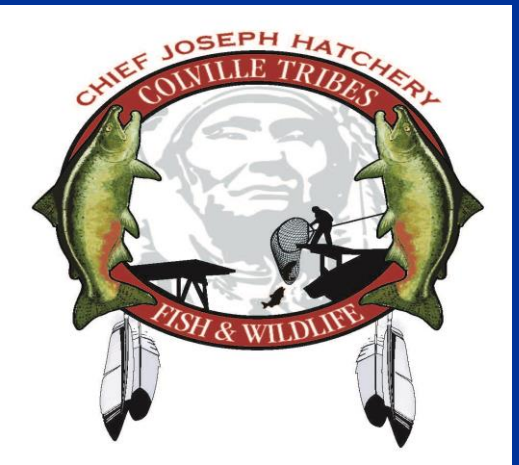
Chief Joseph Hatchery: A New Hatchery Operating Under Hatchery Reform Principles From Day 1.

OR AFS: 23 Jan 2015

Colville Confederated Tribes

Casey Baldwin: Sr. Research Scientist



Support, funding, and credit

Additional Credit to:

Kirk Truscott- Anadromous Division Mngr.

Pat Phillips- CJH Manager

Mike Rayton-Selective Harvest Subdivision Lead

Andrea Pearl- CJH Biologist

Joe Peone- Former CCT F&W Director

Jerry Marco- Retired Anadromous Div. Mngr.

Steve Smith- Consultant

D.J. Warren and Associates, Inc.

Lars Mobrand-Consultant

Keith Wolf

Many others……

Bonneville Power Administration

Overview

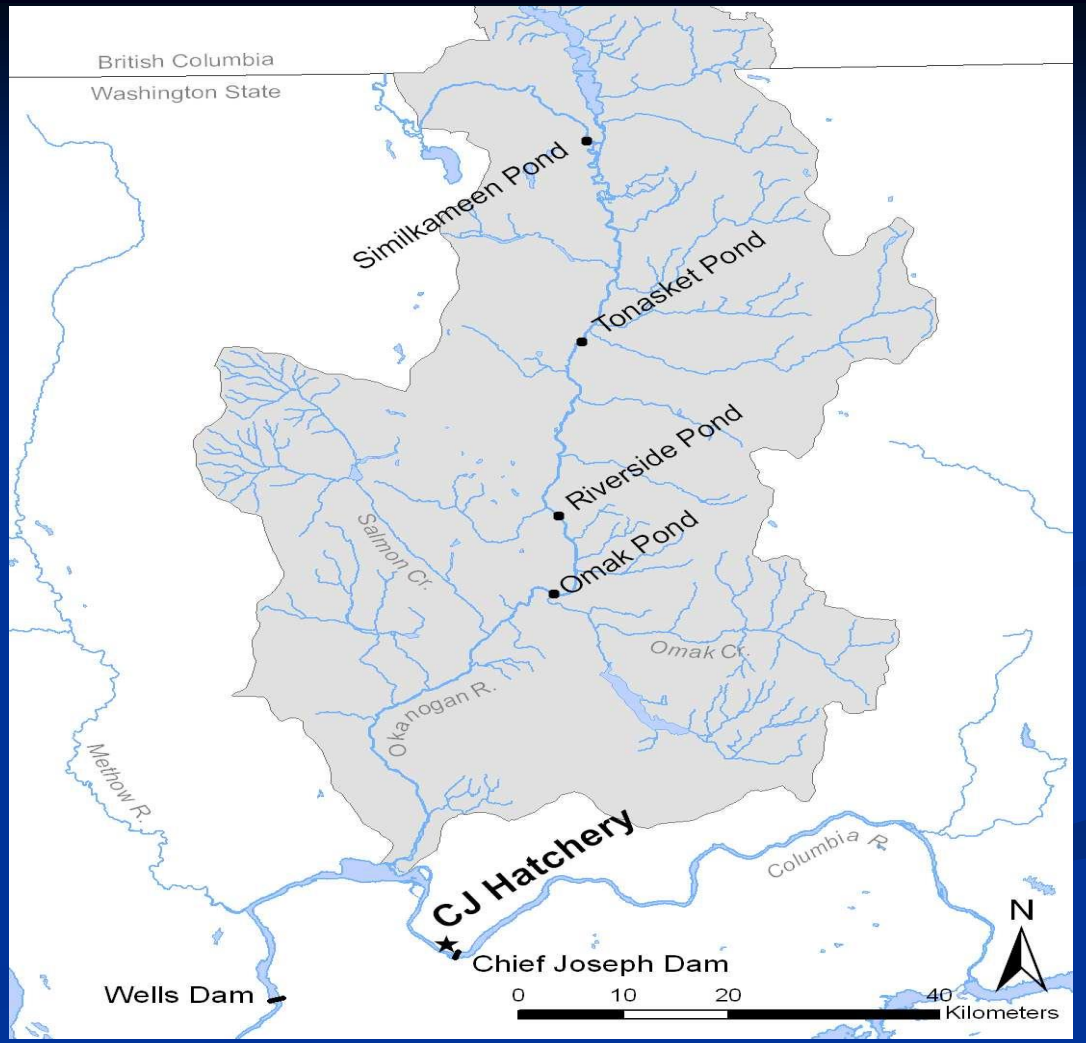
- Hatchery reform principles (general)
- CJH production details
- CCT Selective Harvest & Monitoring
- CJH implementation

Hatchery Reform Principles

Via the HSRG (Hatchery Scientific Review Group) http://hatcheryreform.us

- **HSRG Summary Conclusions:**
  - Manage hatchery broodstocks to achieve proper genetic integration with, or segregation from, natural populations;
  - Promote local adaptation of natural and hatchery populations;
  - Minimize adverse ecological interactions between hatchery- and natural-origin fish;
  - Minimize effects of hatchery facilities on the ecosystem; and
  - Maximize survival of hatchery fish.


Washington State and
the Okanogan Basin


British Columbia
Washington State
Similkameen Pond
Tonasket Pond
Riverside Pond
Omak Pond
Salmon Cr.
Omak Cr.
Okanogan R.
Methow R.
Columbia R.
CJ Hatchery
Chief Joseph Dam
Wells Dam
N
0
10
20
40
Kilometers

- The Purpose of the CJH Program is to:
  - Increase Chinook salmon harvest consistent with the natural production goals
  - Support re-colonization of habitat
- Summer/fall Chinook
- Spring Chinook

The Goals for Okanogan Basin Summer-Fall Chinook are to:

- **Increase harvest for all fishers**

- **Increase abundance, productivity, and temporal-spatial diversity and of naturally spawning Chinook in the Okanogan Basin**
  - improve fitness of population by maintaining high PNI
  - reduce redd superimposition
  - diversify run and spawn timing
  - seed underutilized lower river habitat

- **Program size:**
  - Segregated (up to 900k smolts)
  - Integrated (up to 1.1 M smolts)

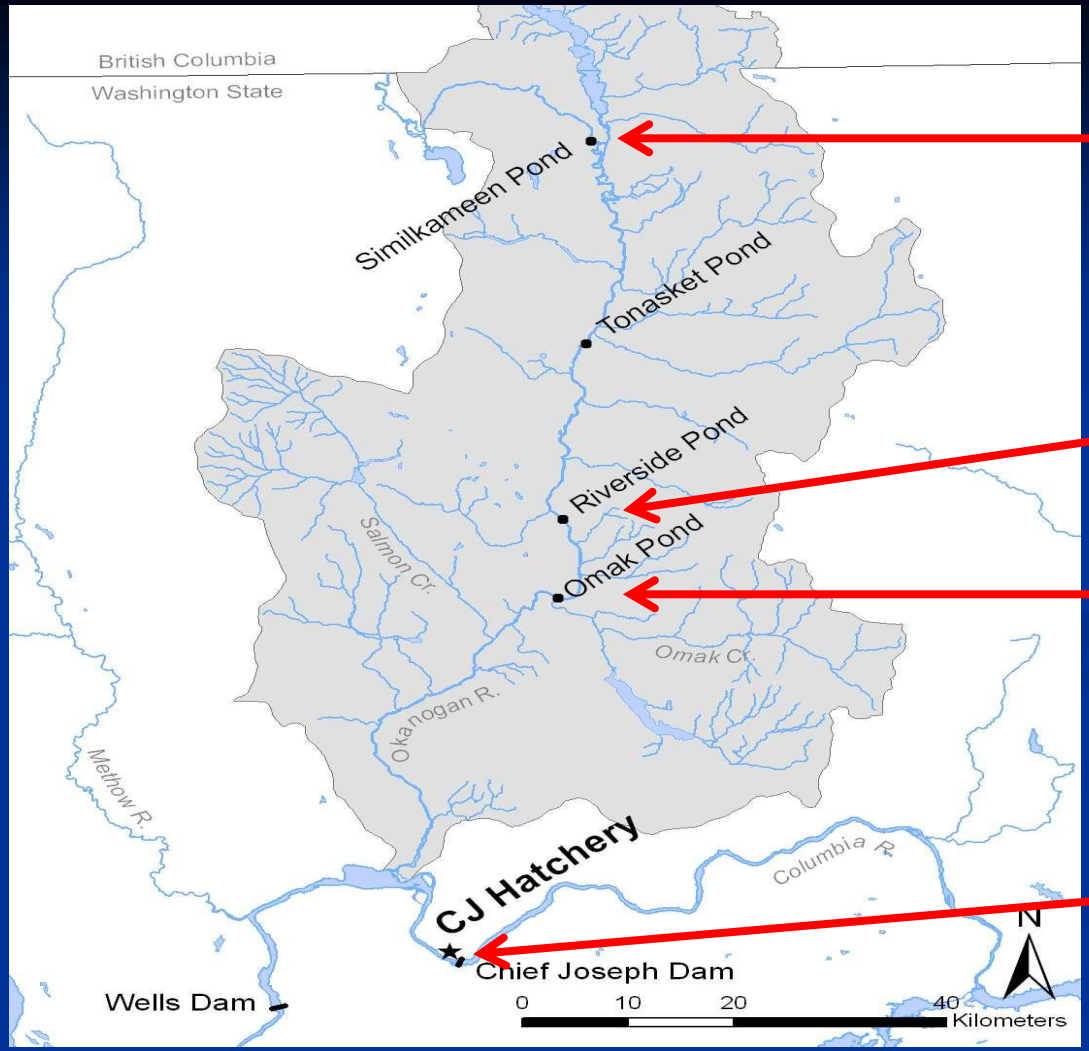
Timeline

- 1989-present: (Similkameen Pond program)(PUD mitigation)
- 2001: Began planning and NPCC/BPA processes for CJH
  - Several HSRG members on the planning team
- 2008: Began testing purse seine MSF

  HGMP approved
- 2010: Testing 'local' brood collection (purse seine)

  NPCC/BPA 3 step process complete, began construction
- 2012: 100% local brood collection
- 2013: Construction complete/ribbon cutting

  First official CJH brood collection
- 2014: First release of segregated subyearlings from CJH
- 2017: First year of adult returns (4 yr olds)



Summer /fall Chinook

250k yearlings

275k yearlings

275k yearlings &
300k sub-yearlings

Segregated

500k yearlings &
400k sub-yearlings

Biological Targets

(5 yr running mean)

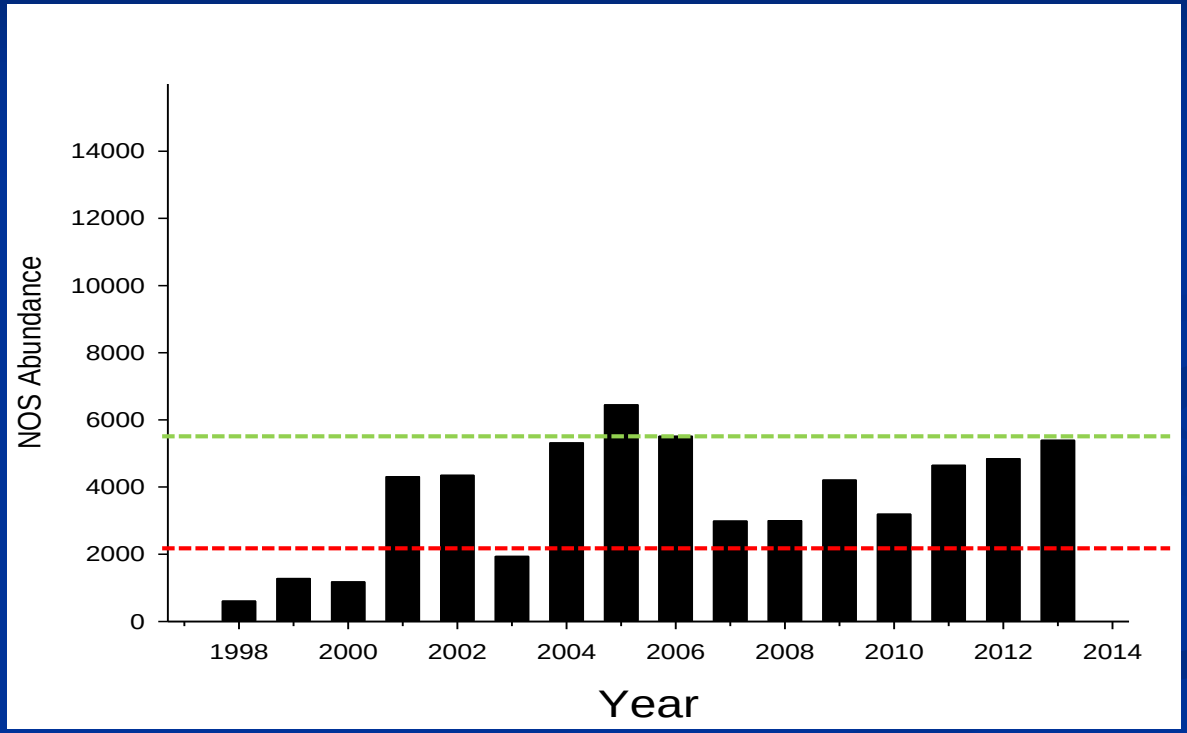
- > 0.67 PNI
- < 0.30 pHOS
- ~ 5,400 NOS (~7500 total spawners)

Or else?

- More aggressive/additional MSF
- The integrated program shrinks or suspends
  - < 2,000 NOS the brood collection is reduced
  - < 800 NOS = no integrated program

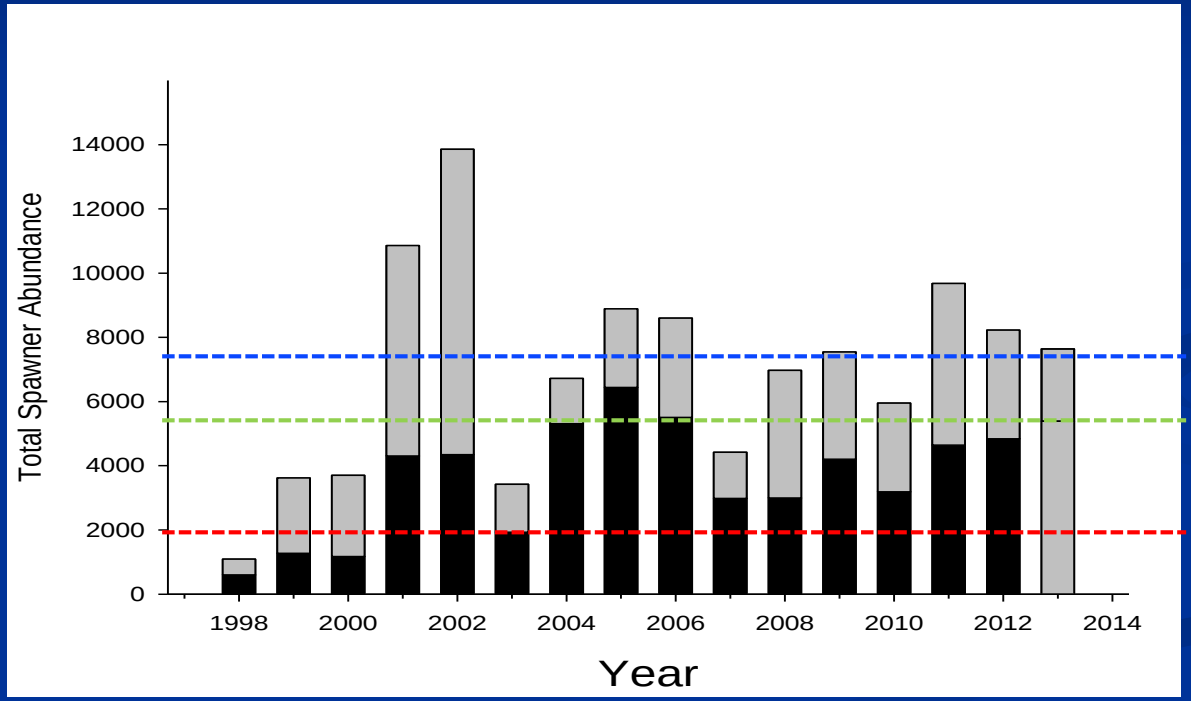
Recent Performance

(NOS)



Recent Performance

(Total Spawners)

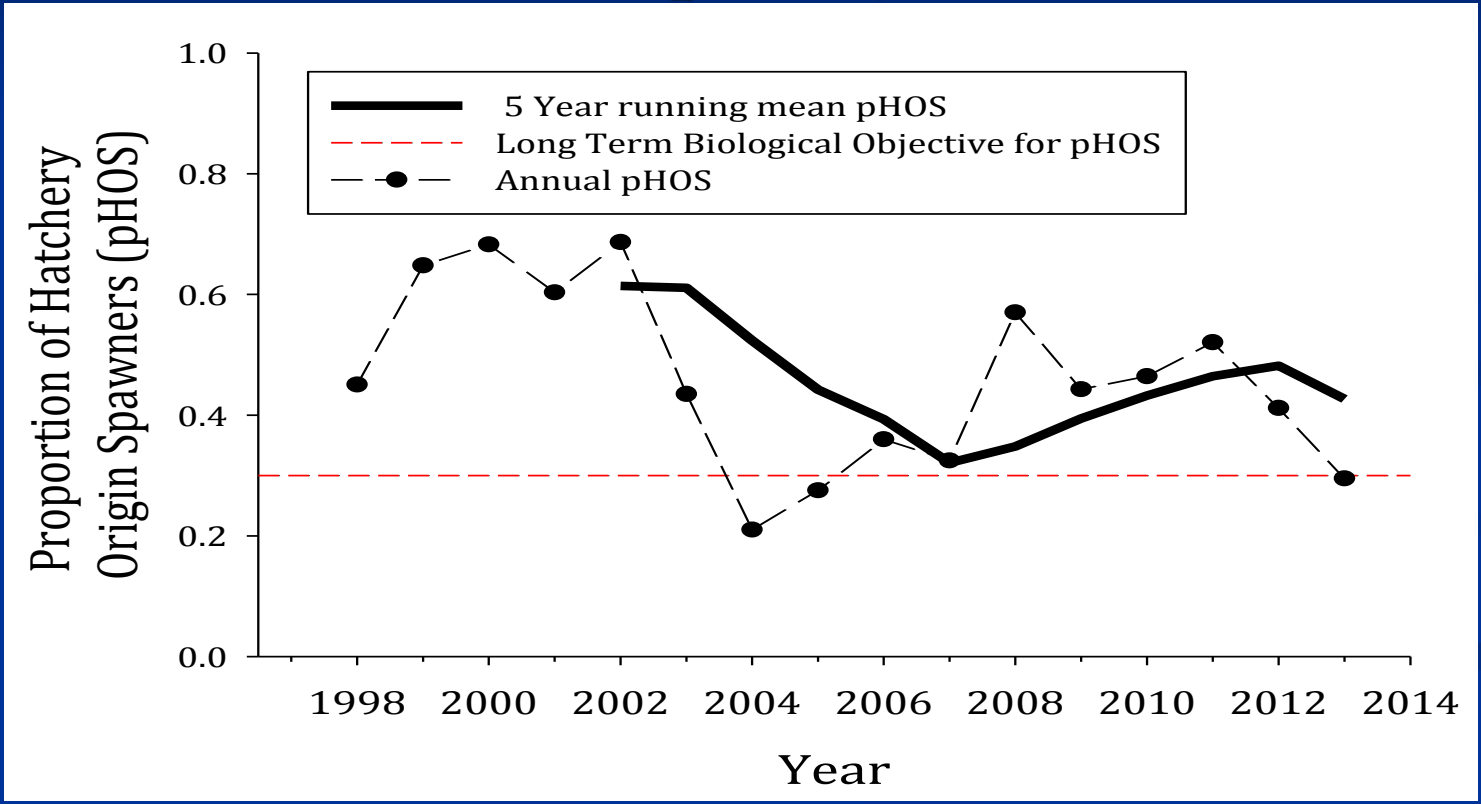


Total spawner objective

NOS objective

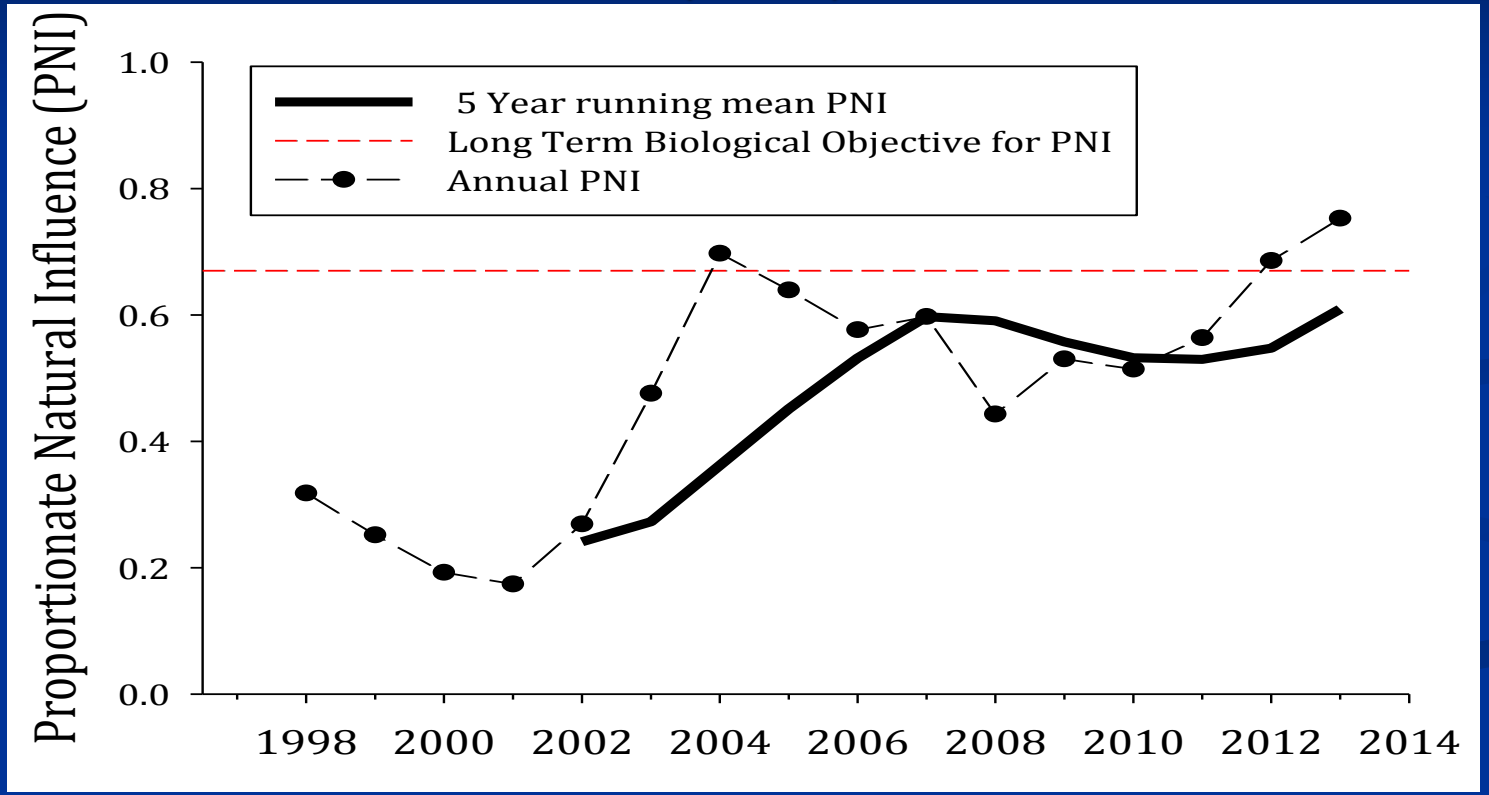
NOS Minimum

Recent Performance
(pHOS)



Recent Performance

(PNI)



Mark-Selective Fisheries

The Dream Catcher

Mark-Selective Fisheries

Terminal MSF

Sport Fishery[1]

Year	Ad-Clip Retained	Ad-Present Retained	Ad-Present Released
2014[2]	2162	0	4793
2013	2883	0	3763
2012	2960	1714	919
2011	2806	1890	288

CCT Purse Seine Fishery

Year	Ad-Clip Retained	Ad-Present Retained	Ad-Present Released
2014[2]	933	15	3722
2013	1651	1	1483
2012	2096	1	957
2011	344	1	133

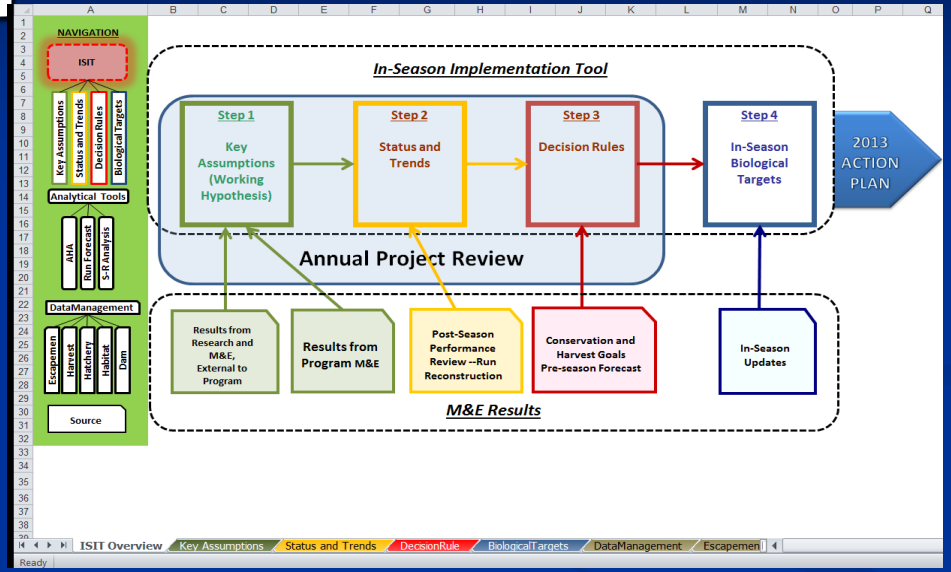
[1] Sport Fishery data provided by M. Tonseth WDFW

[2] 2014 data is provisional

Okanogan Adult Fish Weir

CJH RM&E Data Collection

- Test key assumptions
- Implementation of decision rules
- Status and Trend
  - Spawners
  - Smolts
  - Habitat

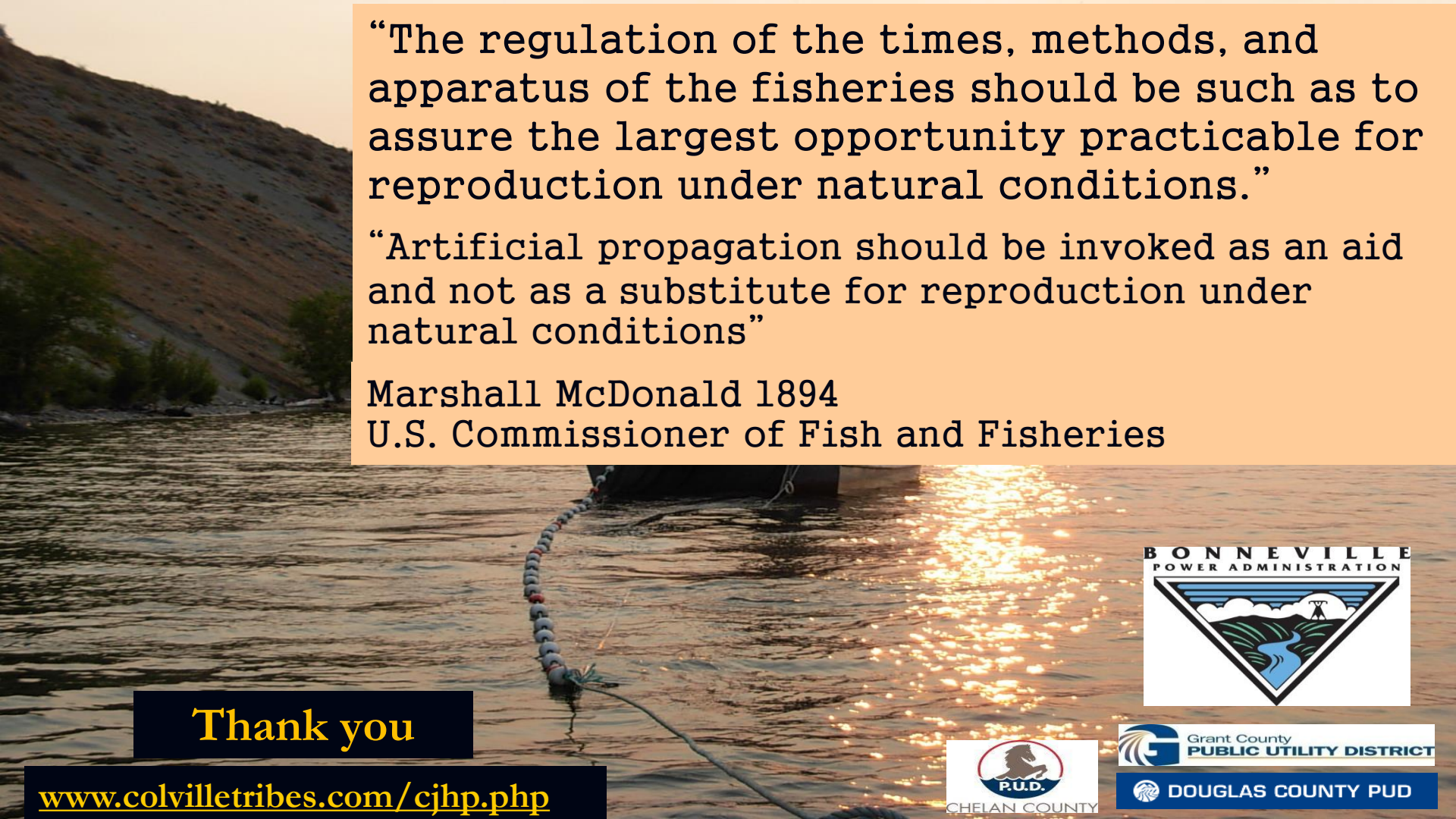


ISIT (In Season Implementation Tool)

Conclusions: CJH-Hatchery Reform Principles

How will the CCT and co-managers achieve it?

- Segregated program for harvest
  - Physically and hydraulically segregated terminal location (Columbia River)
  - Minimize stray rate to the natural population (< 5% of spawner composition)
  - Uniquely marked (ad-clip, no wire)
  - Minimal use of natural origin fish for broodstock
    - uses 1st generation returns from the integrated program
- Integrated program for harvest and conservation
  - There must be at least 2,000 wild spawners production will be reduced
  - At less than 800 wild spawners the production is 0
  - High % wild fish in broodstock (>60%)
  - Low % hatchery fish on spawning grounds)(< 30%)
  - The RIVER has the majority of influence on genetics, NOT the HATCHERY



"The regulation of the times, methods, and apparatus of the fisheries should be such as to assure the largest opportunity practicable for reproduction under natural conditions."

"Artificial propagation should be invoked as an aid and not as a substitute for reproduction under natural conditions"

Marshall McDonald 1894
U.S. Commissioner of Fish and Fisheries

Thank you

www.colvilletribes.com/cjhp.php

BONNEVILLE POWER ADMINISTRATION

Grant County PUBLIC UTILITY DISTRICT

P.U.D. CHELAN COUNTY

DOUGLAS COUNTY PUD

Essential elements for success

- Facilities
  - Location (central facility and acclimation ponds)
  - Space, operations, fin clips and tags
  - Collection of wild broodstock
- Removal of excess hatchery fish
  - Mark selective fisheries
  - Weirs, hatchery ladder