Agenda

1. History and Dam Issues
2. BOR and USACE Studies
3. Dam Removal Alternative Studies
History and Dam Issues

Matilija Dam as constructed 1948
Pre-dam

Matilija Creek
(pre-dam construction)
Historic Recreation

Upper Ventura River, circa 1920

Overhanging Rock, Matilija Canyon, Ojai Valley, Cal.
Construction June 1947 to March 1948 for a cost of ~$4 million
Alkali–Silica Reaction (ASR)
Dam Modifications

Original Ht. 198’

Matilija Dam Modifications

- 1979 Remove Dam Concrete and Bridges
- 5-28-1978 Central Pillar Blasted Out
- 1979 Construct Railing & Ladders
- 1965 - A 30’ by 250’ Notch Removed

Current Ht. 168’

- 1979 New 42 Inch Outlet
- 1979 Existing 36 Inch Outlet
- 1979 Existing 48 Inch Outlet
Matilija Reservoir ~1960

Original storage capacity: 7000 af

Image Courtesy of Ventura County Museum of History & Art.
Where’s the Beach?

- 8 million cubic yards trapped behind dam
- Less than 5% of reservoir capacity remains
Dam Removal begins with…

Grassroots Movement Began in 1970’s
Give a Dam, Free the Sand
GROW THE BEACH

1995-2000

Matilija coalition
1997, NMFS designated the Southern Steelhead as an Endangered Species in California.
Steelhead Habitat

• Dam blocks access to 50% of historic spawning habitat
• 17 miles or spawn and rearing
• Original Population estimate to be >5000
America’s Aging Dams Are in Need of Repair

By TROY GRIGGS, GREGOR AISCH and SARAH ALMODJITAR   FEB. 23, 2017

Map showing the distribution of major dams across the United States. Ages of major dams are indicated in 50-year increments.

Source: U.S. Army Corps of Engineers
Appraisal Study

1998 – BOS directs District to study dam removal
Feasibility Study

2004 - Feasibility and EIR/IS completed
Feasibility Study

Design Features:

$145M* Authorized Project:
- Water Supply Wells
- Levees/Floodwalls
- Bridge Modifications
- High Flow Bypass
- Desilting Basin
- Dam and Sediment Removal
- Giant Reed Removal

*$206M in 2017 $
Slurry Disposal Sites
Upstream Storage of Fines
Finding a Way Forward…

- September 2008
  MODA vs. BRDA Analysis
  DOG Presentation

- January 2010
  USA Presentation to DOG

- September 2010
  Fine Sediment Study Group Convened

- August 2011
  Fine Sediment Study Group Final Report

- October 2011
  Technical Advisory Committee Formed

- December 2012
  TAC Scopes of Work Finalized

- June 2013
  URS/SWS Consultant Team Selected

- December 2013
  Final Negotiated SOW

- February 2014
  BOS Approval and Start of Contract

- June 2014
Dam Removal Alternative Studies
Dam Removal Concepts

Six Initial Options narrowed down to three dam removal concept alternatives.

The three short-listed Dam Removal Concepts (DRCs):
1. DRC-1: Containment Berm with High Flow Bypass
2. DRC-2: Uncontrolled Orifices with Optional Gates
3. DRC-3: Temporary Upstream Storage of Sediment
DRC-2: Uncontrolled Orifices with Optional Gates

- Pre-drill 12’ orifices
- Installation of gates, as needed
- Dam Removal
DRC-2: Uncontrolled Orifices with Optional Gates

Post-Flush Surface

25-year inundation

100-year inundation
Example: Condit Dam Removal

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

Erosion and Transport of Impounded Sediments:

(a). Current condition

(b). Phase I erosion

(c). Phase II erosion

Coarse sediment or bedrock

Fine sediment deposit

Fine sediment deposits left behind after Phase I erosion
Technical Assessments

Erosion and Transport of Impounded Sediments:

Condit Dam Removal
(silt/clay delta deposit)

Marmot Dam Removal
(sand/gravel delta deposit)
Technical Assessments

Flushing Flow Waiting Period

Years of delay, post-summer construction

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Robles Diversion
Historical Diversion (1993-2013)
Lost Diversion Opportunity to Robles Diversion During Phase 1 Flush

- 4-6% drop in Lake Storage for DRC-2A
Water Supply Mitigation Options

• A total of 23 different options were evaluated
• Options were grouped into four categories:
  - Diversion Replacement
  - Replacement Supplies
  - Re-use & Conservation
  - Treatment Alternatives
• Evaluated based on cost, environmental, technical feasibility, and adaptability considerations
Project Consensus
Design Oversight Group Meeting
March 16, 2016

Consensus on Alternative 2
Funding Committee

Created during March 16, 2016 Design Oversight Group with the mission to:

• Develop a Funding Plan
• Obtain grant funding
• Guide Project Team

Funding Committee has successfully obtained over $17M in grants, included the $3.3M CDFW Planning Grant.
Any Questions?