BATTLE CREEK SALMON AND STEELHEAD RESTORATION PROJECT

http://www.usbr.gov/mp/battlecreek

October 2015

BACKGROUND

The Battle Creek Watershed

- Is approximately 370 square miles in area
- Drains the volcanic slopes of Mount Lassen in southeastern Shasta and northeastern Tehama Counties
- Has a unique volcanic geology which provides year-round cold springflows into Battle Creek, even in drought conditions, which is especially important to winter-run and spring-run Chinook salmon and Central Valley Steelhead

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BACKGROUND

Battle Creek Salmon and Steelhead Restoration Project

- Is located in Shasta and Tehama Counties near Manton, California
- Is among the largest cold-water anadromous fish restoration efforts in North America
- Is restoring approximately 42 miles of habitat on Battle Creek and an additional 6 miles of habitat on tributaries to Battle Creek, while maintaining the continued production of hydroelectric power at the Battle Creek Hydroelectric Project (owned and operated by Pacific Gas and Electric Company and licensed by the Federal Energy Regulatory Commission)

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PARTNERSHIP

- In 1999, a Memorandum of Understanding (MOU) between Pacific Gas and Electric Company, Bureau of Reclamation (Reclamation), U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service, and California Department of Fish and Wildlife (formerly Department of Fish and Game) was signed, committing each partner to the project.

- In addition, numerous stakeholders, including the Battle Creek Watershed Conservancy and the Greater Battle Creek Watershed Working Group, as well as landowners and funders have made important contributions to this project.

- Reclamation's role is overall project management of compliance, design, construction, budget and schedule, as well as facilitation of adaptive management plan development.

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SCOPE

Project implementation includes modification of Battle Creek Hydroelectric Project facilities located on North Fork Battle Creek, South Fork Battle Creek, and Baldwin Creek in three phases (Phases 1A, 1B and 2).

In its' entirety, the project involves:

- Removal of five diversion dams
- Installation of fish screens and ladders on three other diversion dams
- Prevention of mixing of North Fork and South Fork Battle Creek waters
- Construction of a fish barrier weir (to protect an upstream trout hatchery)
- Increase to instream flows
- Dedication of water rights for instream purposes at dam removal sites
- Reduction of hydropower production from 28 megawatts to 20 megawatts
- Implementation of adaptive management to ensure fisheries objectives are met

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TIMELINE

- The partnership MOU was signed in 1999, and from 1999 until 2009, planning, design and compliance efforts took place; and needed funding was secured to move forward with construction.
- First construction contract was awarded in September 2009.
- To date, seven construction contracts have been completed, and one construction contract will be completed this year.
- There are three future construction contracts.
- Project construction is anticipated to be totally completed in 2020.
- Adaptive management will occur beyond 2020.

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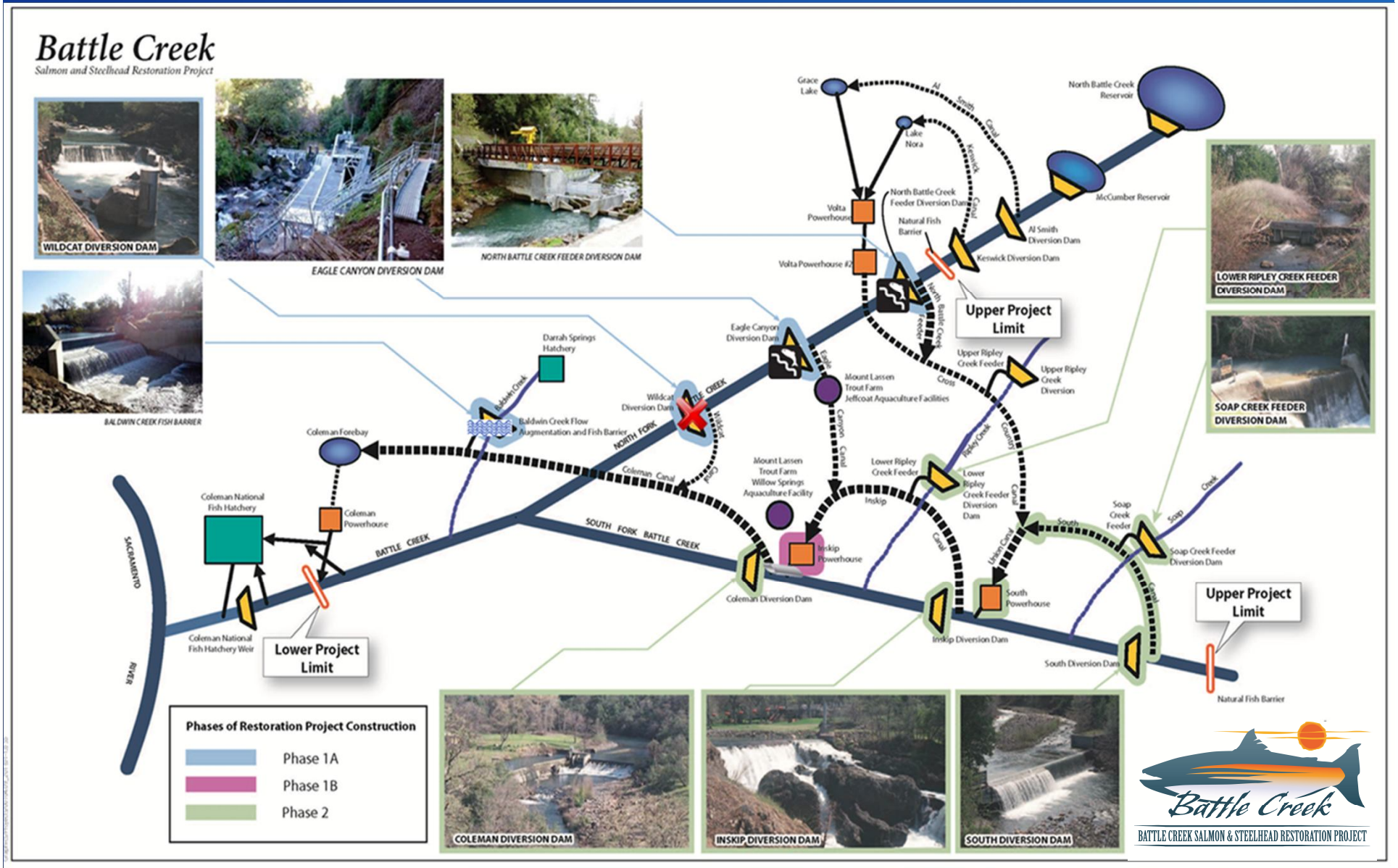
PROJECT SCHEMATIC



STATUS

Completed:

- Removal of Wildcat Diversion Dam and canal/pipeline system
- Installation of fish screens and fish ladders at Eagle Canyon and North Battle Creek Feeder (NBCF) Diversion Dams
- Completion of NBCF access road (including cut-slope stabilization)
- Construction of an approximate one mile long Inskip Powerhouse bypass and tailrace connector, and follow-up safety and facility access improvements
- Construction of a fish barrier weir on Baldwin Creek

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STATUS

Remaining:

- Completion of fish screens and fish ladders at Eagle Canyon and NBCF Diversion Dams
- Installation of a fish screen and fish ladder at Inskip Diversion Dam
- Construction of a tailrace tunnel connector from South Powerhouse to Inskip Canal
- Removal of Lower Ripley Creek Feeder, Soap Creek Feeder, Coleman and South Diversion Dams, and South Canal

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FUNDING

Current Funding Type & Source	Amount (As of October 2015)
Federal Funding	**$47.1 M**
CALFED Early Ecosystem Restoration Funds	*$32.0 M (to Reclamation)*
American Recovery and Reinvestment Act Funds	*$12.8 M (to Reclamation)*
Fiscal Year 2015 Federal Funds	*$ 2.3 M (to Reclamation)*
Federal & State Funding	**$6.5 M**
Iron Mountain Mine Trustee Council	*$6.5 M (to Reclamation)*
State Funding	**$58.2 M**
California Department of Fish & Wildlife (DFW)	*$3.4M (to USFWS)* *$26.8 M (to Reclamation)*
California Wildlife Conservation Board	*$10.0 M (to Reclamation)*
Benicia Bridge Mitigation Funds [via California Department of Transportation (CALTRANS)]	*$4.5 M (to Reclamation)*
Richmond San Rafael Bridge Mitigation (via CALTRANS)	*$1.5 M (to Reclamation)*
Delta Fish Agreement Amendment via California Department of Water Resources	*$5.3M (to DFW)* *$6.7M (to Reclamation)*
Private Funding	**$23.6 M**
PG&E (Foregone Power from 1999 MOU)	*$20.6 M*
The Packard Foundation (via The Nature Conservancy)	*$3.0 M*
TOTAL PROJECT FUNDING	**$135.4 M**

- It is estimated that $18.2 M more is needed to complete the project.
- Reclamation is coordinating with the project partners to pursue additional funding.

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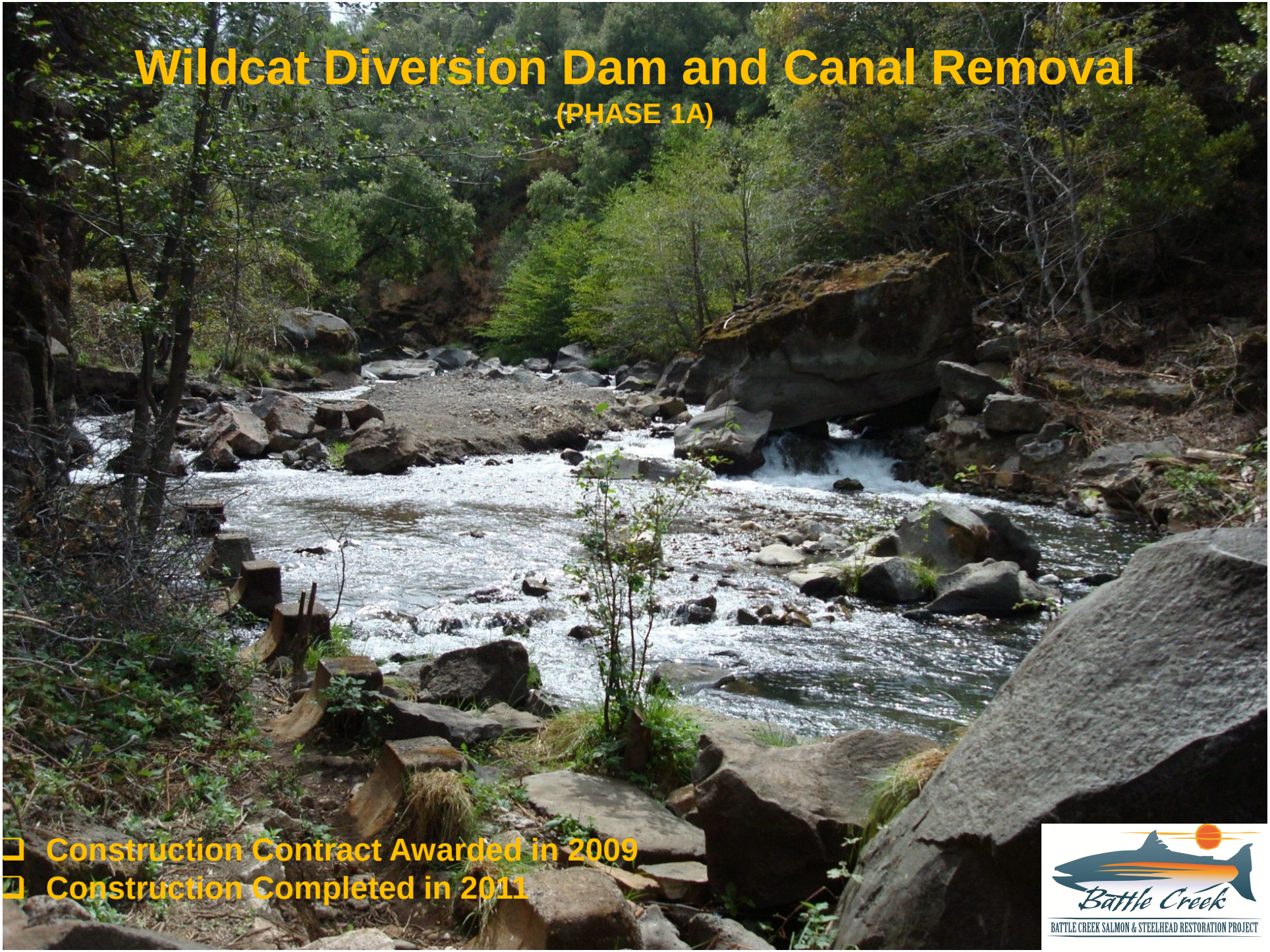
Wildcat Diversion Dam and Canal Removal

(PHASE 1A)



- Construction Contract Awarded in 2009
- Construction Completed in 2011

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Eagle Canyon Diversion Dam

(PHASE 1A)

- New Fish Screen and Fish Ladder
- North Fork Screens and Ladders Contract Awarded in 2009
- Construction Completed in 2011
- Follow-Up Work: 2016 -2017

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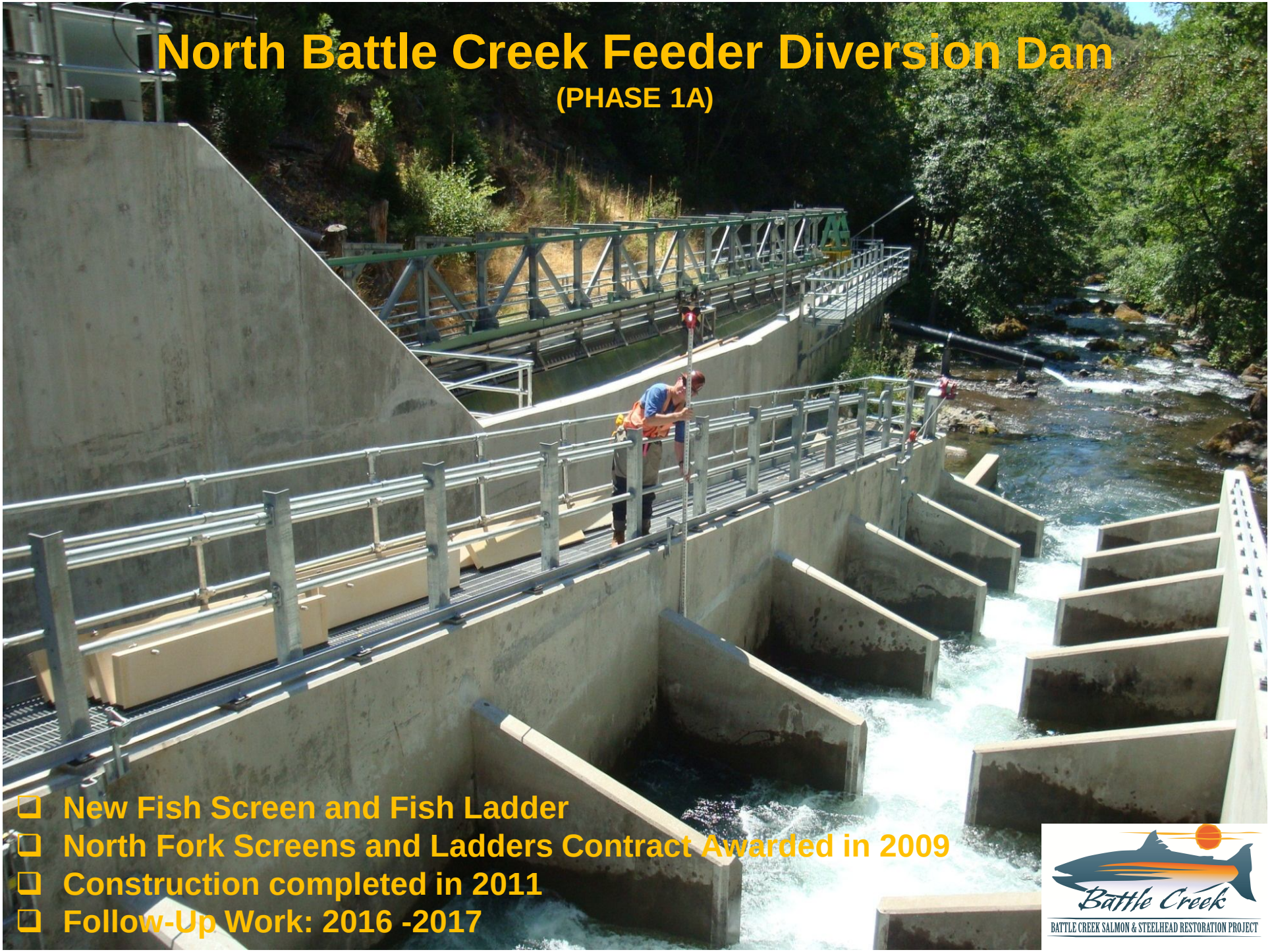
North Battle Creek Feeder Diversion Dam

(PHASE 1A)



- New Fish Screen and Fish Ladder
- North Fork Screens and Ladders Contract Awarded in 2009
- Construction completed in 2011
- Follow-Up Work: 2016 -2017

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Baldwin Creek Fish Barrier

(PHASE 1A)

- Provides a constant flow of 5 cfs for fish habitat
- Protects Darrah Springs State Trout Hatchery (located upstream) from anadromous fish diseases
- Contract awarded in 2013
- Construction completed in 2013

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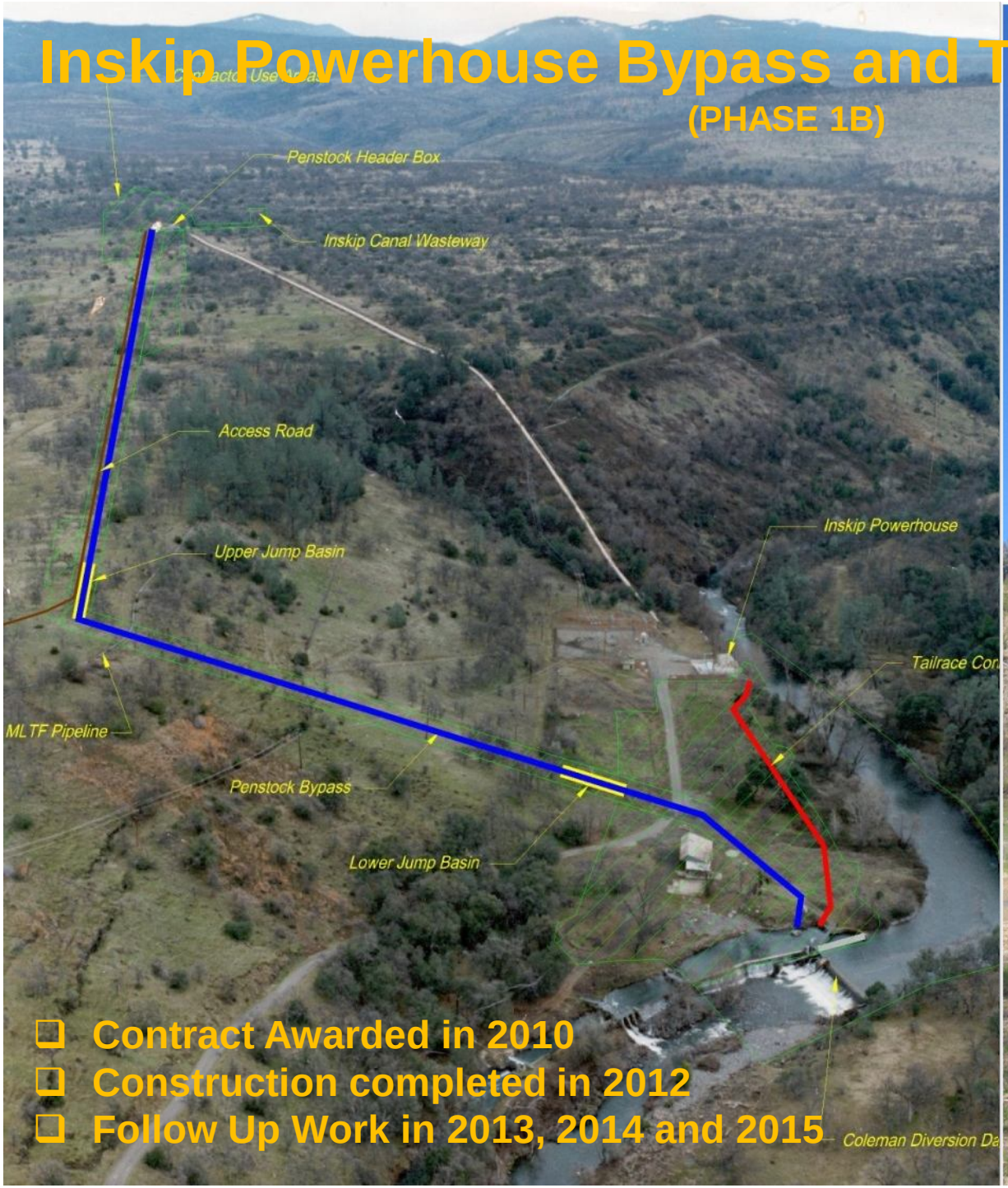
Inskip Powerhouse Bypass and Tailrace Connector

(PHASE 1B)



- Contract Awarded in 2010
- Construction completed in 2012
- Follow Up Work in 2013, 2014 and 2015

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Inskip Powerhouse Bypass and Tailrace Connector

(PHASE 1B)

Inskip Powerhouse Tailrace Connector

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Inskip Diversion Dam, South Powerhouse, Lower Ripley Creek and Coleman Diversion Dams

(PHASE 2)

- New fish screen and ladder on Inskip Diversion Dam
- South Powerhouse tailrace connector tunnel to Inskip Canal
- Removal of Lower Ripley Creek Feeder and Coleman Diversion Dams
- In the Design Stage; Construction Planned for 2018 - 2020

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South Diversion Dam and Canal Removal

(PHASE 2)

- Removal of South Diversion Dam, South Canal and Soap Creek Feeder Dam
- In the Design Stage; Construction Planned for 2019 - 2020

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Adaptive Management

Battle Creek Restoration Project Adaptive Management

- The Battle Creek Restoration Project Adaptive Management Plan (AMP) was completed in 2004.

- Its' goal is to implement specific actions to protect, restore, enhance and monitor salmonid habitat within the Battle Creek Restoration Project area to guard against false attraction of adult migrants, and ensure that Chinook salmon and steelhead are able to fully access and utilize available habitat in a manner that benefits all life stages and thereby maximizes natural productions, fully utilizing ecosystem carrying capacity.

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Adaptive Management

Coleman National Fish Hatchery (CNFH) Adaptive Management

- CNFH is located downstream of the Battle Creek Restoration Project area on the main stem of Battle Creek. CNFH is funded by Reclamation, owned and operated by USFWS, and guided by USFWS policy and other state and federal laws.

- The CNFH AMP is in development, and will include solutions and processes to support CNFH programs, operations and infrastructure so that hatchery mitigation goals and objectives are achieved, and there is compatibility with the Battle Creek Restoration Project.

- Completion of the CNFH AMP is anticipated in 2016.

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Adaptive Management

Integrated Framework for Adaptive Management in Battle Creek

- The 1999 MOU partners are committed to coordinate CNFH AMP and Battle Creek Restoration Project AMP efforts to form a single integrated framework for adaptive management in Battle Creek.

- An Integrated Monitoring Plan and a Team Charter are currently in development, and will define integrated Battle Creek Restoration Project and CNFH adaptive management processes for monitoring, evaluation, and decision making.

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