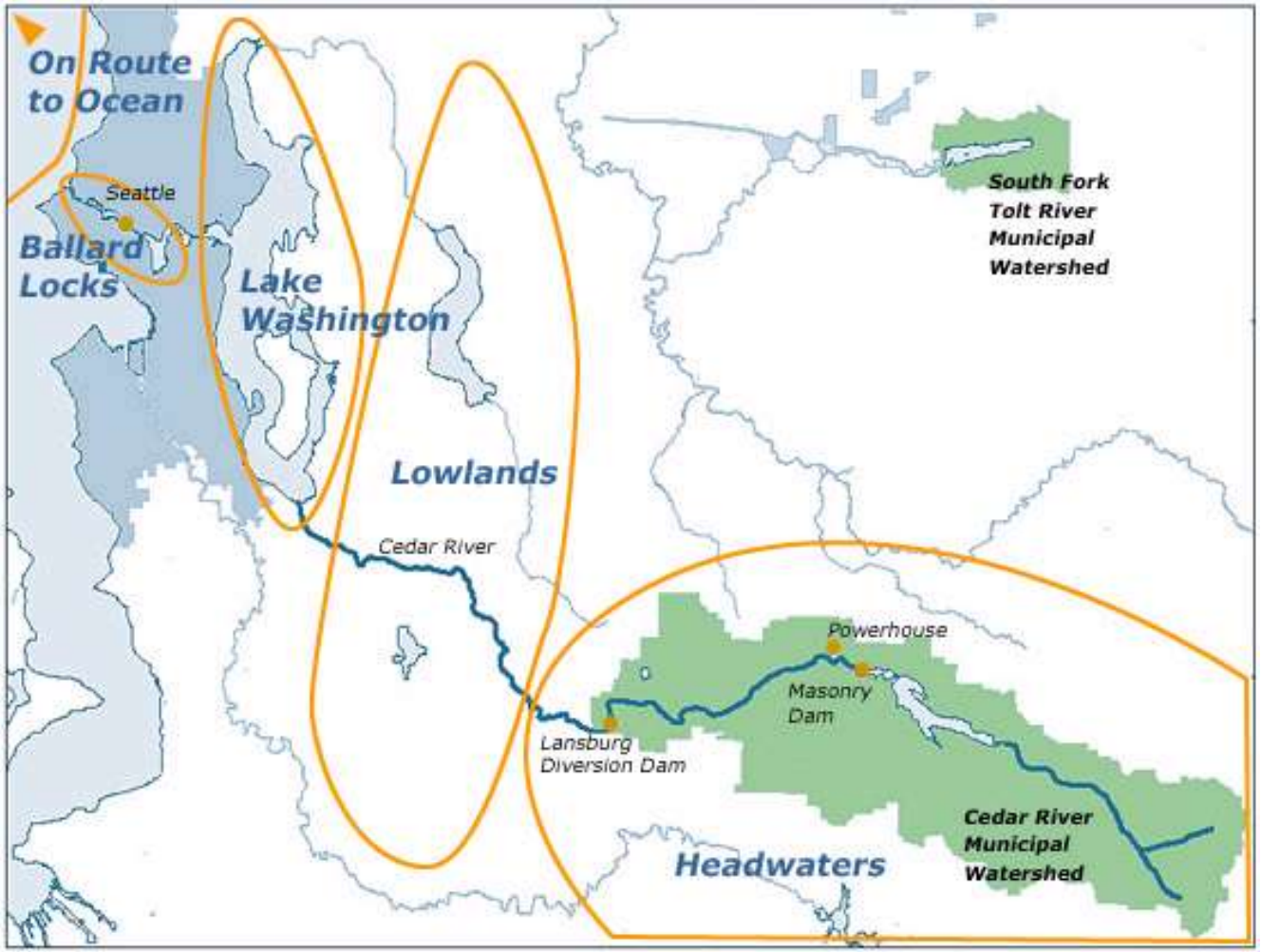
# Cedar River Salmon Update

Seattle Water Supply System Operating Board

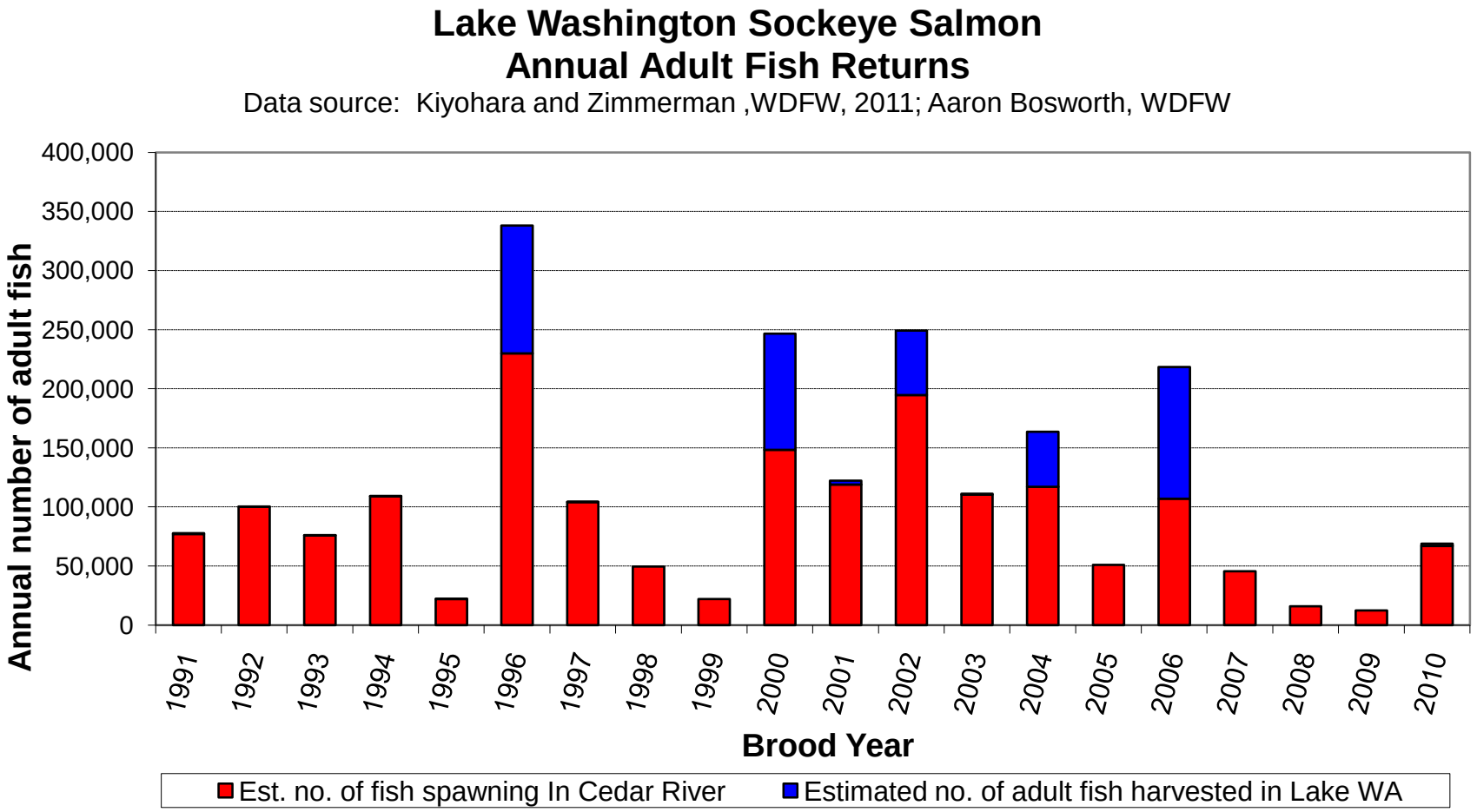
October 6, 2011

Seattle Public Utilities

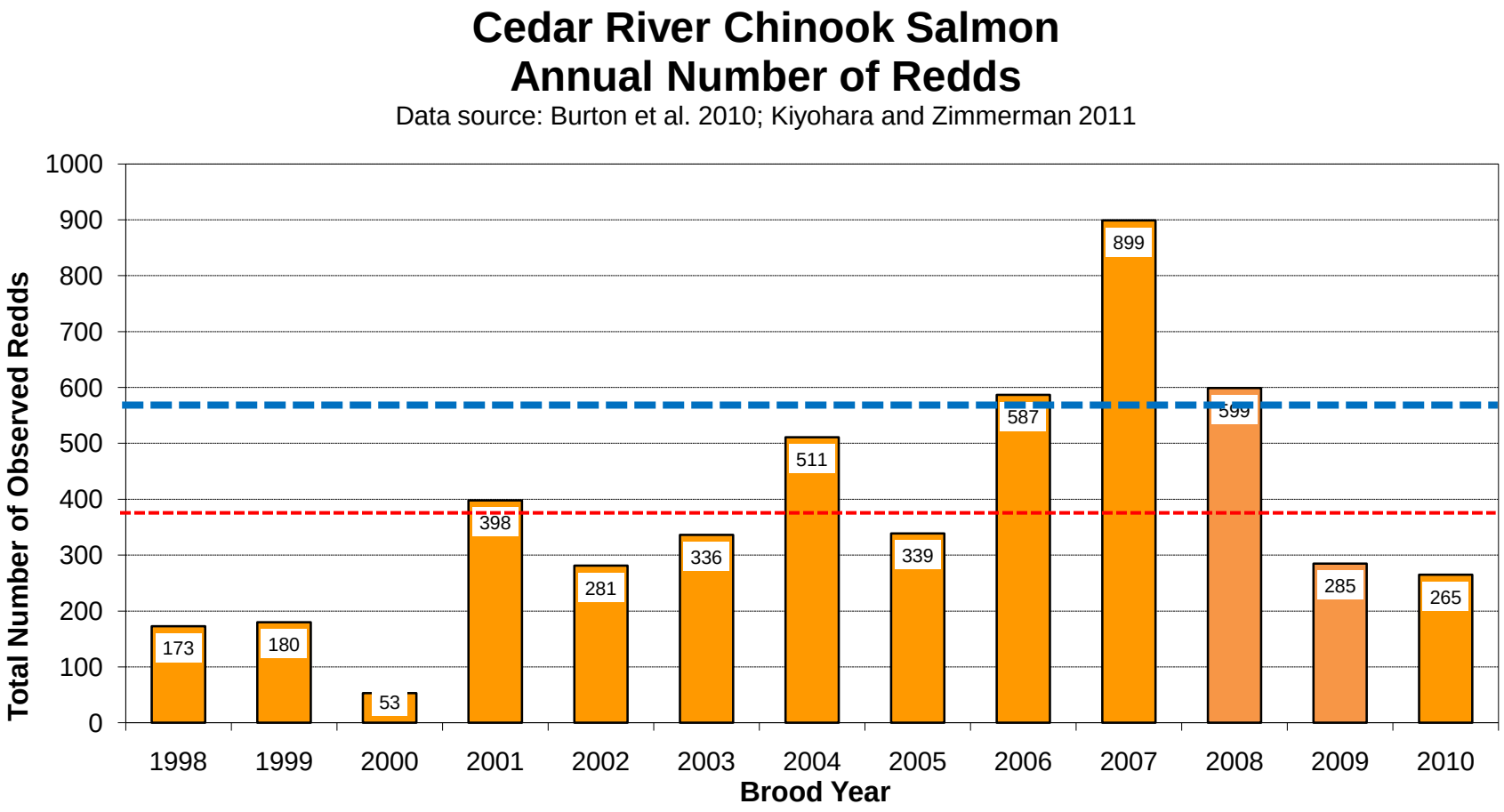
# 5 LINKS: Cascade Crest to Sea



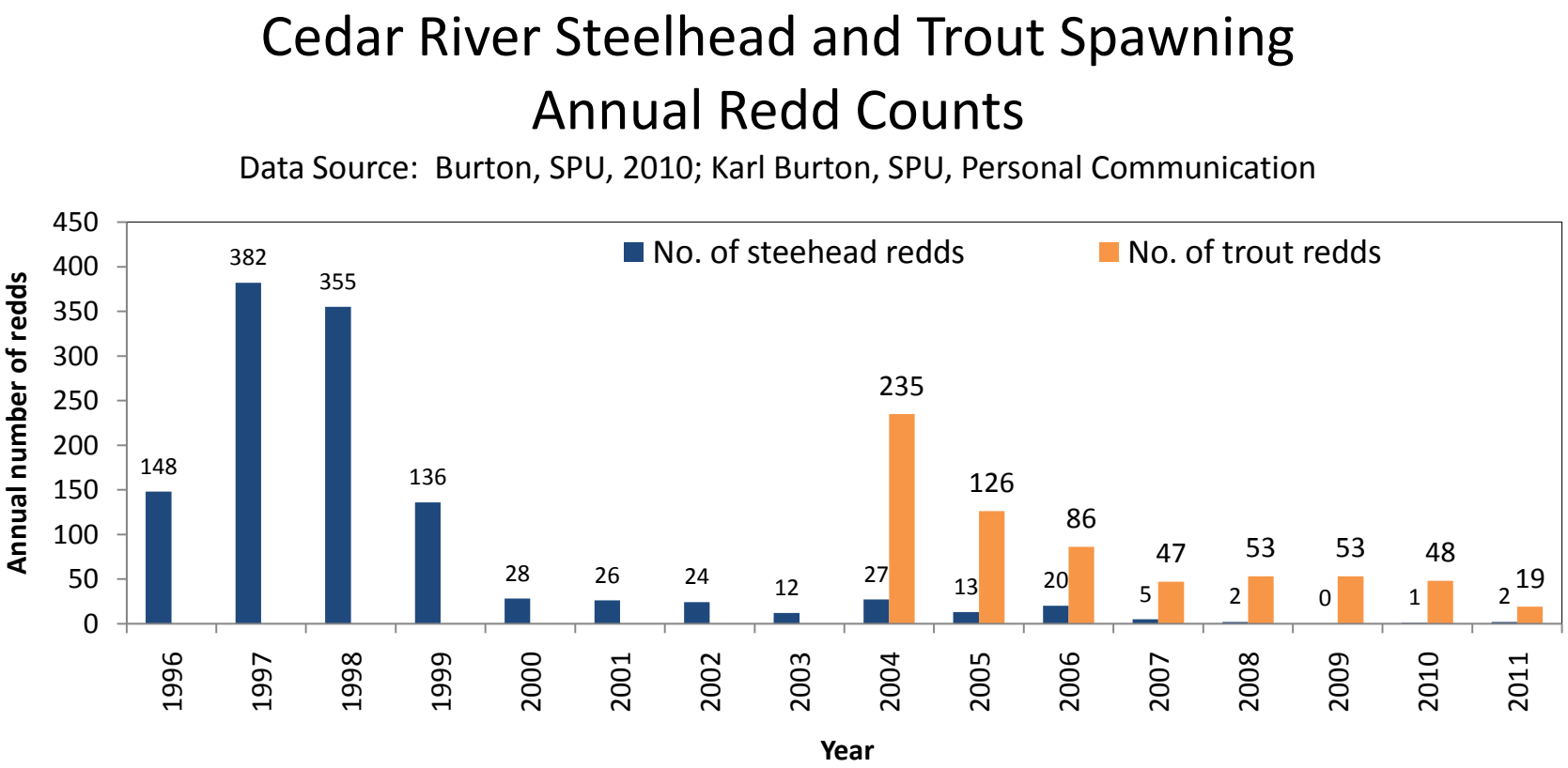
# Cedar River Sockeye Salmon



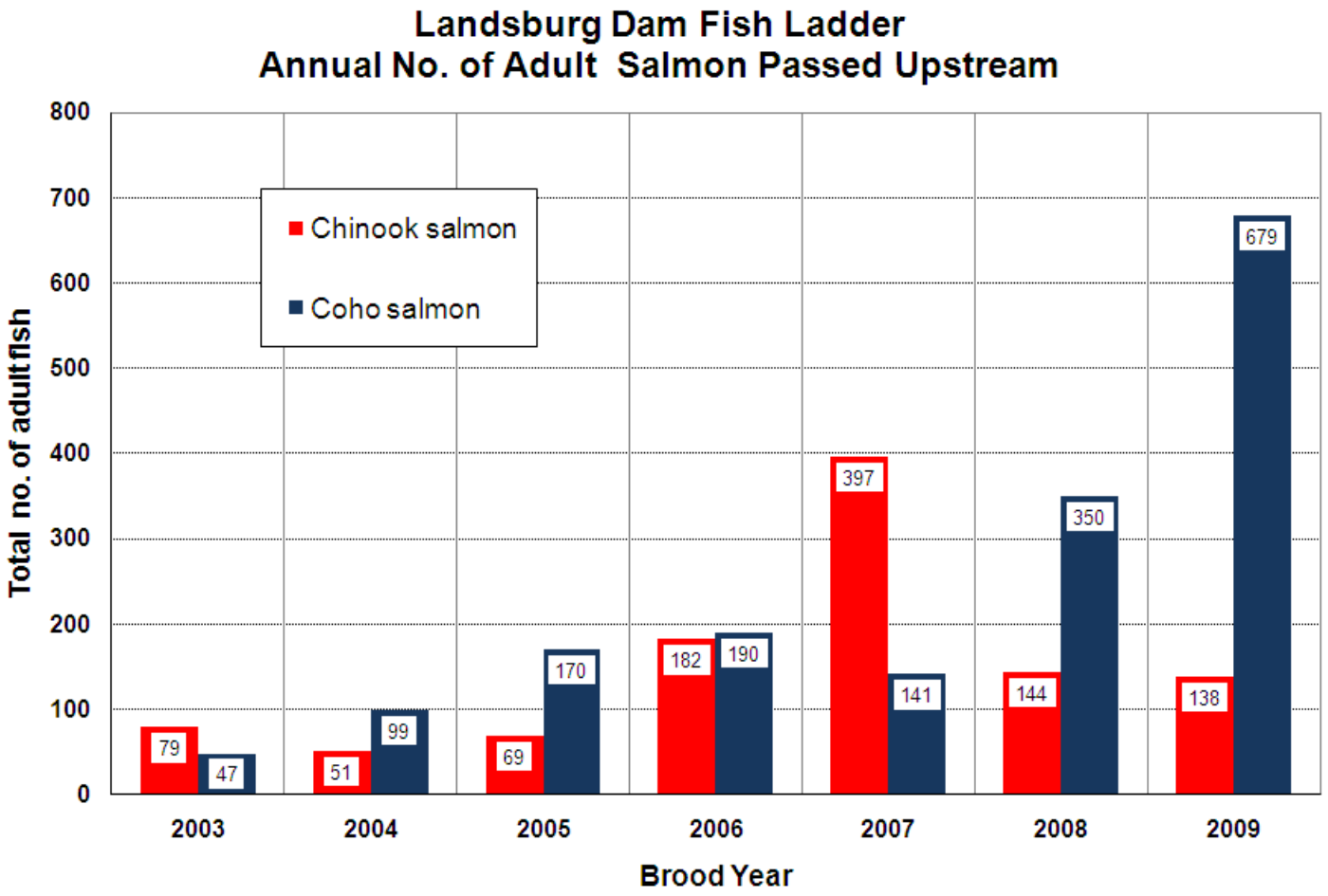
# Cedar River Chinook Salmon



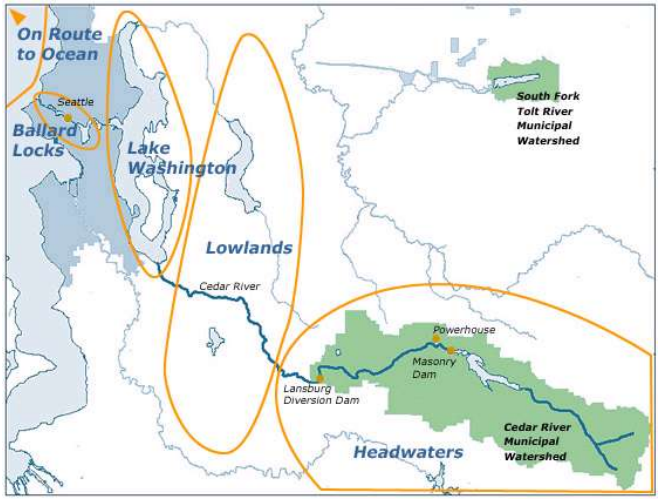
# Cedar River *O. mykiss*



# Cedar River Coho Salmon



# Commitments for Fish




**Established by:**

- ❑ **Cedar River HCP**
- ❑ **2006 Muckleshoot Tribe/City of Seattle Settlement Agreement**

**Include:**

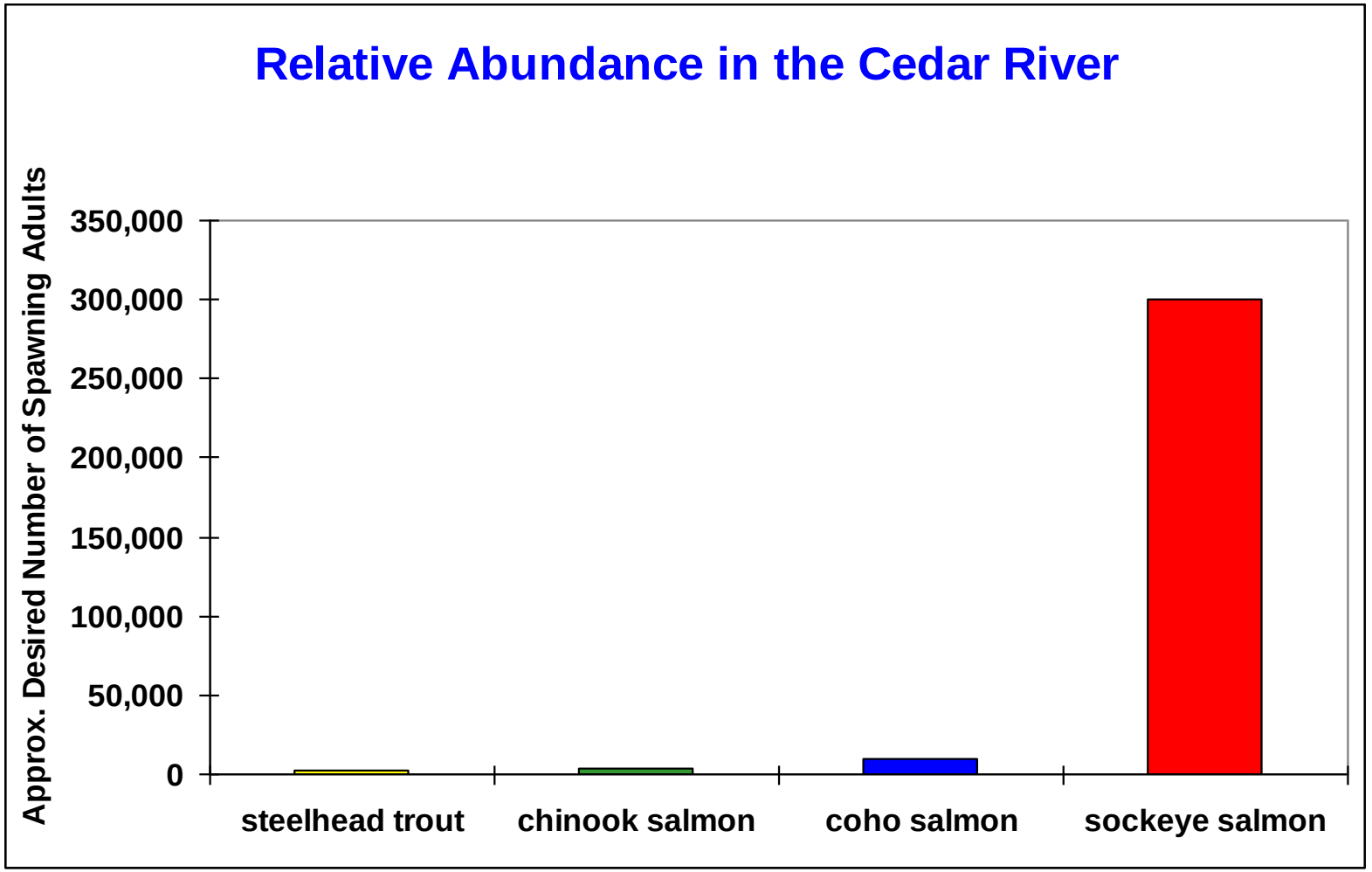
- ❑ **Protective land management practices in municipal watershed**
- ❑ **Mitigation for the migration blockage at Landsburg**
- ❑ **Protective instream flow management practices**

# *Landsburg Mitigation: Fish Passage*

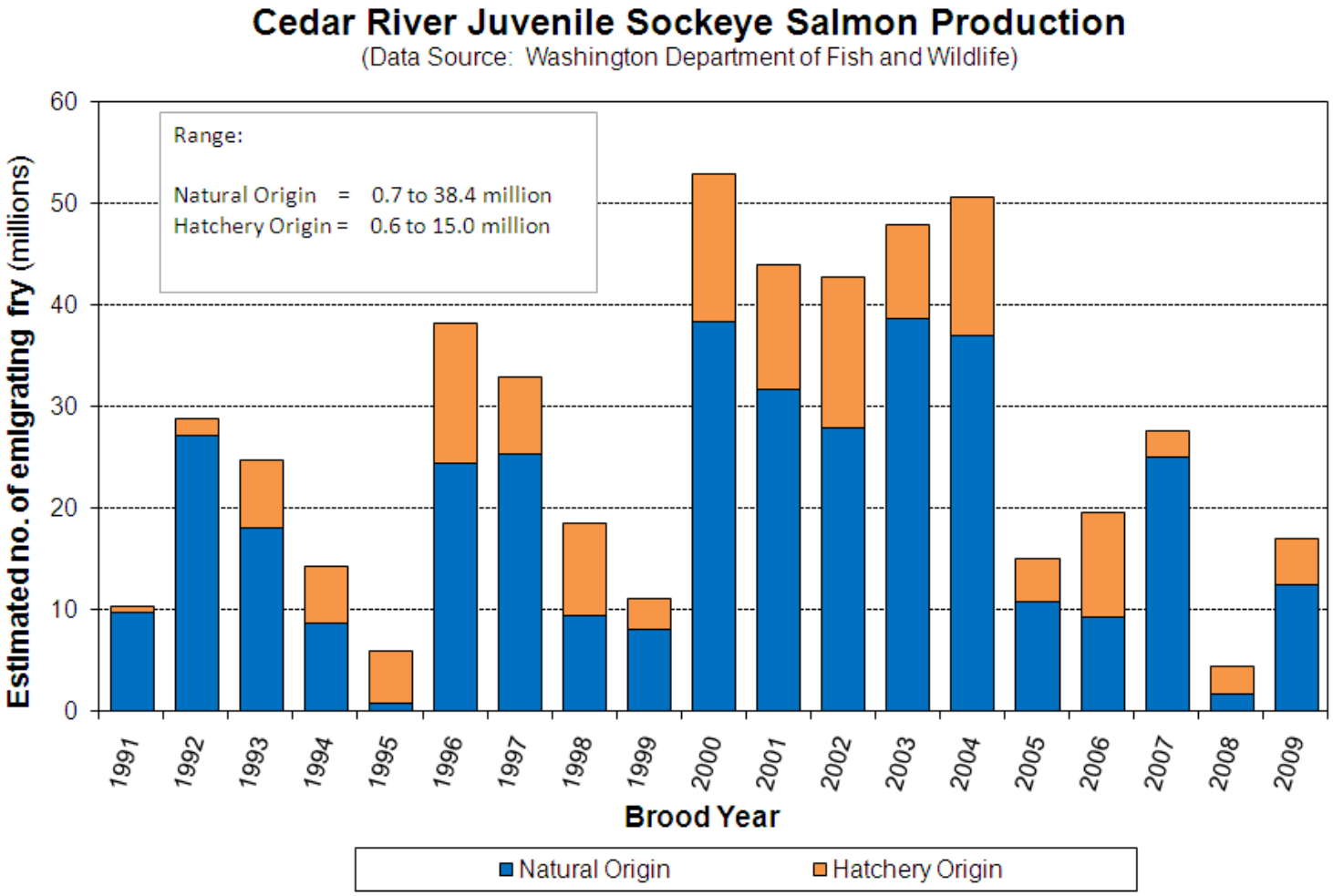
## *Landsburg Fish Passage Complex: Completed 2003*

1. **Rock-drop cascade steps at aqueduct crossing**
2. **Fish ladder and sorting facilities**
3. **Downstream passage gate**
4. **Intake screens**

# The Sockeye Conundrum



# Landsburg Mitigation:
# *Cedar River Sockeye Hatchery Program*



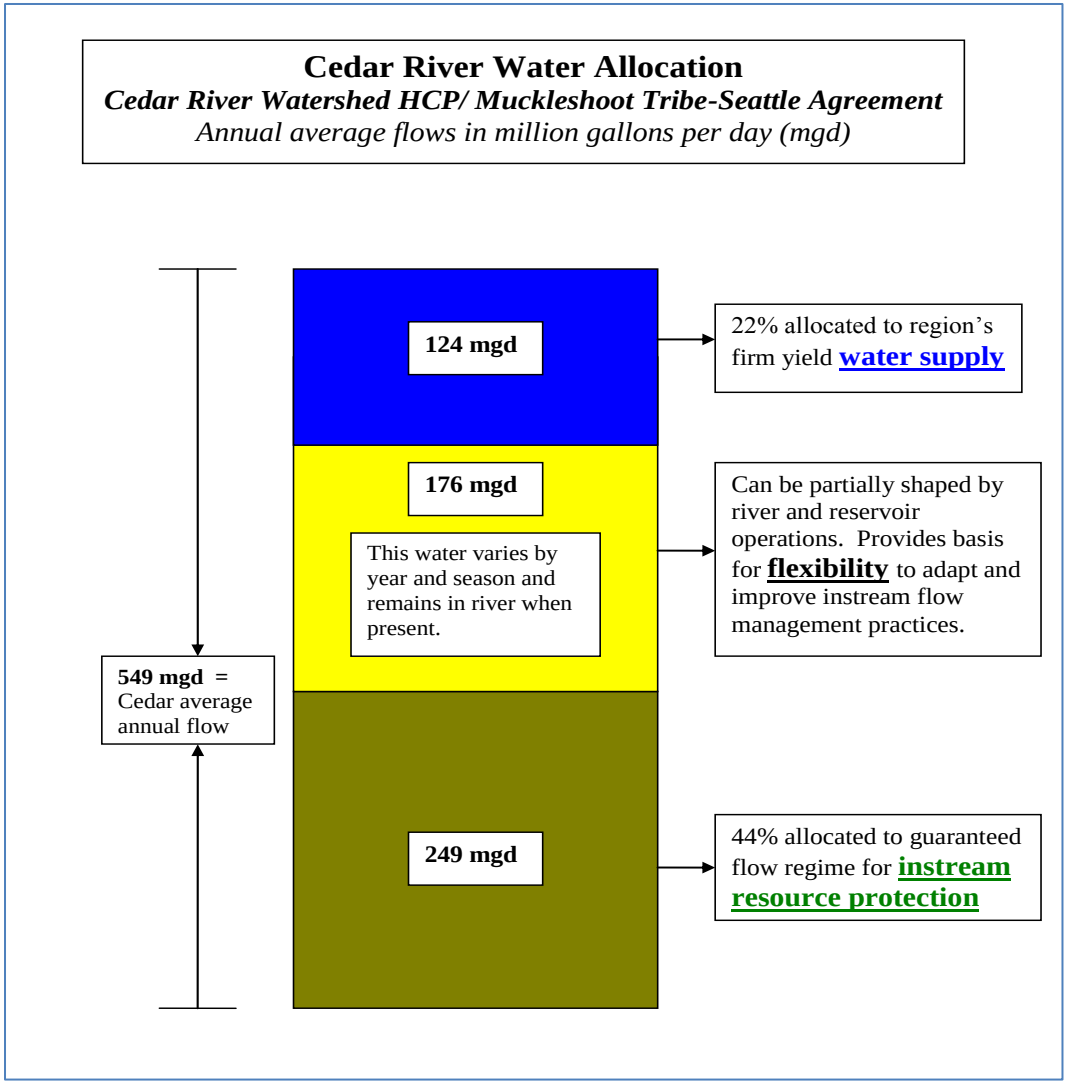
# New Cedar River Sockeye Hatchery

# New Cedar River Sockeye Hatchery

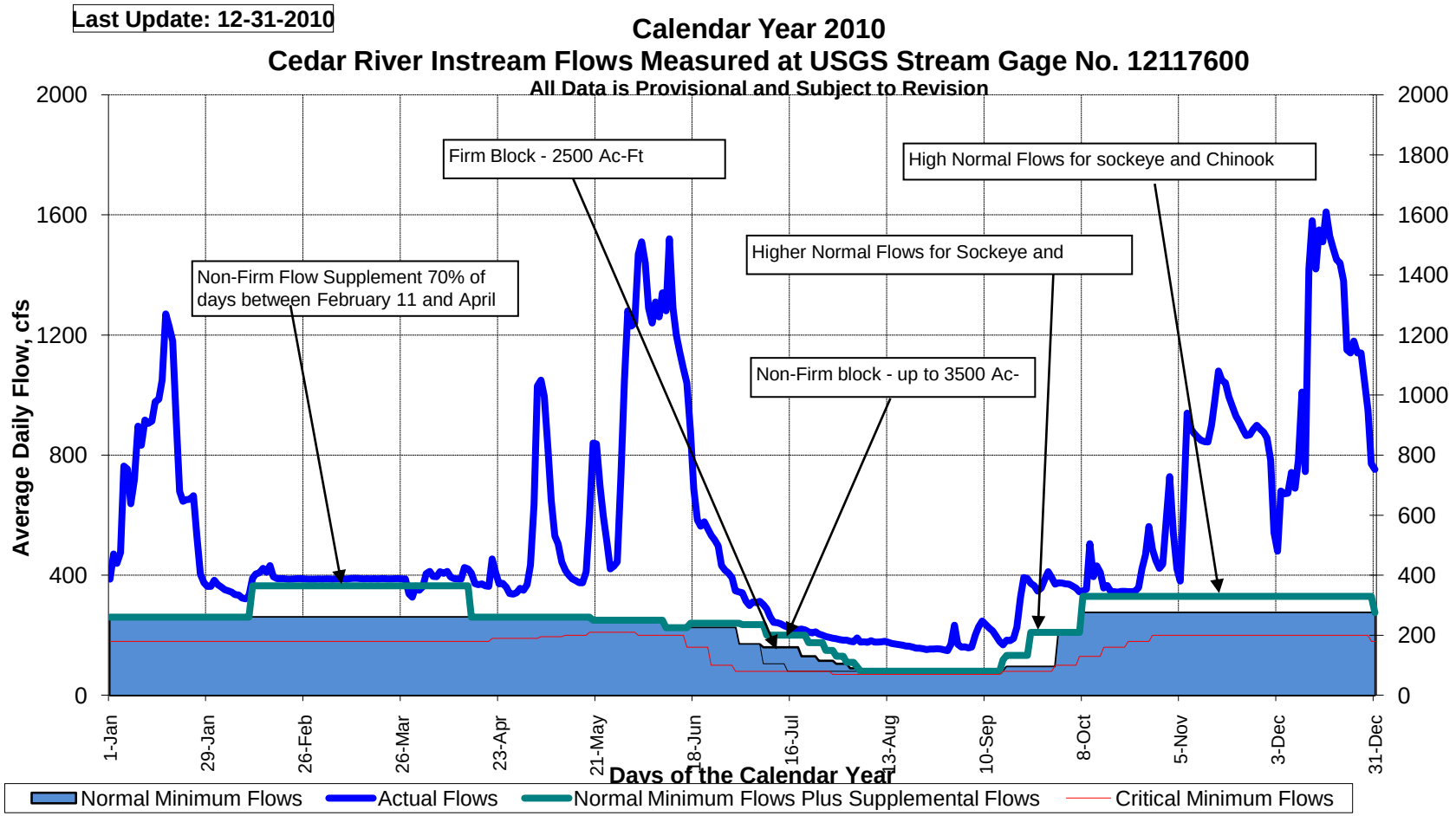
- Construction **started July** 2010
- Construction now **essentially complete**
- Production capacity = **34 million fry**
- This year's expected production **7 - 10 million**
- Anticipated operations start-up in **late October?**
- **Final testing** of water supply system ongoing
- If necessary, **use old facility** this year

# Cedar River Instream Flow Management

# Cedar River Instream Flow Management



# Cedar River Instream Flow Management



# *Components of the Instream Flow Management Program*

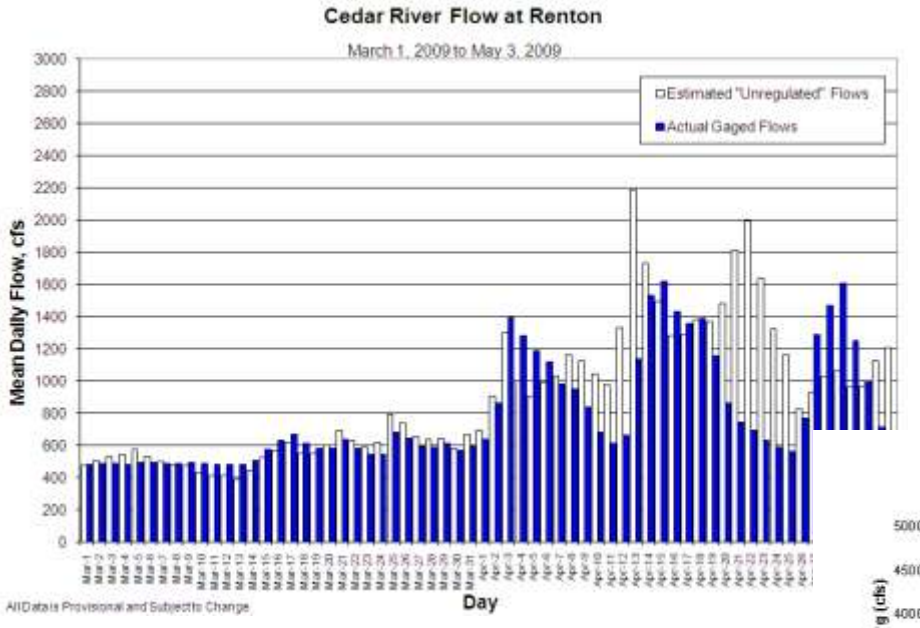
- ***Capital improvements*** to help protect fish and fish habitat
- ***Detailed mngmt. prescriptions*** that protect the river and maintain municipal water supply capacity
- ***Limitations on diversions*** to ensure flexibility to adapt and improve flow management
- Continued ***monitoring and research***
- Commitment to ***apply research*** results
- Collaborative ***oversight***

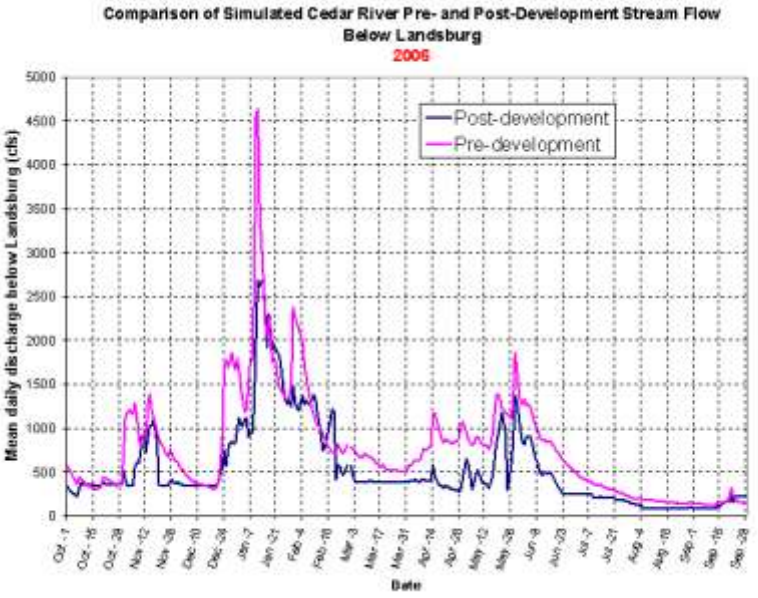
# *Monitoring and Research-- Supplemental Biological Studies*

Dedicated funding to investigate up to 18 prioritized study questions addressing the effects of stream flow on:

- Chinook and sockeye spawning and incubation
- Steelhead spawning and incubation
- Chinook early life history
- Natural ecological processes that shape and maintain riparian and in-channel habitat

# Natural vs. Regulated Flows



# Cedar River Peak Flow Study

USGS
science for a changing world

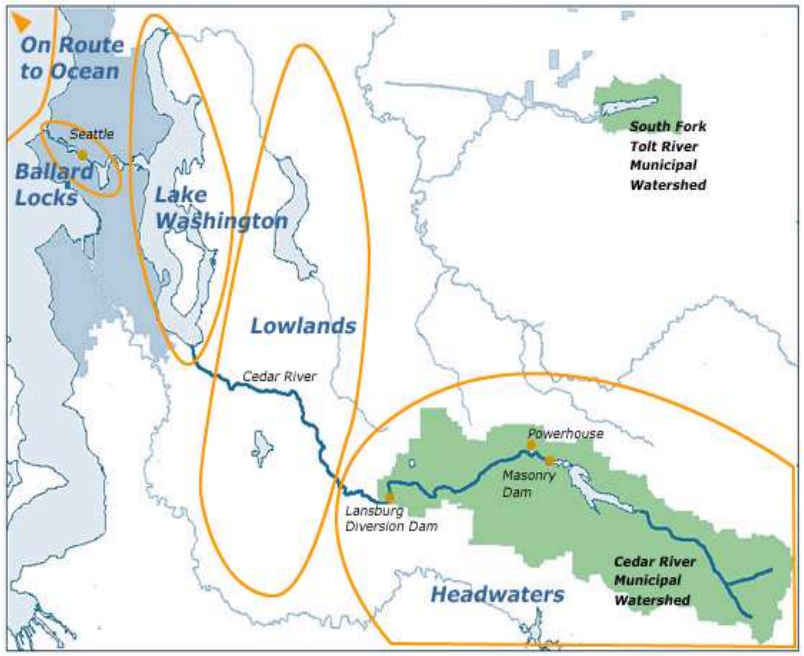
*Geomorphic and hydrologic study of peak-flow management on the Cedar River*

## Project Tasks & Publication Strategy: Cedar River Geomorphology and Hydrology

**Project tasks:**

- 1a) Refine conceptual model of the river
- 1b) Determine current geomorphic state of river
- 2a) Analyze geomorphically resetting floods
- 2b) Analyze 2009 flood (*and 2011 flood*)
- 3a) Collect field data for model
- 3b) Construct numerical model
- 4) Redd scour measurement and analysis
- 5) Design monitoring program

# 5 LINKS: Some Parting Thoughts




- SPU's water land and water management practices influence **some, but not all components** of the salmon life cycle
- In these practices, are we achieving an appropriate **balance between certainty and flexibility**?
- What can be done in the **other links** to help promote success?