

PACIFIC LAMPREY: HOLDING UP OUR END OF THE BARGAIN FOR SUCCESSFUL RECOVERY



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National AFS

August 26, 2022 – 4PM



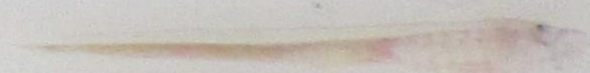


TRIBAL LAMPREY COLLABORATORS/CONTRIBUTORS

- ❖ Laurie Porter, Greg Silver, & Jon Hess (Columbia Intertribal Fish Commission)
- ❖ Aaron Jackson, Alexa Maine, & Mary Moser (Confederated Tribes of the Umatilla Indian Reservation)
- ❖ Tod Sween, Raymond Ellenwood, Jay Hesse (Nez Perce Tribe)
- ❖ Lindy Collamer & Lyman Jim (Confederated Tribes of the Warm Springs)
- ❖ Tyler Beals & Dave'y Lumley (Yakama Nation Fisheries)



PERSPECTIVES



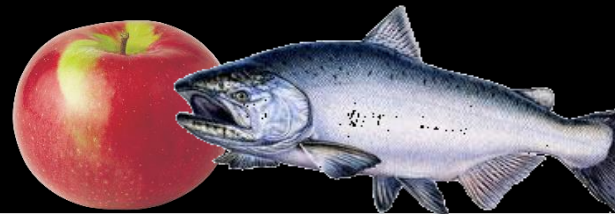
Lamprey
Served for 450 million years
(& maybe more!)



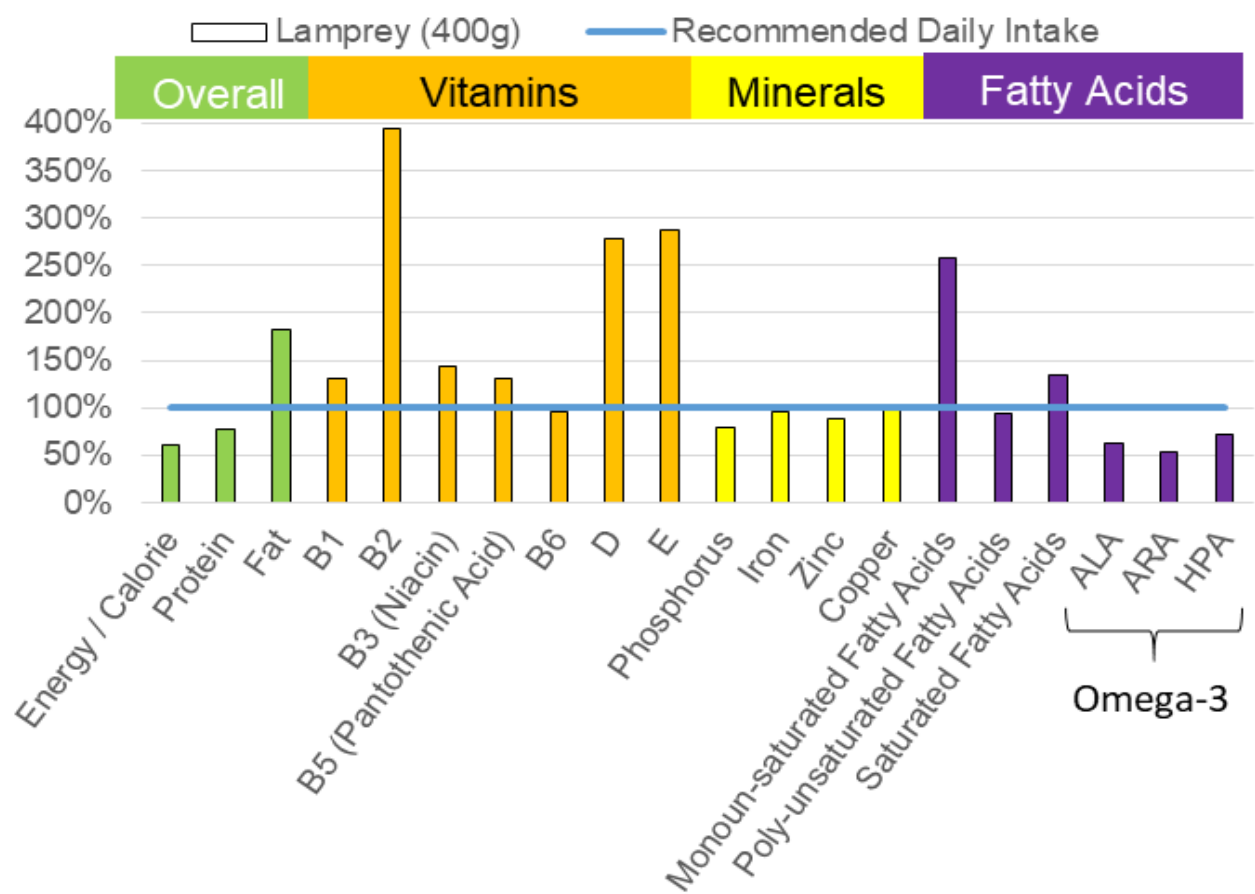
Franklin D. Roosevelt
Served for 4 Terms



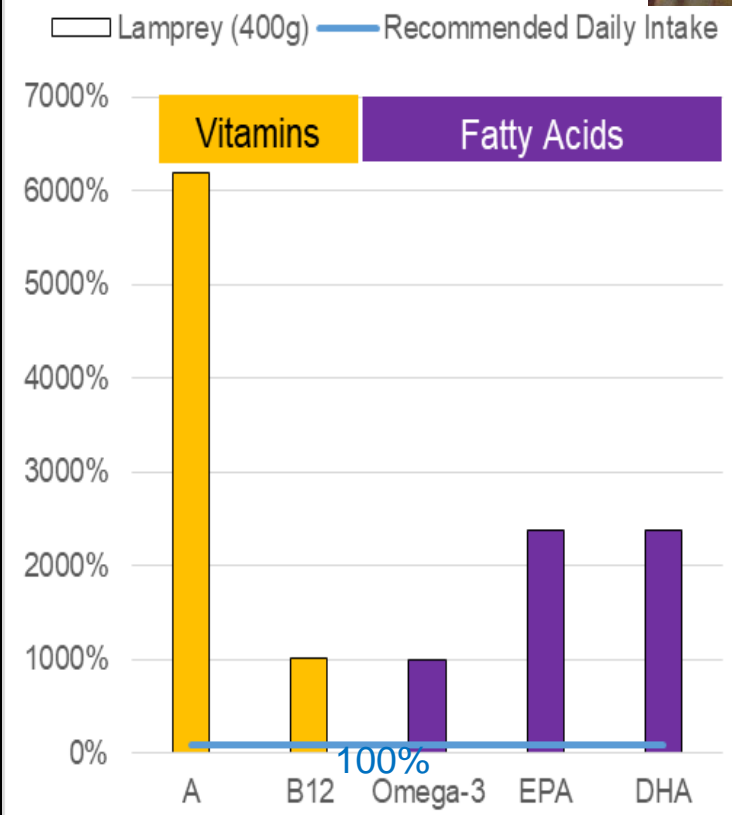
LAMPREY AS MEDICINE & SUPER FOOD



Lamprey Nutrition



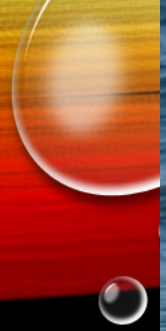
Lamprey Nutrition (High)



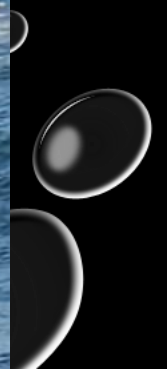
Tribal Harvest in the Ceded Lands & Ecological Interactions

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





Frank Costen
Photography



DISTRIBUTION



- Lost arguably half of the historical distribution
- At the uppermost dams, only ~100 adults are counted (functionally extinct!)

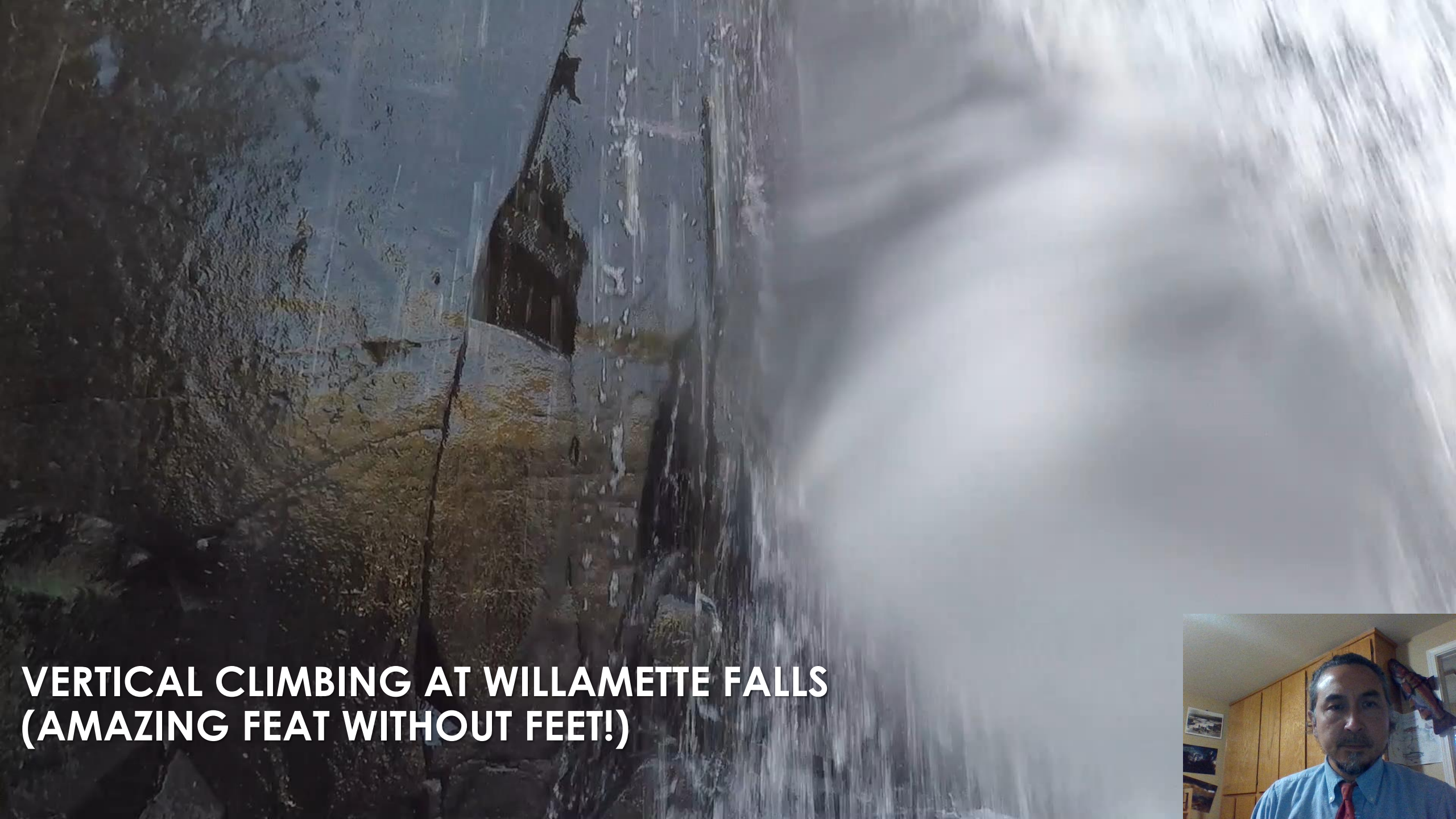


ADULT PASSAGE PROBLEMS IN FISH LADDERS

Lamprey
Congregating

Unable to Pass 90°
Angle & High Velocity



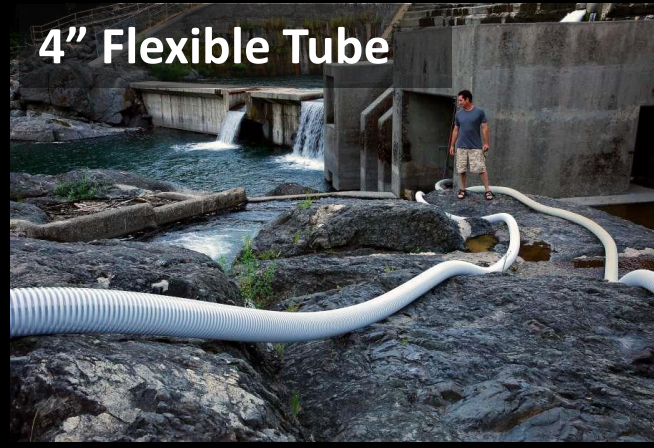


**VERTICAL CLIMBING AT WILLAMETTE FALLS
(AMAZING FEAT WITHOUT FEET!)**



CREATIVE PASSAGE SOLUTIONS

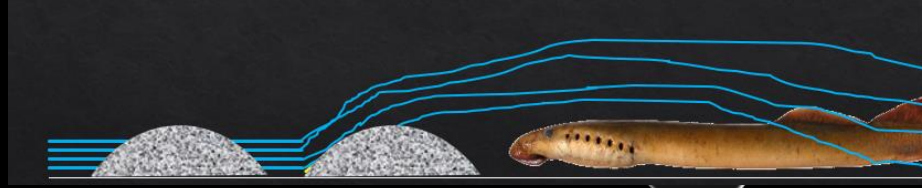
Vertical Wetted Walls



Rounding Corners



Pavement Markers





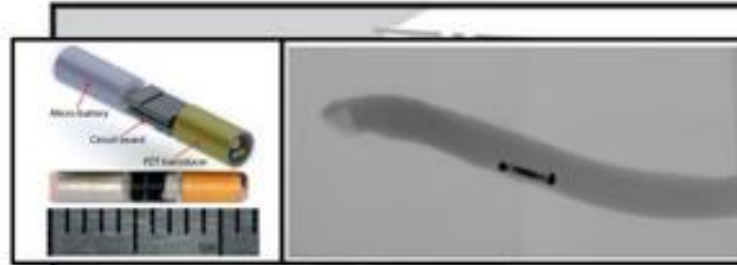
JUVENILE LAMPREY RM&E

Mainstem Passage



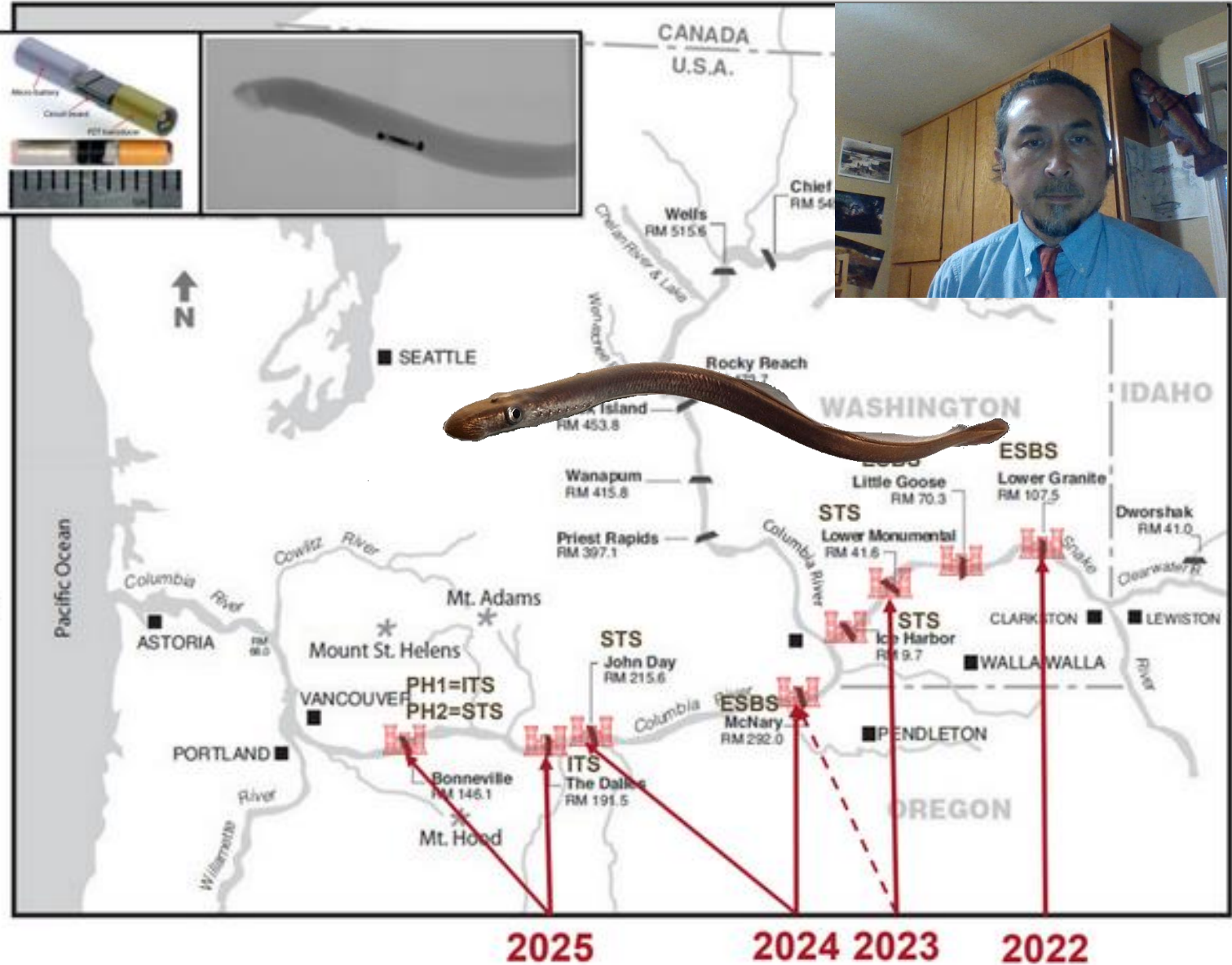
1. Juvenile Lamprey Acoustic Transmitter (JLAT) development

- ✓ Developed 2014-2017 with USACE funding
- ✓ 2 mm diameter x 12 mm length, weighs 0.08 g in air
- ✓ lasts about 30 days at a 3-second pulse rate



2. Juvenile Lamprey RM&E plan development and implementation

- ❑ plan development in 2021
- focus on potential structural/operational changes at the FCRPS dams to improve passage conditions for juvenile lamprey*
- ❑ 4-year study 2022-2025
- ❑ 1st year pilot study at LWG in 2022
- ❑ 4th year study including BON in 2025 (coincident with post-construction adult lamprey passage evaluation)



EXISTING THREATS

Knowns

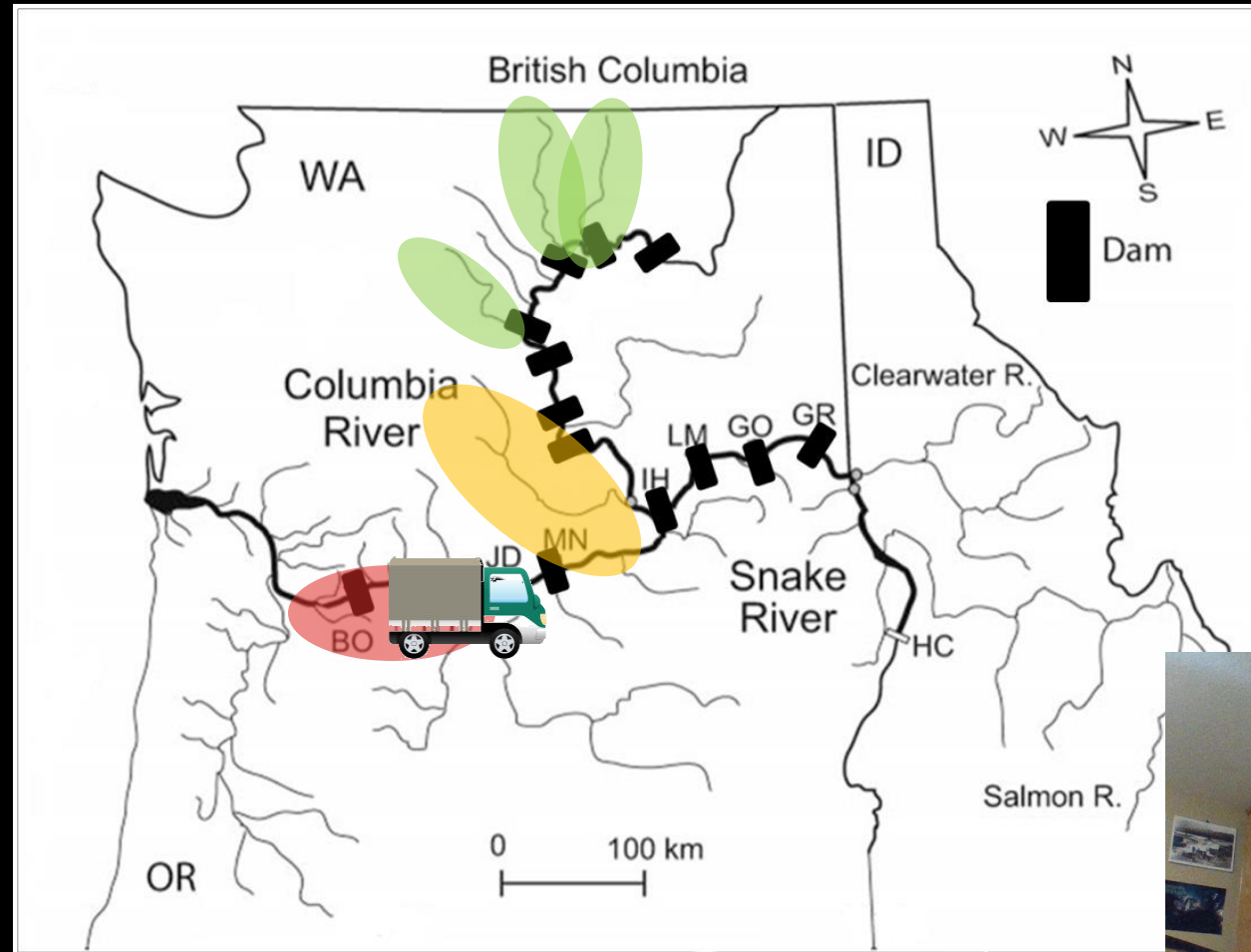
- **Adult passage**
- **Reduced habitat**
(esp. off channel habitat)
- **Larval entrainment**
(via fish screens)
- **Reduction in ocean host**
fishes (size & #s)

Unknowns (Knowledge Gap)

- **Juvenile/Larval passage**
- **Predation**
- **Contaminants/Pollutants**
- **Climate change impacts**
(ocean & fresh water)



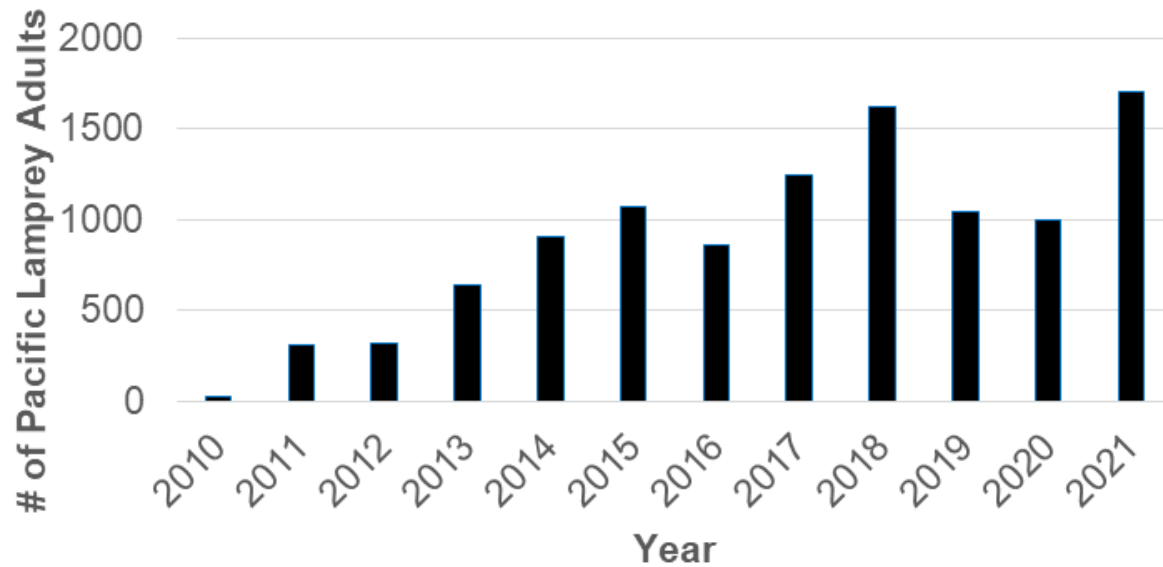
ADULT LAMPREY TRANSLOCATION BY YAKAMA NATION (2012~)



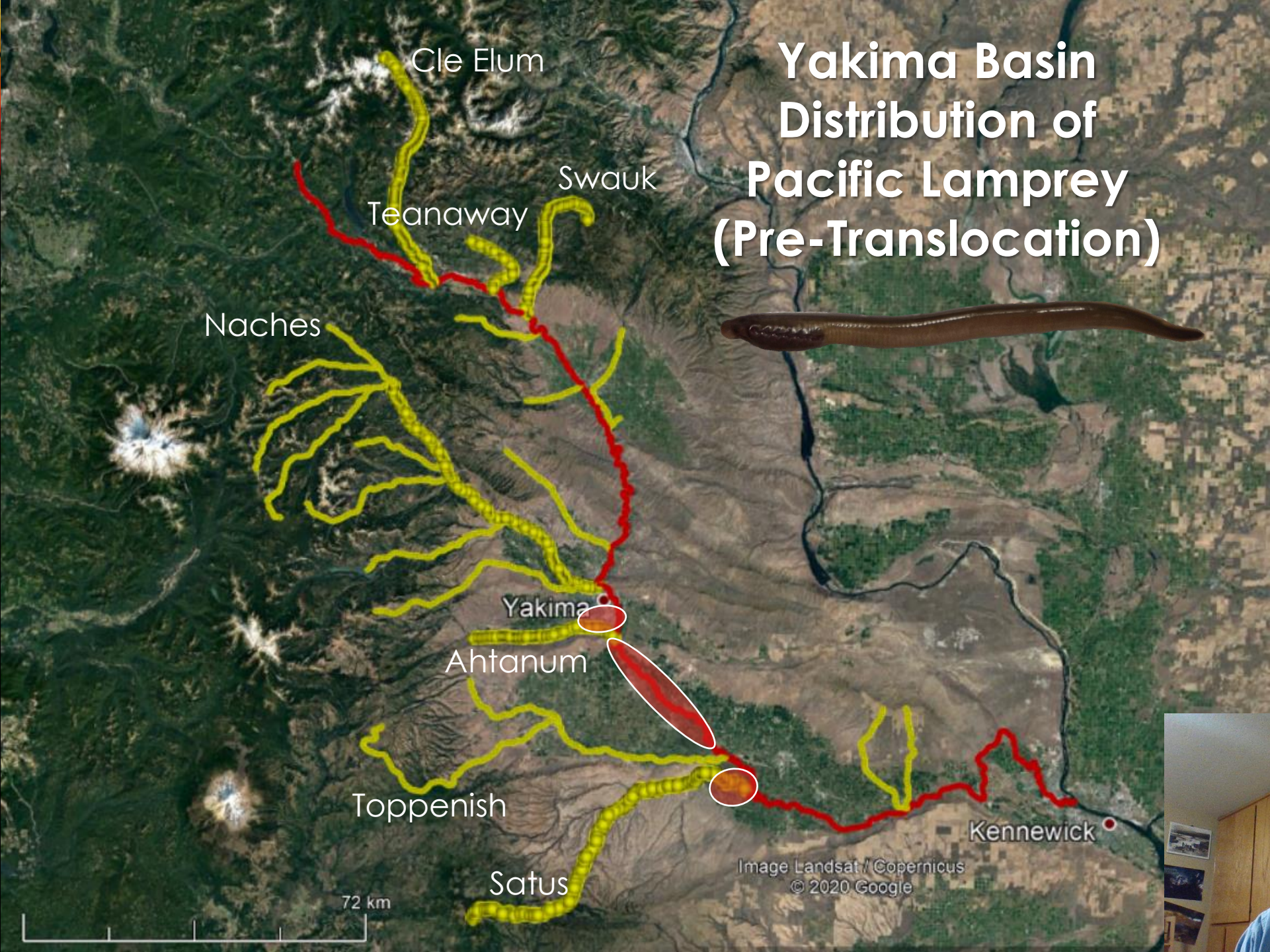
ADULT TRANSLOCATION



Yakama Nation Adult PL Translocation
from Lower Columbia Hydro Dams

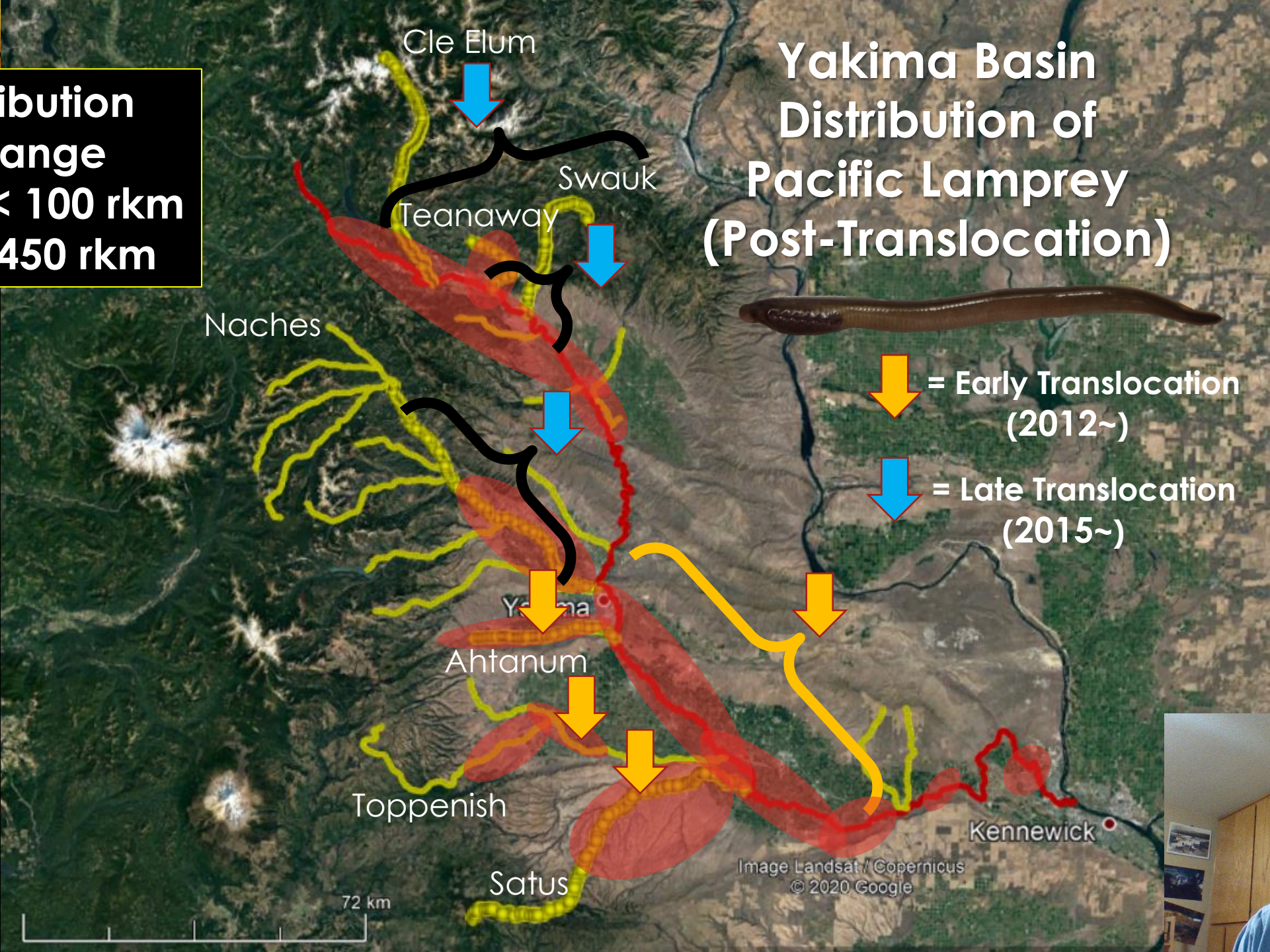


Yakima Basin Distribution of Pacific Lamprey (Pre-Translocation)



**Distribution
Change
From: < 100 rkm
To: > 450 rkm**

Yakima Basin Distribution of Pacific Lamprey (Post-Translocation)



↓ = Early Translocation (2012~)
↓ = Late Translocation (2015~)

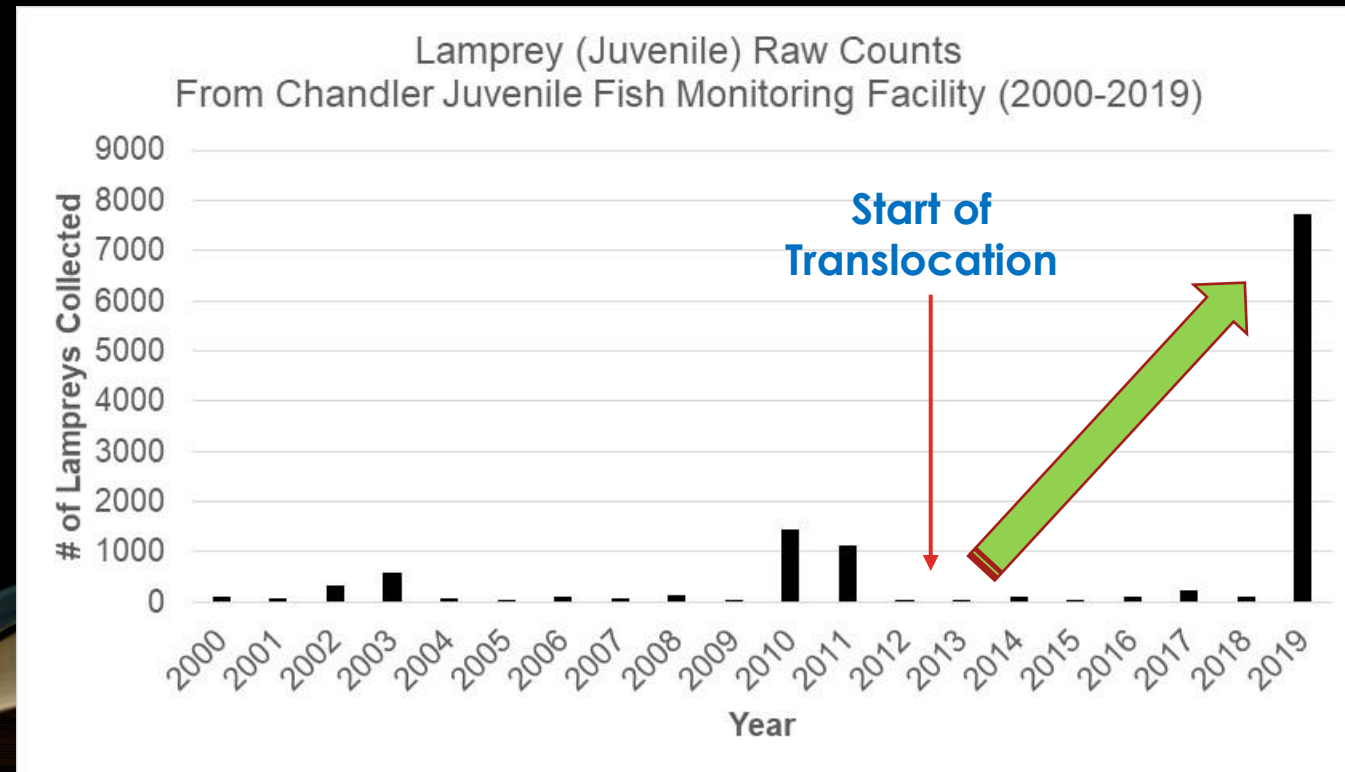


INCREASE IN YAKIMA BASIN PL JUVENILE #S (5~6 YEARS AFTER TRANSLOCATION)

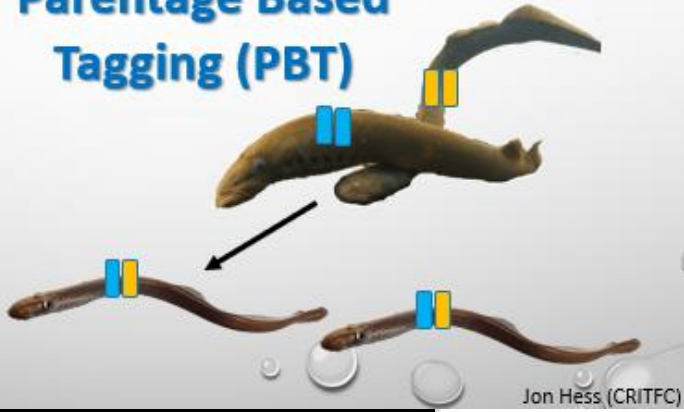
2020 Toppenish & Satus
Est. ~30,000
(from ave. ~0)
*Screw Trap Data

45 ~ 90 Fold Increase!!!

2019 Lower Yakima Est.
200,000~400,000 Juvenile
(from ave. ~5,000)
*Juvenile Fish Monitoring Facility

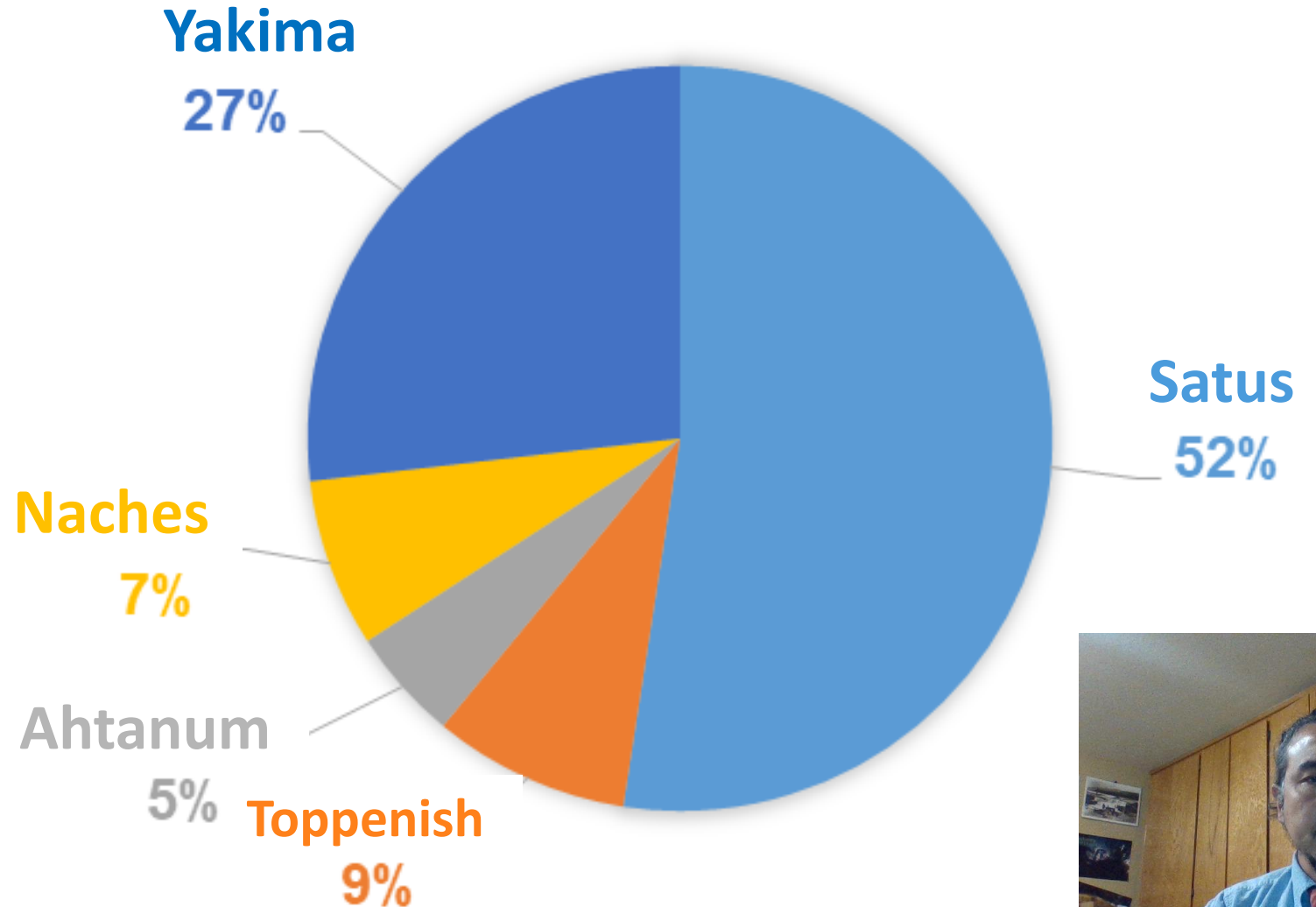


Parentage Based Tagging (PBT)

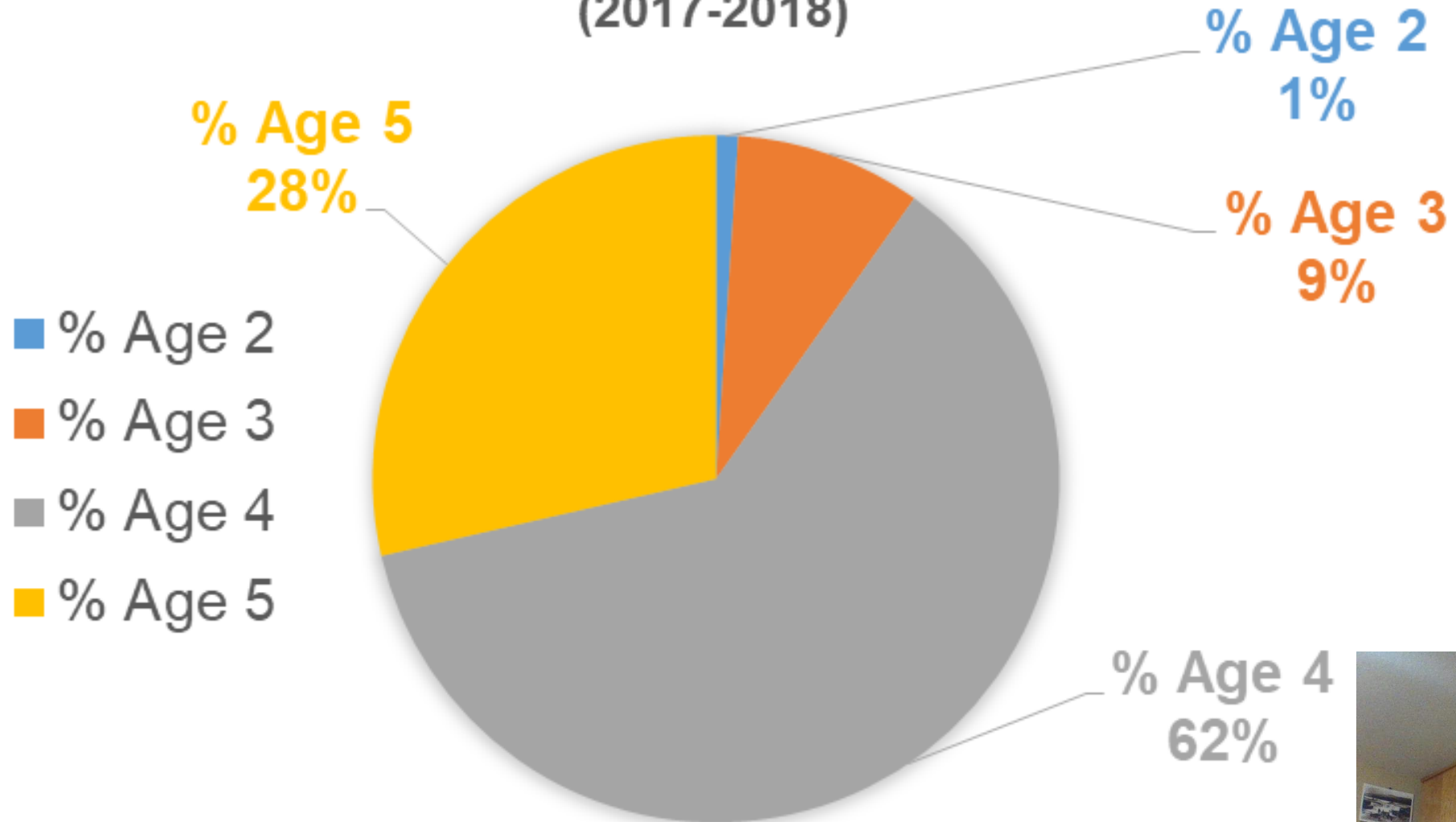


SOURCE OF ADULT TRANSLOCATION ORIGIN JUVENILE LAMPREY FROM CHANDLER JFMF (2013-2018)

- SAT
- TOP
- AHT
- NAC
- YAK



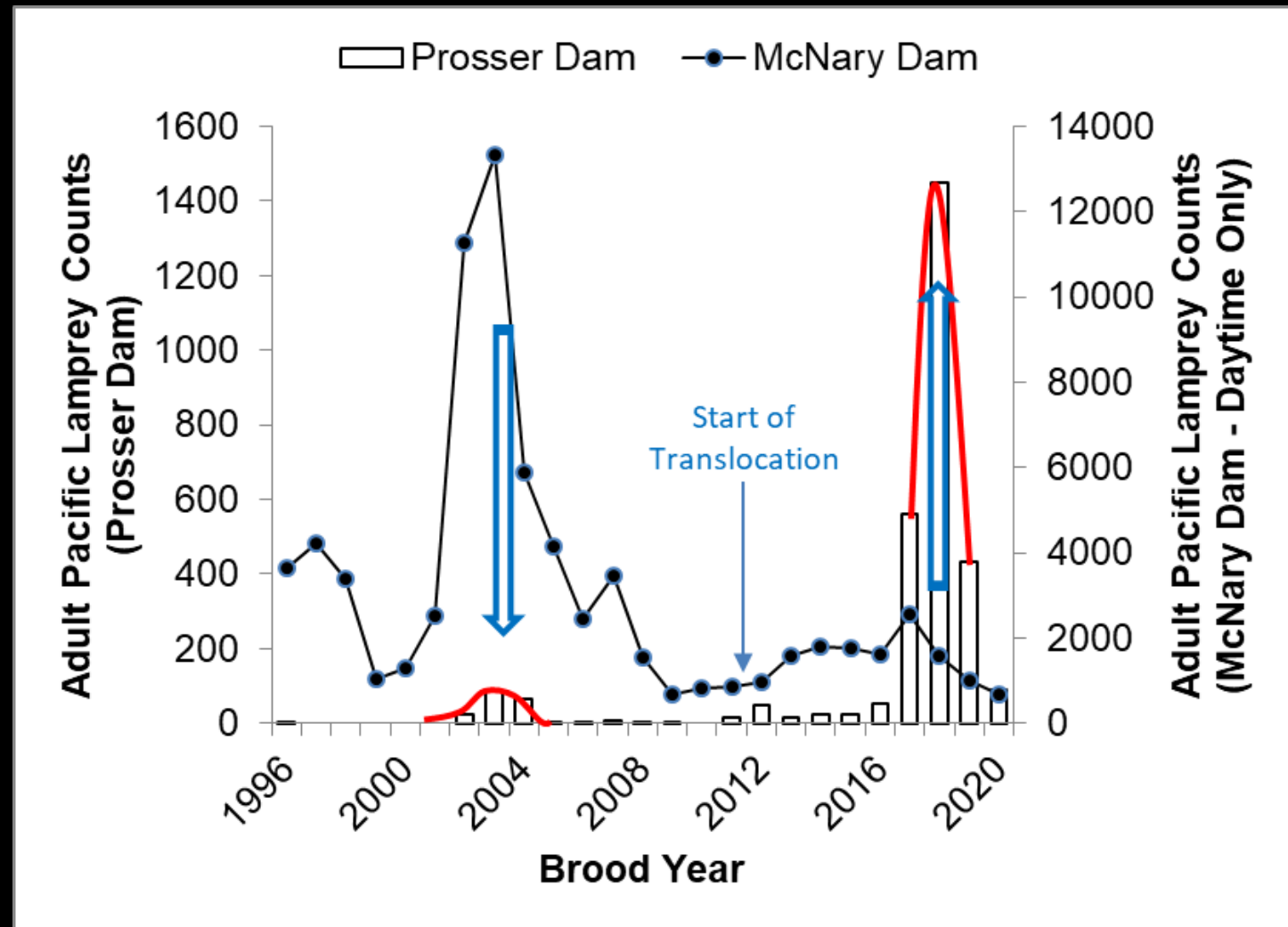
AVERAGE OUTMIGRATION AGE COMPOSITION FOR JUVENILE LAMPREY IN THE YAKIMA BASIN (2017-2018)



INCREASE IN YAKIMA BASIN PL ADULT #S (PROSSER DAM [YAKIMA R.] VS. MCNARY DAM [COLUMBIA R.]

The base level has elevated considerably compared to Early 2000s

**Goal = 10,000 - 35,000
(Harvestable)**



Is Restoration of Asum Possible?



- Yes!
- Yakima Subbasin = one of the most heavily impacted Columbia tributaries
- However, it is just the first step... (no where near the end goal!)



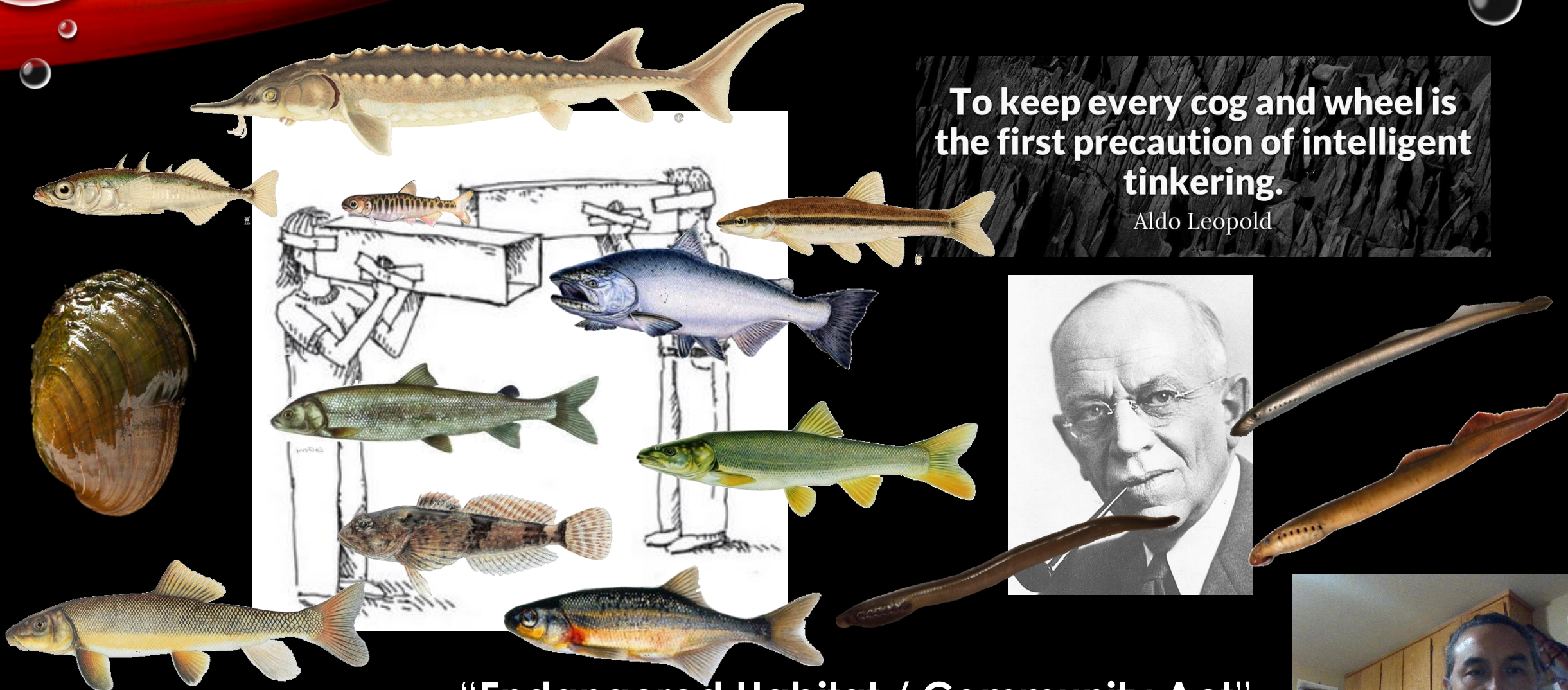
Willamette Falls, Oregon (1913)
(Clackamas County Historical Society)



PERSPECTIVES

To keep every cog and wheel is the first precaution of intelligent tinkering.

Aldo Leopold

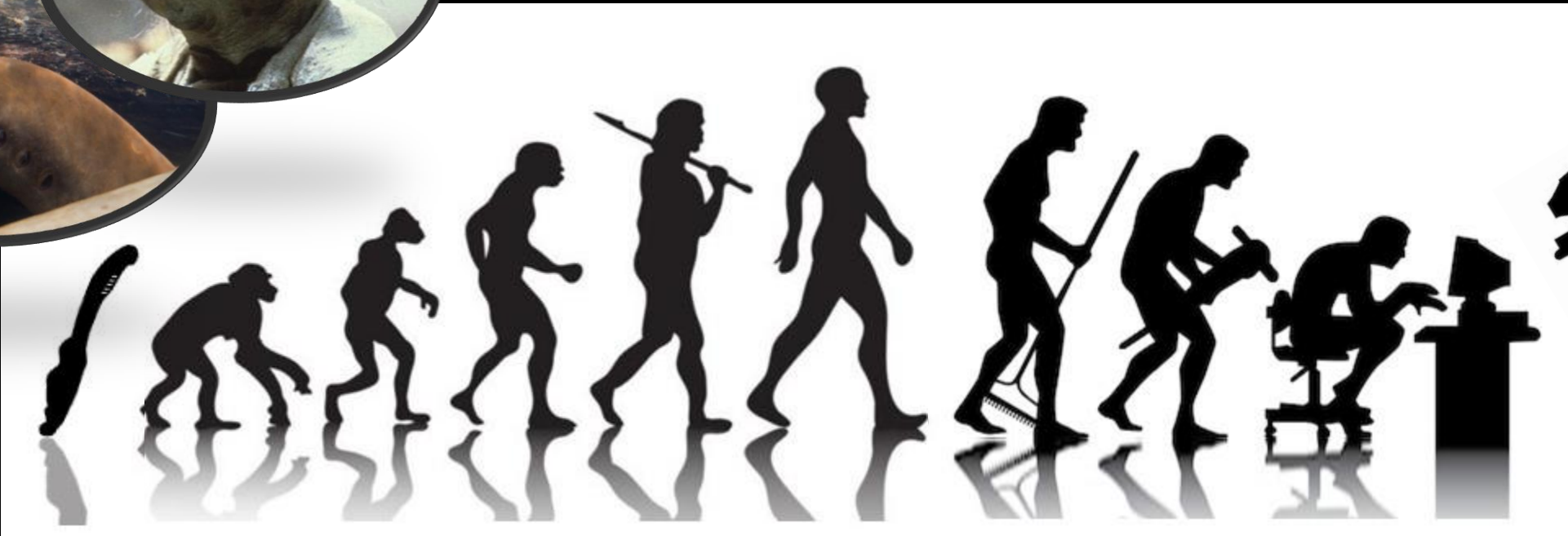


“Endangered Habitat / Community Act”

“Endangered ~~Species~~ Act”



PERSPECTIVES



**Human Evolution
(Devolution?)**



**“Is humanity
moving in the
'right' direction?”**

Wisdom?? =

**Ability to sustain life from generation to generation
(for 10s, 100s, 1000s, & millions of generations)**





2022 IS A VERY SPECIAL YEAR!



- **PL Assessment** is being updated
- **Lamprey Summit V** on December 13
- **New 2022 PL Conservation Agreement**
 - **Seeking new signatories!!!** (due September 30 –STEP Up!)
 - Because Pacific Lamprey are not ESA listed, “**voluntary participation**” & “**cooperative commitment**” is needed



**“Spiritually he is one of us”
(Elmer Crow)**

Questions?



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