SB 857 - SEC 3. ARTICLE 3.5 (STREETS & HIGHWAYS CODE)

• PROHIBITS ACTIONS THAT EXTEND THE LIFE OF A CULVERT OR BRIDGE BARRIER TO SALMON OR STEELHEAD, WITHOUT ADDRESSING BARRIER.

• REQUIRES CALTRANS TO;
  • REPORT ANNUAL PROGRESS ON ASSESSMENT, PRIORITIES, COMPLETED REMEDIATION LOCATION AND ACTIVE PROJECTS.
  • CONSTRUCT NEW PROJECTS THAT ARE NOT BARRIERS TO FISH.

Spring Chinook Salmon
Butte Creek, California
• **~ 15,181 MILES OF STATE HIGHWAY**
  - LONGEST ROUTE – HWY 101, 807 MILES (EL CAMINO REAL/REDWOOD HIGHWAY)
  - SHORTEST ROUTE – HWY 275, 0.14 MILES, (TOWER BRIDGE)
  - HIGHEST SUMMIT – ROUTE 20 TIOGA PASS, 9,945 FEET ELEVATION

• **CA HIGHWAY SYSTEM ACCOUNTS FOR ~ 9% OF ROADS**
  - 78% COUNTY AND CITY ROADS
  - 13% PRIVATE ROADS
FISH PASSAGE ASSESSMENTS, REPORTING, AND COORDINATORS

• MEET MONTHLY FOR HQ AND DISTRICT COORDINATION OF FISH PASSAGE EFFORTS
• CALTRANS HAS SURVEYED APPROX. 4,000 POTENTIAL BARRIERS TO ANADROMOUS FISH SINCE 2006.
• +/- 6,000 ADDITIONAL ASSESSMENTS NEEDED
• APPROX. 600 BARRIERS ARE CURRENTLY KNOWN ON THE STATE HIGHWAY SYSTEM.
• EACH DISTRICT WITH CURRENT OR HISTORIC ANADROMY HAS A BIOLOGY POINT OF CONTACT.

<table>
<thead>
<tr>
<th>District</th>
<th>Coordinator</th>
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</thead>
<tbody>
<tr>
<td>1- Eureka</td>
<td>Susan Leroy</td>
</tr>
<tr>
<td>2- Redding</td>
<td>Brenden Barney</td>
</tr>
<tr>
<td>3- Marysville</td>
<td>Hannah Harrell</td>
</tr>
<tr>
<td>4- Oakland</td>
<td>John Yeakel</td>
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<tr>
<td>5- SLO</td>
<td>Jim Walth</td>
</tr>
<tr>
<td>6- Fresno</td>
<td>Christina Anderson</td>
</tr>
<tr>
<td>7- Los Angeles</td>
<td>Peter Champion</td>
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<tr>
<td>10- Stockton</td>
<td>Christene Coffman</td>
</tr>
<tr>
<td>11- San Diego</td>
<td>Rush Abrams</td>
</tr>
<tr>
<td>12- Orange</td>
<td>Chris Waterston</td>
</tr>
<tr>
<td>HQ- Sac</td>
<td>Melinda Molnar 707-445-6627</td>
</tr>
</tbody>
</table>
PROJECT MANAGEMENT
Project support and coordination with all internal Divisions and resource agency partners

PLANNING
Pre-project planning, Project Initiation Documents (PID)

DESIGN
Partner with agency fish passage engineers for successful project and standard design solutions

ENVIRONMENTAL
Coordinate science and data, fund assessments, coordinate internal and external permitting and efficiencies

PROJECT MANAGEMENT
Project support and coordination with all internal Divisions and resource agency partners

RIGHT OF WAY
Rights to enter for barrier assessments and access for remediation projects

MAINTENANCE
Culvert inspections, small remediation projects, maintain final State Highway System

PROGRAMMING
Work with Project Management and Districts to find opportunities to fund priority barrier locations

INTERNAL PARTNERING
EXTERNAL PARTNERING

FISH PASSAGE ADVISORY COMMITTEES (FISHPAC’S)

• FISHPAC’S
  • D1 – NORTH COAST (2003)
    • CALTRANS HQ BIOLOGY FUNDED LANG STUDY
  • D2 – KLAMATH-CASCADES (2007)
  • D4 – BAY AREA (2016)
  • D7, D11, D12 – SOUTHERN STEELHEAD (2017)
  • D5 – CENTRAL COAST (2017)
  • D3, D6, D10 – CENTRAL VALLEY (2018)

• FISHPAC WEBSITE; WWW.CAFISHPAC.ORG

• CALTRANS HQ BIOLOGY HAS SUPPORTED CREATING ALL FISHPAC’S, FACILITATION, GIS/MAPPING, PAD UPDATES, STORY MAP CREATION AND BIOS SUPPORT.
FISHPAC’S – SCIENCE AND DATA

• PASSAGE ASSESSMENT DATABASE – IMPROVING INFORMATION FOR ALL USERS

• MEMBERS INCLUDE;
  • CALTRANS, CA FISH AND WILDLIFE, NATIONAL MARINE FISHERIES SERVICE, US FISH AND WILDLIFE, CALTROUT, COASTAL COMMISSION, TROUT UNLIMITED, STATE COASTAL CONSERVANCY,

• MAIN GOALS;
  • SHARE AND IMPROVE SCIENCE AND DATA - PRIORITIES
  • SUPPORT REMEDIATION PROJECTS AND EFFORTS
  • BIOLOGISTS AND ENGINEERS COORDINATE
FUTURE PRIORITIES – CALTRANS BARRIERS PRIORITIZATION

1. SELECT LOCATIONS FROM FISHPAC WEBSITE - OTHER KNOWN BARRIERS LIST (XL SPREADSHEET)
   • ANY NEW PROPOSED LOCATIONS MUST BE ADDED OR UPDATED IN PAD AND HAVE A PAD ID

2. FISHPAC’S IMPROVE AND UPDATE SCIENCE AND DATA FOR ALL LOCATIONS IN CONSIDERATION
   • SPECIES DIVERSITY, HABITAT QUALITY/QUANTITY AND PROFESSIONAL KNOWLEDGE

3. REFINE AND FINALIZE CRITERIA FOR PRIORITIZATION
   • MUST MEET REQUIREMENTS FOR CALTRANS

4. MEMBERS INDIVIDUALLY RANK ALL LOCATIONS
   • FACILITATOR COMBINES AND PROVIDES RANKINGS
ENGINNEERING SOLUTIONS

• THE LONG-TERM SOLUTION FOR A MAJORITY OF FISH BARRIERS ARE SMALL BRIDGES

• CALTRANS STRUCTURES HAS A ENGINEER WORKING ON FISH PASSAGE STANDARD PLANS FOR SMALL BRIDGES (20 TO 120 FEET)

• CALTRANS HAS FUNDED ENGINEERING POSITION AT CDFW AND NMFS – JOHN WOOSTER AND RICK MACALA

• CALTRANS HQ DESIGN HYDRAULICS CONVENES MONTHLY MEETINGS OF THE INTERAGENCY FISH PASSAGE ENGINEERING GROUP
  • COORDINATE ENGINEERING ISSUES TO INCLUDE TRAINING, GUIDANCE AND PARTNERING.
  • RESEARCH; 1) GUIDANCE TO DETERMINE THE ACTIVE CHANNEL WIDTH (FULL-SPAN SOLUTIONS), AND 2) PILOT EXPERT INSPECTIONS OF 44 LOCATIONS REMEDIATED BETWEEN 2006-2017.
FISH PASSAGE PRIORITIES

• **62** PRIORITY LOCATIONS (ALL 10 DISTRICTS/FISHPAC’S)

• IDENTIFY FUNDING POTENTIAL FOR PRIORITY LOCATIONS
ACTIVE (FUNDED) LOCATIONS

- **40** ACTIVE PROJECTS BEING DEVELOPED FOR IMPLEMENTATION OF FISH PASSAGE SOLUTIONS
BARRIER STATUS

• **44** BARRIERS REMEDIATED FROM 2006 TO 2017

• **~600** KNOWN BARRIERS
  
  • INCLUDES **40** FISH PASSAGE LOCATIONS IN PROJECT DEVELOPMENT AND **62** PRIORITY LOCATIONS FOR FUNDING
TYPICAL HIGHWAY BARRIERS
TYPICAL HIGHWAY BARRIERS
TYPICAL HIGHWAY FULL REMEDIATION
TYPICAL HYDRAULIC (PARTIAL) REMEDIATION
CALTRANS GOALS AND CRITERIA – SMALL BRIDGES

- Small bridge solutions that address typical salmon and steelhead barriers on the state highway (20-120 ft span).
- Bridges that span the full channel without impeding flow and that can be modified for site specific needs.
- Scour resistant foundations that will last ~100 years.
- Avoid and minimize rock revetment, which can be a barrier to fish.
### ANALYSIS OF FOUNDATIONS ALTERNATIVES

<table>
<thead>
<tr>
<th>Pile Size (inches)</th>
<th>Pile Type</th>
<th>Range of Depth (ft)</th>
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<tbody>
<tr>
<td></td>
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<td>Minimum</td>
</tr>
<tr>
<td>12</td>
<td>Precast Concrete</td>
<td>30</td>
</tr>
<tr>
<td>14</td>
<td>H-beam piles</td>
<td>40</td>
</tr>
<tr>
<td>14</td>
<td>Steel pipe piles</td>
<td>40</td>
</tr>
<tr>
<td>15</td>
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<tr>
<td>16</td>
<td>Steel pipe piles</td>
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<tr>
<td>24</td>
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</tr>
<tr>
<td>36</td>
<td>Steel pipe piles</td>
<td>50</td>
</tr>
</tbody>
</table>

- **8 POTENTIAL FOUNDATIONS ALTERNATIVES AND RANGES OF DEPTHS ARE BEING CONSIDERED TO SUPPORT THE SINGLE-SPAN SUPERSTRUCTURES.**

- **STRUCTURES FOUNDATIONS COMMITTEE IS CURRENTLY WORKING WITH TRANSLAB GEOTECHNICAL ENGINEERS ON A PARAMETRIC PILE STRIKE ANALYSIS IN ORDER TO ESTIMATE STRIKE COUNTS REQUIRED FOR THE RANGE OF POTENTIAL DEPTHS.**

- **FOUNDATIONS ALTERNATIVES THAT MOVE FORWARD WILL DEPEND ON THE STRIKE ANALYSIS AND POTENTIAL FOR TAKE.**
FOUNDATIONS ANALYSIS CONSIDERATIONS

• LAND-BASED PILE DRIVING, FOR SINGLE SPAN ABUTMENTS

• NO ANTICIPATED PILE DRIVING WOULD OCCUR DIRECTLY IN THE WET CHANNEL DUE TO;
  • LOW FLOW SEASON WORK WINDOW
  • PROJECT ISOLATION AND DEWATERING
  • RELATIVELY SMALL SIZE OF MOST STREAMS AND CREEKS THAT HAVE FISH PASSAGE BARRIERS
LITTLE MILL CREEK – CONVENTIONAL CONSTRUCTION WITH PRECAST ELEMENTS
CULVERT REPLACED WITH PRECAST/PRESTRESSED “I” GIRDER BRIDGE

01-DN-197-6.15
Bridge No. 01-0084
OTHER WILDLIFE BENEFITS

Photo courtesy WA DOT
QUESTIONS?