January 30, 2024

MEMORANDUM

TO: **Fish and Wildlife Committee Members**

FROM: **Stacy Horton, Washington Policy Analyst/Biologist**

SUBJECT: **Update on Northern Pike Predator Control Efforts**

BACKGROUND:

Presenters: Chris Donley, Region 1 Fish Program Manager, Washington Department of Fish and Wildlife, Marc Terrazas, Fisheries Biologist Spokane Tribe of Indians, Holly McLellan, Aquatic Invasive Species Manager, Confederated Tribes of the Colville Reservation, Joe Maroney, Director of Fishery and Water Resources, Kalispel Tribe, Angelo Vitale, Fisheries Program Manager, Coeur d' Alene Tribe and Jon Firehammer, Research Monitoring and Evaluation Specialist, Coeur d' Alene Tribe.

Summary: Fish and Wildlife managers from the Upper Columbia will provide the Council with an update on efforts to control the non-native invasive northern pike. Presenters will discuss the expansion of northern pike in the Basin, trend information on northern pike population numbers, a brief update on Rapid Response planning, efforts to prevent dispersal, and will report on research data compiled by the Coeur d' Alene Tribe.

Relevance: Northern pike are known to be a voracious predator of salmonids, with potential devastating impacts to ESA-listed salmon and steelhead if dispersal below Chief Joseph Dam occurs. Efforts to keep the northern pike confined above Grand Coulee Dam have been underway since they first took hold in Lake Roosevelt in 2011. Additional concerns exist about predation by northern pike on native fish like cutthroat trout, redband trout and bull trout in Lake Roosevelt and Lake Coeur d'Alene.

Background: The 2014 Columbia River Basin Fish and Wildlife Program has a strategy for 'Non-native and Invasive Species' designed to evaluate potential adverse impacts from invasives, prevent their establishment and dispersal, supports their removal and eradication and finally calls for coordination with the region on efforts to track and monitor data on species distribution and movement. Education and outreach are an essential part of any successful suppression effort.

The 2020 Addendum to the 2014 Columbia River Basin Fish and Wildlife Program calls on Bonneville, Corps of Engineers, Bureau of Reclamation, NOAA, state fish and wildlife agencies and Columbia Basin tribes to adequately sustain and support efforts to reduce, increase and revise predation efforts as necessary.

More Info:

Colville Tribes Northern Pike Reward Program Information Site
https://www.cct-fnw.com/northern-pike

Northwest Power and Conservation Council Invasive Northern Pike webtool
This webtool displays information on the northern pike problem, management stories, provides monitoring data, and lets others know how to get involved.
https://pike.nwcouncil.org/

A Review of Predation Impacts and Management Effectiveness for the Columbia River Basin
COUNCIL DOCUMENT NUMBER: **ISAB 2019-1**
PUBLISHED DATE: MAY 3, 2019
https://www.nwcouncil.org/isab2019-1

Upper Columbia River Basin Northern Pike Monitoring and Suppression Update

Presented by:

Holly McLellan and Shay Jasper (Confederated Tribes of the Colville Reservation)

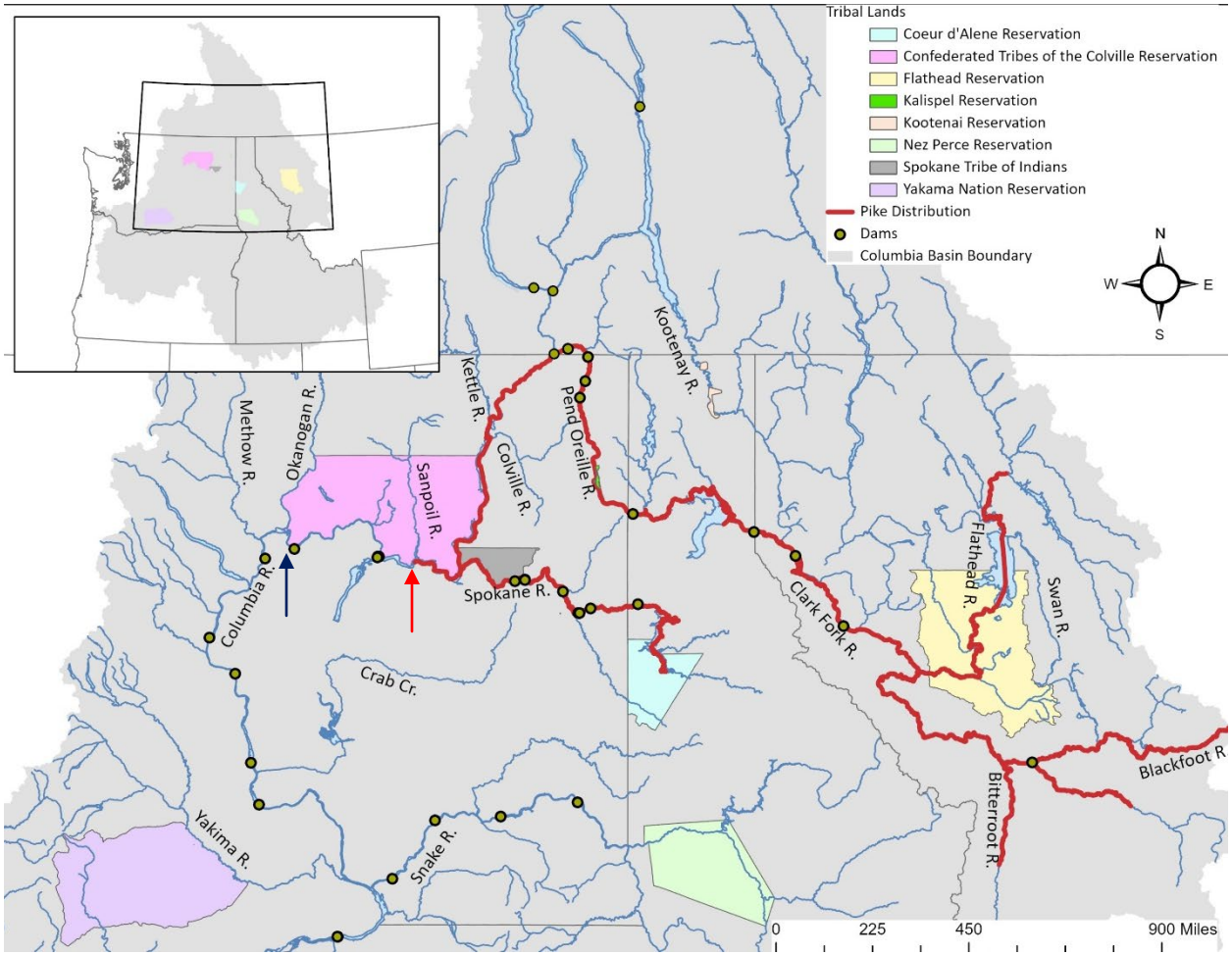
Marc Terrazas and D.J. Sebastian (Spokane Tribe of Indians)

Joe Maroney and Nick Bean (Kalispel Tribe of Indians)

Chuck Lee and Tyler Parsons (Washington Department of Fish and Wildlife)

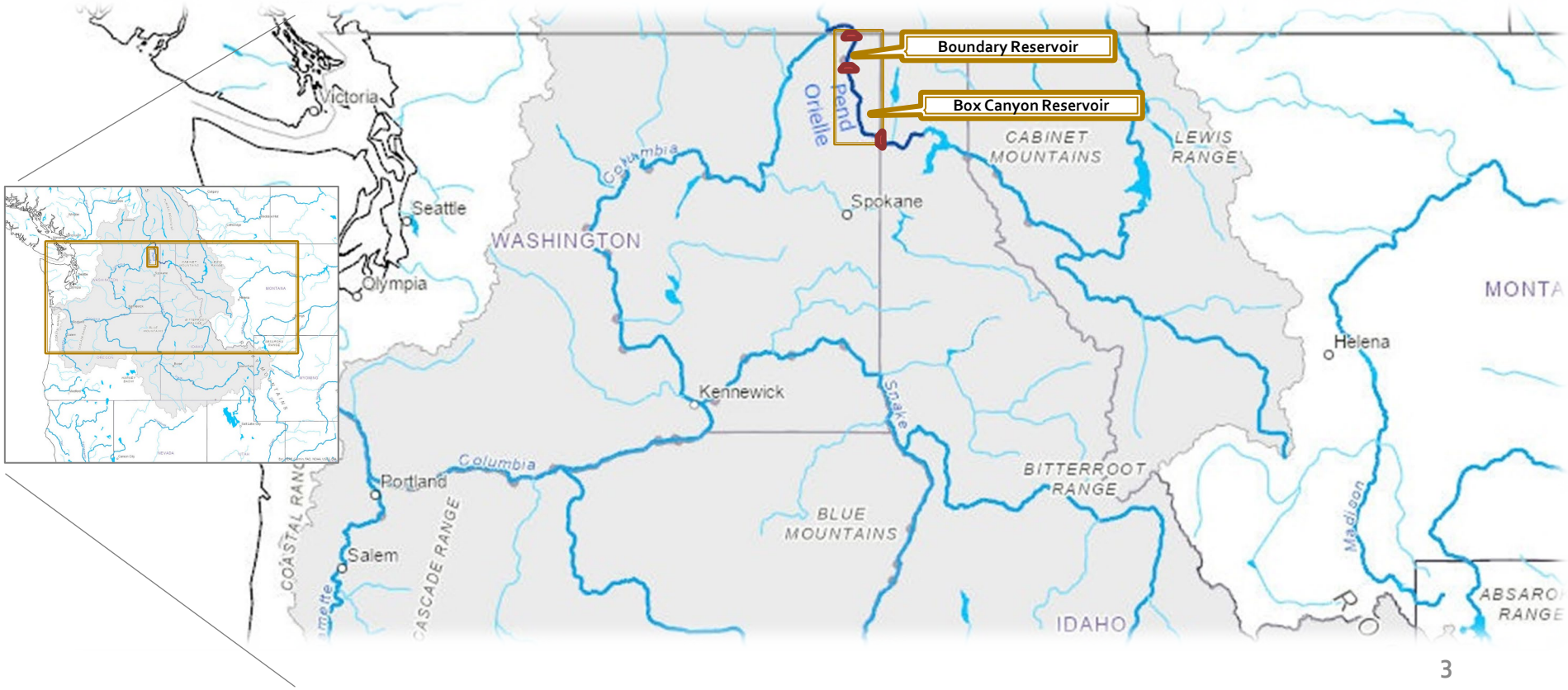
Presented to the Northwest Power and Conservation Council - February 6th, 2024

Upper Columbia River Basin Northern Pike Distribution



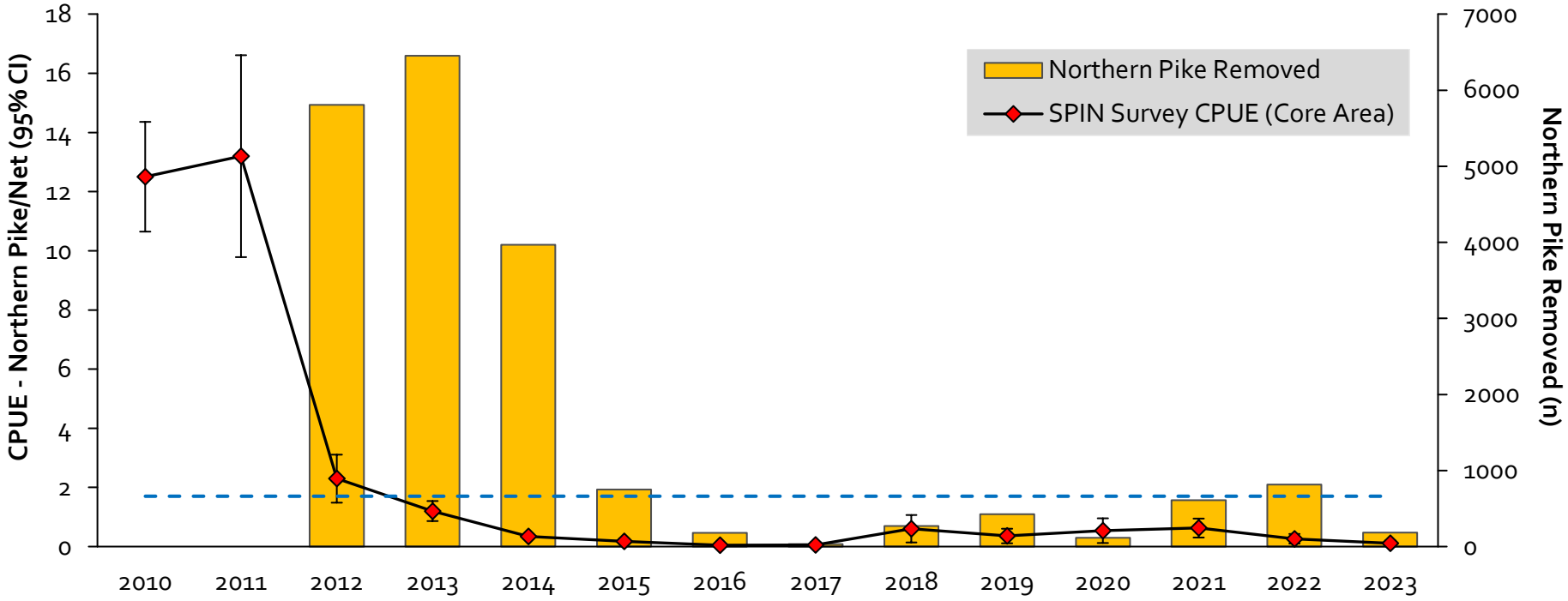
- Introductions in Montana in mid 1950's
- Establishment in Clark Fork and CDA systems in 1970's
- Established in Spokane River by 1979
- First observations in Pend Oreille River (WA) in 2004
- Established in mainstem upper Columbia River by 2010
- As of 2019, captured 10 km upstream of Grand Coulee Dam (70 km from Chief Joseph Dam)
- No further downstream detections yet

Northern Pike Suppression
Pend Oreille River, Washington



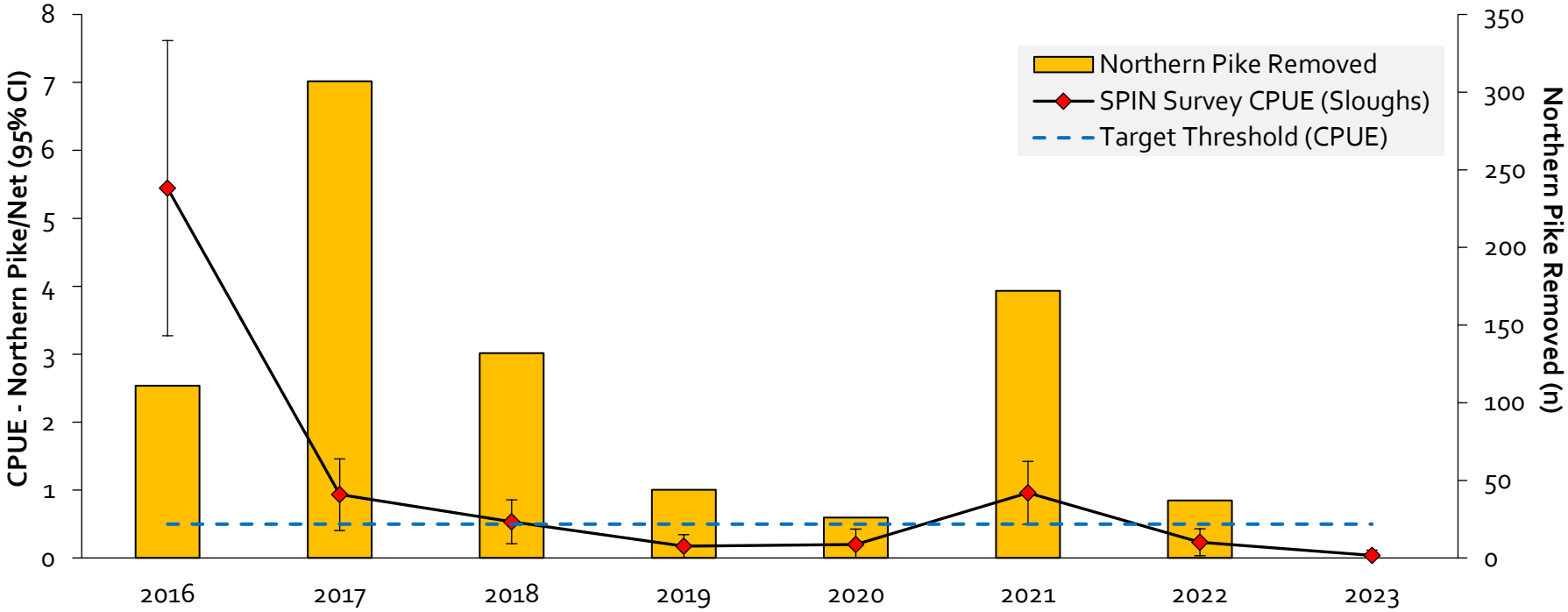
Box Canyon Reservoir

- Since 2012, a total of 19,614 pike removed (6,915 nets)
- Majority removed in first 3 years (2012-14)
- Pre-Suppression (2010-11) SPIN CPUE very high
- Maintained low abundance with reduced effort (2016-on)
- >99% reduction in CPUE from 2011 to 2023 (core area)



Boundary Reservoir

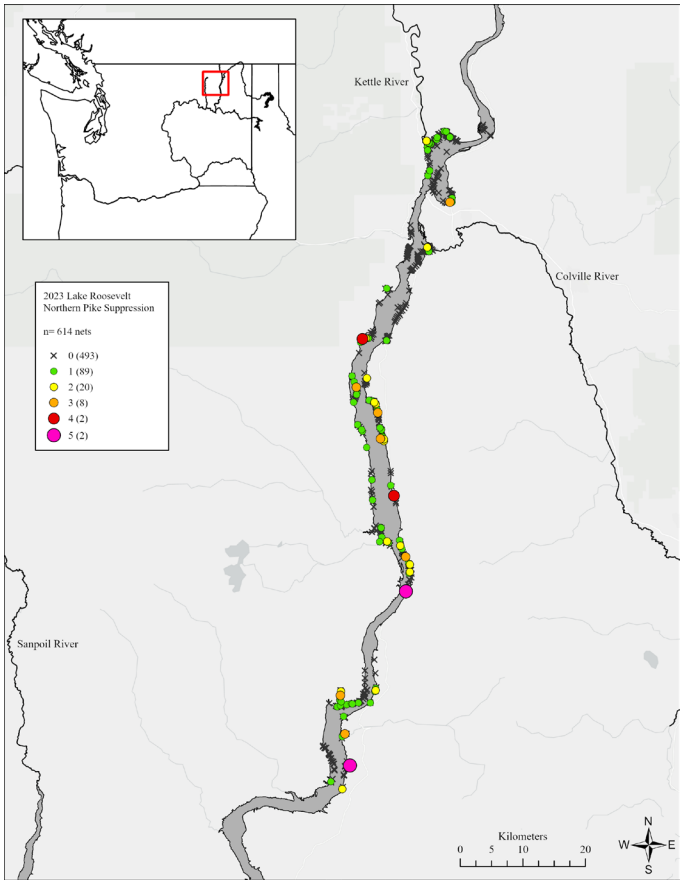
- Since 2016, a total of 829 pike removed (676 nets)
- 2017 1st year significant effort applied (2016 pilot)
- Reduced effort now required to maintain population
- >95% reduction in CPUE from 2016 to 2023



Washington Department of Fish and Wildlife Northern Pike Suppression

2023 FDR Suppression

- Effort: 614 Nets
- Total NP: 171
- CPUE: 0.28 NP/Net
- Proportion Positive Catch: 0.20
- Mean TL: 485 mm; (19.1 in)
- TL Range: 320-745 mm; (12.6–29.3 in)
- Mean WT: 927 g (2.0 lbs)
- WT: 150-3,100 g (0.3-6.8 lbs)
- Sex Ratio: 1.1:1 (M:F)

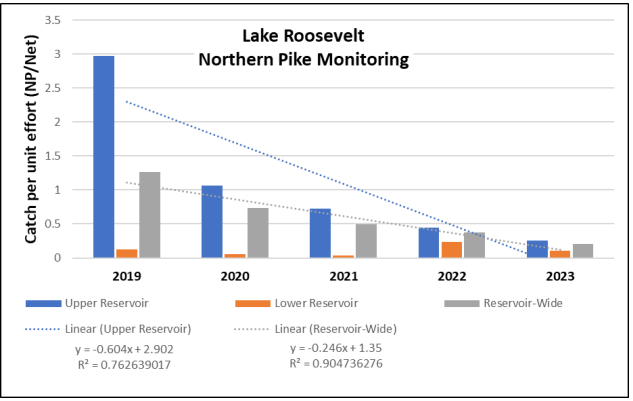


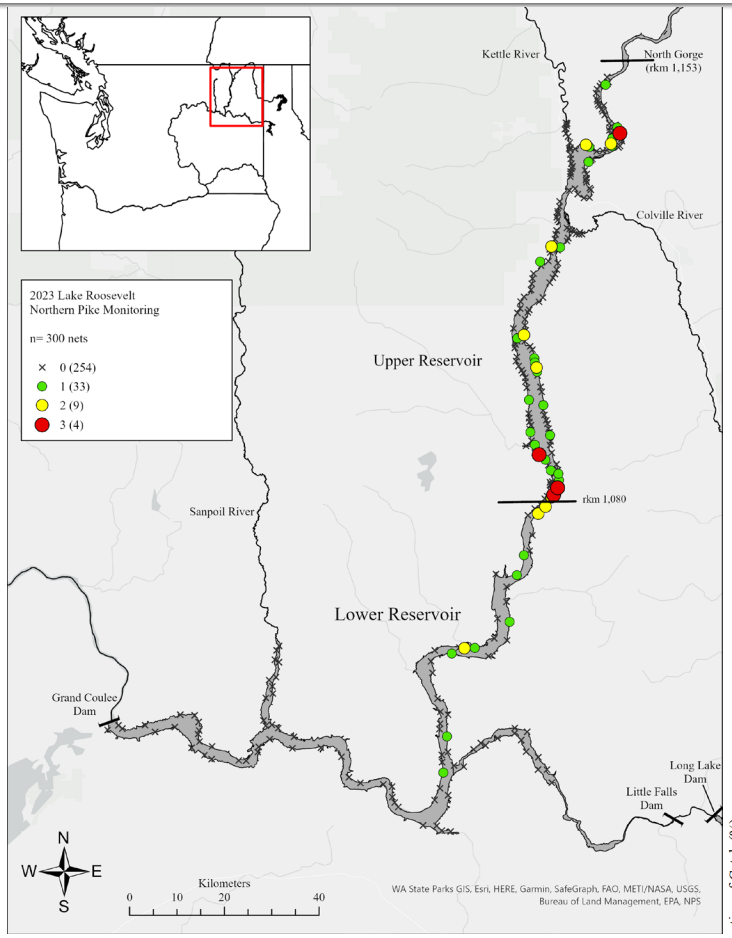
Year	Nets	NP
2019	30	34
2020	90	200
2021	1,203	608
	Seine	209
2022	1,055	463
2023	614	171
Total	**2,378**	**1,514**

Lake Roosevelt Northern Pike Monitoring

Monitoring Survey Design

- Fall Season (first week of November)
- Geospatial Random-Tessellation Stratified (GRTS)
- Stratified
  - Upper Reservoir (200 nets)
  - Lower Reservoir (100 nets)
- Spatially Balanced
- Equal Probability
- Northern Pike Habitat
  - Slope 25%
  - Depth <50 ft





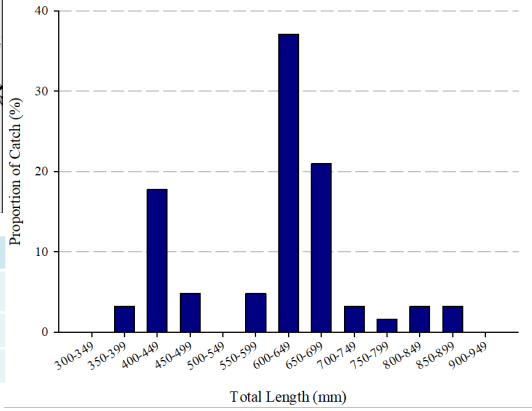
Location	2019	2020	2021	2022	2023
Upper Reservoir	2.97	1.06	0.72	0.44	0.26
Lower Reservoir	0.13	0.06	0.04	0.24	0.11
Reservoir-Wide	1.26	0.73	0.49	0.37	0.21

2023

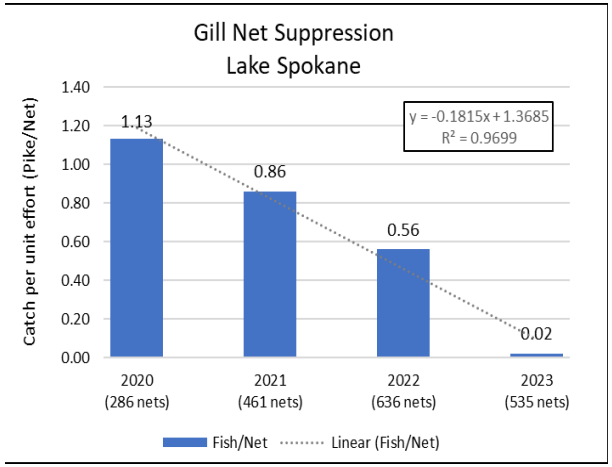
Effort = 300 Nets

n = 63 Total Northern Pike

- 52 Upper Reservoir
- 11 Lower Reservoir
- Mean TL: 600 mm (23.6 in)
- TL Range 355-880 mm (14.0-34.6 in)
- Mean WT: 1,769 g (3.9 lbs)
- WT: 330 – 6,220 g (0.7 - 13.7 lbs)
- Sex Ratio: 0.9:1.0 (M:F)



Northern Pike Suppression at Lake Spokane



2023 Lake Spokane

Efforts = 535 Nets

N = 11 Northern Pike

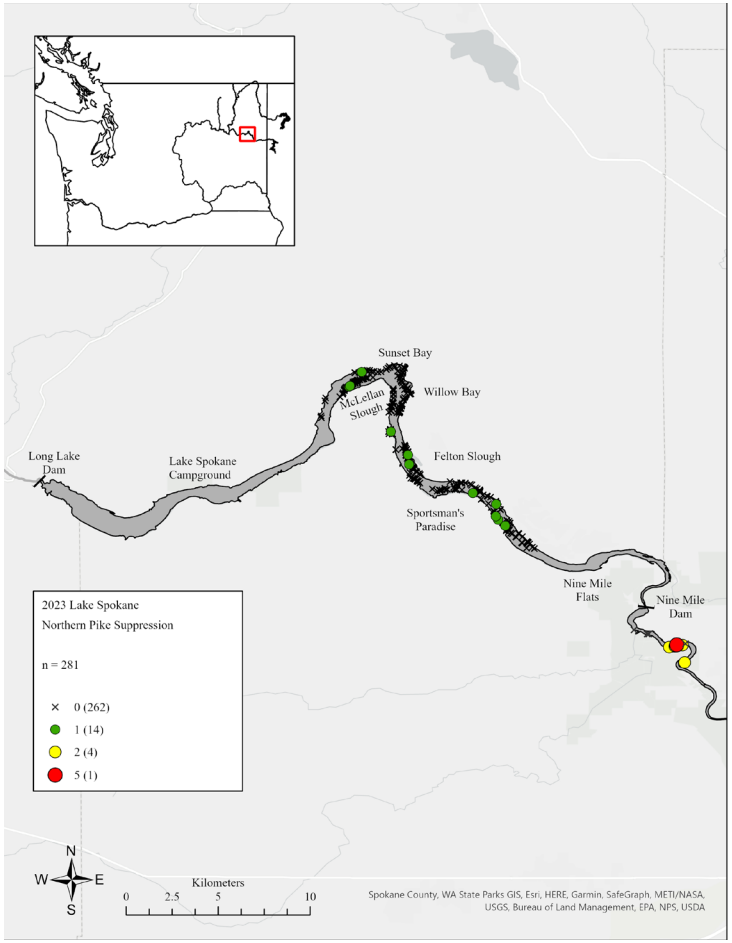
CPUE = 0.02 NP/Net

- Mean TL: 624 mm (24.6 in)
- TL Range: 472-754 mm (18.6-29.7 in)
- Mean WT: 1,964 g (4.3 lbs)
- WT Range 1,964 g (1.4-7.8 lbs)

2020-2023

1,918 Nets Set

1,087 Northern Pike Removed



2023 Nine Mile Reservoir

Effort = 12 Nets

N = 16 Northern Pike

CPUE = 1.33 NP/Net

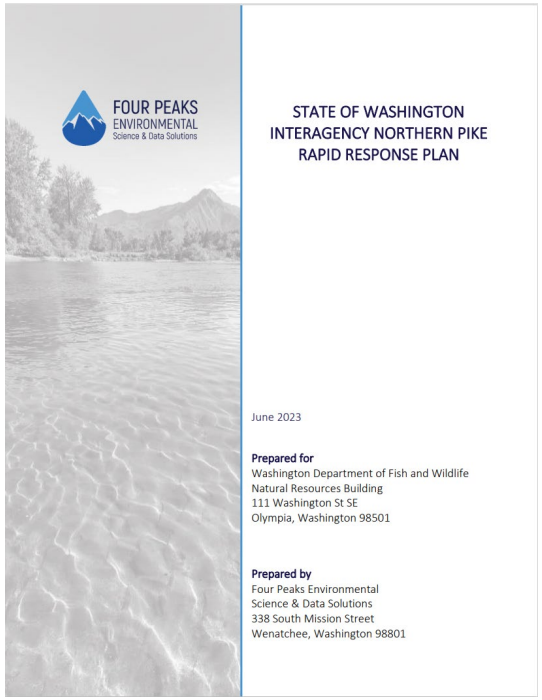
- Mean TL: 784 mm (30.9 in)
- TL Range: 666-1,080 mm (26.2-42.5 in)
- Mean WT: 4,383 g (9.7 lbs)
- WT Range 2,190 – 10,580 g (4.8-23.3 lbs)

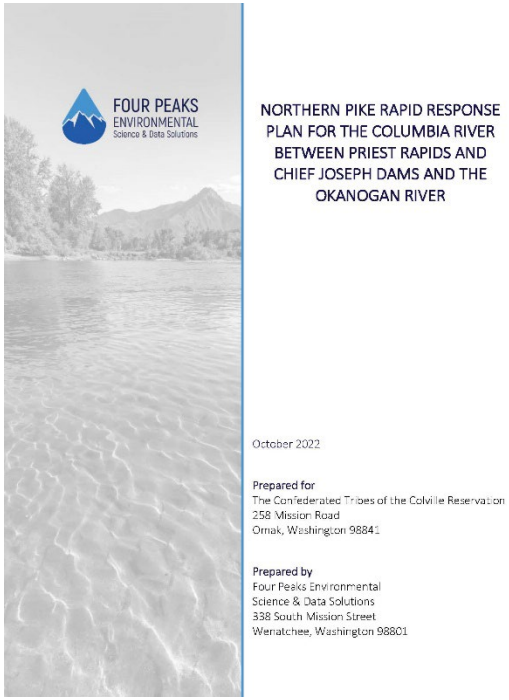
WDFW 2024 Plans

- Spring Suppression at Lake Roosevelt (April-June)
- All Hands Suppression (May)
- Spring Suppression at Lake Spokane (March-June)
- Fall Monitoring at Lake Roosevelt (November)
- Develop GRTS monitoring survey at Lake Spokane
  - Implement Spring and Fall pilot to evaluate best season for monitoring

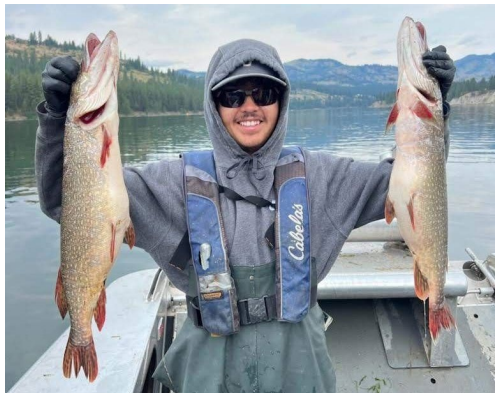
Northern Pike Rapid Response

- Two Northern Pike Rapid Response plans have been developed
- Washington State Plan (finalized June 2023)
  - Over-arching state plan with specifics on ICS Command and Multi-agency Coordination
- Mid-Columbia reservoirs plan (finalized October 2022)
  - Designed to complement the State plan with specific details for the region
    - Example: specifically who will be called and who has funding and equipment to rapidly respond



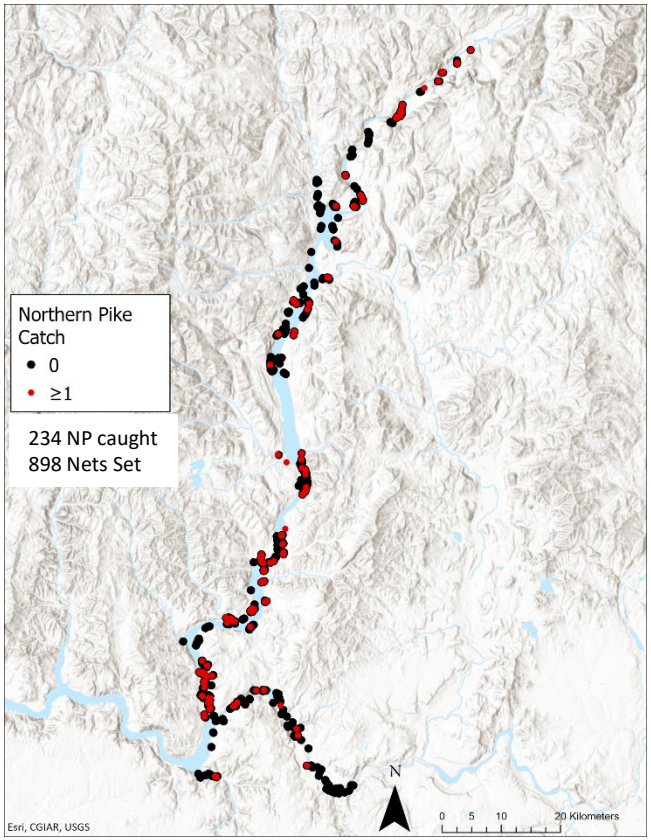


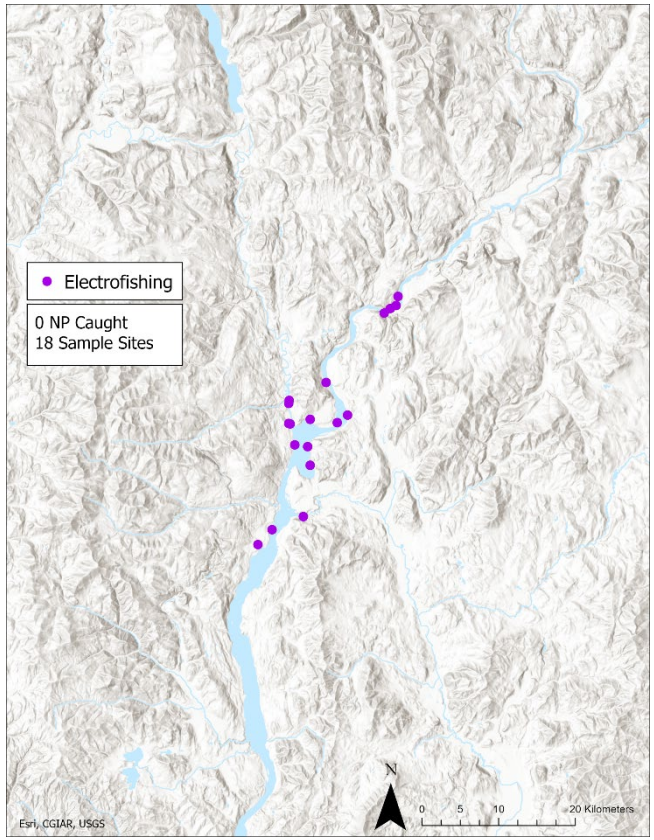
Spokane Tribe – Suppression



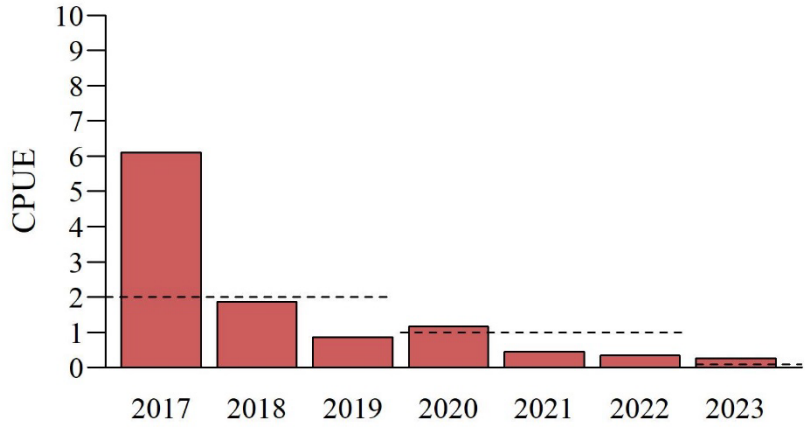
2023 FDR Suppression

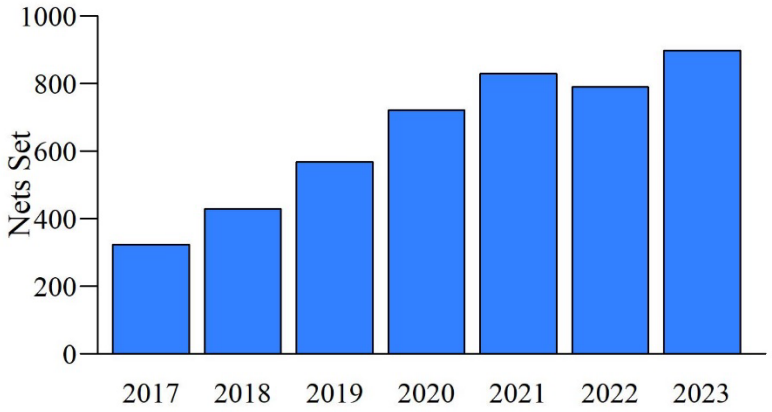
- Effort: 898 Nets
- Total NP: 234
- CPUE: 0.26 NP/Net
- Proportion Positive Catch: 0.197
- TL: 289 - 834 mm (mean = 473 mm)
- Sex Ratio: 1.3 : 1 (M:F)





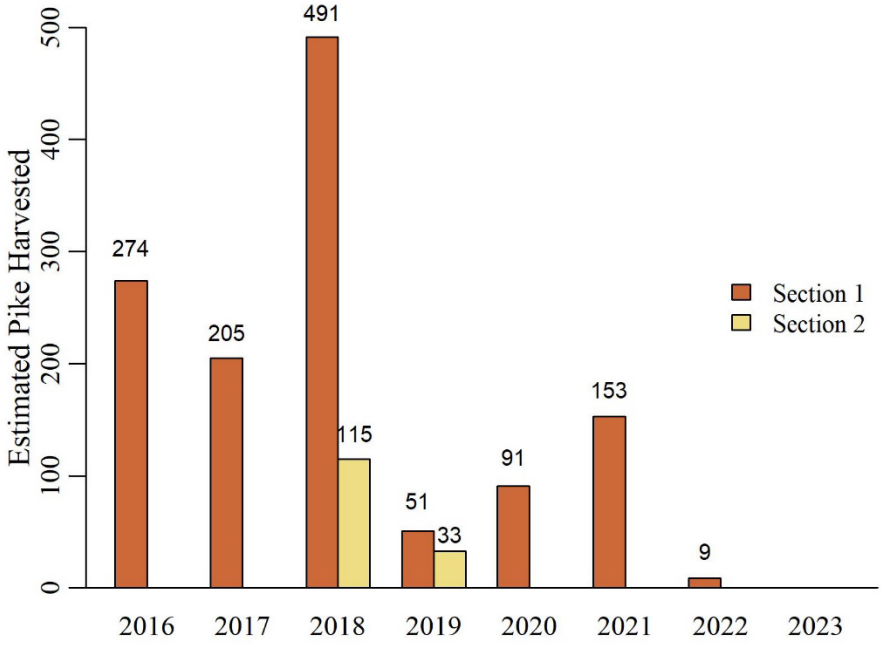
Spokane Tribe – Suppression





Angler Creel Survey

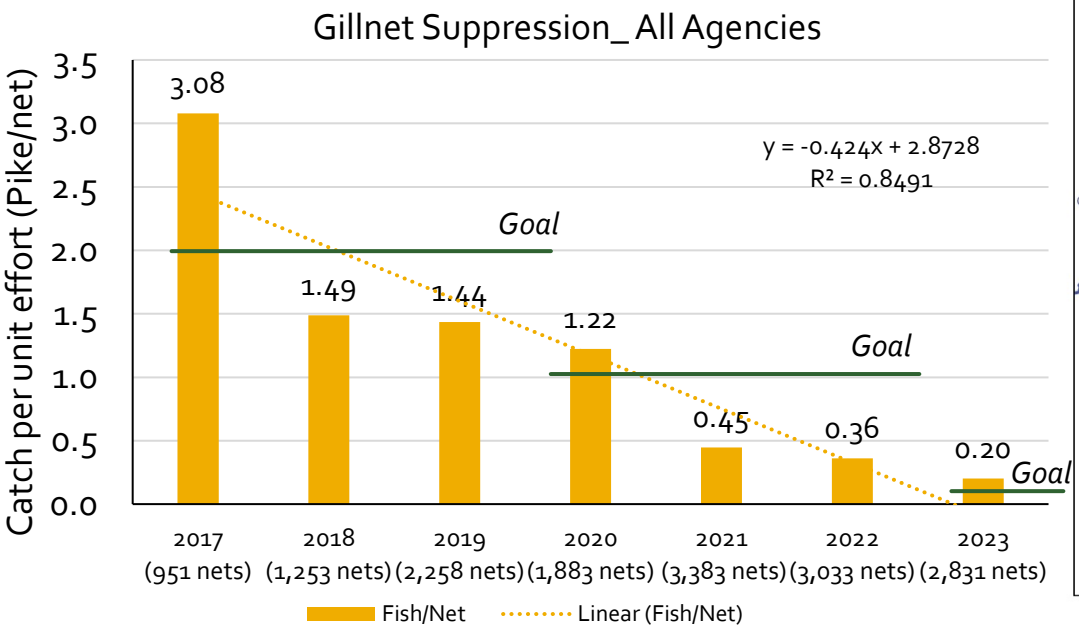
- Consistent methodology since 2016
  - Access site and bus route surveys
  - Most pike in upper reservoir

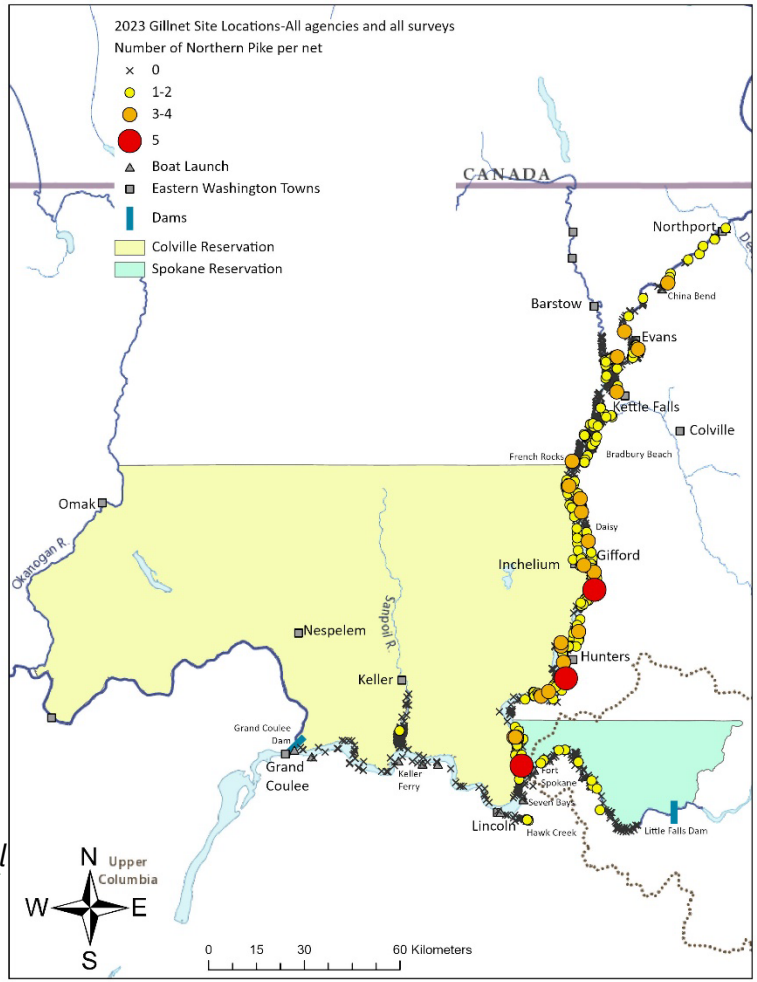


Promising News?

Since 2015, co-managers have removed **19,892** Northern Pike (Approx. 3,000 nets/yr by all agencies)

Suppression Goals
2017-2019 < 2 NP/Net ✓
2020-2022 < 1 NP/Net ✓
2023-2025 0.0 NP/Net (< 4 pike/100 nets)





This map includes 542 Pike captured in 2,572 nets

Lake Roosevelt Suppression

All Hands on Deck Survey

Multiagency Effort

Extra effort during pre-spawn period to remove fish before they spawn

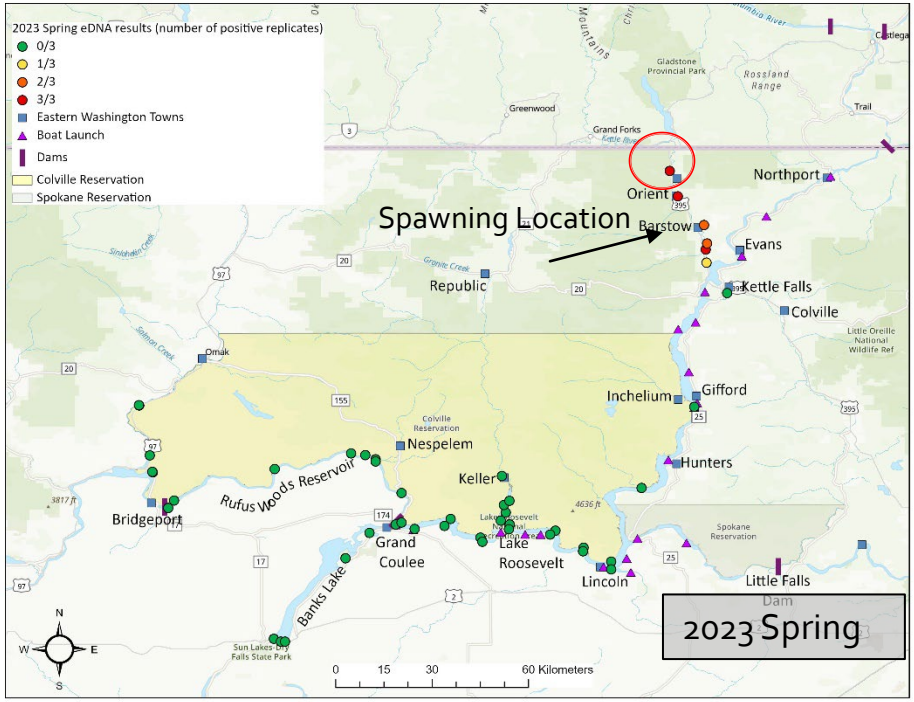
Colville Tribes, Spokane Tribe, Kalispel Tribe, WDFW, Chelan PUD, Grant PUD, Bureau of Indian Affairs, National Park Service, Bureau of Reclamation

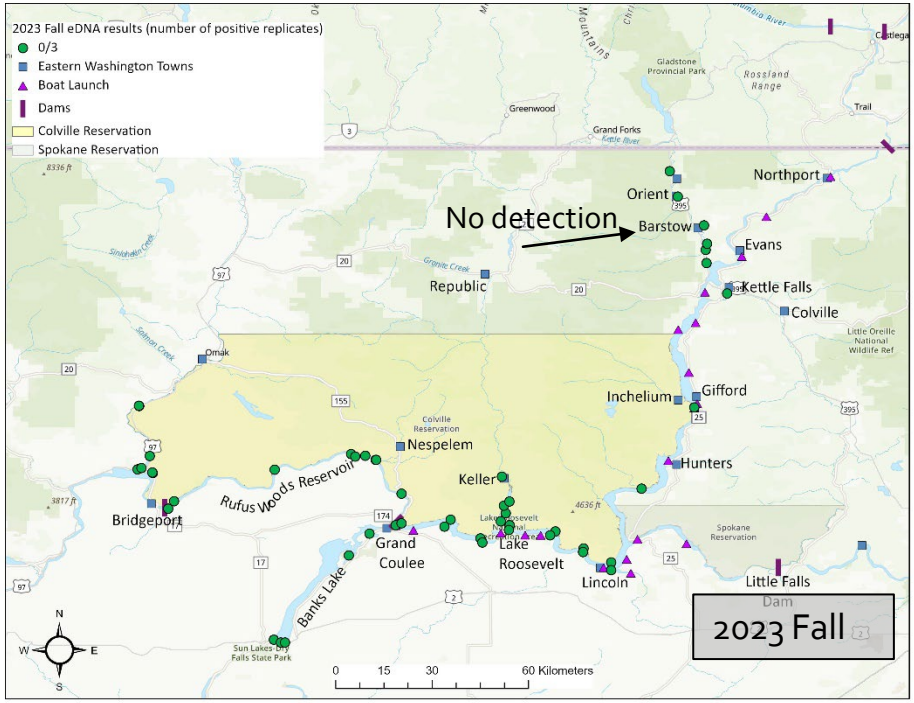
Dates	# Nets	# Pike	Pike/Net
May 6-9, 2019	475	448	0.94
COVID-2020	--	--	--
April 25-May 6, 2021	642	207	0.32
April 25-May 7, 2022	671	272	0.40
April 24-May 5, 2023	595	169	0.28

47 in and 27.78 lbs = 140,620 eggs

eDNA 2023

- Monitor 50 sites in the upper Columbia for Pike eDNA
  - Area of cost savings – also monitor 10 sites for invasive mussels
- Monitor Pike twice a year (June/September)
- WDFW AIS Team also monitor some of these sites
- Monitor for mussels monthly (June-Oct)

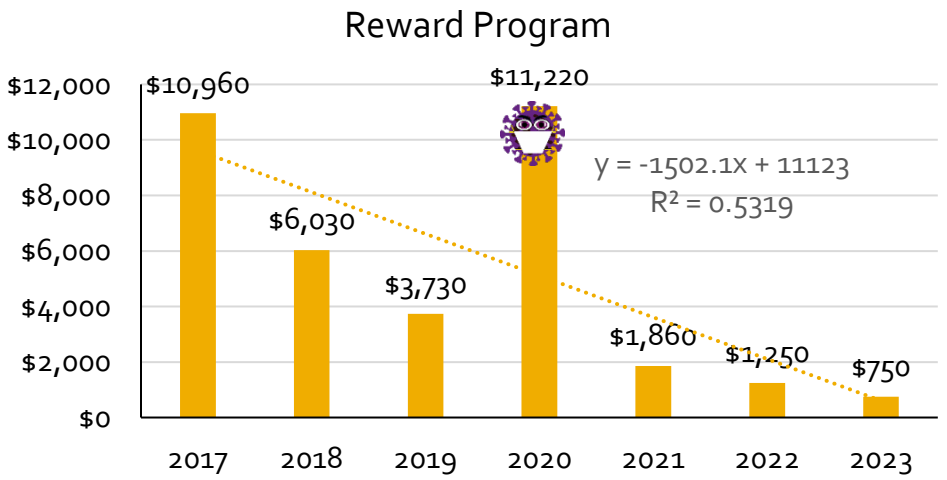




Reward Program/Public Outreach

Reward Program

- Program started in May 2017
- $10/ Pike head (VISA cards)
  - Allowed 59 fish per angler per year
- Total payout to date $35,800

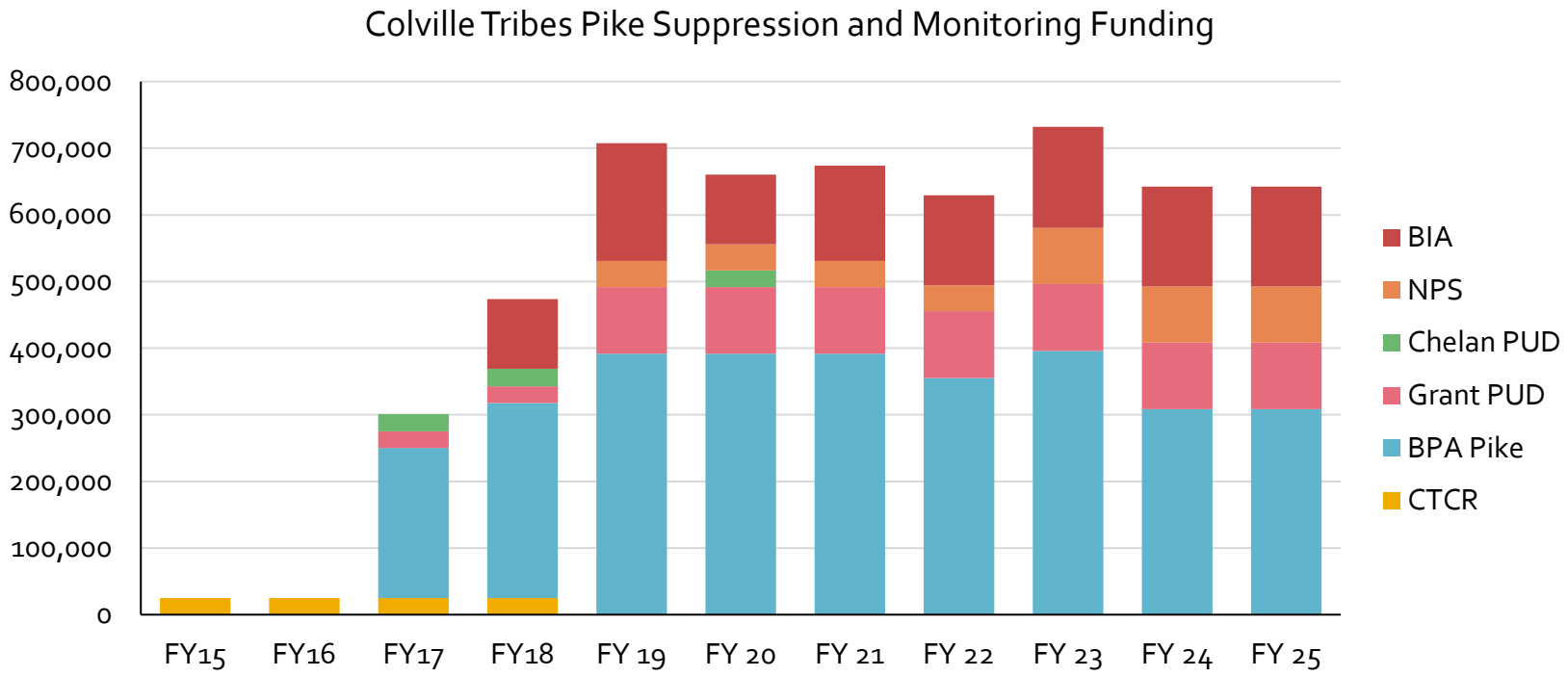


Public Outreach

- Similar signs posted at all boat launches in Roosevelt and Rufus Woods
- Participated in public outreach events
  - Water Festival – Kettle Falls
  - Fishfest – Spring Canyon

Funding a program

- 2015-16: Took time to establish program and secure funding
  - Pike spread quickly during this period
- Thankful to numerous agencies that understood the dangers and supported us
- Since 2015: CTCR spent $5.5 M combating the spread of N. Pike
- Mean annual CTCR program is $600,000 to operate
- CTCR funding secured through 2025; beyond is unknown; need continued regional support



Lessons Learned

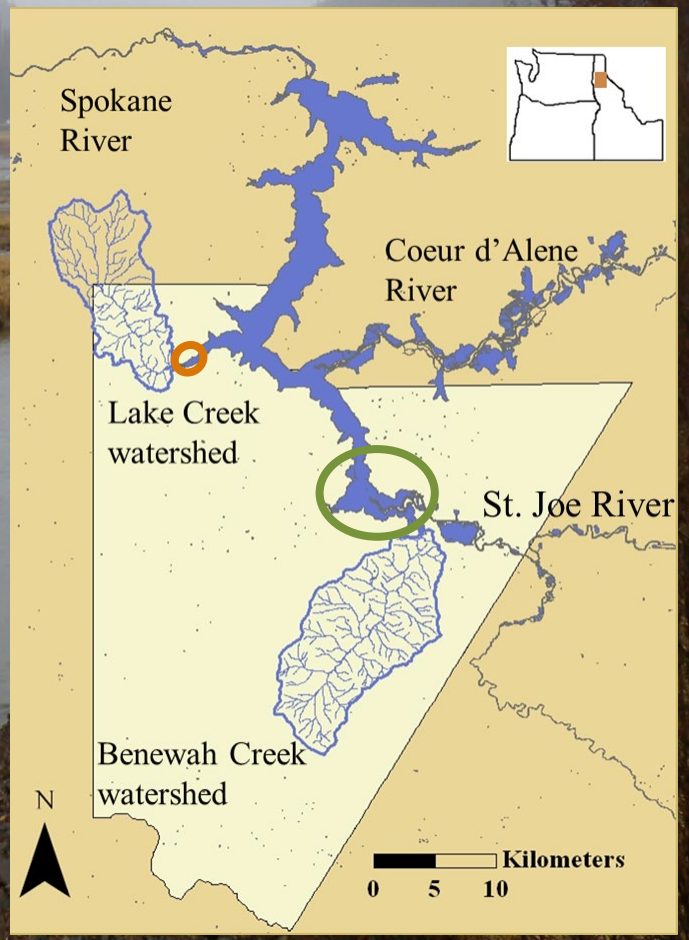
- Coordination Teams
  - Northwest Regional Northern Pike Coordination Forum
  - Lake Roosevelt Technical Team
- Public Outreach very important
  - Reward Program (local communities are involved)
  - Youth activities (inform the younger generation)
  - Standard messaging (signs at boat launches, handouts)
  - Radio, newspaper and social media posts
- Collaborative research important to answer questions
  - Identified spawning locations
  - Removed 9,946 females, up to 442 million eggs
  - Developed a eDNA monitoring program with partners
  - Developed a DNA database with partners
  - Two Rapid Response Plans (mid-Columbia and Washington State)
  - 2024: adding acoustic tracking study and diet analysis
- We have been successful at protecting the Lake Roosevelt fishery and downstream fisheries
- We are prepared for new invasions if they occur in the future

Questions?

- Many thanks to our many partners

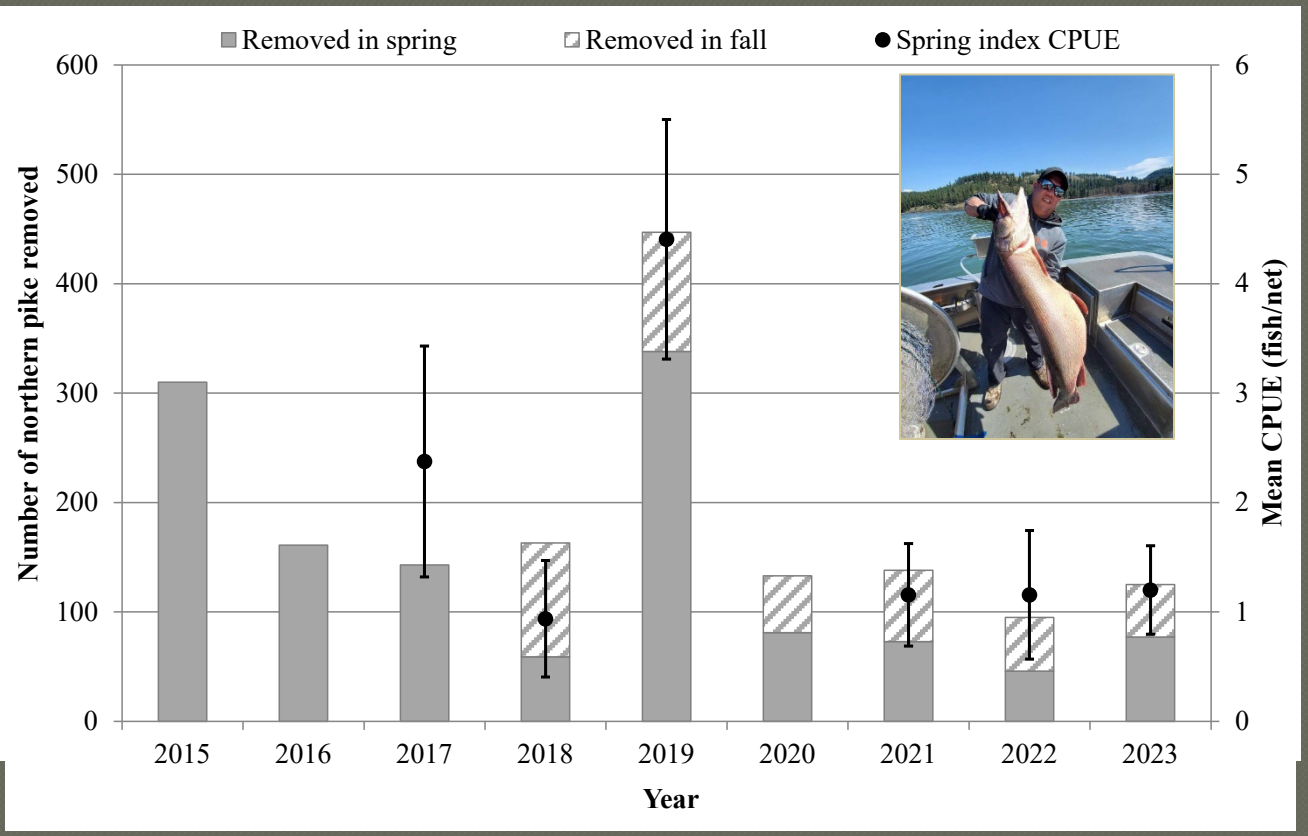
Localized Northern Pike Suppression Efforts in the Coeur d'Alene Basin to Benefit Native Populations of Adfluvial Trout

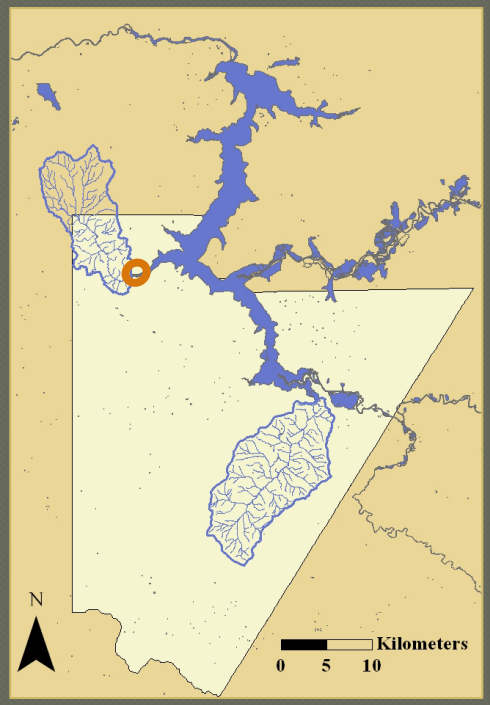
Coeur d'Alene Tribe Fish and Wildlife Program



Funding sources
BPA, Fish and Wildlife Program
BIA, Invasive Species Program
USFWS, Recovery Funding

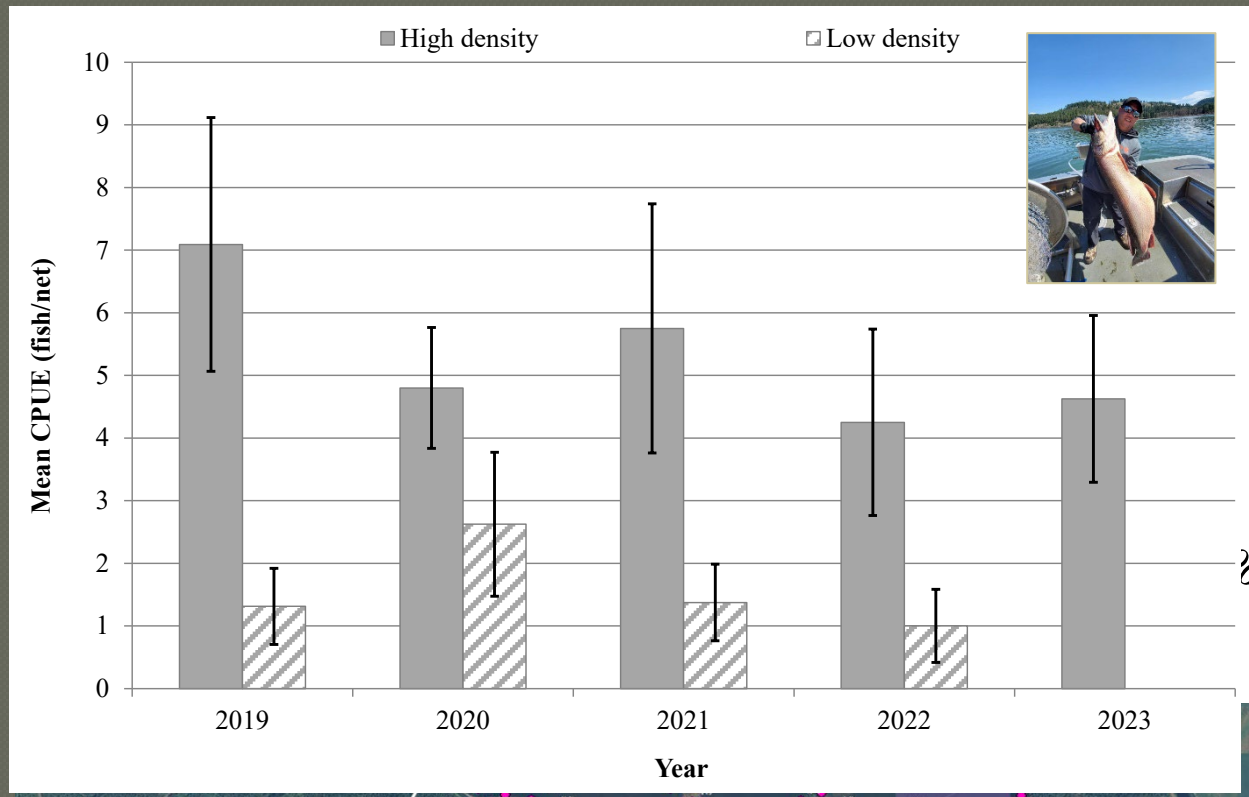
Windy Bay suppression

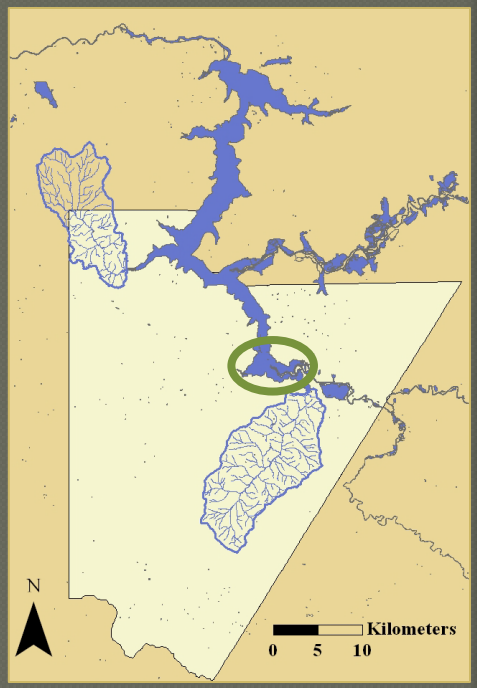




- 1730 NP removed from 2015 to 2023
  - Spring index netting instituted in 2017
  - Fall suppression instituted in 2018

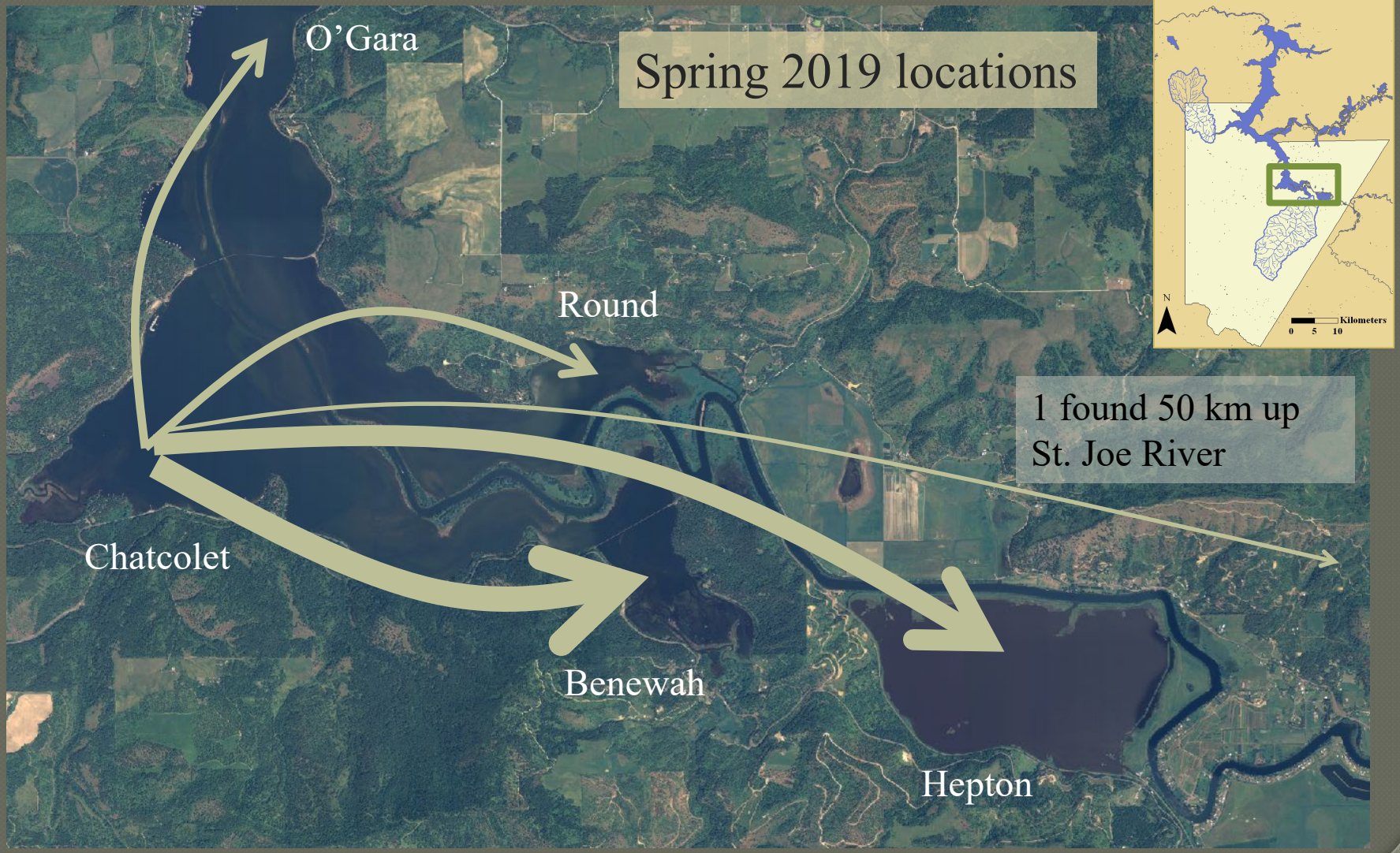
Southern end suppression





- 5528 NP removed from 2019 to 2023
  - Index netting conducted in fall

St. Joe River suppression – Informed by radio-telemetry



St. Joe River suppression