

# COWLITZ 2015 ANNUAL PROJECT REVIEW MEETING

Centralia College, Walton Science  
Center

April 23, 2015

6 PM – 8 PM

**TACOMA**  **POWER**  
TACOMA PUBLIC UTILITIES





# AGENDA

- **Welcome and introductions**
- **Getting started**
- **Cowlitz Fisheries overview**
- **Fisheries and Hatchery Management Plan (FHMP) overview**
- **Annual Project Review (APR) process**
- **Fall Chinook and summer steelhead monitoring**
- **2014-2015 Cowlitz hatchery production planning process**
- **Next steps**
- **Public input/Q&A**



# PUBLIC MEETING SCHEDULE

- **June 3, 2015 - Annual Project Review meeting, Centralia College**
- **September 2015 – Upper Cowlitz River Basin meeting**

## **How do we achieve recovery and still support harvest fisheries?**

- Long-term goal for natural populations is to achieve healthy and harvestable levels.
- Current natural populations are generally depressed.
- During transition period how can we manage hatchery programs to:
  - ✓ Improve the health of natural populations
  - ✓ Provide fishing opportunities



# HATCHERY PROGRAM OPTIONS

## **Maximize hatchery production within limits established by the:**

- **Cowlitz River Hydroelectric Project Settlement Agreement (SA)**
- **Fisheries and Hatchery Management Plan (FHMP) Updates**
- **WDFW Fishery and Hatchery Reform Policy**
- **Lower Columbia Salmon and Steelhead Recovery Plan**



# FISHERIES & HATCHERY MANAGEMENT PLAN (FHMP)

## **Shall identify:**

- **Quantity and size of fish to be produced at Cowlitz Complex**
- **Rearing and release strategies for each stock, including adjustments to accommodate recovery of indigenous stocks**
- **Credit mechanism for production of high-quality natural stocks**
- **Plans for licensee-funded ongoing monitoring and evaluation**
- **A fisheries management strategy consistent with the priority objective of maximizing the natural production of wild indigenous fish stocks in the basin**



# ANNUAL PROJECT REVIEW

- **Identify Key Assumptions**
- **Set Biological Targets**
- **Establish Decision Rules**
- **Adopt Action Plan**

# COWLITZ SALMONID POPULATIONS

## Lower Cowlitz River

- ***Fall Chinook***
- ***Summer steelhead***
- **Spring Chinook**
- **Winter steelhead**
- **Coho**
- **Cutthroat (includes Tilton River)**

## Tilton River

- **Fall Chinook**
- **Winter steelhead**
- **Coho**
- **Spring Chinook**

## Upper Cowlitz River

- **Spring Chinook**
- **Fall Chinook**
- **Winter Steelhead**
- **Coho**
- **Cutthroat**





# TOOLS AVAILABLE

## **Parameters/data that help determine management decisions:**

- ✓ **Natural population size**
- ✓ **Size of smolts released**
- ✓ **Natural-origin fish used in hatchery programs (pNOB)**
- ✓ **Acclimation facilities**
- ✓ **Weirs**
- ✓ **Hatchery-origin (HOR) removals**
- ✓ **Fisheries (harvest rates)**



# MONITORING DATA AND USAGE

- **WDFW and Tacoma Power monitoring in lower and upper Cowlitz River basins**
- **Weirs, spawner surveys, hatchery sampling, adult sorting, juvenile collection**
- **Data incorporated into databases and models**
- **Used to make management decisions**

# FALL CHINOOK POPULATION ESTIMATE METHODOLOGY

## Aerial surveys to count redds

- Bi-weekly

## Boat surveys to sample spawned fish

- 2-4 days per week

## Biological data collected

- Numbers of hatchery versus natural spawners
- Scale samples, tag recovery, lengths, genetic tissue





# AERIAL REDD COUNTS

## Mass redds

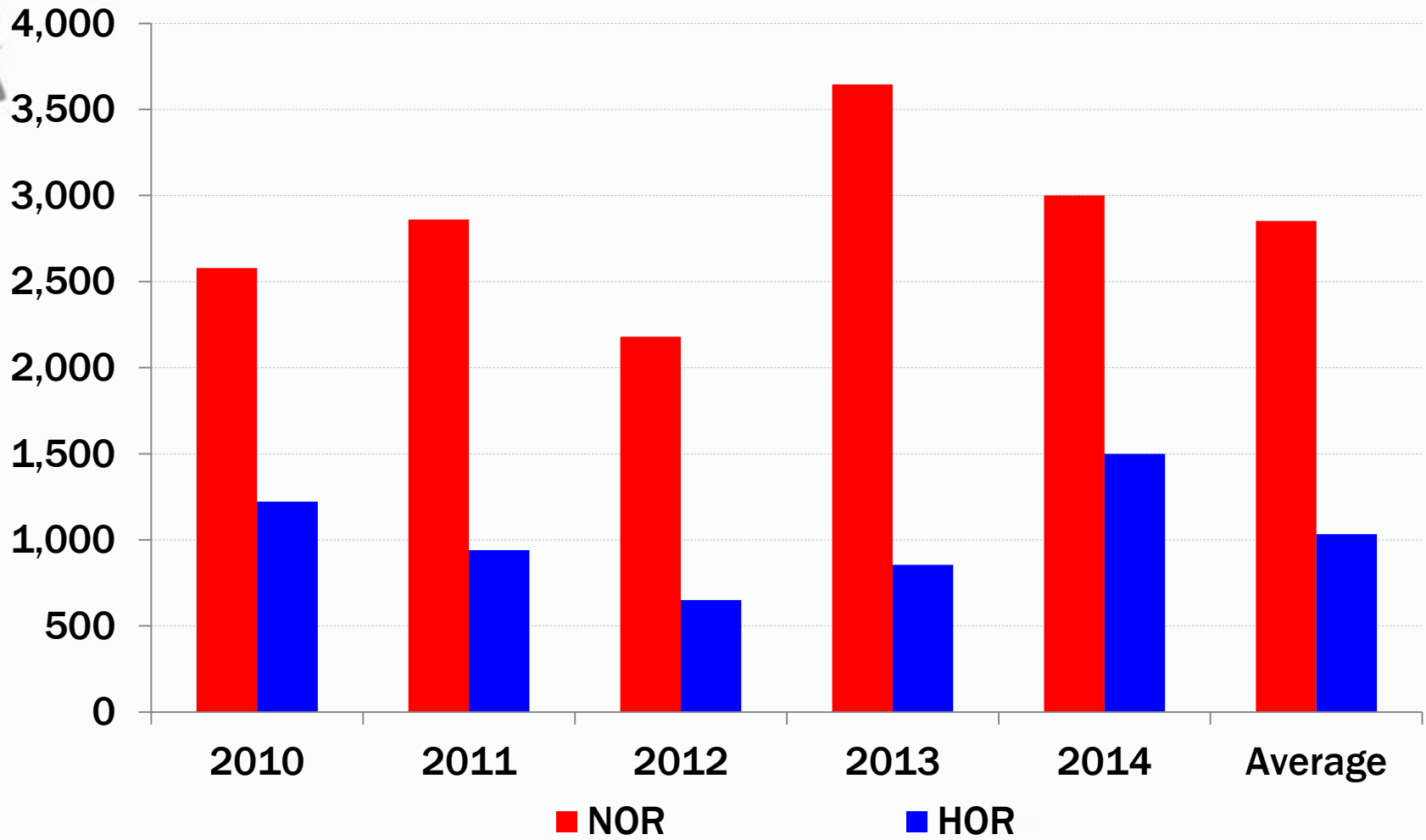


- **1,587 total estimated redds**
- **2.84 fish per redd**
- **$1,587 \times 2.84 = 4,500$  total spawners**

# FALL CHINOOK POPULATION ESTIMATES

	2014	2013	2012	2011	2010	Average
<b>Natural Origin</b>	<b>3,000</b>	<b>3,600</b>	<b>2,180</b>	<b>2,860</b>	<b>2,580</b>	<b>2,850</b>
<b>Hatchery Origin</b>	<b>1,500</b>	<b>860</b>	<b>650</b>	<b>940</b>	<b>1,220</b>	<b>1,030</b>
<b>Total Spawners</b>	<b>4,500</b>	<b>4,460</b>	<b>2,830</b>	<b>3,800</b>	<b>3,800</b>	<b>3,880</b>
<b>pHOS</b>	<b>0.34</b>	<b>0.19</b>	<b>0.23</b>	<b>0.25</b>	<b>0.32</b>	<b>0.26</b>

# FALL CHINOOK POPULATION ESTIMATES



# DECISION RULES

## Decision Rules for Lower Cowlitz Fall Chinook

For NOR less than

**711**

Minimum  
Production

**1,100,000**  
**400,000**

Smolts-Integrated and  
Smolt-Segregated

For NOR greater  
than

**1,659**

Maximum  
Production

**1,100,000**  
**2,400,000**

Smolts-Integrated and  
Smolts-Segregated

2014 NOR  
prediction

**3,000**

2014  
Production

**1,100,000**  
**2,400,000**

Smolts-Integrated and  
Smolts-Segregated



# NATURAL POPULATION SIZE

**Fall Chinook - More natural origin fish allow more smolts to be released**

<b>Natural Population Size</b>	<b>Hatchery Program Size</b>
<b>500 natural-origin adults</b>	<b>1.5 million smolts released</b>
<b>3,000 natural-origin adults</b>	<b>3.5 million smolts released</b>





# SUMMER STEELHEAD PROGRAM

## **Weirs put in lower Cowlitz tributaries to:**

- Monitor impacts from hatchery steelhead
- Prevent hatchery summer steelhead from co-mingling with wild winter steelhead
- Continue large hatchery program for summer steelhead

## **Currently located in four tributaries (Salmon Creek weir removed):**

- Ostrander Creek
- Delameter Creek
- Olequa Creek
- Lacamas Creek

**Weirs monitored 7 days/week**

# STEELHEAD CAUGHT IN TRIBUTARY WEIRS IN THE LOWER COWLITZ



	Hatchery Origin Winter	Natural Origin Winter	Hatchery Origin Summer
Ostrander	14	78	1
Delameter	27	240	2
Olequa	14	135	0
Lacamas	11	20	1
Salmon	1	5	0

- Very few summer steelhead straying into these tributaries
- Recycling study showed about 3.7% stray rate in and outside the Cowlitz
- The summer steelhead program on the Cowlitz may affect other populations outside the Cowlitz more than it affects the Cowlitz winter steelhead population



# LIMIT HATCHERY FISH ON SPAWNING GROUNDS

**Lower Cowlitz River winter steelhead - fewer hatchery fish on spawning grounds allow more smolts released**

<b>Weirs</b>	<b>Capture Efficiency</b>	<b>Hatchery Program Size</b>
<b>Without Weirs</b>	<b>0 %</b>	<b>200K Summer Sthd 400K Late Winter Sthd</b>
<b>With Weirs</b>	<b>80 %</b>	<b>650K Summer Sthd 650K Late Winter Sthd</b>

# NATURAL ORIGIN SPAWNERS IN THE HATCHERY

**Steelhead - more natural origin adults in hatchery program allow more smolts to be released**

<b>Stock</b>	<b>HOR winter steelhead without NOR broodstock</b>	<b>Winter steelhead - Integrated program</b>
<b>L. Cowlitz Winter</b>	<b>280,000 smolts released</b>	<b>480,000 smolts released</b>
<b>Summer</b>	<b>550,000 smolts released</b>	<b>650,000 smolts released</b>

# RECYCLE SUMMER STEELHEAD?

Maiden Stray Rate	Recycle Stray Rate	Number Fish Recycled
2%	0.5%	6,700
2%	1%	3,300
2%	1.5%	2,200
2%	2%	1,600
2%	4%	800



# DECISION MAKING PROCESS

## **How the FTC made choices in 2014:**

- **Identified limits to the program size.**
- **Complete analysis of program size options.**
- **Received input from WDFW advisory (Ad Hoc) group.**
- **Final production plan for 2014 proposed in the Annual Project Review (APR) process.**
- **Fisheries Technical Committee (FTC) adopted 2014 final production plan.**

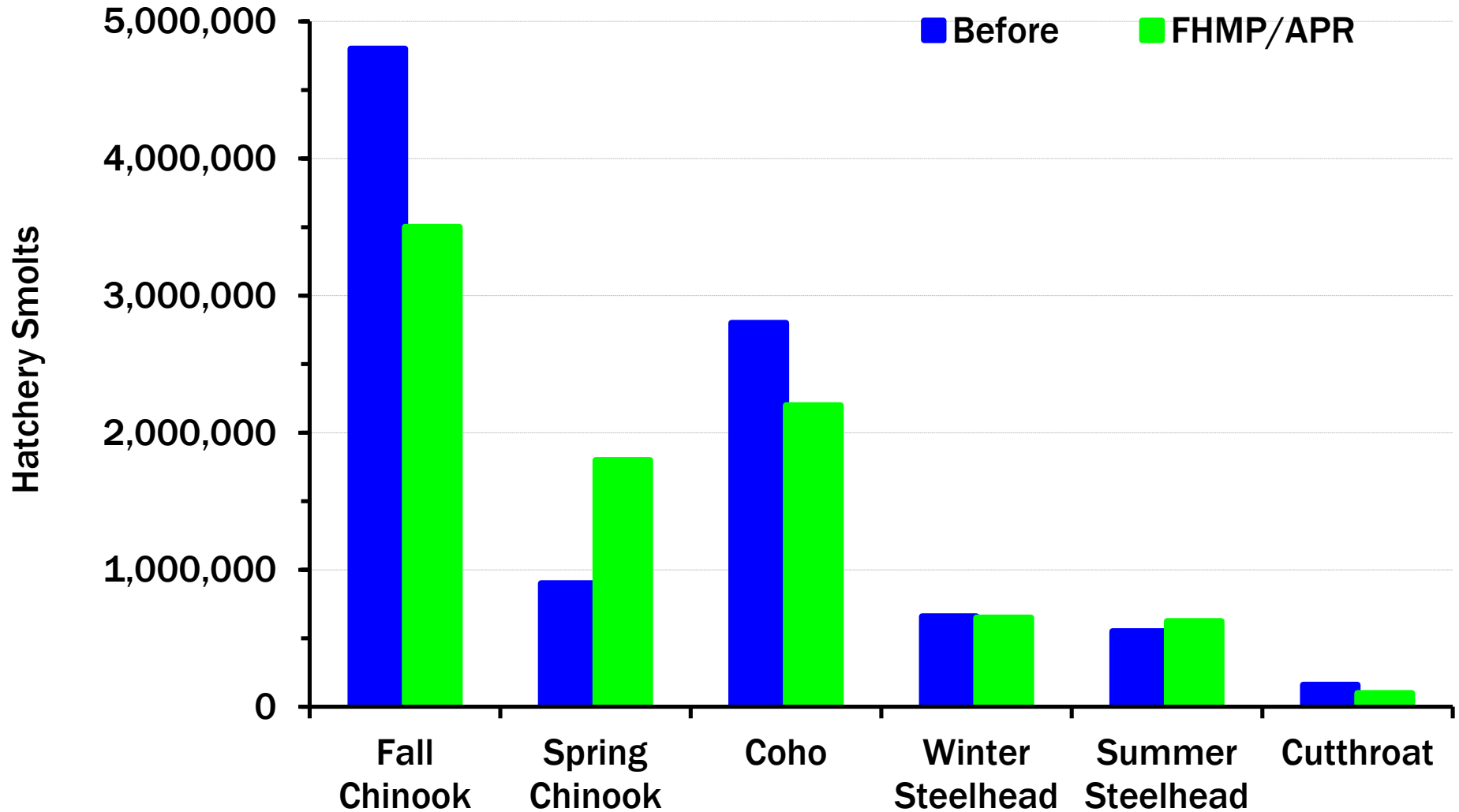


# 2014 HATCHERY PRODUCTION PLAN

## Changes in fish released due to implementation of FHMP

<b>Species</b>	<b>2011 FHMP Update</b>	<b>2014 APR</b>
<b>Fall Chinook</b>	<b>4,800,000</b>	<b>3,500,000</b>
<b>Spring Chinook</b>	<b>900,000</b>	<b>1,796,781</b>
<b>Coho</b>	<b>2,800,000</b>	<b>2,178,000</b>
<b>Winter Steelhead</b>	<b>660,000</b>	<b>637,733</b>
<b>Summer Steelhead</b>	<b>550,000</b>	<b>625,000</b>
<b>Cutthroat</b>	<b>160,000</b>	<b>100,682</b>

# 2014 HATCHERY PRODUCTION PLAN





# 2014 - 2015 HATCHERY PRODUCTION PLAN

## Changes in fish released due to implementation of FHMP

Species	2011 FHMP Update	2014 APR	2015 APR (DRAFT)
Fall Chinook	4,800,000	3,500,000	↔ 3,500,000
Spring Chinook	900,000	1,796,781	↔ 1,796,899
Coho	2,800,000	2,178,000	↔ 2,178,000
Winter Steelhead	660,000	637,733	↔ 647,000
Summer Steelhead	550,000	625,000	↑ 650,000
Cutthroat	160,000	100,682	↔ 100,599



# NEXT STEPS

## **June 3, 2015 APR meeting (Centralia)**

- **Review In-season Implementation Tool (ISIT)**
- **Additional public input**
  - **To Tacoma Power**
  - **To the Cowlitz Fisheries Technical Committee (FTC)**
  - **To WDFW**
  - **To individuals**



# PUBLIC INPUT



## Questions/Comments



## Handouts

- Questions and answers from March 26, 2015 public meeting
- Five common questions and answers
- Key terms and definitions
- Demographic survey
- Meeting survey