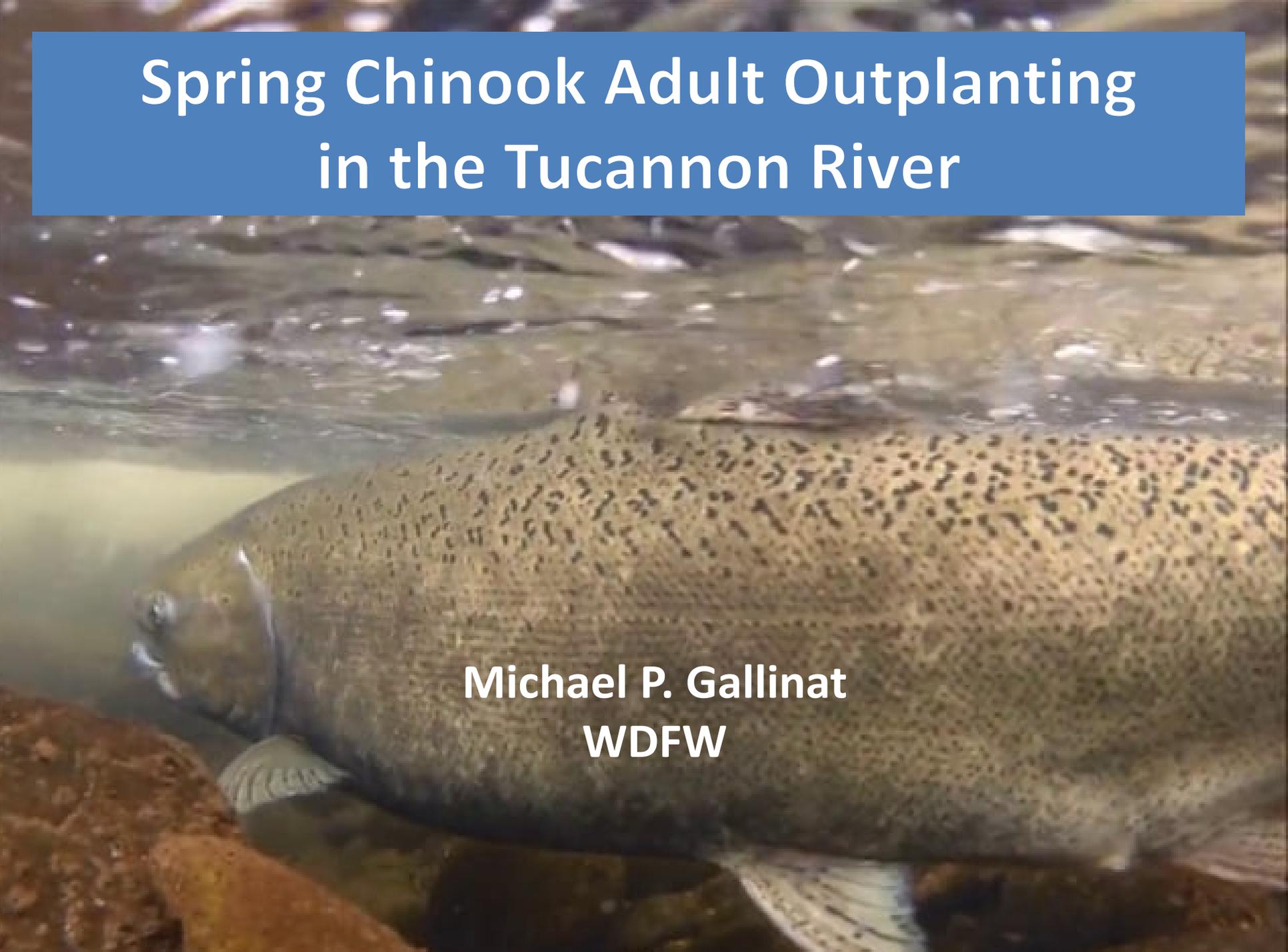
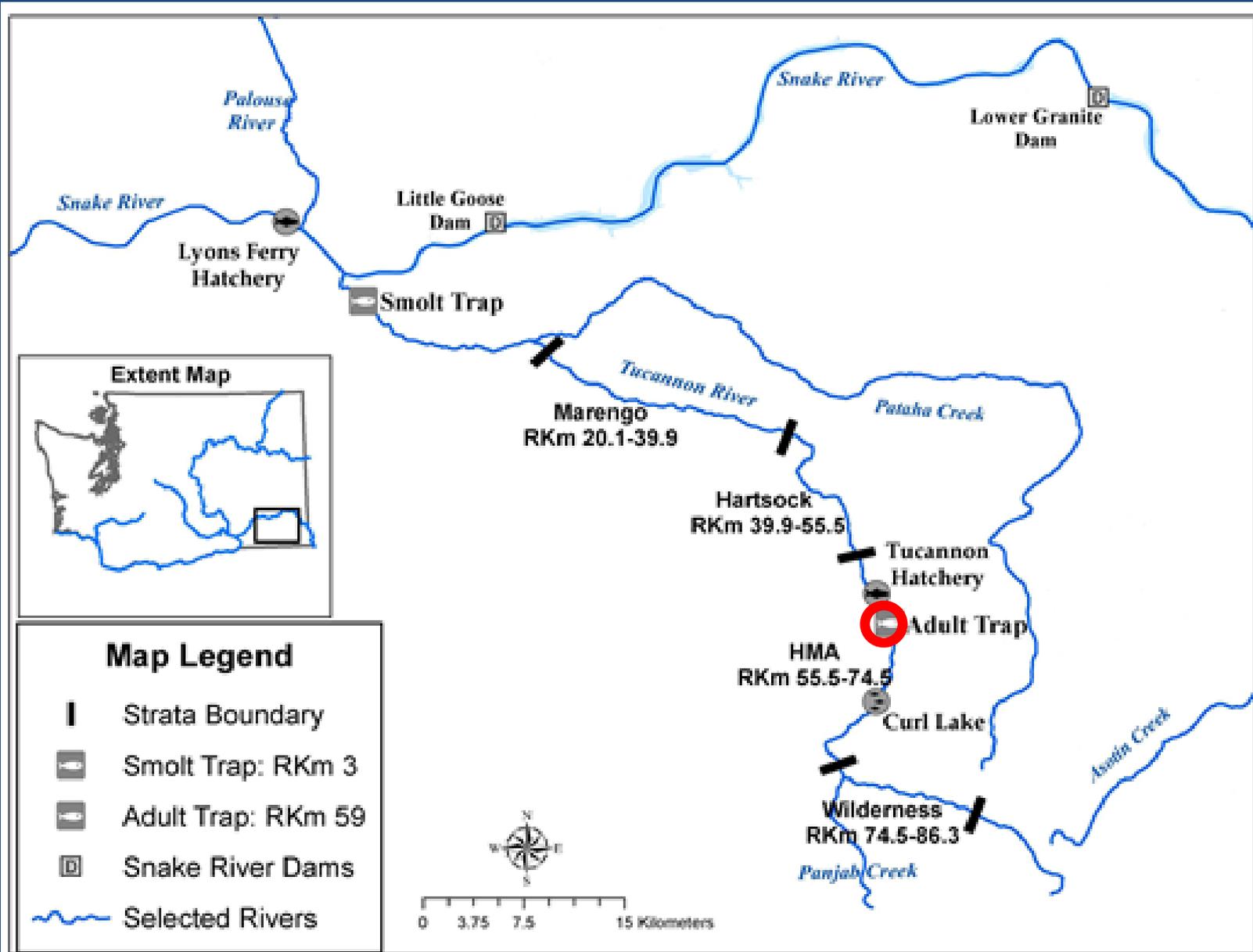


# Spring Chinook Adult Outplanting in the Tucannon River

A large adult chinook salmon is shown swimming in shallow, clear water over a rocky riverbed. The fish has a silvery body with a dense pattern of dark spots along its back and sides. The water is slightly rippled, and the rocks are visible in the foreground and background.

**Michael P. Gallinat**  
**WDFW**

# Tucannon River

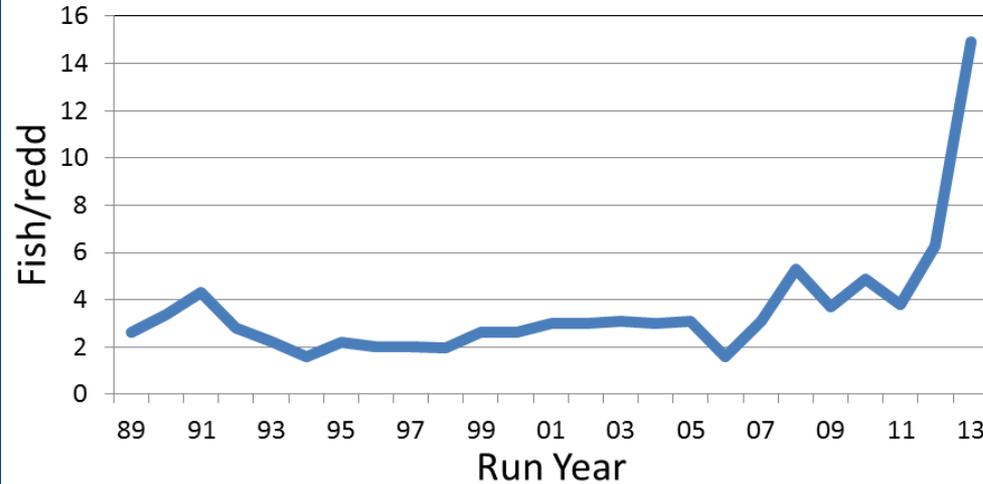


# First Some Background...



We experienced high pre-spawn mortality in 2013.

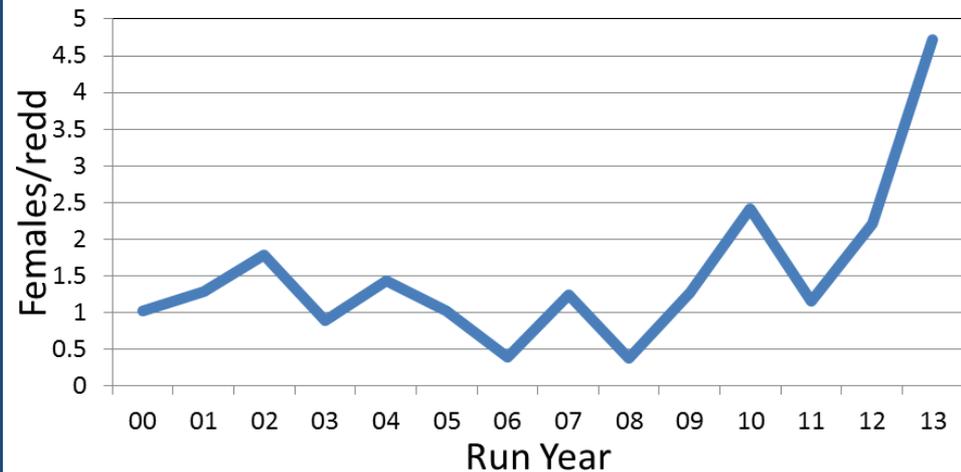
**Tucannon Spring Chinook/redd**



Fish were disappearing...

Unsure as to why?

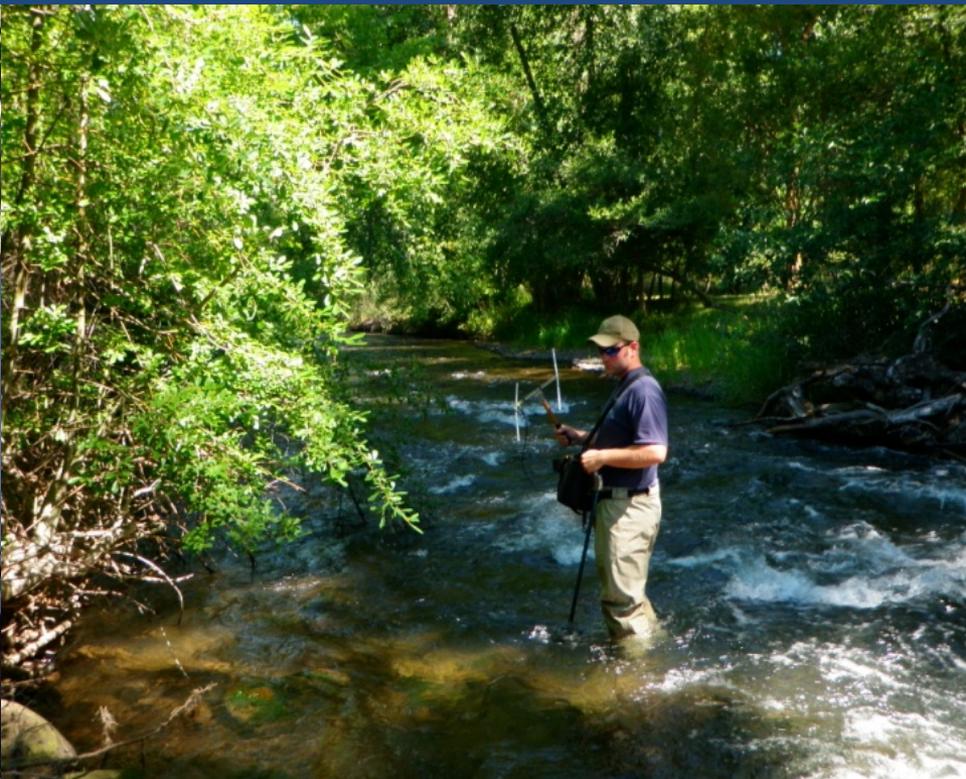
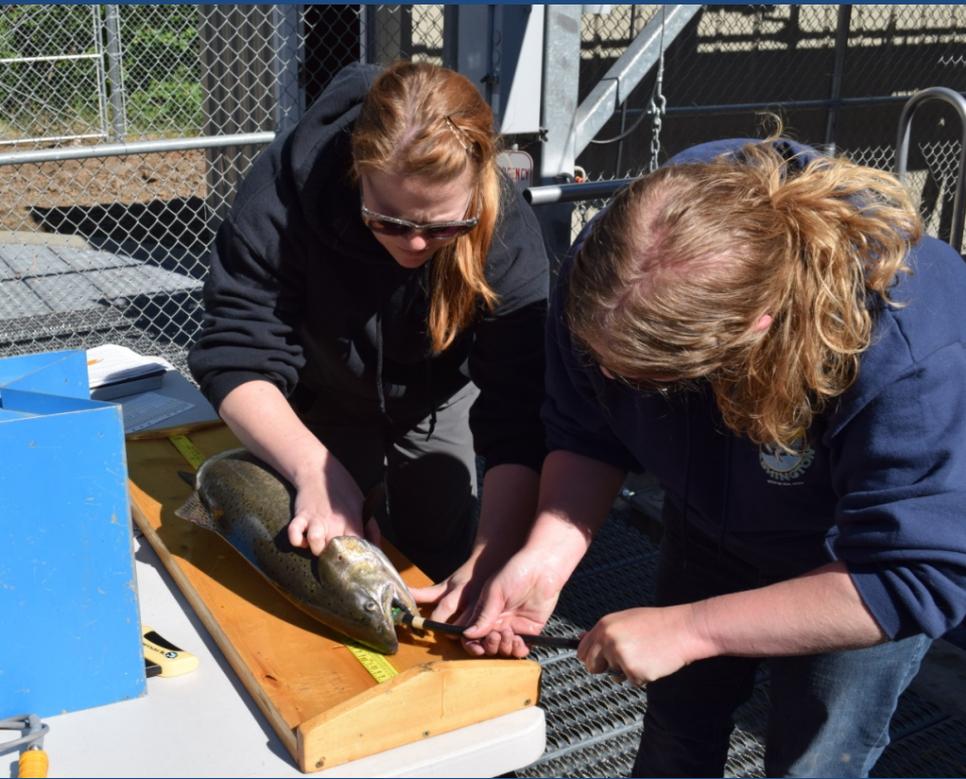
**Females/redd**



# Conducted Pre-spawn Mortality Investigations in 2014

- Radio tagged and tracked 47 fish.
- Conducted intensive pre-spawn mortality walks and sampled fish for fish health.
- Set-up hidden game cameras to look for possible evidence of poaching and predation.

Due to high fish loss from stomach rupture, the radio tagging results were largely inconclusive.



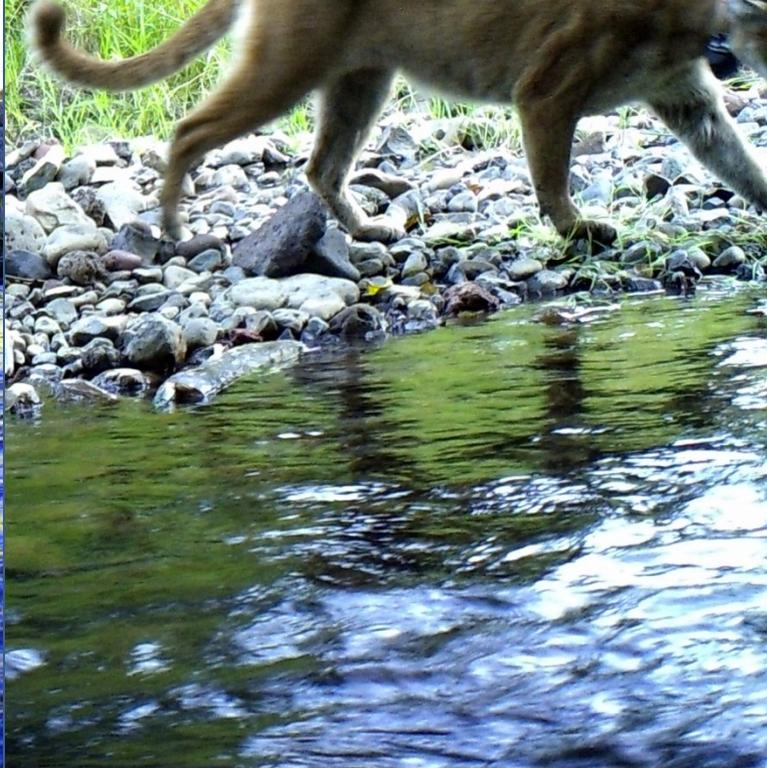
# Fish Health Results:

- Sampled carcasses had parasitic myxosporidian pansporoblasts and spores present.
- # of injured fish - not unusually high.
- Kidney sample ELISA values were “Below Low”





10:57AM MOULTRIECAM



014 07:06AM MOULTRIECAM



:43AM MOULTRIECAM



MOULTRIE 83°F



## So we're still unsure about the cause...

- – might not be due to a single factor but a combination of factors...
- Frustrating to get good returns of adults back - just to lose them prior to spawning.

There were concerns we would see high PSM again in 2015 due to the extreme drought conditions.



The “all-knowing, all-seeing” Fish Master = **Brian Zimmerman** - suggested adult outplanting.



# WDFW had Concerns...



- We could lose fish held at LFH – P.R. disaster in the making!
- Complicates our return estimates since we utilize our fish/redd number upstream of the adult trap to estimate number of fish below the trap.
- Taking away some natural selection – is that prudent?

# Decided to Split the Risk...

- A portion of the fish would be given a right opercle punch (ROP) and held at LFH for A.O.
- Fish passed above the trap were given a left opercle punch (LOP).
- Attempts were made by hatchery staff to equalize the proportion of fish passed and held based on sex and age.

# 1. Fish Passed Upstream (LOP)

- Hatchery staff passed 474 fish upstream. (148 Males, 121 Females, 205 Jacks)
- Evaluation staff conducted weekly river survey walks from 5/15 to the end of spawning (early October).
- Cumulative 451 rkms.

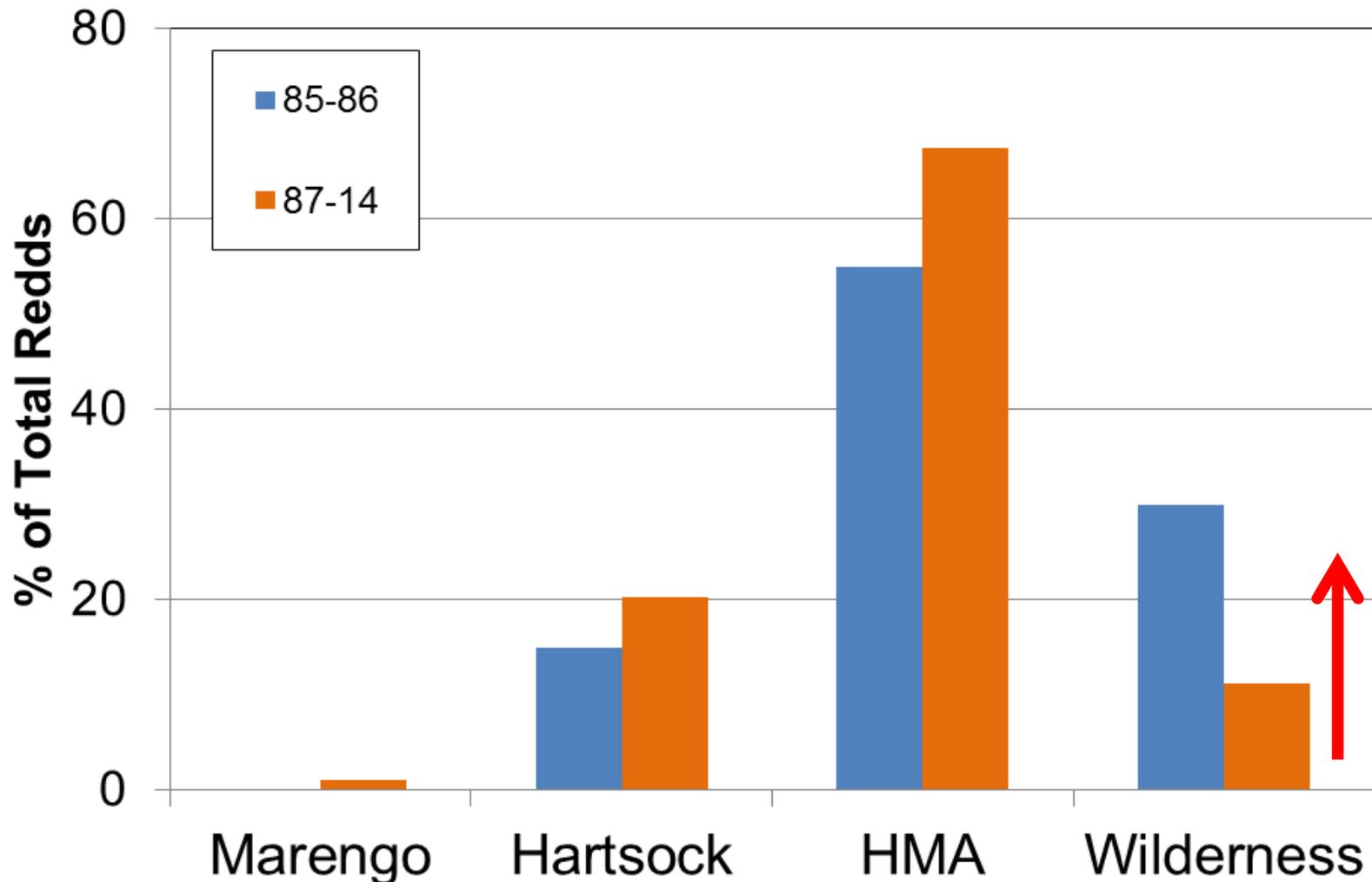


## 2. Adult Outplants (ROP)

- A total of 252 fish were collected & held for adult outplanting.
- Ten natural-origin females from this group were added to the hatchery broodstock.
- Ten fish were pre-spawn mortalities – Leaving 232 fish for outplanting.

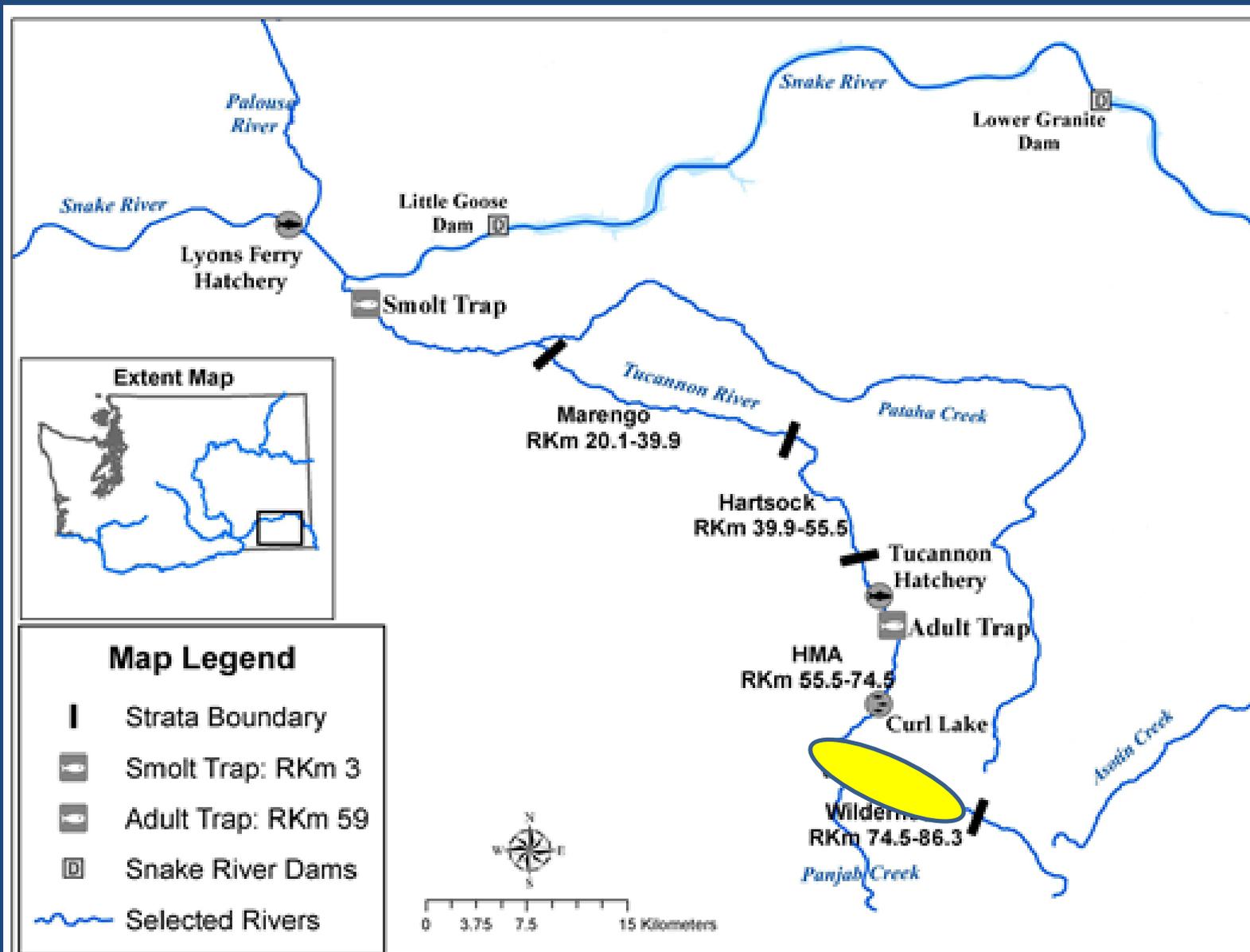
# Current vs. Historic Redd Distribution

## Redd Distribution



# - Adult Outplant Zone -

Camp Wooten (rkm 68) to Sheep Creek (rkm 84)

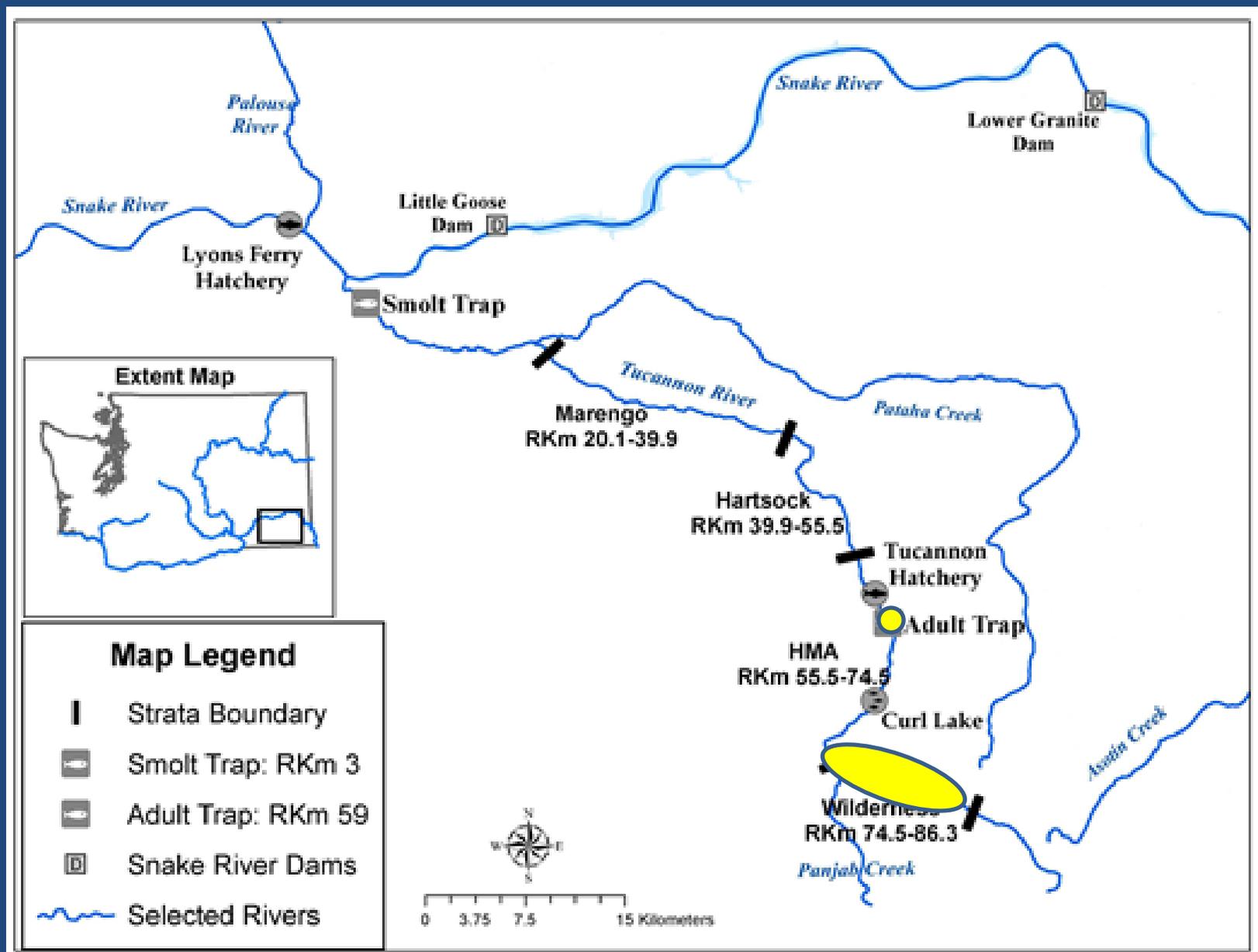


The 232 fish (110 females, 110 males, 12 jacks) were transported back to the river in small groups (~15 pairs/group) during the mornings of August 17<sup>th</sup> and 24<sup>th</sup>.



Fish were released at five different locations (rkm's 72.9-77.7).

# Movement from area was negligible – 1 hatchery male.



# Strategy Comparison

## Passed Fish (LOP)

- 23 PSM's recovered.
- Excluding PSM's  
47 carcasses recovered  
= 10% carcass recovery rate.

## Outplanted Fish (ROP)

- 0 PSM's recovered.
- 73 carcasses recovered  
= 31% carcass recovery rate.

Estimated survival of fish passed upstream was only 32% during the time period fish were held at the hatchery.

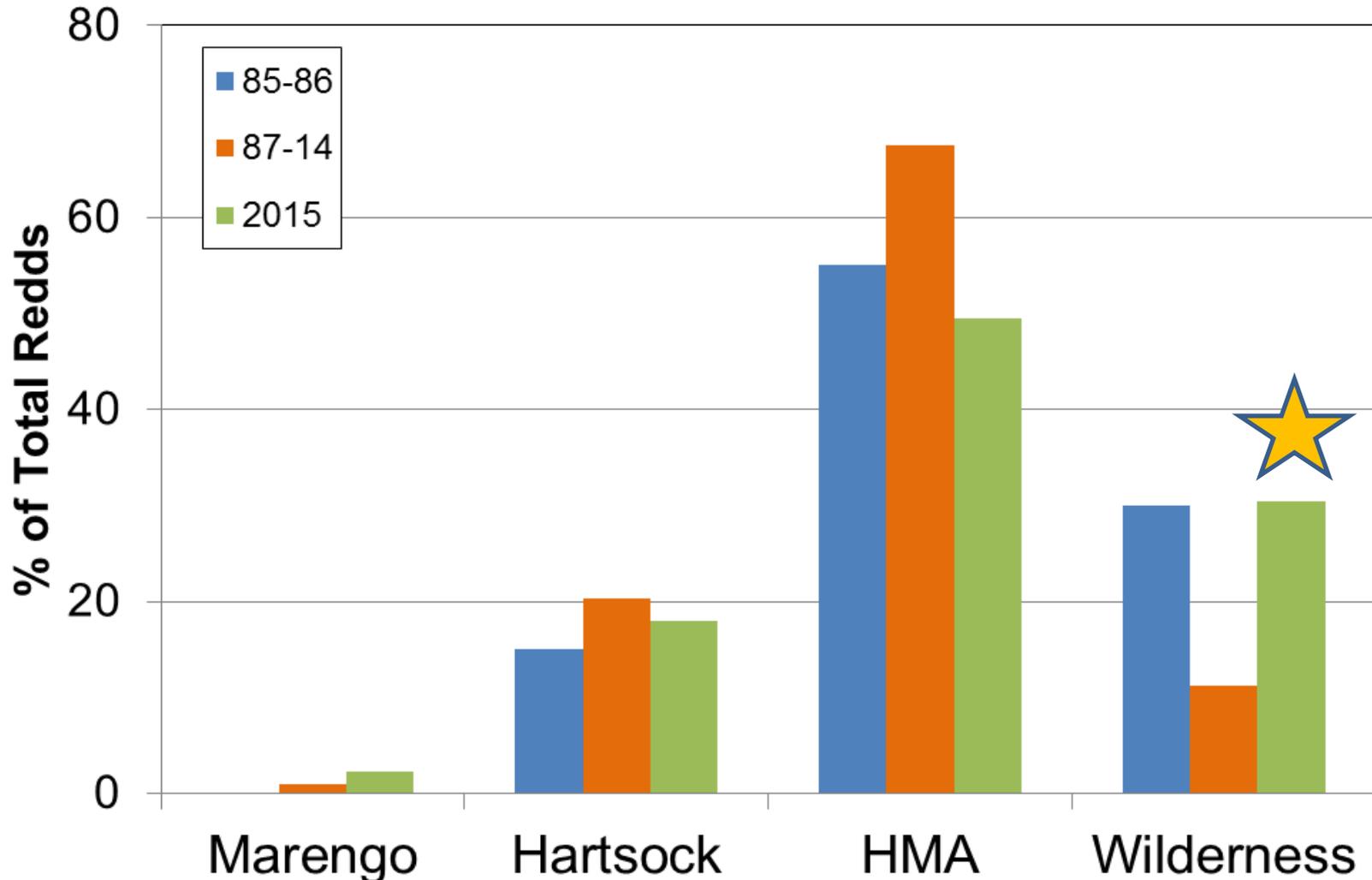


# 2015 Redd Distribution

Zone	Rkm's	# Redds	Proportion
A.O. Zone	68-86	<u>102</u>	<u>53.4%</u>
Adult Trap – A.O. Zone	59-68	18	9.4%
Below Adult Trap	0-59	71	37.2%
<b>Totals</b>	<b>0-86</b>	<b>191</b>	<b>100%</b>

# Current vs. Historic Redd Distribution

## Redd Distribution



We hated to  
admit it - but  
Brian  
Zimmerman  
was right...



Brian with the rare & elusive Umatilla River Paddle-salmon...

# Improvements for Future Outplant Efforts...

- Some redd superimposition was observed in the upper reaches suggesting available suitable spawning areas were saturated.
- Would hold a greater portion of the fish in the hatchery due to higher survival.

# Questions Remain...

- Now that we've started adult outplanting – when do we stop?

*The  
End...?*

A WARNER BROS. TELEVISION PRODUCTION