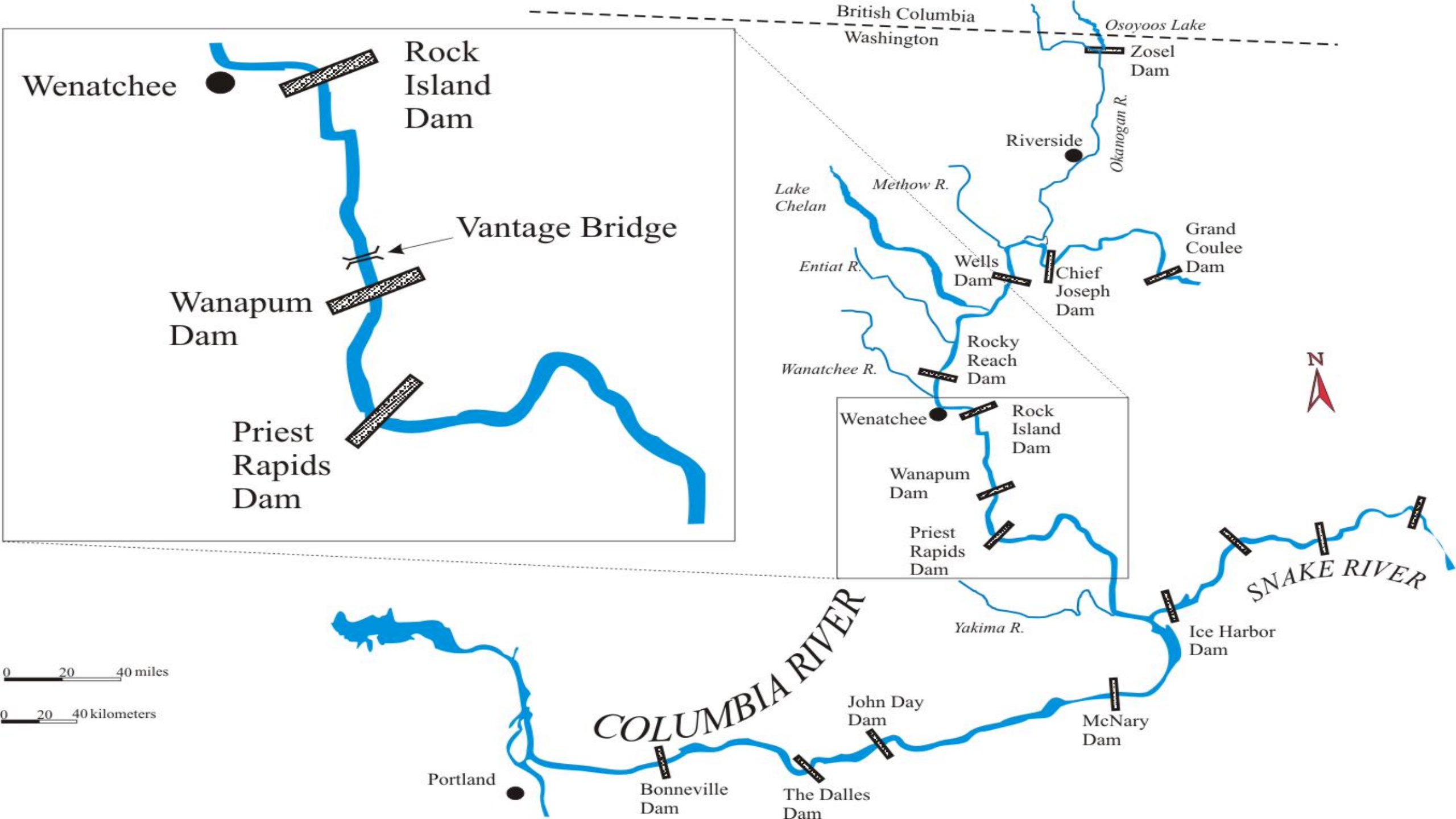


WA-BC AFS 2018 Kelowna, BC

Operate Responsibly by Attaining
Environmental, Cultural Resource
and Regulatory Compliance



Powering our way of life.



Who Is Grant PUD?

- Created by popular vote in 1938, we are a public electric utility serving over 46,000 customers throughout Grant County, WA.
- Grant County is a rural, predominantly agricultural region. The ability to maintain local leadership of power resources has allowed the county to grow and prosper.
- We own and operate the Priest Rapids Project on the Columbia River. The Priest Rapids Project, comprised of Priest Rapids and Wanapum dams, has the capacity to produce 2,000 megawatts of clean, renewable and reliable electricity.
- We share this affordable electric power with 23 Northwest utilities that serve millions of customers, creating economic benefits throughout the Northwest.

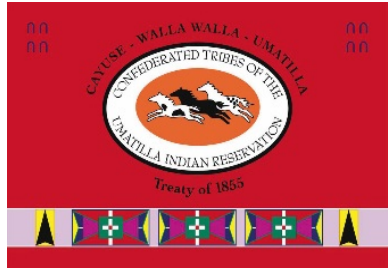


Requirements/Agreements

- **FERC License Order**
- **Biological Opinion – NOAA Fisheries**
- **Biological Opinion – US Fish & Wildlife Service**
- **401 Certification – WA Department of Ecology**
- **Priest Rapids Salmon/Steelhead Settlement Agreement**
- **Hanford Reach Fall Chinook Protection Program**
- **Yakama Nation/GPUD Settlement Agreement**



Three-Pronged Approach to Reaching No-Net Impact (NNI)



Hatchery Production



Combined Adult & Juvenile Survival



Tributary Projects

Tools to Reach NNI

Wanapum Advanced Turbine System

- Installed in 2004-2013

Wanapum Future Unit Fish Bypass

- Surface Spill of 20 KCFS
- Installed April 2008

Priest Rapids Top-spill Fish Bypass

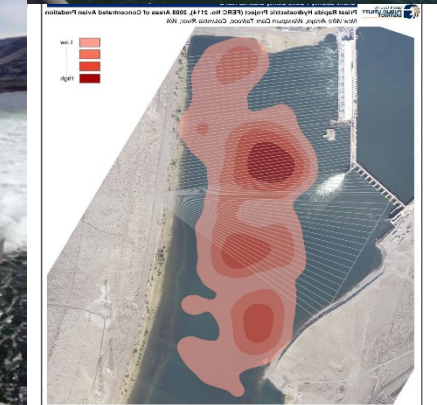
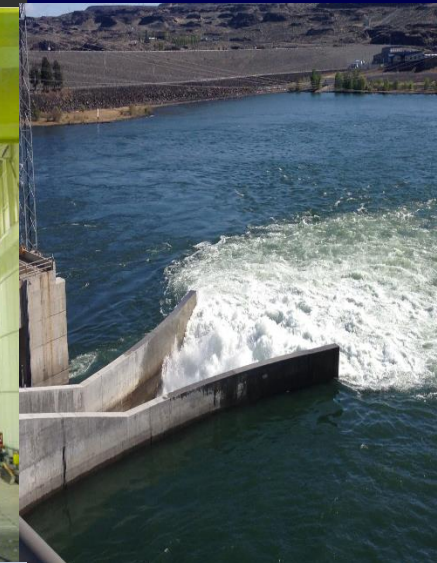
- Surface Spill of 27 KCF
- Installed April 2014

Priest Rapids/Wanapum “Fish Mode”

Avian Wire Arrays – Tern and gull deterrents

Predator Control

- Remove an average of ~174,630 northern pikeminnow annually (all age classes)



Performance Standards For Juvenile Salmonids

95% survival goal at the concrete

93% survival thru the
reservoir and past the dam
(combined)

Priest Rapids Project
survival standard is 86.5%
(93% X 93%)

Ave. of 3 consecutive years of
survival studies

Wanapum Fish Bypass



The average estimated survival through the Wanapum Bypass for multiple species is >96.2%. Survival for individual species ranges from 93.0%-100%.

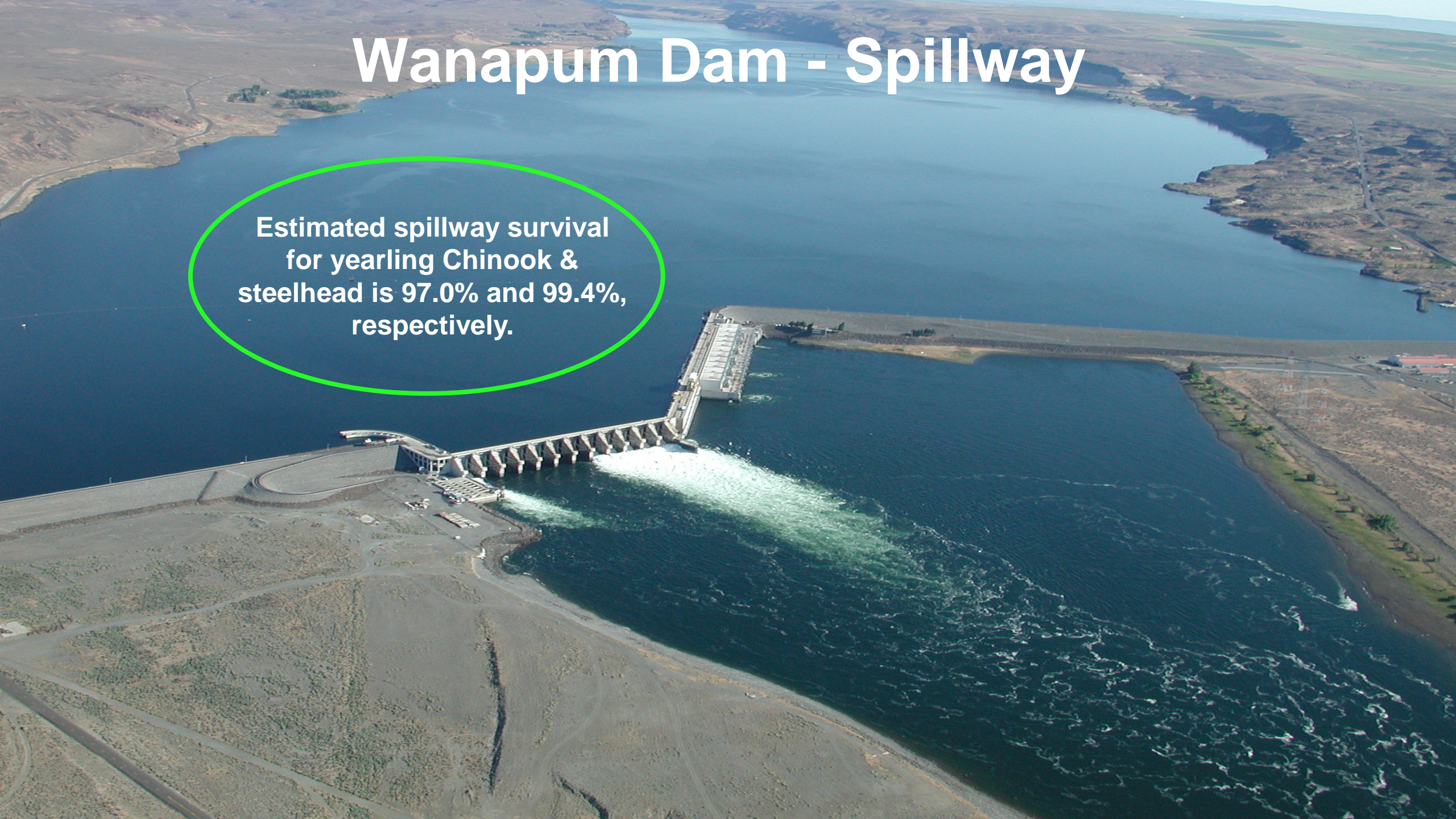
Advanced Turbines Wanapum Dam



Average turbine survival
for multiple species (3) at
Wanapum Dam ranges
from 91.4%-98.2%

Wanapum Dam - Spillway

Estimated spillway survival
for yearling Chinook &
steelhead is 97.0% and 99.4%,
respectively.



Juvenile Performance Standards Achieved



Chinook
86.6%



Steelhead
87.0%



Sockeye
91.7%

Next survival studies are in 2025/2026

Coho NNI Achieved & Subyearling (TBD)



Juvenile Coho



Summer Subyearling
Chinook

Coho NNI via hatchery production through 2032.

Hatchery Production

Hatchery Mitigation Numbers Recalculated every 10 yrs.

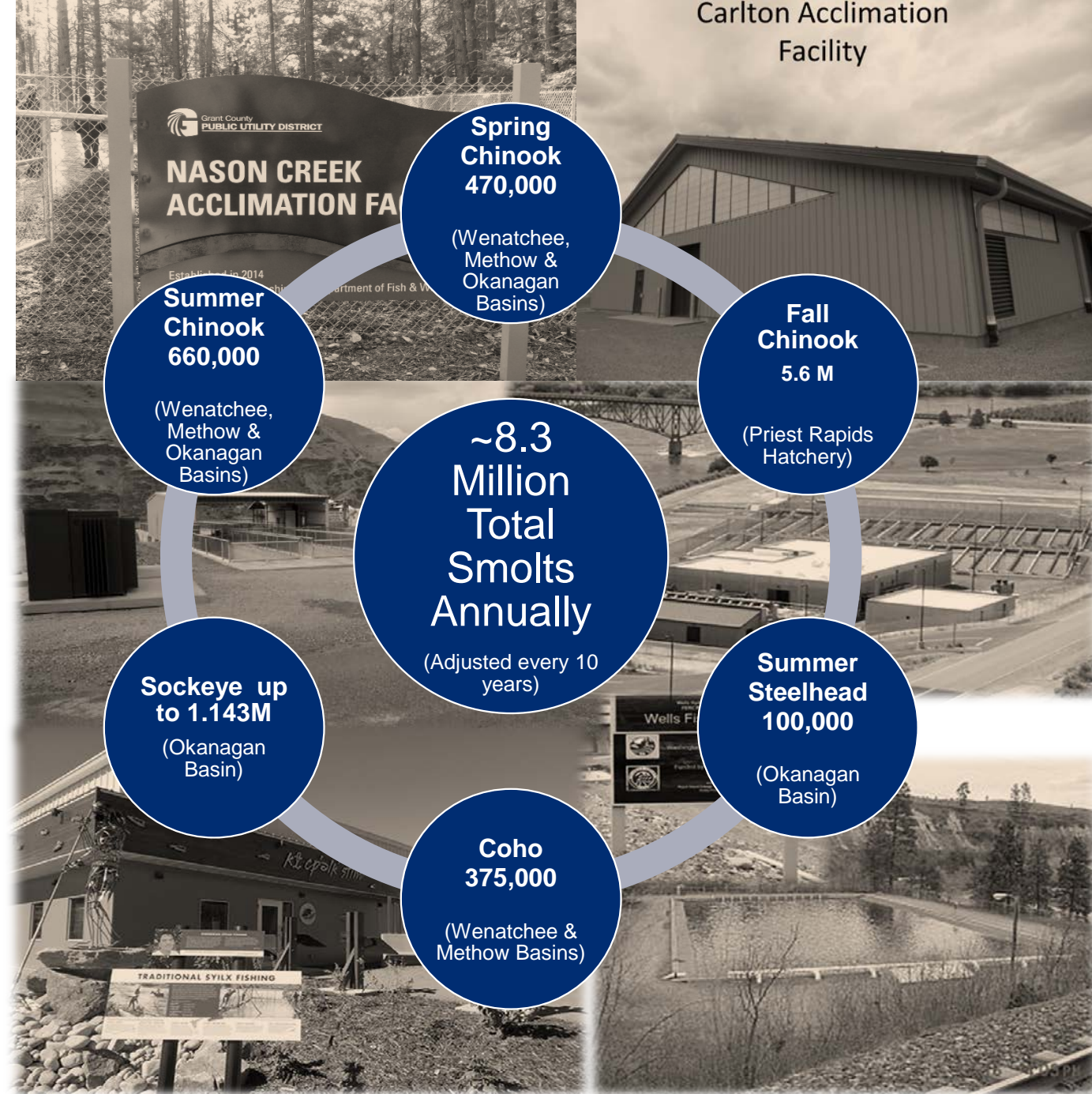
- ❖ Production Numbers Can Increase or Decrease
 - Monitoring & Evaluation Data
 - Adult Escapement Data
 - Juvenile Survival Data
- ❖ Next Recalculation 2023

Operation & Maintenance/Monitoring & Evaluation

- ❖ Required Annually
- ❖ \$9-10 million Annually

Programs Adaptively Managed

- ❖ Monitoring & Evaluation Data



Okanagan Hatchery Supplementation



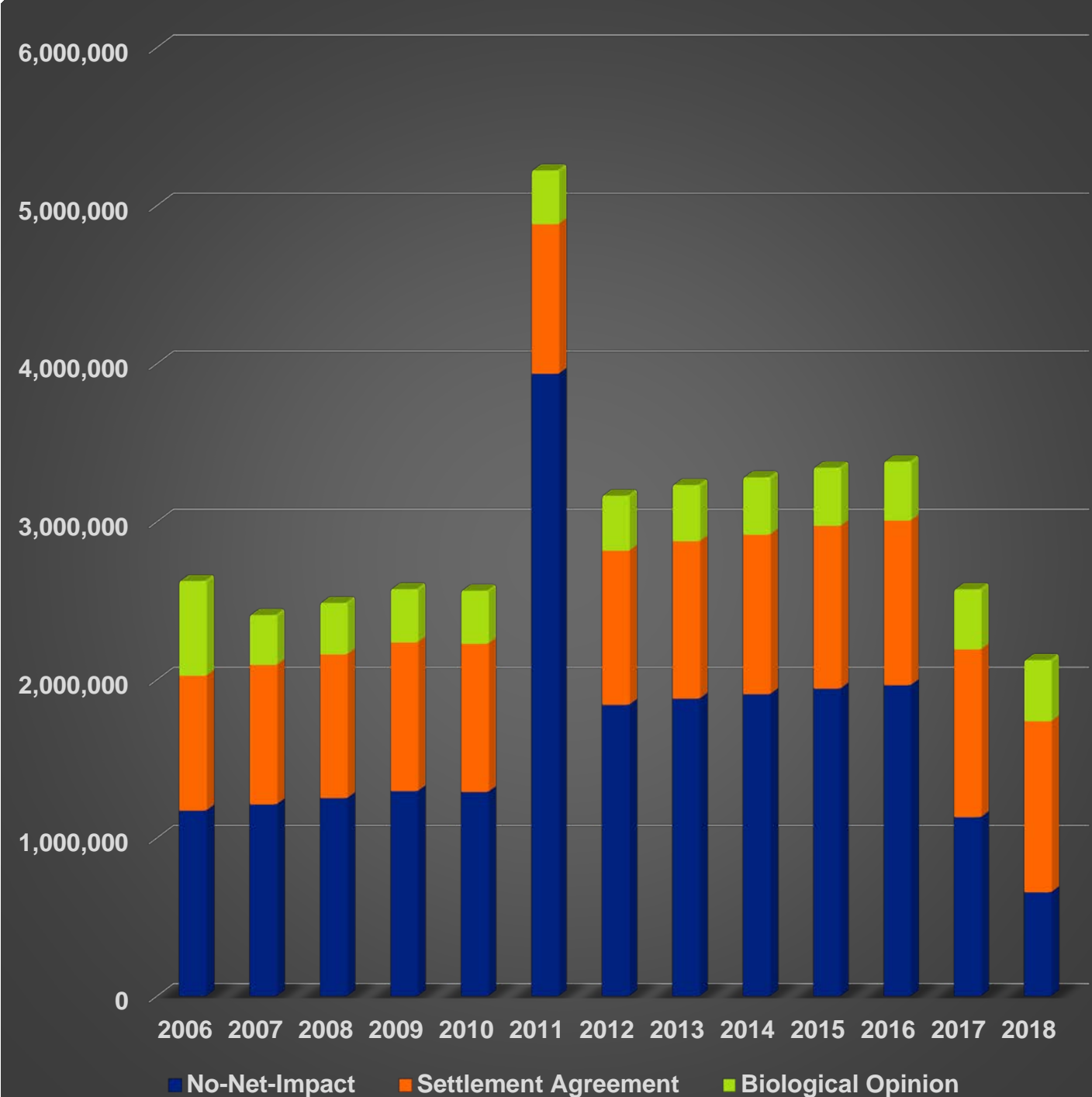
Species	Smolts
Sockeye	Up to 1.143 M
Spring Chinook	156,666
Summer/Fall Chinook	220,000
Steelhead	100,000
Total	1,619,666

Habitat Funding & NNI

No-Net-Impact - Provides near-term compensation for annual survival less than performance standards (86.49%) for each covered species (yearling Chinook, steelhead, sockeye, and summer subyearling Chinook)

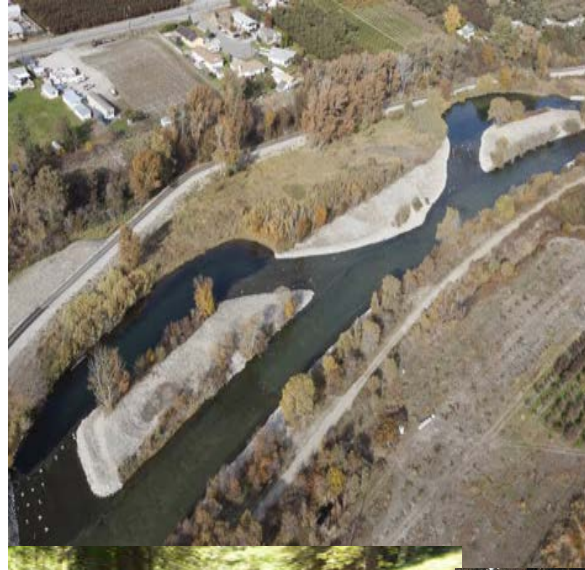
Priest Rapids Conservation Account - Provides habitat funding for all covered species included in Salmon & Steelhead Settlement Agreement

BiOp Account - Provides habitat funding for Upper Columbia River spring Chinook & steelhead



Habitat Projects

- **Grant PUD invests more than \$2.5 million annually** in habitat enhancement, protection and restoration efforts in the upper Columbia River Basin.
- Habitat projects are intended to improve survival and aid recovery of Chinook, steelhead, sockeye, and coho.
- A committee made up of the US Fish and Wildlife Service, Confederated Tribes of the Colville Reservation, Washington Department of Fish and Wildlife, Yakama Nation, the National Marine Fisheries Service, and Grant PUD review sponsor proposals. By a consensus based-approach projects are approved for implementation.
- **To date, 100 separate habitat enhancement, protection, and restoration projects** have been implemented throughout the Columbia River Basin, extending from Penticton, British Columbia downstream to the Priest Rapids Project.



Okanogan/Okanagan Habitat Projects

Project Title	Project Type	Sponsor	Status	Location
McIntyre Dam	Fish Passage	ONA	Completed	BC
ORRI IV	Habitat Restoration	ONA	Completed	BC
Omak Creek	Fish Passage	CCT	Completed	USA
UCB LiDAR	Topographic Survey	USGS	Completed	USA
Antoine Creek	Fish Passage	CCT	Completed	USA
Bonaparte Creek	Habitat Restoration	CCT	Completed	USA
Ok. River Discharge	Data Collection & Monitoring	CCT	Completed	USA
VDS-13	Fish Passage	ONA	Ongoing	BC
ORRI 1 & 2	Habitat Restoration	ONA	Ongoing	BC
Shuttleworth Diversion	Instream Flow	ONA	Ongoing	BC
McIntyre FPE	Fish Passage	ONA	Ongoing	BC
Spawning Platforms 1-4	Habitat Restoration	ONA	Ongoing	BC

Health-Fish & Water Analysis

- Disease Screening for IHN
 - No major outbreaks
- Otolith Polishing & Reading
 - Ageing juveniles & adults
 - Origin composition
- In-Lake Analysis
 - Water quality
 - Stomach content
 - eDNA



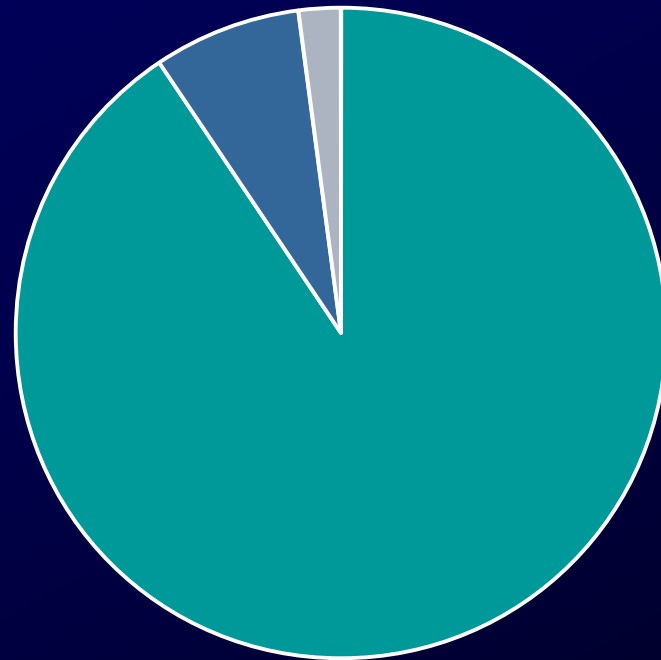
Okanagan Harvest (Fish Caught)

	Chinook	Sockeye	Steelhead
CCT	5137	4329	100
WDFW	4713	2609	?
ONA	0	Minimal	0



Three-Prong Approach to Hydro Mitigation

No Net Impact



■ Juvenile Survival ■ Hatchery Supplementation ■ Habitat Restoration ■

Questions?

