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July 2, 2013

## MEMORANDUM

**TO:** Council members

**FROM:** Tony Grover, Fish and Wildlife Division Director

**SUBJECT:** Briefing on comprehensive evaluation of the first five years of Federal Columbia River Power System Biological Opinion Implementation

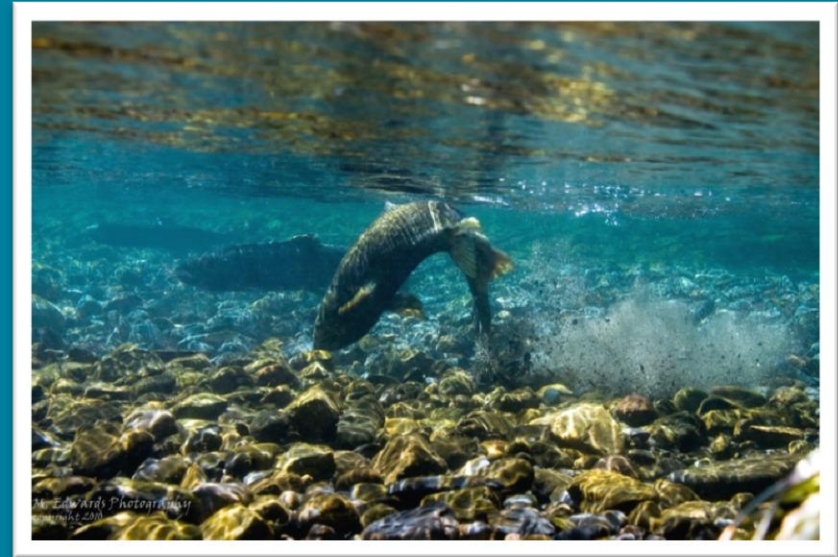
Representatives of the Federal Columbia River Action Agencies will brief the Council on a report detailing a comprehensive evaluation by the action agencies of the first five years of Federal Columbia River Power System Biological Opinion implementation. The presenters will be Sarah McNary, Bonneville Power Administration; Rock Peters, U.S. Army Corps of Engineers; and Kate Puckett, Bureau of Reclamation.

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# Draft Comprehensive Evaluation 2013 Overview

The CE's is a retrospective look at accomplishments in implementing the FCRPS BiOp from 2008 to 2012 and includes:

- ✓ Review and evaluation of progress from implementation activities and the expected survival improvements from those activities.
- ✓ Review the status of the fish.
- ✓ Adaptive management strategies.

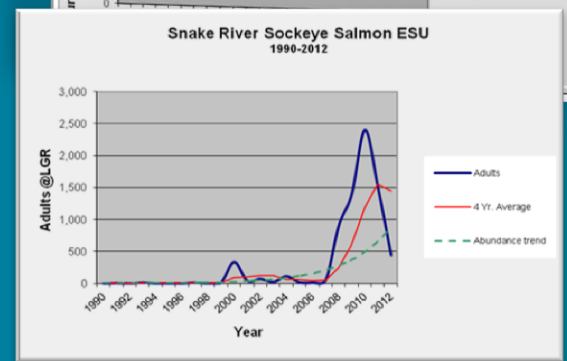
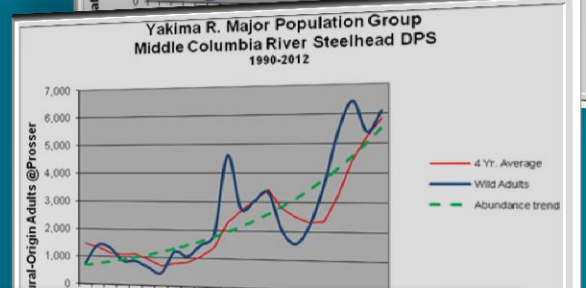
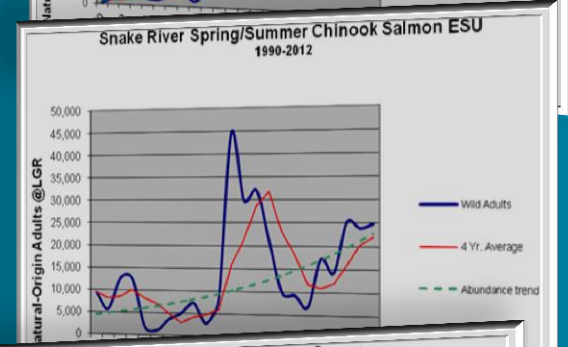
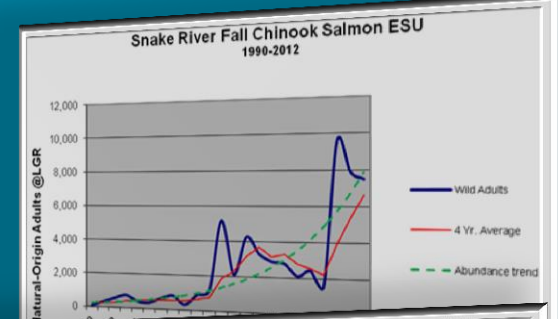
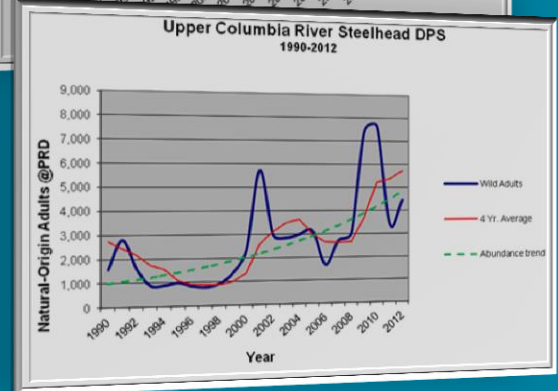
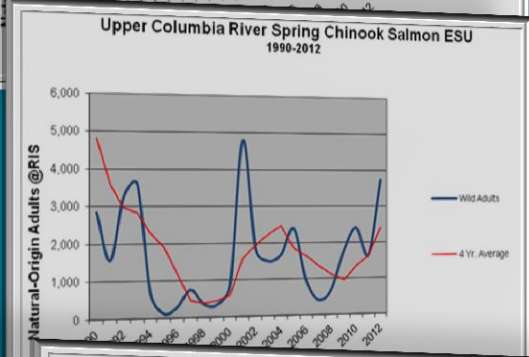
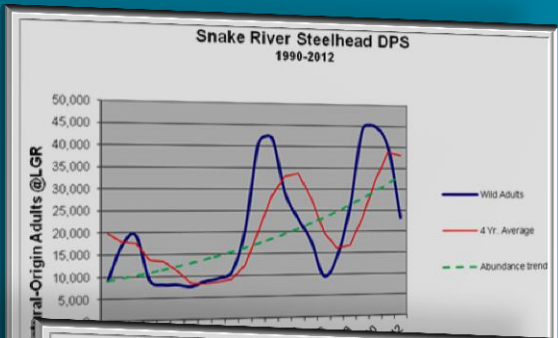


FCRPS Biological Opinion

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# Status of Fish

- ✓ Updated data show most of the interior Columbia Basin fish populations have significantly increased in abundance since the first ESA listings in the 1990's.

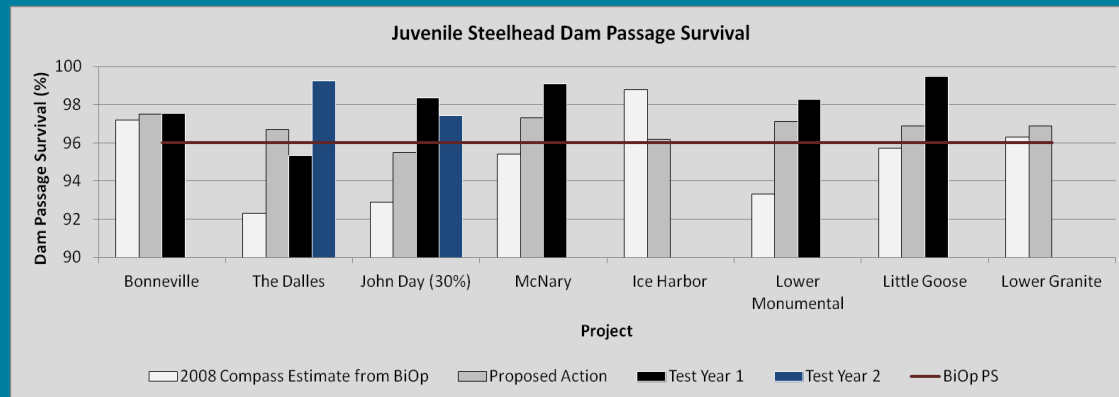
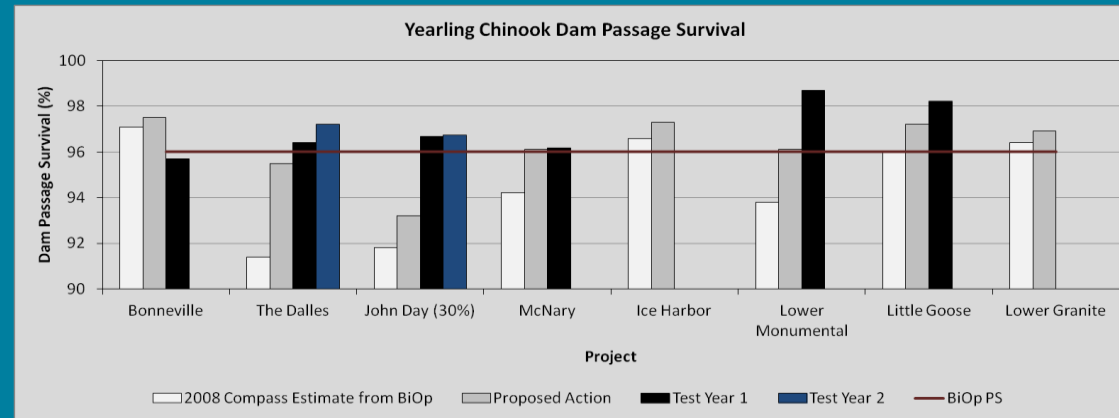


FCRPS Biological Opinion

2008-2018

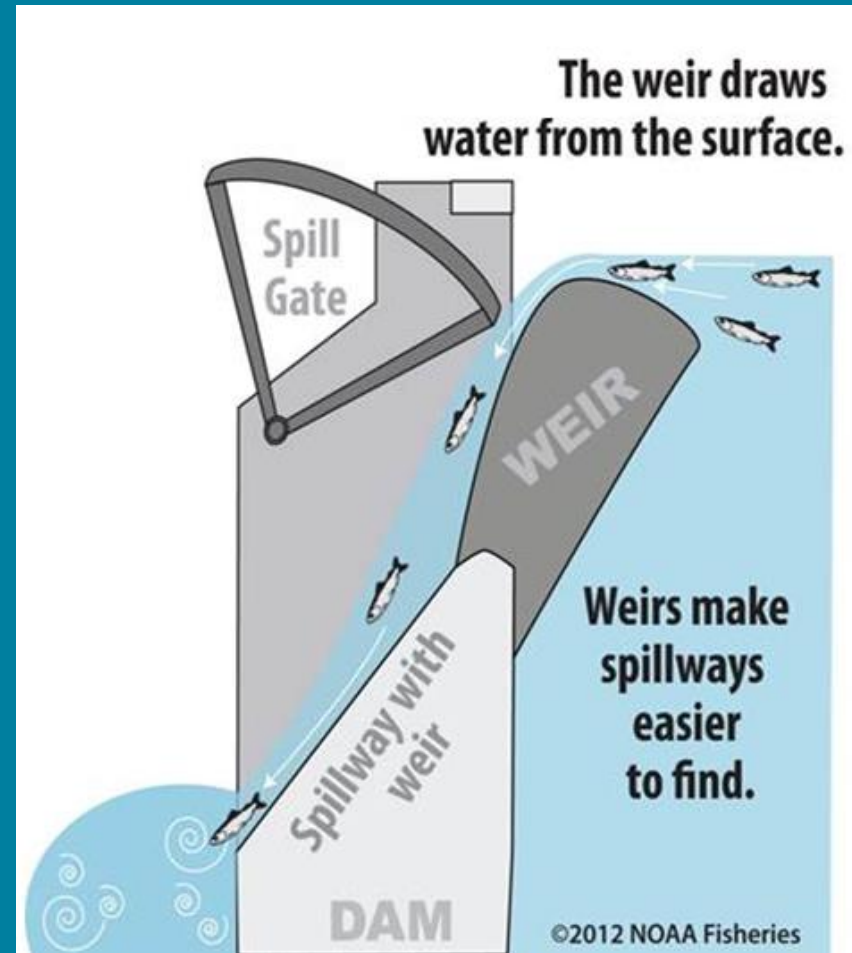
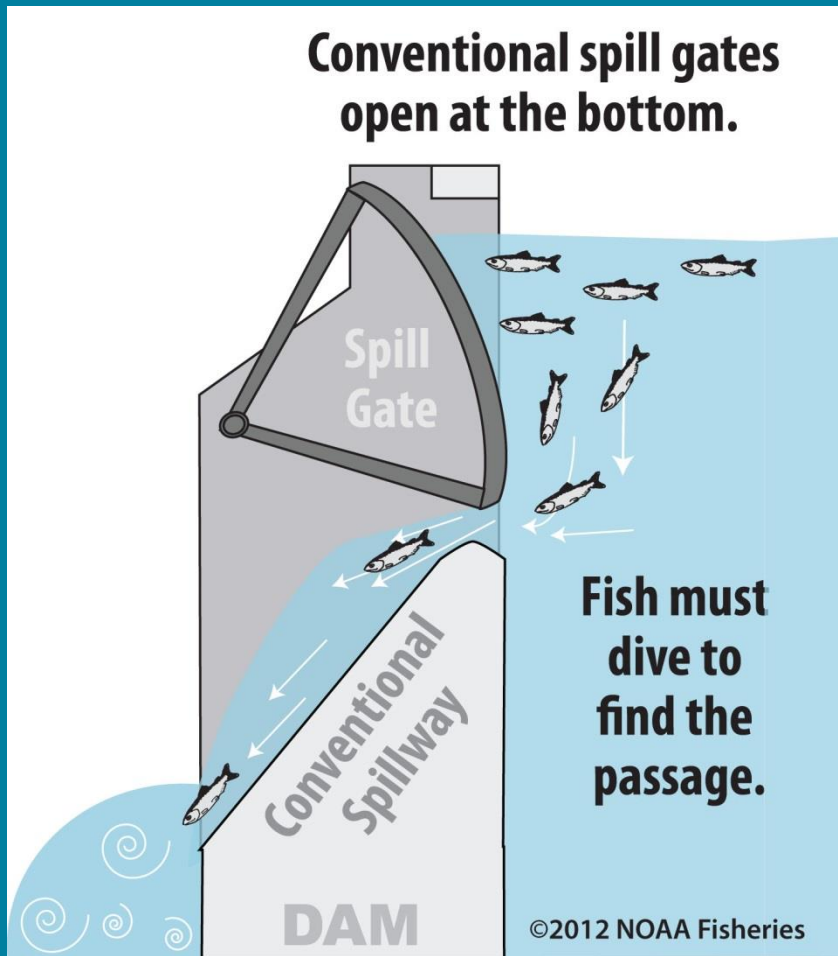
# HYDRO – Dam Passage Improvements

- ✓ Surface passage systems now operational at all eight lower Columbia and lower Snake FCRPS dams.
- ✓ Surface passage makes spill more effective.
- ✓ All projects tested to date are on track to meet the 96 percent (spring migrants) or 93 percent (summer migrants) juvenile dam passage survival performance standards.



# Spillway Weirs

Surface passage makes spill more effective and 40-60 percent of juvenile fish use this passage route

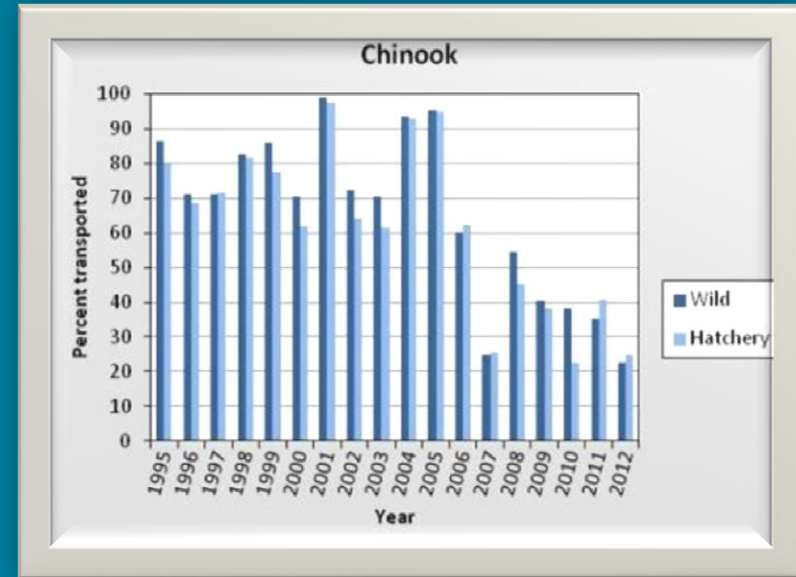


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2008-2018

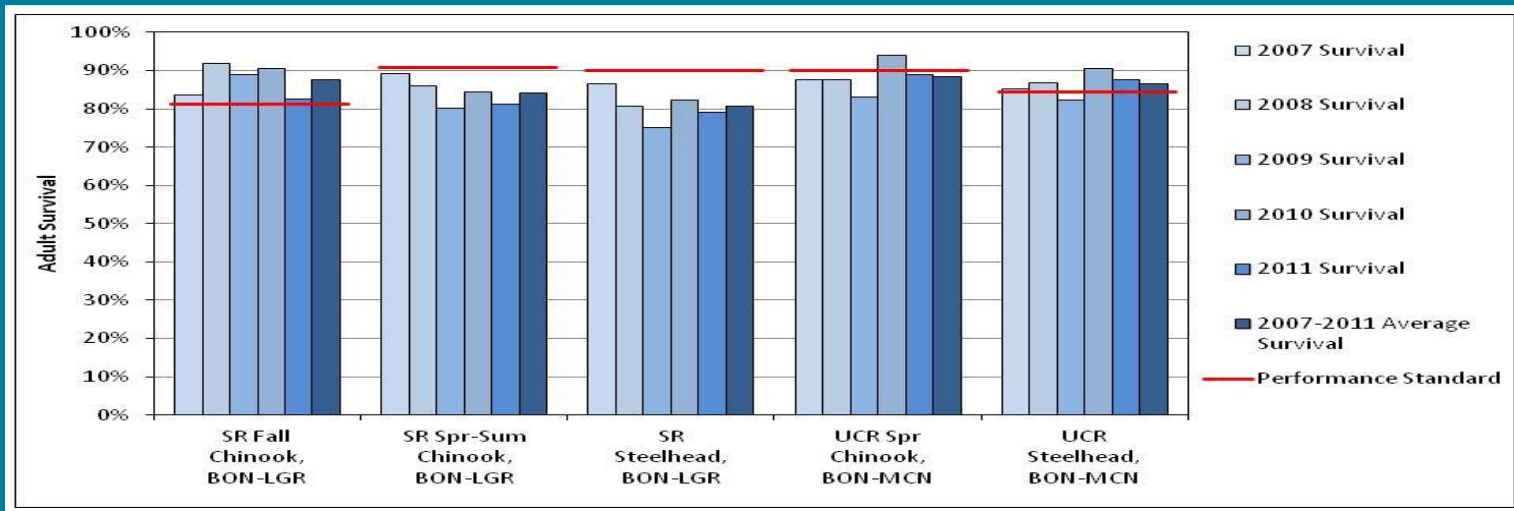
# HYDRO – Spill and Transport

- ✓ 24-hour spill at all lower Snake and lower Columbia dams from early April through the end of August consistent with the court order.
- ✓ Juvenile transport operations as recommended by the ISAB and the AMIP
  - Proportion of fish transported has declined in recent years with the addition of surface passage at collector dams.
  - Information indicates that late April-May transport generally yields higher adult returns for yearling Chinook and steelhead than in-river passage.
  - SAR data obtained over the next few years comparing transport to in-river migration will provide further information on the benefit of transport under the current system configuration with the addition of surface passage at all dams.



# HYDRO – Adult Passage

- ✓ Estimated survival of adult Snake River fall chinook, Upper Columbia spring Chinook and UC steelhead met or exceeded adult performance standards specified in the BiOp.
- ✓ Estimated survival of adult SR steelhead and spring/summer Chinook has declined below the BiOp standards.
  - Additional temporary adult PIT-tag detection systems to help better detect adult losses and to assess which factors are impeding attainment of the full performance standard.



\* Data does not yet include 2012

# Tributary Habitat Results



- ✓ BiOp specifies targets for habitat improvements
  - established for 56 populations of Chinook and steelhead
  - 18 priority populations identified as having highest biological need
  - Actions evaluated by expert panels and link key limiting factors with habitat improvement actions
- ✓ Council's Program integral part of BiOp implementation
- ✓ Fish Accord parties key partners in implementation

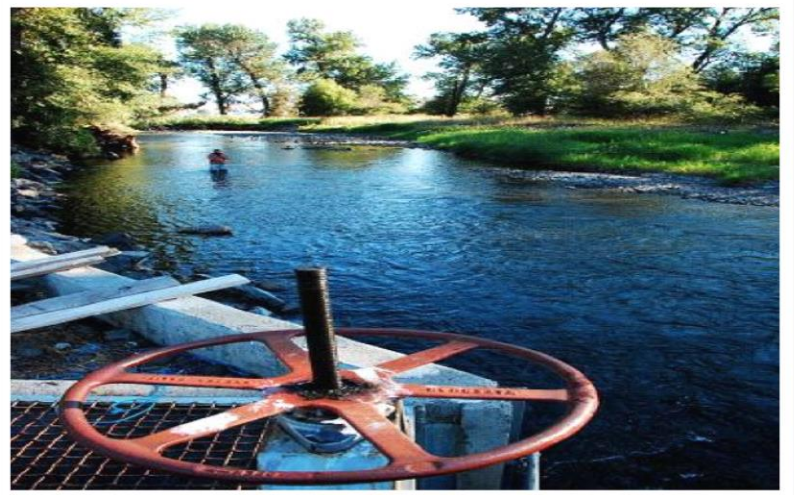
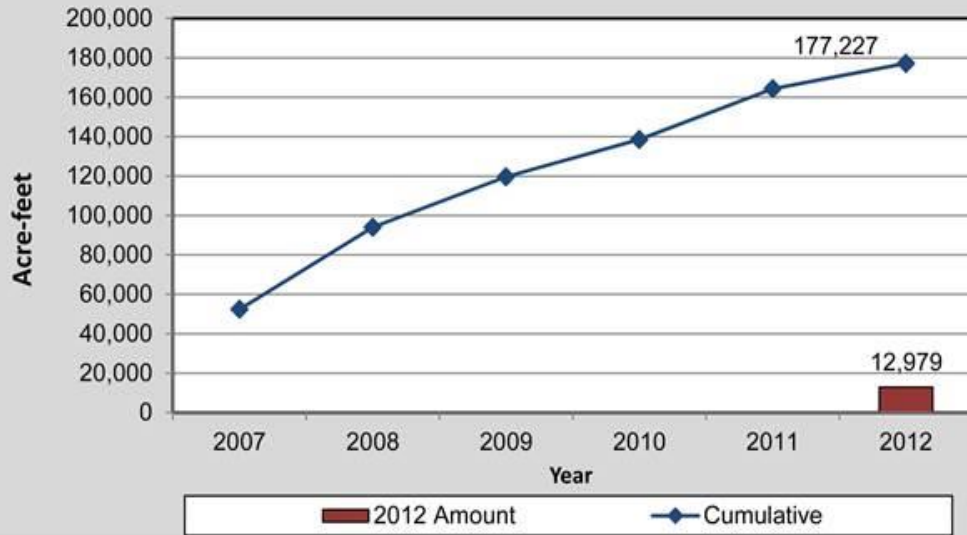
- ✓ 31 populations have already achieved BiOp targets
- ✓ Action Agencies expect to meet or exceed BiOp targets for the remainder of the populations by 2018

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### Acre-feet of Water Protected

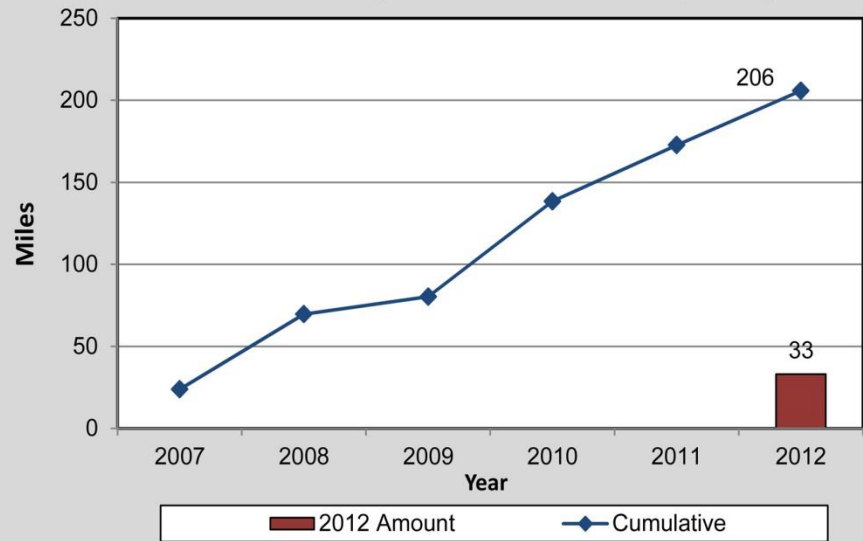


Lostine River in NE Oregon



Hancock Springs in the Methow Valley, Washington

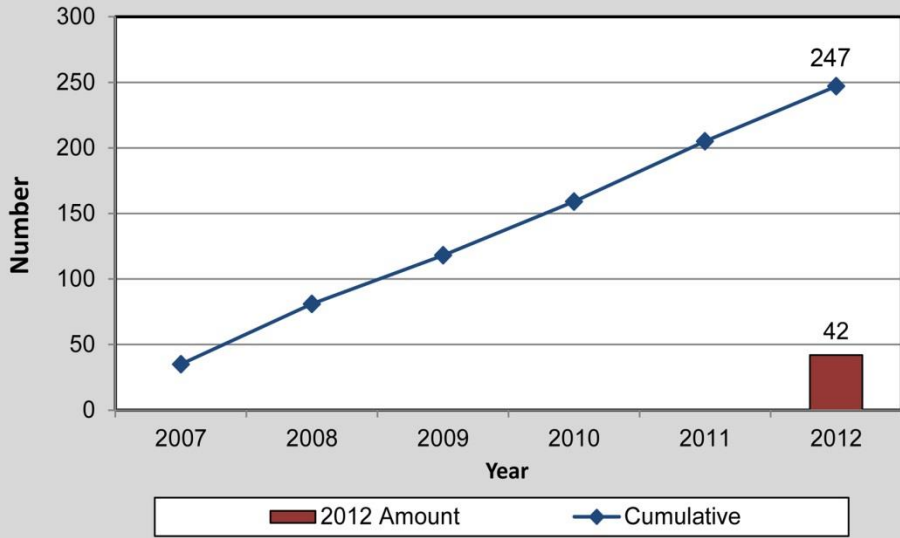
### Miles of Improved Stream Complexity



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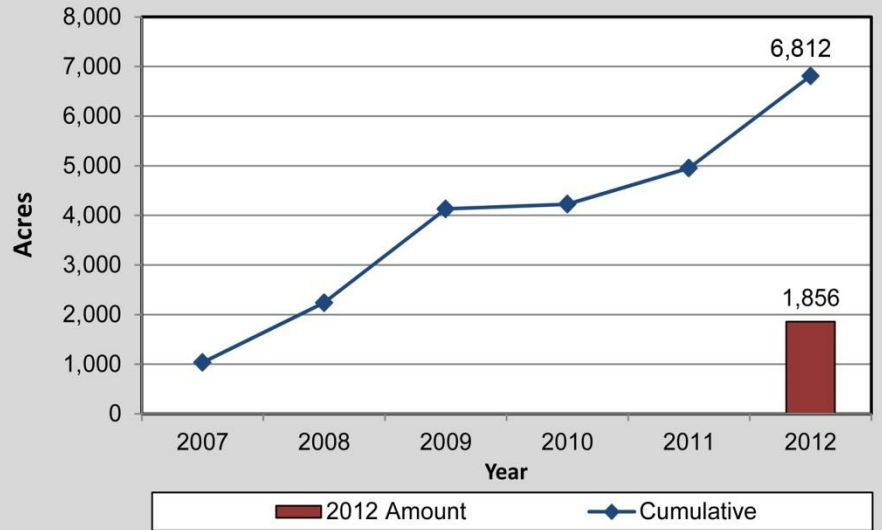
2008 - 2018

### Number of Screens Installed or Addressed



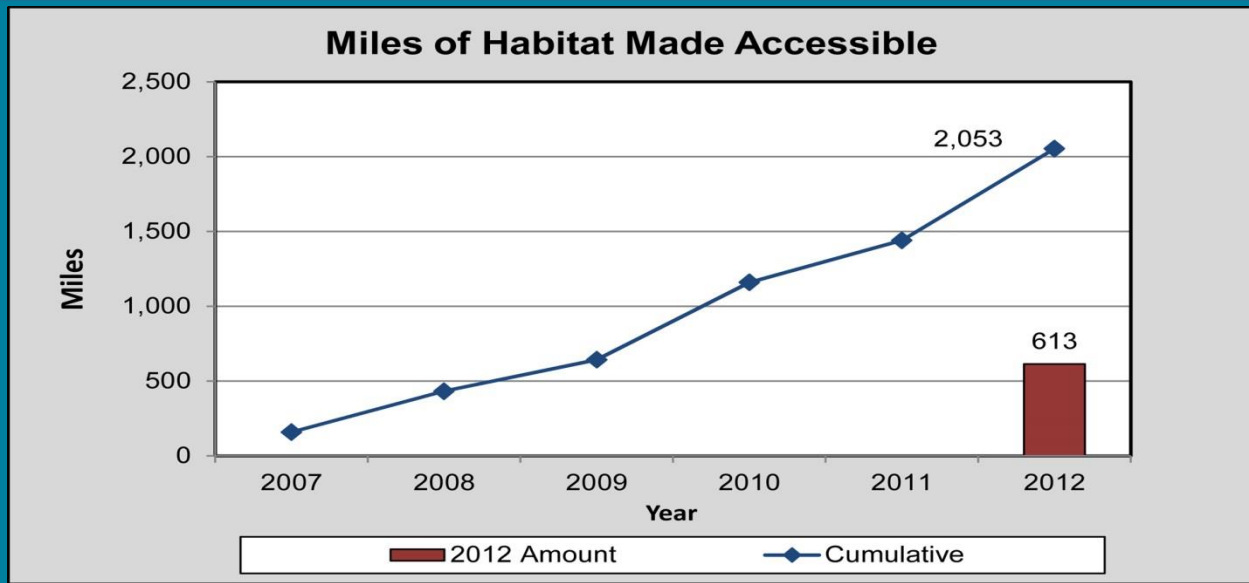
Lemhi Basin in Idaho

### Acres Improved



# FCRPS Biological Opinion

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Lemhi Basin in Idaho

# FCRPS Biological Opinion

2008 - 2018

# Tributary Habitat Findings

- ✓ Salmon and steelhead have quickly returned to reopened habitat, spawned in greater numbers in restored reaches and increased in abundance following treatment.
- ✓ Habitat actions that improve connectivity, stream flows, and riparian conditions are expected to buffer against climate change effects.
- ✓ The habitat status and trend monitoring programs are successfully providing information at the reach, watershed and population scale. In many cases, results from habitat monitoring are confirming expert assumptions before there was empirical data.
- ✓ Initial results of project effectiveness monitoring have identified fish passage improvements, in-stream wood and rock structures, connection or construction of off-channel habitat and flow augmentation as among the most proven forms of habitat improvements with the most immediate responses.
- ✓ Intensively Monitored Watersheds (IMWs) program is well staged to provide scientific information about project effectiveness at the population level by 2018.

# Estuary Habitat Results

Estuary habitat called for in the BiOp:

Summary of Estuary Habitat Restoration Metrics, 2008-2012

	2007-2012
Action	Metric/Acres
Protect riparian areas	280.5
Restore off-channel habitat	143.9
Restore full hydrology/access	162
Improve hydrology/access	51.8
Improve access	267.1
Reduce invasive plants	1069.3
Land Acquisition	1789.4
<b>Total</b>	<b>3791</b>

- ✓ Early Years:
  - Projects were typically opportunistic
  - Often emphasized smaller-scale actions
  - Expert Regional Technical Group (ERTG) was forming
- ✓ Transition:
  - AA's made a number of changes designed to increase the pace and quality of habitat restoration.
  - ERTG guidance became a key strategy for restoration prioritization
  - Moved to a cost per SBU approach
- ✓ High Output:
  - Targeting large, complex projects yield highest benefits.
  - Leveraging expanded partnerships

# Estuary Habitat Results

- ✓ Fish condition (e.g. growth) increases following habitat actions.
- ✓ Salmon and steelhead moved quickly into off-channel and floodplain habitat.



- ✓ Reconnected tidal wetlands to improve food web to benefit fish in the mainstem Columbia River estuary.
- ✓ Chinook salmon density increased six-fold in wetland habitat following installation of a redesigned tide gate.

FCRPS Biological Opinion

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# Hatchery Results

- ✓ Dual goals: Meet hatchery mitigation requirements while ensuring that FCRPS-funded hatcheries are not impeding recovery of listed salmon
- ✓ Submitted Hatchery and Genetic Management Plans (HGMPs) for all 44 mitigation hatchery programs. These reforms are expected to benefit wild fish.
- ✓ New Springfield hatchery in Bingham County, Idaho completed in 2013 for SR sockeye.
- ✓ Steelhead kelt reconditioning in Mid & Upper Columbia and Snake River have demonstrated success.
- ✓ New Chief Joseph Hatchery in 2013
- ✓ By 2018, the Action Agencies expect to meet hatchery reforms goals specified in the BiOp.



# Predation Results

## ✓ Pikeminnow management

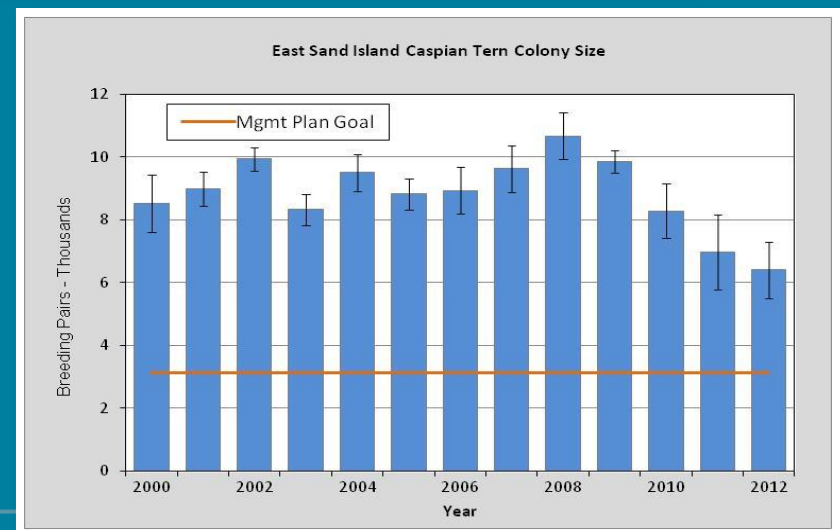
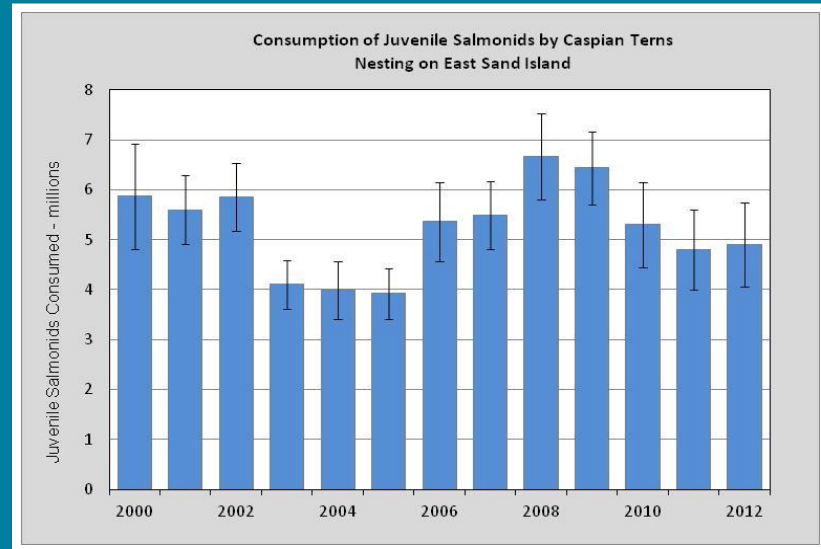
- achieved annual exploitation rate of 10-20% (averaging 15%) of northern pikeminnow
- 3-6 million fewer juvenile salmon consumed by pikeminnows due to management actions

## ✓ Caspian Tern management

- met goal to reduce tern nesting grounds on East Sand Island from 6 acres in 2008 to 1.5 acres in 2012
- built nine alternative nesting areas
- consumption of salmonid smolts has dropped from more than 6.6 million in 2008 to about 4.9 million in 2012.
- it appears that additional nesting habitat reduction will be required to bring the colony size down to the desired level

## ✓ Marine mammal predation

- Sea Lion Exclusion Devices at Bonneville Dam
- harassment actions



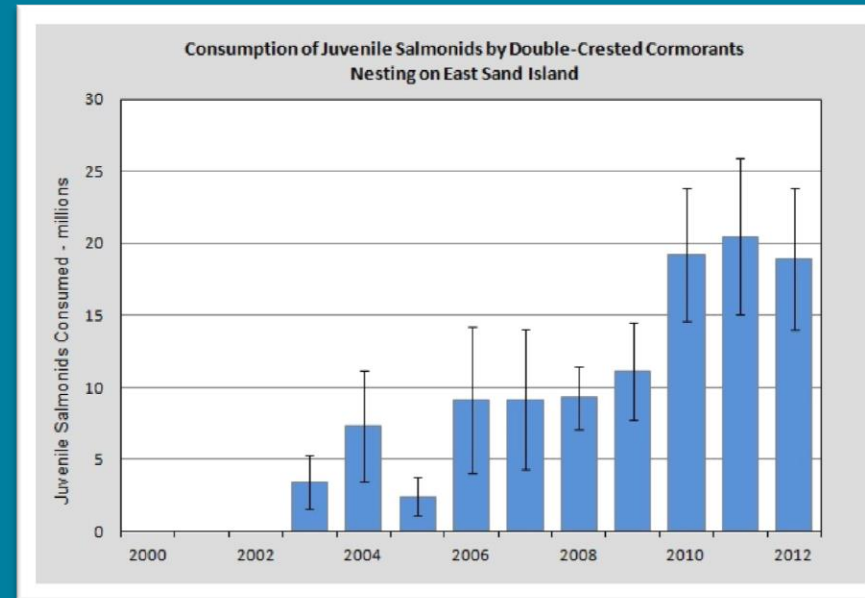


# PREDATION

## Actions called for in the 2008 BiOp (cont'd.):

### ✓ Double Crested Cormorant management plan and EIS in the Columbia River estuary

- about 13,000 nesting pairs on East Sand Island
- consume an estimated 20 million juvenile salmonids annually.
- protected by the Migratory Bird Treaty Act
- USFWS must authorize steps to control
- USFWS revising its Depredation Order for cormorant management and working with Corps on management plan EIS



### ✓ Developing management actions for tern predation on islands near Pasco and Othello, Wash.

FCRPS Biological Opinion

2008 - 2018

# Summary

The Action Agencies working with many regional partners have accomplished a tremendous amount of work from 2008-2012

- Hydrosystem improvements and operations are in place and working
- Juvenile salmon dam passage survival is meeting or on track to meet hydro performance standards
- Hundreds of tributary and estuary habitat actions already implemented are benefitting salmon and steelhead.
- Hatchery reforms and ESA compliance for all hatchery programs are underway
- Predator control actions are being implemented & an expanded plan for cormorants is underway.
- Extensive RME in place to track results
- Solid partnerships and sound science have put us well on the path to achieving BiOp goals.

FCRPS Biological Opinion

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