.A. et al., *Ultraviolet-assisted oiling assessment improves detection of oiled birds experiencing clinical signs of hemolytic anemia after exposure to the deepwater horizon oil spill*, 29 Ecotoxicology 1399 (2020).
[31] NOAA, Analysis of Hydrocarbons in Samples Provided from the Cruise of the R/V WEATHERBIRD II, (May 23-26, 2010).
[32] Venn-Watson et al., *Adrenal Gland and Lung Lesions in Gulf of Mexico Common Bottlenose Dolphins (Tursiops truncatus) Found Dead following the Deepwater Horizon Oil Spill*. PLoS ONE 10(5): e0126538 (2015), doi:10.1371/journal.pone.0126538.
[33] *Id.*
[34] U.S. Fish and Wildlife Service, Southern Sea Otter (*Enhydra lutris nereis*) 5-Year Review: Summary and Evaluation (Sept. 15, 2015).
[35] U.S. Fish and Wildlife Service, Recovery Plan for the Pacific Coast Popultion of the Western Snowy Plover at 73 (Sept. 13, 2007). Available at https://www.biologicaldiversity.org/species/birds/western_snowy_plover/pdfs/2007%20recovery%20plan.pdf.
[36] 70 Fed. Reg. 52488-52627 (2005); 78 Fed. Reg. 8746-8819 (2013).
[37] U.S. Fish and Wildlife Service, Recovery Plan for the Tidewater Goby (2005).
[38] Bernanke, J. & H.R. Kohler, *The impact of environmental chemicals on wildlife vertebrates*, 198 Rev. Envtl. Contamination & Toxicology 1 (2009).

zebrafish,[39] and salmonid embryos exposed to oil exhibited reduced growth and significantly lower survival.[40]

Oil and gas activity also creates noise, light, and other pollution that can harm ESA-listed species. For example, Senzaki et al. (2020) found "that anthropogenic noise and light can substantially affect breeding bird phenology and fitness."[41] Noise pollution created by offshore oil and gas activity can also harm marine mammals. In addition, the air, water, noise, light, and vibration pollution from injection activities onshore extends beyond the well pad and affects nearby habitat. Numerous studies have documented density effects whereby wildlife species decrease use of preferable habitat areas or avoid habitat areas altogether in areas with increasing densities of oil and gas development, leading to indirect habitat loss.[42]

Wetlands, and the sensitive vegetation and species they support, are also vulnerable to oil spills. When marsh plants come into contact with crude oil, it can cause nearly complete mortality.[63] Additionally, the oil can reside in the soil and cause long-term stress for marsh vegetation and erosion of marshlands.[43] Salt marsh bird's-beak, Ventura marsh milkvetch, and other threatened and endangered plants along the Southern California coast are at risk.

The coastal areas affected by oil spills in California include some of the more important cultural resources for Indigenous people. For example, the disastrous spills in 1969 and 2015 off Santa Barbara harmed Chumash sacred sites and animals.[44] The 2021 Platform Elly pipeline spill has harmed Acjachemen and Tongva homelands and cultural resources. A spill in Long Beach would harm important cultural resources. Under CEQA, agencies must, when feasible, avoid damaging tribal cultural resources, which include sites, features, places, cultural landscapes, sacred places, and objects with cultural value to California Native American tribes.[45] Several tribal entities of the Acjachemen and Tongva nations hold critical cultural information regarding the cultural sites affected by the continued development of oil infrastructure, continued extraction, and continued threat of oil spills that threaten to impact these cultural resources and sacred sites. Oil spill response efforts without consultation with these entities risk further impacting cultural resources, and the City should consult early and often on these impacts and oil spill response plans. The City has the responsibility to engage in early and meaningful

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[39] de Soysa, T. Yvanka et al., *Macondo crude oil from the Deepwater Horizon oil spill disrupts specific developmental processes during zebrafish embryogenesis*, 10 BMC Biology 40 (2012).
[40] Heintz, R.A. et al., *Delayed effects on growth and marine survival of pink salmon Oncorhynchus gorbuscha after exposure to crude oil during embryonic development*, 208 Marine Ecology Progress Series 205 (2000).
[41] Senzaki, Masayuki et al., *Sensory pollutants alter bird phenology and fitness across a continent*, 587 Nature 605 (2020).
[42] Beckmann, J.P. et al., *Human-mediated shifts in animal habitat use: Sequential changes in pronghorn use of a natural gas field in Greater Yellowstone*, Biological Conservation 147(1): 222-3 (2012); Dzialak M.R. et al., *Prioritizing conservation of ungulate calving resources in multiple-use landscapes*, PLOS One 6(1): e14597 (2011); Doherty, K.E. et al., *Greater sage-grouse winter habitat selection and energy development*, Journal of Wildlife Management 72: 187-195 (2008).
[43] NOAA, Oil Spills in Marshes (2013).
[44] Ben-Hur, Arielle, The Chumash Heritage National Marine Sanctuary: An Exploration of Changing the Discourse on Conservation, 105 Pitzer Senior Theses. 45-50 (2020).
[45] Cal. Pub. Res. Code § 21084.3.

consultation with tribes traditionally and culturally affiliated with the area (if such consultation is requested by the tribes).[46]

Oil spills also cause economic impacts, from closures of fisheries to lost revenue from tourism. Even before the 2021 oil spills in Orange County, an analysis found that since 1986, nearly 1400 oil and gas pipeline leaks, spills and other incidents in the California have caused at least $1.2 billion in damages, as well as 230 injuries and 53 deaths.[47] On average California has suffered 40 significant pipeline incidents a year, according to federal data.[48]

Other areas also experience significant costs as a result of oil spills. For example, tourism significantly declined after the 2010 BP Deepwater Horizon oil disaster in the Gulf of Mexico, even in neighboring states that were largely free of oil on their beaches.[49] Leisure visitor spending in Louisiana alone dropped by $247 million in 2010, with a total loss of $422 million over three years.[50] Even after shorelines are clean of oil, normal tourism activities may not resume if public perception of prolonged and wide-scale pollution remains.[51]

Both the Plains All American Oil Spill and the Platform Elly pipeline spill closed California fisheries and caused longer-term harm. The Deepwater Horizon disaster also has long lasting impacts on the region's fisheries. The long-term economic impact of the spill on commercial and recreational fisheries in the Gulf of Mexico is estimated at $8.7 billion.[52] California's economy similarly stands a lot to lose if an oil spill were to seriously impact the state's commercial fisheries. In 2017, approximately $210 million dollars in ex-vessel revenue (the amount paid directly to fishermen) came from commercial fishery landings, and more than 120,000 jobs on and off the water were supported by the state's seafood industry.[53]

B. Injection Wells Could Contaminate Drinking Water and Result in Earthquakes

The Plans will result in the injection of produced water containing chemicals used in oil production, and analysis must be done to ensure these injections do not contaminate drinking water in Long Beach or have other harmful impacts to human health and the environment including increased seismicity. Under CEQA, Long Beach must consider and mitigate direct and

[46] *Id.* §§ 21080.3.1, 21080.3.2.
[47] Center for Biological Diversity, Analysis: Even Before Orange County Leak, California Pipeline Incidents Cased $1.2 Billion in Damages, available at https://biologicaldiversity.org/w/news/press-releases/analysis-even-before-orange-county-leak-california-pipeline-incidents-caused-12-billion-in-damages-2021-10-07/ (Oct. 2021).
[48] Pipeline and Hazardous Materials Safety Administration, Accident and Incident Data, available at https://www.phmsa.dot.gov/data-and-statistics/pipeline/distribution-transmission-gathering-lng-and-liquid-accident-and-incident-data
[49] Oceana, Oil Spills and Tourism: They Don't Mix (2015), https://coastalcarolinariverwatch.org/wp-content/uploads/2019/06/14Oil-Spills-Tourism-Dont-Mix-Oceana.pdf.
[50] The Impact of The BP Oil Spill on Visitor Spending in Louisiana: Revised estimates based on data through 2010 Q4 , Tourism Economics, prepared for the Louisiana Office of Tourism (June 2011).
[51] ITOPF 2014, Effects of Oil Pollution on Social and Economic Activities, https://www.itopf.org/fileadmin/uploads/itopf/data/Documents/TIPS_TAPS_new/TIP_12_Effects_of_Oil_Pollution_on_Social_and_Economic_Activities.pdf.
[52] Sumaila et al. 2012, *Impact of the Deepwater Horizon well blowout on the economics of US Gulf fisheries*, Canadian Journal of Fisheries and Aquatic Sciences, https://doi.org/10.1139/f2011-171.
[53] NOAA, Fisheries Economics of the United States (2017), https://media.fisheries.noaa.gov/2021-09/FEUS2017-final-v1.3.pdf

indirect impacts of allowing injection. Because injecting produced water is part of the process of producing oil and gas, all those impacts should be adequately disclosed, analyzed, and mitigated for the entire 5-year duration of this project.

CalGEM's independent scientific panel has recommended a 3,200 foot buffer between homes and all oil and gas activities, including injection, and Long Beach must ensure that it meets this minimum distance for all injection wells.[54] CalGEM has also questioned the validity of Long Beach's maximum allowable injection pressure, and in particular the current injection gradient.[55] If altered, this "would limit the Unit's ability to inject water and subsequently reduce produced volumes."[56] Long Beach must disclose the content of the discussions with CalGEM and why the agency believes the current injection pressures and gradients are insufficient to protect the environment, including human health.

1. Risk of Aquifer Contamination

The Plans make clear that new injection wells are anticipated in the coming years, but make no attempt to ensure they do not result in contamination of nearby aquifers. The Plans also suggest that injection wells will be drilled in more permeable layers, which could result in increased leaching into nearby aquifers.[57] (To support the "strategy to invest and minimize the decline of the LBU's oil production rate" . . . activities will include [d]rilling injection wells targeting increased throughout in the less mature sand layers"). At a very minimum, Long Beach must disclose what is in the water being injected, and the water quality of the aquifer being injected into. Because the risks of aquifer contamination are great, and because Long Beach relies upon local groundwater for 60% of its water use, the City must ensure injection wells do not risk the drinking water for any residents of Long Beach.[58]

As shown by a century-long hydrological record, California undergoes repeated cycles of drought and non-drought due to natural climate variability.[59] During drought periods—when precipitation and snow pack are at a minimum—the state is forced utilize its groundwater reserves to meet it agricultural and drinking water needs. With ever-progressing climate change, such demand will only increase as drought-favorable conditions become more prevalent.[60]

Studies show that anthropogenic warming contributed to the severity of the recent California drought. One study attributes as much as 27 percent of California 2012-14 drought

[54] PSE Berkeley, Response to CalGEM Questions for the California Oil and Gas Public Health Rulemaking Scientific Advisory Panel (Oct. 1, 2021), https://www.conservation.ca.gov/calgem/Documents/public-health/Public%20Health%20Panel%20Responses_FINAL%20ADA.pdf.
[55] Program Plan at 13.
[56] *Id.*
[57] *Id.* at 27.
[58] Long Beach Water, Water Sources, available at https://lbwater.org/water-sources/ ("Roughly 60% of the Long Beach water supply is local groundwater).
[59] *See* Cheng, L. et al., *How has human-induced climate change affected California drought risk?*, 29 Journal of Climate 111 (2016); Diffenbaugh, N.S. et al., *Anthropogenic warming has increased drought risk in California*, 112 PNAS 3931 (2015); Williams, A.P., *Contribution to anthropogenic warming to California drought during 2012-2014*, 42 Geophys. Res. Lett. 6819 (2015).
[60] *Id.*

severity to anthropogenic warming, with natural variability accounting for the remainder.[61] As a result, drought severity was record-breaking in many counties.[62] This is because higher temperatures increase soil moisture loss, alter the timing of snowmelt, and decrease reservoir levels due to increased evaporation.[63]

In the future, municipalities may need to look not just to seawater, but to aquifers previously considered too salty to be usable, as a source of drinking water. The SDWA mandates protection of future drinking water sources as well as current sources. Given the potential for desalination and other treatment systems to render what was previously considered unusable water potable, the City must protect "freshwater" using a protective approach that more accurately reflects current technology in water treatment, and the necessity of preserving the future availability of sufficient fresh water during times of drought.

The fragile state of groundwater makes any potential impact of great and significant concern. All oil and gas wells, cyclic steam wells included, use a host of chemicals that are harmful to the environment and human health that would jeopardize groundwater. Recent studies have found numerous chemicals contained in fluid involved in routine oil production operations are harmful to human health.[64, 65] These include injection activities like waste disposal and enhanced oil recovery.[66] Disposal wells may receive wastewater that contains chemicals used to perform well maintenance or other chemical-dependent processes. Oil and gas wastewater and fluids injected for enhanced oil recovery may contain additional chemicals added in other phases of production or maintenance of a well.

Contaminating nearby aquifers would be an irreversible disaster. The State Water Resources Control Board explained to the state legislature recently that injection wells across the state have already contaminated scores of aquifers: "any injection [from injection wells] into the aquifers that are not exempt has contaminated those aquifers."[67] And once contaminants reach an aquifer, according to the Water Board, "you don't clean up aquifers, you contain the spread of

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[61] Williams, A.P., *Contribution to anthropogenic warming to California drought during 2012-2014*, 42 Geophys. Res. Lett. 6819 (2015).
[62] *Id.*
[63] Gleick, Peter, Circle of Blue, Clarifying the Discussion about California Drought and Climate Change (Mar. 7, 2014), *available at*: http://www.circleofblue.org/2014/in-the-circle/peter-gleick-clarifying-discussion-california-drought-climate-change/.
[64] Stringfellow WT, et al., *Comparison of chemical-use between hydraulic fracturing, acidizing, and routine oil and gas development*, 12 PLoS ONE(4): e0175344 (2017), https://doi.org/10.1371/journal.pone.0175344.
[65] *See* Shonkoff, S., "Hazard Assessment of Chemical Additives Used in Oil Fields that Reuse Produced Water for Agricultural Irrigation, Livestock Watering, and Groundwater Recharge in The San Joaquin Valley of California: Preliminary Results," PSE Health Energy Technical Report (Sept. 2016).
[66] *Id.*, citing Muggeridge, A, et al., *Recovery rates, enhanced oil recovery and technological limits*, Phil Trans R Soc A. 372:20120320 (2014), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3866386/.
[67] Transcript: Joint Oversight Hearing: Senate Natural Resource and Water and Environmental Quality Committees, "Ensuring Groundwater Protection: Is the Underground Injection Control Program Working?" Jonathan Bishop speaking at 74, (March 10, 2015). See also, CalEPA 2015, Memo: CalEPA Review of UIC Program,
https://sntr.senate.ca.gov/sites/sntr.senate.ca.gov/files/3_10_15_cal_epa_review_of_uic_program.pdf.

contamination."[68] Thus, any plans that puts groundwater at risk could lead to irreversible damage. Long Beach should not be jeopardizing groundwater for the benefit of the oil industry.

Injection activity does not occur in isolation. Operators use chemicals in all stages of oil production, such as drilling muds to facilitate the drilling process, powerful cleaning solvents, or chemical mixtures designed to maintain the well. Unfortunately, neither state nor federal regulations require companies to fully disclose the chemical identities or volumes used. While some chemicals have been identified, a substantial portion of chemicals remain secret. This is worrisome because enhanced oil recovery operations like cyclic steam injection commonly employ harmful chemicals acting as surfactants, polymers, caustics, or biocides to facilitate the operation.

The City must be aware of the full spectrum of substances being injected in order to regulate effectively. Accordingly, the range of substances to be tested for must be expanded, so that regulators and operators are aware of all fluids and chemicals injected or emplaced into a Class II injection well. Without such chemical information, it is impossible to detect contamination or predict how chemicals will interact or migrate in the subsurface.

The potential for harm is evident from past studies of oil and gas activities. CalGEM itself acknowledges that there are potential pathways for the chemicals and hydrocarbons to migrate underground. For example, "[o]ther wells within the area of review that penetrate the injection zone could potentially serve as conduits for fluid migration."[69]

The injection wells themselves may become conduits for fluid migration. In cyclic steam injection, the repeated soaking of the formation with very hot steam creates "large temperature variations and formation movements," putting extreme pressure on the ground and well casing, which can cause well failure or the migration of fluids and steam.[70] Indeed, "[c]yclic steam injection presents some of the harshest conditions" under which a well can be placed.[71] Thus, it is not surprising that rates of well casing failure from "excessive deformation, buckling, and collapse" are especially high in cyclic steam injection wells.[72] Further, the injection of hot steam can deform the surrounding formation and overlying ground so much that cyclic steaming can result in the migration of fluids and steam. This can sometimes pollute underground aquifers. It can also result in "surface expressions," in which the steam, oil, gas, and whatever else might be mixed in underground come bubbling to, or even exploding out of the surface of the ground.[73]

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[68] *Id.* at 73.
[69] Division of Oil, Gas, and Geothermal Resources (DOGGR), Initial Statement of Reasons In Support of Updated Underground Injection Control Regulations (2018) ("Statement of Reasons 2018"), at p. 16.
[70] Xie, Jueren, Analysis of Casing Deformations in Thermal Wells (2008), https://www.researchgate.net/publication/308709003_Analysis_of_Casing_Deformations_in_Thermal_Wells.
[71] Kulakofsky, David, Achieving Long-Term Zonal Isolation in Heavy-Oil Steam Injection Wells, a Case History (Aug. 2008), DOI: 10.2118/115201-MS.
[72] Wu, Jiang, Casing Temperature and Stress Analysis in Steam-Injection Wells, paper presented at the International Oil & Gas Conference and Exhibition (December 2006); *see also* Wu, Jiang, Casing Failures in Cyclic Steam Injection Wells (2008).
[73] Cal. Dep't of Conservation, Division of Oil, Gas, and Geothermal Resources, Report of Occurrences,

Cyclic steam injection leads to changes subsurface pressures, which are poorly understood and opens the door to fluid migration. A scientist at Lawrence Berkeley National Laboratory explained:

> "As important as the subsurface is for U.S. energy strategy, our understanding of how the subsurface responds to common perturbations, such as those caused by pulling fluids out or pushing fluids in, is quite crude.…We're not able to manipulate the subsurface with the control that can guarantee that we're not only maximizing energy production or waste storage, but that we're also protecting our environment—including minimizing greenhouse gas emissions, impacts to groundwater, and induced seismicity. That's a significant gap."[74]

Cyclic steam operations will lead to significant and unavoidable impacts for surface and groundwater. In the winter of 1995, six well casings in a field in Alberta, Canada, failed under the pressure of cyclic steam stimulation.[75] Similar to projects in Long Beach, the operations were pursuing heavy oil at relatively shallow depths.[76] The failures released approximately 55,000 cubic meters of "oil, saline produced water, and solids" to the environment, polluting two groundwater aquifers in the process.[77]

2. Increased risk of earthquakes

The mechanisms linking wastewater injection and earthquakes are well understood: injection-induced increases in fluid pressure within aquifers and fault lubrication by injected fluids have the potential to destabilize well bores and cause preexisting faults to slip.[78] Such mechanisms serve to explain atypical seismic activity, such as the extensively documented earthquakes in the central and eastern United States. There, earthquake count has increased dramatically over the last decade, with more than 300 earthquakes with $M \geq 3$ between 2010 and 2012, or an average of 100 events/year, compared with an average rate of 21 events/year for the period spanning 1967 to 2000.[79] This surge of activity includes a magnitude 5.7 earthquake that struck Oklahoma in 2011, in close proximity to active hydraulic fracturing wastewater wells,[80]

The Chevron Fatality Accident, June 21, 2011, and Area Surface Expression Activity, Pre and Post Accident, Sections 21 & 22 T.32S./R.23E., Midway-Sunset Oil Field, Kern County (May 2012) ("Accident Report"); Cal. Dep't of Conservation, Division of Oil, Gas, and Geothermal Resources, Reports of Occurrence: Surface Expressions in Bakersfield (2011) ("Spill Binder").

[74] Chao, J., "Underground Science: Berkeley Lab Digs Deep For Clean Energy Solutions," Lawrence Berkeley National Laboratory (Oct. 19. 2016), quoting Susan Hubbard, Associate Director, available at http://newscenter.lbl.gov/2016/10/19/berkeley-lab-digs-deep-clean-energy-solutions/.

[75] Kennedy, Alan and Calvin Sikstrom, *Assessment and Remediation of a Heavy-Oil Spill into Groundwater Aquifers*, International Oil Spill Conference Proceedings, Vol. 1997, No. 1, pp. 347-363 (April 1997).

[76] *Id.*

[77] *Id.*

[78] Brodsky, Emily and Lisa J. Lajoie, *Anthropogenic Seismicity Rates and Operational Parameters at the Salton Sea Geothermal Field*, 341 Science (2013); Davies, Richard et al., *Induced Seismicity and Hydraulic Fracturing for the Recovery of Hydrocarbons*, 45 Marine and Petroleum Geology 171 (2013).

[79] Ellsworth, William, *Injection-Induced Earthquakes*, 341 Science (July 12, 2013), https://www.science.org/doi/10.1126/science.1225942.

[80] Keranen, Katie M. et al., P*otentially Induced Earthquakes in Oklahoma, USA: Links between Wastewater Injection and the 2011 Mw 5.7 Earthquake Sequence*, 41 Geology 699 (2013).

and a 5.8 magnitude quake on September 3, 2016 that proved to be the most powerful earthquake ever recorded in Oklahoma.[81]

Detecting induced events in California has received less attention due to the greater background seismicity in the West. However, such connections have been made, as is the case in a published 2016 study linking wastewater injection in the Tejon Oil Field in Kern County to a September 2005 earthquake swarm of three $M \geq 4$ events near the White Wolf Fault.[82]

Given California's history with earthquakes and the noted links between wastewater injection and seismicity, these plans should not be approved without adequate consideration of these threats.

In Oklahoma, wastewater injection has already led to a magnitude 5.8 earthquake.[83] The earthquake's epicenter was an unknown fault.[84] The proposed regulations require disclosure of only previously *known* faults. This leaves the operator with no requirement to seek out any unmapped fault lines, like the one triggering Oklahoma's record earthquake, before injection operations begin.

Seismic monitoring should apply to all injection wells. Until more is known about the link between injection activity and seismic events, it is necessary to collect more data on earthquakes near injection activity. By failing to require data collection on injection wells, Long Beach is eschewing an important opportunity to further study how injections may lead to increased seismic activity.

3. Track record of missing well integrity tests

An analysis of state public records between 2015 and 2018 from California's Division of Oil, Gas and Geothermal Resources showed that the THUMS offshore platforms had long lapses with missing well integrity tests that are required by state law at least every five years. Most of the missing and failed well tests in the THUMS notices of violation were for underground injection wells, which are used to stimulate oil and gas production and help prevent the land subsidence that has caused billions of dollars in damage to Long Beach. Drilling wastes contaminated with toxic chemicals and heavy metals can be injected into these wells, which state law requires to be enclosed and able to withstand pressure so the ocean and freshwater aquifers don't get contaminated. "Mechanical integrity tests" are required before any underground injections take place. THUMS had 103 violations for missing tests and 47 failed tests, and Tidelands had 68 missing tests and 10 wells that failed the tests over the past three years.[85] Long

[81] Chen, Xiaowei et al., *The Pawnee earthquake as a result of the interplay among injection, faults and aftershocks*, 7 Nature Scientific Reports 4945 (2017).
[82] Goebel, T.H.W. et al., *Wastewater Disposal and Earthquake Swarm Activity at the Southern End of the Central Valley, California*, 43 Geophys. Res. Lett. 1092 (2016), https://doi.org/10.1002/2015GL066948.
[83] Yeck, W. L., et al., *Oklahoma experiences largest earthquake during ongoing regional wastewater injection hazard mitigation efforts*, 44 Geophys. Res. Lett. (2017), doi:10.1002/2016GL071685.
[84] *Id.*
[85] Center for Biological Diversity, "Records: Nearly 400 Violations at California Offshore Drilling Operations (April 11, 2018), https://www.biologicaldiversity.org/news/press_releases/2018/offshore-drilling-04-11-2018.php#:~:text=THUMS%20had%20103%20violations%20for,over%20the%20past%20three%20years; *see also* Database of Violations (included in references).

Beach must ensure that oil and gas operations are performing the proper well integrity tests to ensure adequate protection of the environment and human health.

C. Enhanced Oil Recovery

The Program Plan leaves open the possibility for enhanced oil recovery to "be considered for implementation if economically and technically viable."[86] Long Beach must examine and mitigate the impacts of such dangerous oil and gas extraction techniques under CEQA.

Enhanced oil recovery involves the injection of fluids or steam underground to increase the flow of oil and gas to the surface. Enhanced oil recovery techniques may combine injected fluids or steam with harmful chemicals used as surfactants. And while there are a number of enhanced oil recovery technologies, some elements are common to all processes; the use of a recovery fluid, a system to inject recovery fluids, surface processing, and a need to dispose of waste materials.[87] As a result, the environmental risks of enhanced oil recovery are shared by all methods.

Groundwater contamination: As discussed above, migration of injection fluids into drinking water aquifers is concerning due to the potentially hazardous substances those fluids may contain.[88] Chemical additives are often added to help increase production, and disclosure of contaminants in not required by federal or state regulations. Post injection, dissolution of other contaminants present in oil reservoirs can introduce new compounds into the fluid that will be recovered with oil. Contamination of groundwater is a major concern as approximately 60% of Long Beach's water needs are filled by local groundwater.[89] Health risks from chemicals migrating into Long Beach's groundwater must be adequately examined and mitigated.

Air pollution: As detailed below, oil and gas drilling in Long Beach results in emissions of hazardous air pollutants include volatile organic compounds and considerable greenhouse gas pollution. The pressure and heat needed for extended oil recovery operations can lead to significantly larger quantities of air pollution that conventional oil and gas extraction techniques. The California Air Resources Board itemized a number of sources associated with operational activities including steam generators, steam drive wells, cyclic steam wells, fugitive emissions from the wellhead, valves, fittings, and evaporation from sumps and pits.[90] The air pollution from these operational activities will be a significant impact if the Plans authorize extended oil recovery. In addition, the energy required to create the steam and transport the oil makes

[86] Program Plan 2023-28 at 6.
[87] *See* Clean Water Action, Environmental Risks and Oversight of Enhanced Oil Recovery (2017), https://www.cleanwateraction.org/sites/default/files/docs/publications/Environmental%20Risks%20and%20Oversight%20of%20Enhanced%20Oil%20Recovery%2011.08.17a.pdf.
[88] Stringfellow, et al., Comparison of chemical-use between hydraulic fracturing, acidizing, and routine oil and gas development, 12 PLoS ONE(4): e0175344 (2017) https://doi.org/10.1371/journal.pone.0175344.
[89] Long Beach Water, Groundwater, available at https://lbwater.org/water-sources/ground-and-imported-water/.
[90] CCST Report Vol. II at p. 199, citing CARB (California Air Resources Board) (2013), Almanac Emission Projection Data: 2012 Estimated Annual Average Emissions by California Air District, http://www.arb.ca.gov/ei/maps/statemap/dismap.htm.

California's oil production some of the most carbon-intensive in the world, especially from fields that rely on enhanced oil recovery.[91]

Worker safety: California regulators now rightly *presume* injections into diatomaceous formations "creates a risk of surface expressions…."[92] These surface expressions have occurred frequently and with disastrous effects. On June 21, 2011, a Chevron worker was killed when investigating steam coming from a surface expression caused by cyclic steaming in Kern County's Midway-Sunset oil field.[93] When approaching the plume of steam, the ground gave way, and the worker fell into a sinkhole and died.[94] In May 2012, California's Division of Oil, Gas, and Geothermal Resources (now known as CalGEM) issued a report on the tragedy.[95] As with the Plan at issue, operations in the Midway-Sunset oil field were using enhanced oil recovery (cyclic steam injection) to exploit shallow heavy oil deposits.[96]

D. Subsidence and Increased Impacts from Sea Level Rise, Storm Surges, and Flooding

Long Beach admits in its Program Plan that "the oil reservoir zones of the Wilmington Oil Field are susceptible to compaction" and "[a] major goal during the operation and development of the Unit is the continued prevention of subsidence related to oil and gas production."[97] Long Beach must examine and mitigate the risks of subsidence under CEQA, especially as subsidence will be exacerbated by sea level rise, storm surges, and flooding caused by climate change.

Land subsidence in Long Beach is caused by the extraction of oil and gas from underground reservoirs. Long Beach is home to one of this country's most dramatic cases of land subsidence caused by oil and gas production; between 1928 and 1965, the community sank almost 30 feet. As the oil reservoirs were depleted, sand compaction caused a land subsidence that flooded streets and wharfs and caused structural damage to bridges, railroads, and other harbor facilities.[98]

While subsidence in Long Beach in recent years is less dramatic, subsidence is still a major issue. One recent study that examined subsidence in Long Beach was conducted by the

[91] Center for Biological Diversity, Killer Crude: How California Produces Some of the Dirties, Most Dangerous Oil in the World (2021), https://www.biologicaldiversity.org/programs/climate_law_institute/pdfs/June-2021-Killer-Crude-Rpt.pdf.
[92] Statement of Reasons at p. 30.
[93] Department of Conservation Division of Oil, Gas and Geothermal Resources, Executive Summary of Report of Occurrences: The Chevron Fatality Accident June 21, 2011 and Area Surface Expression Activity Pre and Post Accident – Sections 21 & 22 T.32S./R.23E., Midway-Sunset Oil Field Kern County (May 2012). (aka "Accident Report ES"); Accident Report at 2.
[94] *Id.* at 2.
[95] *Id.* at 1.
[96] *Id.* at 9.
[97] Program Plan 2023-28 at 11.
[98] USGS, National Assessment of Coastal Change Hazards (2003), https://pubs.usgs.gov/of/2003/of03-337/extraction.html.

United States Geological Survey ("USGS") in collaboration with the City of Long Beach.[99] The study, published in 2018, used satellite data to measure changes in land surface elevation in Long Beach over a 17-year period. The study found that parts of Long Beach had subsided by as much as 9 inches during that time period, with the greatest subsidence occurring in areas where oil extraction had taken place.

The impacts of land subsidence are particularly dire near sea level where minor lowering of the land surface results in permanent inundation. Not only are many of Long Beach wells near sea level, but sea level rise in coming years will compound the subsidence problem and result in increased flooding. In the Los Angeles region, containing all of Ventura, LA, and Orange Counties, roughly 1 to 2 feet of sea level rise is projected by mid-century, with the most extreme projections predicting 8 to 10 feet of sea level rise by the end of the century.[100] Scientific estimates suggest that sea level rise in California could be at least half of a foot just in 2030.[101] In its recent adopted Climate Action Plan, the city of Long Beach projected 11 inches of sea level rise by 2030.[102] As drilling in Long Beach exacerbates land subsidence in the community, the impacts of sea level rise will become increasingly severe.

The City of Long Beach has voiced extreme concern at the prospect of sea level rise and resulting economic impacts.[103] For example, in its Climate Action Plan, Long Beach acknowledges that "permanent inundation from [sea level rise] as well as increased frequency and intensity of temporary flooding from king tides and storm surges will become a very real threat in the near future." The Plan identifies a number of actions the City will take to address sea level rise and flooding.[104] These include relocating/elevating critical infrastructure, including elevating riverine levees and flood proofing vulnerable sewer pump stations, elevating streets and pathways, extending sea walls, and investigating the feasibility of a managed retreat in the long term.[105] Despite the concern the City professes to have for the impacts of sea level rise, it continues to allow oil and gas drilling that will inevitably increase subsidence and vulnerability to sea level rise, as well as produce the very emissions that causes sea level rise in the first place.

The subsidence caused by drilling in Long Beach will also result in increased expense to mitigate the harm of sea level rise. With 11 inches of sea level rise (predicted by 2030), approximately 1.3 million square feet of buildings are projected to be exposed to annual king tides. Approximately half of these buildings are residential (624,100 square feet) and half are

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[99] USGS, Comparison of regression relations of bankfull discharge and channel geometry for the glaciated and nonglaciated settings of Pennsylvania and southern New York (2018), https://pubs.er.usgs.gov/publication/sir20185066.
[100] California's 4th Climate Change Assessment, Los Angeles Region Report, https://www.energy.ca.gov/sites/default/files/2019-11/Reg%20Report-%20SUM-CCCA4-2018-007%20LosAngeles_ADA.pdf.
[101] Legislative Analyst's Office, What Threat Does Sea Level Rise Pose to California (2020), https://lao.ca.gov/reports/2020/4261/sea-level-rise-081020.pdf.
[102] City of Long Beach, Climate Action Plan at 16 (2022), https://longbeach.gov/globalassets/lbds/media-library/documents/planning/lb-cap/adopted-lb-cap_-aug-2022.
[103] *Id.* at 55.
[104] *Id.* at 11-12.
[105] *Id.*

commercial (689,600 square feet).[106] At the very least, Long Beach must examine to the degree to which oil and gas drilling exacerbate the burdens of sea level rise within the city.

In addition, larger storms are predicted in the future, resulting in increased rainfall, flooding, and storm surges. According to the Climate Action Plan: "Urban flooding during precipitation events is already a problem in Long Beach, and extreme events today provide an example of what may become more common in the future, when more intense precipitation events are projected."[107] As Long Beach experiences heightened storm surges and king tides, battering the coast, subsidence will increase water inundation and cause innumerable problems for residents of the city.

E. Environmental Justice

There are significant environmental justice impacts from drilling in the Long Beach Unit. According to analysis by FracTracker, an estimated 140,138 Long Beach residents—amounting to over 30% of the City's population—live within 3,200 feet of an operational oil and gas well within the city limits.[108] Of those, 101,498 (72.4%) are people of color.[109]

According to CalEnviroScreen, communities living near Long Beach Unit drilling activities are in the highest percentiles for pollution vulnerability. The CalEnviroScreen map below "shows the combined Population Characteristics scores, which is made up of indicators from the Sensitive Populations and Socioeconomic Factors components of the CalEnviroScreen model. Population Characteristics represent physiological traits, health status, or community characteristics that can result in increased vulnerability to pollution."[110]

Environmental justice is increasingly being incorporated into State decisionmaking, and CEQA is an important environmental justice tool. The State Attorney General announced that his office "is particularly concerned that land use planning and permitting decisions consider and address any additional burdens on environmental justice communities."[111] And as stated by the California Environmental Justice Alliance, "CEQA protects the basic rights of disadvantaged or EJ communities in California. These rights include the right to clean air and water, [and] the right to participate in local land use decisions, and the right to affordable housing and good schools free from pollution and other harms."[112] As shown above, environmental justice considerations are directly relevant to LBU plans. The City's current process to prepare, propose, and adopt Program and Annual Plans ignores the need to take environmental justice considerations into account.

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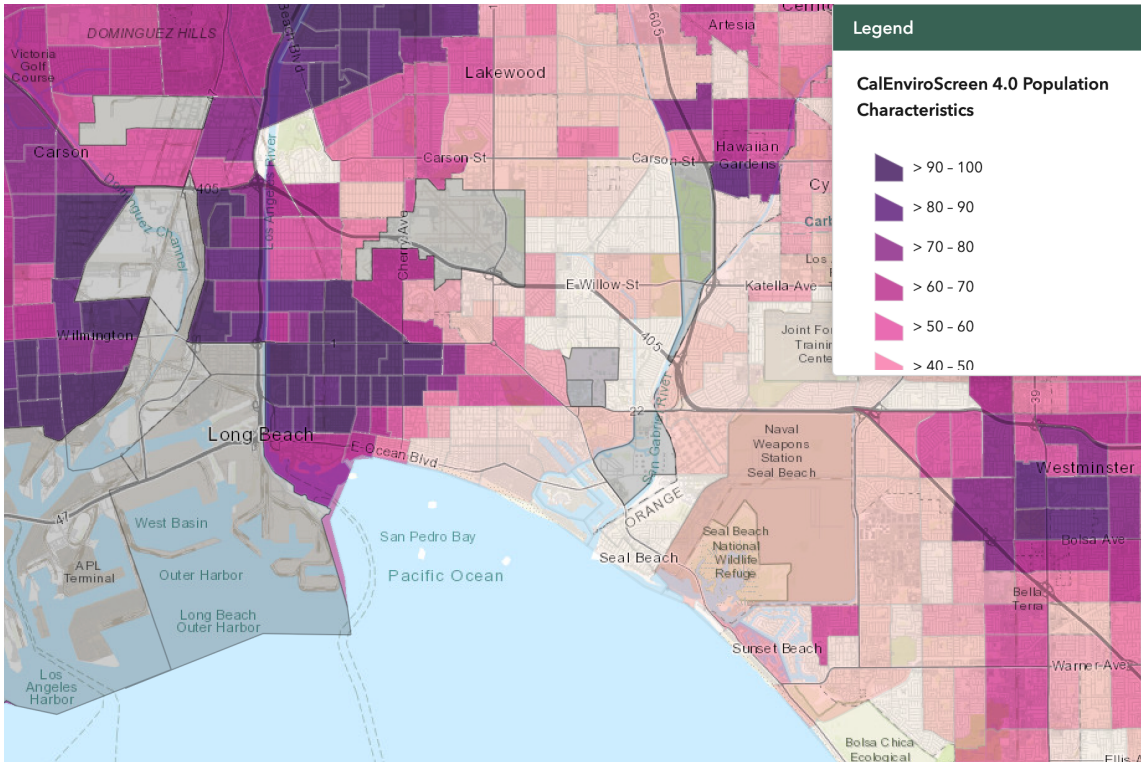
[106] *Id.* at 23, Appendix C.
[107] City of Long Beach, Climate Action Plan at 56.
[108] FracTracker, City of Long Beach Oil and Gas Extraction (April 1, 2022) at 2.
[109] *Id.*
[110] OEHHA, CalEnviroScreen 4.0, https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40 (search for "Long Beach" and "Population Characteristics").
[111] Bon Bonta, Cal. Attorney General, https://oag.ca.gov/environment/justice.
[112] Cal. Environmental Justice Alliance, Protect CEQA to Advance Environmental Justice and Protect Housing, https://caleja.org/2019/05/protect-ceqa-to-advance-environmental-justice-and-protect-housing/.



F. Greenhouse Gas Emissions & Air Pollution

Drilling and other oil field operations in the LBU produce significant air pollution and greenhouse gas ("GHG") emissions, impacts that must be analyzed and mitigated under CEQA.[113]

The climate crisis, caused primarily by fossil fuels, poses an existential threat to every aspect of society. In the words of the State Lands Commission:

> Climate change is an existential threat that grows more urgent each passing day . . . . The State of California, the fifth largest economy in the world, is aggressively pursuing various options to reduce greenhouse gas emissions and deaccelerate the impacts of climate change. The United Nation's Intergovernmental Panel on Climate Change has found that emissions from fossil fuels are the dominant cause of global warming. Oil, a fossil fuel that releases an enormous amount of carbon when burned, exacerbates climate change.[114]

[113] *See generally* CEQA Guidelines § 15126.2; Appendix G (naming GHG emissions and air quality as environmental factors that must be evaluated for significance).
[114] State Lands Commission, Staff Report 52 (Feb. 25, 2022), https://slcprdwordpressstorage.blob.core.windows.net/wordpressdata/2022/02/02-25-22_52.pdf.

Indeed, the vast scientific literature documenting these findings has been set forth in a series of authoritative reports from the Intergovernmental Panel on Climate Change ("IPCC"), U.S. Global Change Research Program, and other institutions, which make clear that fossil-fuel driven climate change is a "code red for humanity."[115] Without limits on fossil fuel production and deep and rapid emissions reductions, global temperature rise will exceed 1.5°C and will result in catastrophic damage in the U.S. and around the world.[116]

While the City has made statements to the effect of, "Long Beach knows and supports the position that oil production is not in our long-term future,"[117] the LBU continues to produce millions of barrels of oil each year. In 2015, "oil fields in Long Beach [likely referring to the entire Wilmington field] produced more than 13 million barrels of crude oil, representing significant [GHG] emissions."[118] Those 13 million barrels of crude oil (and 5.1 million Mcf of natural gas extracted) "generated an estimated 8.3 million MT CO2e in lifecycle emissions."[119] This is the equivalent of over 1.7 million gasoline-powered passenger cars driven for one year, or the annual operations of 2.2 coal-fired power plants.[120] Similarly, in 2022, the City reported production of approximately 10 million barrels of oil per year.[121]

According to a 2020 study conducted as part of the City's climate action planning, approximately 96 percent of the city's oil and gas lifecycle emissions are attributed to oil, with the remaining 4 percent resulting from natural gas.[122] That same study determined that Long Beach oil field carbon intensity is 5.48 gCO2e/MJ, which puts the oil field at 94th out of 157

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[115] *See* United Nations Secretary-General, Secretary-General's statement on the IPCC Working Group 1 Report on the Physical Science Basis of the Sixth Assessment, Aug. 9, 2021, https://www.un.org/sg/en/content/secretary-generals-statement-the-ipcc-working-group-1-report-the-physical-science-basis-of-the-sixth-assessment.
[116] IPCC, Summary for Policymakers, In: Global Warming of 1.5°C.:An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty (2018) [Masson-Delmotte, V. et al. (eds.)], https://www.ipcc.ch/sr15/.
[117] City of Long Beach, Recommendation from the Sustainable City Commission (March 15, 2022) at 19, https://www.longbeach.gov/globalassets/city-manager/media-library/documents/memos-to-the-mayor-tabbed-file-list-folders/2022/march-15--2022---recommendation-from-the-sustainable-city-commission; *see also* City of Long Beach, Recommendation from the Sustainable City Commission & Reducing Reliance on City Revenue from Oil Production (Jan. 2022 and Oct. 2021) at 4, http://longbeach.legistar.com/View.ashx?M=F&ID=10423777&GUID=CE2373C6-1897-4A8F-9FE8-858224EC882E.
[118] City of Long Beach, Appx G, Proposed Climate Action and Adaptation Plan (Nov. 2020) at 1, https://www.longbeach.gov/globalassets/lbds/media-library/documents/planning/lb-cap/lb-caap-proposed-plan-app-g-_dec-14 ("Appx G Climate Plan").
[119] Appx G Climate Plan at 1.
[120] *See* EPA, Greenhouse Gas Equivalencies Calculator, https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator#results.
[121] City of Long Beach, Recommendation from the Sustainable City Commission (March 15, 2022) at 5, https://www.longbeach.gov/globalassets/city-manager/media-library/documents/memos-to-the-mayor-tabbed-file-list-folders/2022/march-15--2022---recommendation-from-the-sustainable-city-commission.
[122] Appx G Climate Plan at 1.

when ranked lowest to highest.[123] This suggests that even among other California oil fields, the majority have a lower carbon intensity value than Long Beach oil.[124]

The City cannot ignore the plain fact that its oil and gas drilling operations results in significant climate impacts. The current draft Program Plan projects that over the next five years, **LBU expects to produce over 26.2 million barrels of oil and over 12 billion cubic feet of natural gas**.[125] Those are tremendously high numbers and represent an *increase* over what the Program Plan for 2021-26 anticipated.[126] The City's own report acknowledges that "[u]pstream emissions occur at the oil fields within the city boundary" and because "[t]he City issues well permits for petroleum operations, [it] has relatively more direct control over these emissions."[127] Even if oil and gas operations had no other environmental and public health impacts (which clearly is not the case), these massive GHG emissions would warrant analysis and mitigation under CEQA.

Similarly, it is well-documented that oil field operations result in significant impacts to air quality and expose communities and sensitive receptors to substantial air pollution concentrations.[128] Oil and gas operations emit large amounts of volatile organic compounds ("VOCs") and nitrous oxides ("NOX").[129] The oil and natural gas industry is the largest industrial source of emissions of VOCs, a group of chemicals that contribute to the formation of ground-level ozone (smog).[130] Ozone exposure is linked to a wide range of health effects, including aggravated asthma, increased emergency room visits and hospital admissions, and premature death.[131]

The VOCs emitted include the BTEX compounds—benzene, toluene, ethyl benzene, and xylene—which are Hazardous Air Pollutants.[132] There is substantial evidence of the harm from

[123] *Id.* at 8.
[124] *Id.*
[125] Draft Program Plan 2023-28, Exhibit C.
[126] Program Plan 2021-26, Exhibit C (projecting just over 25.4 million barrels of oil produced over five years). Moreover, the City showed its discretion because it increased production numbers anticipated in 2023-26 over what it prescribed in the 2021 Program Plan for the time period. For example, the City expected 5,037,000 barrels per year in 2023/24 (2021-26 Program Plan) but increased that to 5,365,000 (2023-28 Program Plan).
[127] Appx G Climate Plan at 2.
[128] *See, e.g.*, Stanford News, "Living near oil and gas wells increases air pollution exposure, according to Stanford research" (Oct. 21, 2021), https://news.stanford.edu/2021/10/12/living-near-oil-gas-wells-increases-air-pollution-exposure/.
[129] *Id.*
[130] EPA, "Basic Information about Oil and Natural Gas Air Pollution Standards," https://www.epa.gov/controlling-air-pollution-oil-and-natural-gas-industry/basic-information-about-oil-and-natural-gas#:~:text=In%20addition%20to%20helping%20form,and%20other%20serious%20health%20effects.
[131] *Id.*
[132] Each has also been identified as a carcinogen. Mall, Amy, Petition for Rulemaking Pursuant to Section 6974(a) of the Resource Conservation and Recovery Act Concerning the Regulation of Wastes Associated with the Exploration, Development, or Production of Crude Oil or Natural Gas or Geothermal Energy at 13 (Sep. 8, 2010); 42 U.S.C. § 7412(b).

these pollutants, including cancer and other serious health effects.[133] One analysis found that 37 percent of the chemicals used during natural gas drilling, fracturing, and production were volatile, and that of those volatile chemicals, 81 percent can harm the brain and nervous system, 71 percent can harm the cardiovascular system and blood, and 66 percent can harm the kidneys.[134] Exposure to benzene has been associated with increased incidence of leukemia and other serious health conditions; exposure to toluene can damage the nervous system; and xylenes can cause dizziness, headaches, and loss of balance.[135] Another study found that among known air contaminants, compounds of particular concern that are known to be emitted during the well-stimulation-enabled oil and gas development process are BTEX compounds, formaldehyde, hydrogen sulfide, particulate matter, nitrogen oxides, sulfur dioxide, polycyclic aromatic, aliphatic, and aromatic hydrocarbons, and volatile organic compounds.[136] Wastewater reinjection and disposal are among the potential pathways for these contaminants to escape into the air.[137]

The pressure and heat needed for EOR operations can lead to significantly larger quantities of air pollution. The California Air Resources Board itemized a number of sources associated with operational activities including steam generators, steam drive wells, cyclic steam wells, fugitive emissions from the wellhead, valves, fittings, and evaporation from sumps and pits.[138] The air pollution from these operational activities will be a significant impact if the Plans authorize EOR.

In a 14-year study of air quality across California, researchers observed higher levels of air pollutants within 2.5 miles of oil and gas wells, likely worsening negative health outcomes for nearby residents.[139] Moreover, the cumulative impacts of oil and gas air pollution combined with Port pollution needs to be analyzed. The community in West Long Beach has extensive exposure to air pollution, heightened risks of pollution related health problems, and the South Coast Air Basin is in non-attainment of ozone and particulate matter.[140] Neither draft plans

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[133] Colborn, Theo et al., *Natural Gas Operations for a Public Health Perspective*, 17 Human and Ecological Risk Assessment 1039 (2011) ("Colborn 2011"); McKenzie, Lisa et al., *Human Health Risk Assessment of Air Emissions form Development of Unconventional Natural Gas Resources*, Sci Total Environ (2012), doi:10.1016/j.scitotenv.2012.02.018; Food & Water Watch, The Case for a Ban on Fracking (2012).
[134] Colborn 2011 at 8.
[135] Mall, Amy, Petition for Rulemaking Pursuant to Section 6974(a) of the Resource Conservation and Recovery Act Concerning the Regulation of Wastes Associated with the Exploration, Development, or Production of Crude Oil or Natural Gas or Geothermal Energy at 7 (Sep. 8, 2010).
[136] CCST Report, Vol. II, p. 410.
[137] *Id.*
[138] *Id.* at p. 199, citing CARB (California Air Resources Board) (2013), Almanac Emission Projection Data: 2012 Estimated Annual Average Emissions by California Air District, http://www.arb.ca.gov/ei/maps/statemap/dismap.htm.
[139] Stanford News, "Living near oil and gas wells increases air pollution exposure, according to Stanford research" (Oct. 21, 2021), https://news.stanford.edu/2021/10/12/living-near-oil-gas-wells-increases-air-pollution-exposure/.
[140] South Coast Air Quality Management District, Multiple Air Toxics Exposure Study in the South Coast Air Basin, MATES IV (2012), at 4-16, https://www.aqmd.gov/docs/default-source/air-quality/air-toxic-studies/mates-iv/mates-iv-final-draft-report-4-1-15.pdf?sfvrsn=7.

describe the impacts to air quality, which is all the more reason for analysis and disclosure of these likely impacts through CEQA analysis.

G. Energy Use

California's grid is on "shaky ground," with the 2022 heat wave pushing the grid "to the brink of collapse," prompting the California legislature and Governor Newsom to extend the life of the Diablo Canyon nuclear power plant despite a pre-planned closure.[141] Yet with the crisis of electricity demand in the State, the LBU is one of Southern California Edison's biggest electricity users, consuming approximately 683 million kWh per year in order to power its oilfield operations.[142] This is unacceptable. Because CEQA require that environmental reviews discuss the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy,[143] LBU's massive energy use must be addressed under CEQA.

Moreover, the Program Plan notes that the property lease for the Unit's in-house, 45MW power plant expires in July 2024, and lease negotiations have "stalled."[144] Failure to renew the lease could mean even greater demand on the State's power grid and/or "result in . . . relocating the plant or installing a sales pipeline to SoCal Gas."[145] Any of the potential scenarios above concerning the power plant could lead to significant concerns and environmental impacts and must be analyzed under CEQA.

H. Amine Plant

The City's Program Plan refers to an amine plant located within the oil field that is used in conjunction with power plant operations.[146] Amines are a class of chemicals that derive from ammonia[147] and can have negative effects on human health (irritation, sensitization, carcinogenicity, genotoxicity), be toxic to animals and aquatic organisms, and cause eutrophication and acidification in marine environments.[148] The Program Plan inadequately describes what having an "amine plant" means for the LBU and surrounding ecosystems and

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[141] *See* "California's latest power grid problems are just the beginning," Politico (Sept. 23, 2022), https://www.politico.com/news/2022/09/23/californias-lofty-climate-goals-clash-with-reality-00058466; Nathan Rott, "California lawmakers extend the life of the state's last nuclear power plant," NPR (Sept. 1, 2022), https://www.npr.org/2022/09/01/1119778975/california-lawmakers-extend-the-life-of-the-states-last-nuclear-power-plant.
[142] Program Plan 2023-28 at 12.
[143] Cal. Pub. Res. Code § 21100(b)(3); *see also* CEQA Guidelines, Appx. F: Energy Conservation (noting that environmental effects related to energy may include the project's energy requirements and its energy use efficiencies; the effects of the project on local and regional energy supplies; the effects of the project on peak and base period demands for electricity and other forms of energy; the degree to which the project complies with existing energy standards; the effects of the project on energy resources).
[144] Program Plan 2023-28 at 12.
[145] *Id*.
[146] *Id.* at 11.
[147] Science Direct, Amine Overview, https://www.sciencedirect.com/topics/chemistry/amine.
[148] Bellona, Amines Used in CO2 Capture - Health and Environmental Impacts (2009), https://network.bellona.org/content/uploads/sites/3/fil_Bellona_report_September_2009_-_Amines_used_in_CO2_capture.pdf ("Amine Report").

communities. The public needs to know about chemical transport, storage, production, use, discharges, and disposal. Because of the likely environmental and health impacts from using (or producing) amines in the LBU, this component of operations triggers CEQA and must be subject to review.

Amine use results in environmental and health impacts throughout its lifecycle. Amine gases that are released to the air could be dissolved in the rain droplets and ended up in water supplies such as rivers and lakes.[149] Some emitted amines are unstable in the nature environment.[150] The amines specifically used in natural gas capture are highly soluble in water and their reclaimer waste contains amine, ammonia, other degradation products, heat-stable salts, flue gas impurities, and also corrosion products.[151] Amines used in natural gas operations also lead to metals corrosion, which can result in excess emissions and leaks.[152] Discharged amines may degrade to some dangerous substances that are toxic and represents a risk for cancer, such as aldehydes, amides, nitrosamines, and nitramines.[153] Amine spills are a "major problem[]."[154] High concentration of amines in environment could leads to disruption of aquatic life and bioconcentration potential and can be toxic to humans.[155] Amines used near saltwater (a concern for the LBU) is especially concerning and could lead to significant impacts, as studies have sown amine degradation in seawater is slower than in the freshwater system.[156]

I. Cumulative Impacts

The public and other officials are entitled to know the cumulative impacts of LBU operations—including from drilling/redrilling activities, equipment updates and new technologies, power plant operations (including the associated amine plant), actions to reduce subsidence, and more.

CEQA requires a cumulative project impacts analysis because "the full environmental impact of a proposed . . . action cannot be gauged in a vacuum."[157] Under CEQA, cumulative impacts refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.[158] The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects.[159] In an EIR, the discussion of each type of cumulative

[149] Salim, S.R.S., *Treatment of amine wastes generated in industrial processes,* IOP Conf. Series: Materials Science and Engineering (2021) at 2, https://iopscience.iop.org/article/10.1088/1757-899X/1092/1/012051/pdf ("Amine Treatment Study").
[150] Amine Report at 13.
[151] Amine Treatment Study at 2.
[152] *Id.*
[153] Amine Report at 13.
[154] Amine Treatment Study at 2.
[155] *Id.*
[156] Eide-Haugmo, Ingvild et al., *Environmental impact of amines*, Science Direct, Energy Procedia 1 (2009) at 1298, https://www.sciencedirect.com/science/article/pii/S1876610209001714.
[157] *Whitman v. Board of Supervisors*, 88 Cal.App.3d 397, 408 (1979).
[158] CEQA Guidelines § 15355.
[159] *Id.*

impact need only be proportional to the severity of the impact and the likelihood of its occurrence,[160] but even an insignificant impact must be justified as such.[161] An underinclusive cumulative impacts analysis "impedes meaningful public discussion and skews the decision maker's perspective concerning the environmental consequences of a project, the necessity for mitigation measures, and the appropriateness of project approval."[162]

J. Health and Safety Buffer Zones

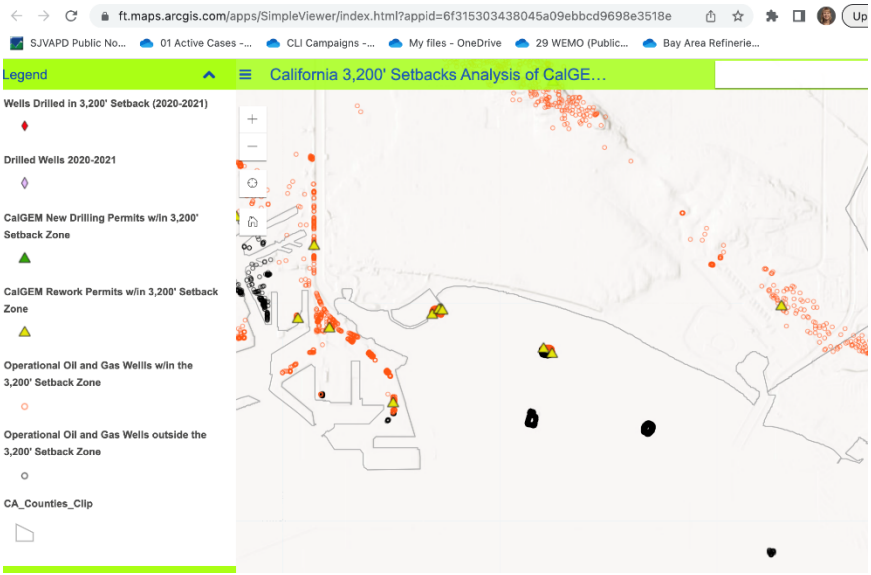
The projections for oil and gas production in the Program Plan, and yearly maximums for redrills in FY 2025, assume that the 2022 legislation establishing 3200-foot health and safety setbacks from oil and gas operations—Senate Bill 1137 (SB 1137)—will not take effect and that CalGEM will issue permits for redrilling wells between now and 2028. While implementation of SB 1137 is currently paused because of a forced ballot referendum sponsored by the oil and gas industry that seeks to overturn the law, the City should not assume the absence of setbacks and instead should incorporate these necessary protections into its planning.

Schedule 1B indicates that up to 22 redrills on Island Grissom and up to 6 redrills on Pier J for oil production will be completed in FY 2024 alone. All of these wells are within the buffer zone that will be in place if SB 1137 remains law. This zone represents areas where Long Beach residents and visitors live, work, and recreate. Ongoing operations in these areas already pose significant public health harms and these harms will be exacerbated by the expanded production proposed by the five-year Program Plan.

There are an estimated 140,000 individuals living within 3200 feet of Long Beach oil and gas wells (a number that encompasses the entire oil field).[163] Of those, 101,498 (72.4%) identify as non-white, including Latina/Hispanic origin, which is slightly higher than the citywide average (71.7% non-white).[164] The map below depicts oil and gas operations from the LBU that are within the proposed setback zone.[165]

[160] *Id.* § 15130(b).
[161] *Id.* § 15130(a).
[162] *Citizens to Preserve the Ojai v. County of Ventura*, 176 Cal.App.3d 421, 431 (1985); *see also Friends of the Eel River v. Sonoma County Water Agency*, 108 Cal.App.4th 859 (2003).
[163] FracTracker, City of Long Beach Oil and Gas Extraction (April 1, 2022) at 2.
[164] *Id.*
[165] FracTracker, California 3,200' Setbacks Analysis (zoomed in for LBU), https://ft.maps.arcgis.com/apps/SimpleViewer/index.html?appid=6f315303438045a09ebbcd9698e3518e.

It is well-documented that there are adverse health outcomes for those living near oil and gas wells. In a 14-year analysis of air quality across California, Stanford researchers observed higher levels of air pollutants within 2.5 miles of oil and gas wells, likely worsening negative health outcomes for nearby residents.[166] Their data aligned with other smaller-scale studies that measured emissions from a handful of wells.[167] A panel of medical experts reported consistent findings of health impacts at distances less than one kilometer and recommended 3200-foot setbacks paired with pollution control measures on existing wells to account for significant impacts to perinatal and respiratory health in humans.[168]



The city manager's hesitation to embrace the health and safety buffer zone is concerning and runs counter to the city's 2030 strategic vision stating the intention to "improve the health of our environment and quality of life for all Long Beach residents and begin to remedy longstanding social, economic and environmental inequities . . . . All communities will have access to clean air, clean water, flourishing ecosystems, and protection from extreme weather events."[169] Fourteen organizations representing environmental justice, public health, business, and the environment have submitted a letter to the city manager expressing support for health and safety buffer zones and urging the city to reverse advocacy efforts casting doubt on the state law.[170]

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[166] Gonzalez, et al., *Upstream oil and gas production and ambient air pollution in California*, S. of the Total Envt., Vol. 806, Part 1, (Feb. 1, 2022), 150298, https://www.sciencedirect.com/science/article/pii/S0048969721053754.
[167] *Id.*
[168] PSE Berkeley, Response to CalGEM Questions for the California Oil and Gas Public Health Rulemaking Scientific Advisory Panel (Oct. 1, 2021), https://www.gov.ca.gov/wp-content/uploads/2021/10/Public-Health-Panel-Memo.pdf.
[169] City of Long Beach, 2030 Strategic Vision at 52, https://www.longbeach.gov/globalassets/city-manager/media-library/documents/2030-strategic-vision.
[170] *See* Sign-on letter re: SB 1137 (March 21, 2023), attached herein.

In order to protect the health of residents and to prepare for the implementation of SB 1137, Long Beach's plans should not include any projects (including redrills) within setback zones, which includes on Island Grissom, Island White, or Pier J. And the city should move expeditiously to phase down operations within the 3200-foot health and safety buffer zone.

K. Tribal consultation

Several tribal entities of the Acjachemen and Tongva nations hold critical cultural information regarding the cultural sites affected by the continued development of oil infrastructure, continued extraction, and continued threat of oil spills that threaten to impact these cultural resources and sacred sites. Oil spill response efforts without consultation with these entities risk further impacting cultural resources. A new CEQA review should be conducted considering these impacts and incorporating revisions of the oil spill response plans to alert and consult with Tribes.

CONCLUSION

Thank you for considering our comments. All the references cited herein are available at https://centerforbiologicald-my.sharepoint.com/:f:/g/personal/celkins_biologicaldiversity_org/EnKgnCor99lGuuLZ09VgLJEBe1qZCkB-L3ApueGIIPlwhQ?e=glc5NS. We will also hand-deliver a USB flash drive containing all references to the city clerk at tonight's meeting.

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Federal Register

Friday,
September 2, 2005

Part II

Department of Commerce

National Oceanic and Atmospheric Administration

50 CFR Part 226

Endangered and Threatened Species; Designation of Critical Habitat for Seven Evolutionarily Significant Units of Pacific Salmon and Steelhead in California; Final Rule

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 226

[Docket No. 041123329–5202–02; I.D. No.110904F]

RIN 0648–AO04

Endangered and Threatened Species; Designation of Critical Habitat for Seven Evolutionarily Significant Units of Pacific Salmon and Steelhead in California

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration, Commerce.

ACTION: Final rule.

SUMMARY: We, the National Marine Fisheries Service (NMFS), are issuing a final rule designating critical habitat for two Evolutionarily Significant Units (ESUs) of chinook salmon (*Oncorhynchus tshawytscha*) and five ESUs of steelhead (*O. mykiss*) listed as of the date of this designation under the Endangered Species Act of 1973, as amended (ESA). The specific areas designated in the rule text set out below include approximately 8,935 net mi (14,269 km) of riverine habitat and 470 mi^2 (1,212 km^2) of estuarine habitat (primarily in San Francisco-San Pablo-Suisun Bays) in California. Some of the areas designated are occupied by two or more ESUs. The annual net economic impacts of changes to Federal activities as a result of the critical habitat designations (regardless of whether those activities would also change as a result of the ESA's jeopardy requirement) are estimated to be approximately $81,647,439. We solicited information and comments from the public in an Advanced Notice of Proposed Rulemaking and on all aspects of the proposed rule. This rule is being issued to meet the timeline established in litigation between NMFS and Pacific Coast Federation of Fishermen's Associations (*PCFFA et. al* v. *NMFS* (Civ.No. 03–1883)). In the proposed rule, we identified a number of potential exclusions we were considering including exclusions for federal lands subject to the Pacific Northwest Forest Plan, PACFISH and INFISH. We are continuing to analyze whether exclusion of those federal lands is appropriate.

DATES: This rule becomes effective January 2, 2006.

ADDRESSES: Comments and materials received, as well as supporting documentation used in the preparation of this final rule, are available for public inspection by appointment, during normal business hours, at the National Marine Fisheries Service, NMFS, Protected Resources Division, 501 W. Ocean Blvd., Suite 4200, Long Beach, CA 90802–4213. The final rule, maps, and other materials relating to these designations can be found on our Web site at *http://swr.nmfs.noaa.gov.*

FOR FURTHER INFORMATION CONTACT: Craig Wingert at the above address, at 562/980–4021, or Marta Nammack at 301/713–1401 ext. 180.

SUPPLEMENTARY INFORMATION:

Organization of the Final Rule

This **Federal Register** notice describes the final critical habitat designations for seven ESUs of West Coast salmon and steelhead listed under the ESA. The pages that follow summarize the comments and information received in response to proposed designations published on December 10, 2004 (69 FR 71880), describe any changes from the proposed designations, and detail the final designations for seven ESUs. To assist the reader, the content of this notice is organized as follows:

I. Background and Previous Federal Action

We are responsible for determining whether species, subspecies, or distinct population segments of Pacific salmon and steelhead (*Oncorhynchus* spp.) are threatened or endangered, and for designating critical habitat for them under the ESA (16 U.S.C. 1531 *et seq*). To qualify as a distinct population segment, a Pacific salmon or steelhead population must be substantially reproductively isolated from other conspecific populations and represent an important component in the evolutionary legacy of the biological species. According to agency policy, a population meeting these criteria is considered to be an Evolutionarily Significant Unit (ESU) (56 FR 58612, November 20, 1991).

We are also responsible for designating critical habitat for species listed under our jurisdiction. Section 3 of the ESA defines critical habitat as (1) specific areas within the geographical area occupied by the species at the time of listing, on which are found those physical or biological features that are essential to the conservation of the listed species and that may require special management considerations or protection, and (2) specific areas outside the geographical area occupied by the species at the time of listing that are essential for the conservation of a listed species. Our regulations direct us to focus on ''primary constituent elements,'' or PCEs, in identifying these physical or biological features. Section 7(a)(2) of the ESA requires that each Federal agency shall, in consultation with and with the assistance of NMFS, ensure that any action authorized, funded or carried out by such agency is not likely to jeopardize the continued existence of an endangered or threatened salmon or steelhead ESU or result in the destruction or adverse modification of critical habitat. Section 4 of the ESA requires us to consider the economic impacts, impacts on national security, and other relevant impacts of specifying any particular area as critical habitat.

The timeline for completing the critical habitat designations described in this **Federal Register** notice was established pursuant to litigation between NMFS and the Pacific Coast Federation of Fishermen's Associations, Institute for Fisheries Resources, the Center for Biological Diversity, the Oregon Natural Resources Council, the Pacific Rivers Council, and the Environmental Protection Information Center (PCFFA, *et al.*) and is subject to a Consent Decree and Stipulated Order

of Dismissal (Consent Decree) approved by the D.C. District Court. A complete summary of previous court action regarding these designations can be found in the proposed rule (69 FR 71880; December 10, 2004).

In keeping with the Consent Decree, on December 10, 2004 (69 FR 71880), we published proposed critical habitat designations for two ESUs of Chinook salmon and five ESUs of *O. mykiss.* (For the latter ESUs we used the species' scientific name rather than ''steelhead'' because at the time they were being proposed for revision to include both anadromous (steelhead) and resident (rainbow/redband) forms of the species—*see* 69 FR 33101, June 14, 2004). The seven ESUs addressed in the proposed rule were: (1) California Coastal Chinook salmon; (2) Northern California *O. mykiss;* (3) Central California Coast *O. mykiss;* (4) South-Central Coast *O. mykiss;* (5) Southern California *O. mykiss;* (6) Central Valley spring run Chinook salmon; and (7) Central Valley *O. mykiss.* The comment period for the proposed critical habitat designations was originally opened until February 8, 2005. On February 7, 2005 (70 FR 6394), we announced a court-approved Amendment to the Consent Decree which revised the schedule for completing the designations and extended the comment period until March 14, 2005, and the date to submit final rules to the **Federal Register** as August 15, 2005.

In the critical habitat proposed rule we stated that ''the final critical habitat designations will be based on the final listing decisions for these seven ESUs due by June 2005 and thus will reflect occupancy ''at the time of listing'' as the ESA requires.'' All of these ESUs had been listed as threatened or endangered between 1997–2000, but in 2002 we announced that we would reassess the listing status of these and other ESUs (67 FR 6215; February 11, 2002). We recently published final listing decisions for the two Chinook salmon, but not for the five ESUs of *O. mykiss* (70 FR 37160; June 28, 2005). Final listing determinations for these five ESUs are expected by December 2005 (70 FR 37219; June 28, 2005). However, the Consent Decree governing the schedule for our final critical habitat designations requires that we complete final designations for those of the seven ESUs identified above that are listed as of August 15, 2005. Because anadromous forms (*i.e.*, ''steelhead'') of the five *O. mykiss* ESUs have been listed since 1997–2000 (*see* summary in June 14, 2004 **Federal Register** notice, 69 FR 33103), we are now issuing final critical habitat designations for them in this notice in accordance with the Consent Decree. We are able to do so because in developing critical habitat designations for this species we have focused on the co-occurring range of both the anadromous and resident forms. Therefore, both the proposed and final designations were restricted to the species' anadromous range, although we did consider and propose to designate some areas occupied solely by resident fish in upper Alameda Creek in the San Francisco Bay area. We focused on the co-occurring range due to uncertainties about: (1) The distribution of resident fish outside the range of co-occurrence, (2) the location of natural barriers impassable to steelhead and upstream of habitat areas proposed for designation, and (3) the final listing status of the resident form. Section 4(a)(3)(B) of the ESA provides for the revision of critical habitat designations as appropriate, and we will do so (if necessary) after making final listing determinations for these five *O. mykiss* ESUs. Moreover, we intend to actively revise critical habitat as needed for all seven ESUs to keep them as up-to-date as possible.

In an Advance Notice of Proposed Rulemaking (ANPR) (68 FR 55926; September 29, 2003), we noted that the ESA and its supporting regulations require the agency to address a number of issues before designating critical habitat: ''What areas were occupied by the species at the time of listing? What physical and biological features are essential to the species' conservation? Are those essential features ones that may require special management considerations or protection? Are areas outside those currently occupied 'essential for conservation'? What are the benefits to the species of critical habitat designation? What economic and other relevant impacts would result from a critical habitat designation, even if coextensive with other causes such as listing? What is the appropriate geographic scale for weighing the benefits of exclusion and benefits of designation? What is the best way to determine if the failure to designate an area as critical habitat will result in the extinction of the species concerned?'' We recognized that ''[a]nswering these questions involves a variety of biological and economic considerations'' and therefore were seeking public input before issuing a proposed rule. As we stated in the proposed rule that followed: ''We received numerous comments in response to the ANPR and considered them during development of this proposed rulemaking. Where applicable, we have referenced these comments in this **Federal Register** notice as well as in other documents supporting this proposed rule.'' In the proposed rule, we described the methods and criteria we applied to address these questions, relying upon the unique life history traits and habitat requirements of salmon and steelhead.

In issuing the final rule, we considered the comments we received to determine whether a change in our proposed approach to designating critical habitat for salmon and steelhead was warranted. In some instances, we concluded based on comments received that a change was warranted. For example, in this final rule we have revised our approach to allow us to consider excluding areas covered by habitat conservation plans in those cases where the benefits of exclusion outweigh the benefits of designation.

In other instances, we believe the approach taken is supported by the best available scientific information, and that given the time and additional analyses required, changes to the methods and criteria we applied in the proposed rule were not feasible. We recognize there are other equally valid approaches to designating critical habitat and for answering the myriad questions described above. Nevertheless, issuance of the final rule for designating critical habitat for these ESUs is subject to a Court Order that requires us to submit the final regulation to the **Federal Register** no later than August 15, 2005, less than 5 months after the close of the public comment period. Taking alternative approaches to designating critical habitat would have required a retooling of multiple interrelated analyses and undertaking additional new analyses in support of the final rule, and was not possible given the time available to us. We will continue to study alternative methods and criteria and may apply them in future rulemakings designating critical habitat for these or other species.

II. Summary of Comments and Recommendations

As described in agency regulations at 50 CFR 424.16(c)(1), in the critical habitat proposed rule we requested that all interested parties submit written comments on the proposals. We also contacted the appropriate Federal, state, and local agencies, scientific organizations, and other interested parties and invited them to comment on the proposed rule. To facilitate public participation we made the proposed rule available via the internet as soon as it was signed (approximately 2 weeks prior to actual publication) and accepted comments by standard mail

and fax as well as via e-mail and the internet (*e.g.*, *www.regulations.gov*). In addition, we held four public hearings between January 13, 2005, and February 1, 2005, in the following locations: Arcata, Rohnert Park, Sacramento, and Santa Barbara, CA. We received 3,762 written comments (3,627 of which were form letters or in the form of e-mails with nearly identical verbiage) during the comment period on the proposed rule.

In December 2004, the Office of Management and Budget (OMB) issued a Final Information Quality Bulletin for Peer Review establishing minimum peer review standards, a transparent process for public disclosure, and opportunities for public input (70 FR 2664; January 14, 2005). The OMB Peer Review Bulletin, implemented under the Information Quality Act (Pub. L. 106–554), is intended to provide public oversight on the quality of agency information, analyses, and regulatory activities, and applies to information disseminated on or after June 16, 2005. Prior to publishing the proposed rule we submitted the initial biological assessments of our Critical Habitat Analytical Review Teams (hereafter referred to as CHART) to state co-managers and asked them to review those findings. These co-manager reviews resulted in some changes to the CHARTs' preliminary assessments (*e.g.*, revised fish distribution as well as conservation value ratings) and helped to ensure that the CHARTs' revised findings (NMFS, 2004b) incorporated the best available scientific data. We later solicited technical review of the entire critical habitat proposal (biological, economic, and policy bases) from several independent experts selected from the academic and scientific community, Native American tribal groups, Federal and state agencies, and the private sector. We also solicited opinions from three individuals with economics expertise to review the draft economics analysis supporting the proposed rule. All three of the economics reviewers and one of the biological reviewers submitted written opinions on our proposal. We have determined that the independent expert review and comments received regarding the science involved in this rulemaking constitute adequate prior review under section II.2 of the OMB Peer Review Bulletin (NMFS, 2005b).

We reviewed all comments received from the peer reviewers and the public for substantive issues and new information regarding critical habitat for the various ESUs, and we address them in the following summary. Peer reviewer comments were sufficiently similar to public comments that we have responded to them through our general responses below. For readers'convenience we have assigned comments to major issue categories and where possible have combined similar comments into single comments and responses.

Notification and General Comments

Comment 1: Some commenters raised concerns or complained about the adequacy of public notification and time to comment.

Response: We made all reasonable attempts to communicate our rulemaking process and the critical habitat proposal to the affected public. Prior to the proposed rule we published an ANPR in which we identified issues for consideration and evaluation, and solicited comments regarding these issues and information regarding the areas and species under consideration (68 FR 55926; September 29, 2003). We considered comments on the ANPR during our development of the proposed rule. As soon as the proposed rule was signed on November 29, 2004 (2 weeks before actual publication in the **Federal Register**), we posted it and supporting information on the agency's internet site to facilitate public review, and we have provided periodic updates to that site (see **ADDRESSES**). In response to numerous requests—in particular from plaintiffs as well as private citizens, counties, farm bureaus, and state legislators in Washington—the original 60-day public comment period was extended by 30 days (70 FR 6394; February 7, 2005) to allow additional time for the public to submit comments on the critical habitat proposals.

Additionally, we realize that the statute provides a short time frame for designating critical habitat. Congress amended the ESA in 1982 to establish the current time frame for designation. In doing so, Congress struck a balance between the recognition that critical habitat designations are based upon information that may not be determinable at the time of listing and the desire to ensure that designations occur in a timely fashion. Additionally, the ESA and supporting regulations provide that designations may be revised as new data become available to the Secretary. We recognize that where the designation covers a large geographic area, as is the case here, the short statutory time frame requires a short period for the public to consider a great deal of factual information. We also recognize that this designation takes a new approach by considering relative conservation value of different areas and applying a cost-effectiveness framework. In this notice we are announcing our intention to consider revising the designations as new habitat conservation plans and other management plans are developed, and as other new information becomes available. Through that process we anticipate continuing to engage the interested public and affected landowners in an ongoing dialogue regarding critical habitat designations.

Comment 2: Some commenters disagreed with our decision to vacate the February 2000 critical habitat designations for these ESUs.

Response: We believe that the issues identified in a legal challenge to our February 2000 designations warranted withdrawing that rule. Developing a cost-effectiveness approach, designed to achieve the greatest conservation at the least cost, is in keeping with long-standing Executive direction on rulemaking and is a responsible and conservation-oriented approach to implementing section 4(b)(2) of the ESA. In addition, we had new and better information in 2004 than we had in 2000, such as the information of fish distribution and habitat use that was generated by agency fishery biologists. The ESA requires that we use the best available information, and the distribution data is the best information currently available. Finally, the litigation challenging our 2000 designation also challenged the lack of specificity in our designation of the riparian area, leading us to consider whether there was a better approach that was more consistent with our regulations and with the best available information.

Comment 3: Some commenters stated that we should wait to publish final critical habitat designations until after final listing determinations have been made and the final hatchery listing policy is published.

Response: The ESA states that the Secretary *shall* designate critical habitat, defined as areas within or outside the geographical area occupied by the species *at the time of listing* and using the best *available* information (emphasis added). These designations follow that statutory mandate and have been completed on a schedule established under a Consent Decree. Also, the final hatchery listing policy and final listing determinations for several salmon ESUs were published on June 28, 2005 (70 FR 37160 and 37204) in advance of the completion of this final critical habitat designation. For reasons described above in the ''Background and Previous Federal Action'' section, we are now making final designations for those listed salmon and steelhead ESUs in the

Southwest Region that are subject to the Consent Decree and listed as of the date of this designation.

Identification of Critical Habitat Areas

Comment 4: Several commenters contended that we can only designate areas that are essential for species conservation.

Response: Section 3(5)(A) of the ESA has a two-pronged definition of critical habitat: ''(i) the specific areas *within the geographical area occupied by the species*, at the time it is listed * * * on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and (ii) *specific areas outside the geographical area occupied by the species*, at the time it is listed * * * upon a determination by the Secretary that such areas are essential for the conservation of the species' (emphasis added). As described in this rule and documented in the reports supporting it, we have strictly applied this definition and made the requisite findings. We requested and received comments on various aspects of our identification of areas meeting this definition and address those here. Only those areas meeting the definition were considered in the designation process. Comments regarding the section 4(b)(2) process, in which we considered the impacts of designation and whether areas should be excluded, are addressed in a subsequent section.

Comment 5: In the proposed rule we considered occupied streams within a CALWATER Hydrologic Subarea (HSA) as the ''specific area'' in which the physical or biological features essential to conservation of the ESUs were found. We also used these watershed delineations as the ''particular areas''—the analytical unit—for purposes of the section 4(b)(2) analysis. In the proposed rule we requested public comment on whether considering exclusions on a stream-by-stream approach would be more appropriate. Some commenters believed that the watershed scale was too broad for making critical habitat designations and suggested that a smaller watershed or a stream-by-stream approach was more appropriate. Some commenters believed that we should conduct a reach-by-reach assessment in their watersheds.

Response: Our ESA section 4(b)(2) report (NMFS, 2005c) acknowledges that the delineation of both specific areas and particular areas should be as small as practicable, to ensure our designations are not unnecessarily broad and to carry out congressional intent that we fully consider the impacts of designation. For reasons described in the section below on ''Methods and Criteria Used to Identify Critical Habitat,'' we continue to believe that the specific facts of salmon biology and life history make CALWATER HSA watersheds in California an appropriate scale to use in delineating the ''specific'' areas in which physical or biological features are found. We also believe consideration of the impacts of designation on an HSA watershed scale results in a meaningful section 4(b)(2) balancing process. Moreover, congressional direction requires that designations be completed in a very short time frame by a specified deadline, ''based on such data as may be available at that time.'' Given that short time frame and the geographic extent of salmon critical habitat, the HSA watershed was the smallest practicable area we were able to analyze.

Comment 6: Some commenters believed we applied the definition of ''specific areas within the geographical area occupied by the species at the time it is listed'' too narrowly. In their views, this led to two errors—failure to designate all ''accessible'' stream reaches and failure to designate riparian and upstream areas. Commenters felt that the ''best scientific data available'' support a conclusion that salmon and steelhead will occupy all accessible streams in a watershed during a period of time that can be reasonably construed as ''at the time it is listed.'' One commenter stated that ''[w]hether a particular stream reach is occupied cannot be determined with certainty based on ''occupation'' data alone, especially for fragmented, declining, or depressed populations of fish.'' The commenter pointed to the rationale provided in our 2000 rule for identifying occupied areas as all areas accessible within a subbasin (a 4th field watershed, using U.S. Geological Survey (USGS) terminology): ''NMFS believes that adopting a more inclusive, watershed based description of critical habitat is appropriate because it (1) recognizes the species' use of diverse habitats and underscores the need to account for all of the habitat types supporting the species' freshwater and estuarine life stages, from small headwater streams to migration corridors and estuarine rearing areas; (2) takes into account the natural variability in habitat use that makes precise mapping problematic (*e.g.*, some streams may have fish present only in years with abundant rainfall) (65 FR 7764; February 16, 2000).''

Some commenters believe that in delineating ''specific areas within the geographical area occupied by the species,'' we need not confine ourselves to areas that are literally ''occupiable'' by the species in that we should designate riparian and upstream areas. If there are physical or biological features essential to conservation to be found within a broadly defined ''geographical area occupied by the species,'' we have the duty to delineate specific areas in a way that encompasses them. Some argued that limiting the designation to the stream channel fails to recognize the biological and hydrological connections between streams and riparian areas and would lead to further degradation of the latter. Some commenters suggested that we use a fixed distance (*e.g.*, 300 feet (91.4 m) if a functional description is not used. Some requested that we adopt the ''functional zone'' description for lateral extent used in the 2000 designations (65 FR 7764; February 16, 2000), while other commenters felt that our reference to habitat linkages with upslope and upstream areas was vague and wondered whether we were actually using the old approach anyway. Other commenters believed that using the line of ordinary high water or bankfull width was appropriate and noted that this would remove prior ambiguities about which areas were designated. Other commenters supported the approach taken in this designation, to identify specific areas occupied by the species and not broadly designate ''all areas accessible,'' some commenting that this was a more rigorous assessment and more in keeping with the ESA.

Response: The approach we took in the proposed designation is different from the approach we took in the vacated 2000 designation for a variety of reasons. The ESA directs that we will use the best scientific data available in designating critical habitat. Our regulations also provide direction: ''[e]ach critical habitat will be defined by specific limits using reference points and lines as found on standard topographic maps of the area * * * Ephemeral reference points (*e.g.*, trees, sand bars) shall not be used in defining critical habitat.'' (50 CFR 424.12(c)). With respect to our approach for identifying ''the geographical area occupied by the species,'' we recognize that the available fish and habitat use distribution data are limited to areas that have been surveyed or where professional judgment has been applied to infer distribution, and that large areas of watersheds containing fish may not have been observed or considered. We also recognize there have been many instances in which previously unobserved areas are found to be

occupied once they are surveyed. Nevertheless, we believe the extensive data compiled by agency biologists, which was not available when we completed the 2000 designations, represents the best scientific information currently available regarding the geographical area occupied by the species. Moreover, the CHARTs had an opportunity to interact with the state fish biologists with the California Department of Fish and Game (CDFG) to confirm the accuracy of the data. We also believe the approach we have taken in this designation better conforms to the regulatory direction to use ''specific limits'' for the designation. The approach we used in 2000 used subbasin boundaries to delineate ''specific areas,'' which arguably met the requirement to use ''specific limits,'' but we believe using latitude-longitude endpoints in stream reaches, as we have done here, better adheres to the letter and spirit of our regulations.

With respect to our approach of limiting the designation to the occupied stream itself, not extending the designation into the riparian zone or upstream areas, we acknowledge that our regulations contemplate situations in which areas that are not literally occupiable may nevertheless be designated. Paragraph (d) of 50 CFR 424.12 gives as an example a situation in which areas upland of a pond or lake may be designated if it is determined that ''the upland areas were essential to the conservation of an aquatic species located in the ponds and lakes.'' For this designation, however, given the vast amount of habitat under consideration and the short statutory time frames in which to complete the designation, we could not determine ''specific limits'' that would allow us to map with accuracy what part of the riparian zone or upstream area could be considered to contain PCEs. As an alternative, we considered the approach we used in 2000, which was to designate riparian areas that provide function, but concluded that approach may not have been entirely consistent with the regulatory requirement to use ''specific limits.'' We believe limiting the designation to streams will not compromise the ability of an ESA section 7 consultation to provide for conservation of the species. Section 7 requires Federal agencies to ensure their actions are not likely to destroy or adversely modify critical habitat. Actions occurring in the riparian zone, upstream areas, or upland areas all have the potential to destroy or adversely modify the critical habitat in the stream. Although these areas are not themselves designated, Federal agencies must nevertheless meet their section 7 obligations if they are taking actions in these areas that ''may affect'' the designated critical habitat in the stream. Even though these designations are restricted to the stream itself, we will continue to be concerned about the same activities we have addressed in past consultations.

Comment 7: Several commenters believed we incorrectly applied the definition of ''specific areas outside the geographical area occupied by the species.'' In the view of some, we failed our duty under the ESA by not making a determination that we had identified as critical habitat enough areas (occupied and unoccupied) to support conservation. In the view of others, it was this failure that led to one of the errors described in the previous comment—the failure to designate all ''accessible stream reaches.'' Many commenters expressed concern about statements made in the press that the change from ''all areas accessible'' to areas documented as occupied led to a 90-percent reduction in critical habitat. Other commenters supported the approach taken in this designation, to identify specific areas occupied by the species and not broadly designate ''all areas accessible,'' some commenting that this was a more rigorous assessment and more in keeping with the ESA.

Response: Section 3(5)(A)(I) of the ESA requires us to identify specific areas within the geographical area occupied by the species that contain physical or biological features that may require special management considerations or protection. Section 3(5)(A)(ii) requires that specific areas outside the geographical area occupied by the species only fall within the definition of critical habitat if the Secretary determines that the area is essential for conservation. Our regulations further provide that we will designate unoccupied areas ''only when a designation limited to [the species'] present range would be inadequate to ensure the conservation of the species (50 CFR 424.12(e)).'' The ESA requires the Secretary to designate critical habitat at the time of listing. If critical habitat is not then determinable, the Secretary may extend the period by 1 year, ''but not later than the close of such additional year the Secretary must publish a final regulation, based on such data as may be available at that time, designating, to the maximum extent prudent, such habitat.''

At the present time, we do not have information allowing us to determine that the specific areas within the geographical area occupied by the species are inadequate for conservation, such that unoccupied areas are essential for conservation. We anticipate revising our critical habitat designations in the future as additional information becomes available through recovery planning processes.

Comment 8: Some commenters questioned the adequacy of our identification of PCEs, in particular the lack of specificity.

Response: To determine the physical or biological features essential to conservation of these ESUs, we first considered their complex life cycle. As described in the ANPR and proposed rule, ''[t]his complex life cycle gives rise to complex habitat needs, particularly during the freshwater phase (see review by Spence *et al.,* 1996).'' We considered these habitat needs in light of our regulations regarding criteria for designating critical habitat. Those criteria state that the requirements essential to species' conservation include such things as ''space * * * [f]ood, water, air, light, minerals, or other nutritional or physiological requirements * * * cover or shelter.'' They further state that we are to focus on the ''primary constituent elements'' such as ''spawning sites, feeding sites, * * * water quality or quantity,'' etc. In the ANPR and proposed rule we identified the features of the habitat that are essential for the species to complete each life stage and are therefore essential to its conservation. We described the features in terms of sites (spawning, rearing, migration) that contain certain elements.

Comment 9: In the proposed rule we requested comments on the extent to which specific areas may require special management considerations or protection in light of existing management plans. Several commenters stated that lands covered by habitat conservation plans or other management or regulatory schemes do not require special management considerations or protection. Others commented that even where management plans are present, there still may be ''methods or procedures useful'' for protecting the habitat features.

Response: The statutory definition and our regulations (50 CFR 424.02 and 424.12) require that specific areas within the geographical area occupied by the species must contain ''physical or biological features'' that are ''essential to the conservation of the species,'' and that ''may require special management considerations or protection.'' As described in the proposed rule, and documented in the reports supporting it, we first identified the physical or biological features essential to

conservation (described in our regulations at 50 CFR 424.12(b)(5) as ''primary constituent elements'' or PCEs). We next determined the ''specific areas'' in which those PCEs are found based on the occupied stream reaches within a CALWATER HSA watershed. We used this watershed-scale approach to delineating specific areas because it is relevant to the spatial distribution of salmon and steelhead, whose innate homing behavior brings them back to spawn in the watersheds where they were born (Washington Department of Fisheries *et al.*, 1992; Kostow, 1995; McElhany *et al.*, 2000). We then considered whether the PCEs in each specific area (watershed) ''may require special management considerations or protection.''

We recognize there are many ways in which ''specific areas'' may be delineated, depending upon the biology of the species, the features of its habitat and other considerations. In addressing these comments, we considered whether to change the approach described in our proposed rule and instead delineate specific areas based on ownership. The myriad ownerships and state and local regulatory regimes present in any watershed, as well as the timing issues discussed previously, made such an approach impractical for this rulemaking, as noted in section I, ''Background and Previous Federal Action,'' above. While there are other equally valid methods for identifying areas as critical habitat, we believe that the watershed scale is an appropriate scale for identifying specific areas for salmon and steelhead, and for then determining whether the PCEs in these areas may require special management considerations or protections. We will continue to study this issue and alternative approaches in future rulemakings designating critical habitat.

Comment 10: One commenter stated that we could not designate any unoccupied areas if we had excluded any occupied areas, relying on the regulatory provision cited in a previous comment and response.

Response: The comment assumes that all habitat areas are equivalent and exchangeable, which they are not. An area may be essential for conservation because it was historically the most productive spawning area for an ESU and unless access to it is restored, the ESU will not fully recover to the point that the protections of the ESA are no longer necessary. This area will be essential regardless of whether some other specific area has been excluded.

Comment 11: Several commenters supported the designation of unoccupied areas above dams and some believed that by not designating these areas we will make it more difficult to achieve fish passage in the future. They further noted that excluding these presently blocked areas now may promote habitat degradation that will hinder conservation efforts should passage be provided in the future. Several commenters identified areas above specified dams as being essential for conservation.

Response: At the present time, we do not have information allowing us to determine that the specific areas within the geographical area occupied by the species are inadequate for conservation nor that currently unoccupied areas above dams are essential for conservation. The Southwest Region is actively involved in a multi-year, large-scale recovery planning effort in California that involves scientific teams (called technical recovery teams or TRTs) which are in the process of identifying ESU population structure, population viability criteria, and ESU level biological viability or recovery goals. These recovery planning efforts are developing information which will inform our decisions about whether unoccupied habitat will be needed to facilitate conservation beyond what is currently occupied by the ESUs addressed in this rulemaking. Until these efforts are more fully developed, we cannot make the specific determinations required under the ESA to designate critical habitat in ''unoccupied'' areas. We use our authorities under the ESA and other statutes to advocate for salmon passage above impassible dams where there is evidence such passage would promote conservation. This is not the same, however, as making the determinations required by the statute and our regulations to support designation.

Comment 12: In the proposed rule we requested comments regarding the use of professional judgment as a basis for identifying areas occupied by the species. Some commenters indicated that it was appropriate to accept the professional judgment of fish biologists who are most familiar with fish habitat within a watershed. Others believed that limiting the definition of occupied stream reaches to only those where fish presence has been observed and documented is overly narrow and fails to consider a number of conditions that affect species distribution, including natural population fluctuations and habitat alterations that affect accessibility or condition (*e.g.*, de-watering stream reaches). These commenters also argued that defining occupied reaches should be based on a broad time scale that takes into account metapopulation processes such as local extinction and recolonization, adding along with other commenters that many streams have not been adequately surveyed and species may frequent stream reaches but not actually be observed by a biologist at the time that critical habitat is being assessed.

Response: We relied on distribution and habitat use information developed by our agency fishery biologists from a wide range of sources, including the CDFG, to determine which specific stream reaches were occupied by each ESU. The data sets we developed defined occupancy based on field observations from stream surveys, and, in some cases, professional judgment based on the expert opinion of area biologists. In all cases the exercise of professional judgment included the consideration of habitat suitability for the particular species. We received several comments on our proposed rule regarding the accuracy of the distribution data in specific locations, and, where we could confirm that the information provided by the commenter was accurate, we accepted it as the best available information and adjusted our designation. We view designation of critical habitat as an ongoing process and expect to adjust the designations as necessary as new information or improved methods become available.

Comment 13: Some commenters addressed the CHART process although few recommended changes to the CHARTs' ratings of watershed conservation values. Some supported the process used, in particular the recognition that not all habitats have the same conservation value for an ESU and that this in turn allows for a more meaningful exclusion assessment under section 4(b)(2) of the ESA. One commenter contended that the CHART assessments were compromised by restricting them to consider only the stream channel rather than upslope areas as well.

Response: The CHART process was an important part of our analytical framework in that it allowed us to improve our analysis of the best available scientific data and to provide watershed-specific conservation ratings useful for the Secretary's exercise of discretion in balancing whether the benefits of exclusion outweigh the benefits of designation under section 4(b)(2) of the ESA. We do not believe that designating only the stream channel compromised the CHARTs' ability to assess watershed conservation values. As noted in the CHART report, the CHARTs employed a scoring system to assess (among other area characteristics) the quality, quantity, and distribution of

PCEs within a watershed. The PCEs we have defined for these ESUs are found within occupied stream channels, and therefore, it is appropriate to focus our assessment on those areas. The CHART scoring did include a factor related to the potential improvement of existing PCEs and thereby allowed the CHARTs to consider the ability of a watershed to contribute PCEs via natural processes such as recruitment of large wood and substrate, flow regulation, floodplain connectivity, *etc.* We recognize that salmon habitat is dynamic and that our present understanding of areas important for conservation will likely change as recovery planning sheds light on areas that can and should be protected and restored. We intend to actively update these designations as needed so that they reflect the best available scientific data and understanding.

Comment 14: Some commenters questioned whether the CHARTs considered the work of the various Technical Recovery Teams (TRTs) and suggested that the CHART assessments should be reviewed by the TRTs.

Response: Where information had been developed by the TRTs, the CHARTs did consider that information in their assessments. The CHARTs also solicited input and comments from the TRTs on their distribution and habitat use information as well as their watershed conservation assessments. We believe, therefore, that we have been able to integrate much of the TRT findings to date into our final critical habitat designations. Given their priorities (*i.e.,* providing crucial recovery planning criteria and guidance) and the time constraints under which we needed to complete the critical habitat assessments, TRT members could not participate on the CHARTs directly. We recognize that recovery planning is an ongoing process and that new information from the TRTs and recovery planning stakeholders may result in changes to our critical habitat assessments in the future.

Economics Methodology

Comment 15: Several commenters stated that the economic analysis overestimated the actual costs of critical habitat designation by including costs that should be attributed to the baseline. For example, commenters asserted that costs associated with listing and application of the jeopardy requirement should not be included in the analysis. Commenters also asserted that costs that would have occurred under Pacific Fisheries (PACFISH) or the Northwest Forest Plan should be excluded from the analysis. One commenter also stated that costs associated with existing critical habitat designations for salmon or other endangered species should be considered baseline impacts.

Response: Regarding costs associated with listing and application of ESA section 7's jeopardy requirement, the economic analysis follows the direction of the *New Mexico Cattlegrowers* decision, in which the Court of Appeals for the Tenth Circuit called for ''a full analysis of all of the economic impacts of a critical habitat designation, regardless of whether those impacts are attributable coextensively to other causes (*New Mexico Cattle Growers' Association* v. *U.S. Fish and Wildlife Service,* 248 F.3d 1277, 10th Cir. 2001). Consistent with this decision, the economic analysis includes incremental impacts, those that are solely attributable to critical habitat designation and would not occur without the designation, as well as coextensive impacts, or those that are associated with habitat-modifying actions covered by both the jeopardy and adverse modification standards under section 7 of the ESA. We do not think this overestimate of costs creates a bias in our 4(b)(2) balancing, however, for two reasons. On the ''benefit of designation'' side of the balance, we consider the benefit of designation to be the entire benefit that results from application of section 7's requirements regarding adverse modification of critical habitat, regardless of whether application of the jeopardy requirement would result in the same impact. Moreover, the cost-effectiveness approach we have adopted allows us to consider relative benefits of designation or exclusion and prioritize for exclusion areas with a relatively low conservation value and a relatively high economic cost. With such an approach it is most important that we are confident our analysis has accurately captured the relative economic impacts, and we believe it has.

In many cases, the protections afforded by PACFISH, the Northwest Forest Plan and other regulations are intertwined with those of ESA section 7. In cases where the specific regulation or initiative driving the salmon and steelhead conservation efforts is uncertain, we considered it as an ESA section 7 impact and examined the record of consultations with the affected agencies and based our analysis on the habitat protection measures routinely incorporated into the consultations. The economic analysis therefore assumes that the impacts of these types of habitat protection measures are attributable to the implementation of section 7. In these instances, to the extent that conservation burdens on economic activity are not, in fact, resulting from section 7 consultation, the economic analysis may overstate costs of the designation. We took this possibility into account in conducting the 4(b)(2) balancing of benefits. Conservation efforts clearly engendered by other regulations are included in the regulatory baseline. For example, Federal lands management activities in the Northwest Forest Plan planning area are affected by PACFISH. As a result, some projects that would have affected salmon habitat will not be proposed, and therefore will not be subject to section 7 consultation. These changes in projects are considered baseline and are not included as a cost of section 7 in the economic analysis.

Commenters correctly note that there are designations currently in place protecting critical habitat for salmon (*e.g.,* Sacramento River winter run chinook salmon, Central California Coastal coho salmon). We acknowledged this in our proposed rule, but also noted that the presence of those existing designations weighs equally on both sides of the 4(b)(2) balance—that is, the existing designations also could be considered as part of the baseline for determining the benefit of designation for the ESUs addressed in the present rule. This concern is also addressed by the cost-effectiveness approach we have adopted since it relies on relative benefits of designation and exclusion rather than absolute benefits.

Comment 16: One commenter and one peer reviewer noted that the economic analysis assigns costs to all activities within the geographic boundary of the HSA watersheds, though not all activities in this area will lead to an ESA section 7 consultation or are equally likely to have economic impacts. By doing this, the agency assumed that if the stream reaches currently occupied by salmon were designated as critical habitat, then activities throughout the watershed would be affected, whether or not they are adjacent to critical habitat stream reaches.

Response: It is possible for activities not directly adjacent to the proposed stream reaches to affect salmon and steelhead or their habitat (for example, by increasing risk of erosion or decreased water quality), and, therefore, such activities may be subject to consultation and modification. Thus, we believe the HSA watersheds represent a reasonable proxy for the potential boundary of consultation activities. In some cases the revised economic analysis applies costs less broadly by refining the geographic scale for certain

activities. For example, the analysis of pesticide impacts has been refined and are now calculated based on occupied stream mile estimates within a watershed.

Comment 17: One commenter asserted that the draft report inflates its cost estimates by repeatedly choosing the high-end of a range of costs, while a peer reviewer suggested using the mid-range as a representative cost estimate was problematic.

Response: In determining likely costs associated with modifications to activities that would benefit salmon and steelhead, the economic analysis identifies a range of costs using available data from, for example, agency budgets, documented conversations with stakeholders, and published literature. The full range of costs of these activities is presented in the economic analysis, and individual watersheds are generally ranked in terms of cost impact by the midpoint of the cost range, as opposed to the high end. While we recognize that a formal sample of projects costs based on the consultation record or other sources is a better approach in theory, available data did not allow such an approach. In gathering the cost information that was available, we avoided using outliers and sought to construct a typical range of costs.

Comment 18: Some commenters asserted that the economic analysis fails to account for regional economic interactions between watersheds. One commenter stated that this would result in an overstatement of the costs, while other commenters state that this would underestimate the costs. One peer reviewer suggested using regional economic models to address these interactions.

Response: We acknowledge that modifications to economic activities within one watershed may affect economic activities in other watersheds. The economic analysis discusses the potential for regional economic impacts associated with each of the potentially affected activities. Impacts are assigned to particular areas (watersheds) based on where they are generated as opposed to felt. That is, if the designation of a watershed causes impacts in multiple nearby watersheds, and exclusion of the impact-causing watershed would remove those economic impacts from the region, the economic analysis appropriately assigns the total cost impact to the impact-causing watershed. This method of assigning impacts is most useful to us in deciding the relative cost-effectiveness of excluding particular areas from critical habitat designation. As we acknowledge in NMFS (NMFS 2005b), the economic analysis does not explicitly analyze the potential for these regional interactions to introduce cumulative economic impacts. Data are not available to support such an effort, nor would the results necessarily be applicable at the level of a particular watershed. If these impacts in fact exist, our results are likely to be biased downward, in that we have likely underestimated the costs of critical habitat designation at the level of the ESU. At the level of a watershed, however, the potential error is smaller. For this reason, we do not believe the lack of a regional modeling framework introduces a significant bias into the results for particular watersheds.

Comment 19: Several commenters stated that the economic analysis underestimates the actual costs of the rule by excluding several categories of costs from the estimates. One commenter stated that the *New Mexico Cattlegrowers* decision specifically requires a full analysis of all impacts, including those resulting from the species' listing. One comment argued that assessment of impacts stemming from activities occurring outside the designated area should be included, including indirect and regional impacts. Another commenter stated that the analysis should consider direct, indirect, and induced economic impacts including: changes in property values, property takings, water rights impacts, business activity and potential economic growth, commercial values, county and state tax base, public works project impacts, disproportionate economic burdens on society sections, impacts to custom and culture, impacts to other endangered species, environmental impacts to other types of wildlife, and any other relevant impact.

Response: As noted in a previous response, the Court in the *New Mexico Cattlegrowers* decision called for ''a full analysis of all of the economic impacts of a critical habitat designation, regardless of whether those impacts are attributable coextensively to other causes.'' (emphasis added) The economic analysis conducted for this rule evaluated direct costs associated with the designation of critical habitat and includes: (1) Direct coextensive impacts, or those that are associated with habitat-modifying actions covered by both the jeopardy (listing) and adverse modification (critical habitat) standards; and (2) direct incremental impacts, or those that are solely attributable to critical habitat designation.

We acknowledge that designation of critical habitat may also trigger economic impacts outside of the direct effects of ESA section 7 or outside of the watersheds subject to the economic analysis. For example, state or local environmental laws may contain provisions that are triggered if a state- or locally regulated activity occurs in Federally-designated critical habitat. Another possibility is that critical habitat designation could have ''stigma'' effects, or impacts on the economic value of private land not attributable to any direct restrictions on the use of the land. Our economic analysis did not reveal significant economic impacts from stigma effects for the designation of salmon and steelhead. Further, significant impacts of critical habitat on an industry may lead to broader regional economic impacts. All of these types of impacts are considered in the analysis, although it was not possible to estimate quantitative impacts in every case. We took these considerations into account in balancing benefits under section 4(b)(2).

We acknowledge that designation of critical habitat may also trigger impacts on customs, culture, or other wildlife species. We concluded that data were not presently available that would allow us to quantify these impacts, at the scale of this designation, for the economic analysis. Our analysis was further circumscribed by the short time frames available, and our primary focus on conservation benefits to the listed species that are the subject of this designation. We took this limitation into account in the balancing of benefits under section 4(b)(2).

Comment 20: Several commenters indicated that the economic analysis should include a discussion of the impact of changes in flow regimes on water users, specifically in the timing of water flow through dams and water withdrawal or diversion constraints. Among potentially affected water users are crop irrigators and other agricultural water users, regulators and consumers of public water supply in the region, and in particular, water users of the Central Valley Project and State Water Project, among others. Similarly, several commenters stated that the analysis should include an analysis of impacts of changes to operations that result in increased spill at hydropower dams on the cost of power in the region. These commenters are concerned that excluding these costs underestimates total economic impact. One commenter pointed out that low flow years and drought years are not considered in the economic impacts, and consideration of varying water year types is especially relevant to estimating impacts of instream flow augmentation. Another

commenter pointed out that existing, economically feasible alternate sources of water may not be available to water users, and thus economic costs could be large. One commenter estimated the potential loss of agricultural income that would result from a reduction in water availability to a specific region. One commenter stated that if requisite minimum instream flows are developed that correspond to the proposed critical habitat designation, they could be analyzed using the CALVIN model developed by the University of California.

Response: While economic impacts would clearly result from future changes to water supply availability, the amount of water within particular areas that may be diverted from activities such as irrigation, flood control, municipal water supply, and hydropower, for the purposes of Pacific salmon and steelhead conservation, and thus the requisite timing and volume of minimum instream flows, has not been determined for most facilities. Many biological and hydrologic factors are considered in determining flow requirements through dams for Pacific salmon and steelhead, and the impacts of altering flow regimes to meet these requirements are highly site-specific. For example, the impact of increasing spill at a hydropower project depends on the level and timing of the spill, and on the method by which any lost power generation is replaced. Similarly, at a water supply facility, the impact of increasing spill depends on the size and timing of the spill, but also depends on the specific water rights held at the facility and by downstream users, including the priority, volume, timing, and particular use of those water rights.

The extent to which any future changes in flow may be attributable to the designation of critical habitat, as opposed to the listing or other wildlife-related regulations, is also unclear. The interrelated nature of dam and diversion projects with hydrology across river systems makes it very difficult to attribute flow-related impacts for salmon and steelhead conservation to specific watersheds. As a result, a comprehensive prospective analysis of the economic impacts of potential restrictions on water use by these activities would be highly speculative. We acknowledge this limitation of the economic analysis. However, the revised economic analysis does include an expanded discussion of what is known about the potential impacts of changes in flow regimes on hydropower production and prices and water diversions on irrigation based on historical examples.

Comment 21: Some commenters expressed concern that the economic analysis does not address cumulative costs of multiple layers of regulation on economic activities.

Response: Our economic analysis estimates costs associated with conducting ESA section 7 consultation to ensure Federal agency actions are not likely to destroy or adversely modify critical habitat. We did not have information available at the scale of this designation to determine the marginal cost or benefit of such a consultation, in addition to any state or local review that may occur, nor did the commenters provide data that would allow us to make such a determination.

Comment 22: One commenter stated that the economic analysis fails to factor in subsidies given to industries such as livestock grazing, hydropower operations, and irrigation activities, which minimizes true costs to the public. Another commenter further stated that the analysis does not distinguish between several countervailing cost elements, including ''socialized costs'' (costs Congress has decided that the public should bear, such as costs to Federal activities), actual costs to private entities, incentive costs, subsidies, and offsetting costs. As a result, for Federal programs, the analysis miscategorizes activities that benefit a small but favored sector of society, but that cause costs to the larger society. The analysis assumes that costs to these activities are costs to society in general.

Response: The analysis attempts to measure true social costs associated with implementing the final critical habitat rule. To accomplish this, the analysis uses the measurement of the direct costs associated with meeting the regulatory burden imposed by the rule as the best available proxy for the measurement of true social costs. We agree that it is relevant to consider appropriate countervailing or net cost impacts, where possible, in determining the benefit of exclusion. Where data are available, our analysis attempts to capture the net economic impact (*i.e.*, the increased regulatory burden less any discernable offsetting market gains), of ESA section 7 efforts imposed on regulated entities and the regional economy. For example, in the economic analysis, the revised impact estimates for pesticide use restrictions explicitly net out agriculture subsidy payments in the estimation of lost agricultural profits.

Comment 23: Several commenters indicated that the designation of critical habitat will impose an administrative burden on affected parties, including private, Federal, state and local entities. One commenter stated that the increase in paperwork as a result of re-initiating consultation on potential impacts to critical habitat for projects that have already been through ESA section 7 consultation is a major concern.

Response: We do consider that all activities may be subject to future consultation, regardless of whether past consultation occurred on these activities. Designation of critical habitat may result in reinitiating consultation on activities that were subject to previous consultation to ensure that the adverse modification requirement is addressed in addition to the jeopardy requirement. The economic analysis estimates the level of administrative effort associated with ESA section 7 consultations, whether those consultations concern a new activity or readdress the impacts of a previously reviewed activity. The revised economic analysis includes a refined estimate of administrative costs associated with consultations on West Coast salmon and steelhead.

Comment 24: Some commenters stated that the economic analysis estimates impacts using a constant per-capita income basis and that doing so is likely to underestimate the impacts on rural communities.

Response: Per-capita income is not explicitly factored into the watershed specific quantitative impact estimates in the economic analysis. The commenter is highlighting that equal costs in any given watersheds will not likely result in the same relative economic burden to residents of those watersheds. This is because the ratio of costs of the designation to income may vary across watersheds. In lower income areas, the cost of implementing modifications to projects for the benefit of salmon and steelhead may be more burdensome relative to higher income areas. We did consider the extent to which costs of designation within a watershed are likely to be borne locally. In addition, information on distribution of wealth across the designation is provided contextually in the economic analysis and this information is weighed in considering the benefits of exclusion of particular areas.

Comment 25: One commenter stated that the analysis does not attempt to explain or quantify with any level of precision what additional costs are required by ESA section 7 consultation for design and/or operational modifications or mitigation measures.

Response: The economic analysis focused on the impacts of section 7 consultation on economic activities by first identifying the types of activities

occurring that may be subject to section 7 consultation. The analysis then estimated the regulatory burden placed upon these activities as a result of section 7 consultation. The burden estimate is based upon a review of past modifications to those activities undertaken for the benefit of salmon and steelhead, interviews with NMFS' consulting biologists, affected parties, and available documents and literature. This research on the potential costs of these modifications then determined a typical range of costs for potential project modifications that may be associated with section 7 consultation in the future.

Comment 26: One commenter stated that the economic analysis relied extensively on the agency's consultation history for economic impact estimates. Similarly, another commenter asserted that past costs are not good indicators of future costs due to streamlining of the consultation process (for example, for fire management) on Federal lands. One commenter stated that the economic analysis assumes that the population growth and economy of the impact areas are stagnant. The analysis should evaluate population and economic growth on a regional, State, and county basis, and evaluate the degree to which the listing of salmon and steelhead may have contributed to any population and economic decline.

Response: The economic analysis does not solely rely on the consultation history to estimate economic impacts. The analysis includes estimated costs associated with compliance with salmon conservation activities produced by regulated entities, including private, state, and Federal agencies, as well as published literature, where information was available. The economic analysis does not uniformly assume that all activities and associated consultations will occur at the same rate in future years as in past years. Instead, the economic analysis projects the most likely level of future activity using a broad spectrum of planning documents, geographical data, and interviews with planners and other stakeholders. Further, the economic analysis does not quantify retrospective impacts of salmon and steelhead conservation because the focus of the analysis is on future impacts associated with the critical habitat areas identified in this rulemaking. It should also be noted that consultations conducted by NMFS do not include cost estimates of implementing recommended actions. The analysis also presents detailed information on the current estimated population and population density within each of the particular areas in the proposed critical habitat designation.

Comment 27: One comment letter questioned whether there exists an acceptable or unacceptable level of negative economic impact to communities, landowners, or local governments and whether the government must consider the impacts that their decisions will have on local economies.

Response: The economic analysis provides information regarding the impact to potentially affected economic activities of the proposed critical habitat designation. This information was used to identify the particular areas according to their relative cost burden. We then weighed this information against the relative conservation value of the particular areas considering the economic and any other relevant impact of designating critical habitat. Further, concurrent with the economic analysis, we prepared an analysis of potential impacts to small entities, including small businesses and government. This analysis identified the number of small businesses and governments likely impacted by the proposed critical habitat using county-specific data on the ratio of small businesses to total businesses in each potentially affected economic sector.

Comment 28: Some commenters stated that the economic analysis used data that are overly broad or made assumptions across geographic areas that are too far reaching. For example, one commenter stated that the economic analysis assumes that the necessity and scope of modifications will be constant across ESUs for most activities, when in reality, these are likely to vary substantially.

Response: For each activity, the economic analysis examines the probability of consultation and the likelihood of modification. A variety of activity-specific information sources were used to forecast the frequency and geographic distribution of potentially affected activities. That is, frequency of consultation was not always assumed to be uniform across ESUs. The economic analysis does not, however, assume that costs increase in areas of overlapping ESUs. In other words, the presence of critical habitat for multiple ESUs is not expected to generate a greater impact than if the particular area is critical habitat for only a single ESU. Examination of the consultation history did not reveal differences in requests for modification to projects (reasonable and prudent alternatives) among the ESUs. We recognize, however, that the broad scope and scale of the analysis required us to make simplifying assumptions in order to complete the designations in a timely fashion.

Comment 29: Several commenters and a peer reviewer expressed concern that the economic analysis failed to consider the full range of economic benefits of salmon habitat conservation, and therefore, provided a distorted picture of the economic consequences of designating versus excluding habitat areas. Similarly, commenters expressed concerns that the economic impact of not designating particular areas to fishers and investors in recovery efforts should be considered in the economic analysis. Commenters specifically cited the lack of consideration in the economic analysis of the potential benefits of critical habitat designation on: (1) Decreased risk of extinction; (2) benefits to other aquatic and riparian species; (3) water quality; (4) flood control values; (5) recreation; (6) commercial fishing; (7) fish harvest for tribal uses; and (8) increased public education.

Response: As described in the economic analysis and ESA section 4(b)(2) report, we did not have information available at the scale of this designation that would allow us to quantify the benefits of designation in terms of increased fisheries. Such an estimate would have required us to determine the additional number of fish likely to be produced as a result of the designation, and would have required us to determine how to allocate the economic benefit from those additional fish to a particular watershed. Instead, we considered the ''benefits of designation'' in terms of conservation value ratings for each particular area (see ''Methods and Criteria Used to Designate Critical Habitat'' section). We also lacked information to quantify and include in the economic analysis the economic benefit that might result from such things as improved water quality or flood control, or improved condition of other species.

Moreover, we did not have information at the scale of this designation that would allow us to consider the relative ranking of these types of benefits on the ''benefits of designation'' side of the 4(b)(2) balance. Our primary focus was to determine, consider, and balance the benefits of designating these areas to conservation of the listed species. Given the uncertainties involved in quantifying or even ranking these ancillary types of benefits, we were concerned that their consideration would interject an element of uncertainty into our primary task.

Comment 30: One commenter asserted that the economic analysis did

not consider the importance of agriculture in California and how many communities rely upon the agriculture industry to survive. A number of commenters further stated that the analysis should address impacts on agriculture of a judicially imposed moratorium on pesticide use near salmon-bearing streams. The inability to use pesticides on farmland could result directly in decreases in crop yields. More specifically, the commenters believed that the economic analysis underestimates the impacts of the Washington Toxics litigation (*Washington Toxics Coalition, et al.* v. *EPA*, No. 04–35138) limiting pesticide use around salmon-supporting waters and suggests that the economic analysis should analyze the impact of this injunction.

Response: Regarding impacts to agricultural communities, we considered impacts to small businesses in our Regulatory Flexibility Act analysis. We did not otherwise separately consider economic impacts to various economically or culturally defined communities in the economic analysis or in the ESA section 4(b)(2) balancing process. For example, we also did not separately consider impacts of designation or exclusion on coastal fishing communities. As with the consideration of ancillary unquantifiable benefits of designation described above, we were concerned that including a consideration of these ancillary benefits of exclusion would inject an unacceptable level of uncertainty into our analysis.

We agree that the draft economic analysis did not adequately consider the impact of pesticide restrictions on the agricultural industry. The revised economic analysis therefore includes refined estimates of potential lost profits associated with reduced crop yields as a result of implementing pesticide restrictions across the critical habitat designation. The analysis assumes that the agricultural net revenue generated by land within certain distances of salmon-supporting waters would be completely lost. That is, the analysis assumes that no changes in behavior are undertaken to mitigate the impact of pesticide restrictions. This assumption may lead to overestimated impacts of restricting pesticide use. On the other hand, the analysis may underestimate the impact of pesticide restrictions by assuming that farmers outside the designated areas (*e.g.*, upstream) will not be restricted in their activities.

Comment 31: Several commenters stated that impacts associated with changes in the operations of the hydropower projects should be included, including impacts from projects such as Englebright Dam, Oroville Dam, and Santa Felicia Dam.

Response: The historical record shows evidence that modifications to hydropower projects in consideration of listed salmon and steelhead can affect the level of hydropower generation and generating capacity, thus affecting power prices. Flow regimes for purposes of salmon and steelhead conservation have been implemented at various projects associated with a number of regulations, including the listing of salmon and steelhead. As mentioned previously, however, the level of increased flow or spill over the dams within particular areas that may be requested associated with critical habitat for all hydropower projects is uncertain at this time, and a prospective analysis of the impacts of such efforts would be highly speculative. Many biological and hydrologic factors are considered in determining flow requirements through dams for salmon and steelhead, and the impacts of altering flow regimes to meet these requirements are highly site-specific. For example, the impact of increasing spill at a hydropower project depends on the level and timing of the spill, and on the method by which any lost power generation is replaced.

The extent to which any future changes in flow may be attributable to the designation of critical habitat, as opposed to the listing or other wildlife-related regulations, is also unclear. The interrelated nature of dam and diversion projects with hydrology across river systems makes it very difficult to attribute flow-related impacts from salmon and steelhead conservation to specific watersheds. We acknowledge this limitation of the economic analysis. The revised economic analysis includes an expanded discussion of the potential impacts of changes in flow regimes on hydropower operations.

Comment 32: One commenter stated that the Initial Regulatory Flexibility Analysis needs more citations regarding the applied sources of information.

Response: We have provided appropriate citations in the Final Regulatory Flexibility Analysis.

Comment 33: One commenter stated that the Small Business Regulatory Enforcement Fairness Act (SBREFA) analysis assumes that most compliance costs would be borne by third parties when, in fact, a significant portion of all ESA section 7 related costs are not borne by those entities, but rather are borne by the Bureau of Reclamation (BOR).

Response: In many cases it is uncertain who will bear the costs of modification. The potentially burdened parties associated with modifications to activities are identified in the economic analysis. The BOR may, in fact, bear the cost of modifications to BOR dams, Federal land management activities, and so forth. Where information is not available on a per-project basis regarding the potentially affected party, the analysis takes a conservative approach, assuming that impacts may be borne by private entities, a portion of which may be small entities.

Weighing the Benefits of Designation Versus Exclusion

Comment 34: Several commenters supported the use of a cost-effectiveness framework, one commenter explicitly objected to it, and some commenters had concerns with the way we applied it. One commenter asserted that the economic analysis ''would have been very different'' if we had evaluated the absolute conservation value of an area ''with or without [section] 7 requirements,'' rather than relative conservation values. One commenter asserted that ''[w]ithout any target level of conservation for designation, the framework does not guarantee that areas necessary for conservation will be designated.'' Another commenter asserted that weighing quantitative economic costs against qualitative habitat ratings prejudiced the ESA section 4(b)(2) analysis in favor of excluding areas lacking a high conservation value. Several commenters suggested that the 4(b)(2) process could benefit from more explanation regarding how the process was applied.

Response: We believe the comparison of benefits provides the Secretary useful information as to the benefits of any particular inclusion or exclusion. The Secretary has discretion in balancing the statutory factors, including what weight to give those factors. The ESA provides the Secretary with the discretion to exclude areas based on the economic impact, or any other relevant impact, so long as a determination is made that the benefits of exclusion outweigh the benefits of designation, and so long as the exclusion will not result in extinction of the species concerned.

Subsequent to publication of this rule, we will undertake a review of the methods and criteria applied in this rule. If the Secretary determines the critical habitat designations should be modified as a result of that review, we will propose a revised designation with appropriate opportunity for notice and comment.

Comment 35: In the proposed rule we identified a number of potential exclusions that we were considering but

were not at that time proposing, including Federal lands subject to the Northwest Forest Plan and PACFISH. Many commenters opposed these potential exclusions. Some disagreed that designation of critical habitat is unnecessary or of diminished importance in light of existing management constraints, contending that such a position is contrary to the ESA's conservation purpose and our implementing regulations and citing recent court decisions bearing on this issue. Several commenters indicated that because these ESUs are still listed, existing regulatory and voluntary mechanisms are inadequate and also noted that we concluded as such in our 2000 designations. Some commenters believed that the assumptions underlying such exclusions were unjustifiable and potentially disastrous for salmon recovery. Some commenters noted that the lack of specificity regarding which areas might be excluded as well as the lack of clear exclusion standards seriously hindered the public's ability to comment on the proposed exclusions. In contrast, several commenters supported the potential exclusions mentioned in the proposed rule. Some commenters contended that designating critical habitat on these Federal lands was duplicative with existing ESA section 7 consultation processes, inefficient (*e.g.*, citing costs of re-initiating consultation), and offers no additional conservation benefit to the listed ESUs. One commenter believed that excluding Federal lands would be consistent with our exclusion of lands subject to Integrated Natural Resource Management Plans (INRMPs) since existing land management plans provide similar protections. This commenter also cited the USFWS'' exclusion of Federal lands for bull trout (69 FR 59996; October 6, 2004) and provided information supporting the belief that we should make the same determination for salmon and steelhead ESUs.

Response: Section 4(b)(2) provides the Secretary with discretion to exclude areas from the designation of critical habitat if the Secretary determines that the benefits of exclusion outweigh the benefits of designation, and the Secretary finds that exclusion of the area will not result in extinction of the species. In the proposed rule, and the reports supporting it, we explained the policies that guided us and provided supporting analysis for a number of proposed exclusions. We also noted a number of additional potential exclusions, explaining that we were considering them because the Secretary of the Interior had recently made similar exclusions in designating critical habitat for the bull trout: ''On October 6, 2004, the FWS issued a final rule designating critical habitat for the bull trout * * *. The Secretary of the Interior found that a number of conservation measures designed to protect salmon and steelhead on Federal, state, tribal and private lands would also have significant beneficial impacts to bull trout. Therefore, the Secretary of the Interior determined that the benefits of excluding those areas exceeded the benefits of including those areas as critical habitat. The Secretary of Commerce has reviewed the bull trout rule and has recognized the merits of the approach taken by the Secretary of the Interior to these emerging issues.'' We acknowledged, in the proposed rule, however, that we lacked the analysis to propose these potential exclusions for West Coast salmon and steelhead: At this time, the Secretary of Commerce still ''has not had an opportunity to fully evaluate all of the potential exclusions, the geographical extent of such exclusions, or compare the benefits of these exclusions to the benefits of inclusion.'' Our regulations require that our proposed and final rules provide the data upon which the rule is based (50 CFR 424.16; 50 CFR 424.18).

Recently, in response to the Department of Interior's request, a District Court has remanded the bull trout rule to the Department of Interior for further rulemaking. *Alliance for the Wild Rockies and Friends of the Wild Swan* v. *David Allen and United States Fish and Wildlife* (CV 04–1812). In seeking the remand the Department of Interior noted that it intends to reconsider the 4(b)(2) exclusions in the proposed rule and that it recently issued a **Federal Register** notice seeking comment on those exclusions (70 FR 29998; May 25, 2005). In response, we received extensive comment from those supporting and opposing these potential exclusions. Based on our review of the information received and the short time between the close of the comment period and the court-ordered deadline for completing this rulemaking, we are unable to conclude at this time that the benefits of excluding these areas outweigh the benefits of designation, with the exception of areas covered by two habitat conservation plans, discussed below.

Nevertheless, we will continue to study this issue and alternative approaches in future rulemakings designating critical habitat. In particular, we intend to analyze the planning and management framework for each of the ownership categories proposed for consideration for exclusion. In each case, we envision that the planning and management framework would be evaluated against a set of criteria, which could include at least some or all of the following:

1. Whether the land manager has specific written policies that create a commitment to protection or appropriate management of the physical or biological features essential to long-term conservation of ESA-listed salmon and steelhead.

2. Whether the land manager has geographically specific goals for protection or appropriate management of the physical or biological features essential to long-term conservation of ESA-listed salmon and steelhead.

3. Whether the land manager has guidance for land management activities designed to achieve goals for protection or appropriate management of the physical or biological features essential to long-term conservation of ESA-listed salmon and steelhead.

4. Whether the land manager has an effective monitoring system to evaluate progress toward goals for protection or appropriate management of the physical or biological features essential to long-term conservation of ESA-listed salmon and steelhead.

5. Whether the land manager has a management framework that will adjust ongoing management to respond to monitoring results and/or external review and validation of progress toward goals for protection or appropriate management of the physical or biological features essential to long-term conservation of ESA-listed salmon and steelhead.

6. Whether the land manager has effective arrangements in place for periodic and timely communications with NOAA on the effectiveness of the planning and management framework in reaching mutually agreed goals for protection or appropriate management of the physical or biological features essential to long-term conservation of ESA-listed salmon and steelhead.

Comment 36: In the proposed rule we requested comments on the potential exclusion of lands subject to conservation commitments by state and private landowners reflected in habitat conservation plans (HCPs) approved by NMFS. Some commenters (none however with NMFS-approved HCPs) concurred with the potential exclusion of lands covered by an HCP, believing that we would not likely secure additional conservation benefits by designating these areas as critical habitat. Some commenters acknowledged the potential educational benefits of designation but asserted that designating HCP lands could have an

unintended consequence of damaging existing and future cooperative relationships. These commenters additionally noted that HCPs have already undergone extensive environmental review and ESA section 7 consultation and been found to not likely jeopardize the species.

Several commenters disagreed with the potential exclusion of lands covered by HCPs, believing it would be contrary to the ESA, and some cited recent litigation bearing on this issue (*e.g.*, *Center for Biological Diversity* v. *Norton*, 240 F. Supp. 2d 1090 (D. Ariz. 2003); *Gifford Pinchot Task Force* v. *FWS*, 378 F. 3d 1059 (9th Cir. 2004). One commenter did not support such exclusions because of the belief that there are no guarantees the plans will remain in place when, for example, ownership changes or landowners change their minds. Some commenters believed that we failed to adequately describe the benefits of designation as they pertain to these potential exclusions.

Response: The analysis required for these types of exclusions, as with all others, first requires careful consideration of the benefits of designation versus the benefits of exclusion to determine whether benefits of exclusion outweigh benefits of designation. The benefit of designating critical habitat on non-Federal areas covered by an approved HCP or another type of conservation agreement depends upon the type and extent of Federal activities expected to occur in that area in the future. Activities may be initiated by the landowner, such as when the landowner seeks a permit for bank stabilization, water withdrawal, or dredging. Where the area is covered by an HCP, the activity for which a permit is sought may or may not be covered by the HCP. For example, an HCP covering forestry activities may include provisions governing construction of roads, but may not include provisions governing bank stabilization or pesticide application. The activity may be initiated by the Federal agency without any landowner involvement, such as when a Federal agency is involved in building a road or bridge, dredging a navigation channel, or applying a pesticide on Federal land upstream of the HCP-covered area. In analyzing the benefits of designation for these HCP-covered areas, we must consider which Federal activities are covered by the HCP and which are not. Where activities are covered by the HCP, we must consider whether an ESA section 7 consultation on that particular activity would result in beneficial changes to the proposed action over and above what is achieved under the HCP. Designation may also benefit the species by notifying the landowner and the public of the importance of an area to species' conservation.

On the other side of the balance are the benefits of exclusion. We believe the primary benefits of exclusion are related to the conservation benefits to the species that come from conservation agreements on non-Federal land. If a landowner considers exclusion from critical habitat as a benefit, exclusion may enhance the partnership between NMFS and the landowner and thus enhance the implementation of the HCP or other agreement. If other landowners also consider exclusion from critical habitat as a benefit, our willingness to exclude such areas may provide an incentive for them to seek conservation agreements with us. Improved implementation of existing partnerships, and the creation of new conservation partnerships, would ultimately benefit conservation of the species.

Conservation agreements with non-Federal landowners enhance species conservation by extending species' protections beyond those available through other ESA provisions. ESA section 7 applies only to Federal agency actions. Section 7 consultation requirements protect listed salmon and steelhead on Federal lands and whenever a Federal permit or funding is involved in non-Federal actions, but its reach is limited. The vast majority of activities occurring in riparian and upland areas on non-Federal lands do not require a Federal permit or funding and are not addressed by section 7. In contrast, instream activities generally do require a Federal permit, and therefore, are subject to the requirements of section 7. The ability of the ESA to induce landowners to adopt conservation measures lies instead in the take prohibitions of sections 9(a) and 4(d). Many landowners have chosen to put conservation plans in place to avoid any uncertainty regarding whether their actions constitute 'take'.

Beginning in 1994, when we released our draft HCP Handbook for public review and comment, we have pursued policies that provide incentives for non-Federal landowners to enter into cooperative partnerships, based on a view that we can achieve greater species' conservation on non-Federal land through HCPs than we can through coercive methods (61 FR 63854; December 2, 1996). Before we approve an HCP and grant an incidental take permit, we must conduct a rigorous analysis under ESA section 10. The HCP must specify the impact likely to result from take, what steps the applicant will take to minimize and mitigate such impacts, and the funding available to implement such steps. The applicant must have considered alternative actions and explained why other alternatives are not being pursued, and we may require additional actions necessary or appropriate for the purposes of the plan. Before an HCP can be finalized, we must conclude that any take associated with implementing the plan will be incidental, that the impact of such take will be minimized and mitigated, that the plan is adequately funded, and that the take will not appreciably reduce the likelihood of the survival and recovery of the species in the wild. The HCP undergoes environmental analysis under the National Environmental Policy Act (NEPA), and we conduct a section 7 consultation with ourselves to ensure granting the permit is not likely to jeopardize the continued existence of the species or destroy or adversely modify designated critical habitat.

Based on comments received, we could not conclude that all landowners view designation of critical habitat as imposing a burden on the land, and exclusion from designation as removing that burden and thereby strengthening the ongoing relationship. Where an HCP partner affirmatively requests designation, exclusion is likely to harm rather than benefit the relationship. We anticipate further rulemaking in the near future to refine these designations, for example, in response to developments in recovery planning. In order to aide in future revisions, we will affirmatively request information from those with approved HCPs regarding the effect of designation on our ongoing partnership. We did not consider pending HCPs for exclusion, both because we do not want to prejudge the outcome of the ongoing HCP process, and because we expect to have future opportunities to refine the designation and consider whether exclusion will outweigh the benefit of designation in a particular case.

Comment 37: We received a request from the Sonoma County Grape Growers Association and the United Winegrowers for Sonoma County to consider a determination to exclude all occupied areas in Sonoma County from critical habitat for California coastal chinook and central California coast *O. mykiss* based on the conservation value of a suite of cooperative and voluntary conservation efforts being implemented and developed by local government and the private sector, primarily the viticultural industry, in Sonoma County.

Response: These efforts may currently provide a significant conservation benefit to the listed species, and offer the promise of even greater benefits in the future. The measures include the Vineyard Erosion and Sedimentation Control Ordinance adopted by the Sonoma County Board of Supervisors; the Fish Friendly Farming Program; the North Sonoma County Agricultural Reuse Project; the planned Russian River Property Owners Association Fisheries Management Plan; the Integrated Pest Management/Organic Grape Production initiatives; and the Code of Sustainable Winegrowing Practices. The submission can be found electronically at *http://swr.nmfs.noaa.gov/.*

The request suggests the benefits of excluding the area covered by these measures from critical habitat may outweigh the benefits of including it as critical habitat because it provides conservation measures on private land in an area dominated by private ownership, which is generally beyond the reach of ESA section 7, and may therefore provide a greater benefit for the species than a critical habitat designation. Private landowners would be encouraged to participate in these voluntary programs if their lands were excluded from critical habitat.

We received this request on July 21, 2005, so we did not have time to evaluate this request as part of this rulemaking process, and could not defer the rule to accommodate a review because we are under court order to submit this final rule to the **Federal Register** by August 15, 2005. However, we are committed to working with local governments and private landowners in cooperative conservation efforts under Executive Order (E.O.) 13352 (August 26, 2004). As stated above, we anticipate further rulemaking in the near future to refine these designations. Accordingly, we expect to complete an evaluation of the conservation benefits of the measures described by the Sonoma County Grape Growers Association and the United Wine growers for Sonoma County by the end of 2005. If we find that in light of the conservation value of these measures, the benefit of excluding these private lands outweighs the benefits of including them as critical habitat, we will act promptly to propose a revision to this designation.

Comment 38: Some commenters addressed the exclusion of Indian Lands. All of the commenting Tribes and the Bureau of Indian Affairs (BIA) reiterated their support for the exclusions.

Response: This final rule maintains the exclusion of Indian lands for the reasons described in the ''*Exclusions Based on Impacts to Tribes*'' section below.

Comment 39: A few commenters addressed our assessment of INRMPs and the exclusion of Department of Defense (DOD) areas due to impacts on national security. DOD agencies supported the exclusion of military lands based on both the development of INRMPs as well as national security impacts, while other commenters did not support such exclusions. One commenter argued that we should not use the general ''national security'' language in ESA section 4(b)(2) to remove our obligation to comply with the demand for adequate INRMPs.

Response: Pursuant to section 4(a)(3)(B)(i) of the ESA (16 U.S.C. 1533(a)(3)(B)(i)), we contacted the DOD, and, after evaluating the relevant INRMPs, we concluded that, as implemented, they provide conservation benefits greater than or equal to what would be expected to result from an ESA section 7 consultation. We also determined that two of these INRMP sites (Camp Pendleton and Vandenberg Air Force Base) should be excluded from designation due to potential impacts on national security. See the ''Military Lands'' and the ''Exclusions Based on National Security Impacts'' sections below.

Effects of Designating Critical Habitat

Comment 40: Some commenters noted that the success of watershed management and restoration efforts is dependent on critical habitat protections, noting that designations assist local recovery planning efforts and provide leverage in obtaining funding and cooperation. Several commenters expressed concern that excluding areas from designation, particularly areas identified in existing recovery efforts as important for salmon, would undermine ongoing regional and local recovery planning efforts by signaling that these areas are not important for recovery.

Response: We acknowledge that critical habitat designations can serve an important educational role and that they can assist local recovery planning and implementation efforts. The ESA requires that we use the best available scientific data to evaluate which areas warrant designation and that we balance the benefits of designation against the benefits of excluding particular areas. In so doing, it is possible that some areas subject to ongoing restoration activities may have been excluded from designation. However, such exclusions do not indicate that the areas are unimportant to salmon or steelhead, but instead reflects the practical result of following the ESA's balancing of benefits as required under section 4(b)(2). We are hopeful that the information gathered and the analyses conducted to support these final designations (such as species distribution, watershed conservation value, and economic impacts from section 7 consultations) will be viewed as valuable resources for local recovery planners. As recovery planning proceeds and we determine that additional or different areas warrant designation or exclusion, we can and will make needed revisions using the same rulemaking process.

Comment 41: Several commenters asked for clarification regarding how we will make adverse modification determinations in ESA consultations. One commenter also suggested that a finding of adverse modification would need to be contingent on the habitat conditions existing at the time of designation. They noted that, where such conditions are the result of past and present management actions, and where those existing conditions would not be altered through proposed future actions, it is their belief that consultation on such future actions would result in a ''no adverse modification'' determination.

Response: In *Gifford Pinchot Task Force* v. *United States Fish and Wildlife Service,* 378 F. 3d 1059 (9th Cir. 2004), the Court of Appeals for the Ninth Circuit Court ruled that the USFWS' regulatory definition of ''destruction or adverse modification'' of critical habitat, which is also NMFS' regulatory definition (50 CFR 402.02), is contrary to law. Pending issuance of a new regulatory definition, we are relying on the statutory standard, which relates critical habitat to conservation of the species. The related point raised by one commenter regarding the relevance of habitat conditions at the time of listing when making an adverse modification determination cannot be answered in a generic way and would depend on the facts associated with a specific consultation.

Comment 42: Some commenters objected to the potential land use regulations that critical habitat designation would prompt, citing specific cases where local agencies have imposed buffers and/or other restrictions to protect ESA-listed fish.

Response: The ESA requires that we designate critical habitat and these designations follow that statutory mandate and have been completed on a schedule established under a Consent Decree. Whether and if local jurisdictions will implement their

authorities to issue land use regulations is a separate matter and is not under our control.

Comment 43: Several commenters believed that we fail to (or inadequately) address required determinations related to a number of laws, regulations, and executive orders, including the NEPA, Regulatory Flexibility Act, and Data Quality Act.

Response: Our response to each of these issues are described below, and we also direct the reader to the ''Required Determinations'' section to review our response to each of the determinations relevant to this rulemaking.

(a) *NEPA*—We believe that in *Douglas County* v. *Babbitt,* 48 F.3d 1495 (9th Cir. 1995), cert. denied, 116 S. Ct. 698 (1996) the court correctly interpreted the relationship between NEPA and critical habitat designation under the ESA. The Court of Appeals for the Ninth Circuit rejected the suggestion that irreconcilable statutory conflict or duplicative statutory procedures are the only exceptions to application of NEPA to Federal actions. The court held that the legislative history of the ESA demonstrated that Congress intended to displace NEPA procedures with carefully crafted procedures specific to critical habitat designation. Further, the Douglas County Court held that the critical habitat mandate of the ESA conflicts with NEPA in that, although the Secretary may exclude areas from critical habitat designation if such exclusion would be more beneficial than harmful, the Secretary has no discretion to exclude areas from designation if such exclusion would result in extinction. The court noted that the ESA also conflicts with NEPA's demand for impact analysis, in that the ESA dictates that the Secretary ''shall'' designate critical habitat for listed species based upon an evaluation of economic and other ''relevant'' impacts, which the court interpreted as narrower than NEPA's directive. Finally, the court, based upon a review of precedent from several circuits including the Fifth Circuit, held that an environmental impact statement is not required for actions that do not change the physical environment.

(b) *Regulatory Flexibility Act*—We have prepared a final regulatory flexibility analysis that estimates the number of regulated small entities potentially affected by this rulemaking and the estimated coextensive costs of section 7 consultation incurred by small entities. As described in the analysis, we considered various alternatives for designating critical habitat for these seven ESUs. After considering these alternatives in the context of the ESA section 4(b)(2) process of weighing the benefits of exclusion against the benefits of designation, we determined that our current approach to designation provides an appropriate balance of conservation and economic mitigation and that excluding the areas identified in this rulemaking would not result in extinction of the ESUs. Our final regulatory flexibility analysis estimates how much small entities will save in compliance costs due to the exclusions made in these final designations.

(c) *Data Quality Act*—One commenter asked if we had complied with the Data Quality Act. We have reviewed this rule for compliance with that Act and found that it complies with NOAA and OMB guidance.

(d) *Negotiated Rulemaking Act (5 U.S.C. 561 et seq.)*—One commenter asserted that we should have engaged in negotiated rulemaking to issue this final critical habitat designation. This is an interesting idea and could be pursued in future critical habitat rulemaking. However, because a court approved consent decree governs the time frame for completion of this final rule, we do not feel that there was ample time to comply with the numerous processes defined in the Negotiated Rulemaking Act for this rulemaking. For example, the Negotiated Rulemaking Act provides that if the agency decides to use this tool it must follow Federal Advisory Committee Act procedures for selection of a committee, conduct of committee activities, as well as specific documentation processes (See *Negotiated Rulemaking Source Book,* 1990).

(e) *Intergovernmental Cooperation Act*—One commenter asserted that we did not properly and fully coordinate with local governments and did not comply with the Intergovernmental Cooperation Act. First, the commenter did not provide a statutory citation for the Intergovernmental Cooperation Act. Although we are reluctant to speculate on that Act, we believe the comment is in reference to the Intergovernmental Cooperative Act, Public Law 90–577, 82 Stat. 1098 (1968) as amended by Public Law 97–258 (1982) (codified at 31 U.S.C. 6501–08 and 40 U.S.C. 531–35 (1988)). This Act addresses Federal grants and development assistance. Accordingly, we do not find it relevant to the mandatory designation of critical habitat under the ESA. To the extent that the commenter's concern is assuring that state, local and regional viewpoints be solicited during the designation process, the ESA and our implementing regulations provides for public outreach (16 U.S.C. 1533 (b)(3)(A); 50 CFR 424.16). As noted in response to Comment 1, we actively sought input from all sectors beginning with an ANPR (68 FR 55926; September 29, 2003) and culminating in four public hearings to facilitate comment from the interested public in response to the proposed rule. In addition we met with several local governments and made ourselves available to meet with others.

(f) *National Historic Preservation Act (NHPA)*—One commenter asserted that we failed to comply with the NHPA (16 U.S.C. 470–470x–6). The NHPA does not apply to this designation. The NHPA applies to ''undertakings.'' ''Undertakings'' are defined under the implementing regulations as ''a *project, activity* or *program* funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; those requiring a Federal permit, license or approval; and those subject to State or local regulation administered pursuant to a delegation or approval by a Federal agency.'' (emphasis added) (36 CFR 800.16). The mandatory designation of specific areas pursuant to the criteria defined in the ESA does not constitute an ''undertaking'' under the NHPA.

(g) *Farmland Protection Policy Act (FPPA)*—One commenter asserted that we failed to comply with FPPA (7 U.S.C. 4201). The FFPA does not apply to this designation. The FPPA applies to Federal programs. Federal programs under the Act are defined as ''those activities or responsibilities of a department, agency, independent commission, or other unit of the Federal Government that involve: (A) Undertaking, financing, or assisting construction or improvement projects; or (B) acquiring, managing or disposing of Federal lands and facilities. The designation of critical habitat does not constitute a ''Federal program'' under the FFPA.

(h) *Unfunded Mandates Reform Act*—One commenter asserted that we failed to properly conduct and provide an unfunded mandates analysis because, the commenter contended, we based our decision solely on public awareness of the salmon listings. This is not the case. In the proposed rule, we found that the designation of critical habitat is not subject to the Unfunded Mandates Reform Act (2 U.S.C. 1501 *et seq.*) and explained in detail why this is the case.

(i) *Federalism*—One commenter asserted that we failed to properly comply with E.O. 13132. In the proposed rule, we found that the designation of critical habitat does not

have significant Federalism effects as defined under that order, and, therefore, a Federalism assessment is not required. We find nothing in the commenter's assertions to warrant changing our original determination.

(j) *Takings*—One commenter disputed our conclusion in the proposed rule that the designations would not result in a taking. The commenter offered no information or analysis that would provide a basis for a different conclusion.

(k) *Civil Justice Reform*—One commenter asserted that we failed to properly conduct and provide a Civil Justice Reform analysis pursuant to E.O. 12988, the Department of Commerce has determined that this final rule does not unduly burden the judicial system and meets the requirements of sections 3(a) and 3(b)(2) of the E.O. We are designating critical habitat in accordance with the provisions of the ESA. This final rule uses standard property descriptions and identifies the PCEs within the designated areas to assist the public in understanding the habitat needs of the 12 salmon and steelhead ESUs.

ESU-Specific Issues

ESU Specific Comments—California Coastal Chinook Salmon

Comment 44: One private timberland owner commented that the freshwater distribution of Chinook salmon that we developed and used for their land ownership had errors in occupancy and/or upstream distribution limits. The landowner provided us with distribution information they had developed for their ownership so that the distribution information and resulting final critical habitat designation for this ESU would be more accurate.

Response: Following a review of this new information by the CHART, we incorporated it into our database and made changes in the mapped distribution of this ESU for the commenter's land ownership. The new information changed the distribution of Chinook in the following streams and Calwater HSAs: Maple Creek (110810), Little River (110820), and the Mad River (110920 and 110930). Overall, these changes in distribution were minor and increased the total occupied stream miles for this ESU by only 0.6 mi (1.0 km). Based on a reassessment by the CHART, these changes in distribution did not change the occupancy status (i.e. occupied to unoccupied or vice versa) or conservation value of any of the affected HSAs, and therefore, the economic analysis did not require revision.

Comment 45: A few commenters questioned why there was no proposed critical habitat connecting those portions of the mainstem Eel River in HSA 111142 with the high value habitat areas in the upper tributaries of the middle Fork Eel River in HSA 111172.

Response: In the proposed rule, HSA watershed 111171 was proposed for exclusion based on high economic cost (high benefit of exclusion) and relatively low benefit of designation. However, because the upper tributaries of the middle Fork Eel in HSA 111172 were rated as having high conservation value, the mainstem middle Fork Eel in HSA 111171 should have been designated as a migratory corridor to provide connectivity between critical habitat farther downstream in the mainstem Eel River and the high value tributaries that were proposed for designation. This was an error that has been corrected in the final rule. The final designation excludes HSA 111171 as was the case in the proposed rule, but designates the mainstem of the middle Fork Eel River, which serves as a migratory corridor for the high value upstream tributaries, as critical habitat.

Comment 46: A commenter questioned the conservation ratings and proposed designations for five of the seven occupied HSAs comprising the Mendocino Coast Subbasin (HU 1113). The commenter specifically questioned the historic and current presence of Chinook in these watersheds and thought any Chinook that did occur in these watersheds were likely strays from other watersheds.

Response: The CHART considered these comments and reviewed its original assessments. It concluded that its original conservation value ratings were appropriate based on the ranking criteria that were used and the information that was available, and that these areas met the definition of critical habitat under the ESA. Accordingly, the conservation value ratings for these HSA watersheds were not changed. Based on the ESA section 4(b)(2) analysis conducted for the final rule, however, HSA watershed 111350 (Navarro River) in this Subbasin was excluded from the final designation for this ESU.

Comment 47: One commenter questioned the proposed designation of critical habitat for this ESU in the Austin Creek HSA (111412) and Mark West HSA (111423), based on the view that neither watershed supported a historically self sustaining run and that Chinook in both streams were most likely strays from other watersheds.

Response: The CHART considered this comment and reviewed its original assessments. It concluded that its original conservation value ratings were appropriate based on the ranking criteria that were used and the information that was available, and that these areas met the definition of critical habitat under the ESA. Accordingly, the conservation value ratings for these HSA watersheds were not changed. Based on the ESA section 4(b)(2) analysis conducted for the final rule, however, HSA 111423 (Mark West Creek) in this Subbasin was excluded from the final designation for this ESU.

Comment 48: A property owners' association on the Russian River that controls land adjacent to portions of the Russian River in HSAs 111425 and 111424 requested that its lands be excluded from the final designations for California Coastal Chinook (and Central California Coast steelhead) because it has developed a Watershed Management Plan to manage its lands and because the benefits of excluding its lands outweigh the benefits of including them in the designation.

Response: We are very supportive of the development and implementation of this plan and have in fact participated in its development. However, we do not think this plan qualifies as the basis for excluding these lands from the final designation for either ESU at present, since it is not completed. Once the plan is completed, we will evaluate it to determine whether the benefits of excluding the habitat areas in question will outweigh the benefits of designation. In making this assessment we will evaluate the plan in the same manner as we would evaluate an approved habitat conservation plan (see *Impacts to Landowners with Contractual Commitments to Conservation* section). If we determine that the benefits of exclusion outweigh the benefits of designation, then we will initiate the appropriate rulemaking to refine the critical habitat designations.

ESU Specific Comments—Northern California Steelhead

Comment 49: Two private timberland owners commented that the freshwater distribution of steelhead that we developed and used for their land ownership had errors in occupancy and/or upstream distribution limits. Both landowners provided us with distribution information they had developed for their ownership so that the fish distribution information we used for the final critical habitat designation for this ESU would be more accurate.

Response: Following a review of this new information by the CHART, we incorporated it into our database and made changes in the mapped distribution of this ESU for the commenters' land ownership. The new information from one of the landowners changed the distribution of steelhead in the following streams and Calwater HSAs: Maple Creek (110810), Redwood Creek (110720), Little River (110820), Mad River (110920 and 110930), and several small streams including Rocky Gulch, Washington Gulch, Jacoby Creek, Freshwater Creek, and Salmon Creek (111000). Overall, these changes in distribution were minor and increased the total occupied stream miles for this ESU by only 1.1 mi (1.8 km). The changes in distribution did not affect the occupancy or conservation value rating for any of these HSAs. The new information from the other landowner changed the distribution of steelhead in the following streams and HSAs: SF Eel (111132, 111133), Usal Creek (111311), Wages Creek (111312), Ten Mile River (111313), Mill Creek, Pudding Creek and the Noyo River (111320), Big River (111330) and Salmon Creek (111340). Overall, this new information decreased the occupied stream miles for the ESU by approximately 17 miles and affected 8 HSAs. Based on a re-assessment by the CHART, these changes in distribution did not change the occupancy status (i.e. occupied to unoccupied or vice versa) or conservation value of any of the affected HSAs, and therefore, the economic analysis did not require revision.

ESU Specific Comments—Central California Coast Steelhead

Comment 50: One commenter requested that San Francisquito Creek and Los Trancos Creek in HSA 220550 be excluded from the critical habitat designation for this ESU because of the economic impact of designation and because neither creek requires special management considerations. A second commenter requested that San Francisquito Creek not be designated because of the regulatory burden and because the economic impacts on water supply were not included in the economic analysis. The second commenter also identified a labeling error concerning West Union Creek.

Response: We disagree with the first commenter and believe that these streams do require special management considerations. Both streams have extensive zones of healthy riparian vegetation and habitat and support significant steelhead populations in the San Francisco Bay area. These relatively healthy habitats and populations are unique to the San Francisco Bay area, and therefore, the CHART believes they require special management considerations. The commenter has many programs in place that benefit both creeks, but there are also many unresolved habitat issues that remain to be addressed. For example, on Los Trancos Creek a poorly designed fish ladder needs to be replaced, and several other fish passage issues remain. In addition, NMFS and CDFG have discussed the inadequate bypass flows on Los Trancos Creek below the commenter's water diversion for the past several years, but have yet to resolve the issue. Special management considerations are also necessary to address ongoing and expanding impacts of urbanization on the San Francisco Peninsula. We considered the impacts of designating the HSA watershed containing these creeks in the proposed rule and again using a revised procedure for the final rule. Based on the ESA section 4(b)(2) analysis used for the final rule, we concluded that the benefits of including this HSA watershed in the designation (medium conservation value to the ESU) outweighed the benefits of excluding it from the designation. On the basis of this analysis, therefore, we do not think there will be an unwarranted regulatory burden placed on these commenters or any other entities that may need to obtain Federal permits and consult with NMFS in this HSA watershed. We acknowledge the comment that water supply impacts were not considered in the proposed rule or in the revised 4(b)(2) process for the final rule, but we have addressed water supply impacts as a general issue in greater detail in the final economic analysis for this rule.

Comment 51: One commenter argued that Suisun and Wooden Valley Creeks in HSA 220722 do not provide suitable habitat for steelhead and that designation is not justified because surrounding HSAs were not proposed for designation.

Response: We disagree with the commenter and believe that Suisun and Wooden Valley Creeks currently support a population of steelhead and do provide suitable habitat for rearing, spawning and migration (and thus, the PCEs that support these habitat uses). The reports cited by the commenter include a discussion of limiting factors in Suisun Creek, but also include several favorable findings regarding steelhead habitat conditions in the watershed. These findings suggest that there is suitable habitat for steelhead in the watershed and that steelhead spawned in Suisun Creek in 2000–2001. Based on the information available, therefore, we believe that the medium conservation rating originally made by the CHART for this HSA watershed is appropriate. The revised ESA section 4(b)(2) exclusion analysis conducted for the final rule, however, considered section 7 opportunities within HSA watersheds and adjusted the benefits of inclusion in critical habitat accordingly. In the case of this HSA, this re-consideration resulted in a reduced assessment of the benefits of designating this watershed. Based on this revised benefit of designation in the final 4(b)(2) analysis, we have concluded that the benefits of excluding this HSA from the designation outweigh the benefits of designating it. Accordingly, this HSA watershed and the streams in question have been excluded from the final critical habitat designation.

Comment 52: Several commenters raised issues concerning our proposal to include the upper Alameda Creek watershed (which supports resident *O. mykiss* considered to be part of this ESU; see 69 FR 33101; June 14, 2004) in the critical habitat designation for this ESU. Comments ranged from support for designation of this watershed to requests that it not be designated. Issues were raised about the adequacy of the economic analysis supporting the ESA section 4(b)(2) analysis, the mapped distribution of proposed critical habitat in the watershed, the suitability of the habitat in upper Alameda Creek for steelhead, and the lack of access for steelhead.

Response: We recognize that the upper Alameda Creek watershed (HSA 220430) is not accessible to anadromous steelhead; however, the CHART treated this watershed as occupied in the analysis supporting the proposed rule because there are resident *O. mykiss* populations in the upper watershed that we had previously proposed for inclusion in this ESU (69 FR 33101). In its original analysis, the CHART concluded that this watershed had high conservation value to the ESU, contained the requisite PCEs to support the ESU, and that special management considerations were required to protect these PCEs. Based on this assessment and the original 4(b)(2) analysis which considered the benefits of including this watershed against the benefits of excluding it, we proposed to include it in the designation, as well as a migratory corridor to San Francisco Bay through a portion of the adjacent watershed (HSA 220420) that was proposed for exclusion. We recently invoked a statutory 6-month extension on our final listing determination for this ESU (70 FR 37219) based on concerns raised by the USFWS, and,

therefore, at the time of publication of this final critical habitat rule, these resident populations of *O. mykiss* will not be included in this ESU and listed. Because our original proposal was premised on the upper Alameda Creek watershed being occupied by resident fish that were part of this ESU and a final listing determination concerning these populations will not be made before December 2005, we have not included this watershed in the final critical habitat designation for this ESU. A decision about whether to designate this watershed as critical habitat for this ESU will be made concurrently with the final listing determination for this ESU in December 2005.

Comment 53: One commenter opposed inclusion of the Guadelupe River/Los Gatos Creek watershed in the proposed critical habitat designation for this ESU.

Response: The watershed (HSA 220540) containing the upper portion of Guadelupe River and Los Gatos Creek was not included in the proposed designation. Occupied habitat in this watershed was excluded from the proposed rule based on the ESA section 4(b)(2) analysis which concluded that the economic benefits of exclusion outweighed the biological benefits of inclusion. The watershed unit (HSA 220550) which contains the lower portion of the Guadelupe River, however, was included in the proposed designation. It is also included in the final critical habitat designation for this ESU because the biological benefits of including the occupied stream habitat in this watershed outweigh the economic benefits of its exclusion.

Comment 54: One commenter argued that Arroyo Corte Madera del Presidio Stream in HSA watershed 220320 should be designated as critical habitat for this ESU because it is occupied by this ESU. The same commenter also questioned the exclusion of HSA 220330 from the proposed designation.

Response: Exclusion of this stream from proposed critical habitat in HSA 220320 was the result of a technical mapping error in the proposed rule. The CHART evaluated this stream for the proposed rule and concluded it was occupied and met the definition of critical habitat. Accordingly, it has been included in the final designation for this ESU. Occupied habitat in HSA 220330 was excluded from the proposed rule and in this final rule based on the results of the 4(b)(2) analysis, which indicated the economic benefits of exclusion outweighed the biological benefits of including these stream reaches in the designation for this ESU.

Comment 55: One commenter argued that occupied habitat in HSA 220330 in the east Bay of San Francisco should be designated as critical habitat for this ESU.

Response: Occupied habitat (Codornices Creek) in this HSA was excluded from the proposed designation because the conservation value of this habitat was judged by the CHART to be low (low habitat quantity and quality, low restoration potential, no unique attributes, and small population size), and the economic benefits of excluding this habitat outweighed the biological benefits of designation. The CHART did not receive any new information to change its previous determination, and, therefore, reaffirmed that it has low conservation value and that its exclusion would not impede the conservation of this ESU.

Comment 56: One commenter recommended that several additional, but small, stream reaches in the San Francisquito watershed, as well as an unoccupied habitat above an impassable dam (Searsville Dam), be designated as critical habitat for this ESU.

Response: Based on a review of the information provided by the commenter, the CHART concluded that some additional stream reaches in this watershed should be considered occupied, meet the definition of critical habitat, and should be designated as critical habitat. Because this watershed was not excluded from the designation as a result of the final ESA 4(b)(2) analysis, additional stream reaches qualifying as critical habitat have been added to the final designation. These include: a short reach of Corte Madera Creek to the base of Searsville Dam, approximately 2.5 mi (4 km) of West Union Creek above the confluence with Bear Creek, a short reach of Bear Gulch Creek up to the California Water Service Upper Diversion Dam, a small portion of Squealer Gulch above the confluence with West Union Creek, and a small portion of McGarvey Gulch above the confluence with West Union Creek.

Comment 57: One commenter requested the exclusion of several streams in Hydrologic Unit 3304 from the critical habitat designation, including Laguna Creek, Liddell Creek, Majors Creek, Arana Gulch, San Lorenzo River, Branciforte Creek, Newell Creek, and Zayante Creek because the commenter believes the benefits of excluding these areas outweigh the benefits of designating them. The rationale is that: (1) The commenter is developing an HCP that will address these streams and a designation could hinder its completion; and (2) a designation would increase the regulatory costs and burdens on the city beyond those already in place. The commenter also raised concerns about the regulatory uncertainty associated with critical habitat because of the 2004 Gifford Pinchot case.

Response: We disagree with the commenter and continue to believe that the benefits of including these streams in the critical habitat designation outweigh the benefits of excluding them. For the proposed critical habitat designation, the CHART evaluated the HSA watersheds containing the streams identified by the commenter (HSAs 330411 and 330412) and concluded that the occupied streams in both HSAs had high conservation value for this ESU and that there was a need for special management consideration or protections. Based on this assessment and the results of the ESA section 4(b)(2) analysis conducted for the proposed designation, including the consideration of potential economic impacts, we concluded that the benefits of designating the occupied streams in both watersheds were higher than the benefits of excluding them. The commenter did not provide any new scientific information to change our assessment of the benefits of designating these streams, and thus we continue to believe they have a high biological value to the ESU. As part of the 4(b)(2) analysis conducted for the final rule, however, we did reduce our assessment of the benefit of designating occupied habitat in these two HSA watersheds because they both met a ''low section 7 leverage'' profile, which we believed reduced the benefits of section 7 consultation (see discussion in *Critical Habitat Analytical Review Teams* section).

We continue to be supportive of the commenter's efforts to develop an HCP and believe completion of an HCP that meets the requirements of section 10 of the ESA will provide substantial benefits to steelhead and its habitat in these streams. However, negotiations are still ongoing, and an HCP has not been completed. Until an HCP is completed and an incidental take permit is issued, the potential conservation benefits to steelhead and its habitat are uncertain. For this reason, we believe it is premature to consider the potential benefits of such a conservation plan in the 4(b)(2) analysis for this final designation. Whether or not the commenter would experience an increased regulatory burden or higher costs with a critical habitat designation in place is uncertain. Even without critical habitat in place, the commenter is likely to incur costs associated with ESA section 7 consultations,

development of an HCP, and/or efforts to avoid take. We did consider the economic impacts of critical habitat designation in both the proposed and final rules and in doing so analyzed the full costs of section 7 implementation, not just the costs associated with critical habitat implementation. In approaching the economic analysis this way, we believe that we have likely overstated the economic impacts of critical habitat designation. The final 4(b)(2) analysis for this designation considered both the reduced benefit of including HSA watersheds 330411 and 330412 and the final economic impacts for these watersheds. Based on our consideration of this information, we concluded that the benefits of designating the occupied stream reaches in HSAs 330411 and 330412, including the streams of concern to the commenter, outweighed the benefits of excluding them from the final designation.

ESU Specific Comments—South-Central Coast Steelhead

Comment 58: One commenter questioned the conservation value of the San Benito watershed (HSA 330550) and also argued that unoccupied habitat areas above Uvas Creek Dam were not essential for the conservation of this ESU.

Response: The San Benito watershed unit (HSA 330550) was rated as having medium conservation value to this ESU by the CHART based on factors used to conduct the conservation value rating and ranking effort. For the proposed critical habitat ESA section 4(b)(2) analysis, therefore, we attributed a medium benefit of designation to this watershed unit. For the final designation, we conducted a revised 4(b)2 analysis that modified the biologically based conservation value scores if they met a ''low section 7 leverage'' profile which we believe reduce the benefits of section 7 consultation (see discussion in *Critical Habitat Analytical Review Teams* section). In the case of HSA 330550, we determined that there was relatively low section 7 leverage which reduced the benefits of section 7 consultation, and therefore, reduced the benefit of inclusion from medium to low. Based on this low benefit level and comparatively high economic costs associated with section 7 consultations in this watershed unit, this watershed was considered for possible exclusion. However, the CHART reviewed the available biological and other information for this watershed unit and concluded that its exclusion would impede the conservation of this ESU. This determination was based on the size of the San Benito River and its contribution of habitat to the Pajaro River Basin, the level of section 7 activity occurring in the watershed, and the San Benito River's potential contribution to the recovery of this ESU. Accordingly, we have included the San Benito watershed unit HSA 330550 in the final critical habitat designation.

In the proposed critical habitat designation, the CHART did conclude that the unoccupied habitat above the Uvas Creek Dam ''may'' be essential for conservation of this ESU. We recognize, however, that there are several issues related to providing fish passage over this dam and also believe it is premature to include this unoccupied habitat area in the critical habitat designation until ongoing recovery planning efforts have progressed to the point where they support a determination that these areas are essential to the conservation of this ESU.

Comment 59: One commenter questioned whether the apparent exclusion of a portion of the drainage into Morro Bay was based on a consideration of land ownership.

Response: The identification and conservation rating of occupied habitat that was eligible for designation used only biological and ecological criteria, including information regarding presence of steelhead and habitat condition. Land ownership was not a consideration in the conservation rating process nor in the section 4(b)(2) analysis that identified areas for exclusion based on a balancing of the benefits of designation against the economic costs of designation. In reviewing the proposed critical habitat designation maps in response to this comment, however, we discovered a technical mapping error in Los Osos Creek. An upstream portion of Los Osos Creek was proposed for designation in HSA 331023, but the lower portion of the creek which enters into Morro Bay was inadvertently excluded from the designation. We have corrected this error in the final designation.

Comment 60: One commenter recommended exclusion of San Luis Obispo Creek from the designation for this ESU based on the management plans and existing agreements already in place which provide protection for the creek and steelhead. The commenter also raised questions about the validity of the economic impact analysis used for the proposed critical habitat designation process in light of costs incurred as a result of ESA section 7 consultation on a water reuse project.

Response: The commenter and other local agencies have undertaken numerous efforts to conserve and improve existing habitats within the San Luis Obispo Creek watershed, though some efforts were a result of regulatory requirements to compensate for the adverse effects of proposed actions. However, these conservation efforts have been confined to localized areas and provide no reliable ability to effectively protect existing suitable habitat for steelhead and improve currently degraded habitats. We have not conducted a review to determine whether the existing local conservation and management efforts (e.g., conservation easements, creek set-back ordinance, sewer ordinance) contain measures that would be expected to protect existing suitable habitat for steelhead, and, therefore, the possible benefits that existing management plans may have for the conservation of steelhead and their habitat is unknown. We have, however, reviewed the draft Creeks and Waterway Management Plan (i.e., the Environmental Impact Statement), which describes management and protection of streams within the San Luis Obispo Creek watershed, and concluded that many of the ''management'' activities (e.g., use of rock riprap, removal of woody debris, creation or modification of channels, and in-channel detention enhancements) in the plan would create conditions unfavorable for long-term survival and reproduction of steelhead within the San Luis Obispo Creek watershed and, in turn, the entire ESU. Based on these considerations and other information regarding activities potentially affecting steelhead habitat in the San Luis Obispo Creek watershed, we disagree with the commenter and continue to believe there is a need for special management considerations or protections of occupied stream habitat in the San Luis Obispo Creek watershed. Accordingly, the final designation for this ESU includes all occupied stream reaches in HSA 331024, including San Luis Obispo Creek.

We acknowledge that the economic analysis used in the ESA section 4(b)(2) analysis for the proposed designation did not address water supply and flow modification related projects adequately. The final economic analysis prepared for this designation addresses these issues more completely, though it does not specifically address the water reuse project. Rather than understate the costs of critical habitat designation, we believe that the economic analyses prepared for the proposed and final designations actually overestimate the incremental economic costs associated with critical habitat designation. In our economic analyses, we estimated the

total cost of ESA section 7 consultation for specific project types anticipated to occur in the foreseeable future based on information from Federal agencies and other sources. We believe that much of the estimated costs can be attributable to the presence of listed fish and the jeopardy analysis in section 7 consultation. Indeed, the costs cited by the commenter for its water reuse project were associated with a section 7 consultation that addressed the presence of listed steelhead in the watershed, not critical habitat. Although consideration of critical habitat adverse modification in the consultation on the water reuse project may have resulted in additional project changes, we do not think they are likely to be significant.

Comment 61: Several commenters were confused about whether West Corral de Piedra Creek, an upstream tributary to Pismo Creek (HSA 331026), was included in the proposed designation, and whether areas above a local dam (the Righetti Dam) on this creek were included in the designation. Some commenters also argued that habitat above the Righetti Dam was of high quality for steelhead and should be included in the critical habitat designation. One commenter also requested that an unnamed tributary of West Corral de Piedra Creek be designated, while a second commenter requested that it not be designated.

Response: West Corral de Piedra Creek was included in the proposed designation and has also been included in the final designation for this ESU. The maps used to depict occupied stream habitat and the proposed critical habitat, however, did not properly label West Corral de Piedra Creek, hence the confusion of the commenters. We have corrected this problem in the maps depicting the final designation. The designated critical habitat in West Corral de Piedra Creek, however, does not include habitat above the Righetti Dam. Although the habitat appears to be of high quality and would likely support steelhead spawning, we are uncertain whether adult fish can pass over the dam. Accordingly, we treated the area above the Rhighetti Dam as unoccupied habitat and, since a determination that it is essential to the conservation of the ESU had not been made, we have not included it in the final designation for this ESU. In evaluating the areas of occupancy, habitat conditions, and conservation value of this HSA watershed, the CHART reviewed the available information about the unnamed tributary to West Corral de Piedra Creek. The CHART concluded it was unoccupied and had poor habitat conditions, and, since, a determination that it is essential to the conservation of the ESU has not been made, it has likewise not been included in the final designation.

Comment 62: Another commenter argued that West Corral de Piedra Creek is likely unoccupied by steelhead because of an impassable barrier on Pismo Creek downstream of West Corral de Piedra Creek (and the Righetti Dam), and, therefore, should not be designated as critical habitat. The commenter also criticized the economic analysis for not addressing impacts on irrigation and instream flow resulting from critical habitat designation. Lastly, the commenter argued that habitat area above the Righetti Dam should not be designated.

Response: The potential barrier in question is an existing fish ladder on Pismo Creek downstream of West Corral de Piedra Creek. The extent to which the ladder precludes adult steelhead is unclear, but we do not think it is a complete barrier. There is existing information indicating the presence of juvenile steelhead in West Corral de Piedra Creek downstream of Righetti Dam and above the Pismo Creek ladder which suggests steelhead can pass the existing fish ladder. In addition, direct observations of the fish ladder suggest it is capable of passing adult steelhead even though the design is not ideal and ladder operation may become impaired by inorganic and organic debris. Based on the available information, therefore, the CHART considered West Corral de Piedra to be occupied habitat for steelhead up to, but not above, the Rhigetti Dam. Accordingly, this reach of West Corral de Piedra is included in the final critical habitat designation for this ESU. We acknowledge that the economic analysis prepared for the proposed critical habitat designation did not adequately address economic impacts related to changes in instream flow or agricultural flows. The final economic analysis made additional efforts to address this issue, though potential flow changes at the Righetti Dam was not a part of that analysis. As noted in the previous response, the habitat area above the Righetti Dam is not considered occupied by steelhead though habitat conditions are considered favorable for steelhead spawning. For this reason, the habitat area above Righetti Dam is not included in the final designation of this ESU.

Comment 63: One commenter argued that Arroyo Grande Creek should not be included in the designation because it is not essential for conservation, numerous dams on the creek have altered habitat conditions for steelhead, existing protections are in place and thus there is no need for special management considerations, and previous determinations by Federal and State agencies have concluded that activities at Oceano SVRA do not adversely impact steelhead or their habitat. The commenter cited the final draft HCP for Arroyo Grande Creek as an existing mechanism for managing the creek, and suggested designation of critical habitat was unnecessary because it would cause confusion among stakeholders and agencies regarding the management of the area for steelhead. Another commenter argued that designation of the mouth of Arroyo Grande Creek may impact recreational uses in that area, and thereby result in significant economic impacts to local governments and businesses.

Response: The CHART determined that Arroyo Grande Creek met the definition of critical habitat, and was therefore eligible for designation, based on an extensive review of information, including observations and information obtained from site visits and field studies. This information allowed the CHART to identify the geographic areas occupied by steelhead and confirm that the creek contains physical and biological features essential to conservation. A draft HCP prepared by the San Luis Obispo County Flood Control and Water Conservation District Zone 3 (District) provides information regarding the quality and quantity of habitats in Arroyo Grande Creek for steelhead and discusses the abundance of steelhead. Although this ESU has a broad geographic distribution, there are relatively few representative streams in the southern portion of the ESU where steelhead actively spawn and rear. Arroyo Grande Creek is one of the few streams at the southern portion of the subject ESU where age-0 and older juvenile steelhead occur during summer and fall, and sexually ripe adults occur in winter and early spring. There are numerous streams in San Luis Obispo County, but a disproportionate number in the southern portion of the subject ESU currently do not appear suitable for steelhead owing in part to improper land-use activities. Arroyo Grande Creek is one of the notable exceptions. On the basis of this information, the CHART determined that the HSA watershed containing Arroyo Grande Creek had medium conservation value and that it was essential for the conservation of the ESU.

Based on information available to us, the only dam which is a full barrier to steelhead in Arroyo Grande Creek is Lopez Dam. Its presence and operation have certainly contributed to declines in the quality and quantity of habitat for

steelhead, but evidence indicates that steelhead still use Arroyo Grande Creek for spawning and rearing. More importantly, the effects of Lopez Dam on steelhead and its habitat in Arroyo Grande Creek underscore the need for special management considerations or protections in this watershed.

The purpose of the HCP in question is essentially to address the ''take'' of steelhead and other federally listed species associated with operation of Lopez Dam, not to manage the Arroyo Grande Creek as a whole. More importantly, the current draft HCP does not ensure that essential habitat functions necessary for long-term species survival would be attained through the proposed conservation program. For instance, the flow regime proposed in the draft HCP is conditioned upon reservoir-operation constraints, and, therefore, is not ecologically meaningful. The HCP requires considerable revision before being suitable for adoption in the application phase, and years may pass before it is ultimately approved and an incidental take permit issued.

The commenter is correct that we have determined through informal ESA section 7 consultations with the U.S. Army Corps of Engineers (COE) that off-road vehicle crossings of the creek at the mouth (a sandy tidally influenced area) are not likely to adversely affect steelhead. However, the decision to include Arroyo Grande Creek in the designation was not predicated on whether previous activities, such as off-road vehicle use, did or did not adversely affect the species. Rather, NMFS performed an extensive review and analysis to identify those habitats that are essential for conservation of the species and determined that Arroyo Grande Creek (including the creek mouth) is one such habitat area for this ESU. Inclusion of the creek mouth in the critical habitat designation is necessary because the mouth is an essential migratory habitat linking upstream spawning and rearing areas with the ocean.

Based on our past consultation experience in this area, we do not think that designation of the Arroyo Grande Creek, including the creek mouth, is likely to result in restricted recreational crossings of the creek mouth or cause significant economic impacts to local governments and businesses. Although not definitive on the outcome of future consultations, previous consultations involving such crossings have determined that steelhead were not likely to be adversely affected and that the value of the creek mouth as a migration corridor for steelhead was not likely to be diminished.

Comment 64: One commenter (CDFG) recommended that the conservation value of the HSA watersheds containing Arroyo de la Cruz (HSA 331012) and San Carpoforo (HSA 331011) creeks should be high because of the quality and quantity of steelhead habitat and the potential risks to these resources in the future.

Response: We agree with CDFG that the quality of steelhead habitat is high for both of these streams. However, the CHART considered a range of factors in assessing the conservation value of the HSA watersheds containing these streams, and on the basis of that analysis, concluded that a medium conservation value was appropriate for both watersheds. Based on the available information, we continue to believe that these two HSA watersheds have a medium conservation value to this ESU relative to other HSA occupied watersheds in the range of the ESU. Both HSA watersheds had a relatively low economic benefit of exclusion, and therefore, all occupied habitat in both watersheds, including the two streams in question, are included in the final critical habitat designation for this ESU.

ESU Specific Comments—Southern California Steelhead

Comment 65: Several commenters raised questions about whether or not the Sisquoc River and some of its tributaries are occupied by steelhead, and whether there are PCEs to support steelhead in this watershed. At least one commenter argued that any *O. mykiss* in this watershed were hatchery plants. One commenter criticized the economic analysis for the HSA containing the Sisquoc River watershed, and another was concerned that recreational fishing in one tributary would be adversely affected by a critical habitat designation.

Response: The CHART reconsidered whether the Sisquoc River and its tributaries should be considered occupied based on the issues raised by these commenters. Based on a reassessment of the available information (primarily the Stoecker and Stoecker 2003 barrier assessment for the Sisquoc River), the CHART concluded that the Sisquoc River and its tributaries (HSA 331220) should be considered occupied, and that this watershed contains PCEs supporting migration, spawning and rearing habitat. We recognize that flows in the Santa Maria River watershed are constrained by the operation of Twitchell Dam and that migration opportunities into the Sisquoc River are limited. For this reason, steelhead access to this watershed is not available in all years, and occupancy of the watershed will be on a more infrequent, rather than annual, basis. Nevertheless, migration opportunities do occur in wet years when high flows breach the sand bar at the mouth of the Santa Maria River, and steelhead can and do migrate into the middle and upper reaches of the Sisquoc River watershed where over-summering/rearing habitat and spawning habitat occurs. Although rainbow trout may well have been planted in some areas historically, we are not aware of any current planting of fish except in Manzana Creek. Accordingly, we do not believe the vast majority of steelhead in the watershed are of hatchery origin. A revised economic impact analysis was prepared for the final critical habitat designation. Although it may not address all site specific potential economic impacts within each HSA watershed, we believe this analysis does consider the vast majority of projected activities which are subject to ESA section 7 consultation in each watershed and that it provides a reasonable basis for conducting an ESA section 4(b)(2) analysis. More detailed responses to comments on the economic analysis were presented earlier in this final rule. Lastly, the designation of critical habitat for this ESU is not expected to affect recreational fishing activities in this watershed because such activities are not subject to section 7 of the ESA and are unlikely to affect critical habitat. Nevertheless, such activities do need to ensure that they do not result in the ''take'' of listed steelhead.

Comment 66: One commenter questioned whether specific streams (Santa Agueda and Alamo Pintado, both tributaries to the lower Santa Ynez River in HSA 331440, and Santa Monica Creek in HSA 331534) should be designated as critical habitat.

Response: We have re-examined the available information supporting the inclusion of these tributaries in the proposed designation and concluded that although these streams may occasionally support steelhead, there is not sufficient information to consider them occupied for the purposes of this designation process. Accordingly, these tributaries were not considered occupied in the final critical habitat designation and a determination that they were essential to the conservation of the ESU was not made, so they have been removed from the final critical habitat designation and associated maps.

Comment 67: Many commenters responded to our request for comments regarding the designation of unoccupied

habitat above Bradbury, Matilija, Casitas, Santa Felicia and Rindge Dams. Several commenters recommended that these areas be designated because they are essential for the conservation of this ESU, while several other commenters were opposed to designating these unoccupied habitats. Some commenters were confused or misunderstood that we were only requesting information and thought we had proposed to designate these areas as critical habitat.

Response: As part of the proposed rule development process, the CHART was asked to identify unoccupied areas above dams within the range of this ESU that ''may'' be essential for its conservation. Based on its assessment, the CHART identified the unoccupied habitat found above the five dams listed above. The proposed rule did not include these unoccupied areas in the proposed designation for this ESU, but rather solicited public comment on our determination that these unoccupied areas ''may'' be essential for conservation of this ESU. As stated elsewhere in this rule, we believe that it is premature to designate such areas at this time, and that any designation of unoccupied areas above dams or in other areas must await the completion of technical recovery planning efforts that are currently underway. Our expectation is that the technical recovery planning process will provide the scientific foundation to support the inclusion of unoccupied habitat areas in any critical habitat designation. Once the technical recovery planning is completed, we intend to revisit the designation of unoccupied habitat and will use information provided by commenters to inform any subsequent proposal.

Comment 68: A large number of commenters were opposed to the inclusion of any portion of Rincon Creek in the critical habitat designation. They argued that steelhead did not occupy the stream, the habitat was unsuitable, and the economic impacts of designation would be significant. Some commenters were confused and thought that Rincon Creek upstream from the Highway 101 culvert had been proposed.

Response: The proposed designation of Rincon Creek only included that portion of the creek that is seaward of the Highway 101 culvert. The culvert is considered a complete barrier to steelhead migration, and therefore, areas upstream of the culvert are considered unoccupied. We continue to believe that the lagoon and that portion of Rincon Creek seaward of the culvert is periodically occupied and meets the definition of critical habitat. Accordingly, this habitat reach was considered in the final ESA section 4(b)(2) analysis and has been retained in the final critical habitat designation for this ESU. Efforts are underway to improve fish passage at this culvert, and the designation of critical habitat downstream may support those efforts. If fish passage is successfully implemented at this location and steelhead reoccupy Rincon Creek upstream from the Highway 101 culvert, we will reconsider the possibility of designating critical habitat in the newly occupied habitat area.

Comment 69: Camp Pendleton Marine Corps Base and Vandenberg Air Force Base both provided supplementary comments and information to support the exclusion of their facilities from the final critical habitat designation for this ESU, based on the conservation benefits provided by their respective INRMPs. Both DOD facilities also provided information supporting the national security related impacts of a critical habitat designation on their activities and operations.

Response: As discussed elsewhere in this final rule, we have concluded that the INRMPs for both of these facilities provide conservation benefits to this steelhead ESU, and, therefore, the areas subject to these INRMPs are not eligible for designation pusuant to section 4(a)(3)(B)(i) of the ESA. Information provided by both DOD facilities concerning the impacts of critical habitat designation on their activities and operations support the view that designation of habitat will likely reduce the readiness capability of both the Marine Corps and Air Force, both of which are actively engaged in training, maintaining, and deploying forces in the current war on terrorism. On this basis, we also concluded that the benefits of excluding these facilities from the critical habitat designation for this ESU outweighed the benefits of designation.

Comment 70: Several commenters raised questions about steelhead access to, and occupancy in, upper San Antonio Creek (a tributary to the Ventura River) and its tributaries (*e.g.*, Reeves, Thatcher, Gridley, Ladera, and Senior Canyon Creeks). These commenters argued that a migration impediment at the Soule Park golf course blocks steelhead access upstream and that the only occupied habitat in the San Antonio Creek watershed is downstream from that location.

Response: We agree with the commenters that steelhead access to some portions of upper San Antonio Creek watershed are in fact blocked and should not be considered occupied habitat for the purposes of this critical habitat designation. For example, most of Thatcher Creek and Reeves Creek are presently inaccessible because of a passage impediment at Boardman Road on Thatcher Creek, and, therefore, these habitat reaches are clearly unoccupied by steelhead at present. Similarly, steelhead access into Gridley Canyon Creek, Senior Canyon Creek, and the lower portion of Thatcher Creek was blocked until this past winter when storms washed out a passage impediment at the Soule Park golf course. Although the passage impediment at the Soule Park golf course is no longer present, we have no information at present indicating that steelhead occur in the habitat reaches upstream of the former impediment to migration. Based on this information, we concluded it is appropriate to consider all stream reaches in the upper San Antonio Creek watershed above the Soule Park golf course to be unoccupied for the purposes of this critical habitat designation. We have revised our fish distribution maps accordingly and also removed these areas from the final critical habitat designation. It should be noted, however, that steelhead may now begin to occupy areas above the Soule Park golf course, and that efforts are underway to provide fish passage for steelhead at the Boardman Road location. If steelhead do access these currently unoccupied habitat areas, we will reconsider the exclusion of these areas from critical habitat for this ESU.

Comment 71: Some commenters questioned the distribution of occupied habitat and the proposed designation of occupied habitat in Hydrologic Unit 4901, particularly with regard to the upstream endpoints in San Juan Creek, Trabuco Creek (a tributary of San Juan Creek), and Devil's Canyon (a tributary of San Mateo Creek). Other commenters supported the proposed designation of habitat in the San Juan Creek and Trabuco Creek watersheds.

Response: We have reviewed the information provided by the commenters, re-evaluated the information used in developing the proposed designation, and also consulted with CDFG regarding the upstream limit of the distribution of steelhead in San Juan Creek and Trabuco Creek. After considering this information, we have substantially modified the upstream distribution limits of steelhead occupancy in Trabuco and San Juan Creeks. According to CDFG, the Trabuco Creek crossing under I–5 in San Juan Capistrano is a complete barrier to steelhead. Therefore, the occupied habitat reach in Trabuco Creek is now considered to end at the I–5 crossing

which is in HSA 490127. As a result of this distributional change, three HSA watershed units in upper Trabuco Creek that were previously considered occupied and proposed for designation (HSAs 490121, 490123, and 490122) are no longer considered occupied. Because these watersheds are not occupied and a determination that they are essential to the conservation of the species had not been made, they are not included in the final critical habitat designation. The I–5 does not serve as a barrier to steelhead migration in San Juan Creek. However, the upstream distributional limit of steelhead according to CDFG is basically at the I–5 bridge based on the available anecdotal information. As a result of this distributional change, three HSA watersheds upstream from this location that were previously considered occupied and proposed for designation (HSAs 491028, 490126, and 490125) are no longer considered occupied; and, because a determination that they are essential to the conservation of the ESU has not been made, they are not included in the final designation for this ESU. Those portions of Trabuco and San Juan Creeks that are occupied and occur in HSA 490127 as described above were considered eligible for designation and were considered in the final ESA section 4(b)(2) analysis. Based on this analysis, we concluded that the benefits of including the occupied habitat reaches in HSA 490127 outweighed the benefits of their exclusion, and, therefore, we have included these habitat areas in the final designation.

Comment 72: One commenter questioned why Pole Creek, a tributary to the Santa Clara River, was included in the proposed critical habitat designation when the habitat conditions were poor and there was little information indicating it was occupied.

Response: Based on information from the commenter and observations by agency biologists, we have reassessed the appropriateness of including Pole Creek in the final designation. We recognize that habitat conditions in Pole Creek are poor and upstream passage through the existing concrete channel in the lower portion of the creek is highly unlikely. Accordingly, we have concluded that Pole Creek should be considered unoccupied. Because it is considered unoccupied and we have not made a determination that it is essential for conservation, it is not included in the final critical habitat designation.

Comment 73: One commenter questioned why critical habitat was not proposed in the Santa Clara River upstream from its confluence with Piru Creek.

Response: The CHART did not consider that portion of the Santa Clara to be occupied, and we did not make a determination that it was essential for the conservation of the ESU; thus it was not considered further in the critical habitat analysis.

ESU Specific Comments—Central Valley Spring Run Chinook

Comment 74: Two commenters provided information regarding the distribution of occupied spring run Chinook habitat and habitat use, and recommended that additional critical habitat be designated in the upper Sacramento River Basin for this ESU. One commenter indicated that we should designate several west-side tributaries to the upper Sacramento River in the vicinity of Redding (HSA 550810) as critical habitat because these streams provide significant non-natal rearing and refugia habitat, especially since Shasta and Keswick Dams block access to hundreds of miles of historic rearing and refugia habitat. Another commenter recommended that small intermittent tributaries used for natal rearing in the Sacramento River, as well as lower Butte Creek, should be designated as critical habitat.

Response: The CHART reviewed the information provided by these commenters for the upper Sacramento River tributaries and concluded that it did not change the previously determined distribution of occupied habitat for this ESU. The CHART reassessed the conservation value of occupied habitat in HSA 550810 based on the new information and concluded that the conservation value of some reach specific tributaries was less than previously thought to be the case, but that the overall conservation value for the HSA remained high. All occupied spring run Chinook habitat in HSA 550810 was proposed for designation, and, as a result of the final ESA section 4(b)(2) analysis, this habitat has been included in the final designation for this ESU. The CHART agreed with the commenter that intermittent tributaries to the Sacramento River are used for non-natal rearing and that lower Butte Creek is important for the conservation of this ESU. In fact, the CHART previously analyzed these occupied habitat areas and rated them as having high conservation value. These areas were proposed for designation and are also included in the final designation for this ESU.

Comment 75: One commenter recommended that the lower American River from the outfall of the Natomas Main Drainage Canal downstream to the confluence with the Sacramento River be designated because it is used for non-natal rearing (HSA 551921). The argument was that this habitat provides spawning, rearing and migration values for spring run Chinook that may require special management considerations.

Response: The HSA watershed (551921) containing the lower American River was originally rated by the CHART as having medium conservation value and was excluded from the proposed designation because of relatively high economic costs. In response to these comments, the CHART reassessed the conservation value of this HSA and determined that it should be rated as having a high conservation value to the ESU. Information provided by the commenter demonstrated the importance of the lower American River for non-natal rearing and the high improvement potential of the habitat conditions from ongoing restoration projects. In addition, the lower American River may be used during high winter flows for rearing and refugia by multiple populations of spring Chinook in the central valley (*e.g.*, Feather and Yuba Rivers). Additionally, the commenter suggested that special management considerations may be required to maintain and improve habitat conditions and the conservation value of this HSA for spring run Chinook. In particular, special management considerations may be necessary to address flood control, residential and commercial development, agricultural management, and habitat restoration. Based on the change in conservation value and the final ESA section 4(b)(2) analysis, we concluded that all occupied habitat in HSA 551921, including the lower American River, should be designated as critical habitat for this ESU.

Comment 76: A commenter also recommended that the lower Bear River (HSA 551510) from the mouth of Dry Creek downstream to its confluence with the Feather River be designated as critical habitat because it is used for non-natal rearing and will require special management to maintain habitat value for this ESU.

Response: The HSA watershed (551510) containing the lower Bear River was originally considered unoccupied by the CHART, and its conservation value was not rated. Based on the information provided by the commenter, the CHART has reclassified the lower Bear River as occupied habitat for spring run Chinook. Information provided by the commenter indicates that the lower Bear River is used for non-natal rearing and that habitat values are likely to increase in the near future

as a result of planned restoration projects that will improve the condition of several PCEs. The CHART applied the PCE factor ranking criteria and rated the lower Bear River as having high conservation value to this ESU, primarily because: (1) the habitat area is likely to be used by at least two populations (*i.e.*, Feather and Yuba River); (2) non-natal rearing represents a unique life-history strategy that is essential for the conservation of the species (contributing to improved growth conditions); (3) the habitat serves as a refugia from high water conditions and catastrophic events; and (4) there is high improvement potential for this habitat from ongoing restoration efforts. Based on information from the commenter, the lower Bear River will require special management efforts to protect and maintain habitat values for this ESU. Special management considerations are likely to include flood control, residential and commercial development, agricultural management, and habitat restoration. Because this HSA is now considered occupied, contains the necessary PCEs, and has a need for special management considerations, it was considered eligible for designation in the final ESA section 4(b)(2) analysis conducted for this designation. Based on the results of the final 4(b)(2) analysis, we concluded that the benefits of including this area in the designation outweighed the benefits of its exclusion. Accordingly, occupied habitat in HSA 551510 is now included in the final critical habitat designation for this ESU.

Comment 77: Several commenters recommended that portions of the San Joaquin River and its major tributaries below impassable mainstem dams be designated as critical habitat for this ESU either because of future efforts to restore habitat or because of unpublished information from CDFG indicating specific habitat areas were occasionally occupied by spring run Chinook. These areas include the San Joaquin River from its confluence with the Merced River upstream to Friant Dam, the Tuolumne River downstream of La Grange Dam, the Merced River downstream of Crocker Huffman Dam, and the Stanislaus River downstream of Goodwin Dam.

Response: The recommendation to designate the San Joaquin River above the confluence with the Merced River confluence was primarily based on the historical occupancy of this habitat reach by spring Chinook and the expectation that future efforts will be undertaken to restore habitat in this reach. We recognize that this habitat in the San Joaquin River was historically used by spring Chinook; however, it has been unoccupied for more than half a century. Moreover, plans to restore flows and habitat conditions downstream of Friant Dam are uncertain, and significant passage impediments and flow alterations in the San Joaquin above the Merced River confluence present potentially significant obstacles to future restoration success. Because this habitat is currently unoccupied and no determination has been made that it is essential for the conservation of this ESU, we have not included it in the final critical habitat designation.

The CHART reviewed information provided by the commenters regarding occupancy of the Tuolumne, Merced, and Stanislaus Rivers by spring Chinook and concluded there was insufficient data to consider them occupied. Although the CHART did evaluate these as unoccupied areas for the proposed critical habitat designation and concluded that they ''may'' be essential for the conservation of spring run Chinook ESU, we believe it is premature to include these unoccupied areas in the critical habitat designation for this ESU until ongoing recovery planning efforts provide information sufficient to make a determination that these areas are essential to the conservation of this ESU. Because these tributary rivers to the San Joaquin River are currently unoccupied and recovery planning efforts do not yet support a determination that these areas are essential for the conservation of this ESU, we have not included them in the final critical habitat designation.

Comment 78: One commenter argued that the lower Feather River below Oroville Dam should not be designated because of the introgression of fall run Chinook and spring run Chinook by the Feather River hatchery.

Response: We disagree with the commenter and believe that the lower Feather River below Oroville Dam should be designated as critical habitat. The extant Feather River population of spring-run Chinook salmon represents a legacy population of the fish that historically used the upper Feather River prior to construction of Oroville Dam, and it is an important population to conserve and protect because of its potential contribution to ESU recovery. This habitat area was proposed for critical habitat because the CHART considered it occupied by spring run Chinook, it contains PCEs, and it requires special management considerations for activities such as flood control, flow and temperature management, residential and commercial development, agricultural management, and habitat restoration. HSA 551540, which contains much of the lower Feather River below Oroville Dam, was rated as having high conservation value by the CHART for the proposed designation, and that determination was not changed as a result of these comments. Based on the results the final ESA section 4(b)(2) analysis, occupied habitat in HSA 551540, including the lower Feather River below Oroville Dam, is included in the final critical habitat designation for this ESU.

Comment 79: Some commenters contended that NMFS should not designate any critical habitat for spring run Chinook in the Sacramento River, its major tributaries (*i.e.* Feather River), the Sacramento-San Joaquin Delta, or the Suisun-San Francisco Bay complex because existing protective efforts and mechanisms are sufficient to protect the ESU.

Response: We disagree with these commenters. These habitat areas comprise the entire freshwater and estuarine range of this ESU, contain one or more PCEs that are essential to the conservation of the ESU, including migration, holding, spawning, rearing, and refugia habitat, and require special management considerations or protections beyond those protective efforts that are already in place or available. For these reasons, they were considered for designation through this rulemaking process. In the course of the analysis supporting this rulemaking, we evaluated the quantity, quality and diversity of PCEs within the occupied portions of these waterbodies by watershed unit, assessed the benefits of designating these watershed units, and finally weighed the benefits of designation against the benefits of exclusion by watershed unit. The resultant critical habitat designation in this final rule, therefore, meets the definition of critical habitat and also represents that habitat which contains PCEs that we believe are essential for the conservation of this ESU.

Comment 80: One commenter recommended that several areas proposed for designation in the Sacramento River basin below impassable barriers not be designated in the final rule. These areas include: (1) the South Fork Cow Creek watershed because it is not occupied; (2) specific streams in the Tehama Hydrologic Unit (5504) including HSAs 550410 and 550420 because they do not support populations of spring run Chinook and also lack cool, deep pools for summer holding habitat; (3) specific streams in the Whitmore Hydrologic Unit (5507) including HSAs 550711 and 550722

because they do not support populations of spring run Chinook and also lack cool, deep pools for summer holding habitat; and (4) specific streams in the Redding Hydrologic Unit (5508) and HSA 550810 because they do not support a population of spring run Chinook and lack cool, deep pools for summer holding habitat.

Response: The CHART re-evaluated the South Fork Cow Creek based on these comments and agreed that it is unoccupied and therefore reclassified its occupancy status accordingly. Because the HSA containing South Fork Cow Creek (HSA 550731) is now considered unoccupied and we have not made a determination that it is essential to the conservation of the ESU, it was excluded from further consideration in the analysis and has not been included as critical habitat in the final designation for this ESU.

The CHART, however, disagreed with the commenter's recommendation to exclude the identified streams and HSAs in the Tehama (5504), Whitmore (5507), and Redding (5008) Hydrologic Units. The recommendation was based on the lack of cool, deep pools for summer holding habitat that is essential for adult holding, spawning, and summer rearing. The CHART's previous assessment of the conservation value of these streams and watershed units, however, was based on their use during winter and early-spring months for non-natal rearing by juvenile spring-run Chinook. Though current use is likely low, it is expected to increase in the near future as a result of habitat restoration and range expansion in Battle and Clear Creeks. The CHART concluded these streams provide several PCEs that are important for juvenile non-natal rearing, which represents a unique life-history strategy that is essential for the conservation of this ESU because of its contribution to improved growth conditions and refugia from high water and catastrophic events. In addition, the CHART concluded that these streams will require special management efforts for flood control, residential and commercial development, agricultural management, and habitat restoration to protect and maintain the conservation value of these habitats for spring-run Chinook. Based on these factors, the CHART rated most of the occupied HSAs in these three Hydrologic Units as having high conservation value to the ESU. After consideration of these comments, the CHART concluded there was no reason to change its previous assessment of spring Chinook distribution, habitat use, or conservation value for these streams and Hydrologic Units. Accordingly, the occupied streams in these Hydrologic Units and associated HSAs were considered in the final 4(b)(2) analysis for this final designation.

Comment 81: Two commenters questioned the historical and current habitat use and occupancy of Putah, Alamo, and Ulatis Creeks by spring run Chinook and thus whether they should be designated as critical habitat.

Response: The proposed critical habitat designation for spring run Chinook did not include any of these three creeks, because the CHART considered all of them to be unoccupied in its original assessment and we had not made a determination that they were essential to the conservation of the ESU. The commenters likely were confused because these creeks all occur in the Valley Putah-Cache Hydrologic Unit (HSAs 551100 and 551120), and some portions of this Hydrologic unit were included in the proposed designation because they are occupied, have the requisite PCEs, may need special management considerations, and were not excluded as a result of the original ESA section 4(b)(2) exclusion process that led to the proposed rule. The CHART did not receive any new information indicating these creeks are occupied, so they were not reconsidered and are not included in the final critical habitat designation for this ESU.

Comment 82: Several commenters indicated that habitat above major impassable rim dams on tributaries to the San Joaquin River (Stanislaus, Tuolumne, and Merced Rivers) do not contain habitat that would support spring run Chinook and/or that the feasibility of providing fish passage for spring run Chinook has not been adequately evaluated.

Response: Although the CHART did evaluate these as unoccupied areas for the proposed critical habitat designation and concluded that some of the reaches above the rim dams ''may'' be essential for the conservation of spring run Chinook, we believe it is premature to include these unoccupied areas in the critical habitat designation for this ESU until ongoing recovery planning efforts provide technical information supporting a determination that one or more of these areas are essential to its conservation and recovery. Because these tributary rivers to the San Joaquin River are currently unoccupied and recovery planning efforts do not yet support a determination that these areas are essential for the conservation of this ESU, we have not included them in the final critical habitat designation.

ESU-Specific Comments—Central Valley Steelhead

Comment 83: One commenter recommended that we designate several west-side tributaries to the Sacramento River in the vicinity of Redding (HSA 550810) as critical habitat for this ESU because they are used as spawning and/or rearing habitat.

Response: The CHART reviewed the new information provided by the commenter and concluded that several of these streams are seasonally occupied and most likely used by steelhead as non-natal rearing habitat with occasional use as spawning habitat, and that they contain PCEs supporting non-natal habitat use. The CHART considered these additional occupied habitat areas important for steelhead because they are likely to be used by several populations (e.g., upper Sacramento River, Clear Creek, and Cow Creek), and because non-natal rearing represents a unique life-history strategy that is essential for the conservation since it contributes to improved growth conditions and serves as a refugia from high water and catastrophic events. The CHART concluded that these streams may require special management considerations to address activities such as flood control, residential and commercial development, agricultural management, and habitat restoration, and, therefore, evaluated the conservation value of these occupied habitat stream reaches and the overall HSA. This reassessment concluded that the conservation value of the additional occupied stream reaches ranged from low to high, but that the overall conservation value of HSA watershed 550810 remained high to the ESU. Based on the results of the final ESA section 4(b)(2) analysis, all occupied habitat in HSA 550810, including several stream reaches recommended by the commenter, is designated as critical habitat in the final rule.

Comment 84: One commenter recommended that we should designate upper little Dry Creek, a tributary to Butte Creek, as critical habitat for this ESU.

Response: The CHART originally evaluated the conservation value of upper Dry Creek (HSA 552110) as being low, and it was proposed for exclusion in the proposed rule based on the results of the ESA section 4(b)(2) analysis. In response to these comments, the CHART re-assessed the conservation value of this HSA and concluded it should be changed from low to medium. The original low rating was strongly influenced by the low number of stream miles in the HSA. The remainder of

little Dry Creek is located downstream in HSA 552040, which was rated as having a high conservation value by the CHART because of the number of occupied stream miles, its high restoration potential, and its use by multiple populations of steelhead. In its reassessment of the conservation value of HSA 552110, the CHART placed more emphasis on the restoration potential of this reach of upper little Dry Creek and the potential for the stream reach to support life history stages of high importance (i.e., spawning adults and over summering juveniles) for this ESU. Based on the increased conservation value of this HSA 552110 (increased from low to medium) and the results of the final ESA section 4(b)(2) analysis, the upper little Dry Creek has been included in the final critical habitat designation for this ESU.

Comment 85: One commenter recommended that we designate the lower Bear River as critical habitat for Central Valley steelhead from its confluence with Dry Creek downstream to its confluence with the Feather River because it is used for non-natal rearing and will require special management considerations to maintain habitat value for the ESU.

Response: The CHART originally evaluated the conservation value of HSA 551510, which contains the lower Bear River, as being low, and it was proposed for exclusion in the proposed critical habitat rule based on the results of the ESA section 4(b)(2) analysis conducted for that rulemaking. In response to the information provided by the commenter, the CHART re-assessed the conservation value and concluded that the overall conservation value for this HSA is medium rather than low. As a result of the revised 4(b)(2) analysis conducted for the final rule, however, this HSA watershed was considered to have a medium benefit of designation and a relatively high benefit of exclusion (ie., high cost relative to benefit), making it potentially subject to exclusion from the final designation. However, the CHART felt the lower portion of the Bear River within this HSA was important because the habitat is likely to be used for non-natal rearing by several populations (i.e., Feather and Yuba River populations) and because non-natal rearing represents a unique life-history strategy that is essential for conservation since it contributes to improved growth conditions and serves as a refugia from high water and catastrophic events. Therefore the CHART concluded the benefit of including this area out weighed the benefit of excluding this area and we have included HSA 551510, which includes the lower Bear River, in the final critical habitat designation for this ESU.

Comment 86: One commenter recommended that the Cosumnes River should be designated as critical habitat for this ESU based on unpublished documentation of steelhead presence.

Response: The original analysis conducted by the CHART for the proposed rule considered the Cosumnes River to be occupied, but its assessment concluded that the HSA watersheds (553111, 553221, 553223 and 553224) containing this river system were of low conservation value. Based on this assessment and the results of the ESA section 4(b)(2) analysis conducted for the proposed rule, the Cosumnes River and all other occupied habitat in these four watersheds were excluded from the proposed designation. The commenter did not provide any new information warranting a change in our proposed rule, and, therefore, the Cosumnes River and these four watersheds have been excluded from the final designation for this ESU.

Comment 87: Several commenters recommended that we designate the San Joaquin River from its confluence with the Merced River to Friant Dam as critical habitat for this ESU.

Response: The recommendations to designate the San Joaquin River above the confluence with the Merced River were primarily based on the historical occupancy of this habitat reach by steelhead and the expectation that future efforts will be undertaken to restore habitat in this reach. We recognize that this habitat in the San Joaquin River was historically used by steelhead, but we consider it presently unoccupied. Moreover, plans to restore flows and habitat conditions downstream of Friant Dam are uncertain, and significant passage impediments and flow alterations in the San Joaquin River above the Merced confluence present significant obstacles to future restoration success. Because this habitat is currently unoccupied, and ongoing recovery planning efforts have not identified areas in this reach of the San Joaquin River as being essential for the conservation of this ESU, we have not included it in the final critical habitat designation.

Comment 88: Two commenters recommended that we designate Dry Creek, a tributary to the Yuba River, as critical habitat for Central Valley steelhead.

Response: The commenters incorrectly interpreted the proposed designation. Dry Creek, a tributary to the Yuba River, occurs in two HSA watersheds (551712 and 551713). However, the vast majority of this creek occurs within HSA 551712. The CHART originally concluded that watershed 551712 had a high conservation value and that watershed 551713 had a low conservation value. Based on this assessment and the original ESA section 4(b)(2) analysis, the proposed designation for this ESU included all occupied habitat in HSA 55172, including Dry Creek, but did exclude a small portion of Dry Creek occurring in HSA 551713 because of high economic costs. We did not receive any new information warranting a change in the proposed critical habitat with respect to Dry Creek, and, therefore, the final critical habitat designation for this ESU only includes that portion of Dry Creek contained in HSA 551712.

Comment 89: Some commenters contended that we should not designate any critical habitat for steelhead in the Sacramento River, San Joaquin River or its major tributaries, the Sacramento-San Joaquin Delta, or the Suisun-San Francisco Bay complex because existing protective efforts and mechanisms are sufficient to protect the ESU.

Response: We disagree with these commenters. These waterbodies comprise the entire freshwater and estuarine range of this ESU, contain one or more PCEs that are essential to the conservation of the ESU, including migration, holding, spawning, rearing, and refugia habitat, and may require special management beyond those protective efforts that are already in place or available. For these reasons, they were considered for designation through this rulemaking process. In the course of this rulemaking, we evaluated the quantity, quality, and diversity of PCEs within the occupied portions of these waterbodies by watershed unit, assessed the benefits of designating these watershed units, and finally weighed the benefits of designation against the benefits of exclusion by watershed unit. The resultant critical habitat designation in this final rule, therefore, meets the definition of critical habitat and also contains PCEs that we believe are essential for the conservation of this ESU.

Comment 90: One commenter recommended that we should not designate several streams in the upper Sacramento River (Red Bluff [550420 and Spring Creek [550440] HSAs) as critical habitat for Central Valley steelhead because they are low elevation streams without sufficient flow duration or suitable habitat to support the species.

Response: We disagree with the commenter's recommendation to exclude specific streams in these two

HSAs. The CHART has evaluated these streams and recognizes that they have limited flow duration. However, the team also concluded the streams in question support important winter and early spring non-natal rearing habitat for steelhead and thus contain PCEs that are important for juvenile rearing. The CHART previously rated both HSAs as having an overall high conservation value for this ESU and does not believe the comments warrant a revision in any of its previous conclusions regarding these two HSAs. Based on the CHART's previous conclusions and the results of the final ESA section 4(b)(2) analysis conducted for this rule, all occupied habitat in these two HSAs is included in the final designation for this ESU.

Comment 91: Some commenters argued that there was no basis for proposing to designate critical habitat for Central Valley steelhead in the Calaveras, Stanislaus, Tuolumne, or Merced Rivers.

Response: We disagree with the commenters. The CHART concluded that the HSA watersheds containing these rivers were occupied by steelhead, contained PCEs supporting the species for spawning, rearing and/or migration, and that there may be a need for special management considerations. On this basis, these rivers met the definition of occupied critical habitat, and, therefore, were eligible for designation. We weighed the benefits of including these areas in the designation against the benefits of their exclusion in the original ESA section 4(b)(2) analysis for the proposed rule, and again in a revised analysis for the final rule. In both instances, the benefits of designating the HSA watersheds containing these rivers outweighed the benefits of their exclusion. Accordingly, the HSA watershed containing these rivers were included in the proposed critical habitat designation and are also included in the final designation for this ESU.

Comment 92: One commenter argued that the Old River and Paradise Cut channels in the San Joaquin Delta Subbasin or Hydrologic Unit (5544) do not meet the definition of critical habitat for Central Valley steelhead.

Response: We disagree with the commenter. The CHART concluded that all of the estuarine habitat in this Hydrologic Unit, including the Old River and Paradise Cut channels, is used by steelhead smolts for rearing and migration from upstream freshwater rivers. On this basis the CHART considered the entire Hydrologic Unit to be occupied and to contain PCEs for rearing and migration that are essential to the conservation of this ESU. The CHART also concluded that agricultural water and municipal water withdrawals, entrainment associated with water diversions, invasive/non-invasive species management, and point and non-point source water pollution could affect these PCEs and that there was a need for special management considerations. Based on all of the available information, the CHART rated this Hydrologic Unit as having high conservation value for the ESU. Based on the CHART's assessment and the original ESA section 4(b)(2) analysis conducted for the proposed rule, this Hydrologic Unit was proposed for designation. We have received no new information warranting a change in this proposal, and, therefore, all occupied habitat in this Hydrologic Unit including the Old River and Paradise Cut channels are included in the final critical habitat designation for this ESU.

Comment 93: One commenter recommended designating critical habitat above major dams in the central valley to ensure these habitats were protected and to encourage implementation of fish passage above these dams.

Response: As part of the proposed critical habitat designation process, the CHART did evaluate many unoccupied areas above dams in the central valley as potential critical habitat, and concluded that some of the reaches above the rim dams ''may'' be essential for the conservation of steelhead. Although the CHART believes these areas may be essential for conservation, and we recognize the historical importance of many of these areas to steelhead, we believe it is premature to include these unoccupied areas in the final designation for this ESU until ongoing recovery planning efforts provide technical information to support a determination that any such areas are essential to its conservation and recovery. Because these above-dam habitat areas are currently unoccupied and recovery planning efforts do not yet support a determination that any specific areas are essential for the conservation of this ESU, we have not included them in the final critical habitat designation. As recovery planning efforts mature and sufficient information is available to make a determination about whether any of these areas are essential for conservation of this ESU, we will conduct additional rulemaking as appropriate.

Comment 94: Two commenters addressed the issue of designating critical habitat above the Solano Irrigation District Dam on Putah Creek. One commenter argued that habitat between the Solano Irrigation Dam and Monticello Dam on Putah Creek should be designated as critical habitat for steelhead even though it is unoccupied because: Suitable spawning and rearing habitat exists for steelhead above the dam; providing fish passage is likely to be economically and logistically feasible; and Central Valley steelhead populations are constrained by the lack of accessible habitat. The other commenter argued that this habitat should not be designated because of problems associated with providing passage.

Response: The CHART considered the information provided by these commenters and concluded that the unoccupied area above Solano Irrigation Dam may contain PCEs that would support steelhead and that providing passage would likely be feasible. However, the CHART did not make a determination about whether this above dam area may be essential for the conservation of this ESU. As noted previously, we believe it is premature to include any unoccupied areas above dams in the final critical habitat designation for this ESU until ongoing recovery planning efforts identify those specific unoccupied areas that are essential to its conservation and recovery. Because the habitat above the Solano Irrigation Dam is currently unoccupied and recovery planning efforts do not yet support a determination that this area is essential for the conservation of this ESU, we have not included this area in the final critical habitat designation.

ESU-Specific Comments—Central Valley Spring Run Chinook and Central Valley Steelhead

Comment 95: One commenter argued that west-side tributaries in Glenn County, and in particular Stony Creek, should not be designated as critical habitat for either spring-run Chinook salmon or steelhead because these habitats are unoccupied and water temperatures are too warm to support salmonids.

Response: We disagree with the commenter. The CHART has evaluated the available information, particularly with regard to Stony Creek (HSA 550410), and concluded that this stream is occupied by both spring run Chinook and steelhead. Juvenile spring run Chinook have been consistently documented using Stony Creek as rearing habitat since 2001 (Corwin and Grant, 2004), as well as in previous years (Maslin and McKinney, 1994). Similarly, juvenile steelhead have been periodically documented rearing in Stony Creek (Corwin and Grant, 2004; Maslin and McKinney, 1994). The

CHART also concluded that Stony Creek has PCEs that support both species. Water temperature monitoring from 2001 through 2004 has shown that temperatures in Stony Creek under current operations are generally suitable for adult and juvenile salmonids (below 65 °F) from mid-October through late May. Water temperatures have been found to be suitable for salmonid spawning and incubation (below 56 °F) from mid-November through early May (Corwin and Grant, 2004). Though successful steelhead spawning has not been documented recently in Stony Creek, habitat conditions under current operations are considered marginally suitable to support steelhead reproduction. Because of ongoing restoration actions and ESA section 7 consultations, progress is being made toward improving these habitat conditions, and we expect conditions to continue to improve into the future.

Comment 96: Numerous commenters raised issues concerning the designation of unoccupied and inaccessible habitat in the Yuba River. Several commenters recommended we designate unoccupied stream reaches above major impassable barriers in the Middle, North, and South Fork Yuba Rivers as critical habitat for both ESUs. In contrast, several other commenters recommended we delay any decision to designate unoccupied and inaccessible habitat for both ESUs in the Yuba River above Englebright Dam until the Upper Yuba River Studies Program is completed.

Response: The CHART reviewed information regarding unoccupied habitat above Englebright Dam for the proposed rule and concluded that unoccupied and inaccessible areas above the dam ''may'' be essential for the conservation of these ESUs. However, we have not made a final determination that these areas are essential to conservation. As noted previously for other unoccupied and inaccessible areas, we believe that it is premature to designate unoccupied areas in the Yuba River above Englebright Dam as critical habitat until ongoing recovery planning efforts identify those specific unoccupied habitat areas in the central valley that are essential to the conservation and recovery of these ESUs. The Upper Yuba River Studies Program is expected to provide relevant information for the recovery planning process of both ESUs, and we intend to await the findings of this program as well as recovery planning efforts before making a determination about whether or not the unoccupied habitat areas in question are essential to the conservation of either ESU. If such a determination is made, we will undertake the appropriate rulemaking to propose the designation of these areas as critical habitat.

Comment 97: One commenter recommended designating the entire Butte Creek watershed, upstream from the Centerville Diversion Dam, as critical habitat for both the spring run Chinook and steelhead ESUs. Conversely, another commenter argued that we should not designate this unoccuped habitat in Butte Creek because there is no historical information that suggests this habitat was historically occupied by anadromous salmonids, and recent CDFG barrier assessments have concluded that barrier modifications are not desirable because of the high stream gradient and the presence of multiple natural barriers immediately above the Dam.

Response: The CHART reviewed information regarding unoccupied habitat above the Centerville Diversion Dam on Butte Creek for the proposed rule and concluded that this unoccupied and inaccessible habitat ''may'' be essential for the conservation of both the spring run Chinook and steelhead ESUs. As noted previously for other unoccupied and inaccessible areas above dams, however, we believe that it is premature to designate unoccupied areas in Butte Creek above the Centerville Diversion Dam as critical habitat until ongoing recovery planning efforts identify those specific unoccupied habitat areas in the central valley that are essential to the conservation and recovery of these ESUs. Because the habitat areas above the Centerville Diversion Dam are unoccupied and no final determination has been made that they are essential for conservation of the ESU, they are not included in the final critical habitat designation for these ESUs. If the agency makes such a determination in the future, we will undertake the appropriate rulemaking to designate these areas as critical habitat.

Comment 98: One commenter (CDFG) argued that it is premature to designate unoccupied habitat above Oroville Dam in the upper Feather River as critical habitat for either spring run Chinook or steelhead.

Response: As discussed in other responses, we agree with CDFG. Although the CHART concluded as part of the proposed critical habitat rule that specific unoccupied areas above Oroville Dam ''may'' be essential for the conservation of spring run Chinook and steelhead, we believe it is premature to make such a determination until ongoing recovery planning efforts in the central valley identify above-dam unoccupied areas that are essential for conservation of these ESUs. For this reason, unoccupied areas above Oroville Dam are not included in the final designation.

Comment 99: Some commenters indicated that habitat above rim dams on tributaries (Tuolumne, Stanislaus, and Merced) to the San Joaquin River did not contain suitable habitat for either ESU and that the feasibility of passage had not been adequately studied.

Response: The CHART evaluated specific unoccupied and inaccessible stream reaches above rim dams on these San Joaquin River tributaries and concluded that they ''may'' be essential for the conservation of spring run Chinook and steelhead. However, as discussed previously, we believe it is premature to make such a determination until ongoing recovery planning efforts in the central valley identify above-dam unoccupied areas that are essential for conservation of these ESUs. For this reason, unoccupied areas above these rim dams on the San Joaquin River tributaries are not included in the final designation.

III. Summary of Revisions

We evaluated the comments and new information received on the proposed rule to ensure that they represented the best scientific data available and made a number of general types of changes to the critical habitat designations, including:

(1) We revised distribution maps and related biological assessments based on a final CHART assessment (NMFS, 2005a) of information provided by commenters, peer reviewers, and agency biologists. We also evaluated watersheds that may be low leverage (*i.e.*, unlikely to have an ESA section 7 consultation or where a section 7 consultation, if it did occur, would yield few conservation benefits) and identified several for possible exclusion in the final ESA section 4(b)(2) analysis.

(2) We revised our economic analysis based on information provided by commenters and peer reviewers as well as our own efforts as referenced in the proposed rule. Major changes included assessing new impacts associated with pesticide consultations, revising Federal land consultation costs to take into account wilderness areas, and modifying grazing impacts to more accurately reflect likely project modifications.

(3) We conducted a new ESA section 4(b)(2) analysis based on economic impacts to take into account the above revisions. This resulted in the final exclusion of many of the same

watersheds proposed for exclusion. It also resulted in some areas originally proposed for exclusion not being excluded and some areas proposed for designation now being excluded. The analysis is described further in the 4(b)(2) report (NMFS, 2005c).

(4) We did not conduct an ESA section 4(b)(2) analysis of lands covered by approved HCPs because existing HCP holders did not request exclusion from the critical habitat designation. We did not have sufficient information to conduct this analysis for the vast areas covered by Federal land management plans, but may do so in the future.

The following sections summarize the ESU-specific changes to the proposed critical habitat rule. These changes are also reflected in final agency reports pertaining to the biological, economic, and policy assessments supporting these designations (NMFS, 2005a; NMFS, 2005b; NMFS, 2005c). We conclude that these changes are warranted based on new information and analyses that constitute the best scientific data available.

ESU Specific Changes—California Coastal Chinook Salmon

The CHART did not change conservation value ratings for any watershed within the geographical area occupied by this ESU. However, based on public comments and new information reviewed by the CHART, we have identified minor changes to the extent of occupied habitat areas in some watersheds. Also, based on public comments we have added a migratory corridor in one watershed (HSA 111171) that was proposed to be fully excluded in order to provide connectivity between the ocean and an upstream watershed of high conservation value. Additionally, as a result of revised economic data for this ESU and our final ESA section 4(b)(2) analysis, we are excluding all occupied habitat in two watersheds that were previously proposed for designation (HSAs 111350 and 111423). Table 1 summarizes the specific changes made for this ESU.

TABLE 1.—ESU SPECIFIC CHANGES—CALIFORNIA COASTAL CHINOOK SALMON

Hydrologic unit	HSA watershed code	HSA watershed name	Changes from proposed rule
Trinidad	110810	Big Lagoon	Removed 0.7 mi (1.1 km) of occupied habitat area.
Trinidad	110820	Little River—Albion—Big Salmon	Added 1.2 miles (1.9 km) of occupied habitat area.
Mad River	110920	NF Mad River	Removed 0.8 miles (1.3 km) of occupied habitat area.
Mad River	110930	Butler Valley	Added 1.0 mile (1.6 km) of occupied habitat area.
Eel River	111171	Eden Valley	Excluded tributaries from final designation and retained migratory corridor.
Mendocino Coast	111350	Navarro River	Excluded all occupied habitat from final designation
Russian River	111423	Mark West	Excluded all occupied habitat from final designation.

ESU Specific Changes—Northern California Steelhead

The CHART did not change conservation value ratings for any watershed within the geographical area occupied by this ESU. However, based on public comments and new information reviewed by the CHART, we have identified changes to the extent of occupied habitat areas in 13 watersheds. As a result of revised economic data for this ESU and our final ESA section 4(b)(2) analysis, we did not make any changes to the areas that were previously proposed for designation or identify any new areas for exclusion in the final designation. Table 2 summarizes the specific changes made for this ESU.

TABLE 2.—ESU SPECIFIC CHANGES—NORTHERN CALIFORNIA STEELHEAD

Hydrologic unit	HSA watershed code	HSA watershed name	Changes from proposed rule
Redwood Creek	110720	Beaver	Removed 0.7 mi (1.1 km) of occupied habitat area.
Trinidad	110810	Big Lagoon	Added 0.3 mi (0.5 km) of occupied habitat area.
Trinidad	110820	Little River	Added 2.9 mi (4.7 km) of occupied habitat areas.
Mad River	110930	Butler Valley	Removed 0.4 mi (0.6 km) of occupied habitat area.
Eureka Plain	111000	Eureka Plain	Removed 0.8 mi (1.3 km) of occupied habitat area.
Eel River	111132	Benbow	Removed 0.7 mi (1.1 km) of occupied habitat area.
Eel River	111133	Laytonville	Removed 0.8 mi (1.3 km) of occupied habitat area.
Mendocino Coast	111311	Usal Creek	Removed 5.6 mi (9.0 km) of Coast occupied habitat areas.
Mendocino Coast	111312	Wages Creek	Removed 0.5 mi (0.8 km) of occupied habitat area.
Mendocino Coast	111313	Ten Mile Creek	Removed 7.6 mi (12.2 km) of occupied habitat area.
Mendocino Coast	111320	Noyo River	Removed 0.9 mi (1.4 km) of occupied habitat area
Mendocino Coast	111330	Big River	Removed 0.3 mi (0.5 km) of occupied habitat area.
Mendocino Coast	111340	Albion River	Removed 1.2 mi (1.9 km) of occupied habitat area.

ESU Specific Changes—Central California Coast Steelhead

The CHART did not change the conservation value of any occupied watersheds within the geographical area occupied by this ESU. Occupied habitat was added to one watershed (220320) because of a mapping error in the proposed rule and to another watershed (220550) based on public comments and new information received by the CHART. The Upper Alameda Creek watershed (220430) was removed from the final designation because it is occupied only by resident *O. mykiss*, and a final listing determination for this life form will not be made until December 2005 (70 FR 37219; June 28,

2005). As a result of this change, portions of the migratory corridor to upper Alameda Creek were also removed from two watersheds (220420 and 220520) in the final designation. As a result of revised economic data for this ESU and our final ESA section 4(b)(2) analysis, we are excluding all occupied habitat areas in two watersheds that were not previously proposed for designation (111421 and 220722). Table 3 summarizes the specific changes made for this ESU.

TABLE 3.—ESU SPECIFIC CHANGES—CENTRAL CALIFORNIA COAST STEELHEAD

Hydrologic unit	HSA watershed code	HSA watershed name	Changes from proposed rule
Russian River	111421	Laguna De Santa Rosa	Excluded all occupied habitat from final designation.
Bay Bridges	220320	San Rafael	Added 6.4 mi (10.3 km) of occupied habitat area (Arroyo Core Madera del Presidio).
South Bay	220420	Eastbay Cities	Removed 8.6 mi (13.8 km) migratory corridor to Upper Alameda Creek watershed (220430).
South Bay	220430	Upper Alameda Creek	Removed all occupied habitat (99.0 mi, or 159 km) from final designation.
Santa Clara	220520	Fremont Bayside	Removed portion of migratory corridor (1.0 mi, or 1.6 km) to Upper Alameda Creek watershed (220430).
Santa Clara	220550	Palo Alto	Added 1.9 mi (3.0 km) of occupied habitat area (San Francisquito Creek tributaries).
Suisun	220722	Suisun Creek	Excluded all occupied habitat area from final designation.

ESU Specific Changes—South-Central California Steelhead

The CHART did not change the conservation value rating for any watershed within the geographical area occupied by this ESU, nor were there any changes to the extent of occupied habitat areas. As a result of revised economic data for this ESU and our final ESA section 4(b)(2) analysis, we did not make any changes to the areas that were previously proposed for designation or identify any new areas for exclusion.

ESU Specific Changes—Southern California Steelhead

The CHART did not change the conservation value ratings for any of the occupied watersheds within the geographical area occupied by this ESU. However, based on information from the public comments and agency biologists and reviewed by the CHART, several watershed units (490121, 490122, 490125, 490126, and 490128) were determined to be unoccupied and, because we had not made a determination that they were essential to the conservation of the ESU, were not considered eligible for designation or considered in the final ESA section 4(b)(2) analysis for this final designation. These watershed units were located in the San Juan Creek/Trabuco Creek watershed in the southern portion of the range of the ESU. Also, based on public comments and other information reviewed by the CHART, we have identified several changes to the extent of occupied habitat in a number of watersheds. Based on the revised economic data for this ESU and our final ESA section 4(b)(2) analysis, we did not make any changes to the watershed areas that were previously proposed for designation. Table 4 summarizes the specific changes made for this ESU.

TABLE 4.—ESU SPECIFIC CHANGES—SOUTHERN CALIFORNIA STEELHEAD

Hydrologic unit	HSA watershed code	HSA watershed/area name	Changes from proposed rule
Santa Ynez	331440	Santa Ynez to Bradbury	Removed 24.0 mi (38.6 km) of occupied tributary habitat area to the Santa Ynez River (Alamo Pintado and Santa Aguedo Creeks).
South Coast	331534	Carpenteria	Removed 0.8 mi (1.3 km) of occupied habitat (Santa Monica estuary).
Ventura River	440232	Thatcher	Removed 20.9 mi (33.6 km) of occupied tributary habitat area (San Antonio Creek and tributaries).
Santa Clara—Calleguas	440331	Sespe—Santa Clara	Removed 5.4 mi (8.7 km) of occupied habitat area (Pole Creek).
San Juan	490121	Trabuco	Changed to unoccupied. Removed small amount of occupied habitat area (Trabuco Creek).
San Juan	490122	Upper Trabuco	Changed to unoccupied. Removed 7.7 mi (12.4 km) of occupied habitat area (Trabuco Creek).
San Juan	490123	Middle Trabuco	Removed 12.4 mi (20.0 km) of occupied habitat area (Trabuco Creek).
San Juan	490125	Upper San Juan	Changed to unoccupied. Removed 12.5 mi (20.1 km) of occupied habitat area (San Juan Creek).
San Juan	490126	Mid upper San Juan	Changed to unoccupied. Removed 3.8 mi (6.1 km) of occupied habitat area (San Juan Creek).
San Juan	490128	Middle San Juan	Changed to unoccupied. Removed 3.4 mi (5.5 km) of occupied habitat area (San Juan Creek).

TABLE 4.—ESU SPECIFIC CHANGES—SOUTHERN CALIFORNIA STEELHEAD—Continued

Hydrologic unit	HSA watershed code	HSA watershed/area name	Changes from proposed rule
San Juan	490140	San Mateo	Removed 4.9 mi (7.9 km) of occupied habitat (Devil Creek).

ESU Specific Changes—Central Valley Spring Run Chinook Salmon

Based on information provided in the public comments and new information reviewed by the CHART, one watershed was changed from occupied to unoccupied (550731), one was changed from unoccupied to occupied and rated as having a high conservation value to the ESU (551510), and one watershed was changed from a medium to a high conservation value (551921). Also, based on public comments and new information reviewed by the CHART, we have identified relatively minor changes to the extent of occupied habitat in some watersheds. Based on the results of the revised economic data for this ESU and our final ESA section 4(b)(2) analysis, we are excluding all occupied habitat areas in one watershed (551720) that were previously proposed for designation, and designating all occupied habitat areas in a second watershed (551921) that were previously proposed for exclusion. Table 5 summarizes the specific changes made for this ESU.

TABLE 5.—ESU SPECIFIC CHANGES—CENTRAL VALLEY SPRING RUN CHINOOK

Hydrologic unit	HSA watershed code	HSA Watershed name	Changes from proposed rule
Whitmore	550731	South Cow Creek	Changed from occupied to unoccupied. Removed 10.3 mi (16.6 km) of occupied habitat area.
Redding	550810	Enterprise Flat	Minor changes in distribution. No net change in occupied mi of habitat area.
Marysville	551510	Lower Bear River	Changed from unoccupied to occupied. Added 5.1 mi (8.2 km) of occupied habitat area. Rated as high in conservation value and included all occupied habitat in the final designation.
Yuba River	551720	Nevada City	Excluded all occupied habitat from final designation.
Valley-American	551921	Lower American	Changed conservation value from medium to high and included all occupied habitat in the final designation.

ESU Specific Changes—Central Valley Steelhead

Based on information provided in the public comments and new information reviewed by the CHART, the conservation value of two watersheds (551510 and 552110) within the geographical range of this ESU was changed from low to medium. Additionally, based on public comments and new information reviewed by the CHART, we have identified changes to the extent of occupied habitat areas in two watersheds. As a result of the revised economic data for this ESU and our final ESA section 4(b)(2) analysis, we are excluding all occupied habitat areas in two watersheds (550964 and 552435) proposed for designation and designating all occupied areas in two other watersheds (551510 and 552110) that were previously proposed for exclusion. Table 6 summarizes the specific changes made for this ESU.

TABLE 6.—ESU SPECIFIC CHANGES—CENTRAL VALLEY STEELHEAD

Hydrologic unit	HSA watershed code	HSA Watershed name	Changes from proposed rule
Redding	550810	Enterprise Flat	Added 5.7 mi (9.2 km) of occupied habitat area (several tributaries).
Eastern Tehama	550964	Paynes Creek	Excluded all occupied habitat Tehama from the final designation.
Marysville	551510	Lower Bear River	Changed conservation value from low to medium. Included all occupied habitat in the final designation.
Butte Creek	552110	Upper Dry Creek	Changed conservation value from low to medium. Included all occupied habitat in the final designation.
Shasta Bally	552435	Ono	Excluded all occupied habitat from the final designation.
Shasta Bally	552440	Spring Creek	Removed 3.1 mi (5.0 km) of occupied habitat area.

IV. Methods and Criteria Used To Designate Critical Habitat

The following sections describe the relevant definitions and guidance found in the ESA and our implementing regulations, and the key methods and criteria we used to make these final critical habitat designations after incorporating, as appropriate, comments and information received on the proposed rule. Section 4 of the ESA (16 U.S.C. 1533(b)(2)) and our regulations at 50 CFR 424.12(a) require that we designate critical habitat, and make revisions thereto, ''on the basis of the best scientific data available.''

Section 3 of the ESA (16 U.S.C. 1532(5)) defines critical habitat as ''(i) the specific areas within the geographical area occupied by the species, at the time it is listed * * * on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by the species at the time it is listed upon a determination by the Secretary that such areas are essential for the conservation of the species.'' Section 3 of the ESA (16 U.S.C. 1532(3)) also defines the terms ''conserve,'' ''conserving,'' and ''conservation'' to mean ''to use, and the use of, all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this chapter are no longer necessary.''

Pursuant to our regulations, when designating critical habitat we consider the following requirements of the species: (1) Space for individual and population growth, and for normal behavior; (2) food, water, air, light, minerals, or other nutritional or physiological requirements; (3) cover or shelter; (4) sites for breeding, reproduction, or rearing of offspring; and, generally, (5) habitats that are protected from disturbance or are representative of the historical geographical and ecological distributions of the species (see 50 CFR 424.12(b)). In addition to these factors, we also focus on the known physical and biological features (primary constituent elements or PCEs) within the occupied areas that are essential to the conservation of the species and that may require special management considerations or protection. Both the ESA and our regulations, in recognition of the divergent biological needs of species, establish criteria that are fact specific rather than ''one size fits all.''

Our regulations state that, ''The Secretary shall designate as critical habitat areas outside the geographic area presently occupied by the species only when a designation limited to its present range would be inadequate to ensure the conservation of the species'' (50 CFR 424.12(e)). Accordingly, when the best available scientific and commercial data do not demonstrate that the conservation needs of the species so require, we will not designate critical habitat in areas outside the geographic area occupied by the species.

Section 4 of the ESA requires that before designating critical habitat we must consider the economic impacts, impacts on national security, and other relevant impacts of specifying any particular area as critical habitat, and the Secretary may exclude any area from critical habitat if the benefits of exclusion outweigh the benefits of inclusion, unless excluding an area from critical habitat will result in the extinction of the species concerned. Once critical habitat for a salmon or steelhead ESU is designated, section 7(a)(2) of the ESA requires that each Federal agency shall, in consultation with and with the assistance of NMFS, ensure that any action authorized, funded or carried out by such agency is not likely to result in the destruction or adverse modification of critical habitat.

Salmon Life History

Pacific salmon are anadromous fish, meaning adults migrate from the ocean to spawn in freshwater lakes and streams where their offspring hatch and rear prior to migrating back to the ocean to forage until maturity. The migration and spawning times vary considerably across and within species and populations (Groot and Margolis, 1991). At spawning, adults pair to lay and fertilize thousands of eggs in freshwater gravel nests or ''redds'' excavated by females. Depending on lake/stream temperatures, eggs incubate for several weeks to months before hatching as ''alevins'' (a larval life stage dependent on food stored in a yolk sac). Following yolk sac absorption, alevins emerge from the gravel as young juveniles called ''fry'' and begin actively feeding. Depending on the species and location, juveniles may spend from a few hours to several years in freshwater areas before migrating to the ocean. The physiological and behavioral changes required for the transition to salt water result in a distinct ''smolt'' stage in most species. On their journey juveniles must migrate downstream through every riverine and estuarine corridor between their natal lake or stream and the ocean. For example, smolts from Idaho will travel as far as 900 miles (1,448 km) from the inland spawning grounds. En route to the ocean the juveniles may spend from a few days to several weeks in the estuary, depending on the species. The highly productive estuarine environment is an important feeding and acclimation area for juveniles preparing to enter marine waters.

Juveniles and subadults typically spend from 1 to 5 years foraging over thousands of miles in the North Pacific Ocean before returning to spawn. Some species, such as coho and Chinook salmon, have precocious life history types (primarily male fish known as ''jacks'') that mature and spawn after only several months in the ocean. Spawning migrations known as ''runs'' occur throughout the year, varying by species and location. Most adult fish return or ''home'' with great fidelity to spawn in their natal stream, although some do stray to non-natal streams. Salmon species die after spawning, except anadromous *O. mykiss* (steelhead), which may return to the ocean and make one or more repeat spawning migrations. This complex life cycle gives rise to complex habitat needs, particularly during the freshwater phase (see review by Spence *et al.*, 1996). Spawning gravels must be of a certain size and free of sediment to allow successful incubation of the eggs. Eggs also require cool, clean, and well-oxygenated waters for proper development. Juveniles need abundant food sources, including insects, crustaceans, and other small fish. They need places to hide from predators (mostly birds and bigger fish), such as under logs, root wads and boulders in the stream, and beneath overhanging vegetation. They also need places to seek refuge from periodic high flows (side channels and off channel areas) and from warm summer water temperatures (coldwater springs and deep pools). Returning adults generally do not feed in fresh water but instead rely on limited energy stores to migrate, mature, and spawn. Like juveniles, they also require cool water and places to rest and hide from predators. During all life stages salmon require cool water that is free of contaminants. They also require rearing and migration corridors with adequate passage conditions (water quality and quantity available at specific times) to allow access to the various habitats required to complete their life cycle.

The homing fidelity of salmon has created a metapopulation structure with distinct populations distributed among watersheds (McElhany *et al.*, 2000). Low levels of straying result in regular genetic exchange among populations,

creating genetic similarities among populations in adjacent watersheds. Maintenance of the metapopulation structure requires a distribution of populations among watersheds where environmental risks (*e.g.*, from landslides or floods) are likely to vary. It also requires migratory connections among the watersheds to allow for periodic genetic exchange and alternate spawning sites in the case that natal streams are inaccessible due to natural events such as a drought or landslide. More detailed information describing habitat and life history characteristics of the ESUs is contained in the proposed rule (69 FR 71880; December 10, 2004), agency status reviews for each ESU, technical recovery team products, and in a biological report supporting these designations (NMFS, 2005a).

Identifying the Geographical Area Occupied by the Species and Specific Areas Within the Geographical Area

In past critical habitat designations, we had concluded that the limited availability of species distribution data prevented mapping salmonid critical habitat at a scale finer than occupied river basins (65 FR 7764; February 16, 2000). Therefore, the 2000 designations defined the ''geographical area occupied by the species, at the time of listing'' as all accessible river reaches within the current range of the listed species.

In the proposed rule we described in greater detail that since the previous designations in 2000, we can now be somewhat more precise about the ''geographical area occupied by the species'' because of efforts by agency biologists, in coordination with Federal and state co-managers, to compile information and map actual species distribution at the level of stream reaches. Moreover, much of the available data can now be accessed and analyzed using geographic information systems (GIS) to produce consistent and fine-scale maps. The current mapping effort for these ESUs documents fish presence and identifies occupied stream reaches where the species has been observed. It also identifies stream reaches where the species is presumed to occur based on the professional judgment of biologists familiar with the watershed. We made use of these finer-scale data for the current critical habitat designations, and we now believe that they enable a more accurate delineation of the ''geographical area occupied by the species'' referred to in the ESA definition of critical habitat.

We are now also able to identify ''specific areas'' (ESA section 3(5)(a)) and ''particular areas'' (ESA section 4(b)(2)) at a finer scale than in 2000. As described in the proposed rule, we have used the State of California's CALWATER watershed classification system, which is similar to the USGS watershed classification system that was used for salmonid critical habitat designations in the Northwest. This information is now generally available via the internet, and we have expanded our GIS resources to use these data. We used the CALWATER Hydrologic Subarea (HSA) unit (which is generally similar in size to USGS HUC5s) to organize critical habitat information systematically and at a scale that, while somewhat broad geographically, is applicable to the spatial distribution of salmon. Organizing information at this scale is especially relevant to salmonids, since their innate homing ability allows them to return to the watersheds where they were born. Such site fidelity results in spatial aggregations of salmonid populations that generally correspond to the area encompassed by HSA watersheds or aggregations of these watersheds.

The CALWATER system maps watershed units as polygons, bounding a drainage area from ridge-top to ridge-top, encompassing streams, riparian areas and uplands. Within the boundaries of any HSA watershed, there are stream reaches not occupied by the species. Land areas within the CALWATER HSA boundaries are also generally not ''occupied'' by the species (though certain areas such as flood plains or side channels may be occupied at some times of some years). We used the watershed boundaries as a basis for aggregating occupied stream reaches, for purposes of delineating ''specific'' areas at a scale that often corresponds well to salmonid population structure and ecological processes. This designation refers to the occupied stream reaches within the watershed boundary as the ''habitat area'' to distinguish it from the entire area encompassed by the watershed boundary. Each habitat area was reviewed by the CHARTs to verify occupation, PCEs, and special management considerations (see ''Critical Habitat Analytical Review Teams'' section below).

The watershed-scale aggregation of stream reaches also allowed us to analyze the impacts of designating a ''particular area,'' as required by ESA section 4(b)(2). As a result of watershed processes, many activities occurring in riparian or upland areas and in non-fish-bearing streams may affect the physical or biological features essential to conservation in the occupied stream reaches. The watershed boundary thus describes an area in which Federal activities have the potential to affect critical habitat (Spence *et al.*, 1996). Using watershed boundaries for the economic analysis ensured that all potential economic impacts were considered. Section 3(5) defines critical habitat in terms of ''specific areas,'' and section 4(b)(2) requires the agency to consider certain factors before designating ''particular areas.'' In the case of Pacific salmonids, the biology of the species, the characteristics of its habitat, the nature of the impacts and the limited information currently available at finer geographic scales made it appropriate to consider ''specific areas'' and ''particular areas'' as the same unit.

Occupied estuarine areas were also considered in the context of defining ''specific areas.'' In our proposed rule we noted that estuarine areas are crucial for juvenile salmonids, given their multiple functions as areas for rearing/feeding, freshwater-saltwater acclimation, and migration (Simenstad *et al.*, 1982; Marriott *et al.*, 2002). The San Francisco Bay estuary complex consists of five CALWATER HSA watershed units that are separate from upstream freshwater habitats that drain into the estuarine complex, and these units were analyzed separately. Some other small estuaries did not correspond to HSA watershed units nor were they part of defined HSA watershed units, and so we defined specific polygons which were analyzed separately. In all occupied estuarine areas we were able to identify physical or biological features essential to the conservation of the species, and that may require special management considerations or protection. For those estuarine areas designated as critical habitat we are again delineating them in similar terms to our past designations, as being defined by a line connecting the furthest land points at the estuary mouth.

In previous designations of salmonid critical habitat we did not designate offshore marine areas. In the Pacific Ocean, we concluded that there may be essential habitat features, but we could not identify any special management considerations or protection associated with them as required under section 3(5)(A)(i) of the ESA (65 FR 7776; February 16, 2000). Since that time we have carefully considered the best available scientific information, and related agency actions, such as the designation of Essential Fish Habitat under the Magnuson-Stevens Fishery Conservation and Management Act. In contrast to estuarine areas, we conclude that it is not possible to identify ''specific areas'' in the Pacific Ocean that contain essential features for salmonids. Also, links between human

activity, habitat conditions and impacts to listed salmonids are less direct in offshore marine areas. Perhaps the closest linkage exists for salmon prey species that are harvested commercially (*e.g.*, Pacific herring) and, therefore, may require special management considerations or protection. However, because salmonids are opportunistic feeders we could not identify ''specific areas'' where these or other essential features are found within this vast geographic area occupied by salmon and steelhead. Moreover, prey species move or drift great distances throughout the ocean and would be difficult to link to any ''specific'' areas. Therefore, we are not designating critical habitat in offshore marine areas. We requested comment on this issue in our proposed rule but did not receive comments or information that would change our conclusion.

Primary Constituent Elements

In determining what areas are critical habitat, agency regulations at 50 CFR 424.12(b) require that we must ''consider those physical or biological features that are essential to the conservation of a given species * * *, including space for individual and population growth and for normal behavior; food, water, air, light, minerals, or other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, and rearing of offspring; and habitats that are protected from disturbance or are representative of the historical geographical and ecological distribution of a species.'' The regulations further direct us to ''focus on the principal biological or physical constituent elements * * * that are essential to the conservation of the species,'' and specify that the ''known primary constituent elements shall be listed with the critical habitat description.'' The regulations identify primary constituent elements (PCEs) as including, but not limited to: ''roost sites, nesting grounds, spawning sites, feeding sites, seasonal wetland or dryland, water quality or quantity, host species or plant pollinator, geological formation, vegetation type, tide, and specific soil types.''

NMFS biologists developed a list of PCEs that are essential to the species' conservation and based on the unique life history of salmon and steelhead and their biological needs (Hart, 1973; Beauchamp *et al.*, 1983; Laufle *et al.*, 1986; Pauley *et al.*, 1986, 1988, and 1989; Groot and Margolis, 1991; Spence *et al.*, 1996). Guiding the identification of PCEs was a decision matrix we developed for use in ESA section 7 consultations (NMFS, 1996) which describes general parameters and characteristics of most of the essential features under consideration in this critical habitat designation. We identified these PCEs and requested comment on them in the ANPR (68 FR 55931; September 29, 2003) and proposed rule (69 FR 74636; December 14, 2005) but did not receive information to support changing them. The ESUs addressed in this final rule share many of the same rivers and estuaries and have similar life history characteristics and, therefore, many of the same PCEs. These PCEs include sites essential to support one or more life stages of the ESU (sites for spawning, rearing, migration and foraging). These sites in turn contain physical or biological features essential to the conservation of the ESU (for example, spawning gravels, water quality and quantity, side channels, forage species). The specific PCEs include:

1. Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation and larval development. These features are essential to conservation because without them the species cannot successfully spawn and produce offspring.

2. Freshwater rearing sites with water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility; water quality and forage supporting juvenile development; and natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks. These features are essential to conservation because without them juveniles cannot access and use the areas needed to forage, grow, and develop behaviors (*e.g.,* predator avoidance, competition) that help ensure their survival.

3. Freshwater migration corridors free of obstruction with water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival. These features are essential to conservation because without them juveniles cannot use the variety of habitats that allow them to avoid high flows, avoid predators, successfully compete, begin the behavioral and physiological changes needed for life in the ocean, and reach the ocean in a timely manner. Similarly, these features are essential for adults because they allow fish in a non-feeding condition to successfully swim upstream, avoid predators, and reach spawning areas on limited energy stores.

4. Estuarine areas free of obstruction with water quality, water quantity, and salinity conditions supporting juvenile and adult physiological transitions between fresh- and saltwater; natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, and side channels; and juvenile and adult forage, including aquatic invertebrates and fishes, supporting growth and maturation. These features are essential to conservation because without them juveniles cannot reach the ocean in a timely manner and use the variety of habitats that allow them to avoid predators, compete successfully, and complete the behavioral and physiological changes needed for life in the ocean. Similarly, these features are essential to the conservation of adults because they provide a final source of abundant forage that will provide the energy stores needed to make the physiological transition to fresh water, migrate upstream, avoid predators, and develop to maturity upon reaching spawning areas.

5. Nearshore marine areas free of obstruction with water quality and quantity conditions and forage, including aquatic invertebrates and fishes, supporting growth and maturation; and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, and side channels. As in the case with freshwater migration corridors and estuarine areas, nearshore marine features are essential to conservation because without them juveniles cannot successfully transition from natal streams to offshore marine areas.

6. Offshore marine areas with water quality conditions and forage, including aquatic invertebrates and fishes, supporting growth and maturation. These features are essential for conservation because without them juveniles cannot forage and grow to adulthood. However, for the reasons stated previously in this document, it is difficult to identify specific areas containing this PCE as well as human activities that may affect the PCE condition in those areas. Therefore, we have not designated any specific areas based on this PCE but instead have identified it because it is essential to the species' conservation and specific offshore areas may be identified in the future (in which case any designation would be subject to separate rulemaking).

The occupied habitat areas designated in this final rule contain PCEs required to support the biological processes for

which the species use the habitat. The CHARTs verified this for each watershed/nearshore zone by relying on the best available scientific data (including species distribution maps, watershed analyses, and habitat surveys) during their review of occupied areas and resultant assessment of area conservation values (NMFS, 2005a). The contribution of the PCEs varies by site and biological function such that the quality of the elements may vary within a range of acceptable conditions. The CHARTs took this variation into account when they assessed the conservation value of an area.

Special Management Considerations or Protections

An occupied area cannot be designated as critical habitat unless it contains physical and biological features that ''may require special management considerations or protection.'' Agency regulations at 424.02(j) define ''special management considerations or protection'' to mean ''any methods or procedures useful in protecting physical and biological features of the environment for the conservation of listed species.''

As part of the biological assessment described below under ''Critical Habitat Analytical Review Teams,'' teams of biologists examined each habitat area to determine whether the physical or biological features may require special management consideration. These determinations are identified for each area in the CHART report (NMFS, 2005a). In the case of salmon and steelhead, the CHARTs identified a variety of activities that threaten the physical and biological features essential to listed salmon and steelhead (see review by Spence *et al.*, 1996), including: (1) Forestry; (2) grazing and other associated rangeland activities; (3) agriculture; (4) road building/maintenance; (5) channel modifications/diking/stream bank stabilization; (6) urbanization; (7) sand and gravel mining; (8) mineral mining; (9) dams; (10) irrigation impoundments and withdrawals; (11) wetland loss/removal; (12) exotic/invasive species introductions; and (13) impediments to migration. In addition to these, the harvest of salmonid prey species (*e.g.,* forage fishes such as herring, anchovy, and sardines) may present another potential habitat-related management activity (Pacific Fishery Management Council, 1999).

Unoccupied Areas

ESA section 3(5)(A)(ii) defines critical habitat to include ''specific areas outside the geographical area occupied'' if the areas are determined by the Secretary to be ''essential for the conservation of the species.'' NMFS regulations at 50 CFR 424.12(e) emphasize that we ''shall designate as critical habitat areas outside the geographical area presently occupied by a species only when a designation limited to its present range would be inadequate to ensure the conservation of the species.'' The CHARTs did identify several unoccupied areas above dams that may be essential for the conservation of specific ESUs, primarily within the historical range of the Central Valley spring run Chinook, Central Valley steelhead, and Southern California steelhead ESUs (see proposed rule; 69 FR 71880; December 10, 2004); however, we are not designating unoccupied areas at this time. Though it is not possible to conclude at this time that any of these historically occupied areas warrant designation, we believe it is useful to signal to the public that these specific areas may be considered for possible designation in the future. However, any designation of unoccupied areas would be based on the required determination that such area is essential for the conservation of an ESU and would be subject to separate rulemaking with the opportunity for notice and comment.

Lateral Extent of Critical Habitat

In past designations we have described the lateral extent of critical habitat in various ways ranging from fixed distances to ''functional'' zones defined by important riparian functions (65 FR 7764; February 16, 2000). Both approaches presented difficulties, and this was highlighted in several comments (most of which requested that we focus on aquatic areas only) received in response to the ANPR (68 FR 55926; September 29, 2003). Designating a set riparian zone width will (in some places) accurately reflect the distance from the stream on which PCEs might be found, but in other cases may over- or understate the distance. Designating a functional buffer avoids that problem, but makes it difficult for Federal agencies to know in advance what areas are critical habitat. To address these issues we are proposing to define the lateral extent of designated critical habitat as the width of the stream channel defined by the ordinary high-water line as defined by the COE in 33 CFR 329.11. This approach is consistent with the specific mapping requirements described in agency regulations at 50 CFR 424.12(c). In areas for which ordinary high-water has not been defined pursuant to 33 CFR 329.11, the width of the stream channel shall be defined by its bankfull elevation. Bankfull elevation is the level at which water begins to leave the channel and move into the floodplain (Rosgen, 1996) and is reached at a discharge which generally has a recurrence interval of 1 to 2 years on the annual flood series (Leopold *et al.*, 1992). Such an interval is commensurate with nearly all of the juvenile freshwater life phases of most salmon and steelhead ESUs. Therefore, it is reasonable to assert that for an occupied stream reach this lateral extent is regularly ''occupied''. Moreover, the bankfull elevation can be readily discerned for a variety of stream reaches and stream types using recognizable water lines (*e.g.,* marks on rocks) or vegetation boundaries (Rosgen, 1996).

As underscored in previous critical habitat designations, the quality of aquatic habitat within stream channels is intrinsically related to the adjacent riparian zones and floodplain, to surrounding wetlands and uplands, and to non-fish-bearing streams above occupied stream reaches. Human activities that occur outside the stream can modify or destroy physical and biological features of the stream. In addition, human activities that occur within and adjacent to reaches upstream (*e.g.,* road failures) or downstream (*e.g.,* dams) of designated stream reaches can also have demonstrable effects on physical and biological features of designated reaches.

In estuarine areas we believe that extreme high water is the best descriptor of lateral extent. We are designating the area inundated by extreme high tide because it encompasses habitat areas typically inundated and regularly occupied during the spring and summer when juvenile salmon are migrating in the nearshore zone and relying heavily on forage, cover, and refuge qualities provided by these occupied habitats. As noted above for stream habitat areas, human activities that occur outside the area inundated by extreme or ordinary high water can modify or destroy physical and biological features of the nearshore habitat areas, and Federal agencies must be aware of these important habitat linkages as well.

Military Lands

The Sikes Act of 1997 (Sikes Act) (16 U.S.C. 670a) required each military installation that includes land and water suitable for the conservation and management of natural resources to complete, by November 17, 2001, an INRMP. An INRMP integrates implementation of the military mission of the installation with stewardship of the natural resources found there. Each INRMP includes: an assessment of the

ecological needs on the installation, including the need to provide for the conservation of listed species; a statement of goals and priorities; a detailed description of management actions to be implemented to provide for these ecological needs; and a monitoring and adaptive management plan. Among other things, each INRMP must, to the extent appropriate and applicable, provide for fish and wildlife management, fish and wildlife habitat enhancement or modification, wetland protection, enhancement, and restoration where necessary to support fish and wildlife and enforcement of applicable natural resource laws.

The National Defense Authorization Act for Fiscal Year 2004 (Pub. L. No. 108–136) amended the ESA to address designation of military lands as critical habitat. Specifically, section 4(a)(3)(B)(i) of the ESA (16 U.S.C. 1533(a)(3)(B)(i)) now provides: ''The Secretary shall not designate as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense, or designated for its use, that are subject to an integrated natural resources management plan prepared under section 101 of the Sikes Act (16 U.S.C. 670a), if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation.''

To address this new provision we contacted the DOD and requested information on all INRMPs that might benefit Pacific salmon. In response to the ANPR (68 FR 55926; September 29, 2003) we had already received a letter from the U.S. Marine Corps regarding this and other issues associated with a possible critical habitat designation on its facilities in the range of the Southern California Steelhead ESU. In response to our request, the military services identified 25 installations in California with INRMPs in place or under development. Based on information provided by the military, as well as GIS analysis of fish distributional information compiled by NMFS'' Southwest Region (NMFS, 2004b; NMFS, 2005a) and land use data, we determined that the following facilities with INRMPs overlap with habitat areas under consideration for critical habitat designation in California: (1) Camp Pendleton Marine Corps Base; (2) Vandenberg Air Force Base; (3) Camp San Luis Obispo; (4) Camp Roberts; and (5) Mare Island Army Reserve Center. Two additional facilities are adjacent to, but do not overlap with, habitat areas under consideration for critical habitat in California: (1) Naval Weapons Station, Seal Beach/Concord Detachment; and (2) Point Mugu Naval Air Station. None of the remaining facilities with INRMPs in place overlapped with or were adjacent to habitat under consideration for critical habitat based on the information available to us. All of these INRMPs are final except for the Vandenberg Air Force Base INRMP, which is expected to be finalized in the near term.

We identified habitat of value to listed salmonids in each INRMP and reviewed these plans, as well as other information available regarding the management of these military lands. Our review indicates that each of these INRMPs addresses habitat for salmonids, and all contain measures that provide benefits to ESA-listed salmon and steelhead. Examples of the types of benefits include actions that control erosion, protect riparian zones, minimize stormwater and construction impacts, reduce contaminants, and monitor listed species and their habitats. As a result of our review, we have determined that the final INRMPs and the draft INRMP for Vandenberg Air Force Base provide a benefit to the species for which critical habitat is proposed for designation, and, therefore, we are not designating critical habitat in those areas. Also, we have received information from the Vandenberg Air Force Base and Camp Pendleton Marine Corps Base identifying national security impacts to their operations from critical habitat designation. Our consideration of such impacts is separate from our assessment of INRMPs, but serves as an independent and sufficient basis for our determination not to designate those areas as critical habitat.

Critical Habitat Analytical Review Teams

To assist in the designation of critical habitat, we convened several CHARTs organized by major geographic domains that roughly correspond to salmon recovery planning domains in California. The CHARTs consisted of NMFS fishery biologists from the Southwest Region with demonstrated expertise regarding salmonid habitat and related protective efforts within the domain. The CHARTs were tasked with compiling and assessing biological information pertaining to areas under consideration for designation as critical habitat. Each CHART worked closely with GIS specialists to develop maps depicting the spatial distribution of habitat occupied by each ESU and the use of occupied habitat on stream hydrography at a scale of 1:100,000. The CHARTs also reconvened to review the public comments and any new information regarding the ESUs and habitat in their domain.

The CHARTs examined each habitat area within the watershed to determine whether the stream reaches or lakes occupied by the species contain the physical or biological features essential to conservation. As noted previously, the CHARTs also relied on their experience conducting ESA section 7 consultations and existing management plans and protective measures to determine whether these features may require special management considerations or protection.

In addition to occupied areas, the definition of critical habitat also includes unoccupied areas if we determine that area is essential for conservation of a species. Accordingly the CHARTs were also asked whether there were any unoccupied areas within the historical range of the ESUs that may be essential for conservation. For the seven ESUs addressed in this rulemaking, the CHARTs did not have sufficient information that would allow them to conclude that specific unoccupied areas were essential for conservation; however, in many cases they were able to identify areas they believed may be determined essential through future recovery planning efforts. These were described in the proposed critical habitat designation rule (69 FR 71880).

The CHARTs were next asked to determine the relative conservation value of each occupied HSA watershed area for each ESU. The CHARTs scored each habitat area based on several factors related to the quantity and quality of the physical and biological features. They next considered each area in relation to other areas and with respect to the population occupying that area. Based on a consideration of the raw scores for each area, and a consideration of that area's contribution in relation to other areas and in relation to the overall population structure of the ESU, the CHARTs rated each habitat area as having a ''high,'' ''medium,'' or ''low'' conservation value. The preliminary CHART ratings were reviewed by several state and tribal co-managers in advance of the proposed rule and the CHARTs made needed changes prior to that rule. State co-managers also evaluated our proposed rule and provided comments and new information which were also reviewed and incorporated as needed by the CHARTs in the preparation of the final designations.

The rating of habitat areas as having a high, medium, or low conservation value provided information useful to inform the Secretary's exercise of discretion in balancing whether the benefits of exclusion outweigh the

benefits of designation in ESA section 4(b)(2). The higher the conservation value for an area, the greater may be the likely benefit of the ESA section 7 protections. We recognized that the ''benefit of designation'' would also depend on the likelihood of a consultation occurring and the improvements in species' conservation that may result from changes to proposed Federal actions. To address this concern, we developed a profile for a ''low leverage'' watershed—that is, a watershed where it was unlikely there would be a section 7 consultation, or where a section 7 consultation, if it did occur, would yield few conservation benefits. For watersheds not meeting the ''low leverage'' profile, we considered their conservation rating to be a fair assessment of the benefit of designation, for purposes of our cost-effectiveness framework (NMFS 2005c). For watersheds meeting the ''low leverage'' profile, we considered the benefit of designation to be an increment lower than the conservation rating. For example, therefore, a watershed with a ''high'' conservation value but ''low leverage'' was considered to have a ''medium'' benefit of designation, and so forth. We then applied the dollar thresholds for exclusion appropriate to the adjusted ''benefit of designation.''

As discussed earlier, the scale chosen for the ''specific area'' referred to in section 3(5)(a) was an HSA watershed as delineated by the CALWATER watershed classification system. This delineation required us to adapt the approach for some areas. For example, a large stream or river might serve as a rearing and migration corridor to and from many watersheds, yet be embedded itself in a watershed. In any given watershed through which it passes, the stream may have a few or several tributaries. For rearing/migration corridors embedded in a watershed, the CHARTs were asked to rate the conservation value of the watershed based on the tributary habitat. We assigned the rearing/migration corridor the rating of the highest-rated watershed for which it served as a rearing/migration corridor. The reason for this treatment of migration corridors is the role they play in the salmon's life cycle. Salmon are anadromous—born in fresh water, migrating to salt water to feed and grow, and returning to fresh water to spawn. Without a rearing/migration corridor to and from the sea, salmon cannot complete their life cycle. It would be illogical to consider a spawning and rearing area as having a particular conservation value and not consider the associated rearing/migration corridor as having a similar conservation value.

V. Application of ESA Section 4(b)(2)

The foregoing discussion describes those areas that are eligible for designation as critical habitat—the specific areas that fall within the ESA section 3(5)(A) definition of critical habitat, minus those lands owned or controlled by the DOD, or designated for its use, that are covered by an INRMP that we have determined provides a benefit to the species.

Specific areas eligible for designation are not automatically designated as critical habitat. Section 4(b)(2) of the ESA requires that the Secretary first considers the economic impact, impact on national security, and any other relevant impact. The Secretary has the discretion to exclude an area from designation if he determines the benefits of exclusion (that is, avoiding the impact that would result from designation) outweigh the benefits of designation. The Secretary may not exclude an area from designation if exclusion will result in the extinction of the species. Because the authority to exclude is discretionary, exclusion is not required for any areas. In this rulemaking, the Secretary has applied his statutory discretion to exclude areas from critical habitat for several different reasons.

In this exercise of discretion, the first issue we must address is the scope of impacts relevant to the 4(b)(2) evaluation. As discussed in the Background and Previous Federal Action section, we are re-designating critical habitat for these seven ESUs because the previous designations were vacated (*National Association of Homebuilders* v. *Evans*, 2002 WL 1205743 No. 00–CV–2799 (D.D.C.) (*NAHB*)). The *NAHB* court had agreed with the reasoning of the Court of Appeals for the Tenth Circuit in *New Mexico Cattle Growers Association* v. *U.S. Fish and Wildlife Service*, 248 F.3d 1277 (10th Cir. 2001). In that decision, the Tenth Circuit stated ''[t]he statutory language is plain in requiring some kind of consideration of economic impact in the critical habitat designation phase.'' The Tenth Circuit concluded that, given the USFWS'' failure to distinguish between ''adverse modification'' and ''jeopardy'' in its 4(b)(2) analysis, the USFWS must analyze the full impacts of critical habitat designation, regardless of whether those impacts are coextensive with other impacts (such as the impact of the jeopardy requirement).

In re-designating critical habitat for these salmon ESUs, we have followed the Tenth Circuit Court's directive regarding the statutory requirement to consider the economic impact of designation. Areas designated as critical habitat are subject to ESA section 7 requirements, which provide that Federal agencies ensure that their actions are not likely to destroy or adversely modify critical habitat. To evaluate the economic impact of critical habitat we first examined our voluminous section 7 consultation record for these as well as other ESUs of salmon. (For thoroughness, we examined the consultation record for other ESUs to see if it shed light on the issues.) That record includes consultations on habitat-modifying Federal actions both where critical habitat has been designated and where it has not. We could not discern a distinction between the impacts of applying the jeopardy provision versus the adverse modification provision in occupied critical habitat. Given our inability to detect a measurable difference between the impacts of applying these two provisions, the only reasonable alternative seemed to be to follow the recommendation of the Tenth Circuit, approved by the *NAHB* court—to measure the coextensive impacts; that is, measure the entire impact of applying the adverse modification provision of section 7, regardless of whether the jeopardy provision alone would result in the identical impact.

The Tenth Circuit's opinion only addressed ESA section 4(b)(2)'s requirement that economic impacts be considered. The court did not address how ''other relevant impacts'' were to be considered, nor did it address the benefits of designation. Because section 4(b)(2) requires a consideration of other relevant impacts of designation, and the benefits of designation, and because our record did not support a distinction between impacts resulting from application of the adverse modification provision versus the jeopardy provision, we are uniformly considering coextensive impacts and coextensive benefits, without attempting to distinguish the benefit of a critical habitat consultation from the benefit that would otherwise result from a jeopardy consultation that would occur even if critical habitat were not designated. To do otherwise would distort the balancing test contemplated by section 4(b)(2).

The principal benefit of designating critical habitat is that Federal activities that may affect such habitat are subject to consultation pursuant to section 7 of the ESA. Such consultation requires every Federal agency to ensure that any action it authorizes, funds or carries out is not likely to result in the destruction

or adverse modification of critical habitat. This complements the section 7 provision that Federal agencies ensure that their actions are not likely to jeopardize the continued existence of a listed species. Another benefit is that the designation of critical habitat can serve to educate the public regarding the potential conservation value of an area and thereby focus and contribute to conservation efforts by clearly delineating areas of high conservation value for certain species. It is unknown to what extent this process actually occurs, and what the actual benefit is, as there are also concerns, noted above, that a critical habitat designation may discourage such conservation efforts.

The balancing test in ESA section 4(b)(2) contemplates weighing benefits that are not directly comparable—the benefit associated with species conservation balanced against the economic benefit, benefit to national security, or other relevant benefit that results if an area is excluded from designation. Section 4(b)(2) does not specify a method for the weighing process. Agencies are frequently required to balance benefits of regulations against impacts; E.O. 12866 established this requirement for Federal agency regulation. Ideally such a balancing would involve first translating the benefits and impacts into a common metric. Executive branch guidance from the OMB suggests that benefits should first be monetized (*i.e.*, converted into dollars). Benefits that cannot be monetized should be quantified (for example, numbers of fish saved). Where benefits can neither be monetized nor quantified, agencies are to describe the expected benefits (OMB, 2003).

It may be possible to monetize benefits of critical habitat designation for a threatened or endangered species in terms of willingness-to-pay (OMB, 2003). However, we are not aware of any available data that would support such an analysis for salmon. In addition, ESA section 4(b)(2) requires analysis of impacts other than economic impacts that are equally difficult to monetize, such as benefits to national security of excluding areas from critical habitat. In the case of salmon designations, impacts to Northwest tribes are an ''other relevant impact'' that also may be difficult to monetize.

An alternative approach, approved by OMB (OMB, 2003), is to conduct a cost-effectiveness analysis. A cost-effectiveness analysis ideally first involves quantifying benefits, for example, percent reduction in extinction risk, percent increase in productivity, or increase in numbers of fish. Given the state of the science, it would be difficult to quantify reliably the benefits of including particular areas in the critical habitat designation. Although it is difficult to monetize or quantify benefits of critical habitat designation, it is possible to differentiate among habitat areas based on their relative contribution to conservation. For example, habitat areas can be rated as having a high, medium, or low conservation value. The qualitative ordinal evaluations can then be combined with estimates of the economic costs of critical habitat designation in a framework that essentially adopts that of cost-effectiveness. Individual habitat areas can then be assessed using both their biological evaluation and economic cost, so that areas with high conservation value and lower economic cost might be considered to have a higher priority for designation, while areas with a low conservation value and higher economic cost might have a higher priority for exclusion. While this approach can provide useful information to the decision-maker, there is no rigid formula through which this information translates into exclusion decisions. Every geographical area containing habitat eligible for designation is different, with a unique set of ''relevant impacts'' that may be considered in the exclusion process. Regardless of the analytical approach, section 4(b)(2) makes clear that what weight the agency gives various impacts and benefits, and whether the agency excludes areas from the designation, is discretionary.

Exclusions Based on Impacts to Tribes

The principal benefit of designating critical habitat is that Federal activities that may affect such habitat are subject to consultation pursuant to section 7 of the ESA. We believe there is very little benefit to designating critical habitat on Indian lands for these seven ESUs. Although there are potentially a number of activities on Indian lands that may trigger section 7 consultation, Indian lands comprise only a very minor portion (substantially less than 1 percent) of the total habitat under consideration for these seven California ESUs. Specifically, occupied stream reaches on Indian lands only occur within the range of the California Coastal Chinook, Northern California steelhead, and Central California Coast steelhead ESUs, and these areas represent less than 0.1 percent of the total occupied habitat under consideration for these three ESUs. Based on our analysis, the remaining four ESUs did not contain any Indian lands that overlapped with occupied stream habitat. These percentages are likely overestimates as they include all habitat area within reservation boundaries.

There are several benefits to excluding Indian lands. The longstanding and distinctive relationship between the Federal and tribal governments is defined by treaties, statutes, executive orders, judicial decisions, and agreements, which differentiate tribal governments from the other entities that deal with, or are affected by, the Federal government. This relationship has given rise to a special Federal trust responsibility involving the legal responsibilities and obligations of the United States toward Indian Tribes and the application of fiduciary standards of due care with respect to Indian lands, tribal trust resources, and the exercise of tribal rights. Pursuant to these authorities lands have been retained by Indian Tribes or have been set aside for tribal use. These lands are managed by Indian Tribes in accordance with tribal goals and objectives within the framework of applicable treaties and laws.

In addition to the distinctive trust relationship for Pacific salmon and steelhead in California and in the Northwest, there is a unique partnership between the Federal government and Indian tribes regarding salmon management. Indian tribes in California and the Northwest are regarded as ''co-managers'' of the salmon resource, along with Federal and State managers. This co-management relationship evolved as a result of numerous court decisions clarifying the tribes' treaty right to take fish in their usual and accustomed places.

The benefits of excluding Indian lands from designation include: (1) The furtherance of established national policies, our Federal trust obligations and our deference to the tribes in management of natural resources on their lands; (2) the maintenance of effective long-term working relationships to promote the conservation of salmonids on an ecosystem-wide basis; (3) the allowance for continued meaningful collaboration and cooperation in scientific work to learn more about the conservation needs of the species on an ecosystem-wide basis; and (4) continued respect for tribal sovereignty over management of natural resources on Indian lands through established tribal natural resource programs.

We believe that the current co-manager process addressing activities on an ecosystem-wide basis across the State is currently beneficial for the conservation of the salmonids. Because

the co-manager process provides for coordinated ongoing focused action through a variety of forums, we find the benefits of this process to be greater than the benefits of applying ESA section 7 to Federal activities on Indian lands, which comprise much less than one percent of the total area under consideration for these ESUs. Additionally, we have determined that the exclusion of tribal lands will not result in the extinction of the species concerned. We also believe that maintenance of our current co-manager relationship consistent with existing policies is an important benefit to continuance of our tribal trust responsibilities and relationship. Based upon our consultation with the Round Valley Indian Tribes and the BIA, we believe that designation of Indian lands as critical habitat would adversely impact our working relationship and the benefits resulting from this relationship.

Based upon these considerations, we have decided to exercise agency discretion under ESA section 4(b)(2) and exclude Indian lands from the critical habitat designation for these ESUs of salmonids. The Indian lands specifically excluded from critical habitat are those defined in the Secretarial Order, including: (1) Lands held in trust by the United States for the benefit of any Indian tribe; (2) land held in trust by the United States for any Indian Tribe or individual subject to restrictions by the United States against alienation; (3) fee lands, either within or outside the reservation boundaries, owned by the tribal government; and (4) fee lands within the reservation boundaries owned by individual Indians. The Indian tribes for which these exclusions apply in California include: Big Lagoon Reservation, Blue Lake Rancheria, Round Valley Indian Tribes, Laytonville Rancheria, Redwood Valley Rancheria, Coyote Valley Reservation, and Manchester-Point Arena Rancheria. We have determined that these exclusions, together with the other exclusions described in this rule, will not result in the extinction of any of the seven ESUs in this designation.

Impacts to Landowners With Contractual Commitments to Conservation

Conservation agreements with non-Federal landowners (*e.g.*, HCPs) enhance species conservation by extending species' protections beyond those available through section 7 consultations. In the past decade we have encouraged non-Federal landowners to enter into conservation agreements, based on a view that we can achieve greater species' conservation on non-Federal land through such partnerships than we can through coercive methods (61 FR 63854; December 2, 1996).

Section 10(a)(1)(B) of the ESA authorizes us to issue to non-Federal entities a permit for the incidental take of endangered and threatened species. This permit allows a non-Federal landowner to proceed with an activity that is legal in all other respects, but that results in the incidental taking of a listed species (*i.e.*, take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity). The ESA specifies that an application for an incidental take permit must be accompanied by a conservation plan, and specifies the content of such a plan. The purpose of such an HCP is to describe and ensure that the effects of the permitted action on covered species are adequately minimized and mitigated, and that the action does not appreciably reduce the survival and recovery of the species.

To date we have not excluded critical habitat on lands covered by an HCP, but we acknowledged in our proposed rule that this was an emerging issue and that the benefits of such exclusions may outweigh the benefits of designation (69 FR 74623; December 14, 2004). As described in greater detail above (see Comment 42) and in our assessment of HCPs associated with this final rulemaking (NMFS, 2005e), the analysis required for these types of exclusions requires careful consideration of the benefits of designation versus the benefits of exclusion to determine whether benefits of exclusion outweigh benefits of designation. The benefits of designation typically arise from additional section 7 protections as well as enhanced public awareness once specific areas are identified as critical habitat. The benefits of exclusion generally relate to relieving regulatory burdens on existing conservation partners, maintaining good working relationships with them, and encouraging the development of new partnerships.

Based on comments received on our proposed rule, we could not conclude that all landowners view designation of critical habitat as imposing a burden, and exclusion from designation as removing that burden and thereby strengthening the ongoing relationship. Where an HCP partner affirmatively requests designation, exclusion is likely to harm rather than benefit the relationship. Where an HCP partner has remained silent on the benefit of exclusion of its land, we do not believe the record supports a presumption that exclusion will enhance the relationship. Similarly, we do not believe it provides an incentive to other landowners to seek an HCP if our exclusions are not in response to an expressed landowner preference. We anticipate further rulemaking in the near future to refine these designations, for example, in response to developments in recovery planning. As part of future revisions, we will consider information we receive from those with approved HCPs regarding the effect of designation on our ongoing partnership. We did not consider pending HCPs for exclusion, both because we do not want to prejudge the outcome of the ongoing HCP process, and because we expect to have future opportunities to refine the designation and consider whether exclusion will outweigh the benefit of designation in a particular case.

Exclusions Based on National Security Impacts

As previously noted (see *Military Lands* section), we evaluated several DOD sites with draft or final INRMPs and determined that each INRMP provides a benefit to the listed salmon or steelhead ESUs under consideration at the site. Therefore, we conclude that those areas subject to final INRMPs are not eligible for designation pursuant to section 4(a)(3)(B)(I) of the ESA (16 U.S.C. 1533(A)(3)). At the request of the DOD (and in the case that an INRMP might not provide a benefit to the species), we also assessed the impacts on national security that may result from designating these and other DOD sites as critical habitat.

The U.S. Marine Corps provided comments in response to the ANPR (68 FR 55926; September 29, 2003) regarding its INRMP for Camp Pendleton Marine Corps Base and potential impacts to national security for this facility, which is within the range of the Southern California *O. mykiss* ESU. By letter, NMFS subsequently provided the DOD with information about the areas we were considering to designate as critical habitat for the seven ESUs in California (as well as the 13 ESUs in the Pacific Northwest), and, in addition to a request for information about DOD's INRMPs, requested information about potential impacts to national security as a result of any critical habitat designation. In response to that request and also in comments on the proposed critical habitat designation (69 FR 71880), the Camp Pendleton Marine Corps Base and Vandenberg Air Force Base provided detailed information on such impacts to their operations. Both military agencies concluded that critical habitat designation at either of these sites

would likely impact national security by diminishing military readiness, with possible impacts including: (1) The prevention, restriction, or delay in training or testing exercises or access to such sites; (2) the restriction or delay in activities associated with space launches; (3) a delay in response times for troop deployments and overall operations; and (4) the creation of uncertainties regarding ESA consultation (*e.g.*, reinitiation requirements) or imposition of compliance conditions that would divert military resources. Also, both military agencies cited their ongoing and positive consultation history with NMFS and underscored cases where they are implementing best management practices to reduce impacts on listed salmonids. The occupied fish habitat occurring on Camp Pendleton and Vandenberg AFB have important conservation value, but they are primarily migratory corridors and represent only a small percentage of the total occupied habitat area for the Southern California steelhead ESU. Designating habitat on these two installations will likely reduce the readiness capability of the Marine Corps and the Air Force, both of which are actively engaged in training, maintaining, and deploying forces in the current war on terrorism. Therefore, we conclude that the benefits of exclusion outweigh the benefits of designation, and we are not proposing to designate these DOD sites as critical habitat.

Exclusions Based on Economic Impacts

Our assessment of economic impact generated considerable interest from commenters on the ANPR (68 FR 55926; September 29, 2003) and the proposed rule (69 FR 71880; December 10, 2004). Based on new information and comments received on the proposed rule, we have updated the economics report wherein we document our conclusions regarding the economic impacts of designating each of the particular areas found to meet the definition of critical habitat (NMFS, 2005b). This report is available from NMFS (see **ADDRESSES**).

The first step in the overall economic analysis was to identify existing legal and regulatory constraints on economic activity that are independent of critical habitat designation, such as Clean Water Act (CWA) requirements. Coextensive impacts of the ESA section 7 requirement to avoid jeopardy were not considered part of the baseline. Also, we have stated our intention to revisit the existing critical habitat designations for Sacramento River winter run Chinook salmon and two California coastal coho salmon ESUs, if appropriate, following completion of related rulemaking (67 FR 6215; February 11, 2002). Given the uncertainty that these designations will remain in place in their current configuration, we decided not to consider them as part of the baseline for the ESA section 4(b)(2) analysis.

From the consultation record, we identified Federal activities that might affect habitat and that might result in an ESA section 7 consultation. (We did not consider Federal actions, such as the approval of a fishery, that might affect the species directly but not affect its habitat.) We identified ten types of activities including: Hydropower dams; non-hydropower dams and other water supply structures; federal lands management, including grazing (considered separately); transportation projects; utility line projects; instream activities, including dredging (considered separately); activities permitted under EPA's National Pollution Discharge Elimination System; sand & gravel mining; residential and commercial development; and agricultural pesticide applications. Based on our consultation record and other available information, we determined the modifications each type of activity was likely to undergo as a result of section 7 consultation (regardless of whether the modification might be required by the jeopardy or the adverse modification provision). We developed an expected direct cost for each type of action and projected the likely occurrence of each type of project in each watershed, using existing spatial databases (*e.g.*, the COE 404(d) permit database). Finally, we aggregated the costs from the various types of actions and estimated an annual impact, taking into account the probability of consultation occurring and the likely rate of occurrence of that project type.

This analysis allowed us to estimate the coextensive economic impact of designating each ''particular area'' (that is, each habitat area, or aggregated occupied stream reaches in an HSA watershed). Expected economic impacts ranged from zero to in excess of 1 million dollars per habitat area. Where a watershed included both tributaries and a migration corridor that served other watersheds, we attempted to estimate the separate impacts of designating the tributaries and the migration corridor. We did this by identifying those categories of activities most likely to affect tributaries and those most likely to affect larger migration corridors.

Because of the methods we selected and the data limitations, portions of our analysis both under- and over-estimate the coextensive economic impact of ESA section 7 requirements. For example, we lacked data on the likely impact on flows at non-Federal hydropower projects, which would increase economic impacts. In addition, we did not have information about potential changes in irrigation flows associated with section 7 consultation which would likely increase the estimate of coextensive costs. On the other hand, we estimated an impact on all activities occurring within the geographic boundaries of a watershed, even though in some cases activities would be far removed from occupied stream reaches and so might not require modification. In addition, we were unable to document significant costs of critical habitat designation that occur outside the section 7 consultation process, including costs resulting from state or local regulatory burdens imposed on developers and landowners as a result of a Federal critical habitat designation.

In determining whether the economic benefit of excluding a habitat area might outweigh the benefit of designation to the species, we took into consideration the many data limitations described above. The ESA requires that we make critical habitat designations within a short time frame ''with such data as may be available'' at the time. Moreover the cost-effectiveness approach we adopted accommodated many of these data limitations by considering the relative benefits of designation and exclusion, giving priority to excluding habitat areas with a relatively lower benefit of designation and a relatively higher economic impact.

The circumstances of most of the listed ESUs can make a cost-effectiveness approach useful. Pacific salmon are wide-ranging species and occupy numerous habitat areas with thousands of stream miles. Not all occupied areas, however, are of equal importance to conserving an ESU. Within the currently occupied range there are areas that support highly productive populations, areas that support less productive populations, and areas that support production in only some years. Some populations within an ESU may be more important to long-term conservation of the ESU than other populations. Therefore, in many cases it may be possible to construct different scenarios for achieving conservation. Scenarios might have more or less certainty of achieving conservation, and more or less economic impact.

Our first step in constructing an exclusion scenario was to identify all watershed areas we would consider for

an economic exclusion based on dollar thresholds. The next step was to examine those areas potentially eligible for exclusion based on dollar thresholds to determine whether or not any of them would make an important contribution to conservation for the ESU. Based on the rating process used by the CHARTs, we judged that all of the high conservation value habitat areas make an important contribution to conservation, and therefore, we did not consider them for exclusion.

In developing criteria for the first step, we chose dollar thresholds that we anticipated would lead most directly to a cost effective scenario. We considered for exclusion, low value habitat areas with an economic impact greater than $70,000–85,000, and medium value areas with an economic impact greater than $300,000.

The criteria we selected for identifying habitat areas eligible for exclusion do not represent an objective judgment that, for example, a low value habitat area is worth a certain dollar amount and no more. The ESA directs us to balance dissimilar values with a limited amount of time and therefore information. It emphasizes the discretionary nature of the balancing task. Moreover, while our approach follows the Tenth Circuit's direction to consider coextensive economic impacts, we nevertheless must acknowledge that not all of the costs will be avoided by exclusion from designation. Finally, the cost estimates developed by our economic analysis do not have obvious break points that would lead to a logical division between high, medium and low costs.

Given these factors, a judgment that any particular dollar threshold is objectively correct would be neither necessary or possible. Rather, what economic impact is high, and therefore, might outweigh the benefit of designating a medium or low value habitat area is a matter of discretion and depends on the policy context. The policy context in which we carry out this task led us to select dollar thresholds that would likely lead to a cost effective designation in a limited amount of time with a relatively simple process.

In the second step of the process, we asked the CHARTs whether any of the habitat areas (*i.e.*, watersheds) eligible for exclusion make an important contribution to conservation of the ESU in question. The CHARTs considered this question in the context of all of the areas eligible for exclusion as well as the information they had developed in providing the initial conservation ratings. The following section describes the results of applying the two-step process to each ESU. The results are discussed in more detail in a separate report that is available for public review (NMFS, 2005c). We have determined that these exclusions, together with the other exclusions described in this rule, will not result in the extinction of any of the seven ESUs.

VI. Critical Habitat Designation

We are designating approximately 8,935 net mi (14,296 km) of riverine habitat and 470 mi^2 (1,212 km^2) of estuarine habitat in California within the geographical areas presently occupied by the seven ESUs. This designation excludes approximately 771 net mi (1,233 km) of occupied riverine habitat as a result of economic considerations, 32 mi (51 km) of occupied riverine habitat on Tribal lands, and 44 mi (70 km) of occupied riverine habitat on DOD lands. Some of these areas in the final designation overlap substantially for two ESUs. The net economic impacts (coextensive with ESA section 7) associated with the areas designated for all ESUs are estimated to be approximately $81,647,439.

TABLE 7.—APPROXIMATE QUANTITY OF HABITAT * AND OWNERSHIP WITHIN WATERSHEDS CONTAINING HABITAT AREAS DESIGNATED AS CRITICAL HABITAT.

ESU	Streams (mi) (km)	Estuary Habitat (Sq mi) (Sq km)	Ownership (percent)			
			Federal	Tribal	State	Private
California Coastal Chinook Salmon	1,475 2,360	25 65	16.4	0.4	3.4	79.8
Northern California Steelhead	3,028 4,844	25 65	18.8	0.5	3.7	77.1
Central California Coast Steelhead	1,465 2,344	386 996	4.5	0.0	7.2	88.3
South-Central California Coast Steelhead	1,249 2,000	3 8	16.3	0.0	2.2	81.6
Southern California Steelhead	708 1,132	....	25.0	1.0	2.4	71.6
Central Valley Spring Run Chinook Salmon	1,158 1,853	254 655	12.1	0.0	3.3	84.5
Central Valley Steelhead	2,308 3,693	254 655	8.6	0.0	3.1	88.3

* These estimates are the total amount for each ESU. They do not account for overlapping areas designated for multiple ESUs.

These areas designated, summarized below by ESU, are considered occupied and contain physical and biological features essential to the conservation of the species and that may require special management considerations or protection.

California Coastal Chinook Salmon

There are 45 occupied HSA watersheds within the freshwater and estuarine range of this ESU. Eight watersheds received a low rating, 10 received a medium rating, and 27 received a high rating of conservation value to the ESU (NMFS, 2005a). Two estuarine habitat areas used for rearing and migration (Humboldt Bay and the Eel River Estuary) also received a high conservation value rating.

HSA watershed habitat areas for this ESU include approximately 1,634 mi (2,614 km) of stream habitat and approximately 25 mi^2 (65 km^2) of estuarine habitat (principally Humboldt Bay). Of these, 10.3 stream miles (16.5 km) are being excluded because they overlap with Indian lands (see *Government-to-Government Relationship With Tribes*). No lands controlled by the DOD or covered by HCPs are being excluded from the final designation. As a result of the balancing

process for economic impacts described above, the Secretary is excluding from the designation the habitat areas shown in Table 8. Of the habitat areas eligible for designation, approximately 158 stream miles (253 km) are being excluded because the economic benefits of exclusion outweigh the benefits of designation. The total potential estimated economic impact, with no exclusions, would be $10,993,337. The exclusions identified in Table 8 would reduce the total estimated economic impact by 33 percent to $7,333,751.

TABLE 8.—HSA WATERSHEDS WITHIN THE GEOGRAPHICAL RANGE OF THE CALIFORNIA COASTAL CHINOOK SALMON ESU AND EXCLUDED FROM CRITICAL HABITAT

Watershed code	Watershed name	Area excluded
111122	Bridgeville	Entire watershed.
111142	Spy Rock	Indian lands.
111150	North Fork Eel River	Indian lands.
111171	Eden Valley	Tributaries only; Indian lands.
111172	Round Valley	Indian lands.
111173	Black Butte River	Entire watershed.
111174	Wilderness	Entire watershed.
111350	Navarro River	Entire watershed.
111422	Santa Rosa	Entire watershed.
111423	Mark West	Entire watershed.

Northern California Steelhead

There are 50 occupied HSA watersheds within the freshwater and estuarine range of this ESU. Nine watersheds received a low rating, 14 received a medium rating, and 27 received a high rating of conservation value to the ESU (NMFS, 2005a). Two estuarine habitat areas used for rearing and migration (Humboldt Bay and the Eel River Estuary) also received a high conservation value rating.

HSA watershed habitat areas for this ESU include approximately 3,148 mi (5,037 km) of stream habitat and approximately 25 mi^2 (65 km^2) of estuarine habitat (principally Humboldt Bay). Of these, approximately 21 stream miles (33.5 km) are being excluded because they overlap with Indian lands (see *Government-to-Government Relationship With Tribes*). No lands controlled by the DOD or covered by HCPs are being excluded from the final designation. As a result of the balancing process for economic impacts described above, the Secretary is excluding from the designation the habitat areas shown in Table 9. Of the habitat areas eligible for designation, approximately 120 stream miles (192 km) are being excluded because the economic benefits of exclusion outweigh the benefits of designation. Total potential estimated economic impact, with no exclusions, would be $8,773,432. The exclusions identified in Table 9 would reduce the total estimated economic impact by 31 percent to $6,063,568.

TABLE 9.—HSA WATERSHEDS WITHIN THE GEOGRAPHICAL RANGE OF THE NORTHERN CALIFORNIA STEELHEAD ESU AND EXCLUDED FROM CRITICAL HABITAT

Watershed code	Watershed name	Area excluded
110940	Ruth	Entire watershed.
111142	Spy Rock	Tribal land.
111150	North Fork Eel	Entire watershed; Indian lands.
111163	Lake Pilsbury	Entire watershed.
111171	Eden Valley	Indian lands.
111172	Round Valley	Indian lands.

Central California Coast Steelhead

There are 46 occupied HSA watersheds within the freshwater and estuarine range of this ESU. Fourteen watersheds received a low rating, 13 received a medium rating, and 19 received a high rating of conservation value to the ESU (NMFS, 2005a). Five of these HSA watersheds comprise portions of the San Francisco-San Pablo-Suisun Bay estuarine complex which provides rearing and migratory habitat for this ESU.

HSA watershed habitat areas for this ESU include approximately 1,832 mi (2,931 km) of stream habitat and approximately 442 mi^2 (1,140 km^2) of estuarine habitat (principally San Francisco Bay-San Pablo Bay). Of these, approximately 0.6 stream miles (1.0 km) are being excluded because they overlap with Indian lands (Coyote Valley and Redwood Valley Rancherias) (see *Government-to-Government Relationship With Tribes*). No lands controlled by the DOD are excluded.

As a result of the balancing process for economic impacts described above, the Secretary is excluding from the designation the habitat areas shown in Table 10. Of the habitat areas eligible for designation, approximately 367 stream miles (587 km) and 56 mi2 of estuarine habitat are being excluded because the economic benefits of exclusion outweigh the benefits of designation. Total potential estimated economic impact, with no exclusions, would be $18,577,246. The exclusions identified in Table 10 would reduce the total estimated economic impact by 31 percent to $12,917,247.

TABLE 10.—HSA WATERSHEDS WITHIN THE GEOGRAPHICAL RANGE OF THE CENTRAL CALIFORNIA COASTAL STEELHEAD ESU AND EXCLUDED FROM CRITICAL HABITAT

Watershed code	Watershed name	Area excluded
111421	Laguna de Santa Rosa	Entire watershed.
111422	Santa Rosa	Entire watershed.
111431	Ukiah	Tributaries only.
111433	Forsythe Creek	Indian lands.
220330	Berkeley	Entire watershed.
220440	San Mateo Bayside	Entire watershed.
220420	Eastbay Cities	Entire watershed.
220540	Guadelupe River	Entire watershed.
220620	Novato	Entire watershed.
220660	Pinole	Entire watershed.
220710	Suisun Bay	Entire unit.
220722	Suisun Creek	Entire watershed.
220721	Benecia	Entire watershed.
220731	Pittsburg	Entire watershed.
220733	Martinez	Entire watershed.

South-Central California Coast Steelhead

There are 30 occupied HSA watersheds within the freshwater and estuarine range of this ESU. Six watersheds received a low rating, 11 received a medium rating, and 13 received a high rating of conservation value to the ESU (NMFS, 2005a). One of these occupied watershed units is Morro Bay, which is used as rearing and migratory habitat for steelhead populations that spawn and rear in tributaries to the Bay.

HSA watershed habitat areas for this ESU include approximately 1,251 mi (2,000 km) of stream habitat and approximately 3 mi^2 (8 km^2) of estuarine habitat (*e.g.*, Morro Bay). Approximately 22 stream miles (35 km) are not eligible for designation because they are within lands controlled by the DOD (Camp San Luis Obispo and Camp Roberts) that have qualifying INRMPs (Table 11). The reduction in economic impacts resulting from these exclusions could not be estimated.

As a result of the balancing process for economic impacts described above, the Secretary is excluding from the designation the habitat areas shown in Table 11. Of the habitat eligible for designation, approximately 2 stream miles (3.2 km) are being excluding because the economic benefits of exclusion outweigh the benefits of designation. The total potential estimated economic impact, with no exclusions, would be $16,857,365. It was not possible to estimate the reduced economic impacts associated with the habitat exclusions in Table 11, therefore, the total potential economic impact is the same as if there were no exclusions.

TABLE 11.—HSA WATERSHEDS WITHIN THE GEOGRAPHICAL RANGE OF THE SOUTH-CENTRAL CALIFORNIA COAST STEELHEAD ESU AND EXCLUDED FROM CRITICAL HABITAT

Watershed code	Watershed name	Area excluded
330911	Neponset	Tributaries only.
330930	Soledad	Tributaries only.
330940	Upper Salinas Valley	Tributaries only.
330981	Paso Robles	DOD lands.
331022	Chorro	DOD lands.

Southern California Steelhead ESU

There are 32 occupied HSA watersheds within the freshwater and estuarine range of this ESU. Five watersheds received a low rating, 6 received a medium rating, and 21 received a high rating of conservation value to the ESU (NMFS, 2005a).

HSA watershed habitat areas for this ESU include approximately 741 mi (1,186 km) of stream habitat. Of these, approximately 22 mi (35 km) of occupied stream miles are excluded because they are within lands controlled by the DOD (Vandenberg AFB and Camp Pendleton Marine Corps Base) that have qualifying INRMPs and for which the benefits of exclusion outweigh the benefits of designation. The reduction in economic impacts resulting from these exclusions could not be estimated.

As a result of the balancing process for economic impacts described above, the Secretary is excluding from the designation the habitat areas shown in Table 12. Of the habitat areas eligible for designation, approximately 33 stream miles (53 km) are being excluded because the economic benefits of exclusion outweigh the benefits of designation. Total potential estimated economic impact, with no exclusions, would be $19,443,413. The exclusions identified in Table 12 would reduce the total estimated economic impact by 40 percent to $11,586,752.

TABLE 12.—HSA WATERSHEDS WITHIN THE GEOGRAPHICAL RANGE OF THE SOUTHERN CALIFORNIA STEELHEAD ESU AND EXCLUDED FROM CRITICAL HABITAT

Watershed code	Watershed name	Area excluded
331210	Guadelupe	Tributaries only.
331230	Cuyama Valley	Entire watershed.
331410	Lompoc	DOD lands.
331430	Buelton	Tributaries only.
331451	Santa Cruz Creek	Entire watershed.
440811	East of Oxnard	Entire watershed.
490140	San Mateo Canyon	DOD lands.

Central Valley Spring Run Chinook Salmon ESU

There are 37 occupied HSA watersheds within the freshwater and estuarine range of this ESU. Seven watersheds received a low rating, 3 received a medium rating, and 27 received a high rating of conservation value to the ESU (NMFS, 2005a). Four of these HSA watersheds comprise portions of the San Francisco-San Pablo-Suisun Bay estuarine complex which provides rearing and migratory habitat for this ESU.

HSA watershed habitat areas for this ESU include approximately 1,373 mi (2,197 km) of occupied stream habitat and approximately 427 mi^2 (1,102 km^2) of estuarine habitat in the San Francisco-San Pablo-Suisun Bay complex. There are no DOD, tribal or HCP managed lands excluded from the designation. As a result of the balancing process for economic impacts described above, the Secretary is excluding from the designation the habitat areas shown in Table 13. Of the habitat areas eligible for designation, approximately 215 stream miles (344 km) and 173 mi^2 of estuarine habitat are being excluded because the economic benefits of exclusion outweigh the benefits of designation. The total potential estimated economic impact, with no exclusions, would be $29,223,186. The exclusions identified in Table 13 would reduce the total estimated economic impact by 25 percent to $22,066,974.

TABLE 13.—HSA WATERSHEDS WITHIN THE GEOGRAPHICAL RANGE OF THE CENTRAL VALLEY SPRING RUN CHINOOK SALMON ESU AND EXCLUDED FROM CRITICAL HABITAT

Watershed code	Watershed name	Area excluded
551000	Sacramento Delta	Deep Water Ship Channel.
551713	Mildred Lake	Entire watershed.
551720	Nevada City	Entire watershed.
552310	Thomes Creek	Entire watershed.
552433	South Fork	Entire watershed.
554300	No. Diablo Range	Entire watershed.
554400	San Joaquin Delta	Entire watershed.
220410	South SF Bay	Entire unit.

Central Valley Steelhead ESU

There are 67 occupied HSA watersheds within the freshwater and estuarine range of this ESU. Twelve watersheds received a low rating, 18 received a medium rating, and 37 received a high rating of conservation value to the ESU (NMFS, 2005a). Four of these HSA watersheds comprise portions of the San Francisco-San Pablo-Suisun Bay estuarine complex which provides rearing and migratory habitat for this ESU.

HSA watershed habitat areas for this ESU include approximately 2,604 mi (4,168 km) of stream habitat and approximately 427 mi^2 (1,102 km^2) of estuarine habitat. There are no DOD, tribal or HCP managed lands excluded from the designation. As a result of the balancing process for economic impacts described above, the Secretary is excluding from the designation the habitat areas shown in Table 14. Of the habitat areas eligible for designation, approximately 296 stream miles (473 km) and 173 mi^2 of estuarine habitat are being excluded because the economic benefits of exclusion outweigh the benefits of designation. Total potential estimated economic impact, with no exclusions, would be $38,235,233. The exclusions identified in Table 14 would reduce the total estimated economic impact by 11 percent to $34,389,278.

TABLE 14.—HSA WATERSHEDS WITHIN THE GEOGRAPHICAL RANGE OF THE CENTRAL VALLEY STEELHEAD ESU AND EXCLUDED FROM CRITICAL HABITAT

Watershed code	Watershed name	Area excluded
550964	Paynes Creek	Entire watershed.
551000	Sacramento Delta	Deep Water Ship Channel.
551110	Elmira	Entire watershed.
551713	Mildred Lake	Entire watershed.
551720	Nevada City	Entire watershed.
552435	Ono	Entire watershed.
553111	Herald	Entire watershed.
553120	Lower Mokelumne	Partial watershed.
553221	Big Canyon Creek	Entire watershed.
553223	NF Cosumnes	Entire watershed.

TABLE 14.—HSA WATERSHEDS WITHIN THE GEOGRAPHICAL RANGE OF THE CENTRAL VALLEY STEELHEAD ESU AND EXCLUDED FROM CRITICAL HABITAT—Continued

Watershed code	Watershed name	Area excluded
553224	Omo Ranch	Entire watershed.
553240	Sutter Creek	Entire watershed.
554300	No. Diablo Range	Entire watershed.
220410	So. SF Bay	Entire unit.

VII. Effects of Critical Habitat Designation

Section 7 Consultation

Section 7(a) of the ESA requires Federal agencies, including NMFS, to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is proposed or designated. Regulations implementing this provision of the ESA are codified at 50 CFR 402. Section 7(a)(4) of the ESA requires Federal agencies to confer with us on any action that is likely to jeopardize the continued existence of a proposed species or result in the destruction or adverse modification of proposed critical habitat. Conference reports provide conservation recommendations to assist the agency in eliminating conflicts that may be caused by the proposed action. The conservation recommendations in a conference report are advisory.

We may issue a formal conference report if requested by a Federal agency. Formal conference reports include an opinion that is prepared according to 50 CFR 402.14, as if the species were listed or critical habitat designated. We may adopt the formal conference report as the biological opinion when the species is listed or critical habitat designated, if no substantial new information or changes in the action alter the content of the opinion (see 50 CFR 402.10(d)).

If a species is listed or critical habitat is designated, ESA section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of such a species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency (action agency) must enter into consultation with us. Through this consultation, we would review actions to determine if they would destroy or adversely modify critical habitat.

If we issue a biological opinion concluding that a project is likely to result in the destruction or adverse modification of critical habitat, we will also provide reasonable and prudent alternatives to the project, if any are identifiable. Reasonable and prudent alternatives are defined at 50 CFR 402.02 as alternative actions identified during consultation that can be implemented in a manner consistent with the intended purpose of the action, that are consistent with the scope of the Federal agency's legal authority and jurisdiction, that are economically and technologically feasible, and that we believe would avoid destruction or adverse modification of critical habitat. Reasonable and prudent alternatives can vary from slight project modifications to extensive redesign or relocation of the project. Costs associated with implementing a reasonable and prudent alternative are similarly variable.

Regulations at 50 CFR 402.16 require Federal agencies to reinitiate consultation on previously reviewed actions in instances where critical habitat is subsequently designated and the Federal agency has retained discretionary involvement or control over the action or such discretionary involvement or control is authorized by law. Consequently, some Federal agencies may request reinitiation of consultation or conference with us on actions for which formal consultation has been completed, if those actions may affect designated critical habitat or adversely modify or destroy proposed critical habitat.

Activities on Federal lands that may affect these ESUs or their critical habitat will require ESA section 7 consultation. Activities on private or state lands requiring a permit from a Federal agency, such as a permit from the COE under section 404 of the CWA, a section 10(a)(1)(B) permit from NMFS, or some other Federal action, including funding (*e.g.,* Federal Highway Administration (FHA) or Federal Emergency Management Agency (FEMA) funding), will also be subject to the section 7 consultation process. Federal actions not affecting listed species or critical habitat and actions on non-Federal and private lands that are not Federally funded, authorized, or permitted do not require section 7 consultation.

Activities Affected by Critical Habitat Designation

Section 4(b)(8) of the ESA requires that we evaluate briefly and describe, in any proposed or final regulation that designates critical habitat, those activities (whether public or private) that may adversely modify such habitat or that may be affected by such designation. A wide variety of activities may affect critical habitat and, when carried out, funded, or authorized by a Federal agency, require that an ESA section 7 consultation be conducted. Generally these include water and land management actions of Federal agencies (e.g., USFS, Bureau of Land Management (BLM), COE, BOR, the FHA, NRCS, National Park Service (NPS), BIA, and the Federal Energy Regulatory Commission (FERC)) and related or similar actions of other Federally regulated projects and lands, including livestock grazing allotments by the USFS and BLM; hydropower sites licensed by the FERC; dams built or operated by the COE or BOR; timber sales and other vegetation management activities conducted by the USFS, BLM, and BIA; irrigation diversions authorized by the USFS and BLM; and road building and maintenance activities authorized by the FHA, USFS, BLM, NPS, and BIA. Other actions of concern include dredge and fill, mining, diking, and bank stabilization activities authorized or conducted by the COE, habitat modifications authorized by the FEMA, and approval of water quality standards and pesticide labeling and use restrictions administered by the EPA.

The Federal agencies that will most likely be affected by this critical habitat designation include the USFS, BLM, BOR, COE, FHA, NRCS, NPS, BIA, FEMA, EPA, and the FERC. This designation will provide these agencies, private entities, and the public with clear notification of critical habitat designated for listed salmonids and the boundaries of the habitat. This designation will also assist these agencies and others in evaluating the potential effects of their activities on listed salmon and their critical habitat and in determining if section 7 consultation with NMFS is needed.

As noted above, numerous private entities also may be affected by this critical habitat designation because of the direct and indirect linkages to an array of Federal actions, including Federal projects, permits, and funding. For example, private entities may harvest timber or graze livestock on Federal land or have special use permits to convey water or build access roads across Federal land; they may require Federal permits to armor stream banks, construct irrigation withdrawal facilities, or build or repair docks; they may obtain water from Federally funded and operated irrigation projects; or they may apply pesticides that are only available with Federal agency approval. These activities will need to be analyzed with respect to their potential to destroy or adversely modify critical habitat. In some cases, proposed activities may require modifications that may result in decreases in activities such as timber harvest and livestock and crop production. The transportation and utilities sectors may need to modify the placement of culverts, bridges, and utility conveyances (e.g., water, sewer and power lines) to avoid barriers to fish migration. Developments occurring in or near salmon streams (e.g., marinas, residential, or industrial facilities) that require Federal authorization or funding may need to be altered or built in a manner that ensures that critical habitat is not destroyed or adversely modified as a result of the construction, or subsequent operation, of the facility. These are just a few examples of potential impacts, but it is clear that the effects will encompass numerous sectors of private and public activities. If you have questions regarding whether specific activities will constitute destruction or adverse modification of critical habitat, contact NMFS (see **ADDRESSES** and **FOR FURTHER INFORMATION CONTACT**).

VIII. Required Determinations

Administrative Procedure Act

This rulemaking covers over 8,900 miles of streams and 470 square miles of estuarine habitat. Unlike the previous critical habitat designations it contains over a thousand geographic points identifying the extent of the designations. The proposed rule generated substantial public interest. In addition to comments received during four public hearings we received a total of 3,762 written comments (3,627 of these in the form of email with nearly identical language). Many commenters expressed concerns about how the rule would be implemented. Additionally, our experience in implementing the 2000 critical habitat designations suggests that the Administrative Procedure Act's (APA) and critical habitat regulations' minimum 30-day delay in effective date nor the 60-day delay required by the Congressional Review Act for a ''major rule'' such as this are sufficient for this rule. In view of the geographic scope of this rule, our prior experience with a rule of this scope, the current level of public interest in this rule, and in order to provide for efficient administration of the rule once effective, we are providing a 120-day delay in effective date. As a result this rule will be effective on January 2, 2006. This will allow us the necessary time to provide for outreach to and interaction with the public, to minimize confusion and educate the public about activities that may be affected by the rule, and to work with Federal agencies and applicants to provide for an orderly transition in implementing the rule.

Regulatory Planning and Review

In accordance with E.O. 12866, this document is a significant rule and has been reviewed by OMB. As noted above, we have prepared several reports to support the exclusion process under section 4(b)(2) of the ESA. The economic costs of the critical habitat designations are described in our economic report (NMFS, 2005b). The benefits of the designations are described in the CHART report (NMFS, 2005a) and the 4(b)(2) report (NMFS, 2005c). The CHART report uses a biologically-based ranking system for gauging the benefits of applying section 7 of the ESA to particular watersheds. Because data are not available to express these benefits in monetary terms, we have adopted a cost-effectiveness framework, as outlined in a 4(b)(2) report (NMFS, 2005c). This approach is in accord with OMB's guidance on regulatory analysis (U.S. Office of Management and Budget. Circular A–4, Regulatory Analysis, September 17, 2003). By taking this approach, we seek to designate sufficient critical habitat to meet the biological goal of the ESA while imposing the least burden on society, as called for by E.O. 12866.

In assessing the overall cost of critical habitat designation for the 7 Pacific salmon and steelhead ESUs addressed in this final rule, the annual total impact figures given in the draft economic analysis (NMFS, 2005b) cannot be added together to obtain an aggregate annual impact. Because some watersheds are included in more than one ESU, a simple summation would entail duplication, resulting in an overestimate. Accounting for this duplication, the aggregate annual economic impact of the 7 critical habitat designations is $81,647,439. These amounts include impacts that are coextensive with the implementation of the jeopardy standard of section 7 (NMFS, 2005b).

Within the State of California, hydropower projects currently provide approximately 15 percent of the total electricity produced. This is small compared to the Pacific Northwest where hydropower generates up to 70 percent of the total electricity produced, with approximately 60 percent of this hydroelectric power generated through the Federal Columbia River Power System. Because hydropower is a more pervasive power source in the Pacific Northwest than in California, the impacts to the energy industry in California from environmental mitigation associated with protecting listed salmon and steelhead and their critical habitat are likely to be much less than in the Northwest. There are approximately 90 hydropower projects within the area covered by the potential critical habitat for the 7 ESUs in California. Based on the economic analysis conducted for this rulemaking (NMFS 2005b), the estimated annualized capital and programmatic costs of section 7 for hydropower projects ranges from $11,000 to $9.8 million per ESU, with the estimated annualized cost for all ESUs totaling $18.8 million. The aggregate economic costs of capital modifications within the range of these 7 ESUs is approximately 10 percent of the total aggregate costs for all categories of activities evaluated in the economic analysis. This cost estimate, however, does not include costs associated with operational modifications of hydropower projects such as changes to the flow regime (level or timing) which can result in foregone power generation, require supplementary power purchases, or have other economic effects. The necessary data to estimate operational modification costs in California are not available, but they are expected to be highly variable and project-specific. The estimated impacts of operational changes at hydropower projects in the Pacific Northwest (unknown for several projects to $31 million in forgone power revenues for Baker River Dam), however, demonstrate the potential magnitude and variability of impacts on a per project basis in California. For these projects in the Northwest, the proportion of costs attributable to section 7 implementation is unknown, but the share of incremental costs associated with critical habitat

designation alone is unlikely to be significant.

Regulatory Flexibility Act (5 U.S.C. 601 et seq.)

Under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*, as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996), whenever an agency is required to publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effects of the rule on small entities (*i.e.*, small businesses, small organizations, and small government jurisdictions). We have prepared a final regulatory flexibility analysis and this document is available upon request (see **ADDRESSES**). This analysis estimates that the number of regulated small entities potentially affected by this rulemaking ranges from 444 to 4,893 depending on the ESU. The estimated coextensive costs of section 7 consultation incurred by small entities is estimated to range from $1.6 million to $26.5 million depending on the ESU. As described in the analysis, we considered various alternatives for designating critical habitat for these seven ESUs. We rejected the alternative of not designating critical habitat for any of the ESUs because such an approach did not meet the legal requirements of the ESA. We also examined and rejected an alternative in which all the potential critical habitat of the seven Pacific salmon and steelhead ESUs is designated (*i.e.*, no areas are excluded) because many of the areas considered to have a low conservation value also had relatively high economic impacts that might be mitigated by excluding those areas from designation. A third alternative we examined and rejected would exclude all habitat areas with a low or medium conservation value. While this alternative furthers the goal of reducing economic impacts, we could not make a determination that the benefits of excluding all habitat areas with low and medium conservation value outweighed the benefits of designation. Moreover, for some habitat areas the incremental economic benefit from excluding that area is relatively small. Therefore, after considering these alternatives in the context of the section 4(b)(2) process of weighing benefits of exclusion against benefits of designation, we determined that the current approach to designation (*i.e.*, designating some but not all areas with low or medium conservation value) provides an appropriate balance of conservation and economic mitigation and that excluding the areas identified in this rulemaking would not result in extinction of the ESUs. It is estimated that small entities will save from $39.9 thousand to $5.5 million in compliance costs, depending on the ESU, due to the exclusions made in these final designations.

As noted above, we will continue to study alternative approaches in future rulemakings designating critical habitat. As part of that assessment, we will examine alternative methods for analyzing the economic impacts of designation on small business entities, which will inform our Regulatory Flexibility Analysis as well as our analysis under section 4(b)(2) of the ESA.

E.O. 13211

On May 18, 2001, the President issued an Executive Order on regulations that significantly affect energy supply, distribution, and use. E.O. 13211 requires agencies to prepare Statements of Energy Effects when undertaking certain actions. This rule may be a significant regulatory action under E.O. 12866. We have determined, however, that the energy effects of the regulatory action are unlikely to exceed the energy impact thresholds identified in E.O.13211.

As discussed elsewhere in this final rule, there are approximately 90 hydropower projects within the range of the potential critical habitat for these 7 ESUs. The annualized capital and programmatic costs of section 7 for these projects ranges from $11,000 to $9.8 million per ESU, with the estimated annualized cost for all ESUs totaling $18.8 million. Despite these costs and operational costs which we do not have the data available to estimate, we believe the proper focus under E.O. 13211 is on the incremental impacts of critical habitat designation. The available data do not allow us to separate precisely these incremental impacts from the impacts of all conservation measures on energy production and costs. There is evidence from the California Energy Commission (California Energy Commission 2003), however, that the implementation of environmental mitigation measures associated with relicensing and selective decommissioning of hydropower projects in California has not impacted the ability of the State's electricity system to meet demand. This conclusion was based on a consideration of implementing all mitigation measures, not just those for salmon and steelhead, thus it is likely that the impact of implementing mitigations associated with salmon and steelhead protection directly or even more specifically salmon and steelhead critical habitat protection would be a subset of the impacts determined by the Commission. In addition, there is historical evidence from the Pacific Northwest, that the ESA jeopardy standard alone is capable of imposing all of the costs affecting hydropower projects and energy supply. While this information is indirect, it is sufficient to draw the conclusion that the designation of critical habitat for the 7 salmon and steelhead ESUs in California does not significantly affect energy supply, distribution, or use.

Unfunded Mandates Reform Act (2 U.S.C. 1501 et seq.)

In accordance with the Unfunded Mandates Reform Act, we make the following findings:

(a) This final rule will not produce a Federal mandate. In general, a Federal mandate is a provision in legislation, statute or regulation that would impose an enforceable duty upon State, local, tribal governments, or the private sector and includes both ''Federal intergovernmental mandates'' and ''Federal private sector mandates.'' These terms are defined in 2 U.S.C. 658(5)–(7). ''Federal intergovernmental mandate'' includes a regulation that ''would impose an enforceable duty upon State, local, or tribal governments'' with two exceptions. It excludes ''a condition of Federal assistance.'' It also excludes ''a duty arising from participation in a voluntary Federal program,'' unless the regulation ''relates to a then-existing Federal program under which $500,000,000 or more is provided annually to State, local, and tribal governments under entitlement authority,'' if the provision would ''increase the stringency of conditions of assistance'' or ''place caps upon, or otherwise decrease, the Federal Government's responsibility to provide funding'' and the State, local, or tribal governments ''lack authority'' to adjust accordingly. (At the time of enactment, these entitlement programs were: Medicaid; AFDC work programs; Child Nutrition; Food Stamps; Social Services Block Grants; Vocational Rehabilitation State Grants; Foster Care, Adoption Assistance, and Independent Living; Family Support Welfare Services; and Child Support Enforcement.) ''Federal private sector mandate'' includes a regulation that ''would impose an enforceable duty upon the private sector, except (i) a condition of Federal assistance; or (ii) a duty arising from participation in a voluntary Federal program.'' The designation of critical habitat does not impose a legally binding duty on non-Federal

government entities or private parties. Under the ESA, the only regulatory effect is that Federal agencies must ensure that their actions do not destroy or adversely modify critical habitat under section 7. While non-Federal entities who receive Federal funding, assistance, permits or otherwise require approval or authorization from a Federal agency for an action may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency. Furthermore, to the extent that non-Federal entities are indirectly impacted because they receive Federal assistance or participate in a voluntary Federal aid program, the Unfunded Mandates Reform Act would not apply; nor would critical habitat shift the costs of the large entitlement programs listed above to State governments.

(b) Due to current public knowledge of salmon protection and the prohibition against take of these species both within and outside of the designated areas, we do not anticipate that this final rule will significantly or uniquely affect small governments. As such, a Small Government Agency Plan is not required.

Takings

In accordance with E.O. 12630, this final rule does not have significant takings implications. A takings implication assessment is not required. The designation of critical habitat affects only Federal agency actions. This final rule will not increase or decrease the current restrictions on private property concerning take of salmon. As noted above, due to widespread public knowledge of salmon protection and the prohibition against take of the species both within and outside of the designated areas, we do not anticipate that property values will be affected by these critical habitat designations. While real estate market values may temporarily decline following designation, due to the perception that critical habitat designation may impose additional regulatory burdens on land use, we expect any such impacts to be short term (NMFS, 2005b). Additionally, critical habitat designation does not preclude development of HCPs and issuance of incidental take permits. Owners of areas that are included in the designated critical habitat will continue to have the opportunity to use their property in ways consistent with the survival of listed salmon.

Federalism

In accordance with E.O. 13132, this final rule does not have significant Federalism effects. A Federalism assessment is not required. In keeping with Department of Commerce policies, we requested information from, and coordinated development of, this critical habitat designation with appropriate state resource agencies in California. Theses designations may have some benefit to the states and local resource agencies in that the areas essential to the conservation of the species are more clearly defined, and the primary constituent elements of the habitat necessary to the survival of the species are specifically identified. While making this definition and identification does not alter where and what Federally sponsored activities may occur, it may assist local governments in long-range planning rather than waiting for case-by-case section 7 consultations to occur.

Civil Justice Reform

In accordance with E.O. 12988, the Department of the Commerce has determined that this final rule does not unduly burden the judicial system and meets the requirements of sections 3(a) and 3(b)(2) of the E.O. We are designating critical habitat in accordance with the provisions of the ESA. This final rule uses standard property descriptions and identifies the primary constituent elements within the designated areas to assist the public in understanding the habitat needs of the seven salmon and steelhead ESUs.

Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.)

This final rule does not contain new or revised information collection for which OMB approval is required under the Paperwork Reduction Act. This final rule will not impose record keeping or reporting requirements on State or local governments, individuals, businesses, or organizations. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

National Environmental Policy Act

We have determined that we need not prepare environmental analyses as provided for under the National Environmental Policy Act of 1969 for critical habitat designations made pursuant to the ESA. See *Douglas County* v. *Babbitt,* 48 F.3d 1495 (9th Cir. 1995), cert. denied, 116 S.Ct. 698 (1996).

Government-to-Government Relationship With Tribes

The longstanding and distinctive relationship between the Federal and tribal Governments is defined by treaties, statutes, executive orders, judicial decisions, and agreements, which differentiate tribal governments from the other entities that deal with, or are affected by, the Federal Government. This relationship has given rise to a special Federal trust responsibility involving the legal responsibilities and obligations of the United States toward Indian Tribes and the application of fiduciary standards of due care with respect to Indian lands, tribal trust resources, and the exercise of tribal rights. Pursuant to these authorities lands have been retained by Indian Tribes or have been set aside for tribal use. These lands are managed by Indian Tribes in accordance with tribal goals and objectives within the framework of applicable treaties and laws.

Administration policy contained in the Secretarial Order: ''American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act'' (June 5, 1997) (''Secretarial Order''); the President's Memorandum of April 29, 1994, ''Government-to-Government Relations with Native American Tribal Governments'' (50 FR 2291); E.O. 13175; and Department of Commerce-American Indian and Alaska Native Policy (March 30, 1995) reflects and defines this unique relationship.

These policies also recognize the unique status of Indian lands. The Presidential Memorandum of April 29, 1994, provides that, to the maximum extent possible, tribes should be the governmental entities to manage their lands and tribal trust resources. The Secretarial Order provides that, ''Indian lands are not Federal public lands or part of the public domain, and are not subject to Federal public lands laws.''

In implementing these policies the Secretarial Order specifically seeks to harmonize this unique working relationship with the Federal Government's duties pursuant to the ESA. The order clarifies our responsibilities when carrying out authorities under the ESA and requires that we consult with and seek participation of, the affected Indian Tribes to the maximum extent practicable in the designation of critical habitat. Accordingly, we recognize that we must carry out our responsibilities under the ESA in a manner that harmonizes these duties with the Federal trust responsibility to the tribes and tribal sovereignty while striving to ensure that Indian Tribes do not bear a

disproportionate burden for the conservation of species. Any decision to designate Indian land as critical habitat must be informed by the Federal laws and policies establishing our responsibility concerning Indian lands, treaties and trust resources, and by Department of Commerce policy establishing our responsibility for dealing with tribes when we implement the ESA.

For West Coast salmon in California, our approach is also guided by the unique partnership between the Federal Government and Indian tribes regarding salmon management. In California, Indian tribes are regarded as ''co-managers'' of the salmon resource, along with Federal and state managers. This co-management relationship evolved as a result of numerous court decisions establishing the tribes' treaty right to take fish in their usual and accustomed places.

Pursuant to the Secretarial Order we consulted with the affected Indian Tribes when considering the designation of critical habitat in an area that may impact tribal trust resources, tribally owned fee lands or the exercise of tribal rights. Additionally some tribes and the BIA provided written comments that are a part of the administrative record for this rulemaking.

We understand from the tribes that there is general agreement that Indian lands should not be designated critical habitat. The Secretarial Order defines Indian lands as ''any lands title to which is either: (1) Held in trust by the United States for the benefit of any Indian tribe or (2) held by an Indian Tribe or individual subject to restrictions by the United States against alienation.'' In clarifying this definition with the tribes, we agree that (1) fee lands within the reservation boundaries and owned by the Tribe or individual Indian, and (2) fee lands outside the reservation boundaries and owned by the Tribe would be considered Indian lands for the purposes of this rule. (Fee lands outside the reservation owned by individual Indians are not included within the definition of Indian lands for the purposes of this rule.)

In evaluating Indian lands for designation as critical habitat we look to section 4(b)(2) of the ESA. Section 4(b)(2) requires us to base critical habitat designations on the best scientific and commercial data available, after taking into consideration the economic impact, the impact on national security and any other relevant impact of specifying any particular area as critical habitat. The Secretary may exclude areas from a critical habitat designation when the benefits of exclusion outweigh the benefits of designation, provided the exclusion will not result in the extinction of the species. We find that a relevant impact for consideration is the degree to which the Federal designation of Indian lands would impact the longstanding unique relationship between the tribes and the Federal Government and the corresponding effect on West Coast salmon protection and management. This is consistent with recent case law addressing the designation of critical habitat on tribal lands. ''It is certainly reasonable to consider a positive working relationship relevant, particularly when the relationship results in the implementation of beneficial natural resource programs, including species preservation.'' *Center for Biological Diversity et al.* v. *Norton,* 240 F. Supp. 2d 1090, 1105); *Douglas County* v. *Babbitt,* 48 F.3d 1495, 1507 (1995) (defining ''relevant'' as impacts consistent with the purposes of the ESA).

As noted above, NMFS and the tribal governments in California currently have cooperative working relationships that have enabled us to implement natural resource programs of mutual interest for the benefit of threatened and endangered salmonids. The tribes have existing natural resource programs that assist us on a regular basis in providing information relevant to salmonid protection. The tribes indicate that they view the designation of Indian lands as an unwanted intrusion into tribal self-governance, compromising the government-to-government relationship that is essential to achieving our mutual goal of conserving threatened and endangered salmonids. At this time, for the general reasons described above, we conclude that the ESA 4(b)(2) analysis leads us to exclude all Indian lands containing occupied habitat otherwise eligible for designation in our final designation for these 7 ESUs of salmon and steelhead.

IX. References Cited

A complete list of all references cited in this rulemaking can be found on our Web site at *http://swr.nmfs.noaa.gov* and is available upon request from the NMFS office in Long Beach, CA (see **ADDRESSES** section).

List of Subjects in 50 CFR Part 226

Endangered and threatened species.

Dated: August 12, 2005.

William T. Hogarth,

Assistant Administrator for Fisheries, National Marine Fisheries Service.

■ For the reasons set out in the preamble, we amend part 226, title 50 of the Code of Regulations as set forth below:

PART 226—[AMENDED]

■ 1. The authority citation of part 226 continues to read as follows:

Authority: 16 U.S.C. 1533.

■ 2. Add § 226.211 to read as follows:

§ 226.211 Critical habitat for Seven Evolutionarily Significant Units (ESUs) of Salmon (*Oncorhynchus spp.*) in California.

Critical habitat is designated in the following California counties for the following ESUs as described in paragraph (a) of this section, and as further described in paragraphs (b) through (e) of this section. The textual descriptions of critical habitat for each ESU are included in paragraphs (f) through (l) of this section, and these descriptions are the definitive source for determining the critical habitat boundaries. General location maps are provided at the end of each ESU description (paragraphs (f) through (l) of this section) and are provided for general guidance purposes only, and not as a definitive source for determining critical habitat boundaries.

(a) Critical habitat is designated for the following ESUs in the following California counties:

ESU	State—counties
(1) California Coastal Chinook	*CA*—Humboldt, Trinity, Mendocino, Sonoma, Lake, Napa, Glenn, Colusa, and Tehama.
(2) Northern California Steelhead	*CA*—Humboldt, Trinity, Mendocino, Sonoma, Lake, Glenn, Colusa, and Tehama.
(3) Central California Coast Steelhead	*CA*—Lake, Mendocino, Sonoma, Napa, Marin, San Francisco, San Mateo, Santa Clara, Santa Cruz, Alameda, Contra Costa, and San Joaquin.
(4) South-Central Coast Steelhead	*CA*—Monterey, San Benito, Santa Clara, Santa Cruz, San Luis Obispo.

ESU	State—counties
(5) Southern California Steelhead	*CA*—San Luis Obispo, Santa Barbara, Ventura, Los Angeles, Orange and San Diego.
(6) Central Valley spring-run Chinook	*CA*—Tehama, Butte, Glenn, Shasta, Yolo, Sacramento, Solano, Colusa, Yuba, Sutter, Trinity, Alameda, San Joaquin, and Contra Costa.
(7) Central Valley Steelhead	*CA*—Tehama, Butte, Glenn, Shasta, Yolo, Sacramento, Solona, Yuba, Sutter, Placer, Calaveras, San Joaquin, Stanislaus, Tuolumne, Merced, Alameda, Contra Costa.

(b) *Critical habitat boundaries.* Critical habitat includes the stream channels within the designated stream reaches, and includes a lateral extent as defined by the ordinary high-water line (33 CFR 329.11). In areas where the ordinary high-water line has not been defined, the lateral extent will be defined by the bankfull elevation. Bankfull elevation is the level at which water begins to leave the channel and move into the floodplain and is reached at a discharge which generally has a recurrence interval of 1 to 2 years on the annual flood series. Critical habitat in estuaries (*e.g.* San Francisco-San Pablo-Suisun Bay, Humboldt Bay, and Morro Bay) is defined by the perimeter of the water body as displayed on standard 1:24,000 scale topographic maps or the elevation of extreme high water, whichever is greater.

(c) *Primary constituent elements.* Within these areas, the primary constituent elements essential for the conservation of these ESUs are those sites and habitat components that support one or more life stages, including:

(1) Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation and larval development;

(2) Freshwater rearing sites with:

(i) Water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility;

(ii) Water quality and forage supporting juvenile development; and

(iii) Natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks.

(3) Freshwater migration corridors free of obstruction and excessive predation with water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival.

(4) Estuarine areas free of obstruction and excessive predation with:

(i) Water quality, water quantity, and salinity conditions supporting juvenile and adult physiological transitions between fresh- and saltwater;

(ii) Natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels; and

(iii) Juvenile and adult forage, including aquatic invertebrates and fishes, supporting growth and maturation.

(d) *Exclusion of Indian lands.* Critical habitat does not include occupied habitat areas on Indian lands. The Indian lands specifically excluded from critical habitat are those defined in the Secretarial Order, including:

(1) Lands held in trust by the United States for the benefit of any Indian tribe;

(2) Land held in trust by the United States for any Indian Tribe or individual subject to restrictions by the United States against alienation;

(3) Fee lands, either within or outside the reservation boundaries, owned by the tribal government; and

(4) Fee lands within the reservation boundaries owned by individual Indians.

(e) *Land owned or controlled by the Department of Defense.* Additionally, critical habitat does not include the following areas owned or controlled by the Department of Defense, or designated for its use, that are subject to an integrated natural resources management plan prepared under section 101 of the Sikes Act (16 U.S.C. 670a):

(1) Camp Pendleton Marine Corps Base;

(2) Vandenberg Air Force Base;

(3) Camp San Luis Obispo;

(4) Camp Roberts; and

(5) Mare Island Army Reserve Center.

(f) *California Coastal Chinook Salmon (Oncorhynchus tshawytscha).* Critical habitat is designated to include the areas defined in the following CALWATER Hydrologic units:

(1) Redwood Creek Hydrologic Unit 1107—(i) *Orick Hydrologic Sub-area 110710.* Outlet(s) = Redwood Creek (Lat –41.2923, Long –124.0917) upstream to endpoint(s) in: Boyes Creek (41.3639, –123.9845); Bridge Creek (41.137, –124.0012); Brown Creek (41.3986, –124.0012); Emerald (Harry Weir) (41.2142, –123.9812); Godwood Creek (41.3889, –124.0312); Larry Dam Creek (41.3359, –124.003); Little Lost Man Creek (41.2944, –124.0014); Lost Man Creek (41.3133, –123.9854); May Creek (41.3547, –123.999); McArthur Creek (41.2705, –124.041); North Fork Lost Man Creek (41.3374, –123.9935); Prairie Creek (41.4239, –124.0367); Tom McDonald (41.1628, –124.0419).

(ii) *Beaver Hydrologic Sub-area 110720.* Outlet(s) = Redwood Creek (Lat 41.1367, Long –123.9309) upstream to endpoint(s): Lacks Creek (41.0334, –123.8124); Minor Creek (40.9706, –123.7899).

(iii) *Lake Prairie Hydrologic Sub-area 110730.* Outlet(s) = Redwood Creek (Lat 40.9070, Long –123.8170) upstream to endpoint(s) in: Redwood Creek (40.7432, –123.7206).

(2) Trinidad Hydrologic Unit 1108—(i) *Big Lagoon Hydrologic Sub-area 110810.* Outlet(s) = Maple Creek (Lat 41.1555, Long –124.1380) upstream to endpoint(s) in: North Fork Maple Creek (41.1317, –124.0824); Maple Creek (41.1239, –124.1041).

(ii) *Little River Hydrologic Sub-area 110820.* Outlet(s) = Little River (41.0277, –124.1112) upstream to endpoint(s) in: South Fork Little River (40.9908, –124.0412); Little River (41.0529, –123.9727); Railroad Creek (41.0464, –124.0475); Lower South Fork Little River (41.0077, –124.0078); Upper South Fork Little River (41.0131, –123.9853).

(3) Mad River Hydrologic Unit 1109—(i) *Blue Lake Hydrologic Sub-area 110910.* Outlet(s) = Mad River (Lat 40.9139, Long –124.0642) upstream to endpoint(s) in: Lindsay Creek (40.983, –124.0326); Mill Creek (40.9008, –124.0086); North Fork Mad River (40.8687, –123.9649); Squaw Creek (40.9426, –124.0202); Warren Creek (40.8901, –124.0402).

(ii) *North Fork Mad River 110920.* Outlet(s) = North Fork Mad River (Lat 40.8687, Long –123.9649) upstream to endpoint(s) in: Sullivan Gulch (40.8646, –123.9553); North Fork Mad River (40.8837, –123.9436).

(iii) *Butler Valley 110930.* Outlet(s) = Mad River (Lat 40.8449, Long –123.9807) upstream to endpoint(s) in: Black Creek (40.7547, –123.9016); Black Dog Creek (40.8334, –123.9805); Canon Creek (40.8362, –123.9028); Dry Creek (40.8218, –123.9751); Mad River (40.7007, –123.8642); Maple Creek (40.7928, –123.8742); Unnamed (40.8186, –123.9769).

(4) Eureka Plain Hydrologic Unit 1110—(i) *Eureka Plain Hydrologic Sub-area 111000.* Outlet(s) = Mad River (Lat 40.9560, Long –124.1278); Jacoby Creek (40.8436, –124.0834); Freshwater Creek (40.8088, –124.1442); Elk River (40.7568, –124.1948); Salmon Creek (40.6868, –124.2194) upstream to endpoint(s) in: Bridge Creek (40.6958, –124.0795); Dunlap Gulch (40.7101, –124.1155); Freshwater Creek (40.7389, –123.9944); Gannon Slough (40.8628, –124.0818); Jacoby Creek (40.7944, –124.0093); Little Freshwater Creek (40.7485, –124.0652); North Branch of the North Fork Elk River (40.6878, –124.0131); North Fork Elk River (40.6756, –124.0153); Ryan Creek (40.7835, –124.1198); Salmon Creek (40.6438, –124.1319); South Branch of the North Fork Elk River (40.6691, –124.0244); South Fork Elk River (40.6626, –124.061); South Fork Freshwater Creek (40.7097, –124.0277).

(ii) [Reserved]

(5) Eel River Hydrologic Unit 1111—(i) *Ferndale Hydrologic Sub-area 111111.* Outlet(s) = Eel River (Lat 40.6282, Long –124.2838) upstream to endpoint(s) in: Atwell Creek (40.472, –124.1449); Howe Creek (40.4748, –124.1827); Price Creek (40.5028, –124.2035); Strongs Creek (40.5986, –124.1222); Van Duzen River (40.5337, –124.1262).

(ii) *Scotia Hydrologic Sub-area 111112.* Outlet(s) = Eel River (Lat 40.4918, Long –124.0998) upstream to endpoint(s) in: Bear Creek (40.391, –124.0156); Chadd Creek (40.3921, –123.9542); Jordan Creek (40.4324, –124.0428); Monument Creek (40.4676, –124.1133).

(iii) *Larabee Creek Hydrologic Sub-area 111113.* Outlet(s) = Larabee Creek (40.4090, Long –123.9334) upstream to endpoint(s) in: Carson Creek (40.4189, –123.8881); Larabee Creek (40.3950, –123.8138).

(iv) *Hydesville Hydrologic Sub-area 111121.* Outlet(s) = Van Duzen River (Lat 40.5337, Long –124.1262) upstream to endpoint(s) in: Cummings Creek (40.5258, –123.9896); Fielder Creek (40.5289, –124.0201); Hely Creek (40.5042, –123.9703); Yager Creek (40.5583, –124.0577).

(v) *Yager Creek Hydrologic Sub-area 111123.* Outlet(s) = Yager Creek (Lat 40.5583, Long –124.0577) upstream to endpoint(s) in: Corner Creek (40.6189, –123.9994); Fish Creek (40.6392, –124.0032); Lawrence Creek (40.6394, –123.9935); Middle Fork Yager Creek (40.5799, –123.9015); North Fork Yager Creek (40.6044, –123.9084); Owl Creek (40.5557, –123.9362); Shaw Creek (40.6245, –123.9518); Yager Creek (40.5673, –123.9403).

(vi) *Weott Hydrologic Sub-area 111131.* Outlet(s) = South Fork Eel River (Lat 40.3500, Long –213.9305) upstream to endpoint(s) in: Bridge Creek (40.2929, –123.8569); Bull Creek (40.3148, –124.0343); Canoe Creek (40.2909, –123.922); Cow Creek (40.3583, –123.9626); Cuneo Creek (40.3377, –124.0385); Elk Creek (40.2837, –123.8365); Fish Creek (40.2316, –123.7915); Harper Creek (40.354, –123.9895); Mill Creek (40.3509, –124.0236); Salmon Creek (40.2214, –123.9059); South Fork Salmon River (40.1769, –123.8929); Squaw Creek (40.3401, –123.9997); Tostin Creek (40.1722, –123.8796).

(vii) *Benbow Hydrologic Sub-area 111132.* Outlet(s) = South Fork Eel River (Lat 40.1932, Long –123.7692) upstream to endpoint(s) in: Anderson Creek (39.9337, –123.8933); Bear Pen Creek (39.9125, –123.8108); Bear Wallow Creek (39.7296, –123.7172); Bond Creek (39.7856, –123.6937); Butler Creek (39.7439, –123.692); China Creek (40.1035, –123.9493); Connick Creek (40.0911, –123.8187); Cox Creek (40.0288, –123.8542); Cummings Creek (39.8431, –123.5752); Dean Creek (40.1383, –123.7625); Dinner Creek (40.0915, –123.937); East Branch South Fork Eel River (39.9433, –123.6278); Elk Creek (39.7986, –123.5981); Fish Creek (40.0565, –123.7768); Foster Creek (39.8455, –123.6185); Grapewine Creek (39.7991, –123.5186); Hartsook Creek (40.012, –123.7888); Hollow Tree Creek (39.7316, –123.6918); Huckleberry Creek (39.7315, –123.7253); Indian Creek (39.9464, –123.8993); Jones Creek (39.9977, –123.8378); Leggett Creek (40.1374, –123.8312); Little Sproul Creel (40.0897, –123.8585); Low Gap Creek (39.993, –123.767); McCoy Creek (39.9598, –123.7542); Michael's Creek (39.7642, –123.7175); Miller Creek (40.1215, –123.916); Moody Creek (39.9531, –123.8819); Mud Creek (39.8232, –123.6107); Piercy Creek (39.9706, –123.8189); Pollock Creek (40.0822, –123.9184); Rattlesnake Creek (39.7974, –123.5426); Redwood Creek (39.7721, –123.7651); Redwood Creek (40.0974, –123.9104); Seely Creek (40.1494, –123.8825); Somerville Creek (40.0896, –123.8913); South Fork Redwood Creek (39.7663, –123.7579); Spoul Creek (40.0125, –123.8585); Standley Creek (39.9479, –123.8083); Tom Long Creek (40.0315, –123.6891); Twin Rocks Creek (39.8269, –123.5543); Warden Creek (40.0625, –123.8546); West Fork Sproul Creek (40.0386, –123.9015); Wildcat Creek (39.9049, –123.7739); Wilson Creek (39.841, –123.6452); Unnamed Tributary (40.1136, –123.9359).

(viii) *Laytonville Hydrologic Sub-area 111133.* Outlet(s) = South Fork Eel River (Lat 39.7665, Long –123.6484)) upstream to endpoint(s) in: Bear Creek (39.6413, –123.5797); Cahto Creek (39.6624, –123.5453); Dutch Charlie Creek (39.6892, –123.6818); Grub Creek (39.7777, –123.5809); Jack of Hearts Creek (39.7244, –123.6802); Kenny Creek (39.6733, –123.6082); Mud Creek (39.6561, –123.592); Redwood Creek (39.6738, –123.6631); Rock Creek (39.6931, –123.6204); South Fork Eel River (39.6271, –123.5389); Streeter Creek (39.7328, –123.5542); Ten Mile Creek (39.6651, –123.451).

(ix) *Sequoia Hydrologic Sub-area 111141.* Outlet(s) = Eel River (Lat 40.3557, Long –123.9191); South Fork Eel River (40.3558, –123.9194) upstream to endpoint(s) in: Brock Creek (40.2411, –123.7248); Dobbyn Creek (40.2216, –123.6029); Hoover Creek (40.2312, –123.5792); Line Gulch (40.1655, –123.4831); North Fork Dobbyn Creek (40.2669, –123.5467); South Fork Dobbyn Creek (40.1723, –123.5112); South Fork Eel River (40.35, –123.9305); Unnamed Tributary (40.3137, –123.8333); Unnamed Tributary (40.2715, –123.549).

(x) *Spy Rock Hydrologic Sub-area 111142.* Outlet(s) = Eel River (Lat 40.1736, Long –123.6043) upstream to endpoint(s) in: Bell Springs Creek (39.9399, –123.5144); Burger Creek (39.6943, –123.413); Chamise Creek (40.0563, –123.5479); Jewett Creek (40.1195, –123.6027); Kekawaka Creek (40.0686, –123.4087); Woodman Creek (39.7639, –123.4338).

(xi) *North Fork Eel River Hydrologic Sub-area 111150.* Outlet(s) = North Fork Eel River (Lat 39.9567, Long –123.4375) upstream to endpoint(s) in: North Fork Eel River (39.9370, –123.3758).

(xii) *Outlet Creek Hydrologic Sub-area 111161.* Outlet(s) = Outlet Creek (Lat 39.6263, Long –123.3453) upstream to endpoint(s) in: Baechtel Creek (39.3688, –123.4028); Berry Creek (39.4272, –123.2951); Bloody Run (39.5864, –123.3545); Broaddus Creek (39.3907, –123.4163); Davis Creek (39.3701, –123.3007); Dutch Henry Creek (39.5788, –123.4543); Haehl Creek (39.3795, –123.3393); Long Valley Creek (39.6091, –123.4577); Ryan Creek (39.4803, –123.3642); Upp Creek (39.4276, –123.3578); Upp Creek

(39.4276, –123.3578); Willits Creek (39.4315, –123.3794).

(xiii) *Tomki Creek Hydrologic Sub-area 111162.* Outlet(s) = Eel River (Lat 39.7138, Long –123.3531) upstream to endpoint(s) in: Cave Creek (39.3925, –123.2318); Long Branch Creek (39.4074, –123.1897); Rocktree Creek (39.4533, –123.3079); Salmon Creek (39.4461, –123.2104); Scott Creek (39.456, –123.2297); String Creek (39.4855, –123.2891); Tomki Creek (39.549, –123.3613); Wheelbarrow Creek (39.5029, –123.3287).

(xiv) *Lake Pillsbury Hydrologic Sub-area 111163.* Outlet(s) = Eel River (Lat 39.3860, Long –123.1163) upstream to endpoint(s) in: Eel River (39.4078, –122.958).

(xv) *Eden Valley Hydrologic Sub-area 111171.* Outlet(s) = Middle Fork Eel River (Lat 39.8146, Long –123.1332) upstream to endpoint(s) in: Middle Fork Eel River (39.8145, –123.1333).

(xvi) *Round Valley Hydrologic Sub-area 111172.* Outlet(s) = Mill Creek (Lat 39.7396, Long –123.1420); Williams Creek (39.8145, –123.1333) upstream to endpoint(s) in: Mill Creek (39.8456, –123.2822); Murphy Creek (39.8804, –123.1636); Poor Mans Creek (39.8179, –123.1833); Short Creek (39.8645, –123.2242); Turner Creek (39.7238, –123.2191); Williams Creek (39.8596, –123.1341).

(6) *Cape Mendocino Hydrologic Unit 1112—(i) Capetown Hydrologic Sub-area 111220.* Outlet(s) = Bear River (Lat 40.4744, Long –124.3881) upstream to endpoint(s) in: Bear River (40.3591, –124.0536); South Fork Bear River (40.4271, –124.2873).

(ii) *Mattole River Hydrologic Sub-area 111230.* Outlet(s) = Mattole River (Lat 40.2942, Long –124.3536) upstream to endpoint(s) in: Bear Creek (40.1262, –124.0631); Blue Slide Creek (40.1286, –123.9579); Bridge Creek (40.0503, –123.9885); Conklin Creek (40.3169, –124.229); Dry Creek (40.2389, –124.0621); East Fork Honeydew Creek (40.1633, –124.0916); East Fork of the North Fork Mattole River (40.3489, –124.2244); Eubanks Creek (40.0893, –123.9743); Gilham Creek (40.2162, –124.0309); Grindstone Creek (40.1875, –124.0041); Honeydew Creek (40.1942, –124.1363); Mattole Canyon (40.1833, –123.9666); Mattole River (39.9735, –123.9548); McGinnis Creek (40.3013, –124.2146); McKee Creek (40.0674, –123.9608); Mill Creek (40.0169, –123.9656); North Fork Mattole River (40.3729, –124.2461); North Fork Bear Creek (40.1422, –124.0945); Oil Creek (40.3008, –124.1253); Rattlesnake Creek (40.2919, –124.1051); South Fork Bear Creek (40.0334, –124.0232); Squaw Creek (40.219, –124.1921); Thompson Creek (39.9969, –123.9638); Unnamed (40.1522, –124.0989); Upper North Fork Mattole River (40.2907, –124.1115); Westlund Creek (40.2333, –124.0336); Woods creek (40.2235, –124.1574); Yew Creek (40.0019, –123.9743).

(7) Mendocino Coast Hydrologic Unit 1113—(i) *Wages Creek Hydrologic Sub-area 111312.* Outlet(s) = Wages Creek (Lat 39.6513, Long –123.7851) upstream to endpoint(s) in: Wages Creek (39.6393, –123.7146).

(ii) *Ten Mile River Hydrologic Sub-area 111313.* Outlet(s) = Ten Mile River (Lat 39.5529, Long –123.7658) upstream to endpoint(s) in: Middle Fork Ten Mile River (39.5397, –123.5523); Little North Fork Ten Mile River (39.6188, –123.7258); Ten Mile River (39.5721, –123.7098); South Fork Ten Mile River (39.4927, –123.6067); North Fork Ten Mile River (39.5804, –123.5735).

(iii) Noyo River Hydrologic Sub-area 111320. Outlet(s) = Noyo River (Lat 39.4274, Long –123.8096) upstream to endpoint(s) in: North Fork Noyo River (39.4541, –123.5331); Noyo River (39.431, 123.494); South Fork Noyo River (39.3549, –123.6136).

(iv) *Big River Hydrologic Sub-area 111330.* Outlet(s) = Big River (Lat 39.3030, Long –123.7957) upstream to endpoint(s) in: Big River (39.3095, –123.4454).

(v) *Albion River Hydrologic Sub-area 111340.* Outlet(s) = Albion River (Lat 39.2253, Long –123.7679) upstream to endpoint(s) in: Albion River (39.2644, –123.6072).

(vi) *Garcia River Hydrologic Sub-area 111370.* Outlet(s) = Garcia River (Lat 38.9455, Long –123.7257) upstream to endpoint(s) in: Garcia River (38.9160, –123.4900).

(8) Russian River Hydrologic Unit 1114—(i) *Guerneville Hydrologic Sub-area 111411.* Outlet(s) = Russian River (Lat 38.4507, Long –123.1289) upstream to endpoint(s) in: Austin Creek (38.5099, –123.0681); Mark West Creek (38.4961, –122.8489).

(ii) *Austin Creek Hydrologic Sub-area 111412.* Outlet(s) = Austin Creek (Lat 38.5099, Long –123.0681) upstream to endpoint(s) in: Austin Creek (38.5326, –123.0844).

(iii) *Warm Springs Hydrologic Sub-area 111424.* Outlet(s) = Dry Creek (Lat 38.5861, Long –122.8573) upstream to endpoint(s) in: Dry Creek (38.7179, –123.0075).

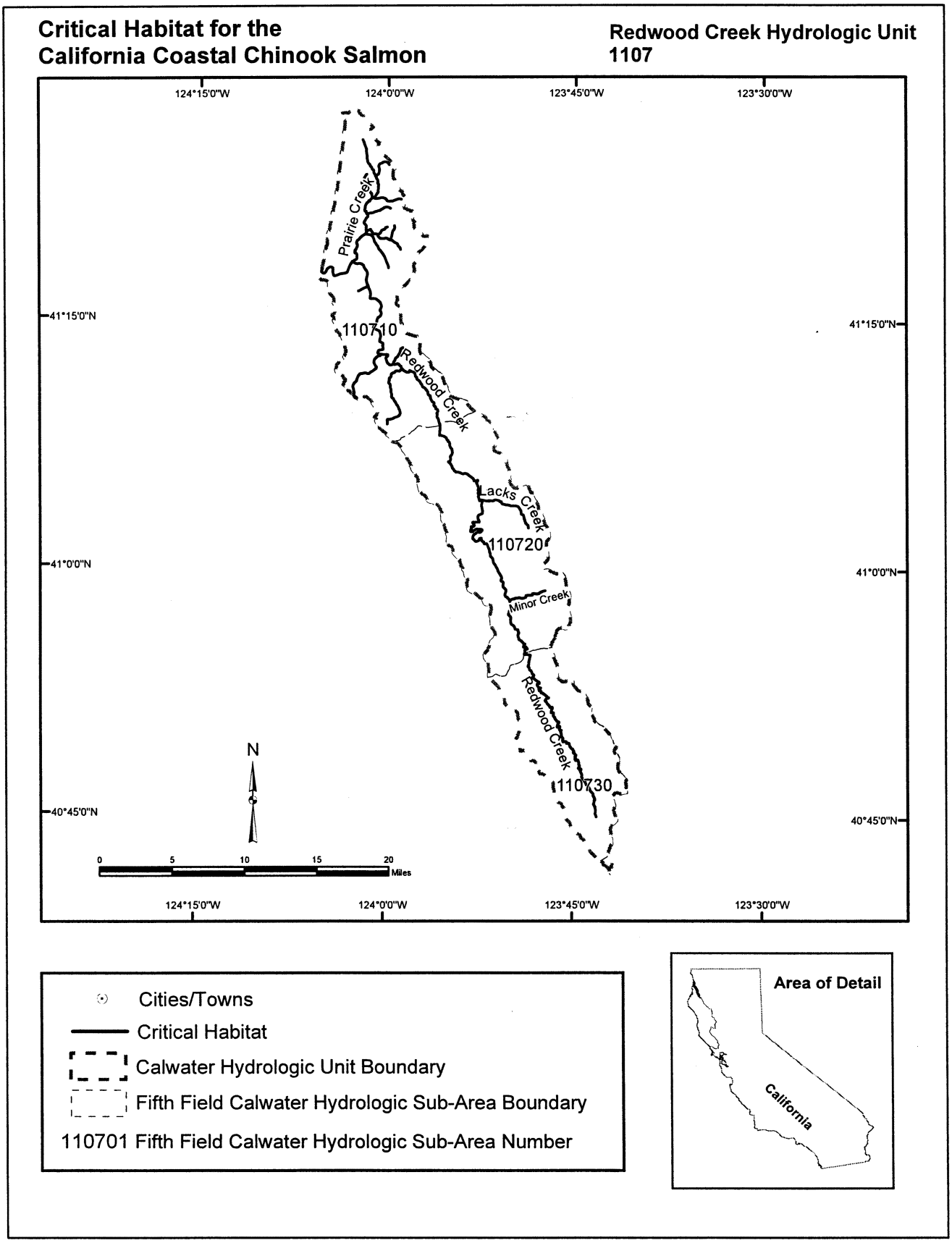
(iv) *Geyserville Hydrologic Sub-area 111425.* Outlet(s) = Russian River (Lat 38.6132, Long –122.8321) upstream.

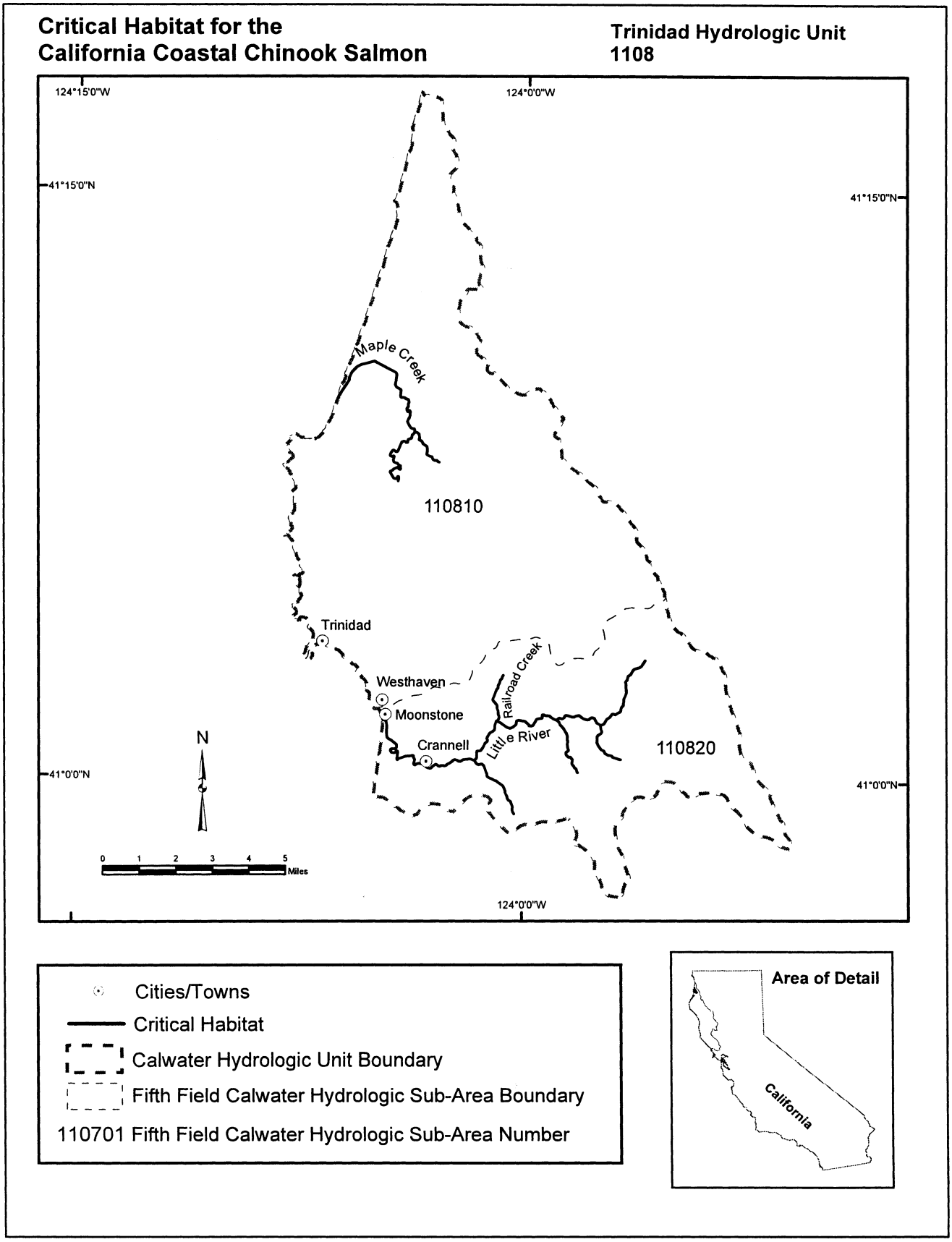
(v) *Ukiah Hydrologic Sub-area 111431.* Outlet(s) = Russian River (Lat 38.8828, Long –123.0557) upstream to endpoint(s) in: Feliz Creek (38.9941, –123.1779).

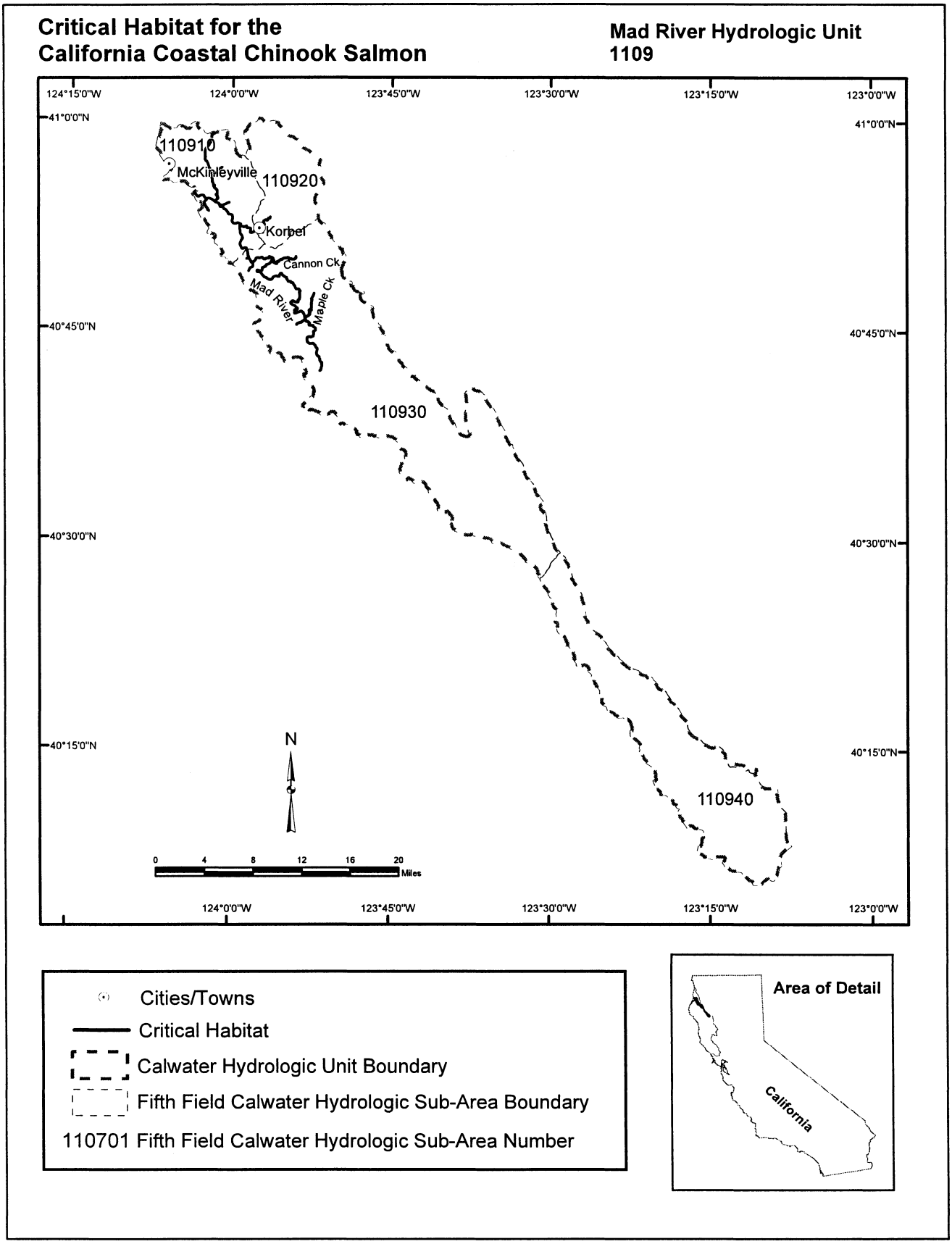
(vi) *Forsythe Creek Hydrologic Sub-area 111433.* Outlet(s) = Russian River (Lat 39.2257, Long –123.2012) upstream to endpoint(s) in: Forsythe Creek (39.2780, –123.2608); Russian River (39.3599, –123.2326).

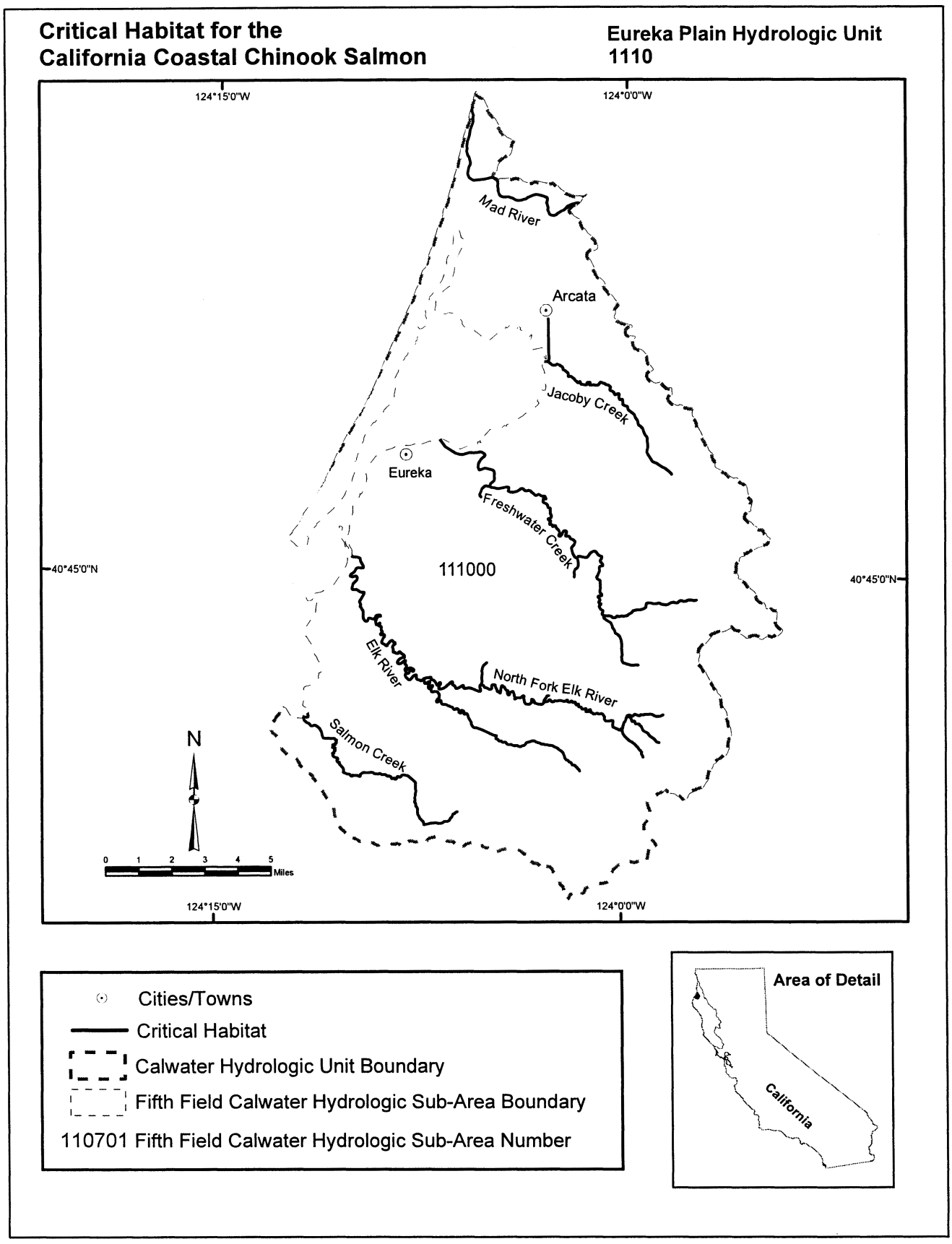
(9) Maps of critical habitat for the California Coast chinook salmon ESU follow:

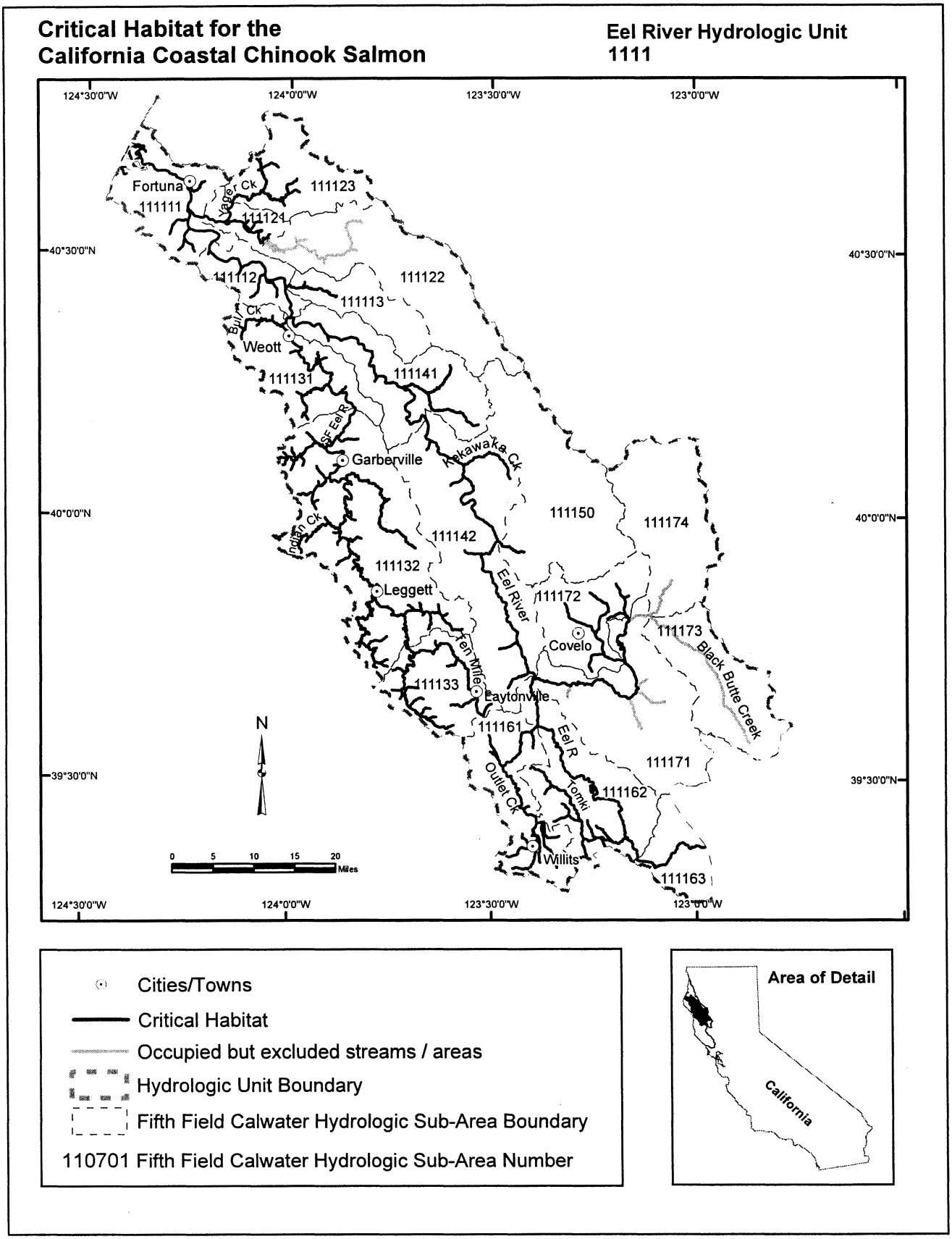
BILLING CODE 3510–22–P

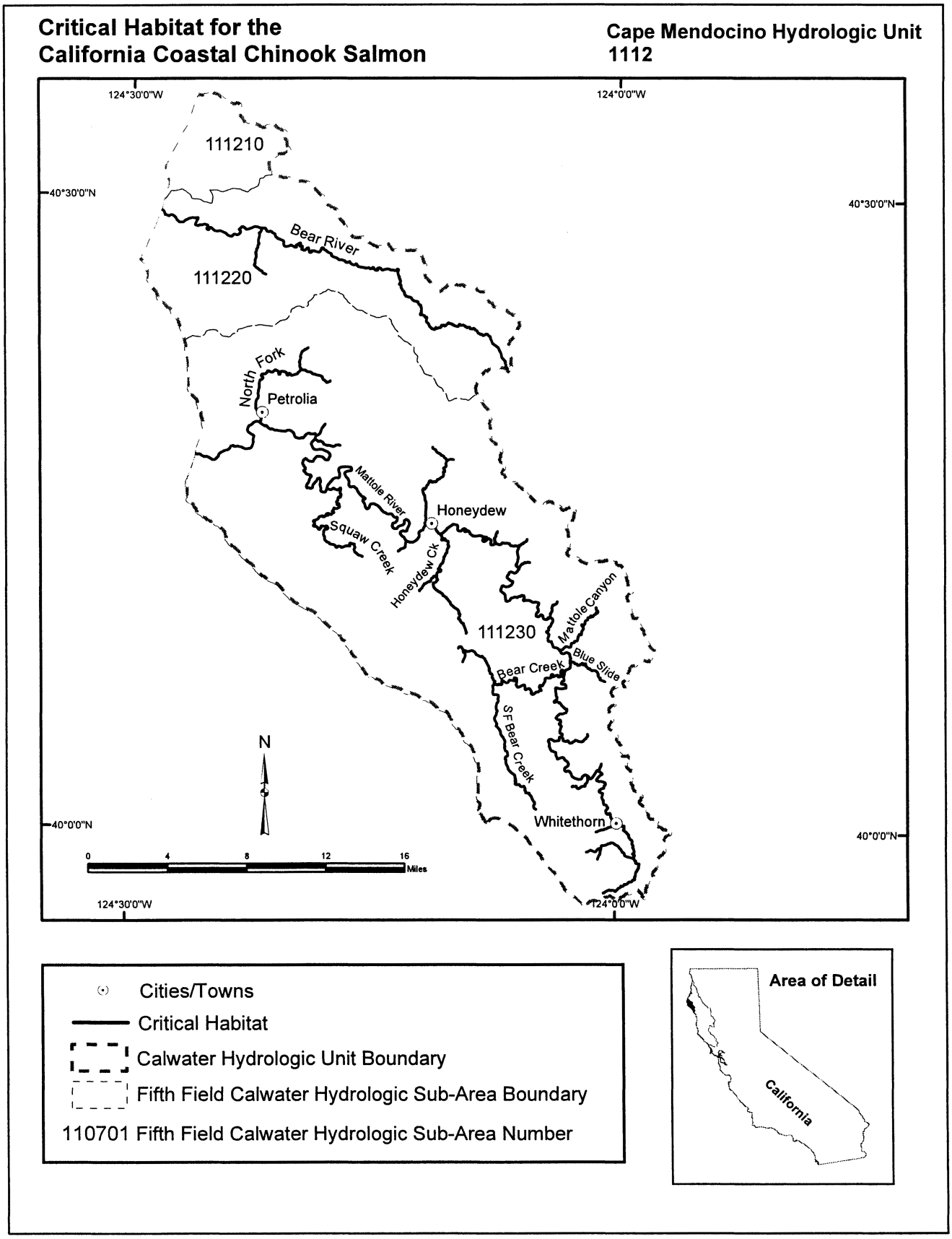

Critical Habitat for the
California Coastal Chinook Salmon
Redwood Creek Hydrologic Unit
1107
124°15'0"W
124°0'0"W
123°45'0"W
123°30'0"W
41°15'0"N
41°0'0"N
40°45'0"N
Prairie Creek
110710
Redwood Creek
Lacks Creek
110720
Minor Creek
Redwood Creek
110730
N
0 5 10 15 20
Miles
Cities/Towns
Critical Habitat
Calwater Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California

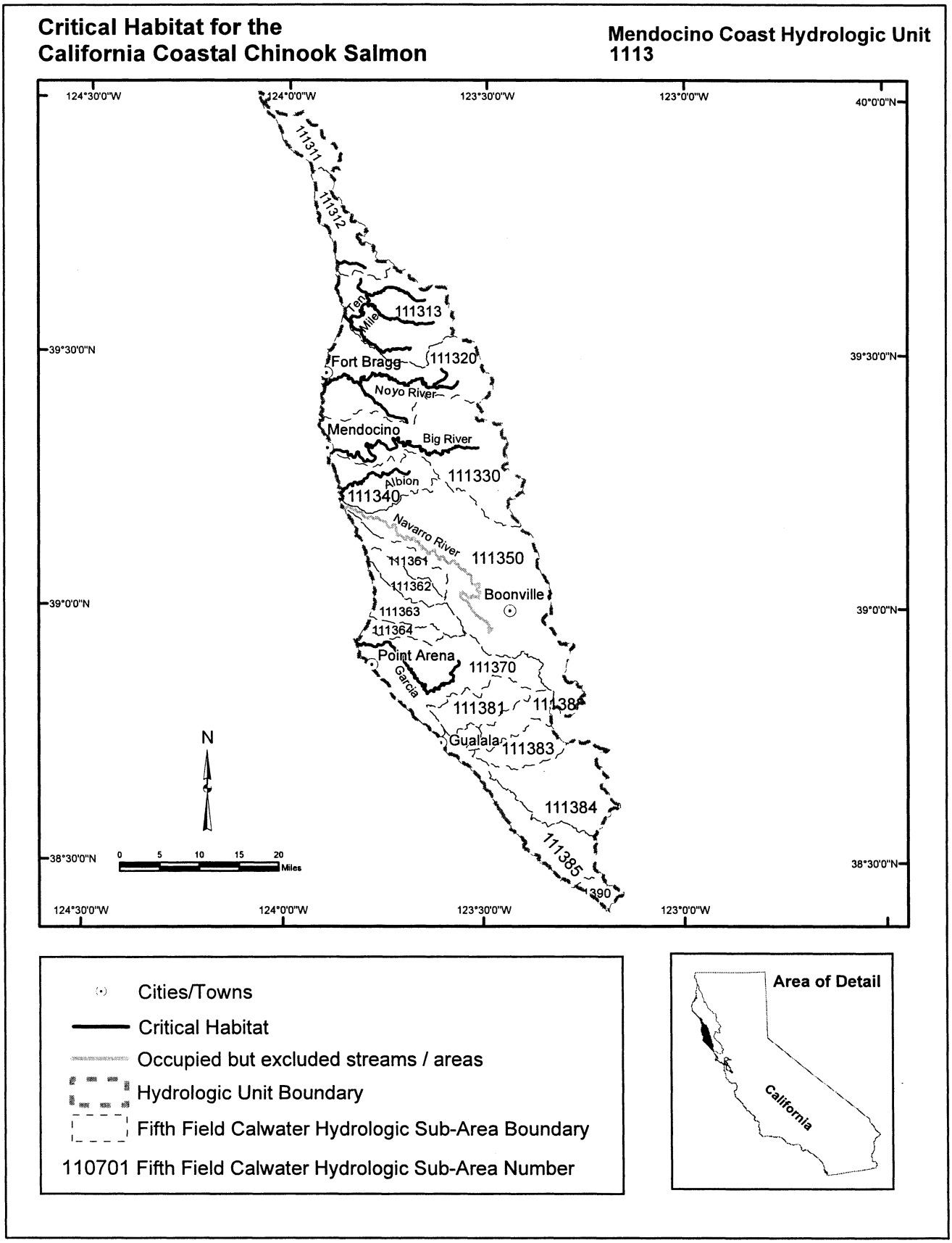

Critical Habitat for the
California Coastal Chinook Salmon
Trinidad Hydrologic Unit
1108
124°15'0"W
124°0'0"W
41°15'0"N
41°0'0"N
Maple Creek
110810
Trinidad
Westhaven
Moonstone
Crannell
Railroad Creek
Little River
110820
N
0 1 2 3 4 5
Miles
Cities/Towns
Critical Habitat
Calwater Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California

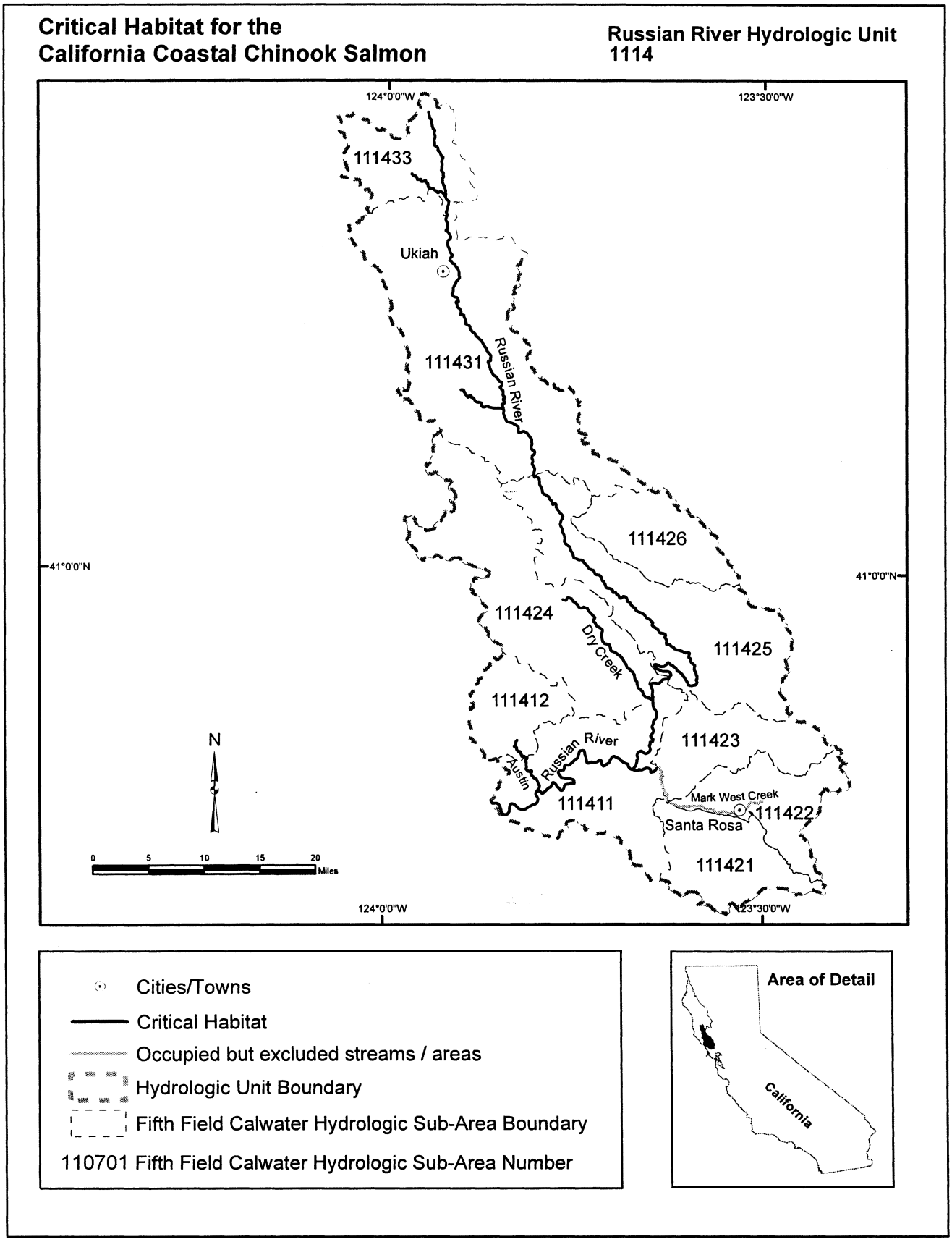

Critical Habitat for the
California Coastal Chinook Salmon
Mad River Hydrologic Unit
1109
124°15'0"W
124°0'0"W
123°45'0"W
123°30'0"W
123°15'0"W
123°0'0"W
41°0'0"N
40°45'0"N
40°30'0"N
40°15'0"N
110910
McKinleyville
110920
Korbel
Cannon Ck
Mad River
Maple Ck
110930
110940
N
0 4 8 12 16 20
Miles
Cities/Towns
Critical Habitat
Calwater Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California


Critical Habitat for the
California Coastal Chinook Salmon
Eureka Plain Hydrologic Unit
1110
124°15'0"W
124°0'0"W
40°45'0"N
Mad River
Arcata
Jacoby Creek
Eureka
Freshwater Creek
111000
Elk River
North Fork Elk River
Salmon Creek
N
0 1 2 3 4 5
Miles
Cities/Towns
Critical Habitat
Calwater Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California


Critical Habitat for the
California Coastal Chinook Salmon
Eel River Hydrologic Unit
1111
124°30'0"W
124°0'0"W
123°30'0"W
123°0'0"W
40°30'0"N
40°0'0"N
39°30'0"N
Fortuna
Yager Ck
111111
111123
111124
111112
111122
111113
Bull Ck
Weott
111131
111141
SF Eel R
Garberville
Redwood Ck
Redwood Ck
111150
111174
111142
111132
Leggett
Eel River
111172
Ten Mile
Covelo
111173
Black Butte Creek
111133
Laytonville
111161
Eel R
111171
Outlet Ck
Tomki
111162
Willits
111163
N
0 5 10 15 20
Miles
Cities/Towns
Critical Habitat
Occupied but excluded streams / areas
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California


Critical Habitat for the
California Coastal Chinook Salmon
Cape Mendocino Hydrologic Unit
1112
124°30'0"W
124°0'0"W
40°30'0"N
40°0'0"N
111210
111220
111230
Bear River
North Fork
Petrolia
Mattole River
Honeydew
Honeydew Ck
Squaw Creek
Mattole Canyon
Blue Slide
Bear Creek
SF Bear Creek
Whitethorn
N
0 4 8 12 16
Miles
Cities/Towns
Critical Habitat
Calwater Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California


Critical Habitat for the
California Coastal Chinook Salmon
Mendocino Coast Hydrologic Unit
1113
124°30'0"W
124°0'0"W
123°30'0"W
123°0'0"W
40°0'0"N
39°30'0"N
39°0'0"N
38°30'0"N
111311
111312
Ten Mile
111313
Fort Bragg
111320
Noyo River
Mendocino
Big River
111330
Albion
111340
Navarro River
111350
111361
111362
Boonville
111363
111364
Point Arena
111370
Garcia
111381
111382
Gualala
111383
111384
111385
390
N
0 5 10 15 20
Miles
Cities/Towns
Critical Habitat
Occupied but excluded streams / areas
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California



BILLING CODE 3510–22–C

(g) *Northern California Steelhead (O. mykiss).* Critical habitat is designated to include the areas defined in the following CALWATER Hydrologic units:

(1) Redwood Creek Hydrologic Unit 1107—(i) *Orick Hydrologic Sub-area 110710.* Outlet(s) = Boat Creek (Lat 41.4059, Long –124.0675); Home Creek (41.4027, –124.0683); Redwood Creek (41.2923, –124.0917); Squashan Creek (41.3889, –124.0703) upstream to endpoint(s) in: Boat Creek (41.4110, –124.0583); Bond Creek (41.2326, –124.0262); Boyes Creek (41.3701, –124.9891); Bridge Creek (41.1694, –123.9964); Brown Creek (41.3986, –124.0012); Cloquet Creek (41.2466, –123.9884); Cole Creek (41.2209, –123.9931); Copper Creek (41.1516, –123.9258); Dolason Creek (41.1969, –123.9667); Elam Creek (41.2613, –124.0321); Emerald Creek (41.2164, –123.9808); Forty Four Creek (41.2187, –124.0195); Gans South Creek (41.2678, –124.0071); Godwood Creek (41.3787, –124.0354); Hayes Creek (41.2890, –124.0164); Home Creek (41.3951, –124.0386); Larry Dam Creek (41.3441, –123.9966); Little Lost Man Creek (41.3078, –124.0084); Lost Man Creek (41.3187, –123.9892); May Creek (41.3521, –124.0164); McArthur Creek (41.2702, –124.0427); Miller Creek (41.2305, –124.0046); North Fork Lost Man Creek (41.3405, –123.9859); Oscar Larson Creek (41.2559, –123.9943); Prairie Creek (41.4440, –124.0411); Skunk Cabbage Creek (41.3211, –124.0802); Slide Creek (41.1736, –123.9450); Squashan Creek (41.3739, –124.0440); Streelow Creek (41.3622, –124.0472); Tom McDonald Creek (41.1933, –124.0164); Unnamed Tributary (41.3619, –123.9967); Unnamed Tributary (41.3424, –124.0572).

(ii) *Beaver Hydrologic Sub-area 110720.* Outlet(s) = Redwood Creek (Lat 41.1367, Long –123.9309) upstream to endpoint(s) in: Beaver Creek (41.0208, –123.8608); Captain Creek (40.9199, –123.7944); Cashmere Creek (41.0132, –123.8862); Coyote Creek (41.1251, –123.8926); Devils Creek (41.1224, –123.9384); Garcia Creek (41.0180, –123.8923); Garrett Creek (41.0904, –123.8712); Karen Court Creek (41.0368, –123.8953); Lacks Creek (41.0306, –123.8096); Loin Creek (40.9465, –123.8454); Lupton Creek (40.9058, –123.8286); Mill Creek (41.0045, –123.8525); Minor Creek (40.9706, –123.7899); Molasses Creek (40.9986, –123.8490); Moon Creek (40.9807, –123.8368); Panther Creek (41.0732, –123.9275); Pilchuck Creek (41.9986, –123.8710); Roaring Gulch (41.0319, –123.8674); Santa Fe Creek (40.9368, –123.8397); Sweathouse Creek (40.9332, –123.8131); Toss–Up Creek (40.9845, –123.8656); Unnamed Tributary (41.1270, –123.8967); Wiregrass Creek (40.9652, –123.8553).

(iii) *Lake Prairie Hydrologic Sub-area 110730.* Outlet(s) = Redwood Creek (Lat 40.9070, Long –123.8170) upstream to endpoint(s) in: Bradford Creek (40.7812, –123.7215); Cut–Off Meander (40.8507, –123.7729); Emmy Lou Creek (40.8655, –123.7771); Gunrack Creek (40.8391, –123.7650); High Prairie Creek (40.8191, –123.7723); Jena Creek (40.8742, –123.8065); Lake Prairie Creek (40.7984, –123.7558); Lupton Creek (40.9058, –123.8286); Minon Creek (40.8140, –123.7372); Noisy Creek (40.8613, –123.8044); Pardee Creek (40.7779, –123.7416); Redwood Creek (40.7432, –123.7206); Simion Creek (40.8241, –123.7560); Six Rivers Creek (40.8352, –123.7842); Smokehouse Creek (40.7405, –123.7278); Snowcamp Creek (40.7415, –123.7296); Squirrel Trail Creek (40.8692, –123.7844); Twin Lakes Creek (40.7369, –123.7214); Panther Creek (40.8019, –123.7094); Windy Creek (40.8866, –123.7956).

(2) Trinidad Hydrologic Unit 1108—(i) *Big Lagoon Hydrologic Sub-area 110810.* Outlet(s) = Maple Creek (Lat 41.1555, Long –124.1380); McDonald Creek (41.2521, –124.0919) upstream to endpoint(s) in: Beach Creek (41.0716, –124.0239); Clear Creek (41.1031, –124.0030); Diamond Creek (41.1571, –124.0926); Maple Creek (41.0836, –123.9790); McDonald Creek (41.1850, –124.0773); M-Line Creek (41.0752, –124.0787); North Fork Maple Creek (41.1254, –124.0539); North Fork McDonald Creek (41.2107, –124.0664); Pitcher Creek (41.1518, –124.0874); South Fork Maple Creek (41.1003, –124.1119); Tom Creek (41.1773, –124.0966); Unnamed Tributary (41.1004, –124.0155); Unnamed Tributary (41.0780, –124.0676); Unnamed Tributary (41.1168, –124.0886); Unnamed Tributary (41.0864, –124.0899); Unnamed Tributary (41.1132, –124.0827); Unnamed Tributary (41.0749, –124.0889); Unnamed Tributary (41.1052, –124.0675); Unnamed Tributary (41.0714, –124.0611); Unnamed Tributary (41.0948, –124.0016).

(ii) *Little River Hydrologic Sub-area 110820.* Outlet(s) = Little River (Lat 41.0277, Long –124.1112) upstream to endpoint(s) in: Freeman Creek (41.0242, –124.0582); Little River (40.9999, –123.9232); Lower South Fork Little River (41.0077, –124.0079); Railroad Creek (41.0468, –124.0466); South Fork Little River (40.9899, –124.0394); Unnamed Tributary (41.0356, –123.9958); Unnamed Tributary (41.0407, –124.0598); Unnamed Tributary (41.0068, –123.9830); Unnamed Tributary (41.0402, –124.0111); Unnamed Tributary (41.0402, –124.0189); Unnamed Tributary (41.0303, –124.0366); Unnamed Tributary (41.0575, –123.9710); Unnamed Tributary (41.0068, –123.9830); Upper South Fork Little River (41.0146, –123.9826).

(3) Mad River Hydrologic Unit 1109—(i) *Blue Lake Hydrologic Sub-area 110910.* Outlet(s) = Mad River (Lat 40.9139, Long –124.0642); Strawberry Creek (40.9964, –124.1155); Widow White Creek (40.9635, –124.1253) upstream to endpoint(s) in: Boundary Creek (40.8395, –123.9920); Grassy Creek (40.9314, –124.0188); Hall Creek (40.9162, –124.0141); Kelly Creek (40.8656, –124.0260); Leggit Creek (40.8808, –124.0269); Lindsay Creek (40.9838, –124.0283); Mather Creek (40.9796, –124.0526); Mill Creek (40.9296, –124.1037); Mill Creek (40.9162, –124.0141); Mill Creek (40.8521, –123.9617); North Fork Mad River (40.8687, –123.9649); Norton Creek (40.9572, –124.1003); Palmer Creek (40.8633, –124.0193); Puter Creek (40.8474, –123.9966); Quarry Creek (40.8526, –124.0098); Squaw Creek (40.9426, –124.0202); Strawberry Creek (40.9761, –124.0630); Unnamed Tributary (40.9624, –124.0179); Unnamed Tributary (40.9549, –124.0554); Unnamed Tributary (40.9672, –124.0218); Warren Creek (40.8860, –124.0351); Widow White Creek (40.9522, –124.0784).

(ii) *North Fork Mad River Hydrologic Sub-area 110920.* Outlet(s) = North Fork Mad River (Lat 40.8687, Long –123.9649) upstream to endpoint(s) in: Bald Mountain Creek (40.8922, –123.9097); Canyon Creek (40.9598, –123.9269); Denman Creek (40.9293, –123.9429); East Fork North Fork (40.9702, –123.9449); Gosinta Creek (40.9169, –123.9420); Hutchery Creek (40.8730, –123.9503); Jackson Creek (40.9388, –123.9462); Krueger Creek (40.9487, –123.9571); Long Prairie Creek (40.9294, –123.8842); Mule Creek (40.9416, –123.9309); North Fork Mad River (40.9918, –123.9610); Pine Creek (40.9274, –123.9096); Pollock Creek (40.9081, –123.9071); Sullivan Gulch (40.8646, –123.9553); Tyson Creek (40.9559, –123.9738); Unnamed Tributary (40.9645, –123.9338); Unnamed Tributary (40.9879, –123.9511); Unnamed Tributary (40.9906, –123.9540); Unnamed Tributary (40.9866, –123.9788); Unnamed Tributary (40.9927, –123.9736).

(iii) *Butler Valley Hydrologic Sub-area 110930.* Outlet(s) = Mad River (Lat 40.8449, Long –123.9807) upstream to endpoint(s) in: Bear Creek (40.5468, –123.6728); Black Creek (40.7521, –123.9080); Black Dog Creek (40.8334, –123.9805); Blue Slide Creek (40.7333, –123.9225); Boulder Creek (40.7634, –123.8667); Bug Creek (40.6587, –123.7356); Cannon Creek (40.8535, –123.8850); Coyote Creek (40.6147, –123.6488); Devil Creek (40.8032, –123.9175); Dry Creek (40.8218, –123.9751); East Creek (40.5403, –123.5579); Maple Creek (40.7933, –123.8353); Pilot Creek (40.5950, –123.5888); Simpson Creek (40.8138, –123.9156); Unnamed Tributary (40.7306, –123.9019); Unnamed Tributary (40.7739, –123.9255); Unnamed Tributary (40.7744, –123.9137); Unnamed Tributary (40.8029, –123.8716); Unnamed Tributary (40.8038, –123.8691); Unnamed Tributary (40.8363, –123.9025).

(4) Eureka Plain Hydrologic Unit 1110—(i) *Eureka Plain Hydrologic Sub-area 111000.*

Outlet(s) = Elk River (Lat 40.7568, Long –124.1948); Freshwater Creek (40.8088, –124.1442); Jacoby Creek (40.8436, –124.0834); Mad River (40.9560, –124.1278); Rocky Gulch (40.8309, –124.0813); Salmon Creek (40.6868, –124.2194); Washington Gulch (40.8317, –124.0805) upstream to endpoint(s) in: Bridge Creek (40.6958, –124.0805); Browns Gulch (40.7038, –124.1074); Clapp Gulch (40.6967, –124.1684); Cloney Gulch (40.7826, –124.0347); Doe Creek (40.6964, –124.0201); Dunlap Gulch (40.7076, –124.1182); Falls Gulch (40.7655, –124.0261); Fay Slough (40.8033, –124.0574); Freshwater Creek (40.7385, –124.0035); Golf Course Creek (40.8406, –124.0402); Graham Gulch (40.7540, –124.0228); Guptil Gulch (40.7530, –124.1202); Henderson Gulch (40.7357, –124.1394); Jacoby Creek (40.7949, –124.0096); Lake Creek (40.6848, –124.0831); Line Creek (40.6578, –124.0460); Little Freshwater Creek (40.7371, –124.0649); Little North Fork Elk River (40.6972, –124.0100); Little South Fork Elk River (40.6555, –124.0877); Martin Slough (40.7679, –124.1578); McCready Gulch (40.7824, –124.0441); McWinney Creek (40.6968, –124.0616); Morrison Gulch (40.8169, –124.0430); North Branch of the North Fork Elk River (40.6879, –124.0130); North Fork Elk River (40.6794–123.9834); Railroad Gulch (40.6955, –124.1545); Rocky Gulch (40.8170, –124.0613); Ryan Creek (40.7352, –124.0996); Salmon Creek (40.6399, –124.1128); South Branch of the North Fork Elk River (40.6700, –124.0251); South Fork Elk River (40.6437, –124.0388); South Fork Freshwater Creek (40.7110, –124.0367); Swain Slough (40.7524, –124.1825); Tom Gulch (40.6794, –124.1452); Unnamed Tributary (40.7850, –124.0561); Unnamed Tributary (40.7496, –124.1651); Unnamed Tributary (40.7785,—124.1081); Unnamed Tributary (40.7667, –124.1054); Unnamed Tributary (40.7559, –124.0870); Unnamed Tributary (40.7952, –124.0568); Unnamed Tributary (40.7408, –124.1118); Unnamed Tributary (40.7186, –124.1385); Unnamed Tributary (40.7224, –124.1038); Unnamed Tributary (40.8210, –124.0111); Unnamed Tributary (40.8106, –124.0083); Unnamed Tributary (40.7554, –124.1379); Unnamed Tributary (40.7457, –124.1138); Washington Gulch (40.8205, –124.0549).

(ii) [Reserved]

(5) Eel River Hydrologic Unit 1111—(i) *Ferndale Hydrologic Sub-area 111111.* Outlet(s) = Eel River (Lat 40.6275, Long –124.2520) upstream to endpoint(s) in: Atwell Creek (40.4824, –124.1498); Dean Creek (40.4847, –124.1217); Horse Creek (40.5198, –124.1702); Howe Creek (40.4654, –124.1916); Nanning Creek (40.4914, –124.0652); North Fork Strongs Creek (40.6077, –124.1047); Price Creek (40.5101, –124.2731); Rohner Creek (40.6151, –124.1408); Strongs Creek (40.5999, –124.0985); Sweet Creek (40.4900, –124.2007); Van Duzen River (40.5337, –124.1262).

(ii) *Scotia Hydrologic Sub-area 111112.* Outlet(s) = Eel River (Lat 40.4918, Long –124.0988) upstream to endpoint(s) in: Bear Creek (40.3942, –124.0262); Bridge Creek (40.4278, –123.9317); Chadd Creek (40.3919, –123.9540); Darnell Creek (40.4533, –123.9808); Dinner Creek (40.4406, –124.0855); Greenlow Creek (40.4315, –124.0231); Jordan Creek (40.4171, –124.0517); Kiler Creek (40.4465, –124.0952); Monument Creek (40.4371, –124.1165); Shively Creek (40.4454, –123.9539); South Fork Bear Creek (40.3856, –124.0182); Stitz Creek (40.4649, –124.0531); Twin Creek (40.4419, –124.0714); Unnamed Tributary (40.3933, –123.9984); Weber Creek (40.3767, –123.9094).

(iii) *Larabee Creek Hydrologic Sub-area 111113.* Outlet(s) = Larabee Creek (Lat 40.4090, Long –123.9334) upstream to endpoint(s) in: Arnold Creek (40.4006, –123.8583); Balcom Creek (40.4030, –123.8986); Bosworth Creek (40.3584, –123.7089); Boulder Flat Creek (40.3530, –123.6381); Burr Creek (40.4250, –123.7767); Carson Creek (40.4181, –123.8879); Chris Creek (40.4146, –123.9235); Cooper Creek (40.3123, –123.6463); Dauphiny Creek (40.4049, –123.8893); Frost Creek (40.3765, –123.7357); Hayfield Creek (40.3350, –123.6535); Knack Creek (40.3788, –123.7385); Larabee Creek (40.2807, –123.6445); Martin Creek (40.3730, –123.7060); Maxwell Creek (40.3959, –123.8049); McMahon Creek (40.3269, –123.6363); Mill Creek (40.3849, –123.7440); Mountain Creek (40.2955, –123.6378); Scott Creek (40.4020, –123.8738); Smith Creek (40.4194, –123.8568); Thurman Creek (40.3506, –123.6669); Unnamed Tributary (40.3842, –123.8062); Unnamed Tributary (40.3982, –123.7862); Unnamed Tributary (40.3806, –123.7564); Unnamed Tributary (40.3661, –123.7398); Unnamed Tributary (40.3524, –123.7330).

(iv) *Hydesville Hydrologic Sub-area 111121.* Outlet(s) = Van Duzen River (Lat 40.5337, Long –124.1262) upstream to endpoint(s) in: Cuddeback Creek (40.5421, –124.0263); Cummings Creek (40.5282, –123.9770); Fiedler Creek (40.5351, –124.0106); Hely Creek (40.5165, –123.9531); Yager Creek (40.5583, –124.0577); Unnamed Tributary (40.5718, –124.0946).

(v) *Bridgeville Hydrologic Sub-area 111122.* Outlet(s) = Van Duzen River (Lat 40.4942, Long –123.9720) upstream to endpoint(s) in: Bear Creek (40.3455, –123.5763); Blanket Creek (40.3635, –123.5710); Browns Creek (40.4958, –123.8103); Butte Creek (40.4119, –123.7047); Dairy Creek (40.4174, –123.5981); Fish Creek (40.4525, –123.8434); Grizzly Creek (40.5193, –123.8470); Little Larabee Creek (40.4708, –123.7395); Little Van Duzen River (40.3021, –123.5540); North Fork Van Duzen (40.4881, –123.6411); Panther Creek (40.3921, –123.5866); Root Creek (40.4490, –123.9018); Stevens Creek (40.5062, –123.9073); Thompson Creek (40.4222, –123.6084); Van Duzen River (40.4820, –123.6629); Unnamed Tributary (40.3074, –123.5834).

(vi) *Yager Creek Hydrologic Sub-area 111123.* Outlet(s) = Yager Creek (Lat 40.5583, Long –124.0577) upstream to endpoint(s) in: Bell Creek (40.6809, –123.9685); Blanten Creek (40.5839, –124.0165); Booths Run (40.6584, –123.9428); Corner Creek (40.6179, –124.0010); Fish Creek (40.6390, –124.0024); Lawrence Creek (40.6986, –123.9314); Middle Fork Yager Creek (40.5782, –123.9243); North Fork Yager Creek (40.6056, –123.9080); Shaw Creek (40.6231, –123.9509); South Fork Yager Creek (40.5451, –123.9409); Unnamed

Tributary (40.5892, –123.9663); Yager Creek (40.5673, –123.9403).

(vii) *Weott Hydrologic Sub-area 111131.* Outlet(s) = South Fork Eel River (Lat 40.3500, Long –123.9305) upstream to endpoint(s) in: Albee Creek (40.3592, –124.0088); Bull Creek (40.3587, –123.9624); Burns Creek (40.3194, –124.0420); Butte Creek (40.1982, –123.8387); Canoe Creek (40.2669, –123.9556); Coon Creek (40.2702, –123.9013); Cow Creek (40.2664, –123.9838); Cuneo Creek (40.3401, –124.0494); Decker Creek (40.3312, –123.9501); Elk Creek (40.2609, –123.7957); Fish Creek (40.2459, –123.7729); Harper Creek (40.3591, –123.9930); Mill Creek (40.3568, –124.0333); Mowry Creek (40.2937, –123.8895); North Fork Cuneo Creek (40.3443, –124.0488); Ohman Creek (40.1924, –123.7648); Panther Creek (40.2775, –124.0289); Preacher Gulch (40.2944, –124.0047); Salmon Creek (40.2145, –123.8926); Slide Creek (40.3011, –124.0390); South Fork Salmon Creek (40.1769, –123.8929); Squaw Creek (40.3167, –123.9988); Unnamed Tributary (40.3065, –124.0074); Unnamed Tributary (40.2831, –124.0359).

(viii) *Benbow Hydrologic Sub-area 111132.* Outlet(s) = South Fork Eel River (Lat 40.1929, Long –123.7692) upstream to endpoint(s) in: Anderson Creek (39.9325, –123.8928); Bear Creek (39.7885, –123.7620); Bear Pen Creek (39.9201, –123.7986); Bear Wallow Creek (39.7270, –123.7140); Big Dan Creek (39.8430, –123.6992); Bond Creek (39.7778, –123.7060); Bridges Creek (39.9087, –123.7142); Buck Mountain Creek (40.0944, –123.7423); Butler Creek (39.7423, –123.6987); Cedar Creek (39.8834, –123.6216); China Creek (40.1035, –123.9493); Connick Creek (40.0912, –123.8154); Cox Creek (40.0310, –123.8398); Cruso Cabin Creek (39.9281, –123.5842); Durphy Creek (40.0205, –123.8271); East Branch South Fork Eel River (39.9359, –123.6204); Elkhorn Creek (39.9272, –123.6279); Fish Creek (40.0390, –123.7630); Hartsook Creek (40.0081, –123.8113); Hollow Tree Creek (39.7250, –123.6924); Huckleberry Creek (39.7292, –123.7275); Indian Creek (39.9556, –123.9172); Islam John Creek (39.8062, –123.7363); Jones Creek (39.9958, –123.8374); Leggett Creek (40.1470, –123.8375); Little Sproul Creek (40.0890, –123.8577); Lost Man Creek (39.7983, –123.7287); Low Gap Creek (39.8029, –123.6803); Low Gap Creek (39.9933, –123.7601); McCoy Creek (39.9572, –123.7369); Michael's Creek (39.7665, –123.7035); Middle Creek (39.8052, –123.7691); Milk Ranch Creek (40.0102, –123.7514); Mill Creek (39.8673, –123.7605); Miller Creek (40.1319, –123.9302); Moody Creek (39.9471, –123.8827); Mule Creek (39.8169, –123.7745); North Fork Cedar Creek (39.8864, –123.6363); North Fork McCoy Creek (39.9723, –123.7496); Piercy Creek (39.9597, –123.8442); Pollock Creek (40.0802, –123.9341); Red Mountain Creek (39.9363, –123.7203); Redwood Creek (39.7723, –123.7648); Redwood Creek (40.0974, –123.9104); Rock Creek (39.8962, –123.7065); Sebbas Creek (39.9934, –123.8903); Somerville Creek (40.1006, –123.8884); South Fork Mule Creek (39.8174, –123.7788); South Fork Redwood Creek (39.7662, –123.7579); Sproul Creek (40.0226, –123.8649); Squaw Creek (40.0760, –123.7257); Standly Creek (39.9327, –123.8309); Tom Long Creek (40.0175, –123.6551); Waldron Creek (39.7469, –123.7465); Walter's Creek (39.7921, –123.7250); Warden Creek (40.0629, –123.8551); West Fork Sproul Creek (40.0587, –123.9170); Wildcat Creek (39.8956, –123.7820); Unnamed Tributary (39.9927, –123.8807).

(ix) *Laytonville Hydrologic Sub-area 111133.* Outlet(s) = South Fork Eel River (Lat 39.7665, Long –123.6484) upstream to endpoint(s) in: Bear Creek (39.6418, –123.5853); Big Rick Creek (39.7117, –123.5512); Cahto Creek (39.6527, –123.5579); Dark Canyon Creek (39.7333, –123.6614); Dutch Charlie Creek (39.6843, –123.7023); Elder Creek (39.7234, –123.6192); Fox Creek (39.7441, –123.6142); Grub Creek (39.7777, –123.5809); Jack of Hearts Creek (39.7136, –123.6896); Kenny Creek (39.6838, –123.5929); Little Case Creek (39.6892, –123.5441); Mill Creek (39.6839, –123.5118); Mud Creek (39.6713, –123.5741); Mud Springs Creek (39.6929, –123.5629); Redwood Creek (39.6545, –123.6753); Rock Creek (39.6922, –123.6090); Section Four Creek (39.6137, –123.5297); South Fork Eel River (39.6242, –123.5468); Streeter Creek (39.7340, –123.5606); Ten Mile Creek (39.6652, –123.4486); Unnamed Tributary (39.7004, –123.5678).

(x) *Sequoia Hydrologic Sub-area 111141.* Outlet(s) = Eel River (Lat 40.3557, Long –123.9191) upstream to endpoint(s) in: Beatty Creek (40.3198, –123.7500); Brock Creek (40.2410, –123.7246); Cameron Creek (40.3313, –123.7707); Dobbyn Creek (40.2216, –123.6029); Kapple Creek (40.3531, –123.8585); Line Gulch Creek (40.1640, –123.4783); Mud Creek (40.2078, –123.5143); North Fork Dobbyn Creek (40.2669, –123.5467); Sonoma Creek (40.2974, –123.7953); South Fork Dobbyn Creek (40.1723, –123.5112); South Fork Eel River (40.3500, –123.9305); South Fork Thompson Creek (40.3447, –123.8334); Thompson Creek (40.3552, –123.8417); Unnamed Tributary (40.2745, –123.5487).

(xi) *Spy Rock Hydrologic Sub-area 111142.* Outlet(s) = Eel River (Lat 40.1736, Long –123.6043) upstream to endpoint(s) in: Bear Pen Canyon (39.6943, –123.4359); Bell Springs Creek (39.9457, –123.5313); Blue Rock Creek (39.8937, –123.5018); Burger Creek (39.6693, –123.4034); Chamise Creek (40.0035, –123.5945); Gill Creek (39.7879, –123.3465); Iron Creek (39.7993, –123.4747); Jewett Creek (40.1122, –123.6171); Kekawaka Creek (40.0686, –123.4087); Rock Creek (39.9347, –123.5187); Shell Rock Creek (39.8414, –123.4614); Unnamed Tributary (39.7579, –123.4709); White Rock Creek (39.7646, –123.4684); Woodman Creek (39.7612, –123.4364).

(xii) *Outlet Creek Hydrologic Sub-area 111161.* Outlet(s) = Outlet Creek (Lat 39.6265, Long –123.3449) upstream to endpoint(s) in: Baechtel Creek (39.3623, –123.4143); Berry Creek (39.4271, –123.2777); Bloody Run Creek (39.5864, –123.3545); Broaddus Creek (39.3869, –123.4282); Cherry Creek (39.6043, –123.4073); Conklin Creek (39.3756, –123.2570); Davis Creek (39.3354, –123.2945); Haehl Creek (39.3735, –123.3172); Long Valley Creek (39.6246, –123.4651); Mill Creek (39.4196, –123.3919); Outlet Creek (39.4526, –123.3338); Ryan Creek (39.4804, –123.3644); Unnamed Tributary (39.4956, –123.3591); Unnamed Tributary (39.4322, –123.3848); Unnamed Tributary (39.5793, –123.4546); Unnamed Tributary (39.3703, –123.3419); Upp Creek (39.4479, –123.3825); Willts Creek (39.4686, –123.4299).

(xiii) *Tomki Creek Hydrologic Sub-area 111162.* Outlet(s) = Eel River (Lat 39.7138, Long –123.3532) upstream to endpoint(s) in: Cave Creek (39.3842, –123.2148); Dean Creek (39.6924, –123.3727); Garcia Creek (39.5153, –123.1512); Little Cave Creek (39.3915, –123.2462); Little Creek (39.4146, –123.2595); Long Branch Creek (39.4074, –123.1897); Rocktree Creek (39.4534, –123.3053); Salmon Creek (39.4367, –123.1939); Scott Creek (39.4492, –123.2286); String Creek (39.4658, –123.3206); Tarter Creek (39.4715, –123.2976); Thomas Creek (39.4768, –123.1230); Tomki Creek (39.5483, –123.3687); Whitney Creek (39.4399, –123.1084); Wheelbarrow Creek (39.5012, –123.3304).

(xiv) *Eden Valley Hydrologic Sub-area 111171.* Outlet(s) = Middle Fork Eel River (Lat 39.7138, Long –123.3532) upstream to endpoint(s) in: Crocker Creek (39.5559, –123.0409); Eden Creek (39.5992, –123.1746); Elk Creek (39.5371, –123.0101); Hayshed Creek

(39.7082, –123.0967); Salt Creek (39.6765, –123.2740); Sportsmans Creek (39.5373, –123.0247); Sulper Springs (39.5536, –123.0365); Thatcher Creek (39.6686, –123.0639).

(xv) *Round Valley Hydrologic Sub-area 111172.* Outlet(s) = Mill Creek (Lat 39.7396, Long –123.1420); Williams Creek (39.8145, –123.1333) upstream to endpoint(s) in: Cold Creek (39.8714, –123.2991); Grist Creek (39.7640, –123.2883); Mill Creek (39.8481, –123.2896); Murphy Creek (39.8885, –123.1612); Short Creek (39.8703, –123.2352); Town Creek (39.7991, –123.2889); Turner Creek (39.7218, –123.2175); Williams Creek (39.8903, –123.1212); Unnamed Tributary (39.7428, –123.2757); Unnamed Tributary (39.7493, –123.2584).

(xvi) *Black Butte River Hydrologic Sub-area 111173.* Outlet(s) = Black Butte River (Lat 39.8239, Long –123.0880) upstream to endpoint(s) in: Black Butte River (39.5946, –122.8579); Buckhorn Creek (39.6563, –122.9225); Cold Creek (39.6960, –122.9063); Estell Creek (39.5966, –122.8224); Spanish Creek (39.6287, –122.8331).

(xvii) *Wilderness Hydrologic Sub-area 111174.* Outlet(s) = Middle Fork Eel River (Lat 39.8240, Long –123.0877) upstream to endpoint(s) in: Beaver Creek (39.9352, –122.9943); Fossil Creek (39.9447, –123.0403); Middle Fork Eel River (40.0780, –123.0442); North Fork Middle Fork Eel River (40.0727, –123.1364); Palm of Gileade Creek (40.0229, –123.0647); Pothole Creek (39.9347, –123.0440).

(6) Cape Mendocino Hydrologic Unit 1112—(i) *Oil Creek Hydrologic Sub-area 111210.* Outlet(s) = Guthrie Creek (Lat 40.5407, Long –124.3626); Oil Creek (40.5195, –124.3767) upstream to endpoint(s) in: Guthrie Creek (40.5320, –124.3128); Oil Creek (40.5061, –124.2875); Unnamed Tributary (40.4946, –124.3091); Unnamed Tributary (40.4982, –124.3549); Unnamed Tributary (40.5141, –124.3573); Unnamed Tributary (40.4992, –124.3070).

(ii) *Capetown Hydrologic Sub-area 111220.* Outlet(s) = Bear River (Lat 40.4744, Long –124.3881); Davis Creek (40.3850, –124.3691); Singley Creek (40.4311, –124.4034) upstream to endpoint(s) in: Antone Creek (40.4281, –124.2114); Bear River (40.3591, –124.0536); Beer Bottle Gulch (40.3949, –124.1410); Bonanza Gulch (40.4777, –124.2966); Brushy Creek (40.4102, –124.1050); Davis Creek (40.3945, –124.2912); Harmonica Creek (40.3775, –124.0735); Hollister Creek (40.4109, –124.2891); Nelson Creek (40.3536, –124.1154); Peaked Creek (40.4123, –124.1897); Pullen Creek (40.4057, –124.0814); Singley Creek (40.4177, –124.3305); South Fork Bear River (40.4047, –124.2631); Unnamed Tributary (40.4271, –124.3107); Unnamed Tributary (40.4814, –124.2741); Unnamed Tributary (40.3633, –124.0651); Unnamed Tributary (40.3785, –124.0599); Unnamed Tributary (40.4179, –124.2391); Unnamed Tributary (40.4040, –124.0923); Unnamed Tributary (40.3996, –124.3175); Unnamed Tributary (40.4045, –124.0745); Unnamed Tributary (40.4668, –124.2364); Unnamed Tributary (40.4389, –124.2350); Unnamed Tributary (40.4516, –124.2238); Unnamed Tributary (40.4136, –124.1594); Unnamed Tributary (40.4350, –124.1504); Unnamed Tributary (40.4394, –124.3745); West Side Creek (40.4751, –124.2432).

(iii) *Mattole River Hydrologic Sub-area 111230.* Outlet(s) = Big Creek (Lat 40.1567, Long –124.2114); Big Flat Creek (40.1275, –124.1764); Buck Creek (40.1086, –124.1218); Cooskie Creek (40.2192, –124.3105); Fourmile Creek (40.2561, –124.3578); Gitchell Creek (40.0938, –124.1023); Horse Mountain Creek (40.0685, –124.0822); Kinsey Creek (40.1717, –124.2310); Mattole River (40.2942, –124.3536); McNutt Gulch (40.3541, –124.3619); Oat Creek (40.1785, –124.2445); Randall Creek (40.2004, –124.2831); Shipman Creek (40.1175, –124.1449); Spanish Creek (40.1835, –124.2569); Telegraph Creek (40.0473, –124.0798); Whale Gulch (39.9623, –123.9785) upstream to endpoint(s) in: Anderson Creek (40.0329, –123.9674); Baker Creek (40.0143, –123.9048); Bear Creek (40.1262, –124.0631); Bear Creek (40.2819, –124.3336); Bear Trap Creek (40.2157, –124.1422); Big Creek (40.1742, –124.1924); Big Finley Creek (40.0910, –124.0179); Big Flat Creek (40.1444, –124.1636); Blue Slide Creek (40.1562, –123.9283); Box Canyon Creek (40.1078, –123.9854); Bridge Creek (40.0447, –124.0118); Buck Creek (40.1166, –124.1142); Conklin Creek (40.3197, –124.2055); Cooskie Creek (40.2286, –124.2986); Devils Creek (40.3432, –124.1365); Dry Creek (40.2646, –124.0660); East Branch North Fork Mattole River (40.3333, –124.1490); East Fork Honeydew Creek (40.1625, –124.0929); Eubank Creek (40.0997, –123.9661); Fire Creek (40.1533, –123.9509); Fourmile Creek (40.2604, –124.3079); Fourmile Creek (40.1767, –124.0759); French Creek (40.1384, –124.0072); Gibson Creek (40.0304, –123.9279); Gilham Creek (40.2078, –124.0085); Gitchell Creek (40.1086, –124.0947); Green Ridge Creek (40.3254, –124.1258); Grindstone Creek (40.2019, –123.9890); Harris Creek (40.0381, –123.9304); Harrow Creek (40.1612, –124.0292); Helen Barnum Creek (40.0036, –123.9101); Honeydew Creek (40.1747, –124.1410); Horse Mountain Creek (40.0769, –124.0729); Indian Creek (40.2772, –124.2759); Jewett Creek (40.1465, –124.0414); Kinsey Creek (40.1765, –124.2220); Lost Man Creek (39.9754, –123.9179); Mattole Canyon (40.2021, –123.9570); Mattole River (39.9714, –123.9623); McGinnis Creek (40.3186, –124.1801); McKee Creek (40.0864, –123.9480); McNutt Gulch (40.3458, –124.3418); Middle Creek (40.2591, –124.0366); Mill Creek (40.0158, –123.9693); Mill Creek (40.3305, –124.2598); Mill Creek (40.2839, –124.2946); Nooning Creek (40.0616, –124.0050); North Fork Mattole River (40.3866, –124.1867); North Fork Bear Creek (40.1494, –124.1060); North Fork Fourmile Creek (40.2019, –124.0722); Oat Creek (40.1884, –124.2296); Oil Creek (40.3214, –124.1601); Painter Creek (40.0844, –123.9639); Prichett Creek (40.2892, –124.1704); Randall Creek (40.2092, –124.2668); Rattlesnake Creek (40.3250, –124.0981); Shipman Creek (40.1250, –124.1384); Sholes Creek (40.1603, –124.0619); South Branch West Fork Bridge Creek (40.0326, –123.9853); South Fork Bear Creek (40.0176, –124.0016); Spanish Creek (40.1965, –124.2429); Squaw Creek (40.1934, –124.2002); Stanley Creek (40.0273, –123.9166); Sulphur Creek (40.3647, –124.1586); Telegraph Creek (40.0439, –124.0640); Thompson Creek (39.9913, –123.9707); Unnamed Tributary (40.3475, –124.1606); Unnamed Tributary (40.3522, –124.1533); Unnamed Tributary (40.0891, –123.9839); Unnamed Tributary (40.2223, –124.0172); Unnamed Tributary (40.1733, –123.9515); Unnamed Tributary (40.2899, –124.0955); Unnamed Tributary (40.2853, –124.3227); Unnamed Tributary (39.9969, –123.9071); Upper East Fork Honeydew Creek (40.1759, –124.1182); Upper North Fork Mattole River (40.2907, –124.1115); Vanauken Creek (40.0674, –123.9422); West Fork Bridge Creek (40.0343, –123.9990); West Fork Honeydew Creek (40.1870, –124.1614); Westlund Creek (40.2440, –124.0036); Whale Gulch (39.9747, –123.9812); Woods Creek (40.2119, –124.1611); Yew Creek (40.0018, –123.9762).

(7) Mendocino Coast Hydrologic Unit 1113—(i) *Usal Creek Hydrologic Sub-area 111311.* Outlet(s) = Jackass Creek (Lat 39.8806, Long –123.9155); Usal

Creek (39.8316, –123.8507) upstream to endpoint(s) in: Bear Creek (39.8898, –123.8344); Jackass Creek (39.8901, –123.8928); Julias Creek (39.8542, –123.7937); Little Bear Creek (39.8629, –123.8400); North Fork Jackass Creek (39.9095, –123.9101); North Fork Julias Creek (39.8581, –123.8045); Soldier Creek (39.8679, –123.8162); South Fork Usal Creek (39.8356, –123.7865); Unnamed Tributary (39.8890, –123.8480); Usal Creek (39.8957, –123.8797); Waterfall Gulch (39.8787, –123.8680).

(ii) *Wages Creek Hydrologic Sub-area 111312*. Outlet(s) = Cottaneva Creek (Lat 39.7360, Long –123.8293); DeHaven Creek (39.6592, –123.7863); Hardy Creek (39.7107, –123.8082); Howard Creek (39.6778, –123.7915); Juan Creek (39.7028, –123.8042); Wages Creek (39.6513, –123.7851) upstream to endpoint(s) in: Cottaneva Creek (39.7825, –123.8210); DeHaven Creek (39.6687, –123.7060); Dunn Creek (39.8103, –123.8320); Hardy Creek (39.7221, –123.7822); Howard Creek (39.6808, –123.7463); Juan Creek (39.7107, –123.7472); Kimball Gulch (39.7559, –123.7828); Little Juan Creek (39.7003, –123.7609); Middle Fork Cottaneva Creek (39.7738, –123.8058); North Fork Cottaneva Creek (39.8011, –123.8047); North Fork Dehaven Creek (39.6660, –123.7382); North Fork Wages Creek (39.6457, –123.7066); Rider Gulch (39.6348, –123.7621); Rockport Creek (39.7346, –123.8021); Slaughterhouse Gulch (39.7594, –123.7914); South Fork Cottaneva Creek (39.7447, –123.7773); South Fork Wages Creek (39.6297, –123.6862); Wages Creek (39.6297, –123.6862).

(iii) *Ten Mile River Hydrologic Sub-area 111313*. Outlet(s) = Abalobadiah Creek (Lat 39.5654, Long –123.7672); Chadbourne Gulch (39.6133, –123.7822); Ten Mile River (39.5529, –123.7658); Seaside Creek (39.5592, –123.7655) upstream to endpoint(s) in: Abalobadiah Creek (39.5878, –123.7503); Bald Hill Creek (39.6278, –123.6461); Barlow Gulch (39.6046, –123.7384); Bear Pen Creek (39.5824, –123.6402); Booth Gulch (39.5567, –123.5918); Buckhorn Creek (39.6093, –123.6980); Campbell Creek (39.5053, –123.6610); Cavanough Gulch (39.6107, –123.6776); Chadbourne Gulch (39.6190, –123.7682); Clark Fork (39.5280, –123.5134); Curchman Creek (39.4789, –123.6398); Gulch 11 (39.4687, –123.5816); Gulch 19 (39.5939, –123.5781); Little Bear Haven Creek (39.5655, –123.6147); Little North Fork (39.6264, –123.7350); Mill Creek (39.5392, –123.7068); North Fork Ten Mile River (39.5870, –123.5480); O'Conner Gulch (39.6042, –123.6632); Patsy Creek (39.5714, –123.5669); Redwood Creek (39.5142, –123.5620); Seaside Creek (39.5612, –123.7501); Smith Creek (39.5251, –123.6499); South Fork Bear Haven Creek (39.5688, –123.6527); South Fork Ten Mile River (39.5083, –123.5395); Ten Mile River (39.5721, –123.7098); Unnamed Tributary (39.5180, –123.5948); Unnamed Tributary (39.5146, –123.6183); Unnamed Tributary (39.5898, –123.7657); Unnamed Tributary (39.5813, –123.7526); Unnamed Tributary (39.5936, –123.6034).

(iv) *Noyo River Hydrologic Sub-area 111320*. Outlet(s) = Digger Creek (Lat 39.4088, Long –123.8164); Hare Creek (39.4171, –123.8128); Jug Handle Creek (39.3767, –123.8176); Mill Creek (39.4894, –123.7967); Mitchell Creek (39.3923, –123.8165); Noyo River (39.4274, –123.8096); Pudding Creek (39.4588, –123.8089); Virgin Creek (39.4714, –123.8045) upstream to endpoint(s) in: Bear Gulch (39.3881, –123.6614); Brandon Gulch (39.4191, –123.6645); Bunker Gulch (39.3969, –123.7153); Burbeck Creek (39.4354, –123.4235); Covington Gulch (39.4099, –123.7546); Dewarren Creek (39.4974, –123.5535); Digger Creek (39.3932, –123.7820); Duffy Gulch (39.4469, –123.6023); Gulch Creek (39.4441, –123.4684); Gulch Seven (39.4523, –123.5183); Hare Creek (39.3781, –123.6922); Hayworth Creek (39.4857, –123.4769); Hayshed Creek (39.4200, –123.7391); Jug Handle Creek (39.3647, –123.7523); Kass Creek (39.4262, –123.6807); Little North Fork (39.4532, –123.6636); Little Valley Creek (39.5026, –123.7277); Marble Gulch (39.4423, –123.5479); McMullen Creek (39.4383, –123.4488); Middle Fork North Fork (39.4924, –123.5231); Mill Creek (39.4813, –123.7600); Mitchell Creek (39.3813, –123.7734); North Fork Hayworth Creek (39.4891, –123.5026); North Fork Noyo River (39.4765, –123.5535); North Fork Noyo (39.4765, –123.5535); North Fork South Fork Noyo River (39.3971, –123.6108); Noyo River (39.4242, –123.4356); Olds Creek (39.3964, –123.4448); Parlin Creek (39.3700, –123.6111); Pudding Creek (39.4591, –123.6516); Redwood Creek (39.4660, –123.4571); South Fork Hare Creek (39.3785, –123.7384); South Fork Noyo River (39.3620, –123.6188); Unnamed Tributary (39.4113, –123.5621); Unnamed Tributary (39.3918, –123.6425); Unnamed Tributary (39.4168, –123.4578); Unnamed Tributary (39.4656, –123.7467); Unnamed Tributary (39.4931, –123.7371); Unnamed Tributary (39.4922, –123.7381); Unnamed Tributary (39.4939, –123.7184); Unnamed Tributary (39.4158, –123.6428); Unnamed Tributary (39.4002, –123.7347); Unnamed Tributary (39.3831, –123.6177); Unnamed Tributary (39.4926, –123.4764); Virgin Creek (39.4621, –123.7855); Unnamed Tributary (39.4650, –123.7463).

(v) *Big River Hydrologic Sub-area 111330*. Outlet(s) = Big River (Lat 39.3030, Long –123.7957); Casper Creek (39.3617, –123.8169); Doyle Creek (39.3603, –123.8187); Jack Peters Creek (39.3193, –123.8006); Russian Gulch (39.3288, –123.8050) upstream to endpoint(s) in: Berry Gulch (39.3585, –123.6930); Big River (39.3166, –123.3733); Casper Creek (39.3462, –123.7556); Chamberlain Creek (39.4007, –123.5317); Daugherty Creek (39.1700, –123.3699); Doyle Creek (39.3517, –123.8007); East Branch Little North Fork Big River (39.3372, –123.6410); East Branch North Fork Big River (39.3354, –123.4652); Gates Creek (39.2083, –123.3944); Jack Peters Gulch (39.3225, –123.7850); James Creek (39.3922, –123.4747); Johnson Creek (39.1963, –123.3927); Johnson Creek (39.2556, –123.4485); Laguna Creek (39.2910, –123.6334); Little North Fork Big River (39.3497, –123.6242); Marten Creek (39.3290, –123.4279); Mettick Creek (39.2591, –123.5193); Middle Fork North Fork Casper Creek (39.3575, –123.7170); North Fork Big River (39.3762, –123.4591); North Fork Casper Creek (39.3610, –123.7356); North Fork James Creek (39.3980, –123.4939); North Fork Ramone Creek (39.2760, –123.4846); Pig Pen Gulch (39.3226, –123.4609); Pruitt Creek (39.2592, –123.3812); Ramone Creek (39.2714, –123.4415); Rice Creek (39.2809, –123.3963); Russell Brook (39.2863, –123.4461); Russian Gulch (39.3237, –123.7650); Snuffins Creek (39.1836, –123.3854); Soda Creek (39.2230, –123.4239); South Fork Big River (39.2317, –123.3687); South Fork Casper Creek (39.3493, –123.7216); Two Log Creek (39.3484, –123.5781); Unnamed Tributary (39.3897, –123.5556); Unnamed Tributary (39.3637, –123.5464); Unnamed Tributary (39.3776, –123.5274); Unnamed Tributary (39.4029, –123.5771); Valentine Creek (39.2694, –123.3957); Water Gulch (39.3607, –123.5891).

(vi) *Albion River Hydrologic Sub-area 111340*. Outlet(s) = Albion River (Lat 39.2253, Long –123.7679); Big Salmon Creek (39.2150, –123.7660); Buckhorn Creek (39.2593, –123.7839); Dark Gulch (39.2397, –123.7740); Little Salmon Creek (39.2150, –123.7660); Little River (39.2734, –123.7914) upstream to endpoint(s) in: Albion River (39.2613,

–123.5766); Big Salmon Creek (39.2070, –123.6514); Buckhorn Creek (39.2513, –123.7595); Dark Gulch (39.2379, –123.7592); Duck Pond Gulch (39.2456, –123.6960); East Railroad Gulch (39.2604, –123.6381); Hazel Gulch (39.2141, –123.6418); Kaison Gulch (39.2733, –123.6803); Little North Fork South Fork Albion River (39.2350, –123.6431); Little River (39.2683, –123.7190); Little Salmon Creek (39.2168, –123.7515); Marsh Creek (39.2325, –123.5596); Nordon Gulch (39.2489, –123.6503); North Fork Albion River (39.2854, –123.5752); Pleasant Valley Gulch (39.2379, –123.6965); Railroad Gulch (39.2182, –123.6932); Soda Springs Creek (39.2943, –123.5944); South Fork Albion River (39.2474, –123.6107); Tom Bell Creek (39.2805, –123.6519); Unnamed Tributary (39.2279, –123.6972); Unnamed Tributary (39.2194, –123.7100); Unnamed Tributary (39.2744, –123.5889); Unnamed Tributary (39.2254, –123.6733).

(vii) *Navarro River Hydrologic Sub-area 111350*. Outlet(s) = Navarro River (Lat 39.1921, Long –123.7611) upstream to endpoint(s) in: Alder Creek (38.9830, –123.3946); Anderson Creek (38.9644, –123.2907); Bailey Creek (39.1733, –123.4804); Barton Gulch (39.1804, –123.6783); Bear Creek (39.1425, –123.4326); Bear Wallow Creek (39.0053, –123.4075); Beasley Creek (38.9366, –123.3265); Bottom Creek (39.2117, –123.4607); Camp 16 Gulch (39.1937, –123.6095); Camp Creek (38.9310, –123.3527); Cold Spring Creek (39.0376, –123.5027); Con Creek (39.0374, –123.3816); Cook Creek (39.1879, –123.5109); Cune Creek (39.1622, –123.6014); Dago Creek (39.0731, –123.5068); Dead Horse Gulch (39.1576, –123.6124); Dutch Henry Creek (39.2112, –123.5794); Floodgate Creek (39.1291, –123.5365); Fluem Gulch (39.1615, –123.6695); Flynn Creek (39.2099, –123.6032); German Creek (38.9452, –123.4269); Gut Creek (39.0803, –123.3312); Ham Canyon (39.0164, –123.4265); Horse Creek (39.0144, –123.4960); Hungry Hollow Creek (39.1327, –123.4488); Indian Creek (39.0708, –123.3301); Jimmy Creek (39.0117, –123.2888); John Smith Creek (39.2275, –123.5366); Little North Fork Navarro River (39.1941, –123.4553); Low Gap Creek (39.1590, –123.3783); Navarro River (39.0537, –123.4409); Marsh Gulch (39.1692, –123.7049); McCarvey Creek (39.1589, –123.4048); Mill Creek (39.1270, –123.4315); Minnie Creek (38.9751, –123.4529); Murray Gulch (39.1755, –123.6966); Mustard Gulch (39.1673, –123.6393); North Branch (39.2069, –123.5361); North Fork Indian Creek (39.1213, –123.3345); North Fork Navarro River (39.1708, –123.5606); Parkinson Gulch (39.0768, –123.4070); Perry Gulch (39.1342, –123.5707); Rancheria Creek (38.8626, –123.2417); Ray Gulch (39.1792, –123.6494); Robinson Creek (38.9845, –123.3513); Rose Creek (39.1358, –123.3672); Shingle Mill Creek (39.1671, –123.4223); Soda Creek (39.0238, –123.3149); Soda Creek (39.1531, –123.3734); South Branch (39.1409, –123.3196); Spooner Creek (39.2221, –123.4811); Tramway Gulch (39.1481, –123.5958); Yale Creek (38.8882, –123.2785).

(viii) *Greenwood Creek Hydrologic Sub-area 111361*. Outlet(s) = Greenwood Creek (Lat 39.1262, Long –123.7181) upstream to endpoint(s) in: Greenwood Creek (39.0894, –123.5924).

(ix) *Elk Creek Hydrologic Sub-area 111362*. Outlet(s) = Elk Creek (Lat 39.1024, Long –123.7080) upstream to endpoint(s) in: Elk Creek (39.0657, –123.6245).

(x) *Alder Creek Hydrologic Sub-area 111363*. Outlet(s) = Alder Creek (Lat 39.0044, Long –123.6969); Mallo Pass Creek (39.0341, –123.6896) upstream to endpoint(s) in: Alder Creek (38.9961, –123.6471); Mallo Pass Creek (39.0287, –123.6373).

(xi) *Brush Creek Hydrologic Sub-area 111364*. Outlet(s) = Brush Creek (Lat 38.9760, Long –123.7120) upstream to endpoint(s) in: Brush Creek (38.9730, –123.5563); Mill Creek (38.9678, –123.6515); Unnamed Tributary (38.9724, –123.6571).

(xii) *Garcia River Hydrologic Sub-area 111370*. Outlet(s) = Garcia River (Lat 38.9550, Long –123.7338); Point Arena Creek (38.9141, –123.7103); Schooner Gulch (38.8667, –123.6550) upstream to endpoint(s) in: Blue Water Hole Creek (38.9378, –123.5023); Flemming Creek (38.8384, –123.5361); Garcia River (38.8965, –123.3681); Hathaway Creek (38.9287, –123.7011); Inman Creek (38.8804, –123.4370); Larmour Creek (38.9419, –123.4469); Mill Creek (38.9078, –123.3143); North Fork Garcia River (38.9233, –123.5339); North Fork Schooner Gulch (38.8758, –123.6281); Pardaloe Creek (38.8895, –123.3423); Point Arena Creek (38.9069, –123.6838); Redwood Creek (38.9241, –123.3343); Rolling Brook (38.8965, –123.5716); Schooner Gulch (38.8677, –123.6198); South Fork Garcia River (38.8450, –123.5420); Stansburry Creek (38.9422, –123.4720); Signal Creek (38.8639, –123.4414); Unnamed Tributary (38.8758, –123.5692); Unnamed Tributary (38.8818, –123.5723); Whitlow Creek (38.9141, –123.4624).

(xiii) *North Fork Gualala River Hydrologic Sub-area 111381*. Outlet(s) = North Fork Gualala River (Lat 38.7784, Long –123.4992) upstream to endpoint(s) in: Bear Creek (38.8347, –123.3842); Billings Creek (38.8652, –123.3496); Doty Creek (38.8495, –123.5131); Dry Creek (38.8416, –123.4455); Little North Fork Gualala River (38.8295, –123.5570); McGann Gulch (38.8026, –123.4458); North Fork Gualala River (38.8479, –123.4113); Robinson Creek (38.8416, –123.3725); Robinson Creek (38.8386, –123.4991); Stewart Creek (38.8109, –123.4157); Unnamed Tributary (38.8487, –123.3820).

(xiv) *Rockpile Creek Hydrologic Sub-area 111382*. Outlet(s) = Rockpile Creek (Lat 38.7507, Long –123.4706) upstream to endpoint(s) in: Rockpile Creek (38.7966, –123.3872).

(xv) *Buckeye Creek Hydrologic Sub-area 111383*. Outlet(s) = Buckeye Creek (Lat 38.7403, Long –123.4580) upstream to endpoint(s) in: Buckeye Creek (38.7400, –123.2697); Flat Ridge Creek (38.7616, –123.2400); Franchini Creek (38.7500, –123.3708); North Fork Buckeye (38.7991, –123.3166).

(xvi) *Wheatfield Fork Hydrologic Sub-area 111384*. Outlet(s) = Wheatfield Fork Gualala River (Lat 38.7018, Long –123.4168) upstream to endpoint(s) in: Danfield Creek (38.6369, –123.1431); Fuller Creek (38.7109, –123.3256); Haupt Creek (38.6220, –123.2551); House Creek (38.6545, –123.1184); North Fork Fuller Creek (38.7252, –123.2968); Pepperwood Creek (38.6205, –123.1665); South Fork Fuller Creek (38.6973, –123.2860); Tombs Creek (38.6989, –123.1616); Unnamed Tributary (38.7175, –123.2744); Wheatfield Fork Gualala River (38.7497, –123.2215).

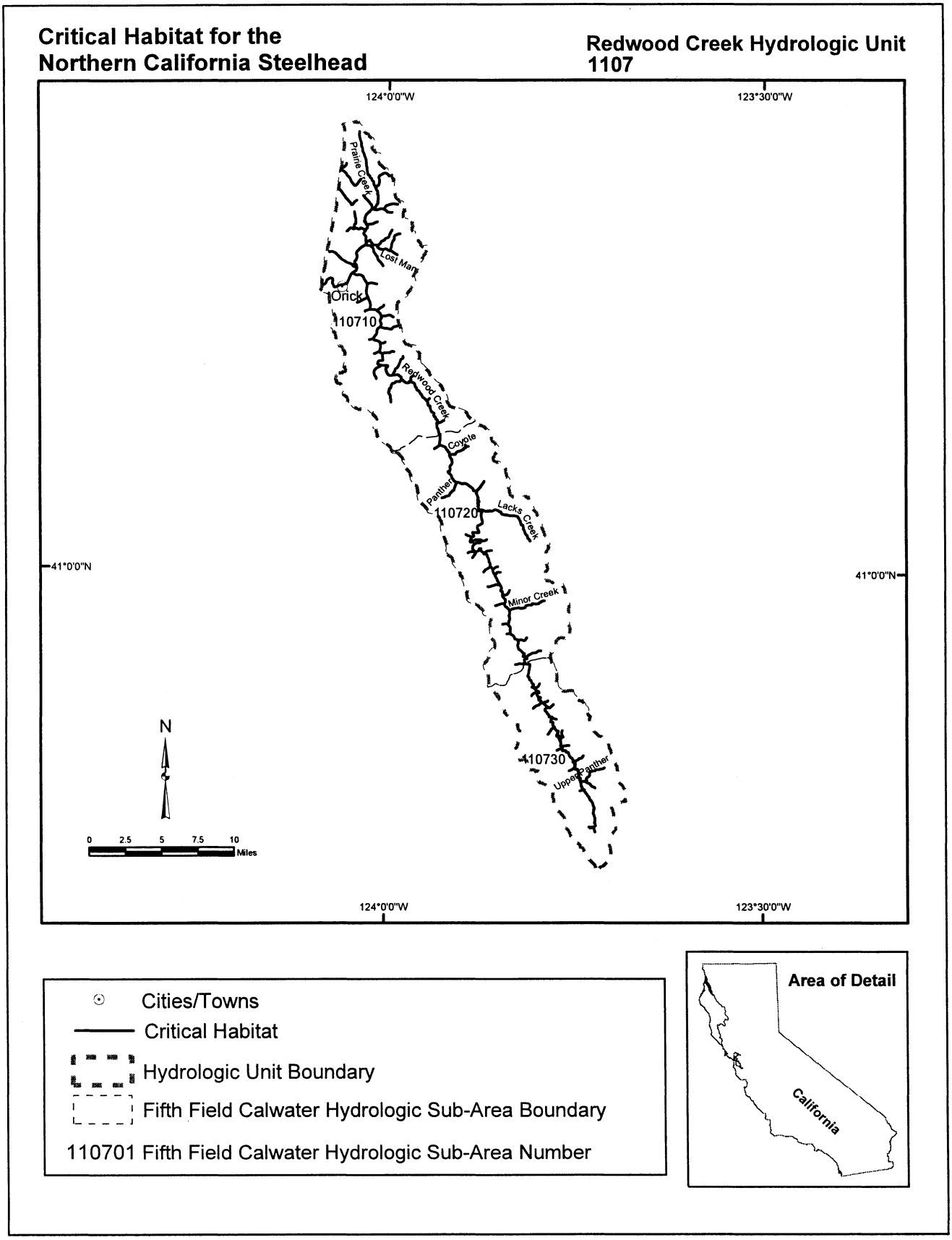
(xvii) *Gualala Hydrologic Sub-area 111385*. Outlet(s) = Fort Ross Creek (Lat 38.5119, Long –123.2436); Gualala River (38.7687, –123.5334); Kolmer Gulch (38.5238, –123.2646) upstream to endpoint(s) in: Big Pepperwood Creek (38.7951, –123.4638); Carson Creek (38.5653, –123.1906); Fort Ross Creek (38.5174, –123.2363); Groshong Gulch (38.7814, –123.4904); Gualala River (38.7780, –123.4991); Kolmer Gulch (38.5369, –123.2247); Little Pepperwood (38.7738, –123.4427); Marshall Creek (38.5647, –123.2058); McKenzie Creek (38.5895, –123.1730); Palmer Canyon Creek (38.6002, –123.2167); South Fork Gualala River (38.5646, –123.1689); Sproule Creek (38.6122, –123.2739); Turner Canyon (38.5294, –123.1672); Unknown Tributary (38.5634, –123.2003).

(xviii) *Russian Gulch Hydrologic Sub-area 111390*. Outlet(s) = Russian Gulch

Creek (Lat 38.4669, Long –123.1569) upstream to endpoint(s) in: Russian Gulch Creek (38.4956, –123.1535); West Branch Russian Gulch Creek (38.4968, –123.1631).

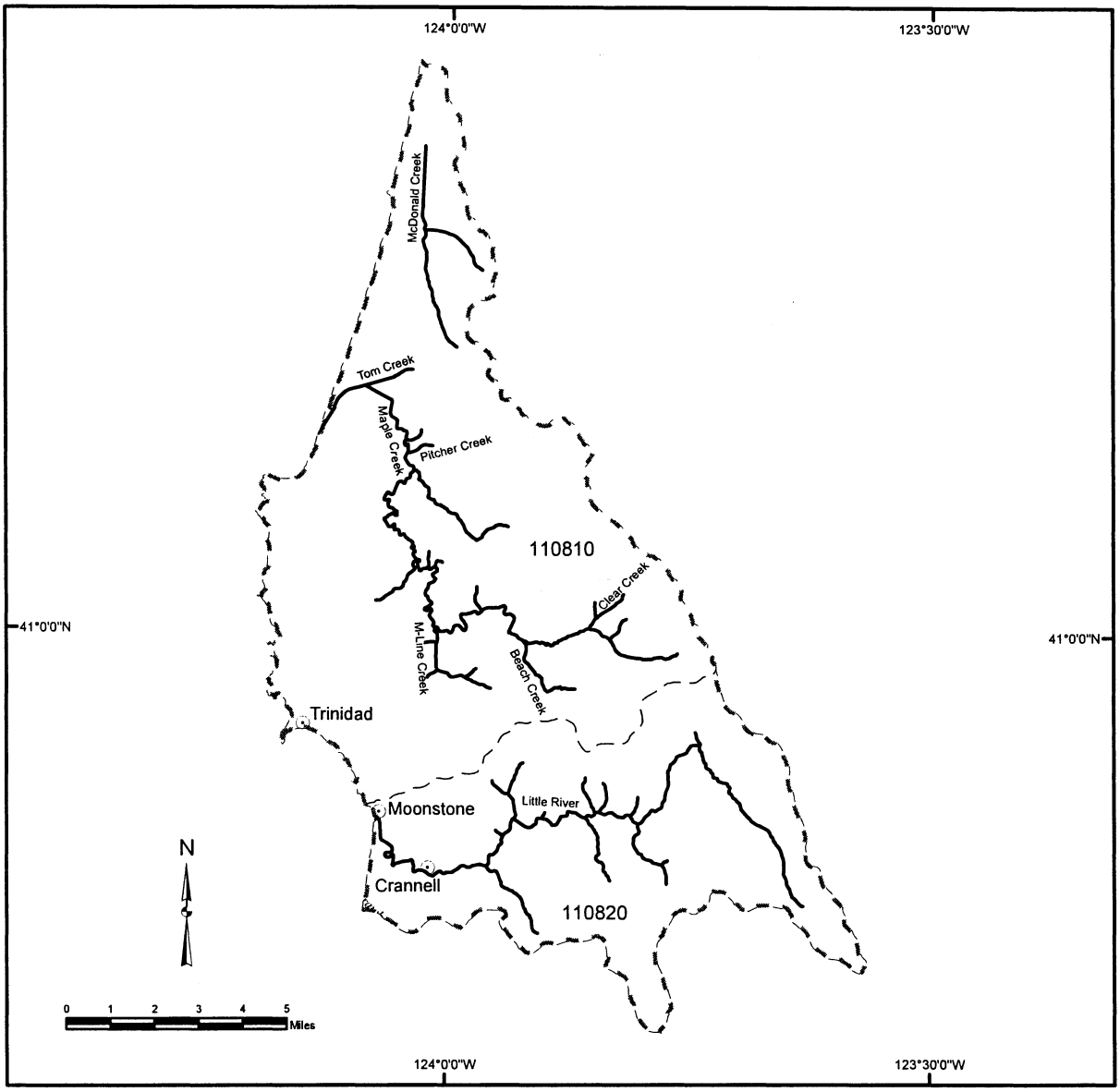
(8) Maps of critical habitat for the Northern California Steelhead ESU follow:

BILLING CODE 3510–22–P


Critical Habitat for the
Northern California Steelhead
Redwood Creek Hydrologic Unit
1107
124°0'0"W
123°30'0"W
41°0'0"N
Prairie Creek
Lost Man
Orick
110710
Redwood Creek
Coyote
Panther
110720
Lacks Creek
Minor Creek
110730
Upper Panther
N
0 2.5 5 7.5 10
Miles
Cities/Towns
Critical Habitat
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California

Critical Habitat for the Northern California Steelhead

Trinidad Hydrologic Unit 1108



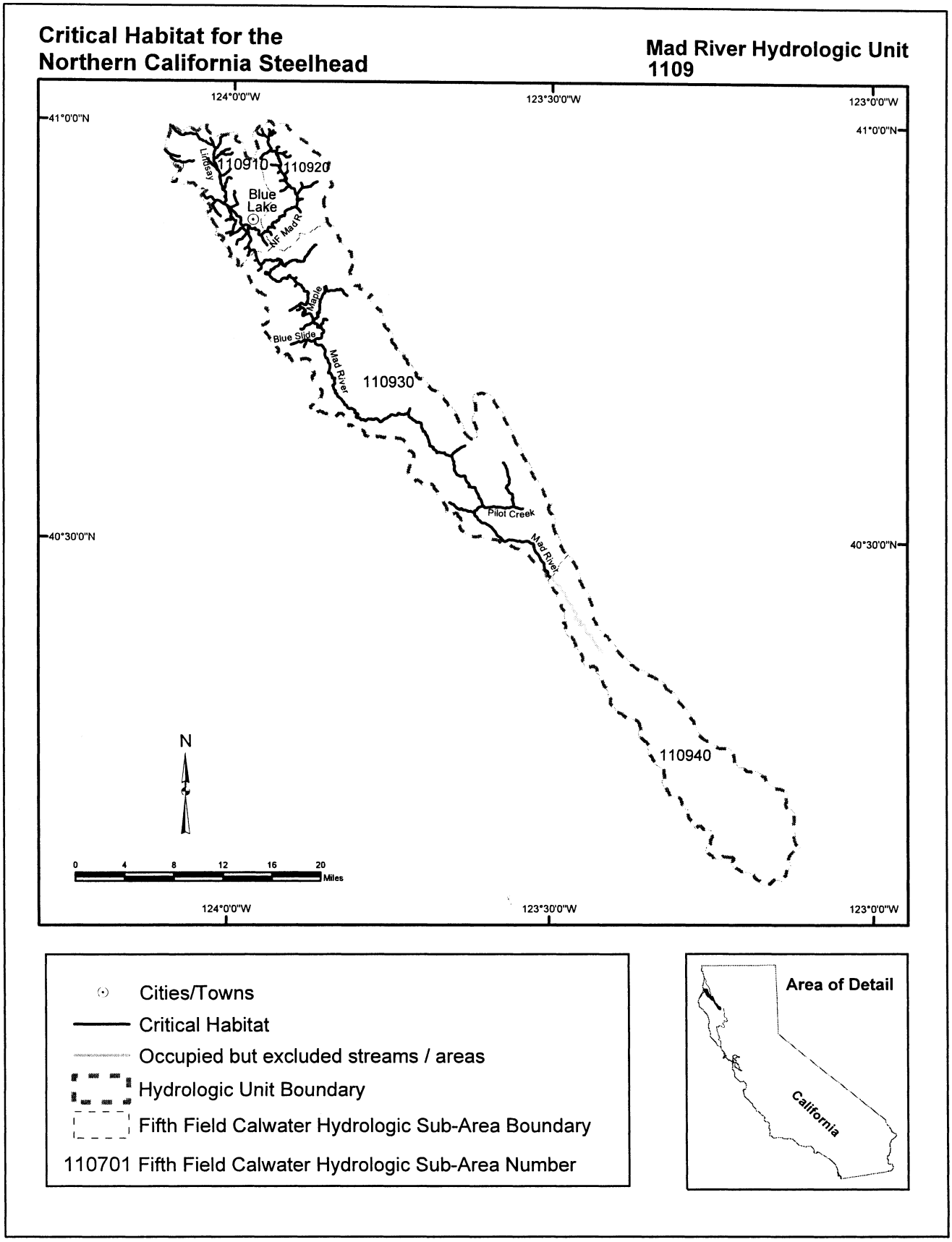
Cities/Towns

Critical Habitat

Hydrologic Unit Boundary

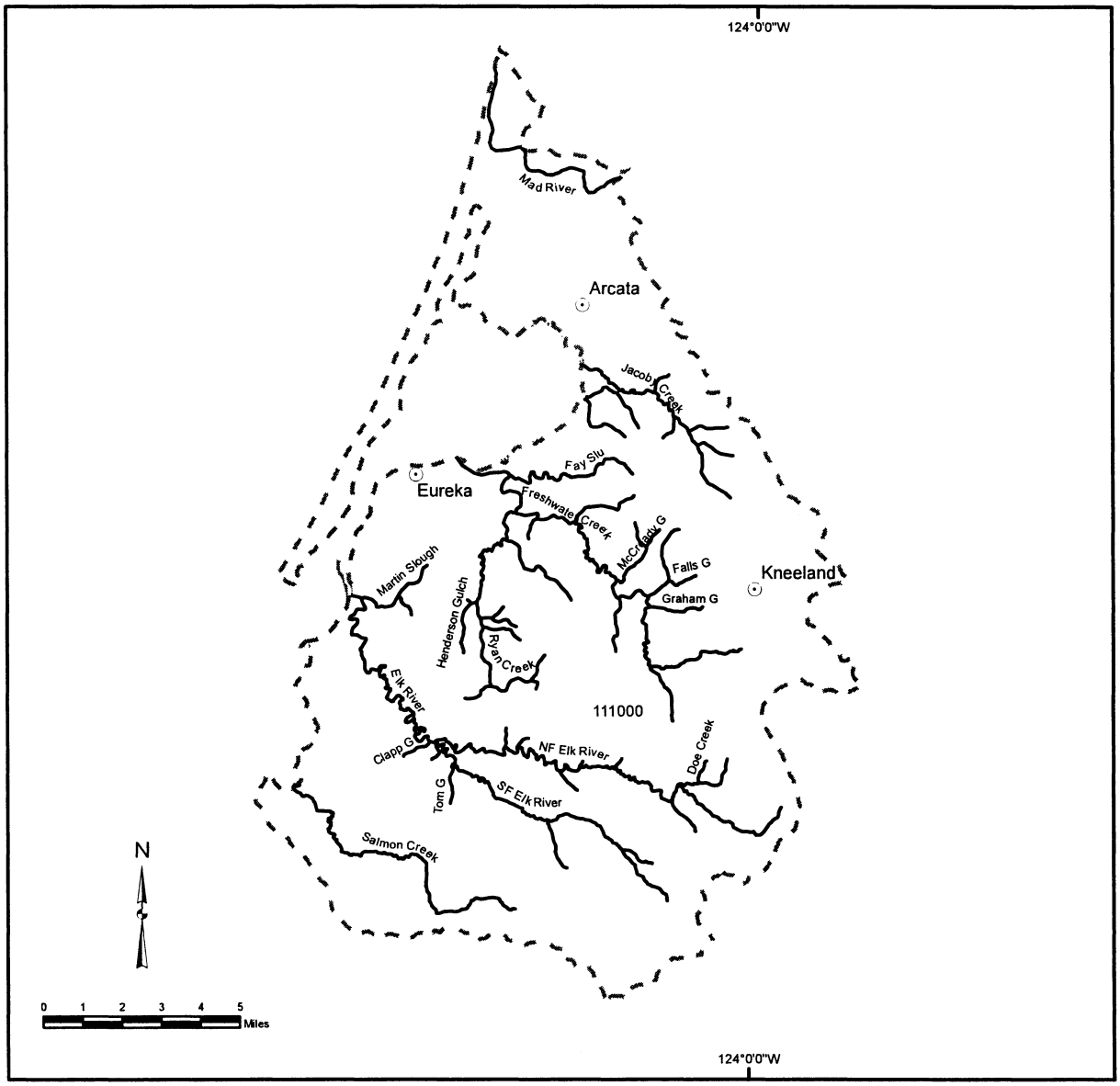
Fifth Field Calwater Hydrologic Sub-Area Boundary

110701 Fifth Field Calwater Hydrologic Sub-Area Number


Critical Habitat for the
Northern California Steelhead
Mad River Hydrologic Unit
1109
124°0'0"W
123°30'0"W
123°0'0"W
41°0'0"N
40°30'0"N
110910
110920
110930
110940
Lindsey
Blue Lake
NF Mad R
Maple
Blue Slide
Mad River
Pilot Creek
Mad River
N
0 4 8 12 16 20
Miles
Cities/Towns
Critical Habitat
Occupied but excluded streams / areas
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California

Critical Habitat for the Northern California Steelhead

Eureka Plain Hydrologic Unit 1110



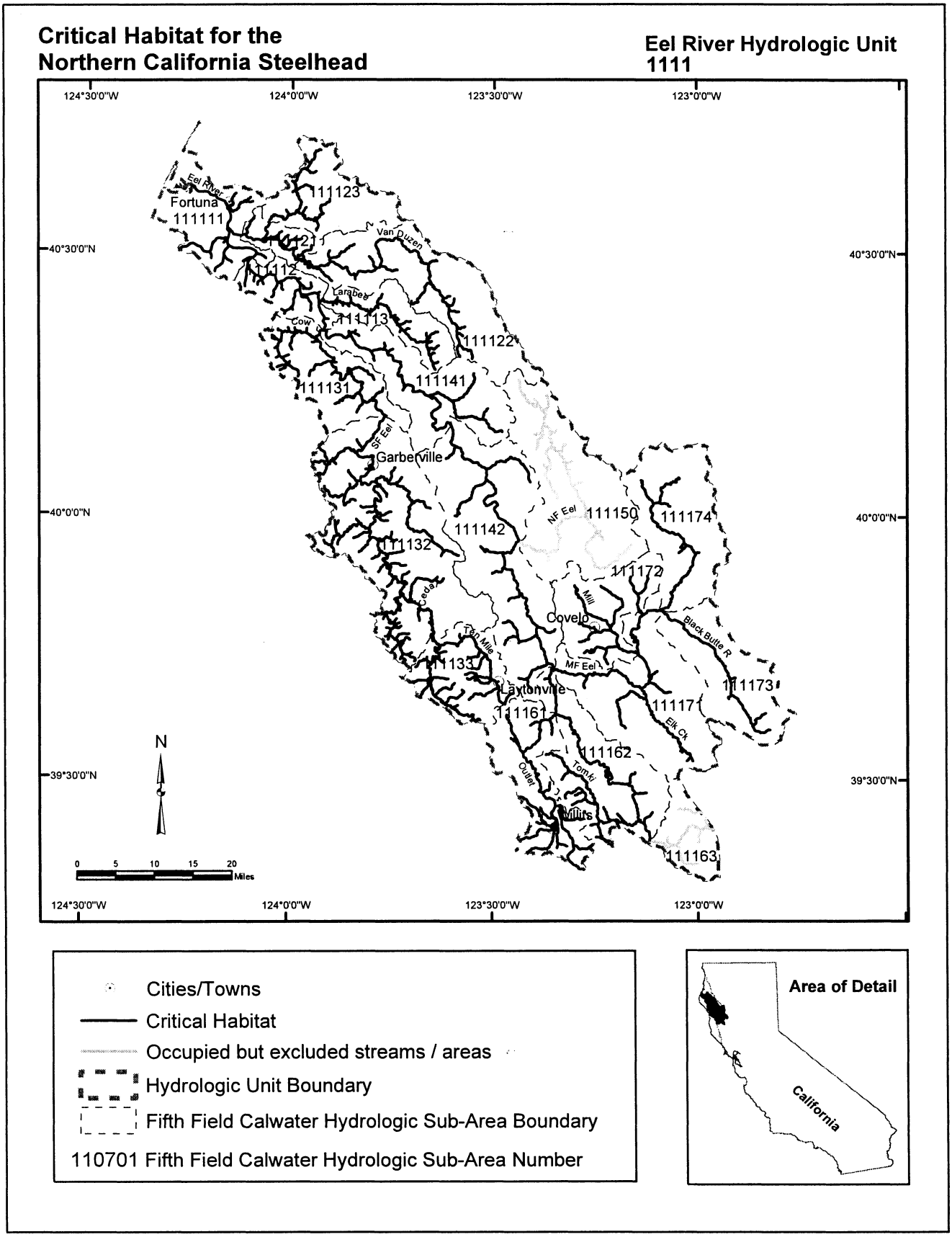
Cities/Towns

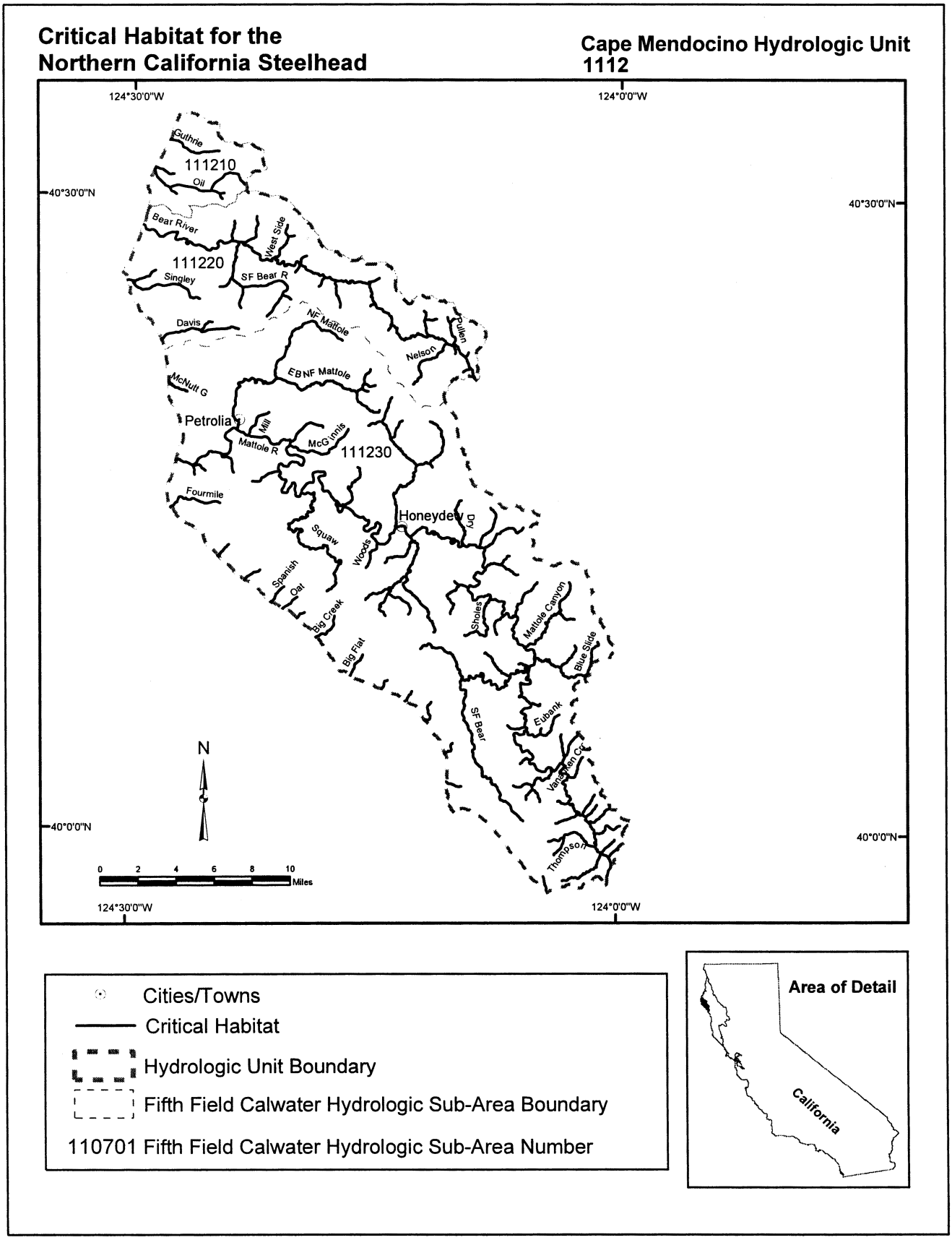
Critical Habitat

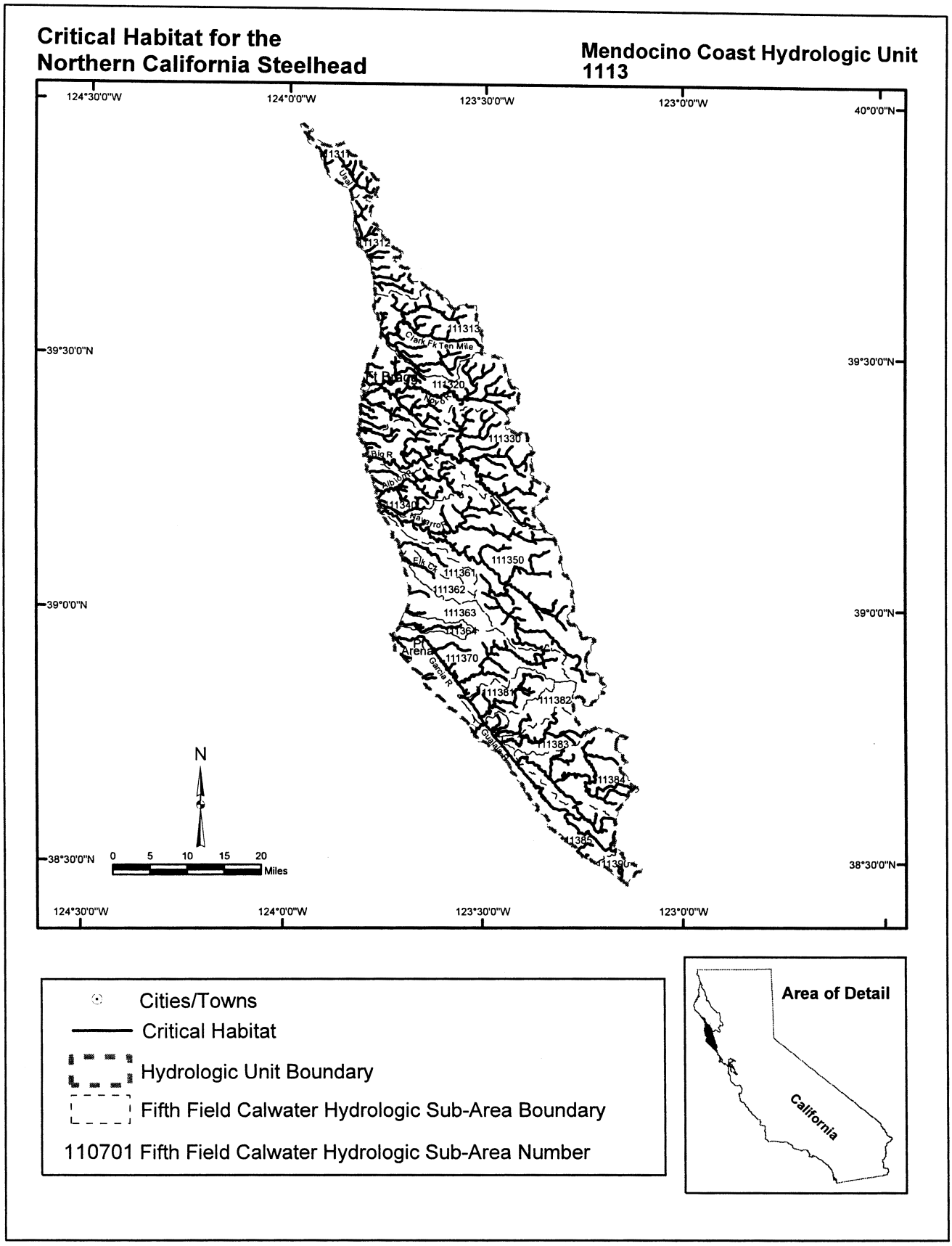
Hydrologic Unit Boundary

Fifth Field Calwater Hydrologic Sub-Area Boundary

110701 Fifth Field Calwater Hydrologic Sub-Area Number


Critical Habitat for the
Northern California Steelhead
Eel River Hydrologic Unit
1111
124°30'0"W
124°0'0"W
123°30'0"W
123°0'0"W
40°30'0"N
40°0'0"N
39°30'0"N
Eel River
Fortuna
111111
111123
111121
Van Duzen
111112
Larabee
Cow
111113
111122
111131
111141
SF Eel
Garberville
111142
111132
NF Eel
111150
111174
111172
Mill
Covelo
Black Butte R
Eel
Ten Mile
111133
MF Eel
Laytonville
111173
111161
111171
Elk Ck
111162
Outlet
Tomki
Willits
111163
N
0 5 10 15 20
Miles
Cities/Towns
Critical Habitat
Occupied but excluded streams / areas
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California


Critical Habitat for the
Northern California Steelhead
Cape Mendocino Hydrologic Unit
1112
124°30'0"W
124°0'0"W
40°30'0"N
40°0'0"N
Guthrie
111210
Oil
Bear River
West Side
111220
Singley
SF Bear R
Davis
NF Mattole
Fullen
Nelson
EBNF Mattole
McNutt G
Petrolia
Mill
Mattole R
McGinnis
111230
Fourmile
Honeydew
Dry
Squaw
Woods
Spanish
Oat
Big Creek
Big Flat
Sholes
Mattole Canyon
Blue Slide
SF Bear
Eubank
Thompson
N
0 2 4 6 8 10
Miles
Cities/Towns
Critical Habitat
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California



BILLING CODE 3510–22–C

(h) *Central California Coast Steelhead (O. mykiss).* Critical habitat is designated to include the areas defined in the following CALWATER Hydrologic Units:

(1) Russian River Hydrologic Unit 1114—(i) *Guerneville Hydrologic Sub-area 111411.* Outlet(s) = Russian River (Lat 38.4507, Long –123.1289) upstream to endpoint(s) in: Atascadero Creek (38.3473, –122.8626); Austin Creek (38.5098, –123.0680); Baumert Springs (38.4195, –122.9658); Dutch Bill Creek (38.4132, –122.9508); Duvoul Creek (38.4527, –122.9525); Fife Creek (38.5584, –122.9922); Freezeout Creek (38.4405, –123.0360); Green Valley Creek, (38.4445, –122.9185); Grub Creek (38.4411, –122.9636); Hobson Creek (38.5334, –122.9401); Hulbert Creek (38.5548, –123.0362); Jenner Gulch (38.4869, –123.0996); Kidd Creek (38.5029, –123.0935); Lancel Creek (38.4247, –122.9322); Mark West Creek (38.4961, –122.8489); Mays Canyon (38.4800, –122.9715); North Fork Lancel Creek (38.4447, –122.9444); Pocket Canyon (38.4650, –122.9267); Porter Creek (38.5435, –122.9332); Purrington Creek (38.4083, –122.9307); Sheep House Creek (38.4820, –123.0921); Smith Creek (38.4622, –122.9585); Unnamed Tributary (38.4560, –123.0246); Unnamed Tributary (38.3976, –122.8994); Unnamed Tributary (38.3772, –122.8938); Willow Creek (38.4249, –123.0022).

(ii) *Austin Creek Hydrologic Sub-area 111412.* Outlet(s) = Austin Creek (Lat 38.5098, Long –123.0680) upstream to endpoint(s) in: Austin Creek (38.6262, –123.1347); Bear Pen Creek (38.5939, –123.1644); Big Oat Creek (38.5615, –123.1299); Black Rock Creek (38.5586, –123.0730); Blue Jay Creek (38.5618, –123.1399); Conshea Creek (38.5830, –123.0824); Devil Creek (38.6163, –123.0425); East Austin Creek (38.6349, –123.1238); Gilliam Creek (38.5803, –123.0152); Gray Creek (38.6132, –123.0107); Thompson Creek (38.5747, –123.0300); Pole Mountain Creek (38.5122, –123.1168); Red Slide Creek (38.6039, –123.1141); Saint Elmo Creek (38.5130, –123.1125); Schoolhouse Creek (38.5595, –123.0175); Spring Creek (38.5041, –123.1364); Sulphur Creek (38.6187, –123.0553); Ward Creek (38.5720, –123.1547).

(iii) *Mark West Hydrologic Sub-area 111423.* Outlet(s) = Mark West Creek (Lat 38.4962, Long –122.8492) upstream to endpoint(s) in: Humbug Creek (38.5412, –122.6249); Laguna de Santa Rosa (38.4526, –122.8347); Mark West Creek (38.5187, –122.5995); Pool Creek (38.5486, –122.7641); Pruit Creek (38.5313, –122.7615); Windsor Creek (38.5484, –122.8101).

(iv) *Warm Springs Hydrologic Sub-area 111424.* Outlet(s) = Dry Creek (Lat 38.5862, Long –122.8577) upstream to endpoint(s) in: Angel Creek (38.6101, –122.9833); Crane Creek (38.6434, –122.9451); Dry Creek (38.7181, –123.0091); Dutcher Creek (38.7223, –122.9770); Felta Creek (38.5679, –122.9379); Foss Creek (38.6244, –122.8754); Grape Creek (38.6593, –122.9707); Mill Creek (38.5976, –122.9914); North Slough Creek (38.6392, –122.8888); Palmer Creek (38.5770, –122.9904); Pena Creek (38.6384, –123.0743); Redwood Log Creek (38.6705, –123.0725); Salt Creek (38.5543, –122.9133); Wallace Creek (38.6260, –122.9651); Wine Creek (38.6662, –122.9682); Woods Creek (38.6069, –123.0272).

(v) *Geyserville Hydrologic Sub-area 111425.* Outlet(s) = Russian River (Lat 38.6132, Long –122.8321) upstream to endpoint(s) in: Ash Creek (38.8556, –123.0082); Bear Creek (38.7253, –122.7038); Bidwell Creek (38.6229, –122.6320); Big Sulphur Creek (38.8279, –122.9914); Bluegum Creek (38.6988, –122.7596); Briggs Creek (38.6845, –122.6811); Coon Creek (38.7105, –122.6957); Crocker Creek (38.7771, –122.9595); Edwards Creek (38.8592, –123.0758); Foote Creek (38.6433, –122.6797); Foss Creek (38.6373, –122.8753); Franz Creek (38.5726, –122.6343); Gill Creek (38.7552, –122.8840); Gird Creek (38.7055, –122.8311); Ingalls Creek (38.7344, –122.7192); Kellog Creek (38.6753, –122.6422); Little Briggs Creek (38.7082, –122.7014); Maacama Creek (38.6743, –122.7431); McDonnell Creek (38.7354, –122.7338); Mill Creek (38.7009, –122.6490); Miller Creek (38.7211, –122.8608); Oat Valley Creek (38.8461, –123.0712); Redwood Creek (38.6342, –122.6720); Sausal Creek (38.6924, –122.7930); South Fork Gill Creek (38.7420, –122.8760); Unnamed Tributary (38.7329, –122.8601); Yellowjacket Creek (38.6666, –122.6308).

(vi) *Sulphur Creek Hydrologic Sub-area 111426.* Outlet(s) = Big Sulphur Creek (Lat 38.8279, Long –122.9914) upstream to endpoint(s) in: Alder Creek (38.8503, –122.8953); Anna Belcher Creek (38.7537, –122.7586); Big Sulphur Creek (38.8243, –122.8774); Frasier Creek (38.8439, –122.9341); Humming Bird Creek (38.8460, –122.8596); Little Sulphur Creek (38.7469, –122.7425); Lovers Gulch (38.7396, –122.8275); North Branch Little Sulphur Creek (38.7783, –122.8119); Squaw Creek (38.8199, –122.7945).

(vii) *Ukiah Hydrologic Sub-area 111431.* Outlet(s) = Russian River (Lat 38.8828, Long –123.0557) upstream to endpoint(s) in: Pieta Creek (38.8622, –122.9329).

(viii) *Forsythe Creek Hydrologic Sub-area 111433.* Outlet(s) = West Branch Russian River (Lat 39.2257, Long –123.2012) upstream to endpoint(s) in: Bakers Creek (39.2859, –123.2432); Eldridge Creek (39.2250, –123.3309); Forsythe Creek (39.2976, –123.2963); Jack Smith Creek (39.2754, –123.3421); Mariposa Creek (39.3472, –123.2625); Mill Creek (39.2969, –123.3360); Salt Hollow Creek (39.2585, –123.1881); Seward Creek (39.2606, –123.2646); West Branch Russian River (39.3642, –123.2334).

(2) Bodega Hydrologic Unit 1115—(i) *Salmon Creek Hydrologic Sub-area 111510.* Outlet(s) = Salmon Creek (Lat 38.3554, Long –123.0675) upstream to endpoint(s) in: Coleman Valley Creek (38.3956, –123.0097); Faye Creek (38.3749, –123.0000); Finley Creek (38.3707, –123.0258); Salmon Creek (38.3877, –122.9318); Tannery Creek (38.3660, –122.9808).

(ii) *Estero Americano Hydrologic Sub-area 111530.* Outlet(s) = Estero Americano (Lat 38.2939, Long –123.0011) upstream to endpoint(s) in: Estero Americano (38.3117, –122.9748); Ebabias Creek (38.3345, –122.9759).

(3) Marin Coastal Hydrologic Unit 2201—(i) *Walker Creek Hydrologic Sub-area 220112.* Outlet(s) = Walker Creek (Lat 38.2213, Long –122.9228); Millerton Gulch (38.1055, –122.8416) upstream to endpoint(s) in: Chileno Creek (38.2145, –122.8579); Frink Canyon (38.1761, –122.8405); Millerton Gulch (38.1376, –122.8052); Verde Canyon (38.1630, –122.8116); Unnamed Tributary (38.1224, –122.8095); Walker Creek (38.1617, –122.7815).

(ii) *Lagunitas Creek Hydrologic Sub-area 220113.* Outlet(s) = Lagunitas Creek (Lat 38.0827, Long –122.8274) upstream to endpoint(s) in: Cheda Creek (38.0483, –122.7329); Devil's Gulch (38.0393, –122.7128); Giacomini Creek (38.0075, –122.7386); Horse Camp Gulch (38.0078, –122.7624); Lagunitas Creek (37.9974, –122.7045); Olema Creek (37.9719, –122.7125); Quarry Gulch (38.0345, –122.7639); San Geronimo Creek (38.0131, –122.6499); Unnamed Tributary (37.9893, –122.7328); Unnamed Tributary (37.9976, –122.7553).

(iii) *Point Reyes Hydrologic Sub-area 220120.* Outlet(s) = Creamery Bay Creek (Lat 38.0779, Long –122.9572); East Schooner Creek (38.0913, –122.9293); Home Ranch (38.0705, –122.9119); Laguna Creek (38.0235, –122.8732); Muddy Hollow Creek (38.0329, –122.8842) upstream to endpoint(s) in: Creamery Bay Creek (38.0809, –122.9561); East Schooner Creek

(38.0928, –122.9159); Home Ranch Creek (38.0784, –122.9038); Laguna Creek (38.0436, –122.8559); Muddy Hollow Creek (38.0549, –122.8666).

(iv) *Bolinas Hydrologic Sub-area 220130.* Outlet(s) = Easkoot Creek (Lat 37.9026, Long –122.6474); McKinnon Gulch (37.9126, –122.6639); Morse Gulch (37.9189, –122.6710); Pine Gulch Creek (37.9218, –122.6882); Redwood Creek (37.8595, –122.5787); Stinson Gulch (37.9068, –122.6517); Wilkins Creek (37.9343, –122.6967) upstream to endpoint(s) in: Easkoot Creek (37.8987, –122.6370); Kent Canyon (37.8866, –122.5800); McKinnon Gulch (37.9197, –122.6564); Morse Gulch (37.9240, –122.6618); Pine Gulch Creek (37.9557, –122.7197); Redwood Creek (37.9006, –122.5787); Stinson Gulch (37.9141, –122.6426); Wilkins Creek (37.9450, –122.6910).

(4) San Mateo Hydrologic Unit 2202—(i) *San Mateo Coastal Hydrologic Sub-area 220221.* Outlet(s) = Denniston Creek (37.5033, –122.4869); Frenchmans Creek (37.4804, –122.4518); San Pedro Creek (37.5964, –122.5057) upstream to endpoint(s) in: Denniston Creek (37.5184, –122.4896); Frenchmans Creek (37.5170, –122.4332); Middle Fork San Pedro Creek (37.5758, –122.4591); North Fork San Pedro Creek (37.5996, –122.4635).

(ii) *Half Moon Bay Hydrologic Sub-area 220222.* Outlet(s) = Pilarcitos Creek (Lat 37.4758, Long –122.4493) upstream to endpoint(s) in: Apanolio Creek (37.5202, –122.4158); Arroyo Leon Creek (37.4560, –122.3442); Mills Creek (37.4629, –122.3721); Pilarcitos Creek (37.5259, –122.3980); Unnamed Tributary (37.4705, –122.3616).

(iii) *Tunitas Creek Hydrologic Sub-area 220223.* Outlet(s) = Lobitos Creek (Lat 37.3762, Long –122.4093); Tunitas Creek (37.3567, –122.3999) upstream to endpoint(s) in: East Fork Tunitas Creek (37.3981, –122.3404); Lobitos Creek (37.4246, –122.3586); Tunitas Creek (37.4086, –122.3502).

(iv) *San Gregorio Creek Hydrologic Sub-area 220230.* Outlet(s) = San Gregorio Creek (Lat 37.3215, Long –122.4030) upstream to endpoint(s) in: Alpine Creek (37.3062, –122.2003); Bogess Creek (37.3740, –122.3010); El Corte Madera Creek (37.3650, –122.3307); Harrington Creek (37.3811, –122.2936); La Honda Creek (37.3680, –122.2655); Langley Creek (37.3302, –122.2420); Mindego Creek (37.3204, –122.2239); San Gregorio Creek (37.3099, –122.2779); Woodruff Creek (37.3415, –122.2495).

(v) *Pescadero Creek Hydrologic Sub-area 220240.* Outlet(s) = Pescadero Creek (Lat 37.2669, Long –122.4122); Pomponio Creek (37.2979, –122.4061) upstream to endpoint(s) in: Bradley Creek (37.2819, –122.3802); Butano Creek (37.2419, –122.3165); Evans Creek (37.2659, –122.2163); Honsinger Creek (37.2828, –122.3316); Little Boulder Creek (37.2145, –122.1964); Little Butano Creek (37.2040, –122.3492); Oil Creek (37.2572, –122.1325); Pescadero Creek (37.2320, –122.1553); Lambert Creek (37.3014, –122.1789); Peters Creek (37.2883, –122.1694); Pomponio Creek (37.3030, –122.3805); Slate Creek (37.2530, –122.1935); Tarwater Creek (37.2731, –122.2387); Waterman Creek (37.2455, –122.1568).

(5) Bay Bridge Hydrologic UnitT 2203—(i) *San Rafael Hydrologic Sub-area 220320.* Outlet(s) = Arroyo Corte Madera del Presidio (Lat 37.8917, Long –122.5254); Corte Madera Creek (37.9425, –122.5059) upstream to endpoint(s) in: Arroyo Corte Madera del Presidio (37.9298, –122.5723); Cascade Creek (37.9867, –122.6287); Cascade Creek (37.9157, –122.5655); Larkspur Creek (37.9305, –122.5514); Old Mill Creek (37.9176, –122.5746); Ross Creek (37.9558, –122.5752); San Anselmo Creek (37.9825, –122.6420); Sleepy Hollow Creek (38.0074, –122.5794); Tamalpais Creek (37.9481, –122.5674).

(ii) [Reserved]

(6) Santa Clara Hydrologic Unit 2205—(i) *Coyote Creek Hydrologic Sub-area 220530.* Outlet(s) = Coyote Creek (Lat 37.4629, Long –121.9894; 37.2275, –121.7514) upstream to endpoint(s) in: Arroyo Aguague (37.3907, –121.7836); Coyote Creek (37.2778, –121.8033; 37.1677, –121.6301); Upper Penitencia Creek (37.3969, –121.7577).

(ii) *Guadalupe River—San Jose Hydrologic Sub-area 220540.* Outlet(s) = Coyote Creek (Lat 37.2778, Long –121.8033) upstream to endpoint(s) in: Coyote Creek (37.2275, –121.7514).

(iii) *Palo Alto Hydrologic Sub-area 220550.* Outlet(s) = Guadalupe River (Lat 37.4614, Long –122.0240); San Francisquito Creek (37.4658, –122.1152); Stevens Creek (37.4456, –122.0641) upstream to endpoint(s) in: Bear Creek (37.4164, –122.2690); Corte Madera Creek (37.4073, –122.2378); Guadalupe River (37.3499, –.121.9094); Los Trancos (37.3293, –122.1786); McGarvey Gulch (37.4416, –122.2955); Squealer Gulch (37.4335, –122.2880); Stevens Creek (37.2990, –122.0778); West Union Creek (37.4528, –122.3020).

(7) San Pablo Hydrologic Unit 2206—(i) *Petaluma River Hydrologic Sub-area 220630.* Outlet(s) = Petaluma River (Lat 38.1111, Long –122.4944) upstream to endpoint(s) in: Adobe Creek (38.2940, –122.5834); Lichau Creek (38.2848, –122.6654); Lynch Creek (38.2748, –122.6194); Petaluma River (38.3010, –122.7149); Schultz Slough (38.1892, –122.5953); San Antonio Creek (38.2049, –122.7408); Unnamed Tributary (38.3105, –122.6146); Willow Brook (38.3165, –122.6113).

(ii) *Sonoma Creek Hydrologic Sub-area 220640.* Outlet(s) = Sonoma Creek (Lat 38.1525, Long –122.4050) upstream to endpoint(s) in: Agua Caliente Creek (38.3368, –122.4518); Asbury Creek (38.3401, –122.5590); Bear Creek (38.4656, –122.5253); Calabazas Creek (38.4033, –122.4803); Carriger Creek (38.3031, –122.5336); Graham Creek (38.3474, –122.5607); Hooker Creek (38.3809, –122.4562); Mill Creek (38.3395, –122.5454); Nathanson Creek (38.3350, –122.4290); Rodgers Creek (38.2924, –122.5543); Schell Creek (38.2554, –122.4510); Sonoma Creek (38.4507, –122.4819); Stuart Creek (38.3936, –122.4708); Yulupa Creek (38.3986, –122.5934).

(iii) *Napa River Hydrologic Sub-area 220650.* Outlet(s) = Napa River (Lat 38.0786, Long –122.2468) upstream to endpoint(s) in: Bale Slough (38.4806, –122.4578); Bear Canyon Creek (38.4512, –122.4415); Bell Canyon Creek (38.5551, –122.4827); Brown's Valley Creek (38.3251, –122.3686); Canon Creek (38.5368, –122.4854); Carneros Creek (38.3108, –122.3914); Conn Creek (38.4843, –122.3824); Cyrus Creek (38.5776, –122.6032); Diamond Mountain Creek (38.5645, –122.5903); Dry Creek (38.4334, –122.4791); Dutch Henery Creek (38.6080, –122.5253); Garnett Creek (38.6236, –122.5860); Huichica Creek (38.2811, –122.3936); Jericho Canyon Creek (38.6219, –122.5933); Miliken Creek (38.3773, –122.2280); Mill Creek (38.5299, –122.5513); Murphy Creek (38.3155, –122.2111); Napa Creek (38.3047, –122.3134); Napa River (38.6638, –122.6201); Pickle Canyon Creek (38.3672, –122.4071); Rector Creek (38.4410, –122.3451); Redwood Creek (38.3765, –122.4466); Ritchie Creek (38.5369, –122.5652); Sarco Creek (38.3567, –122.2071); Soda Creek (38.4156, –122.2953); Spencer Creek (38.2729, –122.1909); Sulphur Creek (38.4895, –122.5088); Suscol Creek (38.2522, –122.2157); Tulucay Creek (38.2929, –122.2389); Unnamed Tributary (38.4248, –122.4935); Unnamed Tributary (38.4839, –122.5161); York Creek (38.5128, –122.5023).

(8) Big Basin Hydrologic Unit 3304—(i) *Davenport Hydrologic Sub-area 330411.* Outlet(s) = Baldwin Creek (Lat 36.9669, –122.1232); Davenport Landing Creek (37.0231, –122.2153); Laguna Creek (36.9824, –122.1560); Liddell Creek (37.0001, –122.1816); Majors Creek (36.9762, –122.1423); Molino Creek (37.0368, –122.2292); San Vicente

Creek (37.0093, –122.1940); Scott Creek (37.0404, –122.2307); Waddell Creek (37.0935, –122.2762); Wilder Creek (36.9535, –122.0775) upstream to endpoint(s) in: Baldwin Creek (37.0126, –122.1006); Bettencourt Creek (37.1081, –122.2386); Big Creek (37.0832, –122.2175); Davenport Landing Creek (37.0475, –122.1920); East Branch Waddell Creek (37.1482, –122.2531); East Fork Liddell Creek (37.0204, –122.1521); Henry Creek (37.1695, –122.2751); Laguna Creek (37.0185, –122.1287); Little Creek (37.0688, –122.2097); Majors Creek (36.9815, –122.1374); Middle Fork East Fork Liddell Creek (37.0194, –122.1608); Mill Creek (37.1034, –122.2218); Mill Creek (37.0235, –122.2218); Molino Creek (37.0384, –122.2125); Peasley Gulch (36.9824, –122.0861); Queseria Creek (37.0521, –122.2042); San Vicente Creek (37.0417, –122.1741); Scott Creek (37.1338, –122.2306); West Branch Waddell Creek (37.1697, –122.2642); West Fork Liddell Creek (37.0117, –122.1763); Unnamed Tributary (37.0103, –122.0701); Wilder Creek (37.0107, –122.0770).

(ii) *San Lorenzo Hydrologic Sub-area 330412.* Outlet(s) = Arana Gulch Creek (Lat 36.9676, Long –122.0028); San Lorenzo River (36.9641, –122.0125) upstream to endpoint(s) in: Arana Gulch Creek (37.0270, –121.9739); Bean Creek (37.0956, –122.0022); Bear Creek (37.1711, –122.0750); Boulder Creek (37.1952, –122.1892); Bracken Brae Creek (37.1441, –122.1459); Branciforte Creek (37.0701, –121.9749); Crystal Creek (37.0333, –121.9825); Carbonera Creek (37.0286, –122.0202); Central Branch Arana Gulch Creek (37.0170, –121.9874); Deer Creek (37.2215, –122.0799); Fall Creek (37.0705, –122.1063); Gold Gulch Creek (37.0427, –122.1018); Granite Creek (37.0490, –121.9979); Hare Creek (37.1544, –122.1690); Jameson Creek (37.1485, –122.1904); Kings Creek (37.2262, –122.1059); Lompico Creek (37.1250, –122.0496); Mackenzie Creek (37.0866, –122.0176); Mountain Charlie Creek (37.1385, –121.9914); Newell Creek (37.1019, –122.0724); San Lorenzo River (37.2276, –122.1384); Two Bar Creek (37.1833, –122.0929); Unnamed Tributary (37.2106, –122.0952); Unnamed Tributary (37.2032, –122.0699); Zayante Creek (37.1062, –122.0224).

(iii) *Aptos-Soquel Hydrologic Sub-area 330413.* Outlet(s) = Aptos Creek (Lat 36.9692, Long –121.9065); Soquel Creek (36.9720, –121.9526) upstream to endpoint(s) in: Amaya Creek (37.0930, –121.9297); Aptos Creek (37.0545, –121.8568); Bates Creek (37.0099, –121.9353); Bridge Creek (37.0464, –121.8969); East Branch Soquel Creek (37.0690, –121.8297); Hester Creek (37.0967, –121.9458); Hinckley Creek (37.0671, –121.9069); Moores Gulch (37.0573, –121.9579); Valencia Creek (37.0323, –121.8493); West Branch Soquel Creek (37.1095, –121.9606).

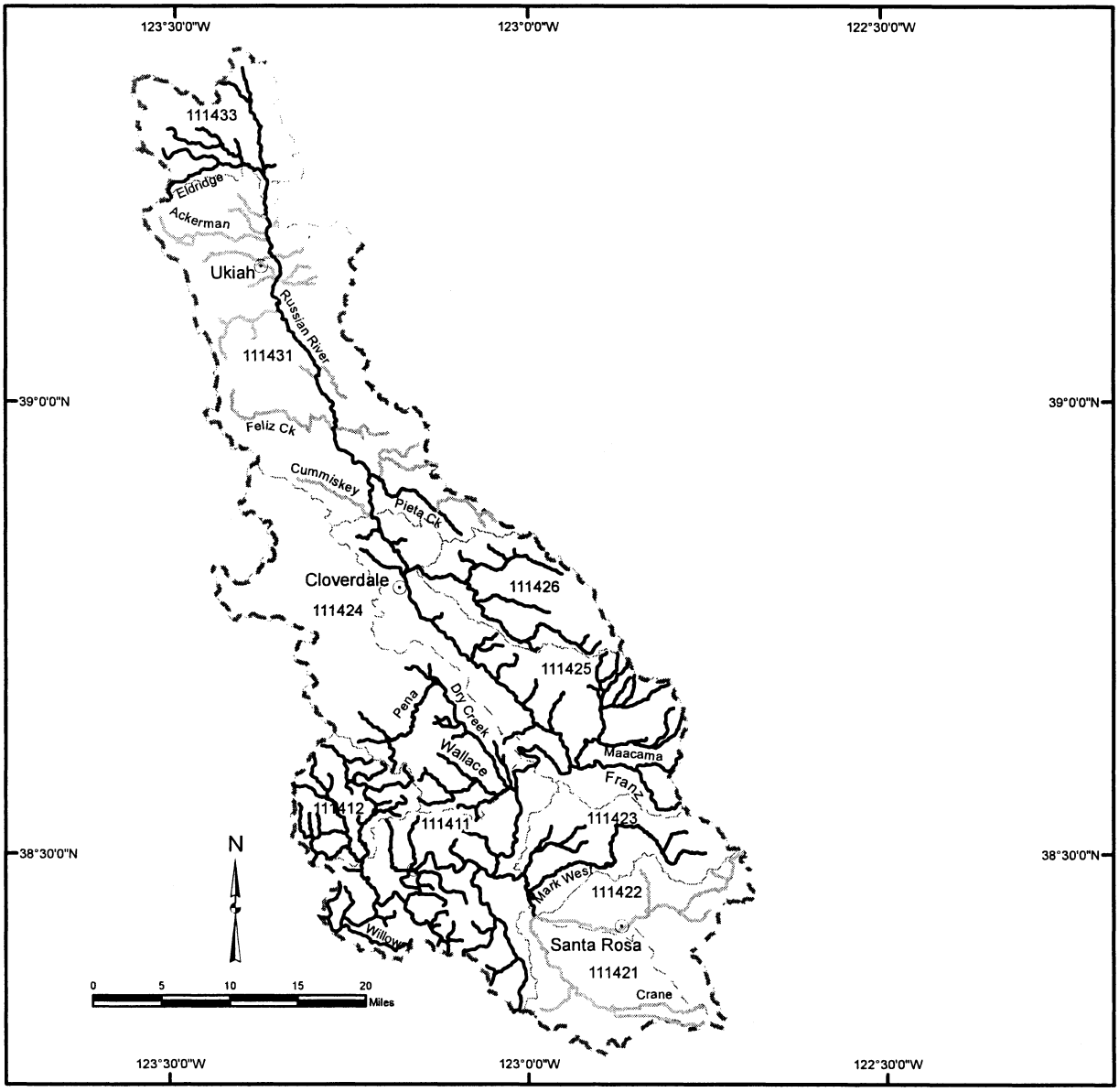
(iv) *Ano Nuevo Hydrologic Sub-area 330420.* Outlet(s) = Ano Nuevo Creek (Lat 37.1163, Long –122.3060); Gazos Creek (37.1646, –122.3625); Whitehouse Creek (37.1457, –122.3469) upstream to endpoint(s) in: Ano Nuevo Creek (37.1269, –122.3039); Bear Gulch (37.1965, –122.2773); Gazos Creek (37.2088, –122.2868); Old Womans Creek (37.1829, –122.3033); Whitehouse Creek (37.1775, –122.2900).

(9) Maps of critical habitat for the Central California Coast Steelhead ESU follow:

BILLING CODE 3510–22–P

Critical Habitat for the California Central Coast Steelhead

Russian River Hydrologic Unit 1114



Cities/Towns

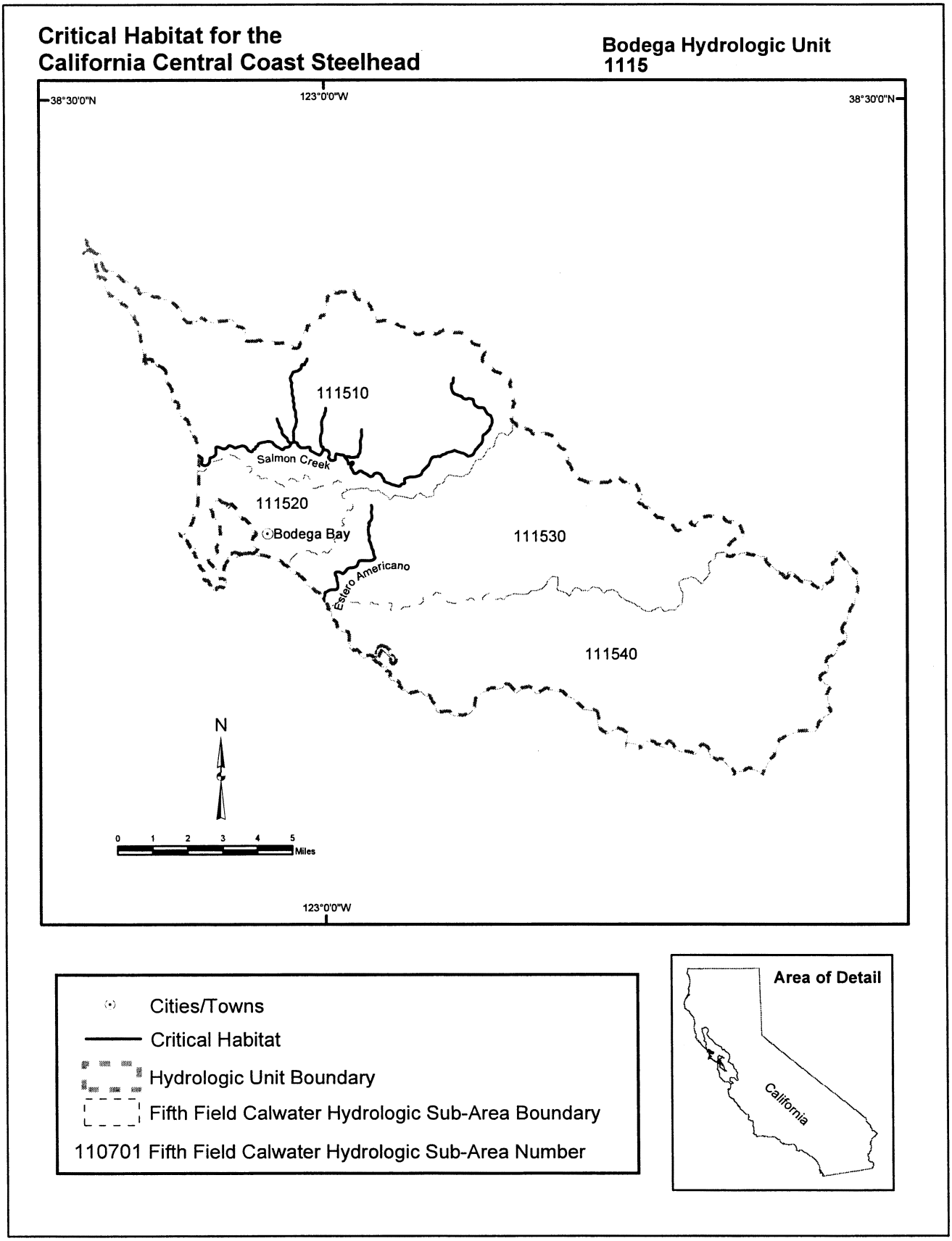
Critical Habitat

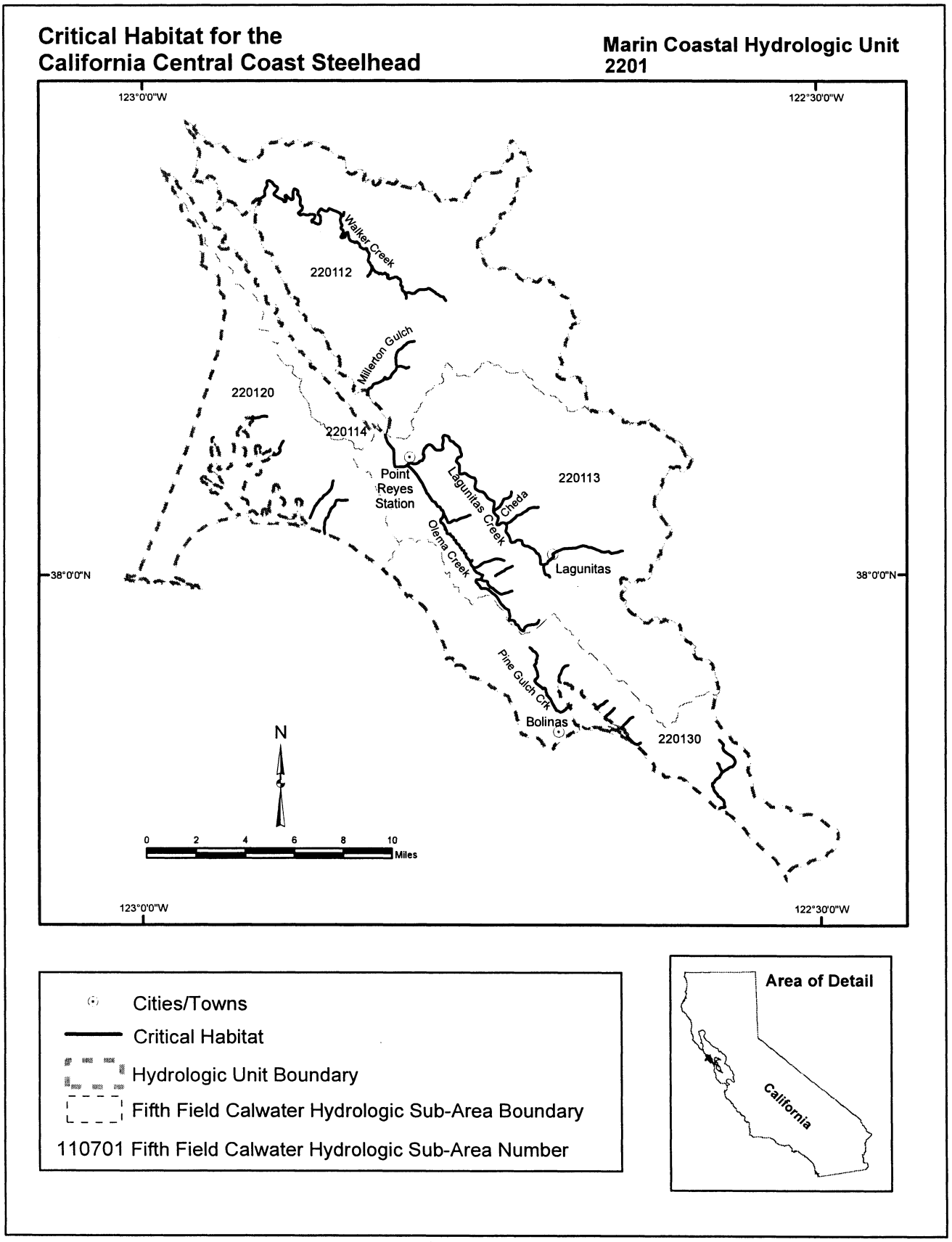
Occupied but excluded streams / areas

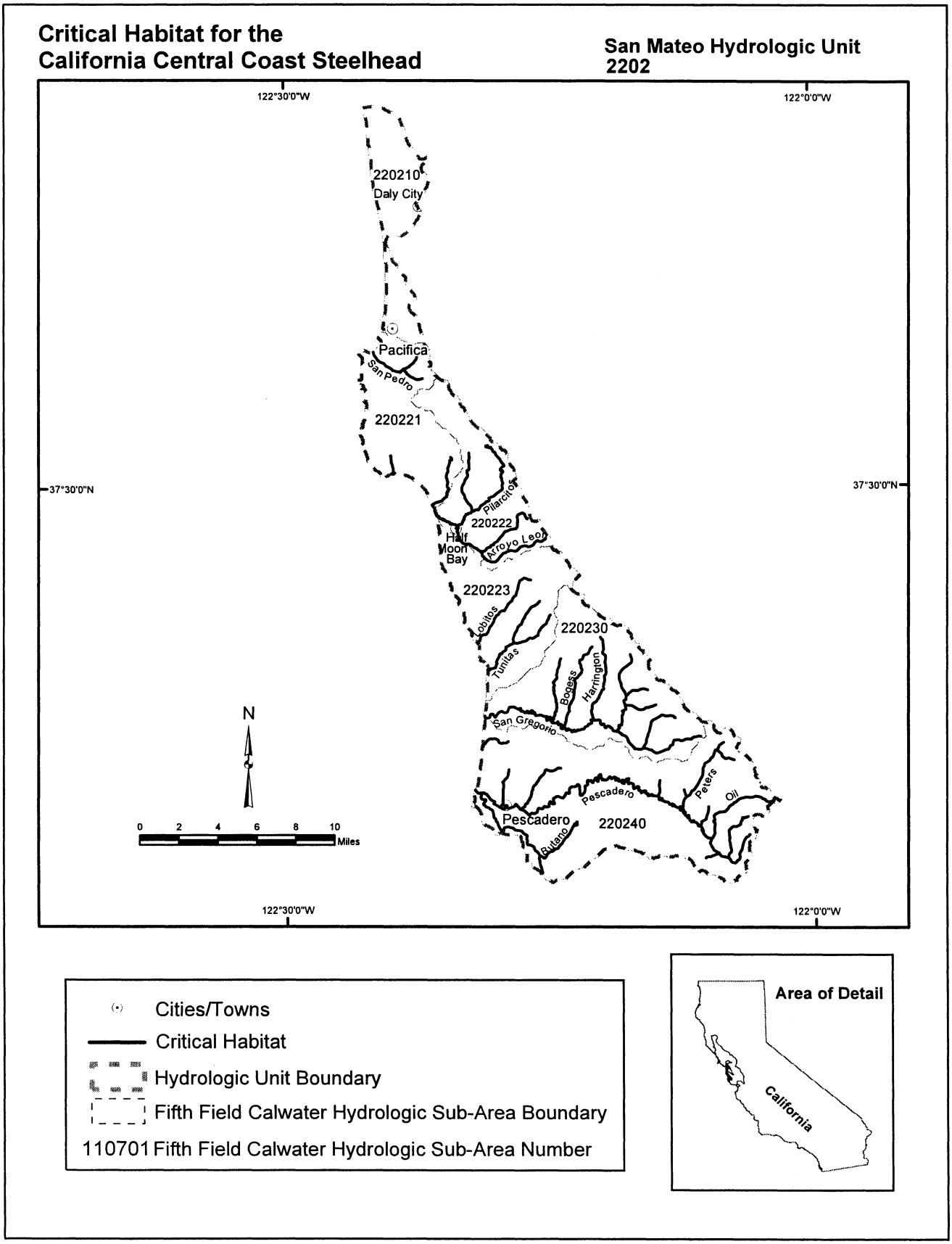
Hydrologic Unit Boundary

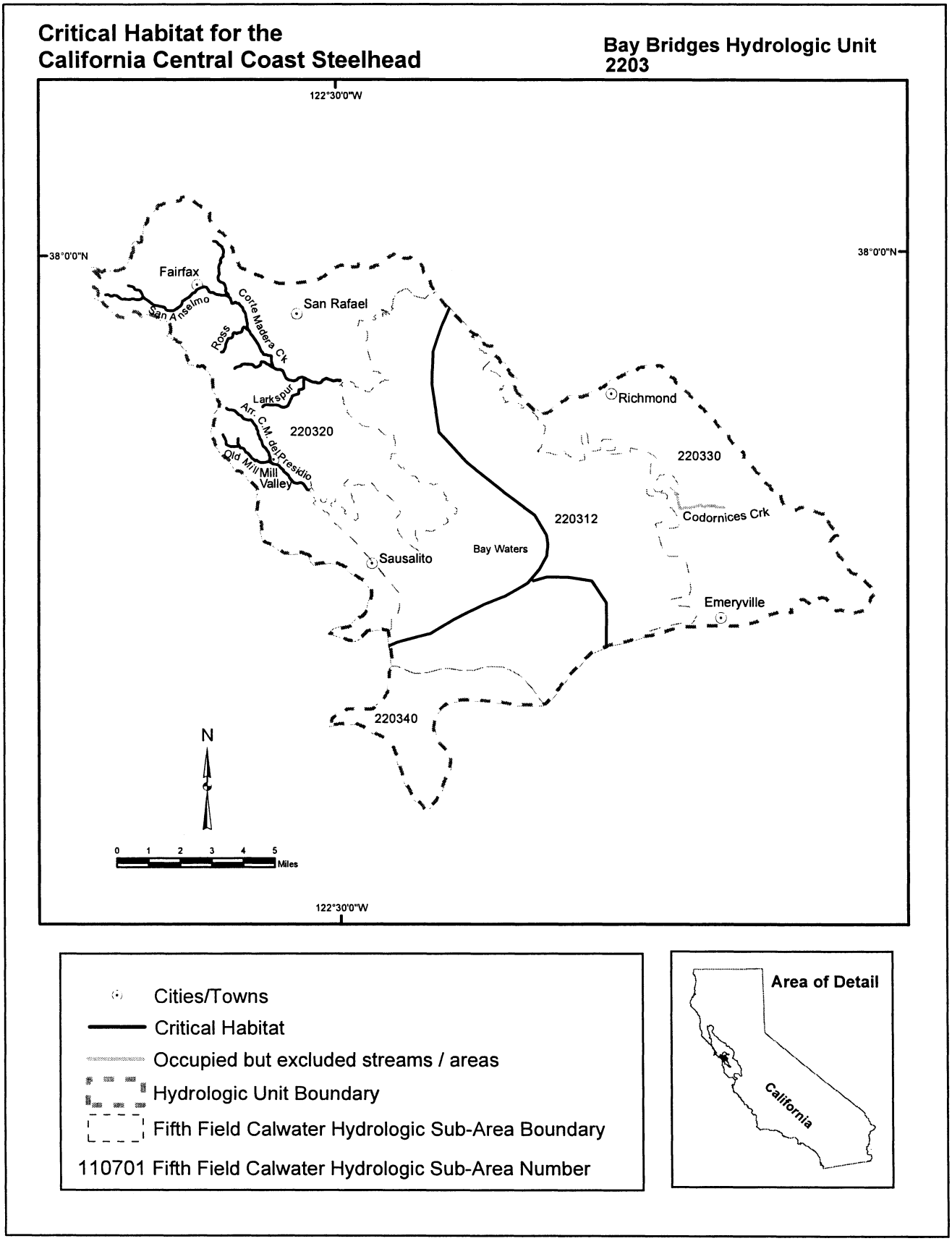
Fifth Field Calwater Hydrologic Sub-Area Boundary

110701 Fifth Field Calwater Hydrologic Sub-Area Number


Critical Habitat for the
California Central Coast Steelhead
Bodega Hydrologic Unit
1115
38°30'0"N
123°0'0"W
38°30'0"N
111510
Salmon Creek
111520
Bodega Bay
111530
Estero Americano
111540
N
0 1 2 3 4 5
Miles
123°0'0"W
Cities/Towns
Critical Habitat
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California

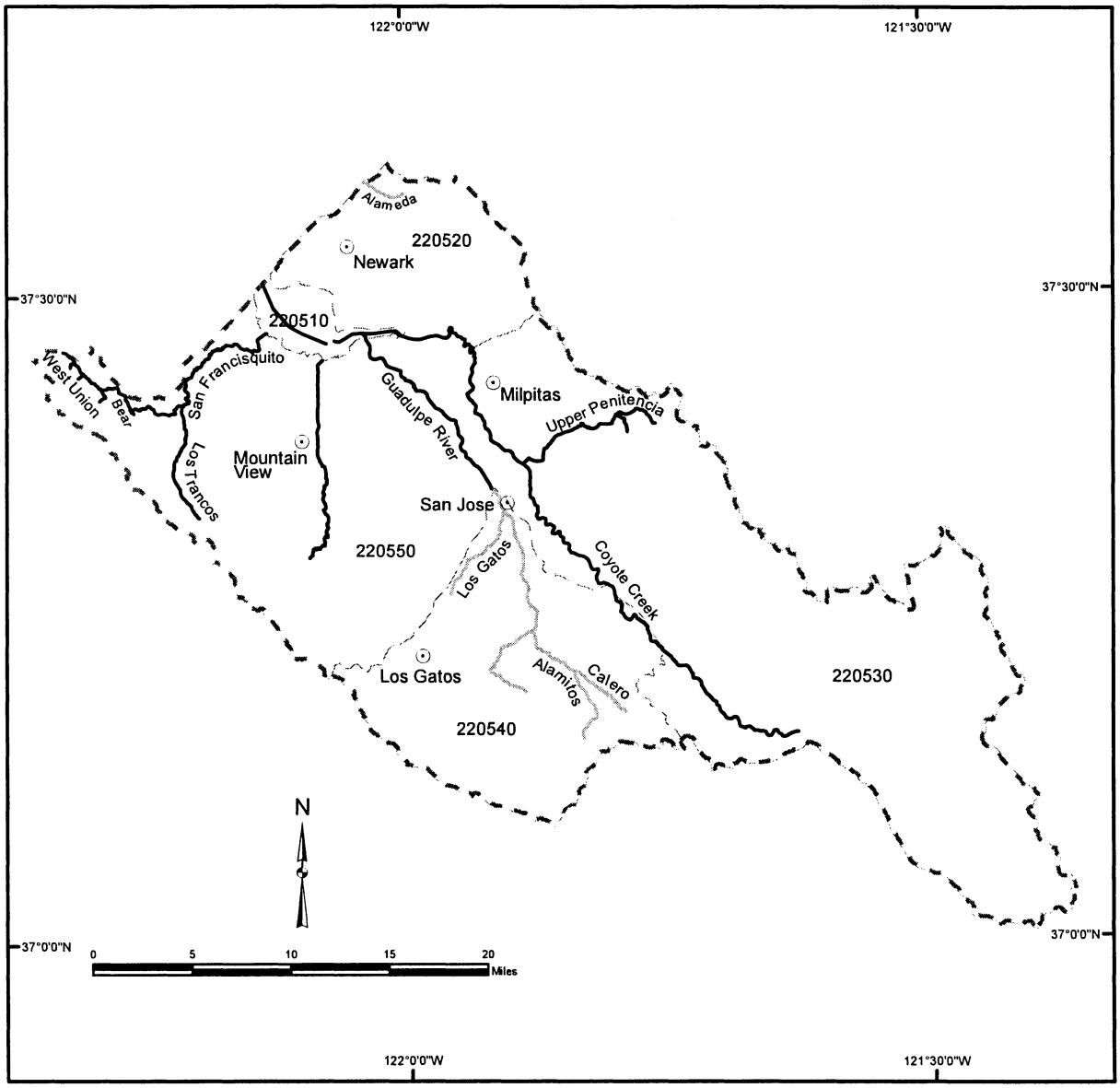

Critical Habitat for the
California Central Coast Steelhead
Marin Coastal Hydrologic Unit
2201
123°0'0"W
122°30'0"W
38°0'0"N
Walker Creek
220112
Millerton Gulch
220120
220114
Point
Reyes
Station
Lagunitas Creek
Cheda
220113
Olema Creek
Lagunitas
Pine Gulch Crk
Bolinas
220130
N
0 2 4 6 8 10
Miles
Cities/Towns
Critical Habitat
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California


Critical Habitat for the
California Central Coast Steelhead
San Mateo Hydrologic Unit
2202
122°30'0"W
122°0'0"W
37°30'0"N
220210
Daly City
Pacifica
San Pedro
220221
Pilarcitos
220222
Half Moon Bay
Arroyo Leon
220223
Lobitos
Tunitas
220230
Bogess
Harrington
San Gregorio
Pescadero
Peters
Oil
Pescadero
220240
Butano
N
0 2 4 6 8 10
Miles
Cities/Towns
Critical Habitat
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California


Critical Habitat for the
California Central Coast Steelhead
Bay Bridges Hydrologic Unit
2203
122°30'0"W
38°0'0"N
Fairfax
San Anselmo
Ross
Corte Madera Ck
San Rafael
Larkspur
Arr. C.M. del Presidio
Old Mill
Mill Valley
220320
Richmond
220330
220312
Codornices Crk
Bay Waters
Sausalito
Emeryville
220340
N
0 1 2 3 4 5
Miles
Cities/Towns
Critical Habitat
Occupied but excluded streams / areas
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California

Critical Habitat for the California Central Coast Steelhead

Santa Clara Hydrologic Unit 2205



Cities/Towns

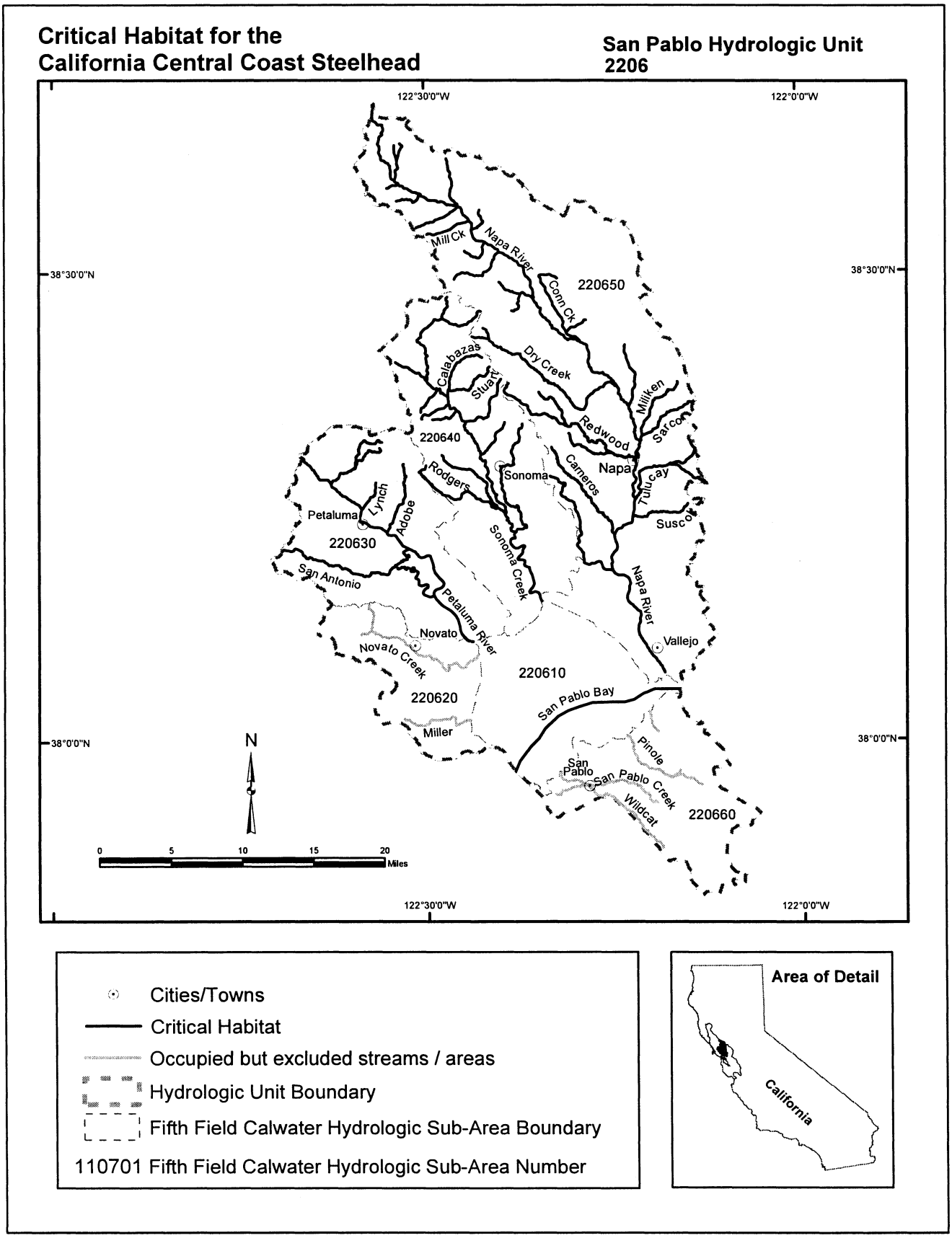
Critical Habitat

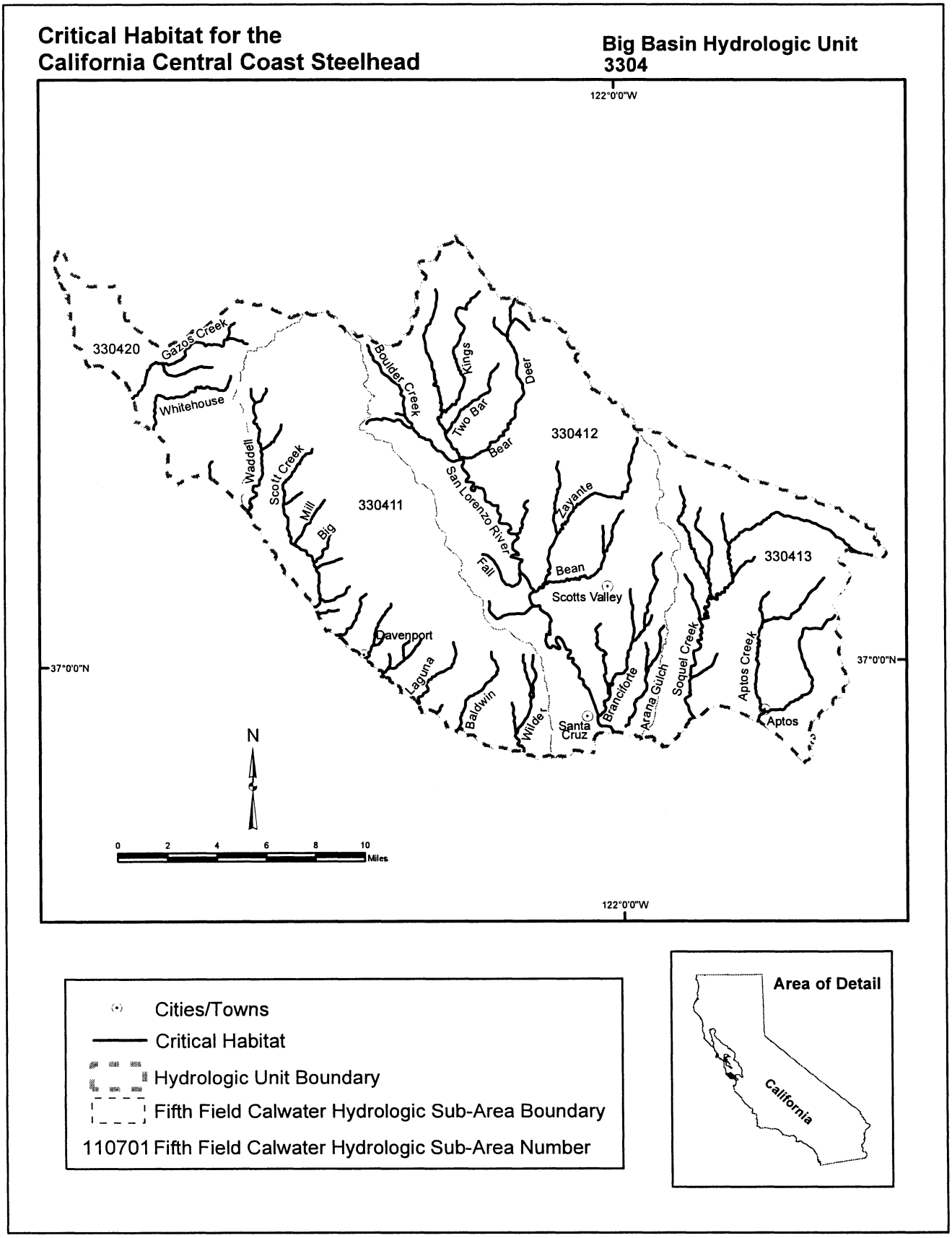
Occupied but excluded streams / areas

Hydrologic Unit Boundary

Fifth Field Calwater Hydrologic Sub-Area Boundary

110701 Fifth Field Calwater Hydrologic Sub-Area Number


Critical Habitat for the
California Central Coast Steelhead
San Pablo Hydrologic Unit
2206
122°30'0"W
122°0'0"W
38°30'0"N
38°0'0"N
Mill Ck
Napa River
Conn Ck
220650
Dry Creek
Calabazas
Stuart
Milliken
Sarco
Redwood
220640
Rodgers
Sonoma
Carneros
Napa
Tulucay
Susco
Petaluma
Lynch
Adobe
220630
Sonoma Creek
San Antonio
Petaluma River
Napa River
Novato
Vallejo
Novato Creek
220610
220620
San Pablo Bay
Miller
Pinole
San Pablo
San Pablo Creek
Wildcat
220660
N
0 5 10 15 20
Miles
Cities/Towns
Critical Habitat
Occupied but excluded streams / areas
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California



BILLING CODE 3510–22–C

(i) *South-Central California Coast Steelhead (O. mykiss).* Critical habitat is designated to include the areas defined in the following CALWATER Hydrologic Units:

(1) Pajaro River Hydrologic Unit 3305—(i) *Watsonville Hydrologic Sub-area 330510.* Outlet(s) = Pajaro River (Lat 36.8506, Long –121.8101) upstream to endpoint(s) in: Banks Canyon Creek (36.9958, –121.7264); Browns Creek (37.0255, –121.7754); Casserly Creek (36.9902, –121.7359); Corralitos Creek (37.0666, –121.8359); Gaffey Creek (36.9905, –121.7132); Gamecock Canyon (37.0362, –121.7587); Green Valley Creek (37.0073, –121.7256); Ramsey Gulch (37.0447, –121.7755); Redwood Canyon (37.0342, –121.7975); Salsipuedes Creek (36.9350, –121.7426); Shingle Mill Gulch (37.0446, –121.7971).

(ii) *Santa Cruz Mountains Hydrologic Sub-area 330520.* Outlet(s) = Pajaro River (Lat 36.9010, Long –121.5861); Bodfish Creek (37.0041, –121.6667); Pescadero Creek (36.9125, –121.5882); Tar Creek (36.9304, –121.5520); Uvas Creek (37.0146, –121.6314) upstream to endpoint(s) in: Blackhawk Canyon (37.0168, –121.6912); Bodfish Creek (36.9985, –121.6859); Little Arthur Creek (37.0299, –121.6874); Pescadero Creek (36.9826, –121.6274); Tar Creek (36.9558, –121.6009); Uvas Creek (37.0660, –121.6912).

(iii) *South Santa Clara Valley Hydrologic Sub-area 330530.* Outlet(s) = San Benito River (Lat 36.8961, Long –121.5625); Pajaro River (36.9222, –121.5388) upstream to endpoint(s) in: Arroyo Dos Picachos (36.8866, –121.3184); Bodfish Creek (37.0080, –121.6652); Bodfish Creek (37.0041, –121.6667); Carnadero Creek (36.9603, –121.5328); Llagas Creek (37.1159, –121.6938); Miller Canal (36.9698, –121.4814); Pacheco Creek (37.0055, –121.3598); San Felipe Lake (36.9835, –121.4604); Tar Creek (36.9304, –121.5520); Tequisquita Slough (36.9170, –121.3887); Uvas Creek (37.0146, –121.6314).

(iv) *Pacheco-Santa Ana Creek Hydrologic Sub-area 330540.* Outlet(s) = Arroyo Dos Picachos (Lat 36.8866, Long –121.3184); Pacheco Creek (37.0055, –121.3598) upstream to endpoint(s) in: Arroyo Dos Picachos (36.8912, –121.2305); Cedar Creek (37.0922, –121.3641); North Fork Pacheco Creek (37.0514, –121.2911); Pacheco Creek (37.0445, –121.2662); South Fork Pacheco Creek (37.0227, –121.2603).

(v) *San Benito River Hyddrologic Sub-area 330550.* Outlet(s) = San Benito River (Lat 36.7838, Long –121.3731) upstream to endpoint(s) in: Bird Creek (36.7604, –121.4506); Pescadero Creek (36.7202, –121.4187); San Benito River (36.3324, –120.6316); Sawmill Creek (36.3593, –120.6284).

(2) Carmel River Hydrologic Unit 3307—(i) *Carmel River Hydrologic Sub-area 330700.* Outlet(s) = Carmel River (Lat 36.5362, Long –121.9285) upstream to endpoint(s) in: Aqua Mojo Creek (36.4711, –121.5407); Big Creek (36.3935, –121.5419); Blue Creek (36.2796, –121.6530); Boronda Creek (36.3542, –121.6091); Bruce Fork (36.3221, –121.6385); Cachagua Creek (36.3909 , –121.5950); Carmel River (36.2837, –121.6203); Danish Creek (36.3730, –121.7590); Hitchcock Canyon Creek (36.4470, –121.7597); James Creek (36.3235, –121.5804); Las Garzas Creek (36.4607, –121.7944); Millers Fork (36.2961, –121.5697); Pinch Creek (36.3236, –121.5574); Pine Creek (36.3827, –121.7727); Potrero Creek (36.4801, –121.8258); Rana Creek (36.4877, –121.5840); Rattlesnake Creek (36.3442, –121.7080); Robertson Canyon Creek (36.4776, –121.8048); Robertson Creek (36.3658, –121.5165); San Clemente Creek (36.4227, –121.8115); Tularcitos Creek (36.4369, –121.5163); Ventana Mesa Creek (36.2977, –121.7116).

(ii) [Reserved]

(3) Santa Lucia Hydrologic Unit 3308-(i) *Santa Lucia Hydrologic Sub-area 330800.* Outlet(s) = Alder Creek (Lat 35.8578, Long –121.4165); Big Creek (36.0696, –121.6005); Big Sur River (36.2815, –121.8593); Bixby Creek (36.3713, –121.9029); Garrapata Creek (36.4176, –121.9157); Limekiln Creek (36.0084, –121.5196); Little Sur River (36.3350, –121.8934); Malpaso Creek (36.4814, –121.9384); Mill Creek (35.9825, –121.4917); Partington Creek (36.1753, –121.6973); Plaskett Creek (35.9195, –121.4717); Prewitt Creek (35.9353, –121.4760); Rocky Creek (36.3798, –121.9028); Salmon Creek (35.3558, –121.3634); San Jose Creek (36.5259, –121.9253); Vicente Creek (36.0442, –121.5855); Villa Creek (35.8495, –121.4087); Willow Creek (35.8935, –121.4619) upstream to endpoint(s) in: Alder Creek (35.8685, –121.3974); Big Creek (36.0830, –121.5884); Big Sur River (36.2490, –121.7269); Bixby Creek (36.3715, –121.8440); Devil's Canyon Creek (36.0773, –121.5695); Garrapata Creek (36.4042, –121.8594); Joshua Creek (36.4182, –121.9000); Limekiln Creek (36.0154, –121.5146); Little Sur River (36.3312, –121.7557); Malpaso Creek (36.4681, –121.8800); Mill Creek (35.9907, –121.4632); North Fork Big Sur River (36.2178, –121.5948); Partington Creek (36.1929, –121.6825); Plaskett Creek (35.9228, –121.4493); Prewitt Creek (35.9419, –121.4598); Redwood Creek (36.2825, –121.6745); Rocky Creek (36.3805, –121.8440); San Jose Creek (36.4662, –121.8118); South Fork Little Sur River (36.3026, –121.8093); Vicente Creek (36.0463, –121.5780); Villa Creek (35.8525, –121.3973); Wildcat Canyon Creek (36.4124, –121.8680); Williams Canyon Creek (36.4466, –121.8526); Willow Creek (35.9050, –121.3851).

(ii) [Reserved]

(4) Salinas River Hydrologic Unit 3309–(i) *Neponset Hydrologic Sub-area 330911.* Outlet(s) = Salinas River (Lat 36.7498, Long –121.8055); upstream to endpoint(s) in: Gabilan Creek (36.6923, –121.6300); Old Salinas River (36.7728, –121.7884); Tembladero Slough (36.6865, –121.6409).

(ii) *Chualar Hydrologic Sub-area 330920.* Outlet(s) = Gabilan Creek (Lat 36.6923, Long –121.6300) upstream.

(iii) *Soledad Hydrologic Sub-area 330930.* Outlet(s) = Salinas River (Lat 36.4878, Long –121.4688) upstream to endpoint(s) in: Arroyo Seco River (36.2644, –121.3812); Reliz Creek (36.2438, –121.2881).

(iv) *Upper Salinas Valley Hydrologic Sub-area 330940.* Outlet(s) = Salinas River (Lat 36.3183, Long –121.1837) upstream.

(v) *Arroyo Seco Hydrologic Sub-area 330960.* Outlet(s) = Arroyo Seco River (Lat 36.2644, Long –121.3812); Reliz Creek (36.2438, –121.2881); Vasqueros Creek (36.2648, –121.3368) upstream to endpoint(s) in: Arroyo Seco River (36.2041, –121.5002); Calaboose Creek (36.2942, –121.5082); Church Creek (36.2762, –121.5877); Horse Creek (36.2046, –121.3931); Paloma Creek (36.3195, –121.4894); Piney Creek (36.3023, –121.5629); Reliz Creek (36.1935, –121.2777); Rocky Creek (36.2676, –121.5225); Santa Lucia Creek (36.1999, –121.4785); Tassajara Creek (36.2679, –121.6149); Vaqueros Creek (36.2479, –121.3369); Willow Creek (36.2059, –121.5642).

(vi) *Gabilan Range Hydrologic Sub-area 330970.* Outlet(s) = Gabilan Creek (Lat 36.7800, –121.5836) upstream to endpoint(s) in: Gabilan Creek (36.7335, –121.4939).

(vii) *Paso Robles Hydrologic Sub-area 330981.* Outlet(s) = Salinas River (Lat 35.9241, Long –120.8650) upstream to endpoint(s) in:

Atascadero Creek (35.4468, –120.7010); Graves Creek (35.4838, –120.7631); Jack Creek (35.5815, –120.8560); Nacimiento River (35.7610, –120.8853); Paso Robles Creek (35.5636, –120.8455); Salinas River (35.3886, –120.5582); San Antonio River (35.7991, –120.8849); San Marcos Creek (35.6734, –120.8140); Santa Margarita Creek (35.3923, –120.6619); Santa Rita Creek

(35.5262, –120.8396); Sheepcamp Creek (35.6145, –120.7795); Summit Creek (35.6441, –120.8046); Tassajera Creek (35.3895, –120.6926); Trout Creek (35.3394, –120.5881); Willow Creek (35.6107, –120.7720).

(5) Estero Bay Hydrologic Unit 3310—

(i) *San Carpoforo Hydrologic Sub-area 331011.* Outlet(s) = San Carpoforo Creek (Lat 35.7646, Long –121.3247) upstream to endpoint(s) in: Dutra Creek (35.8197, –121.3273); Estrada Creek (35.7710, –121.2661); San Carpoforo Creek (35.8202, –121.2745); Unnamed Tributary (35.7503, –121.2703); Wagner Creek (35.8166, –121.2387).

(ii) *Arroyo De La Cruz Hydrologic Sub-area 331012.* Outlet(s) = Arroyo De La Cruz (Lat 35.7097, Long –121.3080) upstream to endpoint(s) in: Arroyo De La Cruz (35.6986, –121.1722); Burnett Creek (35.7520, –121.1920); Green Canyon Creek (35.7375 , –121.2314); Marmolejo Creek (35.6774, –121.1082); Spanish Cabin Creek (35.7234, –121.1497); Unnamed Tributary (35.7291, –121.1977); West Fork Burnett Creek (35.7516, –121.2075).

(iii) *San Simeon Hydrologic Sub-area 331013.* Outlet(s) = Arroyo del Corral (Lat 35.6838, Long –121.2875); Arroyo del Puerto (35.6432, –121.1889); Little Pico Creek (35.6336, –121.1639); Oak Knoll Creek (35.6512, –121.2197); Pico Creek (35.6155, –121.1495); San Simeon Creek (35.5950, –121.1272) upstream to endpoint(s) in: Arroyo Laguna (35.6895, –121.2337); Arroyo del Corral (35.6885, –121.2537); Arroyo del Puerto (35.6773, –121.1713); Little Pico Creek (35.6890, –121.1375); Oak Knoll Creek (35.6718, –121.2010); North Fork Pico Creek (35.6886, –121.0861); San Simeon Creek (35.6228, –121.0561); South Fork Pico Creek (35.6640, –121.0685); Steiner Creek (35.6032, –121.0640); Unnamed Tributary (35.6482, –121.1067); Unnamed Tributary (35.6616, –121.0639); Unnamed Tributary (35.6741, –121.0981); Unnamed Tributary (35.6777, –121.1503); Unnamed Tributary (35.6604, –121.1571); Unnamed Tributary (35.6579, –121.1356); Unnamed Tributary (35.6744, –121.1187); Unnamed Tributary (35.6460, –121.1373); Unnamed Tributary (35.6839, –121.0955); Unnamed Tributary (35.6431, –121.0795); Unnamed Tributary (35.6820, –121.2130); Unnamed Tributary (35.6977, –121.2613); Unnamed Tributary (35.6702, –121.1884); Unnamed Tributary (35.6817, –121.0885); Van Gordon Creek (35.6286, –121.0942).

(iv) *Santa Rosa Hydrologic Sub-area 331014.* Outlet(s) = Santa Rosa Creek (Lat 35.5685, Long –121.1113) upstream to endpoint(s) in: Green Valley Creek (35.5511, –120.9471); Perry Creek (35.5323–121.0491); Santa Rosa Creek (35.5525, –120.9278); Unnamed Tributary (35.5965, –120.9413); Unnamed Tributary (35.5684, –120.9211); Unnamed Tributary (35.5746, –120.9746).

(v) *Villa Hydrologic Sub-area 331015.* Outlet(s) = Villa Creek (Lat 35.4601, Long –120.9704) upstream to endpoint(s) in: Unnamed Tributary (35.4798, –120.9630); Unnamed Tributary (35.5080, –121.0171); Unnamed Tributary (35.5348, –120.8878); Unnamed Tributary (35.5510, –120.9406); Unnamed Tributary (35.5151, –120.9497); Unnamed Tributary (35.4917, –120.9584); Unnamed Tributary (35.5173, –120.9516); Villa Creek (35.5352, –120.8942).

(vi) *Cayucos Hydrologic Sub-area 331016.* Outlet(s) = Cayucos Creek (Lat 35.4491, Long –120.9079) upstream to endpoint(s) in: Cayucos Creek (35.5257, –120.9271); Unnamed Tributary (35.5157, –120.9005); Unnamed Tributary (35.4943, –120.9513); Unnamed Tributary (35.4887, –120.8968).

(vii) *Old Hydrologic Sub-area 331017.* Outlet(s) = Old Creek (Lat 35.4345, Long –120.8868) upstream to endpoint(s) in: Old Creek (35.4480, –120.8871)

(viii) *Toro Hydrologic Sub-area 331018.* Outlet(s) = Toro Creek (Lat 35.4126, Long –120.8739) upstream to endpoint(s) in: Toro Creek (35.4945, –120.7934); Unnamed Tributary (35.4917, –120.7983).

(ix) *Morro Hydrologic Sub-area 331021.* Outlet(s) = Morro Creek (Lat 35.3762, Long –120.8642) upstream to endpoint(s) in: East Fork Morro Creek (35.4218, –120.7282); Little Morro Creek (35.4155, –120.7532); Morro Creek (35.4291, –120.7515); Unnamed Tributary (35.4292, –120.8122); Unnamed Tributary (35.4458, –120.7906); Unnamed Tributary (35.4122, –120.8335); Unnamed Tributary (35.4420, –120.7796).

(x) *Chorro Hydrologic Sub-area 331022.* Outlet(s) = Chorro Creek (Lat 35.3413, Long –120.8388) upstream to endpoint(s) in: Chorro Creek (35.3340, –120.6897); Dairy Creek (35.3699, –120.6911); Pennington Creek (35.3655, –120.7144); San Bernardo Creek (35.3935, –120.7638); San Luisito (35.3755, –120.7100); Unnamed Tributary (35.3821, –120.7217); Unnamed Tributary (35.3815, –120.7350).

(xi) *Los Osos Hydrologic Sub-area 331023.* Outlet(s) = Los Osos Creek (Lat 35.3379, Long –120.8273) upstream to endpoint(s) in: Los Osos Creek (35.2718, –120.7627).

(xii) *San Luis Obispo Creek Hydrologic Sub-area 331024.* Outlet(s) = San Luis Obispo Creek (Lat 35.1822, Long –120.7303) upstream to endpoint(s) in: Brizziolari Creek (35.3236, –120.6411); Froom Creek (35.2525, –120.7144); Prefumo Creek (35.2615, –120.7081); San Luis Obispo Creek (35.3393, –120.6301); See Canyon Creek (35.2306, –120.7675); Stenner Creek (35.3447, –120.6584); Unnamed Tributary (35.2443, –120.7655).

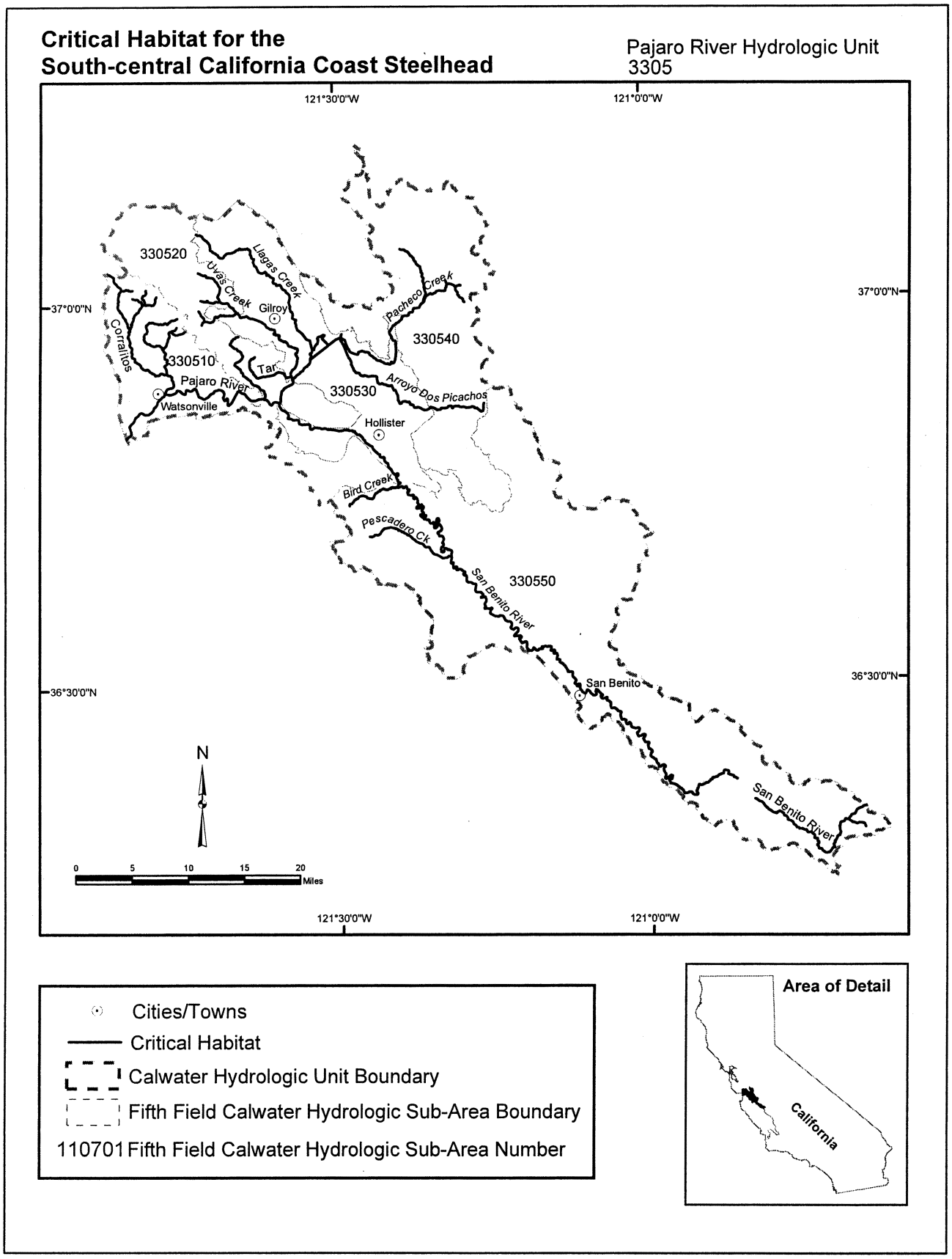
(xiii) *Point San Luis Hydrologic Sub-area 331025.* Outlet(s) = Coon Creek (Lat 35.2590, Long –120.8951); Islay Creek (35.2753, –120.8884) upstream to endpoint(s) in: Coon Creek (35.2493, –120.7774); Islay Creek (35.2574, –120.7810); Unnamed Tributary (35.2753, –120.8146); Unnamed Tributary (35.2809, –120.8147); Unnamed Tributary (35.2648, –120.7936).

(xiv) *Pismo Hydrologic Sub-area 331026.* Outlet(s) = Pismo Creek (Lat 35.1336, Long –120.6408) upstream to endpoint(s) in: East Corral de Piedra Creek (35.2343, –120.5571); Pismo Creek (35.1969, –120.6107); Unnamed Tributary (35.2462, –120.5856).

(xv) *Oceano Hydrologic Sub-area 331031.* Outlet(s) = Arroyo Grande Creek (Lat 35.1011, Long –120.6308) upstream to endpoint(s) in: Arroyo Grande Creek (35.1868, –120.4881); Los Berros Creek (35.0791, –120.4423).

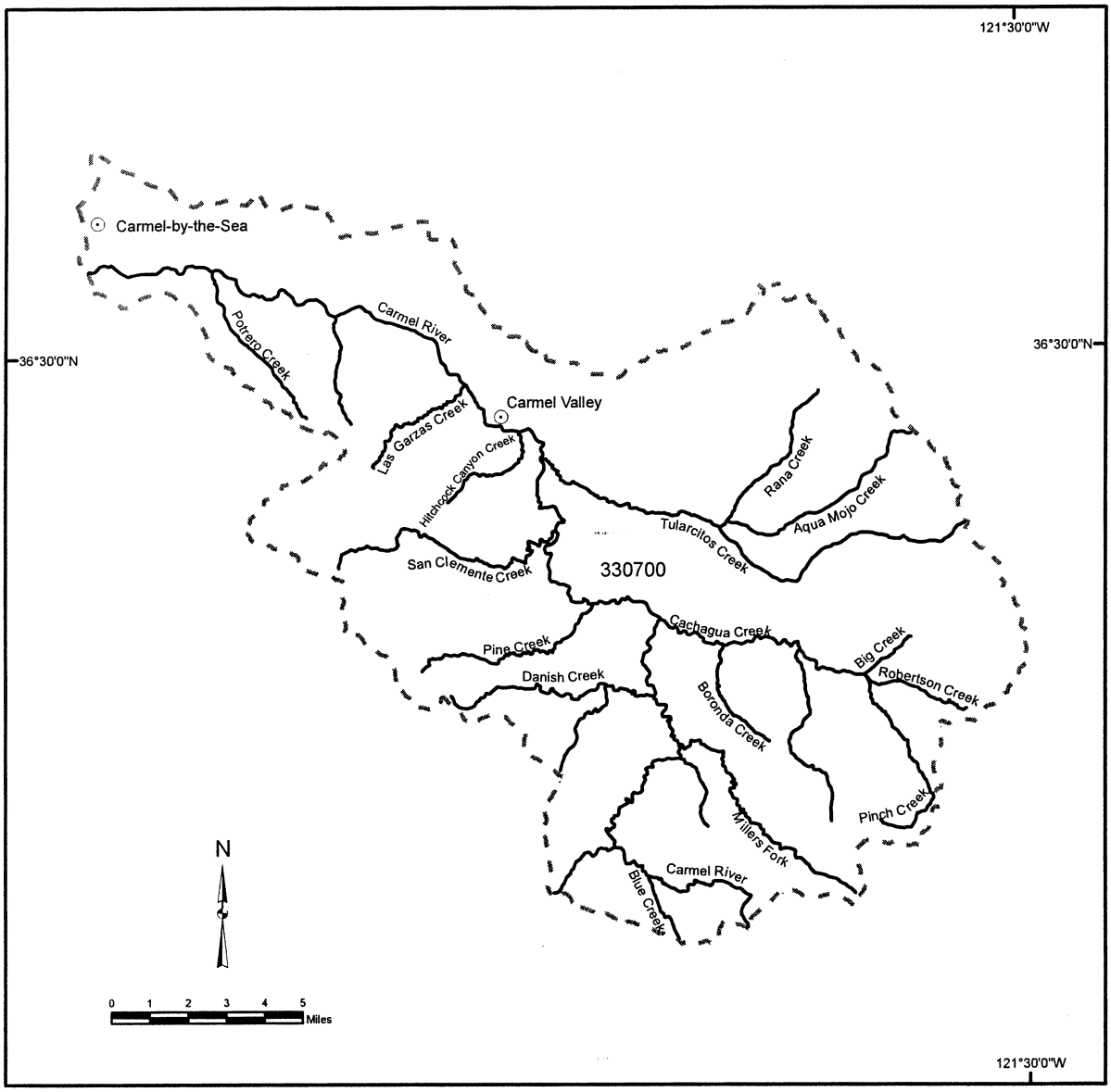
(6) Maps of critical habitat for the South-Central Coast Steelhead ESU follow:

BILLING CODE 3510–22–P


Critical Habitat for the
South-central California Coast Steelhead
Pajaro River Hydrologic Unit
3305
121°30'0"W
121°0'0"W
37°0'0"N
36°30'0"N
330520
330510
330540
330530
330550
Uvas Creek
Llagas Creek
Pacheco Creek
Gilroy
Corralitos
Tar
Pajaro River
Watsonville
Arroyo Dos Picachos
Hollister
Bird Creek
Pescadero Ck
San Benito River
San Benito
N
0 5 10 15 20
Miles
Cities/Towns
Critical Habitat
Calwater Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California

Critical Habitat for the South-central California Coast Steelhead

Carmel River Hydrologic Unit 3307



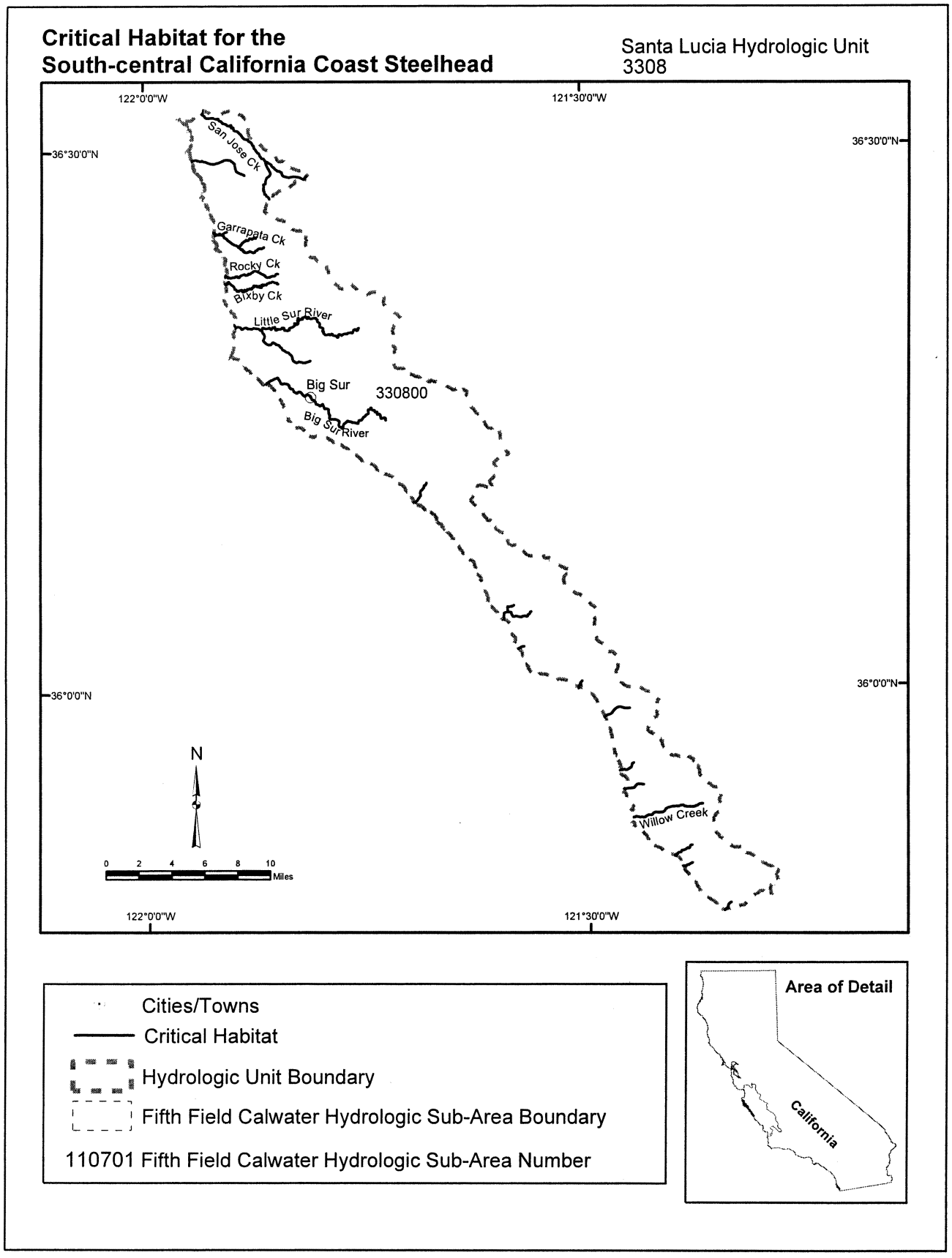
Cities/Towns

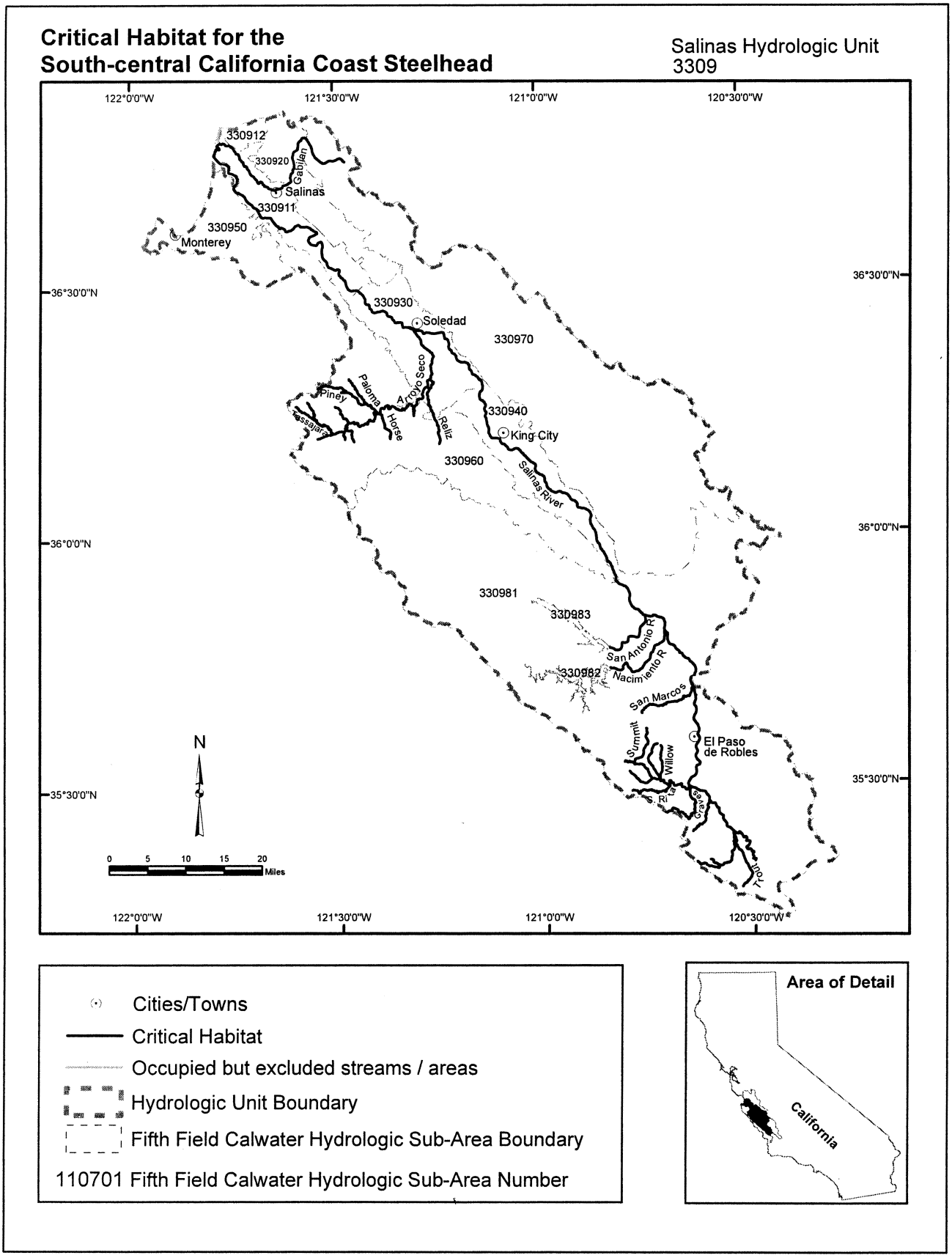
Critical Habitat

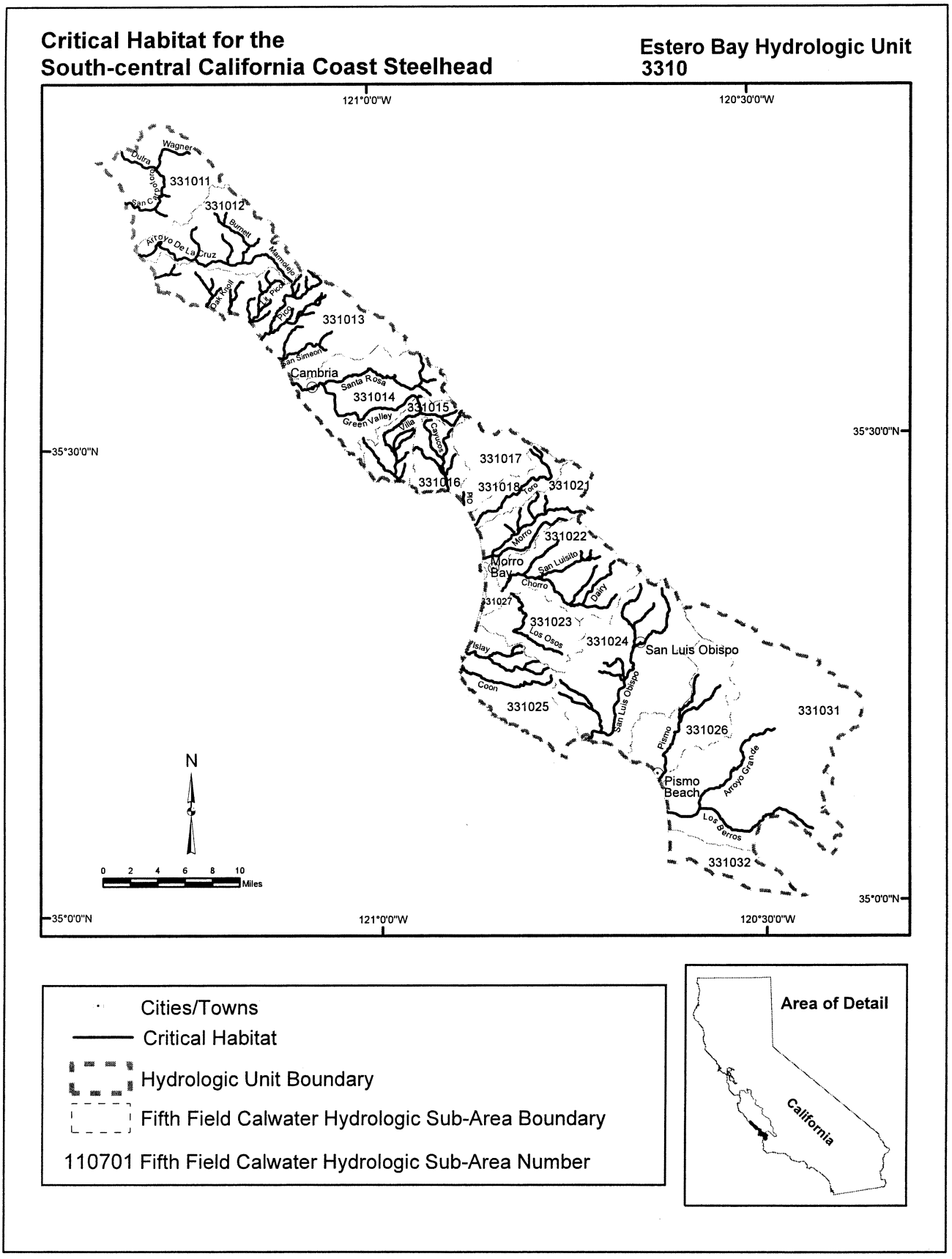
Calwater Hydrologic Unit Boundary

Fifth Field Calwater Hydrologic Sub-Area Boundary

110701Fifth Field Calwater Hydrologic Sub-Area Number


Critical Habitat for the
South-central California Coast Steelhead
Santa Lucia Hydrologic Unit
3308
122°0'0"W
121°30'0"W
36°30'0"N
36°0'0"N
San Jose Ck
Garrapata Ck
Rocky Ck
Bixby Ck
Little Sur River
Big Sur
330800
Big Sur River
Willow Creek
N
0 2 4 6 8 10
Miles
Cities/Towns
Critical Habitat
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California


Critical Habitat for the
South-central California Coast Steelhead
Salinas Hydrologic Unit
3309
122°0'0"W
121°30'0"W
121°0'0"W
120°30'0"W
36°30'0"N
36°0'0"N
35°30'0"N
330912
330920
Gabilan
Salinas
330911
330950
Monterey
330930
Soledad
330970
Pinely
Paloma
Arroyo Seco
Horse
Reliz
Tassajara
330940
King City
330960
Salinas River
330981
330983
San Antonio R
Nacimiento R
330982
San Marcos
Summit
Willow
El Paso
de Robles
Trout
N
0 5 10 15 20
Miles
Cities/Towns
Critical Habitat
Occupied but excluded streams / areas
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California



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(j) *Southern California Steelhead (O. mykiss).* Critical habitat is designated to include the areas defined in the following CALWATER Hydrologic Units:

(1) Santa Maria River Hydrologic Unit 3312—(i) *Santa Maria Hydrologic Sub-area 331210.* Outlet(s) = Santa Maria River (Lat 34.9710, Long –120.6504) upstream to endpoint(s) in: Cuyama River (34.9058, –120.3026); Santa Maria River (34.9042, –120.3077); Sisquoc River (34.8941, –120.3063).

(ii) *Sisquoc Hydrologic Sub-area 331220.* Outlet(s) = Sisquoc River (Lat 34.8941, Long –120.3063) upstream to endpoint(s) in: Abel Canyon (34.8662, –119.8354); Davey Brown Creek (34.7541, –119.9650); Fish Creek (34.7531, –119.9100); Foresters Leap (34.8112, –119.7545); La Brea Creek (34.8804, –120.1316); Horse Creek (34.8372, –120.0171); Judell Creek (34.7613, –119.6496); Manzana Creek (34.7082, –119.8324); North Fork La Brea Creek (34.9681, –120.0112); Sisquoc River (34.7087, –119.6409); South Fork La Brea Creek (34.9543, –119.9793); South Fork Sisquoc River (34.7300, –119.7877); Unnamed Tributary (34.9342, –120.0589); Unnamed Tributary (34.9510, –120.0140); Unnamed Tributary (34.9687, –120.1419); Unnamed Tributary (34.9626, –120.1500); Unnamed Tributary (34.9672, –120.1194); Unnamed Tributary (34.9682, –120.0990); Unnamed Tributary (34.9973, –120.0662); Unnamed Tributary (34.9922, –120.0294); Unnamed Tributary (35.0158, –120.0337); Unnamed Tributary (34.9464, –120.0309); Unnamed Tributary (34.7544, –119.9476); Unnamed Tributary (34.7466, –119.9047); Unnamed Tributary (34.7646, –119.8673); Unnamed Tributary (34.8726, –119.9525); Unnamed Tributary (34.8884, –119.9325); Unnamed Tributary (34.8659, –119.8982); Unnamed Tributary (34.8677, –119.8513); Unnamed Tributary (34.8608, –119.8541); Unnamed Tributary (34.8784, –119.8458); Unnamed Tributary (34.8615, –119.8159); Unnamed Tributary (34.8694, –119.8229); Unnamed Tributary (34.7931, –119.8485); Unnamed Tributary (34.7846, –119.8337); Unnamed Tributary (34.7872, –119.7684); Unnamed Tributary (34.7866, –119.7552); Unnamed Tributary (34.8129, –119.7714); Unnamed Tributary (34.7760, –119.7448); Unnamed Tributary (34.7579, –119.7999); Unnamed Tributary (34.7510, –119.7921); Unnamed Tributary (34.7769, –119.7149); Unnamed Tributary (34.7617, –119.6878); Unnamed Tributary (34.7680, –119.6503); Unnamed Tributary (34.7738, –119.6493); Unnamed Tributary (34.7332, –119.6286); Unnamed Tributary (34.7519, –119.6209); Unnamed Tributary (34.7188, –119.6673); Water Canyon (34.8754, –119.9324).

(2) Santa Ynex Hydrologic Unit 3314—(i) *Mouth of Santa Ynez Hydrologic Sub-area 331410.* Outlet(s) = Santa Ynez River (Lat 34.6930, Long –120.6033) upstream to endpoint(s) in: San Miguelito Creek (34.6309, –120.4631).

(ii) *Santa Ynez, Salsipuedes Hydrologic Sub-area 331420.* Outlet(s) = Santa Ynez River (Lat 34.6335, Long –120.4126) upstream to endpoint(s) in: El Callejon Creek (34.5475, –120.2701); El Jaro Creek (34.5327, –120.2861); Llanito Creek (34.5499, –120.2762); Salsipuedes Creek (34.5711, –120.4076).

(iii) *Santa Ynez, Zaca Hydrologic Sub-area 331430.* Outlet(s) = Santa Ynez River (Lat 34.6172, Long –120.2352) upstream.

(iv) *Santa Ynez to Bradbury Hydrologic Sub-area 331440.* Outlet(s) = Santa Ynez River (Lat 34.5847, Long –120.1445) upstream to endpoint(s) in: Alisal Creek (34.5465, –120.1358); Hilton Creek (34.5839, –119.9855); Quiota Creek (34.5370, –120.0321); San Lucas Creek (34.5558, –120.0119); Santa Ynez River (34.5829, –119.9805); Unnamed Tributary (34.5646, –120.0043).

(3) South Coast Hydrologic Unit 3315—(i) *Arroyo Hondo Hydrologic Sub-area 331510.* Outlet(s) = Alegria Creek (Lat 34.4688, Long –120.2720); Arroyo Hondo Creek (34.4735, –120.1415); Cojo Creek (34.4531, –120.4165); Dos Pueblos Creek (34.4407, –119.9646); El Capitan Creek (34.4577, –120.0225); Gato Creek (34.4497, –119.9885); Gaviota Creek (34.4706, –120.2267); Jalama Creek (34.5119, –120.5023); Refugio Creek (34.4627, –120.0696); Sacate Creek (34.4708, –120.2942); San Augustine Creek (34.4588, –120.3542); San Onofre Creek (34.4699, –120.1872); Santa Anita Creek (34.4669, –120.3066); Tecolote Creek (34.4306, –119.9173) upstream to endpoint(s) in: Alegria Creek (34.4713, –120.2714); Arroyo Hondo Creek (34.5112, –120.1704); Cojo Creek (34.4840, –120.4106); Dos Pueblos Creek (34.5230, –119.9249); El Capitan Creek (34.5238, –119.9806); Escondido Creek (34.5663, –120.4643); Gato Creek (34.5203, –119.9758); Gaviota Creek (34.5176, –120.2179); Jalama Creek (34.5031, –120.3615); La Olla (34.4836, –120.4071); Refugio Creek (34.5109, –120.0508); Sacate Creek (34.4984, –120.2993); San Augustine Creek (34.4598, –120.3561); San Onofre Creek (34.4853, –120.1890); Santa Anita Creek (34.4742, –120.3085); Tecolote Creek (34.5133, –119.9058); Unnamed Tributary (34.5527, –120.4548); Unnamed Tributary (34.4972, –120.3026).

(ii) *UCSB Slough Hydrologic Sub-area 331531.* Outlet(s) = San Pedro Creek (Lat 34.4179, Long –119.8295); Tecolito Creek (34.4179, –119.8295) upstream to endpoint(s) in: Atascadero Creek (34.4345, –119.7755); Carneros Creek (34.4674, –119.8584); Cieneguitas Creek (34.4690, –119.7565); Glen Annie Creek (34.4985, –119.8666); Maria Ygnacio Creek (34.4900, –119.7830); San Antonio Creek (34.4553, –119.7826); San Pedro Creek (34.4774, –119.8359); San Jose Creek (34.4919, –119.8032); Tecolito Creek (34.4478, –119.8763); Unnamed Tributary (34.4774, –119.8846).

(iii) *Mission Hydrologic Sub-area 331532.* Outlet(s) = Arroyo Burro Creek (Lat 34.4023, Long –119.7430); Mission Creek (34.4124, –119.6876); Sycamore Creek (34.4166, –119.6668) upstream to endpoint(s) in: Arroyo Burro Creek (34.4620, –119.7461); Mission Creek (34.4482, –119.7089); Rattlesnake Creek (34.4633, –119.6902); San Roque Creek (34.4530, –119.7323); Sycamore Creek (34.4609, –119.6841).

(iv) *San Ysidro Hydrologic Sub-area 331533.* Outlet(s) = Montecito Creek (Lat 34.4167, Long –119.6344); Romero Creek (34.4186, –119.6208); San Ysidro Creek (34.4191, –119.6254); upstream to endpoint(s) in: Cold Springs Creek (34.4794, –119.6604); Montecito Creek (34.4594, –119.6542); Romero Creek (34.4452, –119.5924); San Ysidro Creek (34.4686, –119.6229); Unnamed Tributary (34.4753, –119.6437).

(v) *Carpinteria Hydrologic Sub-area 331534.* Outlet(s) = Arroyo Paredon (Lat 34.4146, Long –119.5561); Carpenteria Lagoon (Carpenteria Creek) (34.3904, –119.5204); Rincon Lagoon (Rincon Creek) (34.3733, –119.4769) upstream to endpoint(s) in: Arroyo Paredon (34.4371, –119.5481); Carpinteria Creek (34.4429, –119.4964); El Dorado Creek (34.4682, –119.4809); Gobernador Creek (34.4249, –119.4746); Rincon Lagoon (Rincon Creek) (34.3757, –119.4777); Steer Creek (34.4687, –119.4596); Unnamed Tributary (34.4481, –119.5112).

(4) Ventura River Hydrologic Unit 4402—(i) *Ventura Hydrologic Sub-area 440210.* Outlet(s) = Ventura Estuary (Ventura River) (Lat 34.2742, Long –119.3077) upstream to endpoint(s) in: Canada Larga (34.3675, –119.2377); Hammond Canyon (34.3903,

–119.2230); Sulphur Canyon (34.3727, –119.2362); Unnamed Tributary (34.3344, –119.2426); Unnamed Tributary (34.3901, –119.2747).

(ii) *Ventura Hydrologic Sub-area 440220.* Outlet(s) = Ventura River (Lat 34.3517, Long –119.3069) upstream to endpoint(s) in: Coyote Creek (34.3735, –119.3337); Matilija Creek (34.4846, –119.3086); North Fork Matilija Creek (34.5129, –119.2737); San Antonio Creek (34.4224, –119.2644); Ventura River (34.4852, –119.3001).

(iii) *Lions Hydrologic Sub-area 440231.* Outlet(s) = Lion Creek (Lat 34.4222, Long –119.2644) upstream to endpoint(s) in: Lion Creek (34.4331, –119.2004).

(iv) *Thatcher Hydrologic Sub-area 440232.* Outlet(s) = San Antonio Creek (Lat 34.4224, Long –119.2644) upstream to endpoint(s) in: San Antonio Creek (34.4370, –119.2417).

(5) Santa Clara Calleguas Hydrologic Unit 4403—(i) *Mouth of Santa Clara Hydrologic Sub-area 440310.* Outlet(s) = Santa Clara River (Lat 34.2348, Long –119.2568) upstream.

(ii) *Santa Clara, Santa Paula Hydrologic Sub-area 440321.* Outlet(s) = Santa Clara River (Lat 34.2731, Long –119.1474) upstream to endpoint(s) in: Santa Paula Creek (34.4500, –119.0563).

(iii) *Sisar Hydrologic Sub-area 440322.* Outlet(s) = Sisar Creek (Lat 34.4271, Long –119.0908) upstream to endpoint(s) in: Sisar Creek (34.4615, –119.1312).

(iv) *Sespe, Santa Clara Hydrologic Sub-area 440331.* Outlet(s) = Santa Clara River (Lat 34.3513, Long –119.0397) upstream to endpoint(s) in: Sespe Creek (34.4509, –118.9258).

(v) *Sespe Hydrologic Sub-area 440332.* Outlet(s) = Sespe Creek (Lat 34.4509, Long –118.9258) upstream to endpoint(s) in: Abadi Creek (34.6099, –119.4223); Alder Creek (34.5691, –118.9528); Bear Creek (34.5314, –119.1041); Chorro Grande Creek (34.6285, –119.3245); Fourfork Creek (34.4735, –118.8893); Howard Creek (34.5459, –119.2154); Lady Bug Creek (34.5724, –119.3173); Lion Creek (34.5047, –119.1101); Little Sespe Creek (34.4598, –118.8938); Munson Creek (34.6152, –119.2963); Park Creek (34.5537, –119.0028); Piedra Blanca Creek (34.6109, –119.1838); Pine Canyon Creek (34.4488, –118.9661); Portrero John Creek (34.6010, –119.2695); Red Reef Creek (34.5344, –119.0441); Rose Valley Creek (34.5195, –119.1756); Sespe Creek (34.6295, –119.4412); Timber Creek (34.5184, –119.0698); Trout Creek (34.5869, –119.1360); Tule Creek (34.5614, –119.2986); Unnamed Tributary (34.5125, –118.9311); Unnamed Tributary (34.5537, –119.0088); Unnamed Tributary (34.5537, –119.0048); Unnamed Tributary (34.5757, –119.3051); Unnamed Tributary (34.5988, –119.2736); Unnamed Tributary (34.5691, –119.3428); West Fork Sespe Creek (34.5106, –119.0502).

(vi) *Santa Clara, Hopper Canyon, Piru Hydrologic Sub-area 440341.* Outlet(s) = Santa Clara River (Lat 34.3860, Long –118.8711) upstream to endpoint(s) in: Hopper Creek (34.4263, –118.8309); Piru Creek (34.4613, –118.7537); Santa Clara River (34.3996, –118.7837).

(6) Santa Monica Bay Hydrologic Unit 4404—(i) *Topanga Hydrologic Sub-area 440411.* Outlet(s) = Topanga Creek (Lat 34.0397, Long –118.5831) upstream to endpoint(s) in: Topanga Creek (34.0838, –118.5980).

(ii) *Malibu Hydrologic Sub-area 440421.* Outlet(s) = Malibu Creek (Lat 34.0322, Long –118.6796) upstream to endpoint(s) in: Malibu Creek (34.0648, –118.6987).

(iii) *Arroyo Sequit Hydrologic Sub-area 440444.* Outlet(s) = Arroyo Sequit (Lat 34.0445, Long –118.9338) upstream to endpoint(s) in: Arroyo Sequit (34.0839, –118.9186); West Fork Arroyo Sequit (34.0909, –118.9235).

(7) Calleguas Hydrologic Unit 4408—(i) *Calleguas Estuary Hydrologic Sub-area 440813.* Outlet(s) = Mugu Lagoon (Calleguas Creek) (Lat 34.1093, Long –119.0917) upstream to endpoint(s) in: Mugu Lagoon (Calleguas Creek) (Lat 34.1125, Long –119.0816).

(ii) [Reserved]

(8) San Juan Hydrologic Unit 4901—(i) *Middle Trabuco Hydrologic Sub-area 490123.* Outlet(s) = Trabuco Creek (Lat 33.5165, Long –117.6727) upstream to endpoint(s) in: Trabuco Creek (33.5264, –117.6700).

(ii) *Lower San Juan Hydrologic Sub-area 490127.* Outlet(s) = San Juan Creek (Lat 33.4621, Long –117.6842) upstream to endpoint(s) in: San Juan Creek (33.4929, –117.6610); Trabuco Creek (33.5165, –117.6727).

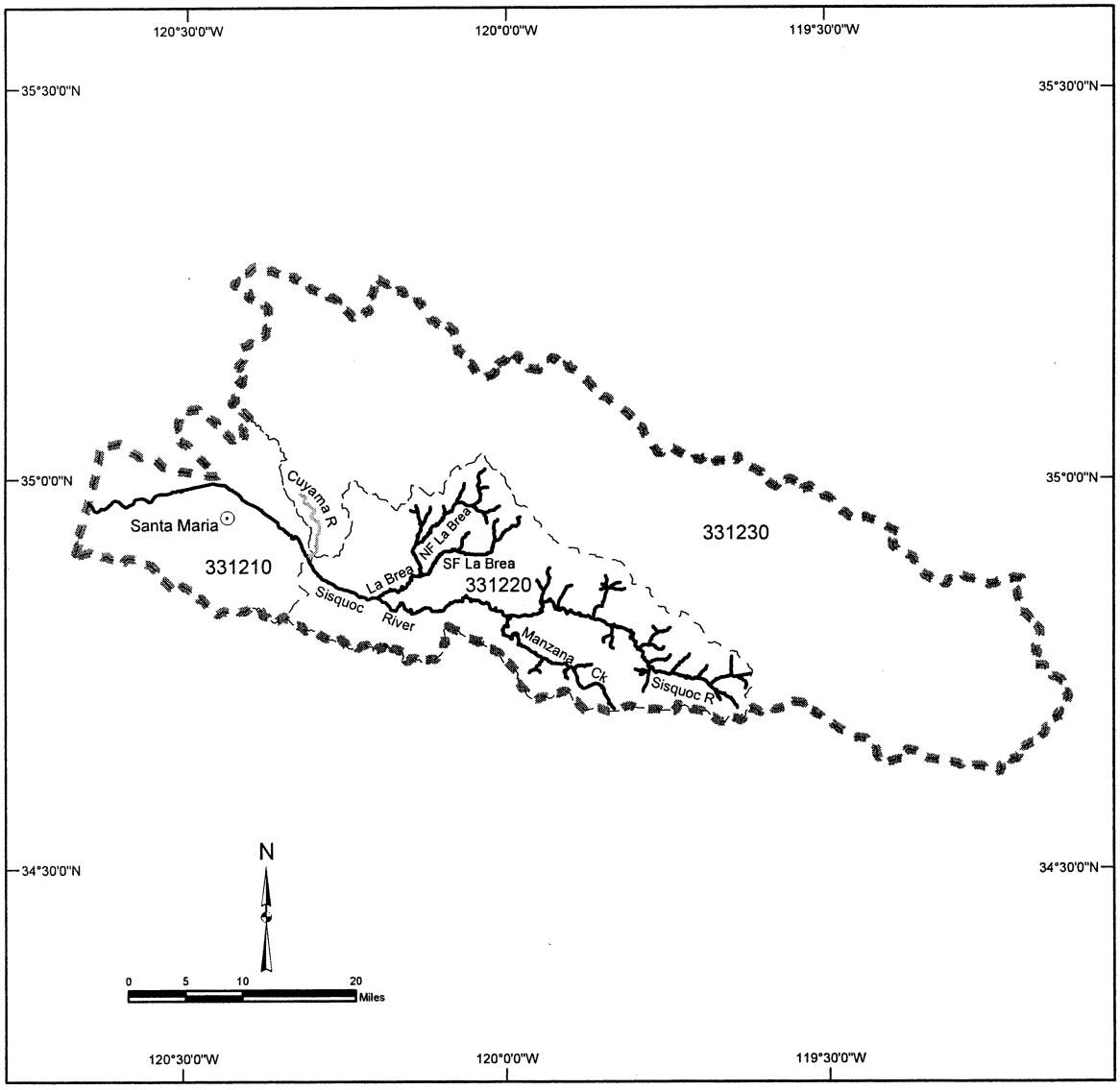
(iii) *San Mateo Hydrologic Sub-area 490140.* Outlet(s) = San Mateo Creek (Lat 33.3851, Long –117.5933) upstream to endpoint(s) in: San Mateo Creek (33.4779, –117.4386); San Mateo Canyon (33.4957, –117.4522).

(9) Maps of critical habitat for the Southern California Steelhead ESU follow:

BILLING CODE 3510–22P

Critical Habitat for the Southern California Steelhead

Santa Maria River Hydrologic Unit 3312



Cities/Towns

Critical Habitat

Occupied but excluded streams / areas

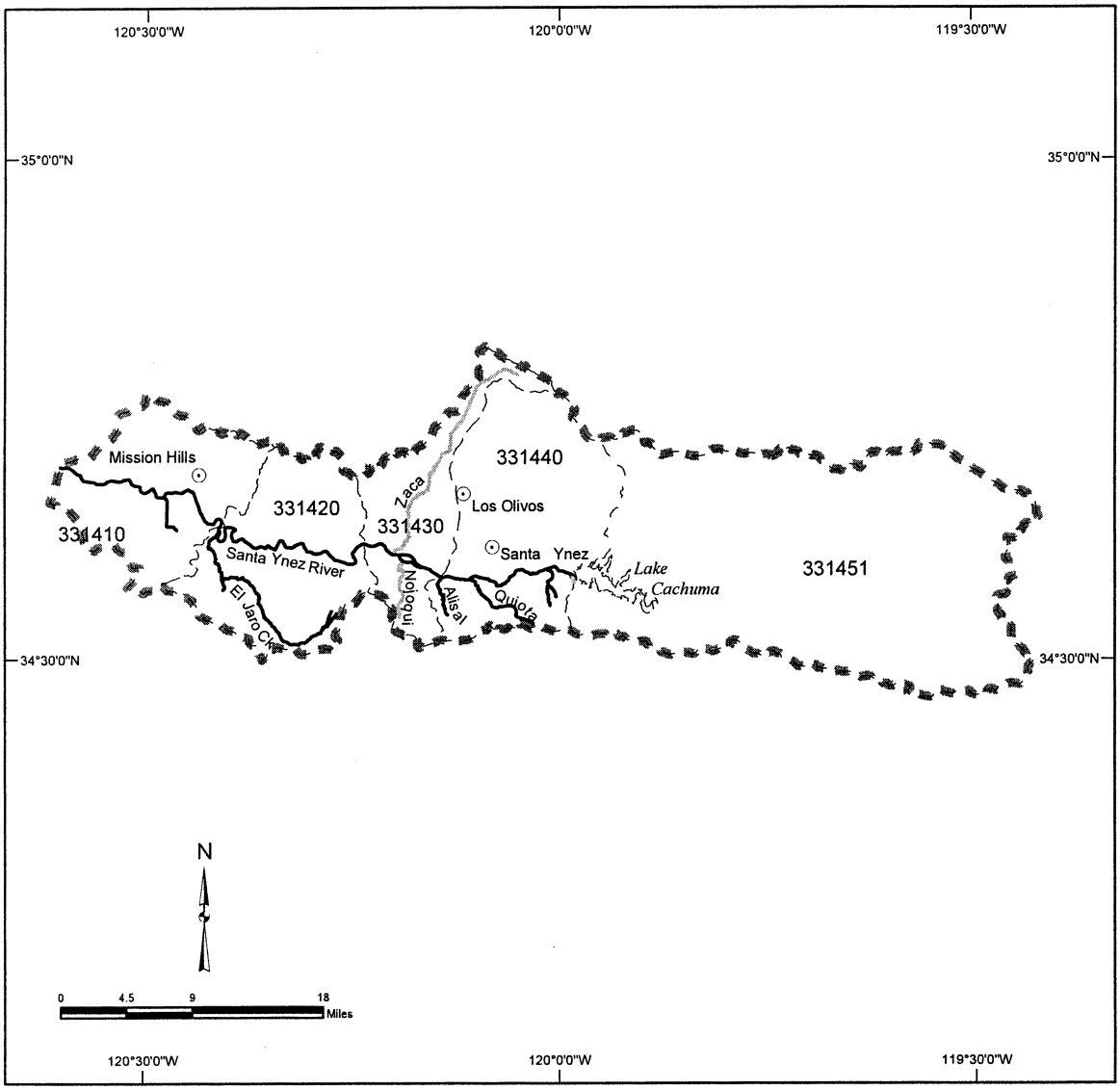
Calwater Hydrologic Unit Boundary

Fifth Field Calwater Hydrologic Sub-Area Boundary

331210 Fifth Field Calwater Hydrologic Sub-Area Number

Critical Habitat for the Southern California Steelhead

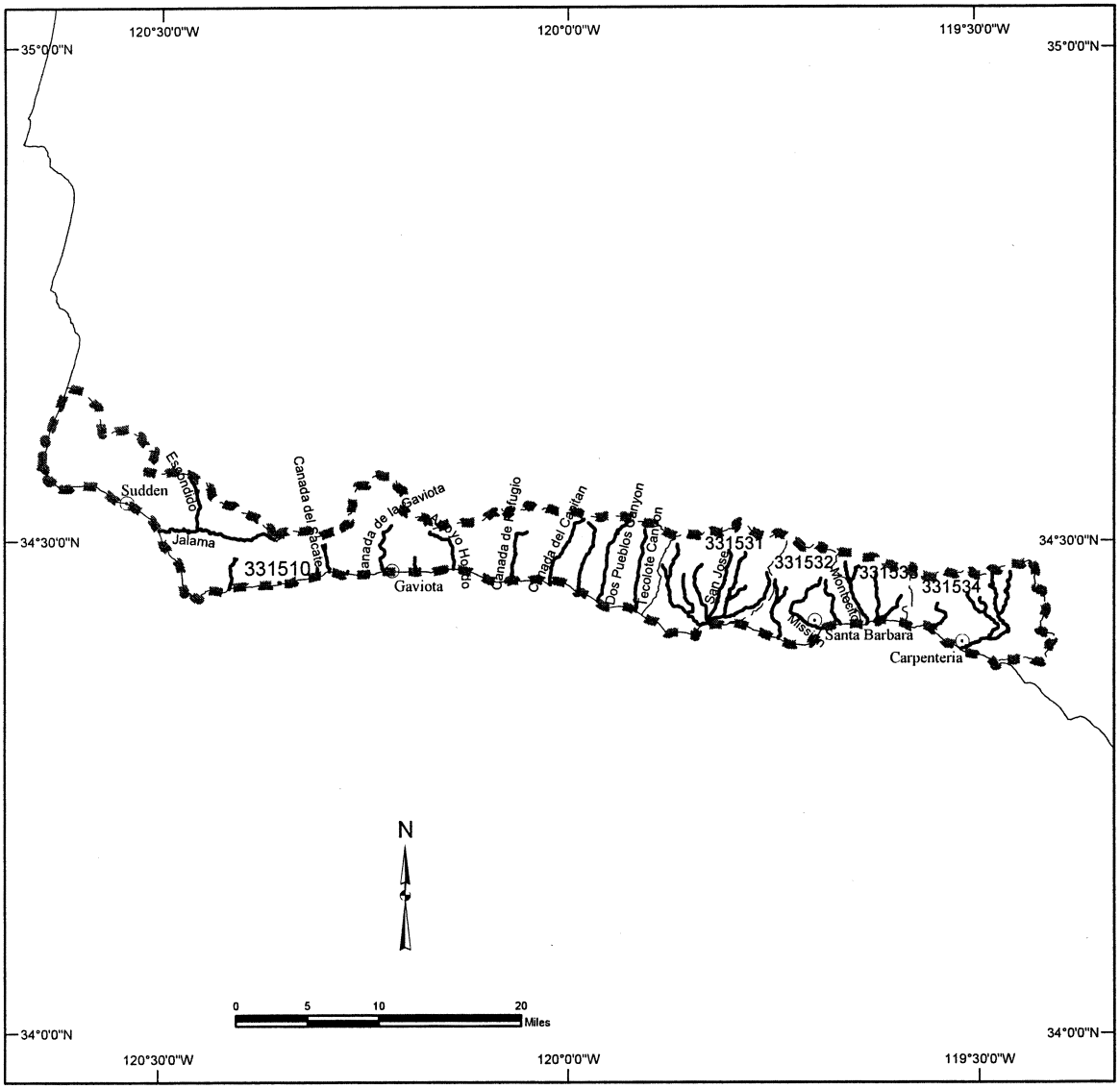
Santa Ynez Hydrologic Unit 3314



- Cities/Towns
- Critical Habitat
- Occupied but excluded streams / areas
- Calwater Hydrologic Unit Boundary
- Fifth Field Calwater Hydrologic Sub-Area Boundary
- 331210 Fifth Field Calwater Hydrologic Sub-Area Number

Critical Habitat for the Southern California Steelhead

South Coast Hydrologic Unit 3315



Cities/Towns

Critical Habitat

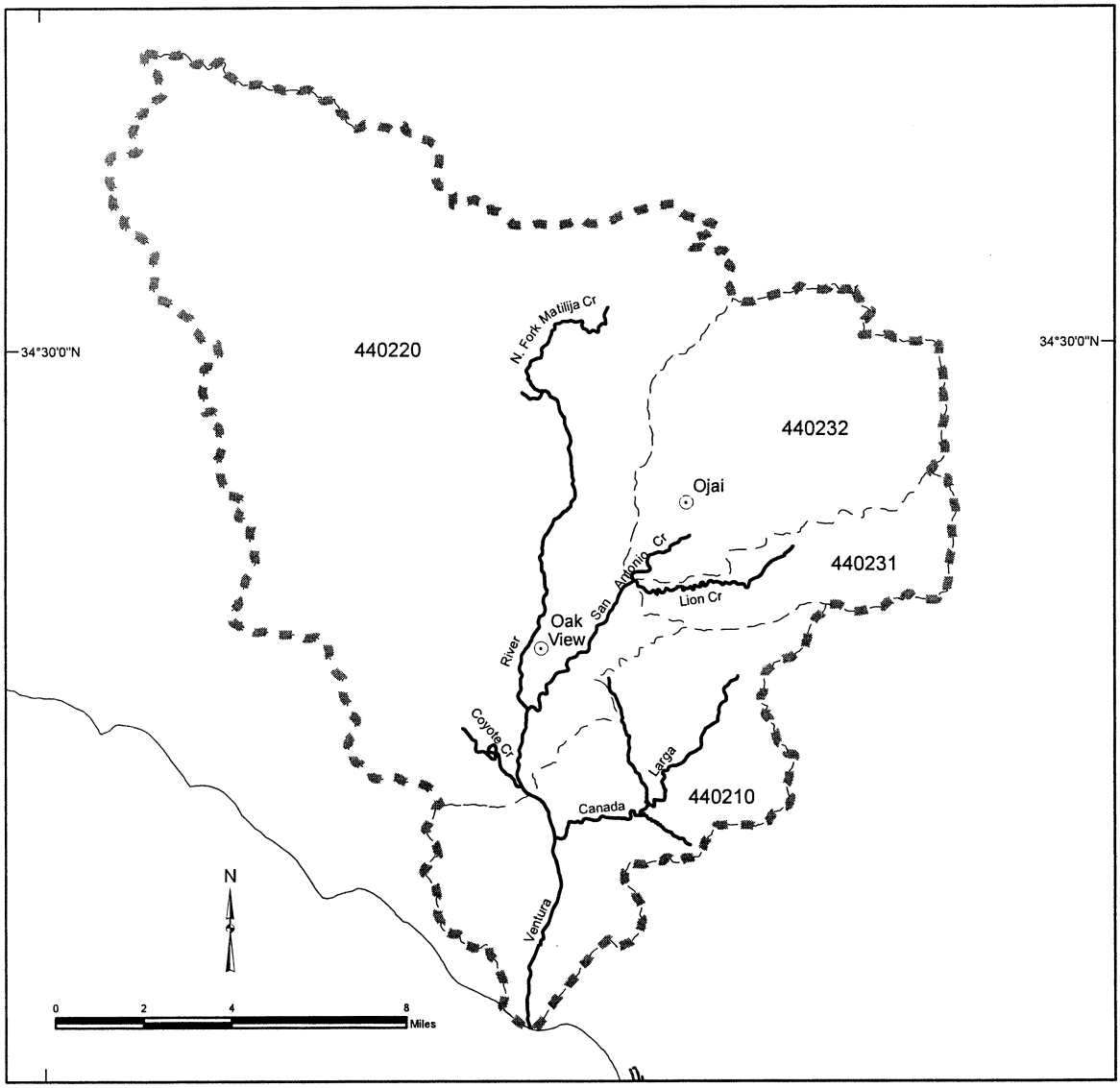
Calwater Hydrologic Unit Boundary

Fifth Field Calwater Hydrologic Sub-Area Boundary

331210 Fifth Field Calwater Hydrologic Sub-Area Number

Critical Habitat for the Southern California Steelhead

Ventura River Hydrologic Unit 4402



⊙ Cities/Towns

Critical Habitat

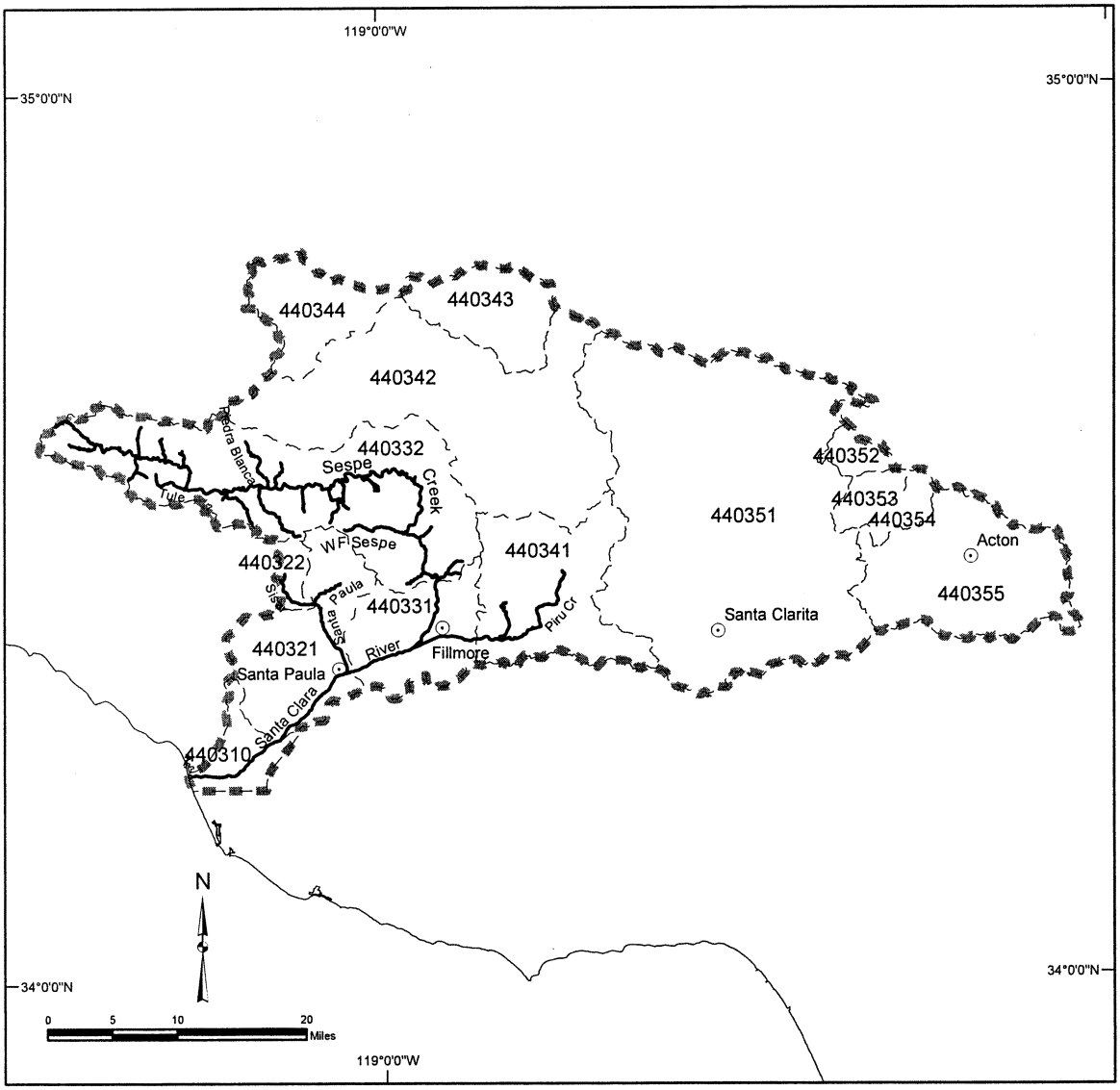
Calwater Hydrologic Unit Boundary

Fifth Field Calwater Hydrologic Sub-Area Boundary

331210 Fifth Field Calwater Hydrologic Sub-Area Number

Critical Habitat for the Southern California Steelhead

Santa Clara-Calleguas Hydrologic Unit 4403



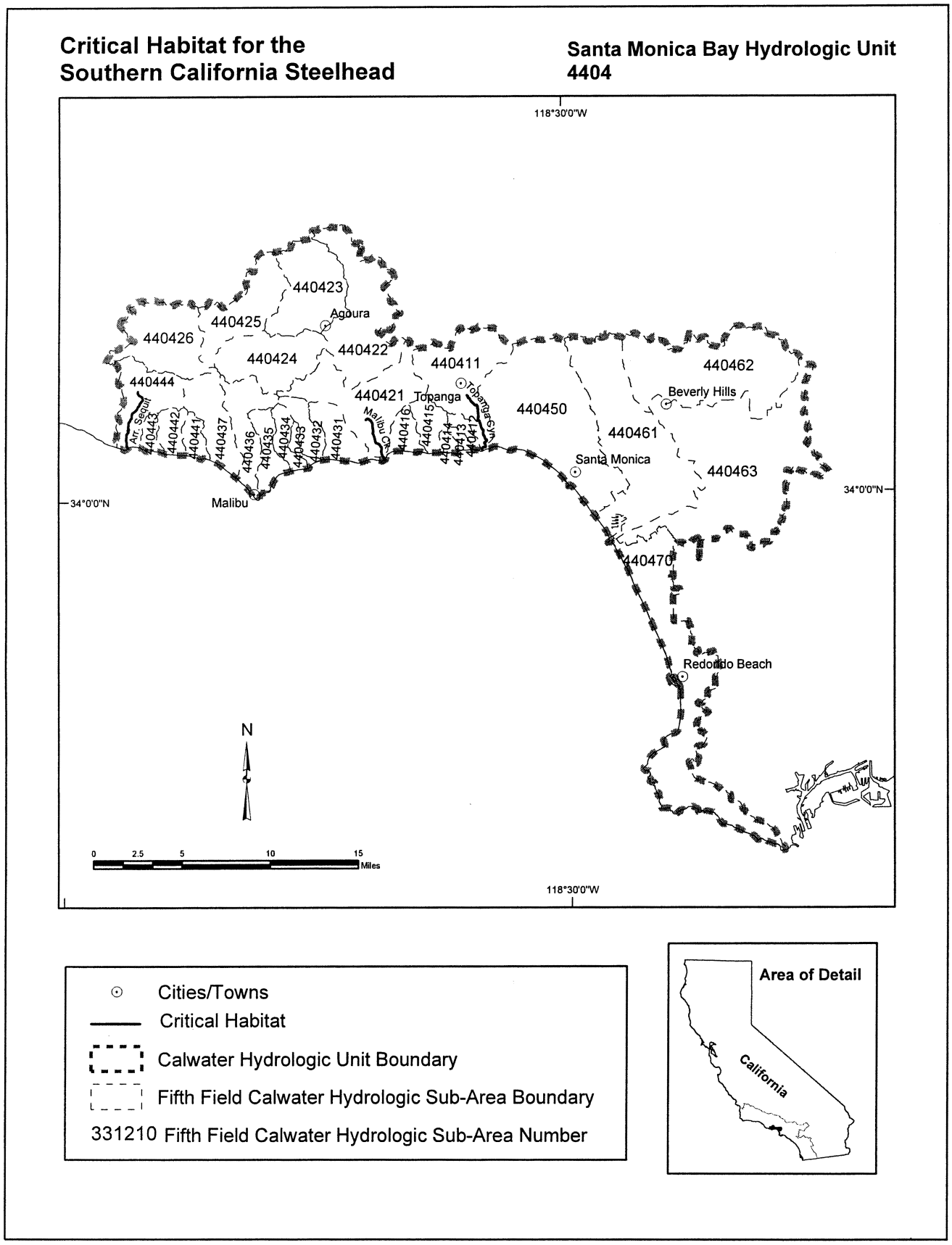
Cities/Towns

Critical Habitat

Calwater Hydrologic Unit Boundary

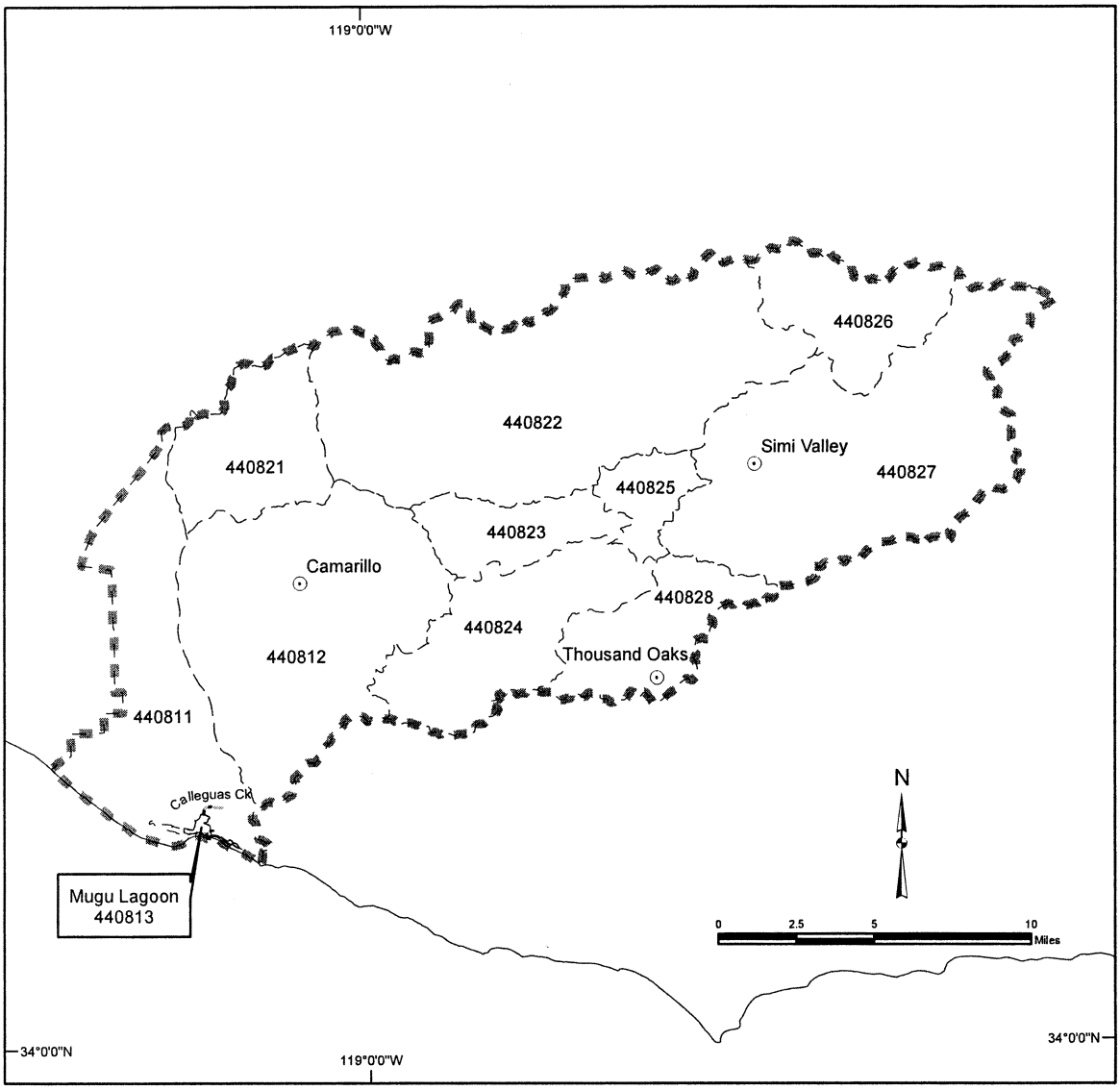
Fifth Field Calwater Hydrologic Sub-Area Boundary

331210 Fifth Field Calwater Hydrologic Sub-Area Number


Critical Habitat for the Southern California Steelhead
Santa Monica Bay Hydrologic Unit 4404
118°30'0"W
34°0'0"N
440423
Agoura
440425
440426
440424
440422
440411
440462
440444
440421
Topanga
440450
Beverly Hills
440461
Santa Monica
440463
Malibu
440470
Redondo Beach
N
0 2.5 5 10 15
Miles
Cities/Towns
Critical Habitat
Calwater Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
331210 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California

Critical Habitat for the Southern California Steelhead

Calleguas Hydrologic Unit 4408



Cities/Towns

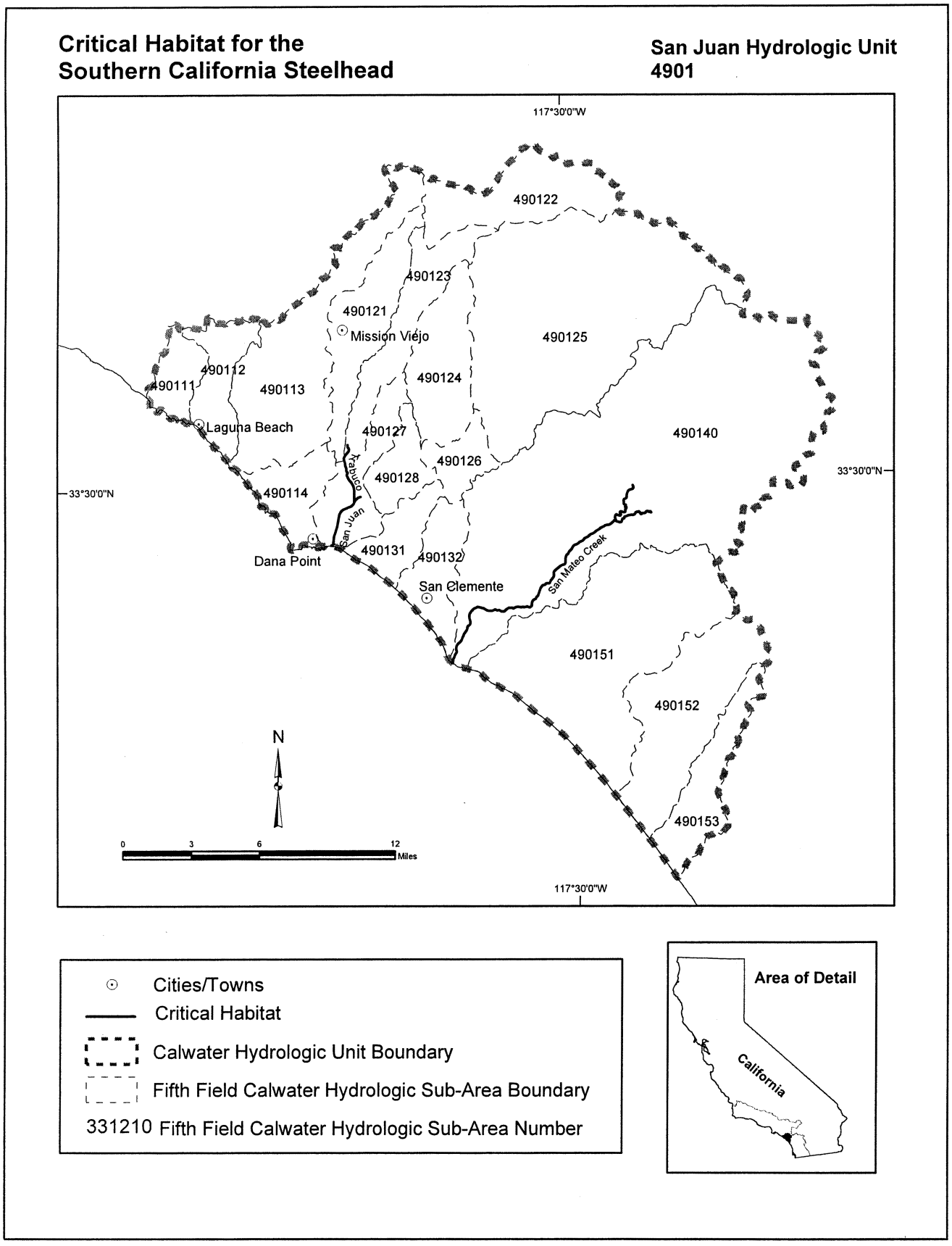
Critical Habitat

Occupied but excluded streams / areas

Calwater Hydrologic Unit Boundary

Fifth Field Calwater Hydrologic Sub-Area Boundary

331210 Fifth Field Calwater Hydrologic Sub-Area Number



BILLING CODE 3510–22–C

(k) *Central Valley Spring Run Chinook Salmon (O. tshawytscha).* Critical habitat is designated to include the areas defined in the following CALWATER Hydrologic Units:

(1) Tehama Hydrologic Unit 5504—(i) *Lower Stony Creek Hydrologic Sub-area 550410.* Outlet(s) = Glenn-Colusa Canal (Lat 39.6762, Long –122.0151); Stony Creek (39.7122, –122.0072) upstream to endpoint(s) in: Glenn-Colusa Canal (39.7122, –122.0072); Stony Creek (39.8178, –122.3253).

(ii) *Red Bluff Hydrologic Sub-area 550420.* Outlet(s) = Sacramento River (Lat 39.6998, Long –121.9419) upstream to endpoint(s) in: Antelope Creek (40.2023, –122.1275); Big Chico Creek (39.7757, –121.7525); Blue Tent Creek (40.2284, –122.2551); Burch Creek (39.8526, –122.1502); Butler Slough (40.1579, –122.1320); Coyote Creek (40.0929, –122.1621); Craig Creek (40.1617, –122.1350); Deer Creek (40.0144, –121.9481); Dibble Creek (40.2003, –122.2420); Dye Creek (40.0904, –122.0767); Elder Creek (40.0526, –122.1717); Jewet Creek (39.8913, –122.1005); Kusal Slough (39.7577, –121.9699); Lindo Channel (39.7623, –121.7923); McClure Creek (40.0074, –122.1729); Mill Creek (40.0550, –122.0317); Mud Creek (39.7931, –121.8865); New Creek (40.1873, –122.1350); Oat Creek (40.0847, –122.1658); Pine Creek (39.8760, –121.9777); Red Bank Creek (40.1391, –122.2157); Reeds Creek (40.1687, –122.2377); Rice Creek (39.8495, –122.1626); Rock Creek (39.8189, –121.9124); Salt Creek (40.1869, –122.1845); Singer Creek (39.9200, –121.9612); Thomes Creek (39.8822, –122.5527); Toomes Creek (39.9808, –122.0642); Unnamed Tributary (39.8532, –122.1627); Unnamed Tributary (40.1682, –122.1459); Unnamed Tributary (40.1867, –122.1353).

(2) Whitmore Hydrologic Unit 5507—(i) *Inks Creek Hydrologic Sub-area 550711.* Outlet(s) = Inks Creek (Lat 40.3305, Long –122.1520) upstream to endpoint(s) in: Inks Creek 40.3418, –122.1332).

(ii) *Battle Creek Hydrologic Sub-area 550712* Outlet(s) = Battle Creek (Lat 40.4083, Long –122.1102) upstream to endpoint(s) in: Battle Creek (40.4228, –121.9975); North Fork Battle Creek (40.4746, –121.8436); South Fork Battle Creek (40.3549, –121.6861).

(iii) *Inwood Hydrologic Sub-area 550722.* Outlet(s) = Bear Creek (Lat 40.4352, Long –122.2039) upstream to endpoint(s) in: Bear Creek (40.4859, –122.1529); Dry Creek (40.4574, –122.1993).

(3) Redding Hydrologic Unit 5508—(i) *Enterprise Flat Hydrologic Sub-area 550810.* Outlet(s)= Sacramento River (Lat 40.2526, Long –122.1707) upstream to endpoint(s) in: Anderson Creek (40.3910, –122.1984); Ash Creek (40.4451, –122.1815); Battle Creek (40.4083, –122.1102); Churn Creek (40.5431, –122.3395); Clear Creek (40.5158, –122.5256); Cow Creek (40.5438, –122.1318); Olney Creek (40.5262, –122.3783); Paynes Creek (40.2810, –122.1587); Stillwater Creek (40.4789, –122.2597).

(ii) *Lower Cottonwood Hydrologic Sub-area 550820.* Outlet(s) = Cottonwood Creek (Lat 40.3777, Long –122.1991) upstream to endpoint(s) in: Cottonwood Creek (40.3943, –122.5254); Middle Fork Cottonwood Creek (40.3314, –122.6663); South Fork Cottonwood Creek (40.1578, –122.5809).

(4) Eastern Tehama Hydrologic Unit 5509—(i) *Big Chico Creek Hydrologic Sub-area 550914.* Outlet(s) = Big Chico Creek (Lat 39.7757, Long –121.7525) upstream to endpoint(s) in: Big Chico Creek (39.8873, –121.6979).

(ii) *Deer Creek Hydrologic Sub-area 550920.* Outlet(s) = Deer Creek (Lat 40.0144, Long –121.9481) upstream to endpoint(s) in: Deer Creek (40.2019, –121.5130).

(iii) *Upper Mill Creek Hydrologic Sub-area 550942.* Outlet(s) = Mill Creek (Lat 40.0550, Long –122.0317) upstream to endpoint(s) in: Mill Creek (40.3997, –121.5131).

(iv) *Antelope Creek Hydrologic Sub-area 550963.* Outlet(s) = Antelope Creek (Lat 40.2023, Long –122.1272) upstream to endpoint(s) in: Antelope Creek (40.2416, –121.8630); North Fork Antelope Creek (40.2691, –121.8226); South Fork Antelope Creek (40.2309, –121.8325).

(5) Sacramento Delta Hydrologic Unit 5510—(i) *Sacramento Delta Hydrologic Sub-area 551000.* Outlet(s) = Sacramento River (Lat 38.0612, Long –121.7948) upstream to endpoint(s) in: Cache Slough (38.3086, –121.7633); Delta Cross Channel (38.2433, –121.4964); Elk Slough (38.4140, –121.5212); Elkhorn Slough (38.2898, –121.6271); Georgiana Slough (38.2401, –121.5172); Miners Slough (38.2864, –121.6051); Prospect Slough (38.1477, –121.6641); Sevenmile Slough (38.1171, –121.6298); Steamboat Slough (38.3052, –121.5737); Sutter Slough (38.3321, –121.5838); Threemile Slough (38.1155, –121.6835); Yolo Bypass (38.5800, –121.5838).

(ii) [Reserved]

(6) Valley-Putah-Cache Hydrologic Unit 5511—(i) *Lower Putah Creek Hydrologic Sub-area 551120.* Outlet(s) = Yolo Bypass (Lat 38.5800, Long –121.5838) upstream to endpoint(s) in: Sacramento Bypass (38.6057, –121.5563); Yolo Bypass (38.7627, –121.6325).

(ii) [Reserved]

(7) Marysville Hydrologic Unit 5515—(i) *Lower Yuba River Hydrologic Sub-area 551510.* Outlet(s) = Bear River (Lat 38.9398, Long –121.5790) upstream to endpoint(s) in: Bear River (38.9783, –121.5166).

(ii) *Lower Yuba River Hydrologic Sub-area 551530.* Outlet(s) = Yuba River (Lat 39.1270, Long –121.5981) upstream to endpoint(s) in: Yuba River (39.2203, –121.3314).

(iii) *Lower Feather River Hydrologic Sub-area 551540.* Outlet(s) = Feather River (Lat 39.1270, Long –121.5981) upstream to endpoint(s) in: Feather River (39.5203, –121.5475).

(8) Yuba River Hydrologic Unit 5517—(i) *Browns Valley Hydrologic Sub-Area 551712.* Outlet(s) = Dry Creek (Lat 39.2207, Long –121.4088); Yuba River (39.2203, –121.3314) upstream to endpoint(s) in: Dry Creek (39.3201, –121.3117); Yuba River (39.2305, –121.2813).

(ii) *Englebright Hydrologic Sub-area 551714.* Outlet(s) = Yuba River (Lat 39.2305, Long –121.2813) upstream to endpoint(s) in: Yuba River (39.2388, –121.2698).

(9) Valley-American Hydrologic Unit 5519—(i) *Lower American Hydrologic Sub-area 551921.* Outlet(s) = American River (Lat 38.5971, Long –121.5088) upstream to endpoint(s) in: American River (38.5669, –121.3827).

(ii) *Pleasant Grove Hydrologic Sub-area 551922.* Outlet(s) = Sacramento River (Lat 38.5965, Long –121.5086) upstream to endpoint(s) in: Feather River (39.1270, –121.5981).

(10) Colusa Basin Hydrologic Unit 5520—(i) *Sycamore-Sutter Hydrologic Sub-area 552010.* Outlet(s) = Sacramento River (Lat 38.7604, Long –121.6767) upstream to endpoint(s) in: Tisdale Bypass (39.0261, –121.7456).

(ii) *Sutter Bypass Hydrologic Sub-area 552030.* Outlet(s) = Sacramento River (Lat 38.7849, Long –121.6219) upstream to endpoint(s) in: Butte Creek (39.1987, –121.9285); Butte Slough (39.1987, –121.9285); Nelson Slough (38.8901, –121.6352); Sacramento Slough (38.7843, –121.6544); Sutter Bypass (39.1417, –121.8196; 39.1484, –121.8386); Tisdale Bypass (39.0261, –121.7456); Unnamed Tributary (39.1586, –121.8747).

(iii) *Butte Basin Hydrologic Sub-area 552040.* Outlet(s) = Butte Creek (Lat 39.1990, Long –121.9286); Sacramento River (39.4141, –122.0087) upstream to endpoint(s) in: Butte creek (39.7095, –121.7506); Colusa Bypass (39.2276,

–121.9402); Unnamed Tributary (39.6762, –122.0151).

(11) Butte Creek Hydrologic Unit 5521—*Upper Little Chico Hydrologic Sub-area 552130.* Outlet(s) = Butte Creek (Lat 39.7096, –121.7504) upstream to endpoint(s) in Butte Creek (39.8665, –121.6344).

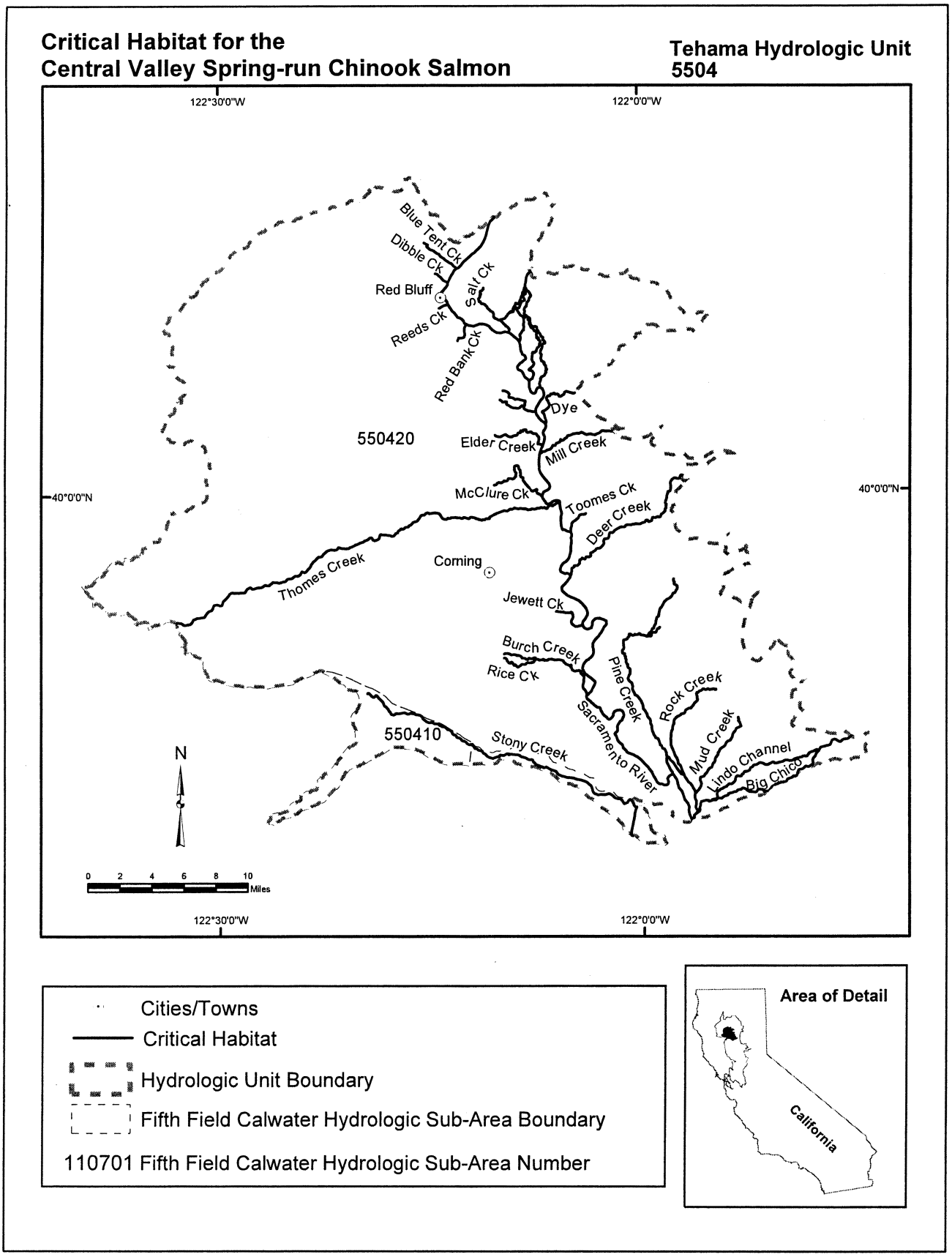
(12) Shasta Bally Hydrologic Unit 5524—(i) *Platina Hydrologic Sub-area 552436.* Outlet(s) = Middle Fork Cottonwood Creek (Lat 40.3314, –122.6663) upstream to endpoint(s) in Beegum Creek (40.3066, –122.9205); Middle Fork Cottonwood Creek (40.3655, –122.7451).

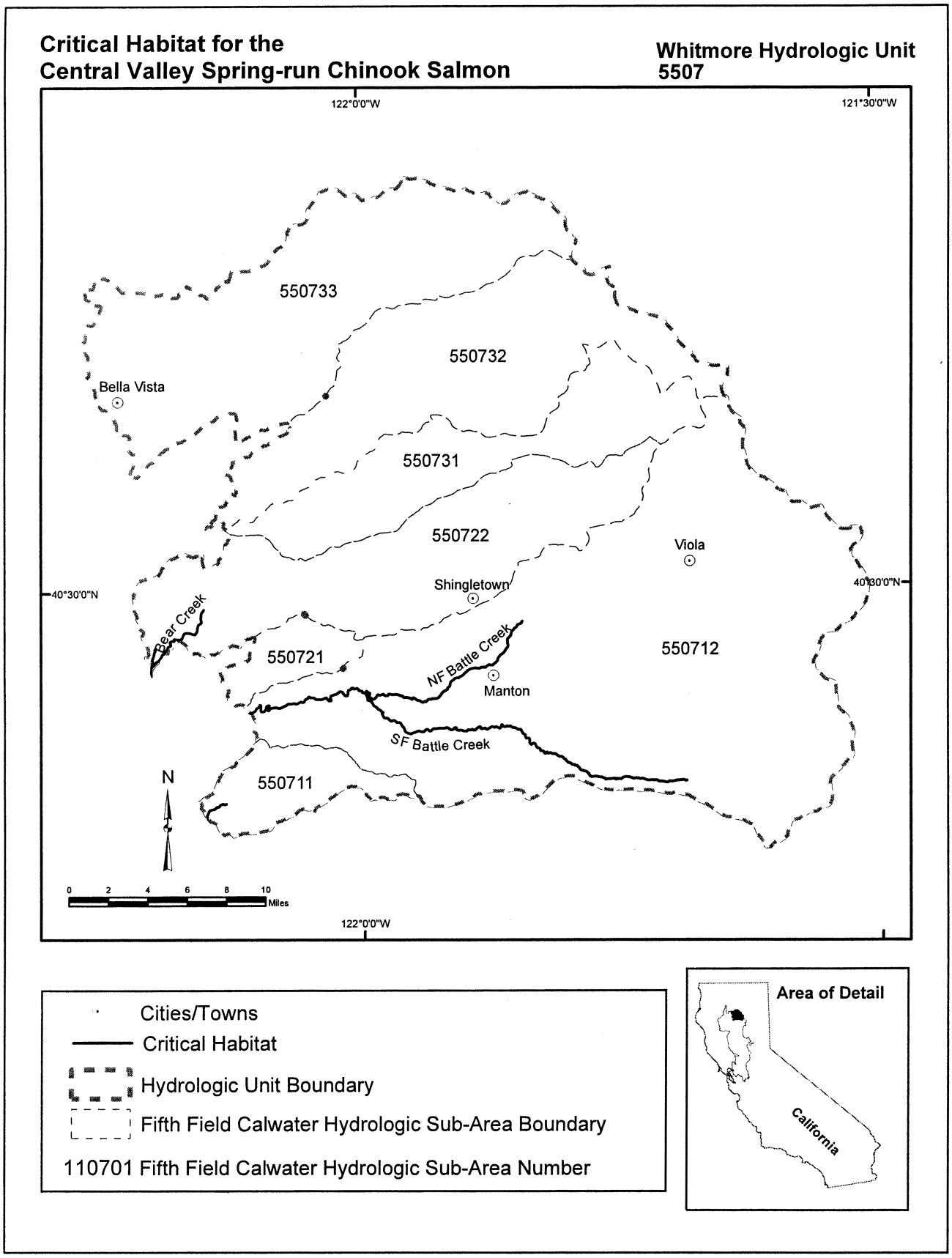
(ii) *Spring Creek Hydrologic Sub-area 552440.* Outlet(s) = Sacramento River (Lat 40.5943, Long –122.4343) upstream to endpoint(s) in: Sacramento River (40.6116, –122.4462)

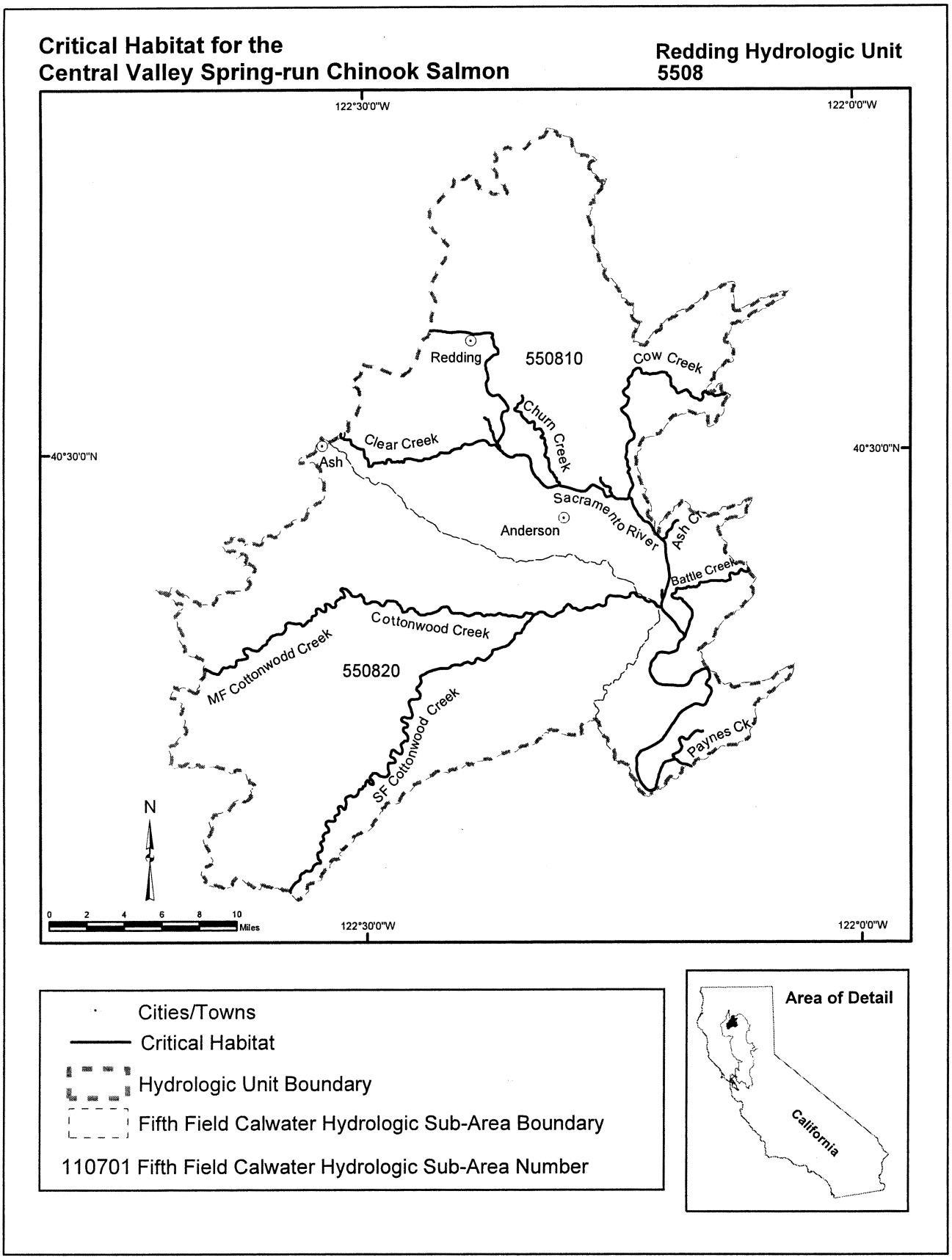
(iii) *Kanaka Peak Hydrologic Sub-area 552462.* Outlet(s) = Clear Creek (Lat 40.5158, Long –122.5256) upstream to endpoint(s) in: Clear Creek (40.5992, –122.5394).

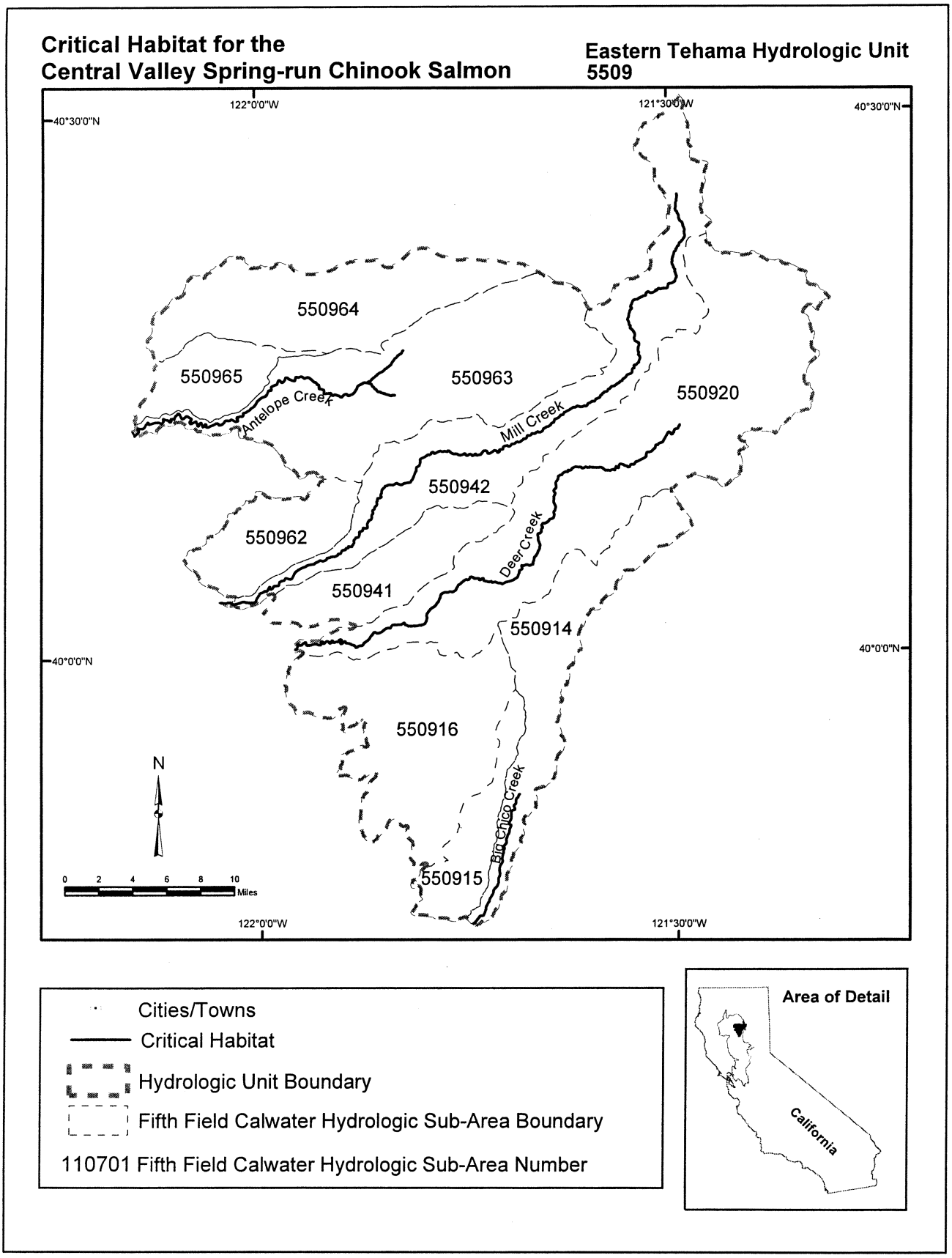
(13) Maps of critical habitat for the Central Valley Spring Run Chinook ESU follow:

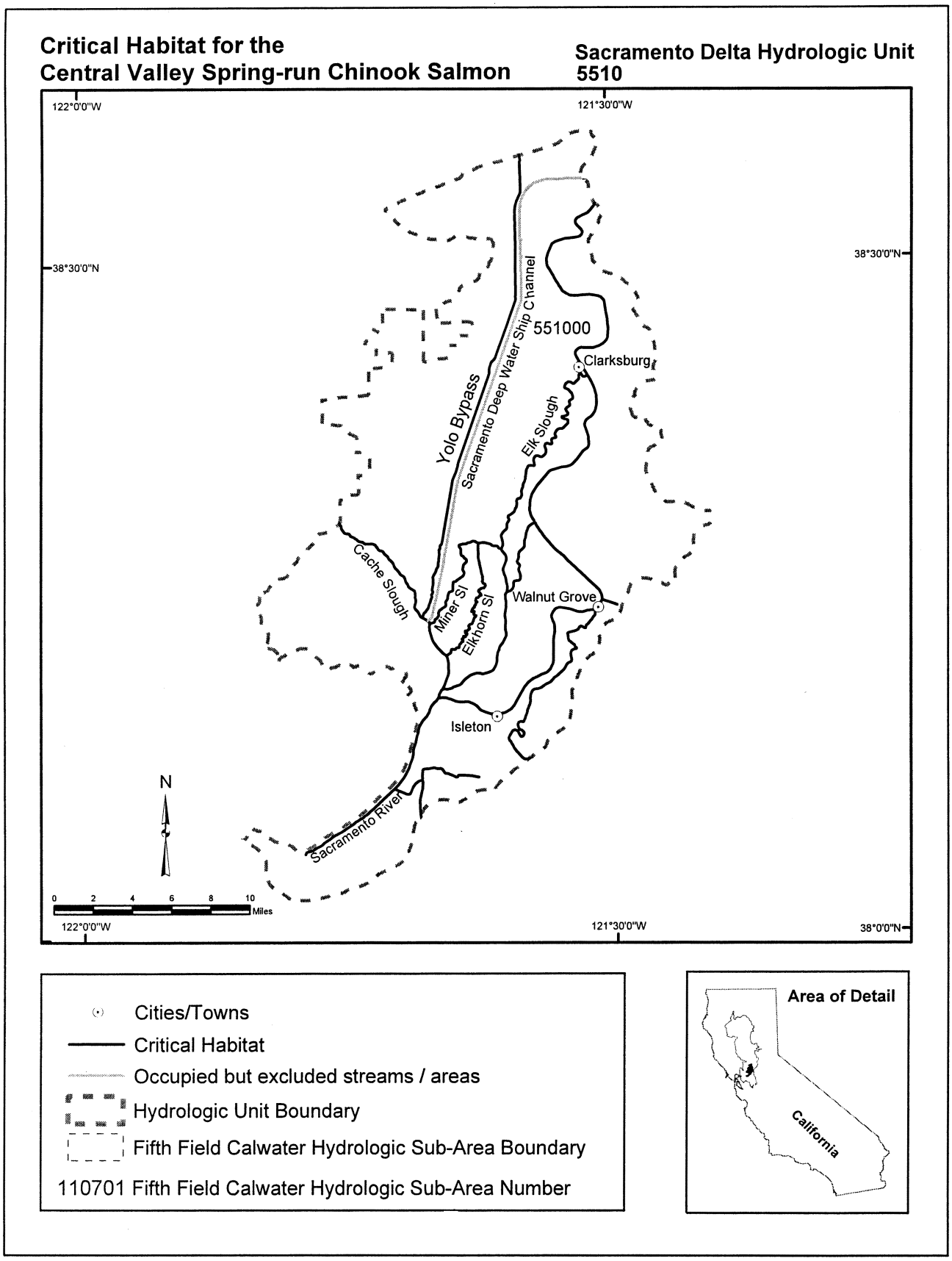
BILLING CODE 3510–22–P

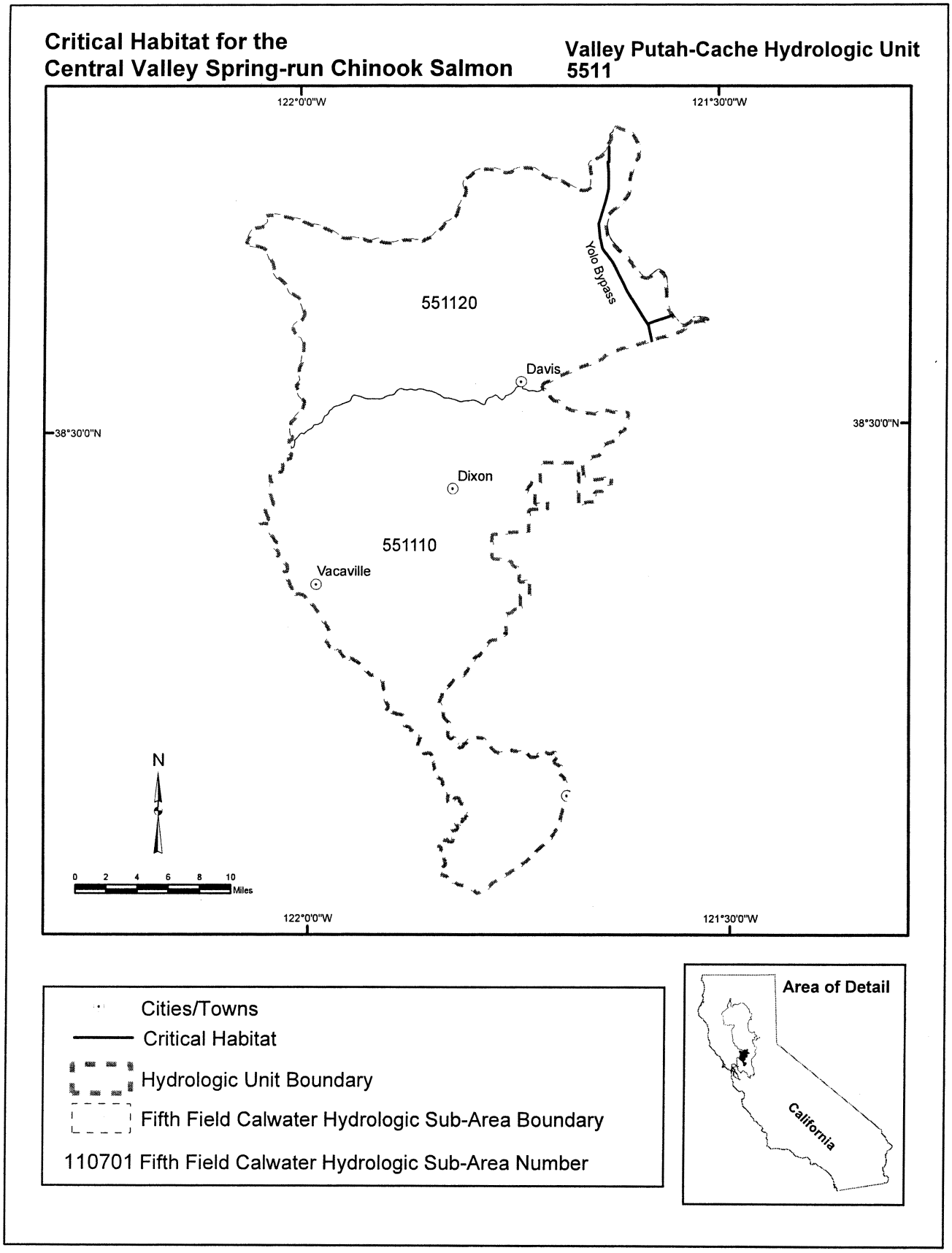

Critical Habitat for the
Central Valley Spring-run Chinook Salmon
Tehama Hydrologic Unit
5504
122°30'0"W
122°0'0"W
40°0'0"N
Blue Tent Ck
Dibble Ck
Salt Ck
Red Bluff
Reeds Ck
Red Bank Ck
Dye
550420
Elder Creek
Mill Creek
McClure Ck
Toomes Ck
Deer Creek
Thomes Creek
Corning
Jewett Ck
Burch Creek
Rice Ck
Pine Creek
Rock Creek
Sacramento River
Mud Creek
Lindo Channel
Big Chico
550410
Stony Creek
N
0 2 4 6 8 10
Miles
Cities/Towns
Critical Habitat
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California

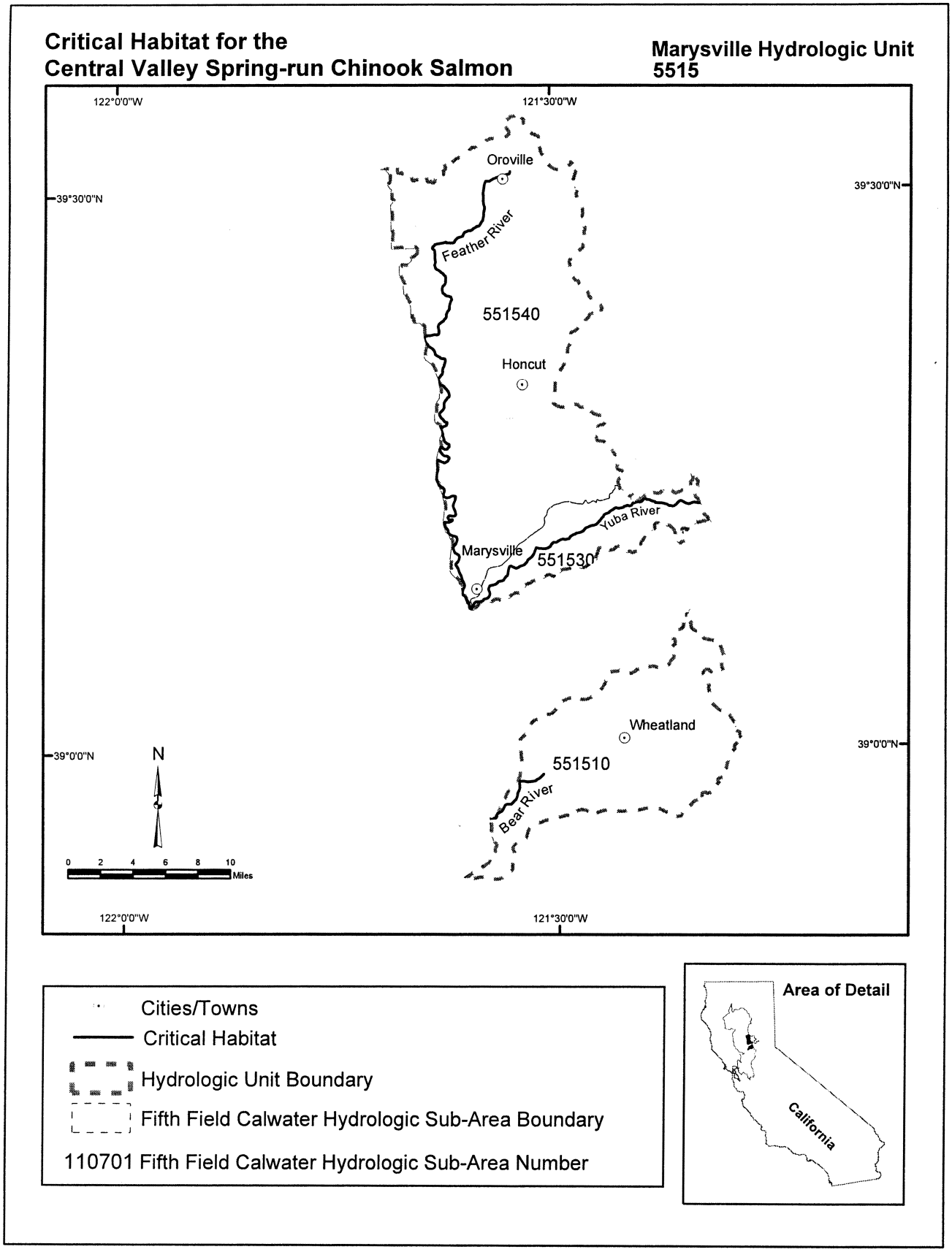

Critical Habitat for the
Central Valley Spring-run Chinook Salmon
Whitmore Hydrologic Unit
5507
122°0'0"W
121°30'0"W
40°30'0"N
550733
550732
550731
550722
550721
550712
550711
Bella Vista
Shingletown
Viola
Manton
Bear Creek
NF Battle Creek
SF Battle Creek
N
0 2 4 6 8 10
Miles
Cities/Towns
Critical Habitat
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California


Critical Habitat for the
Central Valley Spring-run Chinook Salmon
Redding Hydrologic Unit
5508
122°30'0"W
122°0'0"W
40°30'0"N
Redding
550810
Cow Creek
Churn Creek
Clear Creek
Ash
Sacramento River
Ash Cr
Anderson
Battle Creek
Cottonwood Creek
MF Cottonwodd Creek
550820
SF Cottonwood Creek
Paynes Ck
N
0 2 4 6 8 10
Miles
Cities/Towns
Critical Habitat
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California


Critical Habitat for the
Central Valley Spring-run Chinook Salmon
Eastern Tehama Hydrologic Unit
5509
122°0'0"W
121°30'0"W
40°30'0"N
40°0'0"N
550964
550965
550963
550920
550942
550962
550941
550914
550916
550915
Antelope Creek
Mill Creek
Deer Creek
Big Chico Creek
N
0 2 4 6 8 10
Miles
Cities/Towns
Critical Habitat
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California

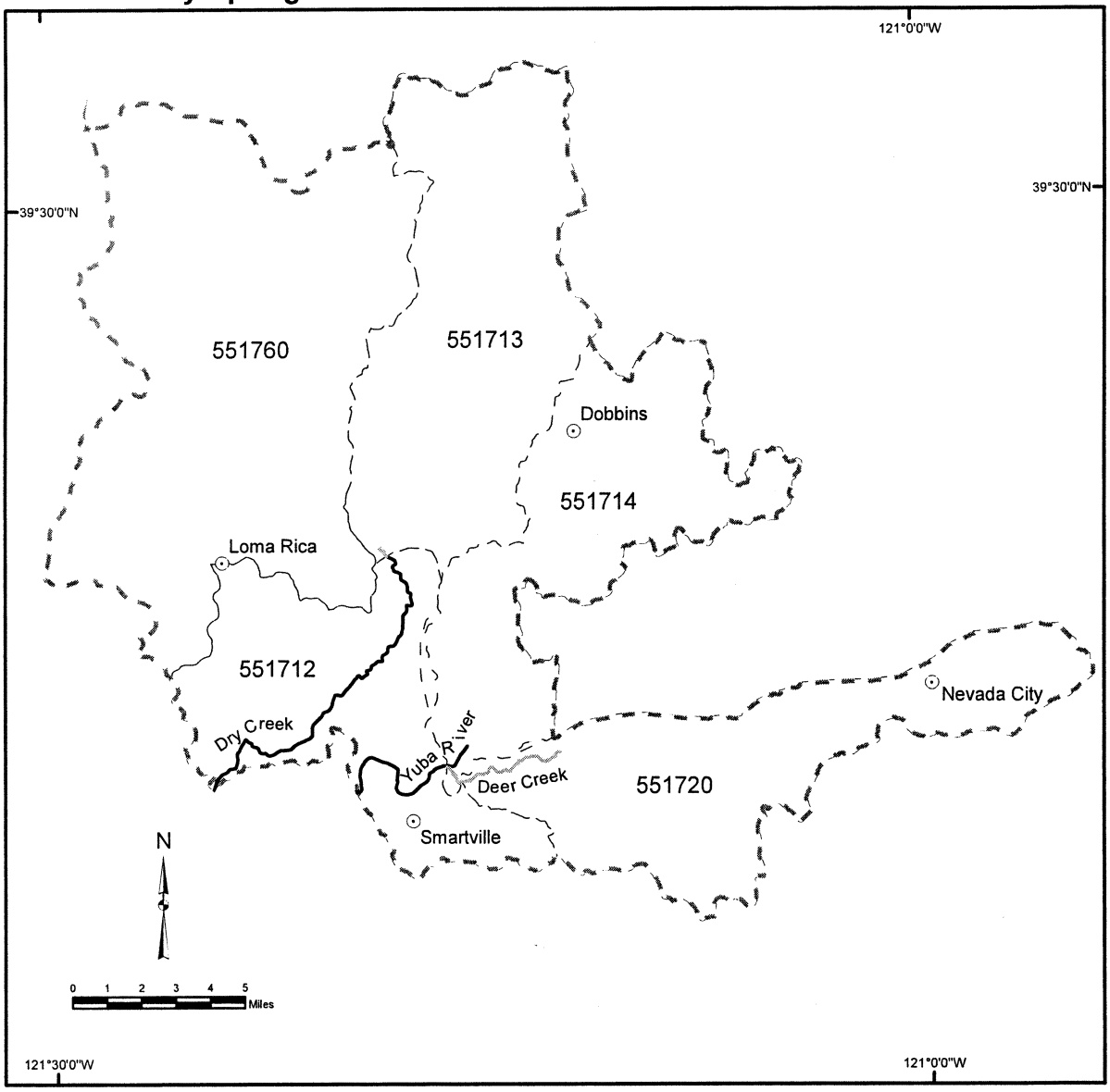

Critical Habitat for the
Central Valley Spring-run Chinook Salmon
Sacramento Delta Hydrologic Unit
5510
122°0'0"W
121°30'0"W
38°30'0"N
38°0'0"N
551000
Clarksburg
Yolo Bypass
Sacramento Deep Water Ship Channel
Elk Slough
Cache Slough
Miner Sl
Elkhorn Sl
Walnut Grove
Isleton
Sacramento River
N
0 2 4 6 8 10
Miles
Cities/Towns
Critical Habitat
Occupied but excluded streams / areas
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California


Critical Habitat for the
Central Valley Spring-run Chinook Salmon
Valley Putah-Cache Hydrologic Unit
5511
122°0'0"W
121°30'0"W
38°30'0"N
Yolo Bypass
551120
Davis
Dixon
551110
Vacaville
N
0 2 4 6 8 10
Miles
Cities/Towns
Critical Habitat
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California


Critical Habitat for the
Central Valley Spring-run Chinook Salmon
Marysville Hydrologic Unit
5515
122°0'0"W
121°30'0"W
39°30'0"N
39°0'0"N
Oroville
Feather River
551540
Honcut
Yuba River
Marysville
551530
Wheatland
551510
Bear River
N
0 2 4 6 8 10
Miles
Cities/Towns
Critical Habitat
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California

Critical Habitat for the Central Valley Spring-run Chinook Salmon

Yuba River Hydrologic Unit 5517



Cities/Towns

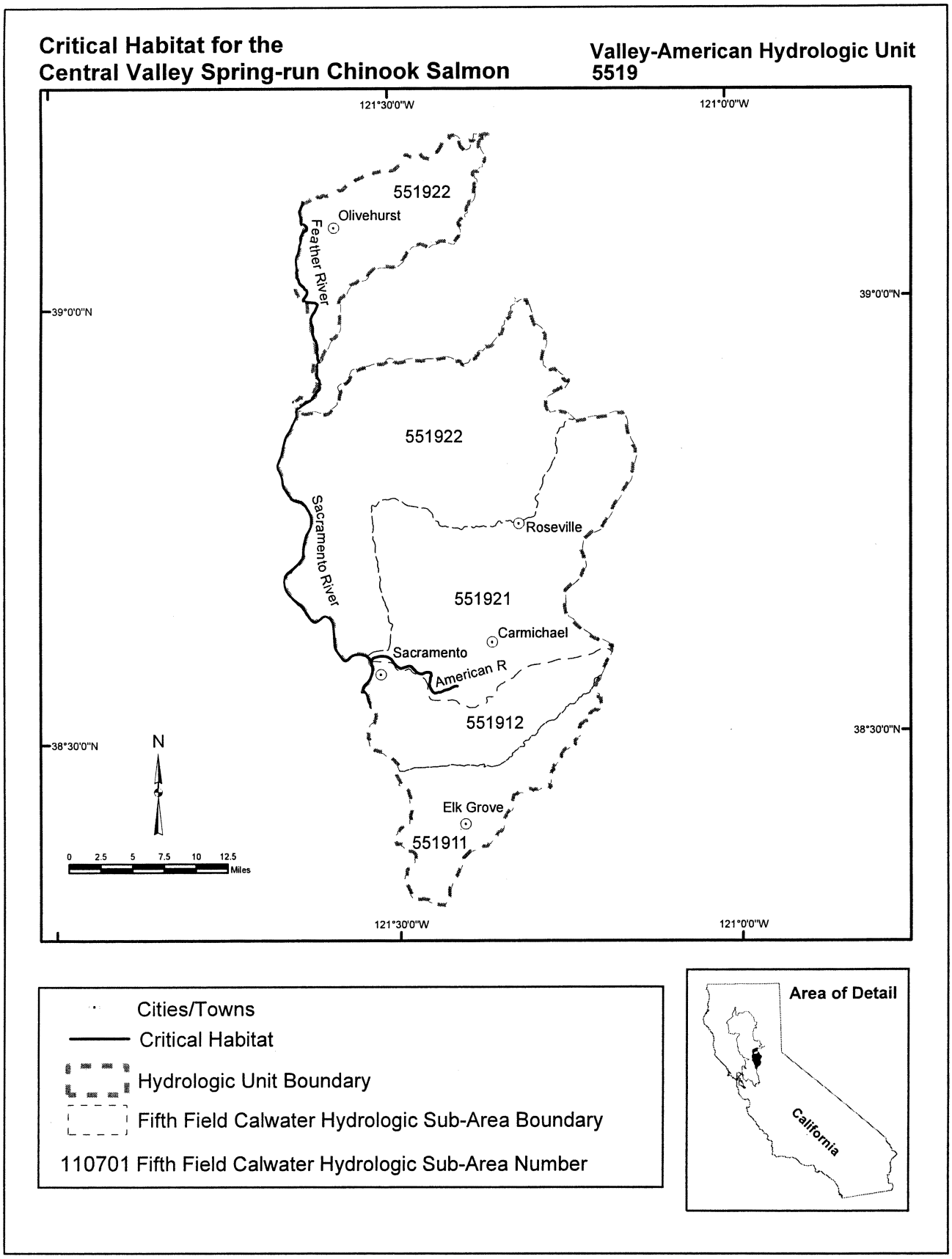
Critical Habitat

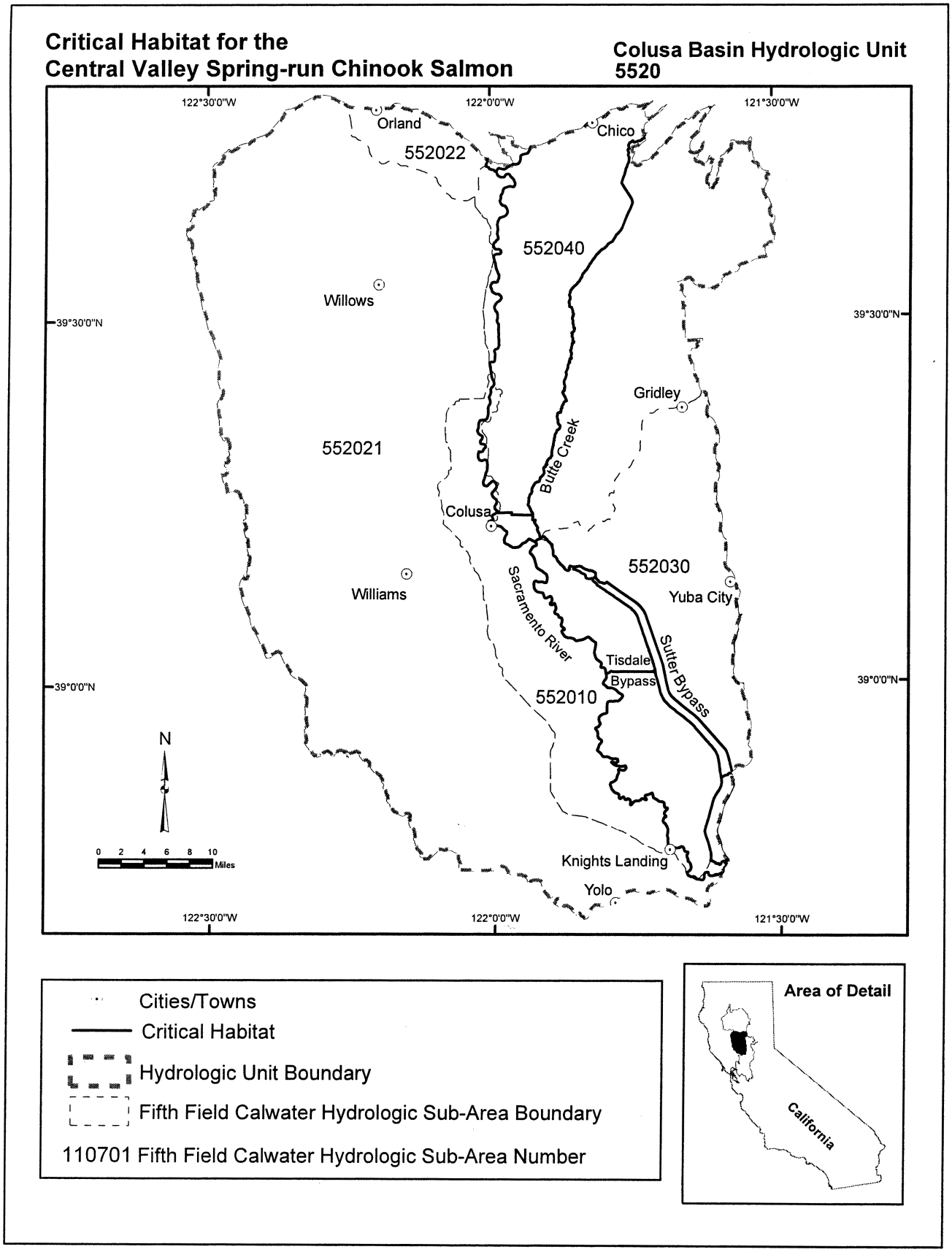
Occupied but excluded streams / areas

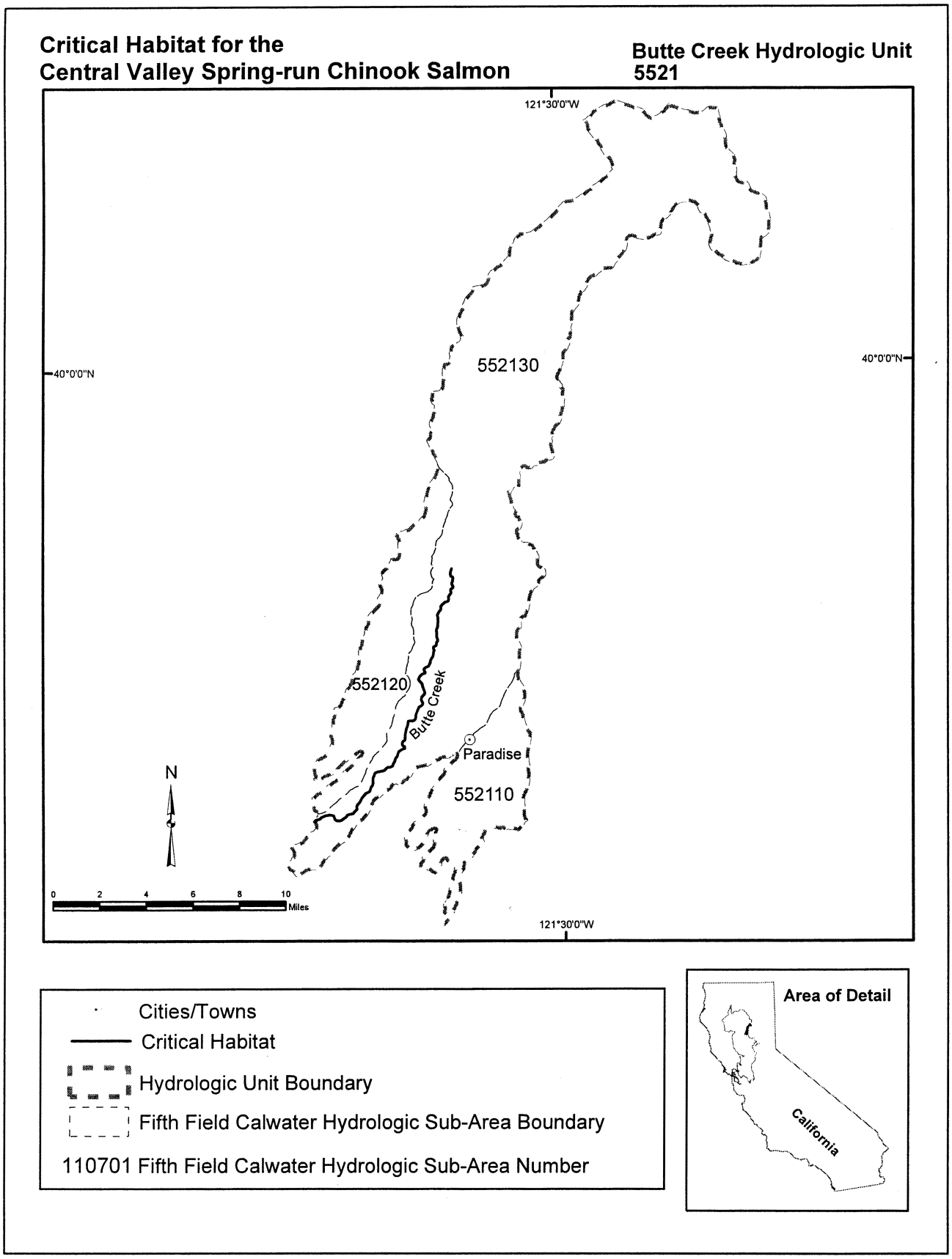
Hydrologic Unit Boundary

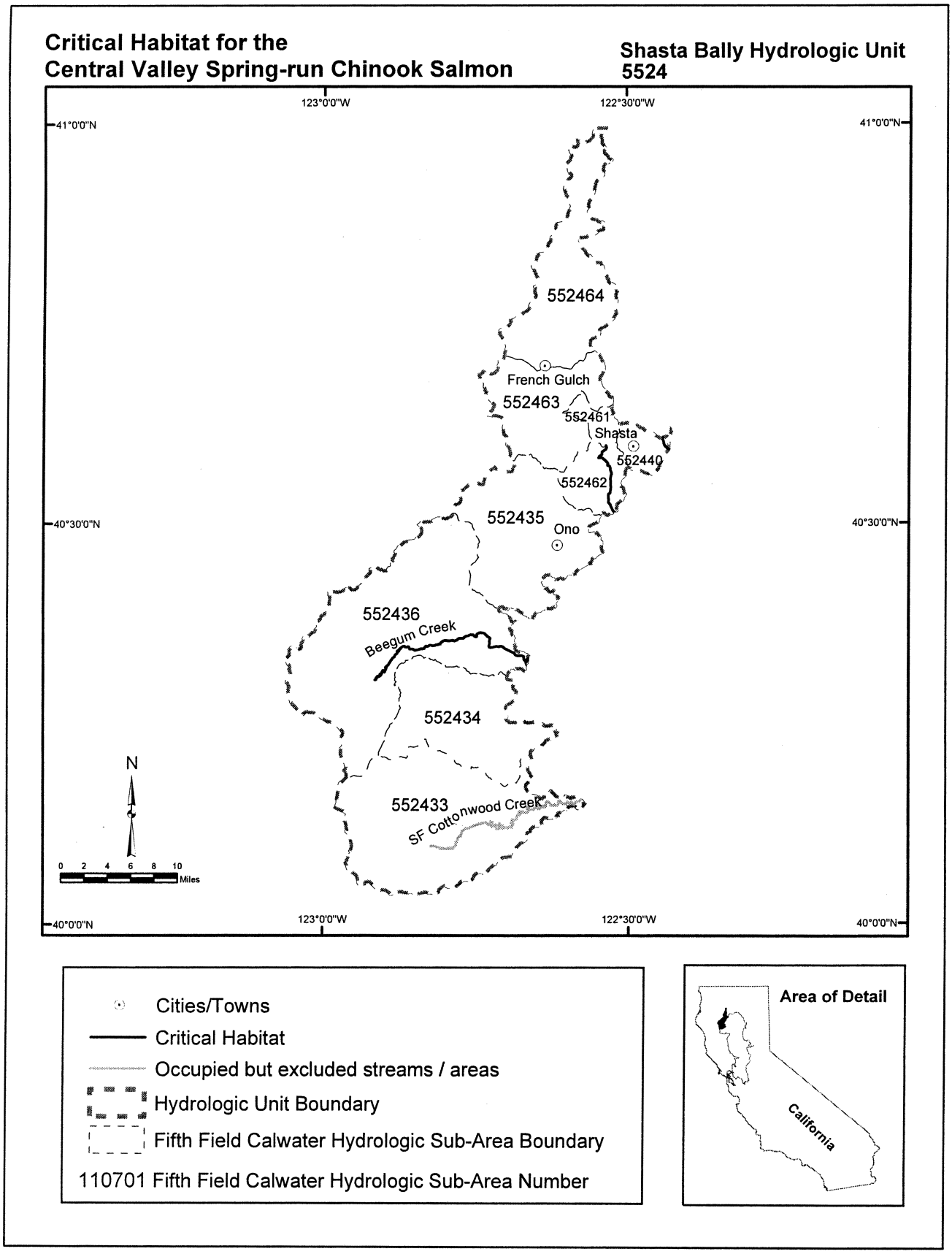
Fifth Field Calwater Hydrologic Sub-Area Boundary

110701 Fifth Field Calwater Hydrologic Sub-Area Number


Critical Habitat for the
Central Valley Spring-run Chinook Salmon
Valley-American Hydrologic Unit
5519
121°30'0"W
121°0'0"W
39°0'0"N
38°30'0"N
551922
Olivehurst
Feather River
551922
Roseville
Sacramento River
551921
Carmichael
Sacramento
American R
551912
Elk Grove
551911
N
0 2.5 5 7.5 10 12.5
Miles
Cities/Towns
Critical Habitat
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California


Critical Habitat for the
Central Valley Spring-run Chinook Salmon
Colusa Basin Hydrologic Unit
5520
122°30'0"W
122°0'0"W
121°30'0"W
39°30'0"N
39°0'0"N
Orland
Chico
552022
552040
Willows
Gridley
552021
Butte Creek
Colusa
552030
Williams
Yuba City
Sacramento River
Sutter Bypass
Tisdale
Bypass
552010
N
0 2 4 6 8 10
Miles
Knights Landing
Yolo
Cities/Towns
Critical Habitat
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California


Critical Habitat for the
Central Valley Spring-run Chinook Salmon
Butte Creek Hydrologic Unit
5521
121°30'0"W
40°0'0"N
552130
552120
Butte Creek
Paradise
552110
N
0 2 4 6 8 10
Miles
Cities/Towns
Critical Habitat
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California



BILLING CODE 3510–22–C

(l) *Central Valley steelhead (O. mykiss).* Critical habitat is designated to include the areas defined in the following CALWATER Hydrologic Units:

(1) Tehama Hydrologic Unit 5504—(i) *Lower Stony Creek Hydrologic Sub-area 550410.* Outlet(s) = Stony Creek (Lat 39.6760, Long –121.9732) upstream to endpoint(s) in: Stony Creek (39.8199, –122.3391).

(ii) Red Bluff Hydrologic Sub-area 550420. Outlet(s) = Sacramento River (Lat 39.6998, Long –121.9419) upstream to endpoint(s) in: Antelope Creek (40.2023, –122.1272); Big Chico Creek (39.7757, –121.7525); Blue Tent Creek (40.2166, –122.2362); Burch Creek (39.8495, –122.1615); Butler Slough (40.1579, –122.1320); Craig Creek (40.1617, –122.1350); Deer Creek (40.0144, –121.9481); Dibble Creek (40.2002, –122.2421); Dye Creek (40.0910, –122.0719); Elder Creek (40.0438, –122.2133); Lindo Channel (39.7623, –121.7923); McClure Creek (40.0074, –122.1723); Mill Creek (40.0550, –122.0317); Mud Creek (39.7985, –121.8803); New Creek (40.1873, –122.1350); Oat Creek (40.0769, –122.2168); Red Bank Creek (40.1421, –122.2399); Rice Creek (39.8495, –122.1615); Rock Creek (39.8034, –121.9403); Salt Creek (40.1572, –122.1646); Thomes Creek (39.8822, –122.5527); Unnamed Tributary (40.1867, –122.1353); Unnamed Tributary (40.1682, –122.1459); Unnamed Tributary (40.1143, –122.1259); Unnamed Tributary (40.0151, –122.1148); Unnamed Tributary (40.0403, –122.1009); Unnamed Tributary (40.0514, –122.0851); Unnamed Tributary (40.0530, –122.0769).

(2) Whitmore Hydrologic Unit 5507—(i) *Inks Creek Hydrologic Sub-area 550711.* Outlet(s) = Inks Creek (Lat 40.3305, Long –122.1520) upstream to endpoint(s) in: Inks Creek (40.3418, –122.1332).

(ii) *Battle Creek Hydrologic Sub-area 550712.* Outlet(s) = Battle Creek (Lat 40.4083, Long –122.1102) upstream to endpoint(s) in: Baldwin Creek (40.4369, –121.9885); Battle Creek (40.4228, –121.9975); Brush Creek (40.4913, –121.8664); Millseat Creek (40.4808, –121.8526); Morgan Creek (40.3654, –121.9132); North Fork Battle Creek (40.4877, –121.8185); Panther Creek (40.3897, –121.6106); South Ditch (40.3997, –121.9223); Ripley Creek (40.4099, –121.8683); Soap Creek (40.3904, –121.7569); South Fork Battle Creek (40.3531, –121.6682); Unnamed Tributary (40.3567, –121.8293); Unnamed Tributary (40.4592, –121.8671).

(iii) *Ash Creek Hydrologic Sub-area 550721.* Outlet(s) = Ash Creek (Lat 40.4401, Long –122.1375) upstream to endpoint(s) in: Ash Creek (40.4628, –122.0066).

(iv) *Inwood Hydrologic Sub-area 550722.* Outlet(s) = Ash Creek (Lat 40.4628, Long –122.0066); Bear Creek (40.4352, –122.2039) upstream to endpoint(s) in: Ash Creek (40.4859, –121.8993); Bear Creek (40.5368, –121.9560); North Fork Bear Creek (40.5736, –121.8683).

(v) *South Cow Creek Hydrologic Sub-area 550731.* Outlet(s) = South Cow Creek (Lat 40.5438, Long –122.1318) upstream to endpoint(s) in: South Cow Creek (40.6023, –121.8623).

(vi) *Old Cow Creek Hydrologic Sub-area 550732.* Outlet(s) = Clover Creek (Lat 40.5788, Long –122.1252); Old Cow Creek (40.5442, –122.1317) upstream to endpoint(s) in: Clover Creek (40.6305, –122.0304); Old Cow Creek (40.6295, –122.9619).

(vii) *Little Cow Creek Hydrologic Sub-area 550733.* Outlet(s) = Little Cow Creek (Lat 40.6148, –122.2271); Oak Run Creek (40.6171, –122.1225) upstream to endpoint(s) in: Little Cow Creek (40.7114, –122.0850); Oak Run Creek (40.6379, –122.0856).

(3) Redding Hydrologic Unit 5508—(i) *Enterprise Flat Hydrologic Sub-area 550810.* Outlet(s) = Sacramento River (Lat 40.2526, Long –122.1707) upstream to endpoint(s) in: Ash Creek (40.4401, –122.1375); Battle Creek (40.4083, –122.1102); Bear Creek (40.4360, –122.2036); Calaboose Creek (40.5742, –122.4142); Canyon Creek (40.5532, –122.3814); Churn Creek (40.5986, –122.3418); Clear Creek (40.5158, –122.5256); Clover Creek (40.5788, –122.1252); Cottonwood Creek (40.3777, –122.1991); Cow Creek (40.5437, –122.1318); East Fork Stillwater Creek (40.6495, –122.2934); Inks Creek (40.3305, –122.1520); Jenny Creek (40.5734, –122.4338); Little Cow Creek (40.6148, –122.2271); Oak Run (40.6171, –122.1225); Old Cow Creek (40.5442, –122.1317); Olney Creek (40.5439, –122.4687); Oregon Gulch (40.5463, –122.3866); Paynes Creek (40.3024, –122.1012); Stillwater Creek (40.6495, –122.2934); Sulphur Creek (40.6164, –122.4077).

(ii) *Lower Cottonwood Hydrologic Sub-area 550820.* Outlet(s) = Cottonwood Creek (Lat 40.3777, Long –122.1991) upstream to endpoint(s) in: Cold Fork Cottonwood Creek (40.2060, –122.6608); Cottonwood Creek (40.3943, –122.5254); Middle Fork Cottonwood Creek (40.3314, –122.6663); North Fork Cottonwood Creek (40.4539, –122.5610); South Fork Cottonwood Creek (40.1578, –122.5809).

(4) Eastern Tehama Hydrologic Unit 5509—(i) *Big Chico Creek Hydrologic Sub-area 550914.* Outlet(s) = Big Chico Creek (Lat 39.7757, Long –121.7525) upstream to endpoint(s) in: Big Chico Creek (39.8898, –121.6952).

(ii) *Deer Creek Hydrologic Sub-area 550920.* Outlet(s) = Deer Creek (Lat 40.0142, Long –121.9476) upstream to endpoint(s) in: Deer Creek (40.2025, –121.5130).

(iii) *Upper Mill Creek Hydrologic Sub-area 550942.* Outlet(s) = Mill Creek (Lat 40.0550, Long –122.0317) upstream to endpoint(s) in: Mill Creek (40.3766, –121.5098); Rocky Gulch Creek (40.2888, –121.5997).

(iv) *Dye Creek Hydrologic Sub-area 550962.* Outlet(s) = Dye Creek (Lat 40.0910, Long –122.0719) upstream to endpoint(s) in: Dye Creek (40.0996, –121.9612).

(v) *Antelope Creek Hydrologic Sub-area 550963.* Outlet(s) = Antelope Creek (Lat 40.2023, Long –122.1272) upstream to endpoint(s) in: Antelope Creek (40.2416, –121.8630); Middle Fork Antelope Creek (40.2673, –121.7744); North Fork Antelope Creek (40.2807, –121.7645); South Fork Antelope Creek (40.2521, –121.7575).

(5) Sacramento Delta Hydrologic Unit 5510—*Sacramento Delta Hydrologic Sub-area 551000.* Outlet(s) = Sacramento River (Lat 38.0653, Long –121.8418) upstream to endpoint(s) in: Cache Slough (38.2984, –121.7490); Elk Slough (38.4140, –121.5212); Elkhorn Slough (38.2898, –121.6271); Georgiana Slough (38.2401, –121.5172); Horseshoe Bend (38.1078, –121.7117); Lindsey Slough (38.2592, –121.7580); Miners Slough (38.2864, –121.6051); Prospect Slough (38.2830, –121.6641); Putah Creek (38.5155, –121.5885); Sevenmile Slough (38.1171, –121.6298); Streamboat Slough (38.3052, –121.5737); Sutter Slough (38.3321, –121.5838); Threemile Slough (38.1155, –121.6835); Ulatis Creek (38.2961, –121.7835); Unnamed Tributary (38.2937, –121.7803); Unnamed Tributary (38.2937, –121.7804); Yolo Bypass (38.5800, –121.5838).

(6) Valley-Putah-Cache Hydrologic Unit 5511—*Lower Putah Creek Hydrologic Sub-area 551120.* Outlet(s) = Sacramento Bypass (Lat 38.6057, Long –121.5563); Yolo Bypass (38.5800, –121.5838) upstream to endpoint(s) in: Sacramento Bypass (38.5969, –121.5888); Yolo Bypass (38.7627, –121.6325).

(7) American River Hydrologic Unit 5514—*Auburn Hydrologic Sub-area 551422.* Outlet(s) = Auburn Ravine (Lat 38.8921, Long –121.2181); Coon Creek (38.9891, –121.2556); Doty Creek (38.9401, –121.2434) upstream to

endpoint(s) in: Auburn Ravine (38.8888, –121.1151); Coon Creek (38.9659, –121.1781); Doty Creek (38.9105, –121.1244).

(8) Marysville Hydrologic Unit 5515—(i) *Lower Bear River Hydrologic Sub-area 551510.* Outlet(s) = Bear River (Lat 39.9398, Long –121.5790) upstream to endpoint(s) in: Bear River (39.0421, –121.3319).

(ii) *Lower Yuba River Hydrologic Sub-area 551530.* Outlet(s) = Yuba River (Lat 39.1270, Long –121.5981) upstream to endpoint(s) in: Yuba River (39.2203, –121.3314).

(iii) *Lower Feather River Hydrologic Sub-area 551540.* Outlet(s) = Feather River (Lat 39.1264, Long –121.5984) upstream to endpoint(s) in: Feather River (39.5205, –121.5475).

(9) Yuba River Hydrologic Unit 5517—(i) *Browns Valley Hydrologic Sub-area 551712.* Outlet(s) = Dry Creek (Lat 39.2215, Long –1121.4082); Yuba River (39.2203, –1121.3314) upstream to endpoint(s) in: Dry Creek (39.3232, Long –1121.3155); Yuba River (39.2305, –1121.2813).

(ii) *Englebright Hydrologic Sub-area 551714.* Outlet(s) = Yuba River (Lat 39.2305, Long –1121.2813) upstream to endpoint(s) in: Yuba River (39.2399, –1121.2689).

(10) Valley American Hydrologic Unit 5519—(i) *Lower American Hydrologic Sub-area 551921.* Outlet(s) = American River (Lat 38.5971, –1121.5088) upstream to endpoint(s) in: American River (38.6373, –1121.2202); Dry Creek (38.7554, –1121.2676); Miner's Ravine (38.8429, –1121.1178); Natomas East Main Canal (38.6646, –1121.4770); Secret Ravine(38.8541, –1121.1223).

(ii) *Pleasant Grove Hydrologic Sub-area 551922.* Outlet(s) = Sacramento River (Lat 38.6026, Long –1121.5155) upstream to endpoint(s) in: Auburn Ravine (38.8913, –1121.2424); Coon Creek (38.9883, –1121.2609); Doty Creek (38.9392, –1121.2475); Feather River (39.1264, –1121.5984).

(11) Colusa Basin Hydrologic Unit 5520—(i) *Sycamore-Sutter Hydrologic Sub-area 552010.* Outlet(s) = Sacramento River (Lat 38.7604, Long –1121.6767) upstream to endpoint(s) in: Tisdale Bypass (39.0261, –1121.7456).

(ii) *Sutter Bypass Hydrologic Sub-area 552030.* Outlet(s) = Sacramento River (Lat 38.7851, Long –1121.6238) upstream to endpoint(s) in: Butte Creek (39.1990, –1121.9286); Butte Slough (39.1987, –1121.9285); Nelson Slough (38.8956, –1121.6180); Sacramento Slough (38.7844, –1121.6544); Sutter Bypass (39.1586, –1121.8747).

(iii) *Butte Basin Hydrologic Sub-area 552040.* Outlet(s) = Butte Creek (Lat 39.1990, Long –1121.9286); Sacramento River (39.4141, –1122.0087) upstream to endpoint(s) in: Butte Creek (39.7096, –1121.7504); Colusa Bypass (39.2276, –1121.9402); Little Chico Creek (39.7380, –1121.7490); Little Dry Creek (39.6781, –1121.6580).

(12) Butte Creek Hydrologic Unit 5521—(i) *Upper Dry Creek Hydrologic Sub-area 552110.* Outlet(s) = Little Dry Creek (Lat 39.6781, –1121.6580) upstream to endpoint(s) in: Little Dry Creek (39.7424, –1121.6213).

(ii) *Upper Butte Creek Hydrologic Sub-area 552120.* Outlet(s) = Little Chico Creek (Lat 39.7380, Long –1121.7490) upstream to endpoint(s) in: Little Chico Creek (39.8680, –1121.6660).

(iii) *Upper Little Chico Hydrologic Sub-area 552130.* Outlet(s) = Butte Creek (Lat 39.7096, Long –1121.7504) upstream to endpoint(s) in: Butte Creek (39.8215, –1121.6468); Little Butte Creek (39.8159, –1121.5819).

(13) Ball Mountain Hydrologic Unit 5523—*Thomes Creek Hydrologic Sub-area 552310.* Outlet(s) = Thomes Creek (39.8822, –1122.5527) upstream to endpoint(s) in: Doll Creek (39.8941, –1122.9209); Fish Creek (40.0176, –1122.8142); Snake Creek (39.9945, –1122.7788); Thomes Creek (39.9455, –1122.8491); Willow Creek (39.8941, –1122.9209).

(14) Shasta Bally Hydrologic Unit 5524—(i) *South Fork Hydrologic Sub-area 552433.* Outlet(s) = Cold Fork Cottonwood Creek (Lat 40.2060, Long –1122.6608); South Fork Cottonwood Creek (40.1578, –1122.5809) upstream to endpoint(s) in: Cold Fork Cottonwood Creek (40.1881, –1122.8690); South Fork Cottonwood Creek (40.1232, –1122.8761).

(ii) *Platina Hydrologic Sub-area 552436.* Outlet(s) = Middle Fork Cottonwood Creek (Lat 40.3314, Long –1122.6663) upstream to endpoint(s) in: Beegum Creek (40.3149, –1122.9776): Middle Fork Cottonwood Creek (40.3512, –1122.9629).

(iii) *Spring Creek Hydrologic Sub-area 552440.* Outlet(s) = Sacramento River (Lat 40.5943, Long –1122.4343) upstream to endpoint(s) in: Middle Creek (40.5904, –1121.4825); Rock Creek (40.6155, –1122.4702); Sacramento River (40.6116, –1122.4462); Salt Creek (40.5830, –1122.4586); Unnamed Tributary (40.5734, –1122.4844).

(iv) *Kanaka Peak Hydrologic Sub-area 552462.* Outlet(s) = Clear Creek (Lat 40.5158, Long –1122.5256) upstream to endpoint(s) in: Clear Creek (40.5998, 122.5399).

(15) North Valley Floor Hydrologic Unit 5531—(i) *Lower Mokelumne Hydrologic Sub-area 553120.* Outlet(s) = Mokelumne River (Lat 38.2104, Long –1121.3804) upstream to endpoint(s) in: Mokelumne River (38.2263, –1121.0241); Murphy Creek (38.2491, –1121.0119).

(ii) *Lower Calaveras Hydrologic Sub-area 553130.* Outlet(s) = Calaveras River (Lat 37.9836, Long –1121.3110); Mormon Slough (37.9456,-121.2907) upstream to endpoint(s) in: Calaveras River (38.1025, –1120.8503); Mormon Slough (38.0532, –1121.0102); Stockton Diverting Canal (37.9594, –1121.2024).

(16) Upper Calaveras Hydrologic Unit 5533—*New Hogan Reservoir Hydrologic Sub-area 553310.* Outlet(s) = Calaveras River (Lat 38.1025, Long –1120.8503) upstream to endpoint(s) in: Calaveras River (38.1502, –1120.8143).

(17) Stanislaus River Hydrologic Unit 5534—*Table Mountain Hydrologic Sub-area 553410.* Outlet(s) = Stanislaus River (Lat 37.8355, Long –1120.6513) upstream to endpoint(s) in: Stanislaus River (37.8631, –1120.6298).

(18) San Joaquin Valley Floor Hydrologic Unit 5535—(i) *Riverbank Hydrologic Sub-area 553530.* Outlet(s) = Stanislaus River (Lat 37.6648, Long –1121.2414) upstream to endpoint(s) in: Stanislaus River (37.8355, –1120.6513).

(ii) *Turlock Hydrologic Sub-area 553550.* Outlet(s) = Tuolumne River (Lat 37.6059, Long –1121.1739) upstream to endpoint(s) in: Tuolumne River (37.6401, –1120.6526).

(iii) *Montpelier Hydrologic Sub-area 553560.* Outlet(s) = Tuolumne River (Lat 37.6401, Long –1120.6526) upstream to endpoint(s) in: Tuolumne River (37.6721, –1120.4445).

(iv) *El Nido-Stevinson Hydrologic Sub-area 553570.* Outlet(s) = Merced River (Lat 37.3505, Long –1120.9619) upstream to endpoint(s) in: Merced River (37.3620, –1120.8507).

(v) *Merced Hydrologic Sub-area 553580.* Outlet(s) = Merced River (Lat 37.3620, Long –1120.8507) upstream to endpoint(s) in: Merced River (37.4982, –1120.4612).

(vi) *Fahr Creek Hydrologic Sub-area 553590.* Outlet(s) = Merced River (Lat 37.4982, Long –1120.4612) upstream to endpoint(s) in: Merced River (37.5081, –1120.3581).

(19) Delta-Mendota Canal Hydrologic Unit 5541—(i) *Patterson Hydrologic Sub-area 554110.* Outlet(s) = San Joaquin River (Lat 37.6763, Long –1121.2653) upstream to endpoint(s) in: San Joaquin River (37.3491, –1120.9759).

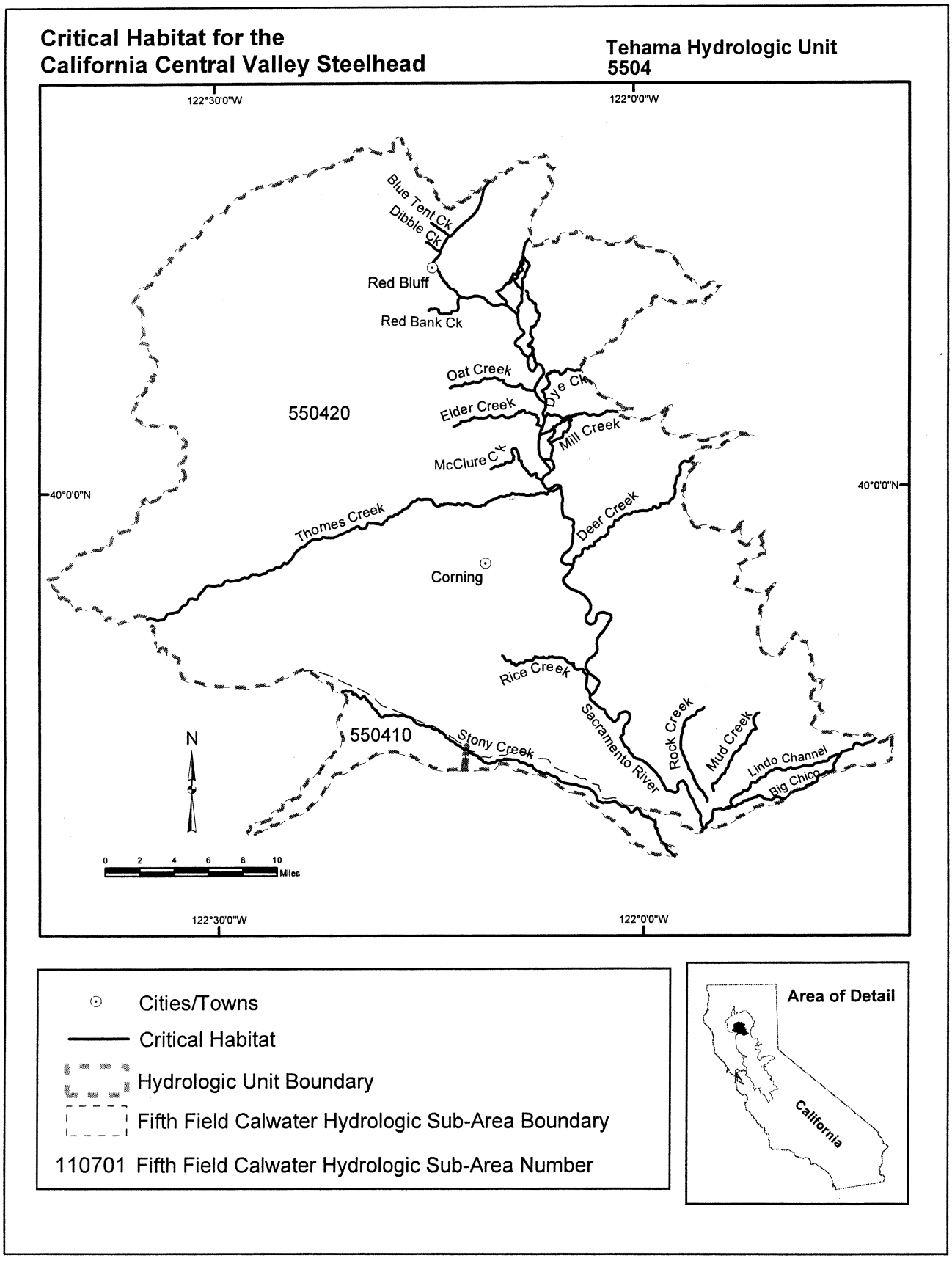
(ii) *Los Banos Hydrologic Sub-area 554120.* Outlet(s) = Merced River (Lat 37.3490, Long –1120.9756) upstream to endpoint(s) in: Merced River (37.3505, –1120.9619).

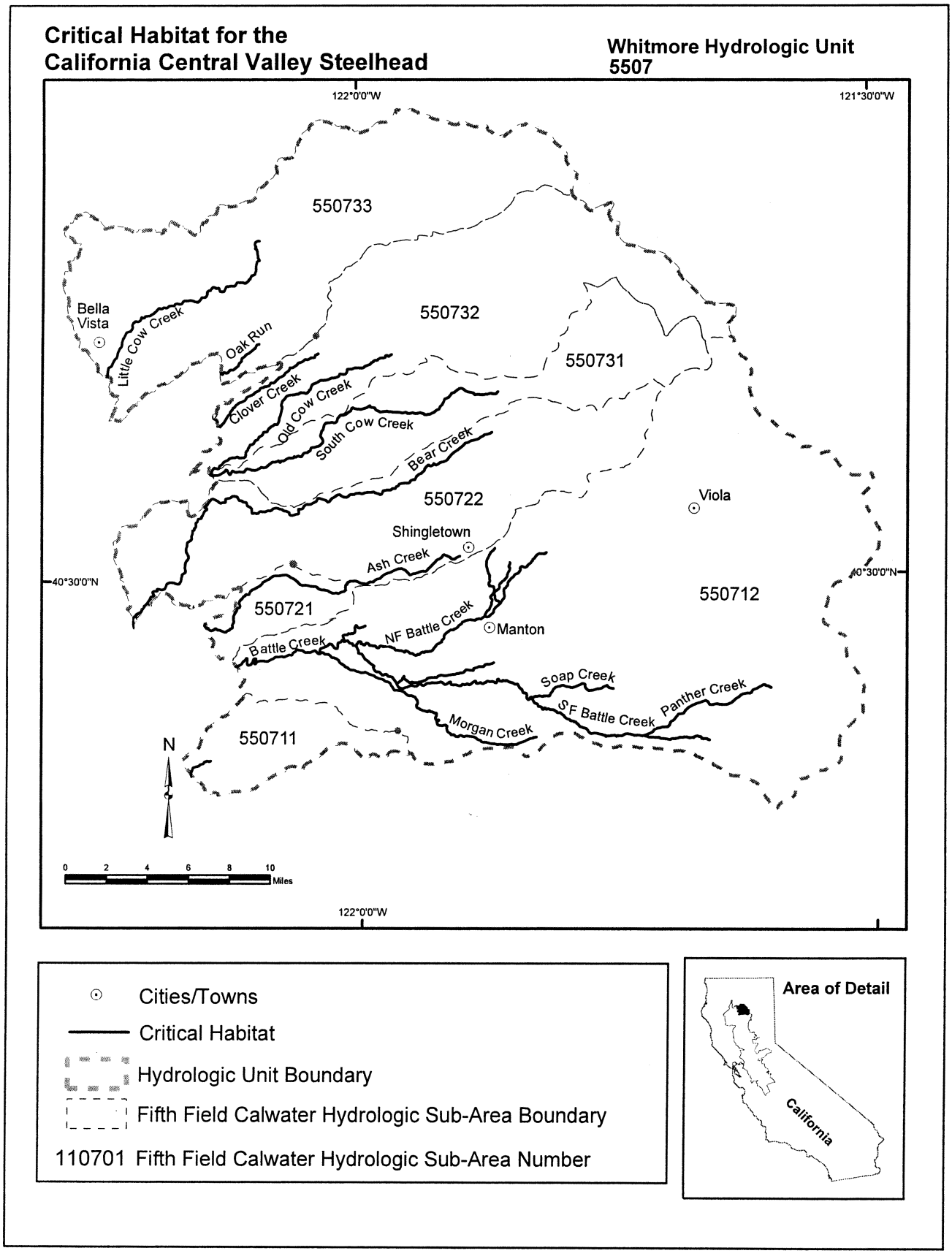
(20) North Diablo Range Hydrologic Unit 5543—*North Diablo Range Hydrologic Sub-area 554300.* Outlet(s) = San Joaquin River (Lat 38.0247, Long –1121.8218) upstream to endpoint(s) in: San Joaquin River (38.0246, –1121.7471).

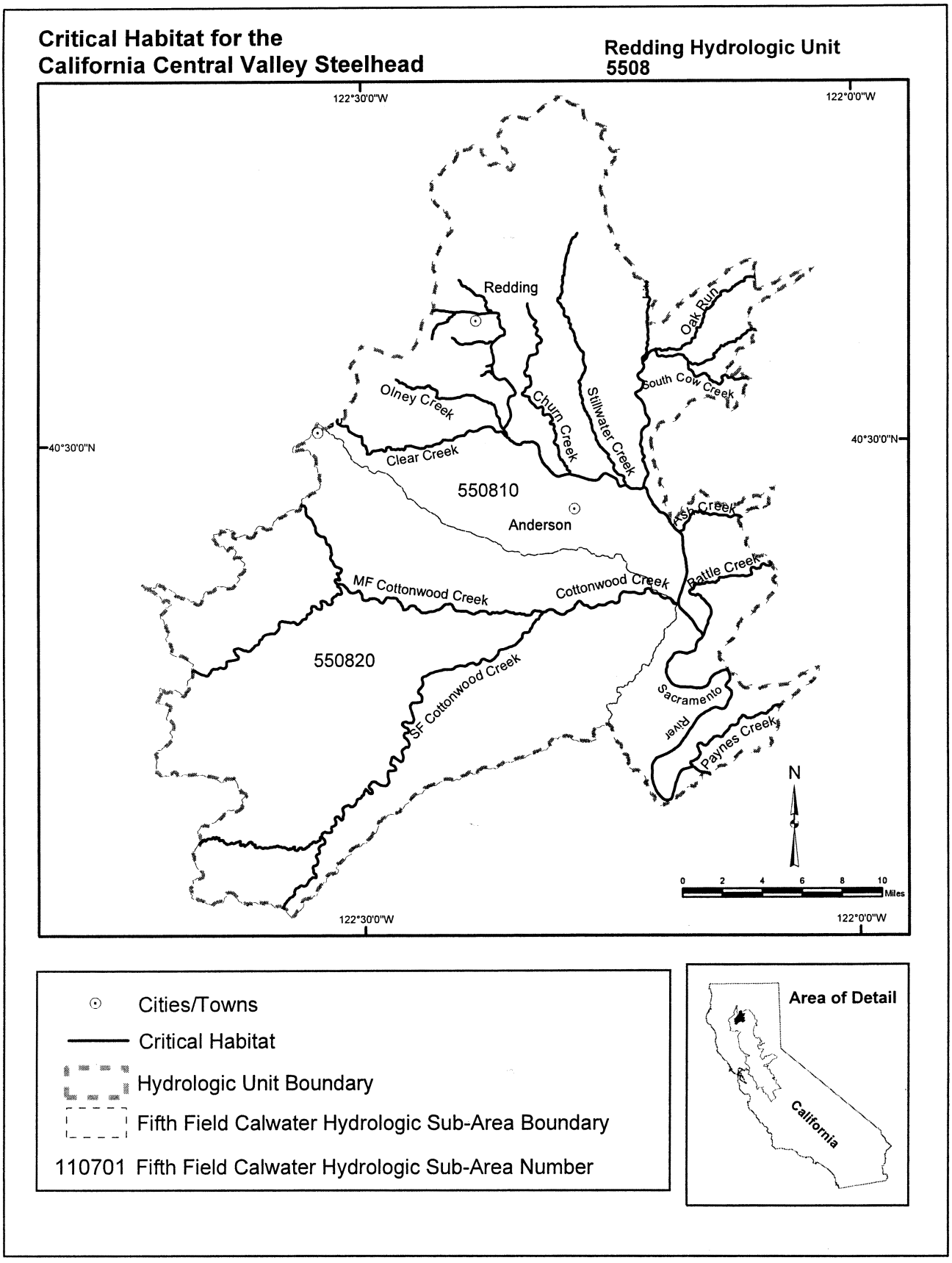
(21) San Joaquin Delta Hydrologic Unit 5544—*San Joaquin Delta Hydrologic Sub-area 554400.* Outlet(s) = San Joaquin River (Lat 38.0246, Long –1121.7471) upstream to endpoint(s) in: Big Break (38.0160, –1121.6849); Bishop Cut (38.0870, –1121.4158); Calaveras River (37.9836, –1121.3110); Cosumnes River (38.2538, –1121.4074); Disappointment Slough (38.0439, –1121.4201); Dutch Slough (38.0088, –1121.6281); Empire Cut (37.9714, –1121.4762); False River (38.0479, –1121.6232); Frank's Tract (38.0220, –1121.5997); Frank's Tract (38.0300, –1121.5830); Holland Cut (37.9939, –1121.5757); Honker Cut (38.0680, –1121.4589); Kellog Creek (37.9158, –1121.6051); Latham Slough (37.9716, –1121.5122); Middle River (37.8216, –1121.3747); Mokelumne River (38.2104, –1121.3804); Mormon Slough (37.9456,-121.2907); Mosher Creek (38.0327, –1121.3650); North Mokelumne River (38.2274, –1121.4918); Old River (37.8086, –1121.3274); Orwood Slough (37.9409, –1121.5332); Paradise Cut (37.7605, –1121.3085); Pixley Slough (38.0443, –1121.3868); Potato Slough (38.0440, –1121.4997); Rock Slough (37.9754, –1121.5795); Sand Mound Slough (38.0220, –1121.5997); Stockton Deep Water Channel (37.9957, –1121.4201); Turner Cut (37.9972, –1121.4434); Unnamed Tributary (38.1165, –1121.4976); Victoria Canal (37.8891, –1121.4895); White Slough (38.0818, –1121.4156); Woodward Canal (37.9037, –1121.4973).

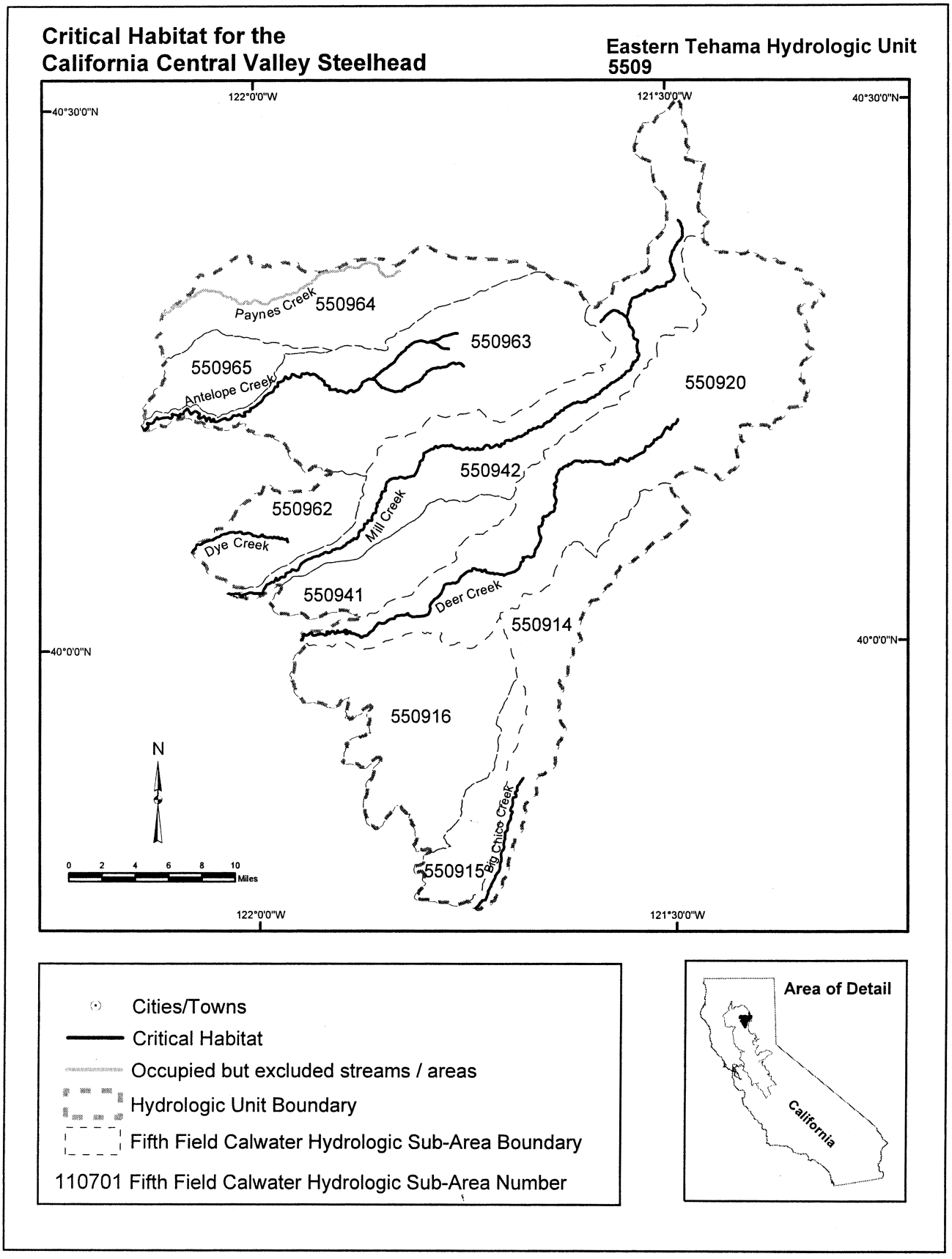
(22) Maps of critical habitat for the Central Valley Steelhead ESU follow:

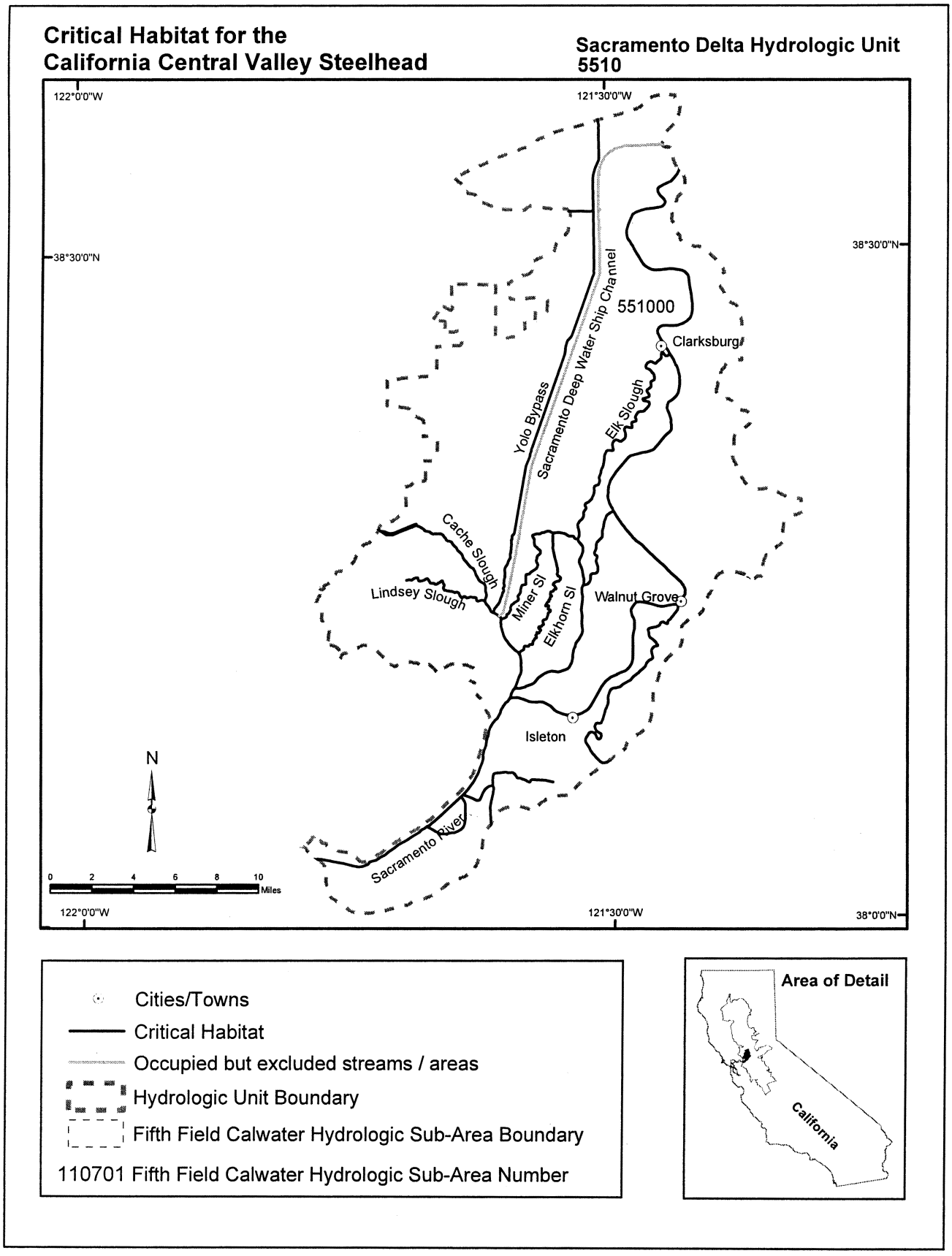
BILLING CODE 3510–22–P

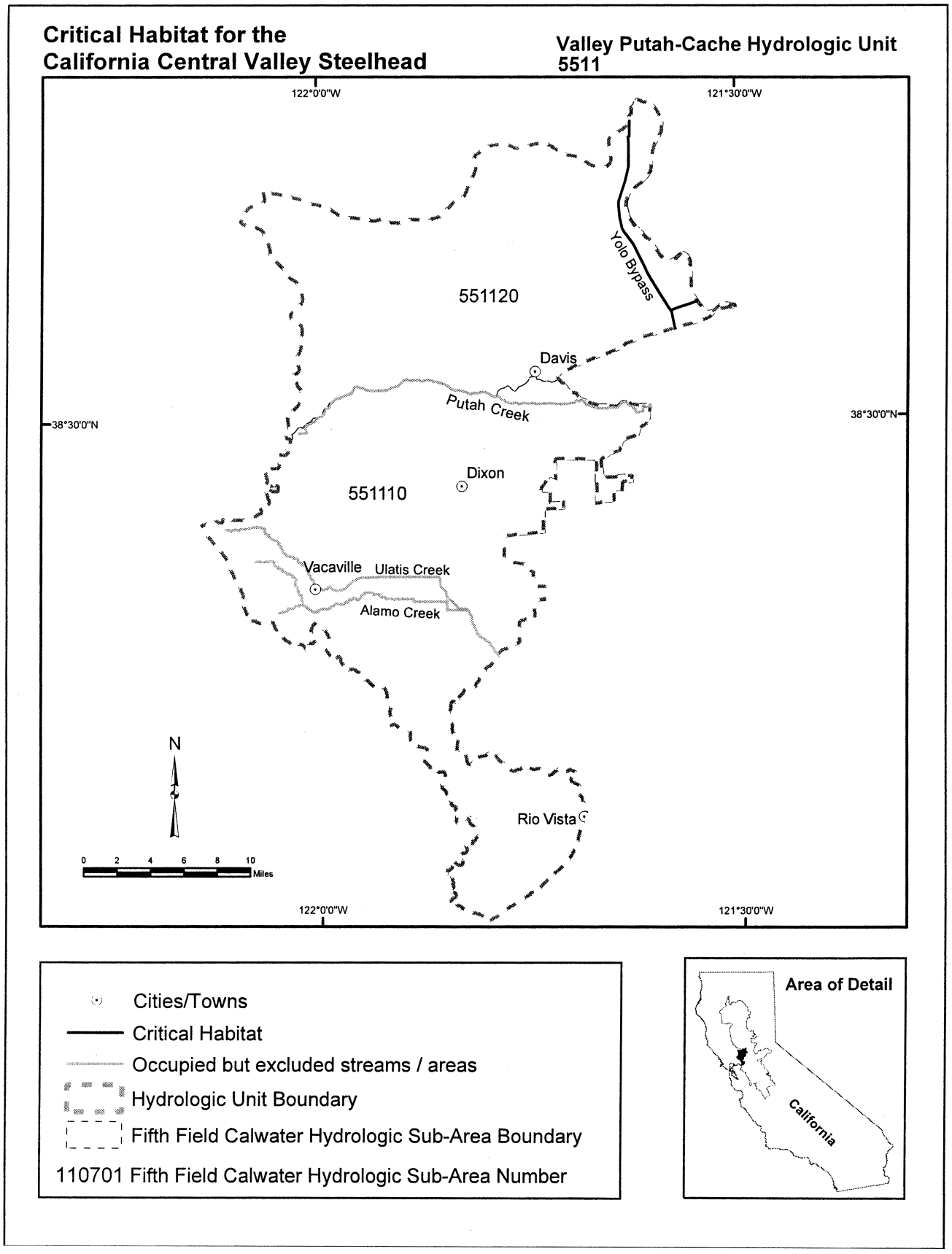

Critical Habitat for the
California Central Valley Steelhead
Tehama Hydrologic Unit
5504
122°30'0"W
122°0'0"W
40°0'0"N
Blue Tent Ck
Dibble Ck
Red Bluff
Red Bank Ck
Oat Creek
Dye Ck
Elder Creek
Mill Creek
McClure Ck
550420
Thomes Creek
Deer Creek
Corning
Rice Creek
Sacramento River
Rock Creek
Mud Creek
Lindo Channel
Big Chico
550410
Stony Creek
N
0 2 4 6 8 10
Miles
Cities/Towns
Critical Habitat
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California

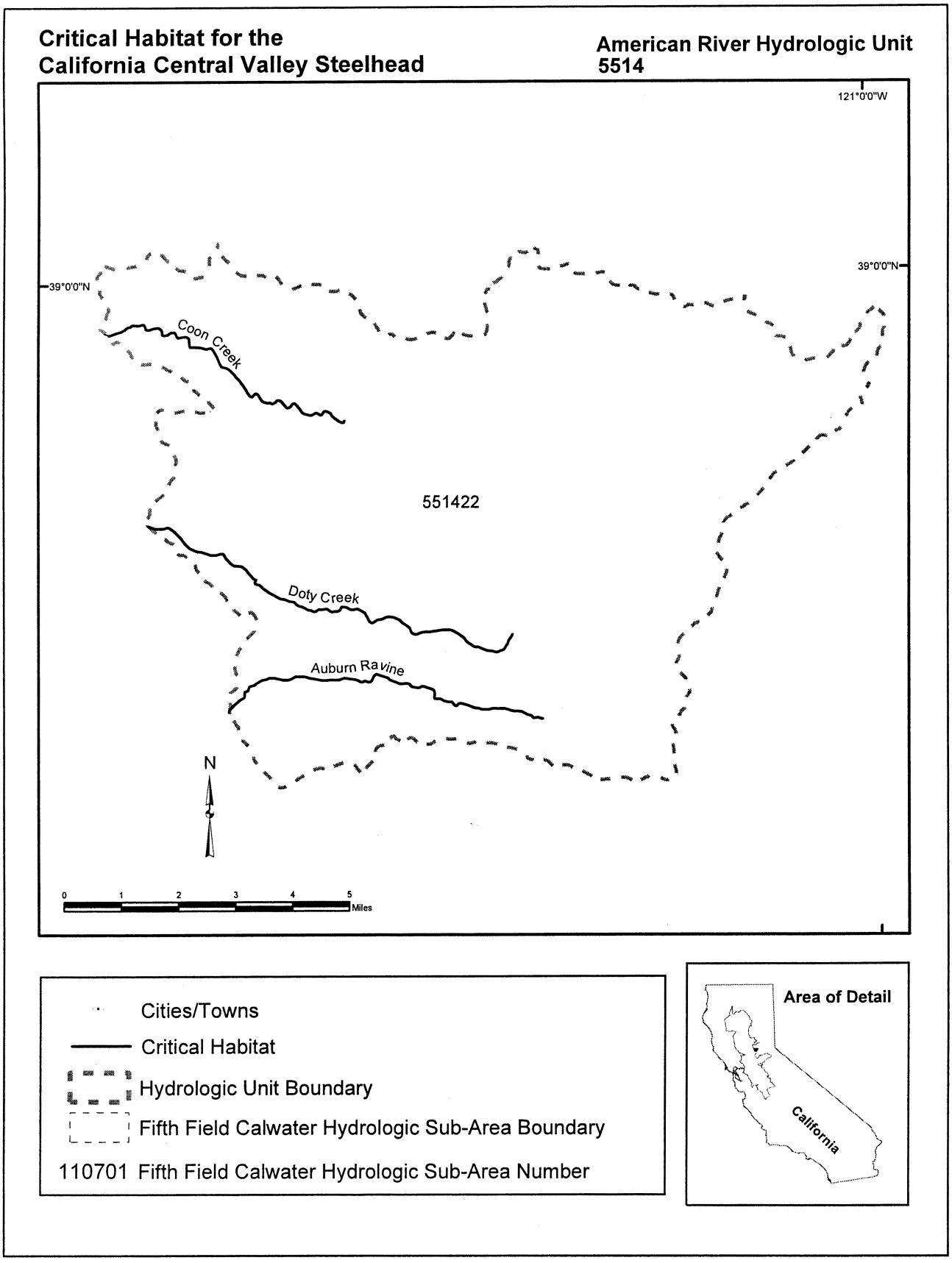

Critical Habitat for the
California Central Valley Steelhead
Whitmore Hydrologic Unit
5507
122°0'0"W
121°30'0"W
40°30'0"N
550733
550732
550731
550722
550721
550712
550711
Bella Vista
Little Cow Creek
Oak Run
Clover Creek
Old Cow Creek
South Cow Creek
Bear Creek
Shingletown
Ash Creek
Viola
Manton
NF Battle Creek
Battle Creek
Soap Creek
SF Battle Creek
Panther Creek
Morgan Creek
N
0 2 4 6 8 10
Miles
Cities/Towns
Critical Habitat
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California

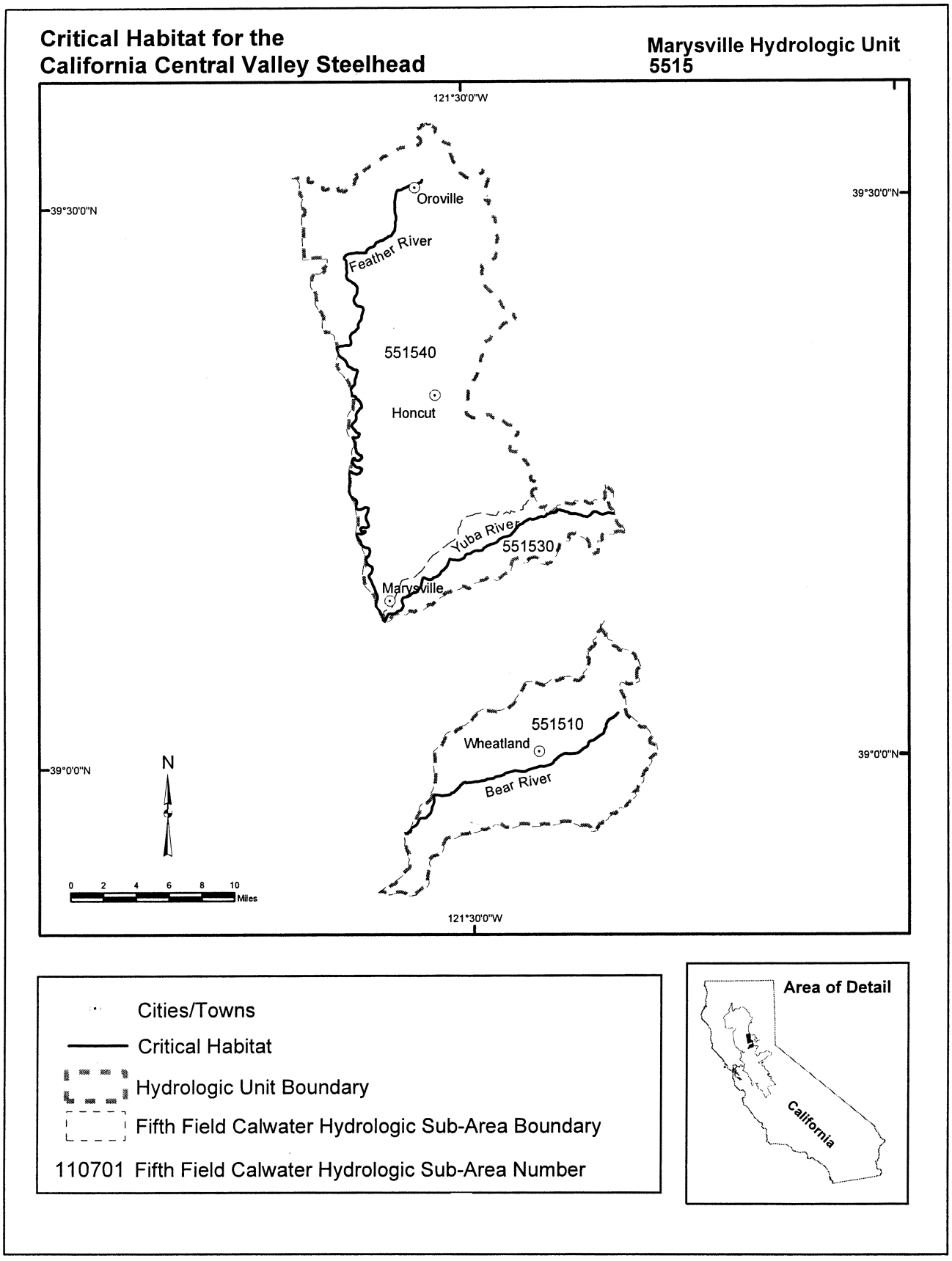

Critical Habitat for the
California Central Valley Steelhead
Redding Hydrologic Unit
5508
122°30'0"W
122°0'0"W
40°30'0"N
Redding
Oak Run
South Cow Creek
Olney Creek
Churn Creek
Stillwater Creek
Clear Creek
550810
Anderson
Battle Creek
MF Cottonwood Creek
Cottonwood Creek
550820
SF Cottonwood Creek
Sacramento River
Paynes Creek
N
0 2 4 6 8 10
Miles
Cities/Towns
Critical Habitat
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California

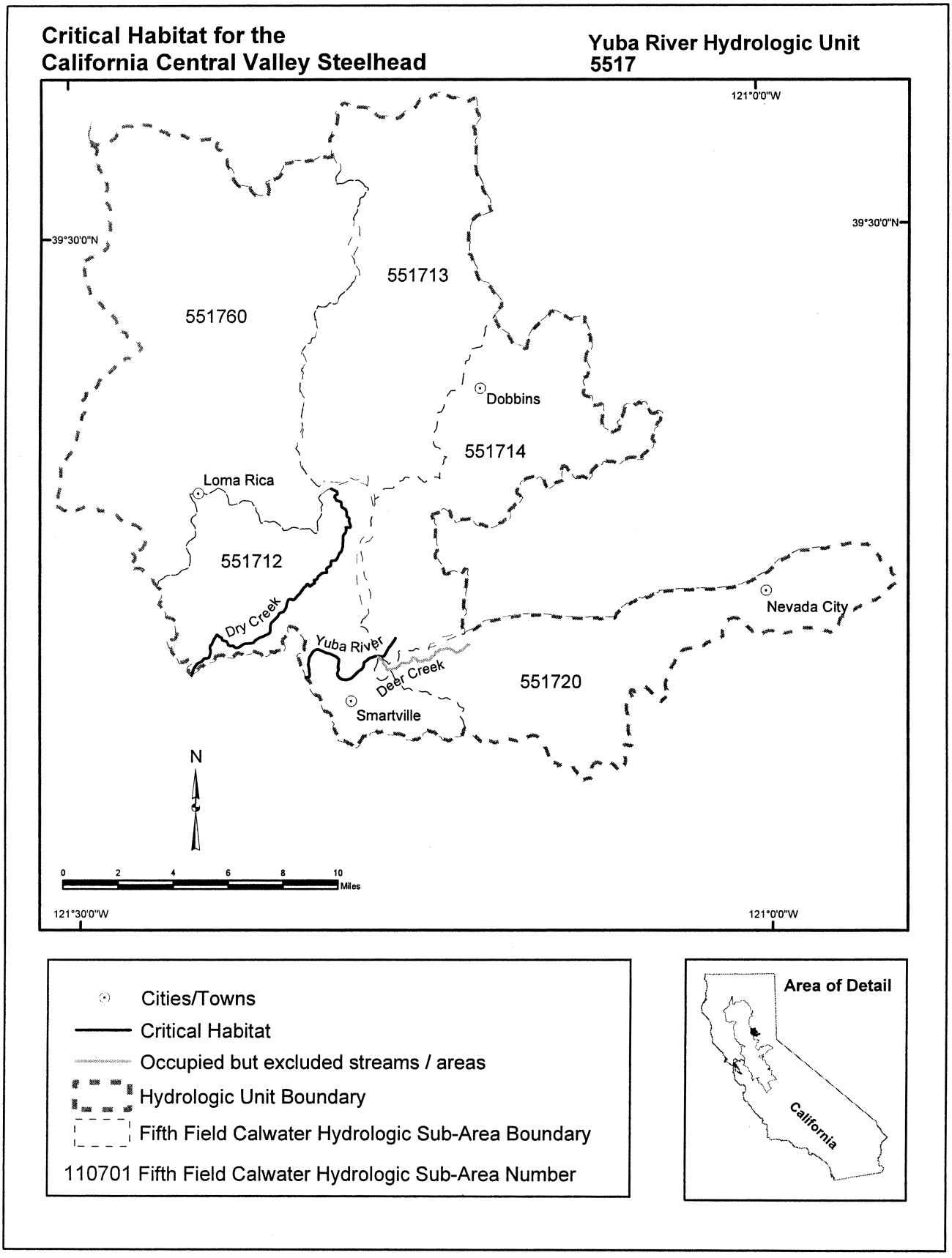

Critical Habitat for the
California Central Valley Steelhead
Eastern Tehama Hydrologic Unit
5509
122°0'0"W
121°30'0"W
40°30'0"N
40°0'0"N
Paynes Creek
550964
550963
550965
Antelope Creek
550920
550942
550962
Mill Creek
Dye Creek
550941
Deer Creek
550914
550916
Big Chico Creek
550915
N
0 2 4 6 8 10
Miles
Cities/Towns
Critical Habitat
Occupied but excluded streams / areas
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California

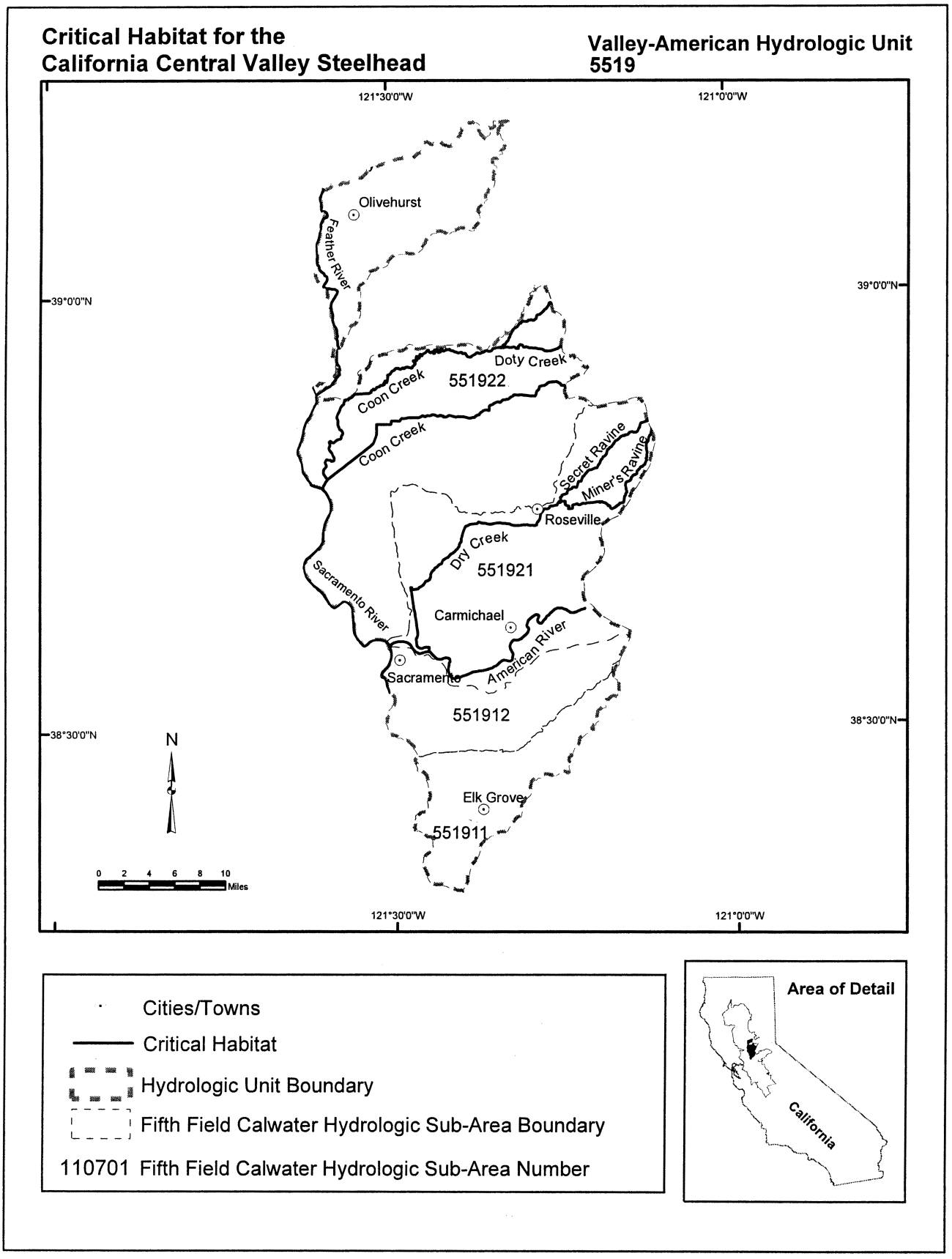

Critical Habitat for the
California Central Valley Steelhead
Sacramento Delta Hydrologic Unit
5510
122°0'0"W
121°30'0"W
38°30'0"N
38°0'0"N
551000
Clarksburg
Yolo Bypass
Sacramento Deep Water Ship Channel
Elk Slough
Cache Slough
Lindsey Slough
Miner Sl
Elkhorn Sl
Walnut Grove
Isleton
Sacramento River
N
0 2 4 6 8 10
Miles
Cities/Towns
Critical Habitat
Occupied but excluded streams / areas
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California

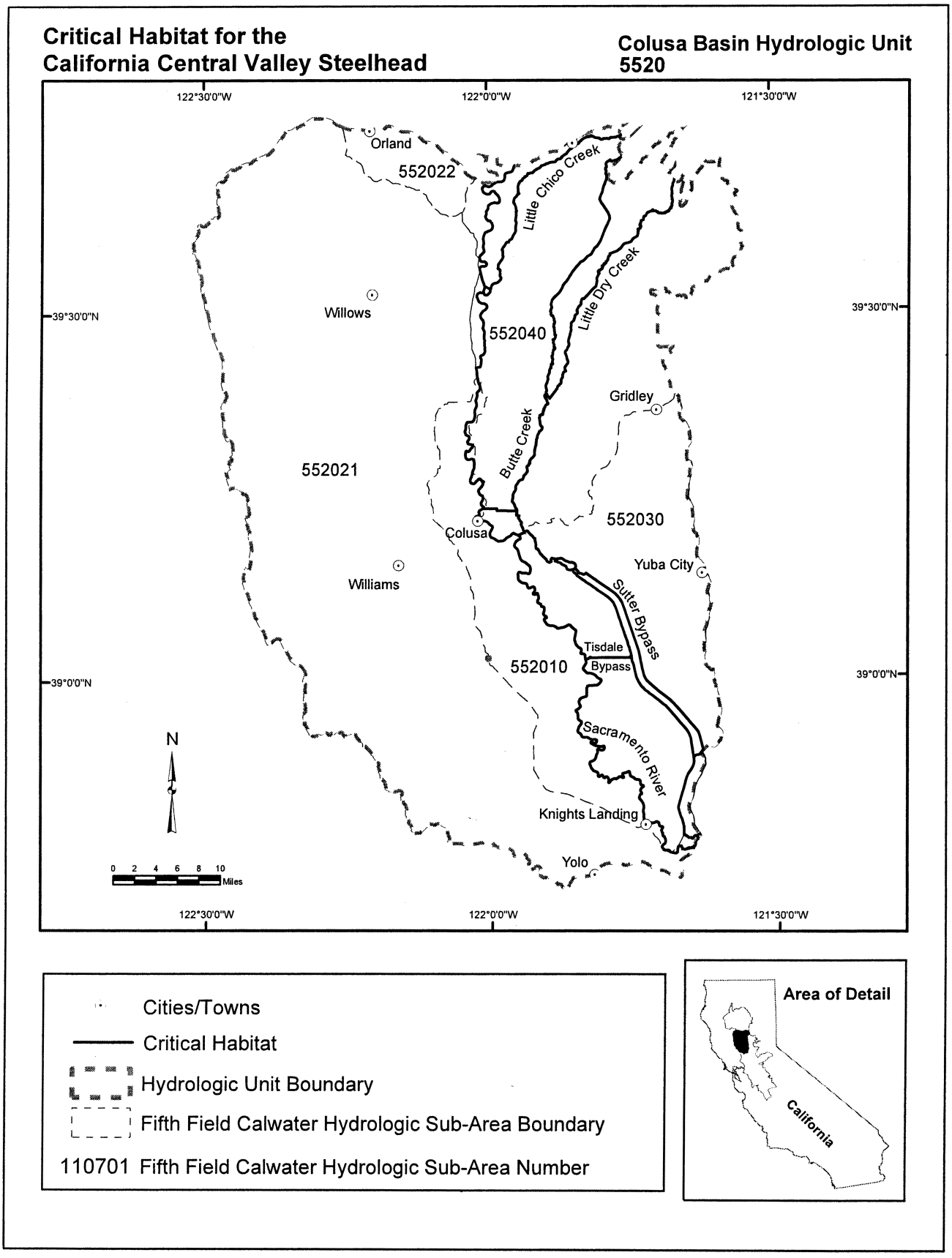

Critical Habitat for the
California Central Valley Steelhead
Valley Putah-Cache Hydrologic Unit
5511
122°0'0"W
121°30'0"W
38°30'0"N
Yolo Bypass
551120
Davis
Putah Creek
Dixon
551110
Vacaville
Ulatis Creek
Alamo Creek
Rio Vista
N
0 2 4 6 8 10
Miles
Cities/Towns
Critical Habitat
Occupied but excluded streams / areas
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California

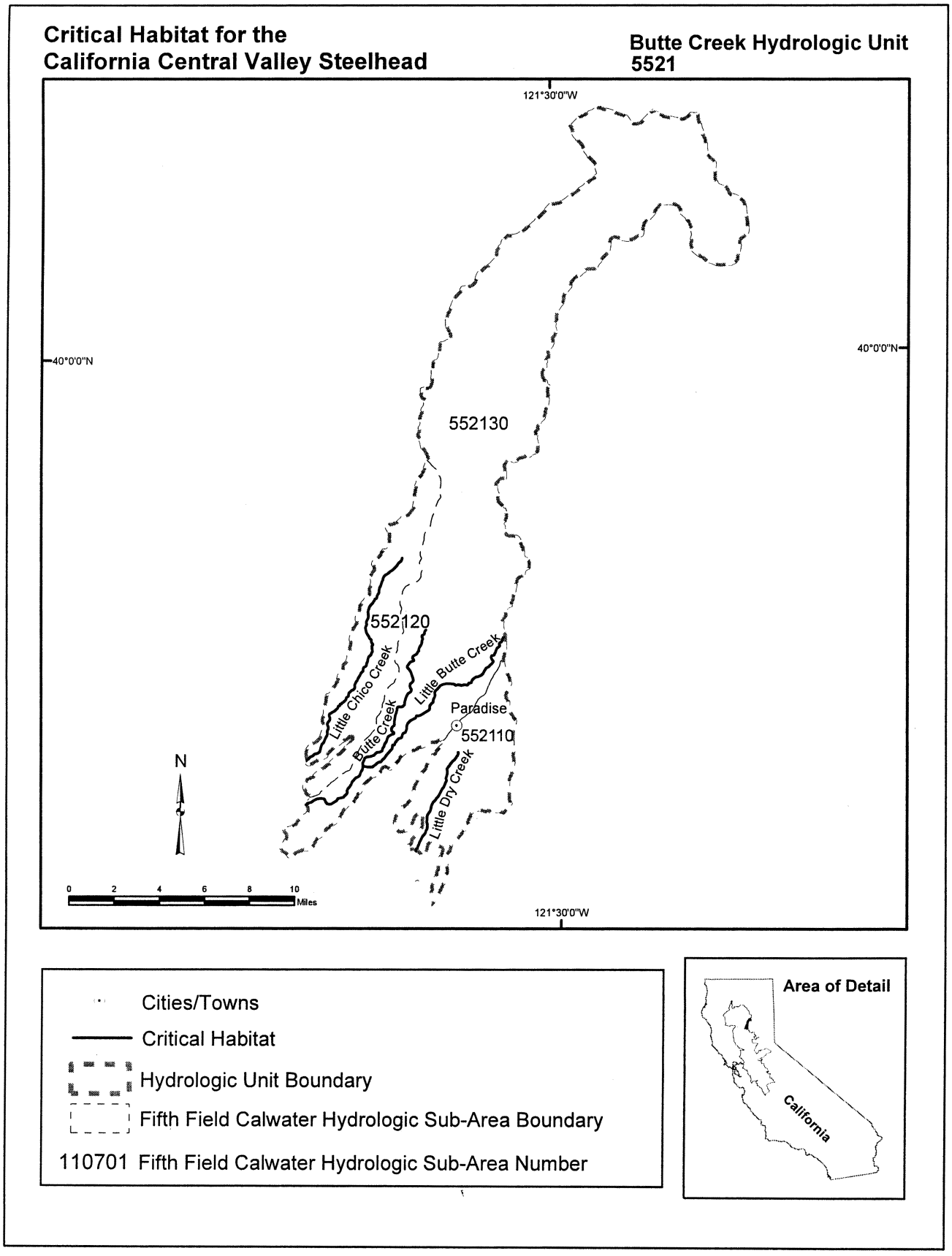

Critical Habitat for the
California Central Valley Steelhead
American River Hydrologic Unit
5514
121°0'0"W
39°0'0"N
39°0'0"N
Coon Creek
551422
Doty Creek
Auburn Ravine
N
0 1 2 3 4 5
Miles
Cities/Towns
Critical Habitat
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California

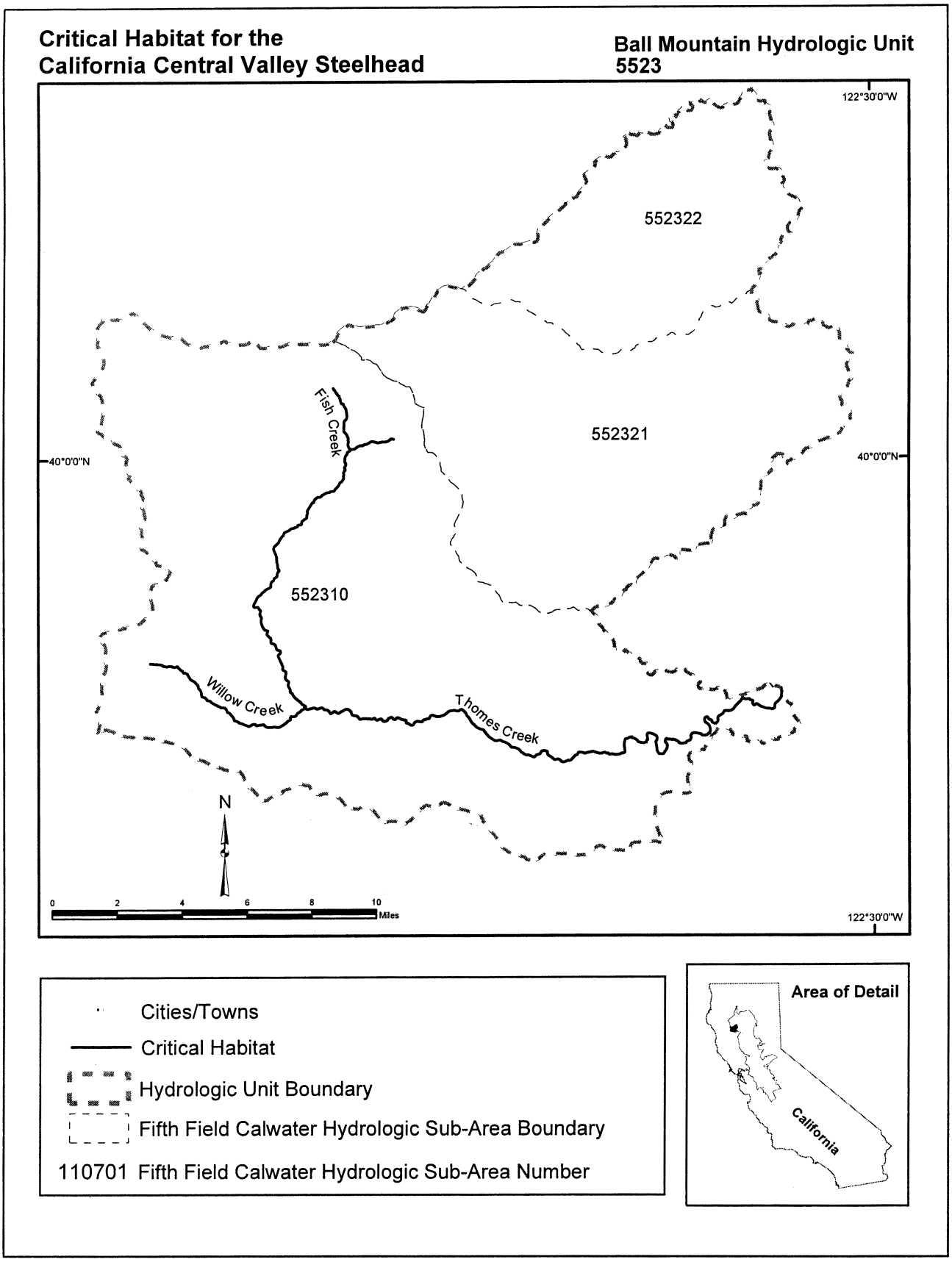

Critical Habitat for the
California Central Valley Steelhead
Marysville Hydrologic Unit
5515
121°30'0"W
39°30'0"N
39°0'0"N
Oroville
Feather River
551540
Honcut
Yuba River
551530
Marysville
551510
Wheatland
Bear River
N
0 2 4 6 8 10
Miles
Cities/Towns
Critical Habitat
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California

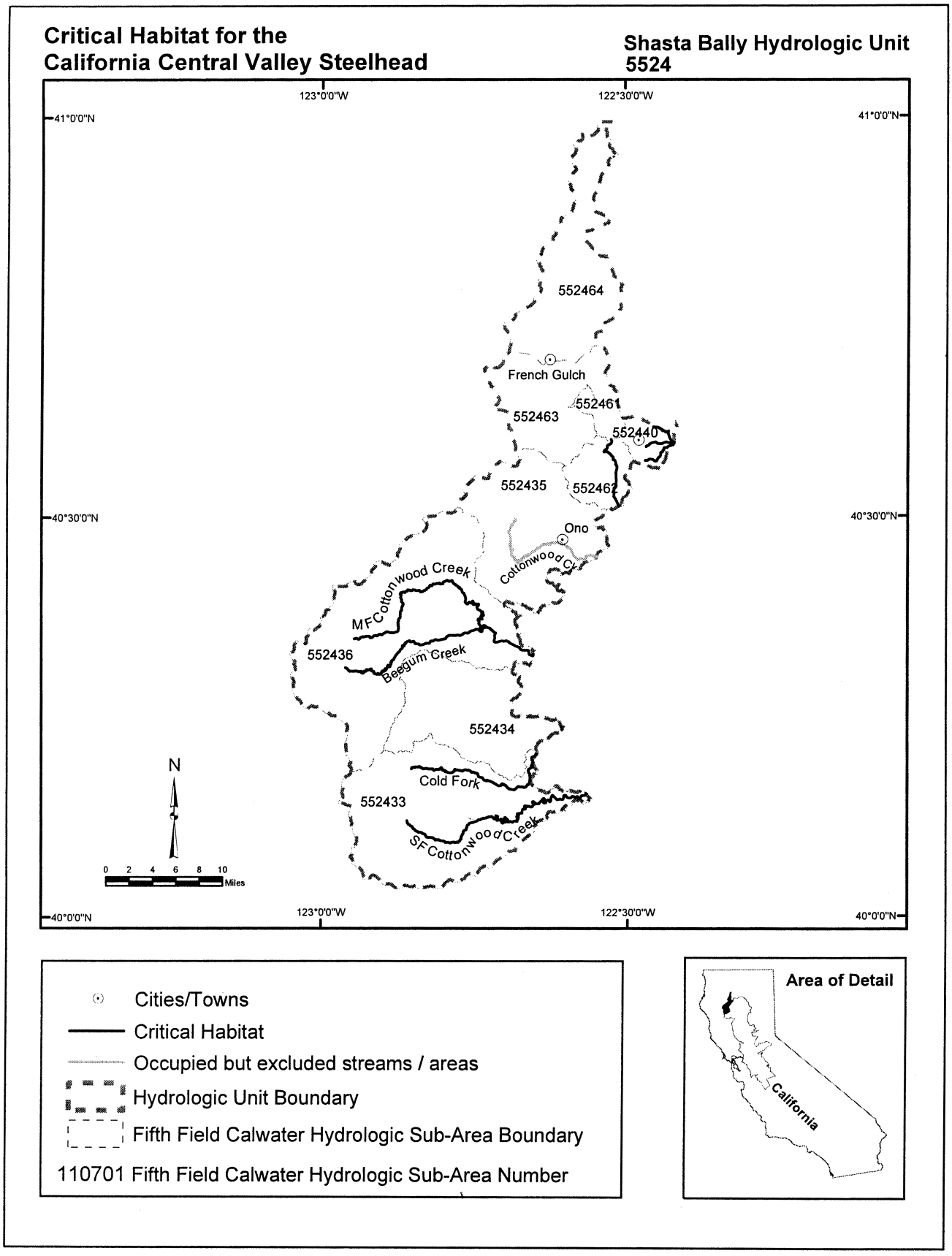

Critical Habitat for the
California Central Valley Steelhead
Yuba River Hydrologic Unit
5517
121°0'0"W
39°30'0"N
551713
551760
Dobbins
551714
Loma Rica
551712
Dry Creek
Yuba River
Deer Creek
Nevada City
551720
Smartville
N
0 2 4 6 8 10
Miles
121°30'0"W
121°0'0"W
Cities/Towns
Critical Habitat
Occupied but excluded streams / areas
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California

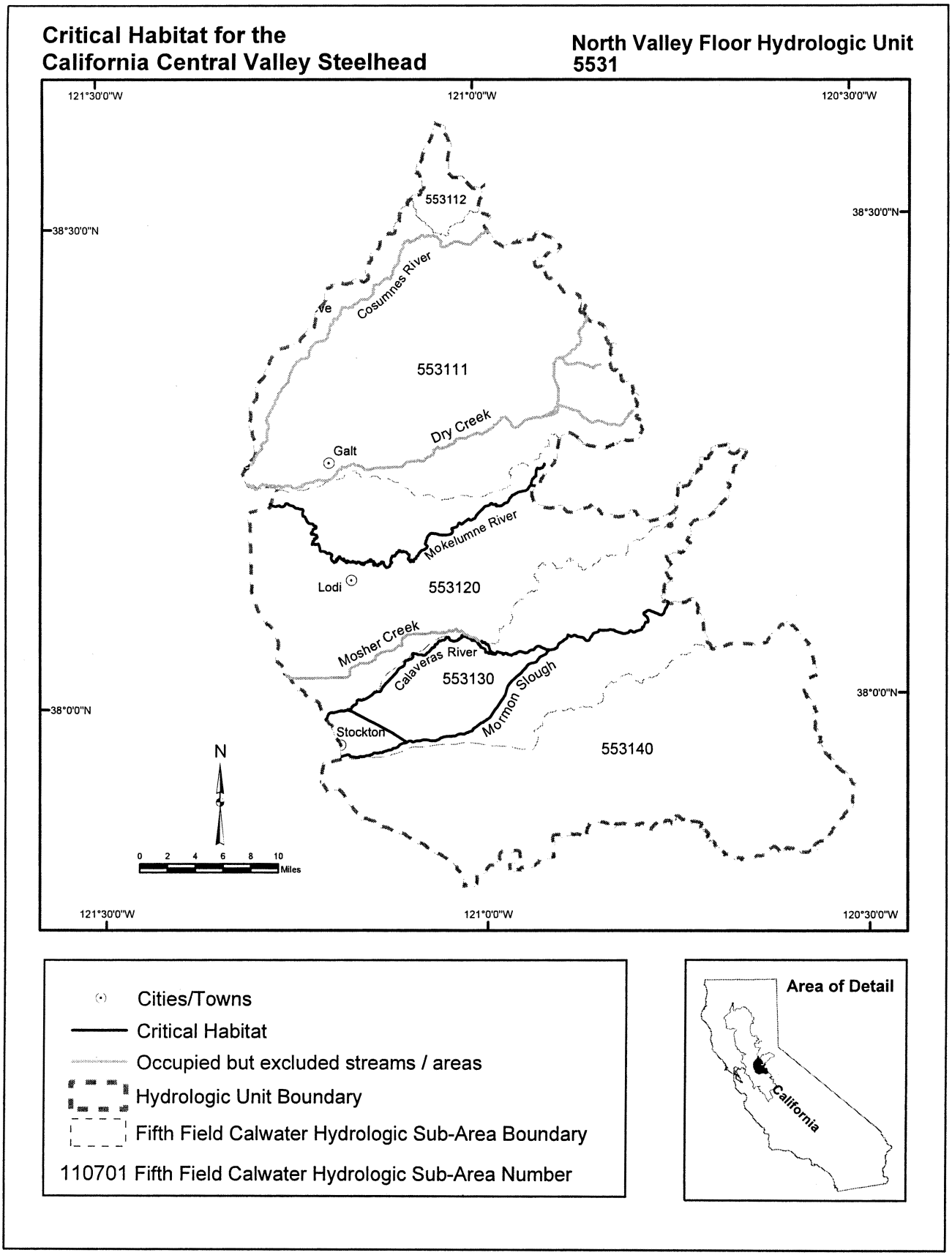

Critical Habitat for the
California Central Valley Steelhead
Valley-American Hydrologic Unit
5519
121°30'0"W
121°0'0"W
39°0'0"N
38°30'0"N
Olivehurst
Feather River
Doty Creek
551922
Coon Creek
Coon Creek
Secret Ravine
Miner's Ravine
Roseville
Dry Creek
551921
Sacramento River
Carmichael
American River
Sacramento
551912
Elk Grove
551911
N
0 2 4 6 8 10
Miles
Cities/Towns
Critical Habitat
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California


Critical Habitat for the
California Central Valley Steelhead
Colusa Basin Hydrologic Unit
5520
122°30'0"W
122°0'0"W
121°30'0"W
39°30'0"N
39°0'0"N
Orland
552022
Little Chico Creek
Willows
552040
Little Dry Creek
Gridley
Butte Creek
552021
552030
Colusa
Yuba City
Williams
Sutter Bypass
Tisdale
Bypass
552010
Sacramento River
Knights Landing
Yolo
N
0 2 4 6 8 10
Miles
Cities/Towns
Critical Habitat
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California


Critical Habitat for the
California Central Valley Steelhead
Butte Creek Hydrologic Unit
5521
121°30'0"W
40°0'0"N
552130
552120
Little Chico Creek
Little Butte Creek
Butte Creek
Paradise
552110
Little Dry Creek
N
0 2 4 6 8 10
Miles
Cities/Towns
Critical Habitat
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California

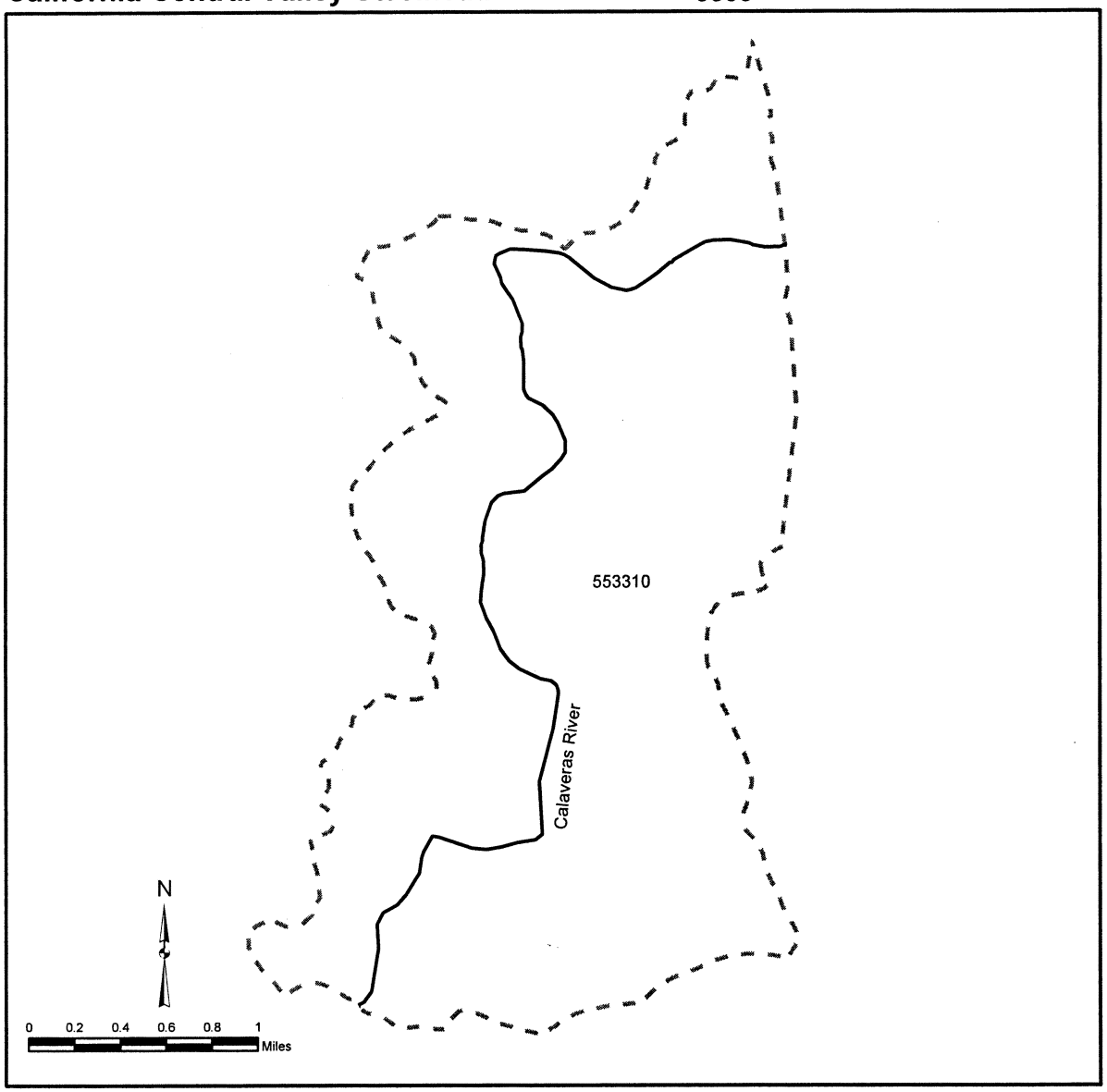

Critical Habitat for the
California Central Valley Steelhead
Ball Mountain Hydrologic Unit
5523
122°30'0"W
552322
552321
Fish Creek
40°0'0"N
552310
Willow Creek
Thomes Creek
N
0 2 4 6 8 10
Miles
Cities/Towns
Critical Habitat
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California


Critical Habitat for the
California Central Valley Steelhead
Shasta Bally Hydrologic Unit
5524
123°0'0"W
122°30'0"W
41°0'0"N
40°30'0"N
40°0'0"N
552464
French Gulch
552461
552463
552440
552435
552462
Ono
Cottonwood Cr
MF Cottonwood Creek
552436
Beegum Creek
552434
Cold Fork
552433
SF Cottonwood Creek
N
0 2 4 6 8 10
Miles
Cities/Towns
Critical Habitat
Occupied but excluded streams / areas
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California


Critical Habitat for the California Central Valley Steelhead
North Valley Floor Hydrologic Unit 5531
121°30'0"W
121°0'0"W
120°30'0"W
38°30'0"N
38°0'0"N
553112
553111
553120
553130
553140
Cosumnes River
Dry Creek
Galt
Mokelumne River
Lodi
Mosher Creek
Calaveras River
Mormon Slough
Stockton
N
0 2 4 6 8 10
Miles
Cities/Towns
Critical Habitat
Occupied but excluded streams / areas
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California

Critical Habitat for the California Central Valley Steelhead

Upper Calaveras Hydrologic Unit 5533

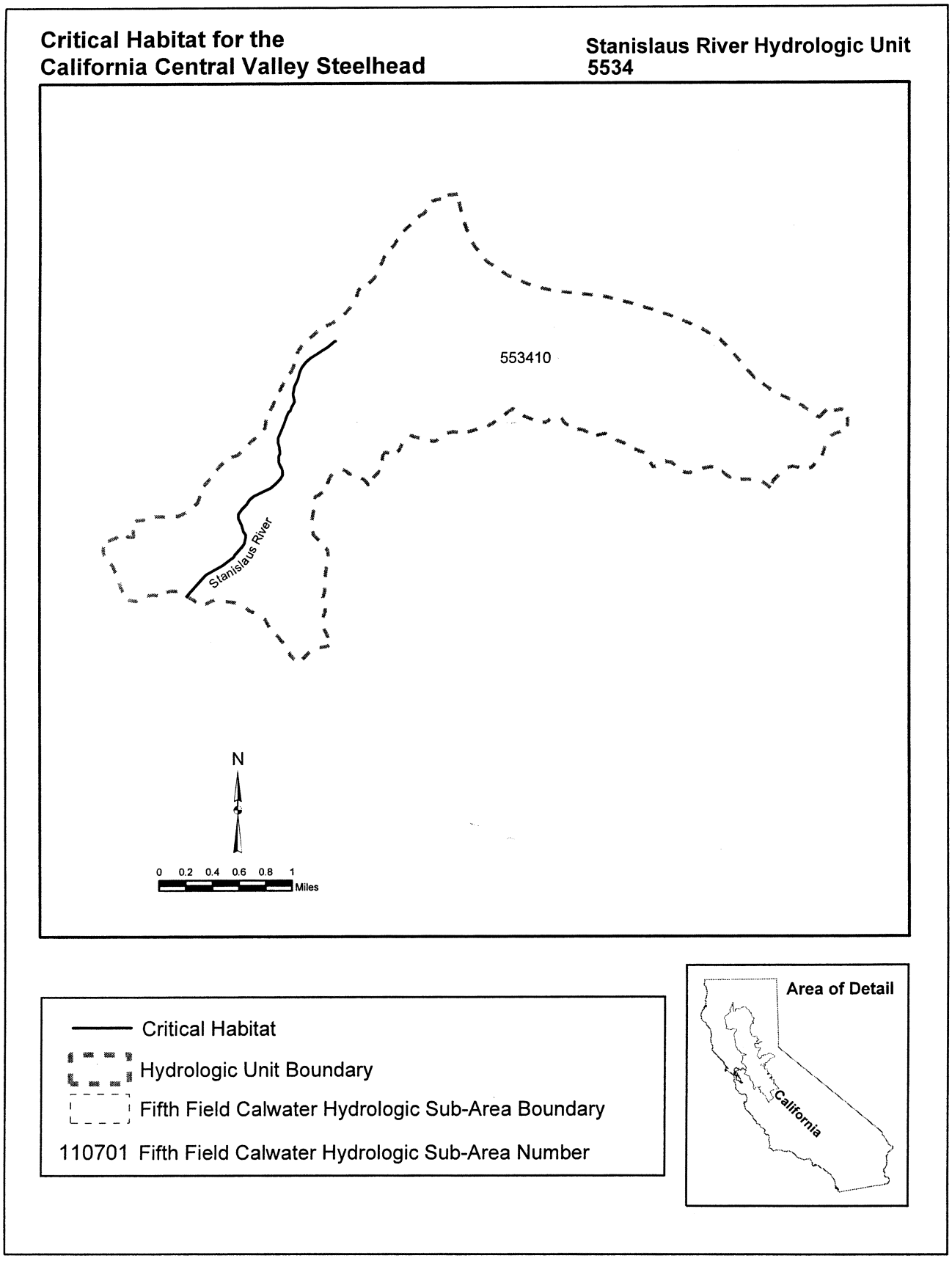


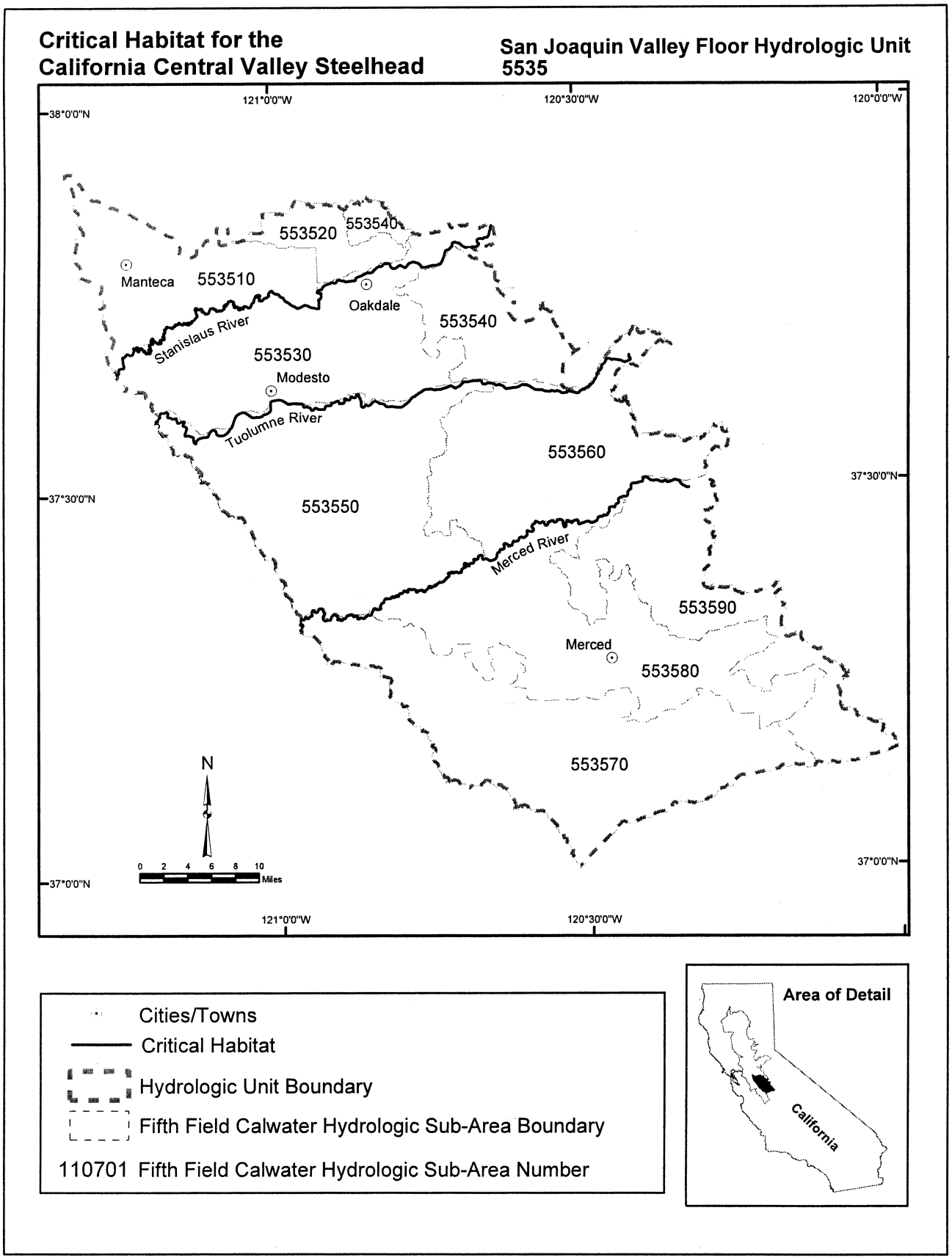
Critical Habitat

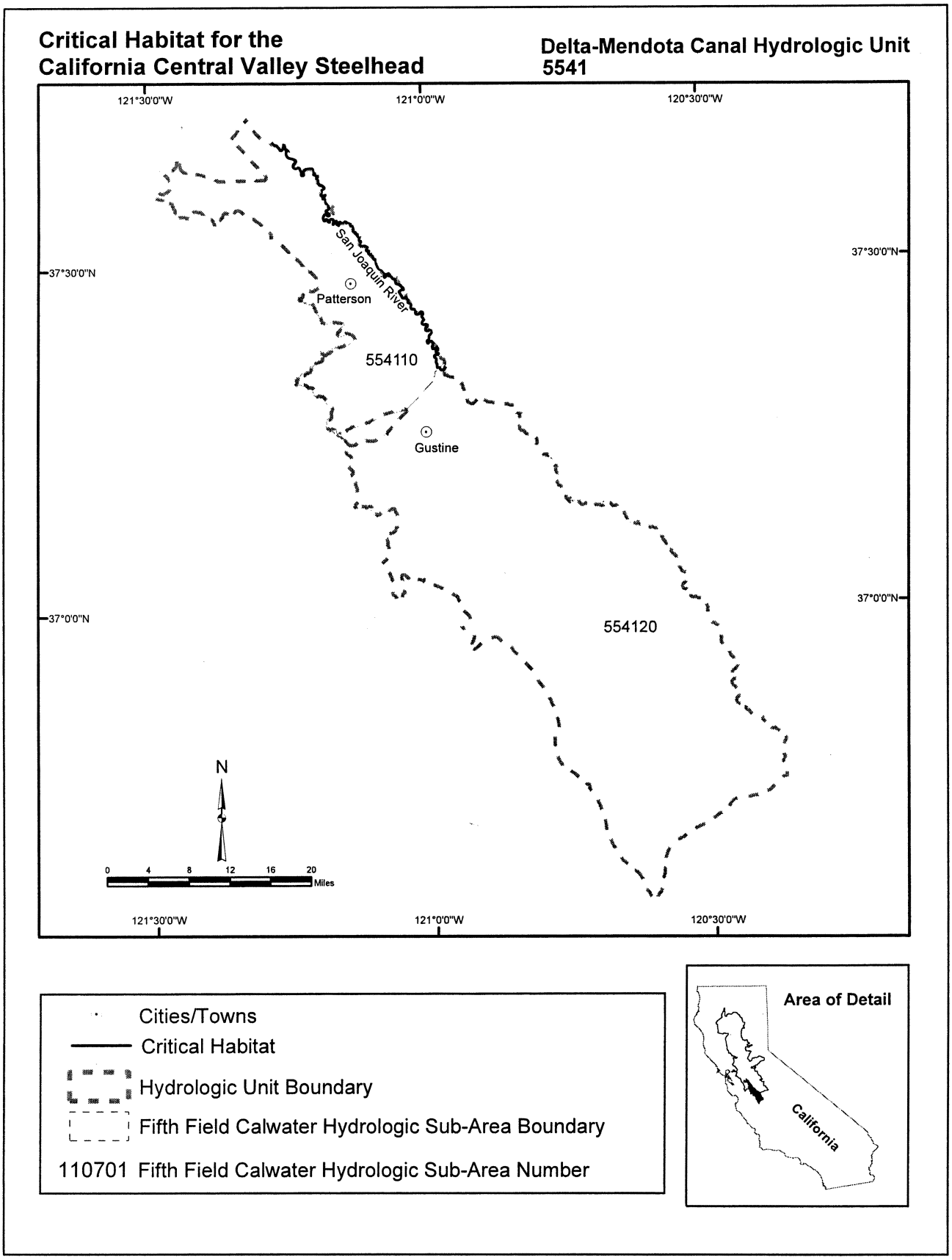
Hydrologic Unit Boundary

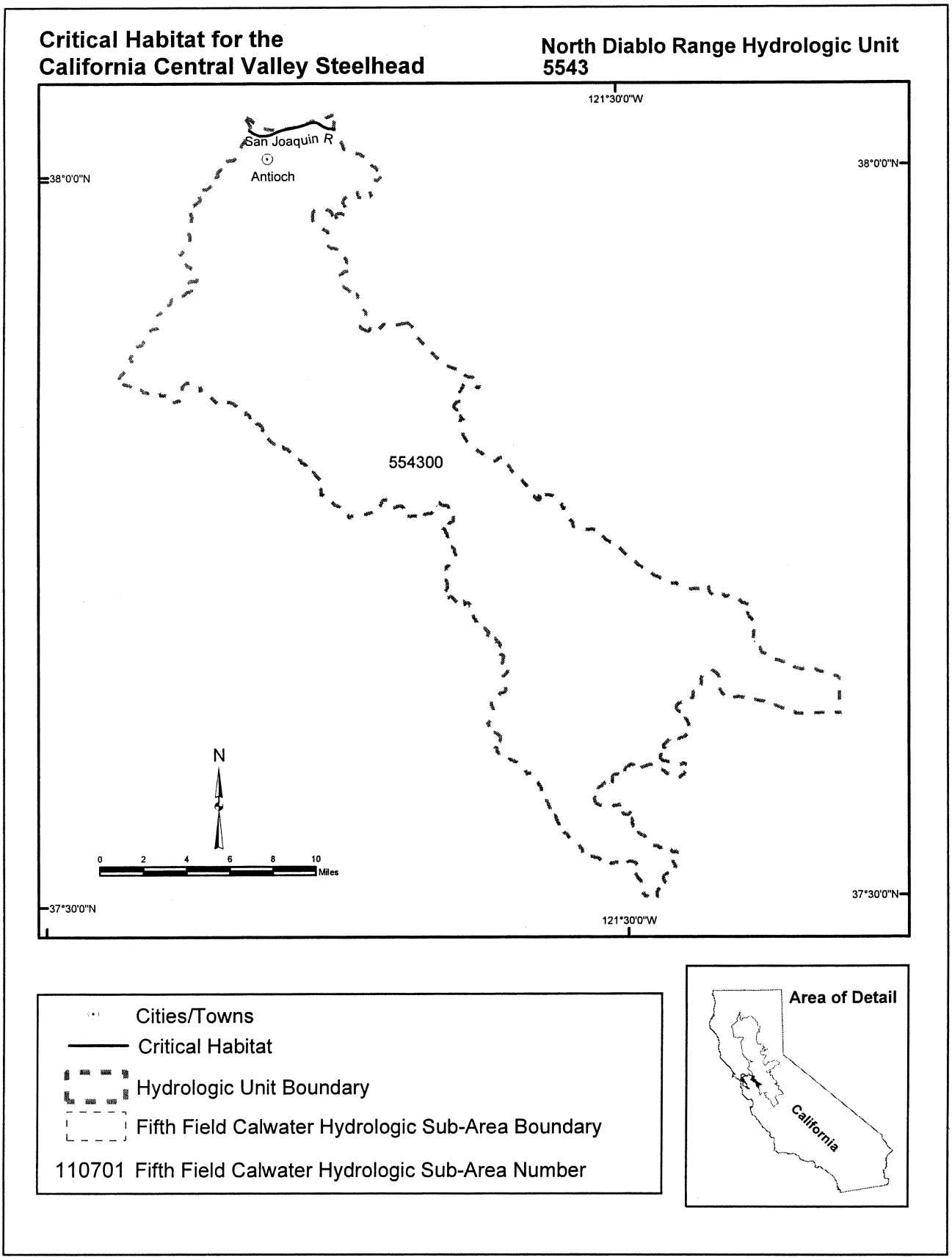
Fifth Field Calwater Hydrologic Sub-Area Boundary

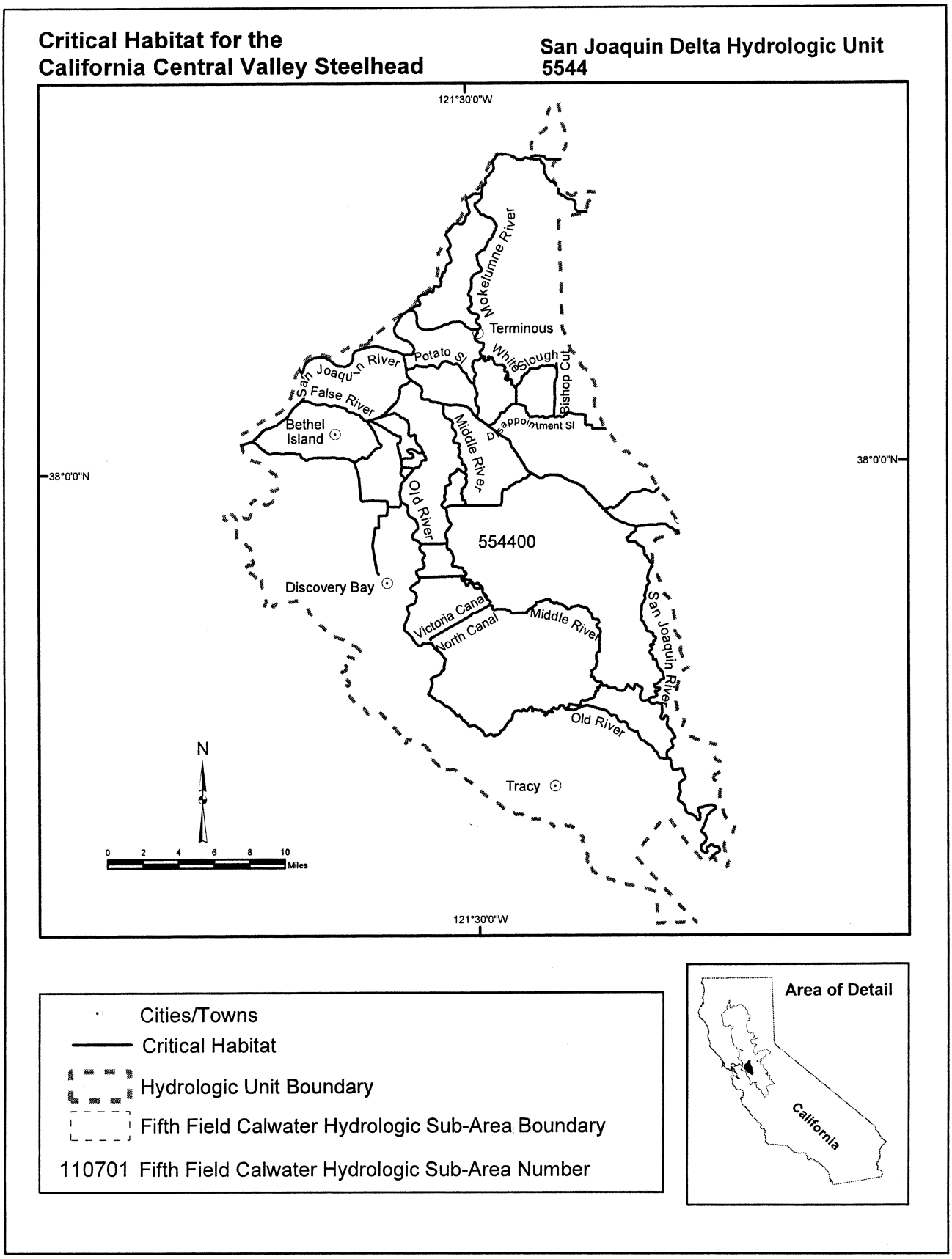
110701 Fifth Field Calwater Hydrologic Sub-Area Number


Critical Habitat for the
California Central Valley Steelhead
Stanislaus River Hydrologic Unit
5534
553410
Stanislaus River
N
0 0.2 0.4 0.6 0.8 1
Miles
Critical Habitat
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California


Critical Habitat for the California Central Valley Steelhead
San Joaquin Valley Floor Hydrologic Unit 5535
121°0'0"W
120°30'0"W
120°0'0"W
38°0'0"N
37°30'0"N
37°0'0"N
553520
553540
Manteca
553510
Oakdale
553540
Stanislaus River
553530
Modesto
Tuolumne River
553560
553550
Merced River
553590
Merced
553580
553570
N
0 2 4 6 8 10
Miles
Cities/Towns
Critical Habitat
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California


Critical Habitat for the
California Central Valley Steelhead
Delta-Mendota Canal Hydrologic Unit
5541
121°30'0"W
121°0'0"W
120°30'0"W
37°30'0"N
37°0'0"N
San Joaquin River
Patterson
Gustine
554110
554120
N
0 4 8 12 16 20
Miles
Cities/Towns
Critical Habitat
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California


Critical Habitat for the
California Central Valley Steelhead
North Diablo Range Hydrologic Unit
5543
121°30'0"W
38°0'0"N
San Joaquin R
Antioch
554300
N
0 2 4 6 8 10
Miles
37°30'0"N
Cities/Towns
Critical Habitat
Hydrologic Unit Boundary
Fifth Field Calwater Hydrologic Sub-Area Boundary
110701 Fifth Field Calwater Hydrologic Sub-Area Number
Area of Detail
California



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BILLING CODE 3510–22–C

FEDERAL REGISTER

Vol. 78 Wednesday,
No. 25 February 6, 2013

Part III

Department of the Interior

Fish and Wildlife Service

50 CFR Part 17

Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Tidewater Goby; Final Rule

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS–R8–ES–2011–0085; 4500030114]

RIN 1018–AX39

Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Tidewater Goby

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: We, the U.S. Fish and Wildlife Service, designate critical habitat for the tidewater goby (*Eucyclogobius newberryi*) under the Endangered Species Act of 1973, as amended (Act). In total, approximately 12,156 acres (4,920 hectares) in Del Norte, Humboldt, Mendocino, Sonoma, Marin, San Mateo, Santa Cruz, Monterey, San Luis Obispo, Santa Barbara, Ventura, Los Angeles, Orange, and San Diego Counties, California, fall within the boundaries of the critical habitat designation.

DATES: This rule becomes effective on March 8, 2013.

ADDRESSES: This final rule and the associated final economic analysis are available on the Internet at *http://www.regulations.gov* at Docket No. FWS–R8–ES–2011–0085, and from the Ventura Fish and Wildlife Office Web site at *http://www.fws.gov/ventura/.* Comments and materials received, as well as supporting documentation used in preparing this final rule, are available for public inspection, by appointment, during normal business hours, at the U.S. Fish and Wildlife Service, Ventura Fish and Wildlife Office, 2493 Portola Road, Suite B, Ventura, CA 93003; telephone 805–644–1766; facsimile 805–644–3958.

The coordinates or plot points or both from which the maps included in the regulation are generated are included in the administrative record for this critical habitat designation and are available at *http://www.fws.gov/ventura/,* at *http://www.regulations.gov* in Docket No. FWS–R8–ES–2011–0085, and at the Ventura Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**). Any additional tools or supporting information that has been developed for this critical habitat designation will also be available at the Fish and Wildlife Service Web site and Field Office set out above, and may also be included in the preamble and/or at *http://www.regulations.gov.*

FOR FURTHER INFORMATION CONTACT: For general information, and information about the final designation in Santa Cruz, Monterey, San Luis Obispo, Santa Barbara, Ventura, and Los Angeles Counties, contact Diane K. Noda, Field Supervisor, U.S. Fish and Wildlife Service, Ventura Fish and Wildlife Office, 2493 Portola Road, Suite B, Ventura, CA 93003; telephone 805–644–1766; facsimile 805–644–3958. If you use a telecommunications device for the deaf (TDD), call the Federal Information Relay Service (FIRS) at 800–877–8339.

For information about the final designation in Del Norte, Humboldt, and Mendocino Counties, contact Nancy Finley, Field Supervisor, U.S. Fish and Wildlife Service, Arcata Fish and Wildlife Office, 1655 Heindon Road, Arcata, CA 95521; telephone 707–822–7201; facsimile 707–822–8411.

For information about the final designation in Sonoma, Marin, and San Mateo Counties, contact Susan Moore, Field Supervisor, U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, 2800 Cottage Way, Suite W–2605, Sacramento, CA 95825; telephone 916–414–6600; facsimile 916–414–6712.

For information about the final designation in Orange and San Diego Counties, contact Jim Bartel, Field Supervisor, U.S. Fish and Wildlife Service, Carlsbad Fish and Wildlife Service Office, 6010 Hidden Valley Road, Suite 101, Carlsbad, CA 92011; telephone 760–431–9440; facsimile 760–431–5901.

SUPPLEMENTARY INFORMATION:

Executive Summary

Why we need to publish a rule. This is a final rule to revise the designation of critical habitat for the endangered tidewater goby. Under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act), any species that is determined to be an endangered or threatened species requires critical habitat to be designated, to the maximum extent prudent and determinable. Designations and revisions of critical habitat can only be completed by issuing a rule. In total, approximately 12,156 acres (ac) (4,920 hectares (ha)) of critical habitat for the tidewater goby in California fall within the boundaries of the critical habitat designation.

We designated critical habitat for this species in 2000 and again in 2008. As part of a settlement agreement, we agreed to reconsider the 2008 designation. A proposed rule to revise the 2008 critical habitat designation was published in the **Federal Register** on October 19, 2011 (76 FR 64996). This constitutes our final revised designation for the tidewater goby.

We are making the following changes to the critical habitat designation. The 2008 final critical habitat designation (73 FR 5920) consisted of 44 units in Del Norte, Humboldt, Mendocino, Sonoma, Marin, San Mateo, Santa Cruz, Monterey, San Luis Obispo, Santa Barbara, Ventura, and Los Angeles Counties, California, totaling 10,003 ac (4,050 ha). In this final critical habitat designation, we have designated 65 critical habitat units for the tidewater goby throughout its range, including the 44 units designated in the 2008 final rule. These units are essential for the recovery of the tidewater goby as described in the Recovery Plan for the Tidewater Goby (Service 2005a; Recovery Plan).

The basis for our action. Under the Act, we must determine critical habitat for any endangered or threatened species to the maximum extent prudent and determinable. We are required to base the designation on the best available scientific data after taking into consideration the economic impact, the impact on national security, and any other relevant impact of specifying any particular area as critical habitat. The Secretary of the Department of the Interior (Secretary) may exclude an area from critical habitat if the benefits of exclusion outweigh the benefits of designation, unless the exclusion will result in the extinction of the species.

We prepared an economic analysis. In order to consider economic impacts, we prepared a new analysis of the economic impacts of the proposed revised critical designation. We announced the availability of the draft economic analysis (DEA) in the **Federal Register** on July 24, 2012 (77 FR 43222), allowing the public to provide comments on our analysis. We considered all comments and information received from the public during the comment period, incorporated the comments as appropriate, and have completed the final economic analysis (FEA) concurrently with this final determination. The economic analysis did not identify any areas with disproportionate costs associated with the designation, and no areas were excluded from the final designation based on economic reasons.

Peer review and public comment. We sought comments and information from independent specialists to ensure that our critical habitat designation is based on scientifically sound data, assumptions, and analyses. We had invited these peer reviewers to comment on our specific assumptions and

conclusions in the proposed revision of the critical habitat designation. These peer reviewers generally concurred with our methods and conclusions and provided additional information, clarifications, and suggestions to improve this final rule. Information we received from peer review is incorporated in this final revised designation. We also considered all comments and information received from the public during the comment period.

Previous Federal Actions

On April 15, 2009, the Natural Resources Defense Council (NRDC) filed a lawsuit in the U.S. District Court for the Northern District of California challenging a portion of the January 31, 2008, final rule that designated 44 critical habitat units in California (73 FR 5920, January 31, 2008). The lawsuit challenged the Service's failure to include any unoccupied habitat and the exclusion of some occupied habitat from critical habitat designation, and the failure to explain why unoccupied habitat previously included in the 2000 designation was not included in the 2008 designation. In a consent decree dated December 11, 2009, the U.S. District Court: (1) Stated that the 44 critical habitat units should remain in effect; (2) stated that the final rule designating critical habitat was remanded in its entirety for reconsideration; and (3) directed the Service to promulgate a revised critical habitat rule that considers the entire geographic range of the tidewater goby and any currently unoccupied tidewater goby habitat. The consent decree requires that the Service submit proposed and final revised rules to the **Federal Register** no later than October 7, 2011, and November 27, 2012, respectively. We published a proposed revised critical habitat in the **Federal Register** on October 19, 2011 (76 FR 64996). Information on the associated draft economic analysis for the revised proposed critical habitat was published in the **Federal Register** on July 24, 2012 (77 FR 43222). At the request of the Service on November 26, 2012, the U.S. District Court granted a 60-day extension to submit the final revised rule to the **Federal Register** no later than January 26, 2013. By publishing this final revised designation we are complying with the consent decree established by the Court. For additional information on previous Federal actions please refer to the 1994 listing rule (59 FR 5494; February 4, 1994), and previous critical habitat designation (73 FR 5920; January 31, 2008).

Background

It is our intent to discuss in this final rule only those topics directly relevant to the development and designation of critical habitat for the tidewater goby under the Act (16 U.S.C. 1531 *et seq.*). For more information on the biology and ecology of the tidewater goby, refer to the final listing rule published in the **Federal Register** on February 4, 1994 (59 FR 5494). For information on tidewater goby critical habitat, refer to the proposed rules to designate critical habitat for the tidewater goby published in the **Federal Register** on August 3, 1999 (64 FR 42250), November 28, 2006 (71 FR 68914), and October 19, 2011 (76 FR 64996); and the subsequent final critical habitat designations published in the **Federal Register** on November 20, 2000 (65 FR 69693), and January 31, 2008 (73 FR 5920); and to our Recovery Plan (Service 2005a), which is available from the Ventura Fish and Wildlife Office (see **ADDRESSES** section or *http://ecos.fws.gov*). Information on the associated draft economic analysis for the proposed rule to revise critical habitat was published in the **Federal Register** on July 24, 2012 (77 FR 43222).

Species Description and Genetic/Morphological Characteristics

The tidewater goby is a small, elongate, gray-brown fish rarely exceeding 2 inches (in) (5 centimeters (cm)) in length. This species possesses large pectoral fins, with the pelvic or ventral fins joined to each other beginning below the chest and belly and from below the gill cover back to just anterior of the anus. Male tidewater gobies are nearly transparent with a mottled brown upper surface. Female tidewater gobies develop darker colors, often black, on the body and dorsal and anal fins. The tidewater goby is a short-lived species; the lifespan of most individuals appears to be about 1 year (Irwin and Soltz 1984, p. 26; Swift *et al.* 1989, p. 4; Hellmair 2011, p. 5).

Various genetic markers demonstrate that pronounced differences exist in the genetic structure of the tidewater goby, and that tidewater goby populations in some locations are genetically distinct. A study of mitochondrial DNA and cytochrome b (molecular material used in genetic studies) sequences from tidewater gobies that were collected at 31 locations throughout the species' geographic range has identified six major phylogeographic (historical processes that may be responsible for the current geographic distributions) units (Dawson *et al.* 2001, p. 1171). These six regional units are the basis for the recovery units in the Recovery Plan (Service 2005a, p. 30), and include the following areas: (1) Tillas Slough (Smith River) in Del Norte County to Lagoon Creek in Mendocino County (North Coast (NC) Recovery Unit); (2) Salmon Creek in Sonoma County to Bennett's Slough in Monterey County (Greater Bay (GB) Recovery Unit); (3) Arroyo del Oso to Morro Bay in San Luis Obispo County (Central Coast (CC) Recovery Unit); (4) San Luis Obispo Creek in San Luis Obispo County to Rincon Creek in Santa Barbara County (Conception (CO) Recovery Unit); (5) Ventura River in Ventura County to Topanga Creek in Los Angeles County (Los Angeles-Ventura (LV) Recovery Unit); and (6) San Pedro Harbor in Los Angeles County to Los Peñasquitos Lagoon in San Diego County (South Coast (SC) Recovery Unit).

A more recent study to gather genetic distribution data for the tidewater goby used a panel of novel microsatellite loci (repeating sequences of DNA) assessed in a first-order (unbound strands of DNA) survey across its range (Earl *et al.* 2010, p. 104). More specifically, Earl *et al.* (2010, p. 103) described 19 taxon-specific microsatellite loci, and assessed genetic variation across the tidewater goby's range relative to genetic subdivision. The study concluded: (1) Populations of tidewater goby in northern San Diego County form a highly divergent clade (a genetically related group) with reduced genetic variation that appears to merit status as a separate species; (2) populations along the mid-coast of California are subdivided into regional groups, which are more similar to each other than different, contrary to conclusions from previous mitochondrial sequence-based studies (Dawson *et al.* 2001, p. 1176); and (3) that tidewater goby dispersal during the Pleistocene/Holocene sea level rise (approximately 7,000 years ago), followed by increased isolation during the Holocene, formed a star phylogeny (recent population formed from a common ancestor) with geographic separation in the northernmost populations and some local differentiation (Earl *et al.* 2010, p. 103). Genetic diversity among populations within a species may be important to long-term persistence because it represents the raw material for adapting to differing local conditions and environmental stochasticity (Frankham 2005, p. 754).

The conclusion that the populations of the tidewater goby in the North Coast Recovery Unit formed as a result of a single recent episode of colonization of newly formed habitats is supported by McCraney *et al.* (2010, p. 3325). They compared genetic variation of 13

naturally and artificially fragmented populations of the tidewater goby in northern California, including 8 Humboldt Bay populations and 5 coastal lagoon populations (Lake Earl, Stone Lagoon, Big Lagoon, Virgin Creek, and Pudding Creek), and reached similar conclusions to Earl *et al.* (2010, p. 113). McCraney *et al.* (2010, p. 3325) also concluded that natural and artificial habitat fragmentation caused marked divergence among the tidewater goby in the North Coast populations. Their study showed that Humboldt Bay populations, due to isolation by manmade barriers, exhibited very high levels of genetic differentiation between populations, extremely low levels of genetic diversity within populations, and no migration among populations. They concluded that this pattern makes the Humboldt Bay populations of tidewater goby vulnerable to extirpation because artificial fragmentation and its resulting genetic differentiation between subpopulations, extremely low levels of genetic diversity within subpopulations, and lack of migration among the subpopulations reduces fitness and adaptive potential of a subpopulation (McCraney *et al.* 2010, p. 3325). In contrast, the study found that, while coastal lagoon populations also exhibited very high levels of genetic differentiation between populations, these populations displayed substantial levels of genetic diversity within populations indicating occasional migration among lagoons (McCraney *et al.* 2010, p. 3325). Populations in all coastal lagoons, with the exception of Lake Earl in Del Norte County, appear to be stable and genetically healthy (McCraney *et al.* 2010, p. 3325). The Lake Earl population exhibited reduced levels of genetic diversity in comparison to similar coastal lagoon populations (McCraney *et al.* 2010, p. 3324). McCraney *et al.* (2010, p. 3324) suspects that the reduced genetic diversity detected within Lake Earl is likely due to repeated population bottlenecks (reduced genetic diversity due to reduced population size) resulting from regular artificial breaching of the sandbar at the lagoon mouth.

To summarize, the conclusions from these studies are:

(1) The species can be divided into six phylogeographic units based upon genetic similarities and differences.

(2) The tidewater goby to the south of the gap between Los Angeles and Orange Counties is probably a separate species from populations to the north based on its divergent genetic makeup.

(3) Natural and anthropogenic barriers have contributed to genetic differentiation among populations.

(4) Although genetic differences occur between populations north of the Los Angeles-Orange County line, they are not as divergent as those populations further south.

(5) Some north coast populations exhibit significantly reduced genetic diversity, reduced growth potential, and reduced duration of spawning period. These populations appear to be vulnerable to extirpation.

Metapopulation Dynamics

Local populations of tidewater goby are best characterized as metapopulations (Lafferty *et al.* 1999a, p. 1448; Smith, *in litt.* 2012). How a metapopulation functions through time is an important factor in the conservation of the tidewater goby and thus it is an important consideration in the designation of critical habitat. As such, using information primarily from Groom *et al.* (2006, pp. 216–219, 383–384, 424–428) and Primack (2006, pp. 285–287) and elsewhere as noted below, we present the general concept of metapopulation dynamics followed by a discussion of its application to the tidewater goby.

A metapopulation, in short, is a population of populations (often referred to as subpopulations). However, because of variations in the rates of birth, death, immigration, and emigration, each population is not static over time; as such, the interplay of a metapopulation's constituent populations results in a dynamic process of metapopulation maintenance. Thus, definitions of the term *metapopulation* within the scientific literature often incorporate the dynamic interaction of subpopulations, according to Groom *et al.* (2006, p. 706) a metapopulation consists of: ''A network of semi-isolated populations with some level of regular or intermittent migration and gene flow among them, in which individual populations may go extinct [become extirpated] but can then be recolonized from other populations.'' The Recovery Plan also incorporates interpopulation interaction in its definition of metapopulation: ''several to many subpopulations [of] tidewater goby that are close enough to one another that dispersing individuals could be exchanged'' (Service 2005a, p. A–3).

Regarding this discussion, two points in particular are important to note in metapopulations: (1) Variability within subpopulations, and (2) connectivity between them through dispersing individuals. As mentioned above, subpopulations at different locations within a metapopulation vary over time. Because of intrinsic and extrinsic factors (Soulé and Simberloff 1986, pp. 27–28), some populations at given locations have high rates of growth in some years and other populations decline or even become extirpated. Yet, because subpopulations within a metapopulation are biologically connected through dispersing individuals, high-productivity subpopulations (sources) may augment the population size in low-productivity subpopulations (sinks); moreover, dispersing individuals may even recolonize extirpated areas. In this way, a metapopulation as a whole maintains a greater level of stability over time than its constituent subpopulations—in effect, metapopulation dynamics dampen the effects of variability. In addition to bolstering subpopulations or recolonizing extirpated areas, dispersing individuals are also important for maintaining gene flow between subpopulations (genetic connectivity) and thereby reducing the risk that certain alleles may be lost as a result of the extirpation of a subpopulation.

Moreover, the greater the number of constituent subpopulations within a metapopulation, the greater the likelihood the effects of variability will be attenuated in that metapopulation. In short, because of metapopulation dynamics, extirpation of a subpopulation is not necessarily permanent. This results in a situation where constituent subpopulations ''blink out'' and ''blink on'' over time. A metapopulation persists through time because the rate of extirpation in subpopulations is balanced by the rate of recolonization. As a result, occupancy of an area may change over time.

The balance discussed above is in large part dependent upon dispersal of individuals. Ultimately, when the rate of recolonization is reduced or eliminated, the effects of the threats are no longer dampened by metapopulation dynamics. In such a case, each constituent subpopulation becomes increasingly or completely independent, and extirpation of such a subpopulation is likely to be permanent.

The pattern of extirpation and recolonization observed in the tidewater goby suggests that some tidewater goby populations exhibit a metapopulation dynamic where some populations survive or remain viable by continually exchanging individuals and recolonizing after occasional extirpations (Doak and Mills 1994, p. 619). Individual populations of tidewater goby occupy coastal lagoons and estuaries that are separated from each other by land and, in most cases, are separated from the open ocean by

sandbars, or other barriers. Very few tidewater gobies have ever been captured in the marine environment (Swift *et al.* 1989, p. 7), which suggests that this species rarely occurs in the open ocean. Studies of the tidewater goby suggest that some populations persist on a consistent basis, while other populations appear to experience intermittent extirpations (local extinctions) (Lafferty *et al.* 1999a, p. 1452). These extirpations may result from one or a series of factors, such as the drying up of the lagoon during prolonged droughts (Lafferty *et al.* 1999a, p. 1451). Some of the areas where the tidewater goby has been extirpated apparently have been recolonized by nearby populations (those within approximately 6 miles (mi) (10 kilometers (km))) (Lafferty *et al.* 1999a, p. 1451; Smith, *in litt.* 2012). However, genetic research has revealed tidewater gobies are capable of dispersing up to 30 mi (48 km) (Jacobs *et al.* 2005, p.52).

Lafferty *et al.* (1999b, p. 618) monitored the postflood persistence of several tidewater goby populations in Santa Barbara and Los Angeles Counties after the heavy winter floods of 1995. All of the monitored populations persisted after the floods, and no significant changes in population sizes were noted (Lafferty *et al.* 1999b, p. 621). However, tidewater goby apparently colonized Cañada Honda in Santa Barbara County after one flood event (Lafferty *et al.* 1999b, p. 621). This suggests that flooding—where the barrier between the lagoon and the open ocean is breached and tidewater goby individuals are washed out to sea—may sometimes have a positive effect, forcing the dispersal of individuals and thereby allowing for recolonization of habitats where a tidewater goby population has become extirpated or allowing for genetic exchange between extant populations.

Historical records and survey results for several areas occupied by the tidewater goby are available (Swift *et al.* 1989, pp. 18–19; Swift *et al.* 1994, pp. 8–16). These studies suggest that the persistence of tidewater goby populations is related to habitat size, configuration, location, and proximity to human development. In general, the most stable and persistent tidewater goby populations tend to occur in lagoons and estuaries that are more than 2.5 ac (1 ha) in size, and that have remained relatively unaffected by human activities (Lafferty *et al.* 1999a, pp. 1450–1453). Conversely, some habitats less than 2.5 ac (1 ha) in size have tidewater goby populations that persist on a regular basis, such as Cañada del Agua Caliente in Santa Barbara County (Swift *et al.* 1997, p. 3). We also note that some systems that are affected or altered by human activities also have relatively large and stable populations; examples include Pismo Creek in San Luis Obispo County, the Santa Ynez River in Santa Barbara County, and the Santa Clara River in Ventura County. The best available information suggests that the lagoons and estuaries with persistent tidewater goby populations likely serve as source populations that provide individuals that colonize adjacent locations with intermittent populations (Lafferty *et al.* 1999a, p. 1452). However, a rangewide metapopulation viability analysis for the tidewater goby has not been conducted; data from such a study would help inform which tidewater goby populations are source populations and which are sinks, and allow for the development of metapopulation-based recovery objectives for the species. Until data on demography and dynamics of tidewater goby metapopulations are available, the Recovery Plan for the species calls for interim objectives that emphasize consistent occupancy of habitat capable of sustaining viable tidewater goby populations (Service 2005a, p. 39).

Distribution

The known geographic range of the tidewater goby is limited to the coast of California (Eschmeyer *et al.* 1983, p. 262; Swift *et al.* 1989, p. 12). The species historically occurred from locations 3 mi (5 km) south of the California—Oregon border (Tillas Slough in Del Norte County) to 44 mi (71 km) north of the United States—Mexico border (Agua Hedionda Lagoon in San Diego County). The available documentation (Eschmeyer *et al.* 1983, p. 262; Swift *et al.* 1989, p. 12) suggests that the northernmost extent of the current geographic range has not changed over time. Tidewater goby historically occurred in Agua Hedionda Lagoon, but the site is currently considered to be unoccupied. The species' southernmost, known, currently occupied locality is the San Luis Rey River, 5 mi (8 km) north of Agua Hedionda Lagoon in San Diego County. Although the northernmost extent of the tidewater goby's range has not changed and the southernmost extent has retracted by only 5 mi (8 km), its overall distribution has become patchy and fragmented along the coast. However, as discussed above in the *Metapopulation Dynamics* section, the occupancy of an area may change overtime and, when determining occupancy of an area, we first look at the rangewide occupancy for the species and then consider potential connectivity and source areas at the subpopulation or unit level.

The tidewater goby appears to be naturally absent from several long (50 to 135 mi (80 to 217 km)) stretches of coastline lacking lagoons or estuaries, where steep topography or swift currents may prevent the tidewater goby from dispersing between adjacent locations (Swift *et al.* 1989, p. 13; Earl *et al.* 2010, p. 104). One such gap occurs between the Eel River in Humboldt County and the Ten Mile River in Mendocino County. A second gap exists between Davis Lake in Mendocino County and Salmon Creek in Sonoma County. Another large natural gap exists between Monterey County and Arroyo del Oso in San Luis Obispo County. Habitat loss and other anthropogenic-related factors have resulted in the tidewater goby's absence from several locations where it historically occurred; the extirpation of tidewater goby from some of these locations has expanded gaps and created additional gaps in the species' geographic distribution (Capelli 1997, p. 7). Two examples of extirpations are San Francisco Bay in San Francisco and Alameda Counties, and Redwood Creek and Freshwater Lagoon in Humboldt County.

Swift *et al.* (1989, p. 13) reported that, as of 1984, tidewater goby occurred or had been known to occur at 87 locations, including those at the extreme northern and southern end of the species' historical geographic range. An assessment of the species' distribution in 1993, using records that were limited to the area between the Monterey Peninsula in Monterey County and the United States—Mexico border, found the tidewater goby occurring at four additional sites since 1984 (Swift *et al.* 1993, p. 129). Other locations have been identified since 1993, and to date the tidewater goby has been documented to have occurred at 135 locations. Of these 135 locations, 21 (16 percent) are no longer occupied by the tidewater goby.

Habitat

The lagoons, estuaries, backwater marshes, and freshwater tributaries that tidewater goby occupy are dynamic environments subject to considerable fluctuations on a seasonal and annual basis. Typically, a sandbar forms in the late spring as flow into a lagoon declines enough to allow the ocean surf to build up sand at the mouth of the lagoon. Winter rains and increased stream flows may bring in considerable sediment and dramatically affect the bottom profile and substrate composition of a lagoon or estuary. Fine mud and clay either move through the

lagoon or estuary, or settle out in the backwater marshes, while heavier sand is left behind. High flows associated with winter rains can scour out the lagoon bottom to a lower level, especially after breaching the mouth sandbar, with sand building up again after flows decline. These dynamic processes result in wetland habitats that, over time, move both up or down coast, and inland or coastward.

The horizontal extent of the lentic (pondlike) wetland habitat associated with a particular tidewater goby locality varies and is affected, in part, by local precipitation patterns and topography. In coastal areas where the topography is steep and precipitation relatively low, such as areas adjacent to the Santa Ynez Mountains in Santa Barbara County, the habitats occupied by tidewater goby may be a few acres in size and only extend a few hundred feet inland from the ocean, with backwater marshes small or absent. In other coastal settings where topography is less steep and precipitation is more abundant, surface streams are larger, and coastal lagoons or estuaries may be hundreds of acres in size and extend many miles inland and may include extensive backwater marshes (for example, Lake Earl in Del Norte County and Ten Mile River in Mendocino County). Some occupied locations, such as Bennett's Slough in Monterey County, receive water from upstream areas on a year-round basis. Such locations tend to possess wetland habitats that are larger and can extend inland for several miles. Other occupied locations do not possess stream channels or tributaries that provide a considerable amount of water throughout the summer or fall months. Such locations, such as Little Pico Creek in San Luis Obispo County, tend to possess wetland habitats that extend only a short distance inland.

Reproduction

The tidewater goby has been observed to spawn in every month of the year except December (Swenson 1999, p. 107). Reproduction tends to peak in late April or May to July, and can continue into November depending on seasonal temperature and rainfall. Hellmair's (2011) findings reveal year-round reproduction for some tidewater goby populations that have high genetic diversity and restricted spawning periods for other populations with low genetic diversity. Swenson (1995, p. 31) has documented the spawning activities of adult fish or the presence of egg clutches at water temperatures between 48 and 77 degrees Fahrenheit (°F) (9 and 25 degrees Celsius (°C)). Spawning tidewater gobies have been documented to breed in water salinities between 1 and 30 parts per thousand (ppt) (Swenson 1995, p. 31, Smith, *in litt.* 2012). However, tidewater gobies prefer salinities less than 10 ppt (Moyle 2002, p. 431).

Threats

The final listing rule for the tidewater goby published in 1994 (59 FR 5494; February 4, 1994) and the 5-year review (Service 2007) state that this species is threatened, or potentially threatened, by: (1) Coastal development projects that result in the loss or alteration of coastal wetland habitat; (2) water diversions and alterations of water flows upstream of coastal lagoons and estuaries that negatively impact the species' breeding and foraging activities; (3) groundwater overdrafting; (4) channelization of the rivers where the species occurs; (5) discharge of agricultural and sewage effluents; (6) cattle grazing and feral pig activity that results in increased sedimentation of coastal lagoons and riparian habitats, removal of vegetative cover, increased ambient water temperatures, and elimination of plunge pools and undercut banks utilized by the tidewater goby; (7) introduced species that prey on the tidewater goby (e.g., bass (*Micropterus* spp.), rainwater killifish (*Lucania parva*), and crayfish (*Cambarus* spp.)); (8) the inadequacy of existing regulatory mechanisms; (9) drought conditions that result in the deterioration of coastal and riparian habitats; and (10) competition with introduced species, such as the yellowfin goby (*Acanthogobius flavimanus*) and chameleon goby (*Tridentiger trigonocephalus*). Lastly, loss of genetic diversity has also been recently shown to threaten populations of tidewater goby (McCraney *et al.* 2010, Hellmair 2011).

Climate Change

Our analyses under the Endangered Species Act include consideration of ongoing and projected changes in climate. The terms ''climate'' and ''climate change'' are defined by the Intergovernmental Panel on Climate Change (IPCC). ''Climate'' refers to the mean and variability of different types of weather conditions over time, with 30 years being a typical period for such measurements, although shorter or longer periods also may be used (IPCC 2007, p. 78). The term ''climate change'' thus refers to a change in the mean or variability of one or more measures of climate (e.g., temperature or precipitation) that persists for an extended period, typically decades or longer, whether the change is due to natural variability, human activity, or both (IPCC 2007, p. 78). Various types of changes in climate can have direct or indirect effects on species. These effects may be positive, neutral, or negative and they may change over time, depending on the species and other relevant considerations, such as the effects of interactions of climate with other variables (e.g., habitat fragmentation) (IPCC 2007, pp. 8–14, 18–19). In our analyses, we use our expert judgment to weigh relevant information, including uncertainty, in our consideration of various aspects of climate change.

In addition to the threats listed above, tidewater goby populations are threatened by global climate change. Sea level rise and hydrological changes associated with climate change are having and will continue to have significant effects on tidewater goby habitat over the next several decades.

Sea level rise is a result of two phenomena: thermal expansion (increased sea water temperatures) and global ice melt (Cayan *et al.* 2006, p. 5, National Research Council 2012, p. 33). Between 1897 and 2006, the observed sea level rise has been approximately 2 millimeters (0.08 in) per year, or a total of 20 cm (8 in) over that period (Heberger *et al.* 2009, p. 6). Older estimates projected that sea level rise along the California coast would follow a similar rate and reach 0.2–0.6 meters (m) (0.7–2 feet (ft)) by 2100 (IPCC 2007). Recent observations and models indicate that those projections were conservative and ignored some critical factors, such as melting of the Greenland and Antarctica ice sheets (Heberger *et al.* 2009, p. 6; Rahmstorf 2010, p. 44). Heberger *et al.* (2009, p. 8) have updated the sea level rise projections for California to 1.0–1.4 m (3.3–4.6 ft) by 2100, while Vermeer and Rahmstorf (2009, p. 21530) calculate the sea level rise globally at 0.57–1.9 m (2.4–6.2 ft); in both cases, recent estimates were more than twice earlier projections. Combined with California's normal dramatic tidal fluctuations and coincidental storms—the severity of the latter is projected to increase with more frequent El Niño Southern Oscillations due to increasing surface water temperature (Cayan *et al.* 2006, p. 17)—the effects of sea level rise are expected to result in greater coastal erosion (Scripps Institution of Oceanography 2012, p. 24) and reach farther inland than previously anticipated (Cayan *et al.* 2006, pp. 48–49; Cayan *et al.* 2009, p. 40).

Park *et al.* (1989, pp. 1–52) projected that, of the saltmarshes along the coast of the contiguous United States: 30 percent would be lost with a 0.5-m (1.6-

ft) sea level rise, 46 percent with a 1-m (3.3-ft) sea level rise, 52 percent with a 2-m (6.6-ft) sea level rise, and 65 percent with a 3-m (9.8-ft) sea level rise. While we cannot project directly to California from the estimates of Park *et al.* (1989, p. 1–52) who focused on the east coast and Gulf coast of the United States, we can anticipate that, with a projected global sea level rise of up to almost 2 m (6.6 ft), 46 to 65 percent of the remaining coastal saltmarshes in California would be lost by 2100. Applying Heberger *et al.'s* (2009, p. 8) more conservative estimates for California to Park *et al.'s* calculations, with a projected sea level rise of 1.0–1.4 m (3.3–4.6 ft) by 2100, somewhere between 46 and 52 percent of the coastal saltmarshes in California would be inundated.

For the tidewater goby, sea level rise estimates based on more recent projections, combined with the effects of storms and tidal fluctuations, have the potential to transform coastal lagoons into primarily saltwater bodies (Cayan *et al.* 2006, pp. 34, 48–49). More severe storms that are likely to result from climate change (Cayan *et al.* 2006, p. 17), especially along the northern coast of California (Cayan *et al.* 2009, p. 38), combined with the higher than normal sea levels, will breach lagoon mouths more frequently from the ocean side, allowing more saltwater intrusion, altering the physical conditions of the tidewater goby's habitat (increased salinity), and disrupting the tidewater goby's normal reproduction process that requires closed lagoons and a specific range of salinities. The conversion of coastal lagoons and estuaries from brackish to primarily saltwater bodies, in addition to the inundation and breaching of sandbars, would eliminate habitat for tidewater goby in many areas. For a species that exhibits metapopulation dynamics and was listed as endangered due to past habitat loss and fragmentation of metapopulations, the projection of further habitat loss due to sea level rise raises concerns for the tidewater goby's survival over the long term.

Summary of Changes From Previously Designated Critical Habitat and 2011 Proposed Revised Critical Habitat Designation

In this section we present the differences between what was designated in the January 31, 2008, final rule (73 FR 5920), what was included in the October 19, 2011, proposed rule (76 FR 64996), and what is included in this final designation.

The 2008 final critical habitat designation (73 FR 5920, January 31, 2008) consisted of 44 units in Del Norte, Humboldt, Mendocino, Sonoma, Marin, San Mateo, Santa Cruz, Monterey, San Luis Obispo, Santa Barbara, Ventura, and Los Angeles Counties, California, totaling 10,003 ac (4,050 ha). In this final critical habitat designation, we have designated 65 critical habitat units for the tidewater goby throughout its range, including the 44 units designated in the 2008 final rule. Of the 21 new units included in this designation, 5 units are within the geographical area occupied at the time of listing and 16 units are outside the geographical area occupied at the time of listing (Table 1). Of the 16 new units that are outside the geographical area occupied at the time of listing, 8 units are currently occupied (Table 1). These 16 units are essential for the conservation of the tidewater goby as described in the Recovery Plan (Service 2005a).

This final critical habitat designation for the tidewater goby also differs from our October 19, 2011 (76 FR 64996) proposed rule. We reviewed and considered comments from the public and peer reviewers on the proposed revised designation, and from the public on the draft economic analysis published on July 24, 2012 (77 FR 43222). As a result of comments received, our final designation differs from our proposed designation, as follows:

(1) Based on information we received in comments regarding our proposal to designate unoccupied units, we revised the language in the *Criteria Used To Identify Critical Habitat* section of this final rule to clarify our intent. In the proposed rule we stated that, ''We also are proposing to designate specific areas outside the geographical area occupied by the species at the time of listing that were historically occupied, but are presently unoccupied, because such areas are essential for the conservation of the species'' (p. 65004). However, we did not intend to limit the proposal to only specific areas outside the geographical area occupied by the species at the time of listing that were historically occupied. Our intent was to consider all areas that are essential for the conservation of the species and not only those that were known to be historically occupied; we were in error when we included ''that were historically occupied, but are presently unoccupied'' in the proposed rule. We proposed to designate six units that are outside the geographical area occupied by the species at the time of listing where the tidewater goby has not been detected historically. These units are: Pomponio Creek (SM–2), Bolinas Lagoon (MAR–5), Arroyo de la Cruz (SLO–1), Oso Flaco Lake (SLO–12), Arroyo Sequit (LA–1), and Zuma Canyon (LA–2). Subsequent to the publication of the proposed rule, tidewater gobies have been detected in Pomponio Creek (SM–2) (Rischbieter, *in litt.* 2012). These units are essential for the conservation of the tidewater goby as described in the Recovery Plan (Service 2005a) and the unit descriptions below.

(2) We revised and expanded our discussion on tidewater goby metapopulation dynamics and provided a discussion on the effects of climate change on the tidewater goby and its habitat.

(3) Based on comments received from the County of Santa Barbara pertaining to unit SB–12, Arroyo Paredon Creek, we reassessed the topography of the unit as originally proposed and determined that the gradient of the upper portion of the unit was a barrier to tidewater gobies. The unit now includes approximately 3 ac (1 ha), a net decrease of approximately 1 ac (less than 1 ha) from the proposal.

Critical Habitat

Background

Critical habitat is defined in section 3 of the Act as:

(1) The specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the Act, on which are found those physical or biological features.

(a) Essential to the conservation of the species and

(b) Which may require special management considerations or protection; and

(2) Specific areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

Conservation, as defined under section 3 of the Act, means to use and the use of all methods and procedures that are necessary to bring an endangered or threatened species to the point at which the measures provided pursuant to the Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, and transplantation, and, in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved, may include regulated taking.

Critical habitat receives protection under section 7 of the Act through the requirement that Federal agencies ensure, in consultation with the Service, that any action they authorize, fund, or carry out is not likely to result in the destruction or adverse modification of critical habitat. The designation of critical habitat does not affect land ownership or establish a refuge, wilderness, reserve, preserve, or other conservation area. Such designation does not allow the government or public to access private lands. Such designation does not require implementation of restoration, recovery, or enhancement measures by non-Federal landowners. Where a landowner requests Federal agency funding or authorization for an action that may affect a listed species or critical habitat, the consultation requirements of section 7(a)(2) of the Act would apply, but even in the event of a destruction or adverse modification finding, the obligation of the Federal action agency and the landowner is not to restore or recover the species, but to implement reasonable and prudent alternatives to avoid destruction or adverse modification of critical habitat.

Under the first prong of the Act's definition of critical habitat, areas within the geographical area occupied by the species at the time it was listed are included in a critical habitat designation if they contain physical or biological features (1) which are essential to the conservation of the species and (2) which may require special management considerations or protection. For these areas, critical habitat designations identify, to the extent known using the best scientific and commercial data available, those physical or biological features that are essential to the conservation of the species (such as space, food, cover, and protected habitat). In identifying those physical or biological features within an area, we focus on the principal biological or physical constituent elements (primary constituent elements that provide for a species' life-history processes, such as roost sites, nesting grounds, seasonal wetlands, water quality, tide, soil type) that, under the appropriate species-specific circumstances, are essential to the conservation of the species.

Under the second prong of the Act's definition of critical habitat, we designate critical habitat in areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species. For example, we may determine that an area currently occupied by the species but outside the geographical area occupied at the time of listing is essential for the conservation of the species and include it in the critical habitat designation. We designate critical habitat in areas outside the geographical area occupied by a species only when a designation limited to its range would be inadequate to ensure the conservation of the species.

Section 4 of the Act requires that we designate critical habitat on the basis of the best scientific and commercial data available. Further, our Policy on Information Standards Under the Endangered Species Act (published in the **Federal Register** on July 1, 1994 (59 FR 34271)), the Information Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Pub. L. 106–554; H.R. 5658)), and our associated Information Quality Guidelines provide criteria, establish procedures, and provide guidance to ensure that our decisions are based on the best scientific data available. They require our biologists, to the extent consistent with the Act and with the use of the best scientific data available, to use primary and original sources of information as the basis for recommendations to designate critical habitat.

When we are determining which areas should be designated as critical habitat, our primary source of information is generally the information developed during the listing process for the species. Additional information sources may include the Recovery Plan for the species, articles in peer-reviewed journals, conservation plans developed by States and counties, scientific status surveys and studies, biological assessments, other unpublished materials, or experts' opinions or personal knowledge.

Habitat is dynamic, and species may move from one area to another over time. We recognize that critical habitat designated at a particular point in time may not include all of the habitat areas that we may later determine are necessary for the recovery of the species. For these reasons, a critical habitat designation does not signal that habitat outside the designated area is unimportant or may not be needed for recovery of the species. Areas that are important to the conservation of the species, both inside and outside the critical habitat designation, will continue to be subject to: (1) Conservation actions implemented under section 7(a)(1) of the Act, (2) regulatory protections afforded by the requirement in section 7(a)(2) of the Act for Federal agencies to insure their actions are not likely to jeopardize the continued existence of any endangered or threatened species, and (3) the prohibitions of section 9 of the Act if actions occurring in these areas may affect the species. Federally funded or permitted projects affecting listed species outside their designated critical habitat areas may still result in jeopardy findings in some cases. These protections and conservation tools will continue to contribute to recovery of this species. Similarly, critical habitat designations made on the basis of the best available information at the time of designation will not control the direction and substance of future recovery plans, habitat conservation plans (HCPs), or other species conservation planning efforts if new information available at the time of these planning efforts calls for a different outcome.

Physical or Biological Features

In accordance with section 3(5)(A)(i) and 4(b)(1)(A) of the Act and regulations at 50 CFR 424.12, in determining which areas within the geographical area occupied by the species at the time of listing to designate as critical habitat, we consider the physical or biological features essential to the conservation of the species and which may require special management considerations or protection. These include, but are not limited to:

(1) Space for individual and population growth and for normal behavior;

(2) Food, water, air, light, minerals, or other nutritional or physiological requirements;

(3) Cover or shelter;

(4) Sites for breeding, reproduction, or rearing (or development) of offspring; and

(5) Habitats that are protected from disturbance or are representative of the historical, geographical, and ecological distributions of a species.

We derive the specific physical or biological features essential to tidewater goby conservation from studies of this species' habitat, ecology, and life history as described in the Critical Habitat section of the proposed rule to revise critical habitat published in the **Federal Register** on October 19, 2011 (76 FR 64996), and in the information presented below. Additional information can be found in the final listing rule published in the **Federal Register** on February 4, 1994 (59 FR 5494), and the Recovery Plan for the tidewater goby (Service 2005a). We have determined that the tidewater goby requires the following physical or biological features:

Space for Individual and Population Growth and for Normal Behavior

Saline Aquatic Habitat

The tidewater goby occurs in lagoons, estuaries, and backwater marshes that are adjacent to the Pacific Ocean (Wang 1982, p. 14; Irwin and Soltz 1984, p. 27; Swift *et al.* 1989, p. 1; Swenson 1993, p. 3; Moyle 2002, p. 431). The tidewater goby is most commonly found in waters with relatively low salinities, that is, less than 10 to 12 parts per thousand (ppt) (Swift *et al.* 1989, p. 7) (see below for further details). This species can, however, tolerate a wide range of salinities and is frequently found in coastal habitats with higher salinity levels (Swift *et al.* 1989, p. 7; Worcester 1992, p. 106; Swift *et al.* 1997, pp. 15–22); the species has been collected in salinities as high as 42 ppt (Swift *et al.* 1989, p. 7). The species' tolerance of high salinities likely enables it to withstand some exposure to the marine environment, which has a salinity of about 35 ppt, allowing it to recolonize nearby lagoons and estuaries following flood events (Swift *et al.* 1989, p. 7). However, tidewater gobies have only rarely been captured in the marine environment (Swift *et al.* 1989, p. 7), and they appear to enter the ocean only when flushed out of lagoons, estuaries, and river mouths by storm events or human-caused breaches of sand bars. Salinity tolerance studies indicate that larval stages are largely intolerant of high salinities whereas adult tidewater gobies can tolerate higher salinities. These findings suggest spawning in saline conditions is unlikely to be productive and that migration among subpopulations is most likely the result of adult tidewater goby movement (Kinziger, *in litt.* 2012). The goal of the Recovery Plan is to preserve the diversity of habitats that occur within the range of the species, the metapopulation structure of the species, and genetic diversity (Service 2005a, p. 28).

Water Depth, Velocity, and Temperature

The tidewater goby is most commonly collected in water less than 6 ft (2 m) deep (Wang 1982, pp. 4–5; Worchester 1992, p. 53). However, recently tidewater gobies were collected in Big Lagoon in Humboldt County during the breeding season at a water depth of 15 ft (4.6 m) (Goldsmith, *in litt.* 2006a). Whether use of these deeper waters is confined to this locality or is more widespread will require additional sampling at various depths and locations. The tidewater goby tends to avoid currents and concentrate in slack-water areas; this suggests it is less likely to occur in areas with a steep gradient or microhabitats that have a substantial current. At Pescadero Creek in San Mateo County, tidewater gobies were absent from portions of the flowing creek that had a surface velocity of 0.15 m per second (0.49 ft per second), and the species was instead more densely concentrated in nearby eddies with lower water velocities (Swenson 1993, p. 3). Backwater marshes may provide important refuges that reduce the likelihood that a substantial number of tidewater gobies will be flushed out of the lagoons or estuaries and into the marine environment during heavy winter floods (Lafferty *et al.* 1999b, p. 619). Evidence that increased flows can eliminate the tidewater goby from a locality is suggested by the elimination of the tidewater goby from Waddell Creek in Santa Cruz County following a flood event in the winter of 1972–73 (Nelson as cited in Swift 1990, p. 2); this creek had been channelized and no longer afforded protection from high flows during flood events. Likewise, the channelization and elimination of habitat lateral to the main stream channel upstream of San Onofre Lagoon in San Diego County probably led to the flushing and extirpation of the tidewater goby from this locality during a storm in 1993 (Swift *et al.* 1994, p. 22–23). The importance of backwater marshes is also highlighted by the fact that tidewater gobies in these habitats can achieve a greater size at maturity than in adjacent lagoons and creeks (Swenson 1993, pp. 6–7).

Freshwater Habitat

The tidewater goby also occurs in freshwater streams up-gradient and tributary to brackish habitats; the salinity of these freshwater streams is typically less than 0.5 ppt. The available documentation demonstrates that, in some areas, tidewater goby can occur 1.6 to 7.3 mi (2.6 to 11.7 km) upstream from the ocean environment (Irwin and Soltz 1984, p. 27; Swift *et al.* 1997, p. 20; Goldsmith, *in litt.* 2006b). Within a 2-hour period, hundreds of tidewater gobies have been observed to move upstream of a fixed location into areas in the Santa Ynez River 3.2 mi (5.1 km) from the ocean in Santa Barbara County (Swift *et al.* 1997, p. 20). The fact that this many individuals were observed to move through an area suggests that freshwater tributaries in some riverine systems provide important habitat for individual and population growth. We have reviewed a variety of documents to determine how far tidewater gobies have been detected upstream from the ocean. Goldsmith (*in litt.* 2006b) found tidewater gobies 1.6 to 2.0 mi (2.6 to 3.3 km) upstream from the ocean in the Ten Mile River in Mendocino County; Swift *et al.* (1997, p. 18) found tidewater gobies 4.6 mi (7.3 km) upstream from the ocean in the San Antonio River in Santa Barbara County; Swift *et al.* (1997, p. 20) found tidewater gobies at various distances from 3.9 to 7.3 mi (6.2 to 11.7 km) upstream from the ocean in the Santa Ynez River in Santa Barbara County; and Holland (1992, p. 9) found tidewater gobies 3 mi (5 km) upstream from the ocean in the Santa Margarita River in San Diego County. Collectively, these data suggest the average maximum distance tidewater gobies have been detected upstream from the ocean in medium to large rivers is approximately 4.0 mi (6.4 km). Other than high stream gradient, the reasons for the variation in upstream movement between one locality and another have not been determined; salinity could be an important factor. Upstream salinity levels may vary with time of year, tidal cycles, storm events, and topography. However, Swift *et al.* (1997, p. 26) indicate that gradient and lack of barriers (e.g., beaver dams, sills) are more important factors than salinity to upstream dispersal.

Sandbars

Many of the locations occupied by the tidewater goby closely correspond to stream drainages. Under natural conditions, these stream drainages and the marine environment collectively act to produce sandbars that form a barrier between the ocean and the lagoon, estuary, backwater marsh, and freshwater stream system (Habel and Armstrong 1977, p. 39). These sandbars tend to be present during the late spring, summer, and fall seasons. The presence of a sandbar can create a lower salinity level (5 to 10 ppt) in the area up gradient from the sandbar (Carpelan 1967, p. 324) than would otherwise exist if there were no sandbar. The tidewater goby is more commonly associated with these lower salinity levels than with the salinity levels that occur in the ocean or an estuary without a sandbar, that is, about 35 ppt (Swift *et al.* 1989, p. 7). The formation of a sandbar also creates more habitat for aquatic organisms because water becomes ponded behind the sandbar. Artificial breaching of a sandbar tends to result in a rapid decrease in water levels, unlike natural breaching, and increases the likelihood that adult tidewater gobies, their nests, and their fry could become stranded and die, or become concentrated and subject to greater levels of predation pressure by birds or other predators. Natural breaching events tend to occur during

the late winter and early spring when tidewater goby breeding is at a low point in the reproduction cycle. Furthermore, tidewater gobies are likely able to detect storm events due to the increased inflow of fresh water that may cause a natural breaching event and swim upstream or take refuge in side channels (Lafferty *et al.* 1999b, p. 619).

In Humboldt Bay and the Eel River estuary in Humboldt County, a large amount of salt and brackish marsh habitat was historically eliminated through the construction of levees and drainage channels. As a result, several of the locations occupied by the tidewater goby do not contain natural sandbars between the ocean and habitat where the species is present. Instead, manmade water control structures such as tidegates and culverts exist between tidal waters and the locations where tidewater goby occur. These tidegates have been in place for decades, and in some cases they provide habitat conditions similar to those created by the presence of a seasonal sandbar. In fact, most of the occupied tidewater goby habitats in the Humboldt Bay-Eel River estuaries are above tidegates. Other examples where large amounts of brackish marsh habitat have been lost due to construction of levees and drainage channels include the tributaries to the San Francisco Bay, Tomales Bay, Waddell Creek, Salinas River, Goleta Slough, Santa Clara River, and Mugu Lagoon.

Food

The tidewater goby feeds mainly on macroinvertebrates (for example shrimp and aquatic insects) (Irwin and Soltz 1984, p. 21–23; Swift *et al.* 1989, p. 6; Swenson 1995, p. 87). The diets of adult and juvenile tidewater gobies tend to include the same relative abundance of different invertebrate species (Swenson and McCray 1996, p. 962). The nonnative New Zealand mudsnails (NZMS; *Potamopyrgus antipodarum*) have been a seasonally important component of the diet of tidewater gobies in the northcoast region (Hellmair *et al.* 2011, p. 1).

Cover or Shelter

A variety of native and nonnative fish species and fish-eating bird species, such as egrets (*Egretta* spp.) and herons (e.g., great blue herons (*Ardea herodias*)), prey on tidewater gobies. Therefore, escape cover or shelter is necessary to reduce the likelihood that tidewater gobies will be preyed upon. A species' ability to persist when it is subject to predation pressure frequently depends on the presence of different features that provide a greater level of structure, which makes it more likely a prey species will avoid predation (Crowder and Cooper 1982, p. 1802; Gilinsky 1984, p. 455). At locations where the tidewater goby occurs, submerged and emergent aquatic vegetation has the potential to provide cover from predators, and provide a greater degree of habitat heterogeneity or structure that would not otherwise exist if the aquatic vegetation was absent. Stable lagoons often possess dense aquatic vegetation that frequently consists of sago pondweed (*Potamogeton pectinatus*) or widgeon grass (e.g., *Ruppia maritima* and *R. cirrhosa*). At some locations, juvenile tidewater gobies are more prevalent in areas with at least some submergent vegetation as compared to other areas with no or little vegetation (Wang 1984, p. 16; Swenson 1994, p. 6; Trihey & Associates, Inc. 1996, p. 11). It is reasonable to assume that the presence of submerged or emergent vegetation reduces the likelihood that tidewater gobies will be preyed upon by native and nonnative species because this vegetation provides cover and increases the level of habitat heterogeneity in a way that makes it more likely that tidewater gobies will persist where they co-occur with predators.

Aquatic vegetation may provide some degree of shelter or refuge during flash flood events (Lafferty *et al.* 1999b, p. 621). These refuges presumably would result because the presence of vegetation would create lower water velocities than might otherwise occur in unvegetated areas. Such refuges would be especially important to fish species that are not strong swimmers, such as the tidewater goby.

Sites for Breeding, Reproduction, or Rearing (or Development) of Offspring

The eggs of the tidewater goby are laid in burrows that are excavated by male fish. The available literature suggests that burrows most commonly occur in areas with relatively unconsolidated, clean, coarse sand (Swift *et al.* 1989, p. 8), while other documents demonstrate that burrows may also occasionally occur in silt or mud (Wang 1982, p. 6). Swenson (1995, p. 148) demonstrated that tidewater gobies prefer a sandy substrate in the laboratory. Male tidewater gobies remain in the burrow to guard the eggs attached to the burrow ceiling and walls. Male tidewater gobies care for the embryos for approximately 9 to 11 days until they hatch, rarely if ever emerging from the burrow to feed (Swift *et al.* 1989, p. 4). The tidewater goby larvae occupy the water column after the eggs hatch (Wang 1982, p. 15). As they mature, they occupy the bottom substrate. Worcester (1992, pp. 77–79) found that larval tidewater gobies in Pico Creek Lagoon in San Luis Obispo County tended to use the deeper portion of the lagoon, that is, depths of 29 inches (in) (73 centimeters (cm)) versus 17 in (42 cm).

Habitats Protected from Disturbance or Representative of the Historical, Geographical, and Ecological Distributions of the Species

The majority of lagoons and estuaries that currently support the tidewater goby have experienced some level of disturbance. The lagoons and estuaries that support the tidewater goby range in size from approximately 3.5 square yards (3 m^2) of surface area to about 2,000 ac (800 ha). Most lagoons and estuaries that support the tidewater goby range from about 1.25 to 12.5 ac (0.5 to 5 ha). Surveys of tidewater goby locations and historical records indicate that size, configuration, location, and access by humans are all factors in the persistence of populations of this species (Swift *et al.* 1989, p. 15, 1994, p. 26–27). Lagoons and estuaries smaller than about 5 ac (2 ha) generally have histories of extirpation or population reduction to very low levels. These small locations are also often within a mile or so of another locality from which recolonization could occur following natural episodic catastrophic events. The most stable or largest populations today are in locations of intermediate sizes, which range from 5 to 125 ac (2 to 50 ha). In many cases these intermediate-sized locations likely serve as source populations for the smaller ephemeral sites (Lafferty *et al.* 1999b, p. 1452).

Primary Constituent Elements for Tidewater Goby

Under the Act and its implementing regulations, we are required to identify the physical or biological features essential to the conservation of the tidewater goby within the geographical area occupied at the time of listing, focusing on the features' primary constituent elements. We consider primary constituent elements to be the elements of physical or biological features that provide for a species' life-history processes that are essential to the conservation of the species.

Based on our current knowledge of the physical or biological features and habitat characteristics required to sustain the species' life-history processes, we determine that the primary constituent element (PCE) specific to the tidewater goby is:

(1) Persistent, shallow (in the range of approximately 0.3 to 6.6 ft (0.1 to 2 m)),

still-to-slow-moving lagoons, estuaries, and coastal streams with salinity up to 12 ppt, which provide adequate space for normal behavior and individual and population growth that contain one or more of the following:

(a) Substrates (e.g., sand, silt, mud) suitable for the construction of burrows for reproduction;

(b) Submerged and emergent aquatic vegetation, such as *Potamogeton pectinatus, Ruppia maritima, Typha latifolia,* and *Scirpus* spp., that provides protection from predators and high flow events; or

(c) Presence of a sandbar(s) across the mouth of a lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, thereby providing relatively stable water levels and salinity.

Special Management Considerations or Protection

When designating critical habitat, we assess whether the specific areas within the geographical area occupied by the species at the time of listing contain features that are essential to the conservation of the species and which may require special management considerations or protection. Special management considerations or protection may be necessary to eliminate or reduce the magnitude of threats that affect the physical or biological features essential to the conservation of the tidewater goby. Threats identified in the final listing rule for the tidewater goby include:

(1) Coastal development projects, including proposed restoration projects that involve elimination of backwaters and loss or alteration of coastal wetland habitat, which may be crucial for flood refuge for the tidewater goby;

(2) water diversions and alterations of water flows upstream of coastal lagoons and estuaries that negatively impact the species' breeding and foraging habitat and activities;

(3) groundwater overdrafting that results in reduction of flows and negatively impacts the species' breeding and foraging habitat and activities;

(4) channelization of habitats where the species occurs that removes or reduces quality of habitat;

(5) discharge of agricultural and sewage effluents;

(6) cattle grazing and feral pig activity that result in increased sedimentation of coastal lagoons and riparian habitats, remove vegetative cover, increase ambient water temperatures, and eliminate plunge pools and collapsed undercut banks utilized by the tidewater goby;

(7) introduced species that prey on the tidewater goby (such as bass, rainwater killifish, African clawed frogs);

(8) the inadequacy of existing regulatory mechanisms;

(9) drought conditions that result in the deterioration of coastal and riparian habitats; and

(10) competition with introduced species, such as the yellowfin goby and chameleon goby.

For the purposes of this final rule, we have combined the ''water diversions and alterations of water flows upstream of coastal lagoons and estuaries that negatively impact the species' breeding and foraging activities'' threats category with ''drought conditions'' and ''groundwater overdrafting,'' along with the addition of artificial breaching of sandbars, into one threat category. The combined category is referred to as ''water diversions, alterations of water flows, artificial sandbar breaching, and groundwater overdrafting that negatively impact the species' breeding and foraging activities.'' Similarly, we have combined the two threat categories of ''introduced species that prey on the tidewater goby (e.g., bass, African clawed frogs)'' and ''competition with introduced species such as the yellowfin goby and chameleon goby'' into one category called, ''introduced species that prey on, or compete with, the tidewater goby (for example, yellowfin goby, and bass).'' We also recognize that where special management may be necessary, regulatory mechanisms may need to be added or amended by local, State, or Federal governmental entities if sufficient management is not achievable through voluntary mechanisms.

The tidewater goby's distribution reflects a pattern of occupancy and extirpation. The species requires refugia under drought conditions and places to recolonize under wetter conditions; otherwise, the tidewater goby would be relegated to existing only within those few lagoons and estuaries large enough to support it during periods of drought. If the suitable localities that are occupied during periods of normal precipitation cease to function as tidewater goby habitat due to modification or destruction while the localities are unoccupied, the metapopulation dynamics may be disrupted and the species may not be able to respond by recolonizing unoccupied localities under favorable conditions. The tidewater goby is facing numerous threats, including habitat loss from multiple sources, habitat fragmentation due to the loss of ''stepping stone'' localities between subpopulations, predation and nonnative competitors, alterations to hydrology (sandbar breaching, channelization, for example), changes in water quality, stochastic events such as drought, and the growing and inevitable impact of sea level rise. While some of these threats can singly have a substantial impact on individual tidewater goby subpopulations, in most cases it is the combined impact that is a threat to the species, especially in light of global climate change. A more detailed discussion of threats to the tidewater goby can be found in the final listing rule (59 FR 5494, February 4, 1994), and the final Recovery Plan (Service 2005a, pp. 16–19).

We find that the components of the PCE present within all the areas we are designating as critical habitat may require special management considerations or protection due to threats to the tidewater goby or its habitat. Using current information provided in the Recovery Plan (Service 2005a, Appendix E) and other information in our files, we have identified the components of the PCE that may require special management considerations or protection from known threats within each of the critical habitat units (see Critical Habitat Designation and Table 2 below for a unit-by-unit description). Some of the special management actions that may be needed for essential features of tidewater goby habitat are briefly summarized below.

(1) Implement measures to avoid, minimize or mitigate direct and indirect loss and modification of tidewater goby habitat due to dredging, draining, and filling of lagoons and estuaries. Additional management actions should be taken to restore historical tidewater goby locations and potential habitats as opportunities become available to eliminate, minimize, or mitigate the effects of existing structures and past activities that have destroyed or degraded tidewater goby habitat.

(2) Develop and implement measures to minimize the adverse effects due to channelization that can eliminate crucial backwater habitats or other flood refuges.

(3) Implement measures, such as best management practices, for managing excessive sedimentation in tidewater goby habitat. Measures should be implemented to control sedimentation in tidewater goby habitat due to cattle grazing, development, channel modification, recreational activity, and agricultural practices.

(4) Implement measures to prevent further decrease in freshwater inflow, water depth, and surface area within

tidewater goby habitat due to dams, water diversions, and groundwater pumping.

(5) Implement measures to avoid anthropogenic breaching of lagoons and use of pumping and other water control structures to regulate water levels, to maintain suitable habitat conditions during the summer and fall when tidewater goby reproduction is at its highest and freshwater inflow is at its lowest.

(6) Implement measures to improve water quality degraded as a result of agricultural runoff and effluent, municipal runoff, golf course runoff, sewage treatment effluent, cattle grazing, development, oil spills, oil field runoff, toxic waste, and gray-water dumping. Also, measures should be implemented to prevent further degradation of the water quality due to dikes, tidal gates, and other impedances to the natural freshwater/saltwater interface that alter the salinity regime in some of the tidewater goby habitats.

(7) Implement measures to control the abundance and distribution of nonnative species.

(8) Implement measures to restore genetic diversity within populations where the natural metapopulation dynamic will be unable to do so.

Criteria Used To Identify Critical Habitat

As required by section 4(b)(2) of the Act, we used the best scientific and commercial data available to designate critical habitat. We reviewed available information pertaining to the habitat requirements of this species. In accordance with the Act and its implementing regulation at 50 CFR 424.12(e), we considered whether designating areas outside those currently occupied as well as those occupied at the time of listing are essential to ensure the conservation of the species. We are designating critical habitat in areas within the geographical area occupied by the species at the time of listing in 1994. We also are designating specific areas outside the geographical area occupied by the species at the time of listing because such areas are essential for the conservation of the species.

In revising critical habitat for the tidewater goby, we made extensive use of the information in the Recovery Plan (Service 2005a), and incorporated the recovery goals and strategy identified in the Recovery Plan for the development of our revised designation. We also reviewed other relevant information, including peer-reviewed journal articles, unpublished reports and materials (for example, survey results and expert opinions), the final listing rule (59 FR 5494; February 4, 1994), the 2000 final critical habitat rule (65 FR 69693; November 20, 2000), the 2006 proposed critical habitat rule (71 FR 68914; November 28, 2006), the 2008 final critical habitat rule (73 FR 5920; January 31, 2008), the 2011 proposed critical habitat rule (76 FR 64996; October 19, 2011), the 5-year review for the tidewater goby (Service 2007), and regional databases and GIS coverages, for example, the California Natural Diversity Database, and National Wetlands Inventory maps. We analyzed this information to identify: (1) Specific areas within the geographical area occupied at the time of listing that contain the physical or biological features essential to the conservation of the tidewater goby and which may require special management considerations or protection, and (2) criteria for specific areas outside the geographical area occupied at the time of listing that are essential for the conservation of the tidewater goby.

The Recovery Plan focuses on preserving the diversity of tidewater goby habitats throughout the range of the species, preserving the natural processes of recolonization and population exchange (metapopulation dynamics) that enable recovery following natural episodic catastrophic events, and preserving genetic diversity (Service 2005a, p. 28). The conservation of the environmental, morphological, and genetic diversity across the range of the species is an important consideration in determining specific areas on which are found the physical or biological features essential to the conservation of the species and other specific areas that are essential for the conservation of the tidewater goby. For example, a population's ability to successfully adapt to changing environmental conditions is a function of the population size and genetic variation of the individuals at a given location (Reed and Frankham 2003, p. 233).

Local adaptations to different environmental conditions and morphological differences are likely linked to genetic variations among populations. These features may in turn be best protected by: (1) Identifying areas that represent the range of environmental, genetic, and morphological diversity; and (2) maximizing within these areas the protection of contiguous environmental gradients across which selection and migration can interact to maintain population viability and (adaptive) genetic diversity (Moritz 2002, p. 238). The Recovery Plan subdivides the geographical distribution of the tidewater goby into 6 recovery units, encompassing a total of 26 subunits defined according to genetic differentiation and geomorphology. We considered the conservation of the tidewater goby in each of the recovery units and subunits, as well as the species as a whole, in our analysis.

Based on the information and recommendations in the Recovery Plan, we developed a conservation framework and criteria to identify the specific circumstances under which the presence of the components of the PCE within the geographical area occupied by the species at the time of listing provides the physical or biological features essential to the conservation of the tidewater goby, and additionally what areas outside the geographical area occupied at the time of listing are essential for the conservation of the species.

Areas Within the Geographical Area Occupied at the Time of Listing

Within the geographical area occupied at the time of listing, the specific areas meeting the criteria below are designated as critical habitat in this final rule because they provide the physical or biological features essential to the conservation of the tidewater goby.

(1) Areas that support source populations (populations where local reproductive success is greater than local mortality (Meffe and Carroll 1994, p. 187)). For the purposes of this designation, we identified areas supporting source populations as those that are currently occupied and have been consistently occupied for 3 or more consecutive years based on survey data and published reports. Source populations are more likely to be capable of maintaining populations over many years and are, therefore, capable of providing individuals to recruit into surrounding subpopulations.

(2) Areas that support subpopulations within each metapopulation in addition to source populations in the event that the source population is extirpated due to a natural episodic catastrophic event such as a major flood or drought.

(3) Areas that provide connectivity between metapopulations. These areas are likely to act as ''stepping stones'' between more isolated populations, and thereby contribute to metapopulation persistence and genetic exchange. For the purposes of this designation, we generally identified locations that provide connectivity as those within approximately 6 mi (10 km) of another location. However, we included a few locations that exceeded 6 mi but were

within the maximum dispersal distance as determined through genetic research (Jacobs *et al.* 2005, p. 52) where there were no other locations with suitable habitat in that portion of the coast.

Areas Outside the Geographical Area Occupied at the Time of Listing

We have determined that the specific areas within the geographical area occupied at the time of listing alone are not sufficient to meet the recovery goals for the species because:

(1) The Recovery Plan recommends a targeted program of introduction and reintroduction of tidewater gobies into suitable habitat to minimize the chance of local extirpations resulting in extinction of a broader metapopulation (see the *Metapopulation Dynamics* section, above, for details) and resultant loss of its unique genetic traits (Service 2005a, p. 29);

(2) There has been loss and degradation (see the *Threats* section, above, for details) of habitat throughout the species' range since the time of listing;

(3) We anticipate a further loss of habitat in the future due to sea-level rise resulting from climate change (see the *Climate Change* section, above, for details); and

(4) The species needs habitat areas that are arranged spatially in a way that will maintain connectivity and allow dispersal within and between units (see the *Metapopulation Dynamics* section, above, for details).

One example of the need to designate areas outside the geographical area occupied at the time of listing is where distances between areas occupied at the time of listing may make it difficult for tidewater goby to disperse from one area to the next. Another example is to help prevent the extirpation of a metapopulation in which only one or two occupied sites remain. These areas that are outside the geographical area occupied at the time of listing include locations that are currently occupied and, in a few cases, ones that were historically occupied. In some unoccupied areas, the habitat would require some management: For example, restoration of a natural breaching regime, exotic predator management, or freshwater inflow enhancement.

Therefore, for areas outside the geographical area occupied at the time of listing, those meeting the criteria below are designated as critical habitat in this final rule because they are essential for the conservation of the species.

(1) Areas of aquatic habitat in coastal lagoons and estuaries with still-to-slow-moving water that allow for the conservation of viable metapopulations under varying environmental conditions, such as, for example, drought.

(2) Areas that provide connectivity between source populations or may provide connectivity in the future. These areas are likely to act as ''stepping stones'' between more isolated populations, and thereby contribute to metapopulation persistence and genetic exchange. For the purposes of this designation, we generally identified locations that provide connectivity as those within approximately 6 mi (10 km) of another location.

(3) Additional areas that may be more isolated but may represent unique adaptations to local features (habitat variability, hydrology, microclimate). For example, the Eel River (HUM–4) is essential for the conservation of tidewater goby because it possesses ecological characteristics that are important in maintaining the species' ability to adapt to changing environments, including the ability to disperse into higher channels and marsh habitat during severe flood events.

By applying the two sets of criteria to the 26 recovery subunits described in the Recovery Plan, we have identified 45 critical habitat units within the geographical area occupied by the species at the time of listing that we have determined contain the physical or biological features essential to the conservation of the tidewater goby and which may require special management considerations or protection, and 20 critical habitat units outside the geographical area occupied by the species at the time of listing that we have determined are essential for the conservation of the species. Please see Table 1, below, for the occupancy status of each of the 65 critical habitat units.

As emphasized throughout this rule and the Recovery Plan, the conservation of the tidewater goby is dependent on maintaining the metapopulation dynamics of the species, and we have therefore designated all those locations that we determined are essential for achieving that goal. In order to maintain metapopulation dynamics, we have determined that some locations where tidewater gobies have never been found or have not been found in recent years are essential for the conservation of the species. It should be noted, however, that some subpopulations within a metapopulation tend to decline or disappear periodically due to events such as drought and severe flooding, but then reappear or increase in abundance during more optimal conditions. However, surveys to determine the presence or absence of tidewater gobies are not usually conducted every year, and therefore the presence of tidewater gobies may have been missed. For example, tidewater gobies were known to occur in the San Luis Rey River in 1958. However, the river has only been surveyed five times in the last 65 years since 1958, and tidewater gobies were found in 2010.

As discussed previously, a metapopulation is generally considered to consist of several distinct but related subpopulations that are within dispersal distance of each other. Although the individual subpopulations may sometimes disappear, the metapopulation as a whole is often stable because immigrants from one population (which may, for example, be experiencing a population boom) are likely to re-colonize habitat which has been left open by the extirpation of another population as long as the habitat still remains. They may also emigrate to a small population and rescue that population from extirpation. In a metapopulation dynamic, connectivity of source populations is crucial, and locations considered unoccupied may serve this purpose. Although no single tidewater goby subpopulation may be able to guarantee the long-term survival of this species, the combined effect of many sporadically connected subpopulations may. Therefore, although a particular location may not be occupied at one point in time, or even for long periods of time, that location may be important for maintaining the connectivity between subpopulations, and hence contribute to the species' overall survival and conservation. For example, although tidewater gobies have not been detected in Arroyo del la Cruz, it is within dispersal distance of Arroyo del Corral, which is considered currently to be occupied in critical habitat. Arroyo de la Cruz is located approximately 2.0 mi (3.2 km) north of the Arroyo de Corral. Arroyo de la Cruz provides habitat for tidewater gobies that disperse from Arroyo del Corral, which may serve to decrease the risk of extirpation of this metapopulation through stochastic events. Arroyo de la Cruz is one of two locations with suitable habitat within the Central Coast Recovery Subunit (CC 1), as described in the Recovery Plan. Therefore, although tidewater gobies have not been detected at Arroyo de la Cruz, we consider this area to be essential to the conservation of the species because it contributes to ensuring the viability of the metapopulation because if the subpopulation within the Arroyo de

Corral unit (SLO–2) is extirpated, the entire metapopulation would be lost.

The process of making exclusions under Section 4(b)(2) considers the extent to which habitat restoration would be necessary to support the species in areas currently unoccupied. Where restoration is not likely due to cost or other factors, the benefits in terms of conservation value may not be as strong. Restoration activities would benefit all of the critical habitat units in this designation, and some form of restoration will be necessary to support the successful reintroduction or recolonization of the tidewater goby in the units that are unoccupied. For example, some of the unoccupied locations need improvements to water quality, barrier removal, exotic species management (e.g., Walker Creek, Salinas River, Arroyo de la Cruz, Oso Flaco Lake, etc.). However, designation of critical habitat does not mandate restoration or management of any areas. However, we determined it is feasible to restore all of the unoccupied habitat designated in this rule to the point where it can support gobies and we avoided designating unoccupied areas that are highly degraded or fragmented and not likely restorable (e.g., Los Angeles River, Mugu Lagoon). Such areas provide little or no long-term conservation value, and are not essential for the conservation of the species.

Mapping

After determining the lagoons and estuaries necessary for the conservation of the tidewater goby by applying criteria outlined above, the boundaries of each critical habitat unit were mapped. Unit boundaries were based on several factors, including species occurrence data that demonstrated where tidewater gobies have been observed, the presence of barriers and stream gradients that limit tidewater goby movements, and the presence and extent of the essential physical or biological features.

The geographic extent of each critical habitat unit was delineated, in part, using existing digital data. To determine the lateral boundaries of each critical habitat unit, we most frequently relied on the Pacific Institute global climate change model and National Wetland Inventory (NWI) maps that were prepared by the Service in 2006. The NWI maps are based on the Cowardin classification system (Cowardin *et al.* 1979, pp. 1–103). The Service has adopted this classification system as its official standard to describe wetland and deepwater habitats. Specifically, the following wetland types based on Cowardin (1979, p. 5) were used to delineate unit boundaries: Lake, Estuarine and Marine Deepwater, Estuarine and Marine Wetland, Freshwater Pond, Freshwater Emergent Wetland, Freshwater Forested/Shrub Wetland, and Riverine. These wetland types have, or are likely to have, components of the PCE at various times throughout the year, depending on the season and environmental factors such as storm or drought events. In some cases, we used existing anthropogenic structures, such as concrete or riprap channel linings that occur within wetland habitat types, to delineate the lateral boundaries of units. To a lesser extent, we also used aerial imagery from the National Agricultural Imagery Program (NAIP) to delineate the lateral boundaries of a critical habitat unit where insufficient NWI data were available.

The precise location of tidewater goby habitat at a particular locality may vary on a daily, seasonal, and annual basis; the habitats occupied by tidewater goby exist in a dynamic environment that varies over time. For example, the size and lateral extent of a coastal lagoon or estuary varies with daily tide cycles. Flood events may also change the precise location where surface water exists within a given lagoon, estuary, backwater marsh, or freshwater tributary. Therefore, it is appropriate to delineate each critical habitat unit to encompass the entire area that may be occupied by tidewater goby on a daily, seasonal, or annual basis. This was accomplished by using the boundaries delineated on the NWI maps to determine the lateral extent of each unit.

The delineation of the farthest upstream extent of a particular critical habitat unit was determined using one of four features that include:

(1) The average distance that tidewater gobies are known to move upstream from the ocean (4.0 mi (6.4 km)),

(2) the presence of barriers, such as culverts that may prevent tidewater gobies from moving upstream,

(3) the presence of a vertical drop, for example more than 4 to 8 in (10 to 20 cm) high, or steep gradient that precludes tidewater gobies from swimming upstream or can act as a barrier that makes it less likely tidewater gobies will be able to swim upstream (Swift *et al.* 1997, p. 20)), or

(4) limited surface water in the tributary up-gradient from the lagoon or estuary.

Each of the above features describes a barrier to upstream movement; therefore, the upstream extent of a particular unit was determined by whichever barrier was identified first through the mapping process regardless of whether or not components of the PCE were still present above it.

When determining critical habitat boundaries within this final rule, we made every effort to avoid including developed areas such as lands covered by bridges, docks, and other structures because such lands cannot provide habitat for the tidewater goby. The scale of the maps we prepared under the parameters for publication within the Code of Federal Regulations may not reflect the exclusion of such developed lands. Any such lands inadvertently left inside critical habitat boundaries shown on the maps of this final rule have been excluded by text in the rule and are not designated as critical habitat. Therefore, a Federal action involving these lands will not trigger section 7 consultation with respect to critical habitat and the requirement of no adverse modification unless the specific action may affect adjacent critical habitat.

The critical habitat designation is defined by the map or maps, as modified by any accompanying regulatory text, presented at the end of this document in the rule portion. We include more detailed information on the boundaries of the critical habitat designation in the preamble of this document. We will make the coordinates or plot points or both on which each map is based available to the public on *http://www.regulations.gov* at Docket No. FWS–R8–ES–2011–0085, on our Internet sites at *http://www.fws.gov/ventura/*, and at the field office responsible for the designation (see **FOR FURTHER INFORMATION CONTACT** above).

We are designating as critical habitat lands that we have determined are within the geographical area occupied at the time of listing and contain sufficient physical or biological features to support life-history processes essential to the conservation of the species, and lands outside of the geographical area occupied at the time of listing that we have determined are essential for the conservation of tidewater goby.

Units within the geographical area occupied at the time of listing are designated based on sufficient elements of physical or biological features being present to support tidewater goby life processes. Some units contain all of the identified elements of physical or biological features and support multiple life processes. Some units contain only some elements of the physical or biological features necessary to support the tidewater goby's particular use of that habitat.

Final Critical Habitat Designation

We are designating 65 units as critical habitat for tidewater goby (see Table 1 below). The critical habitat areas described below constitute our best assessment at this time of areas that meet the definition of critical habitat.

TABLE 1—OCCUPANCY OF TIDEWATER GOBY BY DESIGNATED CRITICAL HABITAT UNITS

Unit	Name	Within the geographical area occupied at time of listing?	Currently occupied [1]
DN–1	Tillas Slough (Smith River)	Yes	Yes.
DN–2	Lake Earl/Lake Tolowa	Yes	Yes.
HUM–1	Stone Lagoon	Yes	Yes.
HUM–2	Big Lagoon	Yes	Yes.
HUM–3	Humboldt Bay	Yes	Yes.
HUM–4	Eel River	No	Yes.
MEN–1	Ten Mile River	Yes	Yes.
MEN–2	Virgin Creek	Yes	Yes.
MEN–3	Pudding Creek	Yes	Yes.
MEN–4	Davis Lake and Manchester State Park Ponds.	Yes	Yes.
SON–1	Salmon Creek	Yes	Yes.
MAR–1	Estero Americano	Yes	Yes.
MAR–2	Estero de San Antonio	Yes	Yes.
MAR–3	Walker Creek	No	No.
MAR–4	Lagunitas (Papermill) Creek	No	Yes.
MAR–5	Bolinas Lagoon [2]	No	No.
MAR–6	Rodeo Lagoon	Yes	Yes.
SM–1	San Gregorio Creek	Yes	Yes.
SM–2	Pomponio Creek	No	Yes.
SM–3	Pescadero-Butano Creek	Yes	Yes.
SM–4	Bean Hollow Creek (Arroyo de Los Frijoles).	Yes	Yes.
SC–1	Waddell Creek	Yes	Yes.
SC–2	Scott Creek	No	Yes.
SC–3	Laguna Creek	Yes	Yes.
SC–4	Baldwin Creek	Yes	Yes.
SC–5	Moore Creek	Yes	Yes.
SC–6	Corcoran Lagoon	Yes	Yes.
SC–7	Aptos Creek	Yes	Yes.
SC–8	Pajaro River	Yes	Yes.
MN–1	Bennett Slough	Yes	Yes.
MN–2	Salinas River	No	No.
SLO–1	Arroyo de la Cruz [2]	No	No.
SLO–2	Arroyo del Corral	Yes	Yes.
SLO–3	Oak Knoll Creek (Arroyo Laguna).	Yes	Yes.
SLO–4	Little Pico Creek	Yes	Yes.
SLO–5	San Simeon Creek	Yes	Yes.
SLO–6	Villa Creek	Yes	Yes.
SLO–7	San Geronimo Creek	Yes	Yes.
SLO–8	Toro Creek	Yes	Yes.
SLO–9	Los Osos Creek	No	Yes.
SLO–10	San Luis Obispo Creek	Yes	Yes.
SLO–11	Pismo Creek	Yes	Yes.
SLO–12	Oso Flaco Lake [2]	No	No.
SB–1	Santa Maria River	Yes	Yes.
SB–2	Cañada de las Agujas	Yes	Yes.
SB–3	Cañada de Santa Anita	Yes	Yes.
SB–4	Cañada de Alegria	Yes	Yes.
SB–5	Cañada de Agua Caliente	Yes	Yes.
SB–6	Gaviota Creek	Yes	Yes.
SB–7	Arroyo Hondo	No	Yes.
SB–8	Winchester-Bell Canyon	Yes	Yes.
SB–9	Goleta Slough	No	Yes.
SB–10	Arroyo Burro	No	Yes.
SB–11	Mission Creek-Laguna Channel.	Yes	Yes.
SB–12	Arroyo Paredon	No	Yes.
VEN–1	Ventura River	Yes	Yes.
VEN–2	Santa Clara River	Yes	Yes.
VEN–3	J Street Drain-Ormond Lagoon.	Yes	Yes.
VEN–4	Big Sycamore Canyon	No	Yes.
LA–1	Arroyo Sequit [2]	No	No.
LA–2	Zuma Creek [2]	No	No.
LA–3	Malibu Lagoon	Yes	Yes.

TABLE 1—OCCUPANCY OF TIDEWATER GOBY BY DESIGNATED CRITICAL HABITAT UNITS—Continued

Unit	Name	Within the geographical area occupied at time of listing?	Currently occupied [1]
LA–4	Topanga Creek	No	Yes.
OR–1	Aliso Creek	No	No.
SAN–1	San Luis Rey River	No	Yes.

[1] Based on the Recovery Plan and subsequent survey information where available.
[2] Tidewater gobies have never been recorded from this location; however, regularly scheduled monitoring of these subpopulations has not been conducted.

The approximate area of each critical habitat unit is shown in Table 2.

TABLE 2—CRITICAL HABITAT UNITS DESIGNATED FOR THE TIDEWATER GOBY AND KNOWN THREATS THAT MAY REQUIRE SPECIAL MANAGEMENT CONSIDERATIONS OR PROTECTION OF THE ESSENTIAL PHYSICAL OR BIOLOGICAL FEATURES FOR UNITS WITHIN THE GEOGRAPHICAL AREA OCCUPIED BY THE SPECIES AT THE TIME OF LISTING

Unit name	Federal ac (ha)	State ac (ha)	Local ac (ha)	Private ac (ha)	Total [1] ac (ha)	Known threats that may require special management considerations or protection of the essential features [2]
DN–1: Tillas Slough (Smith River)	0 (0)	0 (0)	0 (0)	21 (8)	21 (8)	2, 3, 5
DN–2: Lake Earl/Lake Tolowa	0 (0)	2,335 (945)	0 (0)	348 (141)	2,683 (1,086)	1, 2, 4
HUM–1: Stone Lagoon	0 (0)	653 (264)	0 (0)	0 (0)	653 (264)	4
HUM–2: Big Lagoon	0 (0)	1,527 (618)	0 (0)	2 (1)	1,529 (619)	2, 4
HUM–3: Humboldt Bay	652 (264)	61 (24)	45 (18)	81 (33)	839 (339)	1, 3, 4, 5
HUM–4: Eel River	0 (0)	5 (2)	0 (0)	34 (13)	39 (15)	N/A
MEN–1: Ten Mile River	0 (0)	17 (7)	0 (0)	56 (23)	73 (30)	4
MEN–2: Virgin Creek	0 (0)	2 (1)	0 (0)	2 (1)	4 (2)	1, 4
MEN–3: Pudding Creek	0 (0)	10 (4)	1 (1)	6 (2)	17 (7)	1, 2, 4
MEN–4: Davis Lake and Manchester State Park Ponds	0 (0)	29 (12)	0 (0)	0 (0)	29 (12)	4
SON–1: Salmon Creek	0 (0)	47 (19)	14 (6)	47 (19)	108 (44)	1, 2, 4, 5
MAR–1: Estero Americano	0 (0)	0 (0)	0 (0)	465 (188)	465 (188)	1, 4, 5
MAR–2: Estero De San Antonio	0 (0)	0 (0)	0 (0)	285 (115)	285 (115)	1, 2, 4, 5
MAR–3: Walker Creek	0 (0)	9 (4)	0 (0)	109 (44)	118 (48)	N/A
MAR–4: Lagunitas (Papermill) Creek	318 (129)	459 (186)	0 (0)	221 (90)	998 (405)	N/A
MAR–5: Bolinas Lagoon	29 (12)	0 (0)	1,048 (424)	37 (15)	1,114 (451)	N/A
MAR–6: Rodeo Lagoon	40 (16)	0 (0)	0 (0)	0 (0)	40 (16)	1
SM–1: San Gregorio Creek	0 (0)	33 (13)	0 (0)	12 (5)	45 (18)	1, 3
SM–2: Pomponio Creek	0 (0)	1 (1)	0 (0)	6 (2)	7 (3)	N/A
SM–3: Pescadero-Butano Creek	0 (0)	241 (97)	0 (0)	4 (2)	245 (99)	1, 3, 4
SM–4: Bean Hollow Creek (Arroyo de Los Frijoles)	0 (0)	3 (1)	0 (0)	7 (3)	10 (4)	1, 2
SC–1: Waddell Creek	0 (0)	39 (16)	0 (0)	36 (14)	75 (30)	2, 3, 4
SC–2: Scott Creek	0 (0)	66 (27)	6 (2)	2 (1)	74 (30)	N/A
SC–3: Laguna Creek	0 (0)	26 (11)	0 (0)	0 (0)	26 (11)	2, 4
SC–4: Baldwin Creek	0 (0)	27 (11)	0 (0)	0 (0)	27 (11)	2, 4
SC–5: Moore Creek	15 (6)	0 (0)	0 (0)	0 (0)	15 (6)	2, 4
SC–6: Corcoran Lagoon	0 (0)	1 (1)	6 (2)	21 (8)	28 (11)	1, 4
SC–7: Aptos Creek	0 (0)	9 (4)	0 (0)	0 (0)	9 (4)	1, 3, 4
SC–8: Pajaro River	0 (0)	158 (64)	11 (4)	46 (19)	215 (87)	1, 3, 4
MN–1: Bennett Slough	0 (0)	108 (44)	5 (2)	54 (22)	167 (68)	1, 2, 3, 4
MN–2: Salinas River	195 (79)	33 (13)	1 (1)	237 (96)	466 (189)	N/A
SLO–1: Arroyo de la Cruz	0 (0)	25 (10)	0 (0)	8 (3)	33 (13)	N/A
SLO–2: Arroyo del Corral	0 (0)	4 (2)	0 (0)	1 (1)	5 (3)	1, 5
SLO–3: Oak Knoll Creek (Arroyo Laguna)	0 (0)	4 (2)	0 (0)	1 (1)	5 (3)	1, 3
SLO–4: Little Pico Creek	0 (0)	2 (1)	0 (0)	7 (3)	9 (4)	5
SLO–5: San Simeon Creek	0 (0)	17 (7)	0 (0)	0 (0)	17 (7)	2, 4, 5
SLO–6: Villa Creek	0 (0)	14 (6)	0 (0)	1 (1)	15 (7)	1, 2, 4, 5
SLO–7: San Geronimo Creek	0 (0)	1 (1)	0 (0)	0 (0)	1 (1)	5
SLO–8: Toro Creek	0 (0)	1 (1)	0 (0)	8 (3)	9 (4)	2, 3, 4
SLO–9: Los Osos Creek	0 (0)	62 (25)	1 (1)	10 (4)	73 (30)	N/A
SLO–10: San Luis Obispo Creek	0 (0)	0 (0)	3 (1)	28 (11)	31 (12)	1, 2, 3, 4
SLO–11: Pismo Creek	0 (0)	14 (6)	1 (1)	5 (2)	20 (9)	1, 3, 4
SLO–12: Oso Flaco Lake	0 (0)	165 (67)	0 (0)	6 (2)	171 (69)	N/A
SB–1: Santa Maria River	0 (0)	0 (0)	42 (17)	432 (174)	474 (192)	1, 2, 4, 5

TABLE 2—CRITICAL HABITAT UNITS DESIGNATED FOR THE TIDEWATER GOBY AND KNOWN THREATS THAT MAY REQUIRE SPECIAL MANAGEMENT CONSIDERATIONS OR PROTECTION OF THE ESSENTIAL PHYSICAL OR BIOLOGICAL FEATURES FOR UNITS WITHIN THE GEOGRAPHICAL AREA OCCUPIED BY THE SPECIES AT THE TIME OF LISTING—Continued

Unit name	Federal ac (ha)	State ac (ha)	Local ac (ha)	Private ac (ha)	Total [1] ac (ha)	Known threats that may require special management considerations or protection of the essential features [2]
SB–2: Cañada de las Agujas	0 (0)	0 (0)	0 (0)	1 (1)	1 (1)	1, 4
SB–3: Cañada de Santa Anita	0 (0)	0 (0)	0 (0)	3 (1)	3 (1)	4
SB–4: Cañada de Alegria	0 (0)	0 (0)	0 (0)	2 (1)	2 (1)	1, 2, 4, 5
SB–5: Cañada de Agua Caliente	0 (0)	0 (0)	0 (0)	1 (1)	1 (1)	1, 4
SB–6: Gaviota Creek	0 (0)	10 (4)	0 (0)	1 (1)	11 (5)	1, 3, 4, 5
SB–7: Arroyo Hondo	0 (0)	0 (0)	0 (0)	1 (1)	1 (1)	N/A
SB–8: Winchester-Bell Canyon	0 (0)	0 (0)	1 (1)	5 (2)	6 (3)	2, 4
SB–9: Goleta Slough	0 (0)	0 (0)	164 (66)	26 (10)	190 (76)	N/A
SB–10: Arroyo Burro	0 (0)	0 (0)	3 (1)	0 (0)	3 (1)	N/A
SB–11: Mission Creek-Laguna Channel	0 (0)	3 (1)	4 (2)	0 (0)	7 (3)	1, 3, 4
SB–12: Arroyo Paredon	0 (0)	1 (1)	1 (1)	1 (1)	3 (3)	N/A
VEN–1: Ventura River	0 (0)	25 (10)	16 (7)	9 (4)	50 (20)	1, 2, 3, 4
VEN–2: Santa Clara River	0 (0)	199 (80)	14 (6)	110 (44)	323 (130)	1, 2, 3, 4
VEN–3: J Street Drain-Ormond Lagoon	0 (0)	5 (2)	49 (20)	67 (27)	121 (49)	1, 2, 3, 4
VEN–4: Big Sycamore Canyon	0 (0)	1 (1)	0 (0)	0 (0)	1 (1)	N/A
LA–1: Arroyo Sequit	0 (0)	1 (1)	0 (0)	0 (0)	1 (1)	N/A
LA–2: Zuma Canyon	0 (0)	0 (0)	5 (2)	0 (0)	5 (2)	N/A
LA–3: Malibu Lagoon	0 (0)	41 (17)	1 (1)	22 (9)	64 (27)	1, 2, 3, 4
LA–4: Topanga Creek	0 (0)	4 (1)	0 (0)	2 (1)	6 (2)	N/A
OR–1: Aliso Creek	0 (0)	0 (0)	8 (3)	6 (2)	14 (5)	N/A
SAN–1: San Luis Rey River	0 (0)	3 (1)	49 (20)	4 (2)	56 (23)	N/A
Total [1]	1,249 (506)	6,501 (2,636)	1,501 (611)	2,905 (1,177)	12,156 (4,920)	

Note: Area sizes may not sum due to rounding.

[1] Area estimates in ac (ha) reflect the entire area within the critical habitat unit boundaries. Area estimates are rounded to the nearest whole integer that is equal to or greater than 1.

[2] Codes of known threats that may require special management considerations or protection of the essential physical or biological features are as follows:

1. Coastal development projects that result in the loss or alteration of coastal wetland habitat affecting the PCE components 1a, 1b, or 1c.
2. Water diversions, alterations of water flows, and groundwater overdrafting upstream of coastal lagoons and estuaries that negatively impact the species' breeding and foraging activities and the PCE components 1a or 1b.
3. Channelization of habitats where the species occurs affecting the PCE components 1a, 1b, or 1c.
4. Nonpoint- and point-source pollution or discharge of agricultural and sewage effluents that are likely to impact the species' health or breeding and foraging activities and the PCE.
5. Cattle grazing that results in increased sedimentation of coastal lagoons and riparian habitats, removes vegetative cover, increases ambient water temperatures, and eliminates plunge pools and undercut banks utilized by tidewater goby affecting the PCE.

N/A—Not applicable because location is outside the geographical area occupied by the species at the time of listing.

We present brief descriptions of all units, and reasons why they meet the definition of critical habitat for tidewater goby, below. The first two or three letters in the code for each critical habitat unit description reflect the county where the unit occurs: DN = Del Norte, HUM = Humboldt, MEN = Mendocino, SON = Sonoma, MAR = Marin, SM = San Mateo, SC = Santa Cruz, MN = Monterey, SLO = San Luis Obispo, SB = Santa Barbara, VEN = Ventura, LA = Los Angeles, OR = Orange, and SAN = San Diego. In Tables 1 and 2 above, these units are listed in sequential order from north to south. For the purposes of this document, the term ''local ownership'' refers to land owned or managed by a city, county, or municipal government entity.

DN–1: Tillas Slough

DN–1 consists of 21 ac (8 ha) of private lands. This unit is located in Del Norte County, approximately 3.0 mi (4.8 km) west of the community of Smith River and 8.0 mi (12.8 km) north of Lake Earl/Lake Tolowa (DN–2), which is also the next nearest extant subpopulation.

DN–1 was occupied at the time of listing. This unit supports the northernmost tidewater goby subpopulation. DN–1 will support the recovery of the tidewater goby subpopulation within the North Coast Recovery Unit. This unit is important for maintaining the tidewater goby metapopulation in the region, and plays an important role in dispersal of the tidewater goby, which could prove vital if certain factors, such as climate change, adversely impact the tidewater goby habitat locally or to the south. A culvert that serves as a grade control structure, which mutes the tide cycle, provides relatively stable water levels in this unit (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

DN–2: Lake Earl/Lake Tolowa

DN–2 consists of 2,683 ac (1,086 ha). This unit is located in Del Norte County, approximately 3 mi (4.8 km) north of the town of Crescent City. The unit consists of 2,335 ac (945 ha) of State lands and 348 ac (140 ha) of private lands. This unit includes two contiguous lagoons (Lake Tolowa and Lake Earl), referred to collectively as Lake Earl. DN–2 is located 8.0 mi (12.8 km) south of (DN–1), which is also the nearest extant subpopulation.

DN–2 was occupied at the time of listing. The tidewater goby subpopulation in DN–2 is likely a source population, which is important in maintaining metapopulation dynamics, and hence the long-term viability, of the North Coast Recovery Unit.

DN–2 is representative of extensive coastal lagoons and bays north of Cape Mendocino formed over uplifting Holocene sediments on broad flat coastal benches. These coastal benches include an intricate network of estuaries and other channels that are features essential to the conservation of the tidewater goby because they provide refugia during seasonal floods and breeding habitat through the full range of drought cycles. The water level and salinity within the lagoon varies seasonally and annually in response to: (a) Periods of high precipitation or drought within its watershed; (b) the timing, duration, and frequency of breaching events; (c) the water level in the lagoon at the time of breaching; and (d) ocean tidal cycles during and immediately following a breach. As a result of natural and human-induced environmental changes, including artificial breaching, maximum water depth within Lake Earl/Lake Tolowa varies during an annual cycle from less than 5 ft (1.5 m) deep to more than 10 ft (3 m) deep. The distribution of tidewater goby and the PCE within Lake Earl/Lake Tolowa changes in response to these dynamic short-term habitat conditions; over a multiyear cycle, tidewater goby may persist and breed anywhere within the lagoon. McCraney *et al.* (2010) indicate that artificial breaching activities may be reducing genetic diversity in this subpopulation by repeated bottlenecking.

On an intermittent basis, DN–2 possesses a sandbar across the mouth of the lagoon or estuary during the majority of the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions during those times (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

HUM–1: Stone Lagoon

HUM–1 consists of 653 ac (264 ha). This unit is located in Humboldt County, approximately 11 mi (18 km) north of the City of Trinidad. The unit consists entirely of State lands. HUM–1 is located 3.1 mi (5.0 km) north of Big Lagoon (HUM–2), which is also the nearest extant subpopulation.

HUM–1 was occupied at the time of listing. The tidewater goby subpopulation in HUM–1 is likely a source population, which is important in maintaining metapopulation dynamics, and hence the long-term viability, of the North Coast Recovery Unit.

On an intermittent basis, HUM–1 possesses a sandbar across the mouth of the lagoon or estuary during the majority of the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

HUM–2: Big Lagoon

HUM–2 consists of 1,529 ac (619 ha). This unit is located in Humboldt County, approximately 7 mi (11 km) north of the City of Trinidad. The unit consists of 1,527 ac (618 ha) of State lands and 2 ac (1 ha) of private lands. HUM–2 is located 3.1 mi (5.0 km) south of Stone Lagoon (HUM–1), which is also the nearest extant subpopulation.

HUM–2 was occupied at the time of listing. The tidewater goby subpopulation in HUM–2 is likely a source population, which is important in maintaining metapopulation dynamics, and hence the long-term viability, of the North Coast Recovery Unit.

Mark and recapture surveys for tidewater goby were conducted by Humboldt State University in a large cove near the State Park boat ramp in Big Lagoon during the fall of 2008, 2009, and 2010, to estimate the minimum tidewater goby subpopulation for each year (Hellmair 2011, p. 47). Results indicate that, in 2008, the tidewater goby subpopulation was approximately 21,000 individuals. In 2009, the subpopulation was approximately 1.7 to 3.4 million individuals in the cove. In 2010, the subpopulation was approximately 30,000 individuals in the same cove. Based on the results of this research, which estimated that the subpopulation fluctuated between 21,000 and 1.7–3.4 million individuals, and the relatively large size of the lagoon, Big Lagoon likely has the largest and most robust tidewater goby subpopulation in northern California. The results of the study also reflect how variable tidewater goby subpopulation numbers can be from year to year in a given location.

On an intermittent basis, HUM–2 possesses a sandbar across the mouth of the lagoon or estuary during the majority of the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions during those times (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

HUM–3: Humboldt Bay

HUM–3 consists of 839 ac (339 ha). This unit is located in Humboldt County, within an approximate 8-mi (13-km) radius to the north, south, and west of the City of Eureka. The unit consists of 652 ac (264 ha) of Federal lands, 61 ac (24 ha) of State lands, 45 ac (18 ha) of local lands, and 81 ac (33 ha) of private lands. HUM–3 is located 18.4 mi (29.7 km) north of the Eel River (HUM–4), which is also the nearest extant subpopulation. HUM–3 was

occupied at the time of listing. The tidewater goby subpopulation in HUM–3 is likely a source population, which is important in maintaining the metapopulation dynamics, and hence the long-term viability, of the North Coast Recovery Unit. This subpopulation may provide essential demographic and genetic support to HUM–4, especially after periods of extreme floods, for example, after the 1964 ''Christmas Flood,'' when the subpopulation of tidewater goby at the Eel River estuary may have been extirpated.

Humboldt Bay and its adjacent marshes and estuaries are a complex mixture of natural and human-made aquatic features that have experienced many decades of human-induced changes. These changes include the construction of levees, tidegates, culverts, and other water control structures, and extensive dredging of sandbars. Surrounding the Bay itself is a generally broad bench historically dominated by mudflats, tidal marshes, estuarine channels, and brackish marshes. Substantial portions of these habitats were converted to agricultural, urban, and industrial uses in recent history, resulting in the loss of as much as 10,000 ac (4,047 ha) of potentially suitable tidewater goby habitat. This critical habitat unit consists of a complex of interconnected estuary channels and tidegates along the eastern edge of Humboldt Bay, which collectively mimic, on a much-reduced scale, suitable habitat for tidewater goby. Many of these channels and marshes are themselves the result of changes to historical habitats, and depend on specific, yet generally undocumented, management activities, such as dredging or sandbar breaches, for their continued function.

To address the dynamic variability of these habitats resulting from seasonal and inter-annual precipitation differences, we have included both the actual known locations where the tidewater goby has been documented, as well as portions of those channels contiguous to, and upchannel or downchannel from, occupied habitat. We have not designated Humboldt Bay proper as critical habitat, nor have we proposed major channels subject to substantial daily tidal fluctuations, as tidewater gobies are not known to breed there. Similarly, we have not designated channels that are discontiguous with occupied habitat, nor have we included intervening marsh or agricultural lands that may occasionally be flooded during severe winter storm events.

Based on several recent surveys, we have found that the precise locations of tidewater goby use within the channel complex during any particular year may change in response to variations in precipitation and channel hydrology. We anticipate that the persistence of the tidewater goby source population within this unit may require protection of lagoons and estuaries that are not occupied every year, but collectively support a source population through an interconnected complex of channels and shallow water habitats. That is, any of the several known occupied locations within a channel complex may be used by tidewater goby during various years in response to dynamic habitat conditions during seasonal, annual, and longer term climatic cycles, such as drought.

PCE 1c (a sandbar(s) across the mouth of a lagoon or estuary) is not likely to occur within this unit because a navigable, dredged channel with a permanent open connection to the ocean is maintained on a regular basis. PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

HUM–4: Eel River

This unit is located in Humboldt County, approximately 4.0 mi (6.5 ha) northwest of the City of Ferndale. The unit consists of two subunits, totaling 5 ac (2 ha) of State lands and 34 ac (13 ha) of private lands.

Both subunits are outside the geographical area occupied by the species at the time of listing but are now occupied. The Eel River estuary is similar to Humboldt Bay (HUM–3) in that tidewater goby subpopulations have been found in isolated populations in severely and artificially fragmented habitats, which are often found behind tidegates, culverts, and other manmade structures. In Humboldt Bay (HUM–3), McCraney *et al.* (2010, p. 3315) found that artificial fragmentation reduced dispersal and gene flow in these subpopulations. The same may be true for the Eel River estuary subpopulations with isolated populations that are genetically distinct from each other. Therefore, until additional information is available regarding population genetics, distribution, and other parameters, we consider these two areas, the Eel River North Area (Subunit-4a) and the Eel River South Area (Subunit–4b), to be distinct from each other. Artificially fragmented habitats in the Eel River estuary may have genetically isolated or weakened populations of tidewater goby, as has been identified in Humboldt Bay (HUM–3) (McCraney *et al.* 2010, p. 3315). Current and proposed estuarine restoration projects in the Eel River estuary may improve dispersal of tidewater goby, increase genetic diversity, and aid in recovery of the species in these locations as well.

Subunit-4a (Eel River North Area)

Subunit-4a encompasses approximately 16 ac (6 ha), and consists of 5 ac (2 ha) of State lands and 11 ac (4 ha) of private lands. Subunit-4a is located 3.3 mi (5.3 km) north of Subunit-4b, which is also the nearest extant subpopulation. This subunit is essential for the conservation of the species because it possesses ecological characteristics that are important in maintaining the species' ability to adapt to changing environments, including the ability to disperse into higher channels and marsh habitat during severe flood events. The Eel River delta includes a large, complex estuary with a network of diked and natural slough channels with suitable tidewater goby habitat. The Eel River delta contains many small unsurveyed slough channels and other backwater areas that provide suitable habitat for tidewater goby, but it also contains larger channels open to direct tidal influence that do not provide suitable habitat and are not included in this subunit. This subunit consists of backwater channels and immediately adjacent marsh contiguous to the known-occupied habitat.

This unit is subject to infrequent, yet severe, flooding from the nearby Eel River proper. The major flood event of 1964 (''Christmas Flood''), and other major floods during the past century, may have severely altered habitat in most channels, including those currently occupied. Tidewater goby may have survived the flood and resulting loss of habitat in the refugia provided in upper channels and swales. Alternatively, the species may have been extirpated at the Eel River delta during those severe events, and become reestablished through recolonization by individuals from Humboldt Bay populations (HUM–3). Of particular importance, the Eel River location is at the north end of one of the largest natural geographic gaps in the tidewater goby's geographic range. The gap

extends to the Ten Mile River (Mendocino County) to the south, representing a coastline distance in excess of 135 mi (217 km).

This unit is outside the geographical area occupied by the species at the time of listing, but is considered to be currently occupied. Although Subunit-4a is outside the geographical area occupied at the time of listing, it does possess the PCE that is needed to support tidewater goby. On an intermittent basis, Subunit-4a possesses a sandbar across the mouth of the lagoon or estuary during the majority of the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation.

Subunit-4b (Eel River South Area)

Subunit-4b encompasses approximately 23 ac (9 ha), and consists entirely of private lands. Subunit-4b is located 3.3 mi (5.3 km) south of Subunit-4a, which is also the nearest extant subpopulation. This subunit is essential for the conservation of the species because it possesses ecological characteristics that are important in maintaining the species' ability to adapt to changing environments, including the ability to disperse into higher channels and marsh habitat during severe flood events. The Southern Eel River delta includes a large complex estuary with a network of diked and natural slough channels, and other backwater areas that provide suitable habitat for tidewater goby. It also contains larger channels open to direct tidal influence that do not provide suitable habitat and are not included in this unit. This unit consists of backwater channels and immediately adjacent marsh contiguous to the known-occupied habitat.

This unit is subject to infrequent, yet severe, flooding from the nearby Eel River proper. The major flood event of 1964 (''Christmas Flood''), and other major floods during the past century, may have severely altered habitat in most channels, including those currently occupied. Tidewater goby may have survived the flood and resulting loss of habitat in the refugia provided in upper channels and swales. Alternatively, the species may have been extirpated at the Eel River delta during those severe events, and become reestablished through recolonization by individuals from Humboldt Bay populations (HUM–3). Of particular importance, the Eel River location is at the north end of one of the largest natural geographic gaps in the tidewater goby's geographic range. The gap extends to the Ten Mile River (Mendocino County) to the south, representing a coastline distance in excess of 135 mi (217 km).

This unit is outside the geographical area occupied by the species at the time of listing, but is considered to be currently occupied. Although Subunit-4b was outside the geographical area occupied at the time of listing, it does possess the PCE that is needed to support tidewater goby. On an intermittent basis, Subunit-4b possesses a sandbar across the mouth of the lagoon or estuary during the majority of the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation.

MEN–1: Ten Mile River

MEN–1 consists of 73 ac (30 ha). This unit is located in Mendocino County, approximately 9.0 mi (14.5 km) north of the Town of Fort Bragg. The unit consists of 17 ac (7 ha) of State lands and 56 ac (23 ha) of private lands. MEN–1 is located 5.6 mi (8.9 km) north of the Virgin Creek (MEN–2), which is also the nearest extant subpopulation. MEN–1 was occupied by tidewater goby at the time of listing. The tidewater goby subpopulation in MEN–1 is likely a source population, which is important in maintaining metapopulation dynamics, and hence the long-term viability, of the North Coast Recovery Unit. Furthermore, this unit is the largest block of habitat along the coast of Mendocino County, and is the first location on the southern end of one of the longest stretches of unsuitable habitat in the species' range (previously described under HUM–4). Thus, this unit is important to connect subpopulations within Mendocino County. South of Ten Mile River, only three other small isolated locations (MEN–2, 3, 4) occupied by the tidewater goby are known to exist across the more than 100 miles of rugged coastline between MEN–1 and SON–1 in south coastal Sonoma County.

On an intermittent basis, MEN–1 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

MEN–2: Virgin Creek

MEN–2 consists of 4 ac (2 ha). This unit is located in Mendocino County, approximately 3.5 mi (5.6 km) north of the Town of Fort Bragg. The unit consists of 2 ac (1 ha) of State lands and 2 ac (1 ha) of private lands. MEN–2 is located 1.2 mi (2.0 km) north of Pudding Creek (MEN–3), which is also the nearest extant subpopulation.

MEN–2 was occupied by tidewater goby at the time of listing. The tidewater goby subpopulation in MEN–2 is likely a source population, which is important in maintaining metapopulation dynamics, and hence the long-term viability, of the North Coast Recovery Unit.

On an intermittent basis, MEN–2 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

MEN–3: Pudding Creek

MEN–3 consists of 17 ac (7 ha). This unit is located in Mendocino County, approximately 2.5 mi (4.0 km) north of the town of Fort Bragg. The unit consists of 10 ac (4 ha) of State lands, 1 ac (less than 1 ha) of local lands, and 6 ac (2 ha) of private lands. MEN–3 is located 1.2 mi (2.0 km) south of Virgin Creek (MEN–2), which is also the nearest extant subpopulation.

MEN–3 was occupied by the tidewater goby at the time of listing.

This unit allows for connectivity between tidewater goby source populations, and thereby supports gene flow and metapopulation dynamics within the North Recovery Unit.

On an intermittent basis, MEN–3 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

MEN–4: Davis Lake and Manchester State Park Ponds

MEN–4 consists of 29 ac (12 ha). This unit is located in Mendocino County, approximately 1.2 mi (1.9 ha) west of the community of Manchester. The unit consists entirely of State lands. MEN–4 is located 32.4 mi (52.2 km) south of Pudding Creek (MEN–3), which is also the nearest extant subpopulation.

MEN–4 was occupied by tidewater goby at the time of listing. The tidewater goby subpopulation in MEN–4 is likely a source population, which is important in maintaining metapopulation dynamics, and hence the long-term viability, of the North Coast Recovery Unit.

On an intermittent basis, MEN–4 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

SON–1: Salmon Creek

SON–1 consists of 108 ac (44 ha). This unit is located in Sonoma County, approximately 7 mi (11.3 km) south of the community of Jenner. The unit consists of 47 ac (19 ha) of State lands, 14 ac (6 ha) local lands, and 47 ac (19 ha) of private lands. SON–1 is located 5.3 mi (8.5 km) north of the Estero Americano unit (MAR–1), which is also the nearest extant subpopulation.

SON–1 was occupied by tidewater goby at the time of listing. The geological feature known as Bodega Head separates Salmon Creek and Estero Americano, and could reduce the exchange of tidewater goby between these two locations. The tidewater goby population in this unit is likely a source population, and is therefore important for maintaining metapopulation dynamics. This critical habitat unit provides habitat for a tidewater goby subpopulation that is important to the conservation of one of the genetically distinct recovery units as described in the Recovery Plan (Dawson *et al.* 2001, p. 1172). Maintaining this unit will reduce the chance of losing the tidewater goby within the Greater Bay Area Recovery Unit, and help conserve genetic diversity within the species.

On an intermittent basis, SON–1 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

MAR–1: Estero Americano

MAR–1 consists of 465 ac (188 ha). This unit is located in Marin County, approximately 3.5 mi (5.7 km) south of Bodega Bay. The unit consists entirely of private lands. MAR–1 is located 2.2 mi (3.5 km) north of the Estero de San Antonio (MAR–2), which is also the nearest extant subpopulation.

MAR–1 was occupied by tidewater goby at the time of listing. The tidewater goby subpopulation in MAR–1 is likely a source population, which is important in maintaining metapopulation dynamics, and hence the long-term viability, of the Greater Bay Area Recovery Unit.

On an intermittent basis, MAR–1 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

MAR–2: Estero de San Antonio

MAR–2 consists of 285 ac (115 ha). This unit is located in Marin County, approximately 5.6 mi (9 km) south of Bodega Bay. The unit consists entirely of private lands. MAR–2 is located 2.2 mi (3.5 km) south of the Estero Americano (MAR–1), which is also the nearest extant subpopulation.

MAR–2 was occupied by tidewater goby at the time of listing. This critical habitat unit supports a source population of tidewater goby that likely provides individuals that are recruited into surrounding subpopulations. Given the close proximity of the MAR–1 and MAR–2 units and the dispersal capabilities of tidewater goby, it is likely that the two subpopulations have exchanged individuals in the past and will continue to exchange individuals in the future. Exchange between these subpopulations would bolster the continued sustainable existence of the two subpopulations, which would, together with unit SON–1, provide for natural colonization of available, but is considered to be currently unoccupied, estuaries within the region south of the Russian River and north of Point Reyes. This critical habitat unit provides habitat for a tidewater goby population that is important to the conservation of one of the genetically distinct recovery units as described in the Recovery Plan (Dawson *et al.* 2001, p. 1172). Maintaining this unit will reduce the chance of losing the tidewater goby within the Greater Bay Area Recovery Unit, and help conserve genetic diversity within the species.

On an intermittent basis, MAR–2 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

MAR–3: Walker Creek

MAR–3 consists of 118 ac (48 ha). This unit is located in Marin County, approximately 2.5 mi (4 km) southwest of the Town of Tomales. The unit consists of 9 ac (4 ha) of State lands and 109 ac (44 ha) of private lands. MAR–3 is located 4.6 mi (7.4 km) southeast of the Estero de San Antonio unit (MAR–2), which is also the nearest extant subpopulation.

This unit is outside the geographical area occupied by the species at the time of listing and is not considered to be currently occupied. However, tidewater gobies were collected at Walker Creek in 1897, but were not found in sampling efforts conducted in 1996 or 1999 (Service 2005a, p. C–8). This unit is identified in the Recovery Plan as a potential reintroduction site, and could provide habitat for maintaining the tidewater goby metapopulation in the region. MAR–3 is essential for the conservation of the species because establishing a tidewater goby population in this unit will support the recovery of the tidewater goby population within the Greater Bay Area Recovery Unit and help facilitate additional colonization of currently unoccupied locations.

Although MAR–3 is outside the geographical area occupied at the time of listing and is not currently occupied, it does possess the PCE that is needed to support tidewater goby. PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation.

MAR–4: Lagunitas (Papermill) Creek

MAR–4 consists of 998 ac (405 ha). This unit is located in Marin County, approximately 20.5 mi (33 km) south of Bodega Bay. The unit consists of 318 ac (129 ha) of Federal lands, 459 ac (186 ha) of State lands, and 221 ac (90 ha) of private lands. MAR–4 is located 15.5 mi (25.0 km) south of the Estero de San Antonio unit (MAR–2), which is also the nearest extant subpopulation. Records indicate tidewater goby occurred at this location historically.

This unit is outside the geographical area occupied by the species at the time of listing, but recent surveys have confirmed that the unit is currently occupied. This unit is essential for the conservation of the species because it is the only known location of the tidewater goby to remain within the greater Tomales Bay area. Without this subpopulation, there would be no source population within dispersal distance of Tomales Bay to maintain the metapopulation dynamics of subpopulations within the area. Tomales Bay is designated as ''wetlands of significant importance'' under the International Convention on Wetlands (*http://sanctuarysimon.org/farallones/sections/estuaries/overview.php*).

Although MAR–4 is outside the geographical area occupied at the time of listing, it does possess the PCE that is needed to support tidewater goby. We do not have information that confirms that PCE 1c (a sandbar(s) across the mouth of the lagoon or estuary) is present within this unit on at least an intermittent basis. However, PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation.

MAR–5: Bolinas Lagoon

MAR–5 consists of 1,114 ac (451 ha). This unit is located in Marin County, approximately 0.5 mi (0.81 km) east of the community of Bolinas. The unit consists of 29 ac (12 ha) of Federal Lands, 1,048 ac (424 ha) of local lands, and 37 ac (15 ha) of private lands. MAR–5 is located 9.4 mi (15.1 km) northwest of the Rodeo Lagoon unit (MAR–6), which is also the nearest extant subpopulation.

This unit is outside the geographical area occupied by the species at the time of listing and is not known to be currently occupied, and there are no historical tidewater goby records for this location. However, this unit is essential for the conservation of the species because it provides suitable habitat within potential dispersal distance of nearby occupied units, is identified in the Recovery Plan as a potential introduction site, and could help maintain tidewater goby metapopulations in the region. Bolinas Lagoon is designated as ''wetlands of significant importance'' under the International Convention on Wetlands (*http://sanctuarysimon.org/farallones/sections/estuaries/overview.php*).If a tidewater goby subpopulation is established in this unit, MAR–5 unit will support the recovery of the tidewater goby population within the Greater Bay Recovery Unit and help facilitate colonization of currently unoccupied locations.

Although MAR–5 is outside the geographical area occupied at the time of listing and is not currently occupied, it does possess the PCE that is needed to support tidewater goby. We do not have information that confirms that PCE 1c (a sandbar(s) across the mouth of the lagoon or estuary) is present within this unit on at least an intermittent basis. However, PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation.

MAR–6: Rodeo Lagoon

MAR–6 consists of 40 ac (16 ha). This unit is located in Marin County, approximately 3.8 mi (6 km) north of San Francisco. The unit consists entirely of Federal lands. MAR–6 is located 9.4 mi (15.1 km) south of Bolinas Lagoon (MAR–5), and is separated from the nearest extant subpopulation to the south, San Gregorio Creek (SM–1), by 36 mi (58 km).

MAR–6 was occupied by tidewater goby at the time of listing. MAR–6 is the only known location where the tidewater goby remains within the greater San Francisco Bay Area. This critical habitat unit provides habitat for a tidewater goby subpopulation that is important to the conservation of one of the genetically distinct recovery units as described in the Recovery Plan (Dawson *et al.* 2001, p. 1172). It also provides habitat for a subpopulation of tidewater goby that could disperse to other adjoining habitats. Maintaining this unit will reduce the chance of losing the tidewater goby in the Greater Bay Recovery Unit and help conserve genetic diversity within the species.

On an intermittent basis, MAR–6 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in

precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

SM–1: San Gregorio Creek

SM–1 consists of 45 ac (18 ha). This unit is located in San Mateo County, approximately 28 mi (45 km) south of the San Francisco–San Mateo County line. The unit consists of 33 ac (13 ha) of State lands and 12 ac (5 ha) of private lands. SM–1 is located 1.5 mi (2.4 km) north of Pomponio Creek (SM–2), and is separated from the nearest extant subpopulation to the south, Pescadero–Butano Creek (SM–3), by 3.8 mi (6.1 km).

SM–1 was occupied by tidewater goby at the time of listing. The tidewater goby subpopulation in this unit is likely a source population and is, therefore, important for maintaining metapopulation dynamics. This critical habitat unit provides habitat for a tidewater goby subpopulation that is important to the conservation of one of the genetically distinct recovery units as described in the Recovery Plan (Dawson *et al.* 2001, p. 1172). This unit is noted for high densities of tidewater goby (Swenson 1993, p. 3).

On an intermittent basis, SM–1 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

SM–2: Pomponio Creek

SM–2 consists of 7 ac (3 ha). This unit is located in San Mateo County, approximately 3.5 mi (5.6 km) north of the community of Pescadero. The unit consists of 1 ac (less than 1 ha) of State lands and 6 ac (2 ha) of private lands. SM–2 is located 1.5 mi (2.4 km) south of the San Gregorio Creek unit (SM–1), which is also the nearest extant subpopulation.

This unit is outside the geographical area occupied by the species at the time of listing, but is considered to be currently occupied. This unit is essential for the conservation of the species because it provides habitat for the species, allows for connectivity between tidewater goby source populations from nearby units, supports gene flow, and provides for metapopulation dynamics in the region.

Although SM–2 is outside the geographical area occupied at the time of listing, it does possess the PCE that supports tidewater goby. On an intermittent basis, SM–2 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation.

SM–3: Pescadero–Butano Creek

SM–3 consists of 245 ac (99 ha). This unit is located in San Mateo County, approximately 32.0 mi (51.0 km) south of the San Francisco–San Mateo County line. This unit consists of 241 ac (97 ha) of State lands and 4 ac (2 ha) of private lands. SM–3 is located 2.2 mi (3.5 km) south of Pomponio Creek (SM–2), and is separated from the nearest extant subpopulation to the south, in Bean Hollow Creek (SM–4), by 3.0 mi (4.8 km).

SM–3 was occupied by tidewater goby at the time of listing. This unit allows for connectivity between tidewater goby source populations, and thereby supports gene flow and metapopulation dynamics within the Greater Bay Area Recovery Unit.

On an intermittent basis, SM–3 possesses a sandbar across the mouth of the lagoon or estuary during the late spring and early fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

SM–4: Bean Hollow Creek (Arroyo de Los Frijoles)

SM–4 consists of 10 ac (4 ha). This unit is located in San Mateo County, approximately 34.8 mi (56.0 km) south of the San Francisco–San Mateo County line. The unit consists of 3 ac (1 ha) of State lands and 7 ac (3 ha) of private lands. SM–4 is located approximately 3.0 mi (4.8 km) south of the Pescadero–Butano Creek (SM–3), which is also the nearest extant subpopulation.

SM–4 was occupied by tidewater goby at the time of listing. Maintaining this unit, together with the two units to the north, will reduce the chance of losing the tidewater goby along this important coastal range and allow for connectivity between tidewater goby source populations, thereby supporting gene flow and metapopulation dynamics within the Greater Bay Recovery Unit.

On an intermittent basis, SM–4 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

SC–1: Waddell Creek

SC–1 consists of 75 ac (30 ha). This unit is located in Santa Cruz County, approximately 18 mi (29 km) northwest of the city of Santa Cruz. The unit consists of 39 ac (16 ha) of State lands and 36 ac (14 ha) of private lands. SC–1 is located approximately 5.0 mi (8.0 km) north of the Scott Creek (SC–2), which is also the nearest extant subpopulation. This unit is at the northern extent of this metapopulation as described in the Recovery Plan. Tidewater gobies were present in low numbers in 1991 through 1996, but were not detected during surveys from 1997 to 2000 (Service 2005a, p. C–12). Tidewater gobies were again detected

during surveys in August 2012 (Rischbieter, i*n litt.* 2012).

SC–1 was occupied by tidewater goby at the time of listing. This unit provides habitat for tidewater gobies dispersing from Scott Creek (SC–2), which may serve to decrease the risk of extirpation of this metapopulation through stochastic events. This unit allows for connectivity between tidewater goby source populations, and thereby supports gene flow and metapopulation dynamics within the Greater Bay Area Recovery Unit.

On an intermittent basis, SC–1 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

SC–2: Scott Creek

SC–2 consists of 74 ac (30 ha). This unit is located in Santa Cruz County, approximately 11.8 mi (19.0 km) northwest of the City of Santa Cruz. The unit consists of 66 ac (27 ha) of State lands, 6 ac (2 ha) of local lands, and 2 ac (1 ha) of private lands. SC–2 is located 5.0 mi (8.0 km) south of Waddell Creek (SC–1), and is separated from the nearest extant subpopulation to the south, in Laguna Creek (SC–3), by 6.0 mi (9.6 km).

SC–2 is outside the geographical area occupied by the species at the time of listing, but is considered to be currently occupied. This unit is essential for the conservation of the species because it provides habitat for the species, allows for connectivity between tidewater goby source populations from nearby units, supports gene flow, and provides for metapopulation dynamics within the Greater Bay Area Recovery Unit.

Although SC–2 is outside the geographical area occupied at the time of listing, it does possess the PCE that supports tidewater goby. On an intermittent basis, SC–2 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation.

SC–3: Laguna Creek

SC–3 consists of 26 ac (11 ha). This unit is located in Santa Cruz County, approximately 7.5 mi (12.0 km) west of the City of Santa Cruz. The unit consists entirely of State lands. SC–3 is located 6.0 mi (9.6 km) south of Scott Creek (SC–2), the nearest extant population to the north, and is separated from the nearest extant subpopulation to the south, in Baldwin Creek (SC–4), by 2.0 mi (3.2 km).

SC–3 was occupied by tidewater goby at the time of listing. The tidewater goby subpopulation in this unit is likely a source population and is, therefore, important for maintaining metapopulation dynamics. This critical habitat unit provides habitat for a tidewater goby population that is important to the conservation of one of the genetically distinct recovery units as described in the Recovery Plan (Dawson *et al.* 2001, p. 1172). Together with Baldwin Creek (SC–4) to the south, this unit helps conserve the genetic diversity of the species.

On an intermittent basis, SC–3 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

SC–4: Baldwin Creek

SC–4 consists of 27 ac (11 ha). This unit is located in Santa Cruz County, approximately 6 mi (9.7 km) west of the City of Santa Cruz. The unit consists entirely of State lands. SC–4 is located 2.0 mi (3.2 km) south of Laguna Creek (SC–3), and is separated from the nearest extant subpopulation to the south, Lombardi Creek (not designated as critical habitat), by 0.7 mi (1.2 km).

SC–4 was occupied by tidewater goby at the time of listing. The tidewater goby population in this unit is likely a source population and is, therefore, important for maintaining metapopulation dynamics. This critical habitat unit provides habitat for a tidewater goby population that is important to the conservation of one of the genetically distinct recovery units as described in the Recovery Plan (Dawson *et al.* 2001, p. 1172) and, together with Laguna Creek (SC–3) to the north, helps conserve genetic diversity within the species.

On an intermittent basis, SC–4 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

SC–5: Moore Creek

SC–5 consists of 15 ac (6 ha). This unit is located in Santa Cruz County, approximately 2.0 mi (3.2 km) west of the City of Santa Cruz. The unit consists entirely of Federal lands. SC–5 is located 4.0 mi (6.4) south of Baldwin Creek. SC–5 is separated from the nearest extant subpopulation to the north, Younger Lagoon (not designated as critical habitat), by 0.5 mi (0.8 km).

SC–5 was occupied by tidewater goby at the time of listing. Maintaining this unit will reduce the chance of losing the tidewater goby within the Greater Bay Area Recovery Unit, and help conserve genetic diversity within the species.

On an intermittent basis, SC–5 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The

physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

SC–6: Corcoran Lagoon

SC–6 consists of 28 ac (11 ha). This unit is located in Santa Cruz County, approximately 3 mi (4.8 km) east of the City of Santa Cruz. This unit consists of 1 ac (less than 1 ha) of State lands, 6 ac (2 ha) of local lands, and 21 ac (8 ha) of private lands. SC–6 is located 4.0 mi (6.4 km) south of Moore Creek (SC–5), and the unit is separated from the nearest extant subpopulation to the south, in Moran Lake (not designated as critical habitat), by 0.7 mi (1.1 km).

SC–6 was occupied by tidewater goby at the time of listing. The tidewater goby subpopulation in this unit is likely a source population and is, therefore, important for maintaining metapopulation dynamics. This critical habitat unit provides habitat for a tidewater goby population that is important to the conservation of one of the genetically distinct recovery units as described in the Recovery Plan (Dawson *et al.* 2001, p. 1172). Maintaining this unit will reduce the chance of losing the tidewater goby within the Greater Bay Area Recovery Unit, and help conserve genetic diversity within the species.

On an intermittent basis, SC–6 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

SC–7: Aptos Creek

SC–7 consists of 9 ac (4 ha). This unit is located in Santa Cruz County, approximately 0.5 mi (0.8 km) southwest of the City of Aptos. The unit consists entirely of State lands. SC–7 is located 4.1 mi (6.6 km) east of Corcoran Lagoon (SC–6), and is separated from the nearest extant subpopulation to the north, Moran Lake (not designated as critical habitat), by 4.2 mi (6.75 km).

SC–7 was occupied by tidewater goby at the time of listing. The tidewater goby population in SC–7 is likely a source population, which is important in maintaining metapopulation dynamics, and hence the long-term viability, of the Greater Bay Area Recovery Unit.

On an intermittent basis, SC–7 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

SC–8: Pajaro River

SC–8 consists of 215 ac (87 ha). This unit is located in Santa Cruz County, approximately 5 mi (8 km) southwest of the City of Watsonville. The unit consists of 158 ac (64 ha) of State lands, 11 ac (4 ha) of local lands, and 46 ac (19 ha) of private lands. SC–8 is located 9.7 mi (15.6 km) south of Aptos Creek (SC–7), and is separated from the nearest extant subpopulation to the south, in Bennett Slough (MN–1), by 3.0 mi (4.7 km).

SC–8 was occupied by tidewater goby at the time of listing. Maintaining this unit will reduce the chance of losing the tidewater goby within the Greater Bay Area Recovery Unit, and help conserve genetic diversity within the species.

On an intermittent basis, SC–8 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

MN–1: Bennett Slough

MN–1 consists of 167 ac (68 ha). This unit is located in Monterey County, approximately 3.7 mi (6 km) northwest of the Town of Castroville. This unit consists of 108 ac (44 ha) of State lands, 5 ac (2 ha) of local lands, and 54 ac (22 ha) of private lands. MN–1 is located 4.1 mi (6.6 km) south of the Pajaro River (SC–8), and is separated from the nearest extant subpopulation to the south, Moro Cojo Slough (not designated as critical habitat), by 1.3 mi (2.1 km).

MN–1 was occupied by tidewater goby at the time of listing. The tidewater goby population in this unit is likely a source population and is, therefore, important for maintaining metapopulation dynamics. This critical habitat unit provides habitat for a tidewater goby population that is important to the conservation of one of the genetically distinct recovery units as described in the Recovery Plan (Dawson *et al.* 2001, p. 1172), and maintaining it will reduce the chance of losing the tidewater goby within the Greater Bay Area Recovery Unit, and help conserve genetic diversity within the species.

PCE 1c (a sandbar(s) across the mouth of lagoon or estuary) is not likely to occur within this unit because it has a navigable, dredged channel with a permanent open connection to the ocean that is maintained on a regular basis. However, PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

MN–2: Salinas River

MN–2 consists of 466 ac (189 ha). This unit is located in Monterey County, approximately 7.5 mi (12 km) north of the City of Seaside. The unit consists of 195 ac (79 ha) of Federal lands, 33 ac (13 ha) of State lands, 1 ac (less than 1 ha) of local lands, and 237 ac (96 ha) of

private lands. Unit MN–2 is located 4.0 mi (8.0 km) south of the Bennett Slough unit (MN–1).

This unit is outside the geographical area occupied by the species at the time of listing and is not considered to be currently occupied; however, this unit is essential for the conservation of the species. Tidewater gobies were last collected here in 1951, but were not present during surveys in 1991, 1992, and 2004 (Service 2005a, p. C–16). This unit is identified in the Recovery Plan as a potential reintroduction site. This unit would provide habitat for tidewater goby that disperse from Bennett Slough and Moro Cojo Slough, either through natural means or by reintroduction, which may serve to decrease the risk of extirpation of this metapopulation through stochastic events. This unit will also allow for connectivity between tidewater goby source populations, and thereby support gene flow and metapopulation dynamics within the Greater Bay Area Recovery Unit. Lastly, this unit is one of only three locations in Monterey County that have harbored tidewater goby and is one of the two subpopulations in the metapopulation as described in the Recovery Plan. Therefore, this unit is especially important for ensuring the viability of the metapopulation.

Although MN–2 is outside the geographical area occupied at the time of listing, it does possess the PCE that is needed to support tidewater goby. On an intermittent basis, MN–2 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation.

SLO–1: Arroyo de la Cruz

SLO–1 consists of 33 ac (13 ha). This unit is located in San Luis Obispo County, approximately 8.0 mi (13.0 km) northwest of San Simeon. The unit consists of 25 ac (10 ha) of State lands and 8 ac (3 ha) of private lands. SLO–1 is located approximately 2.0 mi (3.2 km) north of the Arroyo de Corral unit (SLO–2), which is also the nearest extant subpopulation.

This unit is outside the geographical area occupied by the species at the time of listing and is not known to be currently occupied, and there are no historical tidewater goby records for this location. However, this unit is essential for the conservation of the species because it provides habitat to nearby units and is identified in the Recovery Plan as a potential introduction site, and could provide habitat for maintaining the tidewater goby metapopulation in the region.

This unit will provide habitat for tidewater goby that disperse from Arroyo del Corral through introduction of the species, which may serve to decrease the risk of extirpation of this metapopulation through stochastic events. This unit is one of two locations with suitable habitat within the Central Coast Recovery Subunit (CC 1), as described in the Recovery Plan. Therefore, this unit is especially important for ensuring the viability of the metapopulation because if the subpopulation within the Arroyo de Corral unit (SLO–2) is extirpated, the entire metapopulation would be lost.

Although SLO–1 is outside the geographical area occupied at the time of listing and is not currently occupied, it does possess the PCE that is needed to support tidewater goby. SLO–1 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation.

SLO–2: Arroyo del Corral

SLO–2 consists of 5 ac (3 ha). This unit is located in San Luis Obispo County, approximately 6 mi (9.7 km) northwest of San Simeon. The unit consists of 4 ac (2 ha) of State lands and 1 ac (less than 1 ha) of private lands. SLO–2 is located 2 mi (3.2 km) south of Arroyo de la Cruz (SLO–1) and is separated from the nearest extant subpopulation to the south, Oak Knoll Creek (SLO–3), by 4.3 mi (6.9 km).

SLO–2 was occupied at the time of listing. The tidewater goby subpopulation in this unit is likely a source population and is, therefore, important for maintaining metapopulation dynamics. This critical habitat unit provides habitat for a tidewater goby subpopulation that is important to the conservation of one of the genetically distinct recovery units as described in the Recovery Plan (Dawson *et al.* 2001, p. 1172). Maintaining this unit will reduce the chance of losing the tidewater goby within the Central Coast Recovery Unit, and help conserve genetic diversity within the species.

On an intermittent basis, SLO–2 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

SLO–3: Oak Knoll Creek (Arroyo Laguna)

SLO–3 consists of 5 ac (3 ha). This unit is located in San Luis Obispo County, approximately 2 mi (3.2 km) northwest of San Simeon. The unit consists of 4 ac (2 ha) of State lands and 1 ac (less than 1 ha) of private lands. SLO–3 is located 4.3 mi (6.9 km) south of Arroyo del Corral (SLO–2) and is separated from the nearest extant subpopulation to the south, in Arroyo de Tortuga (not designated as critical habitat), by 0.5 mi (0.8 km).

SLO–3 was occupied at the time of listing. This unit allows for connectivity between tidewater goby source populations, and thereby supports gene flow and metapopulation dynamics within the Central Coast Recovery Unit.

On an intermittent basis, SLO–3 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

SLO–4: Little Pico Creek

SLO–4 consists of 9 ac (4 ha). This unit is located in San Luis Obispo County, approximately 6.7 mi (10.8 km) northwest of the Town of Cambria. The

unit consists of 2 ac (1 ha) of State lands and 7 ac (3 ha) of private lands. SLO–4 is located 3.7 mi (5.9 km) south of Oak Knoll Creek (SLO–3). The unit is separated from the nearest extant subpopulation to the north, in Broken Bridge Creek (not designated as critical habitat), by 1.4 mi (2.2 km).

SLO–4 was occupied at the time of listing. The tidewater goby subpopulation in SLO–4 is likely a source population, which is important in maintaining metapopulation dynamics, and hence the long-term viability, of the Central Coast Recovery Unit.

On an intermittent basis, SLO–4 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

SLO–5: San Simeon Creek

SLO–5 consists of 17 ac (7 ha). This unit is located in San Luis Obispo County, approximately 3.3 mi (5.3 km) northwest of the Town of Cambria. The unit consists entirely of State lands. SLO–5 is located 3.8 mi (6.1 km) south of Little Pico Creek (SLO–4), and is separated from the nearest extant subpopulation to the south, in Santa Rosa Creek (not designated as critical habitat), by 2.6 mi (4.2 km).

SLO–5 was occupied at the time of listing. The tidewater goby subpopulation in SLO–5 is likely a source population, which is important in maintaining metapopulation dynamics, and hence the long-term viability, of the Central Coast Recovery Unit.

On an intermittent basis, SLO–5 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

SLO–6: Villa Creek

SLO–6 consists of 15 ac (7 ha). This unit is located in San Luis Obispo County, approximately 9.6 mi (15.4 km) southeast of Cambria. The unit consists of 14 ac (6 ha) of State lands and 1 ac (less than 1 ha) of private lands. SLO–6 is located 12.3 mi (19.8 km) south of San Simeon Creek (SLO–5), and is separated from the nearest extant subpopulation to the south, in San Geronimo Creek (SLO–7), by 2.3 mi (3.7 km).

SLO–6 was occupied at the time of listing. The tidewater goby subpopulation in this unit is likely a source population and is, therefore, important for maintaining metapopulation dynamics. This critical habitat unit provides habitat for a tidewater goby subpopulation that is important to the conservation of one of the genetically distinct recovery units as described in the Recovery Plan (Dawson *et al.* 2001, p. 1172). Maintaining this unit will reduce the chance of losing the tidewater goby within the Central Coast Recovery Unit, and help conserve genetic diversity within the species.

On an intermittent basis, SLO–6 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

SLO–7: San Geronimo Creek

SLO–7 consists of 1 ac (less than 1 ha). This unit is located in San Luis Obispo County, approximately 7.6 mi (12.2 km) northwest of the Town of Morro Bay, and approximately 1.4 mi (2.5 km) west of the Town of Cayucos. The unit consists entirely of State lands. SLO–7 is located 2.3 mi (3.7 km) south of Villa Creek (SLO–6), and is separated from the nearest extant subpopulation to the south, in Cayucos Creek (not designated as critical habitat), by 1.5 mi (2.4 km).

SLO–7 was occupied at the time of listing. The tidewater goby subpopulation in SLO–7 is likely a source population, which is important in maintaining metapopulation dynamics, and hence the long-term viability, of the Central Coast Recovery Unit.

On an intermittent basis, SLO–7 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

SLO–8: Toro Creek

SLO–8 consists of 9 ac (4 ha). This unit is located in San Luis Obispo County, approximately 2.3 mi (3.7 km) south of the Town of Cayucos. The unit consists of 1 ac (less than 1 ha) of State lands and 8 ac (3 ha) of private lands. SLO–8 is located 5 mi (8.0 km) south of San Geronimo Creek (SLO–7), and is separated from the nearest extant subpopulation to the north, in Old Creek (not designated as critical habitat), by 1.8 mi (2.9 km).

SLO–8 was occupied at the time of listing. Maintaining this unit will reduce the chance of losing the tidewater goby within the Central Coast Recovery Unit, and help conserve genetic diversity within the species. On an intermittent basis, SLO–8 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular

time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

SLO–9: Los Osos Creek

SLO–9 consists of 73 ac (30 ha). This unit is located in San Luis Obispo County, within the Town of Baywood. The unit consists of 62 ac (25 ha) of State lands, 1 ac (less than 1 ha) of local lands, and 10 ac (4 ha) of private lands. The unit is separated from the nearest extant subpopulation to the north, in Toro Creek (SLO–8), by 8.0 mi (12.8 km). Tidewater gobies were present during surveys in 2001 (Service 2005a, p. C–21). Prior to the observations in 2001, tidewater goby had not been seen here since 1981 (Service 2005a, p. C–21).

Therefore, SLO–9 is outside the geographical area occupied by the species at the time of listing but is currently occupied. This unit is essential for the conservation of the species because it provides habitat to nearby units and is identified in the Recovery Plan as a potential introduction site, and could provide habitat for maintaining the tidewater goby metapopulation in the region. Maintaining this unit will also reduce the chance of losing the tidewater goby within the Central Coast Recovery Unit.

Although SLO–9 is outside the geographical area occupied at the time of listing, it does possess the PCE that is needed to support tidewater goby. PCE 1c (a sandbar(s) across the mouth of lagoon or estuary) is not likely to occur within this unit because it has a navigable channel with an open connection to Morro Bay, which is dredged on a regular basis. However, PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation.

SLO–10: San Luis Obispo Creek

SLO–10 consists of 31 ac (12 ha). This unit is located in San Luis Obispo County, within the Town of Avila Beach. The unit consists of 3 ac (1 ha) of local lands, and 28 ac (11 ha) of private lands. The unit is separated from the nearest extant subpopulation to the south, in Pismo Creek (SLO–11), by 7.0 mi (11.2 km).

SLO–10 was occupied at the time of listing. The tidewater goby subpopulation in this unit is likely a source population and is, therefore, important for maintaining metapopulation dynamics. This critical habitat unit provides habitat for a tidewater goby subpopulation that is important to the conservation of one of the genetically distinct recovery units as described in the Recovery Plan (Dawson *et al.* 2001, p. 1172). On an intermittent basis, SLO–10 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

SLO–11: Pismo Creek

SLO–11 consists of 20 ac (9 ha). This unit is located in San Luis Obispo County, within the Town of Pismo Beach. The unit consists of 14 ac (6 ha) of State lands, 1 ac (less than 1 ha) of local lands, and 5 ac (2 ha) of private lands. SLO–11 is located 7 mi (11.2 km) south of San Luis Obispo Creek (SLO–10). The unit is separated from the nearest extant subpopulation to the south, in Arroyo Grande Creek (not designated as critical habitat), by 2.6 mi (4.2 km).

SLO–11 was occupied at the time of listing. The tidewater goby subpopulation in SLO–11 is likely a source population, which is important in maintaining metapopulation dynamics, and hence the long-term viability, of the Conception Recovery Unit. On an intermittent basis, SLO–11 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

SLO–12: Oso Flaco Lake

SLO–12 consists of 171 ac (69 ha). This unit is located in San Luis Obispo County, approximately 5 mi (8.0 km) northwest of the City of Santa Maria. The unit consists of 165 ac (67 ha) of State lands and 6 ac (2 ha) of private lands. The unit is separated from the nearest extant subpopulation to the south, the Santa Maria River (SB–1), by 4 mi (6.4 km).

This unit is outside the geographical area occupied by the species at the time of listing and is not known to be currently occupied, and there are no historical tidewater goby records for this location. However, this unit is essential for the conservation of the species because it provides habitat to nearby units and is identified in the Recovery Plan as a potential introduction site, and could provide habitat for maintaining the tidewater goby metapopulation in the region. This unit will provide habitat for tidewater goby that disperse from Arroyo Grande Creek and the Santa Maria River, either through natural means or by introduction, which may serve to decrease the risk of extirpation of this metapopulation through stochastic events. This unit would also allow for connectivity between tidewater goby source populations, and thereby supports gene flow and metapopulation dynamics in this region. Although tidewater goby may be presently precluded from this location due to water quality impairments, the California Regional Water Control Board is currently working with the Service to remedy these impairments. Therefore, we anticipate the habitat at this location will be suitable for tidewater goby in the future and have determined that this unit is essential for the conservation of the species as described above.

Although SLO–12 is outside the geographical area occupied at the time of listing and is not currently occupied, it does possess the PCE that is needed to support tidewater goby. On an intermittent basis, SLO–12 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby

provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation.

SB–1: Santa Maria River

SB–1 consists of 474 ac (192 ha). This unit is located in Santa Barbara County, approximately 13 mi (21 km) west of the City of Santa Maria. The unit consists of 42 ac (17 ha) of local lands and 432 ac (175 ha) of private lands. SB–1 is located 4 mi (6.4 km) south of Oso Flaco Lake (SLO–12), and is separated from the nearest extant subpopulation to the south, in Shuman Canyon (not designated as critical habitat; see *Application of Section 4(a)(3) of the Act*—Vandenberg Air Force Base section below), by 8.6 mi (13.9 km).

SB–1 was occupied at the time of listing. The tidewater goby subpopulation in this unit is likely a source population and is, therefore, important for maintaining metapopulation dynamics. This critical habitat unit provides habitat for a tidewater goby subpopulation that is important to the conservation of one of the genetically distinct recovery units as described in the Recovery Plan (Dawson *et al.* 2001, p. 1172). Maintaining this unit will reduce the chance of losing the tidewater goby within the Conception Recovery Unit, and help conserve genetic diversity within the species.

On an intermittent basis, SB–1 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

SB–2: Cañada de las Agujas

SB–2 consists of 1 ac (less than 1 ha). This unit is located in Santa Barbara County, approximately 7.2 mi (11.6 km) west of Gaviota. The unit consists entirely of private lands. SB–2 is located 38.8 mi (62.5 km) south of the Santa Maria River (SB–1), and is separated from the nearest extant subpopulation to the south, in Arroyo El Bulito (not designated as critical habitat), by 0.4 mi (0.7 km).

SB–2 was occupied at the time of listing. This unit allows for connectivity between tidewater goby source populations, and thereby supports gene flow and metapopulation dynamics within Conception Recovery Unit. Furthermore, this unit, and units SB–3, SB–4, SB–5, and SB–6, likely act as a metapopulation as defined in the Background section. These units are no more than 2.0 mi (3.3 km) from each other, which facilitates higher dispersal rates between sites. Because these units are of relatively small size in area (1 to 9 ac (less than 1 to 4 ha)), they are more susceptible to drying or shrinking due to drought conditions, which increases the likelihood of local extirpation. Lastly, because these units are small, they are likely to be dependent upon some degree of periodic exchange of tidewater goby between units for any one unit to persist over time. Therefore, designation of critical habitat at these five locations is necessary for the conservation of the tidewater goby along the Gaviota Coast in Santa Barbara County.

On an intermittent basis, SB–2 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

SB–3: Cañada de Santa Anita

SB–3 consists of 3 ac (1 ha). This unit is located in Santa Barbara County, approximately 5.2 mi (8.4 km) west of Gaviota. The unit consists entirely of private lands. SB–3 is located 2.0 mi (3.2 km) south of Cañada de las Agujas (SB–2), and is separated from the nearest extant subpopulation to the north, in Cañada del Agua (not designated as critical habitat), by 0.4 mi (0.7 km).

SB–3 was occupied at the time of listing. This unit is important to the conservation of the species because it allows for connectivity between tidewater goby source populations, and thereby supports gene flow and metapopulation dynamics within the Conception Recovery Unit. Furthermore, as described above in SB–2, this unit, and units SB–2, SB–4, SB–5, and SB–6, likely act as a metapopulation as defined in the Background section, and designation of critical habitat at these five locations is necessary for the conservation of the tidewater goby along the Gaviota Coast in Santa Barbara County.

On an intermittent basis, SB–3 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

SB–4: Cañada de Alegria

SB–4 consists of 2 ac (1 ha). This unit is located in Santa Barbara County, approximately 3.2 mi (5.1 km) west of Gaviota. The unit consists entirely of private lands. SB–4 is located 2.0 mi (3.3 km) south of Cañada de Santa Anita (SB–3), and is separated from the nearest extant subpopulation to the south, in Cañada del Agua Caliente (SB–5), by 1.1 mi (1.8 km).

SB–4 was occupied at the time of listing. This unit is important to the conservation of the species because it allows for connectivity between tidewater goby source populations, and thereby supports gene flow and metapopulation dynamics in this region. Furthermore, as described above in SB–2, this unit, and units SB–2, SB–3, SB–5, and SB–6, likely act as a metapopulation as defined in the Background section, and designation of critical habitat at these five locations is necessary for the conservation of the tidewater goby along the Gaviota Coast in Santa Barbara County.

On an intermittent basis, SB–4 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or

partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

SB–5: Cañada del Agua Caliente

SB–5 consists of 1 ac (less than 1 ha). This unit is located in Santa Barbara County, approximately 2.1 mi (3.4 km) west of Gaviota. This unit consists entirely of private lands. SB–5 is located 1.1 mi (1.8 km) south of Cañada de Alegria (SB–4), which is also the nearest extant subpopulation.

SB–5 was occupied at the time of listing. This critical habitat unit provides habitat for a tidewater goby subpopulation that is important to the conservation of one of the genetically distinct recovery units as described in the Recovery Plan (Dawson *et al.* 2001, p. 1172). This unit helps conserve genetic diversity within the species. This unit also allows for connectivity between tidewater goby source populations, and thereby supports gene flow and metapopulation dynamics in this region. Furthermore, as described above in SB–2, this unit, and units SB–2, SB–3, SB–4, and SB–6, likely act as a metapopulation as defined in the Background section, and designation of critical habitat at these five locations is necessary for the conservation of the tidewater goby along the Gaviota Coast in Santa Barbara County.

On an intermittent basis, SB–5 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

SB–6: Gaviota Creek

SB–6 consists of 11 ac (5 ha). This unit is located in Santa Barbara County, approximately 0.8 mi (1.3 km) west of Gaviota. This unit consists of 10 ac (4 ha) of State lands and 1 ac (less than 1 ha) of private lands. SB–6 is located 1.5 mi (2.4 km) south of Cañada del Agua Caliente (SB–5), which is also the nearest extant subpopulation.

SB–6 was occupied at the time of listing. This unit is important to the conservation of the species because maintaining it will reduce the chance of losing the tidewater goby within the Conception Recovery Unit. It also allows for connectivity between tidewater goby source populations, and thereby supports gene flow and metapopulation dynamics in this region. Furthermore, as described above in SB–2, this unit, and units SB–2, SB–3, SB–4, and SB–5, likely act as a metapopulation as defined in the Background section, and designation of critical habitat at these five locations is necessary for the conservation of the tidewater goby along the Gaviota Coast in Santa Barbara County.

On an intermittent basis, SB–6 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

SB–7: Arroyo Hondo

SB–7 consists of 1 ac (less than 1 ha). This unit is located in Santa Barbara County, approximately 5.0 mi (8.0 km) east of Gaviota. This unit consists entirely of private lands. SB–7 is located 5.0 mi (8.0 km) south of Gaviota Creek (SB–6), and is separated from the nearest extant subpopulation to the south, in Arroyo Quemado (not designated as critical habitat), by 1.3 mi (2.0 km).

This unit is outside the geographical area occupied by the species at the time of listing, but is considered to be currently occupied. This unit is essential for the conservation of the species because it provides habitat to nearby units and could provide habitat for maintaining the tidewater goby metapopulation within the Conception Recovery Unit. Maintaining this unit will reduce the chance of losing the tidewater goby within the Conception Recovery Unit, and help conserve genetic diversity within the species.

Although SB–7 is outside the geographical area occupied at the time of listing, it does possess the PCE that supports tidewater goby. On an intermittent basis, SB–7 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation.

SB–8: Winchester/Bell Canyon

SB–8 consists of 6 ac (3 ha). This unit is located in Santa Barbara County, approximately 2.2 mi (3.5 km) west of the community of El Encanto Heights. The unit consists of 1 ac (less than 1 ha) of local lands and 5 ac (2 ha) of private lands. SB–8 is located 6.0 mi (9.6 km) north of Goleta Slough (SB–9), and is separated from the nearest extant subpopulation to the north, Tecolote Canyon (not designated as critical habitat), by 0.3 mi (0.4 km).

SB–8 was occupied at the time of listing. This unit is important to the conservation of the species because it allows for connectivity between tidewater goby source populations, and thereby supports gene flow and metapopulation dynamics in this region. On an intermittent basis, SB–8 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or*

Protection section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

SB–9: Goleta Slough

SB–9 consists of 190 ac (76 ha). This unit is located in Santa Barbara County, within the City of Goleta. The unit consists of 164 ac (66 ha) of local lands and 26 ac (10 ha) of private lands. SB–9 is located 6.0 mi (9.6 km) south of Winchester/Bell Canyon (SB–8), and is separated from the nearest extant subpopulation to the north, Devereux Slough (not designated as critical habitat), by 4.0 mi (6.4 km).

This unit is outside the geographical area occupied by the species at the time of listing, but is currently occupied. This unit is essential for the conservation of the species because it provides habitat for the species, allows for connectivity between tidewater goby source populations from nearby units, supports gene flow, and provides for metapopulation dynamics within the Conception Recovery Unit.

Although SB–9 is outside the geographical area occupied at the time of listing, it does possess the PCE that is needed to support tidewater goby. On an intermittent basis, SB–9 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation.

SB–10: Arroyo Burro

SB–10 consists of 3 ac (1 ha). This unit is located in Santa Barbara County, approximately 3.6 mi (5.8 km) west of the City of Santa Barbara. The unit consists entirely of local lands. SB–10 is located 4.0 mi (6.4 km) north of Mission Creek–Laguna Channel (SB–11), which is also the nearest extant subpopulation.

This unit is outside the geographical area occupied by the species at the time of listing, but is considered to be currently occupied. This unit is essential for the conservation of the species because it provides habitat for the species, allows for connectivity between tidewater goby source populations from nearby units, supports gene flow, and provides for metapopulation dynamics within the Conception Recovery Unit.

Although SB–10 is outside the geographical area occupied at the time of listing, it does possess the PCE that is needed to support tidewater goby. On an intermittent basis, SB–10 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation.

SB–11: Mission Creek–Laguna Channel

SB–11 consists of 7 ac (3 ha). This unit is located in Santa Barbara County, within the City of Santa Barbara. The unit consists of 3 ac (1 ha) of State lands and 4 ac (2 ha) of local lands. SB–11 is located 4.0 mi (6.4 km) south of Arroyo Burro (SB–10), and is separated from the nearest extant subpopulation to the south, in Sycamore Creek (not designated as critical habitat), by 1.0 mi (1.5 km).

SB–11 was occupied at the time of listing. The tidewater goby subpopulation in SB–11 is likely a source population, which is important in maintaining metapopulation dynamics, and hence the long-term viability, of the Conception Recovery Unit.

On an intermittent basis, SB–11 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

SB–12: Arroyo Paredon

SB–12 consists of 3 ac (1 ha). This unit is located in Santa Barbara County, within the City of Santa Barbara. The unit consists of 1 ac (less than 1 ha) of State lands, 1 ac (less than 1 ha) of local lands, and 1 ac (less than 1 ha) of private lands. SB–12 is located 8.0 mi (12.8 km) south of Mission Creek-Laguna Channel (SB–11), and is separated from the nearest extant subpopulation to the south, in Carpinteria Creek (not designated as critical habitat), by 2.7 mi (4.3 km).

This unit is outside the geographical area occupied by the species at the time of listing, but is considered to be currently occupied. This unit is essential for the conservation of the species because it provides habitat for the species, allows for connectivity between tidewater goby source populations from nearby units, supports gene flow, and provides for metapopulation dynamics within the Conception Recovery Unit.

Although SB–12 is outside the geographical area occupied at the time of listing, it does possess the PCE that is needed to support tidewater goby. On an intermittent basis, SB–12 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation.

VEN–1: Ventura River

VEN–1 consists of 50 ac (21 ha). This unit is located in Ventura County, within the City of Ventura. The unit consists of 25 ac (10 ha) of State lands, 16 ac (7 ha) of local lands, and 9 ac (4 ha) of private lands. VEN–1 is located 4.3 mi (7.0 km) north of the Santa Clara River (VEN–2), which is also the nearest extant subpopulation.

VEN–1 was occupied at the time of listing. The tidewater goby population in this unit is likely a source population and is, therefore, important for maintaining metapopulation dynamics. This critical habitat unit provides habitat for a tidewater goby subpopulation that is important to the conservation of one of the genetically distinct recovery units as described in the Recovery Plan (Dawson *et al.* 2001, p. 1172). Maintaining this unit will reduce the chance of losing the tidewater goby within the LA/Ventura Recovery Unit, and help conserve genetic diversity within the species.

On an intermittent basis, VEN–1 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The

physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

VEN–2: Santa Clara River

VEN–2 consists of 323 ac (130 ha). This unit is located in Ventura County, approximately 4 mi (6.4 km) southeast of the City of Ventura. This unit consists of 199 ac (80 ha) of State lands, 14 ac (6 ha) of local lands, and 110 ac (44 ha) of private lands. VEN–2 is located 4.3 mi (7.0 km) south of the Ventura River unit (VEN–1), which is also the nearest extant subpopulation.

VEN–2 was occupied by tidewater goby at the time of listing. The tidewater goby subpopulation in VEN–2 is likely a source population, which is important in maintaining metapopulation dynamics, and hence the long-term viability, of the LA/Ventura Recovery Unit Recovery Unit. This unit is known to have tens of thousands of tidewater goby during certain times of the year (Dellith, pers. comm. 2010), and is considered one of the largest tidewater goby populations in southern California.

On an intermittent basis, VEN–2 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

VEN–3: J Street Drain–Ormond Lagoon

VEN–3 consists of 121 ac (49 ha). This unit is located in Ventura County, approximately 1 mi (1.6 km) east of Port Hueneme. This unit consists of 5 ac (2 ha) of State lands, 49 ac (20 ha) of local lands, and 67 ac (27 ha) of private lands. VEN–3 is located 4.3 mi (6.9 km) south of the Santa Clara River (VEN–2), which is also the nearest extant subpopulation.

VEN–3 was occupied at the time of listing. This unit allows for connectivity between tidewater goby source populations, and thereby supports gene flow and metapopulation dynamics within the LA/Ventura Recovery Unit. On an intermittent basis, VEN–3 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

VEN–4: Big Sycamore Canyon [Note that the Recovery Plan refers to this location as ''Sycamore Canyon'']

VEN–4 consists of 1 ac (less than 1 ha). This unit is located in Ventura County, approximately 12.0 mi (19.3 km) northwest of the City of Malibu. The unit consists entirely of State lands. VEN–4 is located 5.0 mi (8.0 km) north of Arroyo Sequit (LA–1), and is separated from the nearest extant subpopulation to the north, in the Calleguas Creek (not designated as critical habitat), by 5.0 mi (8.0 km).

This unit is outside the geographical area occupied by the species at the time of listing, but is considered to be currently occupied. This unit is essential for the conservation of the species because it provides habitat for the species, allows for connectivity between tidewater goby source populations from nearby units, supports gene flow, and provides for metapopulation dynamics within the LA/Ventura Recovery Unit.

Although VEN–4 is outside the geographical area occupied at the time of listing, it does possess the PCE that is needed to support tidewater goby. On an intermittent basis, VEN–4 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation.

LA–1: Arroyo Sequit

LA–1 consists of 1 ac (less than 1 ha). This unit is located in Los Angeles County, approximately 7.5 mi (12.0 km) northwest of the City of Malibu. The unit consists entirely of State lands. LA–1 is located 5.0 mi (8 km) south of Big Sycamore Canyon (VEN–4), which is the nearest extant subpopulation.

This unit is outside the geographical area occupied by the species at the time of listing, is not known to be currently occupied, and there are no historical tidewater goby records for this location. However, this unit is essential for the conservation of the species because it is identified in the Recovery Plan as a potential introduction site, and could provide habitat for maintaining the tidewater goby metapopulation in the region. This unit will provide habitat for tidewater goby that may be introduced, which may serve to decrease the risk of extirpation of this metapopulation through stochastic events. This unit would also allow for connectivity between tidewater goby source populations, and thereby supports gene flow and metapopulation dynamics within the LA/Ventura Recovery Unit.

Although LA–1 is outside the geographical area occupied at the time of listing and is not currently occupied, it does possess the PCE that is needed to support tidewater goby. On an intermittent basis, LA–1 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation.

LA–2: Zuma Canyon

LA–2 consists of 5 ac (2 ha). This unit is located in Los Angeles County, approximately 7.5 mi (12.0 km) northwest of the City of Malibu. The unit consists entirely of local lands administered by Los Angeles County. LA–2 is located 6.8 mi (11 km) south of Arroyo Sequit (LA–1), and is separated from the nearest extant subpopulation to the south, in the Malibu Lagoon (LA–3), by 10.0 mi (16.0 km).

LA–2 is outside the geographical area occupied by the species at the time of listing, is not known to be currently occupied, and there are no historical tidewater goby records for this location. However, this unit is essential for the

conservation of the species because it could provide habitat to nearby occupied units and is identified in the Recovery Plan as a potential introduction site, and it could provide habitat for maintaining the tidewater goby metapopulation within the LA/Ventura Recovery Unit. This unit will provide habitat for tidewater goby that are introduced, which may serve to decrease the risk of extirpation of this metapopulation through stochastic events. This unit would also allow for connectivity between tidewater goby source populations, and thereby supports gene flow and metapopulation dynamics within the LA/Ventura Recovery Unit.

Although LA–2 is outside the geographical area occupied at the time of listing and is not currently occupied, it does possess the PCE that is needed to support tidewater goby. On an intermittent basis, LA–2 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation.

LA–3: Malibu Lagoon

LA–3 consists of 64 ac (27 ha). This unit is located in Los Angeles County, approximately 0.6 mi (1 km) east of Malibu Beach. The unit consists of 41 ac (27 ha) of State lands, 1 ac (less than 1 ha) of local lands, and 22 ac (9 ha) of private lands. LA–3 is located 6.0 mi (9.6 km) north of Topanga Canyon (LA–4), which is also the nearest extant subpopulation.

LA–3 was occupied at the time of listing. The tidewater goby subpopulation in LA–3 is likely a source population, which is important in maintaining metapopulation dynamics, and hence the long-term viability, of the LA/Ventura Recovery Unit. LA–3 supports one of the two remaining extant populations of tidewater goby within Los Angeles County.

On an intermittent basis, LA–3 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation. The physical or biological features essential to the conservation of the species in this unit may require special management considerations or protection to address threats described in Table 2. Please see *Special Management Considerations or Protection* section of this rule for a discussion of the threats to tidewater goby habitat and potential management considerations.

LA–4: Topanga Creek

LA–4 consists of 6 ac (2 ha). This unit is located in Los Angeles County, approximately 5.5 mi (8.9 km) northwest of the City of Santa Monica. The unit consists of 4 ac (1 ha) of State lands and 2 ac (1 ha) of private lands. LA–4 is located 6.0 mi (9.6 km) south of Malibu Lagoon (LA–3), which is also the nearest extant subpopulation.

This unit is outside the geographical area occupied by the species at the time of listing, but is currently occupied. Tidewater gobies were first detected at this locality in 2001 (Service 2005a, p. C–30). Tidewater goby in Topanga Creek are probably derived from fish that dispersed from Malibu Creek. This unit is essential for the conservation of the species because it allows for connectivity between tidewater goby source populations, and thereby supports gene flow and metapopulation dynamics within the LA/Ventura Recovery Unit. This location is one of the two remaining locations in Los Angeles County known to be occupied by tidewater goby.

Although LA–4 is outside the geographical area occupied at the time of listing, it does possess the PCE that is needed to support tidewater goby. On an intermittent basis, LA–4 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation.

OR–1: Aliso Creek

OR–1 consists of 14 ac (5 ha). This unit is located in Orange County, within the City of Laguna Beach. The unit consists of 8 ac (3 ha) of local lands and 6 ac (2 ha) of private lands. OR–1 is located 13.5 mi (21.7 km) north of the San Mateo Creek (not designated as critical habitat, see *Application of Section 4(a)(3) of the Act*—Marine Corps Base Camp Pendleton section below), which supports the nearest extant subpopulation.

This unit is outside the geographical area occupied by the species at the time of listing, and is not known to be currently occupied. OR–1 was last known to be occupied in 1977 (Swift *et al.* 1989, p. 1). The reason for the extirpation of the historical subpopulation at this site is unknown. However, this unit is essential for the conservation of the species because it would aid recovery of the tidewater goby in the genetically unique South Coast Recovery Unit. The Recovery Plan notes that the species should be reintroduced into as many localities as possible to the north and south of MCB Camp Pendleton (Service 2005a, p. G–16). Aliso Creek is identified in the Recovery Plan as a potential reintroduction site (Service 2005a, p. G–20). If tidewater goby become established at this location, this unit's primary function would be to help maintain the genetic diversity of the Southern Coast Recovery Unit (especially Recovery Subunit SC1). Moreover, a level of population redundancy would help prevent the extirpation of a metapopulation in which only one or two occupied sites remain, which is the case for Recovery Subunit SC1.

Although OR–1 is outside the geographical area occupied at the time of listing and is not currently occupied, it does possess the PCE that is needed to support tidewater goby. On an intermittent basis, OR–1 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation.

SAN–1: San Luis Rey River

SAN–1 consists of 56 ac (23 ha). This unit is located in San Diego County, within the City of Oceanside. The unit consists of 3 ac (1 ha) of State lands, 49 ac (20 ha) of local lands, and 4 ac (2 ha) of private lands. SAN–1 is located approximately 2.5 mi (4.0 km) south of the Santa Margarita River (not designated as critical habitat; see *Application of Section 4(a)(3) of the Act*—Marine Corps Base Camp Pendleton section below), which supports the nearest known extant subpopulation.

This unit is outside the geographical area occupied by the species at the time of listing, but tidewater gobies were detected at this location in 2010

(Lafferty 2010, not paginated), which indicates that this location is one of the suite of occupied and intermittently occupied locations that contributes to tidewater goby metapopulation on MCB Camp Pendleton. This unit is essential for the conservation of the species because it serves as one of a limited number of locations that contribute toward metapopulation dynamics of the genetically unique South Coast Recovery Unit. As discussed in the *Metapopulation Dynamics* section, the number of subpopulations is important to the long-term stability of a metapopulation. As such, SAN–1 will help the species to survive and support the recovery of the tidewater goby population within the South Coast Recovery Unit, even potentially facilitating natural recolonization of currently unoccupied locations to the south. The Recovery Plan notes that the species should be reintroduced into as many localities as possible to the north and south of MCB Camp Pendleton (Service 2005a, p. G–16). The San Luis Rey River was identified in the Recovery Plan as a potential reintroduction site (Service 2005a, p. G–20). Prior to 2010, tidewater gobies were last detected in this unit in 1958 (Lafferty, pers. comm. 2010). This unit now represents the southernmost occupied area of the species' distribution, and is important for maintaining the tidewater goby metapopulation in the region.

Although SAN–1 is outside the geographical area occupied at the time of listing, it does possess the PCE that is needed to support tidewater goby. On an intermittent basis, SAN–1 possesses a sandbar across the mouth of the lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, and thereby provides relatively stable conditions (PCE 1c). PCE 1a and 1b occur throughout the unit, although their precise location during any particular time period may change in response to seasonal fluctuations in precipitation and tidal inundation.

Effects of Critical Habitat Designation

Section 7 Consultation

Section 7(a)(2) of the Act requires Federal agencies, including the Service, to ensure that any action they fund, authorize, or carry out is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of designated critical habitat of such species. In addition, section 7(a)(4) of the Act requires Federal agencies to confer with the Service on any agency action that is likely to jeopardize the continued existence of any species proposed to be listed under the Act or result in the destruction or adverse modification of proposed critical habitat.

Decisions by the 5th and 9th Circuit Courts of Appeals have invalidated our regulatory definition of ''destruction or adverse modification'' (50 CFR 402.02) (see *Gifford Pinchot Task Force* v. *U.S. Fish and Wildlife Service,* 378 F. 3d 1059 (9th Cir. 2004) and *Sierra Club* v. *U.S. Fish and Wildlife Service et al.,* 245 F.3d 434, 442 (5th Cir. 2001)), and we do not rely on this regulatory definition when analyzing whether an action is likely to destroy or adversely modify critical habitat. Under the statutory provisions of the Act, we determine destruction or adverse modification on the basis of whether, with implementation of the proposed Federal action, the affected critical habitat would continue to serve its intended conservation role for the species.

If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency (action agency) must enter into consultation with us. Examples of actions that are subject to the section 7 consultation process are actions on State, tribal, local, or private lands that require a Federal permit (such as a permit from the U.S. Army Corps of Engineers under section 404 of the Clean Water Act (33 U.S.C. 1251 *et seq.*) or a permit from the Service under section 10 of the Act) or that involve some other Federal action (such as funding from the Federal Highway Administration, Federal Aviation Administration, or the Federal Emergency Management Agency). Federal actions not affecting listed species or critical habitat, and actions on State, tribal, local, or private lands that are not federally funded or authorized, do not require section 7 consultation.

As a result of this consultation, we document compliance with the requirements of section 7(a)(2) through our issuance of:

(1) A concurrence letter for Federal actions that may affect, but are not likely to adversely affect, listed species or critical habitat; or

(2) A biological opinion for Federal actions that may affect, or are likely to adversely affect, listed species or critical habitat.

When we issue a biological opinion concluding that a project is likely to jeopardize the continued existence of a listed species and/or destroy or adversely modify critical habitat, we provide reasonable and prudent alternatives to the project, if any are identifiable, that would avoid the likelihood of jeopardy and/or destruction or adverse modification of critical habitat. We define ''reasonable and prudent alternatives'' (at 50 CFR 402.02) as alternative actions identified during consultation that:

(1) Can be implemented in a manner consistent with the intended purpose of the action,

(2) Can be implemented consistent with the scope of the Federal agency's legal authority and jurisdiction,

(3) Are economically and technologically feasible, and

(4) Would, in the Director's opinion, avoid the likelihood of jeopardizing the continued existence of the listed species and/or avoid the likelihood of destroying or adversely modifying critical habitat.

Reasonable and prudent alternatives can vary from slight project modifications to extensive redesign or relocation of the project. Costs associated with implementing a reasonable and prudent alternative are similarly variable.

Regulations at 50 CFR 402.16 require Federal agencies to reinitiate consultation on previously reviewed actions in instances where we have listed a new species or subsequently designated critical habitat that may be affected and the Federal agency has retained discretionary involvement or control over the action (or the agency's discretionary involvement or control is authorized by law). Consequently, Federal agencies sometimes may need to request reinitiation of consultation with us on actions for which formal consultation has been completed, if those actions with discretionary involvement or control may affect subsequently listed species or designated critical habitat.

Application of the ''Adverse Modification'' Standard

The key factor related to the adverse modification determination is whether, with implementation of the proposed Federal action, the affected critical habitat would continue to serve its intended conservation role for the species. Activities that may destroy or adversely modify critical habitat are those that alter the physical or biological features to an extent that appreciably reduces the conservation value of critical habitat for tidewater goby. As discussed above, the role of critical habitat is to support life-history needs of the species and provide for the conservation of the species.

Section 4(b)(8) of the Act requires us to briefly evaluate and describe, in any proposed or final regulation that

designates critical habitat, activities involving a Federal action that may destroy or adversely modify such habitat, or that may be affected by such designation.

Activities that may affect critical habitat, when carried out, funded, or authorized by a Federal agency, should result in consultation for the tidewater goby. These activities include, but are not limited to:

(1) Actions that would channelize or divert water reducing the amount of space that is available for individual and population growth and normal behavior, and reduce or eliminate sites for breeding, reproduction, and rearing (or development) of offspring.

(2) Actions that would substantially alter the natural hydrologic regime upstream of the designated critical habitat units. Such activities could include, but are not limited to, ground water pumping or surface water diversion activities, construction of impoundments or flood control structures, or the release of water in excess of levels that historically occurred. These activities could result in atypical reduction or increases in the amount of water that is present in the aquatic habitats that tidewater goby occupy, and alter salinity conditions that support this species.

(3) Actions that would substantially alter the channel morphology of the designated critical habitat units, or the areas up-gradient from these units. Such activities could include, but are not limited to, channelization projects, road and bridge projects, removal of substrates, destruction and alteration of riparian vegetation, reduction of available floodplain, and removal of gravel or floodplain terrace materials. These activities could result in increased water velocities and flush large numbers of tidewater goby into the ocean especially during flood events.

(4) Actions that would result in the discharge of agricultural and sewage effluents, or chemical or biological pollutants into the aquatic habitats where tidewater goby occur. Such activities could include, but are not limited to, grazing, fertilizer application, sewage treatment, pesticide application, and herbicide application. These activities could degrade the water quality where tidewater goby live, introduce toxic substances that can poison individual fish, adversely affect fish immune systems, and decrease the amount of oxygen in aquatic habitats where the species occurs.

(5) Actions that would cause atypical levels of sedimentation in coastal wetland habitats or remove vegetative cover that stabilizes stream banks. Such activities could include, but are not limited to, grazing or mining activities, road construction projects, off-road vehicle use, and other watershed and floodplain-disturbance activities. These activities could have the potential to alter the amount and composition of the substrate in the habitats where tidewater goby occur, and thereby affect the species' ability to construct breeding burrows.

(6) Actions that would result in the artificial breaching of lagoon habitats. Such activities could include, but are not limited to, lagoon breaching for mosquito control, flood management, and recreational opportunities such as creating surf breaks. These activities could reduce the amount of space that is available for individual and population growth; strand and desiccate tidewater goby adults, fry, or eggs; and increase the risk they will be preyed upon by native or nonnative predators as they become concentrated and exposed as water levels drop.

(7) Actions that would create barriers that prevent tidewater goby from accessing areas they would normally be able to access. These activities, which may include, but are not limited to, water diversions, road crossings, and sills. These activities could reduce the amount of space that is available for individual and population growth, and reduce the number and extent of sites for breeding, reproduction, and rearing (or development) of offspring.

Exemptions

Application of Section 4(a)(3) of the Act

The Sikes Act Improvement Act of 1997 (Sikes Act) (16 U.S.C. 670a) required each military installation that includes land and water suitable for the conservation and management of natural resources to complete an integrated natural resources management plan (INRMP) by November 17, 2001. An INRMP integrates implementation of the military mission of the installation with stewardship of the natural resources found on the base. Each INRMP includes:

(1) An assessment of the ecological needs on the installation, including the need to provide for the conservation of listed species;

(2) A statement of goals and priorities;

(3) A detailed description of management actions to be implemented to provide for these ecological needs; and

(4) A monitoring and adaptive management plan.

Among other things, each INRMP must, to the extent appropriate and applicable, provide for fish and wildlife management; fish and wildlife habitat enhancement or modification; wetland protection, enhancement, and restoration where necessary to support fish and wildlife; and enforcement of applicable natural resource laws.

The National Defense Authorization Act for Fiscal Year 2004 (Pub. L. 108–136) amended the Act to limit areas eligible for designation as critical habitat. Specifically, section 4(a)(3)(B)(i) of the Act (16 U.S.C. 1533(a)(3)(B)(i)) now provides: ''The Secretary shall not designate as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense, or designated for its use, that are subject to an integrated natural resources management plan prepared under section 101 of the Sikes Act (16 U.S.C. 670a), if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation.''

We consulted with the military on the development and implementation of INRMPs for installations with listed species. We analyzed INRMPs developed by military installations located within the range of the critical habitat designation for tidewater goby to determine if they are exempt under section 4(a)(3) of the Act. The following areas are Department of Defense lands with completed, Service-approved INRMPs within the areas identified as meeting the definition of critical habitat.

Approved INRMPs

Vandenberg Air Force Base (VAFB) and Marine Corps Base (MCB) Camp Pendleton have approved INRMPs. The U.S. Air Force and Marine Corps (on VAFB and MCB Camp Pendleton, respectively) have committed to working closely with us, and the State (California Department of Fish and Game (CDFG) and California Department of Parks and Recreation (CDPR)) with regard to lands leased by MCB Camp Pendleton, to continually refine the existing INRMPs as part of the Sikes Act's INRMP review process. Based on our review of the INRMPs for these military installations, and in accordance with section 4(a)(3)(B)(i) of the Act, we have determined that the lands within these installations identified as meeting the definition of critical habitat are subject to the INRMPs, and that conservation efforts identified in these INRMPs will provide a benefit to the tidewater goby (see the following sections that detail this determination for each installation). Therefore, lands within these installations are exempt from critical habitat designation under section

4(a)(3)(B) of the Act. We are not including approximately 727 ac (294 ha) of habitat on VAFB, and approximately 1,156 ac (468 ha) of habitat on MCB Camp Pendleton, in this critical habitat designation because of this exemption.

Table 3 below provides approximate areas (ac, ha) of lands that meet the definition of critical habitat, but are exempt from designation under section 4(a)(3)(B) of the Act.

TABLE 3—EXEMPTIONS FROM CRITICAL HABITAT DESIGNATION FOR THE TIDEWATER GOBY UNDER SECTION 4(A)(3) OF THE ACT

Specific area	Areas meeting the definition of critical habitat in acres (Hectares)	Areas exempted in acres (Hectares)
Shuman Canyon	16 (7)	16 (7)
San Antonio Creek	63 (25)	63 (25)
Santa Ynez River	638 (258)	638 (258)
Cañada Honda	4 (2)	4 (2)
Jalama Creek	6 (2)	6 (2)
San Mateo Creek	73 (30)	73 (30)
San Onofre	20 (8)	20 (8)
Las Flores/Las Pulgas Creek	36 (14)	36 (14)
Hidden Lagoon	39 (16)	39 (16)
Aliso Canyon	65 (26)	65 (26)
French Lagoon	60 (24)	60 (24)
Cockleburr Canyon	74 (30)	74 (30)
Santa Margarita River	789 (319)	789 (319)
Totals	1,883 (762)	1,883 (762)

Vandenberg Air Force Base

VAFB is headquarters for the 30th Space Wing, the Air Force's Space Command unit that operates VAFB and the Western Test Range/Pacific Missile Range. VAFB operates as an aerospace center supporting west coast launch activities for the Air Force, Department of Defense, National Aeronautics and Space Administration, and commercial contractors. The three primary operational missions of VAFB are to launch, place, and track satellites in near-polar orbit; to test and evaluate the intercontinental ballistic missile systems; and to support aircraft operations in the western range. VAFB lies on the south-central California coast, approximately 275 mi (442 km) south of San Francisco, 140 mi (225 km) northwest of Los Angeles, and 55 mi (88 km) northwest of Santa Barbara. The 99,100-ac (40,104-ha) base extends along approximately 42 mi (67 km) of Santa Barbara County coast, and varies in width from 5 to 15 mi (8 to 24 km).

The VAFB INRMP was prepared to provide strategic direction to ecosystem and natural resources management on VAFB. The long-term goal of the INRMP is to integrate all management activities in a manner that sustains, promotes, and restores the health and integrity of VAFB ecosystems using an adaptive management approach. The INRMP was designed to: (1) Summarize existing management plans and natural resources literature pertaining to VAFB; (2) identify and analyze management goals in existing plans; (3) integrate the management goals and objectives of individual plans; (4) support base compliance with applicable regulatory requirements; (5) support the integration of natural resource stewardship with the Air Force mission; and (6) provide direction for monitoring strategies.

VAFB completed an INRMP in 2011, which benefits the tidewater goby by: (1) Avoiding the tidewater goby and its habitat, whenever possible, in project planning; (2) scheduling activities that may affect tidewater goby outside of the peak breeding period (March to July); (3) coordinating with VAFB water quality staff to prevent degradation and contamination of aquatic habitats; and (4) prohibiting the introduction of nonnative fishes into streams on-base (VAFB 2011, Tab D, p. 15). Furthermore, VAFB's environmental staff reviews projects and enforces existing regulations and orders that, through their implementation, avoid and minimize impacts to natural resources, including the tidewater goby and its habitat. In addition, VAFB's INRMP protects aquatic habitats for the tidewater goby by excluding cattle from wetlands and riparian areas through the installation and maintenance of fencing.

Habitat features essential to the conservation of the tidewater goby exist on VAFB, and activities occurring on VAFB are currently being conducted in a manner that minimizes impacts to tidewater goby habitat. This military installation has an approved INRMP that provides a benefit to the tidewater goby, and VAFB has committed to work closely with the Service and the CDFG to continually refine their existing INRMP as part of the Sikes Act's INRMP review process. Based on the above considerations, and in accordance with section 4(a)(3)(B)(i) of the Act, we have determined that conservation efforts identified in the 2011 INRMP for VAFB provide a benefit to the tidewater goby and its habitat. This includes habitat located in the following areas: Shuman Canyon, San Antonio Creek, Santa Ynez River, Cañada Honda, and Jalama Creek. Therefore, lands subject to the INRMP for VAFB, which includes the lands leased from the Department of Defense by other parties, are exempt from critical habitat designation under section 4(a)(3)(B) of the Act, and we are not including approximately 727 ac (294 ha) of habitat in this critical habitat designation because of this exemption.

Marine Corps Base Camp Pendleton

MCB Camp Pendleton is the Marine Corps' premier amphibious training installation, and its only west coast amphibious assault training center. The installation has been conducting air, sea, and ground assault training since World War II. MCB Camp Pendleton occupies over 125,000 ac (50,586 ha) of coastal southern California in the northwest corner of San Diego County. Aside from nearly 10,000 ac (4,047 ha) that are developed, most of the installation consists of undeveloped land used for training. MCB Camp Pendleton is situated between two major metropolitan areas: Los Angeles, 82 mi (132 km) to the north, and San Diego,

38 mi (61 km) to the south. Nearby communities include Oceanside to the south, Fallbrook to the east, and San Clemente to the northwest. Aside from a portion of the installation's border that is shared with the San Mateo Wilderness Area and the Fallbrook Naval Weapons Station, the surrounding land use is urban development, rural residential development, and agricultural farming and ranching. The largest single leaseholder on the installation is California State Parks, which includes a 50-year real estate lease granted on September 1, 1971, for 2,000 ac (809 ha) that encompass San Onofre State Beach.

The MCB Camp Pendleton INRMP is a planning document that guides the management and conservation of natural resources under the installation's control. The INRMP was prepared to assist installation staff and users in their efforts to conserve and rehabilitate natural resources consistent with the use of MCB Camp Pendleton to train Marines and set the agenda for managing natural resources on MCB Camp Pendleton. MCB Camp Pendleton completed its INRMP in 2001, followed by a revised and updated version in 2007 to address conservation and management recommendations within the scope of the installation's military mission, including conservation measures for tidewater goby (MCB Camp Pendleton 2007, Appendix F, Section F.22, pp. F–78–F–85). Additionally, according to the 2007 INRMP, California State Parks is required to conduct its natural resources management consistent with the philosophies and objectives of the revised 2007 INRMP (MCB Camp Pendleton 2007, Chapter 2, p. 31).

The tidewater goby receives programmatic protection from training and other installation activities within the estuarine component of its habitat, as outlined and required in both the Estuarine and Beach Ecosystem Conservation Plan and the Riparian Ecosystem Conservation Plan (MCB Camp Pendleton 2007, Appendices B and C, respectively). Management and protection measures that benefit the tidewater goby identified in Appendix B of the INRMP include, but are not limited to, the following: (1) Maintaining connectivity of beach and estuarine ecosystems with riparian and upland ecosystems; (2) promoting natural hydrological processes to maintain estuarine water quality and quantity; and (3) maximizing the probability of tidewater goby metapopulation existence within the lagoon complex (MCB Camp Pendleton 2007, Appendix B, pp. B5–B7).

Management and protection measures that benefit tidewater goby identified in Appendix C of the INRMP include, but are not limited to, the following: (1) Eliminating nonnative invasive species (such as *Arundo donax* (giant reed)) on the installation and off the installation in partnership with upstream landowners to enhance ecosystem value; (2) providing viable riparian corridors and promoting connectivity of native riparian habitats; (3) providing for unimpeded hydrologic and sedimentary floodplain dynamics to support the maintenance and enhancement of biota; (4) maintaining natural floodplain processes and extent of these areas by avoiding and minimizing further permanent loss of floodplain habitats; (5) maintaining to the maximum extent possible natural flood regimes; (6) maintaining to the extent practicable stream and river flows needed to support riparian habitat; (7) monitoring and maintaining groundwater levels and basin withdrawals to avoid loss and degradation of habitat quality; (8) restoring areas to their original condition after disturbance, such as following project construction or fire damage; and (9) promoting increased tidewater goby populations in watersheds through perpetuation of natural ecosystem processes and programmatic instruction application for avoidance and minimization of impacts (MCB Camp Pendleton 2007, Appendix C, pp. C5–C8).

Current environmental regulations and restrictions apply to all threatened and endangered species on the installation (including tidewater goby) and are provided to all users of ranges and training areas to guide activities and protect the species and its habitat. First, specific conservation measures are applied to the tidewater goby and its habitat that include: (1) Controlling nonnative animal species (such as bullfrogs) and nonnative plant species (such as *Arundo donax* and *Rorippa* spp. (watercress)); and (2) restricting military-related traffic use within riparian areas to existing roads, trails, and crossings. Second, MCB Camp Pendleton's environmental security staff review projects and enforce existing regulations and orders that, through their implementation, avoid and minimize impacts to natural resources, including the tidewater goby and its habitat. Third, MCB Camp Pendleton provides training to personnel on environmental awareness for sensitive resources on the base, including the tidewater goby and its habitat. As a result of these regulations and restrictions, activities occurring on MCB Camp Pendleton are currently conducted in a manner that minimizes impacts to tidewater goby habitat.

MCB Camp Pendleton's INRMP also benefits tidewater goby through ongoing monitoring and research efforts. The installation conducts monitoring of tidewater goby populations at least once every 3 years, and also conducts monitoring to determine impacts of relocation of effluent infiltration ponds (MCB Camp Pendleton 2007, Appendix B, p. B8). Data are provided to all necessary personnel through MCB Camp Pendleton's GIS database on sensitive resources and in their published resource atlas. Additionally, MCB Camp Pendleton collaborated with the U.S. Geological Survey's Biological Resources Division to develop and implement a rigorous science-based monitoring protocol for tidewater goby populations throughout the installation, including monitoring water quality variables at all historically occupied sites regardless of current occupation status (Lafferty 2010, pp. 10–11).

Based on the above considerations, and in accordance with section 4(a)(3)(B)(i) of the Act, we have determined that conservation efforts identified in the 2007 INRMP for MCB Camp Pendleton provide a benefit to the tidewater goby and its habitat. This includes habitat located in the following areas: San Mateo Creek, San Onofre Creek, Las Flores/Las Pulgas Creek, Hidden Lagoon, Aliso Canyon, French Lagoon, Cockleburr Canyon, and Santa Margarita River (names of areas follow those used in the Recovery Plan (Service 2005a, pp. B21–22)). Therefore, lands subject to the INRMP for MCB Camp Pendleton, which includes the lands leased from the Department of Defense by other parties, are exempt from critical habitat designation under section 4(a)(3)(B) of the Act, and we are not including approximately 1,156 ac (468 ha) of habitat in this critical habitat designation because of this exemption.

Exclusions

Application of Section 4(b)(2) of the Act

Section 4(b)(2) of the Act states that the Secretary shall designate and make revisions to critical habitat on the basis of the best available scientific data after taking into consideration the economic impact, national security impact, and any other relevant impact of specifying any particular area as critical habitat. The Secretary may exclude an area from critical habitat if he determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless he

determines, based on the best scientific data available, that the failure to designate such area as critical habitat will result in the extinction of the species. The statute on its face, as well as the legislative history, is clear that the Secretary has broad discretion regarding which factor(s) to use and how much weight to give to any factor in making that determination.

Exclusions Based on Economic Impacts

Under section 4(b)(2) of the Act, we consider the economic impacts of specifying any particular area as critical habitat. In order to consider economic impacts, we prepared a draft economic analysis of the proposed critical habitat designation (Industrial Economics Incorporated (IEc) 2012). The draft analysis, dated March 16, 2012, was made available for public review from July 24, 2012, through August 23, 2012 (77 FR 43222). Following the close of the comment period, a final analysis of the potential economic effects of the designation was developed taking into consideration the public comments and any new information.

The intent of the final economic analysis (FEA) is to quantify the economic impacts of all potential conservation efforts for tidewater goby; some of these costs will likely be incurred regardless of whether we designate critical habitat (baseline). The economic impact of the final critical habitat designation is analyzed by comparing scenarios both ''with critical habitat'' and ''without critical habitat.'' The ''without critical habitat'' scenario represents the baseline for the analysis, considering protections already in place for the species (for example, under the Federal listing and other Federal, State, and local regulations). The baseline, therefore, represents the costs incurred regardless of whether critical habitat is designated. The ''with critical habitat'' scenario describes the incremental impacts associated specifically with the designation of critical habitat for the species. The incremental conservation efforts and associated impacts are those not expected to occur absent the designation of critical habitat for the species. In other words, the incremental costs are those attributable solely to the designation of critical habitat above and beyond the baseline costs; these are the costs we consider in the final designation of critical habitat. The analysis looks retrospectively at baseline impacts incurred since the species was listed, and forecasts both baseline and incremental impacts likely to occur with the designation of critical habitat.

The FEA also addresses how potential economic impacts are likely to be distributed, including an assessment of any local or regional impacts of habitat conservation and the potential effects of conservation activities on government agencies, private businesses, and individuals. The FEA measures lost economic efficiency associated with residential and commercial development and public projects and activities, such as economic impacts on water management and transportation projects, Federal lands, small entities, and the energy industry. Decisionmakers can use this information to assess whether the effects of the designation might unduly burden a particular group or economic sector. Finally, the FEA looks retrospectively at costs that have been incurred since 1994 (year of the species' listing) (59 FR 5494), and considers those costs that may occur in the 20 years following the designation of critical habitat, which was determined to be the appropriate period for analysis because limited planning information was available for most activities to forecast activity levels for projects beyond a 20-year timeframe. The FEA quantifies economic impacts of tidewater goby conservation efforts associated with the following categories of activity: (1) Water management, (2) cattle grazing, (3) transportation (roads, highways, bridges), (4) utilities (oil and gas pipelines), (5) residential, commercial, and industrial development, and (6) natural resource management.

Baseline protections for the tidewater goby address a broad range of habitat threats within a significant portion of the proposed critical habitat area. A key consideration in the incremental analysis is that, where tidewater goby critical habitat overlaps with steelhead (*Oncorhynchus mykiss*) critical habitat, steelhead conservation measures would be sufficiently protective for tidewater goby as well, and, therefore, few incremental project modification costs are anticipated in these areas. Across the designation, incremental costs primarily include costs of administrative efforts associated with new and reinitiated consultations to consider adverse modification of critical habitat for tidewater goby. In addition, only minor incremental project modification costs are forecast to result from critical habitat. This result is attributed to the following key findings: (1) Baseline protections exist for tidewater goby, (2) steelhead critical habitat overlaps with a large portion of the unoccupied units, and (3) minimal economic activity occurs on private lands in the study area.

In total, the incremental impacts to all economic activities are estimated to be $558,000 over the 20-year timeframe, or $49,300 on an annualized basis (assuming a 7 percent discount rate). Approximately 98 percent of these incremental costs result from administrative costs of considering adverse modification in section 7 consultations.

Incremental conservation efforts are estimated to be $11,500 over the 20-year timeframe or $1,090 on an annualized basis (both assuming a 7 percent discount rate). These include the costs of adding the tidewater goby to the environmental impact reports (EIR) required for projects that are being proposed in critical habitat unit MAR–5 Bolinas Lagoon and SLO–12 Oso Flaco Lake, as well as additional surveying for tidewater goby in Oso Flaco Lake. Our economic analysis did not identify any disproportionate costs that are likely to result from the designation.

After considering the economic impacts, the Secretary is not exercising his discretion to exclude any areas from this designation of critical habitat for the tidewater goby based on economic impacts.

A copy of the FEA with supporting documents may be obtained by contacting the Ventura Fish and Wildlife Office (see **ADDRESSES**) or by downloading from the Internet at *http://www.regulations.gov.*

Exclusions Based on National Security Impacts

In preparing this final rule, we have exempted from the designation of critical habitat those Department of Defense lands subject to completed INRMPs determined to provide a benefit to the tidewater goby. We have also determined that the remaining lands within the designation of critical habitat for the species are not owned or managed by the Department of Defense, and, therefore, we anticipate no impact on national security. Consequently, the Secretary is not exercising his discretion to exclude any areas from this final designation based on impacts on national security.

Exclusions Based on Other Relevant Impacts

Under section 4(b)(2) of the Act, we consider any other relevant impacts, in addition to economic impacts and impacts on national security. We consider a number of factors, including whether the landowners have developed any HCPs or other management plans for the area, or whether there are

conservation partnerships that would be encouraged by designation of, or exclusion from, critical habitat. In addition, we look at any tribal issues, and consider the government-to-government relationship of the United States with tribal entities. We also consider any social impacts that might occur because of the designation.

In preparing this final rule, we have determined that there are currently no HCPs or other management plans for tidewater goby, and the final designation does not include any tribal lands or trust resources. We anticipate no impact on tribal lands, partnerships, or HCPs from this critical habitat designation. Accordingly, the Secretary is not exercising his discretion to exclude any areas from this final designation based on other relevant impacts.

Summary of Comments and Recommendations

We requested written comments from the public on the proposed revised designation of critical habitat for the tidewater goby during two comment periods. The first comment period associated with the publication of the proposed rule (76 FR 64996) opened on October 19, 2011, and closed on December 19, 2011. We also requested comments on the proposed revised critical habitat designation and associated draft economic analysis during a comment period that opened July 24, 2012, and closed on August 23, 2012 (77 FR 43222). We did not receive any requests for a public hearing. We also contacted appropriate Federal, State, and local agencies; scientific organizations; and other interested parties and invited them to comment on the proposed rule and draft economic analysis during these comment periods.

During the first comment period, we received 10 comment letters directly addressing the proposed revised critical habitat designation. During the second comment period, we received three comment letters addressing the proposed revised critical habitat designation or the draft economic analysis. All substantive information provided during comment periods has either been incorporated directly into this final determination or addressed below. Comments received were grouped into four general issues specifically relating to the proposed revised critical habitat designation for tidewater goby, and are addressed in the following summary and incorporated into the final rule as appropriate.

Peer Review

In accordance with our peer review policy published on July 1, 1994 (59 FR 34270), we solicited expert opinions from seven knowledgeable individuals with scientific expertise that included familiarity with the species, the geographic region in which the species occurs, and conservation biology principles associated with tidewater goby. We received responses from four of the peer reviewers.

We reviewed all comments received from the peer reviewers for substantive issues and new information regarding critical habitat for the tidewater goby. The peer reviewers generally concurred with our methods and conclusions and provided additional information, clarifications, and suggestions to improve the final critical habitat rule. Peer reviewer comments are addressed in the following summary and incorporated into the final rule as appropriate.

Peer Reviewer Comments

(1) *Comment:* Two peer reviewers suggested that the proposed critical habitat designation contained too few areas to allow for establishment of a more continuous metapopulation dynamic in the north coast and central coast regions.

Our Response: We agree with the reviewers that it is important to maintain metapopulation dynamics throughout the range of the tidewater goby, including the north coast and central coast regions. Accordingly, we included connectivity in our criteria for determining critical habitat (see *Criteria Used To Identify Critical Habitat* section), and we designated those sites that are an integral part of metapopulation dynamics.

Section 3(5)(C) of the Act states that, except in particular circumstances determined by the Secretary, critical habitat shall not include the entire geographical area that can be occupied by the threatened or endangered species. It is not the intent of the Act to designate critical habitat for every population and every documented historical location of a species, nor is it the intent to designate all areas supporting metapopulations as critical habitat. We have considered all existing and potential habitat for the tidewater goby, and using the best scientific and commercial data available, we have designated all areas that meet the definition of critical habitat. However, the purpose of critical habitat designations is not to signal that habitat outside the designation is unimportant or may not contribute to recovery of the species, and we also recognize that the designation of critical habitat may not include all of the habitat that may eventually be determined to be necessary for the recovery of the tidewater goby. Also, areas outside the final revised critical habitat designation will continue to be subject to conservation actions implemented under section 7(a)(1) of the Act, regulatory protections afforded by the section 7(a)(2) jeopardy standard, and the prohibitions of section 9 of the Act. These protections and conservation tools will continue to contribute to recovery of this species.

(2) *Comment:* One peer reviewer suggested that we give consideration in our PCE to habitats that tidewater goby must periodically traverse, but that are otherwise unoccupied, and that we expand the PCE to include population connectivity allowing for metapopulation dynamics to function.

Our Response: Expanding the PCE to include areas of the ocean and large bays (Humboldt Bay and San Francisco Bay) would not address the threat of fragmentation because isolation of the components of a metapopulation is the result of the loss of locations (i.e., lagoons, estuaries, saltmarshes, etc.) that support tidewater goby. When a location is lost, the distance between the components of a metapopulation may be too great to allow the species to disperse through otherwise inhospitable conditions. Furthermore, we are not aware of any threats to these stretches of coastline within the Pacific Ocean that need special management in terms of tidewater goby dispersal within and between metapopulations. Consequently, designating areas of the ocean and large bays to accommodate this dispersal would not be essential to the conservation of the species, nor would it be practical.

(3) *Comment:* Two peer reviewers recommended that we designate subunits within Humboldt Bay unit (HUM–3) in a manner similar to the approach used for the Eel River unit (HUM–4). The peer reviewers' reasoning for this approach includes: (a) Research indicates that a metapopulation dynamic may not be currently occurring within Humboldt Bay (McCraney *et al.* 2010) due to isolation by tidegates and other artificial features theoretically rendering each location occupied by tidewater gobies as a separate subpopulation. (Available evidence indicates that these subpopulations are isolated from one another and are not continuously distributed despite their relatively close proximity (McCraney *et al.* 2010).); and (b) the extent of connectivity between Humboldt Bay to

nearby areas such as the Eel River is uncertain. The reviewers noted that, because of the great distance (approximately 18.4 mi (29.6 km)) between Humboldt Bay and the Eel River, genetic exchange is unlikely to occur naturally. Therefore, the reviewers stated it is important to identify separate units in Humboldt Bay and reestablish connectivity between those locations.

Our Response: We respectfully disagree with the two peer reviewers. We have designated Humboldt Bay (HUM–3) as a single, large unit because of the relatively close proximity of the locations that are occupied by tidewater goby within the bay. Although as the reviewers pointed out these locations may be threatened by reduced genetic and life-history diversity, assigning subunits (or not) will not increase (or decrease) the level of protection under the Act for the tidewater goby. Rather, at this time the threats to the habitat at these locations are the same or similar and conservation of the species will be better served by including them in a single unit.

In contrast to Humboldt Bay (HUM–3), we identified Eel River unit (HUM–4) as consisting of two subunits because of the greater separation of the subunits within the Eel River unit, and because the southern Eel River subunit was only recently discovered and the metapopulation dynamic between the two subunits is unclear.

(4) *Comment:* Two peer reviewers suggested that we consider an additional threat to the tidewater goby and its habitat involving projects categorized as habitat restoration. The reviewers noted that it is not uncommon for proposed estuary and lagoon alterations to include ''restoration'' projects that are proposed to ''restore connectivity'' or ''improve water quality.'' These projects sometimes involve elimination of backwaters, which may be crucial for flood refuge for the tidewater goby, because they may have poor water quality in late summer.

Our Response: We acknowledge that coastal lagoon restoration projects may be a threat to tidewater goby habitat. As such, we have added language in this rule to reflect this potential threat (see *Special Management Considerations or Protection* section above).

Federal Agency Comments

(5) *Comment:* The U.S. Army Corps of Engineers (ACOE) opposed designating locations as critical habitat that were unoccupied at the time of listing regardless of their historical or current occupancy (see Table 1 for a list of locations that were unoccupied at the time of listing). The ACOE also opposed designating locations that are not currently occupied even if they were occupied at the time of listing (see Table 1), and are opposed to designating those that have never been known to be occupied (areas that meet this criteria are footnoted in Table 1). They contend that the lack of detection of tidewater gobies in an area is an indication that the habitat is not suitable for this species. For this reason, the ACOE requested the Service withdraw the proposed rule, revise it, and then recirculate the proposed rule for more comments.

Our Response: We respectfully disagree with the ACOE's contention that the lack of detection of tidewater gobies in an area is an indication that the habitat is not suitable for this species. The lack of detection of tidewater gobies in a particular area does not necessarily indicate that suitable habitat is not present or in some cases could not be restored. As summarized below, we used the best available scientific data to identify the specific areas that meet the definition of critical habitat, and we are appropriately designating those areas.

We developed criteria for determining the specific areas within the geographical area occupied at the time of listing that have the physical or biological features essential to the conservation of the tidewater goby. These criteria consist of the following:

(1) Areas that support source populations (populations where local reproductive success is greater than local mortality (Meffe and Carroll 1994, p. 187)). For the purposes of this designation, we identified areas supporting source populations as those that are currently occupied and have been consistently occupied for 3 or more consecutive years based on survey data and published reports. Source populations are more likely to be capable of maintaining populations over many years and are, therefore, capable of providing individuals to recruit into surrounding subpopulations.

(2) Areas that support subpopulations within each metapopulation in addition to source populations in the event that the source population is extirpated due to a natural episodic catastrophic event such as a major flood or drought.

(3) Areas that provide connectivity between metapopulations. These areas are likely to act as ''stepping stones'' between more isolated populations, and thereby contribute to metapopulation persistence and genetic exchange. For the purposes of this designation, we generally identified locations that provide connectivity as those within approximately 6 mi (10 km) of another location.

After determining the specific areas within the geographical area occupied at the time of listing that have the physical or biological features essential to the conservation of the tidewater goby, we concluded that they were not adequate to ensure the conservation of the species. Therefore, we developed criteria for determining the specific areas outside the geographical area occupied by the species at the time it is listed that are essential for the conservation of the species. In some cases, these areas were known to be historically occupied but not occupied at the time of listing. Others were not occupied at the time of listing but are currently occupied, while a few areas have never been known to be occupied.

The criteria for determining the specific areas outside the geographical area occupied at the time of listing that are essential for the conservation of the tidewater goby are:

(1) Areas of aquatic habitat in coastal lagoons and estuaries with still-to-slow-moving water that allow for the conservation of viable metapopulations under varying environmental conditions, such as, for example, drought.

(2) Areas that provide connectivity between source populations or may provide connectivity in the future. These areas are likely to act as ''stepping stones'' between more isolated populations, and thereby contribute to metapopulation persistence and genetic exchange. For the purposes of this designation, we generally identified locations that provide connectivity as those within approximately 6 mi (10 km) of another location.

(3) Additional areas that may be more isolated but may represent unique adaptations to local features (habitat variability, hydrology, microclimate).

The areas outside the geographical area occupied at the time of listing that were selected for designation are essential for the conservation of the tidewater goby for various reasons depending on their location. Some of these areas are essential because they provide habitat for maintaining tidewater goby metapopulations where the distances between units that were occupied at the time of listing make it difficult for tidewater goby to disperse. Other areas are essential to help prevent the extirpation of a metapopulation in which only one or two occupied sites remain. As discussed in the *Metapopulation Dynamics* section, the number of subpopulations is important to the long-term stability of a

metapopulation. Furthermore, some of these areas were selected or expanded to take into account sea-level rise as projected by climate change models.

All of these areas have also been identified in the Recovery Plan as being important for the conservation of the species. As mentioned previously, the goal of the Recovery Plan is to preserve the diversity of habitats that occur within the range of the species, the metapopulation structure of the species, and genetic diversity (Service 2005a, p. 28).

(6) *Comment:* The ACOE recommended that we remove sites that are 1 ac (0.4 ha) or less from the designation because the proposed rule states that these locations tend not to be suitable for breeding. These sites include San Geronimo Creek (SLO–7), Cañada de las Agujas (SB–2), Cañada del Agua Caliente (SB–5), Arroyo Hondo (SB–7), Big Sycamore Canyon (VEN–4), and Arroyo Sequit (LA–1). The ACOE also commented that the extent of the designation on Aliso Creek (OR–1) extends beyond a barrier and the unit should be revised.

Our Response: While there is a general trend for sites 1 ac (0.4 ha) or less not to be suitable for breeding there are some important exceptions; for example San Geronimo Creek (SLO–7) is a source population, as evidenced by its tidewater goby population's persistence during severe drought conditions (Swift *et al.* 1991, p. 33), that is capable of maintaining its current population levels and capable of providing individuals to recruit into subpopulations found in adjacent areas despite being less than 1 ac (0.4 ha) in area. Additionally, suitable breeding habitat was not the only criteria we used in selecting units to be included in the designation. We also considered important connectivity sites that are an integral part of metapopulation dynamics. Without maintaining the connectivity between source populations, we are likely to see entire metapopulations become extirpated, which would hinder recovery. The remaining locations 1 ac (0.4 ha) or less that the commenter recommended be removed are important connectivity sites and meet the definition of critical habitat.

In regard to the potential barrier on unit OR–1 (Aliso Creek), we reviewed our information on the extent of the designation and the specific site identified as a barrier. After further review and discussion with the ACOE, the area was more appropriately characterized as a grade control structure about 2–3 ft (0.6–2 m) in height (T. Keeney, Senior Ecologist, Corps, pers. comm. 2013). Based on the Service's evaluation of the information on the site and review of the our record for this designation, we determined the subject location corresponds to a riffle area we are already aware of on Aliso Creek. We have determined the riffle area does not present a barrier to fish passage.

(7) *Comment:* The ACOE stated that the San Luis Rey River (SAN–1) does not contain the PCE as described in the proposed rule. Specifically, this commenter claimed that PCE 1a, 1b, and 1c have not been met. The ACOE also commented that the upstream limit of the unit is not appropriate.

Our Response: To designate critical habitat within the geographical area occupied by the species at the time of listing, we are required to identify the physical or biological features essential to the conservation of the species. We have determined the specific areas within the geographical area occupied at the time of listing that contain the PCE essential to the conservation of the species and have included these areas in the designation. When designating critical habitat outside the geographical area occupied by a species at the time it was listed, we are required to determine that such areas are essential for the conservation of the species; the presence of one or more PCE(s) is not required by the Act to designate such areas as critical habitat. Unit SAN–1 is outside the geographical area occupied by the tidewater goby at the time of listing; thus, the presence of the PCE is not required.

Although the presence of the PCE is not required in this case, we include the San Luis Rey in the designation of critical habitat because (1) it is identified in the recovery plan as a potential site for reintroduction (see Table G–1 in the recovery plan); (2) the site was naturally recolonized in 2010 and is now considered occupied; and (3) it is essential for the conservation of the species because it serves as one of a limited number of locations that contribute toward metapopulation dynamics of the genetically unique South Coast Recovery Unit (Service 2005a, pp. 32–39).

Natural recolonization of the San Luis Rey in 2010 shows that a metapopulation dynamic is still occurring within the suite of occupied and potentially occupiable sites within the recovery plan's South Coast Recovery Unit. The natural recolonization of the San Luis Rey River by tidewater goby in 2010 further demonstrates the area is capable of supporting the species and possesses the PCE needed to support the tidewater goby. As discussed in the *Metapopulation Dynamics* section, the number of subpopulations is important to the long-term stability of a metapopulation. As such, SAN–1 will help the species to survive and will help support the recovery of the tidewater goby population within the South Coast Recovery Unit, even potentially facilitating natural recolonization of currently unoccupied locations to the south. This unit now represents the southernmost occupied area of the species' distribution, and is important for maintaining the tidewater goby metapopulation in the region.

With regard to the delineation of the proposed critical habitat boundary, the Service reviewed information in its files used to develop the designation. Available information indicates the upstream boundary of unit SAN–1 was determined, in part, to account for expected sea-level rise. The upstream extent of the unit in the San Luis Rey River included almost all the area predicted to be inundated by the ''Mean Higher High Water (MHHW) 2100'' model. The MHHW 2100 model is a GIS-based model predicting the area inundated after a 1.4-meter sea-level rise—the scenario for year 2100. Given the timeframe of the model's projection, the critical habitat boundary does extend beyond what is currently estuary in order to accommodate predicted changes in estuarine and riverine habitats over time.

(8) *Comment:* Implying that the San Luis Rey River (SAN–1) should not be designated as critical habitat or should be excluded under section 4(b)(2) of the Act, the ACOE noted that the area is part of the City of Oceanside's proposed Subarea Habitat Conservation Plan/Natural Communities Conservation Plan (HCP/NCCP) and that the area will also be managed per the ACOE-proposed Adaptive Habitat Management Plan (AHMP) for the San Luis Rey River Flood Risk Management Project.

Our Response: Based on our review of the best available data, the San Luis Rey River should be designated as critical habitat for the tidewater goby. Per section 3(5)(A)(ii) of the Act and its implementing regulations, designating critical habitat outside the geographical area occupied by the tidewater goby at the time of listing is based upon a determination that such areas are essential for the conservation of the species. As explained in the unit description for SAN–1, we have made that determination. However, under section 4(b)(2) of the Act, the Secretary may exclude any area from critical habitat if he determines that the benefits of such exclusion outweigh the benefits

of specifying such area as part of the critical habitat.

Collaborative processes, such as those mentioned by the commenter, can benefit listed and sensitive species, including the tidewater goby. When considering whether a current land management or conservation plan (HCPs as well as other types) provides adequate management or protection for the tidewater goby and its habitat, we consider a number of factors, including, but not limited to, the following:

(1) Whether the plan is complete and provides the same or better level of protection from adverse modification or destruction than that provided through a consultation under section 7 of the Act;

(2) Whether there is a reasonable expectation that the conservation management strategies and actions will be implemented for the foreseeable future and effective, based on past practices, written guidance, or regulations; and

(3) Whether the plan provides adaptive management and conservation strategies and measures consistent with currently accepted principles of conservation biology.

We have been working with the City of Oceanside for several years; however, the City's HCP/NCCP plan is not yet finalized. The City's plan will be an individually permitted Subarea Plan under the Multiple Habitat Conservation Program (MHCP). The MHCP Subregional Plan, finalized in 2003, is a comprehensive, multiple jurisdictional planning program in northwestern San Diego County (SANDAG 2003, entire). It serves as the ''umbrella'' document for individual Subarea Plans under its jurisdiction. The combination of the MHCP Subregional Plan and the City's Subarea Plan will serve as a multiple species HCP pursuant to Section 10(a)(1)(B) of the Act. The MHCP Subregional Plan does not address the tidewater goby. At the time this rule was prepared, the City of Oceanside had no plans to include the tidewater goby in its Subarea Plan, and the City has indicated it is not likely to seek coverage for the goby in the near future. Thus, at this time, we have found no basis to support exclusion of the area.

The AHMP for the San Luis Rey River Flood Risk Management Project is being developed as part of a flood control project on the lower San Luis Rey River. The ACOE consulted with us on this project to address impacts to several federally listed species; however, the tidewater goby was not one of them (Service 2005b, entire; Service 2006, entire). At the time this rule was prepared, the AHMP had not been finalized, and the geographical scope of the AHMP, as currently planned, will be the portion of the lower San Luis Rey River that is upstream of the Interstate 5 bridge. Only 19 ac (8 ha), or 33 percent, of the area designated as critical habitat for the tidewater goby in SAN–1 is above the bridge; the remainder is downstream. More importantly, the AHMP does not address the tidewater goby.

Therefore, after considering the proposed HCP/NCCP and AHMP plans, the Secretary is not exercising his discretion under section 4(b)(2) of the Act to exclude unit SAN–1 from the final revised designation of critical habitat. We will continue to work with the City of Oceanside and the ACOE on the respective plans, including addressing the tidewater goby and unit SAN–1 should the parties deem it appropriate to do so.

Comments From States

Section 4(i) of the Act states, ''the Secretary shall submit to the State agency a written justification for his failure to adopt regulations consistent with the agency's comments or petition.'' We received no comments from the State regarding the proposal to designate critical habitat for the tidewater goby.

Public Comments

Public Comments on Criteria Used To Identify Critical Habitat

(9) *Comment:* Several commenters opposed designating locations as critical habitat that were unoccupied at the time of listing (see Table 1 for a list of locations that were unoccupied at the time of listing). One commenter opposed designating locations that are not currently occupied (see Table 1), and one commenter opposed designating locations that have never been known to be occupied (see Table 1).

Our Response: Please refer to our response to Comment 5 above.

(10) *Comment:* One commenter opposed designating the Salinas River (MN–2) because a resource plan is under development for that area, which would provide for conservation of the species.

Our Response: Please refer to our response to Comment 8 above for the types of factors we consider when evaluating the conservation benefits provided by a land management or conservation plan (HCPs as well as other types).

At this time, we have not received a complete final resource management plan for the Salinas River, and the Secretary is not exercising his discretion under section 4(b)(2) of the Act to exclude unit MN–2 from the final revised designation of critical habitat.

(11) *Comment:* One commenter opposed expanding critical habitat in Cañada de Alegria (SB–4) because the Service has concurred with a 2009 petition that downlisting the species to threatened is warranted.

Our Response: In our 90-day finding on a petition to downlist the tidewater goby from endangered to threatened, we determined that the petition presented substantial scientific or commercial information indicating that the petitioned action *may* be warranted and that we would conduct a review of the status of the species (76 FR 3069; January 19, 2011). This determination was based in part on our 5-year review of the species. Section 4(b)(3)(A) of the Act (16 U.S.C. 1533(b)(3)(A)) requires that we make a finding on whether a petition to list, delist, or reclassify a species presents substantial scientific or commercial information indicating that the petitioned action may be warranted. We are to base this finding on information provided in the petition, supporting information submitted with the petition, and information otherwise available in our files. Our standard for substantial scientific or commercial information within the Code of Federal Regulations (CFR) with regard to a 90-day petition finding is ''that amount of information that would lead a reasonable person to believe that the measure proposed in the petition may be warranted'' (50 CFR 424.14(b)). If we find that substantial scientific or commercial information meeting the above definition was presented, we are required to promptly conduct a species status review, which we subsequently summarize in our 12-month finding. However, we have not yet made a final determination as to whether or not the downlisting of the tidewater goby is warranted. More importantly, regardless of the status of threatened or endangered, we are still required under the Act to designate critical habitat.

(12) *Comment:* One commenter requested that we exclude private lands in Arroyo de la Cruz (SLO–1), Arroyo del Corral (SLO–2), Oak Knoll Creek (SLO–3), and Little Pico Creek (SLO–4) from the designations because an existing conservation easement and associated management plan includes those areas.

Our Response: We value our partnerships with Federal and State agencies and local jurisdictions. Collaborative processes, such as those mentioned by the commenter, can benefit listed and sensitive species,

including the tidewater goby. Please refer to our response to Comment 8 above for the types of factors we consider when evaluating the conservation benefits provided by a current land management or conservation plan (HCPs as well as other types).

As noted in the Recovery Plan and Table 2, threats that may require special management in these units include: highway construction, which may remove aquatic habitat, and grazing of aquatic and riparian habitats. These threats do not appear to be adequately addressed in the conservation easement and associated management plan. After considering the existing conservation easement and associated management plan, the Secretary is not exercising his discretion under section 4(b)(2) of the Act to exclude units SLO–1, SLO–2, SLO–3, and SLO–4 from the final revised designation of critical habitat.

(13) *Comment:* One commenter questioned why we expanded critical habitat by 1 ac (0.4 ha) in Cañada de Alegria (SB–4) and requested that we exclude this additional area from the final designation because it is protected by a preserve.

Our Response: We value our partnerships with Federal and State agencies and local jurisdictions. Collaborative processes, such as those mentioned by the commenter, can benefit listed and sensitive species, including the tidewater goby. Please refer to our response to Comment 8 above for the types of factors we consider when evaluating the conservation benefits provided by a current land management or conservation plan (HCPs as well as other types).

As noted in the Recovery Plan and Table 2, threats that may require special management in this additional area include: roadway maintenance that may affect aquatic habitat, upstream water diversions, alterations of water flows, groundwater overdrafting, and upstream grazing of aquatic and riparian habitats. These threats do not appear to be adequately addressed in the management of the preserve. After considering the preserve, the Secretary is not exercising his discretion under section 4(b)(2) of the Act to exclude the additional area in unit SB–4 from the final revised designation of critical habitat.

(14) *Comment:* One commenter is opposed to designating critical habitat in the Goleta Slough (SB–9) because of a belief that drainages within the slough do not have the PCE for the tidewater goby.

Our Response: To designate critical habitat within the geographical area occupied by the species at the time of listing, we are required to identify the physical or biological features essential to the conservation of the species. We have determined the specific areas within the geographical area occupied at the time of listing that contain the PCE essential to the conservation of the species and have included these areas in this designation. When designating critical habitat outside the geographical area occupied by a species at the time it was listed, we are required to determine that such areas are essential for the conservation of the species; the presence of one or more PCE(s) is not required by the Act to designate such areas as critical habitat. Unit SB–9 is outside the geographical area occupied by the tidewater goby at the time of listing; thus, the presence of the PCE is not required. Although the presence of the PCE is not required in this case, we do note in our discussion of SB–9 that it appears that SB–9 possesses the PCE needed to support the tidewater goby. SB–9 is essential for the conservation of the species because it provides habitat for the species, allows for connectivity between tidewater goby source populations from nearby units, supports gene flow, and provides for metapopulation dynamics within the Conception Recovery Unit. As discussed in the *Metapopulation Dynamics* section, the number of subpopulations is important to the long-term stability of a metapopulation. As such, SB–9 will help the species to survive and will help support the recovery of the tidewater goby population within the Conception Recovery Unit.

(15) *Comment:* One commenter stated that designated critical habitat should not extend beyond the lower 750 feet of Arroyo Paredon Creek (SB–12) because suitable habitat for the tidewater goby does not exist upstream of this reach and the stream gradient is too steep.

Our Response: In response to this comment, we reexamined the boundaries of unit SB–12. Based on information we obtained from a field investigation and recently available high-resolution LiDAR (Light Detection and Ranging) elevation data, we have identified a steep gradient that could act as a barrier to upstream dispersal and refuge for tidewater goby. Therefore, we have revised the upstream limit of the unit and removed those areas that we determined are not accessible to tidewater goby downstream of the gradient, and thus not part of the critical habitat unit. The changes resulted in a net decrease of approximately 1 ac (less than 1 ha) for the designated area in unit SB–12 (see Summary of Changes From Previously Designated Critical Habitat and 2011 Proposed Revised Critical Habitat Designation section for more information).

Public Comments Regarding Legal or Policy Compliance

(16) *Comment:* One commenter stated that laws enacted since the time of listing have reduced the need for critical habitat designation. One commenter also claimed that threats to the tidewater goby have been reduced or the nature of the threat is less serious than originally believed to be the case; therefore, the need for critical habitat is reduced.

Our Response: Although the combined effectiveness of existing laws and regulations, including the protections afforded a listed species under the Act, have substantially reduced large-scale habitat loss and alteration, numerous small-scale projects do have an effect on tidewater goby habitat. Furthermore, while some threats to the tidewater goby have been reduced, numerous threats to the species and its habitat still exist. While some of these threats can singly have a substantial impact on individual tidewater goby localities, in most cases it is the cumulative impact that has and will continue to threaten the species. Regardless, the tidewater goby remains listed as an endangered species and therefore designation of critical habitat is required under section 4(a)(3)(A) of the Act.

(17) *Comment:* One commenter claims that provisions of the Act have been ignored by including areas of habitat that ''can be occupied,'' even though there is no evidence that such areas are essential for the conservation of the species. Furthermore, one commenter, citing 16 U.S.C. 1533(a)(3), disputes the legality to designate unoccupied critical habitat based on speculation that it may be needed in the future.

Our Response: We are required by the Act to designate areas that are essential for the conservation of the species. Conservation is defined as ''the use of all methods and procedures, which are necessary to bring an endangered species or threatened species to the point at which the measures provided pursuant to this chapter are no longer necessary'' (16 U.S.C. 1532(3)). Because the designation of critical habitat is thus focused on the future recovery of listed species, it is by necessity a forward-looking exercise. Therefore, we are designating critical habitat, based on the best available science, to ensure tidewater goby recovery is not precluded, even if this designation is

made in response to a future threat to the species or the need to restore habitat so that the species may be reintroduced there. The areas designated as critical habitat in this rule are essential for the conservation of the tidewater goby for various reasons depending on their location. Some of these areas are essential because they provide habitat for maintaining tidewater goby metapopulations where the distances between units that were occupied at the time of listing make it difficult for tidewater goby to disperse. Other areas are essential to help prevent the extirpation of a metapopulation in which only one or two occupied sites remain. As discussed in the *Metapopulation Dynamics* section, the number of subpopulations is important to the long-term stability of a metapopulation. In addition to serving as ''stepping stones'' between subpopulations, these areas have also been identified in the Recovery Plan as being important for the conservation of the species because they would serve as a buffer, decreasing the vulnerability of an entire metapopulation to natural episodic catastrophic events, maintaining its genetic diversity, and increasing its probability of persistence.

(18) *Comment:* One commenter suggested we provide site-specific explanations for why we did not propose some occupied sites and some of the potential reintroduction sites identified in the Recovery Plan.

Our Response: The 2005 Recovery Plan lists all areas known to be occupied or to have been historically occupied or to have the potential for being occupied if habitat is restored. However, it is not the intent of the Act to designate critical habitat for every population and every documented historical location of a species. Rather, the Act requires that we designate only specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the Act, on which are found those physical or biological features essential to the conservation of the species and which may require special management considerations or protection. In addition, the Act requires that we determine whether specific areas outside the geographical area occupied by the species at the time it is listed are essential for the conservation of the species.

In the *Criteria Used To Identify Critical Habitat* section above, we used the best scientific and commercial data available to set out the criteria for identifying the areas that meet the requirements of the Act. These criteria include: areas that support source populations; areas that support subpopulations in addition to source populations within each metapopulation; areas that provide connectivity between metapopulations; areas of aquatic habitat in coastal lagoons and estuaries with still-to-slow-moving water that allow for the conservation of viable metapopulations under varying environmental conditions; areas that provide connectivity between source populations or may provide connectivity in the future; and additional areas that may be more isolated but may represent unique adaptations to local features. We applied these criteria to all existing and potential habitat for the tidewater goby in this designation, and have designated the areas that meet the definition of critical habitat. In some cases we included areas recommended as potential introduction and reintroduction sites that, because of their location, could provide important connectivity. In addition, occupied areas outside the final revised critical habitat designation will continue to be subject to conservation actions implemented under section 7(a)(1) of the Act, regulatory protections afforded by the section 7(a)(2) jeopardy standard, and the prohibitions of section 9 of the Act. These protections and conservation tools will continue to contribute to recovery of this species.

(19) *Comment:* One commenter suggested the final revised critical habitat designation should not interrupt ongoing management plans and projects, and should not require reinitiation of consultation for existing permits and consultations.

Our Response: Because the critical habitat designation only applies to actions that are authorized, funded, or carried out by a Federal agency, ongoing management plans and projects may be unaffected by the final designation. Only those plans and projects where a Federal agency has continuing discretionary authority may be affected. The regulations that implement section 7(a)(2) of the Act require reinitiation of formal consultation when certain criteria are met, including when a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16). Therefore, we cannot formulate the final rule to eliminate the requirement to reinitiate formal consultation when an ongoing project under continuing Federal discretionary authority may affect the designated critical habitat. However, if an ongoing management plan or project upon which we had previously consulted would not have an adverse effect on the designated critical habitat, reinitiation would not be required.

Public Comments Regarding Threats to the Species

(20) *Comment:* One commenter disputed the listing of the tidewater goby based on a lack of scientific research on threats to tidewater goby.

Our Response: The final rule to list the tidewater goby was published in the **Federal Register** on February 4, 1994 (59 FR 5494). The final rule determined the tidewater goby to be an endangered species in part because of past and continuing losses of coastal and riparian habitats within the historical range of the species. Since the publication of the final listing rule, we have published a recovery plan for the species (2005), and a 5-Year Review (2007), both of which contain a threats analysis describing threats to the species and present the best available scientific information regarding the status of the species.

(21) *Comment:* One commenter opposed the expansion of critical habitat, and has a specific issue with the citation of ''cattle grazing and feral pig activity that results in increased sedimentation of coastal lagoons and riparian habitats, removal of vegetative cover, increased ambient water temperatures and elimination of plunge pools and undercut banks utilized by the tidewater goby'' as a threat.

Our Response: Threats to the tidewater goby due to poor livestock grazing practices are well-documented in the scientific literature. Adverse effects occur through watershed alteration and subsequent changes in the natural flow regime, sediment production, and stream channel morphology (Platts 1990, pp. I–9–I–11; Belsky *et al.* 1999, pp. 1–3, 8–10; Service 2001, pp. 50–67). Livestock grazing can destabilize stream channels and disturb riparian ecosystem functions (Platts 1990, pp. I–9–I–11; Armour *et al.* 1991, pp. 7–10; Tellman *et al.* 1997, pp. 20–21, 33, 47, 101–102; Wyman *et al.* 2006, pp. 5–7). Furthermore, improper livestock grazing can negatively affect tidewater goby through removal of riparian vegetation (Propst *et al.* 1986, p. 3; Clary and Webster 1989, p. 1; Clary and Medin 1990, p. 1; Schulz and Leininger 1990, p. 295; Fleishner 1994, pp. 631– 633, 635–636), which can result in reduced bank stability and higher water temperatures (Kauffman and Krueger 1984, pp. 432–434; Platts and Nelson 1989, pp. 453, 455; Fleishner 1994, pp. 635–636; Belsky *et al.* 1999, pp. 2–5, 9–10). Livestock grazing can also cause increased sediment in the stream channel due to streambank trampling

and riparian vegetation loss (Weltz and Wood 1986, pp. 364–368; Pearce *et al.* 1998, pp. 302, 307; Belsky *et al.* 1999, p. 10). Livestock can physically alter the streambank through trampling and shearing, leading to bank erosion (Trimble and Mendel 1995, pp. 243–244; Belsky *et al.* 1999, p. 1). In combination, loss of riparian vegetation and bank erosion can alter channel morphology, including increased erosion and deposition, increased sediment loads, downcutting, and an increased width-to-depth ratio, all of which lead to a loss of tidewater goby habitat components. Lastly, livestock grazing management also continues to include construction and maintenance of open stocktanks, which are often stocked with nonnative aquatic species that are harmful to tidewater goby if they escape or are transported to waters where the tidewater goby occurs. In some cases, stocktanks are used to stock nonnative fish for sportfishing, or they may support other nonnative aquatic species such as African clawed frogs, or bullfrogs. In cases where stocktanks are in close proximity to live streams, they may occasionally be breached or flooded, resulting in nonnative fish escaping from the stocktank and entering stream habitats (Hedwall and Sponholtz 2005, pp. 1–2; Stone *et al.* 2007, p. 133).

(22) *Comment:* One commenter stated that we have neglected to take the benefits of grazing into consideration and have omitted mention of the effects of feral pigs throughout the proposed rule with the one exception of the first mention on page 64999. The commenter also states that the censure of cattle grazing and its effects on the tidewater goby discounts an entire body of scientific work, which has determined that proper monitoring and grazing of riparian zones has helped to provide habitat for the tidewater goby.

Our Response: We acknowledge that improved livestock grazing practices have reduced impacts to native fishes including the tidewater goby. However, although adverse effects are less than in the past, livestock grazing within watersheds where tidewater goby and its habitat are located continues to cause adverse effects, and on Federal lands, improvements occurred primarily by discontinuing grazing in riparian and stream corridors (Service 1997, pp. 121–129, 137–141; Service 2001, pp. 50–67). Furthermore, we do recognize that feral pigs are a threat in this final critical habitat rule (see ''Threats'' section), the final listing rule (59 FR 5494), and the Recovery Plan (Service 2005, p. 16).

(23) *Comment:* One commenter suggested that, in lieu of designating critical habitat, we should implement existing grazing programs and Federal programs to minimize impacts to habitat.

Our Response: Please refer to our response to Comment 21 above. Impacts from livestock grazing on species such as the tidewater goby are decreasing due to improved management on Federal lands. However, implementation of the existing grazing programs and Federal programs only minimizes impacts to a certain extent, and livestock grazing within watersheds where tidewater goby and its habitat is located continues to cause adverse effects.

(24) *Comment:* One commenter implied that eliminating grazing activities from areas designated as critical habitat will not improve tidewater goby habitat or recover the species.

Our Response: Although we are not suggesting in this critical habitat designation for the tidewater goby that all livestock grazing activities be eliminated from critical habitat, studies on Federal lands found that improvements occurred primarily by discontinuing grazing in riparian and stream corridors (Service 1997, pp. 121–129, 137–141; Service 2001, pp. 50–67).

Public Comments Regarding Climate Change

(25) *Comment:* One commenter suggested we augment the connection we draw between the designation of unoccupied critical habitat and the threat of global warming.

Our Response: We agree and have added a discussion on climate change in the ''Background'' section accordingly.

(26) *Comment:* One commenter states there is a discrepancy in the proposed rule regarding the expansion of critical habitat in anticipation of sea-level rise. The commenter points out that we have stated in the 5-Year Review (Service 2007) that information currently available on the effects of global climate change is not sufficiently precise to determine what additional areas, if any, may be appropriate to include in the revised critical habitat designation for this species to address the effects of climate change.

Our Response: We have added a discussion on climate change in the ''Background'' section of this rule that includes information on sea level rise published subsequent to the 5-year review.

Substantial advances in our ability to predict changes that will occur as a result of climate change such as sea level rise have been made since the publication of the 5-year review in 2007. For example, between 1897 and 2006, the observed sea level rise has been approximately 2 millimeters (0.08 in) per year, or a total of 20 cm (8 in) over that period (Heberger *et al.* 2009, p. 6). Estimates prior to the 2007 5-year review projected that sea level rise along the California coast would follow a similar rate and reach 0.2–0.6 m (0.7–2 ft) by 2100 (IPCC 2007). Observations and modeling conducted since the 2007 5-year review indicate that earlier projections were conservative and ignored some critical factors, such as melting of the Greenland and Antarctica ice sheets (Heberger *et al.* 2009, p. 6). Heberger *et al.* (2009, p. 8) have updated the sea level rise projections for California to 1.0–1.4 m (3.3–4.6 ft) by 2100, while Vermeer and Rahmstorf (2009, p. 21530) calculate the sea level rise globally at 0.57–1.9 m (2.4–6.2 ft); in both cases, recent estimates were more than twice earlier projections.

Based on the information above and in the ''Background'' section, sea levels have been rising and are continuing to rise. Rising sea levels will affect the tidewater goby and its habitat in several ways. Many coastal lagoons and estuaries where tidewater goby occur will be converted from brackish to primarily saltwater bodies. In addition, more severe storms that are likely to result from climate change (Cayan *et al.* 2009, p. 38), combined with the higher than normal sea levels, will breach sand bars at lagoon mouths more frequently. Therefore, it is appropriate to include the threat of global climate change as a basis for the designation of critical habitat units for the tidewater goby.

Comments Related to the Draft Economic Analysis

(27) *Comment:* One commenter expressed concern over the use of annualized values in the DEA. This comment suggests that the use of values annualized over a 20-year period mischaracterizes the impact of the proposed rule because all costs will be one-time costs.

Our Response: The DEA adopts the standard practice of reporting both present value and annualized impacts. Incremental project modification costs are assigned to the year in which they are assumed to occur. In cases where the timing of project modification costs is unknown, the DEA conservatively assumes that the costs occur in the first year of the study period. For example, the incorporation of tidewater goby into two habitat conservation plans in units MAR–5 and SLO–12 is assumed to occur immediately following the designation of critical habitat in year 2012. Species surveying in unit SLO–12 is assumed to occur every 2 years

beginning in 2012. Lacking information on when administrative impacts due to potential section 7 consultations will occur, the DEA assumes these costs are spread evenly over the 20-year analysis period.

(28) *Comment:* One commenter asserted that the DEA fails to mention compliance costs, such as the cost of fencing riparian grazing areas that may be required as a result of consultation.

Our Response: As described in Section 2.4.4 of the DEA, we are unlikely to request additional conservation efforts to avoid the destruction or adverse modification of critical habitat compared to efforts to avoid jeopardy of the species. As a result, project modifications such as fencing are considered baseline impacts in areas occupied by the tidewater goby. While these types of project modifications are discussed in the DEA (see Exhibit 3–1), baseline impacts are not monetized in the DEA. In areas not considered occupied by the tidewater goby, potential incremental project modifications are identified through communication with land managers and are described and monetized in the DEA. We did not identify any areas where incremental project modifications to grazing activities would be expected to occur as a result of critical habitat designation for the tidewater goby.

(29) *Comment:* One commenter expressed concern that the designation of critical habitat could result in increased State regulation. This comment suggests that the DEA should consider potential indirect impacts of additional conservation measures requested by State agencies.

Our Response: Chapter 2 of the DEA acknowledges the potential for several types of indirect impacts, including increased State and local regulation. There is no indication that States or local agencies will change the types of conservation efforts requested following the designation of critical habitat for the tidewater goby. In addition, we believe that the public is well aware of areas considered to be critical habitat given the lengthy history of the designation and the existence of the tidewater goby recovery plan. As a result, the DEA does not anticipate any costs associated with increased State regulation.

(30) *Comment:* One commenter noted that Del Norte County has suffered economically in recent years, in part due to cumulative effects of regulatory restrictions. This comment implies that the designation of critical habitat for the tidewater goby would have a substantial economic impact on the County.

Our Response: As described in Section 2.4.4 of the DEA, we are unlikely to request additional conservation efforts to avoid the destruction or adverse modification of critical habitat compared to efforts to avoid jeopardy of the species. Because all critical habitat within Del Norte County is considered occupied by the tidewater goby, no incremental conservation measures are anticipated. The DEA does forecast administrative impacts associated with the additional consideration of adverse modification of critical habitat in three section 7 consultations within Del Norte County over a 20-year period. Appendix A of the DEA identifies Del Norte County as a small governmental jurisdiction and evaluates the likelihood that these incremental administrative impacts will substantially affect the County's economy. For this analysis, the DEA makes the conservative assumption that all three forecast consultations will occur in the same year, and concludes that impacts will not exceed one percent of annual County revenues.

Required Determinations

Regulatory Planning and Review (Executive Orders 12866 and 13563)

Executive Order 12866 provides that the Office of Information and Regulatory Affairs (OIRA) in the Office of Management and Budget will review all significant rules. The Office of Information and Regulatory Affairs has determined that this rule is not significant.

Executive Order 13563 reaffirms the principles of E.O. 12866 while calling for improvements in the nation's regulatory system to promote predictability, to reduce uncertainty, and to use the best, most innovative, and least burdensome tools for achieving regulatory ends. The executive order directs agencies to consider regulatory approaches that reduce burdens and maintain flexibility and freedom of choice for the public where these approaches are relevant, feasible, and consistent with regulatory objectives. E.O. 13563 emphasizes further that regulations must be based on the best available science and that the rulemaking process must allow for public participation and an open exchange of ideas. We have developed this rule in a manner consistent with these requirements.

Regulatory Flexibility Act (5 U.S.C. 601 et seq.)

Under the Regulatory Flexibility Act (RFA; 5 U.S.C. 601 *et seq.*), as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996 (5 U.S.C. 801 *et seq.*), whenever an agency must publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effects of the rule on small entities (small businesses, small organizations, and small government jurisdictions). However, no regulatory flexibility analysis is required if the head of an agency certifies the rule will not have a significant economic impact on a substantial number of small entities. The SBREFA amended the RFA to require Federal agencies to provide a certification statement of the factual basis for certifying that the rule will not have a significant economic impact on a substantial number of small entities. In this final rule, we are certifying that the critical habitat designation for tidewater goby will not have a significant economic impact on a substantial number of small entities. The following discussion explains our rationale.

According to the Small Business Administration, small entities include small organizations, such as independent nonprofit organizations; small governmental jurisdictions, including school boards and city and town governments that serve fewer than 50,000 residents; as well as small businesses. Small businesses include manufacturing and mining concerns with fewer than 500 employees, wholesale trade entities with fewer than 100 employees, retail and service businesses with less than $5 million in annual sales, general and heavy construction businesses with less than $27.5 million in annual business, special trade contractors doing less than $11.5 million in annual business, and agricultural businesses with annual sales less than $750,000. To determine if potential economic impacts on these small entities are significant, we consider the types of activities that might trigger regulatory impacts under this rule, as well as the types of project modifications that may result. In general, the term ''significant economic impact'' is meant to apply to a typical small business firm's business operations.

To determine if the rule could significantly affect a substantial number of small entities, we consider the number of small entities affected within particular types of economic activities (for example, water management, transportation and utilities, livestock grazing, natural resource management). We apply the ''substantial number'' test individually to each industry to determine if certification is appropriate. However, the SBREFA does not

explicitly define ''substantial number'' or ''significant economic impact.'' Consequently, to assess whether a ''substantial number'' of small entities is affected by this designation, this analysis considers the relative number of small entities likely to be impacted in an area. In some circumstances, especially with critical habitat designations of limited extent, we may aggregate across all industries and consider whether the total number of small entities affected is substantial. In estimating the number of small entities potentially affected, we also consider whether their activities have any Federal involvement.

Designation of critical habitat only affects activities authorized, funded, or carried out by Federal agencies. Some kinds of activities are unlikely to have any Federal involvement and so will not be affected by critical habitat designation. In areas where the species is present, Federal agencies already are required to consult with us under section 7 of the Act on activities they authorize, fund, or carry out that may affect the tidewater goby. Federal agencies also must consult with us if their activities may affect critical habitat. Designation of critical habitat, therefore, could result in an additional economic impact on small entities due to the requirement to reinitiate consultation for ongoing Federal activities (see *Application of the ''Adverse Modification Standard''* section).

In our final economic analysis (FEA) of the critical habitat designation, we evaluated the potential economic effects on small business entities resulting from conservation actions related to the designation of critical habitat. The analysis is based on the estimated impacts associated with the rulemaking as described in Chapters 1 through 6 and Appendix A of the analysis and evaluates the potential for economic impacts related to: (1) Water management; (2) cattle grazing; (3) transportation (roads, highways, bridges); (4) utilities (oil and gas pipelines); (5) residential, commercial, and industrial development; and (6) natural resource management.

As described in Chapters 4 and 5 of the FEA, estimated incremental impacts consist primarily of administrative costs and time delays associated with section 7 consultation. The Service and the Federal action agency are the only entities with direct compliance costs associated with this proposed critical habitat designation, although small entities may participate in section 7 consultation as an applicant. It is therefore possible that the small entities may spend additional time considering critical habitat during section 7 consultation for the tidewater goby. The FEA indicated that the incremental impacts potentially incurred by small entities are limited to development, natural resource management, transportation, utilities, and water management activities.

Chapter 5 of the FEA discusses the potential for proposed revised critical habitat to affect development through additional costs of section 7 consultation. These costs are borne by developers and existing landowners, depending on whether developers are able to pass all or a portion of their costs back to landowners in the form of lower prices paid for undeveloped land. Of the total number of entities engaged in land subdivision and residential, commercial, industrial and institutional construction, nearly 99 percent are small entities.

Whether individual developers are affected depends on the specific characteristics of a particular land parcel as well as the availability of land within the affected region. If land is not scarce, the price of a specific parcel will likely incorporate any regulatory restrictions on that parcel. Therefore, any costs associated with conservation efforts for tidewater goby will likely be reflected in the price paid for the parcel. In this case, the costs of conservation efforts are ultimately borne by the current landowner in the form of reduced land values. Many of these landowners may be individuals or families that are not legally considered to be businesses.

If, however, land in the affected region is scarce, or the characteristics of the specific parcel are unique, the price of a parcel may not incorporate regulatory restrictions associated with that parcel. In this case, the project developer may be required to incur the additional costs associated with the section 7 consultation process. To understand the potential impacts on small entities, we conservatively assumed that all of the private owners of developable lands affected by proposed revised critical habitat designation are developers.

In Chapter 5 of the FEA, we estimated that a total of 20 formal, informal, and technical assistance consultations, plus one reinitiation, may require additional effort to consider adverse modification of revised critical habitat. Assuming that each consultation is undertaken by a separate entity, we estimate that 21 developers may be affected by the designation. For purposes of this analysis, and because nearly 99 percent of developers in the study area are small, we assume that all 21 are small entities. These developers represent less than 0.1 percent of small developers in the study area.

Excluding costs borne by Federal agencies, costs per consultation range from $260 for technical assistance to $1,800 for reinitiation of a formal consultation. Because we were unable to identify the specific entities affected, the impact relative to those entities' annual revenues or profits is unknown. However, assuming the average small entity has annual revenues of approximately $5.1 million, this maximum annualized impact of $1,800 represents less than 0.1 percent of annual revenues.

The consultation history for natural resource management projects suggests that these projects are generally undertaken by Federal and State agencies, or County departments. The DEA estimated incremental administrative costs for section 7 consultation on natural resource management in every County except Orange County. Only one of these entities, Del Norte County, meets the threshold for small governmental jurisdiction. Del Norte County is anticipated to incur administrative costs associated with addressing adverse modification in approximately three consultations, including one reinitiation. Even if all consultations occur in the same year, total impacts to Del Norte County will be less than 1 percent of the County's annual revenue.

The consultation history for tidewater goby includes several consultations regarding utilities and oil and gas development. In Chapter 5 of the FEA, we estimate that 24 consultations involving utility activities will occur during the 20-year period. Based on the overall percentage of all small entities in the study area (56 percent), we estimated that 14 of the 24 total entities that will be affected over the 20-year period are small entities. Excluding costs to Federal agencies, the cost per entity of addressing adverse modification in section 7 consultation ranges from $260 for technical assistance to $880 for a formal consultation (no reinitiations are predicted for utility activities.). Because we are unable to identify the specific entities affected, the impact relative to those entities' annual revenues or profits is unknown. However, assuming the average small entity in this industry has annual revenues of approximately $9.3 million, this maximum annualized impact of $880 represents less than 0.01 percent of annual revenues.

Chapter 5 of the FEA also discusses the potential for water management

activities to be affected by the designation. Over the 20-year period, we estimate that 125 consultations involving water management activities, including reinitiations, will occur. Based on the overall percentage of all small entities in the study area (83 percent), we estimate that 104 of the 125 total entities that will be affected over the 20-year period are small entities. Excluding costs to Federal agencies, the cost per entity of addressing adverse modification in section 7 consultation ranges from $260 for technical assistance to $1,800 for reinitiation of a formal consultation. Because we are unable to identify the specific entities affected, the impact relative to those entities' annual revenues or profits is unknown. However, assuming the average small entity in this industry has annual revenues of approximately $5.0 million, this maximum annualized impact of $1,800 represents less than 0.1 percent of annual revenues.

The DEA also concludes that none of the government entities with which we might consult on tidewater goby for transportation or recreation meet the definitions of small as defined by the Small Business Act (SBE) (IEC 2012, p. A–6); therefore, impacts to small government entities due to transportation and recreation are not anticipated. A review of the consultation history for tidewater goby suggests that future section 7 consultations on livestock grazing (for example, ranching operations) are unlikely, and as a result are not anticipated to be affected by the critical habitat designation (IEC 2012, p. 5–13). Please refer to the DEA for a more detailed discussion of potential economic impacts.

In summary, we considered whether this designation would result in a significant economic impact on a substantial number of small entities. Based on the above reasoning and currently available information, we are certifying that the designation of critical habitat for tidewater goby will not have a significant economic impact on a substantial number of small entities, and a regulatory flexibility analysis is not required.

Energy Supply, Distribution, or Use—Executive Order 13211

Executive Order 13211 (Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use) requires agencies to prepare Statements of Energy Effects when undertaking certain actions. OMB has provided guidance for implementing this Executive Order that outlines nine outcomes that may constitute ''a significant adverse effect'' when compared to not taking the regulatory action under consideration. Chapter 5 of the economic analysis discusses the potential for critical habitat to affect utilities through the additional cost of considering adverse modification in section 7 consultation. Excluding the portion of administrative costs accruing to Federal agencies, we forecast incremental costs of less than $9,700 over 20 years to be incurred by the energy and utility industry for section 7 consultations. In annualized terms, this represents less than $500 annually. The additional costs are unlikely to increase the costs of energy production or distribution in the United States in excess of one percent.

The economic analysis finds that none of the nine outcomes are relevant to this analysis. Thus, based on information in the economic analysis, energy-related impacts associated with tidewater goby conservation activities within critical habitat are not expected. As such, the designation of critical habitat is not expected to significantly affect energy supplies, distribution, or use. Therefore, this action is not a significant energy action, and no Statement of Energy Effects is required.

Unfunded Mandates Reform Act (2 U.S.C. 1501 et seq.)

In accordance with the Unfunded Mandates Reform Act (2 U.S.C. 1501 *et seq.*), we make the following findings:

(1) This rule will not produce a Federal mandate. In general, a Federal mandate is a provision in legislation, statute, or regulation that would impose an enforceable duty upon State, local, or tribal governments, or the private sector, and includes both ''Federal intergovernmental mandates'' and ''Federal private sector mandates.'' These terms are defined in 2 U.S.C. 658(5)–(7). ''Federal intergovernmental mandate'' includes a regulation that ''would impose an enforceable duty upon State, local, or tribal governments'' with two exceptions. It excludes ''a condition of Federal assistance.'' It also excludes ''a duty arising from participation in a voluntary Federal program,'' unless the regulation ''relates to a then-existing Federal program under which $500,000,000 or more is provided annually to State, local, and tribal governments under entitlement authority,'' if the provision would ''increase the stringency of conditions of assistance'' or ''place caps upon, or otherwise decrease, the Federal Government's responsibility to provide funding,'' and the State, local, or tribal governments ''lack authority'' to adjust accordingly. At the time of enactment, these entitlement programs were: Medicaid; Aid to Families with Dependent Children work programs; Child Nutrition; Food Stamps; Social Services Block Grants; Vocational Rehabilitation State Grants; Foster Care, Adoption Assistance, and Independent Living; Family Support Welfare Services; and Child Support Enforcement. ''Federal private sector mandate'' includes a regulation that ''would impose an enforceable duty upon the private sector, except (i) a condition of Federal assistance or (ii) a duty arising from participation in a voluntary Federal program.''

The designation of critical habitat does not impose a legally binding duty on non-Federal Government entities or private parties. Under the Act, the only regulatory effect is that Federal agencies must ensure that their actions do not destroy or adversely modify critical habitat under section 7. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency. Furthermore, to the extent that non-Federal entities are indirectly impacted because they receive Federal assistance or participate in a voluntary Federal aid program, the Unfunded Mandates Reform Act would not apply, nor would critical habitat shift the costs of the large entitlement programs listed above onto State governments.

(2) We do not believe that this rule will significantly or uniquely affect small governments because it would not produce a Federal mandate of $100 million or greater in any year; that is, it is not a ''significant regulatory action'' under the Unfunded Mandates Reform Act. The FEA concludes only Del Norte County meets the threshold for small governmental jurisdiction. Del Norte County is anticipated to incur administrative costs associated with addressing adverse modification in approximately three consultations, including one reinitiation. Even if all consultations occur in the same year, total impacts to Del Norte County will be less than one percent of the County's annual revenue, which was $65 million in 2012. Consequently, we do not believe that the critical habitat designation would significantly or uniquely affect small government entities. As such, a Small Government Agency Plan is not required.

Takings—Executive Order 12630

In accordance with Executive Order 12630 (Government Actions and Interference with Constitutionally Protected Private Property Rights), we have analyzed the potential takings implications of designating critical habitat for tidewater goby in a takings implications assessment. As discussed above, the designation of critical habitat affects only Federal actions. Although private parties that receive Federal funding, assistance, or require approval or authorization from a Federal agency for an action may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency. The FEA has concluded that this critical habitat designation does not affect landowner actions that do not require Federal funding or permits, nor does it preclude development of habitat conservation programs or issuance of incidental take permits to permit actions that do require Federal funding or permits to go forward. The takings implications assessment concludes that this designation of critical habitat for tidewater goby does not pose significant takings implications for lands within or affected by the designation.

Federalism—Executive Order 13132

In accordance with Executive Order 13132 (Federalism), this rule does not have significant Federalism effects. A federalism impact summary statement is not required. In keeping with Department of the Interior and Department of Commerce policy, we requested information from, and coordinated development of, this critical habitat designation with appropriate State resource agencies in California. We solicited but did not receive comments from the California Department of Parks and Recreation, California Department of Fish and Game, California Coastal Conservancy, and California Coastal Commission. The designation of critical habitat for the tidewater goby may impose nominal additional regulatory restrictions to those currently in place and, therefore, may have some incremental impact on State and local governments and their activities. The designation may have some benefit to these governments in that the areas that contain the physical or biological features essential to the conservation of the species are more clearly defined, and the elements of the features of the habitat necessary to the conservation of the species are specifically identified. This information does not alter where and what federally sponsored activities may occur. However, it may assist local governments in long-range planning (rather than having them wait for case-by-case section 7 consultations to occur).

Where State and local governments require approval or authorization from a Federal agency for actions that may affect critical habitat, consultation under section 7(a)(2) would be required. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency.

Civil Justice Reform—Executive Order 12988

In accordance with Executive Order 12988 (Civil Justice Reform), the Office of the Solicitor has determined that the rule does not unduly burden the judicial system and that it meets the applicable standards set forth in sections 3(a) and 3(b)(2) of the Order. We are designating critical habitat in accordance with the provisions of the Act. To assist the public in understanding the habitat needs of the species, the rule identifies the elements of physical or biological features essential to the conservation of the species. The designated areas of critical habitat are presented on maps, and the rule provides several options for the interested public to obtain more detailed location information, if desired.

Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.

This rule does not contain any new collections of information that require approval by OMB under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*). This rule will not impose recordkeeping or reporting requirements on State or local governments, individuals, businesses, or organizations. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

National Environmental Policy Act (42 U.S.C. 4321 et seq.)

It is our position that, outside the jurisdiction of the U.S. Court of Appeals for the Tenth Circuit, we do not need to prepare environmental analyses pursuant to the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq.*) in connection with designating critical habitat under the Act. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244). This position was upheld by the U.S. Court of Appeals for the Ninth Circuit (*Douglas County* v. *Babbitt,* 48 F.3d 1495 (9th Cir. 1995), cert. denied 516 U.S. 1042 (1996)).

Government-to-Government Relationship With Tribes

In accordance with the President's memorandum of April 29, 1994 (Government-to-Government Relations with Native American Tribal Governments; 59 FR 22951), Executive Order 13175 (Consultation and Coordination With Indian Tribal Governments), and the Department of the Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with recognized Federal Tribes on a government-to-government basis. In accordance with Secretarial Order 3206 of June 5, 1997 (American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act), we readily acknowledge our responsibilities to work directly with tribes in developing programs for healthy ecosystems, to acknowledge that tribal lands are not subject to the same controls as Federal public lands, to remain sensitive to Indian culture, and to make information available to tribes. We determined that there are no tribal lands within the geographical area occupied by the tidewater goby at the time of listing that contain the features essential for conservation of the species, and no tribal lands outside the geographical area occupied by the tidewater goby at the time of listing that are essential for the conservation of the species. Therefore, we are not designating critical habitat for the tidewater goby on tribal lands.

References Cited

A complete list of all references cited is available on the Internet at *http://www.regulations.gov* and upon request from the, Ventura Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**).

Author(s)

The primary authors of this rulemaking are the staff members of the Ventura Fish and Wildlife Office.

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, Transportation.

Regulation Promulgation

■ Accordingly, we amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

PART 17—[AMENDED]

■ 1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361–1407; 1531–1544; and 4201–4245 unless otherwise noted.

■ 2. In § 17.95(e), revise the entry for ''Tidewater goby (*Eucyclogobius newberryi*)'', to read as follows:

§ 17.95 Critical habitat—fish and wildlife.

* * * * *

(e) *Fishes.*

* * * * *

Tidewater Goby (*Eucyclogobius newberryi*)

(1) Critical habitat units are depicted for Del Norte, Humboldt, Mendocino, Sonoma, Marin, San Mateo, Santa Cruz, Monterey, San Luis Obispo, Santa Barbara, Ventura, Los Angeles, Orange, and San Diego Counties, California, on the maps below.

(2) Within these areas, the primary constituent element of the physical or biological features essential to the conservation of tidewater goby consist of persistent, shallow (in the range of approximately 0.3 to 6.6 ft (0.1 to 2 m)), still-to-slow-moving lagoons, estuaries, and coastal streams with salinity up to 12 parts per thousand (ppt), which provides adequate space for normal behavior and individual and population growth that contain:

(i) Substrates (e.g., sand, silt, mud) suitable for the construction of burrows for reproduction;

(ii) Submerged and emergent aquatic vegetation, such as *Potamogeton pectinatus, Ruppia maritima, Typha latifolia,* and *Scirpus* spp., that provides protection from predators and high flow events; or

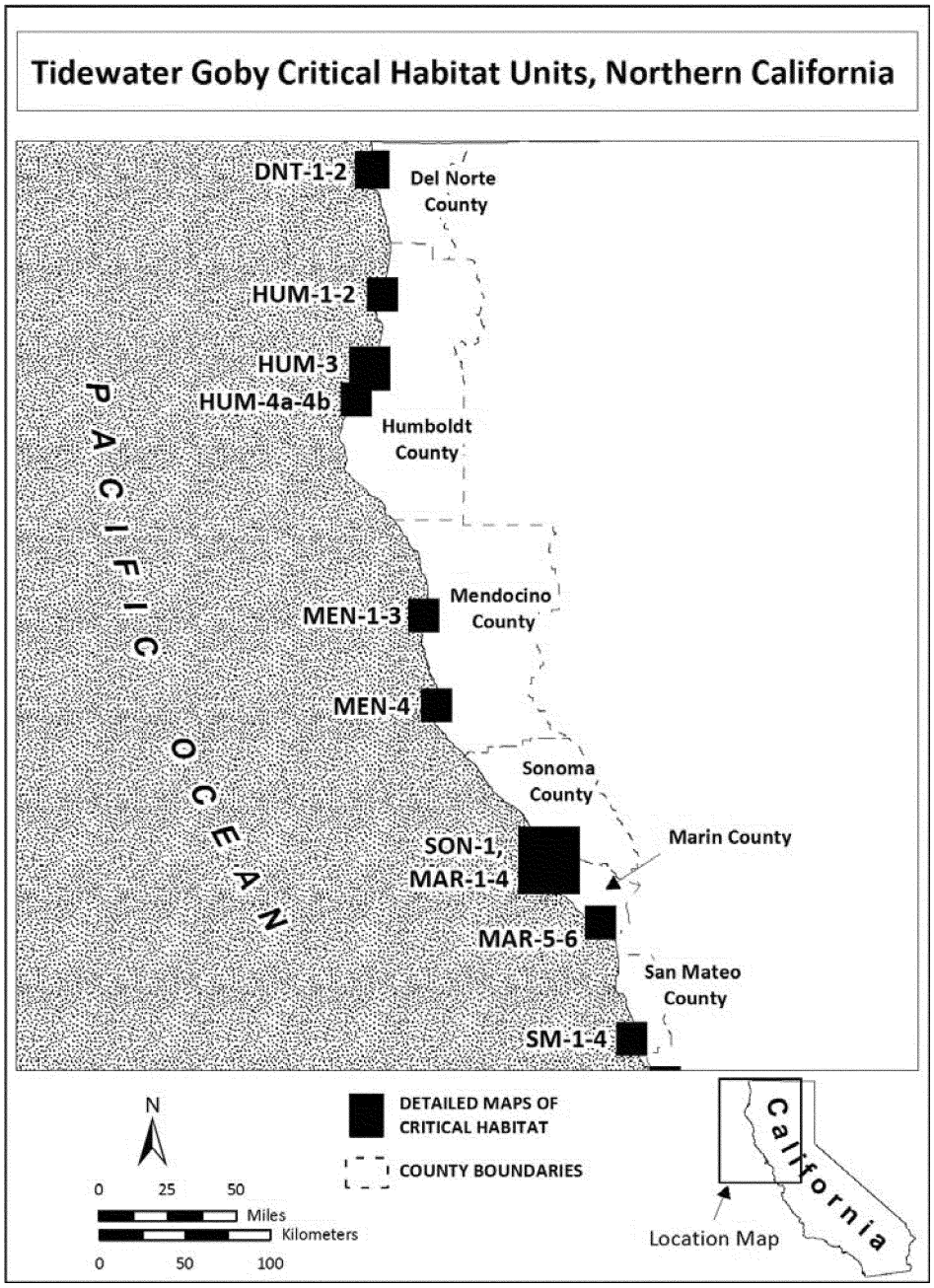
(iii) Presence of a sandbar(s) across the mouth of a lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, thereby providing relatively stable water levels and salinity.

(3) Critical habitat does not include manmade structures (such as bridges, docks, aqueducts, and other paved areas) and the land on which they are located existing within the legal boundaries on March 8, 2013.

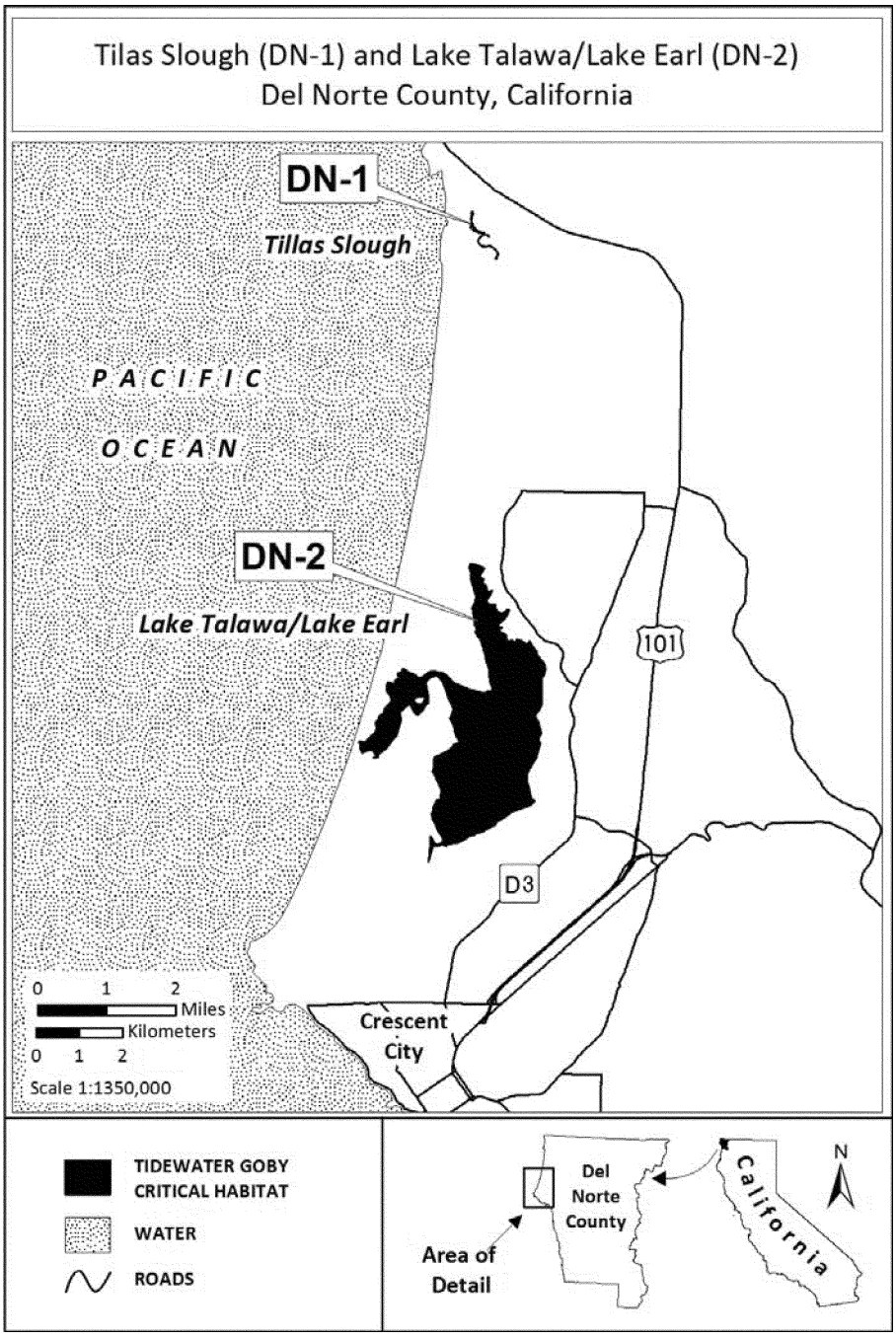
(4) *Critical habitat map units.* Data layers defining map units were created for most units using National Wetlands Inventory (NWI) data (both published data available over the Internet and in publication provisional data). Where NWI data was lacking, unit boundaries were digitized directly on imagery from the Department of Agriculture's National Aerial Imagery Program data (NAIP) acquired in 2005. Critical habitat units were mapped using Universal Transverse Mercator (UTM), zones 10 and 11. The maps in this entry, as modified by any accompanying regulatory text, establish the boundaries of the critical habitat designation. The coordinates or plot points or both on which each map is based are available to the public at the Service's internet site, *http://www.fws.gov/ventura/,* http://*www.regulations.gov* at Docket No. FWS–R8–ES–2011–0085, and at the field office responsible for this designation. You may obtain field office location information by contacting one of the Service regional offices, the addresses of which are listed at 50 CFR 2.2.

(5) Index map of critical habitat units for the tidewater goby (*Eucyclogobius newberryi*) in Northern California follows:

BILLING CODE 4310–55–P

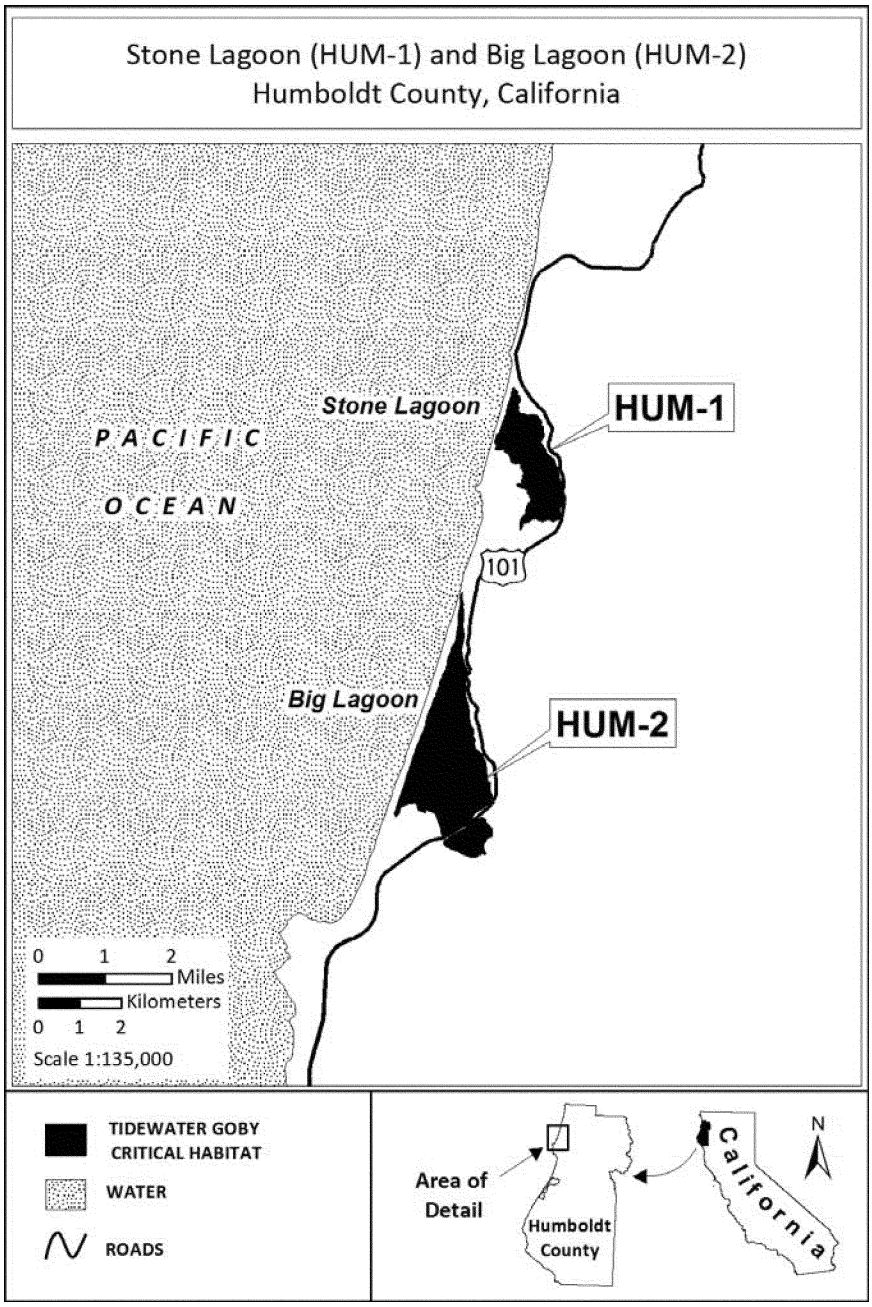


(6) Unit DN 1: Tillas Slough, Del Norte County California. Map of Units DN 1 and DN 2 follows:



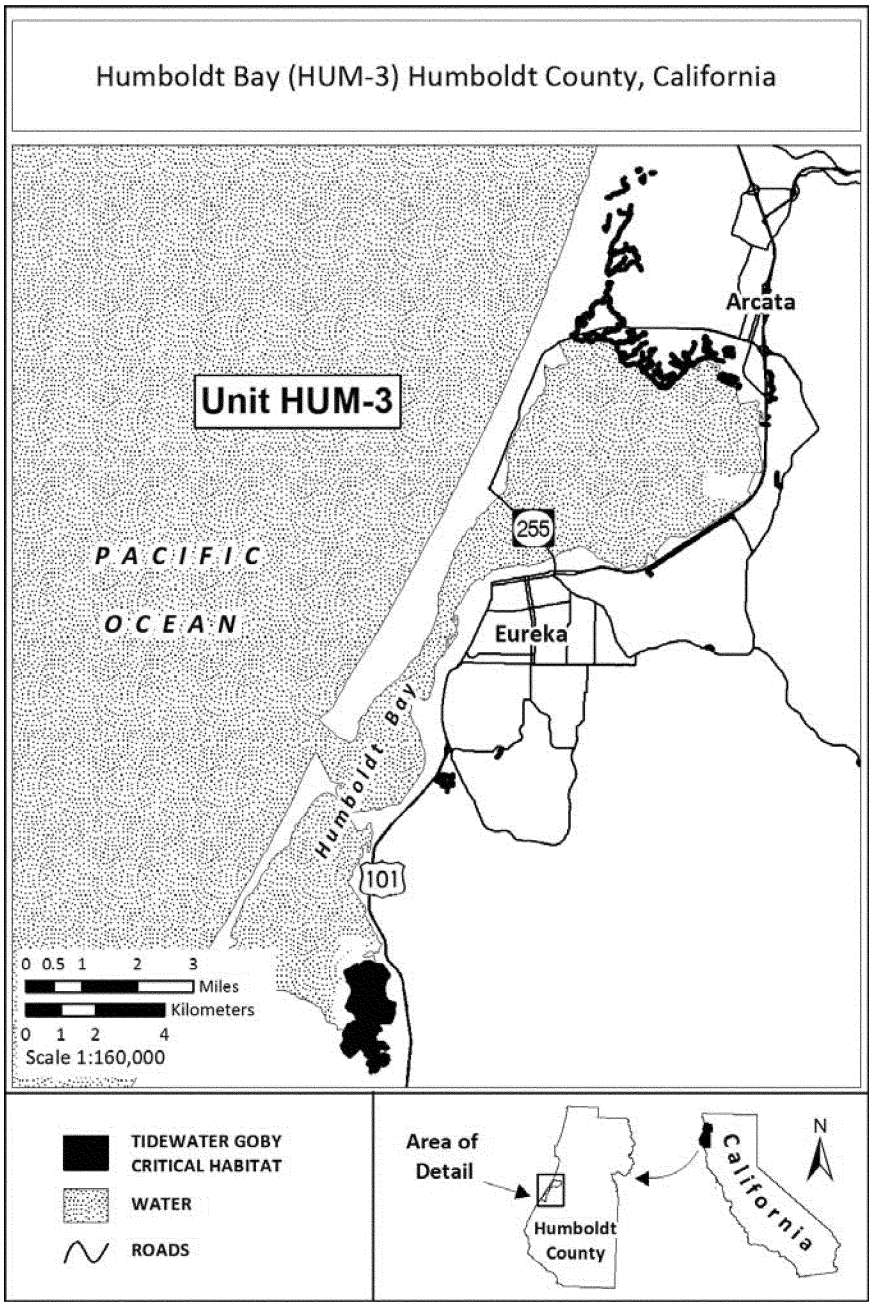
(7) Unit DN 2: Lake Talawa/Lake Earl, Del Norte County, California. Map of Unit DN 1 and DN 2 is provided at paragraph (6) of this entry.

(8) Unit HUM 1: Stone Lagoon, Humboldt County California. Map of Units HUM 1 and HUM 2 follows:

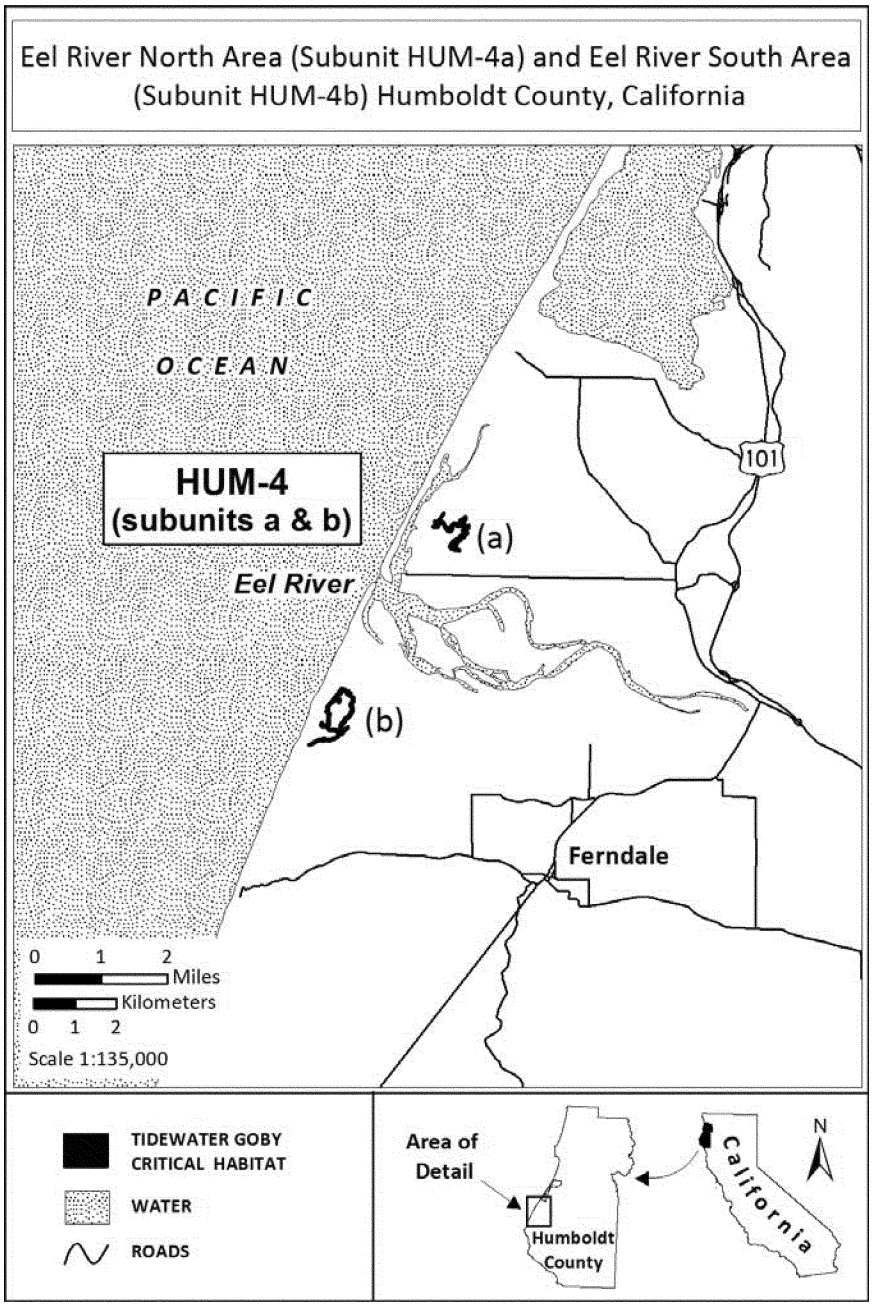


(9) Unit HUM 2: Big Lagoon, Humboldt County, California. Map of Units HUM 1 and HUM 2 is provided at paragraph (8) of this entry.

(10) Unit HUM 3: Humboldt Bay, Humboldt County, California. Map follows:

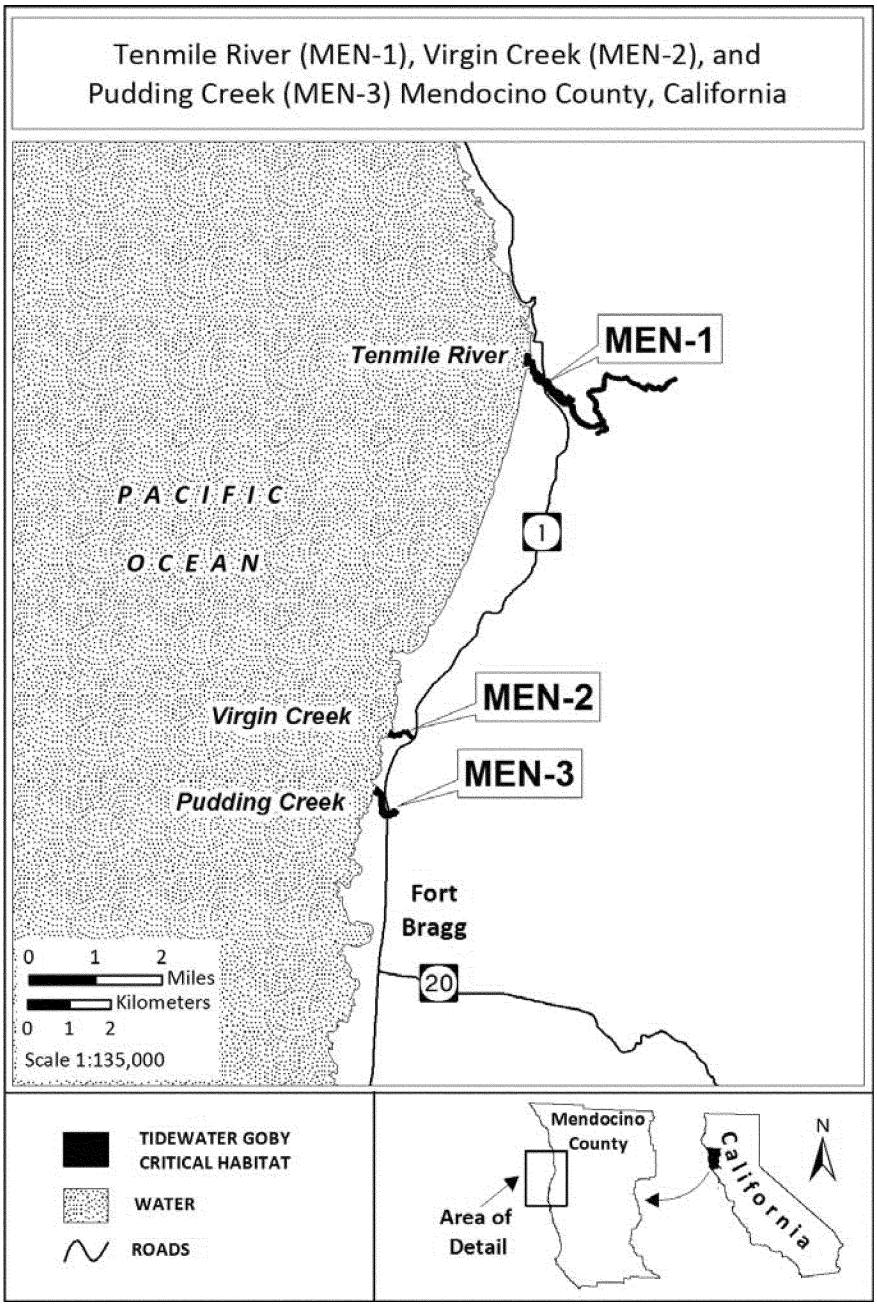


(11) Subunit HUM 4a: Eel River North Area. Map of Subunits HUM 4a and HUM 4b follows:



(12) Subunit HUM 4b: Eel River South Area. Map of Subunits HUM 4a and HUM 4b is provided at paragraph (11) of this entry.

(13) Unit MEN 1: Tenmile River, Mendocino County, California. Map of Units MEN 1, MEN 2, and MEN 3 follows:

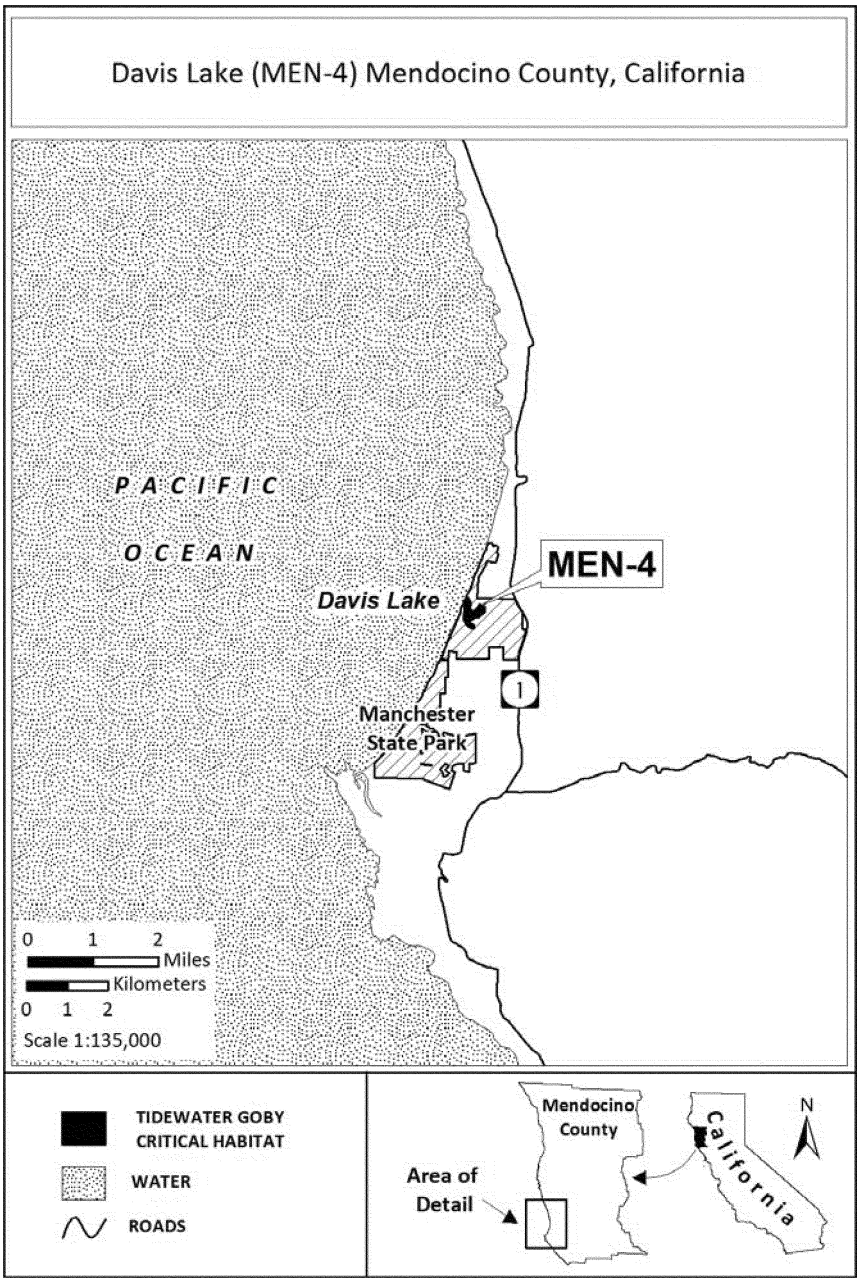


(14) Unit MEN 2: Virgin Creek, Mendocino County, California. Map of Units MEN 1, MEN 2, and MEN 3 is provided at paragraph (13) of this entry.

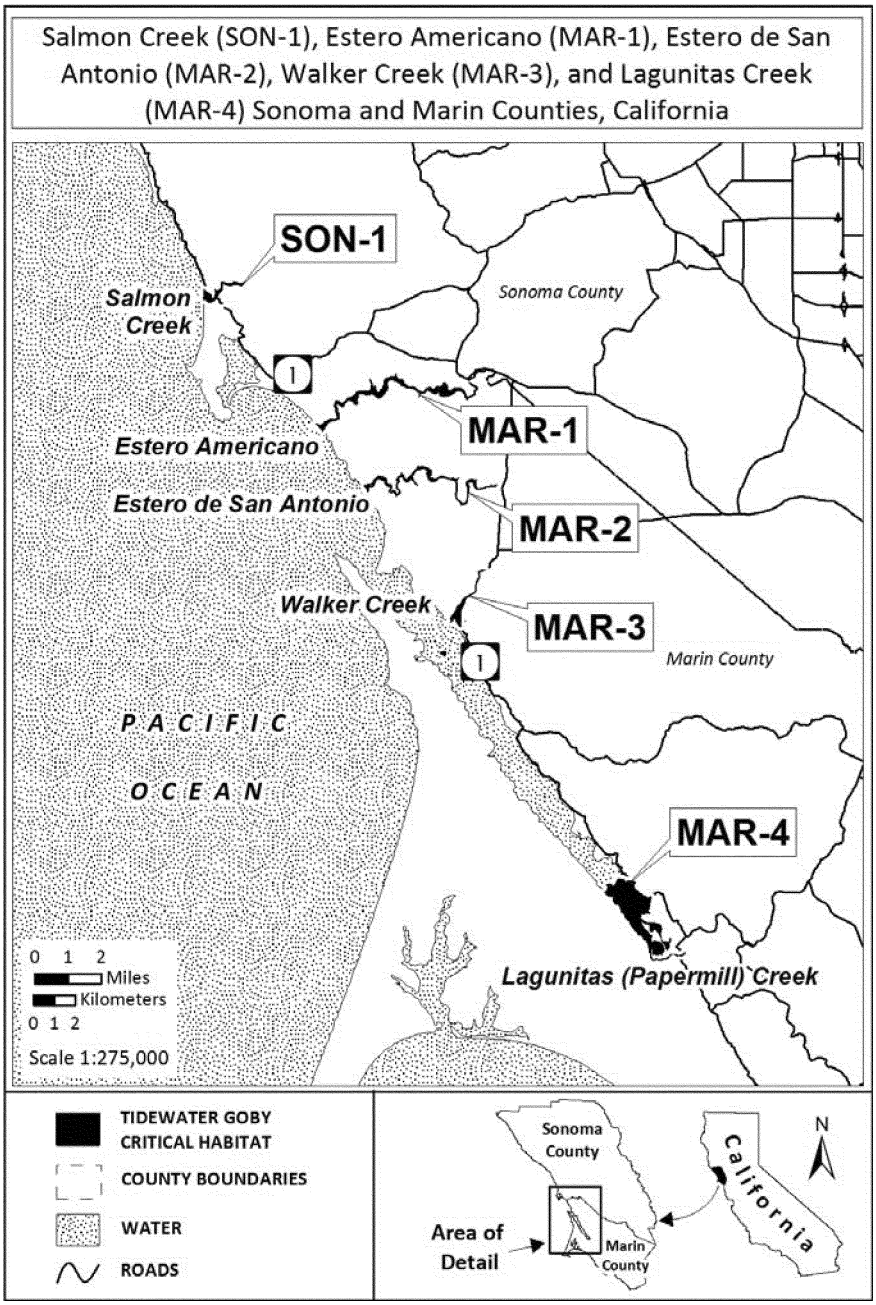
(15) Unit MEN 3: Pudding Creek, Mendocino County, California. Map of Units MEN 1, MEN 2, and MEN 3 is provided at paragraph (13) of this entry.

(16) Unit MEN 4: Davis Lake and Manchester Sate Park Ponds, Mendocino

County, California. Map follows:



(17) Unit SON 1: Salmon Creek, Sonoma County California. Map of Units SON 1, MAR 1, MAR 2, MAR 3, and MAR 4 follows:



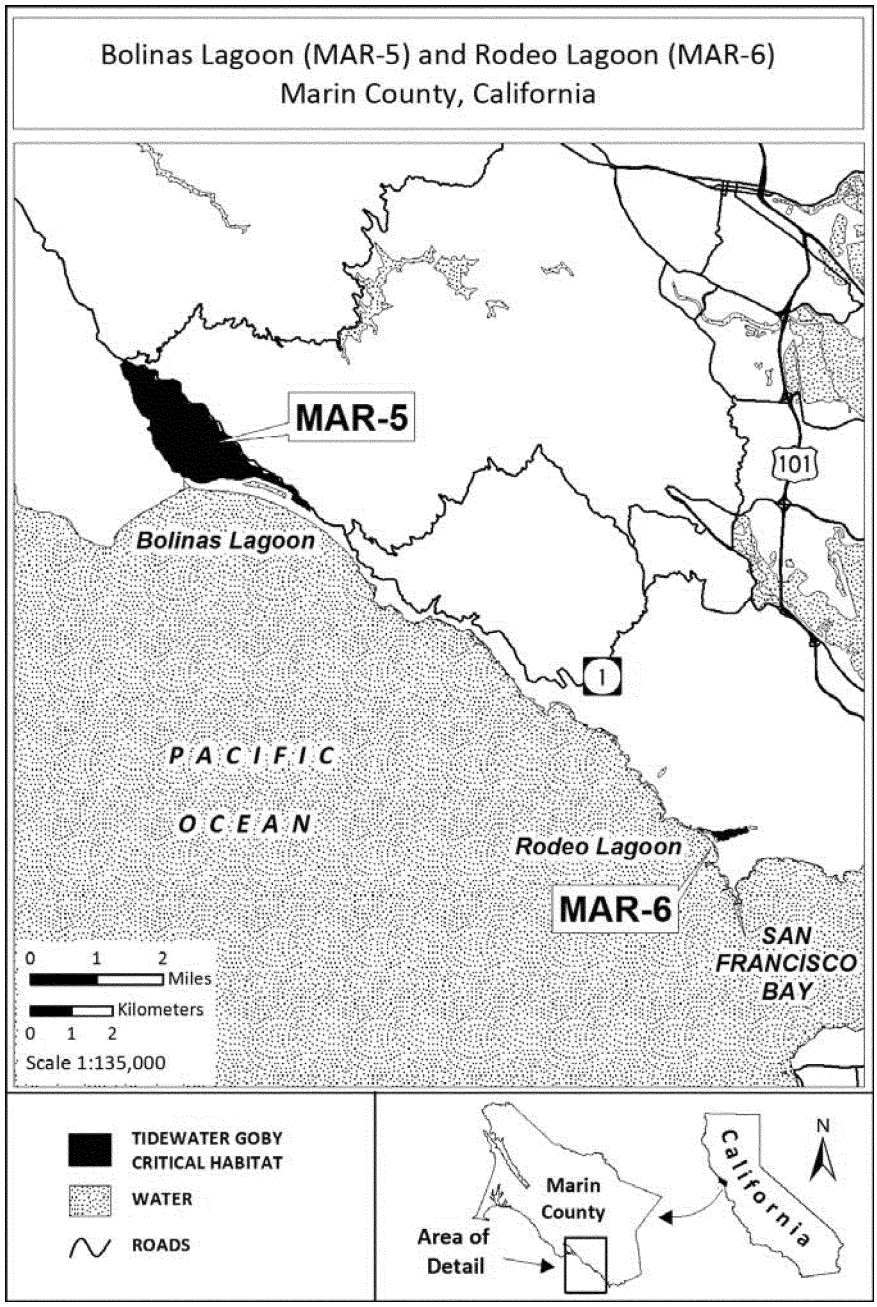
(18) Unit MAR 1: Estero Anericano, Marin County, California. Map of Units SON 1, MAR 1, MAR 2,MAR 3 and MAR 4 is provided at paragraph (17) of this entry.

(19) Unit MAR 2: Estero de San Antonio, Marin County, California. Map of Units SON 1, MAR 1, MAR 2, MAR 3, and MAR 4 is provided at paragraph (17) of this entry.

(20) Unit MAR 3: Walker Creek, Marin County, California. Map of Units SON 1, MAR 1, MAR 2, MAR 3, and MAR 4 is provided at paragraph (17) of this entry.

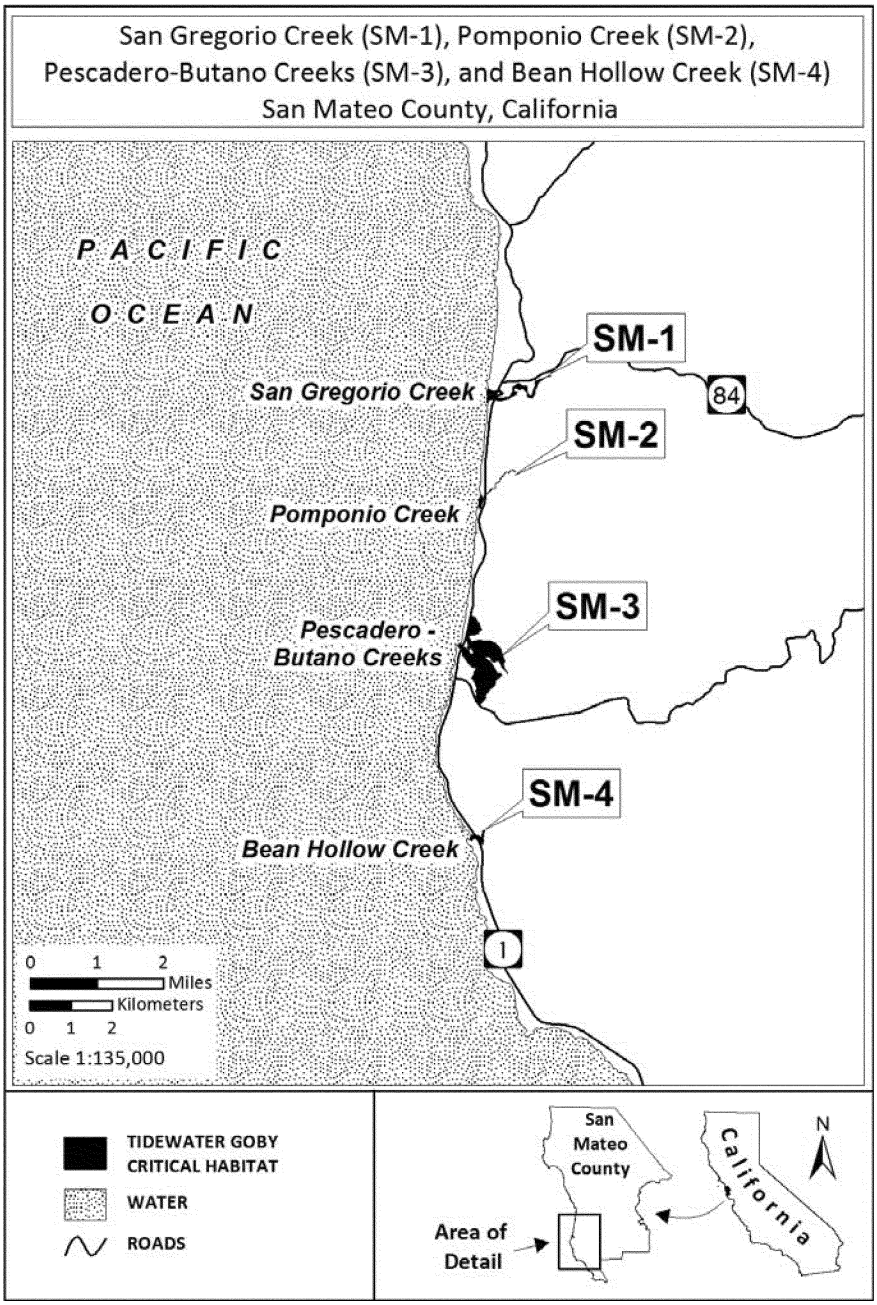
(21) Unit MAR 4: Lagunitas (Pepermill) Creek, Marin County, California. Map of Units SON 1, MAR 1, MAR 2, MAR 3, and MAR 4 is provided at paragraph (17) of this entry.

(22) Unit MAR 5: Bolinas Lagoon, Marin County, California. Map of Units MAR 5 and MAR 6 follows:



(23) Unit MAR 6: Rodeo Lagoon, Marin County, California. Map of Units MAR 5 and MAR 6 is provided at paragraph (21) of this entry.

(24) Unit SM 1: San Gregorio Creek, San Mateo County, California. Map of Units SM 1, SM 2, SM 3, and SM 4 follows:

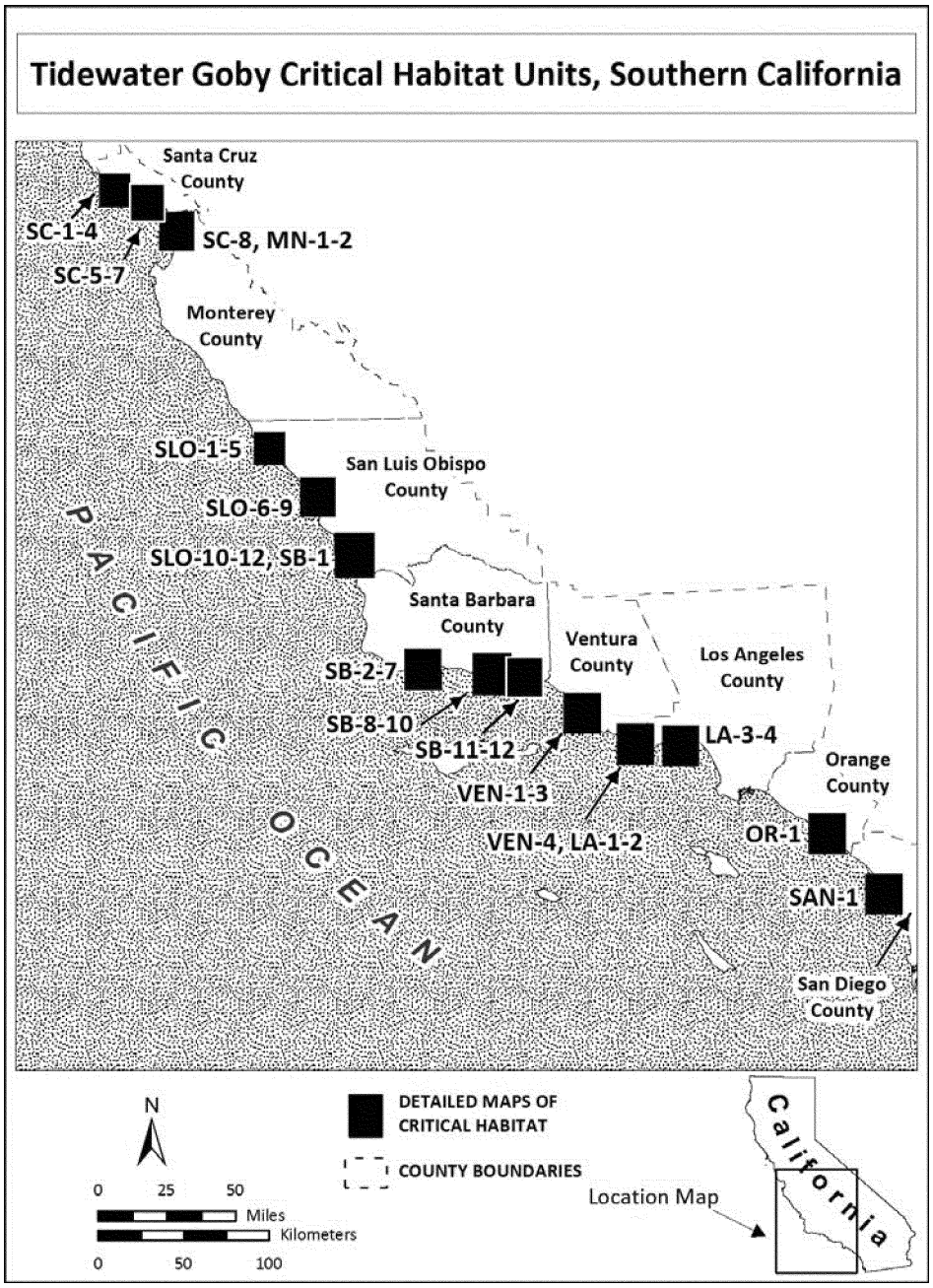


(25) Unit SM 2: Pomponio Creek, San Mateo County, California. Map of Units SM 1, SM 2, SM 3, and SM 4 is provided at paragraph (24) of this entry.

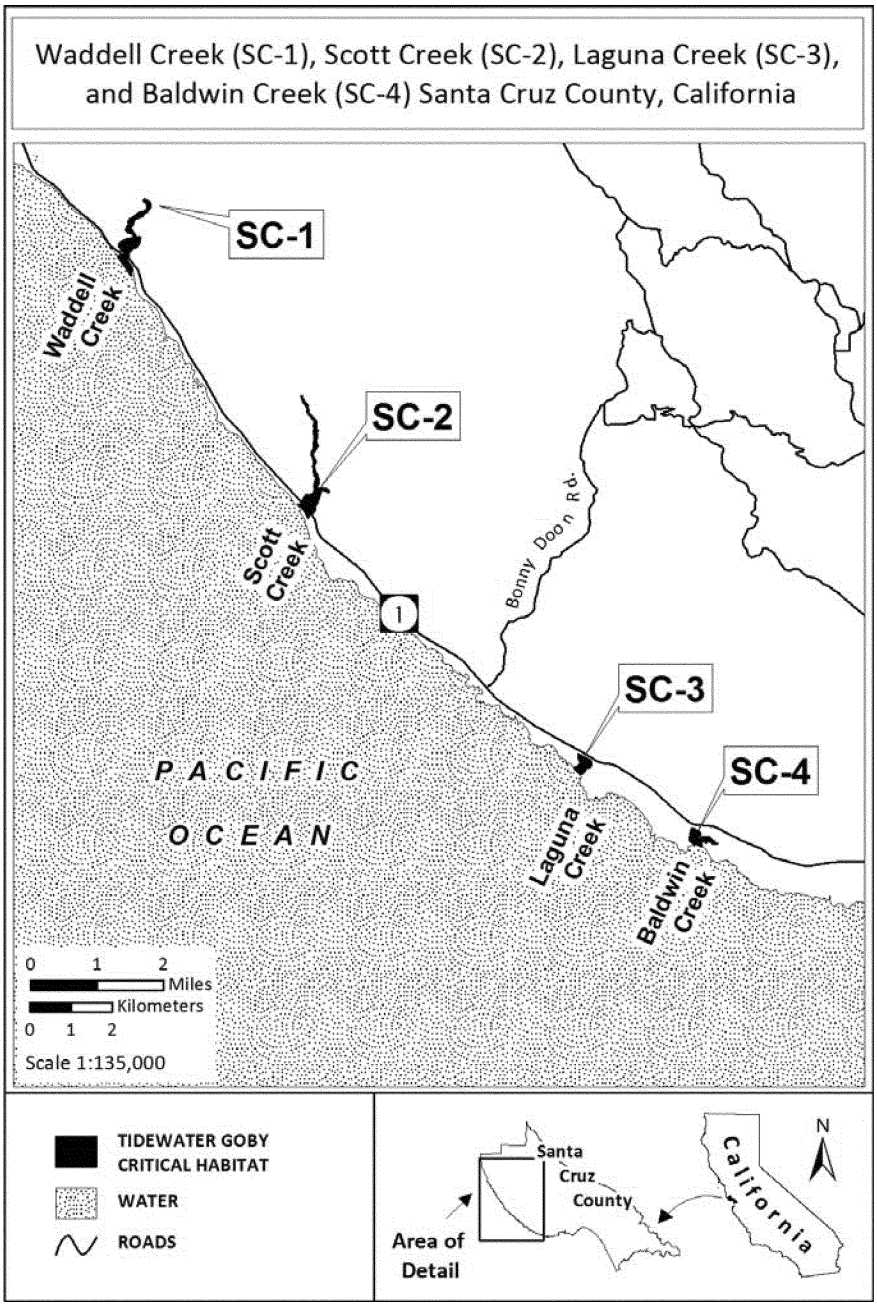
(26) Unit SM 3: Pescadero-Butano Creeks, San Mateo County, California. Map of Units SM 1, SM 2, SM 3, and SM 4 is provided at paragraph (24) of this entry.

(27) Unit SM 4: Bean Hollow Creek, San Mateo County, California. Map of Units SM 1, SM 2, SM 3, and SM 4 is provided at paragraph (24) of this entry.

(28) Index map of critical habitat units for the tidewater goby (*Eucyclogobius newberryi*) in Southern California follows:



(29) Unit SC 1: Waddell Creek, Santa Cruz County, California. Map of Unit SC 1, SC 2, SC 3, and SC 4 follows:

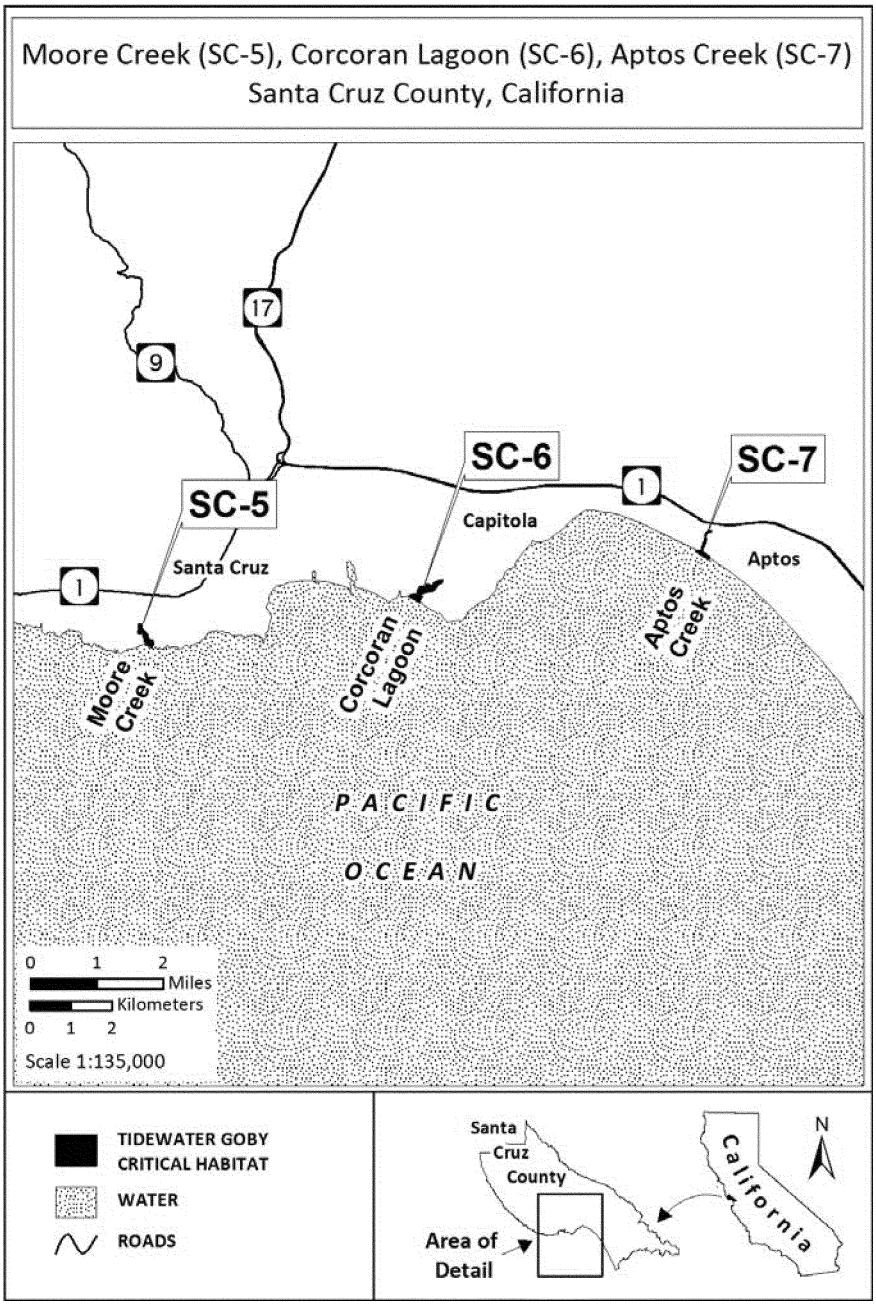


(30) Unit SC 2: Scott Creek, Santa Cruz County, California. Map of Units SC 1, SC 2, SC 3, and SC 4 is provided at paragraph (29) of this entry.

(31) Unit SC 3: Laguna Creek, Santa Cruz County, California. Map of Units SC 1, SC 2, SC 3, and SC 4 is provided at paragraph (29) of this entry.

(32) Unit SC 4: Baldwin Creek, Santa Cruz County, California. Map of Units SC 1, SC 2, SC 3, and SC 4 is provided at paragraph (29) of this entry.

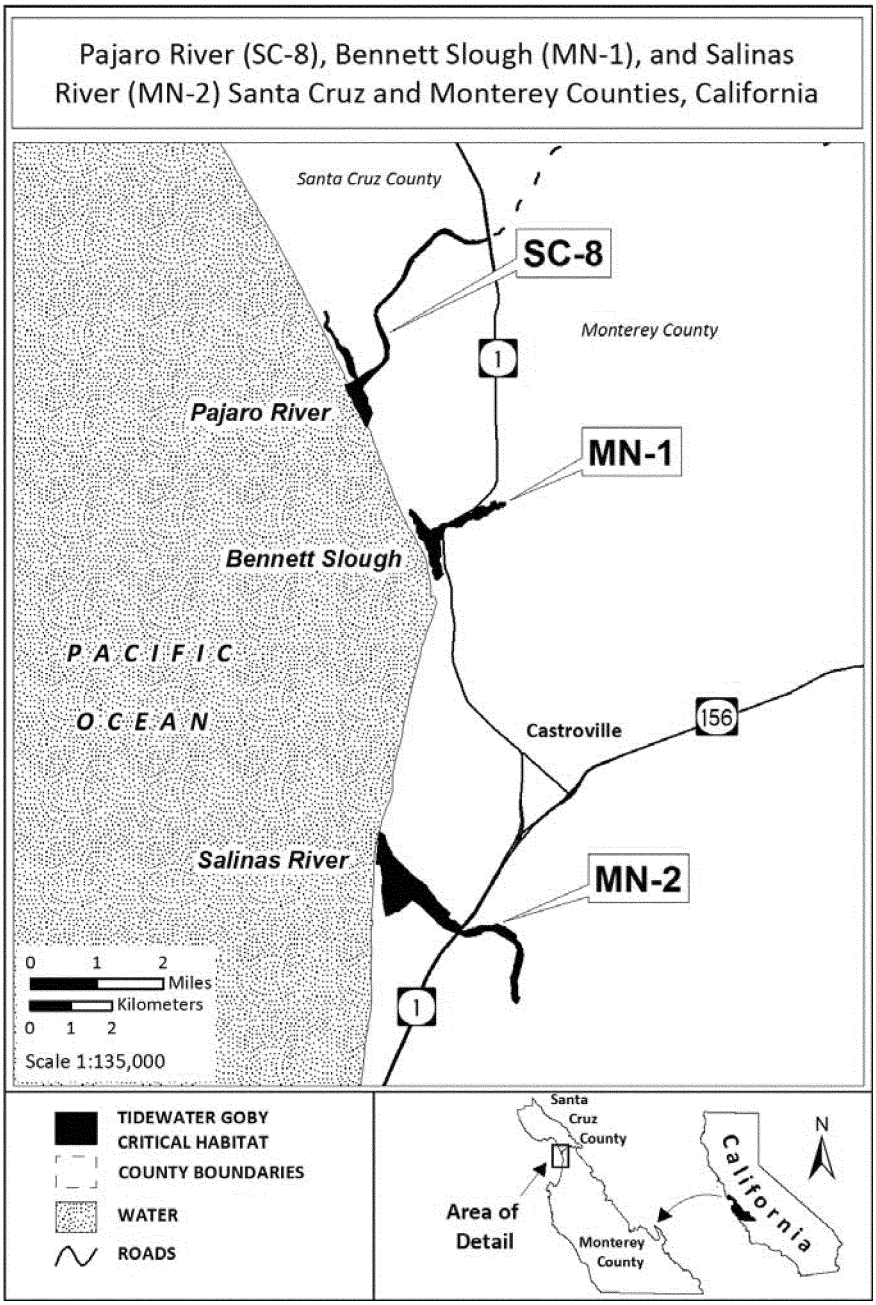
(33) Unit SC 5: Moore Creek, Santa Cruz County, California. Map of Units SC 5, SC 6, and SC 7 follows:



(34) Unit SC 6: Corcoran Lagoon, Santa Cruz County, California. Map of Units SC 5, SC 6, and SC 7 is provided at paragraph (33) of this entry.

(35) Unit SC 7: Aptos Creek, Santa Cruz County, California. Map of Units SC 5, SC 6, and SC 7 is provided at paragraph (33) of this entry.

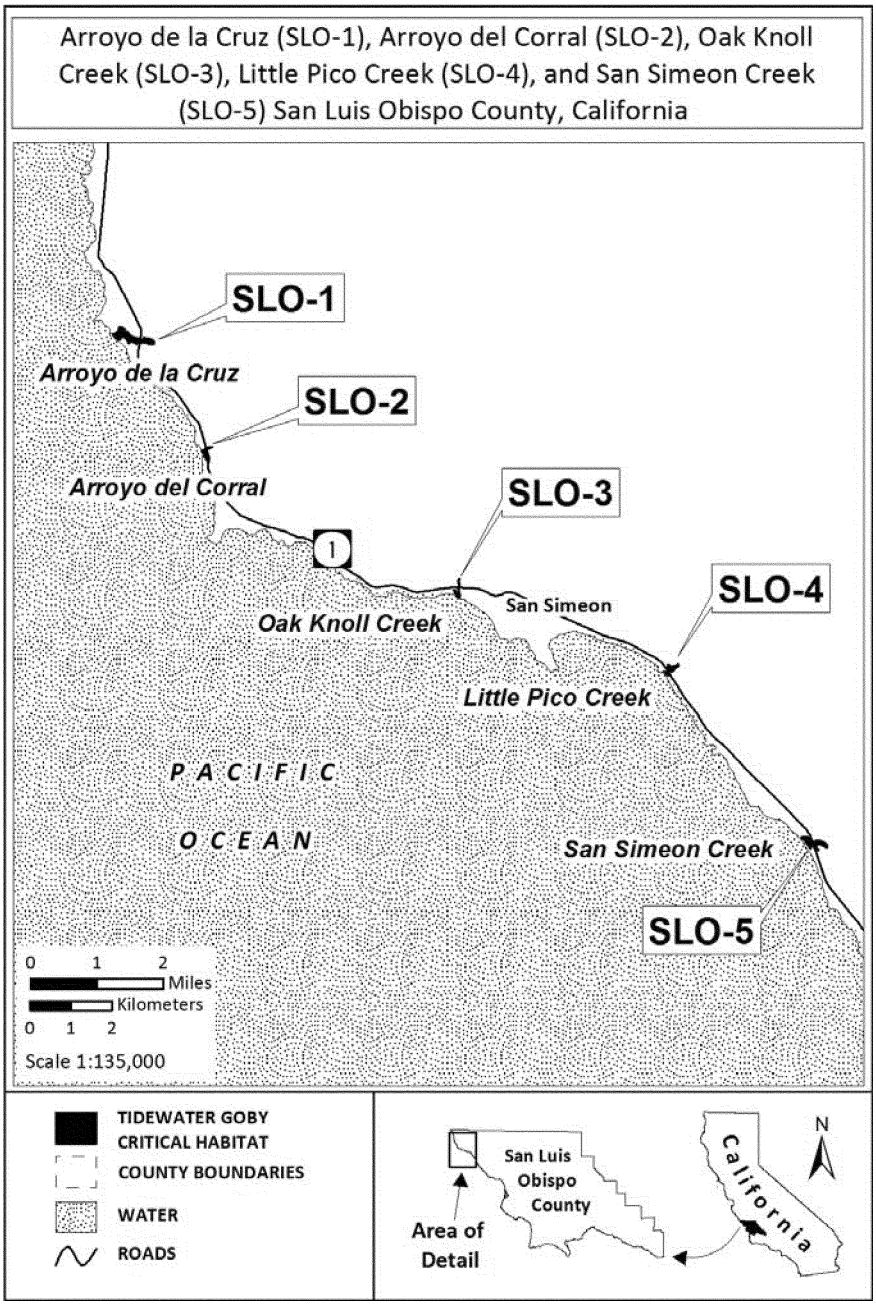
(36) Unit SC 8: Pajaro River, Santa Cruz County, California. Map of Units SC 8, MN 1, and MN 2 follows:



(37) Unit MN 1: Bennett Slough, Monterey County, California. Map of Units SC 8, MN 1, and MN 2 is provided at paragraph (36) of this entry.

(38) Unit MN 2: Salinas River, Monterey County, California. Map of Units SC 8, MN 1, and MN 2 is provided at paragraph (36) of this entry.

(39) Unit SLO 1: Arroyo de la Cruz, San Luis Obispo County, California. Map of Unit SLO 1, SLO 2, SLO 3, SLO 4, and SLO 5 follows:



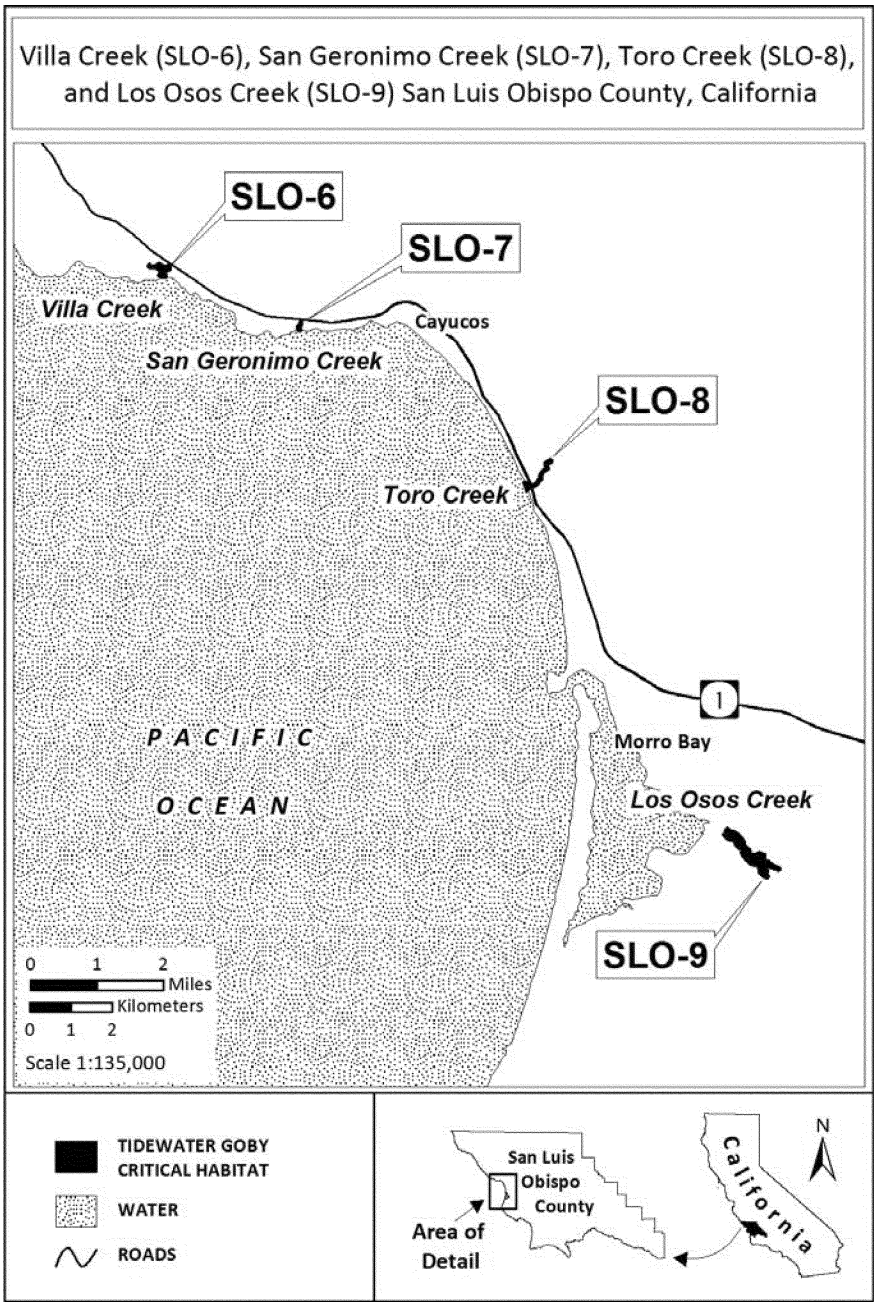
(40) Unit SLO 2: Arroyo del Corral, San Luis Obispo County, California. Map of Units SLO 1, SLO 2, SLO 3, SLO 4 and SLO 5 is provided at paragraph (39) of this entry.

(41) Unit SLO 3: Oak Knoll Creek, San Luis Obispo County, California. Map of Units SLO 1, SLO 2, SLO 3, SLO 4 and SLO 5 is provided at paragraph (39) of this entry.

(42) Unit SLO 4: Little Pico Creek, San Luis Obispo County, California. Map of Units SLO 1, SLO 2, SLO 3, SLO 4 and SLO 5 is provided at paragraph (39) of this entry.

(43) Unit SLO 5: San Simeon Creek, San Luis Obispo County, California. Map of Units SLO 1, SLO 2, SLO 3, SLO 4 and SLO 5 is provided at paragraph (39) of this entry.

(44) Unit SLO 6: Villa Creek, San Luis Obispo County, California. Map of Units SLO 6, SLO 7, SLO 8 and SLO 9 follows:

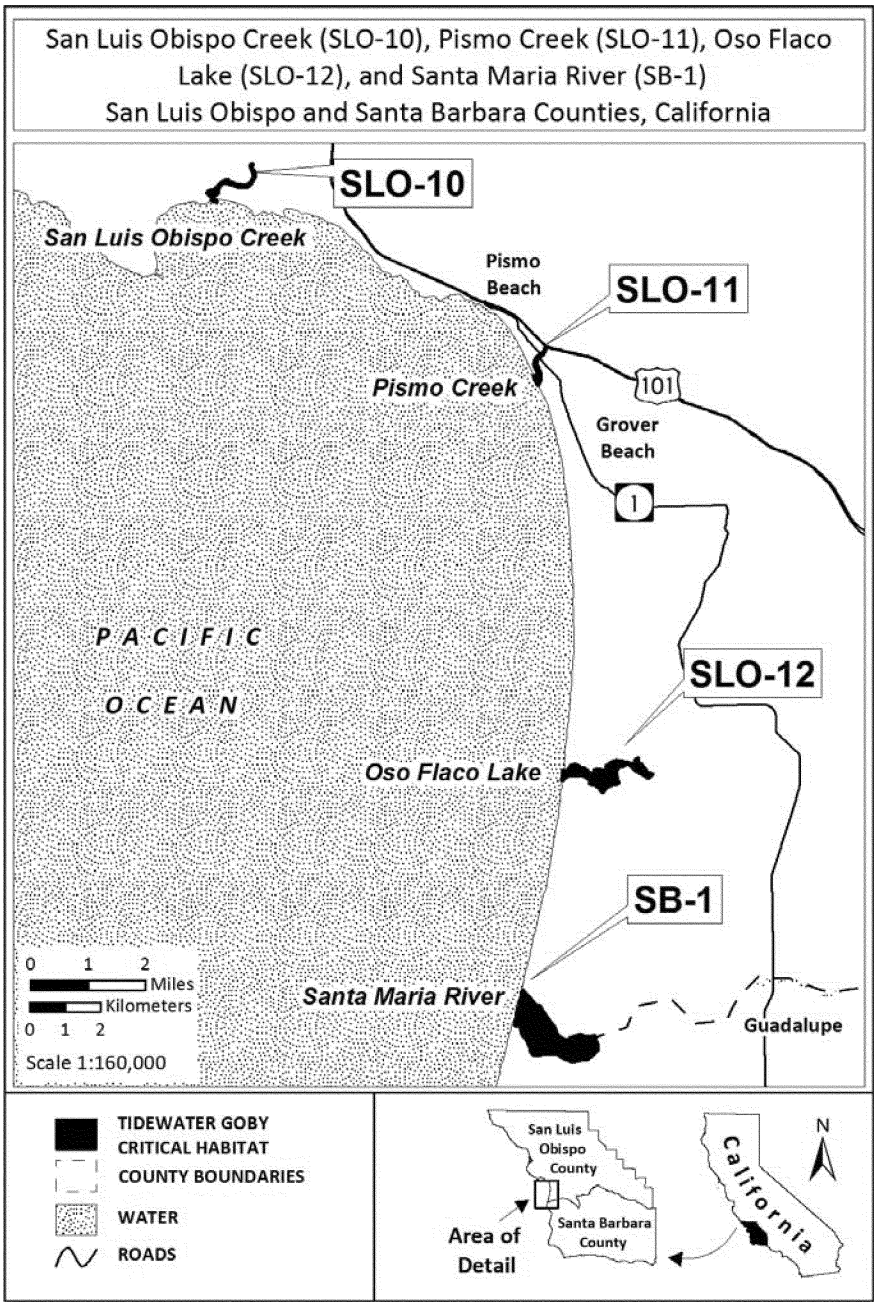


(45) Unit SLO 7: San Geronimo Creek, San Luis Obispo County, California. Map of Units SLO 6, SLO 7, SLO 8, and SLO 9 is provided at paragraph (44) of this entry.

(46) Unit SLO 8: Toro Creek, San Luis Obispo County, California. Map of Units SLO 6, SLO 7, SLO 8, and SLO 9 is provided at paragraph (44) of this entry.

(47) Unit SLO 9: Los Osos Creek, San Luis Obispo County, California. Map of Units SLO 6, SLO 7, SLO 8, and SLO 9 is provided at paragraph (44) of this entry.

(48) Unit SLO 10: San Luis Obispo Creek, San Luis Obispo County, California. Map of Units SLO 10, SLO 11, SLO 12, and SB 1 follows:

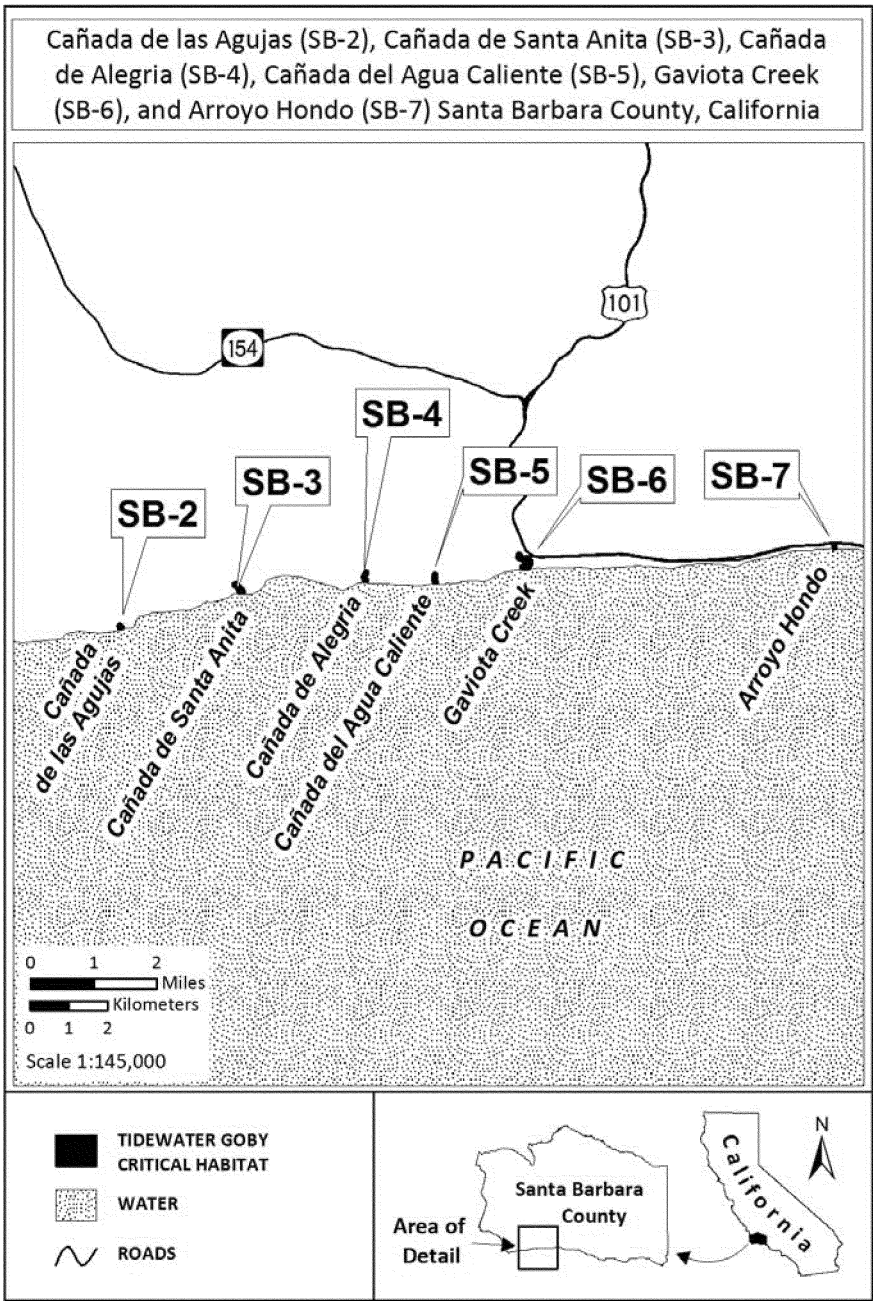


(49) Unit SLO 11: Pismo Creek, San Luis Obispo County, California. Map of Units SLO 10, SLO 11, SLO 12, and SB 1 is provided at paragraph (48) of this entry.

(50) Unit SLO 12: Oso Flaco Lake, San Luis Obispo County, California. Map of Units SLO 10, SLO 11, SLO 12, and SB 1 is provided at paragraph (48) of this entry.

(51) Unit SB 1: Santa Maria River, San Luis Obispo County, California. Map of Units SLO 10, SLO 11, SLO 12, and SB 1 is provided at paragraph (48) of this entry.

(52) Unit SB 2: Cañada de las Agujas, Santa Barbara County, California. Map of Units SB 2, SB 3, SB 4, SB 5, SB 6, and SB 7 follows:



(53) Unit SB 3: Cañada de Santa Anita, Santa Barbara County, California. Map of Units SB 2, SB 3, SB 4, SB 5, SB 6, and SB 7 is provided at paragraph (52) of this entry.

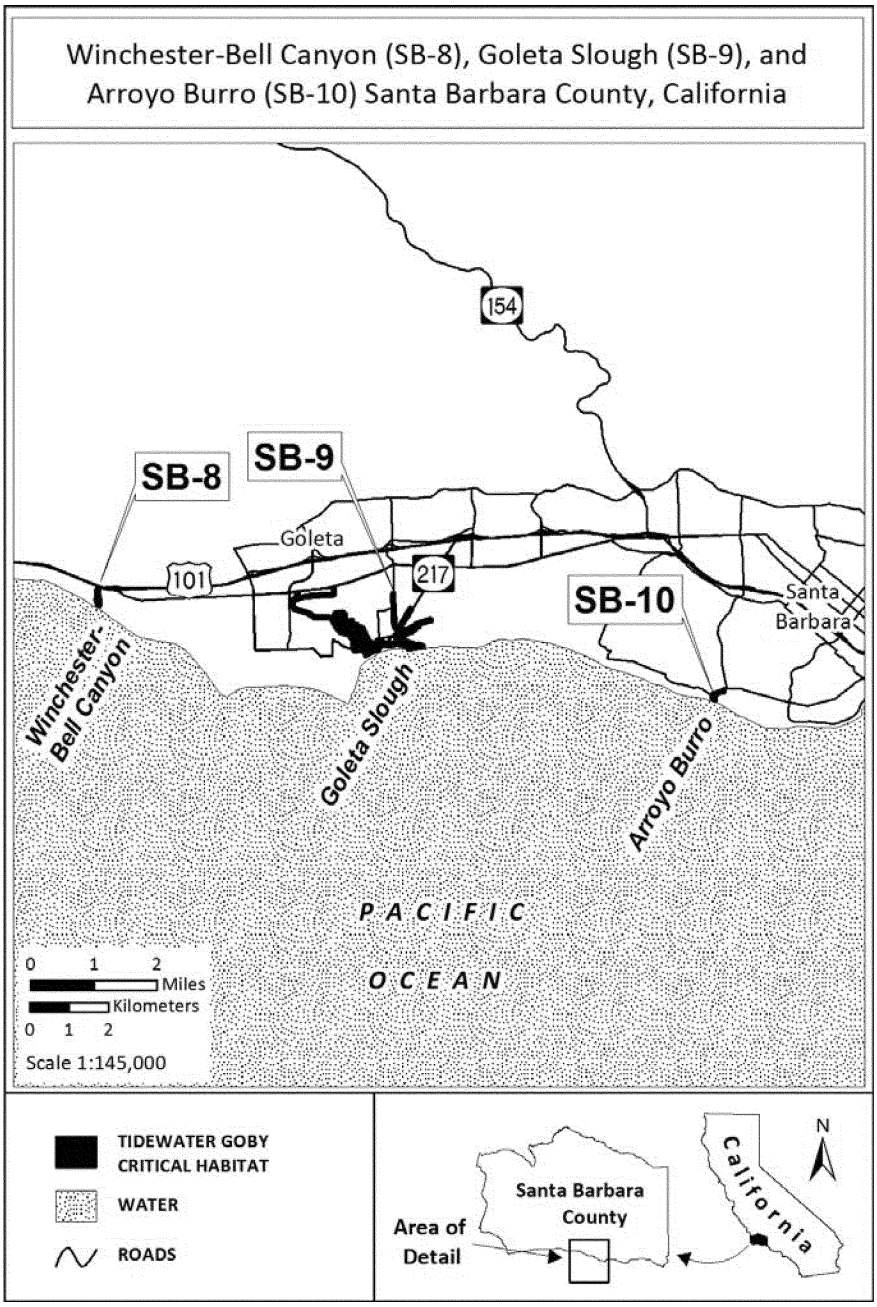
(54) Unit SB 4: Cañada de Alegria, Santa Barbara County, California. Map of Units SB 2, SB 3, SB 4, SB 5, SB 6, and SB 7 is provided at paragraph (52) of this entry.

(55) Unit SB 5: Cañada del Agua Caliente, Santa Barbara County, California. Map of Units SB 2, SB 3, SB 4, SB 5, SB 6, and SB 7 is provided at paragraph (52) of this entry.

(56) Unit SB 6: Gaviota Creek, Santa Barbara County, California. Map of Units SB 2, SB 3, SB 4, SB 5, SB 6, and SB 7 is provided at paragraph (52) of this entry.

(57) Unit SB 7: Arroyo Hondo, Santa Barbara County, California. Map of Units SB 2, SB 3, SB 4, SB 5, SB 6, and SB 7 is provided at paragraph (52) of this entry.

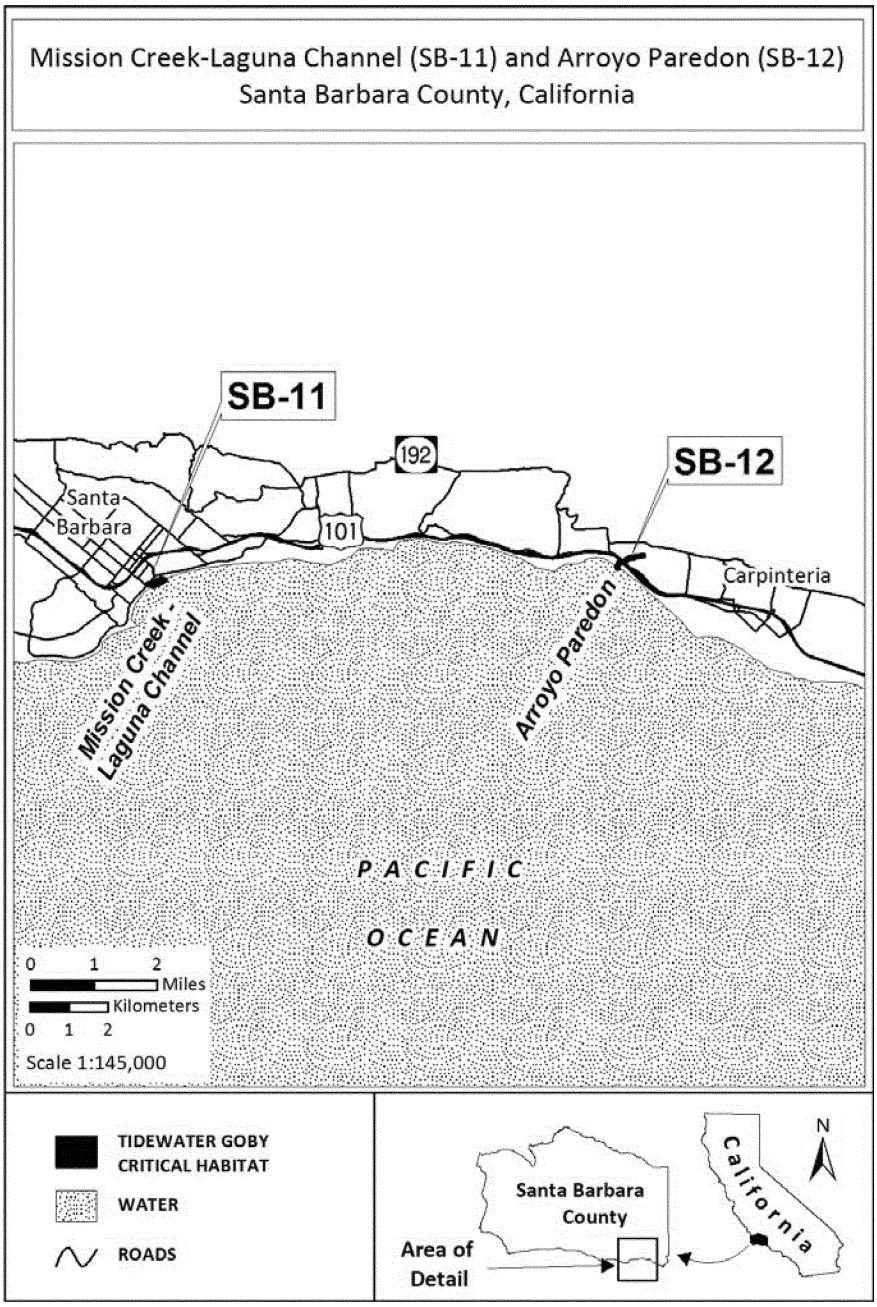
(58) Unit SB 8: Winchester-Bell Canyon, Santa Barbara County, California. Map of SB 8, SB 9, and SB 10 follows:



(59) Unit SB 9: Goleta Slough, Santa Barbara County, California. Map of Units SB 8, SB 9, and SB 10 is provided at paragraph (58) of this entry.

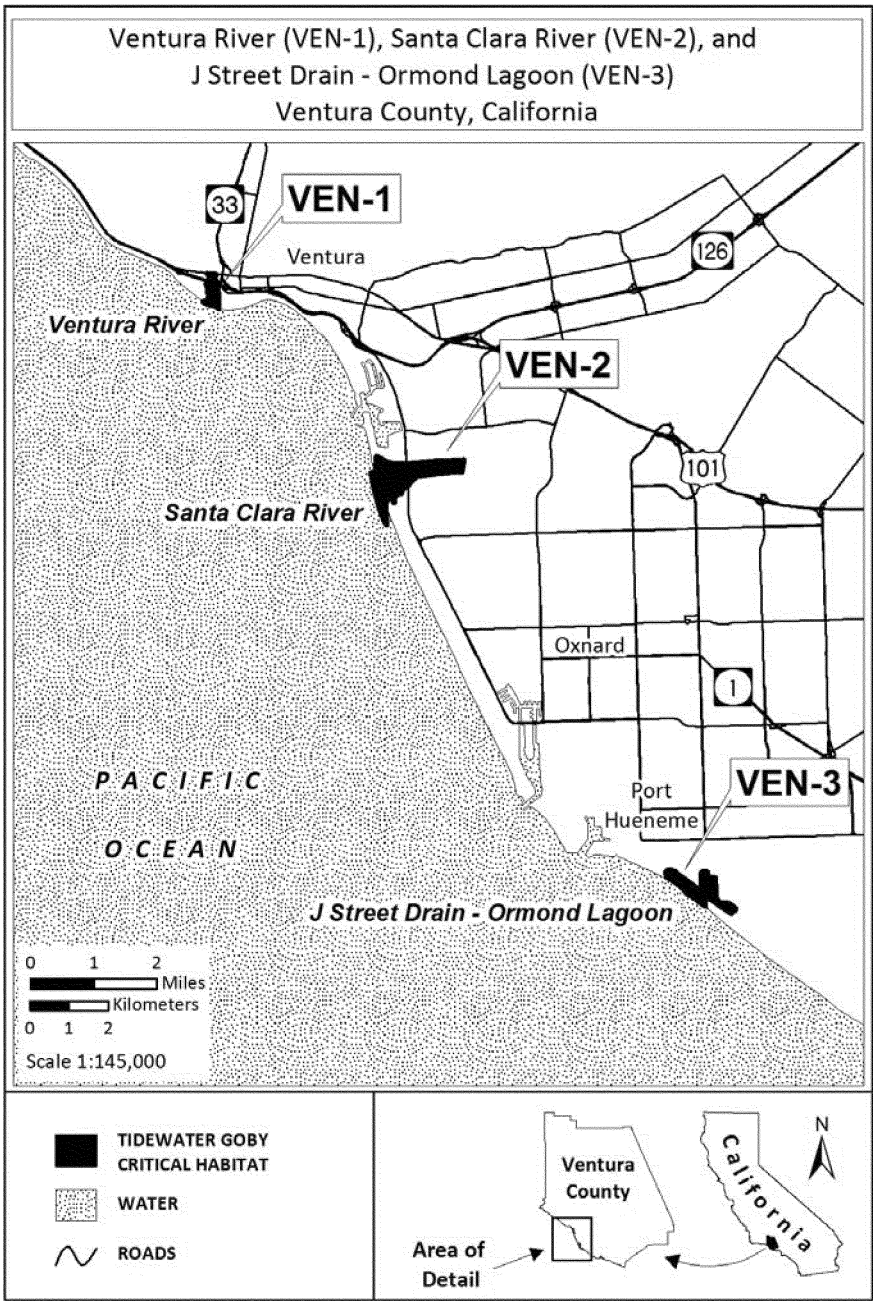
(60) Unit SB 10: Arroyo Burro, Santa Barbara County, California. Map of Units SB 8, SB 9, and SB 10 is provided at paragraph (58) of this entry.

(61) Unit SB 11: Mission Creek—Laguna Channel, Santa Barbara County, California. Map of Units SB 11 and SB 12 follows:



(62) Unit SB 12: Arroyo Paredon, Santa Barbara County, California. Map of Units SB 11 and SB 12 is provided at paragraph (61) of this entry.

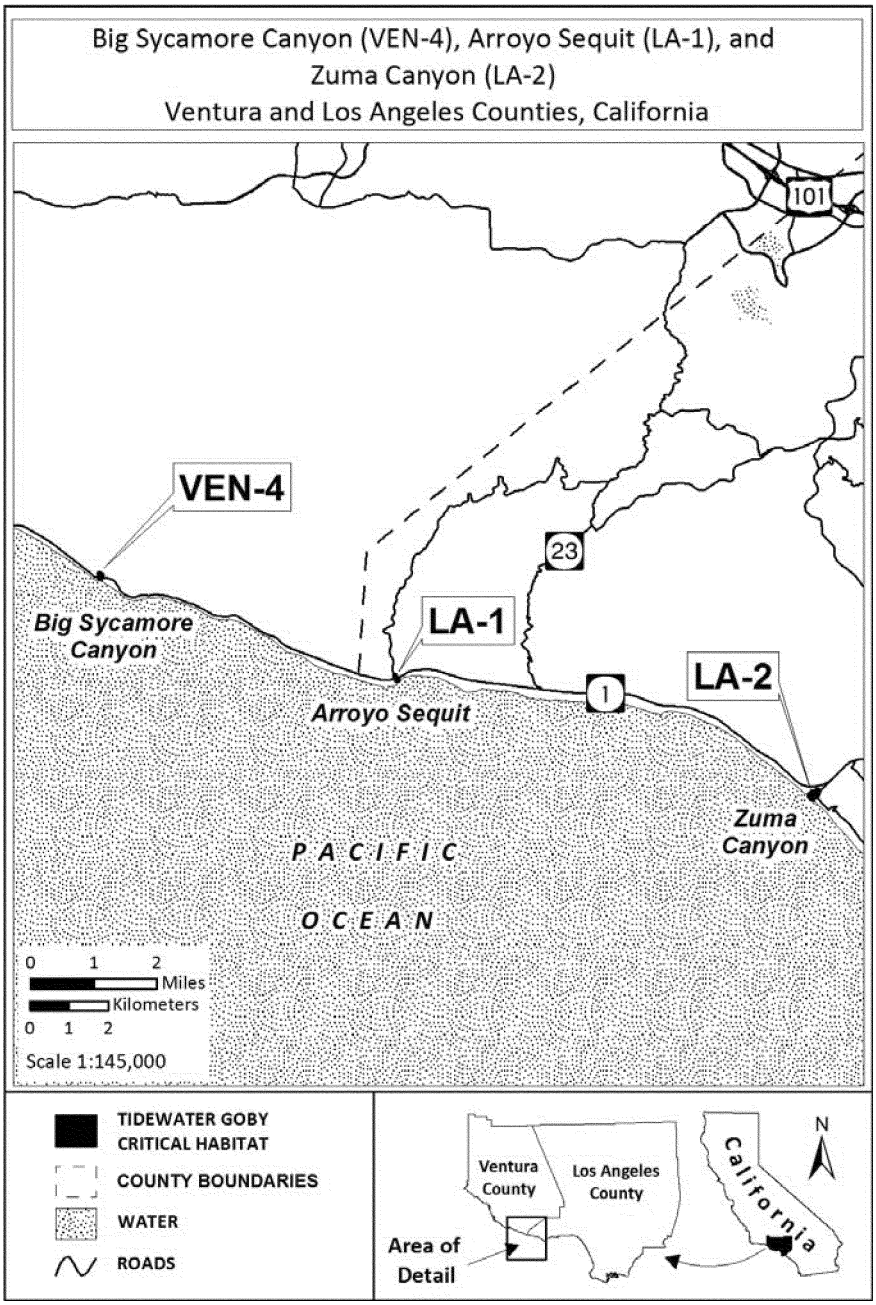
(63) Unit VEN 1: Ventura River, Ventura County, California. Map of VEN 1, VEN 2, and VEN 3 follows:



(64) Unit VEN 2: Santa Clara River, Ventura County, California. Map of Units VEN 1, VEN 2, and VEN 3 is provided at paragraph (63) of this entry.

(65) Unit VEN 3: J Street Drain—Ormond Lagoon, Ventura County, California. Map of Units VEN 1, VEN 2, and VEN 3 is provided at paragraph (63) of this entry.

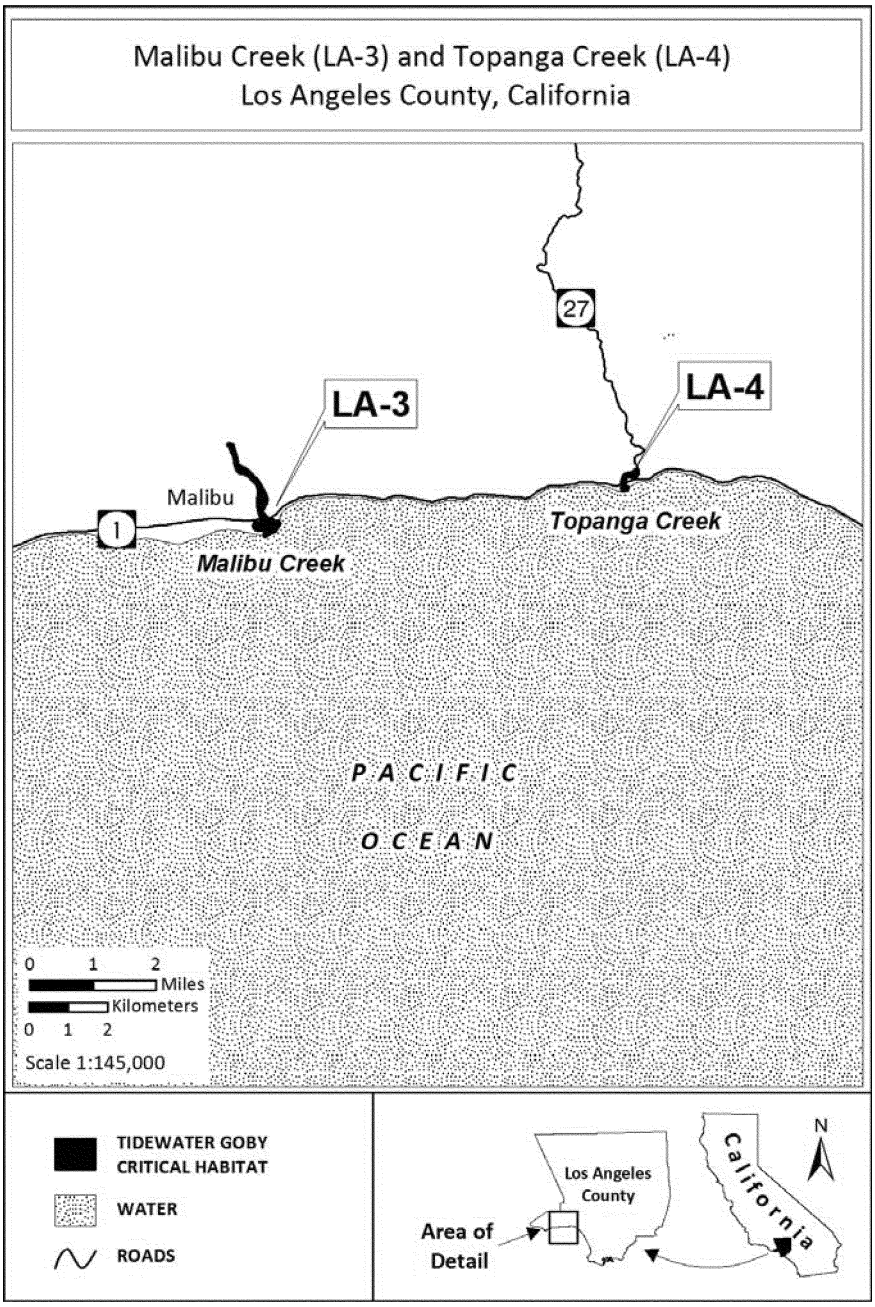
(66) Unit VEN 4: Big Sycamore Canyon, Ventura County, California. Map of Units VEN 1, LA 1, and LA 2 follows:



(67) Unit LA 1: Arroyo Sequit, Los Angeles County, California. Map of Units VEN 4, LA 1, and LA 2 is provided at paragraph (66) of this entry.

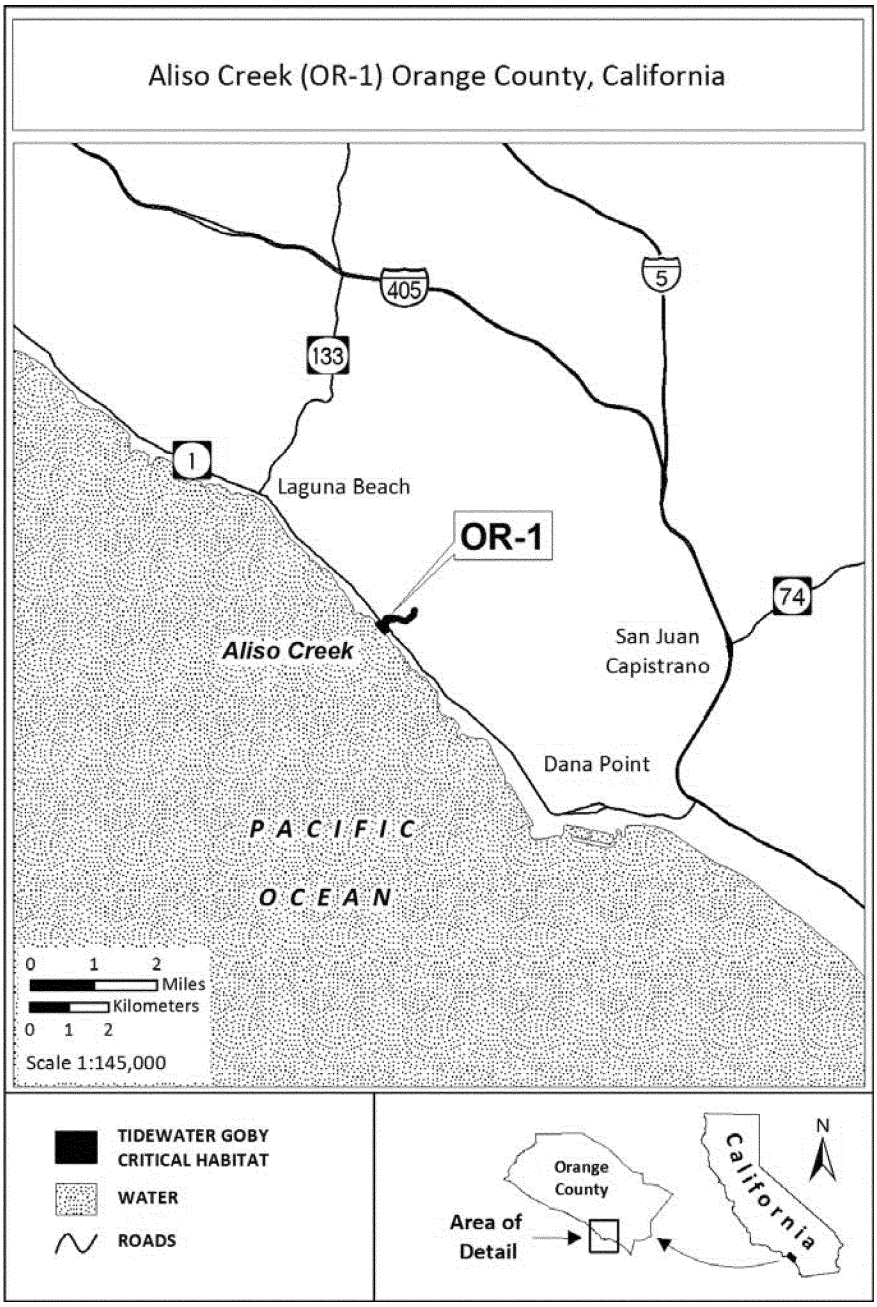
(68) Unit LA 2: Zuma Canyon, Los Angeles County, California. Map of Units VEN 4, LA 1, and LA 2 is provided at paragraph (66) of this entry.

(69) Unit LA 3: Malibu Creek, Los Angeles County, California. Map of Units LA 3, and LA 4 follows:

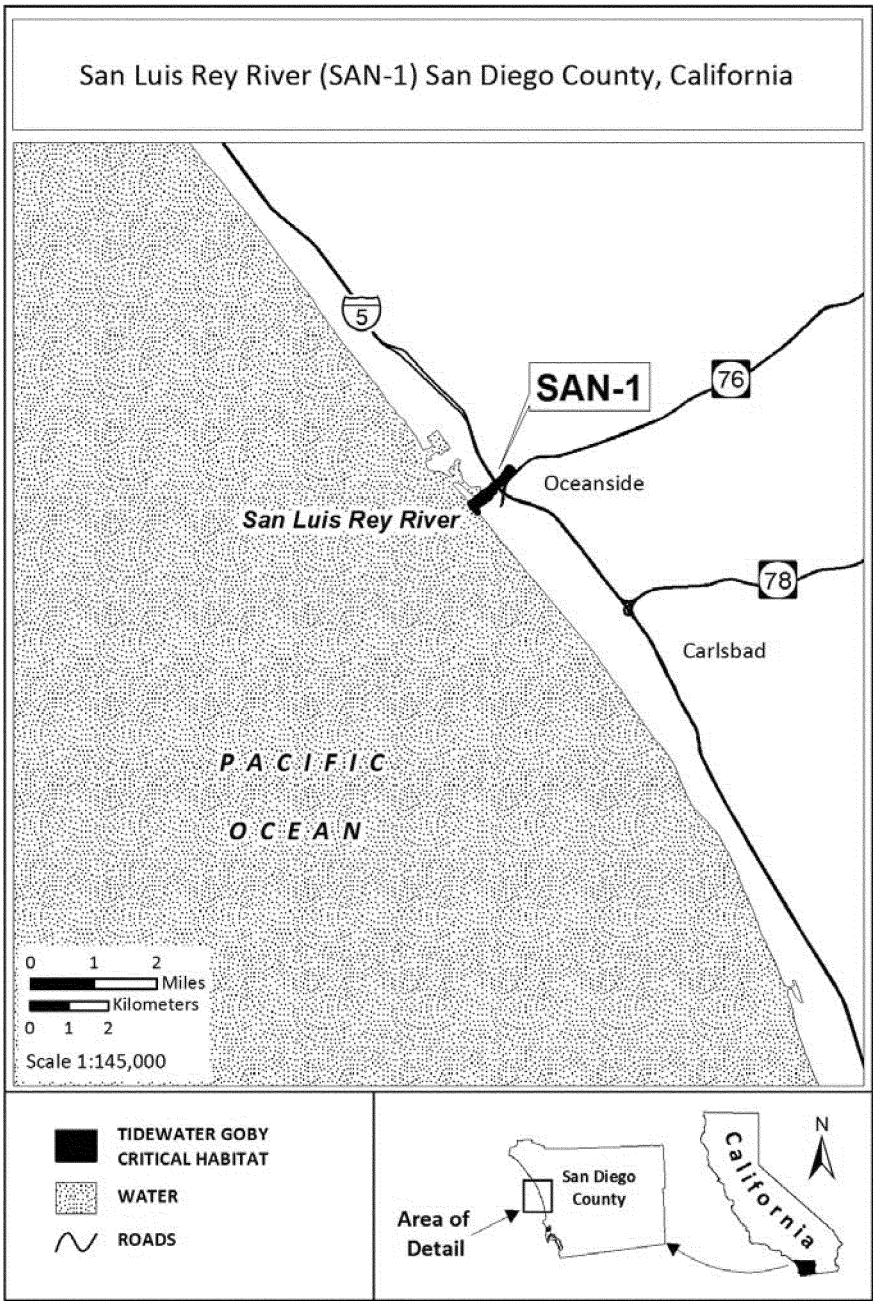


(70) Unit LA 4: Topanga Creek, Los Angeles County, California. Map of Units LA 3, and LA 4 is provided at paragraph (69) of this entry.

(71) Unit OR 1: Aliso Creek, Orange County, California. Map of Unit OR 1 follows:



(72) Unit SAN 1: San Luis Rey River, San Diego County, California. Map of Unit SAN 1 follows:



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Dated: November 26, 2012.

Eileen Sobeck,

Deputy Assistant Secretary for Fish and Wildlife and Parks.

[FR Doc. 2013–02057 Filed 2–5–13; 8:45 am]

BILLING CODE 4310–55–C