

Utilizing PIT Tag Arrays to Detect Translocated Adult Pacific Lamprey in the Clearwater River Basin of Idaho



Mike Kosinski, NPT

Tod Sween, NPT

Mike Ackerman, NPT

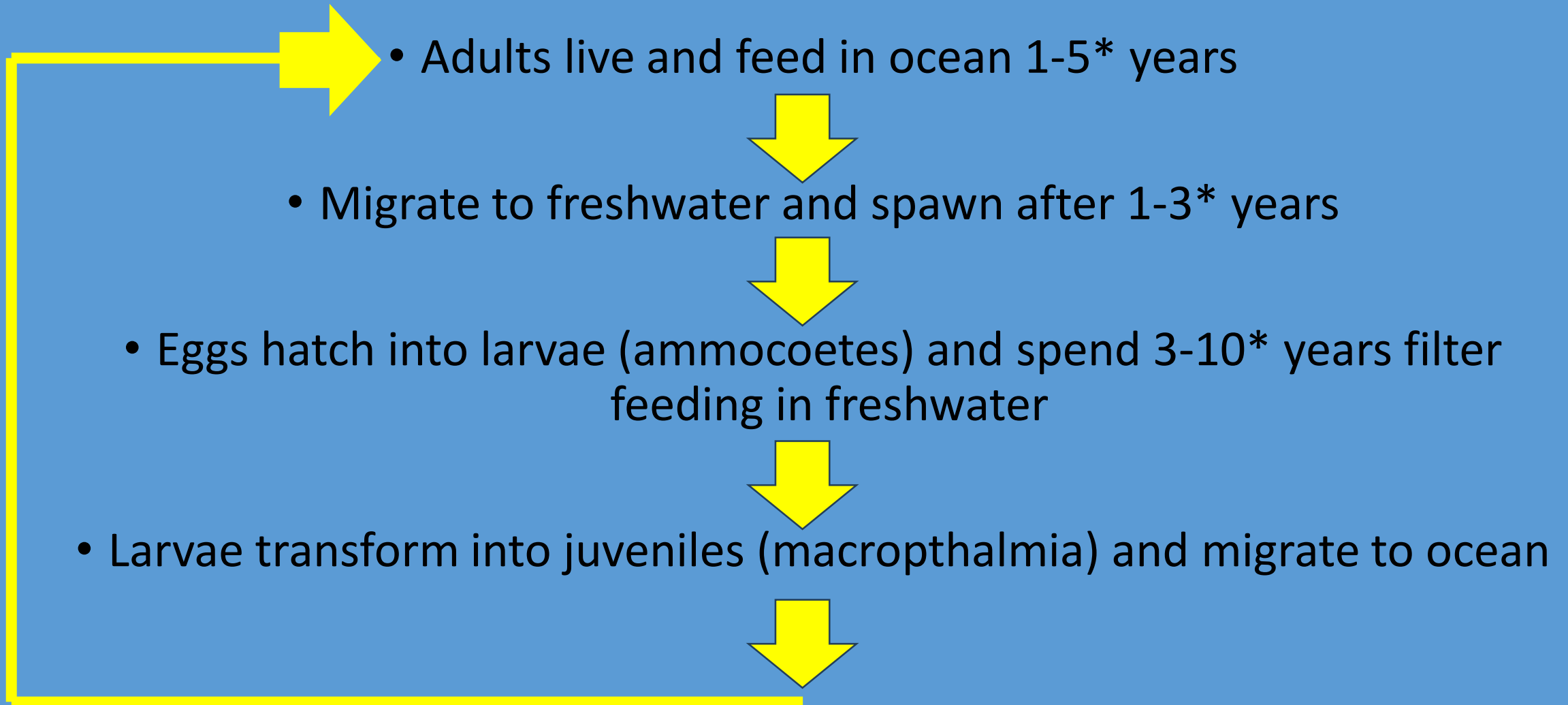
Ryan Kinzer, NPT

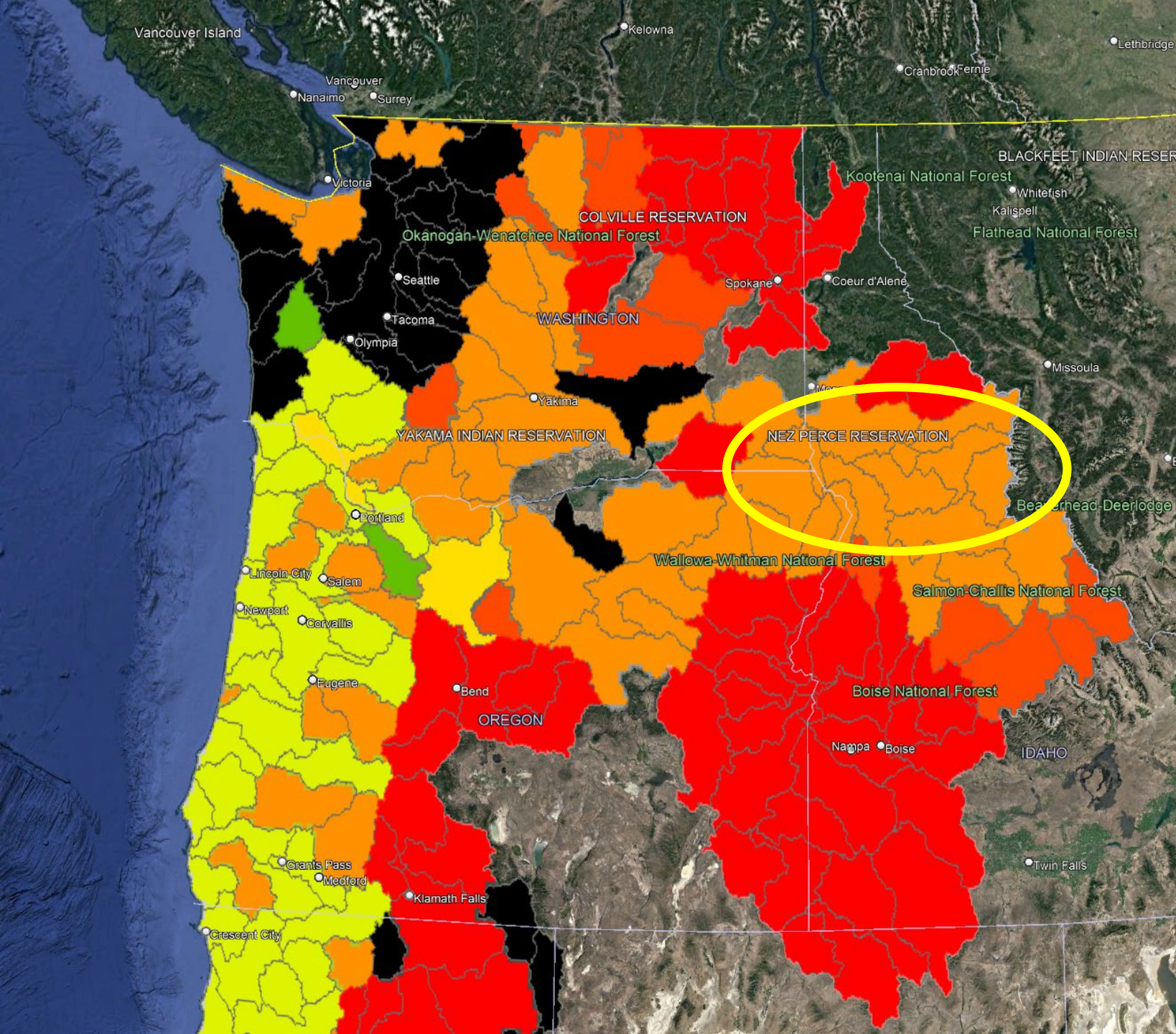


Elmer "Eelmer" Crow



Lamprey Life Cycle





An uphill (and downhill) battle for Brother Eel

*Conservation Biology Institute. Pacific Lamprey NatureServe Rankings 2017



Lamprey holding tanks at Nez Perce Tribal Hatchery on the banks of the Clearwater River near Lenore, ID

Transactions of the American Fisheries Society



FEATURE ARTICLE

Pacific Lamprey Translocations to the Snake River Boost Abundance of All Life Stages

Jon E. Hess* 

Columbia River Inter-Tribal Fish Commission, 700 Northeast Multnomah Street, Suite 1200, Portland, Oregon 97232, USA

Thomas A. Delomas¹ 

Pacific States Marine Fisheries Commission/Idaho Department of Fish and Game, Eagle Fish Genetics Laboratory, 1800 Trout Road, Eagle, Idaho 83616, USA

Aaron D. Jackson

Confederated Tribes of the Umatilla Indian Reservation, Department of Natural Resources, Fisheries Program, 46411 Timine Way, Pendleton, Oregon 97801, USA

Michael J. Kosinski

Nez Perce Tribe Department of Fisheries Resources Management, Post Office Box 365, Lapwai, Idaho 83540, USA

Mary L. Moser

National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Northwest Fisheries Science Center, Fish Ecology Division, 2725 Montlake Boulevard East, Seattle, Washington 98112, USA

Laurie L. Porter and Greg Silver

Columbia River Inter-Tribal Fish Commission, 700 Northeast Multnomah Street, Suite 1200, Portland, Oregon 97232, USA

Tod Sween

Nez Perce Tribe Department of Fisheries Resources Management, Post Office Box 365, Lapwai, Idaho 83540, USA

Laurie A. Weitkamp

National Oceanic and Atmospheric Administration Fisheries, Northwest Fisheries Science Center, 2032 Marine Science Drive, Newport, Oregon 97365, USA

Shawn R. Narum

Columbia River Inter-Tribal Fish Commission, 3059-F National Fish Hatchery Road, Hagerman, Idaho 83332, USA

*Corresponding author: hessj@critfc.org

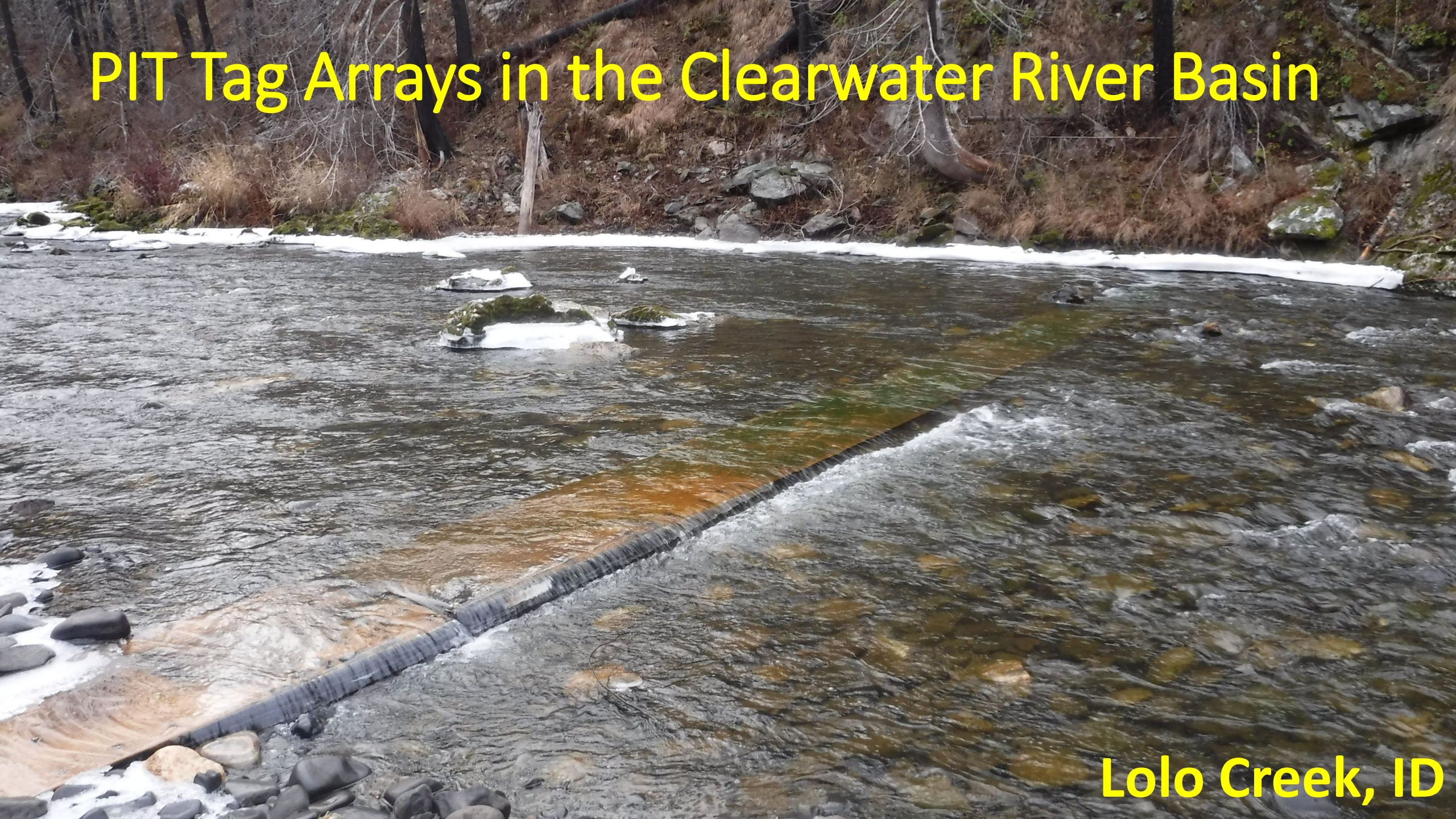
¹Present address: U.S. Department of Agriculture, Agricultural Research Service, National Cold Water Marine Aquaculture Center, 483 Center for Biotechnology and Life Sciences, 120 Flagg Road, Kingston, Rhode Island 02881, USA.

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A Unique Opportunity for Tracking Adult Lamprey

- 2018 and 2020 – good returns of adult Pacific Lamprey to the Columbia River
- July 2018 - 212 translocated adult lamprey are PIT tagged at NPTH
- July 2020 – 200 translocated adult lamprey are PIT tagged at NPTH
- Lamprey were released the same day they were tagged in to the mainstem Clearwater River near NPTH

PIT Tag Arrays in the Clearwater River Basin

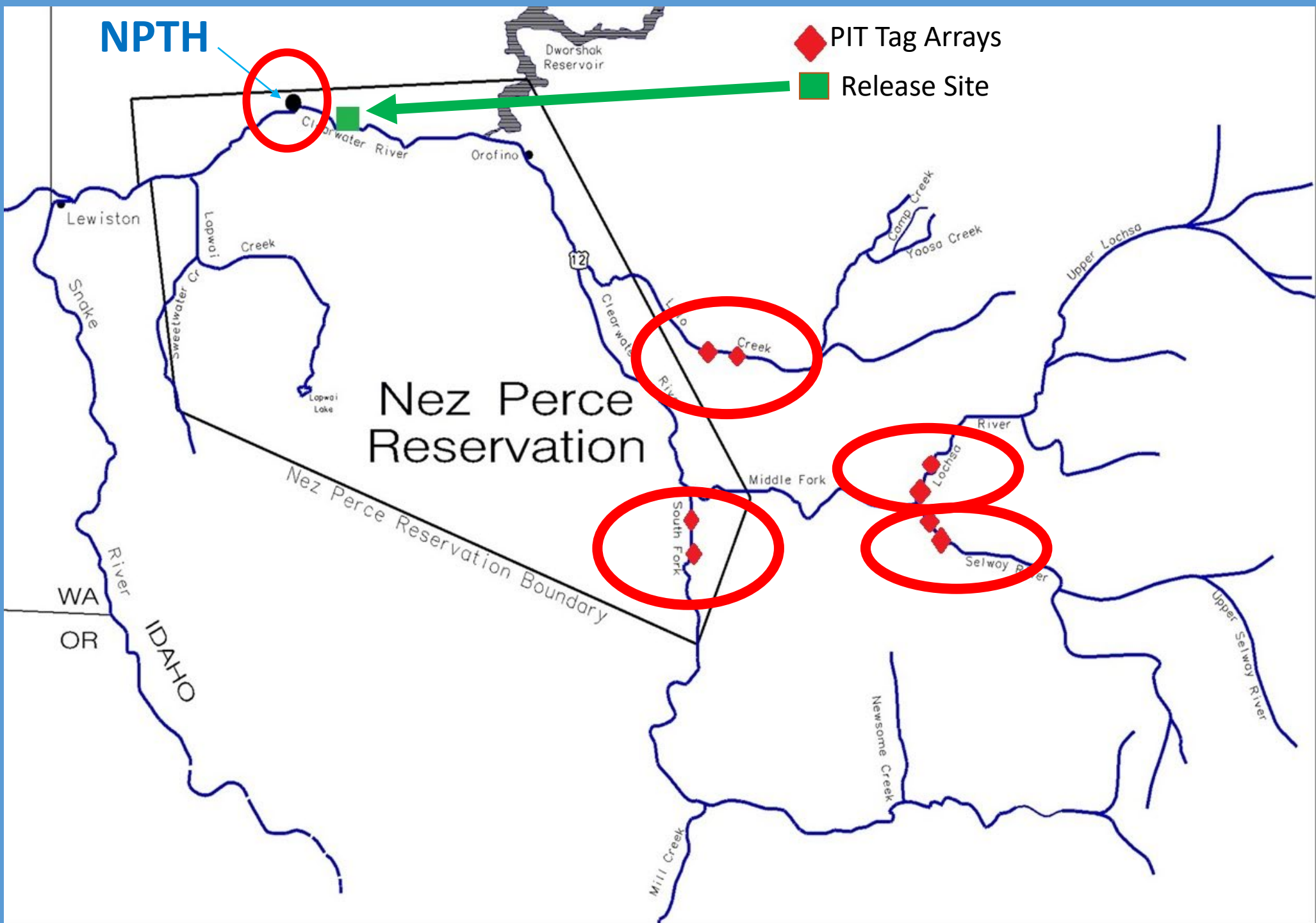


Lolo Creek, ID

NPTH

◆ PIT Tag Arrays

■ Release Site



Jay Oatman



Release Groups

- 100 each from John Day and Bonneville Dam collections (released 7/9/2018) & 12 from The Dalles collection (Released 7/12/2018)
- 100 from Bonneville and 50 each from The Dalles and John Day Dam collections all released on 7/30/2020
- All lamprey PIT tagged the morning of the day of release

Did they get detected?

Yes!

	2018	2020
Number released	212	200
Unique tags detected at arrays	139	94
Estimated number passing arrays	185	104
Estimated passage above arrays	87%	52%

First Detection Periods

- Summer/Early Fall:
7/15/2018 – 9/11/2018
8/5/2020 – 10/21/2020
- Following Spring/Summer:
4/6/2019 – 7/30/2019
6/1/2021 – 7/8/2021



Arrival Timing to the Arrays in Year of Release

2018

Earliest Arrival Time	7 days
Average Arrival Time	18 days
Latest Arrival Time	64 days

2020

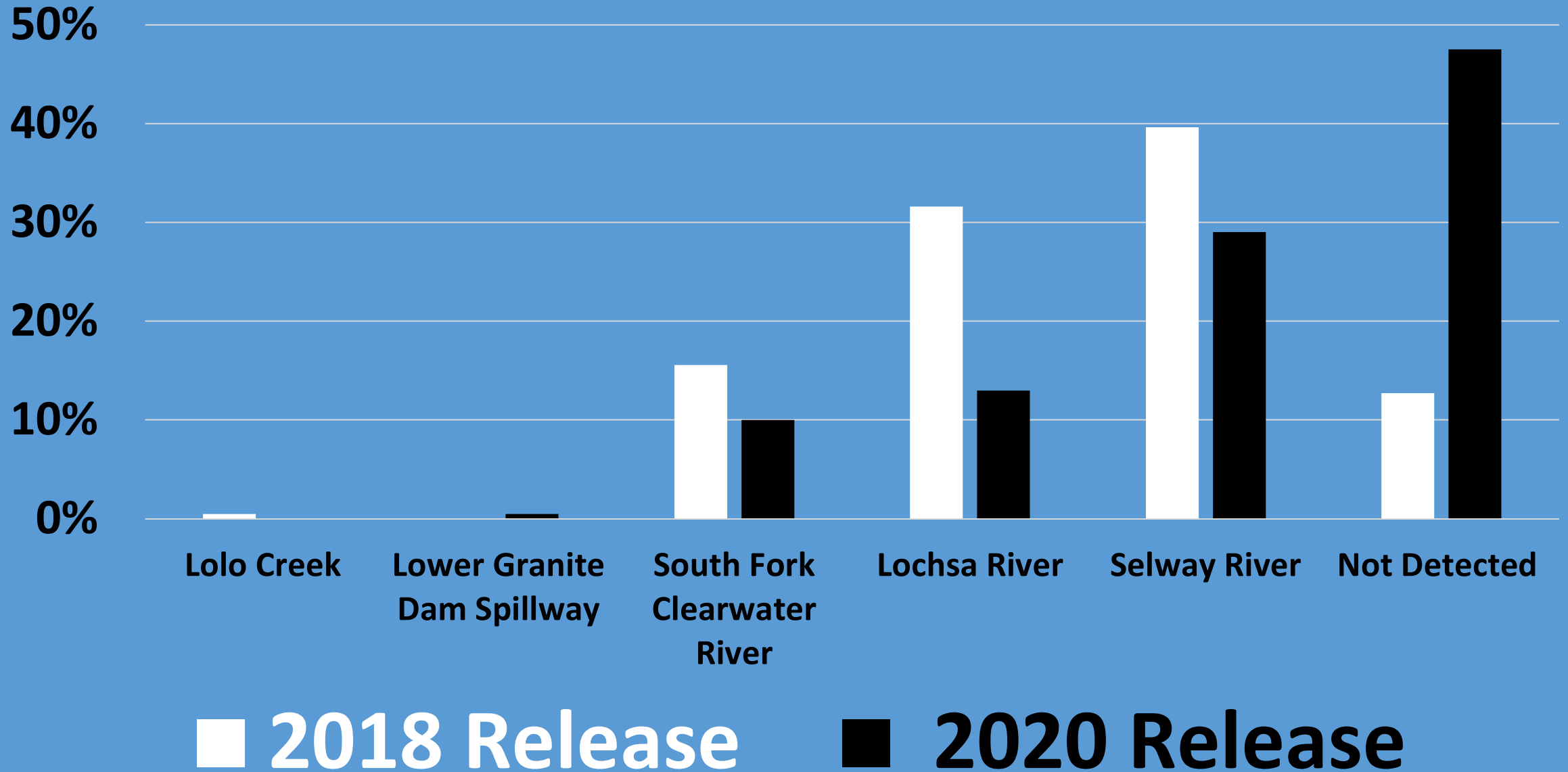
Earliest Arrival Time	5 days
Average Arrival Time	33 days
Latest Arrival Time	83 days

Detections in the Year Following Release

- 21 lamprey from the July 2018 release waited until 2019 to cross an array – the latest being 383 days after release
- 10 lamprey from the July 2020 release waited until 2021 to cross an array - the latest being 343 days after release



Estimated Detection Locations

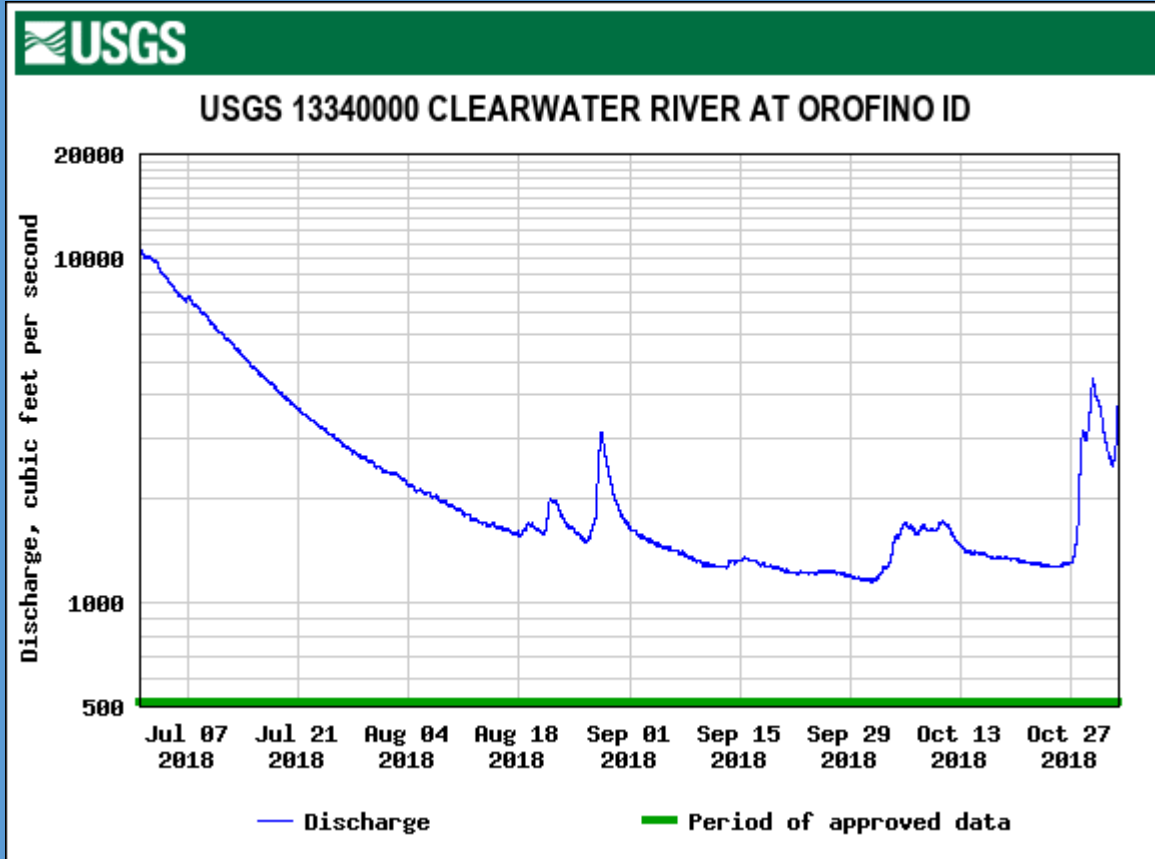


Anywhere else they could have gone?

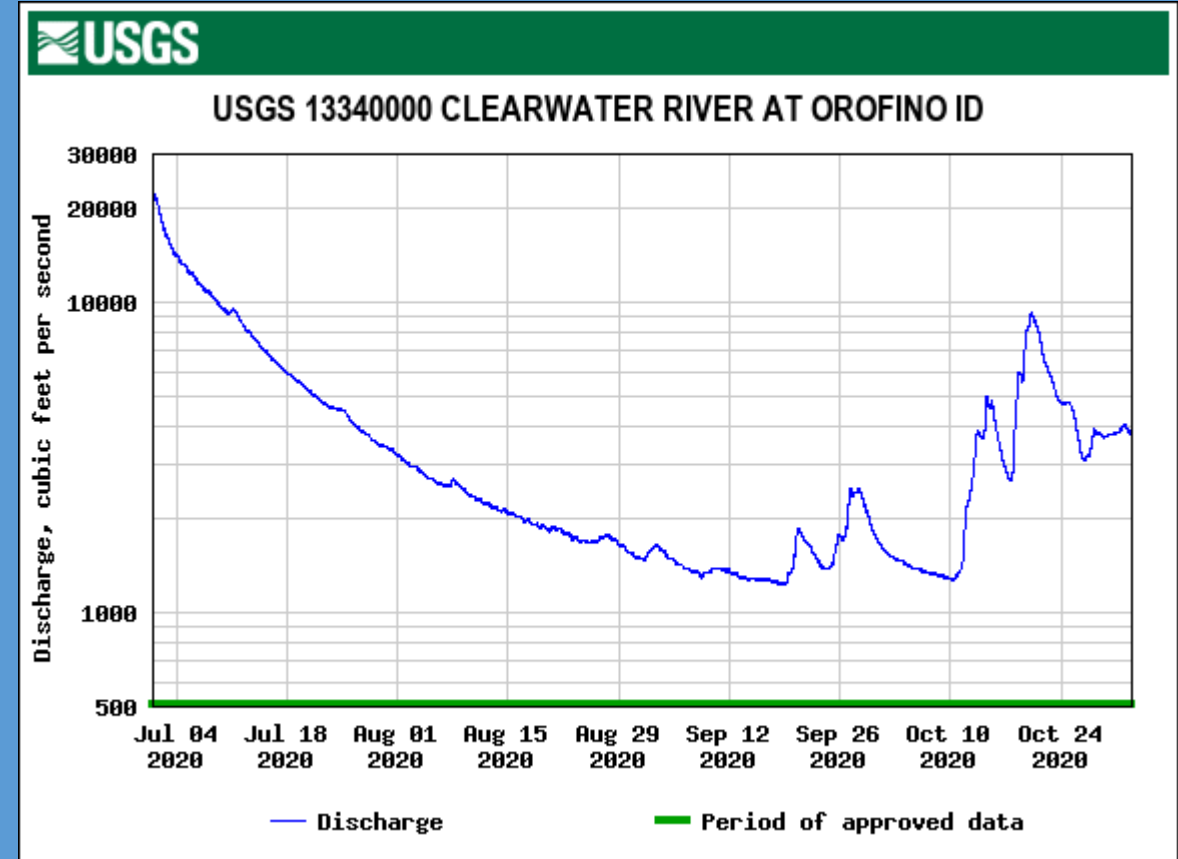
- Some fish could have overwintered downstream of the PIT arrays and been “missed” at high water in the spring, or shed their PIT tag
- Majority of small tributaries of the Clearwater River do not have PIT arrays installed
- One lamprey from the 2020 release was detected at Lower Granite Dam spillway in July 2021 without ever having been detected elsewhere.

Our lamprey prefer the cover of darkness

2018 Discharge



2020 Discharge



Closing Thoughts

- NPT has been releasing translocated lamprey into Lolo Creek and Newsome Creek (tributary of the SFCWR) for years, and those streams hold thousands of ammocoetes. Potential pheromone plume?
- PBT tracking is the main programmatic emphasis for tracking translocated lamprey and their progeny, but PIT tags can reveal much more of the lamprey behavior and stream choices
- Future PIT tagging of adult lamprey by NPT will occur on a limited basis, when specific questions or opportunities come along, such as the now increased direct releases of translocated adult lamprey

The Future:

- Direct release of translocated lamprey will expand
- Lamprey themselves will now choose where to spawn
- Goal of NPT is healthy and harvestable lamprey populations in the Snake River Basin

