LAKE SAMMAMISH KOKANEE

- Natural History
- Current Status
- Recovery Partnerships
- Future Efforts

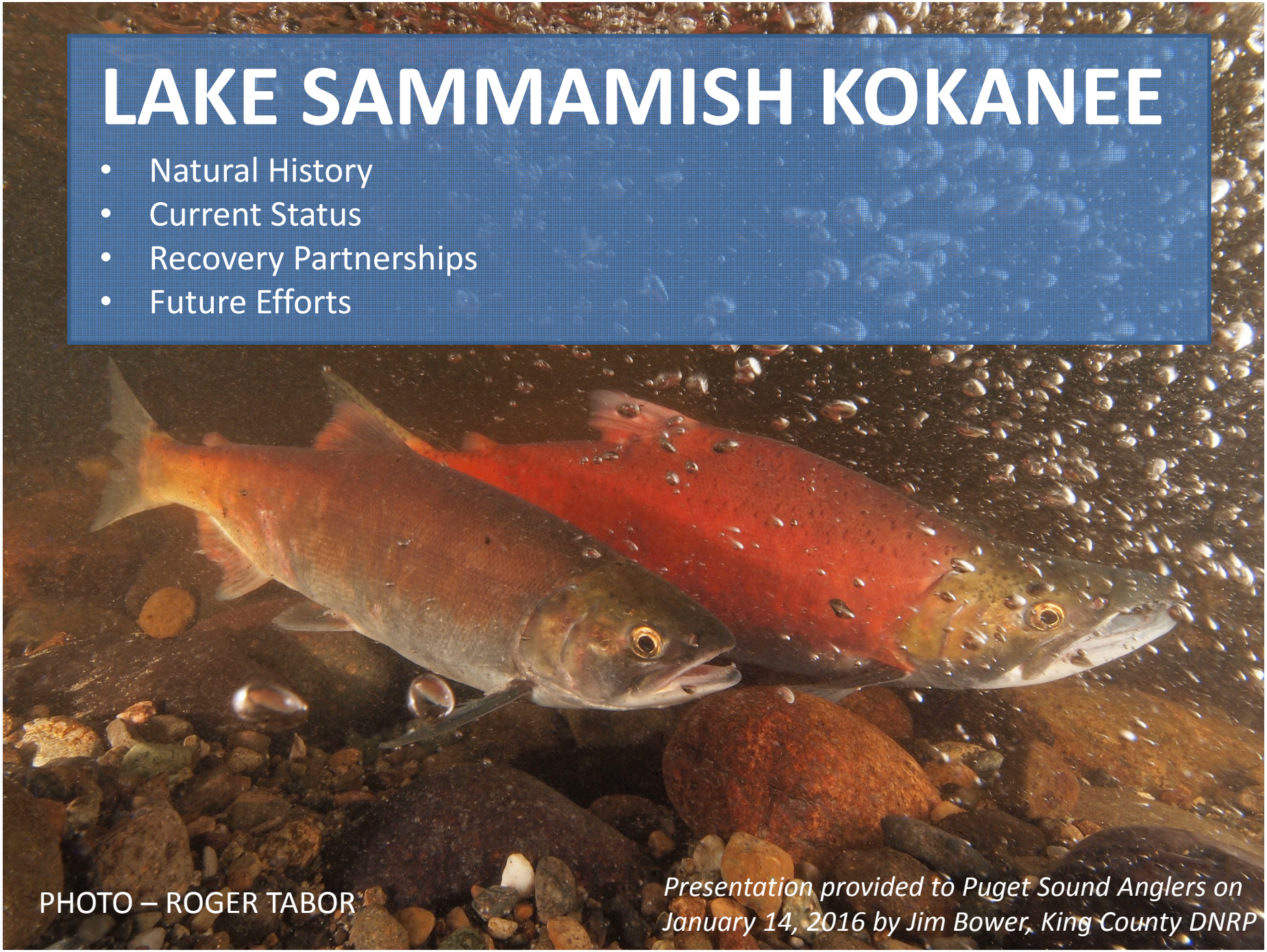

PHOTO – ROGER TABOR

Presentation provided to Puget Sound Anglers on January 14, 2016 by Jim Bower, King County DNRP

SPECIES –

- Non-anadromous variant of Sockeye salmon
- Entire life cycle occurs in freshwater lakes
- Kokanee ↔ Sockeye

DISTRIBUTION –

- North Pacific
- 6 native populations in WA: Lakes Sammamish, Whatcom, Ozette, Chain, Chilliwack, and Osoyoos

ADULT FISH –

- Typically return in 3-4 years to spawn
- High fidelity to natal stream
- Adults: 280-400 mm; 200-540 g
- 600-1,200 eggs per female

JUVENILE AND SUBADULT FISH –

- Incubation usually 3-5 months
- Fry at emergence: 20-30 mm; 1 g
- Rapid emigration to lake environment
- Primarily feed on zooplankton

PHOTO – HANS BERGE

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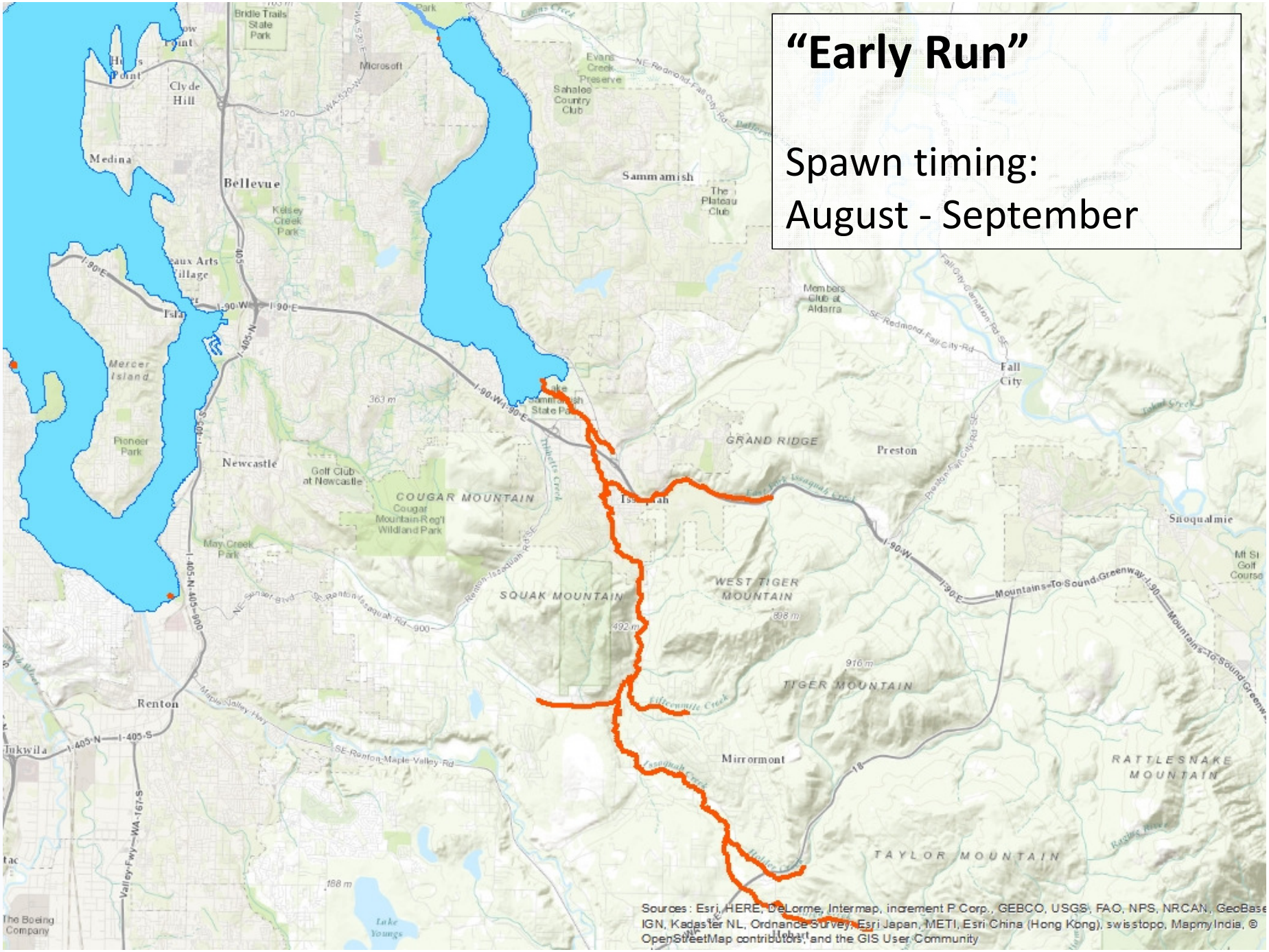
LAKE WASHINGTON BASIN (HISTORIC) RUNS –

- “Early Run” (Lake Sammamish)
- “Middle Run” (Lake Washington)
- “Late Run” (Lake Sammamish)

“Early Run”

Spawn timing:
August - September



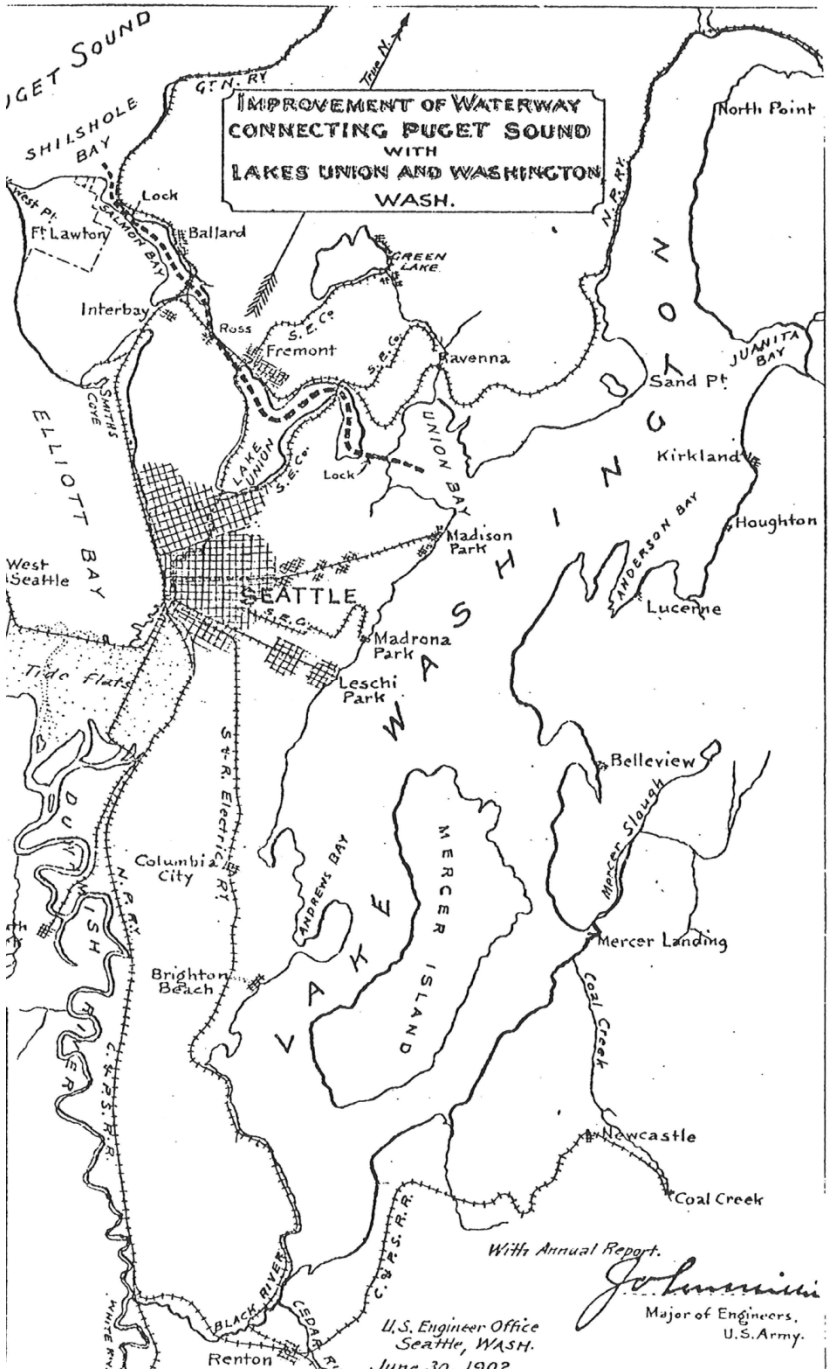
“Middle Run”

Spawn timing:
October - November

"Late Run"
Spawn timing:
November - January
Idylwood Creek
George Davis Creek
Zackuse Creek
Ebright Creek
Pine Lake Creek
Vasa Creek
Lewis Creek
Laughing Jacob Creek
Tibbetts Creek
Bellevue
Newcastle
COUGAR MOUNTAIN
GRAND RIDGE
Issaquah
Preston
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

STATUS: Prior to 1916

- All 3 kokanee runs important food and recreational resources.
- Other native species: bull trout, cutthroat trout, rainbow trout, northern pikeminnow
- Sockeye, Chinook and Coho salmon?
- Bass



STATUS: Ship Canal through 60s

- (Whatcom Lake) kokanee introduction (~35 million fry)
- Bear Creek kokanee supplementation
- (Baker Lake) Sockeye introduction and supplementation
- (Green River) Chinook introduction and supplementation
- Coho supplementation
- Mysis, perch, ↑ nutrient loading, urbanization

STATUS: 70s – early 90s

- ↓ nutrient loading; ↓ kokanee numbers
- Changing predator-prey dynamics
- More (Whatcom Lake) kokanee introductions (~3.5 million fry) 1976-1979
- Intermittent DFW and KC monitoring begins
- "Early Run" collapses in 1983
- Recreational kokanee fishery closed in 1986

STATUS: Early 90s – early 00s

- KC starts monitoring program in 1992
- Genetics analysis of “Middle” and “Late” runs
- Supplementation plan to rescue “Early Run” developed 2001
- “Early Run” determined extinct in 2003

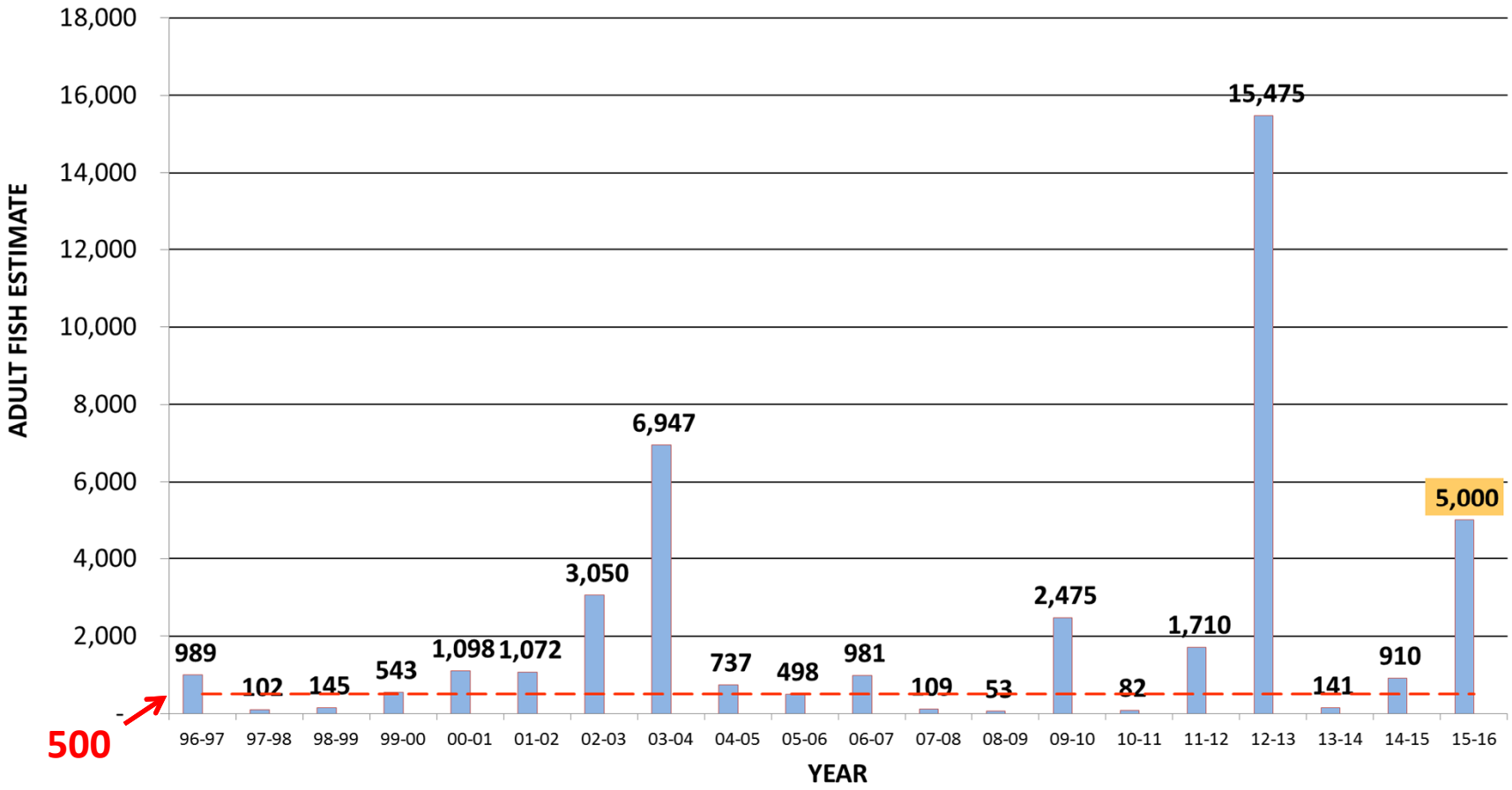
LAKE WASHINGTON BASIN (HISTORIC) RUNS –

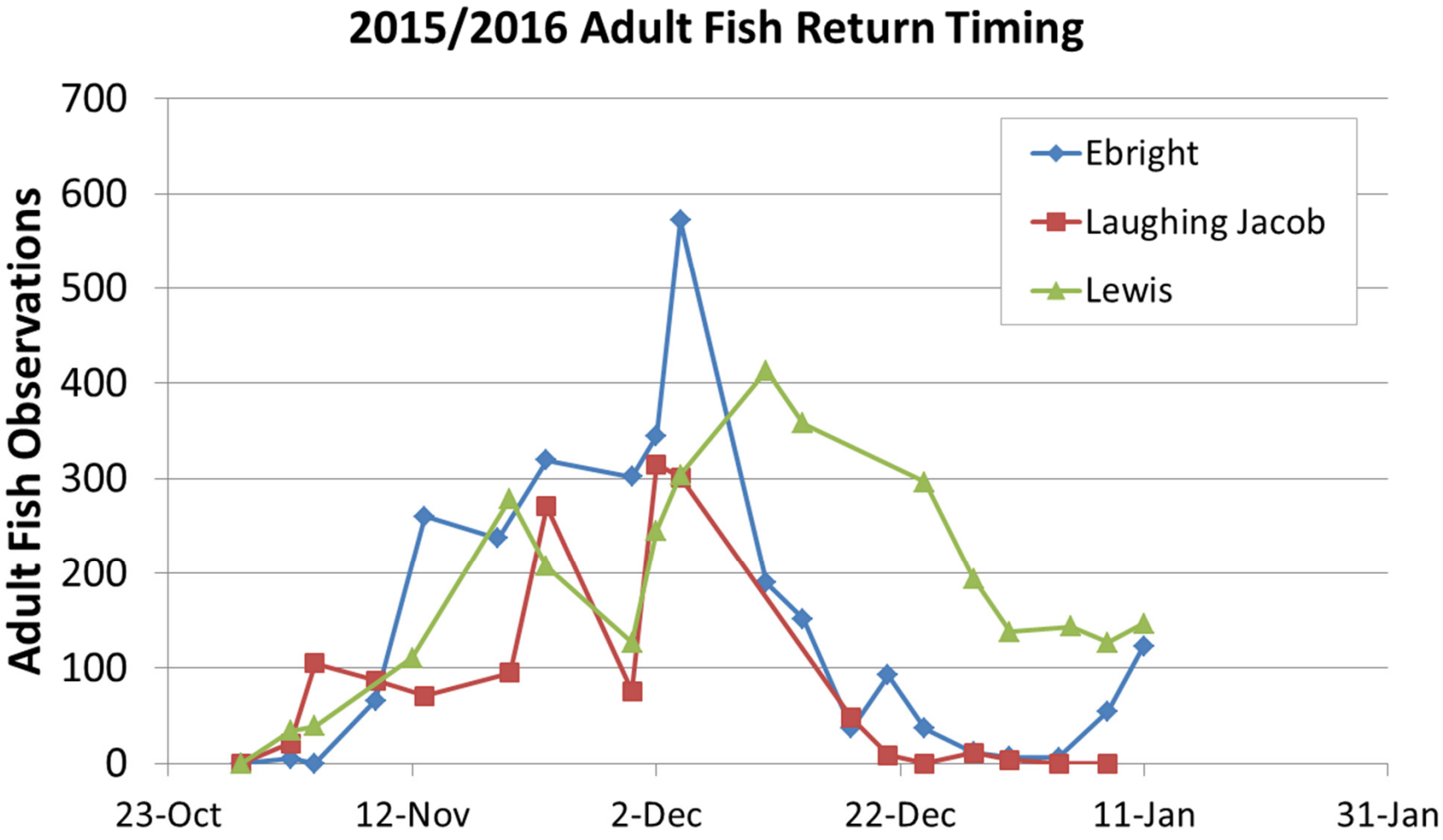
- "Early Run" (Lake Sammamish) X
- "Middle Run" (Lake Washington) ?
- "Late Run" (Lake Sammamish) ✓

STATUS: Early 00s - today

- KC spearheads Kokanee Work Group 2007
  - *"Prevent the extinction and improve the health of native kokanee population such that it is viable and self-sustaining, and then supports fishery opportunities."*
- Supplementation plan to rescue "Late Run" developed 2007
- Hans Berge thesis 2009
- KWG Blueprint 2014

Annual escapement estimate for Ebright, Lewis, and Laughing Jacob creeks assuming a 7-day stream life (includes fish taken into hatchery program).




2015/2016 Adult Fish Return Timing
Adult Fish Observations
700
600
500
400
300
200
100
0
23-Oct
12-Nov
2-Dec
22-Dec
11-Jan
31-Jan
Ebright
Laughing Jacob
Lewis

Kokanee Work Group Active Partners

Conservation
Educational/Outreach
Sportsman
Landowners

- Save Lake Sammamish
- Friends of Issaquah Salmon Hatchery
- Friends of Pine Lake
- Mountains to Sound Greenway
- Trout Unlimited
- Friends of Lake Sammamish Park
- Mid-Sound Partnership
- Numerous private landowners

Tribal Government

- Snoqualmie Tribe

Local Government

- City of Issaquah
- City of Sammamish
- City of Redmond
- City of Bellevue
- King County

State and Federal Government

- WA State Parks
- WA Department of Fish and Wildlife
- US Fish and Wildlife Service

PRIMARY KNOWLEDGE GAPS:

- Quantity and quality of stream habitat
- Lake phytoplankton and zooplankton
- Year-class productivity and abundance
- Recruitment from supplementation program
- Spatial distribution

↓

- *How many fish can lake support (each age class)?*
- *Is stream habitat or lake habitat limiting?*

Contact:

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