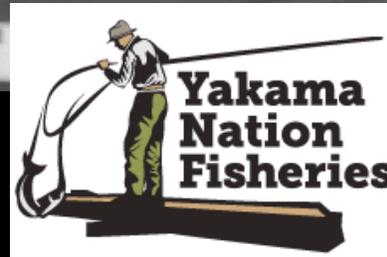


# Pacific Lamprey

## Adult Lamprey Updates

2019/05/28 19:19:29



**Presenter: Ralph Lampman**

*Yakama Nation Fisheries Pacific Lamprey Project (YNPLP)*

# The Pacific Lamprey Team

**Tyler Beals**



**Sean Goudy**



**Dave'y Lumley**



**Shekinah Saluskin**



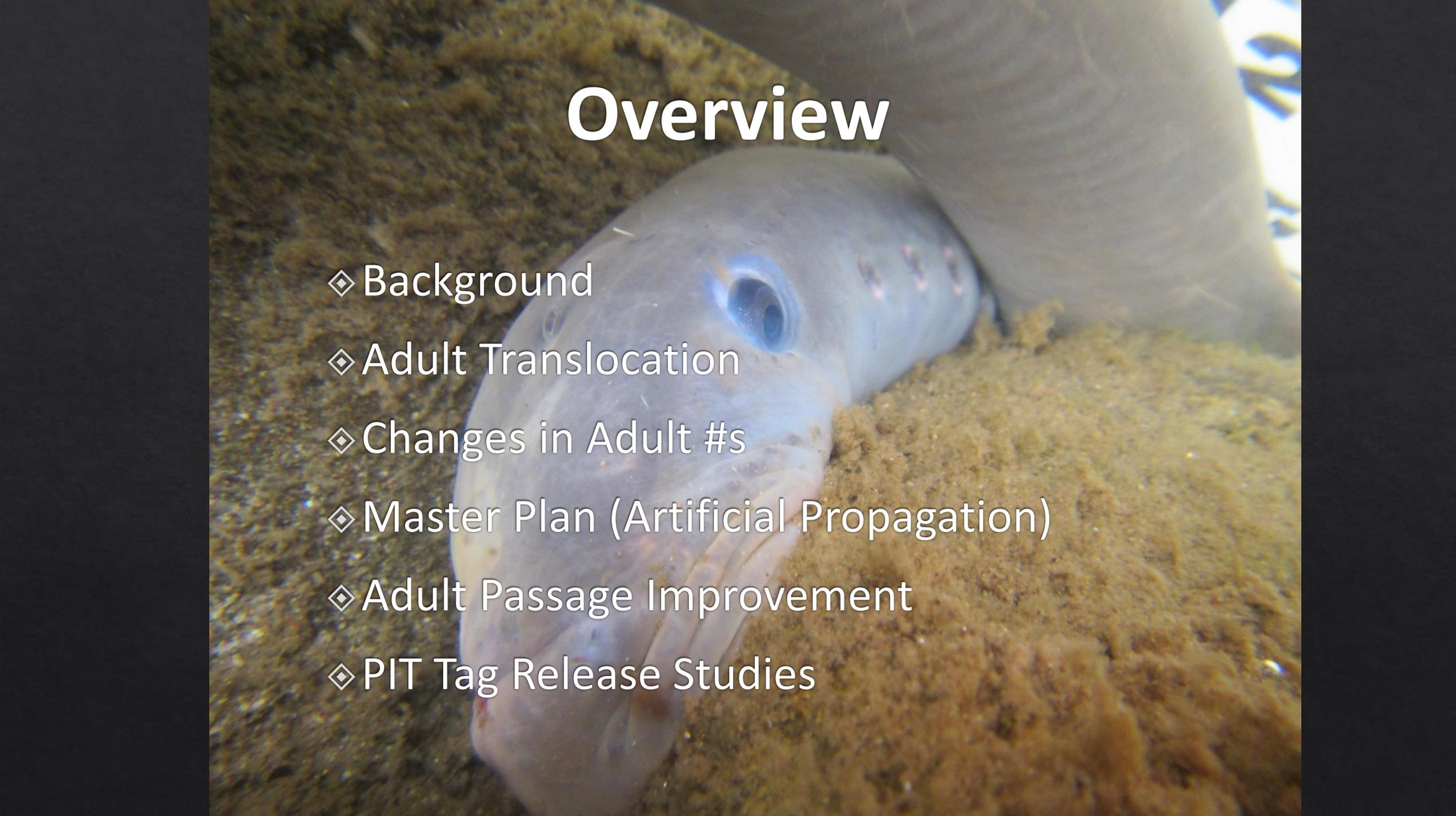
**Bob Rose**



**Heritage Uni. Students**

- Noah Sampson
- Sloane Seelatsee

# Overview



- ◆ Background
- ◆ Adult Translocation
- ◆ Changes in Adult #s
- ◆ Master Plan (Artificial Propagation)
- ◆ Adult Passage Improvement
- ◆ PIT Tag Release Studies

# Yakama Nation Project Goal

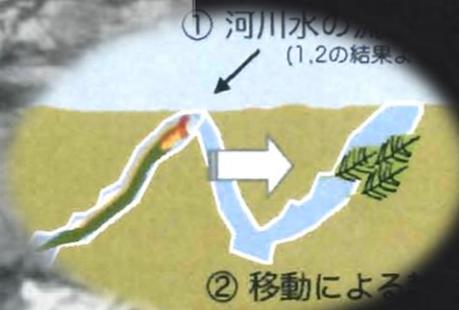


1913

To restore natural production to a level that will provide robust species abundance, significant ecological contributions, & meaningful harvest throughout the Yakama Nations Ceded Lands & in the Usual & Accustomed areas.



Felts at Willamette Falls.



# Tribal Harvest in the Yakima Subbasin & Ecological Interactions

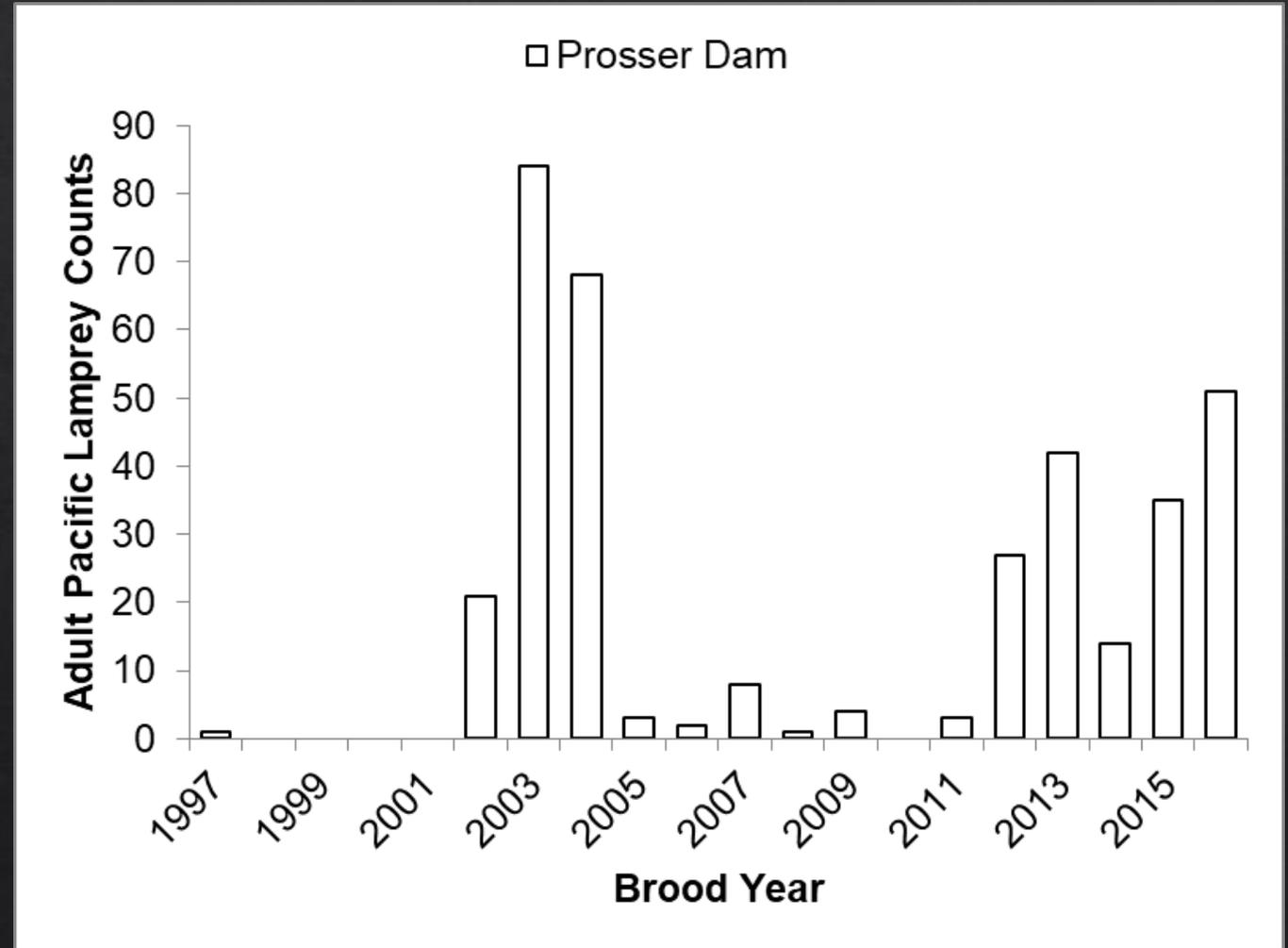
- ◆ Historically (until 1970s), PA Lamprey harvested in Yakima R. (Horn Rapids, Prosser Falls, Sunnyside, Wapato dams)



# Prosser Dam Adult Pacific Lamprey Counts (~2016)

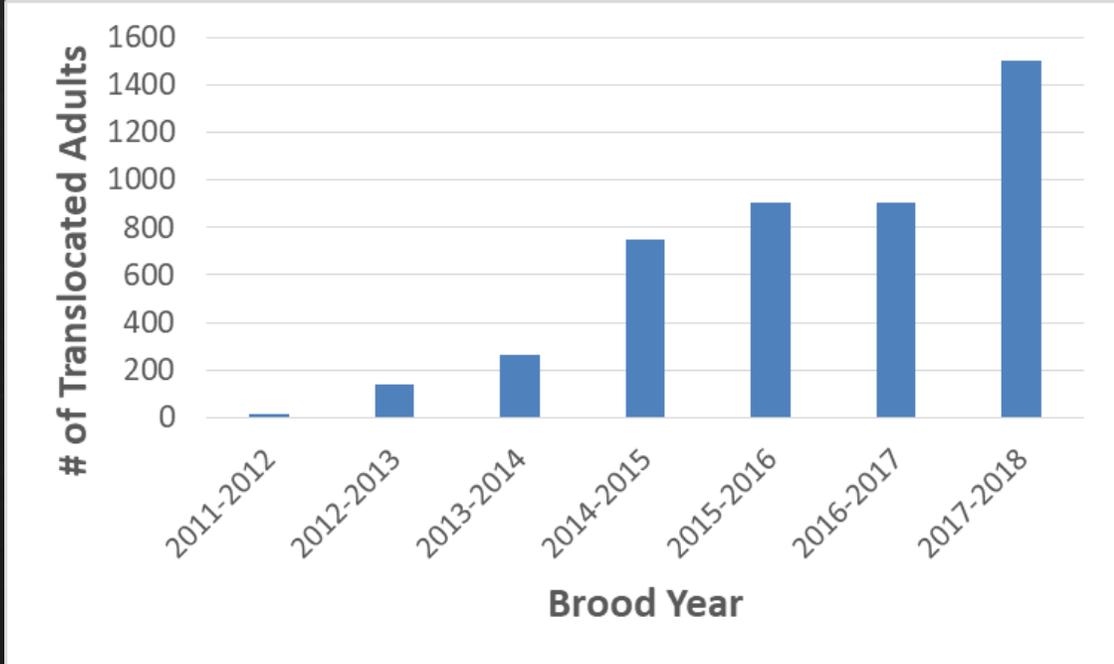
<100 adults  
in 2250 km of  
anadromous  
habitat

**Functionally  
Extinct!!!**





# Adult Translocation



Broodstock Year	# Total	Destination
2011-2012	15	Yakima
2012-2013	138	Yakima
2013-2014	264	Yakima
2014-2015	752	Yakima
2015-2016	906	Yakima, Methow, Wenatchee
2016-2017	905	Yakima, Methow, Wenatchee
2017-2018	1499	Yakima, Methow, Wenatchee
<b>Total</b>	<b>4479</b>	-

# Yakima Subbasin

All 2012-2018 Release Locations  
(White Arrows)

Roza Dam

Ahtanum Creek

Toppenish Creek

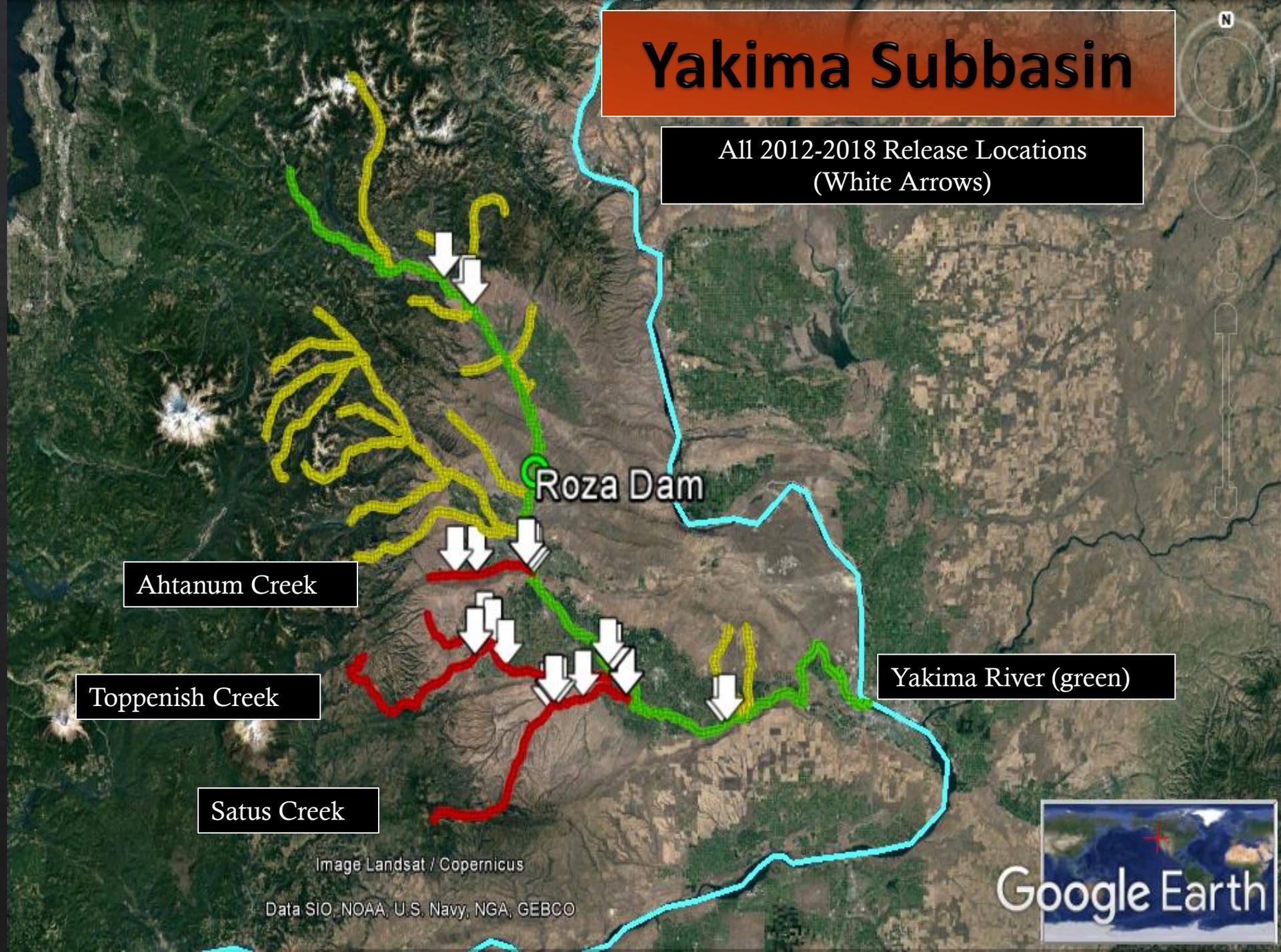
Satus Creek

Yakima River (green)

Image Landsat / Copernicus

Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Google Earth



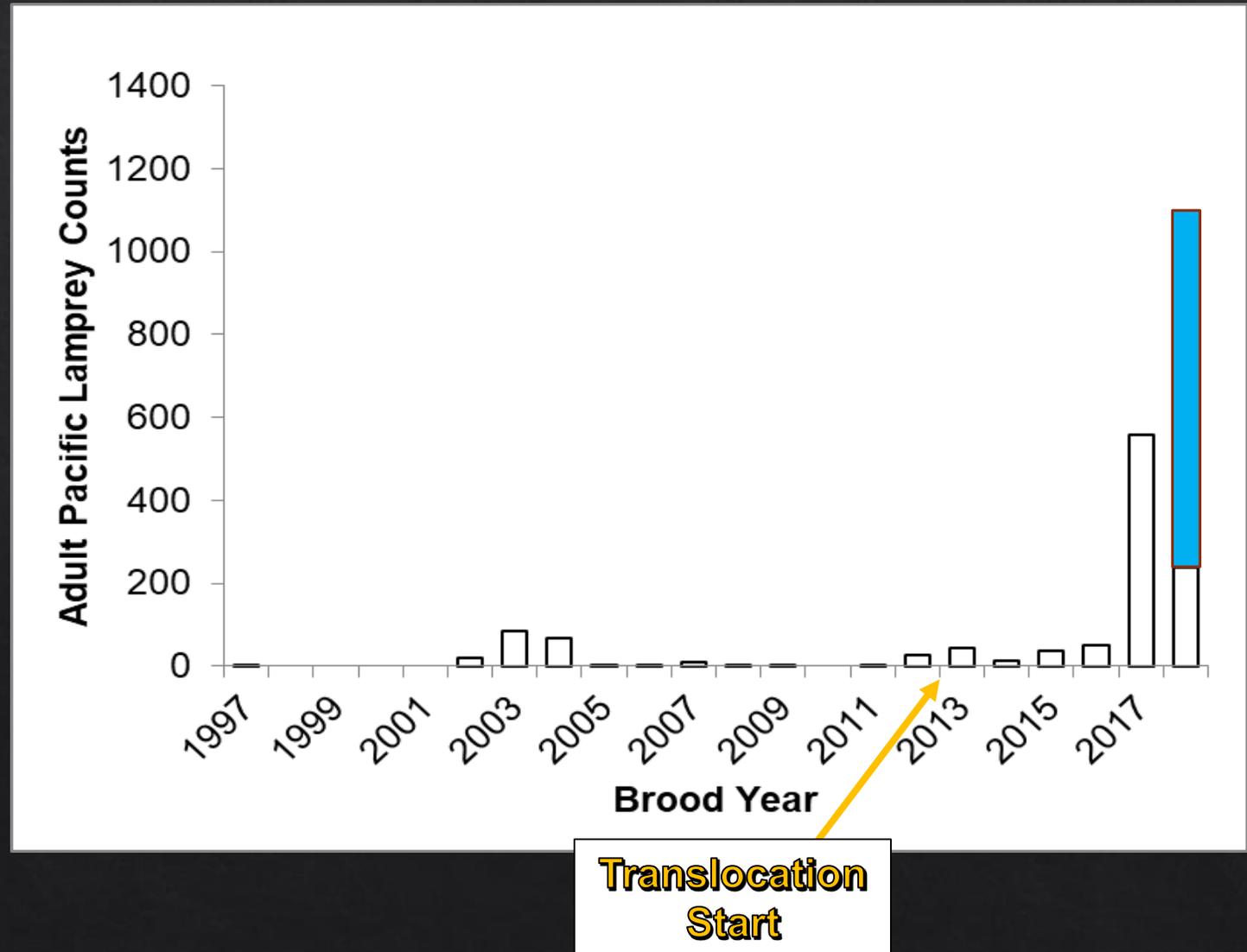
# Prosser Dam Adult Pacific Lamprey Counts (2017~2018)

Translocation Began  
in 2012-2013

In 4~6 yrs, a large  
increase observed  
( $\leq 87$  to  $\sim 1300$ )

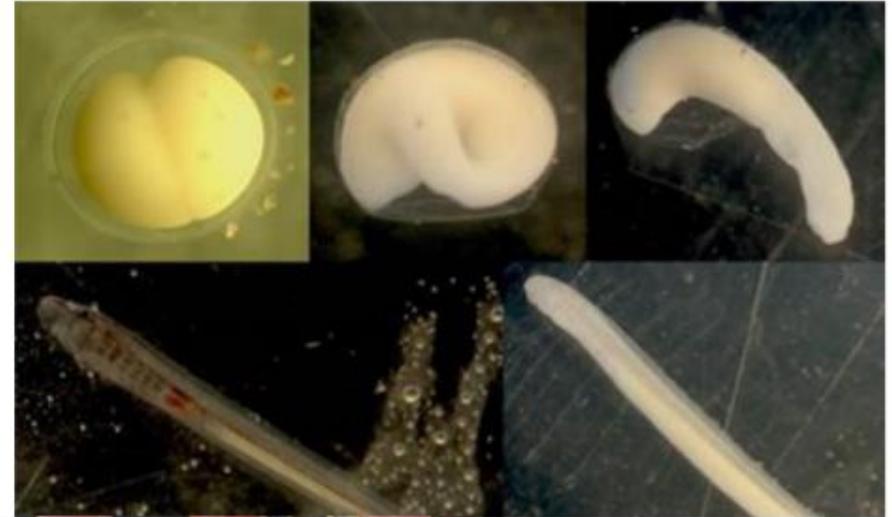
Harvestable #  
in the near future??

**Goal = 35,000**



# Master Plan

- ◆ **Supplementation Plan involving both adult translocation & larval outplanting**
- ◆ **YN, CTUIR, NP, & CRITFC**
- ◆ **Approved by NWPCC in Aug., 2018**
- ◆ **Favorable review by ISRP**
- ◆ **Phase II (5 year plan)**
- ◆ **YN = Upper Yakima & Naches**
- ◆ **CTUIR = Tucannon & Walla Walla**



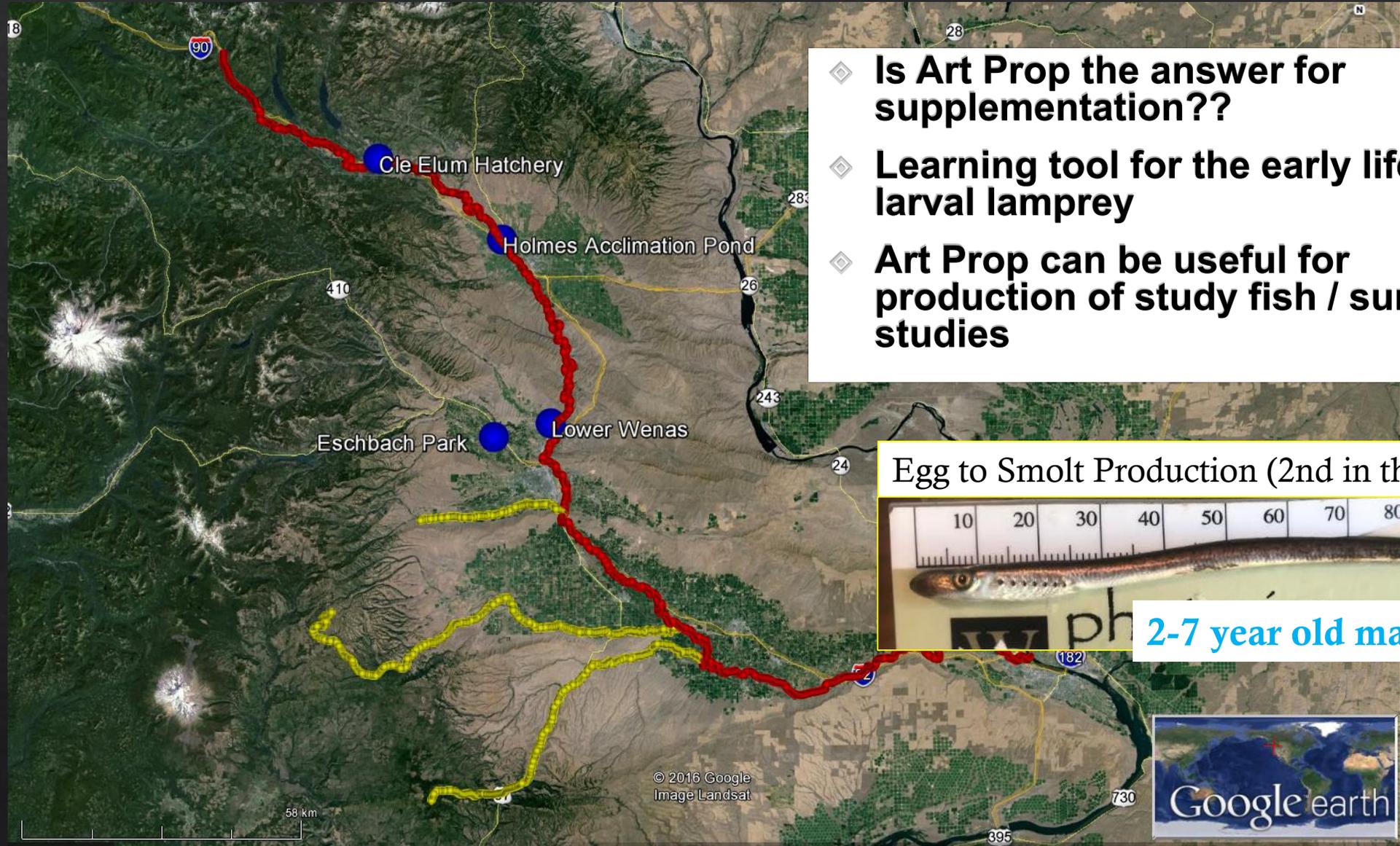
Master Plan: Pacific  
Lamprey Artificial  
Propagation,  
Translocation,  
Restoration, and  
Research

Conceptual phase to address  
Step 1 – Master Plan review  
elements

Prepared By:  
Columbia River Inter-Tribal Fish Commission  
Yakama Nation  
Confederated Tribes of the Umatilla Indian  
Reservation  
Nez Perce Tribe

March 23, 2018

# Sites for Larval Outplanting (Summer 2020)



- ◇ Is Art Prop the answer for supplementation??
- ◇ Learning tool for the early life stage larval lamprey
- ◇ Art Prop can be useful for production of study fish / survival studies

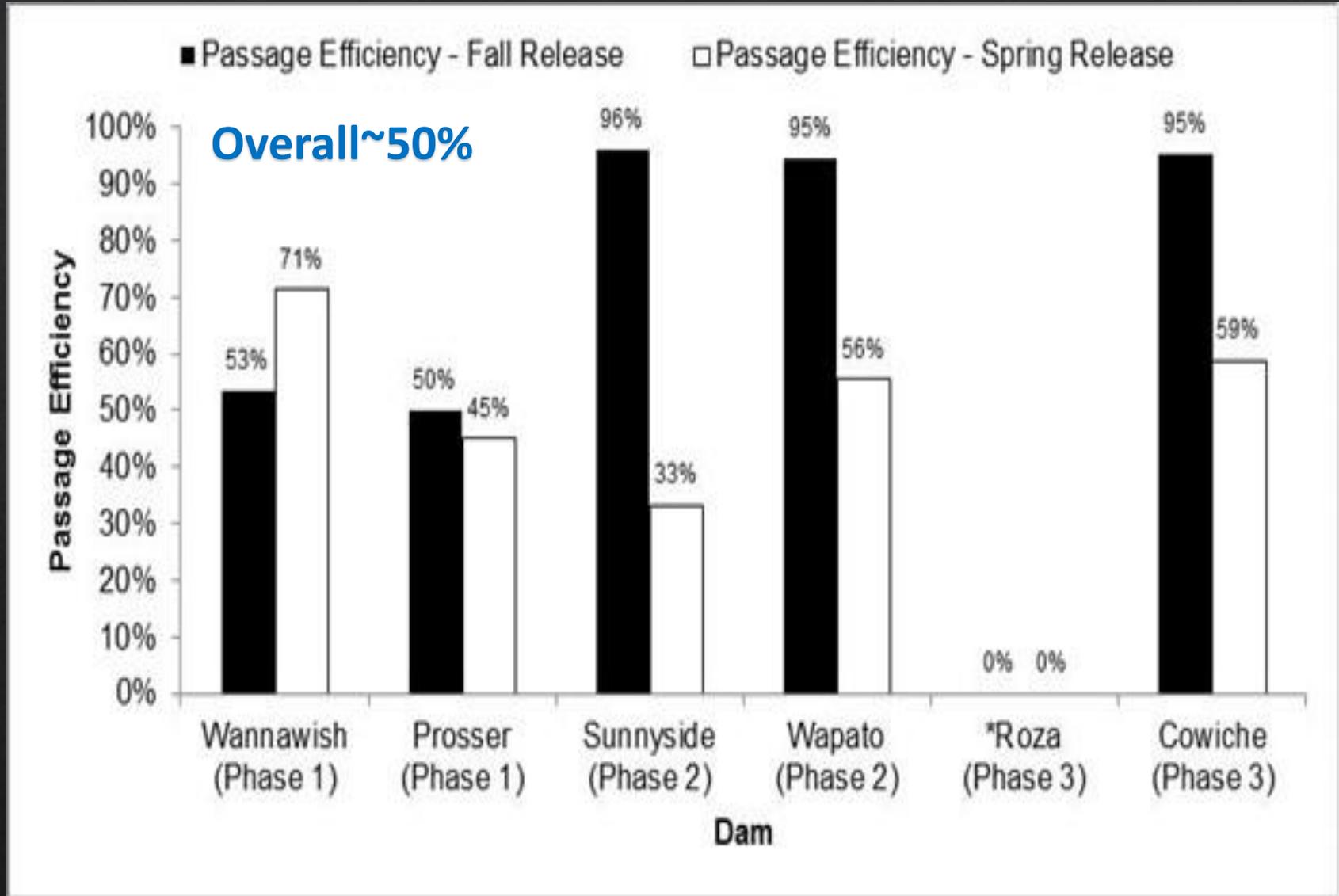
Egg to Smolt Production (2nd in the World!)



2-7 year old macro



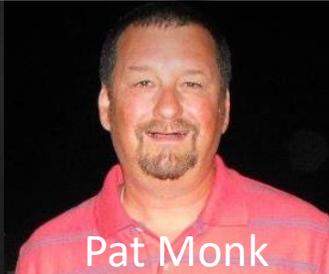
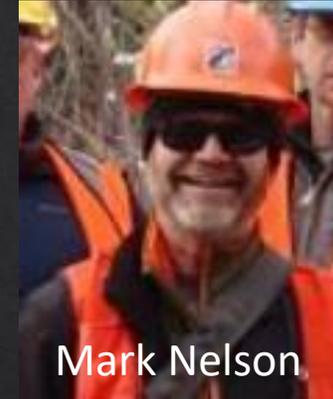
# USFWS Radio Telemetry Results (2011-2014)





slow motion (half speed)

# Passage Improvement Acknowledgement / Credits



Sean Goudy

Hiroaki Arakawa

# Vertical Wetted Wall (VWW) Structures (Prosser Dam)



Wall Height = 8~14 ft



60 GPM Pump (10' Head)

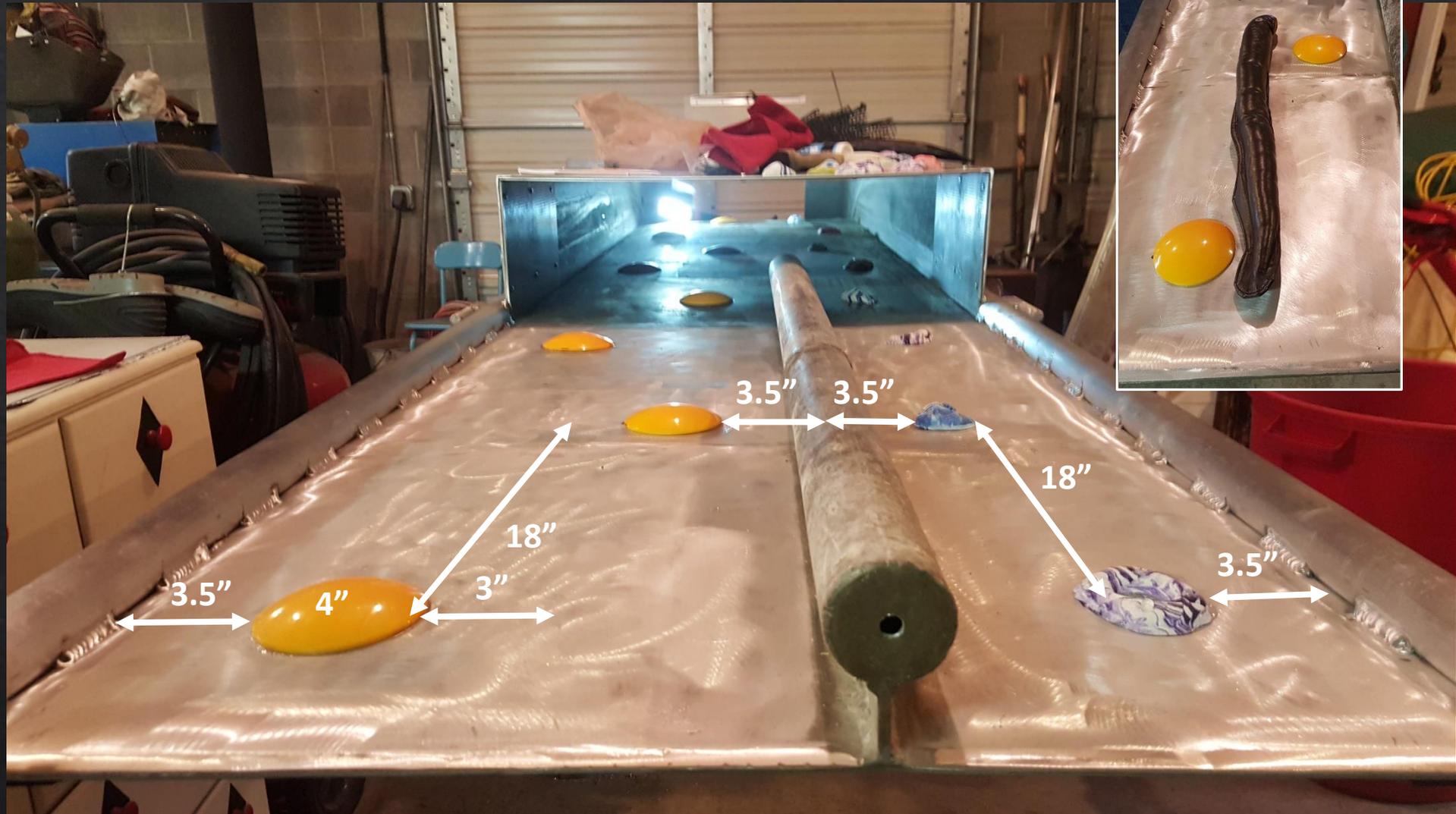


Designed By Fish Head  
Technology (Jim Simonson)  
Partners = USFWS, BOR, YN



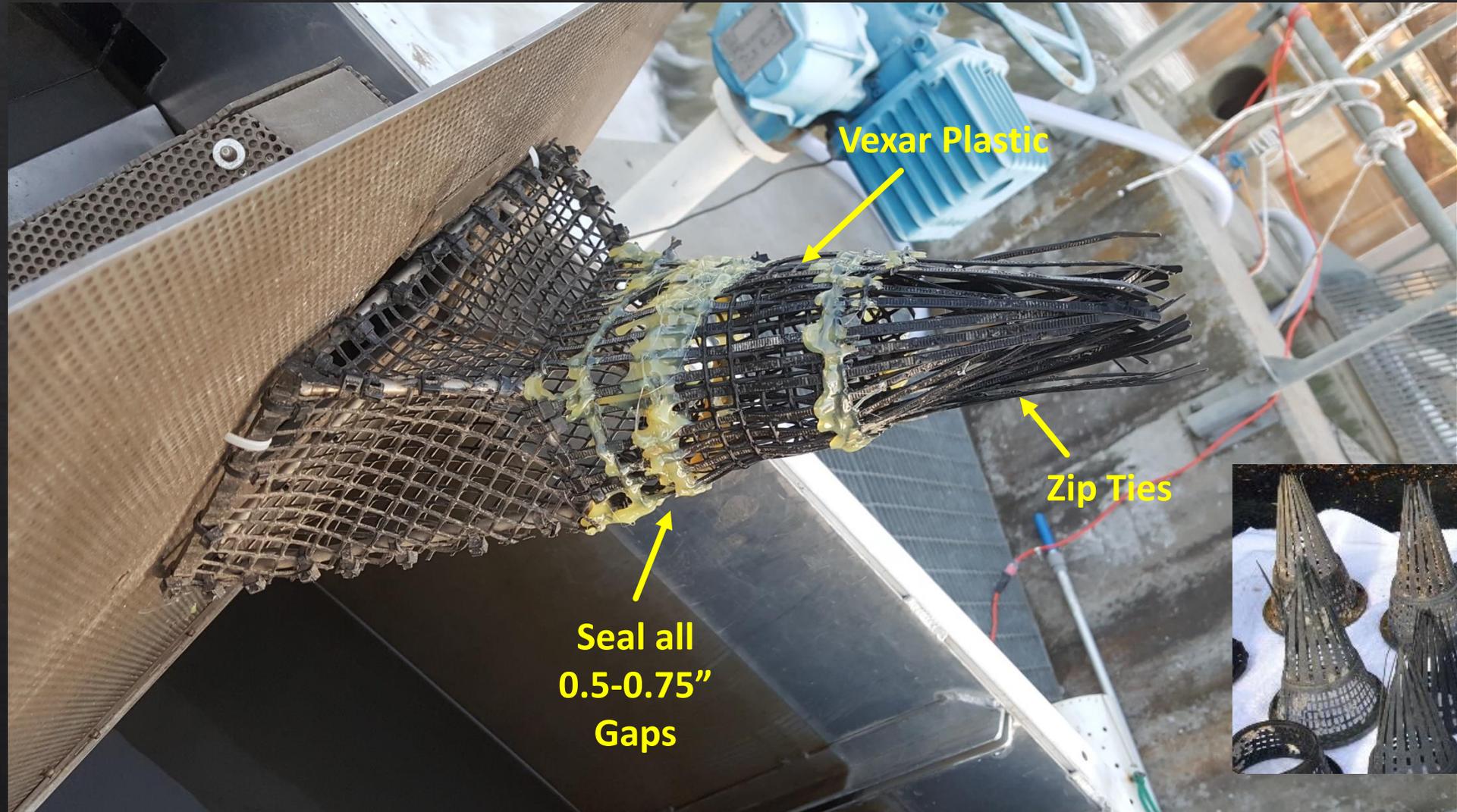


# New Design



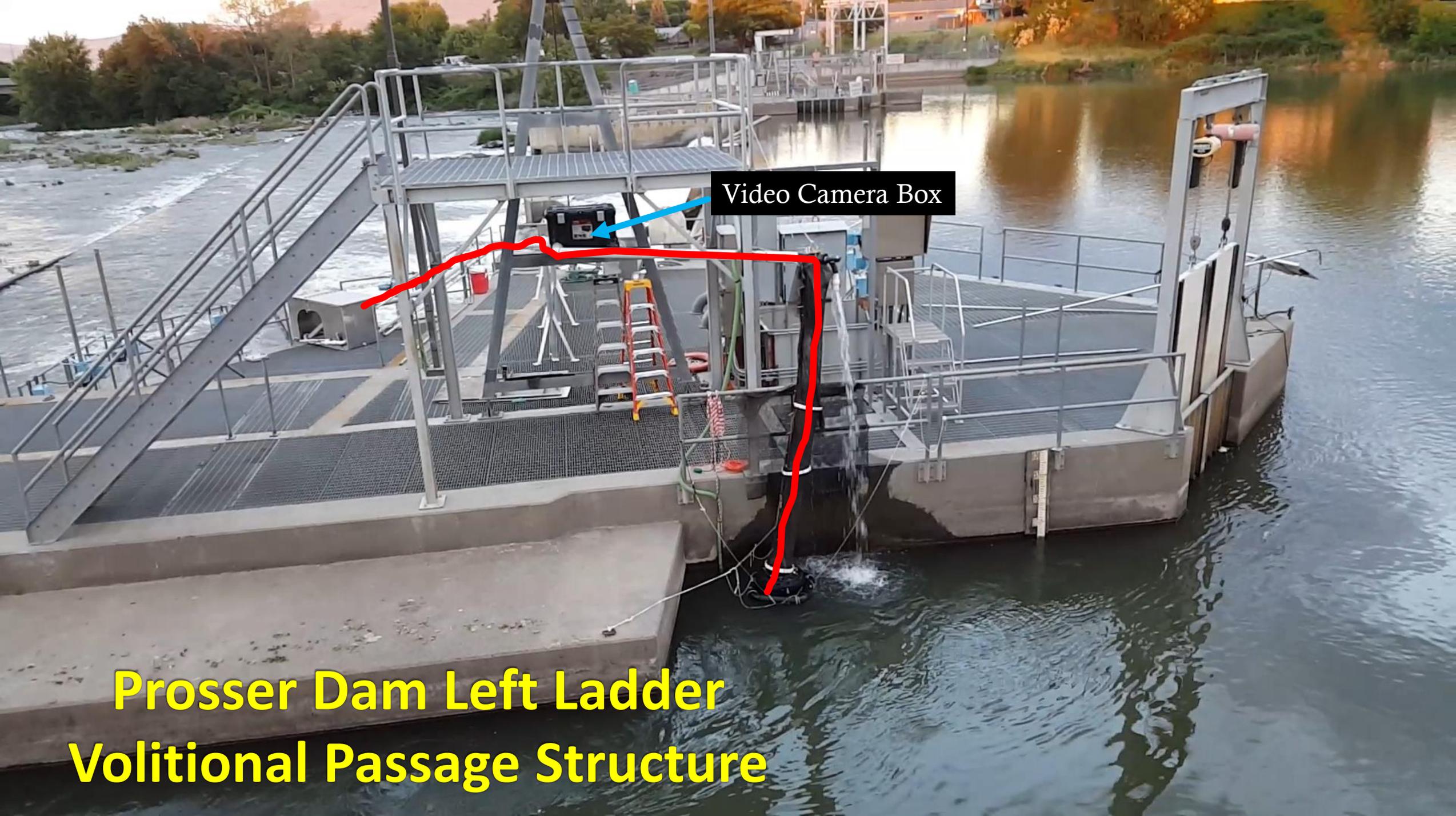


# Entrance/Escapement Solution (Generation 3 Evolution)



# New Passage Design from California (4" Smooth Tube)



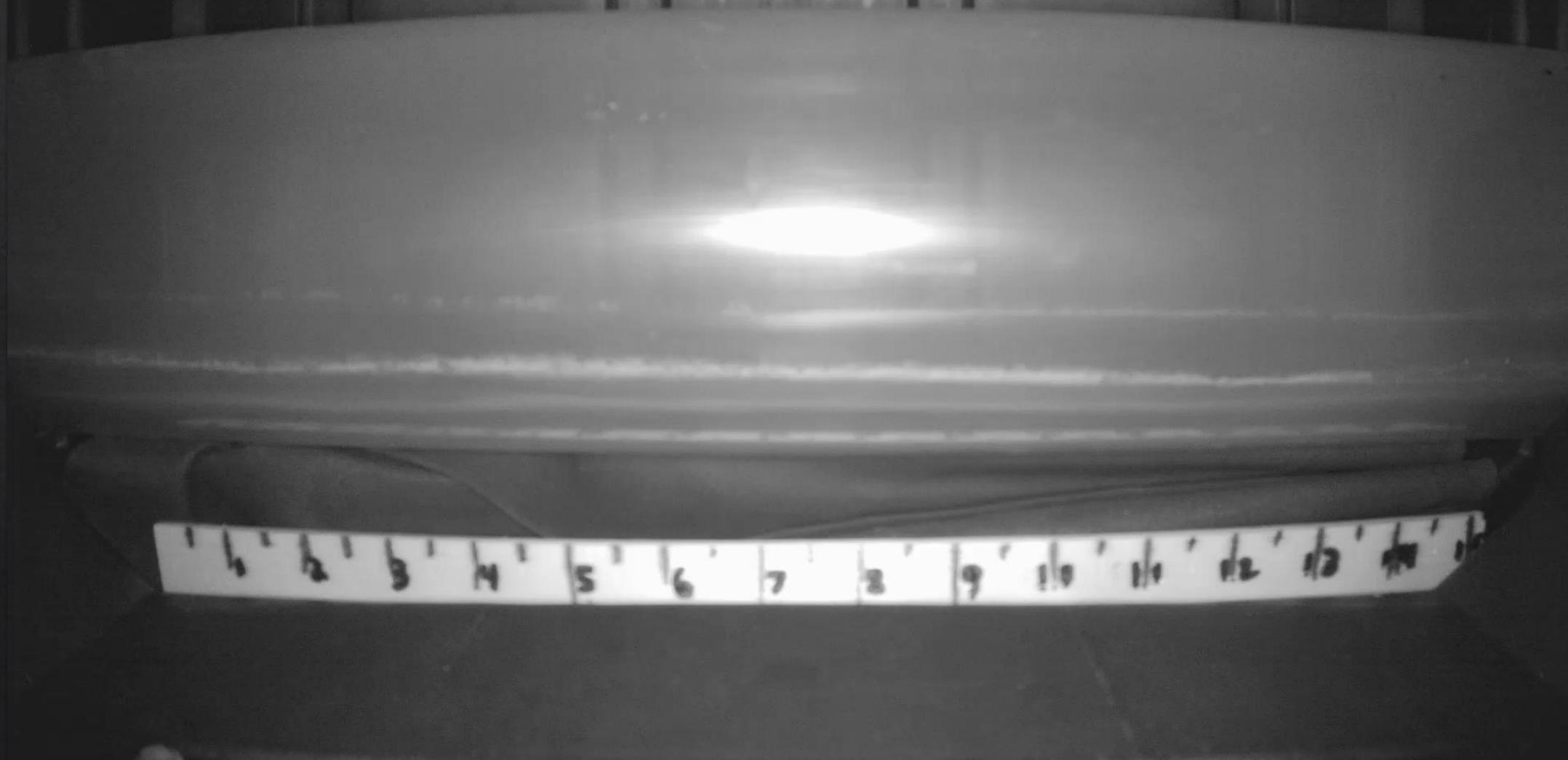


Video Camera Box

Prosser Dam Left Ladder  
Volitional Passage Structure

2019/05/22 16:13:20

18 L/min



2019/05/24 21:35:21

120 L/min



# Summary from PIT Tag Passage Studies

## Prosser Dam

- ◇ ~10% of adults used the VWW in 2017 (51 VWW vs. 510 Fish Ladder)
- ◇ ~97% used the VWW in 2018 (224 VWW vs. 7 Fish Ladder)
  - ◇ However, from PIT Study 46-54% estimated to pass the fish ladder (only PIT detection, so likely passing through picketed lead area)
  - ◇ Based on mark-recapture (10% VWW recapture rates), we estimate 2613 adult lamprey approached Prosser Dam, and at least 1306 (~50%) are passing the dam

## Roza Dam

- ◇ Passage rates unknown, but a lot of holding and moving back and forth
- ◇ Issue of holding by PIT arrays

# Applied Vexar Sheeting to Prevent Holding

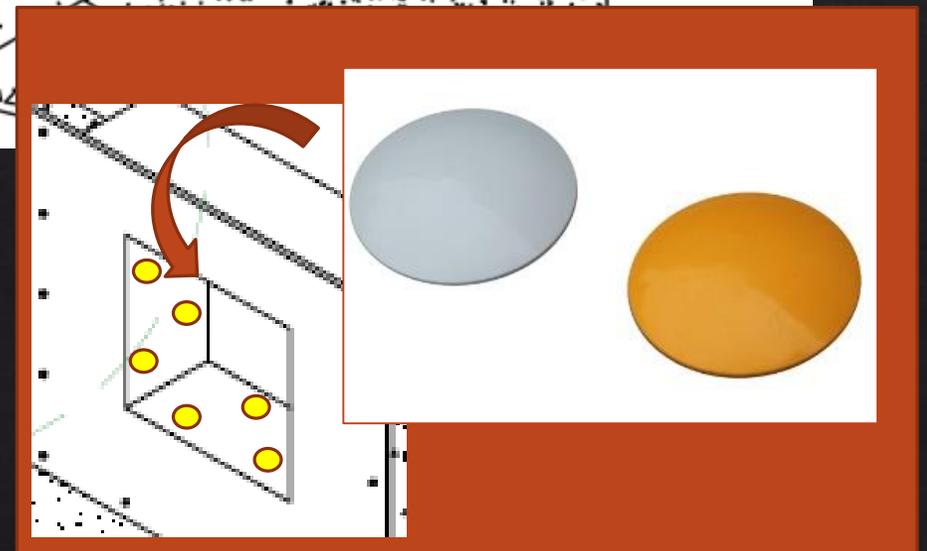
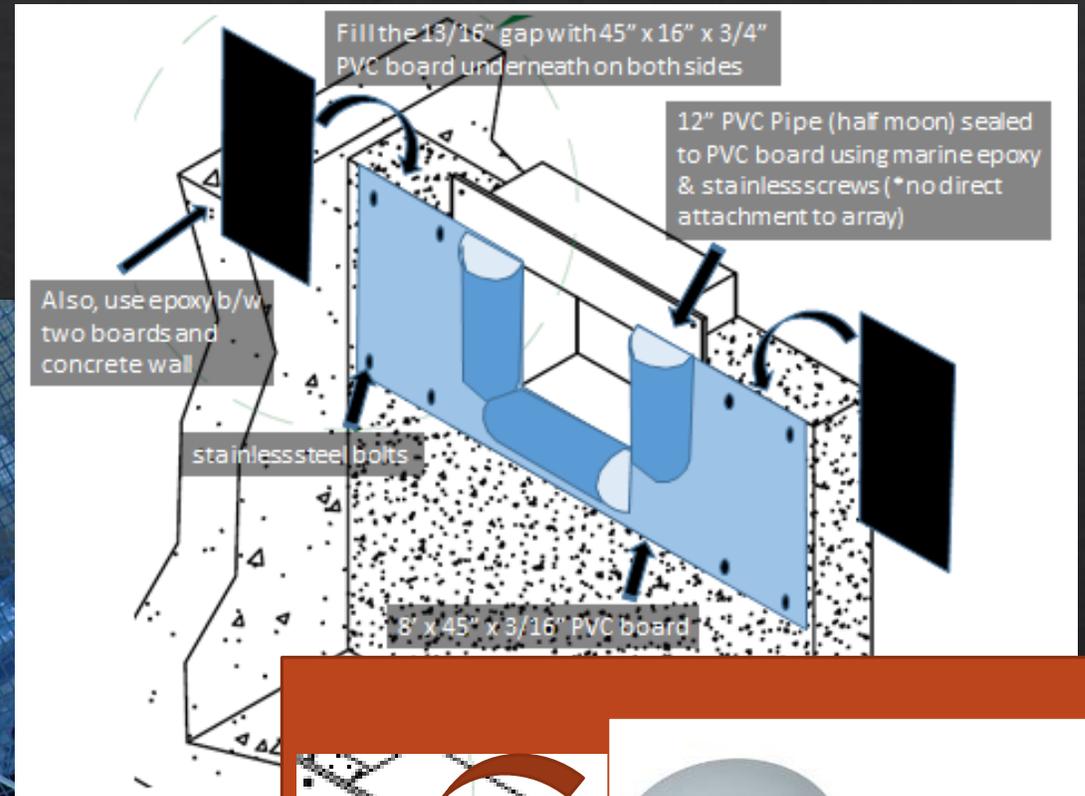
Success! – Eliminated all lamprey holding at Prosser Dam



- ◆ Use of Half Duplex Tags for Lamprey?
- ◆ Testing of Dual Mode at BON, TDA, McNary dams in 2018

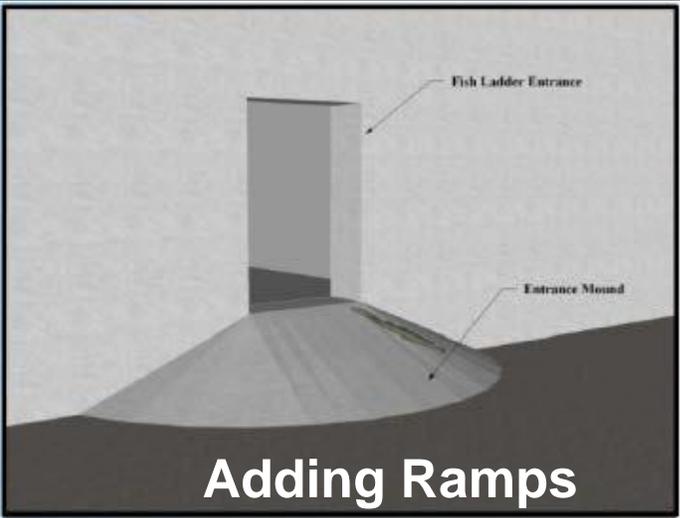
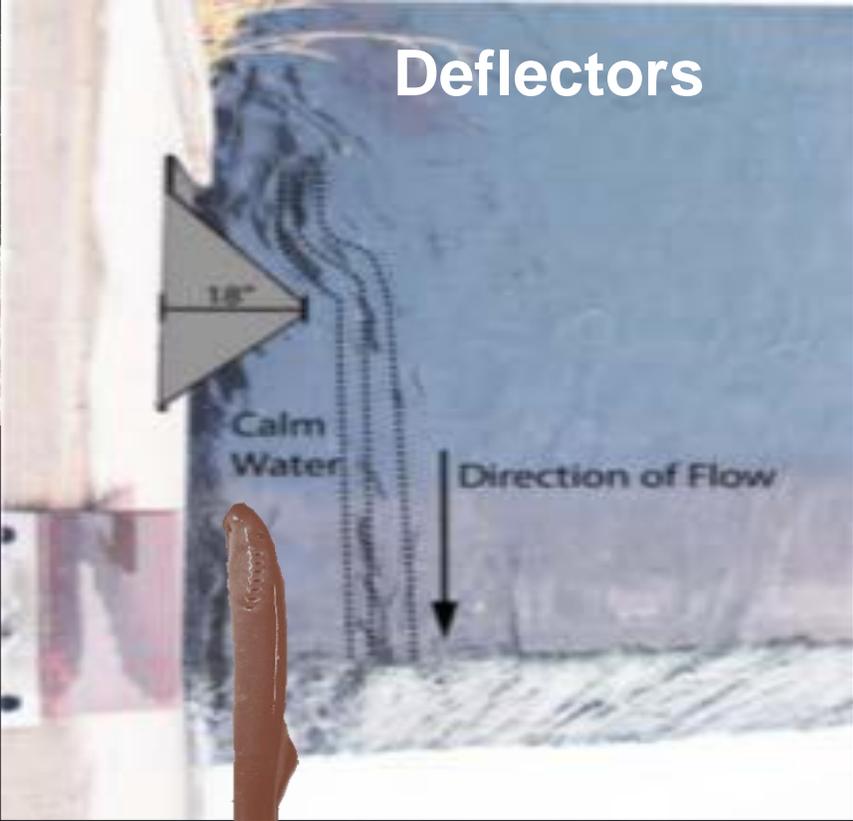
# Roza Dam Adult Holding

1. Eliminate holding
2. Improve passage

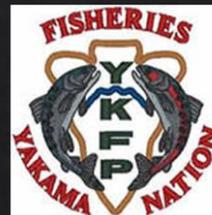
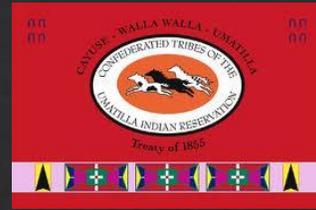


# Future Plans???

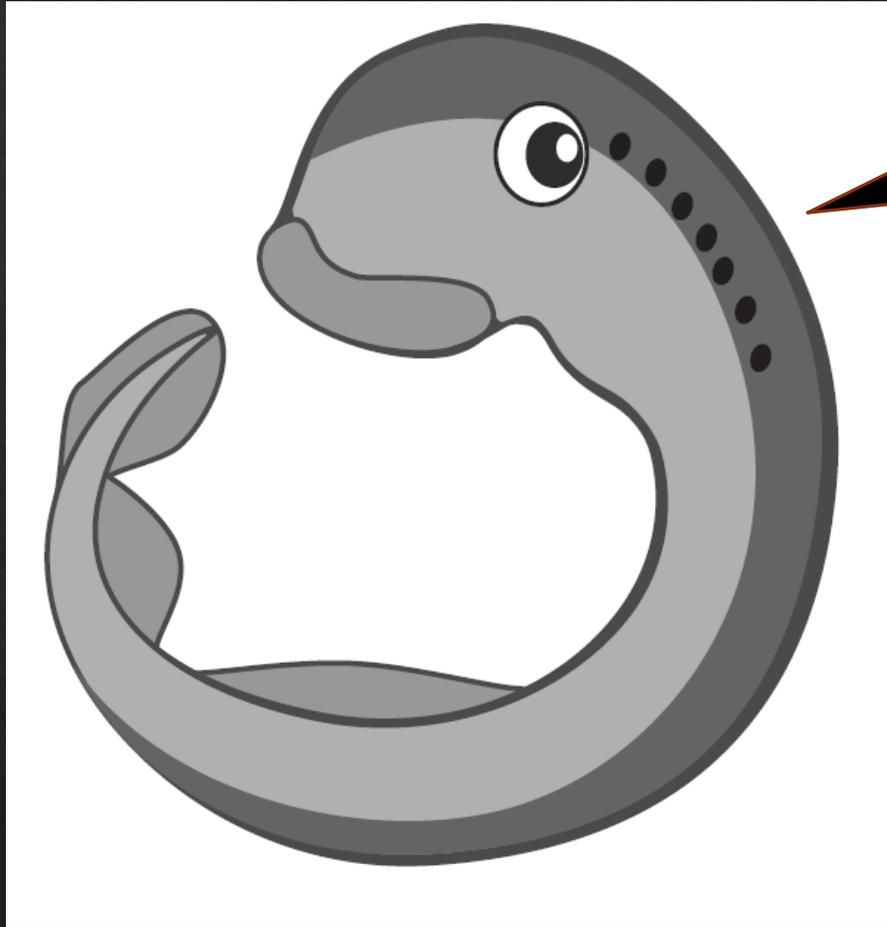
- ◆ 2019-2020 = Wapato / Sunnyside Dams
- ◆ 2020-2022 = Horn Rapids / Roza Dams



# The Strong Need for Partnerships!!!



*"Spiritually he is one of us" (Elmer Crow)*



**Questions?**



**Ralph Lampman**

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**[lamr@yakamafish-nsn.gov](mailto:lamr@yakamafish-nsn.gov)**