

13. Santa Catalina Gulf Coast Biogeographic Population Group

*"[D]espite the current rarity of the anadromous form in this region, there appears to be time and opportunity to restore it to many creeks and rivers, by providing the existing *O. mykiss* populations the opportunity to once again express the anadromous life-history."*

Dr. David A. Boughton, Chair, NOAA Fisheries South-Central/Southern California Steelhead Technical Recovery Team, 2010

13.1 LOCATION AND PHYSICAL CHARACTERISTICS

The Santa Catalina Gulf Coast BPG region encompasses ten coastal watersheds of moderate size that drain the western slopes of the Santa Ana Mountains and Peninsular Range in southwestern Orange and Riverside counties southward through San Diego County to the United States-Mexico border (Figure 13-1). The upper portions of almost all of these watersheds include steep, mountainous regions and the lower watersheds cut across coastal terraces. Two watersheds, the Sweetwater River and Otay River, drain into San Diego Bay; the other eight watersheds drain directly into the Pacific Ocean. The component watersheds vary greatly in size (*e.g.*, the San Luis Rey River watershed is twelve times the size of the San Onofre Creek watershed). In addition to the major watersheds considered here, there are a number of smaller watersheds within this BPG (*e.g.*, Aliso, Escondido, Los Penasquitos, and Rose Canyon Creeks) which may also be used by

steelhead when water conditions are favorable.



Santa Ana Mountains

Average annual precipitation in this region is relatively low and is spatially variable (Table 13-1). The coastal terrace portion of each of these watersheds receives significantly less rainfall than the interior montane portions. For example, the average annual total precipitation for the City of San Diego is about 9.9 inches, approximately half the average for the San Diego River watershed as a whole. Because of low rainfall, many of the drainages in this BPG

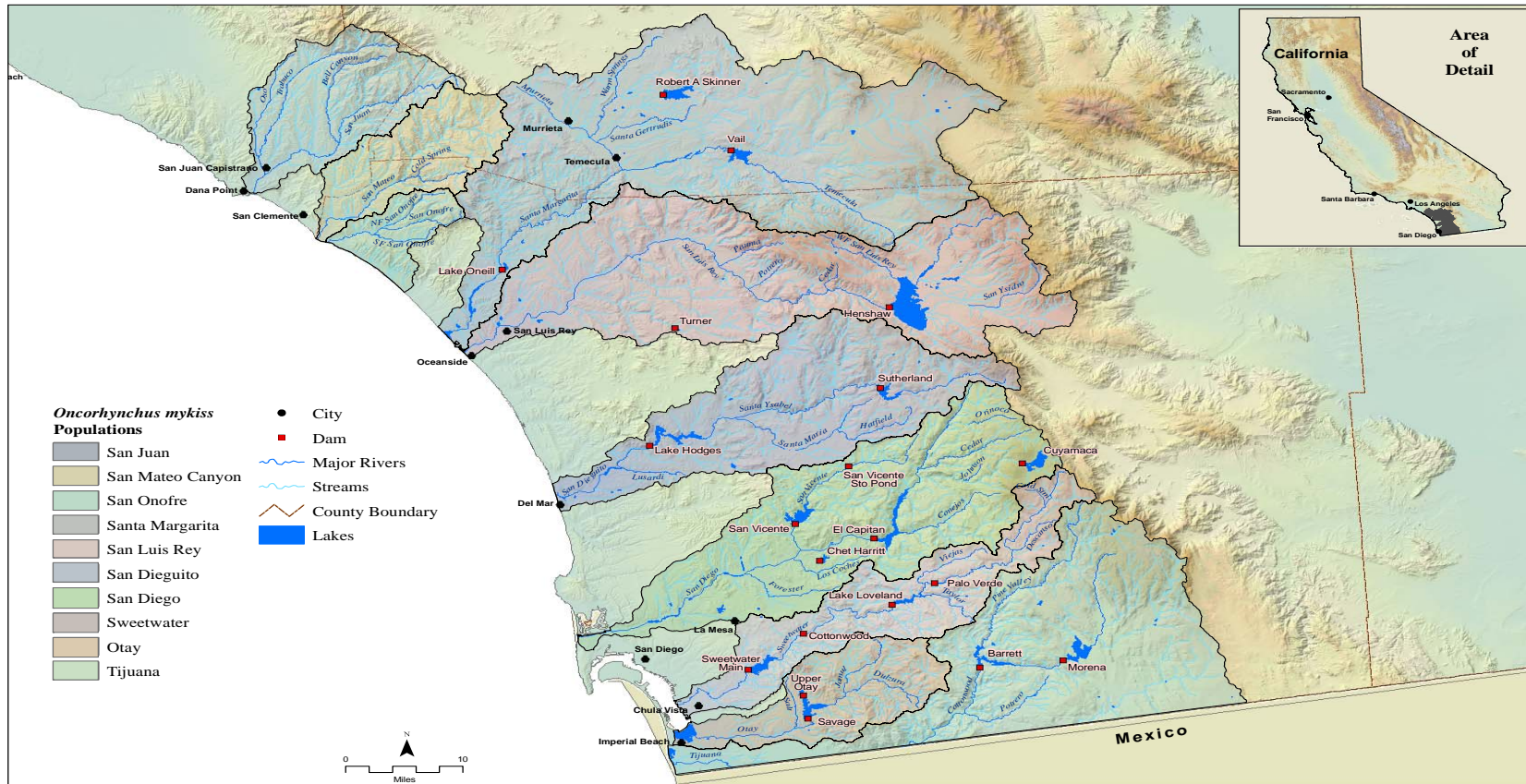


Figure 13-1. The Santa Catalina Gulf Coast BPG region. Ten steelhead populations/watersheds were analyzed in this region: San Juan, Sana Mateo, San Onofre Creek, and Santa Margarita, San Luis Rey, San Dieguito, San Diego, Sweetwater, Otay, and Tijuana Rivers.

Table 13-1. Physical and Land Use Characteristics of Major Watersheds in the Santa Catalina Gulf Coast BPG region.

PHYSICAL CHARACTERISTICS						LAND USE			
WATERSHEDS (north to south)	Area (acres) ¹	Area (sq. miles) ¹	Stream Length ² (miles)	Ave. Ann. Rainfall ³ (inches)	Total Human Population ⁴	Public Ownership*	Urban Area ⁵	Agriculture/ Barren ⁵	Open Space ⁵
San Juan Creek	113,977	178	280	12.5	191,997	37%	23%	7%	70%
San Mateo Creek	85,964	134	200	13.3	4,011	48%	3%	2%	95%
San Onofre Creek	37,617	59	86	14.0	4,981	---	6%	< 1%	94%
Santa Margarita River	472,633	738	949	15.6	181,376	10%	10%	13%	77%
San Luis Rey River	367,329	574	749	17.8	147,782	11%	8%	19%	73%
San Dieguito River	223,155	349	432	18.3	129,475	11%	18%	10%	72%
San Diego River	281,059	439	537	18.0	500,469	17%	26%	2%	72%
Sweetwater River	142,511	223	271	17.7	249,589	15%	27%	1%	72%
Otay River	93,504	146	256	16.7	122,342	---	16%	9%	75%
Tijuana River	301,649	471	475	17.3	75,117 (US Only)	38%	5%	2%	93%
TOTAL or AVERAGE	2,119,398	3,311	4,235	16.1	1,607,140	---	14%	7%	79%

¹ From: CDFFP CalWater 2.2 Watershed delineation, 1999 (www.ca.nrcs.usda.gov/features/calwater/)

² From: CDFG 1:1,000,000 Routed stream network, 2003 (www.calfish.org/)

³ From: USGS Hydrologic landscape regions of the U.S., 2003 (1 km grid cells)

⁴ From: CDFFP Census 2000 block data (migrated), 2003; preliminary analysis of Census 2010 indicates the population in the BPG has increased to 2,022,805

⁵ From: CDFFP Multi-source land cover data (v02_2), 2002 (100 m grid cells) (<http://frap.cdf.ca.gov/data/frapgisdata/select.asp>)

* Includes National Forest Lands only; does not include State or County Parks or Military Reservations (from: <http://old.casil.ucdavis.edu/casil/gis.ca.gov/teale/govtowna/>)

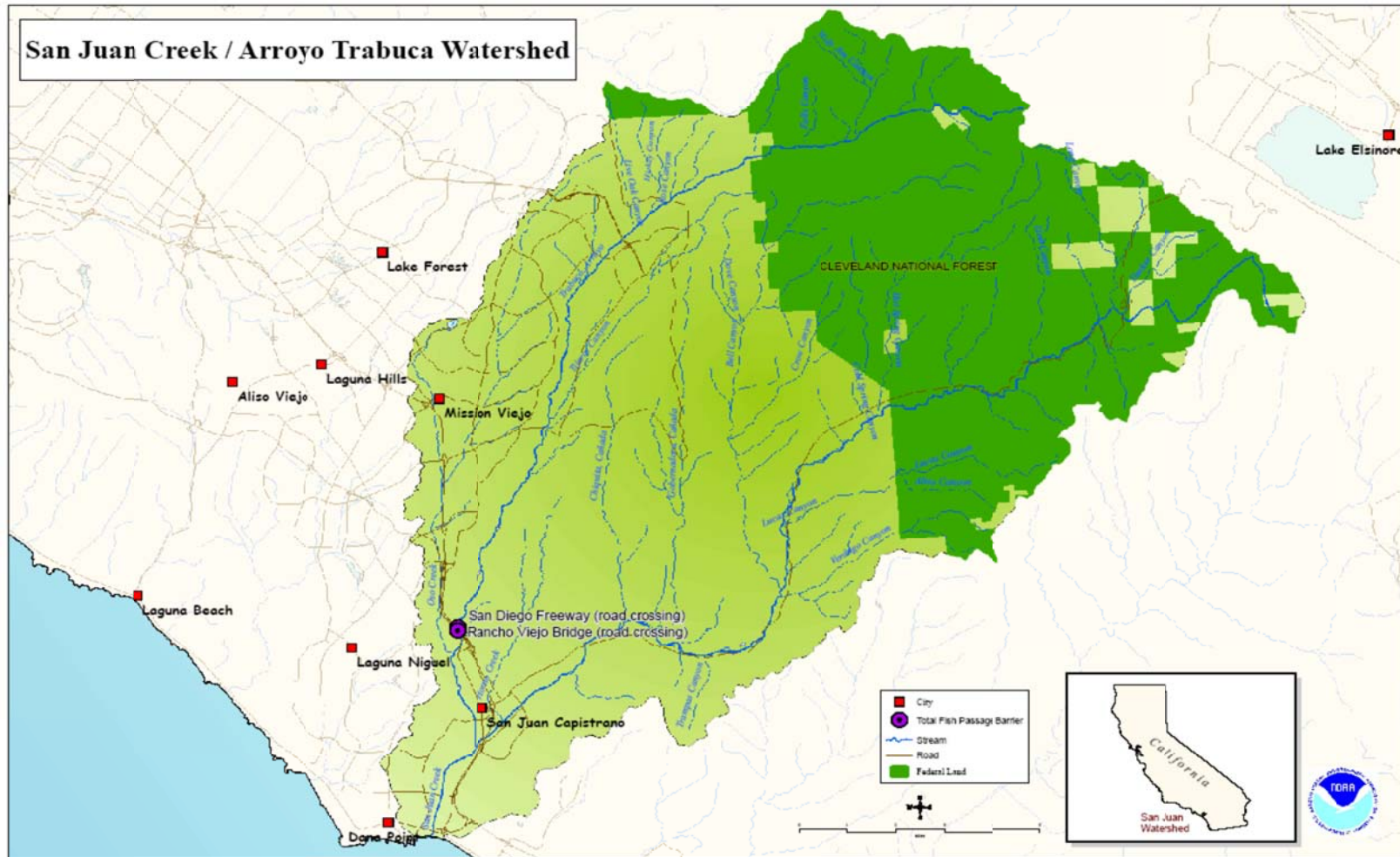


Figure 13-2. The San Juan Creek / Arroyo Trabuca Watershed.

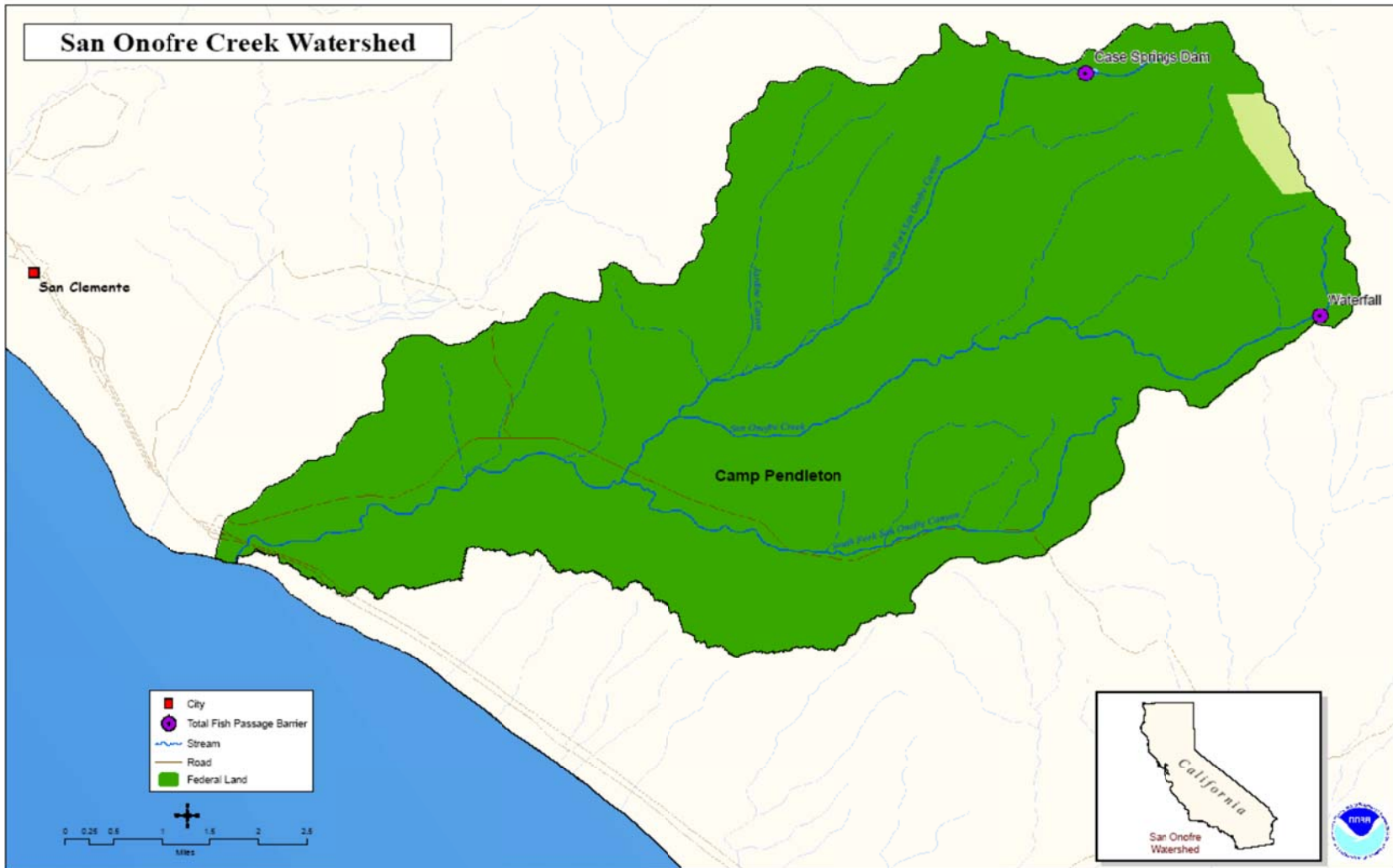


Figure 13-3. The San Onofre Creek Watershed.

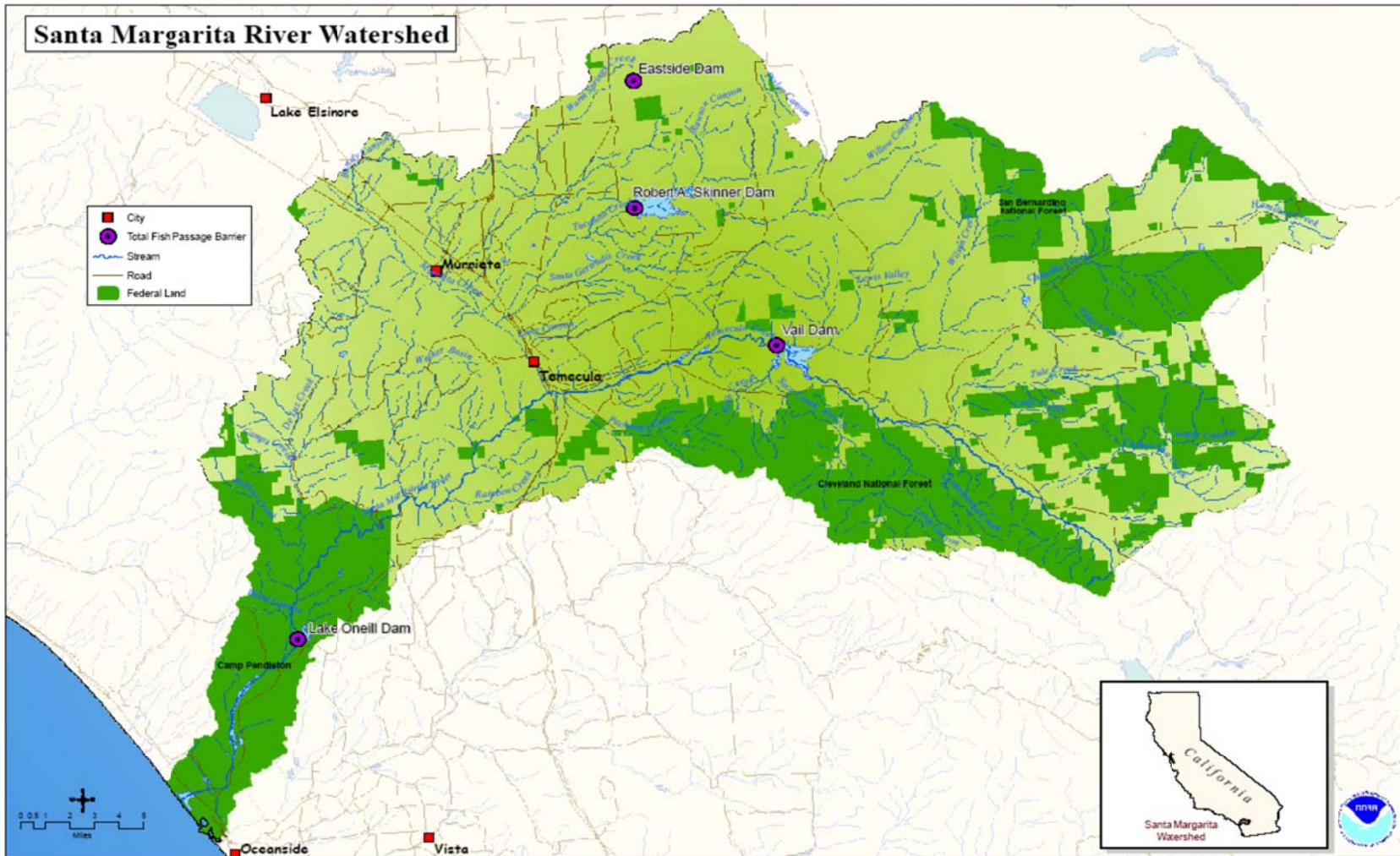


Figure 13-4. The Santa Margarita River Watershed.

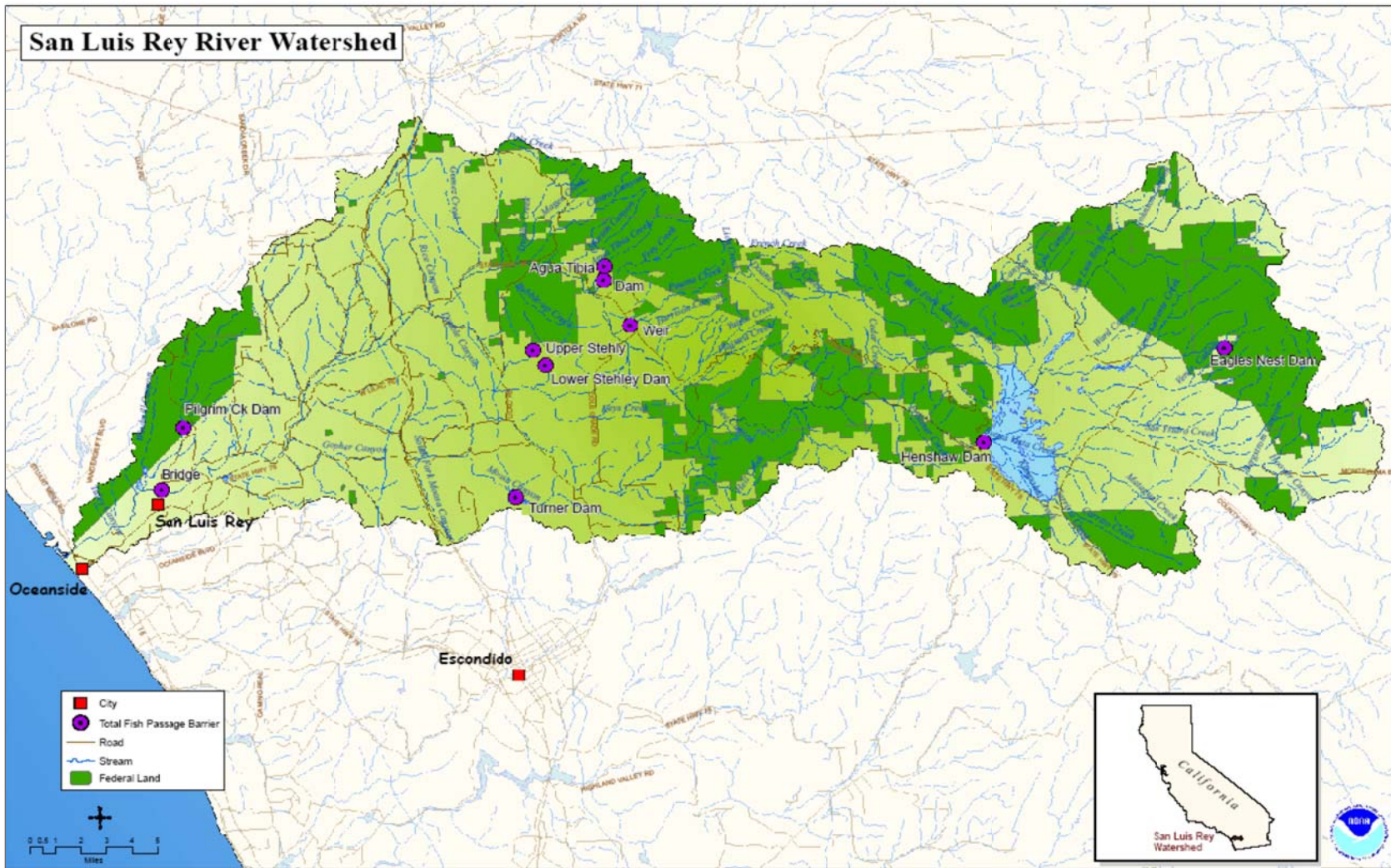


Figure 13-5. The San Luis Rey River Watershed.

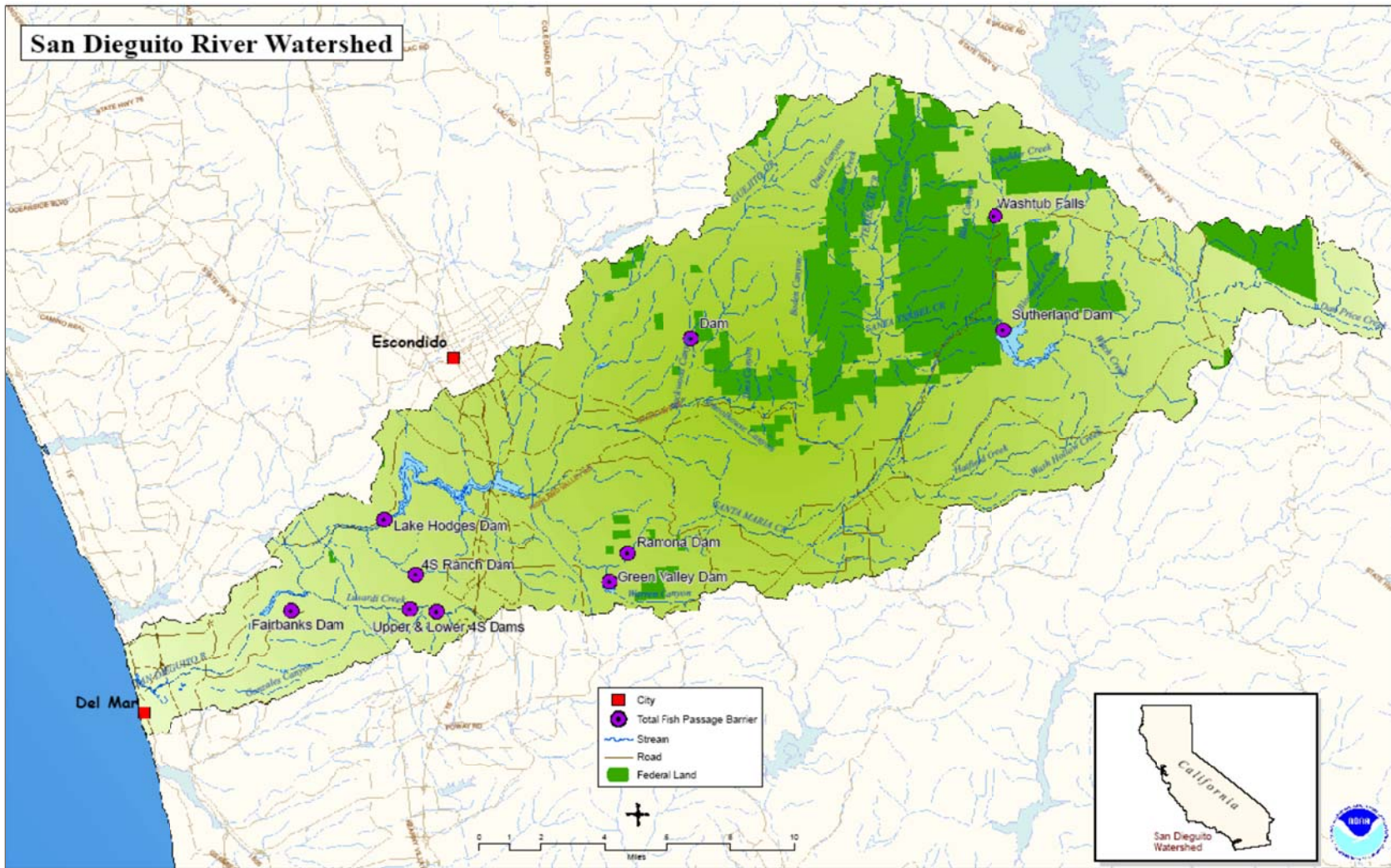


Figure 13-6. The San Dieguito River Watershed.

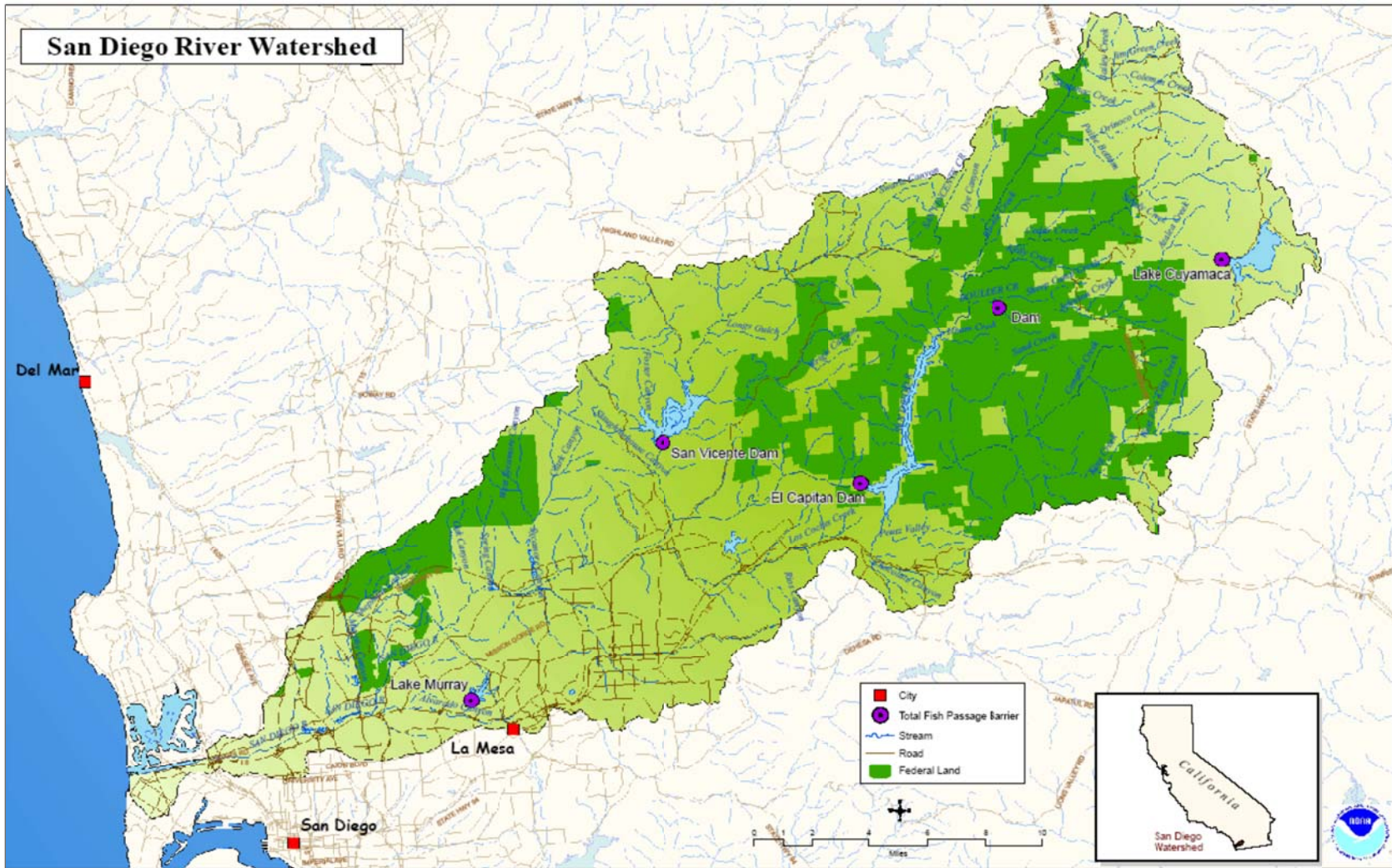


Figure 13-7. The San Diego River Watershed.

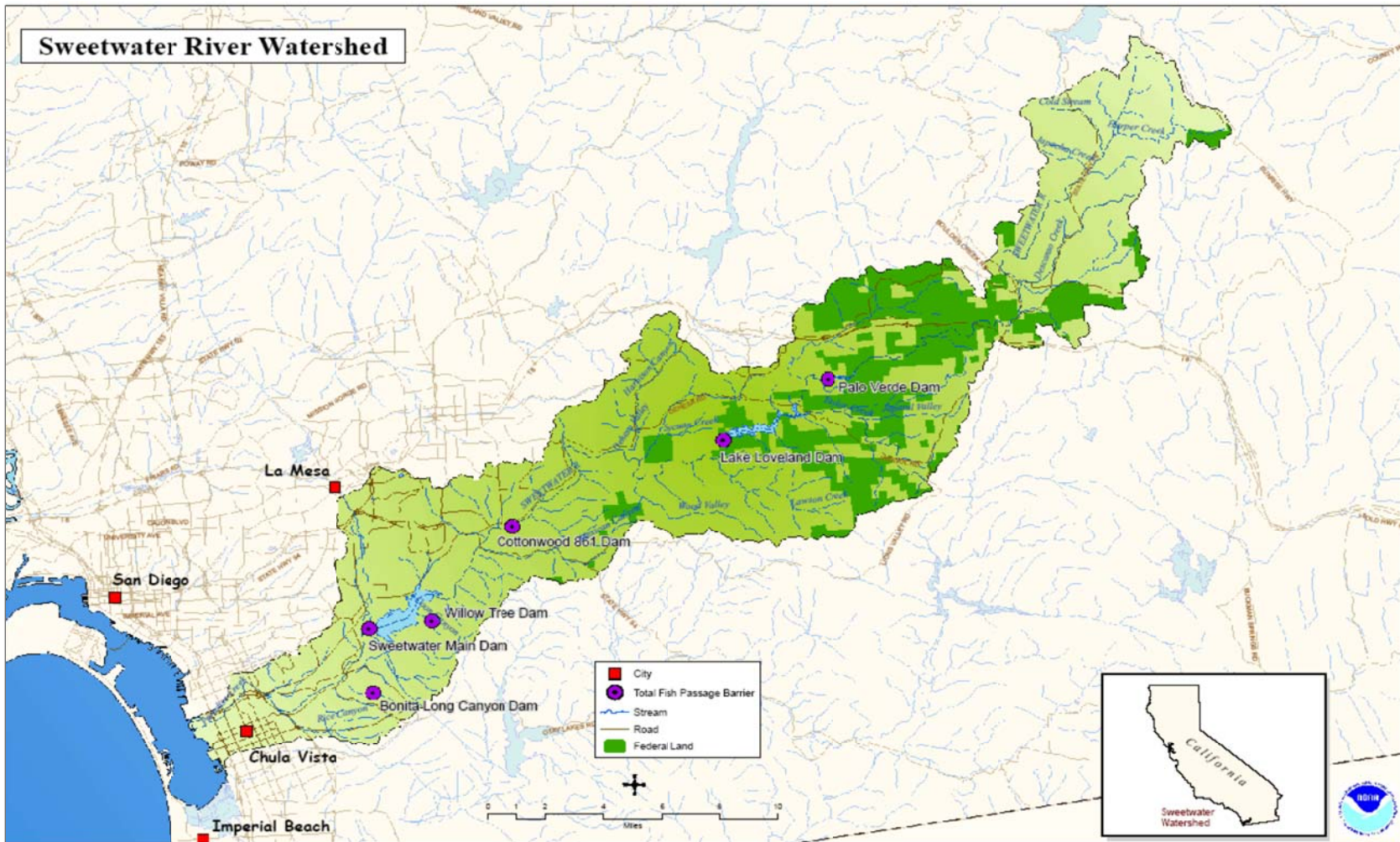


Figure 13-8. The Sweetwater River Watershed.

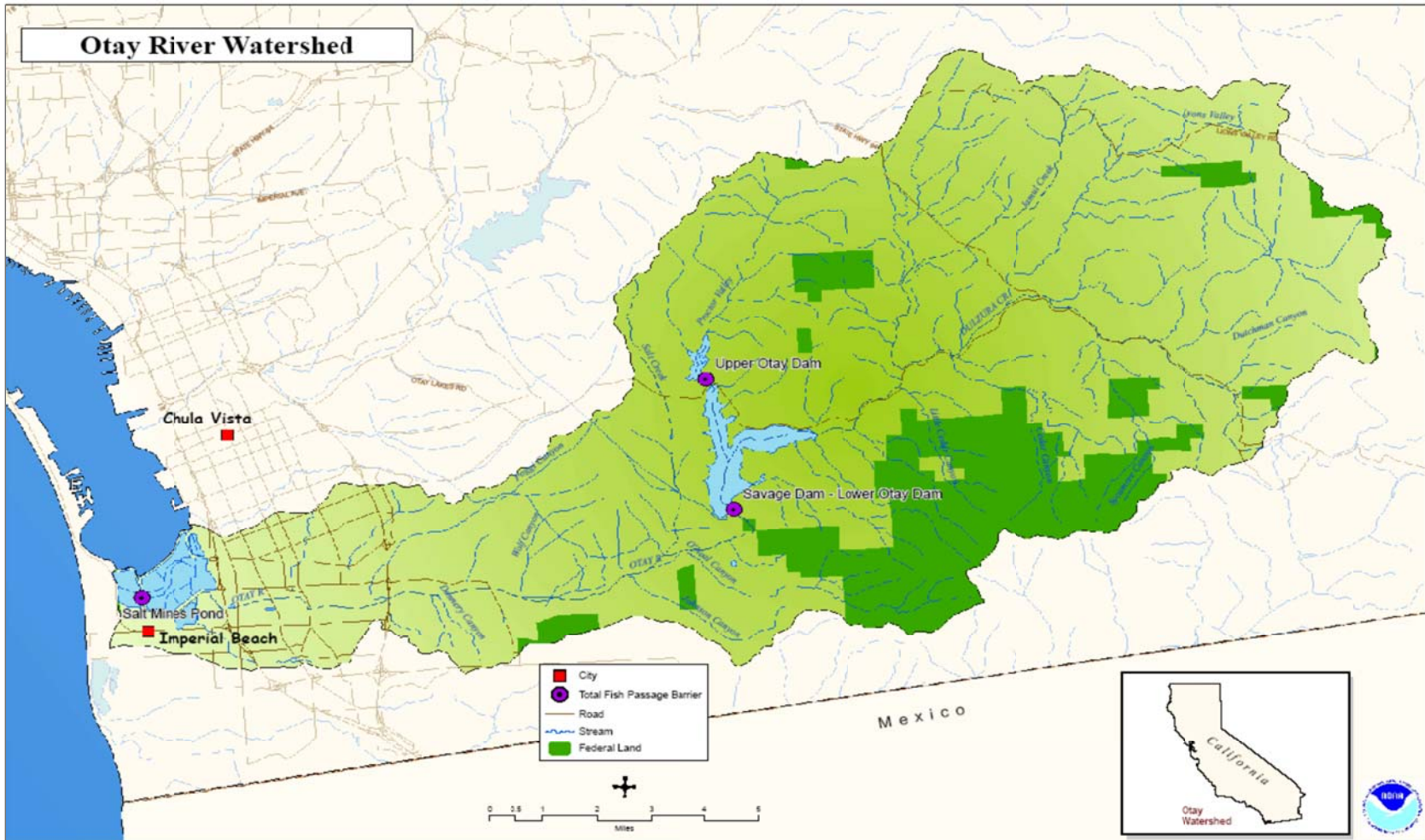


Figure 13-9. The Otay River Watershed.

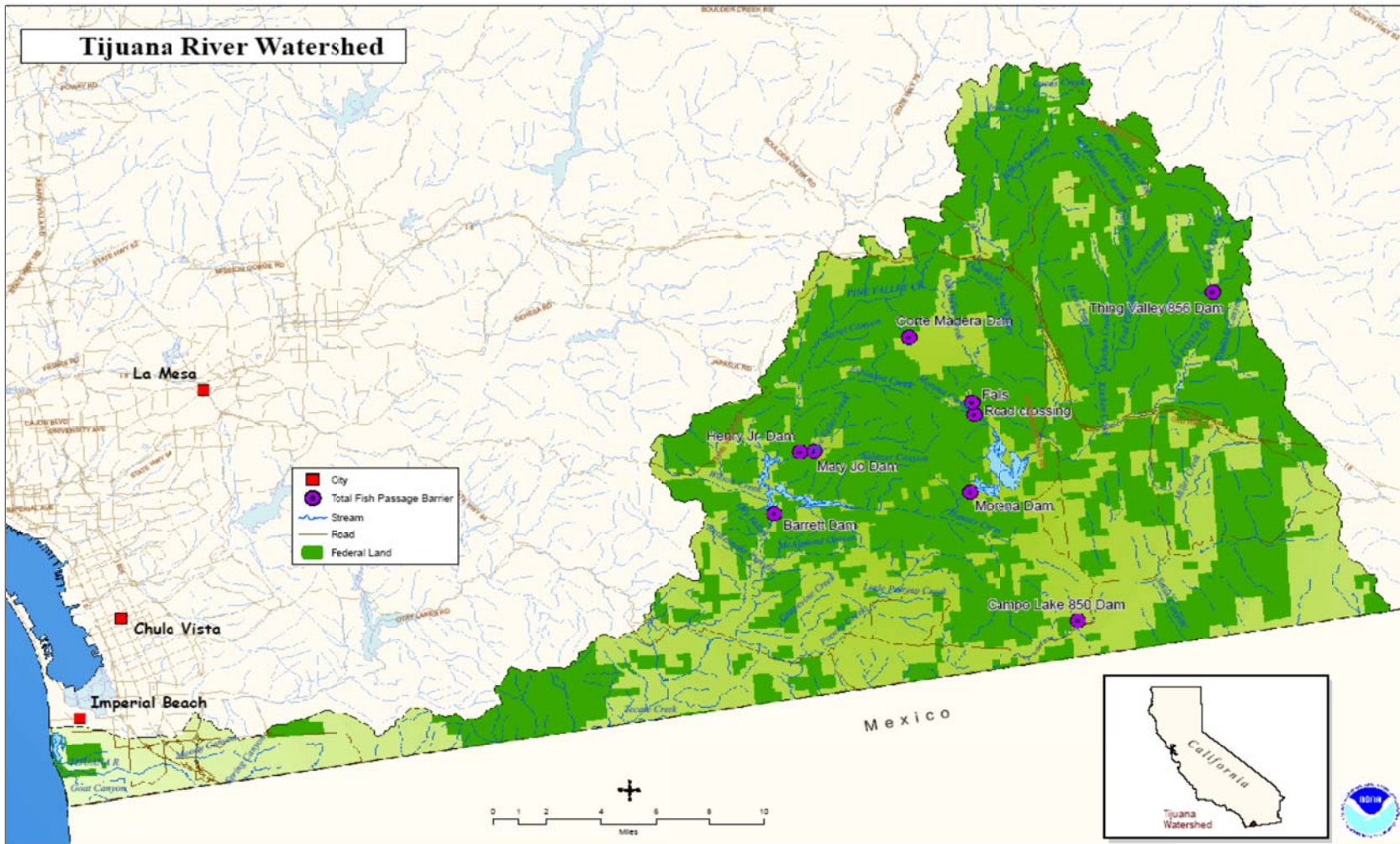


Figure 13-10. The Tijuana River Watershed.

are naturally seasonal or have extensive dry reaches during years of below-average precipitation. Stream length increases substantially in the interior portions of these watersheds because of the highly dissected terrain. Numerous tributaries contribute to the large total stream length for this region (Hunt & Associates 2008a, Kier Associates 2008b).



San Dieguito River

13.2 LAND USE

Table 13-1 summarizes land use and human population density in this region. Population density varies widely between the component watersheds, but overall population density is the second highest among the five BPG regions, averaging 485 persons per square mile. Population centers are concentrated on the coastal terrace portion of these watersheds, especially around San Diego Bay, which comprises one of the largest urban areas in the United States.

Comparatively, the San Mateo Creek and portions of the Santa Margarita River and San Onofre Creek watersheds have very low population densities compared to the other watersheds (averaging less than 30 and 84 persons per square mile, respectively). Average population densities in the San Diego River and Sweetwater River watersheds, which encompass the greater

San Diego urban area, average over 1,100 persons per square mile.



Flood Control—San Juan/Arroyo Trabuco Creeks

In most of these watersheds, the first land use changes involved cattle ranching, followed by row-crop agriculture (primarily orchard crops), which was followed by increasing urbanization, particularly on the coastal terraces. More recently, the upper watersheds of the Santa Margarita River and the San Luis Rey River have experienced rapid urban growth. Semi-developed rural land and orchards cover extensive portions of the coastal and middle portions of these watersheds. Public ownership of land (mostly in Cleveland National Forest lands) is largely concentrated in the interior, higher-elevation portions of these watersheds and includes several federally designated wilderness areas: the Agua Tibia, San Mateo, Pine Creek, and Hauser Wilderness Areas. Portions of several watersheds have also been evaluated for inclusion in the Federal system of Wild and Scenic Rivers: upper San Luis Rey River; Cottonwood Creek (tributary to the Tijuana River), upper San Mateo Creek, and Devil's Canyon (tributary to San Mateo Creek).

The San Juan River/Trabuco Creek watershed contains large county parks (*e.g.*, Caspers Regional Park) that cover much of the upper watersheds of these drainages. The U.S. Marine Corps Base Camp Pendleton covers the coastal and middle

portions of the San Mateo Creek, San Onofre Creek, and Santa Margarita River watersheds. However, public ownership constitutes a minority of overall land ownership in this BPG region, especially in the coastal and middle portions of these watersheds.



Sweetwater River

Agriculture (row crop and orchard cultivation and livestock ranching), are important land uses that directly or indirectly impact watershed processes throughout these watersheds. A major consequence of agricultural and urban growth in this region is reservoir development. There are at least 20 major dams in this region that are large enough to be regulated by the California Department of Water Resources and/or the Department of Defense (Figure 4-13). These dams are owned and operated by federal, state, public utility, local government, or private interests for irrigation, flood control and storm water management, recreation, municipal water supply, fire protection, farm ponds, or a combination of these purposes. Three of these dams create enlarged pre-existing natural lakes: Lake Henshaw in the San Luis Rey River watershed, Vail Lake in the Santa Margarita River watershed, and Cuyamaca Lake in the San Diego River watershed. None of these facilities have incorporated fish passage provisions, including downstream flow provisions, into their operation. Most of the reservoirs and lakes

in this region receive high recreational use and many are sources of non-native crayfish, fishes, and bullfrogs, and other non-native fish species that can prey on or compete with *O. mykiss* for food and habitat (Hunt & Associates 2008a, Kier Associates 2008b).

13.3 CURRENT WATERSHED CONDITIONS

Watershed conditions were assessed for the 10 watersheds and sub-watersheds in the Santa Catalina Gulf Coast BPG region. In general, instream, riparian, and floodplain conditions for anadromous *O. mykiss* in this BPG region are rated as “Poor” to “Very Poor”, reflecting pervasive agricultural and urban land uses, particularly along the middle and coastal reaches. In contrast, the upper watersheds of many of these drainages are in relatively good condition (San Mateo and San Juan Creeks, Santa Margarita, San Luis Rey, San Dieguito, San Diego, and Sweetwater Rivers). Relatively few indicators were rated as “Good” or “Very Good.”



San Mateo Creek

Urban and agricultural conversion of coastal and middle reaches of these watersheds has created a number of severe stressors for anadromous *O. mykiss* in this BPG region. High road density increases sediment and

pollutant inputs to these streams and their estuaries, degrading rearing and spawning habitat and likely increasing mortality of one or more life stages. In many urban and agricultural areas, channelization, levee construction, and other flood control activities have completely removed instream and riparian habitat or reduced instream refugia and structural complexity to a minimum. Flood control structures are widespread along the lower portions of drainages that pass through large urban areas, such as San Juan Creek, San Luis Rey River, San Dieguito River, San Diego River, Sweetwater River, and the Otay River. The increase of impermeable surfaces as a result of urbanization (including roads) within the interior valleys, along the coastal terrace, has altered the natural flow regime of streams, particularly in the lower reaches, increasing the frequency and intensity of flood flows.



Santa Margarita River

At least 20 major dams and surface water diversions without provisions for fish passage have been constructed to serve agricultural, urban, and recreational purposes. These structures and water management practices have significantly altered natural sediment and hydrological processes in these watersheds. Dams also create and maintain favorable habitat conditions for several species of non-native fishes (*e.g.*, large and smallmouth bass, sunfish, bullhead catfish) and bullfrogs that

may affect one or more life history stages of *O. mykiss* either directly (*e.g.*, predation) or indirectly (*e.g.*, competition for food). Non-native crayfish, fishes, and bullfrogs occur in all of the drainages in this BPG region, but are particularly abundant in the San Mateo Creek, San Onofre Creek, and Santa Margarita River watersheds. Widespread pumping of groundwater routinely eliminates surface flows in portions of most of these drainages, particularly during years of below-average precipitation.



San Luis Rey River

Fires have burned between 22% (San Mateo Creek) and 74% (San Diego River) of the watersheds in this BPG region in the past 25 years, including significant coastal portions of watersheds in southern Orange and northern and central San Diego counties in 2007 (Hunt & Associates 2008a, Kier Associates 2008b). Increased fire frequency can increase erosion and sediment input to streams, resulting in long-term changes to substrate composition and embeddedness, water quality (*e.g.*, turbidity), and water temperature (loss of riparian canopy cover). Anadromous *O. mykiss* in each of the watersheds in the BPG region have been subjected to these secondary effects of fire.



Cottonwood Creek –Tijuana River Tributary

Estuarine habitats at the mouths of these watersheds in this BPG region have been reduced in size by 48 – 95% by the development of roads and railroads, urbanization, and development of recreational facilities. Historically, these estuaries were large, with extensive distributary and backwater channel habitats, encompassing thousands of acres (Hunt & Associates 2008a, Kier Associates 2008b). Significant portions of the Santa Margarita River estuarine complex have been isolated from regular freshwater inflow as a result of the construction of the U.S. Interstate Highway 5. The remaining estuarine habitats are subject to constriction and isolation from urban, agricultural, and/or recreational development, as well as degradation of water quality from surface runoff from roads and other impervious surfaces, as well as a reduction in the amount and quality of surface flows resulting from groundwater extraction.



O. mykiss –Pine Valley Creek –Tijuana River Tributary

Despite widespread and varied habitat degradation to the coastal and middle portions, native non-anadromous *O. mykiss* populations still inhabit the relatively high-quality habitat that remains upstream of most of the dams in this region (e.g., Pine Valley Creek in the Otay River watershed), and small numbers of anadromous *O. mykiss* attempt to enter and spawn in each of the watersheds of the Santa Catalina Gulf Coast BPG when flow conditions are suitable (Hunt & Associates 2008a, Kier Associates 2008).

13.4 THREATS AND THREAT SOURCES

Varying numbers and intensity of habitat impairment (threats) were identified in the CAP Workbooks analyses, ranging from 11 in the San Onofre Creek watershed to 17 in the Santa Margarita River and San Luis Rey River watersheds. NMFS notes that portions of the San Luis Rey River run through tribal lands and additional information is needed to assess the conditions of those portions of the river. Most of the habitat impairments across the BPG were rated as “Severe” to “Very Severe” in all but the San Mateo Creek and San Onofre Creek watersheds, and are related to high human population densities and urban and agricultural conversion of watershed lands. The relatively good habitat quality in San Mateo

and San Onofre creeks, and, to a lesser degree in the Santa Margarita River, is due to the presence of the Camp Pendleton Marine Corps Base, which covers substantial portions of the coastal and middle reaches of these watersheds. The upper watersheds, above dams and reservoirs, mostly are in public ownership within Cleveland National Forest. These reaches provide relatively good habitat conditions for anadromous *O. mykiss* and support reproducing populations of non-anadromous *O. mykiss*.

Thirteen anthropogenic activities ranked as the top sources of stress to steelhead in the Santa Catalina Gulf Coast BPG (Table 13-2). The most significant feature of this ranking is that each of the top five threats are rated as "Severe" or "Very Severe" and that groundwater extraction, dams and/or surface water diversions are pervasive threat sources in each of the watersheds. Although open space is the dominant land use in this BPG region, urban and agricultural conversion of the coastal and middle portions of these watersheds, especially within the floodplains of these drainages, has disproportionately degraded habitat conditions for anadromous *O. mykiss*. The occurrence of non-native invasive species in these highly regulated watersheds has spread and increased since this initial threats assessment, and will likely

continue to do so unless recovery actions identified in this Recovery Plan are implemented.

Water management activities associated with urban and agricultural conversion of watershed lands are the most pervasive threat sources in this BPG region. Climatically, the Santa Catalina Gulf Coast BPG region is classified as semi-arid, and anadromous *O. mykiss* must compete for water with urban and agricultural interests throughout these watersheds. Widespread pumping of groundwater routinely eliminates surface flows in portions of most of these drainages. The magnitude of such losses of surface flows is greater during years of below-average precipitation. High road density and associated stream crossings (culverts, bridges, *etc.*) in most of the urbanized portions of these watersheds are also a common source of passage impediments for anadromous *O. mykiss*. As a result of the widespread construction of dams in the lower and middle reaches of these watersheds, non-anadromous *O. mykiss* populations are now isolated in the upper watersheds where higher-quality instream and riparian habitat still exists above reservoirs (Hunt & Associates 2008a, Kier Associates 2008b).

Table 13-2. Threat source rankings in watersheds of the Santa Catalina Gulf Coast BPG (see CAP Workbooks for details).

Santa Catalina Gulf Coast Component Watersheds (north to south)										
Threat Sources	San Juan Creek/ Trabuco Creek	San Mateo Creek	San Onofre Creek	Santa Margarita River	San Luis Rey River	San Dieguito River	San Diego River	Sweetwater River	Otay River	Tijuana River
Groundwater Extraction	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
Dams and Surface Water Diversions	Light Green	Red	Red	Red	Red	Red	Red	Red	Red	Red
Urban Development	Red	Dark Green	Dark Green	Light Green	Yellow	Red	Red	Red	Red	Red
Agricultural Development	Light Green	Red	Dark Green	Dark Green	Red	Red	Light Green	Yellow	Yellow	Yellow
Levees and Channelization	Red	Dark Green	Dark Green	Dark Green	Red	Yellow	Yellow	Light Green	Yellow	Yellow
Culvers and Road Crossings	Red	Dark Green	Dark Green	Dark Green	Red	Dark Green	Yellow	Yellow	Light Green	Light Green
Recreational Facilities	Light Green	Red	Red	Red	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green
Non-Native Species	Dark Green	Red	Red	Red	Light Green	Light Green	Light Green	Light Green	Light Green	Light Green
Roads	Light Green	Dark Green	Dark Green	Red	Light Green	Light Green	Light Green	Light Green	Light Green	Light Green
Flood Control Maintenance	Red	Dark Green	Dark Green	Dark Green	Light Green	Light Green	Light Green	Light Green	Yellow	Light Green
Upslope/Upstream Activities	Light Green	Light Green	Dark Green	Light Green	Light Green	Yellow	Yellow	Yellow	Red	Red
Agricultural Effluents	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Light Green	Light Green	Light Green	Yellow	Yellow
Wildfires*	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Light Green	Yellow	Yellow	Yellow

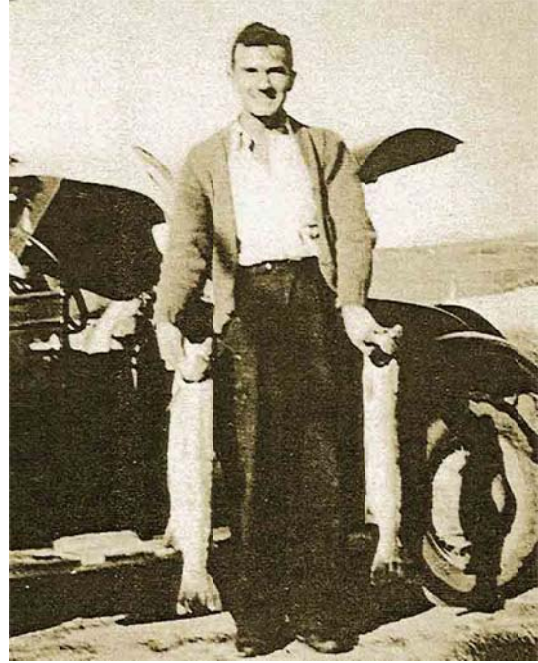
Key: Red = Very High threat; Yellow = High threat; Light green = Medium threat; Dark green = Low threat (Threat cell colors represent threat rating from CAP Workbook)

* Wildfires were not recognized during the CAP Workbook analyses as one of the top five threats in these watersheds, but recent fires in coastal watersheds of southern Orange and northern and central San Diego counties in Fall, 2007 could result in significant, long-term impacts to steelhead habitat. Also, the occurrence of non-native invasive species in these highly regulated watersheds has spread and increased since this initial threats assessment; and additional mining operations are under active consideration. Mining and urban effluents have also been subsequently identified as threat sources.

13.5 SUMMARY

Dams and water diversions (including groundwater extraction) along with flood control structures on the major rivers of the Catalina Gulf Coast BPG region (Santa Margarita River, San Luis Rey River, San Dieguito River, San Diego River, Sweetwater River, Otay River and Tijuana River) have had the most severe impacts on the anadromous *O. mykiss* populations in this BPG by cutting off access to upstream spawning and rearing habitats and altering the magnitude, duration, and timing of flows necessary for immigration of adults and emigration of juveniles. Additionally, impacts associated with wildland fires, including fire-fighting measures to control or extinguish them, and the post-fire measures to repair damages incurred in fighting wildland fires, poses a potential threat to watersheds in this BPG. Table 13-3 summarizes the critical recovery actions needed within the Core 1 populations of this BPG.

Restoring conditions for anadromous *O. mykiss* passage, spawning, and rearing in the Santa Catalina Gulf Coast BPG region will require multiple, long-term, measures related to water management, recreation, and urban development. A fish-passage barrier inventory and assessment should be conducted for each of the major watersheds. Impediments to fish passage stemming from the construction and operation of dams, groundwater extraction, and channel modification, and the loss of instream and adjacent riparian habitats by flood control measures need to be further evaluated for this BPG region. Additionally, the loss of estuarine functions caused by filling and pollution from point and non-point agricultural and urban waste discharges need to be addressed further in this region.



San Mateo Creek Steelhead - 1939.

Threat sources discussed in this section should be the focus of a variety of recovery actions to address specific stresses on anadromous *O. mykiss* viability. Spatial and temporal data, for water temperature, pH, nutrients, *etc.*, are not uniformly available, and should be further developed, along with general habitat typing assessments, to better identify natural as well as anthropogenic limiting factors. This type of data acquisition should be the subject of site-specific investigations in order to refine the primary recovery actions or to target additional recovery actions as part of any recovery strategy for the Santa Catalina Gulf Coast BPG. Tables 13-4 through 13-13 below rank and describe proposed recovery actions for each sub-watershed in the Santa Catalina Gulf Coast BPG, including the estimated cost for implementing the actions in five year increments over the first 25 years, and where applicable extended out to 100 years, though many recovery actions can be achieved within a shorter period.

Table 13-3. Critical recovery actions for Core 1 populations within the Santa Catalina Gulf Coast BPG.

POPULATION	CRITICAL RECOVERY ACTION
San Juan Creek	Physically modify road crossings, highways, and railways to allow natural rates of adult and juvenile <i>O. mykiss</i> between the estuary and upstream spawning and rearing habitats, and passage of smolts and kelts downstream to the estuary and ocean. Identify, protect, and restore estuarine and freshwater rearing habitat functions.
San Mateo Creek	Develop and implement a groundwater and surface water management program to provide the essential habitat functions to support the life history and habitat requirements of adult and juvenile steelhead. Initiate an aquatic exotic species assessment and control program for the San Mateo Creek watershed.
Santa Margarita River	Physically modify or remove the O'Neill Diversion Dam to allow natural rates of adult and juvenile <i>O. mykiss</i> between the estuary and upstream spawning and rearing habitats and passage of smolts and kelts downstream to the estuary and ocean Review; modify the Rancho California Water District water release schedule program to provide the essential habitat functions to support the life history and habitat requirements of adult and juvenile steelhead. Initiate an aquatic exotic species assessment and control program for the Santa Margarita River watershed.
San Luis Rey River	Implement operating criteria to ensure the pattern and magnitude of water releases from Pilgram, Turner, Lower and Upper Stehly, Agua Tibia, Henshaw, and Eagles Nest dams will maintain surface flows necessary to support all <i>O. mykiss</i> life history states, including volition rates of adult and juvenile <i>O. mykiss</i> migration, and suitable spawning and rearing habitat. Physically modify all dams, and road, highway, and railway crossings to allow volitional rates of adult and juvenile <i>O. mykiss</i> between the estuary and upstream spawning and rearing habitats and passage of smolts and kelts downstream to the estuary and ocean. Identify, protect, and restore estuarine and freshwater rearing habitat functions.

Southern California Steelhead DPS Recovery Action Tables Identification Key, Santa Catalina Gulf Coast BPG (Tables 13-4 – 13-13)

Recovery Action Number Key: XXXX – SCS – 1.2		XXXX ID Table	Threat Source Legend		
XXXX	Watershed	SJT	San Juan/Trabuco Creek	1	Agricultural Development
SCS	Species Identifier – Southern California Steelhead	SMC	San Mateo Creek	2	Agricultural Effluents
1	Threat Source	SO	San Onofre	3	Culverts and Road Crossings
2	Action Identity Number	SMR	Santa Margarita River	4	Dams and Surface Water Diversions
Action Rank		SLR	San Luis Rey River	5	Flood Control Maintenance
A	Action addresses the first listing factor regarding the destruction or curtailment of the species' habitat	SD	San Dieguito River	6	Groundwater Extraction
B	Action addresses one of the other four listing factors	SDR	San Diego River	7	Levees and Channelization
		SWR	Sweetwater River	8	Mining and Quarrying
		OR	Otay River	9	Non-Native Species
		TR	Tijuana River	10	Recreational Facilities
				11	Roads
				12	Upslope/Upstream Activities
				13	Urban Development
				14	Urban Effluents
				15	Wildfires

See Chapter 8, Table 8.1 for Detailed Description of Recovery Actions

Table 13-4. Southern California Steelhead DPS Recovery Action Table for the San Juan Creek/Trabuco Creek Watershed (Santa Catalina Gulf Coast BPG).

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
San Juan Creek / Trabuco Creek												
SJT-SCS-1.1	Manage livestock grazing to maintain or restore aquatic habitat functions	NRCS,USGS, BLM,USFS, USFWS,NMFS, CDFG, RWQCB, SDT,CT,TU,OC, RC	Agricultural Development	1, 4	3B	ongoing – costs of doing business					0	
SJT-SCS-1.2	Develop, adopt, and implement agricultural land-use planning policies and standards	NRCS,USGS, BLM,USFS, USFWS, NMFS,CDFG, RWQCB, SDT,CT,TU,OC, RC	Agricultural Development	1, 4,	3B	5	62400	0	0	0	0	62400
SJT-SCS-1.3	Manage agricultural development and restore riparian zones	NRCS,USGS, BLM,USFS, USFWS, NMFS,CDFG, RWQCB,SDT CT,TU,OC,RC	Agricultural Development	1, 4,	3B	10 - refer to regional costs	0	0	0	0	0	0
SJT-SCS-2.1	Develop and implement a plan to minimize runoff from agricultural activities	NRCS,BLM, USFS,USFWS, NMFS,CDFG, RWQCB,SDT, CT,TU,SDSRF, TRAN,OC,RC	Agricultural Effluents	1, 4	2B	20 - refer to regional costs	0	0	0	0	0	0
SJT-SCS-3.1	Conduct a watershed-wide fish passage barrier assessment	NMFS,ACOE, USDOT,USFWS, CDFG,CSCC, CDOT, MWDS, DWR, SDT,CT,TU,OC, RC	Culverts and Road Crossings (Passage Barriers)	1, 4	1A	5	96690	0	0	0	0	96690

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SJT-SCS-3.2	Develop and implement plan to remove or modify fish passage barriers within the watershed	NMFS,ACOE, USDOT,USFWS, CDFG,CSCC, CDOT, MWDCS,DWR, SDT,CT,TU,OC, RC	Culverts and Road Crossings (Passage Barriers)	1, 4	1A	20 - refer to regional costs	0	0	0	0	0	0
SJT-SCS-4.1	Develop and implement water management plan diversion operations	USFS,USFWS, NMFS,USGS, CDF,CDFG, SDT,CT,TU,OC, RC	Dams and Surface Water Diversions	1, 3, 4	2A	5	275550	0	0	0	0	275550
SJT-SCS-5.1	Develop and implement flood control maintenance program	ACOE,NMFS, USFWS,CDFG, CSCC,SDT,CT, TU,OC,RC	Flood Control Maintenance	1, 4	1B	100	0	0	0	0	0	0
SJT-SCS-6.1	Conduct groundwater extraction analysis and assessment	USGS,NMFS, DWR,CDFG, MWDCS,SDT, CT,TU,OC,RC	Groundwater Extraction	1, 4	2B	5	275550	0	0	0	0	275550
SJT-SCS-6.2	Develop and implement a groundwater monitoring and management program	USGS,NMFS, DWR,CDFG, MWDCS,SDT, CT,TU,OC,RC	Groundwater Extraction	1, 4	2B	10	254350	39775	0	0	0	294125
SJT-SCS-7.1	Develop and implement plan to vegetate levees and eliminate or minimize herbicide use near levees	FEMA, NRCS,USFWS,U SGS,ACOE, BLM,NMFS, CDFG,CSCC, CT,TU,SDT,OC, RC	Levees and Channelization	1, 4	1B	100	0	0	0	0	0	0

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SJT-SCS-7.2	Develop and implement plan to restore natural channel features	NRCS,USFWS, USGS,ACOE, BLM,NMFS, CDFG,CSCC, CT,TU,SDT,OC, RC	Levees and Channelization	1, 4	1B	20	4217625	4217625	4217625	4217625	0	16870500
SJT-SCS-9.1	Develop and implement watershed-wide plan to assess the impacts of non-native species and develop control measures	CDFG,CSCC, USFWS,USFS, NMFS,SDT, CT,TU,OC,RC	Non-Native Species	1, 3, 5	2B	100 - refer to regional costs	0	0	0	0	0	0
SJT-SCS-9.2	Develop and implement non-native species monitoring program	CDFG,CSCC, USFWS,USFS, NMFS,SDT, CT,TU,OC,RC	Non-Native Species	1, 3, 5	2B	100 - refer to regional costs	0	0	0	0	0	0
SJT-SCS-9.3	Develop and implement public education program on non-native species impacts	CDFG,CSCC, USFWS,USFS, NMFS,SDT, CT,TU,OC,RC	Non-Native Species	1, 3, 5	2B	20	76140	76140	76140	76140	0	304560
SJT-SCS-10.1	Review and modify development and management plans for recreational areas and national forests (e.g., San Juan Creek Trail Plan, Trabuco Creek Nature Trail Plan, and Descanso Park Plan)	USFS,USFWS, NMFS,BLM, CDFG,CSCC, SDT,CT,TU,OC, RC	Recreational Facilities	1, 2, 3, 4, 5	2B	ongoing - cost of doing business	0	0	0	0	0	0

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SJT-SCS-10.2	Review and modify development and management plans for recreational areas and national forests (e.g., U.S. Forest Service Cleveland National Forest Land Management Plan, Southern California National Forest Vision, Forest Strategy, and Design Criteria)	USFS,USFWS, NMFS,BLM, CDFG,CSCC, SDT,CT,TU,OC, RC	Recreational Facilities	1, 2, 3, 4, 5	2B	ongoing - cost of doing business	0	0	0	0	0	0
SJT-SCS-10.3	Develop and implement public education program on watershed processes	USFS,USFWS, NMFS,BLM, CDFG,CSCC, SDT,CT,TU,OC, RC	Recreational Facilities	1, 2, 3, 4, 5	2B	20	76140	76140	76140	76140	0	304560
SJT-SCS-11.1	Manage roadways and adjacent riparian corridor and restore abandoned roadways	CDOT,CDFG, CSCC,USFWS, NMFS,USDOT, SDT,CT,TU,OC, RC	Roads	1, 4	2B	20 - refer to regional costs	0	0	0	0	0	0
SJT-SCS-11.2	Develop and implement a plan to remove or reduce approach-fill for railroad lines and roads (e.g., U.S. Interstate 5)	CDOT,CDFG, CSCC,USFWS, NMFS,USDOT, SDT,CT,TU,OC, RC	Roads	1, 4	2B	0	0	0	0	0	0	0

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SJT-SCS-11.3	Retrofit storm drains to filter runoff from roadways	CDOT,CDFG, RWQCB, CSCC,USFWS, NMFS,USDOT, SDT,CT,TU,OC, RC	Roads	1, 4	2B	20	32260	32260	32260	32260	0	129040
SJT-SCS-12.1	Develop and implement an estuary restoration and management plan	CDFG,CSCC, USFWS,NMFS, SDT,CT,TU,OC, RC	Upslope/ Upstream activities	1, 2, 3, 4, 5	1B	5	3350000	0	0	0	0	3350000
SJT-SCS-12.2	Review and modify applicable County and/or City Local Coastal Plans	CCC,NMFS, CT,TU,SDT,OC, RC	Upslope/ Upstream activities	1, 2, 3, 4, 5	1B	5	62400	0	0	0	0	62400
SJT-SCS-13.1	Develop, adopt, and implement urban land-use planning policies and standards	CDOT,CDFG, CCC,RWQC, NMFS,SDT,CT, TU,OC,RC	Urban Development	1, 4	2B	5	62400	0	0	0	0	62400
SJT-SCS-14.1	Review California Regional Water Quality Control Board Watershed Plans and modify Stormwater Permits	RWQCB, SWRCB,CDOT USFWS,NMFS, SDT,CT,TU,OC, RC	Urban Effluents	1, 4	1B	ongoing - cost of doing business	0	0	0	0	0	0
SJT-SCS-14.2	Retrofit storm drains in developed areas	RWQCB, SWRCB,CDOT USFWS,NMFS, SDT,CT,TU,OC, RC	Urban Effluents	1, 4	1B	20	0	0	0	0	0	0

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SJT-SCS-14.3	Review, assess and modify NPDES wastewater discharge permits	RWQCB, SWRCB, CDOT USFWS, NMFS, SDT, CT, TU, OC, RC	Urban Effluents	1, 4	2B	ongoing - cost of doing business	0	0	0	0	0	0
SJT-SCS-15.1	Develop and implement an integrated wildland fire and hazardous fuels management plan	USFS, USFWS, NMFS, USGS, CDF, CDFG, SDT, CT, TU, OC, RC	Wildfires	1, 4, 5	1B	100 - refer to regional costs	0	0	0	0	0	0

Table 13-5. Southern California Steelhead DPS Recovery Action Table for the San Mateo Creek Watershed (Santa Catalina Gulf Coast BPG).

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
San Mateo Creek												
SMC-SCS-1.1	Manage livestock grazing to maintain or restore aquatic habitat functions	NRCS,USGS, BLM,USFS, USFWS,NMFS, CDFG, RWQCB, SDT,CT,TU, SMCC,SDC,RC	Agricultural Development	1, 4	2B	ongoing - cost of doing business	0	0	0	0	0	0
SMC-SCS-1.2	Develop, adopt, and implement agricultural land-use planning policies and standards	NRCS,USGS, BLM,USFS, USFWS,NMFS, CDFG, RWQCB,SDT, CT,TU,SMCC, SDC,RC	Agricultural Development	1, 4,	2B	5	62400	0	0	0	0	62400
SMC-SCS-1.3	Manage agricultural development and restore riparian zones	NRCS,USGS, BLM,USFS, USFWS,NMFS, CDFG, RWQCB, SDT,CT,TU, SMCC,SDC,RC	Agricultural Development	1, 4,	2B	10 - refer to regional costs	0	0	0	0	0	0
SMC-SCS-2.1	Develop and implement plan to minimize runoff from agricultural activities	NRCS,USFS, USFWS,BLM, NMFS,CDFG, RWQCB,SDT, CT,TU,SMCC, SDC,RC	Agricultural Effluents	1, 4	2B	20 - refer to regional costs	0	0	0	0	0	0
SMC-SCS-3.1	Conduct a watershed-wide fish passage barrier assessment	NMFS,ACOE, USDOT,USFWS, CDFG,CSCC, CDOT, MWDSC, SDWA,DWR, SDT,CT,TU, SDC,RC	Culverts and Road Crossings (Passage Barriers)	1, 4	1A	5	96690	0	0	0	0	96690

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SMC-SCS-3.2	Develop and implement plan to remove or modify fish passage barriers within the watershed	NMFS,ACOE, USDOT,USFWS, CDFG,CSCC, CDOT, MWDSC, SDWA,DWR, SDT,CT,TU, SDC,RC	Culverts and Road Crossings (Passage Barriers)	1, 4	1A	20 - refer to regional costs	0	0	0	0	0	0
SMC-SCS-4.1	Develop and implement water management plan or diversion operations	USFS,USFWS, NMFS,USGS, CDF,CDFG, SDWA,SDT,CT, TU,SMCC,SDC, RC	Dams and Surface Water Diversions	1, 3, 4	2A	5	275550	0	0	0	0	275550
SMC-SCS-5.1	Develop and implement flood control maintenance program	ACOE,NMFS, USFWS,BOR, CDFG,CSCC, SDWA,SDT,CT, TU,SMCC,SDC, RC	Flood Control Maintenance	1, 4	1B	100	0	0	0	0	0	0
SMC-SCS-6.1	Conduct groundwater extraction analysis and assessment	USGS,NMFS, DWR,CDFG, MWDSC, SDWA,SDT, CT,TU,SMCC, SDC,RC	Groundwater Extraction	1, 4	1B	5	275550	0	0	0	0	275550
SMC-SCS-6.2	Develop and implement groundwater monitoring and management program	USGS,NMFS, DWR,CDFG, MWDSC, SDWA,SDT, CT,TU,SMCC, SDC,RC	Groundwater Extraction	1, 4	1B	10	254350	39775	0	0	0	294125
SMC-SCS-7.1	Develop and implement plan to restore natural channel features	NRCS,USFWS, USGS,ACOE, BLM,NMFS, CDFG,CSCC, SDWA,CT,TU, SDT,SMCC,	Levees and Channelization	1, 4	1B	100	0	0	0	0	0	0

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)						
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100	
		SDC,RC											
SMC-SCS-7.2	Develop and implement plan to vegetate levees and eliminate or minimize herbicide use near levees	FEMA, NRCS,USFWS, USGS,ACOE, BLM,NMFS, CDFG,CSCC, SDWA,CT,TU, SDT,SMCC, SDC,RC	Levees and Channelization	1, 4	1B	100	0	0	0	0	0	0	0
SMC-SCS-9.1	Develop and implement watershed-wide plan to assess the impacts of non-native species and develop control measures	CDFG,CSCC, USFWS,USFS, NMFS,USMC, SDWA,SDT,CT, TU,SMCC,SDC, RC	Non-Native Species	1, 3, 5	1A	100 - refer to regional costs	0	0	0	0	0	0	0
SMC-SCS-9.2	Develop and implement non-native species monitoring program	CDFG,CSCC, USFWS,USFS, NMFS,USMC, SDWA,SDT,CT, TU,SMCC,SDC, RC	Non-Native Species	1, 3, 5	1A	100 - refer to regional costs	0	0	0	0	0	0	0
SMC-SCS-9.3	Develop and implement public education program on non-native species impacts	CDFG,CSCC, USFWS,USFS, NMFS,USMC, SDWA,SDT,CT, TU,SMCC,SDC, RC	Non-Native Species	1, 3, 5	1A	20	76140	76140	76140	76140	0	304560	
SMC-SCS-10.1	Review and modify development and management plans for recreational areas and national forests (e.g., San Onofre State Park Plan and San Diego Regional Trails Plan)	CDPR,NMFS, USFS,USFWS, CDFG,CT,TU, SDT,SMCC, SDC,RC	Recreational Facilities	1, 2, 3, 4, 5	2B	ongoing - cost of doing business	0	0	0	0	0	0	0

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SMC-SCS-10.2	Develop and implement public education program on watershed processes	CDPR,NMFS, USFS,USFWS, CDFG,SDWA, CT, TU,SDT, SMCC,SDC,RC	Recreational Facilities	1, 2, 3, 4, 5	2B	ongoing - cost of doing business	0	0	0	0	0	0
SMC-SCS-10.3	Develop and implement public education program on watershed processes	USFS,USFWS, NMFS,BLM, CDFG,CDPR, CSCC,SDT,CT, TU,SMCC,SDC, RC	Recreational Facilities	1, 2, 3, 4, 5	2B	20	76140	76140	76140	76140	0	304560
SMC-SCS-11.1	Manage roadways and adjacent riparian corridor and restore abandoned roadways	CDOT,CDFG, RWQCB, CSCC, USFWS,NMFS, USDOT,SDT,CT, TU,SMCC,SDC, RC	Roads	1, 4	2B	20 - refer to regional costs	0	0	0	0	0	0
SMC-SCS-11.2	Develop and implement a plan to remove or reduce approach-fill for railroad lines and roads (e.g., U.S. Interstate 5)	CDOT,CDFG, RWQCB, CSCC,USFWS, NMFS,USMC, USDOT,SDT,CT, TU,SMCC,SDC, RC	Roads	1, 4	2B	10	7514534	7514534	0	0	0	15029069
SMC-SCS-11.3	Retrofit storm drains to filter runoff from roadways	CDPR,NMFS, USMC,CDFG, CT,TU,SDT, SMCC,SDC,RC	Roads	1, 4	2B	20	32260	32260	32260	32260	0	129040
SMC-SCS-12.1	Review applicable Integrated Natural Resources Management Plans (e.g., U.S. Marine Corps Camp Pendleton Integrated Natural Resources Management Plan)	USMC,USFWS, NMFS,NMFS, CT,TU,SDT, SMCC,SDC,RC	Upslope/ Upstream Activities	1, 2, 3, 4, 5	2B	ongoing - cost of doing business	0	0	0	0	0	0

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SMC-SCS-12.2	Develop and implement an estuary restoration and management plan	CDPR,CDFG, CSCC,USFWS, NMFS,SDT,CT, TU,SMMC, SDC,RC	Upslope/ Upstream activities	1, 2, 3, 4, 5	1B	5	5360000	0	0	0	0	5360000
SMC-SCS-12.3	Review and modify applicable County and/or City Local Coastal Plans	CCC,CSCC, CDFG,USFWS, NMFS,SDWA CT,TU,SDT, SMCC,SDC, RC	Upslope/ Upstream activities	1, 2, 3, 4, 5	1B	5	62400	0	0	0	0	62400
SMC-SCS-13.1	Develop, adopt, and implement urban land-use planning policies and standards	CDOT,CDFG, CCC,RWQC, NMFS,SDT,CT, TU,SMCC,SDC, RC	Urban Development	1, 4	2B	5	62400	0	0	0	0	62400
SMC-SCS-14.1	Review California Regional Water Quality Control Board Watershed Plans and modify Stormwater Permits	RWQCB, SWRCB,CDOT USFWS,NMFS, SDWA,SDT,CT, TU,SMCC,SDC, RC	Urban Effluents	1, 4	1B	ongoing - cost of doing business	0	0	0	0	0	0
SMC-SCS-14.2	Retrofit storm drains in developed areas	RWQCB, SWRCB,CDOT USFWS,NMFS, SDT,CT,TU, SMCC,SDC, RC	Urban Effluents	1, 4	1B	20	0	0	0	0	0	0
SMC-SCS-14.3	Review, assess and modify NPDES wastewater discharge permits (e.g., U.S. Marine Corps Camp Pendleton Wastewater Treatment Facility)	USMC,NMFS, USFWS, RWQCB, CT,TU,SDT, SMCC,SDC,RC	Urban Effluents	1, 4	2B	ongoing - cost of doing business	0	0	0	0	0	0

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SMC-SCS-15.1	Develop and implement an integrated wildland fire and hazardous fuels management plan	USFS,USFWS, NMFS,USMC, USGS,CDF, CDFG,SDT,CT, TU,SMCC,SDC, RC	Wildfires	1, 4, 5	1B	100 - refer to regional costs	0	0	0	0	0	0

Table 13-6. Southern California Steelhead DPS Recovery Action Table for the San Onofre Creek Watershed (Santa Catalina Gulf Coast BPG).

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
San Onofre Creek												
SO-SCS-1.1	Manage agricultural development and restore riparian zones	NRCS,USGS, BLM,USFS, USFWS,NMFS, CDFG, RWQCB, SDT,CT,TU,SDC	Agricultural Development	1, 4	3B	20 – refer to regional costs	0	0	0	0	0	0
SO-SCS-2.1	Develop and implement plan to minimize runoff from agricultural activities	NRCS,USFS, USFWS,BLM, NMFS,USMC, CDFG, RWQCB,SDT, CT,TU,SDC	Agricultural Effluents	1, 4	3B	20 - refer to regional costs	0	0	0	0	0	0
SO-SCS-3.1	Conduct watershed-wide fish passage barrier assessment	USMC,NMFS, USDOT,USFWS, CDFG,CSCC, CDOT,SDT,CT, TU,SDC	Culverts and Road Crossings (Passage Barriers)	1, 4	2B	5	96690	0	0	0	0	96690
SO-SCS-3.2	Develop and implement plan to remove or modify fish passage barriers within	USMC,NMFS, USDOT,USFWS, CDFG,CSCC, CDOT,SDT,CT, TU,SDC	Culverts and Road Crossings (Passage Barriers)	1, 4	2B	20 - refer to regional costs	0	0	0	0	0	0
SO-SCS-4.1	Develop and implement water management plan for diversion operations	USMC,USFWS, NMFS,USGS, CDFG,SDT,CT, TU,SDC	Dams and Surface Water Diversions	1, 3, 4	2A	5	275550	0	0	0	0	275550
SO-SCS-5.1	Develop and implement flood control maintenance program	USMC,NMFS, USDOT,USFWS, CDFG,CSCC, CDOT,SDT,CT, TU,SDC	Flood Control Maintenance	1, 4	2B	100	0	0	0	0	0	0

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SO-SCS-6.1	Conduct groundwater analysis and assessment	USGS,NMFS, USMC,DWR, CDFG, MWDCS,SDT, CT,TU,SDC	Groundwater Extraction	1, 4	2B	5	275550	0	0	0	0	275550
SO-SCS-6.2	Develop and implement groundwater monitoring program	USGS,NMFS, USMC,DWR, CDFG, MWDCS,SDT, CT,TU,SDC	Groundwater Extraction	1, 4	2B	10	254350	39775	0	0	0	294125
SO-SCS-9.1	Develop and implement watershed-wide plan to assess the impacts of non-native species and develop control measures	CDFG,CDPR, CSCC,USFWS, USFS,NMFS, USMC,SDT,CT, TU,SDC	Non-Native Species	1, 3, 5	2B	100 - refer to regional costs	0	0	0	0	0	0
SO-SCS-9.2	Develop and implement non-native species monitoring program	CDFG,CDPR, CSCC,USFWS, USFS,NMFS, USMC,SDT,CT, TU,SDC	Non-Native Species	1, 3, 5	2B	100 - refer to regional costs	0	0	0	0	0	0
SO-SCS-9.3	Develop and implement public education program on non-native species impacts	CDFG,CDPR, CSCC,USFWS, USFS,NMFS, USMC,SDT,CT, TU,SDC	Non-Native Species	1, 3, 5	2B	20	76140	76140	76140	76140	0	304560
SO-SCS-10.1	Review and modify development and management plans for recreational areas and national forests (e.g., San Onofre State Park Plan and San Diego Regional Trails Plan)	USFS,USFWS, NMFS,USMC, CDFG,CDPR, CSCC,SDT,CT, TU,SDC	Recreational Facilities	1, 2, 3, 4, 5	2B	ongoing - cost of doing business	0	0	0	0	0	0

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SO-SCS-10.2	Develop and implement public education program on watershed processes	USFS,USFWS, NMFS,USMC, CDFG,CDPR, CSCC,SDT,CT, TU,SDC	Recreational Facilities	1, 2, 3, 4, 5	2B	20	76140	76140	76140	76140	0	304560
SO-SCS-11.1	Develop and implement plan to remove or reduce approach-fill for railroad lines and roads (e.g., U.S. Interstate 5)	CDOT,CDFG, RWQCB, CSCC,USFWS, NMFS,USMC, USDOT,SDT,CT, TU,SDC	Roads	1, 4	2B	0	0	0	0	0	0	0
SO-SCS-11.2	Manage roadways and adjacent riparian corridor and restore abandoned roadways	CDOT,CDFG, RWQCB, CSCC,USFWS, NMFS,USMC, USDOT,SDT,CT, TU,SDC	Roads	1, 4	3B	20 - refer to regional costs	0	0	0	0	0	0
SO-SCS-11.3	Retrofit storm drains to filter runoff from roadways	CDOT,CDFG, RWQCB, CSCC,USFWS, NMFS,USMC, USDOT,SDT,CT, TU,SDC	Roads	1, 4	3B	20	32260	32260	32260	32260	0	129040
SO-SCS-12.1	Review and modify applicable Integrated Natural Resources Management Plans (e.g., U.S. Marine Corps Camp Pendleton Integrated Natural Resources Management Plan)	USMC,USFWS, NMFS,NMFS, CT,TU, SDT,SDC	Upslope/ Upstream Activities	1, 2, 3, 4, 5	2B	ongoing - cost of doing business	0	0	0	0	0	0

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SO-SCS-12.2	Develop and implement an estuary restoration and management plan	USMC,USFWS, NMFS,CT,TU, SDT,SD	Upslope/ Upstream activities	1, 2, 3, 4, 5	1B	5	402000	0	0	0	0	402000
SO-SCS-12.3	Review and modify applicable County and/or City Local Coastal Plans	CCC,CSCC, CDFG,USFWS, NMFS,CT,TU, SDT,SDC	Upslope/ Upstream activities	1, 2, 3, 4, 5	1B	5	62400	0	0	0	0	62400
SO-SCS-14.1	Review California Regional Water Quality Control Board Watershed Plans and modify Stormwater Permits	RWQCB, SWRCB,CDOT, USMC,USFWS, NMFS,SDT,CT, TU,SDC	Urban Effluents	1, 4	1B	ongoing - cost of doing business	0	0	0	0	0	0
SO-SCS-14.2	Review, assess and modify NPDES wastewater discharge permits	RWQCB, CDOT,USMC, USFWS,NMFS, SDT,CT,TU,SDC	Urban Effluents	1, 4	2B	ongoing - cost of doing business	0	0	0	0	0	0
SO-SCS-14.3	Retrofit storm drains in developed areas	RWQCB, SWRCB,CDOT, USMC,USFWS, NMFS,USDOT, SDT,CT,TU,SDC	Urban Effluents	1, 4	2B	20	0	0	0	0	0	0
SO-SCS-15.1	Develop and implement an integrated wildland fire and hazardous fuels management plan	USFS,USFWS, BLM,NMFS, USMC,USGS, CDF,CDFG, SDT,CT,TU,SDC	Wildfires	1, 4, 5	2B	100 - refer to regional costs	0	0	0	0	0	0

Table 13-7. Southern California Steelhead DPS Recovery Action Table for the Santa Margarita River Watershed (Santa Catalina Gulf Coast BPG).

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
Santa Margarita River												
SMR-SCS-1.1	Manage livestock grazing to maintain or restore aquatic habitat functions	NRCS,USGS, BLM,USFS,USFWS,NMFS, CDFG, RWQCB,SDT, CT,TU,FLC, SDC,RC	Agricultural Development	1, 4	3B	ongoing - cost of doing business		0	0	0	0	0
SMR-SCS-1.2	Develop, adopt, and implement agricultural land-use planning policies and standards	NRCS,USGS, BLM,USFS, USFWS,NMFS, CDFG, RWQCB,SDT, CT,TU,FLC, SDC,RC	Agricultural Development	1, 4,	3B	5	62400	0	0	0	0	62400
SMR-SCS-1.3	Manage agricultural development and restore riparian zones	NRCS,USGS, BLM,USFS, USFWS,NMFS, CDFG, RWQCB,SDT, CT,TU,FLC, SDC,RC	Agricultural Development	1, 4,	3B	10 - refer to regional costs	0	0	0	0	0	0
SMR-SCS-2.1	Develop and implement plan to minimize runoff from agricultural activities	NRCS,USFS, USFWS,BLM, NMFS,USMC, CDFG, RWQCB,SDT, CT,TU,FLC, SDC,RC	Agricultural Effluents	1, 4	3B	20 - refer to regional costs	0	0	0	0	0	0
SMR-SCS-3.1	Develop and implement plan to remove or modify fish passage barriers within the watershed	NMFS,BOR, USMC,USDOT, USFWS,CDFG, CCCC,CDOT, MWDSC, SDWA,DWR, SDT,CT,TU,FLC, SDC,RC	Culverts and Road Crossings (Passage Barriers)	1, 4	1A	20 - refer to regional costs	0	0	0	0	0	0

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SMR-SCS-4.1	Develop and implement water management plan for dam operations (e.g., Lake O'Neill Dam, Vail Dam, Robert A. Skinner Dam)	USMC,USFWS, BOR,MWDSC, SDWADWR NMFS,USGS, CDFG,SDT,CT, TU,FLC,SDC, RC	Dams and Surface Water Diversions	1, 3, 4	2A	10	TBD	TBD	TBD	TBD	TBD	TBD
SMR-SCS-4.2	Develop and implement water management plan diversion operations (e.g., Lake O'Neill Diversion)	USMC,BOR, USFWS,NMFS, USGS,CDFG, SDT,CT,TU,FLC, SDC,RC	Dams and Surface Water Diversions	1, 3, 4	2B	5	275550	0	0	0	0	275550
SMR-SCS-3/4.3	Conduct watershed-wide fish passage barrier assessment	NMFS,BOR, USMC,USDOT, USFWS,CDFG, CSCC,CDOT, MWDSC, SDWA,DWR, SDT,CT,TU,FLC, SDC,RC	Dams and Surface Water Diversions, Culverts and Road Crossings (Passage Barriers)	1, 4	1A	5	96690	0	0	0	0	96690
SMR-SCS-5.1	Develop and implement and flood control maintenance program	USMC,NMFS, USDOT,USFWS, CDFG,CSCC, CDOT,SDT,CT, TU,FLC,SDC, RC	Flood Control Maintenance	1, 4	2B	100	0	0	0	0	0	0
SMR-SCS-6.1	Conduct groundwater extraction analysis and assessment	USGS,NMFS, USMC,DWR, CDFG, MWDSC, SDWA,SDT,CT, TU,FLC,SDC, RC	Groundwater Extraction	1, 4	2B	5	275550	0	0	0	0	275550

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SMR-SCS-6.2	Develop and implement groundwater monitoring and management program	USGS,NMFS, USMC,DWR, CDFG, MWDS, SDWASDT, CT,TU,FLC, SDC,RC	Groundwater Extraction	1, 4	2B	10	254350	39775	0	0	0	294125
SMR-SCS-7.1	Develop and implement plan to restore natural channel features	NRCS, USFWS,USMC, USGS,ACOE, BLM,NMFS, CDFG,CSCC, CT,TU,SDT,FLC, SDC,RC	Levees and Channelization	1, 4	3B	100	0	0	0	0	0	0
SMR-SCS-9.1	Develop and implement watershed-wide plan to assess the impacts of non-native species and develop control measures	CDFG,CDPR, CSCC,USFWS, USFS,NMFS, USMC,SDWA, SDT,CT,TU,FLC, SDC,RC	Non-Native Species	1, 3, 5	2B	100 - refer to regional costs	0	0	0	0	0	0
SMR-SCS-9.2	Develop and implement non-native species monitoring program	CDFG,CDPR, CSCC,USFWS, USFS,NMFS, USMC,SDWA SDT,CT,TU,FLC, SDC,RC	Non-Native Species	1, 3, 5	2B	100 - refer to regional costs	0	0	0	0	0	0
SMR-SCS-9.3	Develop and implement public education program on non-native species impacts	CDFG,CDPR, CSCC,USFWS, USFS,NMFS, USMC,SDWA, SDT,CT,TU,FLC, SDC,RC	Non-Native Species	1, 3, 5	2B	20	76140	76140	76140	76140	0	304560

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SMR-SCS-10.1	Review and modify development and management plans for recreational areas and national forests (e.g., Santa Margarita River Watershed Management Plan and San Diego Regional Trails Plan, U.S. Forest Service Cleveland National Forest Land Management Plan, Southern California National Forest Vision, Forest Strategy, and Design Criteria)	USFS,USFWS, NMFS,USMC, CDFG,CDPR, CSCC,SDWA, SDT,CT,TU,FLC, SDC,RC	Recreational Facilities	1, 2, 3, 4, 5	2B	ongoing - cost of doing business	0	0	0	0	0	0
SMR-SCS-10.2	Develop and implement public education program on watershed processes	USFS,USFWS, NMFS,USMC, CDFG,CDPR, CSCC,SDWA, SDT,CT,TU,FLC, SDC,RC	Recreational Facilities	1, 2, 3, 4, 5	2B	20	76140	76140	76140	76140	0	304560
SMR-SCS-11.1	Develop and implement plan to remove or reduce approach-fill for railroad lines and roads (e.g., U.S. Interstate 5)	CDOT,CDFG, RWQCB, CSCC,USFWS, NMFS,USMC, USDOT,SDT,CT, TU,FLC,SDC, RC	Roads	1, 4	2B	10	12296511	12296511	0	0	0	24593022

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SMR-SCS-11.2	Manage roadways and adjacent riparian corridor and restore abandoned roadways	CDOT,CDFG, RWQCB, CSCC, NRCS,USFWS,NMFS,USMC, USDOT,SDT,CT, TU,FLC,SDC, RC	Roads	1, 4	3B	20 - refer to regional costs	0	0	0	0	0	0
SMR-SCS-11.3	Retrofit storm drains to filter runoff from roadways	CDOT,CDFG, RWQCB, CSCC,NRCS, USFWS,NMFS, USMC,USDOT, SDT,CT,TU,FLC, SDC,RC	Roads	1, 4	3B	20	32260	32260	32260	32260	0	129040
SMR-SCS-12.1	Develop and implement an estuary restoration management plan	USMC,USFWS, USDOT,NMFS, CDFG,CSCC, CT,TU,SDT,FLC, SDC,RC	Upslope/ Upstream activities	1, 2, 3, 4, 5	1B	5	52292680	0	0	0	0	52292680
SMR-SCS-12.2	Review and modify applicable County and/or City Local Coastal Plans	CCC,CSCC, CDFG,USFWS, NMFS,USMC, CT,TU,SDT,FLC, SDC,RC	Upslope/ Upstream activities	1, 2, 3, 4, 5	1B	5	62400	0	0	0	0	62400
SMR-SCS-13.1	Develop, adopt, and implement urban land-use planning policies and standards	CDOT,CDFG, CCC,RWQC, NMFS,USMC, USFWS,SDT,CT, TU,FLC,SDC, RC	Urban Development	1, 4	3B	5	62400	0	0	0	0	62400
SMR-SCS-14.1	Review California Regional Water Quality Control Board Watershed Plans and modify Stormwater Permits	RWQCB, SWRCB,CDFG, CDOT,USMC, USFWS,NMFS, SDT,CT,TU,FLC, SDC,RC	Urban Effluents	1, 4	1B	ongoing - cost of doing business	0	0	0	0	0	0

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SMR-SCS-14.2	Review, assess and modify NPDES wastewater discharge permits (e.g., Fallbrook Public Utility District Wastewater Treatment Facility)	RWQCB, SWRCB, CDFG, USMC, USFWS, NMFS, SDT, CT, TU, FLC, SDC, RC	Urban Effluents	1, 4	2B	ongoing - cost of doing business	0	0	0	0	0	0
SMR-SCS-14.3	Retrofit storm drains in developed areas	RWQCB, SWRCB, CDFG, CDOT, USMC, USFWS, NMFS, USDOT, SDT, CT, TU, FLC, SDC, RC	Urban Effluents	1, 4	2B	20	0	0	0	0	0	0
SMR-SCS-15.1	Develop and implement an integrated wildland fire and hazardous fuels management plan	USFS, USFWS, BLM, NMFS, USMC, USGS, CDF, CDFG, SDT, CT, TU, FLC, SDC, RC	Wildfires	1, 4, 5	2B	100 - refer to regional costs	0	0	0	0	0	0

Table 13-8. Southern California Steelhead DPS Recovery Action Table for the San Luis Rey River Watershed (Santa Catalina Gulf Coast BPG).

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
San Luis Rey River												
SLR-SCS-1.1	Develop, adopt, and implement agricultural land-use planning policies and standards	NRCS,USGS, BLM,USFS, USFWS,NMFS, CDFG, RWQCB,SDT, CT,TU,SLRWC, SDC	Agricultural Development	1, 4,	2B	5	62400	0	0	0	0	62400
SLR-SCS-1.2	Manage livestock grazing to maintain or restore aquatic habitat functions	NRCS,USGS, BLM,USFS, USFWS,NMFS, CDFG, RWQCB, SDT,CT,TU, SLRWC,SDC	Agricultural Development	1, 4,	2B	5	47520	0	0	0	0	47520
SLR-SCS-1.3	Manage agricultural development and restore riparian zones	NRCS,USGS, BLM,USFS, USFWS,NMFS, CDFG, RWQCB, SDT,CT,TU, SLRWC,SDC	Agricultural Development	1, 4,	2B	10 - refer to regional costs	0	0	0	0	0	0
SLR-SCS-2.1	Develop and implement plan to minimize runoff from agricultural activities	NRCS,USGS, BLM,USFS, USFWS,NMFS, CDFG, RWQCB, SDT,CT,TU, SLRWC,SDC	Agricultural Effluents	1, 4	2B	20 - refer to regional costs	0	0	0	0	0	0
SLR-SCS-3.1	Develop and implement plan to remove or modify fish passage barriers within the watershed	NMFS,USDOT, USFWS,CDFG, CSCC,CDOT, MWDS, DWR, SDWA,SDT,CT, TU,SLRWC,SDC	Culverts and Road Crossings (Passage Barriers)	1, 4	1A	20 - refer to regional costs	0	0	0	0	0	0

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SLR-SCS-4.1	Develop and implement a water management plan for dam operations (e.g., Pilgram, Turner, Lower and Upper Stehly, Aqua Tibia, Henshaw, and Eagles Nest dams)	NMFS, USFWS,BOR, CDFG,CSCC, MWDSC,DWR, SDWA,SDT,CT, TU,SLRWC,SDC	Dams and Surface Water Diversions	1, 3, 4	2A	20	TBD	TBD	TBD	TBD	TBD	TBD
SLR-SCS-4.2	Develop and implement water management plan for diversion operations (e.g., Escondido Diversion)	USFWS,BOR, MWDSC,DWR NMFS,USGS, CDFG,SDWA, SDT,CT,TU, SLRWC,SDC	Dams and Surface Water Diversions	1, 3, 4	2A	5	275550	0	0	0	0	275550
SLR-SCS-3/4.3	Conduct watershed-wide fish passage barrier assessment	CDOT,CDFG, CSCC,RWQC, NMFS,USMC, USFWS,SDWA SDT,CT,TU, SLRWC	Dams and Surface Water Diversions, Culverts and Road Crossings (Passage Barriers)	1, 4	1A	5	96690	0	0	0	0	96690
SLR-SCS-6.1	Conduct groundwater extraction analysis and assessment	USGS,NMFS, DWR,CDFG, MWDSC, SDWA,SDT, CT,TU,SLRWC, SDC	Groundwater Extraction	1, 4	2B	5	275550	0	0	0	0	275550
SLR-SCS-6.2	Develop and implement groundwater monitoring and management program	USGS,NMFS, DWR,CDFG, MWDSC, SDWA,SDT, CT,TU,SLRWC, SDC	Groundwater Extraction	1, 4	2B	10	254350	39775	0	0	0	294125

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SLR-SCS-7.1	Develop and implement stream bank and riparian corridor restoration plan	CDFG, RWQCB, CSCC, NRCS, USFWS, NMFS, USDOT, SDT, CT, TU, SLRWC, SDC	Levees and Channelization	1, 4	2B	100	0	0	0	0	0	0
SLR-SCS-7.2	Develop and implement plan to restore natural channel features	CDFG, RWQCB, CSCC, NRCS, USFWS, NMFS, USDOT, SDT, CT, TU, SLRWC, SDC	Levees and Channelization	1, 4	2B	20	4217625	4217625	4217625	4217625	0	16870500
SLR-SCS-7.3	Develop and implement plan to vegetate levees and eliminate or minimize herbicide use near levees	FEMA, CDFG, RWQCB, CSCC, NRCS, USFWS, NMFS, USDOT, SDT, CT, TU, SLRWC, SDC	Levees and Channelization	1, 4	2B	100	0	0	0	0	0	0
SLR-SCS-8.1	Review and modify mining operations	USGS, NMFS, USFWS, CDFG, CDMG, SDT, CT, TU, SLRWC, SDC	Mining and Quarrying	1, 4	1B	5	68030	0	0	0	0	68030
SLR-SCS-9.1	Develop and implement non-native species monitoring program	CDFG, CDPR, CSCC, USFWS, USFS, NMFS, SDT, CT, TU, SLRWC, SDC	Non-Native Species	1, 3, 5	2B	100 - refer to regional costs	0	0	0	0	0	0
SLR-SCS-9.2	Develop and implement public education program on non-native species impacts	CDFG, CDPR, CSCC, USFWS, USFS, NMFS, SDWA, SDT, CT, TU, SLRWC, SDC	Non-Native Species	1, 3, 5	2B	20	76140	76140	76140	76140	0	304560

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SLR-SCS-9.3	Develop and implement watershed-wide plan to assess the impacts of non-native species and develop control measures	CDFG,CDPR, CSCC,USFWS, USFS,NMFS, SDWA,SDT,CT, TU,SLRWC,SDC	Non-Native Species	1, 3, 5	3B	100 - refer to regional costs	0	0	0	0	0	0
SLR-SCS-10.1	Review and modify development and management plans for recreational areas and national forests (e.g., San Luis Rey River Park Master Plan and San Diego Regional Trails Plan, U.S. Forest Service Cleveland National Forest Land Management Plan, Southern California National Forest Vision, Forest Strategy, and Design Criteria)	USFS,USFWS, NMFS,CDFG, CDPR,CSCC, SDT,CT,TU, SLRWC,SDC	Recreational Facilities	1, 2, 3, 4, 5	2B	ongoing - cost of doing business	0	0	0	0	0	0
SLR-SCS-10.2	Develop and implement public education program on watershed processes	USFS,USFWS, NMFS, CDFG, CDPR,CSCC, SDWA,SDT,CT, TU,SLRWC,SDC	Recreational Facilities	1, 2, 3, 4, 5	2B	20	76140	76140	76140	76140	0	304560

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SLR-SCS-11.1	Develop and implement plan to remove or reduce approach-fill for railroad lines and roads (e.g., U.S. Interstate 5)	CDOT,CDFG, CSCC,USFWS, NMFS,USDOT,SDT,CT,TU, SLRWC,SDC	Roads	1, 4	2B	0	0	0	0	0	0	0
SLR-SCS-11.2	Manage roadways and adjacent riparian corridor and restore abandoned roadways	CDOT,CDFG, CSCC,USFWS, NMFS,USDOT,SDT,CT,TU, SLRWC	Roads	1, 4	3B	20 - refer to regional costs	0	0	0	0	0	0
SLR-SCS-11.3	Retrofit storm drains to filter runoff from roadways	CDOT,CDFG, CSCC,USFWS, NMFS,USDOT,SDT,CT,TU, SLRWC,SDC	Roads	1, 4	3B	20	32260	32260	32260	32260	0	129040
SLR-SCS-12.1	Develop and implement an estuary restoration and management plan	USMC,USFWS, USDOT,NMFS, CDFG,CSCC, CT,TU,SDT, SLRWC,SDC	Upslope/ Upstream activities	1, 2, 3, 4, 5	1B	5	8040000	0	0	0	0	8040000
SLR-SCS-12.2	Review and modify applicable County and/or City Local Coastal Plans	CCC,CSCC, CDFG,USFWS, NMFS,USMC, CT,TU,SDT, SLRWC,SDC	Upslope/ Upstream activities	1, 2, 3, 4, 5	1B	5	62400	0	0	0	0	62400
SLR-SCS-13.1	Develop, adopt, and implement urban land-use planning policies and standards	CDOT,CDFG, CCC,RWQC, NMFS,USFWS, SDT,CT,TU, SLRWC,SDC	Urban Development	1, 4	3B	5	62400	0	0	0	0	62400

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SLR-SCS-14.1	Review, assess and modify NPDES wastewater discharge permits (e.g., Buena Sanitary District Wastewater Treatment Facility and Oceanside Wastewater Treatment Facility)	RWQCB, CDFG,USFWS, NMFS,SDT,CT, TU,SLRWC,SDC	Urban Effluents	1, 4	2B	ongoing - cost of doing business	0	0	0	0	0	0
SLR-SCS-14.2	Review California Regional Water Quality Control Board Watershed Plans and modify Stormwater Permits	RWQCB, SWRCB,CDFG, USFWS,NMFS, SDT,CT,TU, SLRWC,SDC	Urban Effluents	1, 4	2B	ongoing - cost of doing business	0	0	0	0	0	0
SLR-SCS-14.3	Retrofit storm drains in developed areas	RWQCB, SWRCB,CDFG, CDOT,USDOT, USFWS,NMFS, SDT,CT,TU, SLRWC,SDC	Urban Effluents	1, 4	2B	20	0	0	0	0	0	0
SLR-SCS-15.1	Develop and implement an integrated wildland fire and hazardous fuels management plan	USFS,USFWS, BLM,NMFS, USGS,CDF, CDFG,SDT,CT, TU,SLRWC,SDC	Wildfires	1, 4, 5	2B	100 - refer to regional costs	0	0	0	0	0	0

Table 13-9. Southern California Steelhead DPS Recovery Action Table for the San Dieguito River Watershed (Santa Catalina Gulf Coast BPG).

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
San Dieguito River												
SD-SCS-1.1	Manage livestock grazing to maintain or restore aquatic habitat functions	NRCS, BLM, USFS, USFWS, NMFS, CDFG, RWQCB, SDT, CT, TU, SDRVC, SDC	Agricultural Development	1, 4	2B	20	10 - refer to regional costs	0	0	0	0	0
SD-SCS-1.2	Develop, adopt, and implement agricultural land-use planning policies and standards	NRCS, BLM, USFS, USFWS, NMFS, CDFG, RWQCB, SDT, CT, TU, SDRVC, SDC	Agricultural Development	1, 4,	2B	5	62400	0	0	0	0	62400
SD-SCS-1.3	Manage agricultural development and restore riparian zones	NRCS, BLM, USFS, USFWS, NMFS, CDFG, RWQCB, SDT, CT, TU, SDRVC, SDC	Agricultural Development	1, 4,	2B	10 - refer to regional costs	0	0	0	0	0	0
SD-SCS-2.1	Develop and implement plan to minimize runoff from agricultural activities	NRCS, USGS, BLM, USFS, USFWS, NMFS, CDFG, RWQCB, SDT, CT, TU, SDRVC, SDC	Agricultural Effluents	1, 4	3B	20 - refer to regional costs	0	0	0	0	0	0
SD-SCS-3.1	Develop and implement plan to remove or modify fish passage barriers within the watershed	NMFS, USDOT, USFWS, CDFG, CSCC, CDOT, MWDSC, DWR, SDWA, SDT, CT, TU, SDRVC, SDC	Culverts and Road Crossings (Passage Barriers)	1, 4	1A	20 - refer to regional costs	0	0	0	0	0	0

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SD-SCS-4.1	Develop and implement water management plan for diversion operations	USFWS,BOR, MWDCS,DWR NMFS,USGS, USFWS, CDFG, SDWA,SDT,CT, TU,SDRVC,SDC	Dams and Surface Water Diversions	1, 3, 4	2A	20	TBD	TBD	TBD	TBD	TBD	TBD
SD-SCS-4.2	Develop and implement a water management plan for dam operations (e.g., Fairbanks, Upper and Lower 4 S, 4 S Ranch, Lake Hodges, and Sutherland dams)	USFWS,BOR, MWDCS,DWR NMFS,USGS, USFS,USFWS, CDFG,SDWA, SDT,CT,TU, SDRVC,SDC	Dams and Surface Water Diversions	1, 3, 4	2A	20	TBD	TBD	TBD	TBD	TBD	TBD
SD-SCS-3/4.3	Conduct watershed-wide fish passage barrier assessment	CDOT,CDFG, CSCC,RWQC, NMFS, MWDCS, USFWS,SDWA, SDT,CT,TU, SDRVC,SDC	Dams and Surface Water Diversions, Culverts and Road Crossings (Passage Barriers)	1, 4	1A	5	96690	0	0	0	0	96690
SD-SCS-5.1	Develop and implement flood control maintenance program	ACOE,NMFS, USDOT,USFWS, CDFG,CSCC, CDOT,SDT,CT, TU,SDRVC,SDC	Flood Control Maintenance	1, 4	3B	100	0	0	0	0	0	0
SD-SCS-6.1	Conduct groundwater extraction analysis and assessment	USGS,NMFS, DWR,CDFG, MWDCS, SDWA,SDT, CT,TU,SDRVC, SDC	Groundwater Extraction	1, 4	2B	5	275550	0	0	0	0	275550
SD-SCS-6.2	Develop and implement groundwater monitoring and management program	USGS,NMFS, DWR,CDFG, MWDCS, SDWA,SDT, CT,TU,SDRVC, SDC	Groundwater Extraction	1, 4	2B	10	254350	39775	0	0	0	294125

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SD-SCS-7.1	Develop and implement plan to restore natural channel features	CDFG, RWQCB, CSCC, NRCS, USFWS, NMFS, USDOT, SDT, CT, TU, SDRVC, SDC	Levees and Channelization	1, 4	3B	20	4217625	4217625	4217625	4217625	0	16870500
SD-SCS-7.2	Develop and implement plan to vegetate levees and eliminate or minimize herbicide use near levees	FEMA, CDFG, RWQCB, CSCC, NRCS, USFWS, NMFS, USDOT, SDT, CT, TU, SDRVC, SDC	Levees and Channelization	1, 4	3B	100	0	0	0	0	0	0
SD-SCS-8.1	Review and modify mining operations	USGS, NMFS, USFWS, CDFG, CDMG, SDT, CT, TU, SDRVC, SDC	Mining and Quarrying	1, 4	2B	5	68030	0	0	0	0	68030
SD-SCS-9.1	Develop and implement watershed-wide plan to assess the impacts of non-native species and develop control measures	CDFG, CDPR, CSCC, USFWS, USFS, NMFS, SDWA, SDT, CT, TU, SDRVC, SDC	Non-Native Species	1, 3, 5	3B	100 - refer to regional costs	0	0	0	0	0	0
SD-SCS-9.2	Develop and implement non-native species monitoring program	CDFG, CDPR, CSCC, USFWS, USFS, NMFS, SDWA, SDT, CT, TU, SDRVC, SDC	Non-Native Species	1, 3, 5	2B	100 - refer to regional costs	0	0	0	0	0	0
SD-SCS-9.3	Develop and implement public education program on non-native species impacts	CDFG, CDPR, CSCC, USFWS, USFS, NMFS, SDWA, SDT, CT, TU, SDRVC, SDC	Non-Native Species	1, 3, 5	2B	20	76140	76140	76140	76140	0	304560

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SD-SCS-10.1	Review and modify development and management plans for recreational areas and national forests (e.g., San Dieguito River Park Concept Plan and San Diego Regional Trails Plan, U.S. Forest Service Cleveland National Forest Land Management Plan, Southern California National Forest Vision, Forest Strategy, and Design Criteria)	USFS,USFWS, NMFS,CDFG, CDPR,CSCC, SDT,CT,TU, SDRVC,SDC	Recreational Facilities	1, 2, 3, 4, 5	2B	ongoing - cost of doing business	0	0	0	0	0	0
SD-SCS-10.2	Develop and implement public education program on watershed processes	USFS,USFWS, NMFS,CDFG, CDPR,CSCC, SDWA,SDT,CT, TU,SDRVC,SDC	Recreational Facilities	1, 2, 3, 4, 5	2B	20	76140	76140	76140	76140	0	304560
SD-SCS-11.1	Develop and implement a plan to remove or reduce approach-fill for railroad lines and roads (e.g., U.S. Interstate 5	CDOT,CDFG, CSCC,USFWS, NMFS,USDOT, SDT,CT,TU, SDRVC,SDC	Roads	1, 4	2B	10	17078487	17078487	0	0	0	34156975

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SD-SCS-11.2	Manage roadways and adjacent riparian corridor and restore abandoned roadways	CDOT,CDFG, CSCC,USFWS, NMFS,USDOT, SDT,CT,TU, SDRVC,SDC	Roads	1, 4	3B	20 - refer to regional costs	0	0	0	0	0	0
SD-SCS-11.3	Retrofit storm drains to filter runoff from roadways	CDOT,CDFG, CSCC,USFWS, NMFS,USDOT, SDT,CT,TU, SDRVC,SDC	Roads	1, 4	3B	20	32260	32260	32260	32260	0	129040
SD-SCS-12.1	Develop and implement an estuary restoration and management plan	USFWS,USDOT, NMFS,CDFG, CSCC,CT,TU, SDT,SDRVC, SDC	Upslope/ Upstream activities	1, 2, 3, 4, 5	1B	5	57651160	0	0	0	0	57651160
SD-SCS-12.2	Review and modify applicable County and/or City Local Coastal Plans	CCC,CSCC, CDFG,USFWS, NMFS,CT,TU, SDT,SDRVC, SDC	Upslope/ Upstream activities	1, 2, 3, 4, 5	1B	5	62400	0	0	0	0	62400
SD-SCS-13.1	Develop, adopt, and implement urban land-use planning policies and standards	CDOT,CDFG, CCC,RWQC, NMFS,USFWS, SDT,CT,TU, SDRVC,SDC	Urban Development	1, 4	3B	5	62400	0	0	0	0	62400
SD-SCS-14.1	Review California Regional Water Quality Control Board Watershed Plans and modify Stormwater Permits	RWQCB, SWRCB,CDFG, USFWS,NMFS, SDT,CT,TU, SDRVC,SDC	Urban Effluents	1, 4	1B	ongoing - cost of doing business	0	0	0	0	0	0

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SD-SCS-14.2	Review, assess and modify NPDES wastewater discharge permits	RWQCB, SWRCB,CDFG, USFWS,NMFS, SDT,CT,TU, SDRVC,SDC	Urban Effluents	1, 4	2B	ongoing - cost of doing business	0	0	0	0	0	0
SD-SCS-14.3	Retrofit storm drains in developed areas	RWQCB, SWRCB,CDFG, USFWS,NMFS, SDT,CT,TU, SDRVC,SDC	Urban Effluents	1, 4	2B	20	0	0	0	0	0	0
SD-SCS-15.1	Develop and implement an integrated wildland fire and hazardous fuels management plan	USFS,USFWS, BLM,NMFS, USGS,CDF, CDFG,SDT,CT, TU,SDRVC,SDC	Wildfires	1, 4, 5	2B	100 - refer to regional costs	0	0	0	0	0	0

Table 13-10. Southern California Steelhead DPS Recovery Action Table for the San Diego River Watershed (Santa Catalina Gulf Coast BPG).

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
San Diego River												
SDR-SCS-1.1	Manage livestock grazing to maintain or restore aquatic habitat functions	NRCS, BLM, USFS, USFWS, NMFS, CDFG, RWQCB, SDT, CT, TU, SDRFP, SDC	Agricultural Development	1, 4	3B	10 – refer to regional costs	0	0	0	0	0	0
SDR-SCS-1.2	Develop, adopt, and implement agricultural land-use planning policies and standards	NRCS, BLM, USFS, USFWS, NMFS, CDFG, RWQCB, SDT, CT, TU, SDRFP, SDC	Agricultural Development	1, 4,	3B	5	62400	0	0	0	0	62400
SDR-SCS-1.3	Manage agricultural development and restore riparian zones	NRCS, BLM, USFS, USFWS, NMFS, CDFG, RWQCB, SDT, CT, TU, SDRFP, SDC	Agricultural Development	1, 4,	3B	10 - refer to regional costs	0	0	0	0	0	0
SDR-SCS-2.1	Develop and implement a plan to minimize runoff from agricultural activities	NRCS, USGS, BLM, USFS, USFWS, NMFS, CDFG, RWQCB, SDT, CT, TU, SDRFP, SDC	Agricultural Effluents	1, 4	3B	20 - refer to regional costs	0	0	0	0	0	0
SDR-SCS-3.1	Develop and implement plan to remove or modify fish passage barriers within the watershed	NMFS, USDOT, USFWS, USFS, CDFG, CSCC, CDOT, MWDSC, DWR, SDWA, SDT, CT, TU, SDRFP, SDC	Culverts and Road Crossings (Passage Barriers)	1, 4	1A	20 - refer to regional costs	0	0	0	0	0	0

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SDR-SCS-4.1	Develop and implement water management plan for diversion operations	USFWS,BOR, MWDCS,DWR NMFS,USGS, USFWS, CDFG, SDWA,SDT,CT, TU,SDRFP,SDC	Dams and Surface Water Diversions	1, 3, 4	2A	20	TBD	TBD	TBD	TBD	TBD	TBD
SDR-SCS-4.2	Develop and implement a water management plan for dam operations (e.g., Murray, San Vicente, El Capitan, and Cuyamaca dams)	USFWS,BOR, MWDCS,DWR NMFS,USGS, USFWS, CDFG, SDWA,SDT,CT, TU,SDRFP,SDC	Dams and Surface Water Diversions	1, 3, 4	2A	20	TBD	TBD	TBD	TBD	TBD	TBD
SDR-SCS-4.3	Provide fish passage around dams and diversions	USFWS,BOR, MWDCS,DWR NMFS,USGS, USFWS, CDFG, SDWA,SDT,CT, TU,SDRFP,SDC	Dams and Surface Water Diversions	1, 3, 4	2A	20	TBD	TBD	TBD	TBD	TBD	TBD
SDR-SCS-3/4.4	Conduct watershed-wide fish passage barrier assessment	NMFS,USDOT, USFWS,USFS, CDFG,CSCC, CDOT, MWDCS,DWR, SDWA,SDT,CT, TU,SDRFP,SDC	Dams and Surface Water Diversions, Culverts and Road Crossings (Passage Barriers)	1, 4	1A	5	96690	0	0	0	0	96690
SDR-SCS-5.1	Develop and implement flood control maintenance program	ACOE,NMFS, USDOT,USFWS, CDFG,CSCC, CDOT,SDT,CT, TU,SDRFP,SDC	Flood Control Maintenance	1, 4	2B	100	0	0	0	0	0	0
SDR-SCS-6.1	Conduct groundwater extraction analysis and assessment	USGS,NMFS, DWR,CDFG, MWDCS, SDWA,SDT,CT, TU,SDRFP,SDC	Groundwater Extraction	1, 4	2B	5	275550	0	0	0	0	275550

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SDR-SCS-6.2	Develop and implement groundwater monitoring and management program	USGS,NMFS, DWR,CDFG, MWDSC, SDWA,SDT, CT,TU,SDRFP, SDC	Groundwater Extraction	1, 4	2B	10	254350	39775	0	0	0	294125
SDR-SCS-7.1	Develop and implement stream bank and riparian corridor restoration plan	CDFG, RWQCB, CSCC,NRCS,U SFWS,NMFS, USDOT,SDT,CT, TU,SDRFP,SDC	Levees and Channelization	1, 4	3B	100	0	0	0	0	0	0
SDR-SCS-7.2	Develop and implement plan to restore natural channel features	CDFG, RWQCB, CSCC,NRCS,U SFWS,NMFS, USDOT,SDT,CT, TU,SDRFP,SDC	Levees and Channelization	1, 4	3B	20	4217625	4217625	4217625	4217625	0	16870500
SDR-SCS-7.3	Develop and implement plan to vegetate levees and eliminate or minimize herbicide use near levees	FEMA,CDFG, RWQCB, CSCC,NRCS,U SFWS,NMFS, USDOT,SDT,CT, TU,SDRFP,SDC	Levees and Channelization	1, 4	3B	100	0	0	0	0	0	0
SDR-SCS-9.1	Develop and implement non-native species monitoring program	CDFG,CDPR, CSCC,USFWS, USFS,NMFS, SDWA,SDT,CT, TU,SDRFP,SDC	Non-Native Species	1, 3, 5	2B	100 - refer to regional costs	0	0	0	0	0	0
SDR-SCS-9.2	Develop and implement public education program on non-native species impacts	CDFG,CDPR, CSCC,USFWS, USFS,NMFS, SDWA,SDT,CT, TU,SDRFP,SDC	Non-Native Species	1, 3, 5	2B	20	76140	76140	76140	76140	0	304560

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SDR-SCS-9.3	Develop and implement watershed-wide plan to assess the impacts of non-native species and develop control measures	CDFG, CDPR, CSCC, USFWS, USFS, NMFS, SDWA, SDT, CT, TU, SDRFP, SDC	Non-Native Species	1, 3, 5	3B	100 - refer to regional costs	0	0	0	0	0	0
SDR-SCS-10.1	Review and modify development and management plans for recreational areas and national forests (e.g., U.S. Forest Service Cleveland National Forest Land Management Plan, Southern California National Forest Vision, Forest Strategy, and Design Criteria)	USFS, USFWS, NMFS, CDFG, CDPR, CSCC, SDT, CT, TU, SDRFP, SDC	Recreational Facilities	1, 2, 3, 4, 5	2B	ongoing - cost of doing business	0	0	0	0	0	0
SDR-SCS-10.2	Develop and implement public education program on watershed processes	USFS, USFWS, NMFS, CDFG, CDPR, CSCC, SDWA, SDT, CT, TU, SDRFP, SDC	Recreational Facilities	1, 2, 3, 4, 5	2B	20	76140	76140	76140	76140	0	304560

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SDR-SCS-10.3	Review and modify development and management plans for recreational areas and national forests (e.g., San Diego River Park Master Plan, San Diego Regional Trails Plan, and San Diego River Watershed Management Plan)	USFS,USFWS, NMFS,CDFG, C DPR,CSCC, SDT,CT,TU, SDRFP,SDC	Recreational Facilities	1, 2, 3, 4, 5		ongoing - cost of doing business	0	0	0	0	0	0
SDR-SCS-11.1	Develop and implement plan to remove or reduce approach-fill for railroad lines and roads (e.g., U.S. Interstate 5 bridge)	CDOT,CDFG, CSCC,USFWS, NMFS,USDOT, SDT,CT,TU, SDRFP,SDC	Roads	1, 4	2B	0	0	0	0	0	0	0
SDR-SCS-11.2	Manage roadways and adjacent riparian corridor and restore abandoned roadways	CDOT,CDFG, CSCC,USFWS, NMFS,USDOT, SDT,CT,TU, SDRFP,SDC	Roads	1, 4	3B	20 - refer to regional costs	0	0	0	0	0	0
SDR-SCS-11.3	Retrofit storm drains to filter runoff from roadways	CDOT,CDFG, CSCC,USFWS, NMFS,USDOT, SDT,CT,TU, SDRFP,SDC	Roads	1, 4	3B	20	32260	32260	32260	32260	0	129040
SDR-SCS-12.1	Develop and implement an estuary restoration and management plan	USFWS,USDOT, NMFS,CDFG, CSCC,CT,TU, SDT,SDRFP, SDC	Upslope/ Upstream activities	1, 2, 3, 4, 5	1B	5	5360000	0	0	0	0	5360000

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SDR-SCS-12.2	Review and modify applicable County and/or City Local Coastal Plans	CCC,CSCC, CDFG,USFWS, NMFS,SDWA, CT,TU,SDT, SDRVC,SDC	Upslope/ Upstream activities	1, 2, 3, 4, 5	2B	5	62400	0	0	0	0	62400
SDR-SCS-13.1	Develop, adopt, and implement urban land-use planning policies and standards	CDOT,CDFG, CCC,RWQC, NMFS,USFWS, SDT,CT,TU, SDRFP,SDC	Urban Development	1, 4	3B	5	62400	0	0	0	0	62400
SDR-SCS-14.1	Review, assess and modify NPDES wastewater discharge permits (e.g., Padre Dam Water Reclamation Facility)	RWQCB, SWRCB,CDFG, USFWS,NMFS, SDT,CT,TU, SDRFP,SDC	Urban Effluents	1, 4	1B	ongoing - cost of doing business	0	0	0	0	0	0
SDR-SCS-14.2	Review California Regional Water Quality Control Board Watershed Plans and modify Stormwater Permits	RWQCB, SWRCB,CDFG, USFWS,NMFS, SDT,CT,TU, SDRFP,SDC	Urban Effluents	1, 4	1B	ongoing - cost of doing business	0	0	0	0	0	0
SDR-SCS-14.3	Retrofit storm drains in developed areas	RWQCB, SWRCB,CDFG, USFWS,NMFS, SDT,CT,TU, SDRFP,SDC	Urban Effluents	1, 4	2B	20	0	0	0	0	0	0
SDR-SCS-15.1	Develop and implement an integrated wildland fire and hazardous fuels management plan	USFS,USFWS, BLM,NMFS, USGS,CDF, CDFG,SDT,CT, TU,SDRFP,SDC	Wildfires	1, 4, 5	2B	100 - refer to regional costs	0	0	0	0	0	0

Table 13-11. Southern California Steelhead DPS Recovery Action Table for the Sweetwater River Watershed (Santa Catalina Gulf Coast BPG).

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
Sweetwater River												
SWR-SCS-1.1	Develop, adopt, and implement agricultural land-use planning policies and standards	NRCS, BLM, USFS, USFWS, NMFS, CDFG, RWQCB, SDT, CT, TU, SWA, SDC	Agricultural Development	1, 4,	2B	5	62400	0	0	0	0	62400
SWR-SCS-1.2	Manage livestock grazing to maintain or restore aquatic habitat functions	NRCS, BLM, USFS, USFWS, NMFS, CDFG, RWQCB, SDT, CT, TU, SWA, SDC	Agricultural Development	1, 4,	2B	5	47520	0	0	0	0	47520
SWR-SCS-1.3	Manage agricultural development and restore riparian zones	NRCS, BLM, USFS, USFWS, NMFS, CDFG, RWQCB, SDT, CT, TU, SWA, SDC	Agricultural Development	1, 4,	2B	10 - refer to regional costs	0	0	0	0	0	0
SWR-SCS-2.1	Develop and implement plan to minimize runoff from agricultural activities	NRCS, USGS, BLM, USFS, USFWS, NMFS, CDFG, RWQCB, SDT, CT, TU, SWA, SDC	Agricultural Effluents	1, 4	3B	20 - refer to regional costs	0	0	0	0	0	0
SWR-SCS-3.1	Develop and implement plan to remove or modify fish passage barriers within the watershed	NMFS, USDOT, USFWS, USFS, CDFG, CSCC, CDOT, MWDSC, SDWA, DWR, SDT, CT, TU, SWA, SDC	Culverts and Road Crossings (Passage Barriers)	1, 4	1A	20 - refer to regional costs	0	0	0	0	0	0

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SWR-SCS-4.1	Develop and implement a water management plan for dam operations (e.g., Sweetwater Main, Willow Tree, Loveland, and Palo Verde dams)	USFWS,BOR, MWDCS,DWR NMFS,USGS, USFWS,CDFG, SDWA,SDT,CT, TU,SWA,SDC	Dams and Surface Water Diversions	1, 3, 4	2A	20	TBD	TBD	TBD	TBD	TBD	TBD
SWR-SCS-4.2	Develop and implement water management plan for diversion operations	USFWS,BOR, MWDCS,DWR NMFS,USGS, USFWS,CDFG, SDT,CT,TU, SWA,SDC	Dams and Surface Water Diversions	1, 3, 4	2A	5	275550	0	0	0	0	275550
SWR-SCS-4.3	Provide fish passage around dams and diversions	USFWS,BOR, MWDCS,DWR NMFS,USGS, USFWS,CDFG, SDWA,SDT,CT, TU,SWA,SDC	Dams and Surface Water Diversions	1, 3, 4	2A	20	TBD	TBD	TBD	TBD	TBD	TBD
SWR-SCS-3/4.4	Conduct watershed-wide fish passage barrier assessment	NMFS,USDOT, USFWS,USFS, CDFG,CSCC, CDOT, MWDCS, SDWA,DWR, SDT,CT,TU, SWA,SDC	Dams and Surface Water Diversions, Culverts and Road Crossings (Passage Barriers)	1, 4	1A	5	96690	0	0	0	0	96690
SWR-SCS-5.1	Develop and implement flood control maintenance program	ACOE,NMFS, USDOT,USFWS, CDFG,CSCC, CDOT,SDT,CT, TU,SWA,SDC	Flood Control Maintenance	1, 4	2B	100	0	0	0	0	0	0

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SWR-SCS-6.1	Conduct groundwater extraction analysis and assessment	USGS,NMFS, DWR,CDFG, MWDCS,SDT, CT,TU,SWA, SDC	Groundwater Extraction	1, 4	2B	5	275550	0	0	0	0	275550
SWR-SCS-6.2	Develop and implement groundwater monitoring and management program	USGS,NMFS, DWR,CDFG, MWDCS,SDT, CT,TU,SWA, SDC,SDC	Groundwater Extraction	1, 4	2B	10	254350	39775	0	0	0	294125
SWR-SCS-7.1	Develop and implement stream bank and riparian corridor restoration plan	CDFG, RWQCB, CSCC,NRCS,U SFWS,NMFS, USDOT,SDT,CT, TU,SWA,SDC	Levees and Channelization	1, 4	3B	100	0	0	0	0	0	0
SWR-SCS-7.2	Develop and implement plan to restore natural channel features	CDFG, RWQCB, CSCC,NRCS,U SFWS,NMFS, USDOT,SDT,CT, TU,SWA,SDC	Levees and Channelization	1, 4	3B	20	4217625	4217625	4217625	4217625	0	16870500
SWR-SCS-7.3	Develop and implement plan to vegetate levees and eliminate or minimize herbicide use near levees	FEMA,CDFG, RWQCB, CSCC,NRCS,U SFWS,NMFS, USDOT,SDT,CT, TU,SWA,SDC	Levees and Channelization	1, 4	3B	100	0	0	0	0	0	0
SWR-SCS-9.1	Develop and implement watershed-wide plan to assess the impacts of non-native species and develop control measures	CDFG,CDPR, CSCC,USFWS, USFS,NMFS, SWMNWR SDT,CT,TU, SWA,SDC	Non-Native Species	1, 3, 5	3B	100 - refer to regional costs	0	0	0	0	0	0

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SWR-SCS-9.2	Develop and implement non-native species monitoring program	CDFG,CDPR, CSCC,USFWS, USFS,NMFS, SWMNWR, SDWA,SDT,CT, TU,SWA,SDC	Non-Native Species	1, 3, 5	2B	100 - refer to regional costs	0	0	0	0	0	0
SWR-SCS-9.3	Develop and implement public education program on non-native species impacts	CDFG,CDPR, CSCC,USFWS, USFS,NMFS, SWMNWR, SDWA,SDT,CT, TU,SWA,SDC	Non-Native Species	1, 3, 5	2B	20	76140	76140	76140	76140	0	304560
SWR-SCS-10.1	Review and modify development and management plans for recreational areas and national forests (e.g., Sweetwater River Watershed Management Plan, Sweetwater Marsh National Wildlife Management Plan)	USFS,USFWS, NMFS,CDFG, CDPR,CSCC, SDT,CT,TU, SWA,SDC	Recreational Facilities	1, 2, 3, 4, 5	2B	ongoing - cost of doing business	0	0	0	0	0	0
SWR-SCS-10.2	Develop and implement public education program on watershed processes	USFS,USFWS, NMFS,CDFG, CDPR,CSCC, SDWA,SDT,CT, TU,SWA,SDC	Recreational Facilities	1, 2, 3, 4, 5	2B	20	76140	76140	76140	76140	0	304560
SWR-SCS-11.1	Develop and implement plan to remove or reduce approach-fill for railroad lines and roads (e.g., U.S. Interstate 5)	CDOT,CDFG, CSCC,USFWS, NMFS,USDOT, SDT,CT,TU, SWA,SDC	Roads	1, 4	2B	ongoing - cost of doing business	0	0	0	0	0	0

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SWR-SCS-11.2	Manage roadways and adjacent riparian corridor and restore abandoned roadways	CDOT,CDFG, CSCC,USFWS, NMFS,USDOT, SDT,CT,TU, SDWA,SDC	Roads	1, 4	3B	20 - refer to regional costs	0	0	0	0	0	0
SWR-SCS-11.3	Retrofit storm drains to filter runoff from roadways	CDOT,CDFG, CSCC,USFWS, NMFS,USDOT, SDT,CT,TU, SWA,SDC	Roads	1, 4	3B	20	32260	32260	32260	32260	0	129040
SWR-SCS-12.1	Develop and implement an estuary restoration and management plan	USFWS,USDOT, NMFS, SWMNWR, CDFG,CSCC, CT,TU,SDT, SWA,SDC	Upslope/ Upstream activities	1, 2, 3, 4, 5	1B	5	2010000	0	0	0	0	2010000
SWR-SCS-12.2	Review and modify applicable County and/or City Local Coastal Plans	CCC,CSCC, CDFG,USFWS, NMFS,CT,TU, SDT,SWA,SDC	Upslope/ Upstream activities	1, 2, 3, 4, 5	1B	5	62400	0	0	0	0	62400
SWR-SCS-13.1	Develop, adopt, and implement urban land-use planning policies and standards	CDOT,CDFG, CCC,RWQC, NMFS,USFWS, SDT,CT,TU, SWA,SDC	Urban Development	1, 4	3B	5	62400	0	0	0	0	62400
SWR-SCS-14.1	Review California Regional Water Quality Control Board Watershed Plans and modify Stormwater Permits	RWQCB, SWRCB,CDFG, USFWS,NMFS, SDT,CT,TU, SWA,SDC	Urban Effluents	1, 4	1B	ongoing - cost of doing business	0	0	0	0	0	0

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
SWR-SCS-14.2	Review, assess and modify NPDES wastewater discharge permits (e.g., San Diego City Point Loma Wastewater Treatment Facility)	RWQCB, SWRCB,CDFG, USFWS,NMFS, SDT,CT,TU, SWA,SDC	Urban Effluents	1, 4	2B	ongoing - cost of doing business	0	0	0	0	0	0
SWR-SCS-14.3	Retrofit storm drains in developed areas	RWQCB, SWRCB,CDFG, USFWS,NMFS, SDT,CT,TU, SWA,SDC	Urban Effluents	1, 4	2B	20	0	0	0	0	0	0
SWR-SCS-15.1	Develop and implement an integrated wildland fire and hazardous fuels management plan	USFS,USFWS, BLM,NMFS, USGS,CDF, CDFG,SDT,CT, TU,SWA,SDC	Wildfires	1, 4, 5	2B	100 - refer to regional costs	0	0	0	0	0	0

Table 13-12. Southern California Steelhead DPS Recovery Action Table for the Otay River Watershed (Santa Catalina Gulf Coast BPG).

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
Otay River												
OR-SCS-1.1	Develop, adopt, and implement agricultural land-use planning policies and standards	NRCS, BLM, USFS, USFWS, NMFS, CDFG, RWQCB, SDT, CT, TU, ORCP, SDC	Agricultural Development	1, 4,	3B	5	62400	0	0	0	0	62400
OR-SCS-1.2	Manage livestock grazing to maintain or restore aquatic habitat functions	NRCS, BLM, USFS, USFWS, NMFS, CDFG, RWQCB, SDT, CT, TU, ORCP, SDC	Agricultural Development	1, 4,	3B	5	47520	0	0	0	0	47520
OR-SCS-1.3	Manage agricultural development and restore riparian zones	NRCS, BLM, USFS, USFWS, NMFS, CDFG, RWQCB, SDT, CT, TU, ORCP, SDC	Agricultural Development	1, 4,	3B	10 - refer to regional costs	0	0	0	0	0	0
OR-SCS-2.1	Develop and implement plan to minimize runoff from agricultural activities	NRCS, USGS, BLM, USFS, USFWS, NMFS, CDFG, RWQCB, SDT, CT, TU, ORCP, SDC	Agricultural Effluents	1, 4	3B	20 - refer to regional costs	0	0	0	0	0	0
OR-SCS-3.1	Develop and implement plan to remove or modify fish passage barriers within the watershed	NMFS, USDOT, USFWS, CDFG, CSCC, CDOT, MWDSC, SDWA, DWR, SDT, CT, TU, ORCP, SDC	Culverts and Road Crossings (Passage Barriers)	1, 4	3A	20 - refer to regional costs	0	0	0	0	0	0

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
OR-SCS-4.1	Develop and implement water management plan for diversion operations	NMFS,USGS USFWS,BOR, MWDSC,DWR, CDFG,SDWA, SDT,CT,TU, ORCP,SDC	Dams and Surface Water Diversions	1, 3, 4	2A	20	TBD	TBD	TBD	TBD	TBD	TBD
OR-SCS-4.2	Develop and implement a water management plan for dam operations (e.g., Salvage and Upper Otay dams)	NMFS,USGS USFWS,BOR, MWDSC,DWR, CDFG,SDWA, SDT,CT,TU, ORCP,SDC	Dams and Surface Water Diversions	1, 3, 4	2A	20	TBD	TBD	TBD	TBD	TBD	TBD
OR-SCS-4.3	Provide fish passage around dams and diversions	NMFS,USGS USFWS,BOR, MWDSC,DWR, CDFG,SDWA, SDT,CT,TU, ORCP,SDC	Dams and Surface Water Diversions	1, 3, 4	2A	20	TBD	TBD	TBD	TBD	TBD	TBD
OR-SCS-3/4.4	Conduct watershed-wide fish passage barrier assessment	DWR,CDOT, CDFG,CSCC, NMFS,USFWS, MWDSC, SDWA,SDT, CT,TU,ORCP, SDC	Dam and Surface Water Diversions, Culverts and Road Crossings (Passage Barriers)	1, 4	3A	5	96690	0	0	0	0	96690
OR-SCS-5.1	Develop and implement flood control maintenance program	ACOE,NMFS, USDOT,USFWS, CDFG,CSCC, CDOT,SDT,CT, TU,ORCP,SDC	Flood Control Maintenance	1, 4	3B	100	0	0	0	0	0	0
OR-SCS-6.1	Conduct groundwater extraction analysis and assessment	USGS,NMFS, DWR,CDFG, MWDSC, SDWA,SDT, CT,TU,ORCP, SDC	Groundwater Extraction	1, 4	3B	5	275550	0	0	0	0	275550

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
OR-SCS-6.2	Develop and implement groundwater monitoring and management program	USGS,NMFS, DWR,CDFG, MWDSC, SDWA,SDT, CT,TU,ORCP, SDC	Groundwater Extraction	1, 4	3B	10	254350	39775	0	0	0	294125
OR-SCS-7.1	Develop and implement stream bank and riparian corridor restoration plan	CDFG, RWQCB, CSCC,NRCS,U SFWS,NMFS, USDOT,SDT,CT, TU,ORCP,SDC	Levees and Channelization	1, 4	3B	100	0	0	0	0	0	0
OR-SCS-7.2	Develop and implement plan to restore natural channel features	CDFG, RWQCB, CSCC,NRCS,U SFWS,NMFS,US DOT,SDT,CT, TU,ORCP,SDC	Levees and Channelization	1, 4	3B	20	4217625	4217625	4217625	4217625	0	16870500
OR-SCS-7.3	Develop and implement a plan to vegetate levees and eliminate or minimize herbicide use near levees	FEMA,CDFG, RWQCB, CSCC,NRCS,U SFWS,NMFS, USDOT,SDT,CT, TU,ORCP,SDC	Levees and Channelization	1, 4	3B	100	0	0	0	0	0	0
OR-SCS-9.1	Develop and implement watershed-wide plan to assess the impacts of non-native species and develop control measures	CDFG,CDPR, CSCC,USFWS, USFS,NMFS, SDWA,SDT, CT,TU,ORCP, SDC	Non-Native Species	1, 3, 5	3B	100 - refer to regional costs	0	0	0	0	0	0
OR-SCS-9.2	Develop and implement non-native species monitoring program	CDFG,CDPR, CSCC,USFWS, USFS,NMFS, SDWA,SDT,CT, TU,ORCP,SDC	Non-Native Species	1, 3, 5	2B	100 - refer to regional costs	0	0	0	0	0	0

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
OR-SCS-9.3	Develop and implement public education program on non-native species impacts	CDFG,CDPR, CSCC,USFWS, USFS,NMFS, SDWA,SDT,CT, TU,ORCP,SDC	Non-Native Species	1, 3, 5	2B	20	76140	76140	76140	76140	0	304560
OR-SCS-10.1	Review and modify development and management plans for recreational areas and national forests (e.g., Otay River Watershed Management Plan and Otay Valley Regional Park Management Plan, U.S. Forest Service Cleveland National Forest Land Management Plan, Southern California National Forest Vision, Forest Strategy, and Design Criteria)	USFS,USFWS, NMFS,CDFG, CDPR,CSCC, SDT,CT,TU, ORCP,SDC	Recreational Facilities	1, 2, 3, 4, 5	3B	ongoing - cost of doing business	0	0	0	0	0	0
OR-SCS-10.2	Develop and implement public education program on watershed processes	USFS,USFWS, NMFS,CDFG, CDPR,CSCC, SDWA, SDT,CT,TU, ORCP,SDC	Recreational Facilities	1, 2, 3, 4, 5	3B	20	76140	76140	76140	76140	0	304560
OR-SCS-11.1	Manage roadways and adjacent riparian corridor and restore abandoned roadways	DOT,CT,TU, SDT,CT,TU, ORCP,SDC	Roads	1, 4	3B	20 - refer to regional costs	0	0	0	0	0	0

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
OR-SCS-11.2	Develop and implement a plan to remove or reduce approach-fill for railroad lines and roads (e.g., U.S. Interstate 5)	CDOT,CDFG, CSCC,USFWS, NMFS,USDOT, SDT,CT,TU, ORCP,SDC	Roads	1, 4	3B	ongoing - cost of doing business	0	0	0	0	0	0
OR-SCS-11.3	Retrofit storm drains to filter runoff from roadways	CDOT,CDFG, CSCC,USFWS, NMFS,USDOT, SDT,CT,TU, ORCP,SDC	Roads	1, 4	3B	20	32260	32260	32260	32260	0	129040
OR-SCS-12.1	Develop and implement an estuary restoration and management plan	USFWS,USDOT, NMFS,CDFG, CSCC,CT,TU, SDT,ORCP, SDC	Upslope/ Upstream activities	1, 2, 3, 4, 5	3B	5	670000	0	0	0	0	670000
OR-SCS-12.2	Review and modify applicable County and/or City Local Coastal Plans	CCC,CSCC, CDFG,USFWS, NMFS,CT,TU, SDT,ORCP, SDC	Upslope/ Upstream activities	1, 2, 3, 4, 5	3B	5	62400	0	0	0	0	62400
OR-SCS-13.1	Develop, adopt, and implement urban land-use planning policies and standards	CDOT,CDFG, CCC,RWQC, NMFS,USFWS, SDT,CT,TU, ORCP,SDC	Urban Development	1, 4	3B	5	62400	0	0	0	0	62400
OR-SCS-14.1	Retrofit storm drains in developed areas	RWQCB, SWRCB,CDFG, USFWS,NMFS, SDT,CT,TU, ORCP,SDC	Urban Effluents	1, 4	2B	20	0	0	0	0	0	0
OR-SCS-14.2	Review, assess and modify NPDES wastewater discharge permits	RWQCB, SWRCB,CDFG, USFWS,NMFS, SDT,CT,TU, ORCP,SDC	Urban Effluents	1, 4	3B	ongoing - cost of doing business	0	0	0	0	0	0

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
OR-SCS-15.1	Develop and implement an integrated wildland fire and hazardous fuels management plan	USFS,USFWS, BLM,NMFS, USGS,CDF, CDFG,SDT,CT, TU,ORCP,SDC	Wildfires	1, 4, 5	3B	100 - refer to regional costs	0	0	0	0	0	0

Table 13-13. Southern California Steelhead DPS Recovery Action Table for the Tijuana River Watershed (Santa Catalina Gulf Coast BPG).

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
Tijuana River												
TR-SCS-1.1	Manage livestock grazing to maintain or restore aquatic habitat functions	NRCS,BLM, USFS,USFWS, NMFS,CDFG, RWQCB,SDT, CT,TU,SDSRF, TRAN,SDC	Agricultural Development	1, 4,	3B	5	62400	0	0	0	0	62400
TR-SCS-1.2	Develop, adopt, and implement agricultural land-use planning policies and standards	NRCS,BLM, USFS,USFWS, NMFS,CDFG, RWQCB,SDT, CT,TU,SDSRF, TRAN,SDC	Agricultural Development	1, 4,	3B	5	62400	0	0	0	0	62400
TR-SCS-1.3	Manage agricultural development and restore riparian zones	NRCS,BLM, USFS,USFWS, NMFS,CDFG, RWQCB,SDT, CT,TU,SDSRF, TRAN,SDC	Agricultural Development	1, 4,	3B	10 - refer to regional costs	0	0	0	0	0	0
TR-SCS-2.1	Develop and implement plan to minimize runoff from agricultural activities	NRCS,USGS, BLM,USFS, USFWS, NMFS,TRNER, CDFG, RWQCB,SDT, CT,TU,SDSRF, TRAN,SDC	Agricultural Effluents	1, 4	3B	20 - refer to regional costs	0	0	0	0	0	0
TR-SCS-3.1	Develop and implement plan to remove or modify fish passage barriers within the watershed	NMFS,USFWS, USDOT,CDOT, CDFG,CSCC, DWR, MWDSC, SDWA,SDT,CT, TU,SDSRF, TRAN,SDC	Culverts and Road Crossings (Passage Barriers)	1, 4	1A	20 - refer to regional costs	0	0	0	0	0	0

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
TR-SCS-4.1	Develop and implement water management plan for diversion operations	USFWS,BOR, MWDCS,DWR NMFS,USGS, USFWS,TRNER, CDFG,SDWA, SDT,CT,TU, SDSRF,TRAN, SDC	Dams and Surface Water Diversions	1, 3, 4	2A	20	TBD	TBD	TBD	TBD	TBD	TBD
TR-SCS-4.2	Develop and implement a water management plan for dam operations (e.g., Barrett Dam, Henry Jr. Dam, Campo Lake Dam, Morena Dam, Corte Madera Dam, Thin Valley Dam)	USFWS,BOR, MWDCS,DWR NMFS,USGS, USFWS,TRNER, CDFG,SDWA SDT,CT,TU, SDSRF,TRAN, SDC	Dams and Surface Water Diversions	1, 3, 4	2A	20	TBD	TBD	TBD	TBD	TBD	TBD
TR-SCS-4.3	Provide fish passage around dams and diversions	USFWS,BOR, MWDCS,DWR NMFS,USGS, USFWS,TRNER, CDFG,SDWA, SDT,CT,TU, SDSRF,TRAN, SDC	Dams and Surface Water Diversions	1, 3, 4	2A	20	TBD	TBD	TBD	TBD	TBD	TBD
TR-SCS-3/4.4	Conduct watershed-wide fish passage barrier assessment	NMFS,USFWS, USDOT,CDOT, CDFG,CSCC, DWR, MWDCS, SDWA,SDT,CT, TU,SDSRF, TRAN,SDC	Dams and Surface Water Diversions, Culverts and Road Crossings (Passage Barriers)	1, 4	1A	5	96690	0	0	0	0	96690
TR-SCS-5.1	Develop and implement flood control maintenance program	ACOE,NMFS, USDOT,USFWS, TRNER,CDFG, CSCC,CDOT, SDT,CT,TU, SDSRF,TRAN, SDC	Flood Control Maintenance	1, 4	3B	100	0	0	0	0	0	0

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
TR-SCS-6.1	Conduct groundwater extraction analysis and assessment	USGS,NMFS, TRNER, DWR,CDFG, MWDS, SDWA,SDT,CT, TU,SDSRF, TRAN,SDC	Groundwater Extraction	1, 4	2B	5	275550	0	0	0	0	275550
TR-SCS-6.2	Develop and implement groundwater monitoring and management program	USGS,NMFS, TRNER,DWR, CDFG, MWDS, SDWA,SDT, CT,TU,SDSRF, TRAN,SDC	Groundwater Extraction	1, 4	2B	10	254350	39775	0	0	0	294125
TR-SCS-7.1	Develop and implement stream bank and riparian corridor restoration plan	CDFG, RWQCB, CSCC,NRCS,U SFWS,NMFS, USDOT,SDT,CT, TU,SDSRF,TRAN	Levees and Channelization	1, 4	3B	100	0	0	0	0	0	0
TR-SCS-7.2	Develop and implement plan to restore natural channel features	CDFG, RWQCB, CSCC,NRCS,U SFWS,NMFS, USDOT,SDT,CT, TU,SDSRF, TRAN,SDC	Levees and Channelization	1, 4	3B	20	4217625	4217625	4217625	4217625	0	16870500
TR-SCS-7.3	Develop and implement plan to vegetate levees and eliminate or minimize herbicide use near levees	FEMA,CDFG, RWQCB, CSCC,NRCS,U SFWS,NMFS, USDOT,SDT,CT, TU,SDSRF,TRAN	Levees and Channelization	1, 4	3B	100	0	0	0	0	0	0
TR-SCS-9.1	Develop and implement watershed-wide plan to assess the impacts of non-native species and develop control measures	CDFG,CDPR, CSCC,USFWS, USFS,NMFS, TRNER,SDWA SDT,CT,TU, SDSRF,TRAN, SDC	Non-Native Species	1, 3, 5	3B	100 - refer to regional costs	0	0	0	0	0	0

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
TR-SCS-9.2	Develop and implement a non-native species monitoring program	CDFG,CDPR, CSCC,USFWS, USFS,NMFS, TRNER,SDWA, SDT,CT, TU,SDSRF, TRAN,SDC	Non-Native Species	1, 3, 5	2B	100 - refer to regional costs	0	0	0	0	0	0
TR-SCS-9.3	Develop and implement public education program on non-native species impacts	CDFG,CDPR, CSCC,USFWS, USFS,NMFS, TRNER,SDWA, SDT,CT, TU,SDSRF, TRAN,SDC	Non-Native Species	1, 3, 5	2B	20	76140	76140	76140	76140	0	304560
TR-SCS-10.1	Review and modify development and management plans for recreational areas and national forests (e.g., Tijuana River Watershed Management Plan, Tijuana River Valley Regional Park Management Plan, Border Field State Park Management Plan, and Tijuana River National Estuarine Research Reserve Plan)	USFS,USFWS, NMFS,TRNER, CDFG,CDPR, CSCC,SDT,CT, TU,SDSRF, TRAN,SDC	Recreational Facilities	1, 2, 3, 4, 5	2B	ongoing - cost of doing business	0	0	0	0	0	0
TR-SCS-10.2	Develop and implement public education program on watershed processes	USFS,USFWS, NMFS,TRNER, CDFG,CDPR, CSCC,SDWA, SDT,CT,TU, SDSRF,TRAN, SDC	Recreational Facilities	1, 2, 3, 4, 5	2B	20	76140	76140	76140	76140	0	304560

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
TR-SCS-12.1	Review and modify applicable County and/or City Local Coastal Plans	CCC,CSCC, CDFG,USFWS, NMFS,TRNER, CT,TU,SDT, SDSRF, TRAN,SDC	Upslope/ Upstream activities	1, 2, 3, 4, 5	1B	5	62400	0	0	0	0	62400
TR-SCS-13.1	Develop, adopt, and implement urban land-use planning policies and standards	CDOT,CDFG, CCC,RWQC, NMFS,USFWS, SDT,CT,TU, SDSRF,TRAN, SDC	Urban Development	1, 4	3B	5	62400	0	0	0	0	62400
TR-SCS-14.1	Review, assess and modify NPDES wastewater discharge permits (e.g., South Bay International Wastewater Treatment Facility and South Bay Water Reclamation Facility)	RWQCB, SWRCB,CDFG, USFWS,NMFS, TRNER,SDT,CT, TU,SDSRF, TRAN,SDC	Urban Effluents	1, 4	1B	ongoing - cost of doing business	0	0	0	0	0	0
TR-SCS-14.2	Review California Regional Water Quality Control Board Watershed Plans and modify Stormwater Permits	RWQCB, SWRCB,CDFG, USFWS,NMFS, TRNER,SDT,CT, TU,SDSRF, TRAN,SDC	Urban Effluents	1, 4	1B	ongoing - cost of doing business	0	0	0	0	0	0
TR-SCS-14.3	Retrofit storm drains in developed areas	USDOT,CDOT, RWQCB, SWRCB,CDFG, USFWS,NMFS, TRNER,SDT,CT, TU,SDSRF, TRAN,SDC	Urban Effluents	1, 4	2B	20	0	0	0	0	0	0

Action #	Recovery Action Description	Potential Collaborators	Threat Source	Listing Factors (1 - 5)	Action Rank (1A, 1B, 2A, 2B, 3A, 3B)	Task Duration	Estimated Costs (\$)					
							FY 1-5	FY 6-10	FY 11-15	FY 16-20	FY 21-25	FY 1-100
TR-SCS-15.1	Develop and implement an integrated wildland fire and hazardous fuels management plan	USFS,USFWS, BLM,NMFS, USGS,TRNER CDF,CDFG, SDT,CT,TU, SDSRF,TRAN, SDC	Wildfires	1, 4, 5	2B	100 - refer to regional costs	0	0	0	0	0	0