



MINUTES
ENVIRONMENTAL COMMITTEE MEETING

Wednesday, March 6, 2019 at 2:00 P.M.

**UWCD, Environmental Planning and Conservation Conference Room
725 E Main Street, Suite 225 Santa Paula CA**

Committee Members Present:

Director Bruce Dandy, Chair
Director Lynn Maulhardt
Director Mike Mobley

UWCD Staff

Anthony Emmert, Assistant General Manager
Dr. Katherine Ayres, Senior Ecologist
Linda Purpus, Senior Environmental Scientist

OPEN SESSION:

Director Dandy called the meeting to order at 2p.m. Public Comment

1. Public Comments

Chair Dandy asked if anyone wanted to address the Environmental Committee on any matter on the agenda or within the jurisdiction of the Committee. No public comments were offered.

2. Approval of Minutes

Motion to approve the Minutes from the July 31, 2018 Environmental Committee meeting, Director Mobley; Second, Director Maulhardt. Voice vote: three ayes (Maulhardt, Mobley, Dandy). Motion carries unanimously 3/0/0.

3. Environmental Planning and Permitting Support for the Freeman Diversion Project

Staff provided an update on the status of environmental planning and permitting requirements for Freeman Diversion maintenance and operations, permitting for the Freeman Diversion Rehabilitation Project, and improvements to the facility related to biological resources. Fish ladder operations were initiated on January 13; staff conducted experimental flushing operations; established surveillance with false weir cameras and Didson camera and as of the March 6, 2019 meeting date, no *O. mykiss* had been observed. Working with O&M and Hydrology, EPCD staff made several improvements for interim steelhead passage, including a DIDSON acoustic camera amount, realigned vertical Denil baffles, rounded the corner of one of the Denil turning pool; replaced a screen on the auxiliary water intake, improved the flow through the fish bay and fish screen, installed a seal on the smolt bypass gate and installed a small head gate in the fish bay. Staff also installed a passage prototype at the Freeman Diversion on January 18, which, despite two pump failures, should improve passage conditions for Pacific lamprey. To date, no lamprey have been observed.

4. Environmental Planning and Permitting Support for the Santa Felicia Project

Staff provided an update on planning and implementation of the terms in the Federal Energy Regulatory Commission (FERC) license for Santa Felicia Dam, including an update on the overall schedule and activities as well as an update of the support EPCD has provided for environmental planning related to the dam safety improvement projects.

Staff have begun pre-implementation studies for fish passage at Santa Felicia Dam, 318 O. mykiss were captured and all were sampled for genetics and age; 229 PIT tags were implanted and a spring sampling is planned. PIT Antenna installation was hampered by hardware troubles, including a faulty master controller and site blow-out; there were also software problems with detection range.

5. Quagga Mussel Monitoring and Control Plan

Staff provided an update on the Quagga Mussel Monitoring Program, quagga mussel control efforts, and planning for quagga mussel treatment aimed at eradication. Staff conducted an ecological risk assessment for the Earth TecQZ™ treatment on non-target, special-status species (birds and fish) and based on life history, behavior, diet and likelihood of occurrence, the special-status bird species were deemed to have incomplete exposure pathways and were not valued further (no likely risk). O. mykiss risk evaluated at 120 and 180ug/L in comparison to literature-based values, California Toxics Rule and USEPA water quality criteria, and laboratory tests using lower Piru Creek water determined that the potential risk to O. Mykiss from exposure to 180ug/L and low or no potential risk to O. mykiss from exposure to 120ug/L Cu. The application for Section 24(c) SLN was submitted in coordination with California Department of Fish and Wildlife and California Department of Pesticide Regulation. Additional laboratory testing to refine and optimize treatment plan while permits are processing (anticipated conclusion summer 2019). Staff presented information on the success of similar treatments at various bodies of water throughout the country. Staff is engaged in seeking funding through various grant programs including QZAP and US Bureau of Reclamation's Dreissenid Mussel Innovation grant series.

Future Agenda Items

None were offered.

Adjournment

Chair Dandy adjourned the meeting at 4:12p.m.



Board of Directors
 Daniel C. Naumann, President
 Michael W. Mobley, Vice President
 Bruce E. Dandy, Secretary/Treasurer
 Sheldon G. Berger
 Robert Eranio
 Lynn E. Maulhardt
 Edwin T. McFadden III

General Manager
 Mauricio E. Guardado, Jr.

Legal Counsel
 David D. Boyer

AGENDA
ENVIRONMENTAL COMMITTEE MEETING

Wednesday, March 6, 2019 at 2:00 P.M.

UWCD

Environmental Planning and Conservation Conference Room
725 E Main Street, Suite 225 Santa Paula CA
(805) 525-4431

OPEN SESSION: 2pm

- ✓ 1. **Public Comment**
 The public may address the Environmental Committee on any matter on the agenda or within the jurisdiction of the Committee. All comments are subject to a five minute time limit.
- ✓ 2. **Approval of Minutes**
 Approval of Minutes from the July 31, 2018 Environmental Committee meeting.
- ✓ 3. **Environmental Planning and Permitting Support for the Freeman Diversion Project**
 Staff will provide an update on status of environmental planning and permitting requirements for Freeman Diversion maintenance and operations, permitting for the Freeman Diversion Rehabilitation Project, and improvements to the facility related to biological resources.
- ✓ 4. **Environmental Planning and Permitting Support for the Santa Felicia Project**
 Staff will provide an update on planning and implementation of the terms in the Federal Energy Regulatory Commission (FERC) license for Santa Felicia Dam, including an update on the overall schedule and activities as well as an update of the support EPCD has provided for environmental planning related to the dam safety improvement projects.
- ✓ 5. **Quagga Mussel Monitoring and Control Plan**
 Staff will provide an update on the Quagga Mussel Monitoring Program, quagga mussel control efforts, and planning for quagga mussel treatment aimed at eradication.

Future Agenda Items

Adjournment 4:12pm

Directors:

Director Bruce Dandy, Chair
 Director Lynn Maulhardt
 Director Mike Mobley

Staff:

Anthony Emmert, Assistant General Manager
 Dr. Katherine Ayres, Senior Ecologist
 Linda Purpus, Senior Environmental Scientist
~~Evan Lashly~~, Assistant Ecologist

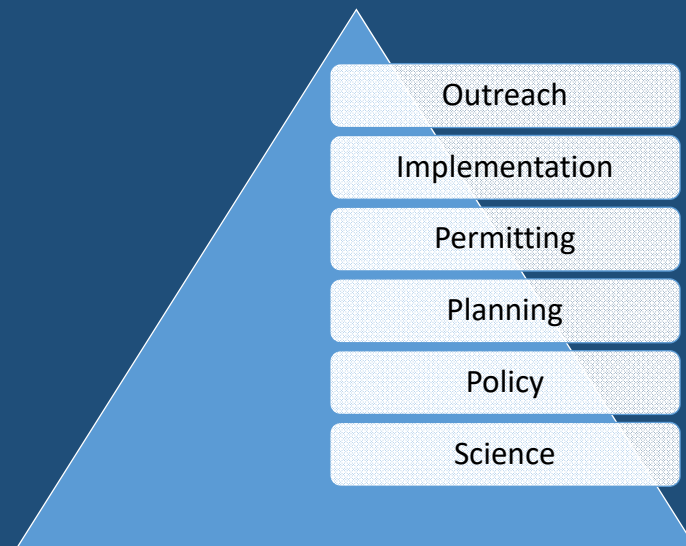
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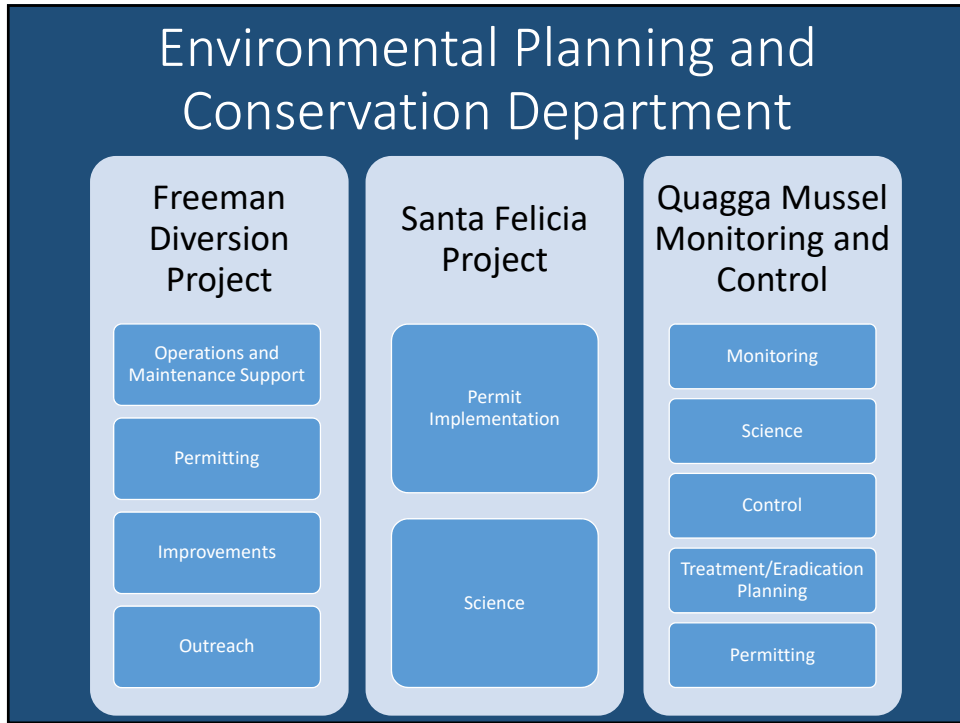
Environmental Committee

March 6, 2019



Environmental Planning and Conservation Department





Fish Ladder Operations 2018-2019 Water Year to Date

- Initiated on January 13 (44 total days)
- Experimental Flushing Operations
- Surveillance = false weir cameras and Didson camera
- No *O. mykiss* observed to date



Diversion/In-Stream Flow Operations Support



Interim Steelhead Passage Improvements

Image Credit: John Carman



- ✓ DIDSON acoustic camera mount
- ✓ Realign vertical Denil baffles
- ✓ Round corners of one Denil turning pool
- ✓ Replace screen on auxiliary water intake
- ✓ Improve flow through fish bay and fish screen
- ✓ Install seal on smolt bypass gate
- ✓ Install small head gate in fish bay

Interdepartmental Effort
O&M
EPCD
Hydrology

DIDSON Acoustic Camera Mount

Image credit: John Carman



Replace Screen on Water Intake



Install Seal on Smolt Bypass Gate







Completed August 2nd, 2018



Lamprey Passage Prototype

- Improve passage conditions for Pacific lamprey at the Freeman Diversion
- Initiated January 18th
- Two pump failures
- No lamprey observed

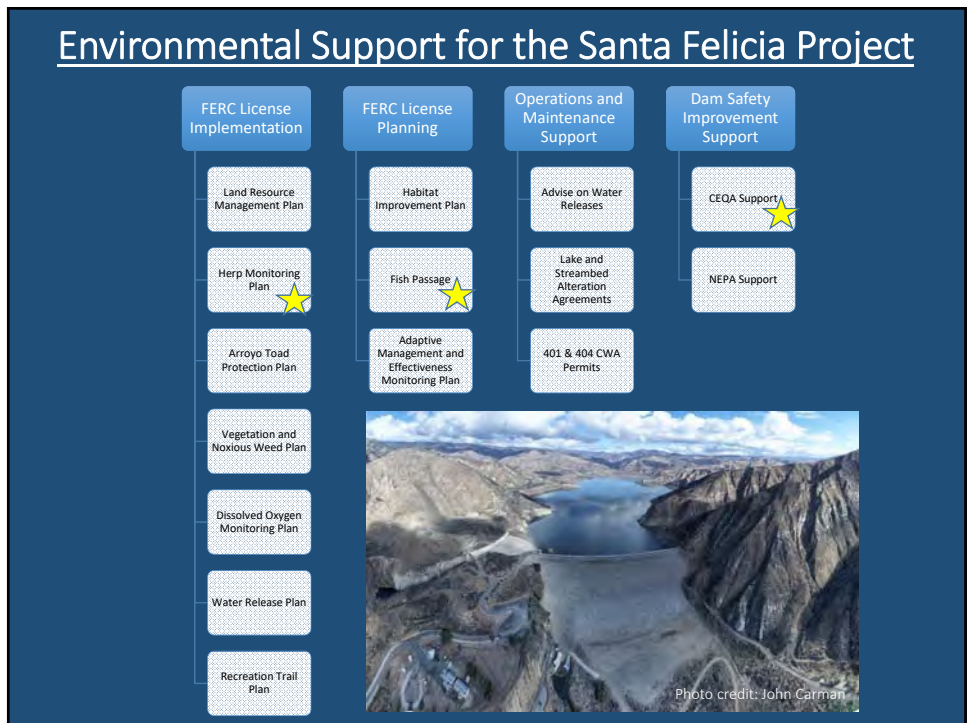
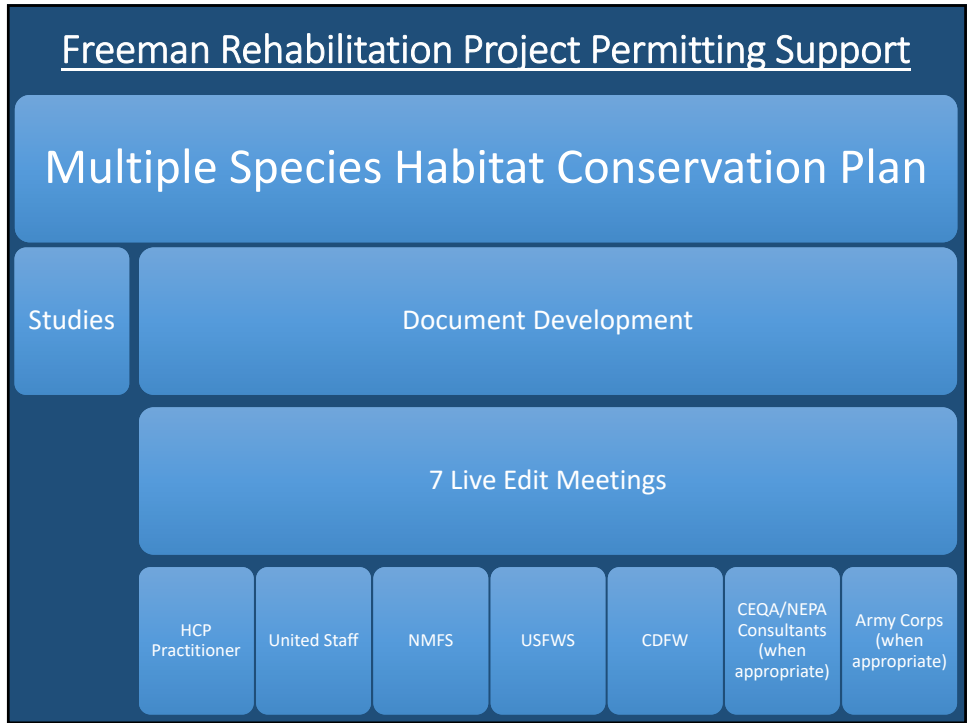


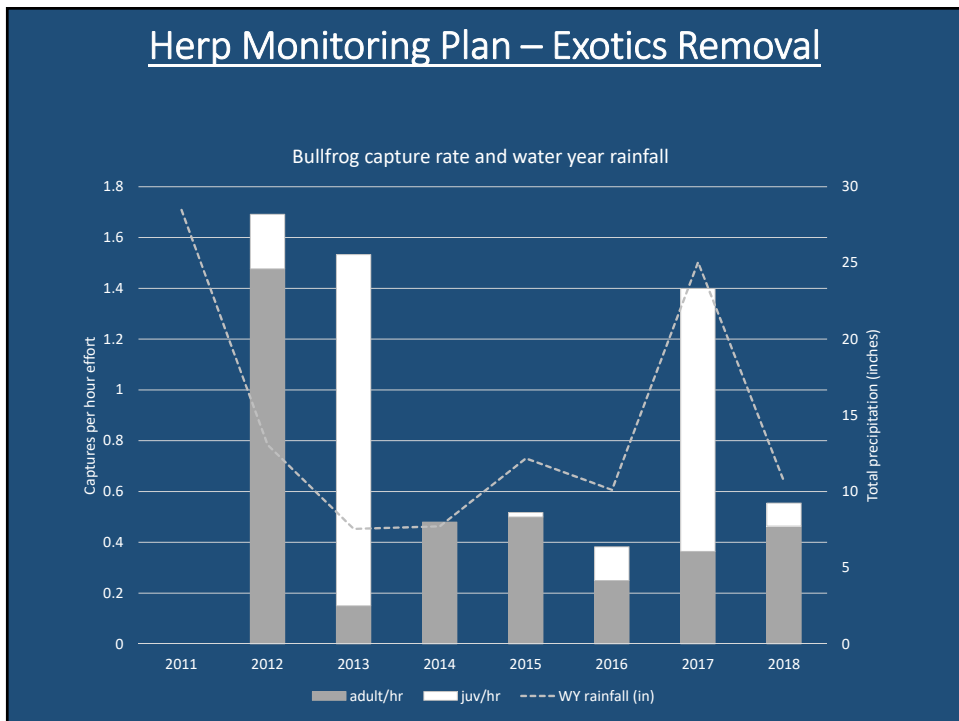
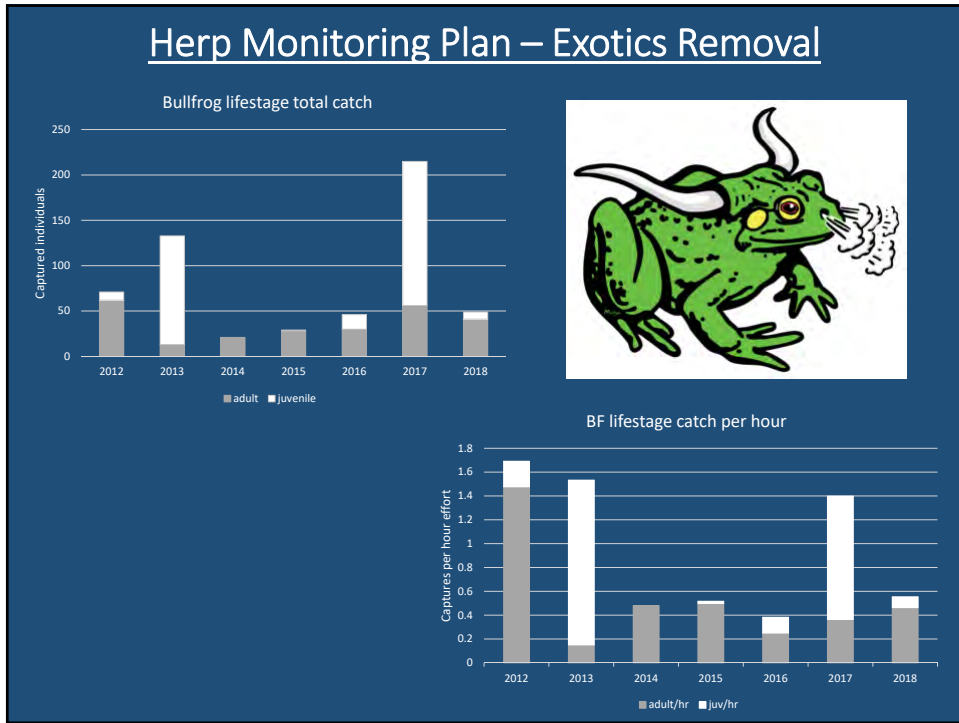
Freeman Rehabilitation Project Permitting Support

Multiple Species Habitat Conservation Plan

June 30, 2020

Federal ESA Incidental Take Permits	California ESA Incidental Take Permit	CEQA	NEPA Support	Clean Water Act Permits	Lake or Streambed Alteration Agreement
NMFS	USFWS			Army Corps 404	State Water Board 401





Fish Passage Pre-Implementation Studies

- Pre-Implementation Studies

- 10/18/2018 – Received BO from USFWS
- 11/16/2018 – Received streambed alteration agreement from CDFW
- 11/19/2018 – Received special use permit from Forest Service
- 11/26 through 11/30/2018 – Trout sampling and PIT antenna installation



Fish Passage Pre-Implementation Studies

Trout Sampling



318 *O. mykiss* captured
All sampled for genetics
and age






229 PIT tags implanted

Spring sampling planned





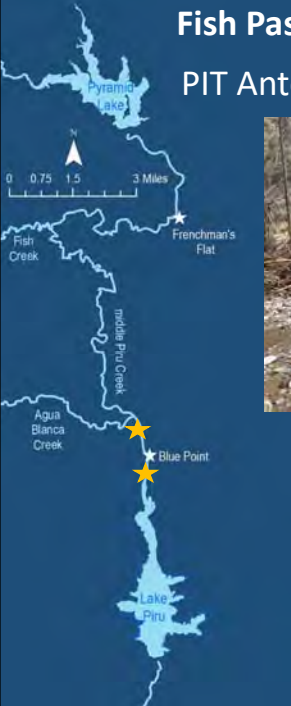
Fish Passage Pre-Implementation Studies

PIT Antenna Installation



Fish Passage Pre-Implementation Studies

PIT Antenna Operation



- Hardware troubles
 - Faulty master controller
 - Site blow-out
- Software troubles
 - Detection range issues

Dam Safety Improvement Support

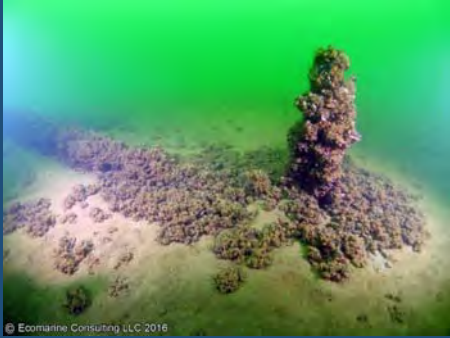
Dam Safety Improvement Support

- CEQA★ Support
- NEPA Support



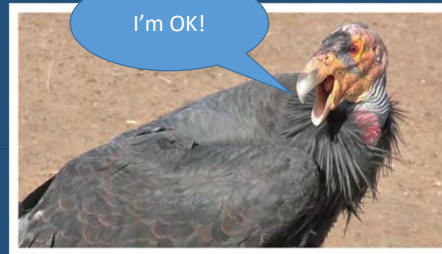
Quagga Mussel Monitoring and Control Plan

Monitoring Program	Control	Planning	Permitting
<ul style="list-style-type: none"><li style="background-color: #d9e1f2; padding: 5px; border-radius: 5px; margin-bottom: 5px;">Water Quality (Field)<li style="background-color: #d9e1f2; padding: 5px; border-radius: 5px; margin-bottom: 5px;">Veliger Sampling (Field/Lab)<ul style="list-style-type: none">•Piru Creek•Moss Screen<li style="background-color: #d9e1f2; padding: 5px; border-radius: 5px; margin-bottom: 5px;">Surface Surveys (Field)<li style="background-color: #d9e1f2; padding: 5px; border-radius: 5px; margin-bottom: 5px;">Recruitment Plates (Field/Lab)<li style="background-color: #d9e1f2; padding: 5px; border-radius: 5px;">Growth Plates (Field/Lab)	<ul style="list-style-type: none"><li style="background-color: #d9e1f2; padding: 5px; border-radius: 5px; margin-bottom: 5px;">Cobble Scraping	<ul style="list-style-type: none"><li style="background-color: #d9e1f2; padding: 5px; border-radius: 5px; margin-bottom: 5px;">Quagga Treatment Plan ★	<ul style="list-style-type: none"><li style="background-color: #d9e1f2; padding: 5px; border-radius: 5px; margin-bottom: 5px;">Ecological Risk Assessment ★<li style="background-color: #d9e1f2; padding: 5px; border-radius: 5px; margin-bottom: 5px;">Special Local Need Permit ★<li style="background-color: #d9e1f2; padding: 5px; border-radius: 5px; margin-bottom: 5px;">NPDES - SIP<li style="background-color: #d9e1f2; padding: 5px; border-radius: 5px; margin-bottom: 5px;">CEQA<li style="background-color: #d9e1f2; padding: 5px; border-radius: 5px;">Incidental Take Permitting



Permitting : Ecological Risk Assessment

- Potential risk of EarthTecQZ™ treatment to non-target, special-status species (birds and fish)
- Based on life history, behavior, diet, and likelihood of occurrence, the special-status bird species were deemed to have incomplete exposure pathways and were not evaluated further (no likely risk)



Permitting: Ecological Risk Assessment

- *O. mykiss* risk evaluated at 120 and 180 $\mu\text{g}/\text{L}$ in comparison to literature-based values, California Toxics Rule and USEPA water quality criteria, and laboratory tests using lower Piru Creek water



- Potential risk to *O. mykiss* from exposure to 180 $\mu\text{g}/\text{L}$ and low or no potential risk to *O. mykiss* from exposure to 120 $\mu\text{g}/\text{L}$ Cu

Eradication Planning

- Section 24(c) SLN application submitted
- Coordination with CDFW
- Coordination with CDFW
- Additional laboratory testing to refine and optimize treatment plan while permits are processing (Summer 2019)

Prior Successes with EarthTecQZ™

- Fish hatchery treatments
- Rapid Response treatments: localized treatment/eradications (smaller scale)
- Billmeyer Quarry Lake, Pennsylvania (largest eradication attempt with EarthTec™)



Fish Hatchery Treatments



- Since 2017
- Indiana, Oklahoma, South Dakota
- Species = channel catfish and hybrid sunfish
- Treat hatchery water 5 days before water is pumped out of the hatchery ponds and fish are collected
- 5-6.67 ppm EarthTec or 300-400 $\mu\text{g}/\text{L}$ copper
- The managers feel it is effective but “Eradication” is anecdotal as they do not have live/dead tests of veligers due to lack of time, expertise, and resources
- No fish mortality observed. Managers report healthier fish (EarthTec relieves them of bacterial diseases like gill rot and fin rot)

Rapid Response Treatments



- 2014-2017
- Various lakes in Minnesota and a 3-acre lake in Indiana: localized treatment and “eradication”
- Small treatment areas 0.6-2.8 acres
- Treatment approach 4-6 doses over 8 days
- Max. copper concentration 760-780 $\mu\text{g}/\text{L}$


Rapid Response Treatments



- 2014-2017
- Various lakes in Minnesota and a 3-acre lake in Indiana: localized treatment and “eradications”
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Billmeyer Quarry Lake - Largest Eradication* to Date using EarthTecQZ™

TREATMENT APPROACH

- Treatment Sept-Oct 2017
 - 485 million gallons (1,488 AF)
 - Avg. Water depth = 51 feet
 - Treated area = 30 acres
 - Target concentration = 200 $\mu\text{g/L}$
- 
- Treatment approach – 3 applications over 37-day period
 - Day 0 = 200 $\mu\text{g/L}$
 - Day 7 = 140 $\mu\text{g/L}$
 - Day 37 = 100 $\mu\text{g/L}$
 - Total Cost for product = \$53,625
 - Temp ranged from 23°C near the surface to <5.5°C near the bottom; Surface temps stayed about the same for first 35 days

Billmeyer Quarry Lake Results

- Caged mussels in 12 locations at 4 depths. The final one died on day 40
- Team “observed no significant effects on fish and other wildlife”
 - Bluegill
 - Largemouth bass
 - Catfish
 - shad
- Post-treatment pump-down for other reasons showed that all mussels exposed were dead
- Two eDNA samples were collected Dec 2017 and July 2018, both were negative
- Plankton tows in July, Aug, and Sept 2018 were negative
- Further eDNA and plankton tows are planned for 2019 to further confirm successful eradication. We will be watching!

Quagga Mussel Funding

- Quagga Mussel Monitoring and Control Plan
 - QZAP – Open for proposals

- Quagga Mussel Eradication Efforts
 - US Bureau of Reclamation Dreissenid Mussel Innovation grant series –
 - ✓ Step 1 → awarded to three theoretical studies (All genetic engineering)
 - Step 2 → lab scale study, most likely selected from Step 1, maybe they need mussels to test on?
 - Step 3 → Open water test case. We may be eligible, but they have not released timing on this one.