Middle Columbia River White Sturgeon Recreational Fisheries

Delegation of Rulemaking Authority to the Director

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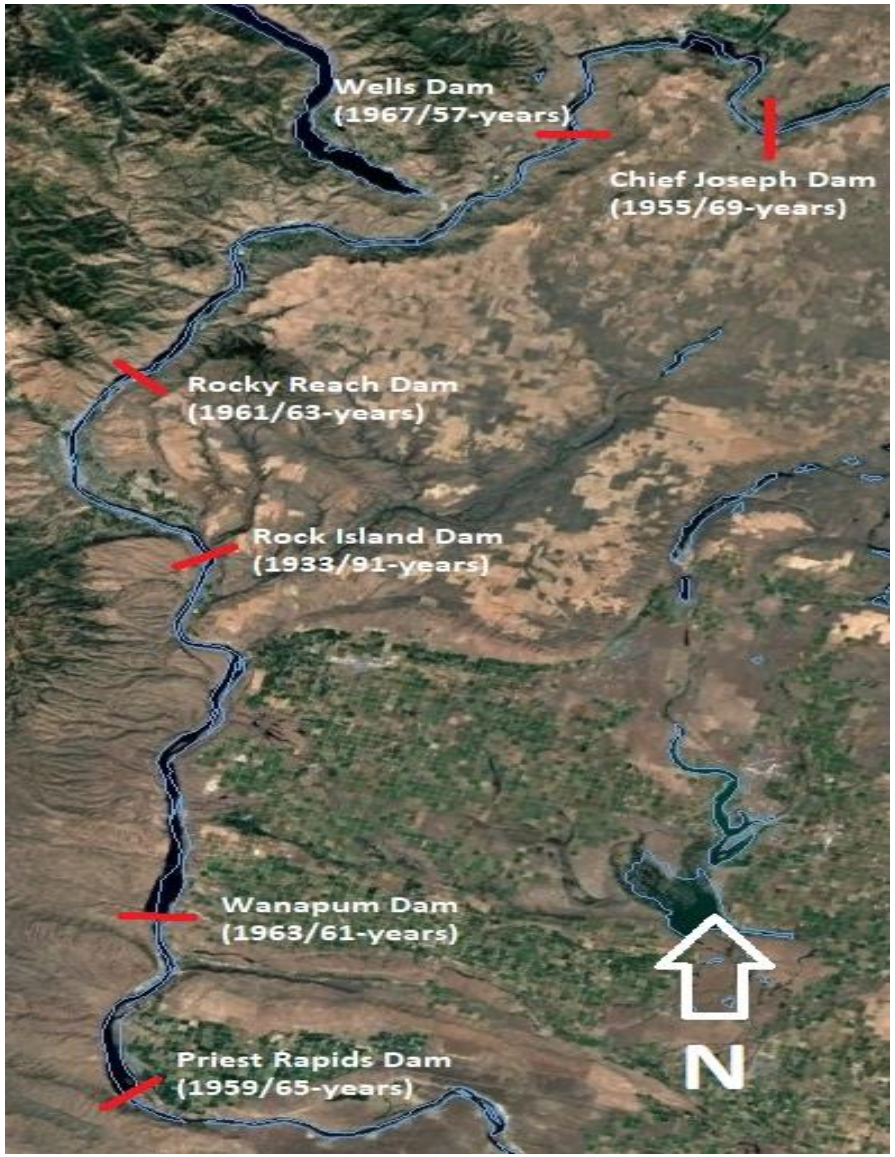
Washington Department of FISH & WILDLIFE

Presentation Outline

- Background
- White Sturgeon Management Plans
- Conservation Aquaculture
- Stocking Rates
- Monitoring and Evaluation
- Recreational Fisheries
- Conclusions
- Request for Delegation of Authority

Background

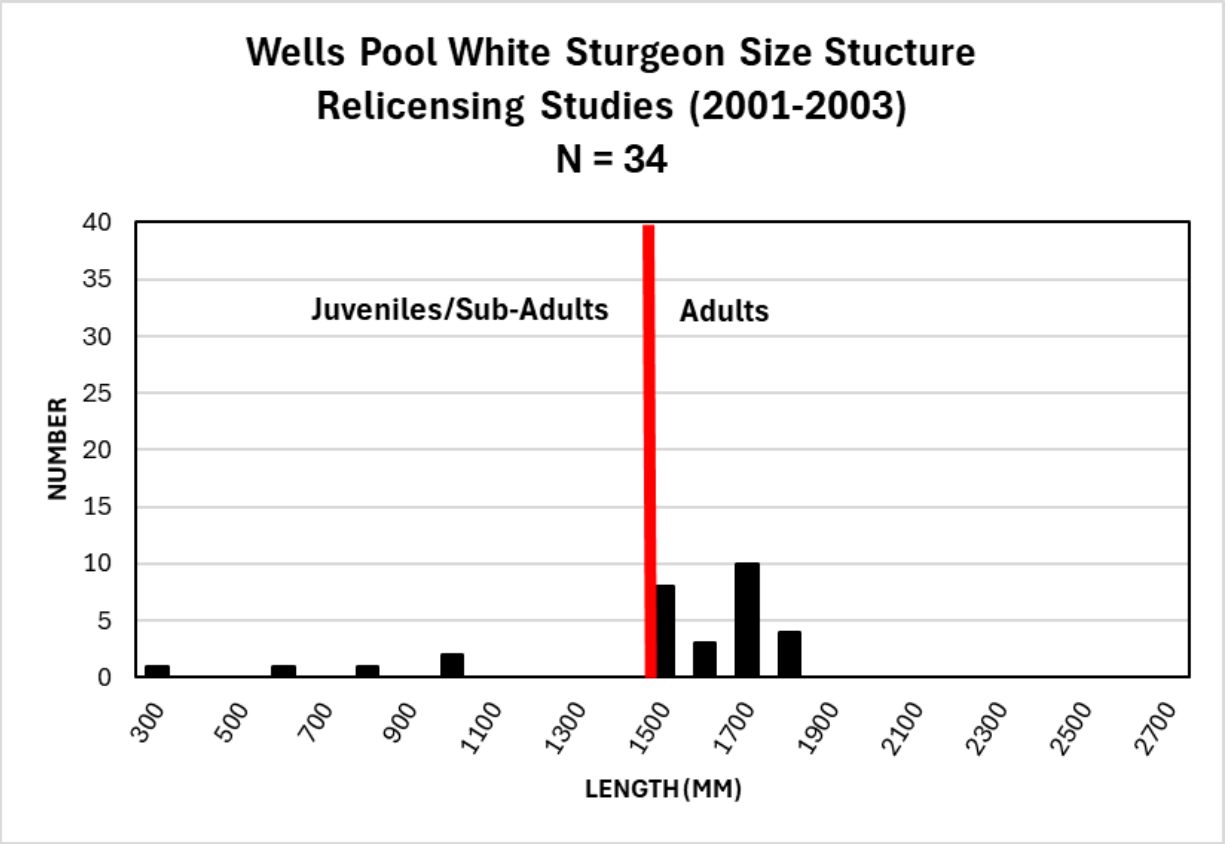
- White sturgeon are found throughout the Columbia and Snake River Basins, however, pre-dam use (e.g., rearing, foraging, migratory, spawning, etc.) of the Middle Columbia River (MCR) is unknown.
- MCR area between Priest Rapids and Chief Joseph Dams
- Dam construction in the MCR between the 1930-1960s fragmented the Columbia River white sturgeon population into isolated management units.
- Some downstream movement occurs, but upstream movement is negligible.
- Isolated management units had unknown abundances, age/size structure, and natural recruitment.



Background

- MCR relicensing studies performed in the early-2000s, and findings indicated:
  - Low abundances
  - Mostly adult/older aged fish
  - Minimal or no natural recruitment

- The Federal Energy Regulatory Commission (FERC) issued new hydropower licenses:
  - Priest Rapids-Wanapum Dams (2008; Grant County Public Utility District [PUD])
  - Rocky Reach Dam (2009; Chelan County PUD)
  - Wells Dam (2012; Douglas County PUD)
  - Rock Island Dam (*currently under relicensing*)



MCR White Sturgeon Management Plans

- The PUDs were required to develop white sturgeon management plans (WSMP)
  - Collaborative and consensus-based process amongst license signatories.
  - Adaptive management.
  - Rebuilding efforts in effect through term of licenses (2052).

- Common objectives of WSMP:
  - Increase abundance through hatchery supplementation.
  - Determine effectiveness of hatchery supplementation.
  - Determine carrying capacity of habitat.
  - Determine natural reproduction levels, adjust hatchery supplementation accordingly.

- Overarching Goal throughout MCR:
  - Rebuild white sturgeon populations.
  - Abundant and stable-age.
  - Abundant adult populations = meaningful spawning events = improved natural recruitment.
  - Populations sustained through natural reproduction.
  - Similar approach used elsewhere.

MCR Conservation Aquaculture Strategies

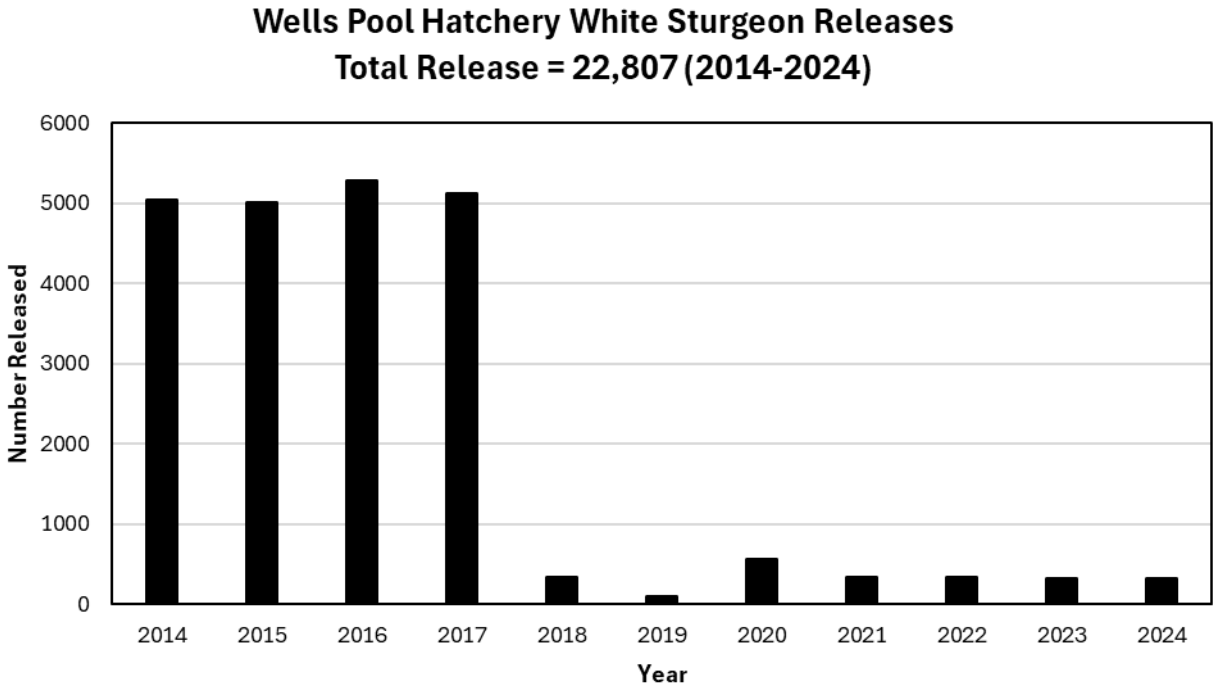
- Hatchery releases began in the 2011.
- Initial target stocking rates of 1,500-6,500 yearlings/reservoir.

Strategies:

- Direct gamete–conventional broodstock program
  - Source population: adults captured in John Day Reservoir.
  - Spawn Site: Yakama Nation Sturgeon Hatchery.
  - Reared and released as yearlings at local hatcheries.
  - Advantage: conventional methodology, existing experience and expertise to implement programs quickly, and .
  - Disadvantage: Low spawner representation as compared to entire spawning population and broodstock size selectivity bias.
- Direct-caught-larvae
  - Source population: free-drifting sturgeon larvae captured in Lake Roosevelt.
  - Reared and released as yearlings at local hatcheries.
  - Advantage: high genetic diversity (# of alleles) and a greater representation of the entire spawning population.
  - Disadvantage: limited capture locations.
- Two of three conservation aquaculture programs transitioned to direct-caught-larvae

Stocking Rates

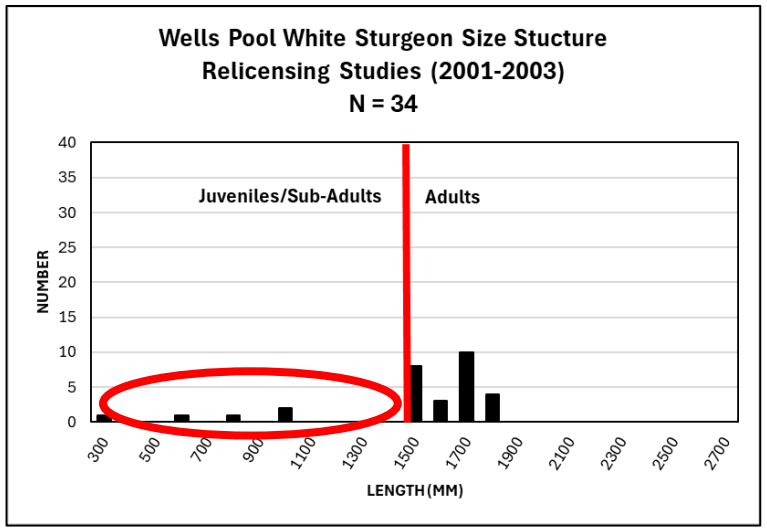
- The programs established reservoir-specific adult abundance targets:
  - Abundance targets determined by estimating adult densities based on reservoir area
  - Goal to reach abundance targets between 2035–2050
- Population growth models were developed to determine the stocking rates that achieve the established adult abundance targets.
- In recent years, the programs began stocking larger-sized hatchery fish:
  - ≥200 gram at release
  - Higher post-release survival rates
  - Requires fewer stocked fish
- Concerns remain over initial stocking events.



Monitoring and Evaluation (M&E)

- PUDs fund M&E efforts to evaluate the effectiveness of hatchery supplementation at rebuilding white sturgeon populations.
- Monitoring and evaluation activities include, but not limited to:
  - Juvenile and adult indexing surveys
  - Tracking movements of white sturgeon
  - Assess natural reproduction and recruitment
- Analyses include, but not limited to:
  - Abundance estimates
  - Size structure
  - Survival rates
  - Reservoir movement and immigration/emigration

Monitoring and Evaluation (M&E)



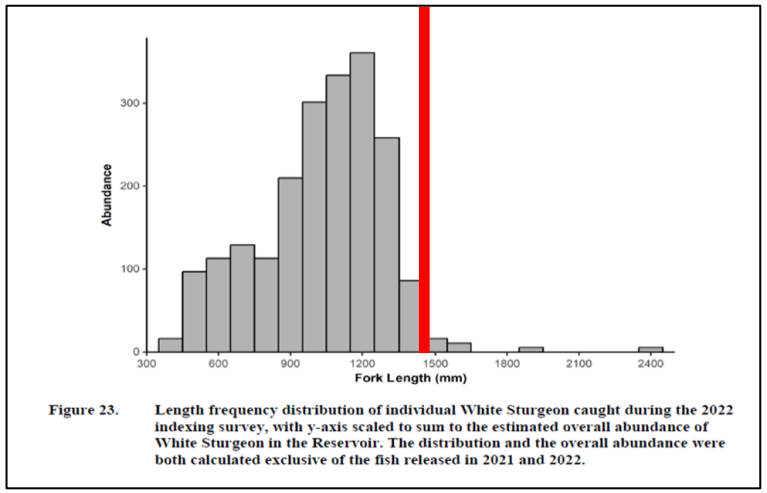


Figure 23. Length frequency distribution of individual White Sturgeon caught during the 2022 indexing survey, with y-axis scaled to sum to the estimated overall abundance of White Sturgeon in the Reservoir. The distribution and the overall abundance were both calculated exclusive of the fish released in 2021 and 2022.

Estimates of Wells Reservoir sturgeon abundance in 2022.

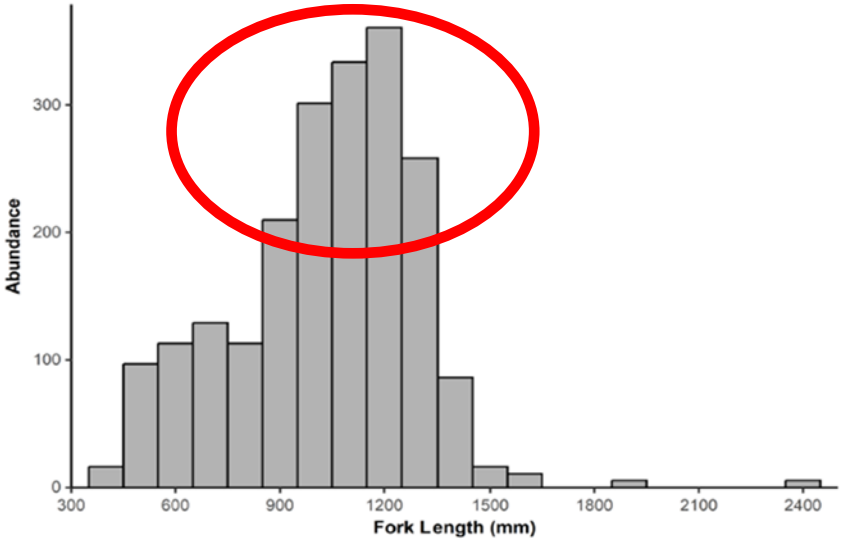
Brood Year	Release Year	Number Released	Size at Release (g)	2022 Abundance Estimate**	LCL	UCL	Percent of Population	Post-Release Survival
2013	2014	5,044	166.5	651	199	7,588	32%	12.9%
2014	2015	5,009	97.6	691	104	7,282	34%	13.8%
2015	2016	5,289	147.0	65	38	346	3%	1.2%
2016	2017	5,131	118.4	355	138	1,103	17%	6.9%
2017	2018	337	281.0	12	6	5,041	1%	3.6%
2018	2019	99	364.7	57	16	620	3%	57.9%
2019	2020	570	495.7	143	59	660	7%	25.2%
2020	2021	338	916.7	NA	NA	NA	--	--
2021	2022	332	448.1	NA	NA	NA	--	--
Other*	--	--	--	81	58	415	4	--
TOTAL:		**22,149**		**2,055**	**618**	**23,055**		

*Includes wild fish, re-tagged hatchery fish, and immigrants from Rocky Reach Reservoir.

**Abundance estimates excludes 2021 and 2022 hatchery releases due to sample size limitation.

Recreational Fisheries

- Objective:
  - Reduce abundances of initial releases of direct gamete hatchery fish with overrepresented family groups
- Considerations:
  - Results from M&E basis for when to prosecute a fishery and establishing a harvest target.
  - Coordination and agreement with Tribal Co-managers required.
  - Recreational fisheries need to be closely monitored.



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Recreational Fisheries

- Potential season structure and rules:
  - Seasons to manage angler effort and harvest and achieve harvest target
  - Standardized or reservoir-specific slot length limits
  - Daily limit 1 sturgeon
  - Annual limit 2 sturgeon
  - Catch Record Card required
  - Other statewide rules apply
- Season anticipated in 2025 (Rocky Reach Reservoir)

Conclusions

- Hatchery supplementation rebuilding abundances of juvenile/sub-adult age classes in MCR reservoirs
  - Some variability in growth/survival/recruitment amongst reservoirs
- Rebuilding efforts based off reservoir-specific empirical data
- Population/adult rebuilding efforts on track to meet targets by 2035-2050
- Recreational fisheries are a tool to address initial stocking events to reduce overrepresented family groups

Agency Request

Delegation of MCR White Sturgeon Recreational Fishery Rulemaking Authority to Director

- Rational:
  - Recreational fisheries need to be listed in permanent rules (i.e., WAC)
  - Publish permanent fishing rules in annual Sport Fishing Rules Pamphlet
  - Recreational fisheries expected to occur annually
  - Adjustments to fishing rules may be needed periodically
  - Delegation would reduce the number of instances staff would need to come before the Commission requesting rulemaking

Acknowledgements

- Chelan County Public Utility District
- Douglas County Public Utility District
- Grant County Public Utility District
- LGL Environmental Services
- WSP Canada Inc.

Questions?