



2nd Steelhead Summit

October 27 & 28, 2016 in San Luis Obispo, CA

+ Session Overview

- Sponsors:
 - California Trout
 - City of San Luis Obispo
 - Sustainable Conservation
 - California Conservation Corps
 - Cachuma Operation and Maintenance Board
 - Wildnote

The year's Summit agenda highlighted adaptive genomic variation, steelhead recovery planning, coastal monitoring status reports, fish passage planning, and water conservation efforts.

The full-day symposium was followed by concurrent field tours to restoration sites that showcase fish passage improvements and water conservation projects.

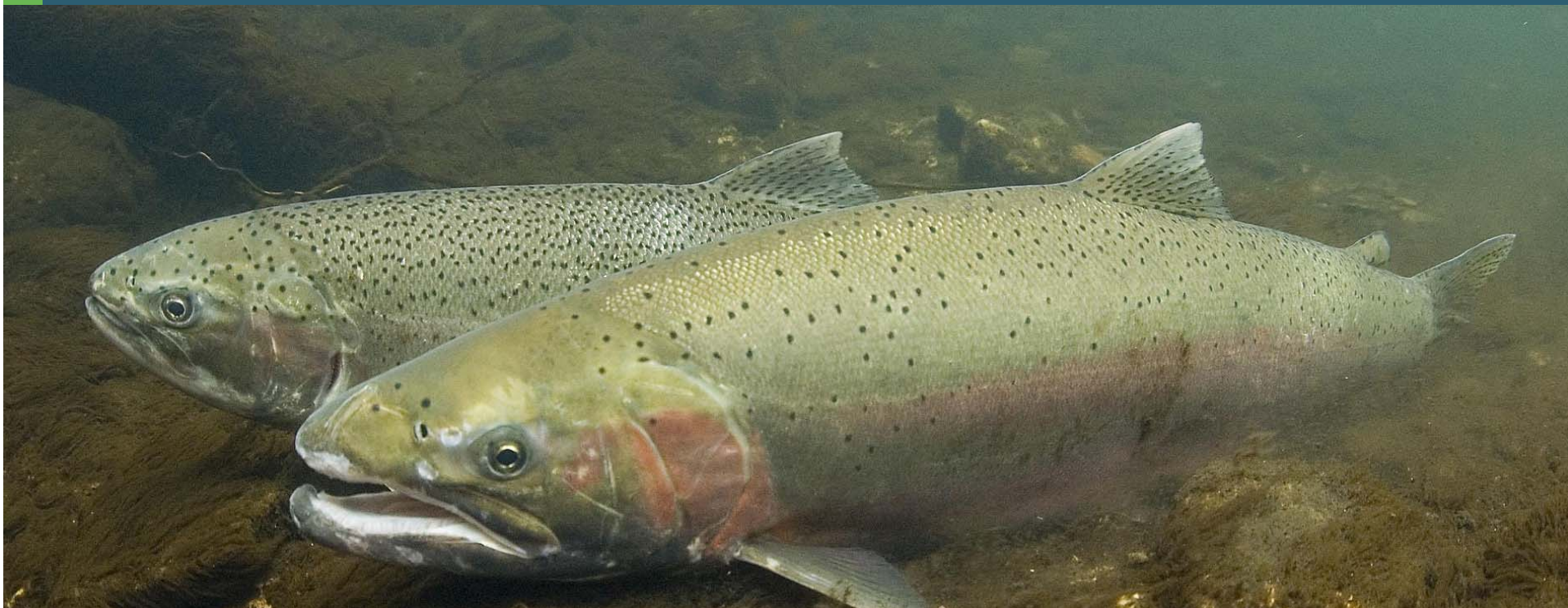
+ Presentations

Prioritizing Steelhead Recovery Actions Presentations and Panel Discussion Part 2

(Slide 4) Accelerating Steelhead Recovery Projects with Programmatic Permits and Approvals
Erik Schmidt, Sustainable Conservation

(Slide 30) Breaking the Barriers to Large Dam Removal -- Matilija Dam, the Final Push
Paul Jenkin, Surfrider Foundation

*Accelerating Steelhead Recovery Projects with
Programmatic Permits and Approvals*



Erik Schmidt
Senior Conservation Strategist

OUTLINE

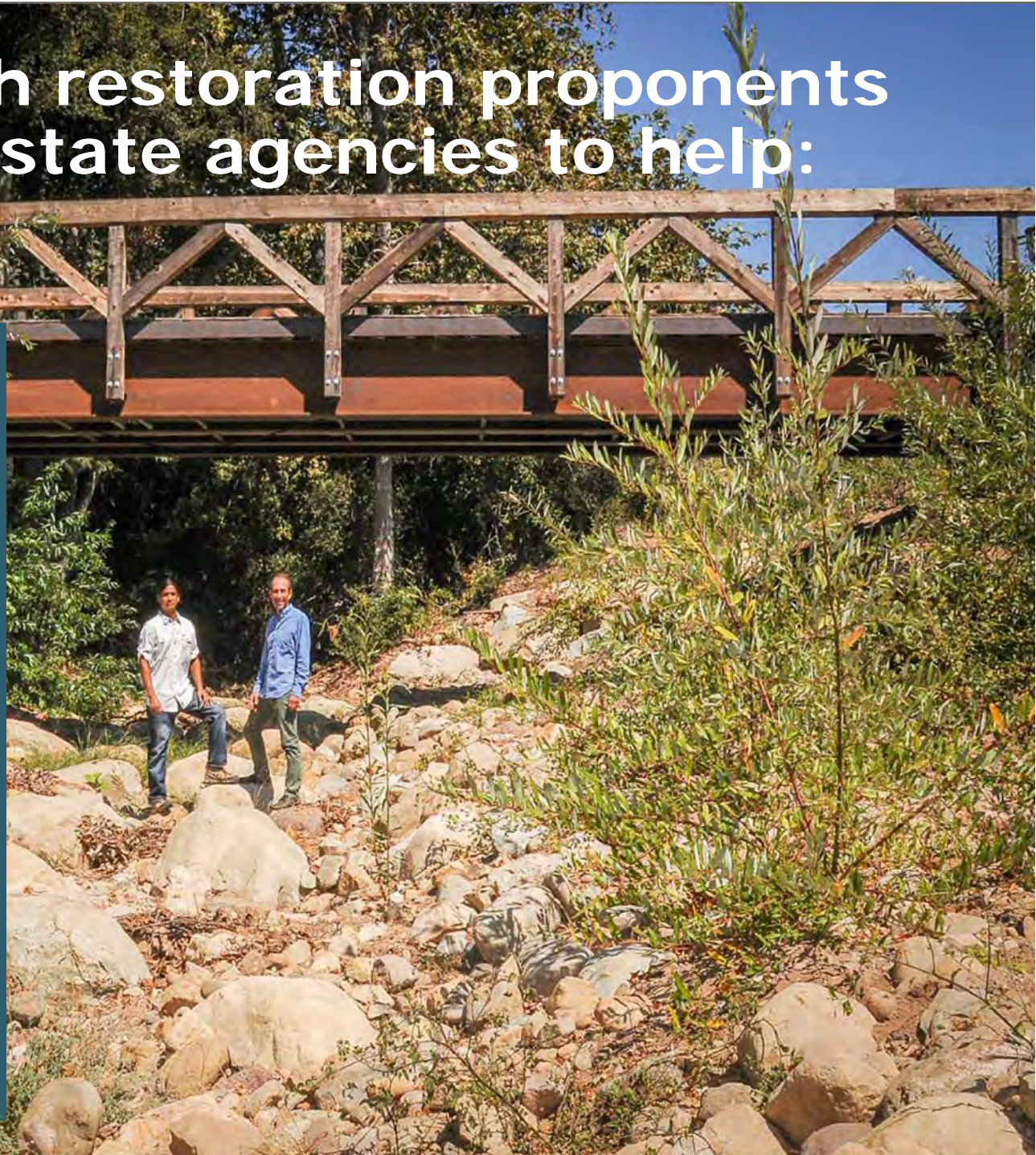
1. Sustainable Conservation's Accelerating Restoration program
2. Efficient permitting supports steelhead recovery projects
3. Programmatic approvals and funding for restoration
4. Planning for successful permitting
5. Resources

**Sustainable
Conservation**
helps California
thrive by uniting
people to solve
the toughest
challenges
facing our land,
air, and water.



Working with restoration proponents and federal/state agencies to help:

- ✓ Restore streams and fish passage
- ✓ Rebuild riparian habitat
- ✓ Reduce erosion
- ✓ Improve streamflows



STEELHEAD RECOVERY PLANS

Priority Actions



- Fish passage improvements – small and large
- Restore natural channel features
- Estuary fill removal/tidal marsh restoration
- Invasive plant removal
- Manage livestock and restore riparian vegetation

FUNDING

A Brighter Picture for Restoration



- **PROP 1:** More than \$1.5B for restoration in coming years



**US Army Corps
of Engineers®**



CEQA

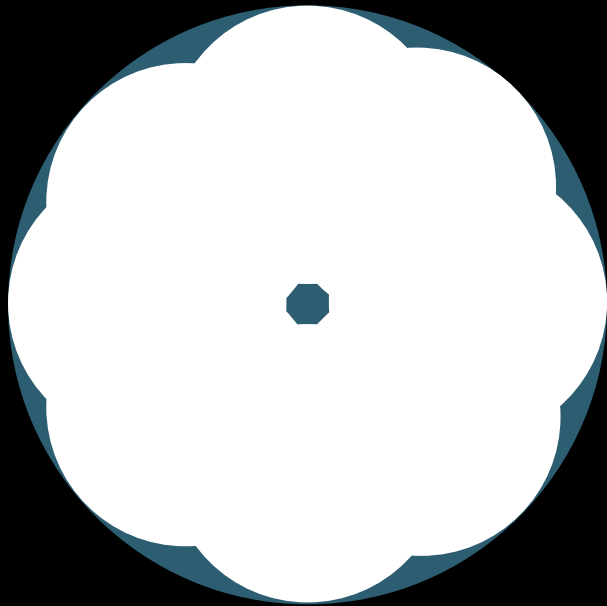


CALIFORNIA
COASTAL
COMMISSION



County

PROGRAMMATIC PERMITTING



A pre-approved regulatory process for qualifying projects:

- Clearly established criteria and requirements
- Burden on applicant to submit all needed information upfront

IMPORTANCE OF EFFICIENT PERMITTING

for Applicants and Agencies

□ Applicant

- Improves project's competitive grant readiness
- Saves permitting time and money

□ Agency

- Programmatic permits reduce staff workload

CEQA

*Cat. Ex.
15333*

- Small-scale habitat restoration (5 ac. or less)
- Many types of projects eligible, including listed species habitat
- Requires no significant impacts **after** application of all protection measures



General 401 Water Quality Certification

- Statewide General Order for small habitat restoration projects eligible for CEQA Cat Ex 15333
- Limit – 5 acres & 500 cumulative linear ft. of streambank

2014 HABITAT RESTORATION AND ENHANCEMENT ACT

*Alternative Process for Secs. 1600 LSA + 2081 CESA
for Voluntary Restoration Projects 5 Acres or Smaller*

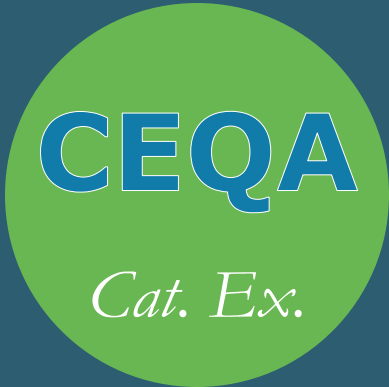


Habitat Restoration and Enhancement (HRE) Act

CDFW Review Process



- ✓ Timelines for two permitting tracks:
 - ❑ **30-day** approval **w/** 401 WQ Cert for SHRPs (F&GC Sec. 1653)
 - ❑ **60-day** approval **w/o** 401 Gen. Order for SHRPs (F&GC Sec. 1652)



CEQA
Cat. Ex.




401 Cert.




HRE Act



NOAA Fisheries Biological Opinions - Restoration

- Issued to NOAA RC and Army Corps
- Anadromous fish habitat
- Entire coastal region of California
- Eliminates need for individual project consultation



California Coastal Commission Consistency Determination

- NOAA RC – funding or technical assistance
- Entire Calif. coast
- Eliminates need for Coastal Permit!





Biological Opinion - Calif. red-legged frog

- Issued to Corps for 404 permits
- Includes restoration
- Coastal counties where species is found



Biological Opinion - Calif. tiger salamander

- Issued to Corps for 404 permits
- Restoration projects in SF Bay Area counties



Biological Opinion - Partners Program

- FWS funded projects: wetlands, riparian, uplands restoration
- Endangered species habitat
- Central Valley and beyond



Clean Water Act Sec. 404

- RGP 41:
Invasive plant removal
- RGP 70: Bioengineered
streambank stabilization
- Nationwide permits
13, 27, 33

MEETING AGENCY EXPECTATIONS

for Programmatic Permit Use

- ❑ Agencies want permits used – welcome restoration projects!
- ❑ Guidance available from staff/agency websites
- ❑ Ask for help from other restoration proponents if needed; consider partnering – CEQA lead?
- ❑ Experience is gained through process!

PROGRAMMATIC PERMIT USE

The Fundamentals

- ❑ Conceptual plan: include permitting
- ❑ Ensure cooperating landowners
- ❑ Be clear – project purpose, methods, benefits
- ❑ Meets size and type requirements

Request pre-application meeting with agencies:

- Invite all agencies to coordinated meeting/site visit
- Hear requirements, deadlines
- Establish relationships - view staff as partners
- Provide prelim. info and photos to personalize project



SUCCESSFUL USE OF PROGRAMMATIC PERMITS



Provide a clear project description with necessary detail and all environmental protection measures upfront



Erik *Katie* *Erika*

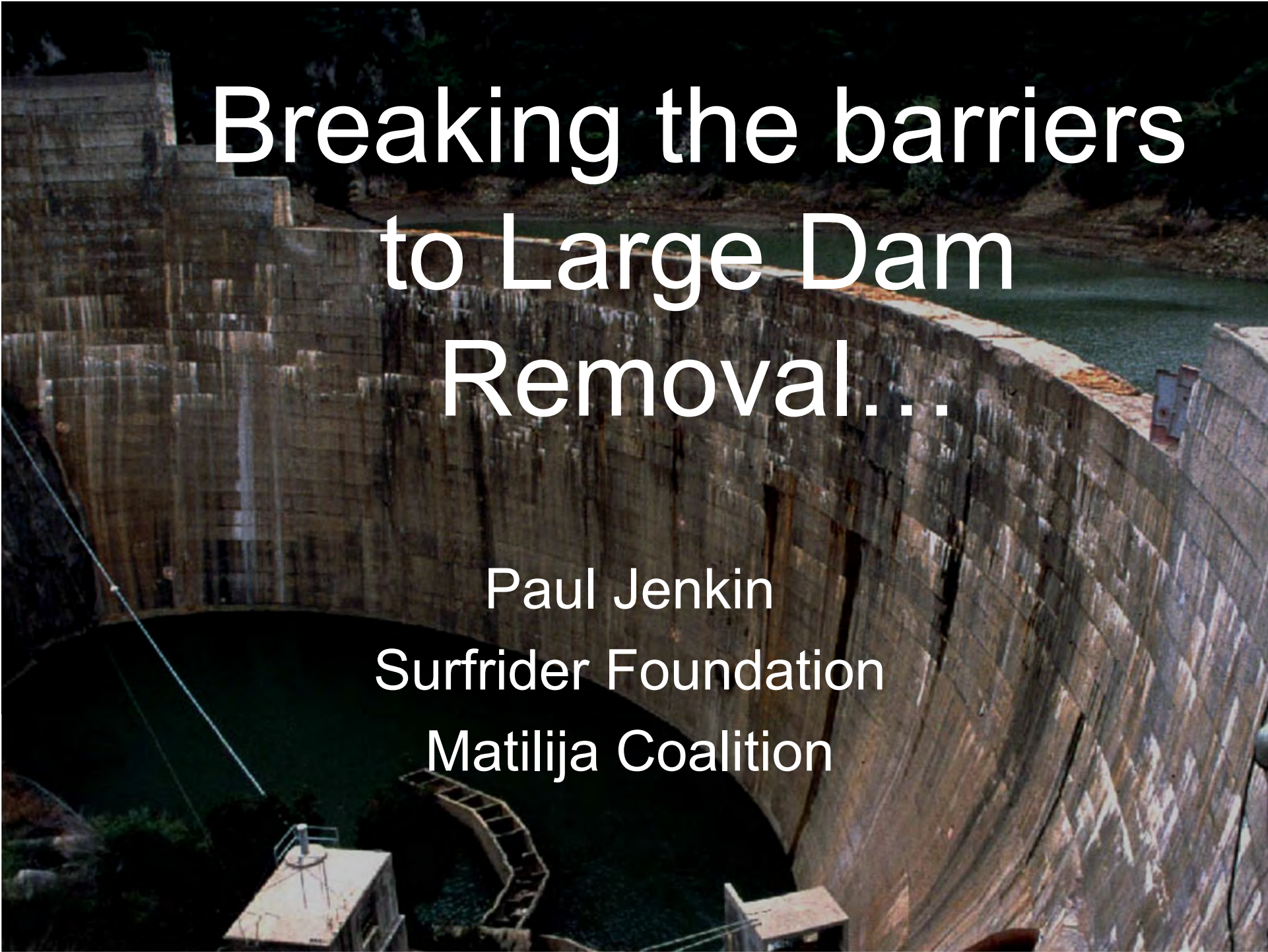


Sustainable Conservation

Our team offers
permitting technical
assistance and
much more:

www.suscon.org

[restoration@
suscon.org](mailto:restoration@suscon.org)



Breaking the barriers to Large Dam Removal...

Paul Jenkin
Surfrider Foundation
Matilija Coalition

AN ARTSY SOLUTION FOR DAM'S ENIGMA

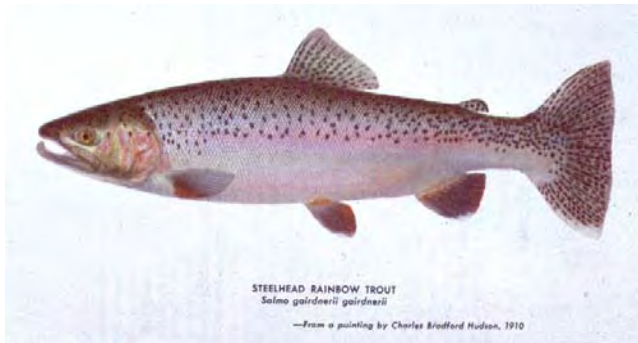


VCStar Sept 26, 2011



Matilija Dam as constructed 1948

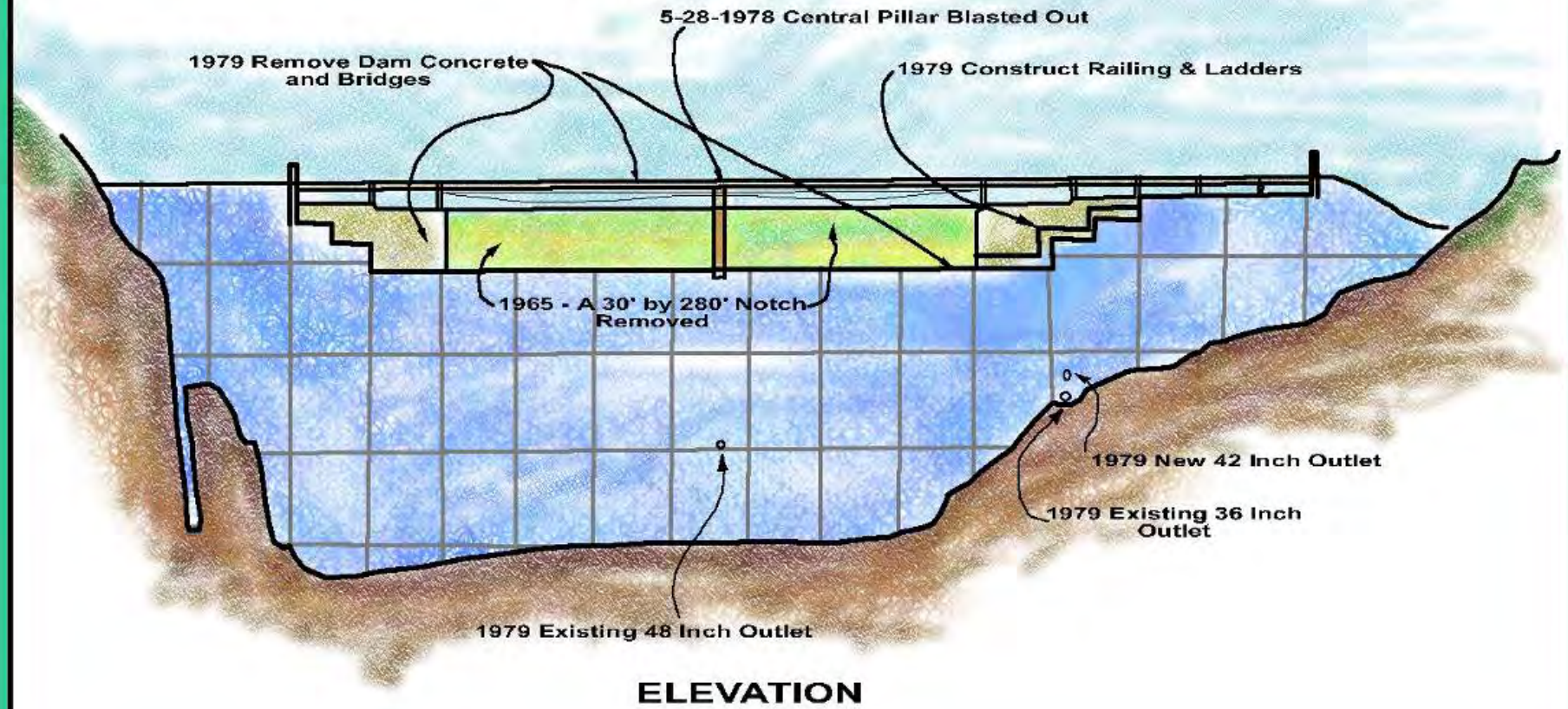
Steelhead Habitat



Fish Passage:
Dam blocks access
to 50% of
historic habitat
Steelhead listed as
endangered in
1997



Matilija Dam Modifications



Matilija Dam modifications 1965, 1979



Matilija Reservoir ~1960

Original storage capacity: 7000 af



Matilija Reservoir today

Current storage capacity: <400 af

Matilija Dam Removal

Matilija Dam Studies 1999-2016

RECREATION

DRAFT DATED 7/2/2007

RECREATION

Hydro
Study
Res
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Hydro Sediment Oaks DRAFT

Matilija I

VENTURA COUNTY WATERSHED

Steelhead Population in the Ventura

MATILIJDA DAM REMOVAL, SEDIMENT TRANSPORT, AND ROBLES DIVERSION MITIGATION PROJECT



DAM REMOVAL CONCEPTS EVALUATION REPORT MARCH 2016

Prepared for:
Ventura County Watershed Protection District

AECOM

AECOM
1333 Broadway, Suite 800
Oakland, CA 94612



Stillwater Sciences
Stillwater Sciences
2855 Telegraph Avenue #400
Berkeley, CA 94750

By JENIFER RAGL
SPECIAL TO THE TIMES

OJAI—Manning

U.S. Dept
Bureau of
Technica
Denver, C



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Denver, Colorad

Technical
Denver

Project Stakeholders:



**US Army Corps
of Engineers**
Los Angeles District

*Surfrider
Foundation*



*Ventura County
Chapter*



Why Remove Matilija Dam?

To Restore:

- * Steelhead passage and habitat
- * Riparian Habitat
- * Natural Processes: Sand to the Beach
- * Recreation

2004 Feasibility Study Recommended Plan Design Features:



Wells

Levees/ Floodwalls

Bridge Modifications

Robles Diversion High
Flow By Pass

Robles Diversion
Desilting Basin

Fine sediment slurry and
downstream disposal

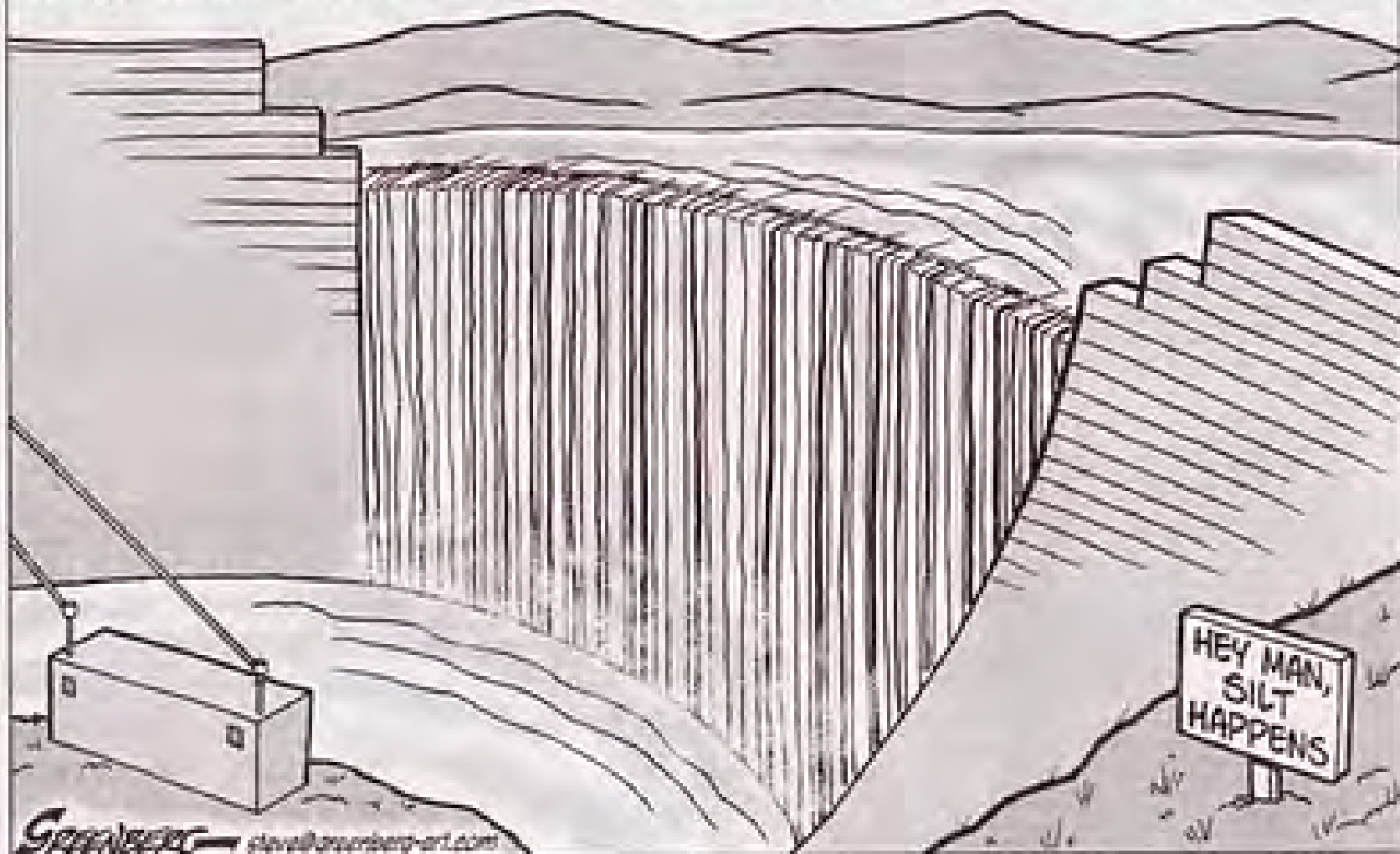
Coarse sediment
stabilized on site

Dam Removal

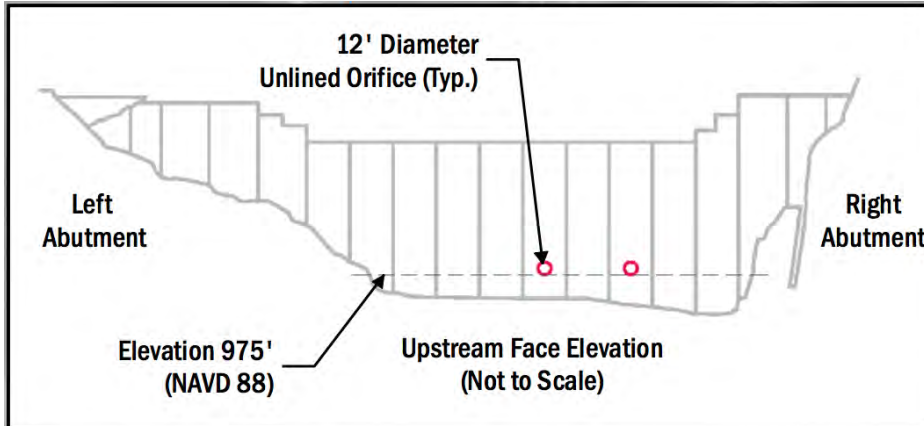
The Critical Line

by Steve Greenberg

Even though everyone agrees it should be done, why has there been no removal of Matilija Dam?



Stakeholder Consensus Project 2016

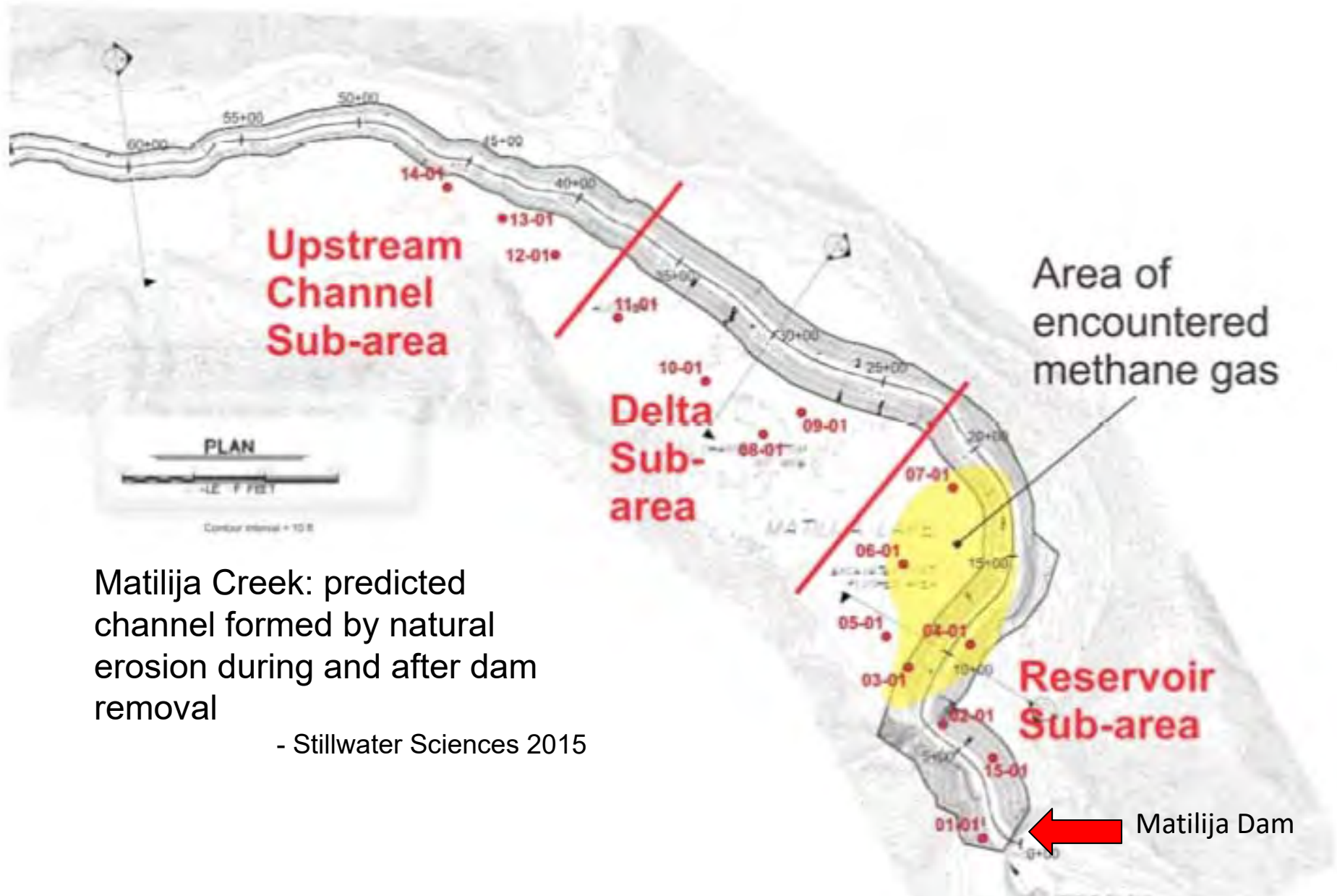


- Technical feasibility of natural sediment transport
- Timely implementation
- Cost effectiveness (considerably cheaper than previously identified alternatives)
- Precedence of recent successful dam removal projects



example:
Condit Dam
Removal

Reservoir sediment erosion

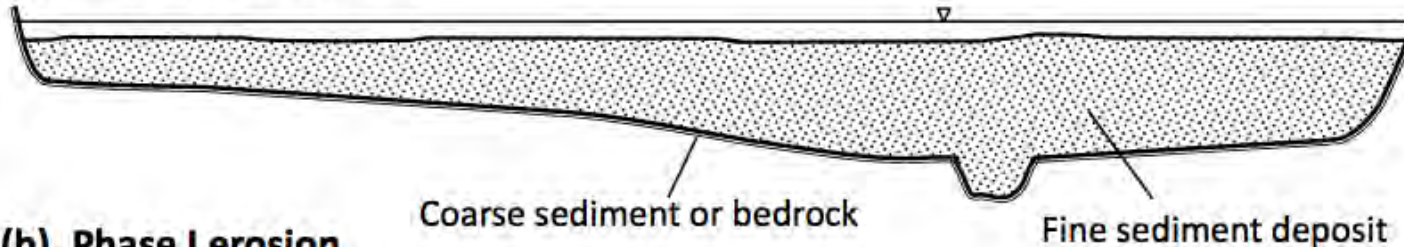


Matilija Creek: predicted channel formed by natural erosion during and after dam removal

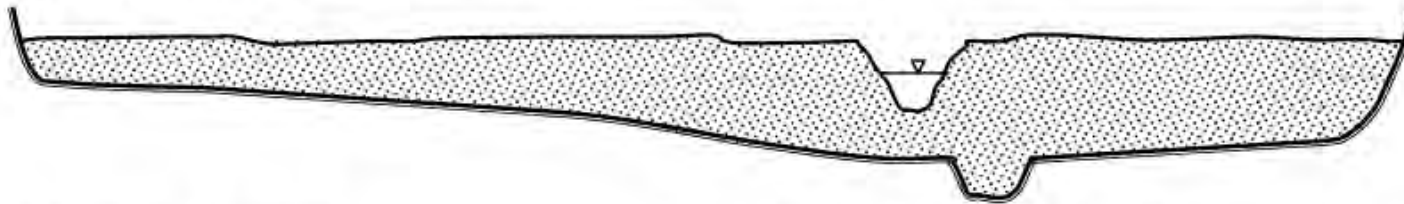
- Stillwater Sciences 2015

Reservoir sediment erosion

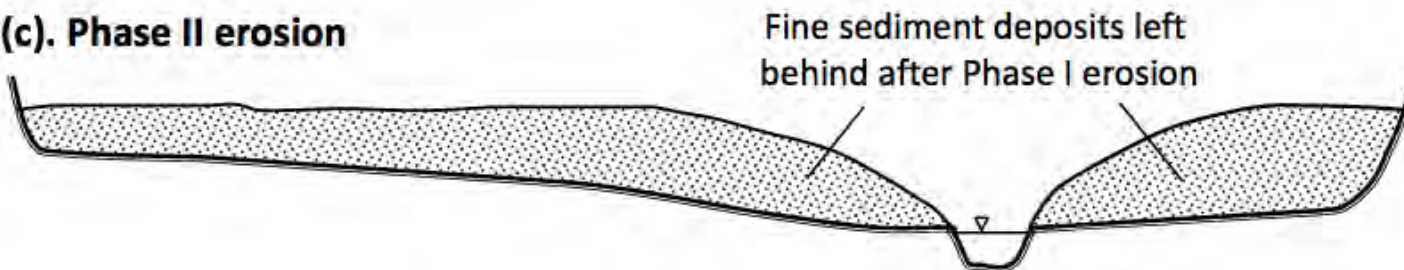
(a). Current condition



(b). Phase I erosion



(c). Phase II erosion



Fine sediment (silt and clay particles) will be flushed from reservoir and out to the ocean in one flood event. Based on experience at Marmot Dam and elsewhere, subsequent events (Phase II) will not result in turbidity levels significantly above baseline conditions.

- Stillwater Sciences 2015

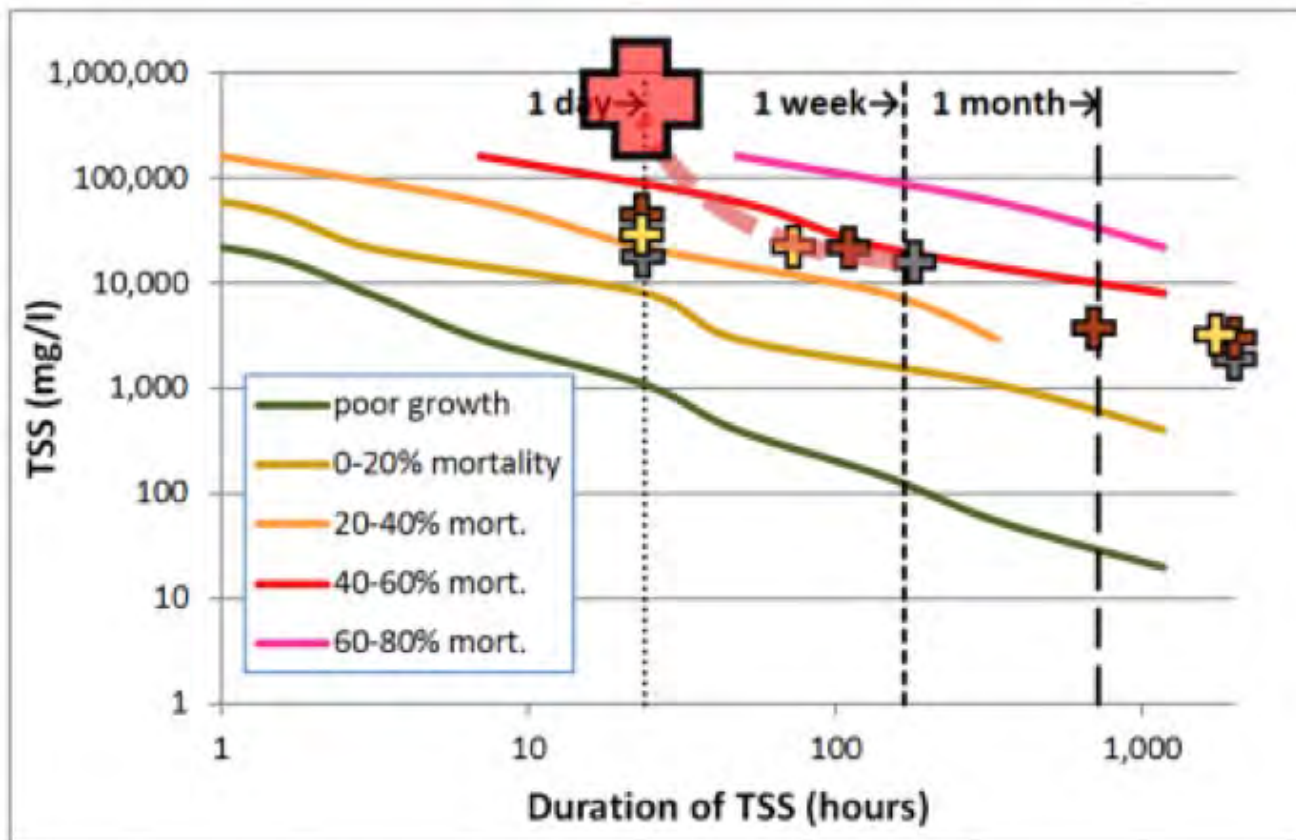
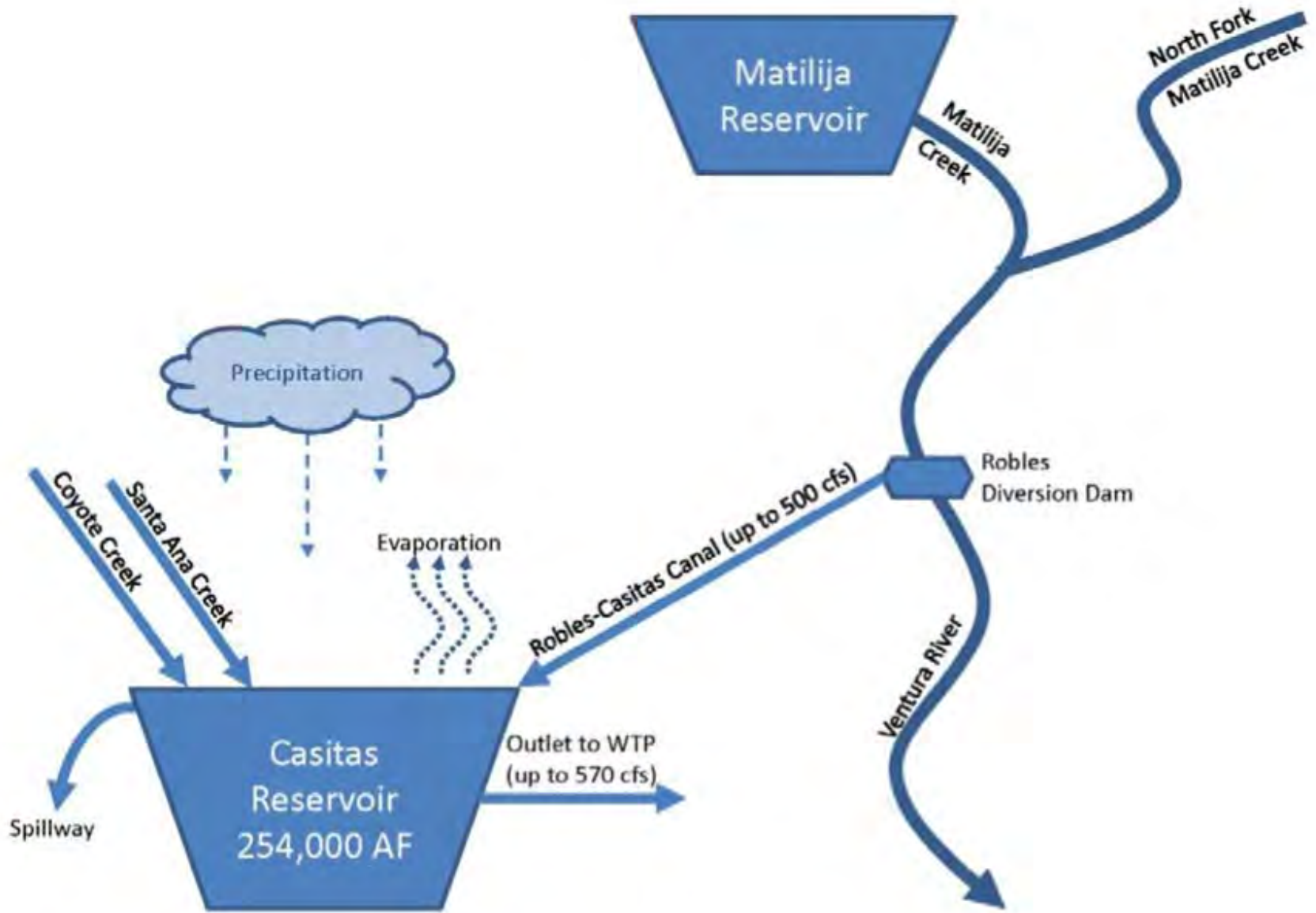


Figure 5.2-1. The effects of very high TSS concentrations during Phase I erosion under DRC-1 (red cross, sized to approximate the range of uncertainty) and the subsequent effects of declining Phase II transport (red dashed line), superimposed on conditions expressed by the three storms with the most severe effects on steelhead health during the 12-year operational period of gage 11114495 (from Figure 4.4-4). The incremental effects of the dam-removal sediment load on storms of this magnitude will likely be indiscernable after a few days.

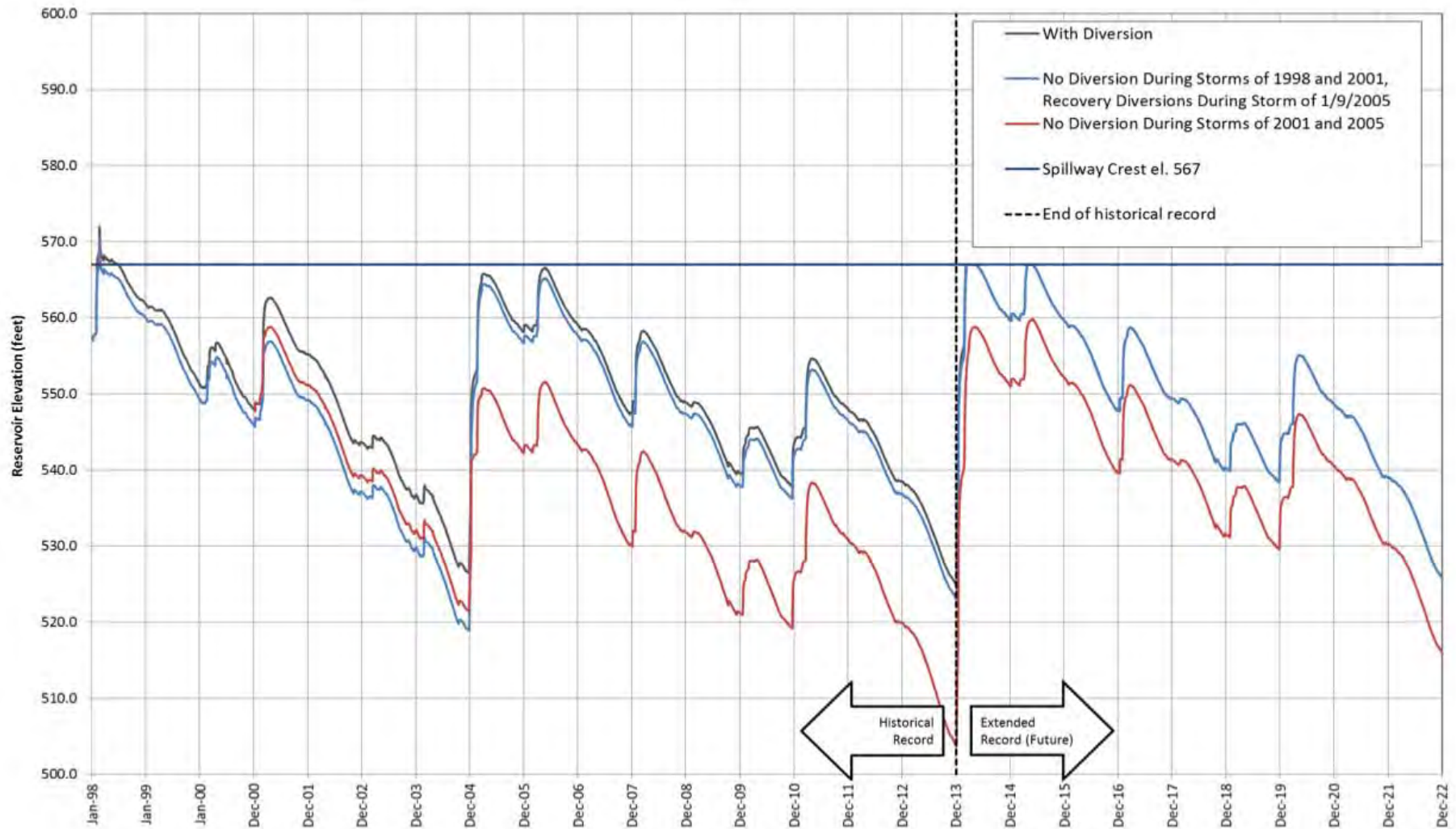
Example: Elwha River Restoration





Water deliveries range from 15,000 to 23,000 AFY

Hydrology Analysis for water supply



Cost of Dam Removal

ROM Construction Cost:

- Alt. 4B (2015) cost is approximately \$113,000,000 (Corps of Engineers – Upstream stabilization with slurry disposal)
 - not including downstream improvements
 - other costs (engineering, admin & legal, construction management, operations and maintenance, etc.)

Recent studies demonstrate that natural sediment transport saves \$\$ millions



Note: Total project cost estimated \$60M+

DCR	Range of Magnitude Construction Cost (ROMCC)			
	(-30%)	Estimate	(+50%)	
DRC-1	\$28,300,000	\$40,400,000	\$60,600,000	3
DRC-2A	\$13,000,000	\$18,500,000	\$27,800,000	1
DRC-2B	\$14,300,000	\$20,400,000	\$30,600,000	2
DRC-3	\$34,800,000	\$49,700,000	\$74,500,000	4

Temporary diversion To North Fork Matilija

“Low level outlets”

“Low level outlets” w optional gates

Upstream stabilization

MATILIJA DAM

THE FEDERAL PLANE AND SEDIMENT TRANSPORT ANALYSIS AND ROLLEY DIVERSION MITIGATION

Matilija Dam Ecosystem Restoration Project



Matilija Dam Today



Artist rendition of Matilija Creek after Dam removal

PROJECT OBJECTIVES

- Improve Aquatic and Terrestrial Habitat Along Matilija Creek and Ventura River
- Restore Natural Processes to Support Beach Replenishment
- Enhance Recreational Opportunities
- Restore Fish Passage



Recover Endangered Steelhead
 Dam removal will restore steelhead access to over 20 miles of perennial habitat in the Matilija Creek watershed.



Removal of Matilija Dam
 will first require modifications to the downstream infrastructure as shown. Then reservoir sediment will be flushed through two 12-foot diameter outlets so that the dam can be safely removed

• approx location of low level outlets



Habitat Restoration
 Over 270 acres of invasive *Arundo donax* "giant reed" have already been removed from the watershed to restore riparian habitat



Camino Cielo Bridge
 New bridge will accommodate increased sediment flow



Live Oak Levee
 Reconstruction will bring levee up to FEMA flood control standards



Robles Diversion Modification
 High flow bypass will restore natural transport of sand, gravel, and cobble through the diversion and improve steelhead migration



Santa Ana Bridge
 Replacement bridge will widen floodplain to accommodate increased sediment flow



Meiners Oaks Protection
 A new structure will protect residential community from flooding



Beach Replenishment
 Dam removal will restore sand and cobble deposits from the river to support natural beach replenishment and protect coastal property



photo credits: Jim Martin, Raymond Powers, Matt Stoeker design and GIS: Cynthia Hartley 2015



Matilija Dam Project Funding*

1999-2016

State

Coastal Conservancy \$8.6
SWRCB (Prop 40) \$6.2
CDFW \$1.2

\$16 M

Federal

USACE \$6.8
NFWF \$0.5

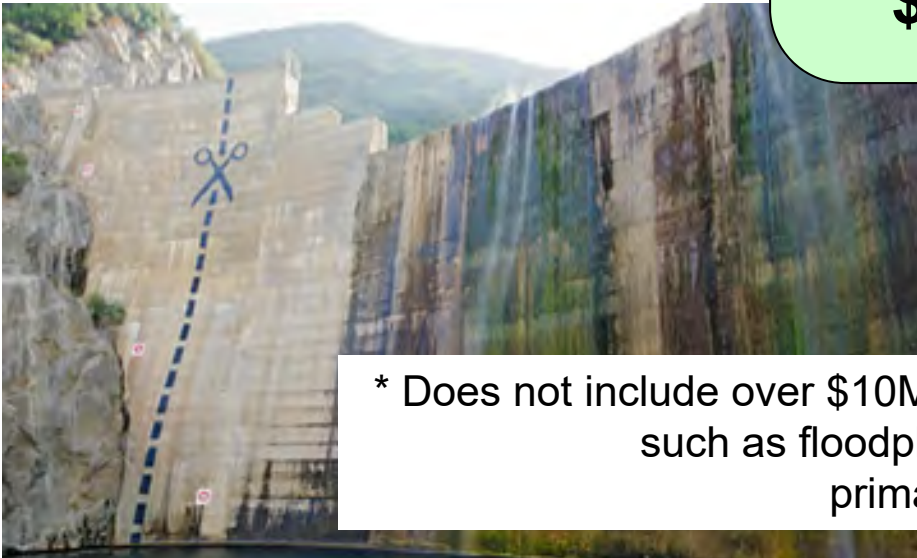
\$7.3 M

Local

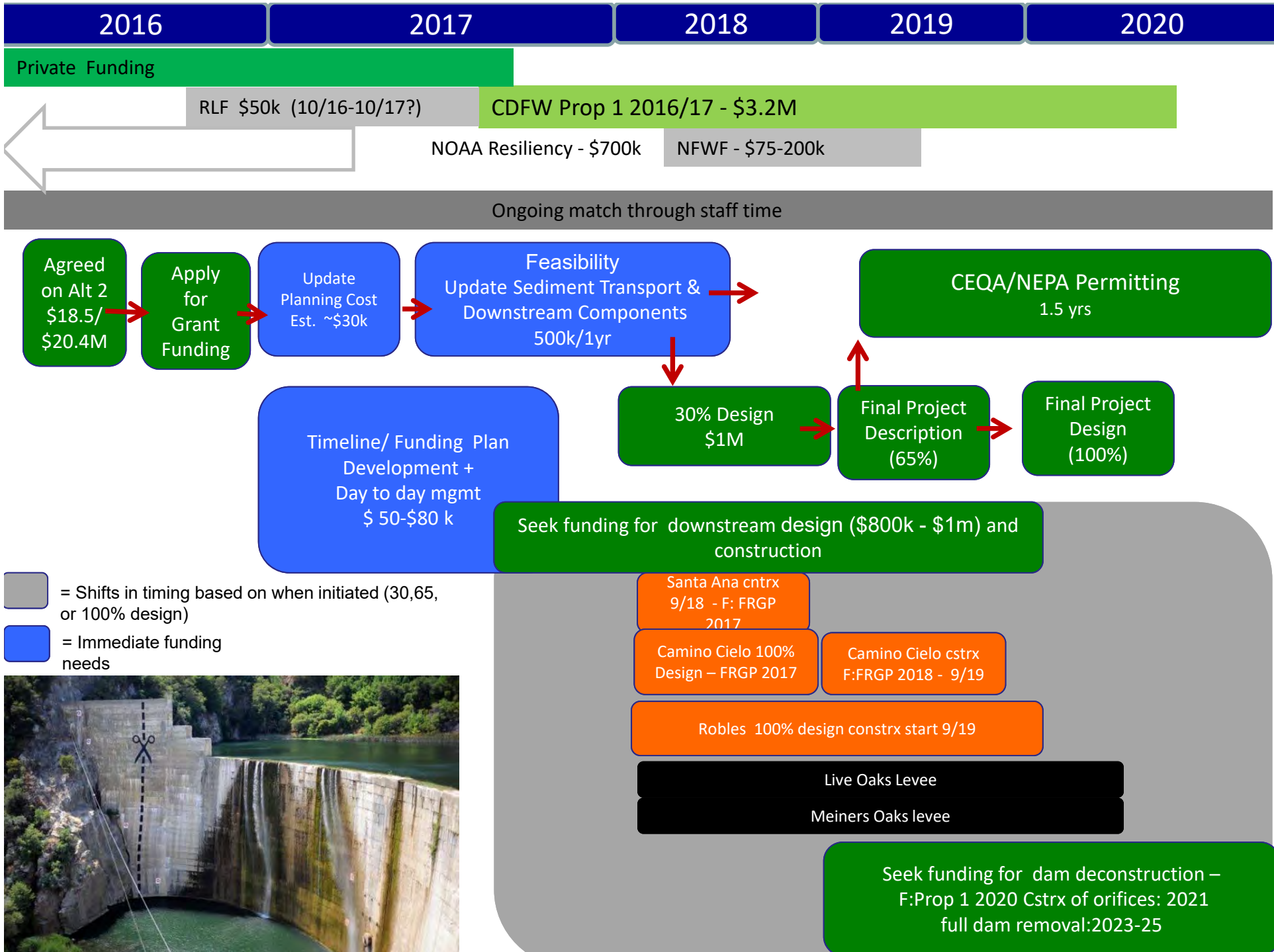
Watershed
Protection District

\$3.9 M

Over \$27 M

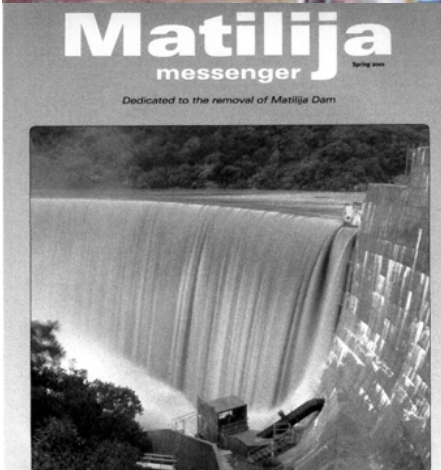


* Does not include over \$10M in other related watershed programs such as floodplain/habitat acquisition and restoration primarily CDFW and Coastal Conservancy



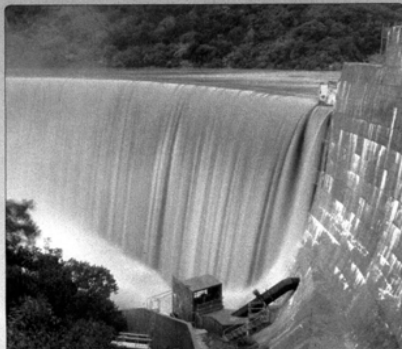


A Community at Work



Matilija messenger

Dedicated to the removal of Matilija Dam




Flood Control? On the morning of March 6, after 48 hours of rainfall, flows of 4,000 cubic feet per second rushing through the "hoops" in Matilija Dam created a torrent of water 358 feet wide and 164 feet high. Although Matilija Dam was constructed primarily to supply water for a rapidly growing Ventura County, it was also proposed to control floods. The "3 year" storm delineated above was minor compared with the one-year design that occurred in 1916. That storm delineated event changed 27% of the sediment that rests behind the dam today. It also rendered the 12-year-old reservoir useless for flood control... and it has been ever since.





ventura
river
parkway

Emergency Call
9-1-1



Mile
01



Surfers' Point Managed Shoreline Retreat Project



Feb 4, 2014 R. Wilborn

www.VirtualTerrainTours.com



Matilija Creek today



Matilija Creek after dam removal (future)