2017 FISH PASSAGE ANNUAL REPORT

Upp Creek Bridge, Mendocino 101 (District 1, Eureka)

Report to the Legislature

October 2018

Prepared by the California Department of Transportation, Division of Environmental Analysis

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Executive Summary

This report is required by Streets and Highways Code Section 156.1 (SB 857, Kuehl, Chapter 589, statues of 2005) and provides an annual update on the California Department of Transportation's (Caltrans) progress for January 1, 2017, to December 31, 2017, on locating, assessing, and remediating fish passage barriers.

2017 Fish Passage Program Accomplishments

- Completed Fish Passage Remediation Locations = **6 Locations** (page 9)
  - Improved access for salmon and steelhead habitat to an estimated **21.12 miles** of habitat.
- Completed Fish Passage Assessment Locations = **116 assessments** (page 14)
- Programmed Active Fish Passage Remediation Locations = **36 locations** (page 17)
- Identified Priority Fish Passage Barrier Locations (future program) = **70 locations** (page 21)

Fish Passage Barrier Remediation Progress

Caltrans is dedicated to improving fish passage on the State Highway System, which has required a comprehensive approach toward **science and data, engineering, permitting, training, and funding** to address the complex considerations associated with effective barrier remediation. During the past four years, Caltrans improved internal coordination and partnered with the California Department of Fish and Wildlife and other natural resource agencies to lead fish passage barrier remediation progress in California.

Science and Data

To determine the most significant biological priorities for an estimated 600 barriers to salmon and steelhead on the State Highway System, comparable science and data must be available for each known barrier and respective watershed. Within each watershed, relevant data includes documenting salmon and steelhead species present, determining the quality and quantity of suitable habitat, and considering other regionally specific expert professional knowledge. To engage this expertise, between August 2016 and February 2018, Caltrans initiated four additional Fish Passage Advisory Committees, increasing the number of committees to six. Fish Passage Advisory Committees now cover the entire range of salmon and steelhead in California. More than 180 members representing state, federal, local, and nonprofit partners currently participate in quarterly Fish Passage Advisory Committee meetings (www.cafishpac.org), as outlined in Appendix C. In support of Fish Passage Advisory Committee partnering and progress, Caltrans Headquarters Division of Environmental Analysis, Office of Biology currently funds meeting facilitation, science and data updates to the Passage Assessment Database, detailed mapping and watershed analysis, as well as creation of the Caltrans Fish Passage Story Map (https://www.arcgis.com/apps/MapSeries/index.html?appid=13f6ef06050240c8a4d984544ddf45db).

Caltrans continues to partner with the Pacific States Marine Fisheries Commission and the California Department of Fish and Wildlife to provide the best available science and data for species and watersheds in a continued effort to improve information available in the Passage Assessment Database for all California fish passage practitioners.

Engineering

In November of 2015, Caltrans initiated the Interagency Fish Passage Engineering Group, which consists of 30 engineers from Caltrans Districts and Headquarters, the California Department of Fish and Wildlife, and the National Marine Fisheries Service. This group includes individuals with expertise in fish passage design, channel restoration, hydraulic design, maintenance, and foundations engineering. This collaborative engineering group shares information, worked to support the two-day *Bridges and Biology* workshop hosted in February of 2018, identifies shared needs, and determines mutually beneficial fish passage engineering modeling, standards, and inspections. Most engineers

who participate in the Interagency Engineering Group are also members of the Fish Passage Advisory Committees in their respective geographic areas.

In early 2018, Caltrans and the Interagency Fish Passage Engineering Group proposed a research project to inform selection of the appropriate engineering solutions for fish barriers that are biological priorities for salmon and steelhead. A goal of this effort is to select proper, long-term, cost-effective engineering solutions for water crossing designs intended to support ecological function of natural streams, including habitats where fish live, reproduce, and migrate. Geomorphic channel restoration efforts provide fish species access to upstream habitat, support natural stream processes, and require limited long-term maintenance needs. Correctly measuring channel geomorphology and characterizing channel evolution and trends are fundamental to effective fish passage design solutions, particularly if the goal is limited maintenance needs, or full-span channel solutions (completely removing any barriers). This effort will be conducted by Humboldt State University engineering researchers and will help define methodologies by which Caltrans and other natural resource partners can select the most appropriate solutions that meet site-specific goals, such as bank-full widths, channel slope, floodplain use, channel stability, and debris-prone systems, as well as methodologies that address key constraints to natural stream processes and species migration.

Additionally, the Caltrans Division of Engineering Services, Structures Design, continues to be a leader in developing standard pre-design of small bridges (20- to 120-foot) to reduce the cost of solutions and to gain permitting efficiencies through programmatic consultations.

Caltrans continues to fund a fish passage engineering position at both the California Department of Fish and Wildlife and the National Marine Fisheries Service. Both engineers are engaged with Caltrans Districts throughout the state, as well as the Fish Passage Advisory Committees, and the Interagency Fish Passage Engineering Group.

Permitting

Programmatic permit efficiencies can only be achieved by considering anticipated impacts resulting from standard design solutions and defined implementation methodologies. Defined standard solutions make it possible to consider reasonable and feasible impact avoidance and minimization, to fully describe criteria for specific actions, and to define the appropriate reporting and monitoring procedures.

Based on the design work of the Division of Engineering Services, Structures Design, programmatic permitting efficiencies are being considered for bridges that address the needs of full-span fish passage remediation, (currently 11 small bridges) ranging from 20 feet to 120 feet in length. In addition, eight potential foundation types are being designed, described, and evaluated. Caltrans has initiated discussions and achieved consensus with the National Marine Fisheries Service to advance

analysis of these structures to inform a programmatic consultation which would reduce the time needed for project delivery and implementation of fish passage remediation. Bridge solutions often require pile-driving, thus the goal of the current effort describes the impacts anticipated from driving identified pile types and depths respective of small bridge solutions.

Partial solutions, such as Stream Simulation Designs, or hydraulic grade control devices (retrofits), are complex and site specific, and require monitoring and maintenance for the life of the facility. Effectiveness of any solution that is less than a full-span solution must be considered on an individual basis. Including criteria that is in accordance with state and federal fish passage design standards has been discussed, however, the ability of time-consuming, site-specific designs to meet required criteria may not provide the same level of schedule efficiencies available for full-span solutions.

Training

Engaging in increased partnerships has required training for internal and external staff and managers.

- In February of 2018, Caltrans Structures Engineering and the Division of Environmental Analysis, California Department of Fish and Wildlife, and National Marine Fisheries Service hosted a 2-day, multi-disciplinary *Bridges and Biology* workshop. Recognized experts in engineering, geotechnical analysis, endangered species, permitting, hydraulics, and fish and wildlife connectivity gave presentations to about 120 Caltrans staff and state, federal, local, and non-profit partners. In addition, more than 200 webinar attendees from across California and the Pacific Northwest (http://www.dot.ca.gov/env/bio/training.html) participated, and the presentations have been available for viewing since the workshop was conducted.

- From July to September of 2018, the Fish Passage Advisory Committees participated in themed workshops to share science and data associated with fish passage barrier remediation with other interested staff and resource agency partners throughout the state (https://www.cafishpac.org/training).

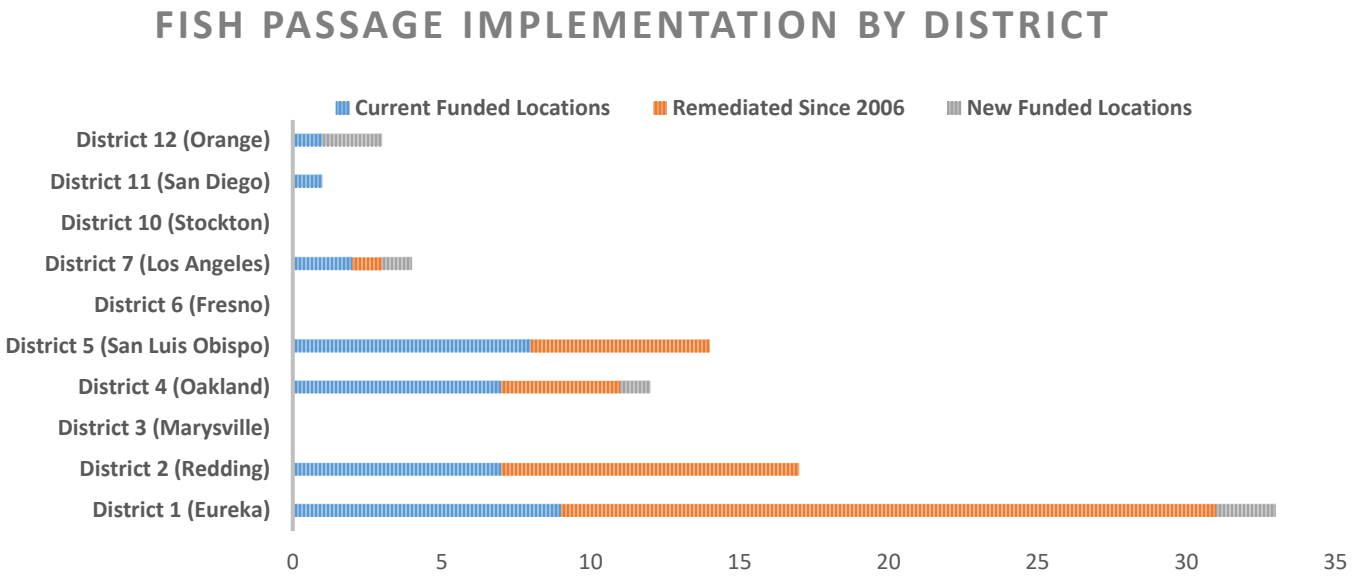
Funding

The transportation budget mandates that a nexus, or transportation need, must exist to fund fish passage remediation projects. That nexus may exist in the form of an aged facility at the end of its service life; deficiencies identified by maintenance inspections that may need to be addressed; or as off-site, out of-kind mitigation required for unavoidable impacts to listed species, or their habitats, from other transportation projects. Some biologically high priority barrier locations may remain on the priority list because they do not meet the criteria within current transportation funding authorization.

Assembly Bill 95 (Committee on Budget, Chapter 12, Statutes of 2015), amended Section 156.1 of the Streets and Highways Code, and required a one-time, $5 million allocation of funding derived from the existing transportation budget. The 2016 Fish Passage Annual Report to the Legislature

documented the Fish Creek location as a one-time expenditure. This project proposes a 60-foot bridge scheduled to be implemented in 2022.

In the past four years Caltrans has exceeded mandated investments in fish passage remediation. During 2015, 20 fish passage barrier locations were funded; in 2016, seven locations were funded, including the AB 95 Fish Creek location (Figure 1). Currently 36 funded fish passage locations are in project delivery, totaling more than $90 million dollars in funding from the State Highway Account.



Notes (Figure 1):

- **District 3 (Marysville) and 10 (Stockton) are defining the species and habitat values at recently identified barrier locations to determine the scope of respective solutions.**
- **District 6 (Fresno) does not have any identified barriers.**
- **Districts 11 (San Diego) and 12 (Orange) have funding for all known barriers within their geographic area.**

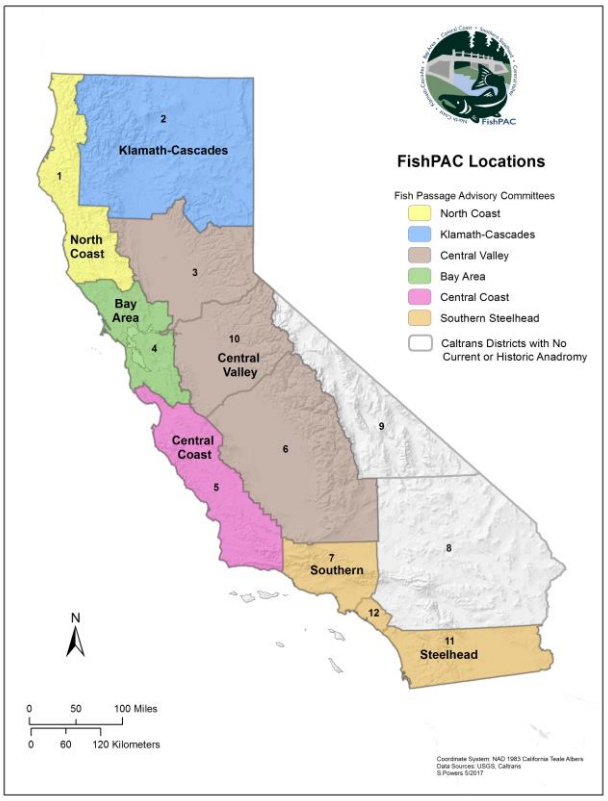
FIGURE 1. FISH PASSAGE IMPLEMENTATION BY DISTRICT.

Fish Passage Assessments

To assess all road/stream crossings within the range of salmon and steelhead on the State Highway System, in 2017 Caltrans worked with the Pacific States Marine Fisheries Commission and the Passage Assessment Database program manager to identify all unassessed road/stream crossing locations.

Based on the analysis, an estimated 5,223 Reconnaissance Assessments (1st pass surveys) and 1,089 Detailed Assessments (2nd pass surveys) are needed within 10 Caltrans Districts (Figure 3). In 2017 and 2018, the Fish Passage Advisory Committees prioritized all the identified assessment needs, highlighting important watersheds for salmon and steelhead and associated routes to target priority watersheds as funding becomes available.

To address the identified 5,223 identified Reconnaissance Assessments, Caltrans is working to initiate a contract with the California Conservation Corps. This partnership will be a statewide effort called the Caltrans/3C's Fish Passage Program. This program will mentor young Californians in stream inventories and restoration efforts like the existing Watershed Stewards Program (https://ccc.ca.gov/what-we-do/conservation-programs/watershed-stewards-program/).



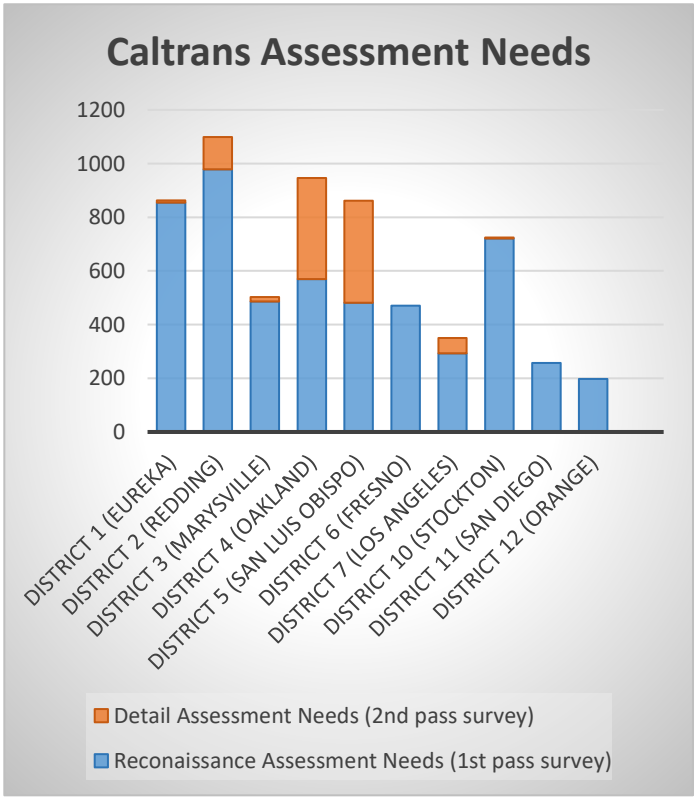


FIGURE 2 (LEFT). THE GEOGRAPHIC SCOPE OF THE SIX CALIFORNIA FISH PASSAGE ADVISORY COMMITTEES.
FIGURE 3 (RIGHT). THE DISTRIBUTION OF CALTRANS DISTRICT ASSESSMENT NEEDS.

Stormwater Partnering

The Caltrans Headquarters Division of Environmental Analysis, Office of Biology and Office of Stormwater continue to evaluate overlapping needs of fish passage and storm water implementation projects by evaluating the priority fish passage barrier list each year. Addressing sediment transport by replacing undersized barriers to salmon and steelhead associated with listed, impaired water bodies is a beneficial way to address scour at the barrier location and restore both habitat complexity and value. Both offices have partnered with the California State Water Resources Control Board and the North Coast Regional Water Quality Control Board to achieve consensus on mutual interests and ways the partnership can benefit water quality, endangered fish, and their habitats.

Background

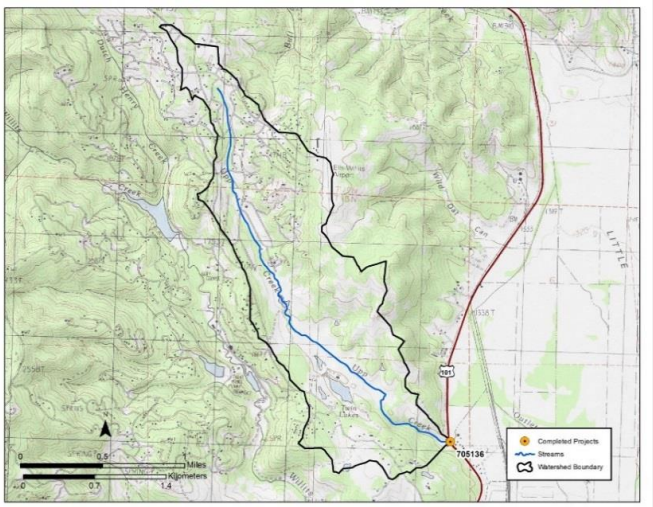
This report provides an annual update on fish passage assessment and remediation information describing locations for which Caltrans is responsible. This report is required by Streets and Highways Code Section 156.1 (SB 857, Kuehl, Chapter 589, Statues of 2005) and provides updates and progress from January 1 to December 31, 2017.

2017 Completed Fish Passage Remediation Locations

Six fish passage barriers were remediated in 2017, improving access for salmon and steelhead to an estimated **21.12 miles** of habitat. Table 1 contains information on the locations. Figure 4 (page 13) is a map of the locations listed in Table 1.

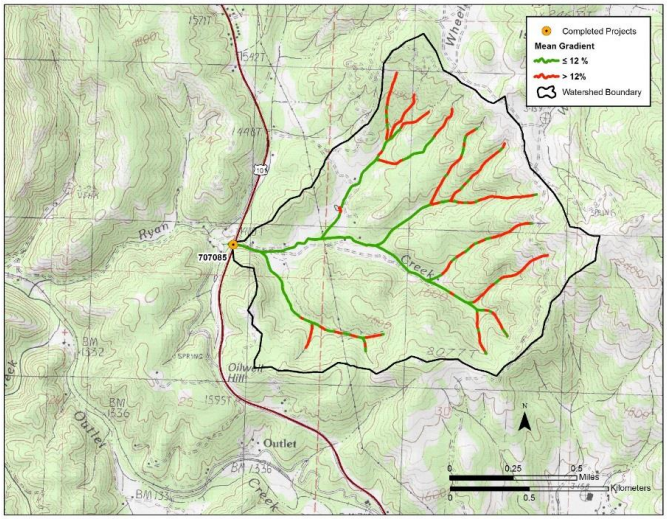
Table 1. 2017 completed fish passage remediation locations.

Map #	Caltrans District	County	Route	Post Mile	PAD ID #	Stream Name	Treatment Status
1	1	Mendocino	101	48.14	705136	Upp Creek	Partial[1]
	Species	Northern CA Steelhead (Threatened), Southern OR/Northern CA Coast Coho (Threatened), and CA Coastal Chinook (Threatened).					
	Habitat	Low gradient stream. Improved access to estimated **2.98 miles** of habitat.					

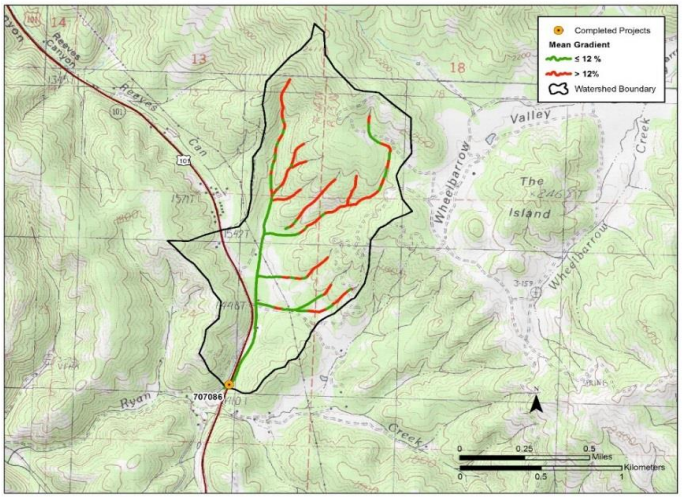


[1] **Partial Treatment** – Hydraulic treatments intended to improve fish passage, while not fully spanning the natural channel width. This can be accomplished by incorporating weirs, baffles, ladders, and any other water velocity or grade control device. These facilities need to be annually inspected and maintained to ensure that sediment deposition and/or scour pools do not impact continued access to upstream habitat.

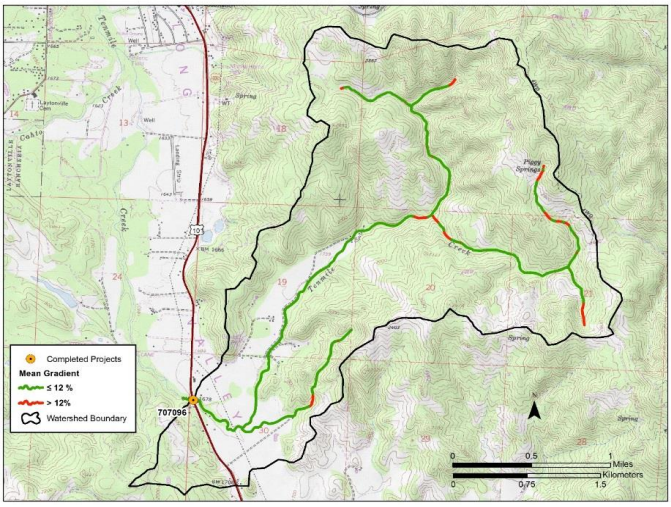
Map #	Caltrans District	County	Route	Post Mile	PAD ID #	Stream Name	Barrier Status
2	1	Mendocino	101	52.25	707085	South Fork Ryan Creek	Partial
	Species	Northern CA Steelhead (Threatened), Southern OR/Northern CA Coast Coho (Threatened), and CA Coastal Chinook (Threatened).					
	Habitat	Improved access to estimated **2.52 miles** of habitat.					



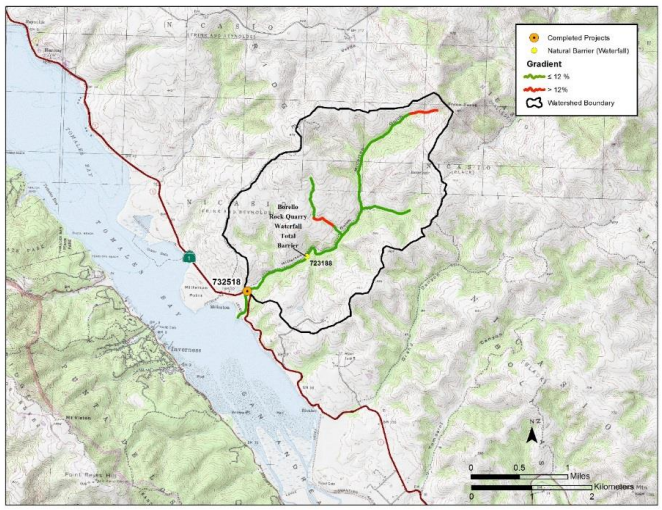
Map #	Caltrans District	County	Route	Post Mile	PAD ID #	Stream Name	Barrier Status
3	1	Mendocino	101	52.36	707086	North Fork Ryan Creek	Partial
	Species	Northern CA Steelhead (Threatened), Southern OR/Northern CA Coast Coho (Threatened), and CA Coastal Chinook (Threatened).					
	Habitat	Improved access to estimated **1.46 miles** of habitat.					



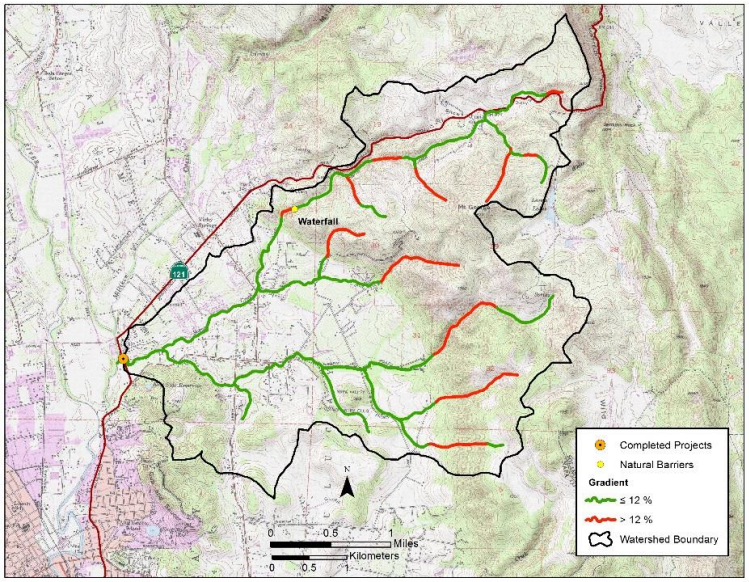
Map #	Caltrans District	County	Route	Post Mile	PAD ID #	Stream Name	Barrier Status
4	1	Mendocino	101	66.5	707096	Ten Mile Creek	Partial
	Species	Northern CA Steelhead (Threatened), Southern OR/Northern CA Coast Coho (Threatened), and CA Coastal Chinook (Threatened).					
	Habitat	Improved access to estimated **4.7 miles** of habitat. Rock weir to backwater facility.					



Map #	Caltrans District	County	Route	Post Mile	PAD ID #	Stream Name	Barrier Status
5	4	Marin	1	33.4	732518	Millerton Gulch Emergency	Partial
	Species	Central California Coast Steelhead (Threatened), Central CA Coast Coho (Endangered)					
	Habitat	Improved access to estimated **0.76 miles** of habitat.					



Map #	Caltrans District	County	Route	Post Mile	PAD ID #	Stream Name	Barrier Status
6	4	Napa	121	9.3	758605	Sarco Creek	Partial
	Species	Central California Coast Steelhead (Threatened).					
	Habitat	Improved access to estimated **8.7 miles** of habitat.					



Description of mapping results and citations:

Streams: Selected from the California streams layer and clipped at natural Passage Assessment Database barrier. Lengths and areas were calculated using the calculate geometry tool in Arc Geographic Information Systems.

Watershed Area: Watershed areas were derived in Geographic Information Systems and using 10-meter National Elevation Dataset and Passage Assessment Database priority barriers for the input into a watershed model (hydrology toolset in spatial analysis).

Gradient layers: California streams Intrinsic Potential spatial layers were provided by the California Department of Fish and Wildlife, where available. To Calculate gradient layers a 10-meter National Elevation Dataset was used over a 200-meter stream length (rise/run *100).

Estimated potential habitat length:
Using the California streams Intrinsic Potential spatial layers or the calculated gradient, the estimated potential habitat lengths were calculated up to where the mean gradient was greater than 12% over 200-meters or greater.

ESU/DPS: The name of the Evolutionary Significant Unit(s) and/or Distinct Population Segment(s) that each barrier fell within was derived from information available from National Marine Fisheries Service at: http://www.westcoast.fisheries.noaa.gov/maps_data/Species_Maps_Data.html.

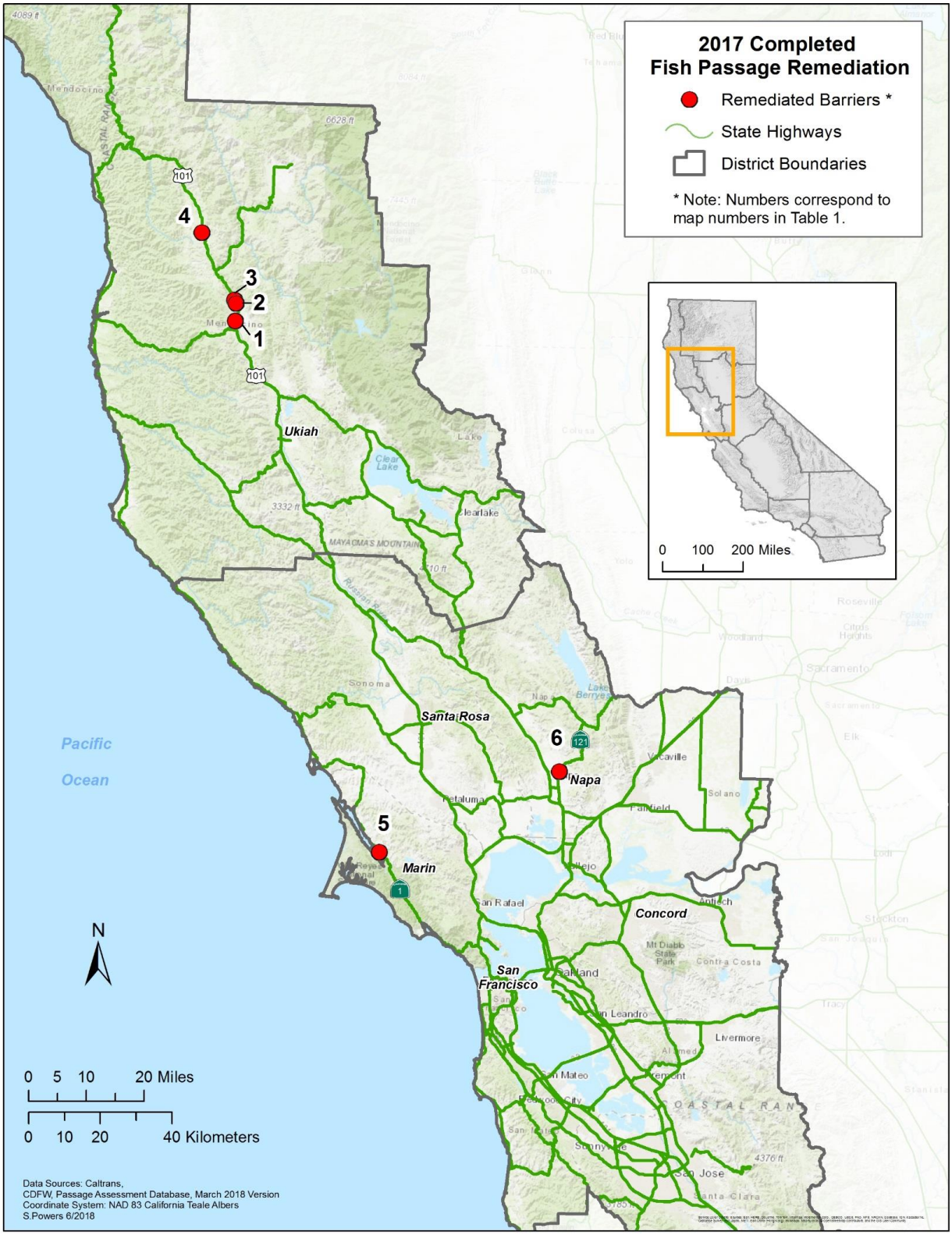


FIGURE 4. 2017 COMPLETED FISH PASSAGE REMEDIATION LOCATIONS.

2017 Completed Fish Passage Assessment Locations

In 2017, 116 fish passage assessments were completed in Districts 3 (Marysville), 5 (San Luis Obispo), 11 (San Diego), and 12 (Orange). Table 2 lists four New Identified Barriers and 21 Potential Barriers that need detailed surveys. The remaining 91 assessed locations are not barriers to salmon or steelhead. Assessment information has been submitted to the California Department of Fish and Wildlife Passage Assessment Database. Figure 5 (page 16) shows locations listed in Table 2.

Table 2. 2017 Completed fish passage assessment locations.

Map #	Caltrans District	County – Route – Post Mile	PAD ID #	Stream Name	Tributary to	Assessment Status
1	3	Nevada – 49 – PM 1.0	762600	Unnamed	Bear River	Potential Barrier
2	3	Nevada – 49 – PM 1.43	762601	Magnolia Creek	Bear River	Potential Barrier
3	3	Nevada – 49 – PM 2.1	762602	Ragsdale Creek	Wolf Creek	Potential Barrier
4	3	Nevada – 49 – PM 2.89	762606	Unnamed	Wolf Creek	Potential Barrier
5	3	Nevada – 49 – PM 3.3	762608	Unnamed	Wolf Creek	Potential Barrier
6	3	Nevada – 49 – PM 25.1	762619	Shady Creek	South Yuba River	Potential Barrier
7	3	Nevada – 49 – PM 27.01	762626	Unknown	Sweetland Creek	Potential Barrier
8	3	Nevada – 49 – PM 27.14	762627	Sweetland Creek	Yuba River	Potential Barrier
9	3	Nevada – 49 – PM 27.5	762633	Unnamed	Sweetland Creek	Potential Barrier
10	3	Placer – 65 – PM 9.9	762595	Unnamed	Pleasant Grove Creek	Potential Barrier
11	3	Placer – 65 – PM 10.8	762594	Unnamed	Orchard Creek	Potential Barrier
12	3	Placer – 65 – PM 11.4	762593	Unnamed	Orchard Creek	Potential Barrier
13	3	Placer – 65 – PM 11.7	762592	Orchard Creek	Auburn Ravine	Potential Barrier
14	3	Placer – 65 – PM 12.3	762653	Unnamed	Orchard Creek	Potential Barrier
15	3	Placer – 65 – PM 18.8	762649	Unnamed	Burbank Slough	Potential Barrier
16	3	Placer – 65 – PM 23.6	762644	Unnamed	Yankee Slough	Potential Barrier

Map #	Caltrans District	County – Route – Post Mile	PAD ID #	Stream Name	Tributary to	Assessment Status
17	3	Placer – 80 – PM 0.81	762655	Cirby Creek	Dry Creek	Potential Barrier
18	3	Yuba – 65 – PM 6.3	762639	Unnamed	Reeds Creek	Potential Barrier
19	5	Santa Barbara – 192 – PM 0.37	706263	Cieneguitas Creek	Atascadero Creek	New Identified Barrier
20	5	Santa Barbara – 192 – PM 5.4	731768	Sycamore Creek	Pacific Ocean	Potential Barrier
21	5	Santa Barbara – 192 – PM 6.41	731518	Unnamed	Sycamore Creek	Potential Barrier
22	11	San Diego – 15 – PM 41.9	759303	Moosa Canyon	San Luis Rey River	Potential Barrier
23	11	San Diego – 76 – PM 29.45	712680	Pauma Creek	San Luis Rey River	New Identified Barrier
24	12	Orange – 5 – PM 14.8	759493	Oso Creek	Arroyo Trabuco	New Identified Barrier
25	12	Orange – 74 – PM 13.3	759565	San Juan Creek	Pacific Ocean	New Identified Barrier

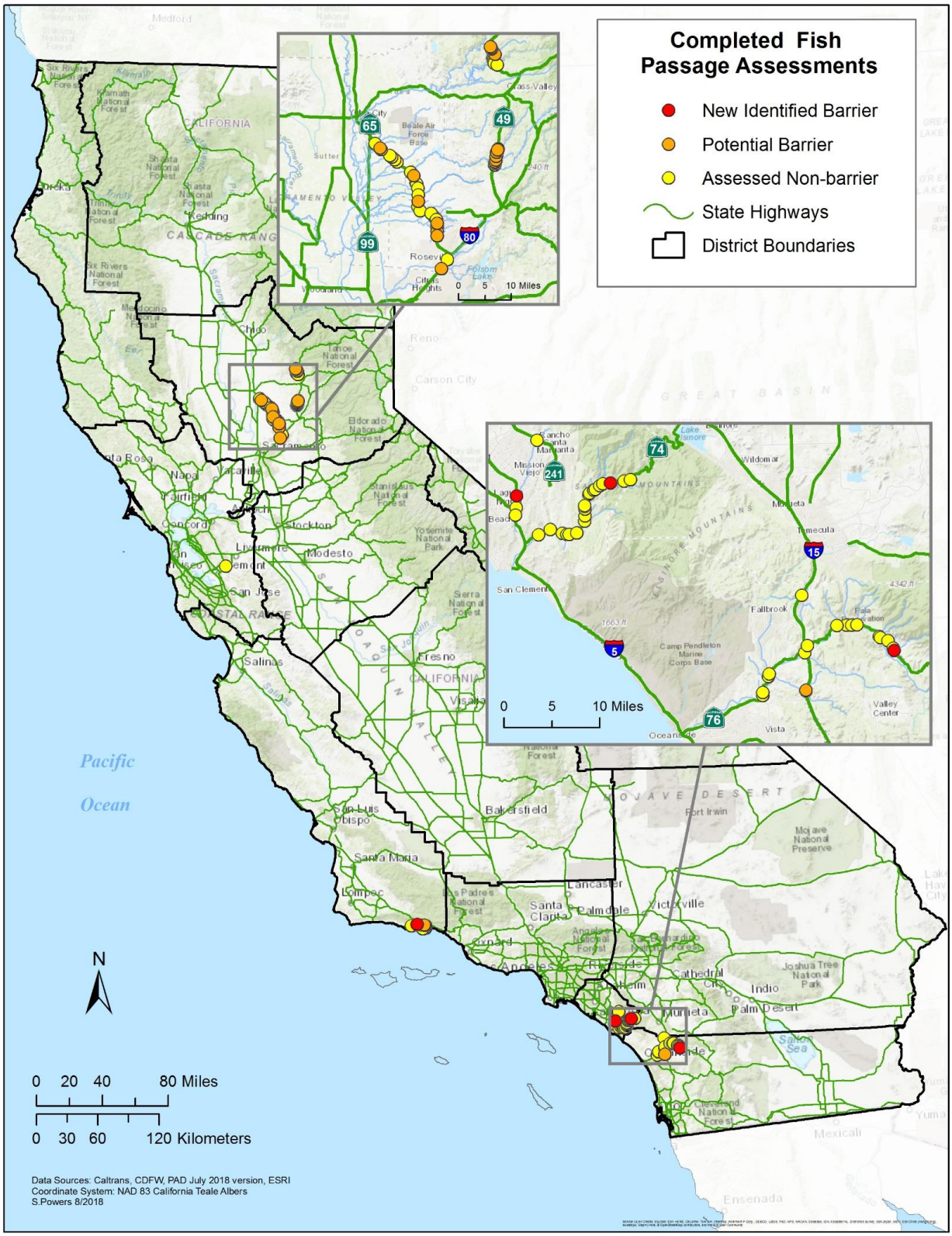


FIGURE 5. 2017 COMPLETED FISH PASSAGE ASSESSMENT LOCATIONS.

Active Fish Passage Remediation Locations

Caltrans is currently developing projects to remediate 36 fish passage barriers. Six new locations have been funded on the State Highway System. Table 3 lists the current remediation locations that are either funded through construction, or partially funded for planning, design, or permitting. Figure 6 (page 20), is a map of the locations listed in Table 3. The locations that are **bold and underlined** are the six new locations.

Table 3. Active fish passage remediation locations.

Map #	Caltrans District	County – Route – Post Mile	PAD ID #	Stream Name	Project Name	Estimated Year of Completion
1	1	Del Norte – 101 – PM 39.78	707134	Dominie Creek	Dr. Fine Bridge Mitigation	2021
2	1	Del Norte – 199 – PM 2.56	707139	Clarks Creek	Clarks Creek	2023
3	1	Del Norte – 199 – PM 31.31	707137	Griffin Creek	Griffin Creek	2023
4	**1**	**Humboldt – 101 – PM 59.94**	**715460**	**Strongs Creek**	**Multiple Culverts**	**2026**
5	1	Humboldt – 101 – PM 124.49	713025	Little Lost Man Creek	Little Lost Man Creek	2020
6	1	Humboldt – 96 – PM 8.83	707141	Campbell Creek	Campbell Creek	2019
7	1	Humboldt – 254 – PM 4.18	707157	Fish Creek	Fish Creek Fish Passage	2022
8	**1**	**Humboldt – 254 – PM 40.83**	**722439**	**Chadd Creek**	**Multiple Culverts**	**2026**
9	1	Mendocino – 101 – PM 89.24	706954	Cedar Creek	Cedar Creek	2018
10	2	Shasta – 5 – PM R24.54	759970	Spring Branch Creek	Districtwide Scour Project	2022
11	2	Shasta – 36 – PM 3.6	737281	Harrison Gulch	Harrison Gulch	2020
12	2	Siskiyou – 5 – PM 27.2	720504	Parks Creek	Parks Creek	2018
13	2	Siskiyou – 96 – PM 8.0	707149	Stanshaw Creek	Stanshaw and Sandy Bar Creek	2028
14	2	Siskiyou – 96 – PM 9.1	720537	Sandy Bar Creek	Stanshaw and Sandy Bar Creek	2028

Map #	Caltrans District	County – Route – Post Mile	PAD ID #	Stream Name	Project Name	Estimated Year of Completion
15	2	Siskiyou – 96 – PM 43.5	720541	Cade Creek	Cade Creek	2028
16	2	Siskiyou – 96 – PM 57.0	707169	Portuguese Creek	Portuguese Creek	2028
17	4	Alameda – 84 – PM 12.1	713729	Stonybrook Creek	Niles Canyon Improvement Project	2020
18	4	Marin – 1 – PM 22.78	706058	Giacomini Gulch	Storm Damage – Culvert Replacement	2018
19	4	Marin – 1 – PM 24.77	732502	Tributary to Olema Creek	Olema Creek Bridge Replacement	2020
20	4	Napa – 121 – PM 0.75	714975	Huichica Creek	Huichica Creek Bridge	2025
21	**4**	**Napa – 128 – PM 7.4**	**717303**	**Conn Creek**	**Conn Creek Bridge Replacement**	**2020**
22	4	Sonoma – 1 – PM 15.1	733223	Scotty Creek	Gleason Beach Highway Realignment	2020
23	5	Santa Barbara – 1 – PM 15.61	700085	Salsipuedes Creek	Salsipuedes Creek Bridge Replacement	2020
24	5	Santa Barbara – 101 – PM 0.0	707368	Rincon Creek	101 Rehab Project	2020
25	5	Santa Barbara – 101 – PM 2.2	707182	Carpinteria Creek	Highway 101 Linden/ Casitas Pass	2020
26	5	Santa Barbara – 101 – PM 5.6	734310	Arroyo Parida Creek	South Coast HOV	2023
27	5	Santa Barbara – 101 – PM 9.4	705161	Romero Creek	South Coast HOV	2023
28	5	Santa Barbara – 101 – PM 9.6	734342	San Ysidro Creek	South Coast HOV	2023
29	5	Santa Barbara – 154 – PM 21.3	735549	Bear Creek	Culvert Repair	2021
30	5	Santa Barbara – 192 – PM 15.5	706239	Arroyo Parida Creek	Arroyo Parida Emergency Bridge Replacement	2018
31	7	Los Angeles – 1 – PM 50.3	705781	Solstice Creek	Solstice Creek Bridge	2022
32	**7**	**Ventura – 33 – PM 7.62**	**713867**	**San Antonio Creek**	**San Antonio Creek Bridge**	**2020**

Map #	Caltrans District	County – Route – Post Mile	PAD ID #	Stream Name	Project Name	Estimated Year of Completion
33	11	San Diego – 76 – PM 29.5	712680	Pauma Creek	SR-76 Culvert Replacement/Fish Passage	2020
34	12	Orange – 5 – PM 11.30	706807	Trabuco Creek	I-5/Trabuco	2020
35	**12**	**Orange – 5 – PM 14.80**	**759493**	**Oso Creek**	**Arroyo Trabuco**	**2020**
36	**12**	**Orange – 74 – PM 13.30**	**759565**	**San Juan Creek**	**Pacific Ocean**	**2019**

FIGURE 6. ACTIVE FISH PASSAGE REMEDIATION LOCATIONS.

Priority Fish Passage Locations for Remediation

Table 4 lists locations that are equal in priority for funding and implementation and were identified in coordination with the California Department of Fish and Wildlife and the six statewide Fish Passage Advisory Committees. The 14 **bold and underlined** locations are new to the Priority List. There are 70 priority locations identified. Figure 7 (page 25) is a map of the locations listed in Table 4.

Table 4. Priority Fish Passage Locations for Remediation.

Map #	Caltrans District	County – Route – Post Mile	PAD ID #	Stream Name	Tributary to
1	1	Del Norte – 101 – PM 37.46	712951	Unnamed Trib to Morrison Creek	Morrison Creek
2	1	Del Norte – 199 – PM 34.04	712954	Broken Kettle Creek	Elk Creek
3	**1**	**Humboldt – 36 – PM 5.18**	**712972**	**Wilson Creek**	**Yager Creek (Lower Eel)**
4	1	Humboldt – 36 – PM 9.17	707129	Fox Creek	Van Duzen River
5	**1**	**Humboldt – 101 – PM 1.61**	**707159**	**Durphy Creek**	**South Fork Eel River**
6	**1**	**Humboldt – 101 – PM 126.2**	**718442**	**May Creek**	**Prairie Creek**
7	1	Humboldt – 299 – PM 2.97	713051	Essex Gulch	Mad River
8	1	Mendocino – 1 – PM 4.64	713068	Fish Rock Gulch	Fish Rock Gulch
9	**1**	**Mendocino – 1 – PM 25.48**	**706971**	**Mallo Pass Creek**	**Pacific Ocean (Navarro-Garcia)**
10	1	Mendocino – 1 – PM 54.62	707070	Doyle Creek	Pacific Ocean
11	**1**	**Mendocino – 1 – PM 57.81**	**707071**	**Mitchell Creek**	**Pacific Ocean**
12	**1**	**Mendocino – 1 – PM 58.78**	**707072**	**Digger Creek**	**Digger Creek**
13	1	Mendocino – 1 – PM 88.71	713078	Powderhouse Gulch	Cottaneva Creek
14	1	Mendocino – 20 – PM 30.87	713093	Unnamed Trib to Broaddus Creek	Broaddus Creek
15	**1**	**Mendocino – 101 – PM 61.09**	**707091**	**Long Valley Creek**	**Outlet Creek (Upper Eel)**

Map #	Caltrans District	County – Route – Post Mile	PAD ID #	Stream Name	Tributary to
16	**1**	**Mendocino – 101 – PM 63.47**	**707094**	**Long Valley Creek**	**Outlet Creek (Upper Eel)**
17	**1**	**Mendocino – 101 – PM 73.56**	**706969**	**Lewis Creek**	**Tenmile Creek (South Fork Eel)**
18	1	Mendocino – 128 – PM 4.30	707185	Barton Gulch	Navarro River
19	**1**	**Mendocino – 128 – PM 7.27**	**707187**	**Mustard Gulch**	**Navarro River**
20	**1**	**Mendocino – 128 – PM 18.69**	**706968**	**Lazy Creek**	**Navarro River**
21	2	Shasta – 273 – PM 18.0	707132	Sulphur Creek	Sacramento River
22	2	Siskiyou – 3 – PM 6.5	707148	Big Mill Creek	Scott River
23	2	Siskiyou – 96 - 12.02	732222	Ti Creek	Klamath River
24	2	Siskiyou – 96 – PM 23.7	707162	Coon Creek	Klamath River
25	2	Siskiyou – 96 – PM 70.7	735752	Tom Martin Creek	Klamath River
26	2	Trinity – 3 – PM 10.9	707231	Barker Creek	Trinity River
27	2	Trinity – 3 – PM 32.6	707178	East Weaver Creek	Trinity River
28	2	Trinity – 299 – PM 49.6	720522	West Weaver Creek	Trinity River
29	2	Trinity – 299 – PM 51.2	737674	Sydney Gulch	Trinity River
30	2	Trinity – 299 – PM 51.4	735941	Garden Gulch	Trinity River
31	3	Butte – 99 – PM 23.6	759031	Unnamed	Durham Mutual Ditch
32	3	Butte – 99 – PM 27.38	759032	Crouch Ravine	Durham Mutual Ditch
33	3	Butte – 99 – PM 41.7	759034	Unnamed intermittent	Unnamed
34	3	Butte – 99 – PM 44.9	759040	Unnamed	Unnamed
35	3	Sacramento – 99 – PM 3.9	759041	Unnamed Ephemeral	Sacramento River

Map #	Caltrans District	County – Route – Post Mile	PAD ID #	Stream Name	Tributary to
36	3	Sacramento – 99 – PM 16.36	759042	Strawberry Creek	Beacon Creek
37	3	Sacramento – 104 – PM 11.25	759046	Unnamed	Unnamed
38	4	Marin – 1 – PM 22.67	706059	John West Fork	Olema Creek
39	4	Marin -1 – PM 18.69	706078	McCurdy Creek	Pine Gulch Creek (Bolinas Lagoon)
40	4	Marin – 1 – PM 18.69	706079	North Fork McCurdy Creek	McCurdy Creek/ Pine Gulch Creek
41	4	Marin – 1 – PM 25.67	759028	Quarry Gulch	Olema Creek
42	4	Napa – 29 – PM 33.17	705459	Ritchie Creek	Napa River
43	4	San Mateo – 1 – PM 4.32	705302	Whitehouse Creek	Pacific Ocean
44	4	San Mateo – 1 – PM 22.75	716835	Lobitos Creek	Pacific Ocean
45	4	San Mateo – 84 – PM 4.6	706675	Bogess Creek	San Gregorio Creek
46	4	San Mateo – 84 – PM 19.25	705766	Bear Creek	San Francisquito
47	4	San Mateo – 84 – PM 19.98	705768	West Union Creek	Bear Creek/San Francisquito Creek
48	5	Santa Barbara – 101 – PM 46.92	706655	Gaviota Creek	Pacific Ocean
49	5	Santa Barbara – 101 – PM 46.95	706656	Gaviota Creek	Pacific Ocean
50	5	Santa Barbara – 101 – PM 47.12	706657	Gaviota Creek	Pacific Ocean
51	5	Santa Barbara – 101 – PM 47.15	706658	Gaviota Creek	Pacific Ocean
52	5	Santa Barbara – 101 – PM 47.19	706659	Gaviota Creek	Pacific Ocean
53	5	Santa Barbara – 101 – PM 49.6	706388	Gaviota Creek	Pacific Ocean
54	5	Santa Barbara – 192 – PM 3.39	706538	Mission Creek	Pacific Ocean

Map #	Caltrans District	County – Route – Post Mile	PAD ID #	Stream Name	Tributary to
55	**5**	**Santa Cruz – 1 – PM 9.97**	**706703**	**Valencia Creek[2]**	**Aptos Creek**
56	**5**	**Santa Cruz – 1 – PM 10.05**	**706704**	**Valencia Creek**	**Aptos Creek**
57	5	Santa Cruz – 1 – PM 28.59	706003	San Vicenta Creek	Pacific Ocean
58	5	Santa Cruz – 1 – PM 31.25	705994	Molino Creek	Pacific Ocean
59	5	San Luis Obispo – 101 – PM 36.59	707246	Santa Margarita Creek	Salinas River
60	7	Los Angeles – 1 – PM 40.99	716891	Topanga Creek	Pacific Ocean
61	**7**	**Los Angeles – 1 – PM 44.15**	**759020**	**Los Flores Canyon**	**Pacific Ocean**
62	7	Los Angeles – 1 – PM 54.97	716906	Zuma Creek	Pacific Ocean
63	7	Ventura – 1 – PM – 1.23	723563	Little Sycamore Creek	Pacific Ocean
64	7	Ventura – 33 – PM 24.17	713767	North Fork Matilija Creek	Ventura River
65	7	Ventura – 33 – PM 34.5	723804	Burro Creek	Sespe Creek
66	7	Ventura – 126 – PM 18.6	723760	Boulder Creek	Santa Clara River
67	7	Ventura – 126 – PM 26.48	713878	Hopper Canyon Creek	Santa Clara Creek
68	7	Ventura – 150 – PM 22.8	700083	Lion Creek	Sespe Creek
69	7	Ventura – 150 – PM 28.48	761522	Sissar Creek	Santa Paula Creek
70	10	Stanislaus – 120 – PM 15.04	761519	Wildcat Creek	Stanislaus River

[2] Valencia Creek locations (706703 and 706704) were previously partially remediated and reported as completed in 2006, however it was determined that these locations are no longer effective and either require maintenance and further fish passage improvements or may need to be evaluated for replacement.

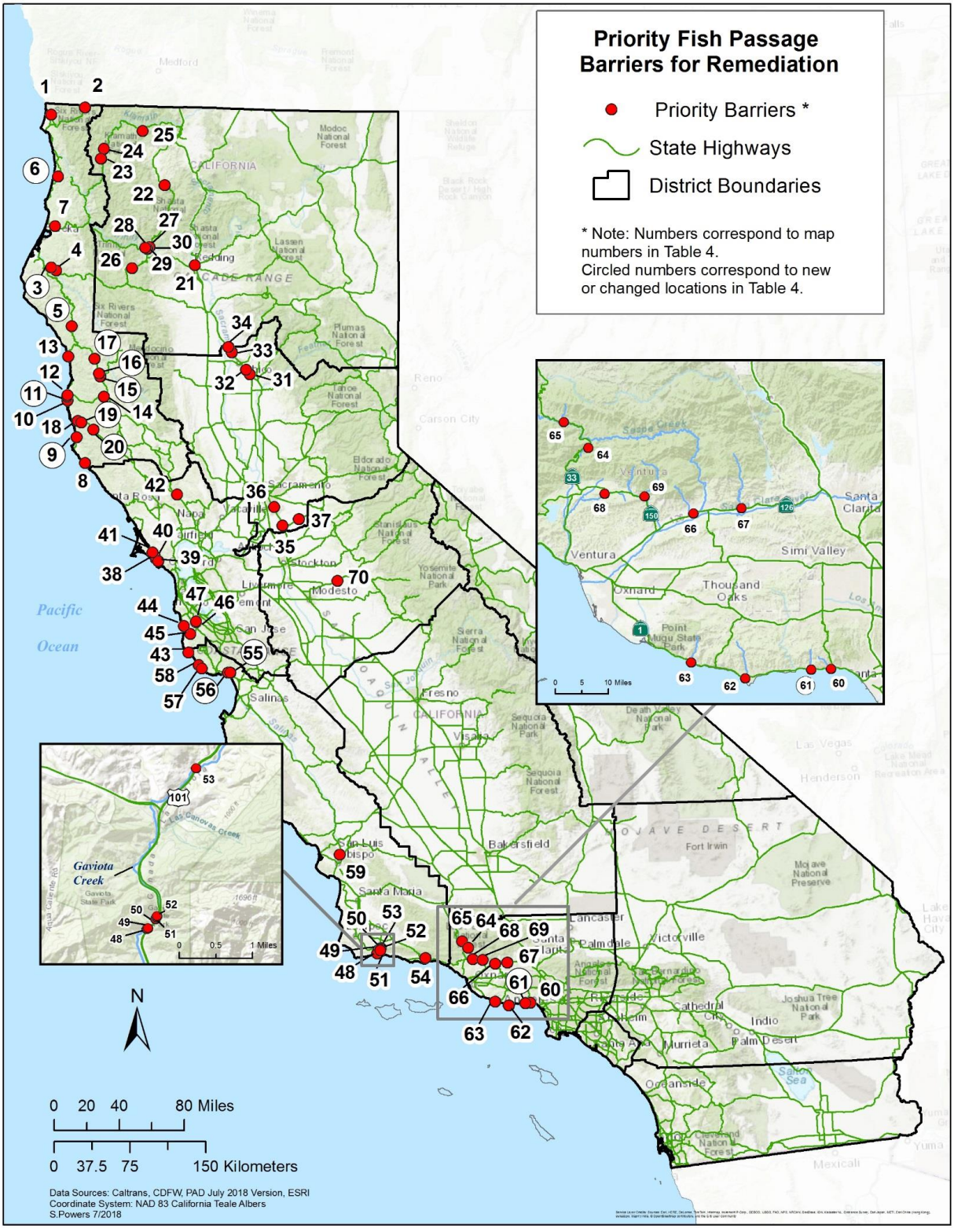


FIGURE 7. PRIORITY FISH PASSAGE LOCATIONS FOR REMEDIATION.

Appendix A. Fish Passage Locations Completed

Senate Bill 857 (Kuehl, Chapter 589, Statues of 2005) was enacted into law effective January 1, 2006. Appendix A is a list of fish passage locations that have been either fully or partially remediated on the State Highway System since 2006. Table 5 lists all remediated barriers from January 1, 2006, to December 31, 2017. **Bold and underlined** locations are new to this report and were constructed in 2017. Figure 8 (page 29) is a map of the locations listed in Appendix A.

Table 5. Fish passage locations completed from January 2006 through December 31, 2017.

Map #	District	County-Route- Post mile	PAD ID #	Stream Name	Project Name	Year Completed	Treatment Status
1	1	Del Norte - 101 - PM 43.7	715563	Lopez Creek	Smith River Widening	2009	Partial
2	1	Del Norte- 197 - PM 2.12	720982	Peacock Creek	Peacock Creek Emergency	2013	Partial
3	1	Del Norte – 197 – PM 5.0	707143	Sultan Creek	Sultan Creek Bridge	2015	Full[3]
4	1	Del Norte – 197 – PM 6.15	707142	Little Mill Creek	Emergency Bridge Project	2016	Partial
5	1	Humboldt - 101 - PM 40.12	722460	Chadd Creek	Chadd Creek Fish Passage	2006	Partial
6	1	Humboldt - 101 - PM 115.3	737005	Unnamed Tributary	Stone Lagoon	2007	Partial
7	1	Humboldt – 169 - PM 22.37	706198	Cappell Creek	Four Bridges Project	2011	Partial
8	1	Humboldt-299- PM 4.2	716742	Hall Creek	Mitigation Mad River Bridge	2013	Partial
9	1	Mendocino-1- PM 92.8	706958	Dunn Creek Bridge	10 Mile Bridge Mitigation	2013	Full
10	**1**	**Mendocino – 101 – PM 48.14**	**705136**	**Upp Creek**	**Willits Mitigation**	**2017**	**Partial**
11	**1**	**Mendocino – 101 – PM 52.25**	**707085**	**South Fork Ryan Creek**	**Willits Mitigation**	**2017**	**Partial**
12	**1**	**Mendocino – 101 – PM 52.36**	**707086**	**North Fork Ryan Creek**	**Willits Mitigation**	**2017**	**Partial**
13	**1**	**Mendocino – 101 – PM 66.5**	**707096**	**Ten Mile Creek**	**Willits Mitigation**	**2017**	**Partial**

[3] **Full Treatment** – locations where the natural channel width is fully spanned. Post-project monitoring needs to occur to ensure that sediments in the channel does not impact passage for fish after the first few winter seasons.

Map #	District	County- Route- Post mile	PAD ID #	Stream Name	Project Name	Year Completed	Treatment Status
14	1	Mendocino- 101 – PM 81.4	706986	Rattlesnake Creek	Rattlesnake Creek	2009	Partial
15	1	Mendocino -101 – PM 83.99	706987	Rattlesnake Creek	Fish Passage	2013	Partial
16	1	Mendocino - 101 – PM 99.0	707115	Red Mountain Creek	Confusion Hill Mitigation	2010	Partial
17	1	Mendocino – 128 – PM 21.8	707199	Clow Creek	Culvert Upgrade	2015	Partial
18	1	Mendocino – 128 – PM 27.54	707205	Graveyard Creek	Culvert Upgrade	2015	Partial
19	1	Mendocino – 128 – PM 36.63	707208	Lost Creek	Culvert Upgrade	2015	Partial
20	1	Mendocino – 128 – PM 39.88	707212	Beebe Creek	Culvert Upgrade	2015	Partial
21	1	Mendocino - 128 – PM 39.95	713145	John Hatt Creek	Beebe Storm Damage	2011	Partial
22	1	Mendocino - 128 – PM 49.66	707219	Edwards Creek	Edwards Creek Fish Passage	2011	Partial
23	2	Shasta - 299 – PM 20.7	737289	Salt Creek	Salt Creek Fish Passage Project	2006	Partial
24	2	Shasta – 299 – PM 32.2	737295	Yank /Lemm Creek Bridge	Yank Creek/Lemm Creek Bridge	2014	Full
25	2	Siskiyou - 96 – PM 56.0	707168	Fort Goff Creek	Fort Goff Creek Fish Passage	2014	Full
26	2	Siskiyou - 96 – PM 65.4	707147	O'Neil Creek	O'Neil Creek Fish Passage	2008	Full
27	2	Tehama - 5 – PM 16.9	737006	Elder Creek	Elder Creek Scour Mitigation	2008	Partial
28	2	Tehama - 5 – PM 28.1	737007	Dibble Creek	Dibble Creek Scour Mitigation	2008	Partial
29	2	Tehama - 99 – PM 21.1	737012	Craig Creek	Craig Creek & Sunset Canal Bridges Project	2011	Full
30	2	Tehama - 99 – PM 15.6	737013	Sunset Canal	Sunset Canal Bridge	2010	Partial
31	2	Trinity – 299 – PM 68.0	720511	Little Grass Valley Creek	Little Grass Valley Creek Fish Passage	2015	Partial
32	2	Trinity – 299 – PM 68.2	735688	Little Grass Valley Creek	Little Grass Valley Creek Fish Passage	2015	Partial
33	4	Contra Costa – 80 – PM 8.4	723716	Pinole Creek	Pinole Creek Bridge	2016	Partial

Map #	District	County-Route- Post mile	PAD ID #	Stream Name	Project Name	Year Completed	Treatment Status
34	**4**	**Marin – 1 – PM 33.4**	**732518**	**Millerton Gulch**	**Millerton Gulch Emergency**	**2017**	**Partial**
35	4	Napa - 121 – PM 1	733333	Huichica Creek	Duhig Road Project	2010	Full
36	**4**	**Napa – 121 – PM 9.3**	**758605**	**Sarco Creek**	**Sarco Creek Bridge**	**2017**	**Partial**
37	5	Santa Barbara - 101 – PM 33.9	707398	El Capitan Creek	El Capitan Creek	2007	Partial
38	5	Santa Barbara – 101 – PM 38.3	707403	Tajiguas Creek	Tajiguas Creek	2014	Partial
39	5	Santa Barbara - 101 – PM 41.0	707405	Arroyo Hondo Creek	Arroyo Hondo	2008	Partial
40	5	Santa Barbara - 101 – PM 47.2	706669	Gaviota Creek	Gaviota Creek	2008	Partial
41	5	Santa Cruz - 1 – PM 17.4	735367	Branciforte Creek	Hwy 1 Remediation	2007	Partial
42	5	Santa Cruz - 1 – PM 17.42	735366	Carbonera Creek	Hwy 1 Remediation	2008	Partial
43	7	Ventura - 150 – PM 28.7	723744	Santa Paula Creek	Santa Paula Creek	2012	Partial

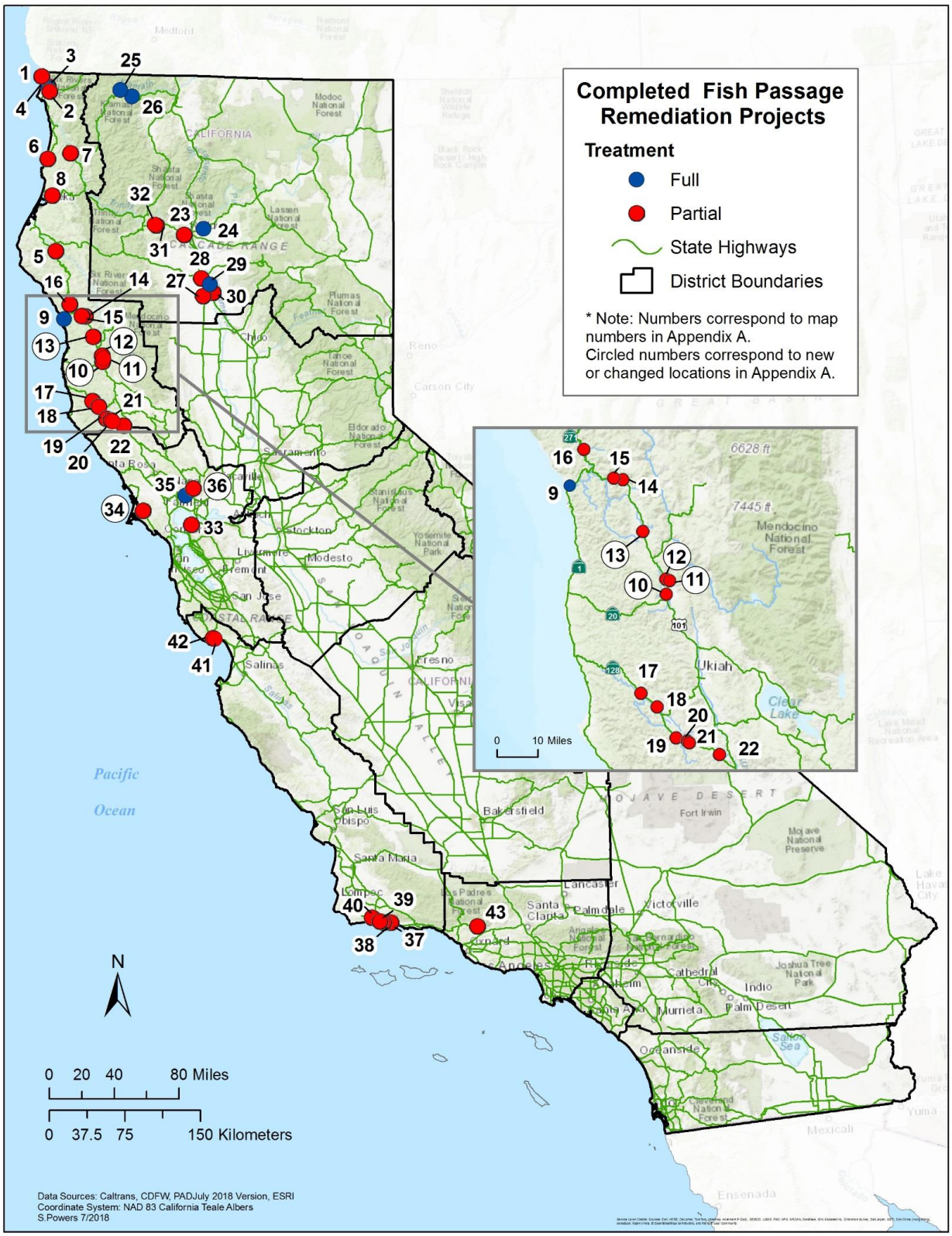


FIGURE 8. FISH PASSAGE LOCATIONS COMPLETED.

Appendix B. Statutory Reporting Reference

Streets and Highways Code Section 156.1 became effective January 1, 2006, per SB 857 (Kuehl, Chapter 589, Statutes of 2005) and was amended by AB 95 (Committee on Budget, Chapter 12, Statutes of 2015).

156.1. (a) The Director of Transportation shall prepare an annual report describing the status of the department's progress in locating, assessing, and remediating barriers to fish passage. This report shall be given to the Legislature by October 31 of each year through the year 2025.

(b) Each report issued after October 31, 2016, shall include a status report on the remediation of barriers to fish passage on projects that have been identified pursuant to Section 156.5. The status report shall include, but is not limited to, all of the following information regarding a project identified pursuant to Section 156.5:

(1) Any updated information received by the department from the Department of Fish and Wildlife regarding the barriers to fish passage on the project.

(2) Whether funding has been committed to the project.

(3) The source of any funding for the project.

(4) The budget summary of the project.

(5) The status of inspections of culverts to ensure they are functioning properly and any other actions by the department to assess or remediate barriers to fish passage on the project.

(6) The applicable program initiation document work plan review.

(7) The estimated completion date for the project.

Appendix C. Fish Passage Advisory Committee – List of Partners

The six Fish Passage Advisory Committees continue to grow and add partners. Currently there are over 180 staff and manager members to include state, federal, local and non-profit fish passage partners. Current Fish Passage Advisory Committees vary across geographic areas to include active, interested partners throughout the state. Current members from the following agencies and organizations;

- California Department of Transportation
- California Department of Fish and Wildlife
- National Marine Fisheries Service
- Pacific States Marine Fisheries Commission
- California Coastal Commission
- California State Parks
- U.S. Fish and Wildlife Service
- North Coast Regional Water Quality Control Board
- Hoopa Tribal Fisheries
- California Trout
- Trout Unlimited
- U.S. Forest Service
- California Coastal Conservancy
- County of Santa Cruz
- California Conservation Corps
- County of Santa Cruz
- Santa Barbara County
- California State Water Quality Control Board
- Santa Monica Mountains Resource Conservation District