2016 FISH PASSAGE ANNUAL REPORT

Little Mill Creek (District 1, Eureka), Emergency Bridge Project

Report to the Legislature

Prepared:
October 2017

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

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Executive Summary

This report is mandated 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 on locating, assessing and remediating fish passage barriers.

2016 Fish Passage Program Accomplishments

- Completed Fish Passage Remediation Locations = **2 Locations** (page 8)
- Completed Fish Passage Assessment Locations = **203 assessments** (page 10)
- Active Fish Passage Remediation Locations (programmed) = **40 locations** (page 12)
- Priority Fish Passage Barrier Locations (future program) = **62 locations** (page 16)

Internal Partnering

Toward the goal of implementing an increased number of fish passage remediation locations, Caltrans continues to look for internal opportunities within Divisions and Districts, to streamline the project delivery process. We have considered overlapping funding opportunities for locations that would address both fish passage and water quality requirements of Caltrans' National Pollutant Discharge Elimination System Permit in Total Maximum Daily Load [1] watersheds to achieve goals of the Stormwater Implementation program.

The Caltrans Division of Environmental Analysis and the Division of Engineering Services have partnered to work toward efficiencies, both in time and in reducing overall costs, by pre-designing bridge superstructures (decks and other above foundation elements), to 35 percent detail and design for bridges that measure from 20 to 120 feet in length. A fish passage remediation structure greater than 20 feet in length is considered a bridge.

Caltrans continues to find opportunities for implementation of Accelerated Bridge Construction which consists of pre-cast bridge elements built off-site and assembled at the project location, thus reducing construction duration and on-site environmental impacts. When standard design solutions are fully defined, Caltrans will meet with the California Department of Fish and

[1] Total Maximum Daily Load is defined as the maximum amount of pollutant that a water body can receive and still meet water quality standards. These are developed by the California Regional Water Quality Control Boards, State Water Resources Control Board or United States Environmental Protection Agency. Caltrans' Permit provisions and requirements are enforced by the Regional and State Control Boards.

Wildlife and National Marine Fisheries Service to negotiate permit efficiencies for time and cost savings related to effective solutions and methodologies to address fish passage barriers.

Fish Passage solutions less than 20 feet in length are designated as culverts. Some culvert projects on smaller streams and tributaries are full span solutions, which remediate the fish barrier for all species and life stages, whereas other culvert solutions are hydraulic (partial) solutions that improve the barrier by adding weirs or other grade control devices to create pools and reduce water velocities. This type of solution generally allows some species and adult life stages access to upstream habitat.

Although improved fish passage is achieved by implementation of partial, hydraulic solutions, the location remains a barrier to some species and juvenile life stages. After large storm events, hydraulic barrier treatments (e.g., weirs, baffles, ladders, etc.) often become damaged, filled with sediment, blocked with debris, and can be a significant barrier to upstream migration. Regular monitoring and inspections are necessary to ensure that partial solutions are working to meet the intended design efficiency for upstream migration of fish. Therefore, Caltrans and engineering partners at the California Department of Fish and Wildlife and National Marine Fisheries Service, are working toward standardized annual inspections forms for locations on the State Highway System which have been partially remediated, to ensure that they are functioning optimally. Long-term monitoring will ensure that minor maintenance projects are initiated to address identified damage or maintenance needs.

External Partnering

In 2016 Caltrans initiated an Interagency Fish Passage Engineering Group, which meets monthly. This group includes Caltrans Headquarters and District hydraulic engineers as well as partner engineers from the California Department of Fish and Wildlife and National Marine Fisheries Service. The Interagency Engineering Group has been successful in sharing information and training opportunities, identifying shared needs and concerns, and in working toward mutually beneficial fish passage engineering modeling, standards and inspections.

In November 2016, the National Marine Fisheries Service was able to fill the Caltrans-funded Fish Passage Engineering position. This engineer works with all Caltrans Districts and California Department of Fish and Wildlife counterparts to scope effective fish passage solutions and to permit and implement successful fish passage projects. Communication among these positions has already been particularly helpful in addressing locations with complex hydraulic modeling, in conferring on complex emergency storm damage projects, in channel restoration planning and timely final design approvals.

AB 95

In 2015, AB 95 (Committee on Budget, Chapter 12, Statutes of 2015) amended Section 156.1 of the Streets and Highways Code to require a one-time, $5 million allocation of funding. Caltrans selected Fish Creek, a major tributary to the South Fork Eel River for this designated funding. Fish Creek flows through a grove of ancient redwood trees located in Humboldt Redwoods State Park, on State Route 254, known as the Avenue of the Giants. This crossing is a complete barrier to all life stages of salmon and steelhead according to both Caltrans and the most updated information received from the Department of Fish and Wildlife. The existing Reinforced Concrete Box was built in 1919 and is 6-foot wide by 8-foot high by 115-foot long. The project will replace the existing facility with a bridge that will be 40 feet or greater in length and will include features to ensure protection of the large redwood tree. The Avenue of the Giants area receives a significant amount of public visitation, providing opportunities to inform the public about the importance of fish passage barrier remediation.

Fish Creek, culvert inlet. Project will protect 15-foot redwood tree seen in the upper left corner.

Fish Creek, culvert outlet. Scour at outlet due to high velocities will be improved by the project.

Figure 1. The Fish Creek project will remediate a barrier while protecting redwood trees and reducing scour caused by high velocities.

This location was previously funded as a partial solution (less than 20 feet), which would have incrementally improved fish passage, but would not have provided access for all species and life stages. The previous design would not have fully protected the nearby 15-foot diameter redwood and would not have addressed the identified sediment issue in the Eel River watershed, which is in an area designated as impaired due to sediment. AB 95 funds will be

leveraged with State Highway Operation and Protection Program Stormwater Implementation Program funds to eliminate the barrier to fish passage and improve water quality in the South Fork Eel River watershed to comply with the requirements outlined in Attachment IV of Caltrans' National Pollutant Discharge Elimination System Permit, number CAS000003. Construction is estimated to be completed in Fiscal Year 2021/2022.

Fish Passage Advisory Committees

Caltrans took the lead, in coordination with the California Department of Fish and Wildlife, to form Fish Passage Advisory Committees in 2003 and 2005 in District 1 (North Coast) and District 2 (Klamath-Cascades). These provide Caltrans and other State, federal, and nonprofit fish passage partners with a venue to share science and data; to gain support for remediation and habitat restoration efforts; to advocate for project funding; and to identify locations for assessments, surveys, monitoring, and maintenance activities.

In 2016 and 2017, Caltrans initiated similar groups in other areas of the State to provide additional support in all Districts with current or historic salmon and steelhead populations, bringing the total number of Fish Passage Advisory Committees to six (Figure 2):

- Bay Area – established September 2016
- Southern Steelhead – established February 2017
- Central Coast – established August 2017
- Central Valley - will be established December 6, 2017

In July 2017, a website was created to support information sharing with members and the interested public. The website can be found at **www.cafishpac.org**.

Figure 2. The geographic scope of the six California Fish Passage Advisory Committees.

Background

This report provides an annual update on fish passage assessment and remediation information describing locations for which Caltrans is responsible. This is in accordance with Streets and Highways Code, Section 156.1 (SB 857, Kuehl, Chapter 589, Statues of 2005). This report updates progress from January 1 to December 31, 2016.

Table 1. Overview of Fish Passage Progress on the State Highway System (from 2006 to 2016)[2].

District	All Other Known Barrier Locations[3]	2016 Locations Remediated	Locations Remediated (Since 2006)[4]	Active Locations[5]	2016 Priority Locations[6]	Estimated Unassessed crossings[7]
District 1 (Eureka)	295	1	18	15	12	862
District 2 (Redding)	48	0	10	7	10	1,100
District 3 (Marysville)	0	0	0	0	7	709
District 4 (Oakland)	72	1	2	7	10	946
District 5 (San Luis Obispo)	90	0	8	8	10	899
District 6 (Fresno)	0	0	0	0	0	560
District 7 (Los Angeles)	13	0	1	1	10	350
District 10 (Stockton)	0	0	0	0	1	834
District 11 (San Diego)	0	0	0	1	0	257
District 12 (Orange)	0	0	0	1	2	198
Totals	**518**	**2**	**39**	**40**	**62**	**6,715**

[2] These are estimates based on a query of data available in the Passage Assessment Database.
[3] This represents all other known barriers on the State Highway System that have not been fully remediated and includes locations since 2006 that have been treated with partial (hydraulic) solutions.
[4] This includes total remediation locations as well as partial (hydraulic) treatment locations.
[5] Active locations are partially or fully funded locations.
[6] Priority Locations have the highest biological value of the locations that are not yet funded.
[7] Passage Assessment Database Analysis used to estimate outstanding fish passage assessment needs. Estimate includes approximately 1,065 locations that have first pass assessments but require second pass assessments.

2016 Completed Fish Passage Remediation Locations

Two fish passage locations were completed in 2016. Table 2, 2016, Completed Fish Passage Remediation Locations, contains information on the locations. Figure 3 (page 9) is a map of the locations listed in Table 2.

Table 2. 2016 Completed Fish Passage Remediation Locations.

Map #	Caltrans District	County	Route	Post Mile	PAD ID #	Stream Name	Barrier Status
1	1	Del Norte	197	6.15	707142	Little Mill Creek	Partial
2	4	Contra Costa	80	8.4	723716	Pinole Creek[8] (RCD, by Encroachment)	Partial

[8] The Contra Costa Resource Conservation District is the sponsor of this location and has worked with Caltrans through the Encroachment Permit process.

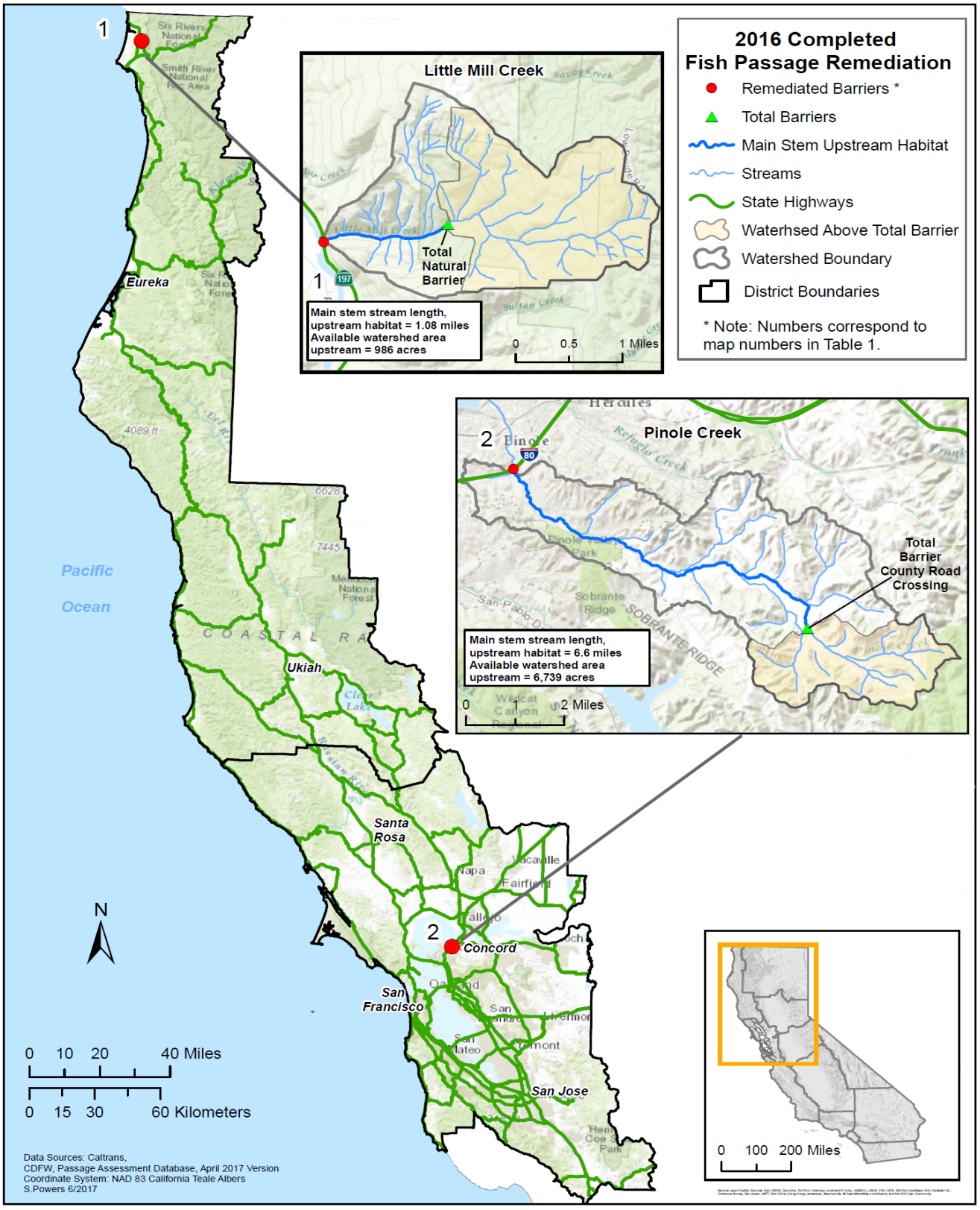

Figure 3. 2016 Completed Fish Passage Remediation Locations.

2016 Completed Fish Passage Assessment Locations

In 2016, 203 fish passage assessments were completed in Districts 3 (Marysville), 4 (Oakland) and 10 (Stockton). Table 3 shows 12 locations, designated as New Identified Barriers. The remaining 191 assessment 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 4 (page 11) shows locations listed in Table 3.

Table 3. 2016 Completed Fish Passage Assessment Locations.

Map #	Caltrans District	County – Route – Post Mile	PAD ID #	Stream Nam	Tributary to	Assessment Status
1	3	Butte – 99 – PM 23.6	759031	Unnamed	Durham Mutual Ditch	New Identified Barrier
2	3	Butte – 99 – PM 27.38	759032	Crouch Ravine	Durham Mutual Ditch	New Identified Barrier
3	3	Butte – 99 – PM 41.7	759034	Unnamed intermittent	Unnamed	New Identified Barrier
4	3	Butte – 99 – PM 44.9	759040	Unnamed	Unnamed	New Identified Barrier
5	3	Sacramento – 99 – PM 3.9	759041	Unnamed Ephemeral	Sacramento River	New Identified Barrier
6	3	Sacramento – 99 – PM 16.36	759042	Strawberry Creek	Beacon Creek	New Identified Barrier
7	3	Sacramento – 104 – PM 11.25	759046	Unnamed	Unnamed	New Identified Barrier
8	4	Napa – 29 – PM 14.1	761523	Craig Creek	Salvador Creek/Napa River	New Identified Barrier
9	4	Napa – 29 – PM 22.36	717298	Doak Creek	Napa River	New Identified Barrier
10	4	Sonoma – 12 – PM 32.0	733129	Un-named tributary	Wilson Creek	New Identified Barrier
11	4	Sonoma – 116 – PM 1.03	732830	Un-named tributary	Russian River	New Identified Barrier
12	10	Stanislaus – 120 – PM 15.04	761519	Wildcat Creek	Middle San Joaquin	New Identified Barrier

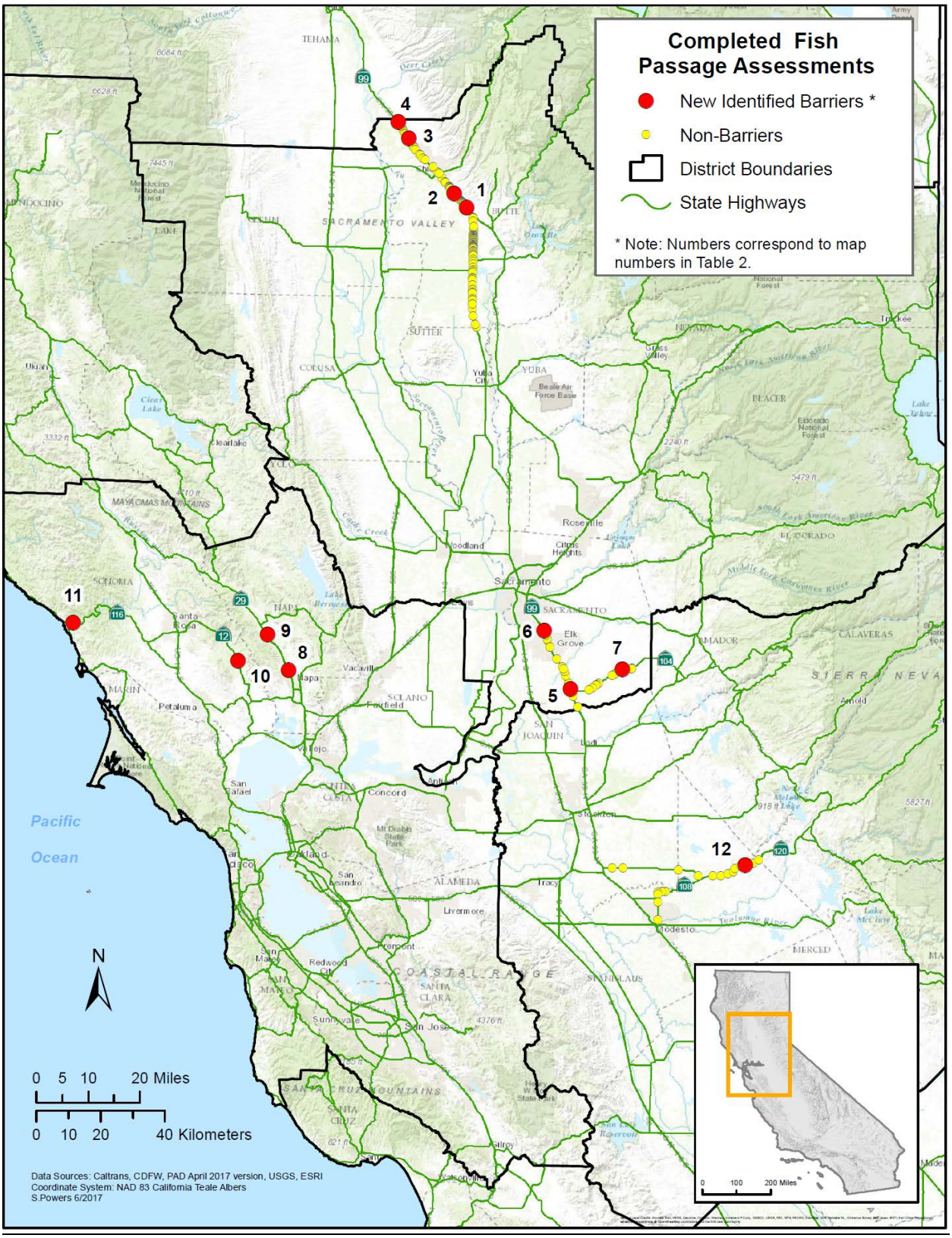

Figure 4. 2016 Completed Fish Passage Assessment Locations.

Active Fish Passage Remediation Locations

Caltrans is currently developing projects to remediate 40 fish passage barriers. Six new locations have been funded on the State Highway System. Table 4 below, Active Fish Passage Remediation Locations, lists the current remediation locations that are either funded through construction, or partially funded for planning, design or permitting. Figure 4 (page 15), is a map of the locations listed in Table 4. The locations that are **bold and underlined** are the 6 new locations.

Table 4. 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	2020
2	1	Del Norte – 199 – PM 2.56	707139	Clarks Creek	Clarks Creek	2020
3	1	Del Norte – 199 – PM 31.31	707137	Griffin Creek	Griffin Creek	2020
4	1	Humboldt – 101 – PM 124.49	713025	Little Lost Man Creek	Little Lost Man Creek	2020
5	1	Humboldt – 96 – PM 8.83	707141	Campbell Creek	Campbell Creek	2019
6	1	Humboldt – 254 – PM 4.18	707157	Fish Creek[9]	Fish Creek Fish Passage	2022
7	1	Mendocino – 1 – PM 4.64	713068	Fish Rock Gulch	Fish Rock Gulch	2020
8	1	Mendocino – 1 – PM 57.81	707071	Mitchell Creek	Mitchell Creek	2020
9	1	Mendocino – 1 – PM 58.78	707072	Digger Creek	Digger Creek	2020
10	1	Mendocino – 101 – 48.14	705136	Upp Creek	Willits Bypass	2017
11	1	Mendocino – 101 – PM 52.25	707085	South Fork Ryan Creek	Willits Bypass Mitigation	2017

[9] Location previously funded by CDFW, State Coastal Conservancy & Trout Unlimited, through restoration grant program funds. The proposed solution was a continued partial barrier to fish. The implementation grant was pulled due to hydraulic designs not addressing scour, sediment issues and necessary protective measures for the large redwood tree adjacent to Fish Creek. Caltrans has now funded a bridge at this high priority location in order to span the natural stream channel, protecting the 15-foot diameter redwood tree and address sediment load.

Map #	Caltrans District	County – Route – Post Mile	PAD ID #	Stream Name	Project Name	Estimated Year of Completion
12	1	Mendocino – 101 – PM 52.36	707086	North Fork Ryan Creek	Willits Bypass Mitigation	2017
13	1	Mendocino – 101 – PM 66.5	707096	Ten Mile Creek	36 Culverts	2017
14	1	Mendocino – 101 – PM 89.24	706954	Cedar Creek	Cedar Creek	2018
15	1	Mendocino – 128 – PM 14.04	707192	Soda Creek	Soda Creek	2018
16	**2**	**Shasta – 5 – PM R24.54**	**759970**	**Spring Branch Creek**	**Districtwide Scour Project**	**2022**
17	**2**	**Shasta – 36 – PM 3.6**	**737281**	**Harrison Gulch**	**Harrison Gulch**	**2020**
18	2	Siskiyou – 5 – PM 27.2	720504	Parks Creek	Parks Creek	2018
19	2	Siskiyou – 96 – PM 8.0	707149	Stanshaw Creek	Stanshaw and Sandy Bar Creek	2028
20	2	Siskiyou – 96 – PM 9.1	720537	Sandy Bar Creek	Stanshaw and Sandy Bar Creek	2028
21	2	Siskiyou – 96 – PM 43.5	720541	Cade Creek	Cade Creek	2028
22	2	Siskiyou – 96 – PM 57.0	707169	Portuguese Creek	Portuguese Creek	2028
23	**4**	**Alameda – 84 – PM 12.1**	**713729**	**Stonybrook Creek**	**Niles Canyon Improvement Project**	**2020**
24	**4**	**Marin – 1 – PM 22.78**	**706058**	**Giacomini Gulch**	**Storm Damage – Culvert Replacement**	**2018**
25	4	Marin – 1 – PM 24.77	732502	Tributary to Olema Creek	Olema Creek Culvert Replacement	2018
26	**4**	**Marin – 1 – PM 33.4**	**732518**	**Millerton Gulch**	**Scour Mitigation**	**2017**
27	4	Napa – 121 – PM 0.75	714975	Huichica Creek	Huichica Creek Bridge	2019
28	4	Napa – 121 – PM 9.30	758605	Sarco Creek	Sarco Creek Bridge	2021

Map #	Caltrans District	County – Route – Post Mile	PAD ID #	Stream Name	Project Name	Estimated Year of Completion
29	4	Sonoma – 1 – PM 15.1	733223	Scotty Creek	Gleason Beach Highway Realignment	2019
30	5	Santa Barbara – 1 – PM 15.61	700085	Salsipuedes Creek	Salsipuedes Creek Bridge Replacement	2020
31	5	Santa Barbara – 101 – PM 0.0	707368	Rincon Creek	101 Rehab Project	2020
32	5	Santa Barbara – 101 – PM 2.2	707182	Carpinteria Creek	Highway 101 Linden/ Casitas Pass	2020
33	5	Santa Barbara – 101 – PM 5.6	734310	Arroyo Parida Creek	South Coast HOV	2023
34	5	Santa Barbara – 101 – PM 9.4	705161	Romero Creek	South Coast HOV	2023
35	5	Santa Barbara – 101 – PM 9.6	734342	San Ysidro Creek	South Coast HOV	2023
36	**5**	**Santa Barbara – 154 – PM 21.3**	**735549**	**Bear Creek**	**Culvert Repair**	**2020**
37	5	Santa Barbara – 192 – PM 15.5	706239	Arroyo Parida Creek	Arroyo Parida Creek	2018
38	7	Los Angeles – 1 – PM 50.3	705781	Solstice Creek	Solstice Creek Bridge	2022
39	11	San Diego – 76 – PM 29.5	712680	Pauma Creek	SR-76 Culvert Replacement/Fish Passage	2020
40	12	Orange – 5 – PM 11.30	706807	Trabuco Creek	I-5/Trabuco	2020

Figure 4. Active Fish Passage Remediation Locations.

Priority Fish Passage Locations for Remediation

Table 5, Priority Fish Passage Locations for Remediation lists locations that are equal in priority for funding and implementation and are in coordination with the California Department of Fish and Wildlife. The 16 locations in **bold and underlined** are new to the Report. There are 62 priority locations identified. Figure 5 (page 20), is a map of the locations listed in Table 5.

Table 5. 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 9.17	707129	Fox Creek	Van Duzen River
4	1	Humboldt – 101 – PM 54.94	715460	Strongs Creek	Eel River
5	1	Humboldt – 254 – PM 40.83	722439	Chadd Creek	Eel River
6	1	Humboldt – 299 – PM 2.97	713051	Essex Gulch	Mad River
7	**1**	**Mendocino – 1 – PM 4.64**	**713068**	**Fish Rock Gulch**	**Fish Rock Gulch**[10]
8	1	Mendocino – 1 – PM 54.62	707070	Doyle Creek	Pacific Ocean
9	**1**	**Mendocino – 1 – PM 58.78**	**707072**	**Digger Creek**	**Digger Creek**
10	1	Mendocino – 1 – PM 88.71	713078	Powderhouse Gulch	Cottaneva Creek
11	1	Mendocino – 20 – PM 30.87	713093	Unnamed Trib to Broaddus Creek	Broaddus Creek
12	1	Mendocino – 128 – PM 4.30	707185	Barton Gulch	Navarro River
13	2	Shasta – 273 – PM 18.0	707132	Sulphur Creek	Sacramento River
14	2	Siskiyou – 3 – PM 6.5	707148	Big Mill Creek	Scott River
15	**2**	**Siskiyou – 96 - 12.02**	**732222**	**Ti Creek**	**Klamath River**

[10] Locations were previously reported as funded through the Advance Mitigation program, in error.

Map #	Caltrans District	County – Route – Post Mile	PAD ID	Stream Name	Tributary to
16	2	Siskiyou – 96 – PM 23.7	707162	Coon Creek	Klamath River
17	2	Siskiyou – 96 – PM 70.7	735752	Tom Martin Creek	Klamath River
18	2	Trinity – 3 – PM 10.9	707231	Barker Creek	Trinity River
19	2	Trinity – 3 – PM 32.6	707178	East Weaver Creek	Trinity River
20	2	Trinity – 299 – PM 49.6	720522	West Weaver Creek	Trinity River
21	2	Trinity – 299 – PM 51.2	737674	Sydney Gulch	Trinity River
22	2	Trinity – 299 – PM 51.4	735941	Garden Gulch	Trinity River
23	**3**	**Butte – 99 – PM 23.6**	**759031**	**Unnamed**	**Durham Mutual Ditch**
24	**3**	**Butte – 99 – PM 27.38**	**759032**	**Crouch Ravine**	**Durham Mutual Ditch**
25	**3**	**Butte – 99 – PM 41.7**	**759034**	**Unnamed intermittent**	**Unnamed**
26	**3**	**Butte – 99 – PM 44.9**	**759040**	**Unnamed**	**Unnamed**
27	**3**	**Sacramento – 99 – PM 3.9**	**759041**	**Unnamed Ephemeral**	**Sacramento River**
28	**3**	**Sacramento – 99 – PM 16.36**	**759042**	**Strawberry Creek**	**Beacon Creek**
29	**3**	**Sacramento – 104 – PM 11.25**	**759046**	**Unnamed**	**Unnamed**
30	4	Marin – 1 – PM 22.67	706059	John West Fork	Olema Creek
31	4	Marin -1 – PM 18.69	706078	McCurdy Creek	Pine Gulch Creek (Bolinas Lagoon)
32	4	Marin – 1 – PM 18.69	706079	North Fork McCurdy Creek	McCurdy Creek/ Pine Gulch Creek
33	**4**	**Marin – 1 – PM 25.67**	**759028**	**Quarry Gulch**	**Olema Creek**
34	4	Napa – 29 – PM 33.17	705459	Ritchie Creek	Napa River

Map #	Caltrans District	County – Route – Post Mile	PAD ID	Stream Name	Tributary to
35	4	San Mateo – 1 – PM 4.32	705302	Whitehouse Creek	Pacific Ocean
36	4	San Mateo – 1 – PM 22.75	716835	Lobitos Creek	Pacific Ocean
37	**4**	**San Mateo – 84 – PM 4.6**	**706675**	**Bogess Creek**	**San Gregorio Creek**
38	4	San Mateo – 84 – PM 19.25	705766	Bear Creek	San Francisquito
39	4	San Mateo – 84 – PM 19.98	705768	West Union Creek	Bear Creek/San Francisquito Creek
40	5	Santa Barbara – 101 – PM 46.92	706655	Gaviota Creek	Pacific Ocean
41	5	Santa Barbara – 101 – PM 46.95	706656	Gaviota Creek	Pacific Ocean
42	5	Santa Barbara – 101 – PM 47.12	706657	Gaviota Creek	Pacific Ocean
43	5	Santa Barbara – 101 – PM 47.15	706658	Gaviota Creek	Pacific Ocean
44	5	Santa Barbara – 101 – PM 47.19	706659	Gaviota Creek	Pacific Ocean
45	5	Santa Barbara – 101 – PM 49.6	706388	Gaviota Creek	Pacific Ocean
46	5	Santa Barbara – 192 – PM 3.39	706538	Mission Creek	Pacific Ocean
47	5	Santa Cruz – 1 – PM 28.59	706003	San Vicente Creek	Pacific Ocean
48	5	Santa Cruz – 1 – PM 31.25	705994	Molino Creek	Pacific Ocean
49	5	San Luis Obispo – 101 – PM 36.59	707246	Santa Margarita Creek	Salinas River
50	7	Los Angeles 1 – PM 40.99	716891	Topanga Creek	Pacific Ocean
51	7	Los Angeles 1 – PM 54.97	716906	Zuma Creek	Pacific Ocean
52	7	Ventura – 1 – PM 1.23	723563	Little Sycamore Creek	Pacific Ocean
53	**7**	**Ventura – 33 – PM 7.62**	**713867**	**San Antonio Creek**	**Ventura River**

Map #	Caltrans District	County – Route – Post Mile	PAD ID	Stream Name	Tributary to
54	7	Ventura – 33 – PM 24.17	713767	North Fork Matilija Creek	Ventura River
55	7	Ventura – 33 – PM 34.5	723804	Burro Creek	Sespe Creek
56	7	Ventura – 126 – PM 18.6	723760	Boulder Creek	Santa Clara River
57	7	Ventura – 126 – PM 26.48	713878	Hopper Canyon Creek	Santa Clara Creek
58	7	Ventura – 150 – PM 22.8	700083	Lion Creek	Sespe Creek
59	7	Ventura – 150 – PM 28.48	761522	Sissar Creek	Santa Paula Creek
60	**10**	**Stanislaus – 120 – PM 15.04**	**761519**	**Wildcat Creek**	**Stanislaus River**
61	**12**	**Orange – 5 – PM 14.80**	**759493**	**Oso Creek**	**Arroyo Trabuco**
62	**12**	**Orange – 74 – PM 13.30**	**759565**	**San Juan Creek**	**Pacific Ocean**

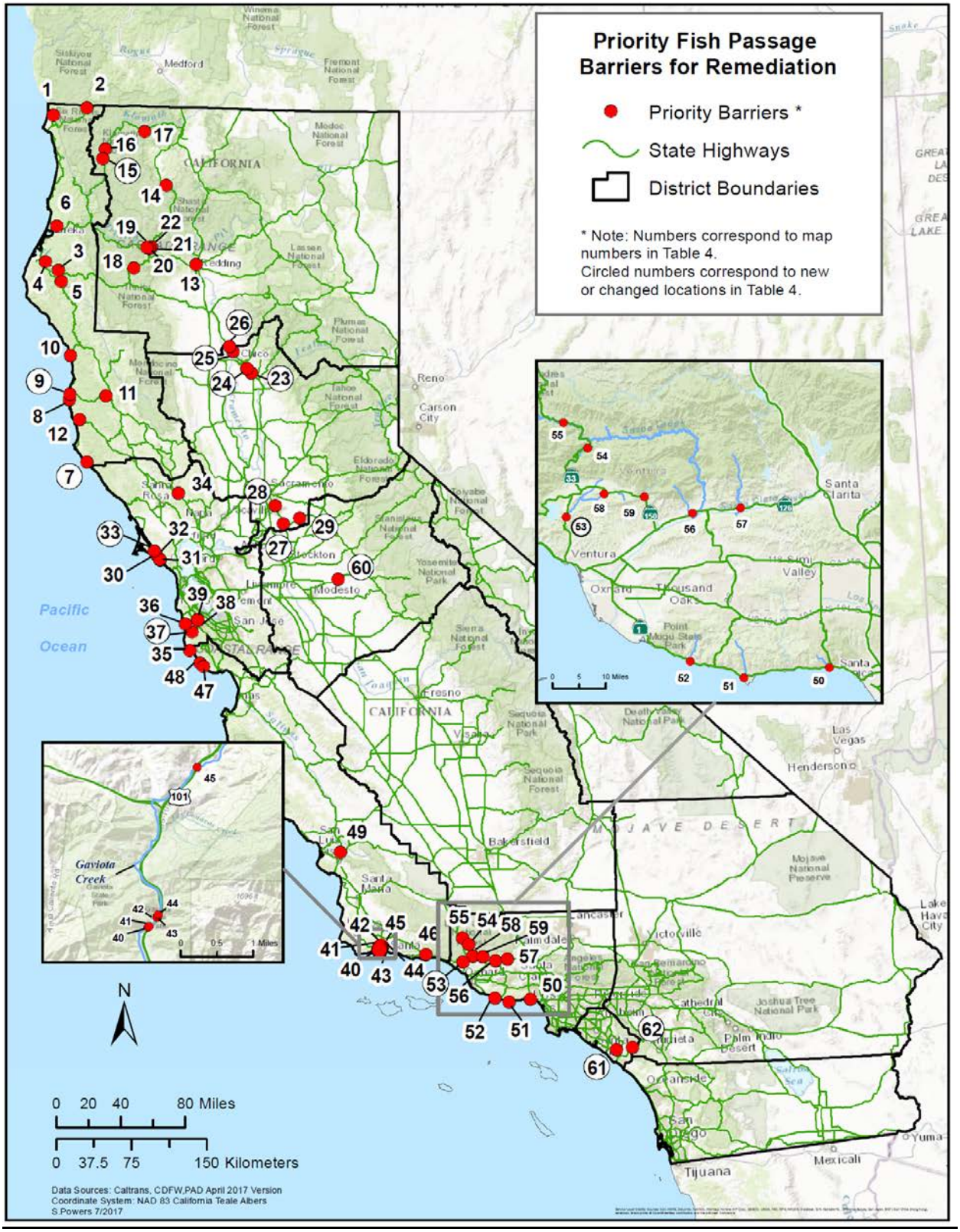

Figure 5. Priority Fish Passage Locations for Remediation.

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, Fish Passage Locations Completed, is a list of all fish passage barriers that have been either fully or partially remediated on the State Highway System, since that time. The below table (Table 6) lists all treated barriers from January 1, 2006 to December 31, 2016. **Bold and underlined** locations are new to this report and constructed in 2016. Figure 6 (page 24), is a map of the locations listed in Appendix A.

Table 6. Fish Passage Locations Completed.

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[11]
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[12]
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 81.4	706986	Rattlesnake Creek	Rattlesnake Creek	2009	Partial

[11] **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.

[12] **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
11	1	Mendocino - 101 – PM 83.99	706987	Rattlesnake Creek	Fish Passage	2013	Partial
12	1	Mendocino - 101 – PM 99.0	707115	Red Mountain Creek	Confusion Hill Mitigation	2010	Partial
13	1	Mendocino – 128 – PM 21.8	707199	Clow Creek	Culvert Upgrade [13]	2015	Partial
14	1	Mendocino – 128 – PM 27.54	707205	Graveyard Creek	Culvert Upgrade	2015	Partial
15	1	Mendocino – 128 – PM 36.63	707208	Lost Creek	Culvert Upgrade	2015	Partial
16	1	Mendocino – 128 – PM 39.88	707212	Beebe Creek	Culvert Upgrade	2015	Partial
17	1	Mendocino - 128 – PM 39.95	713145	John Hatt Creek	Beebe Storm Damage	2011	Partial
18	1	Mendocino - 128 – PM 49.66	707219	Edwards Creek	Edwards Creek Fish Passage	2011	Partial
19	2	Shasta - 299 – PM 20.7	737289	Salt Creek	Salt Creek Fish Passage Project	2006	Partial
20	2	Shasta – 299 – PM 32.2	737295	Yank /Lemm Creek Bridge	Yank Creek/Lemm Creek Bridge	2014	Full
21	2	Siskiyou - 96 – PM 56.0	707168	Fort Goff Creek	Fort Goff Creek Fish Passage	2014	Full
22	2	Siskiyou - 96 – PM 65.4	707147	O'Neil Creek	O'Neil Creek Fish Passage	2008	Full
23	2	Tehama - 5 – PM 16.9	737006	Elder Creek	Elder Creek Scour Mitigation	2008	Partial
24	2	Tehama - 5 – PM 28.1	737007	Dibble Creek	Dibble Creek Scour Mitigation	2008	Partial
25	2	Tehama - 99 – PM 21.1	737012	Craig Creek	Craig Creek & Sunset Canal Bridges Project	2011	Full

[13] The retrofit improvement locations that were addressed in 2015 on the Mendocino 128 creeks (Clow, Graveyard, Lost and Beebe) are in steep mountain streams and have already experienced sediment and scour issues that will be monitored during the 2016/2017 winter. It is likely that a maintenance project will be initiated to address the excavation of sediment, rock weir repair and any other identified improvements for fish passage.

Map #	District	County- Route- Post mile	PAD ID #	Stream Name	Project Name	Year Completed	Treatment Status
26	2	Tehama - 99 – PM 15.6	737013	Sunset Canal	Sunset Canal Bridge	2010	Partial
27	2	Trinity – 299 – PM 68.0	720511	Little Grass Valley Creek	Little Grass Valley Creek Fish Passage	2015	Partial
28	2	Trinity – 299 – PM 68.2	735688	Little Grass Valley Creek	Little Grass Valley Creek Fish Passage	2015	Partial
29	**4**	**Contra Costa – 80 – PM 8.4**	**723716**	**Pinole Creek**	**Pinole Creek Bridge**	**2016**	**Partial**
30	4	Napa - 121 – PM 1	733333	Huichica Creek	Duhig Road Project	2010	Full
31	5	Santa Barbara - 101 – PM 33.9	707398	El Capitan Creek	El Capitan Creek	2007	Partial
32	5	Santa Barbara – 101 – PM 38.3	707403	Tajiguas Creek	Tajiguas Creek	2014	Partial
33	5	Santa Barbara - 101 – PM 41.0	707405	Arroyo Hondo Creek	Arroyo Hondo	2008	Partial
34	5	Santa Barbara - 101 – PM 47.2	706669	Gaviota Creek	Gaviota Creek	2008	Partial
35	5	Santa Cruz -1 – PM 10.0	706703	Valencia Creek	Tributary to Aptos Creek (culvert 1)	2007	Partial
36	5	Santa Cruz – 1 – PM 10.0	706704	Valencia Creek	Tributary to Aptos Creek (culvert 2)	2007	Partial
37	5	Santa Cruz - 1 – PM 17.4	735367	Branciforte Creek	Hwy 1 Remediation	2007	Partial
38	5	Santa Cruz - 1 – PM 17.42	735366	Carbonera Creek	Hwy 1 Remediation	2008	Partial
39	7	Ventura - 150 – PM 28.7	723744	Santa Paula Creek	Santa Paula Creek	2012	Partial[14]

[14] During high water flows the control weirs were undermined which has led to exposure of the bridge apron and resulted in a drop at the structure, which is now a partial barrier to fish.

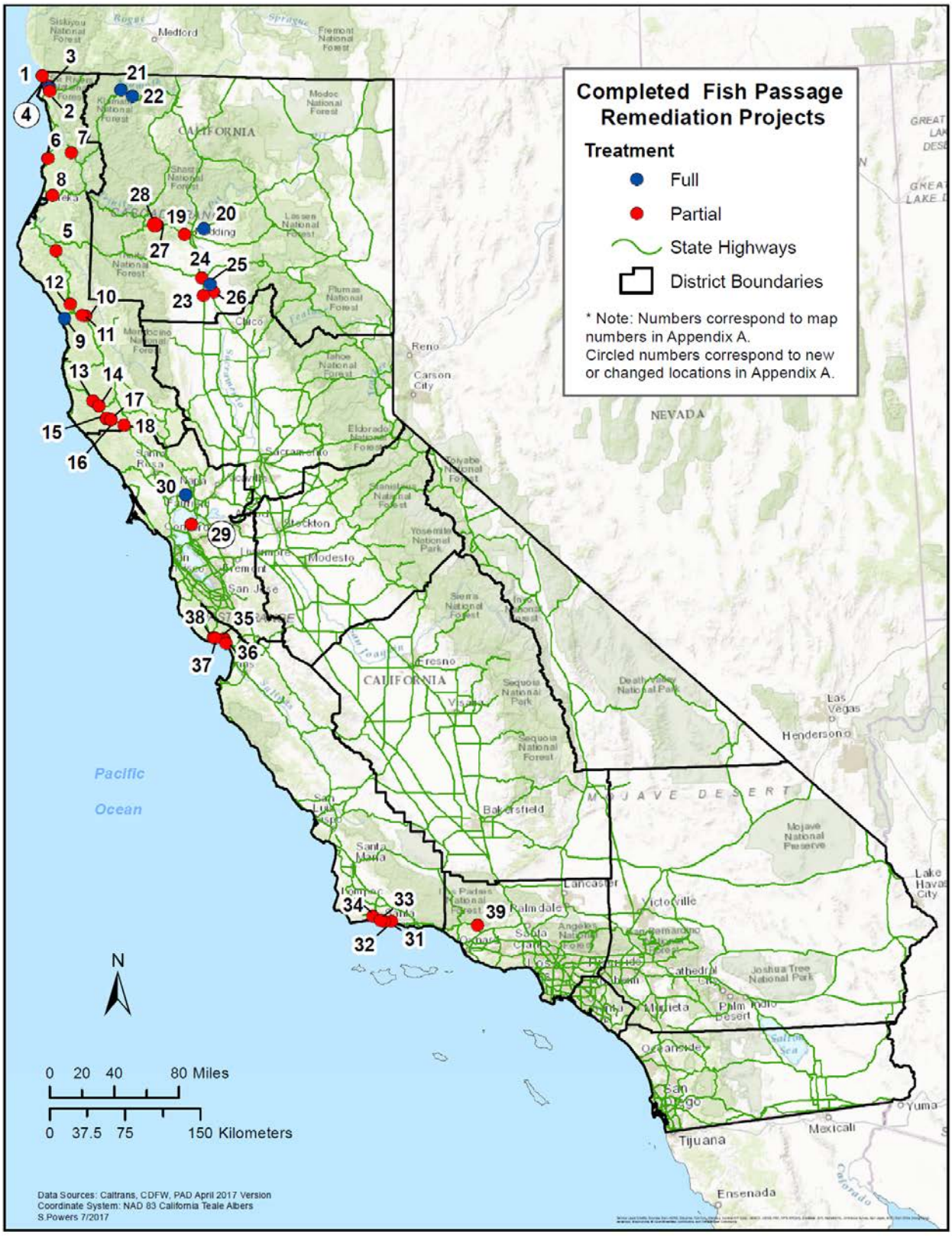

Figure 6. Fish Passage Locations Completed.

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.