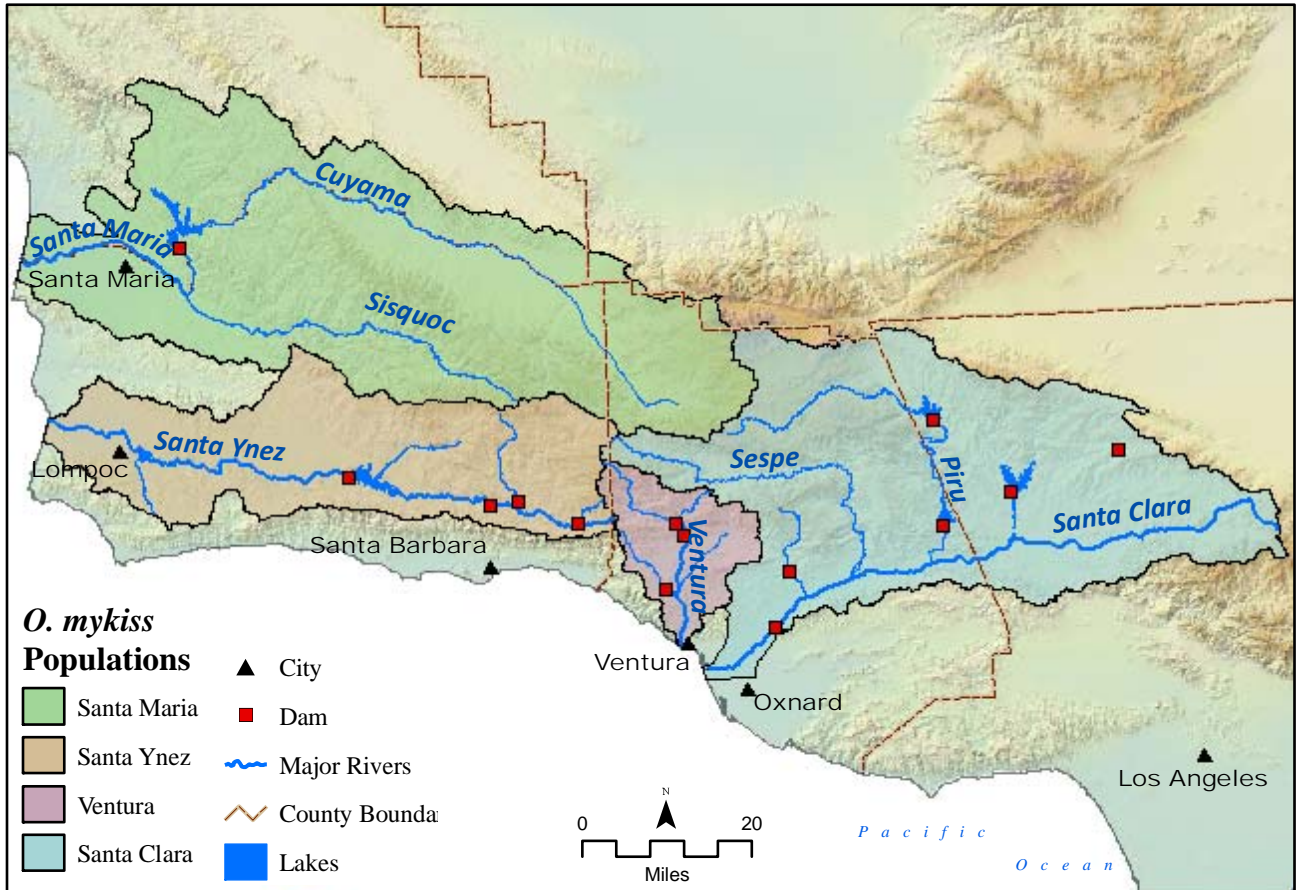




# Monte Arido Highlands Biogeographic Population Group



## Recovery Foundation Populations (Core 1 Populations)

- Santa Maria River
- Santa Ynez River
- Ventura River
- Santa Clara River

## Threats

- Dams and surface water diversions (including groundwater extraction) driven by agricultural and urban development on the major rivers of the Monte Arido Highlands BPG region (Santa Maria River, Santa Ynez River, Ventura River, and Santa Clara River).
- Agricultural and urban development has severely constrained floodplain connectivity on sections of the floodplains of the Santa Maria River, lower Sisquoc River, Santa Ynez River, Ventura River, Coyote Creek, San Antonio Creek, Santa Clara River, and lower Sespe Creek.
- The Santa Ynez River, Sespe Creek, and Piru Creek watersheds are threatened by mass wasting of slopes and loss of riparian canopy cover due to fires that occurred in 2006 and 2007.



Santa Maria River



Santa Clara River Steelhead – 28 inches



Matilija Dam

### Critical Recovery Actions

- Implement operating criteria to ensure the pattern and magnitude of water releases from Bradbury, Gibraltar, Juncal, Twitchell, Casitas, Matilija, Robles Diversion, Vern Freeman Diversion, Santa Felicia, Pyramid, and Castaic dams comport with the natural or pre-dam pattern and magnitude of stream flow in downstream reaches. Physically modify these dams to allow unimpeded volitional migration of steelhead to upstream spawning and rearing habitats.
- Identify, protect, and where necessary restore estuarine and freshwater rearing habitats.
- Conduct hydrological analysis as well as develop and implement a groundwater monitoring program to ensure adequate stream flows, particularly summer base flows.
- Develop and implement a plan to assess and control non-native aquatic animal and plant species.
- Develop and implement an integrated wildland fire and hazardous fuels management plan, including monitoring, remediation and adaptive management.
- Develop and implement a plan to minimize runoff from agricultural activities and minimize herbicide use near levees.
- Develop and implement a flood control maintenance programs to minimize disruption of instream habitats.
- Develop and implement a plan to restore natural channel features degraded by flood control activities or encroaching development.



# Conception Coast Biogeographic Population Group



## Recovery Foundation Populations (Core 1 and Core 2 Populations)

### Core 1 Populations

- Mission Creek
- Carpinteria Creek
- Rincon Creek

### Core 2 Populations

- Gaviota Creek
- Goleta Slough Complex (Maria Ygnacio, Atascadero, Los Carneros, San Pedro, and Vegas Creek)

## Threats

- Road crossing, such as Highway 101 and the Union Pacific Railroad tracks, and debris basins cut-off or severely impede access to upstream habitats and damage estuarine habitat (estuarine habitats have been reduced in size by 70-95%).
- Increased road density has led to increased non-point pollution, sedimentation, substrate embeddedness, floodplain encroachment and constriction, channel incision, and loss of channel structural complexity.
- Groundwater extraction for agriculture has significantly altered flow regimes, particularly in the lower stream reaches, and thus adversely affected both upstream and downstream fish passage as well as spawning and rearing opportunities.

- Levees and channelization associated with urban encroachment have restricted or eliminated riparian habitat, and urban and agricultural development (particularly on steep slopes) has altered run-off patterns and increased erosion and sedimentation, particularly in lower stream reaches.



Maria Ygnacio Creek



Steelhead – Carpinteria Creek



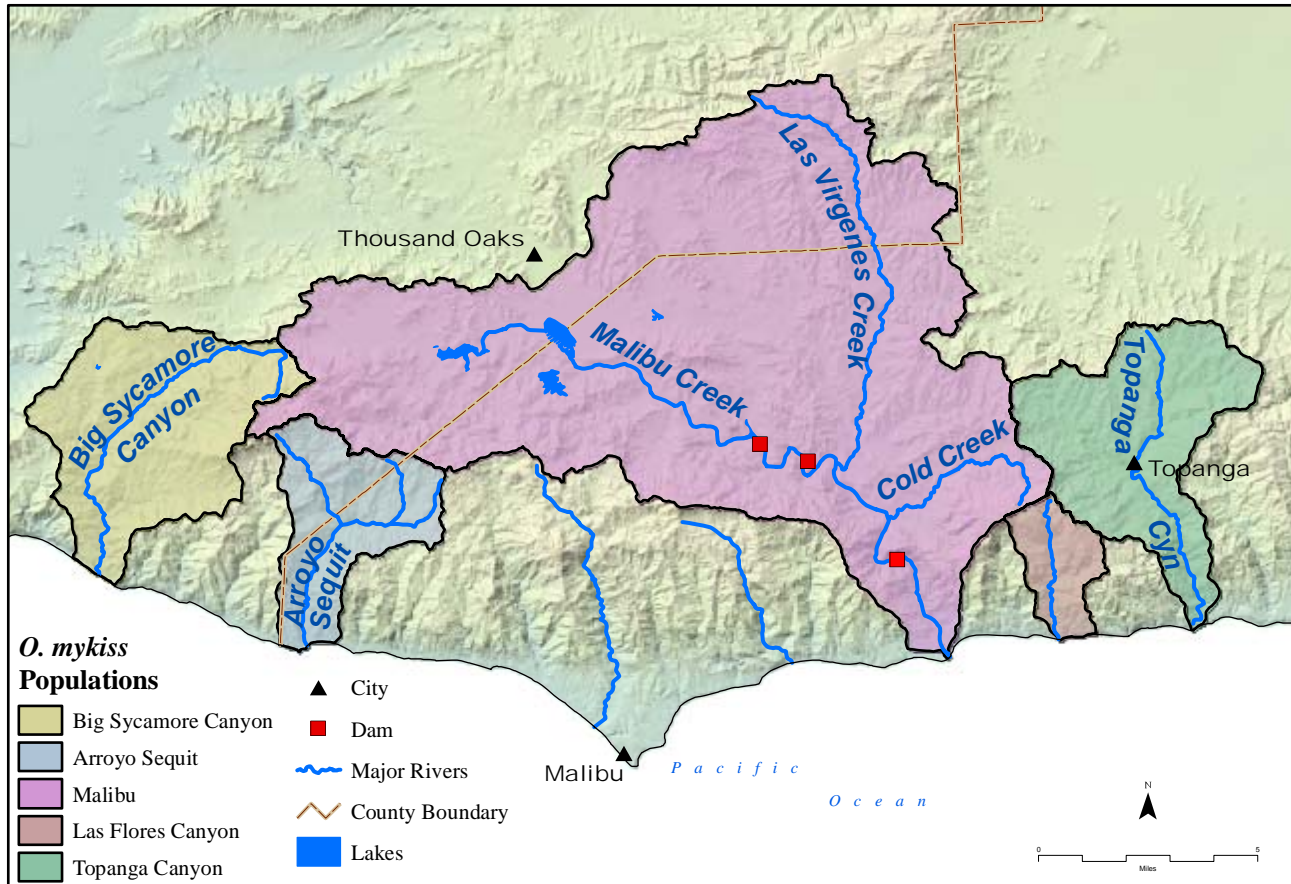
Rincon Creek Estuary

### **Critical Recovery Actions**

- Physically modify road crossings, highways, and railways to allow unimpeded volitional migration of steelhead to upstream spawning and rearing habitats.
- Halt the unnatural dry-season reduction in the amount and extent of surface water to restore natural or pre-impact over-summering habitat characteristics and conditions for steelhead.
- Identify, protect, and where necessary restore estuarine and freshwater rearing habitats.
- Develop and implement an integrated wildland fire and hazardous fuels management plan, including monitoring, remediation, and adaptive management.
- Develop, adopt, and implement urban land-use planning policies and standards to reduce impacts to freshwater, riparian, and estuarine habitats.



# Santa Monica Mountains Biogeographic Population Group



## Recovery Foundation Populations (Core 1 and Core 2 Populations)

### Core 1 Populations

- Malibu Creek

### Core 2 Populations

- Arroyo Sequit
- Topanga Canyon

## Threats

- Dams and road crossings have affected hydrological characteristics and fish passage opportunities in Malibu Creek.
- Recreational facilities are recurring sources of direct and indirect threats, including:
  - Roadway stream crossings in and around campgrounds that pose physical barriers to upstream and/or downstream movement
  - Introduction of non-native plants, and destruction of redds by foot traffic and off-road vehicles
  - Loss of, or disturbance to, riparian corridors around campgrounds
  - Constriction of the floodplain
- Highway 1 crossings over estuaries at the mouth of creeks have degraded or eliminated estuarine habitat.



Malibu Coast



Steelhead – Malibu Creek



Rindge Dam – Malibu Creek

- Road density alters surface runoff patterns, encroaches on floodplains, and decreases floodplain connectivity.
- Road crossings create barriers to upstream and downstream movement of fish.
- Bank stabilization and levee construction provide conduits for sediment, pollutant, and pathogenic inputs to the watercourse
- Fires have consumed 71% to 100% of the Big Sycamore Canyon Creek, Arroyo Sequit, Malibu Creek, and Las Flores Canyon Creek watersheds within the past 25 years, including recent fires in 2007

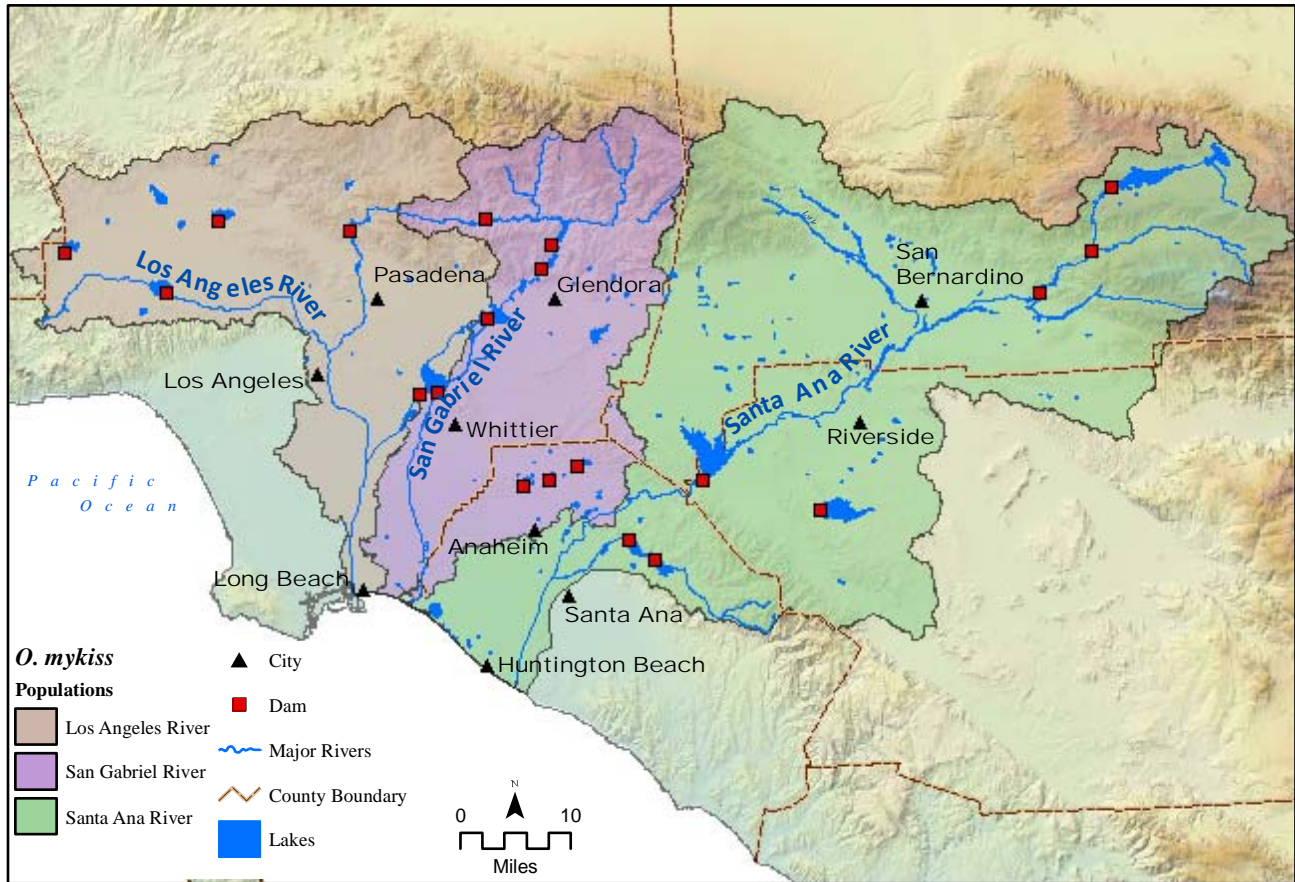
Estuarine habitat loss in the component watersheds of the Santa Monica Mountains BPG region ranges from 66-97%

### **Critical Recovery Actions**

- Remove Rindge and Malibu dams and physically modify road crossings to allow unimpeded volitional migration of steelhead to upstream spawning and rearing habitats
- Identify, protect, and where necessary, restore estuarine and freshwater rearing habitats
- Develop and implement an integrated wildland fire and hazardous fuels management plan, including monitoring, remediation, and adaptive management
- Relocate roadways outside of riparian corridors and restore abandoned roadways to buffer freshwater habitats
- Develop and implement a groundwater management plan to ensure adequate stream flow



# Mojave Rim Biogeographic Population Group



## Recovery Foundation Populations (Core 1 and Core 2 Populations)

### Core 1 Populations

- San Gabriel River

### Core 2 Populations

- Santa Ana River

## Threats

- Channelization and urbanization of lower reaches of the Los Angeles, San Gabriel, and Santa Ana Rivers.
- Dams and surface water diversions along with flood control structures have blocked passage to historic spawning and rearing habitats, and reduced quantity and quality of aquatic habitats.
- Widespread pumping of groundwater from aquifers throughout the region routinely eliminates surface flows.
- Wildfires which are significant, long-term sources of sedimentation, turbidity, substrate embeddedness, and loss of riparian canopy cover.
  - Fires have burned 21% of the San Gabriel River and 26% of the Santa Ana River watersheds in the past 25 years.
- Urban Development (Total Human population = 9,910,231).
- Degradation and elimination of major portions of historically extensive estuarine habitats.



Morris Dam – San Gabriel River



Upper San Gabriel River



Santa Ana River Estuary

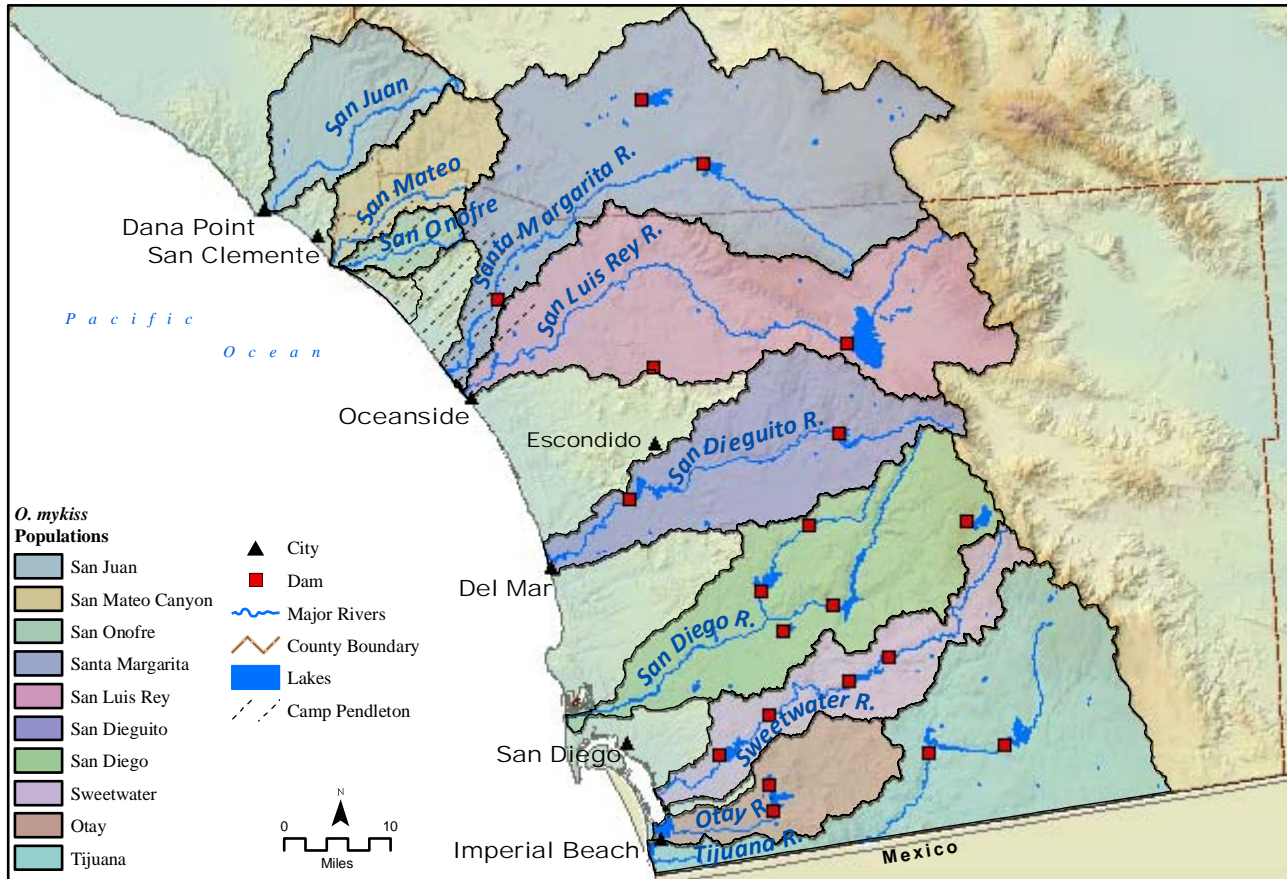
### **Critical Recovery Actions**

- Implement operating criteria to ensure the pattern and magnitude of water releases from Morris, San Gabriel, and Cogswell dams comport with the natural or pre-dam pattern and magnitude of stream flow in downstream reaches.
- Physically modify Morris, San Gabriel, Cogswell, and Santa Fe dams and road, highway, and railway crossings to allow unimpeded volitional migration of steelhead to upstream spawning and rearing habitats.
- Identify, protect, and where necessary, restore estuarine and freshwater rearing habitats.
- Conduct a watershed-wide fish passage barrier assessment to identify all fish passage impediments.
- Develop and implement an integrated wildland fire and hazardous fuels management plan, including monitoring, remediation, and adaptive management.





# Santa Catalina Gulf Coast Biogeographic Population Group



## Recovery Foundation Populations (Core 1 and Core 2 Populations)

### Core 1 Populations

- San Luis Rey River
- San Juan Creek

### Core 2 Populations

- San Mateo Creek
- Santa Margarita River

## Threats

- Widespread pumping of groundwater routinely eliminates surface flows.
- Dams and flood control structures cut-off access to upstream spawning and rearing habitats.
- High road density and associated stream crossings (culverts, bridges, etc.).
- Urban Development (Total Human population = 1,607,140).
- Wildfires which are significant, long-term sources of sedimentation, turbidity, substrate embeddedness, and loss of riparian canopy cover.
  - Fires have burned between 22% (San Mateo Creek) and 74% (San Diego River) of the watersheds in the past 25 years, including significant coastal portions of watersheds in southern Orange, and northern and central San Diego counties in 2007.



San Mateo Creek



*O. mykiss* – Pine Valley Creek



Arroyo Trabuco Creek

### Critical Recovery Actions

- Conduct a watershed-wide fish passage barrier assessment to identify all fish passage impediments.
- Physically modify dams, road crossings, highways, railways to allow unimpeded volitional migration of steelhead to upstream spawning and rearing habitats.
- Identify, protect, and where necessary restore estuarine and freshwater rearing habitats.
- Implement operating criteria to ensure the pattern and magnitude of water releases from Pilgram, Turner, Lower and Upper Stehly, Aqua Tibia, Henshaw, and Eagles Nest dams comport with the natural or pre-dam pattern and magnitude of stream flow in downstream reaches.
- Conduct hydrological analysis as well as develop and implement a groundwater monitoring program to ensure adequate streamflows, particularly summer base flows.
- Develop and implement a plan to minimize disturbance of instream habitats and riparian vegetation.
- Develop and implement a flood control maintenance program to minimize disturbance to instream habitats.
- Develop and implement a plan to restore natural channel features where feasible.
- Review and modify applicable County and/or City Local Coastal Plans to ensure protection of freshwater and estuarine habitats.
- Review California Regional Water Quality Control Board San Diego Region Basin Plans and modify applicable stormwater permits. Retrofit storm drains in developed areas to protect water quality in freshwater and estuarine habitats.
- Develop and implement an integrated wildland fire and hazardous fuels management plan, including monitoring, remediation and adaptive management.
- Develop and implement a watershed-wide plan to assess the impacts of non-native species and develop control measures as well as a monitoring program. Develop and implement a public educational program on non-native species impacts.
- Review, assess, and modify if necessary all NPDES wastewater discharge permits (e.g. South Bay International Wastewater Treatment Facility and South Bay Water Reclamation Facility).