



Clear Creek Restoration Program

Public Meeting

Sacramento, CA

Presented by

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Bureau of Reclamation - Program Lead

and

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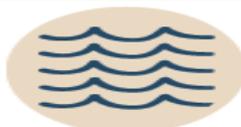
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Background

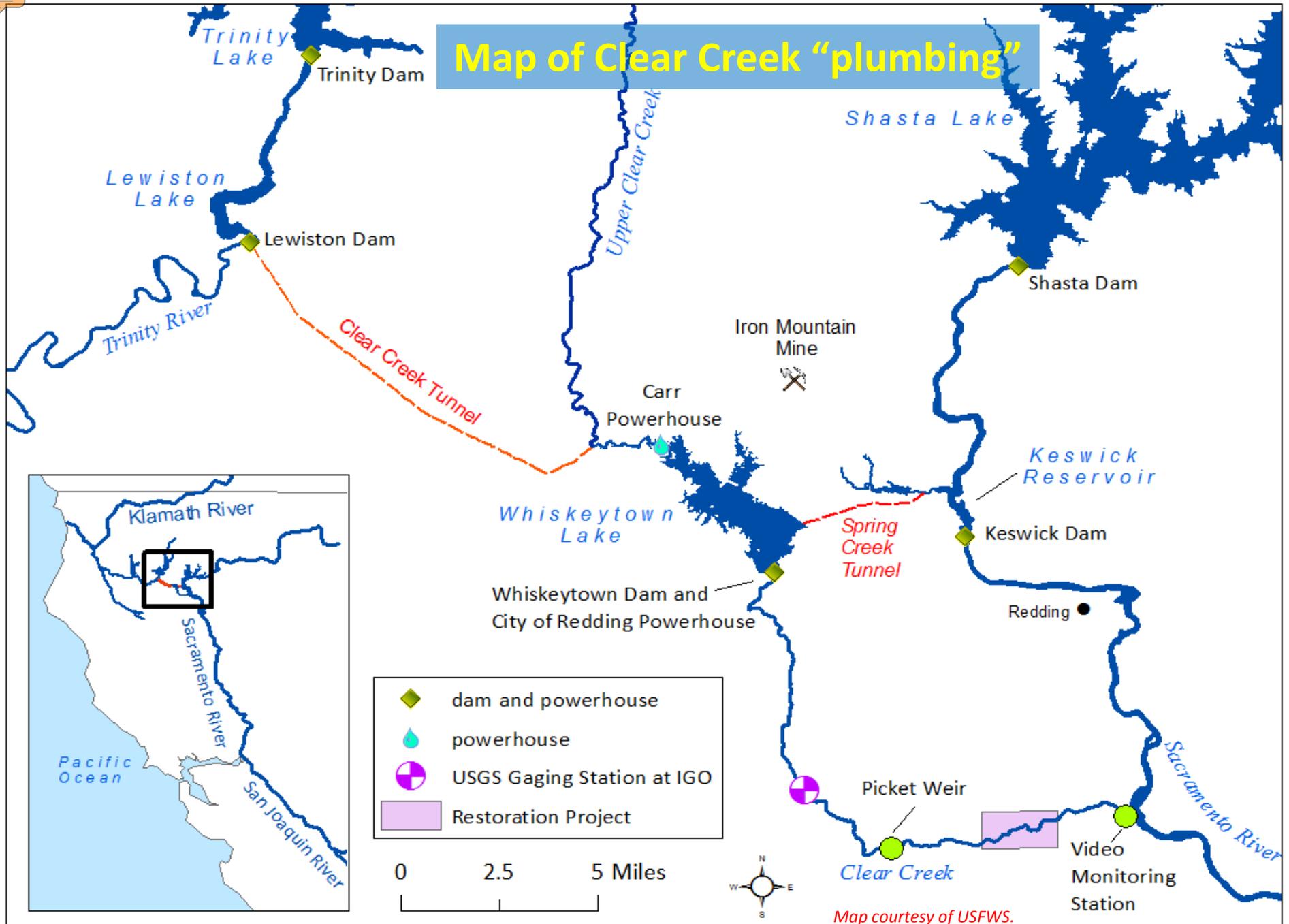
Authority of the CVPIA Program

- *Section 3406 – Fish, wildlife and habitat restoration*
 - *3406 b(12) – specific to Clear Creek (e.g.)*
 - *- flows for spawning and incubation*
 - *- flows for rearing and out-migration*
- *Section 3407 – Restoration fund*



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Map of Clear Creek "plumbing"



Map courtesy of USFWS.



Background

Purpose of the Restoration Program

- *Restore salmon and steelhead in Clear Creek*
- *“Develop and implement a comprehensive program...”*
 - *Flows for spawning, incubation, rearing, and outmigration*
 - *Instream flow studies*
 - *Removal of McCormick-Saeltzer Dam*
 - *Channel restoration*
 - *Fish passage*



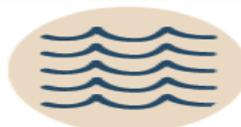
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Background

Nature of Problems Being Addressed

- *Declines in anadromous salmonids*
- *Whiskeytown Dam – blocked sediment & fish migration*
- *Stream channel impacts from placer and dredger mining*
- *Historic mining tailings and mercury-laden sediments*
- *Impacts from gravel mining*



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Accomplishments FY 2012

What Actions Were Taken?

- *Program management and technical support*
- *Restoration actions (e.g.)*
 - *Gravel injections – 10,000 tons*
 - *Revegetation – “Phase 3B” project area*
- *Monitoring and Modeling*
 - *IFIM (flow and habitat modelling/evaluation)*
 - *Fish passage/population estimates*
 - *Spawning surveys*
 - *Sediment transport and mapping gravel (spawning habitat)*
- *Compensation costs (Saeltzer-McCormick Dam)*



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Accomplishments FY 2012

What Funding was Obligated or Expended?

- *Funding level of \$905,000 (\$800k Restoration, \$105k WRR)**
- *\$796,247 was expended*
- *\$109,145 carryover into FY13 was authorized*

* *Funding level used for planning purposes*





Accomplishments FY 2012

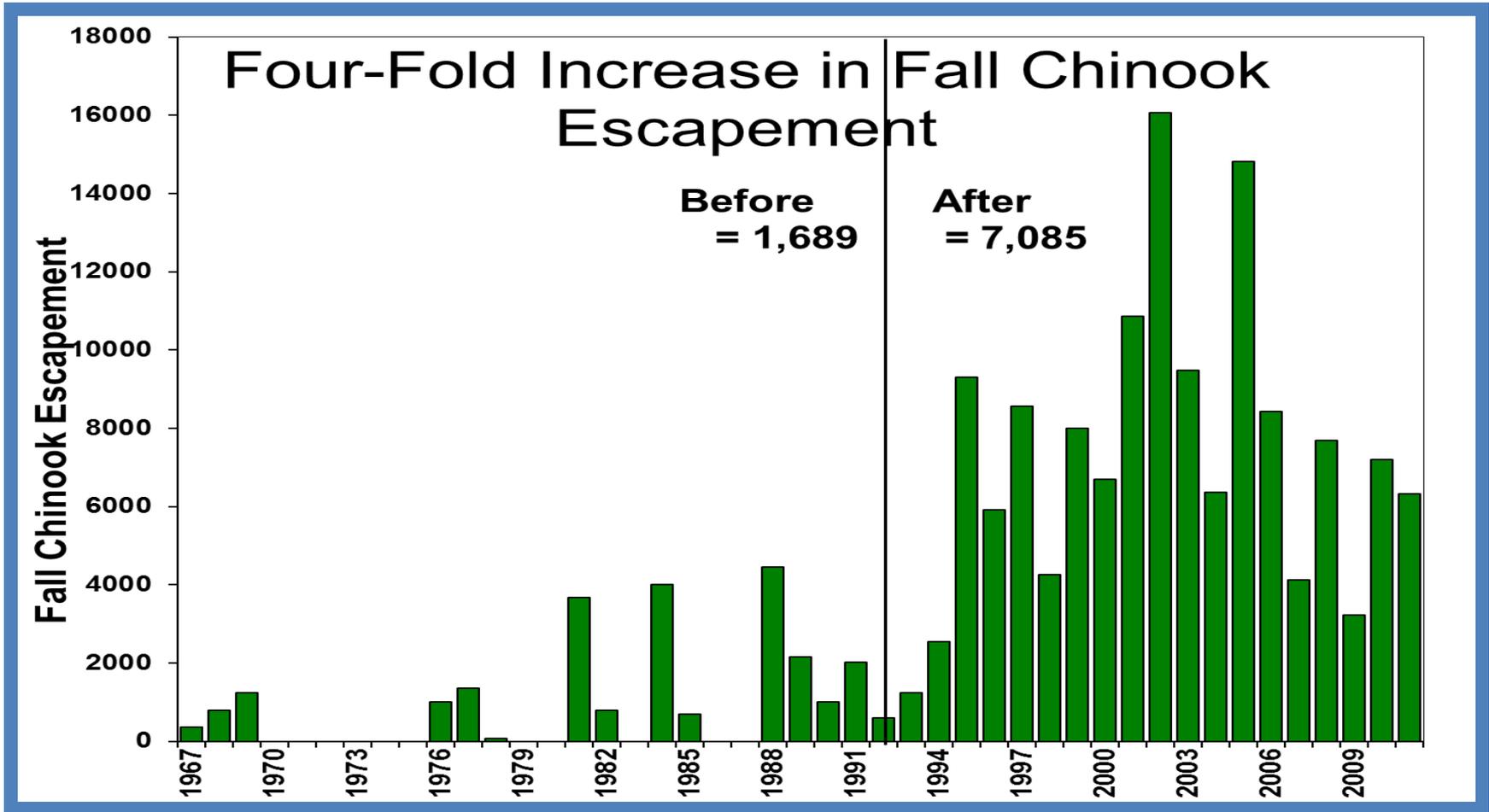
What Were The Results?

- *On-going program activities*
- *Planning for future actions*
- *Coordinated inter-agency planning and cooperation*
 - *Clear Creek Technical Work Group*
 - *Federal landowners are NPS and BLM*
 - *State landowners are CDFW*
- *Continued successful restoration efforts*



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Successful Restoration Efforts



CDFW Grandtab data



Gravel injection

Fish weir



Carcass surveys



Photos by CDFW and CDWR



Accomplishments FY 2012



What Data Were Used?

- *Historical databases*
- *Current real-time data*
 - *Streamflows, biological counts, surveys, monitoring*
 - *water temperature*
- *Multi-agency data collection*
 - *Calif. Dept. of Fish and Wildlife*
 - *Bureau of Reclamation*
 - *Point Reyes Bird Observatory*
 - *U.S. Fish and Wildlife Service*
 - *Bureau of Land Management*
 - *Consultants*

(note: not all are funded thru CVPIA)



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Accomplishments FY 2012

What Monitoring Was Done?

- *Biological monitoring*
 - *Anadromous Fish: Juvenile, adult, spawning/redds*
- *Physical and Geomorphic monitoring*
 - *Flow, water temperature*
 - *Sediment and gravel transport*
- *Vegetation*
 - *Growth/survival/condition in re-vegetated areas*



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Accomplishments FY 2012

What Modeling and Conceptual Models Were Used?

- *Overall program*
 - *CCDAM (Clear Cr Decision Analysis and Adaptive Mgmt Model)*
 - *AFRP Plan Actions identified a limiting factor model*
- *Specific activities employ Adaptive Management process*
 - *CCDAM-2 models sediment budget – predicts needed gravel*
 - *USGS models for gravel transport rates*
- *IFIM (instream flow incremental methodology)*
 - *Evaluates habitat as a function of flow for fish life stages*
- *Monitoring/Modeling results used to design future work*



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Overview of FY 2013 Plans

Status of Activities Planned For 2013?

- *Administrative/Procurement/Contracting*
- *Environmental compliance & planning actions*
 - *NEPA for EWP action – (high flow releases 7 out of 10 yrs)*
 - *Long-term gravel/mercury abatement project (40 yr gravel supply)*
 - *Programmatic permits (gravel injections and instream habitat)*
- *Monitoring of fish populations*
- *Monitoring of geomorphic processes*
- *Finishing up on-going projects (e.g.)*
 - *Parkway & Floodway projects – nearing completion*



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Overview of FY 2013 Plans

What Funding is Projected For 2013?

- *Restoration Fund Currently projected at: \$ 555,000*
- *State In-Kind Contribution of: \$ 3,942,628*
- *State Cash contribution of: \$ 169,601*
- *Carryover of FY12 funds: \$ 109,145*
- *CDFW – Non CVPIA funds (not cost-shareable)*



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Adaptive Management

Lessons Learned & Value of Adaptive Management

- *Water temperature management/compliance*
- *Decisions as it relates to active restoration work*
- *React to changing conditions and/or circumstances*
- *Changing actions to improve fish habitat*
- *Beneficial to improving scientific methods*
- *Maximize available resources*

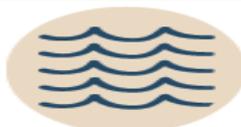


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Closing Comments

- *Recent declines in Central-Valley wide salmon populations*
- *Resilience of Clear Creek salmonids*
- *Major events (e.g.) Moon Fire 2008, Dale Fire of 2012*
- *Long-term gravel project (Hg abatement/40 yr supply)*
- *Importance of flows*
- *Importance of water temperatures*
- *Environmental Water Program – “geomorphic flows”*



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Photos by CDFW



Dale Fire burned 1,200 acres



Questions/Discussion



Photo by BOR



Thank You!



Gravel injection site below Placer Bridge



Photo by BOR