

# Lake Roosevelt Northern Pike Suppression and Monitoring Program



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# Northern Pike Suppression and Monitoring Program

- Monitoring
  - Reservoir-wide surveys (WDFW)
  - Otolith microchemistry (CCT)
  - eDNA monitoring (CCT)
- Suppression Gear
  - Gillnets (All)
  - Setlines (CCT)
  - Seines/ fyke nets (CCT/STI)
  - Boat electrofishing (CCT/STI)
- Reward Program \$10/head (CCT)
  - Anglers can help protect Lake Roosevelt fisheries



*Gillnetting*



*Setline*



*eDNA Sampling*



*Boat Electrofishing*

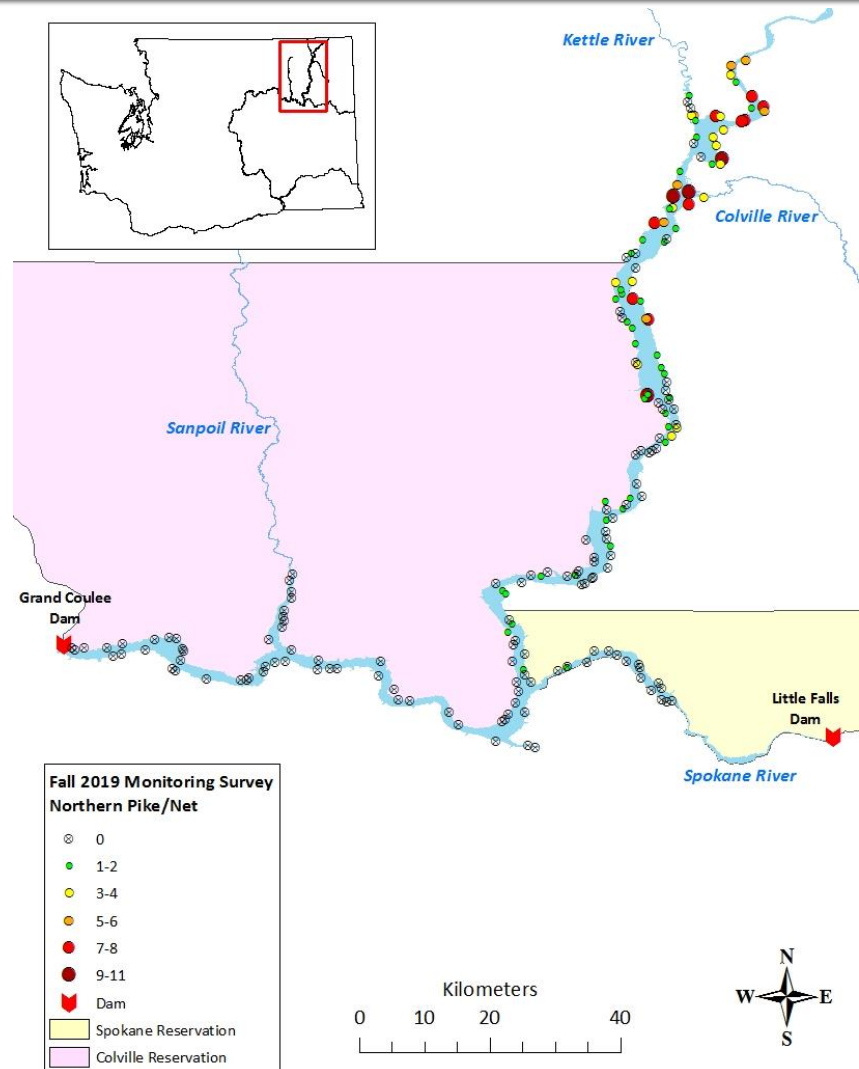
# Northern Pike Monitoring

- Monitor Northern Pike population metrics and distribution to evaluate and inform suppression efforts and guide management actions
  - Develop standardized monitoring survey
  - Catch Per Unit Effort (NP per net)
  - Proportion Positive Catch (PPC)
  - Age/Size structure
  - Sex and Maturity
  - Condition ( $W_r$ )

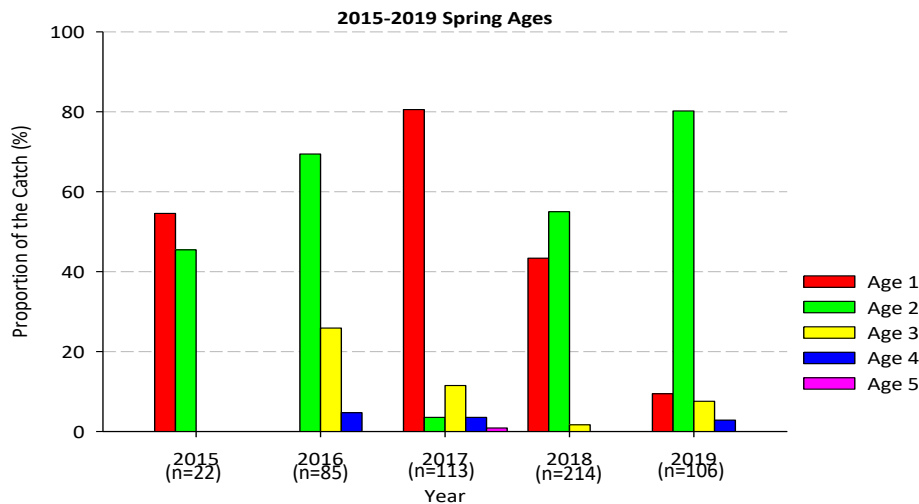
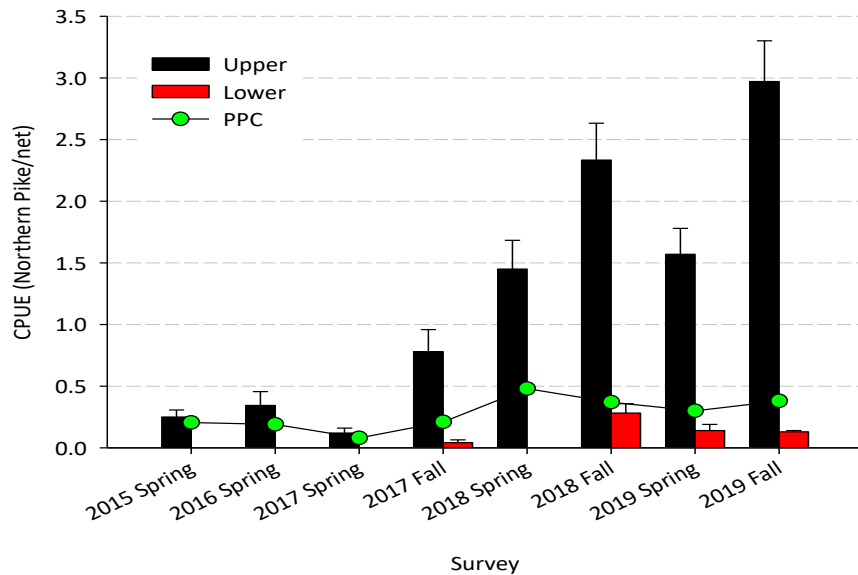


# Northern Pike Distribution

- **Initial Surveys**
  - 2015 Pilot Study
  - 2016-2018 BOG
    - spring surveys Kettle Falls study area only
  - 2017- post FWIN fall reservoir-wide
- **Current**
  - 2018 - fall reservoir wide
  - 2019 - spring and fall reservoir wide
  - **2020**
    - spring reservoir-wide (canceled COVID-19)
    - fall reservoir wide survey planned for Nov 2-6



# Northern Pike Abundance and Age Composition



# Lake Roosevelt Suppression

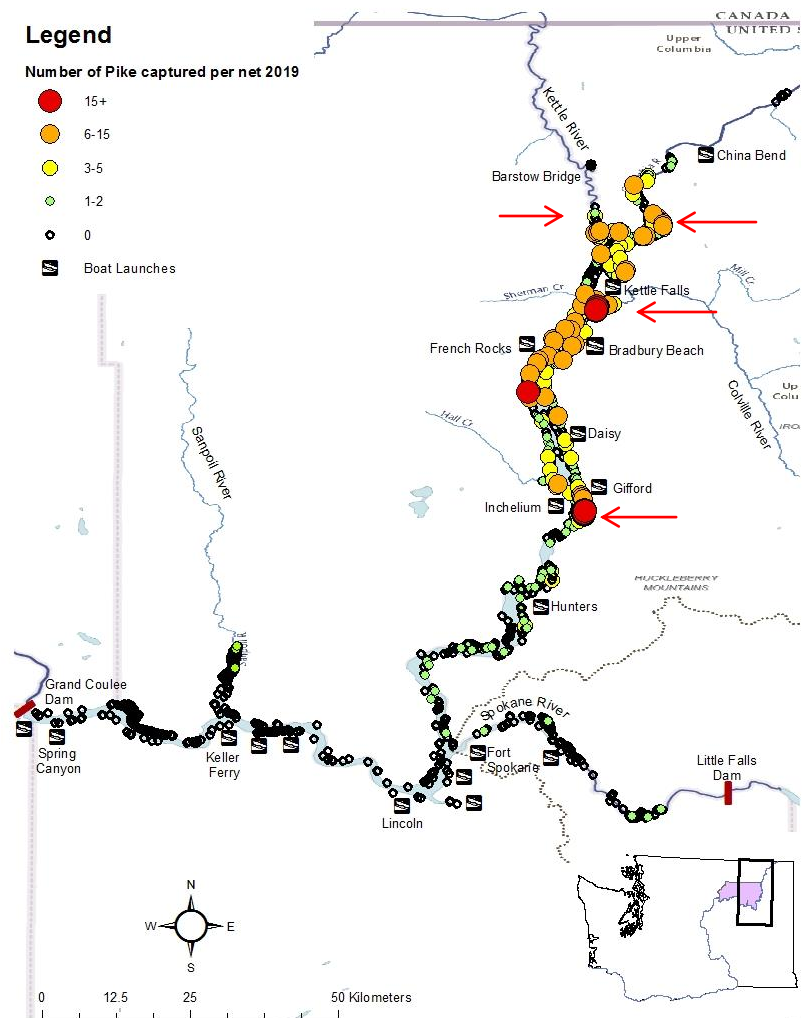
- Since 2015, co-managers have removed **14,772** Northern Pike
- Majority of Pike are captured in upper half of the reservoir
- Pike are using the Kettle, Evans, Colville, Gifford areas for spawning



Redband Trout



Wild Kokanee



# Lake Roosevelt Suppression

- WDFW
  - 2020 – Suppression efforts reduced and redirected to Lake Spokane due to Covid19 work restrictions
  - 2021 – Planned 4 month suppression effort (March-June; 3 boats + crew/week)
- Colville Tribes
  - 2020 – Suppression delayed due to COVID19 restrictions. Started suppression on June 1, 2020
    - Set 586 nets and removed 874 Pike to date
  - 2021 – Plan 10 months (Feb-Nov) two weeks per month; 2 boats



129 Pike removed from Kettle River Oct 15, 2020

# Lake Roosevelt Suppression

## All Hands on Deck Survey

- **Multiagency Effort**

- Spokane Tribe, Colville Tribes, Kalispel Tribe, WDFW, Chelan PUD, Grant PUD, National Park Service
- **May 6<sup>th</sup> – 9<sup>th</sup>, 2019**
  - During pike spawning; high use area Gifford to Evans
  - 475 nets set; 448 pike removed
- **Spring 2020** – Unable to implement “All Hands” survey due to Covid-19.
- **Spring 2021** – Planned pre-spawn effort.





# Lake Roosevelt Suppression

- Co-manager suppression plan

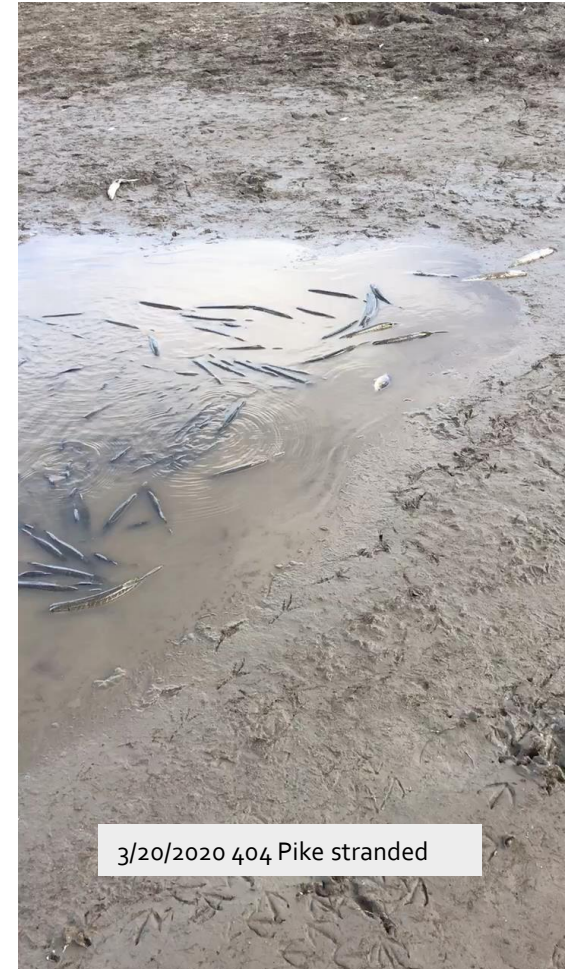
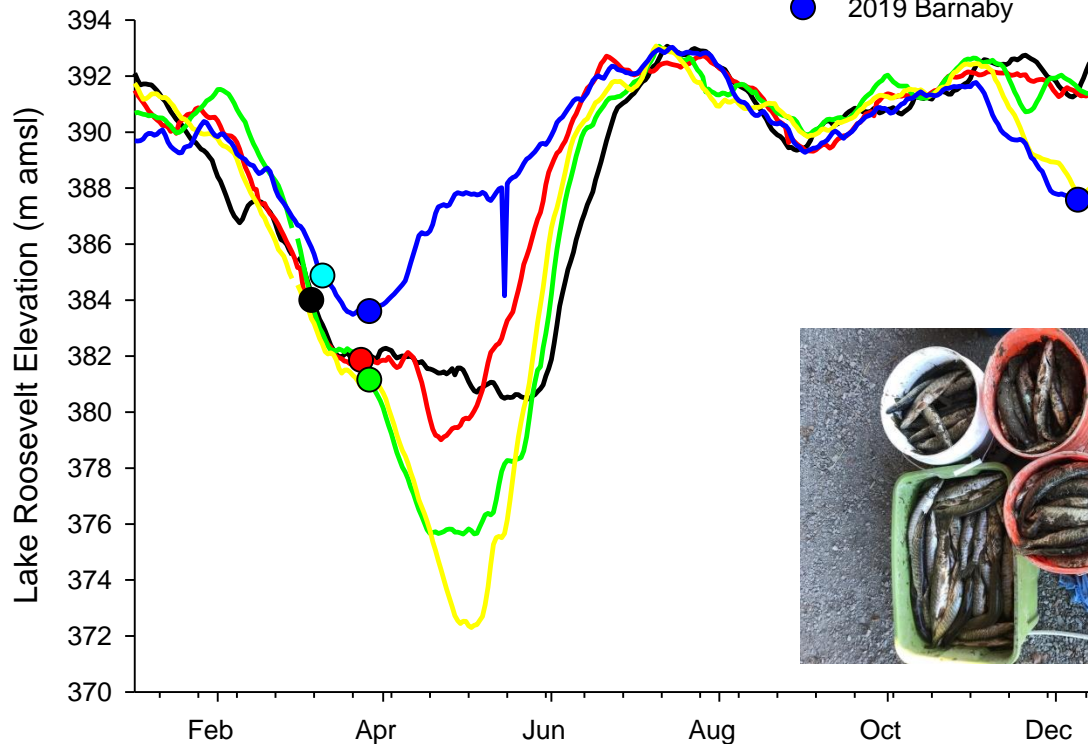
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Suppression STI and CCT</b>												
Gillnetting		X	X	X	X	X	X	X	X	X	X	
Gillnetting (All Hands Survey)					X							
Electrofishing/Fyke/Setline								X	X	X		
<b>Suppression WDFW</b>												
Gillnetting			X	X	X	X						
Gillnetting (All Hands Survey)					X							



# Spring drawdown stranding

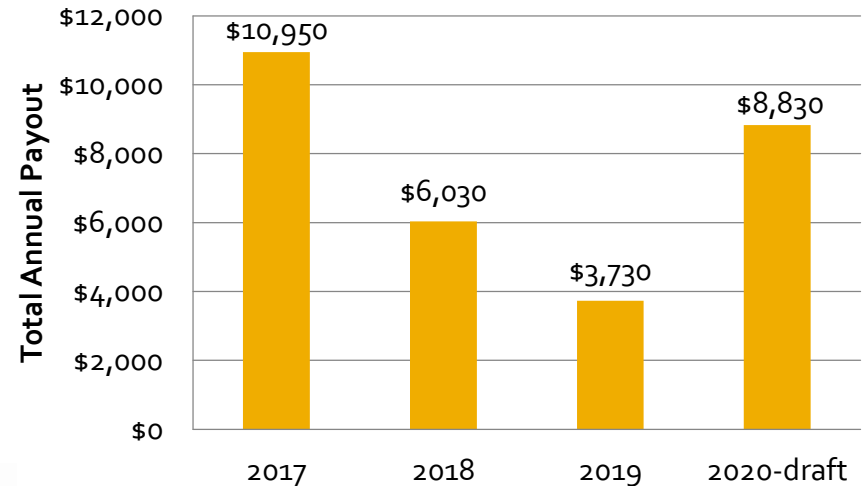
■ CCT and WDFW staff share stranding data

- 2015 Elevation
- 2016 Elevation
- 2017 Elevation
- 2018 Elevation
- 2019 Elevation
- 2015 Kamloops
- 2016 Kamloops
- 2017 Kamloops
- 2018 Barnaby
- 2018 Kamloops
- 2019 Barnaby



# Reward Program

- Program started in May 2017
- 6 drop off freezer locations
- Payout received within 3 wks
- In 2020 we have given out \$8,830
- Total to date, \$29,540 to anglers



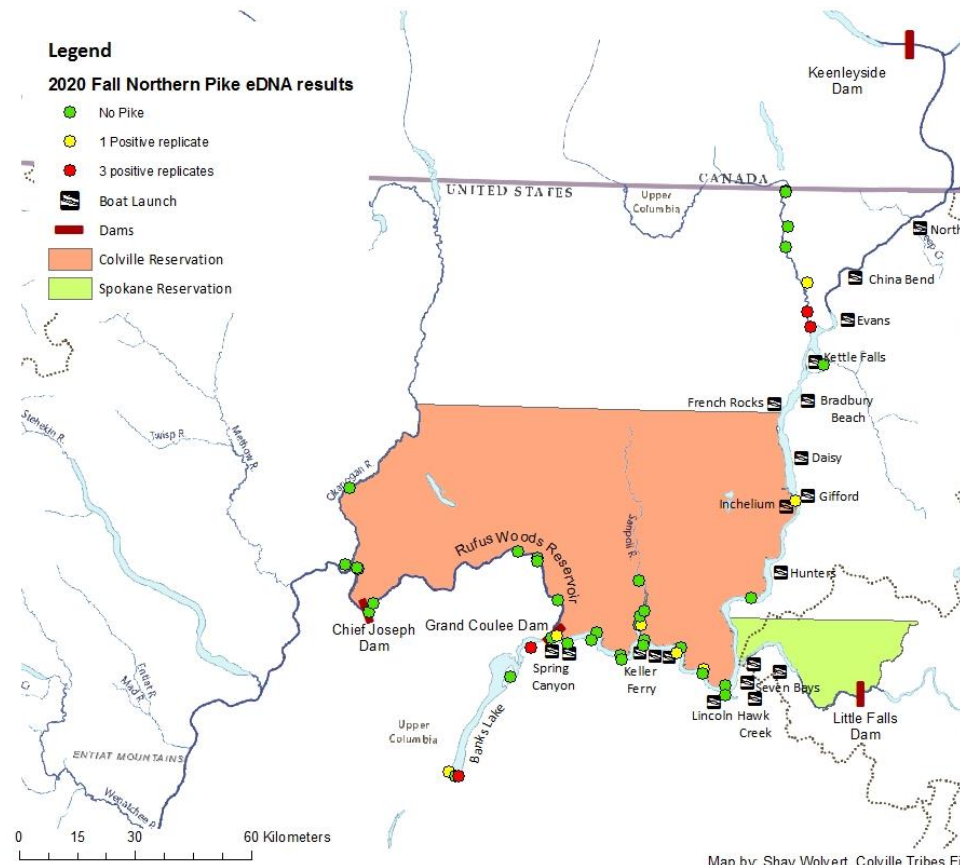
# eDNA Monitoring

## Monitoring

- WDFW AIS Program monitors 385 sites state wide for Pike and quagga/zebra mussels
- CCT monitors 70 sites for Pike and 10 are monitored for quagga/zebra mussels.
  - Continue monitoring thru 2025

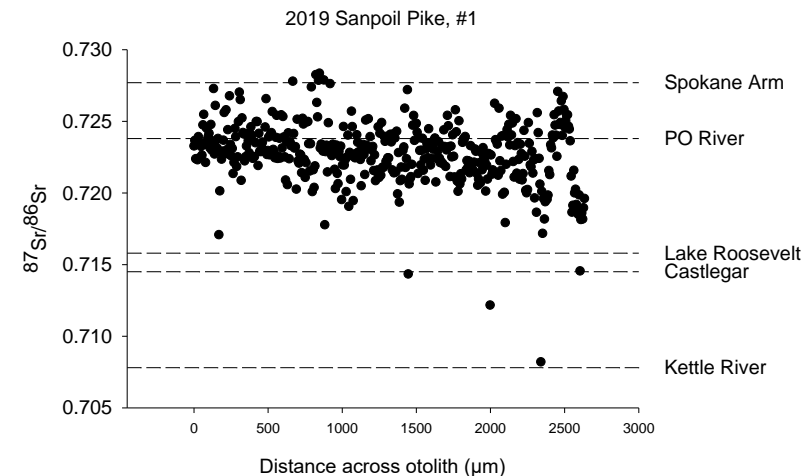
## Findings

- Kettle River - Positive 39 km upstream
- Banks Lake - Positives; boat contamination?
- Lower Lake Roosevelt - weak detections
- Rufus Woods, Wells Pool, and Okanogan River - No detections



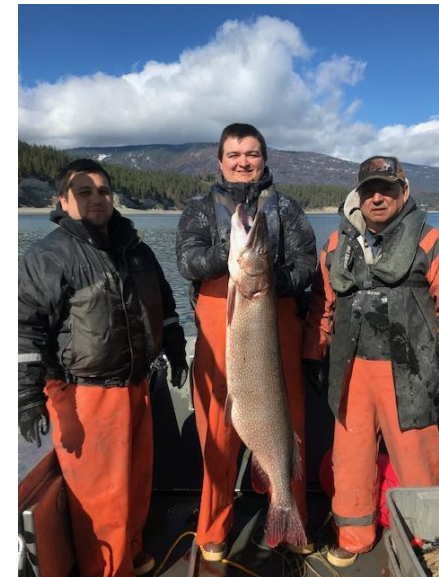
# Otolith Microchemistry

- Used to help understand fish movements
  - Otoliths are analyzed for the concentration of strontium isotopes
- 2019 analyzed 41 Pike
  - 12 collected below Keenleyside Dam, BC
  - 24 from Lake Roosevelt and the Sanpoil
  - 5 Spokane River (below Little Falls)
- Results indicate
  - Spokane River Pike:
    - All 5 Pike originated in the Columbia River
  - BC Pike- multiple life histories
    - Entire life near Castlegar
    - Originated in the Pend Oreille River (shown)
    - Moved between Castlegar and Kettle River (shown)
  - Sanpoil River
    - Potentially originated in PO River



# Looking to the future

- The co-managers of Lake Roosevelt will continue to look for funding and implement suppression and monitoring through at least 2025.
- At that time, the co-managers will reconvene and adaptively manage the future direction of the program.



# Questions?

- Many thanks to our co-manager, the Spokane Tribe, and a long list of partners:

