

*Implementing the*

Biological Opinion for  
Russian River Water Supply, Flood Control  
Operations & Channel Maintenance

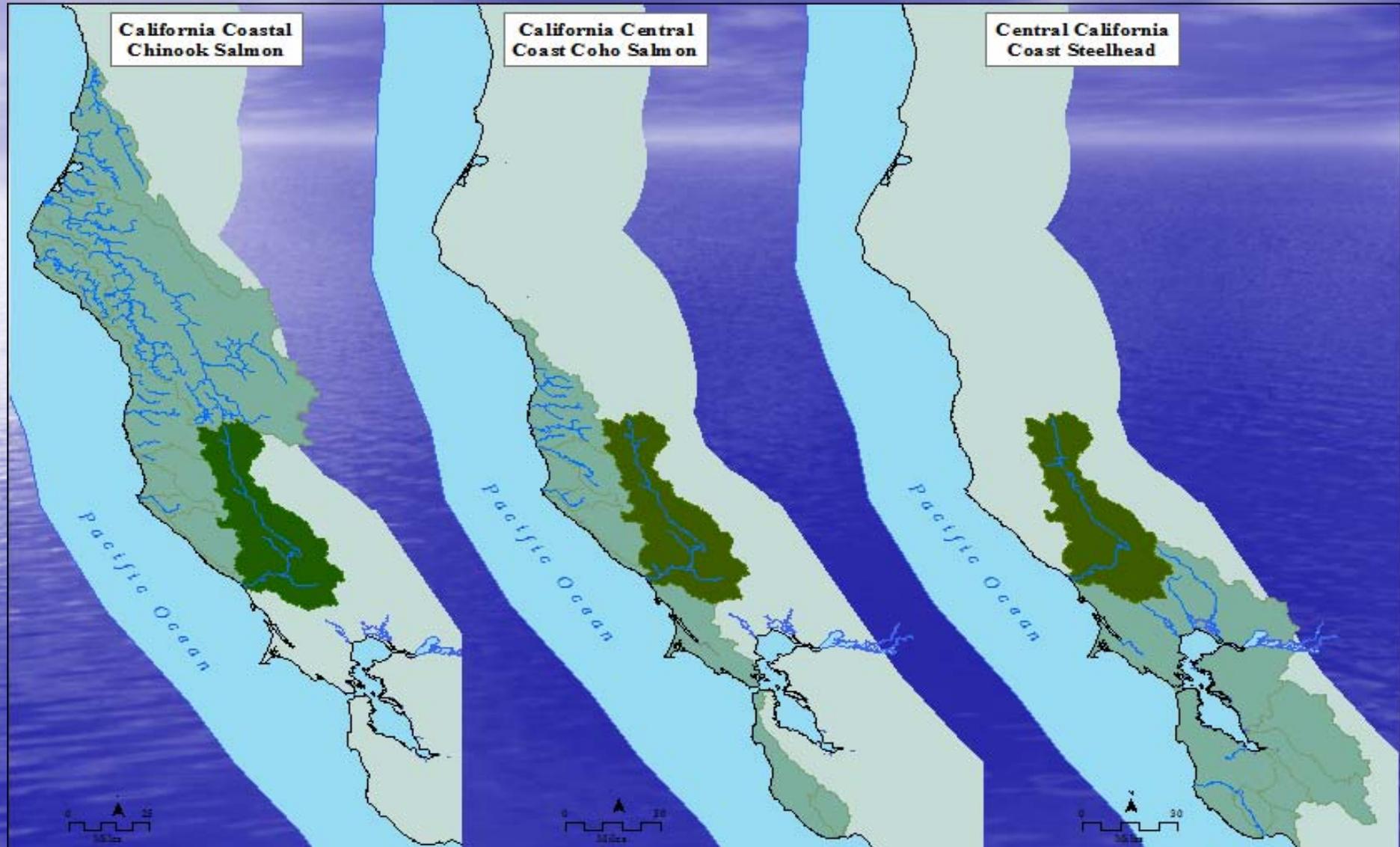
*Progress 2012*

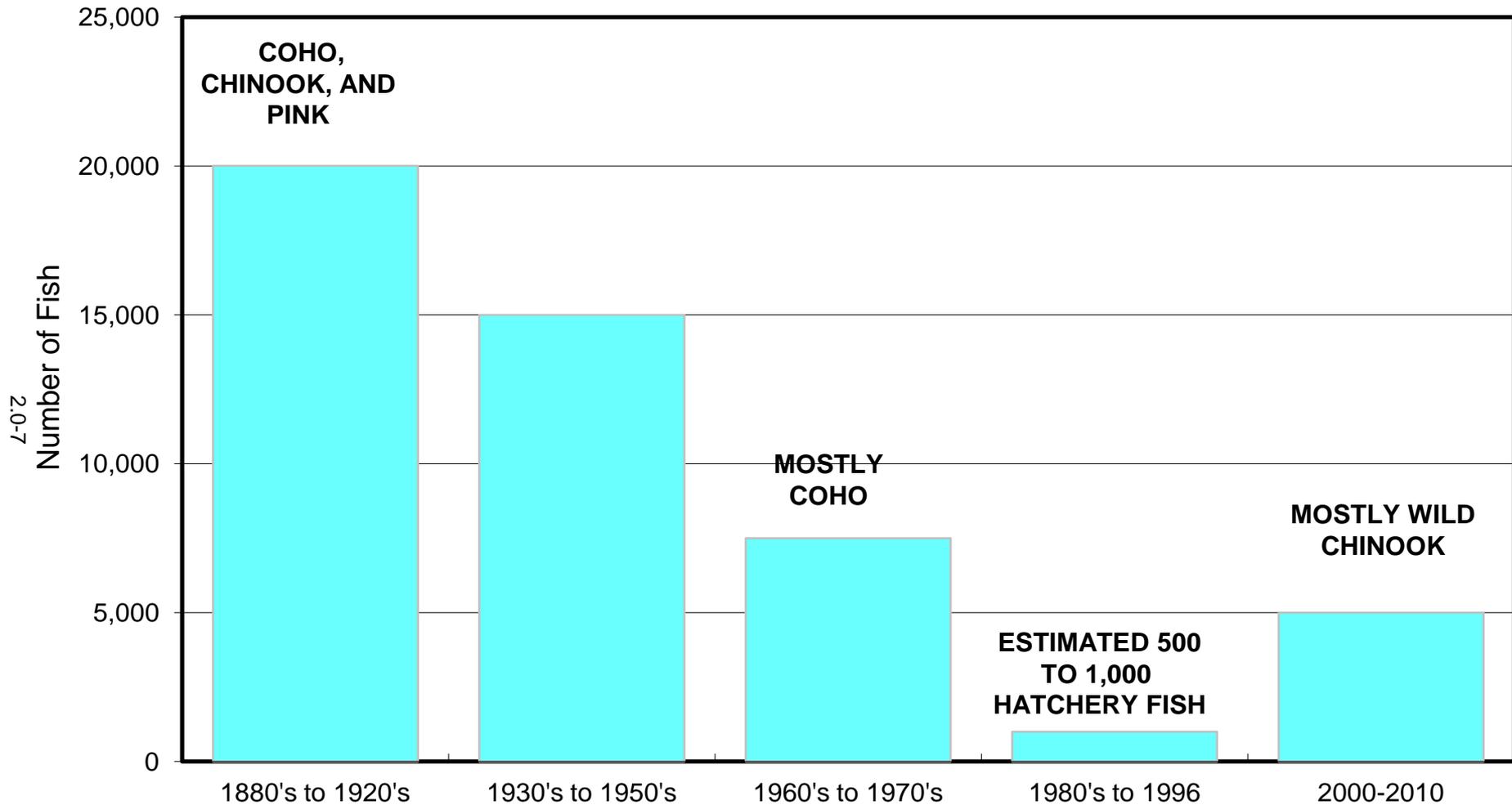
National Marine Fisheries Service  
December 20, 2012

**Purpose: minimize impacts of SCWA, MCRRFCD and ACOE related activities associated with water supply and flood control on Russian River and Dry Creek**

- **Operations at Warm Springs Dam (WSD) and Coyote Valley Dam (CVD)**
  - **Flood Control Operations & water supply releases from dams**
- **Water level management of estuary at Jenner**
- **Modifications to D1610 Russian River flows**
- **Fish Hatchery Operations at WSD & CVD**
- **Water Diversion operations by SCWA at Wohler-Mirabel**
- **Ongoing Channel Maintenance by SCWA and MCRRFCD**

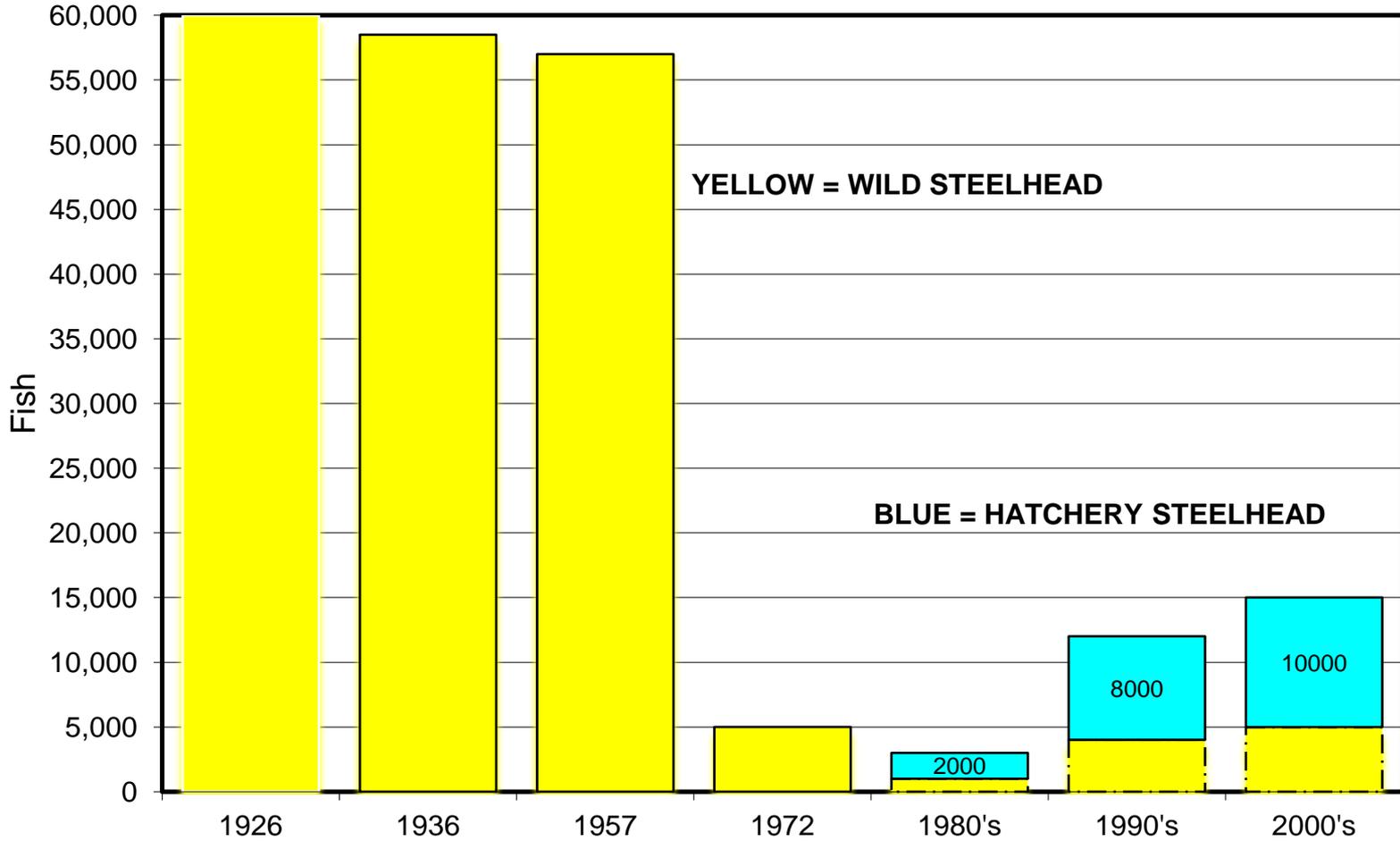
# Species Geographic Ranges





**Estimated salmon returns to the Russian River over the past 130 years**

# STEELHEAD COUNTS, ESTIMATED RETURNS TO THE RUSSIAN RIVER



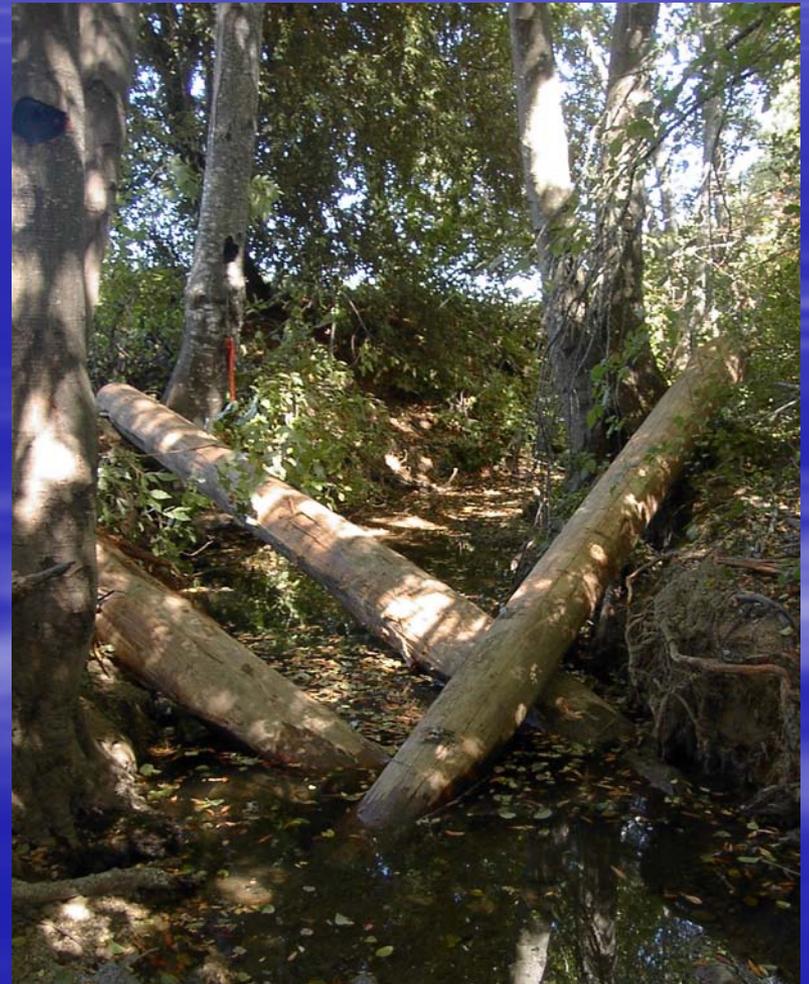
# Major findings of Biological Opinion include:

- Summer rearing habitat for juvenile coho salmon and steelhead limited in Russian River watershed.
  - Especially for coho
- Dry Creek has superabundant very cold water, but summer flows are high with excessive velocities
- Estuary summer rearing habitat very important; however, high inflows and SCWA breaching activities impact estuarine habitat
  - Russian summer flows about 7 x natural summer flow

Alternative for Dry Creek high flows: Restore tributary habitats and modify Dry Creek mainstem habitats to accommodate high flows

Tributary habitat restoration:

4 of 5 tributary projects completed.



# Dry Creek mainstem

- Dry Creek enhancements to be started by Year 5 (2013)
- Landowner & SCWA support for 1<sup>st</sup> mile of habitat enhancement work
- engineering design- Agency approved.
- Success criteria and monitoring protocol established.
- Quivira reach floodwater alcove constructed October 2012. Year ahead of schedule.
- Corps also beginning small pilot project. Dedication October 2012.



**Objective: Restore an Estuarine Lagoon  
from late spring through Summer**

(i.e., allow a barrier beach to remain across the river mouth all summer)

**Why: -- River estuaries in Central California form natural lagoons in summer (Navarro, Scott Creek, Gualala, Mattole)**

**-- A closed lagoon is better rearing habitat: less salt, deeper, wider.**

**-- The Russian River estuary historically formed lagoons (Ft Ross Settlement records and (Holway 1913)).**

**--A disproportionately large number of adult steelhead returning from the ocean are reared in freshwater lagoons. e.g., Scott Creek 85% of adults returning were lagoon reared.**

Since major dam construction, Lagoon doesn't form because:

- 1) Artificial summer inflows are too high
- 2) SCWA breaching practices



Lagoon becomes tidal, highly saline & shallow.

Saltwater stays on bottom & becomes anoxic.

# *Lagoon Restoration*

## **Two Prong Approach**

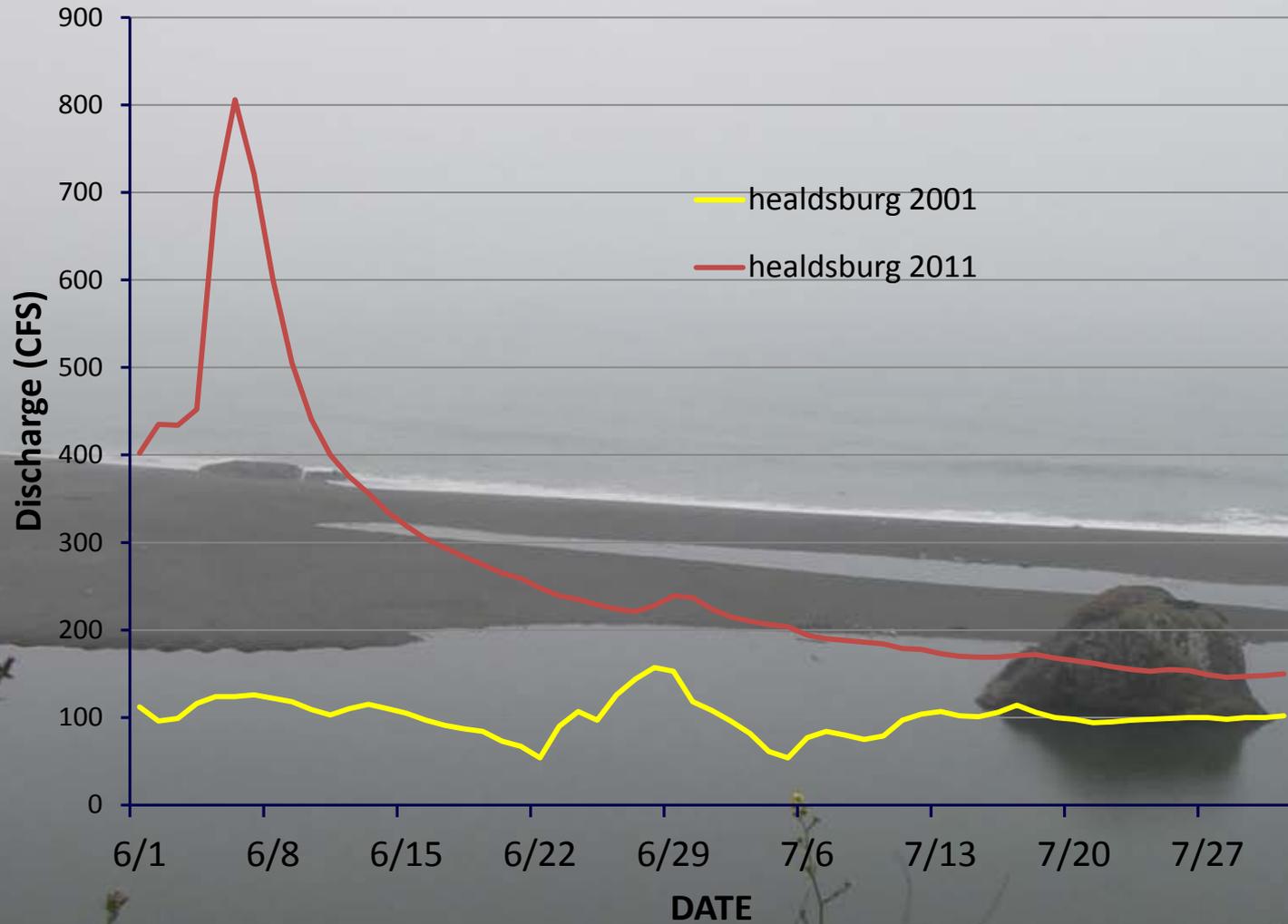
### 1) Adaptively manage the beach to promote sustained perched lagoon

- When beach naturally forms, create long outlet channel over beach
  - Natural beach formation did not occur during June-August
- Jetty modification/removal may help
- Chances for success improve with lower inflows

### 2) Reduce inflows by reducing reservoir releases

- 2012 inflows to lower river were relatively high
- From late May through August, no sustained natural barrier beach formed.
- Jetty promoted active scouring of perched lagoon.

# Tributary inflow affects river regulation in June



<u>Wet</u>	<u>Dry</u>
2003	2001
2005	2002
2006	2004
2010	2007
2011	2008
2012	2009

# Fisheries and other monitoring in 2011

- SCWA implementing fisheries, water quality, macroinvertebrate, and pinniped monitoring in estuary
- SCWA implementing ongoing fisheries monitoring at Mirabel Wohler
- SCWA monitoring fisheries in Dry Creek

05.12.2011 10:14

# Improve hatchery management & field monitoring of stocked juvenile coho salmon

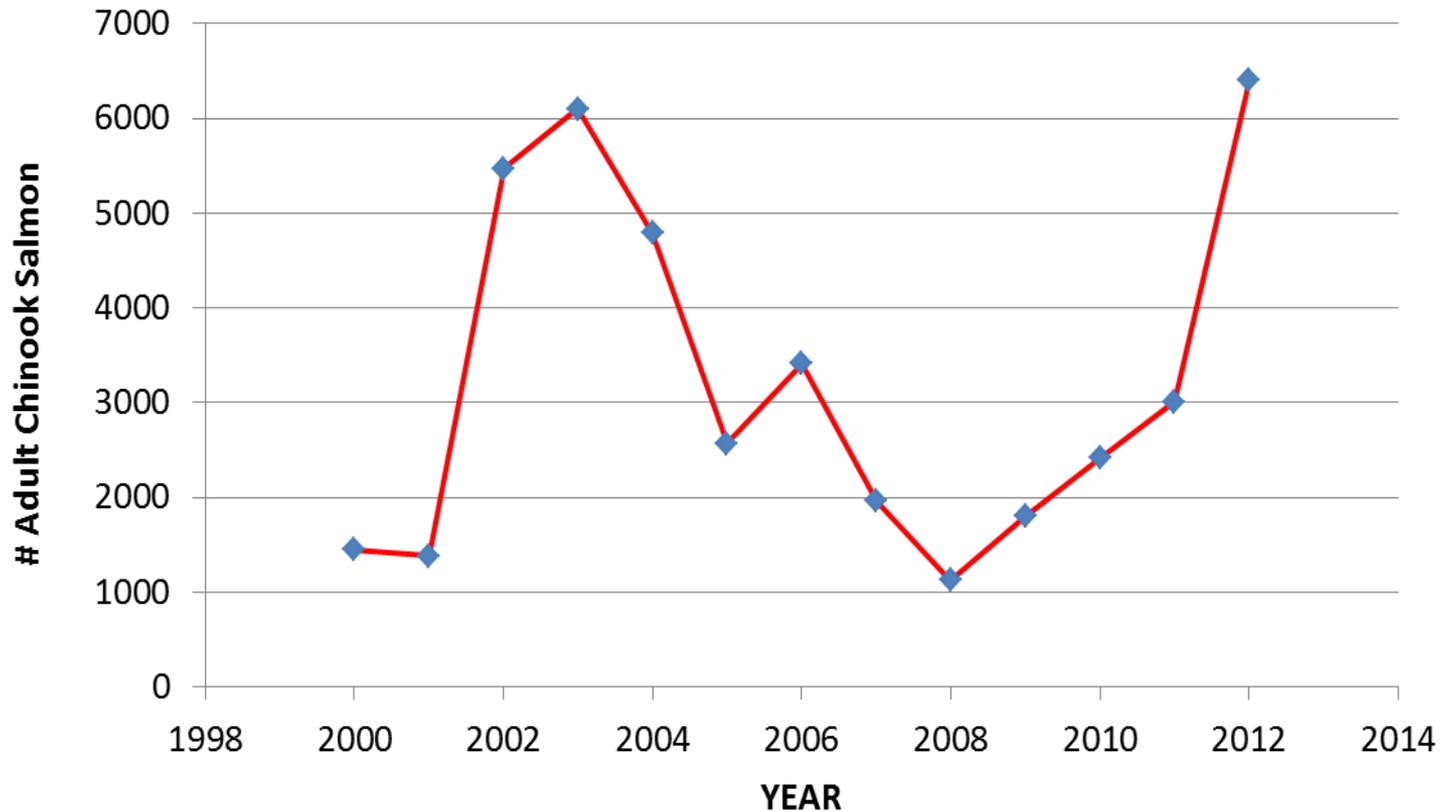
Objectives: improved genetics management and field monitoring

- 2012 & 2013 funding for analysis & management of genetics for coho broodstock program.
- 2012 & 2013 funding for field monitoring of coho broodstock program.

# Additional Ongoing efforts

- Turbidity monitoring and study of CVD
  - Corps maintained turbidity meters- data report needed.
- Flow Ramping study at CVD
  - NMFS and ACOE collaborating on joint study this winter
- Upgrade of Water diversion screen at Mirabel
  - SCWA implementation ongoing with good progress

## Number of returning adult Chinook salmon counted at Mirabel Fish Ladder, Russian River



## Juvenile releases and hatchery-origin adult coho returns to the Russian River basin, aligned by cohort

