Reviving the Little Red Fish:

An Update on Lake Sammamish Kokanee Conservation

for the

WRIA 8 Salmon Recovery Council

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King County Department of Natural Resources and Parks

On behalf of the
The Lake Sammamish Kokanee Work Group

September 15, 2016

Photo: Bill Priest, King County

Thank You!

Collaboration with WRIA 8 and all of our partners is essential to progress and ultimate success!

WHEREAS, the parties recognize the importance of efforts to protect and restore habitat for multiple species in the Lake Washington/Cedar/Sammamish Watershed, including Lake Sammamish kokanee, and will seek opportunities to partner and coordinate Chinook recovery efforts with these other efforts where there are overlapping priorities and benefits; and

Excerpted from the newly revised and approved WRIA 8 ILA

Focus

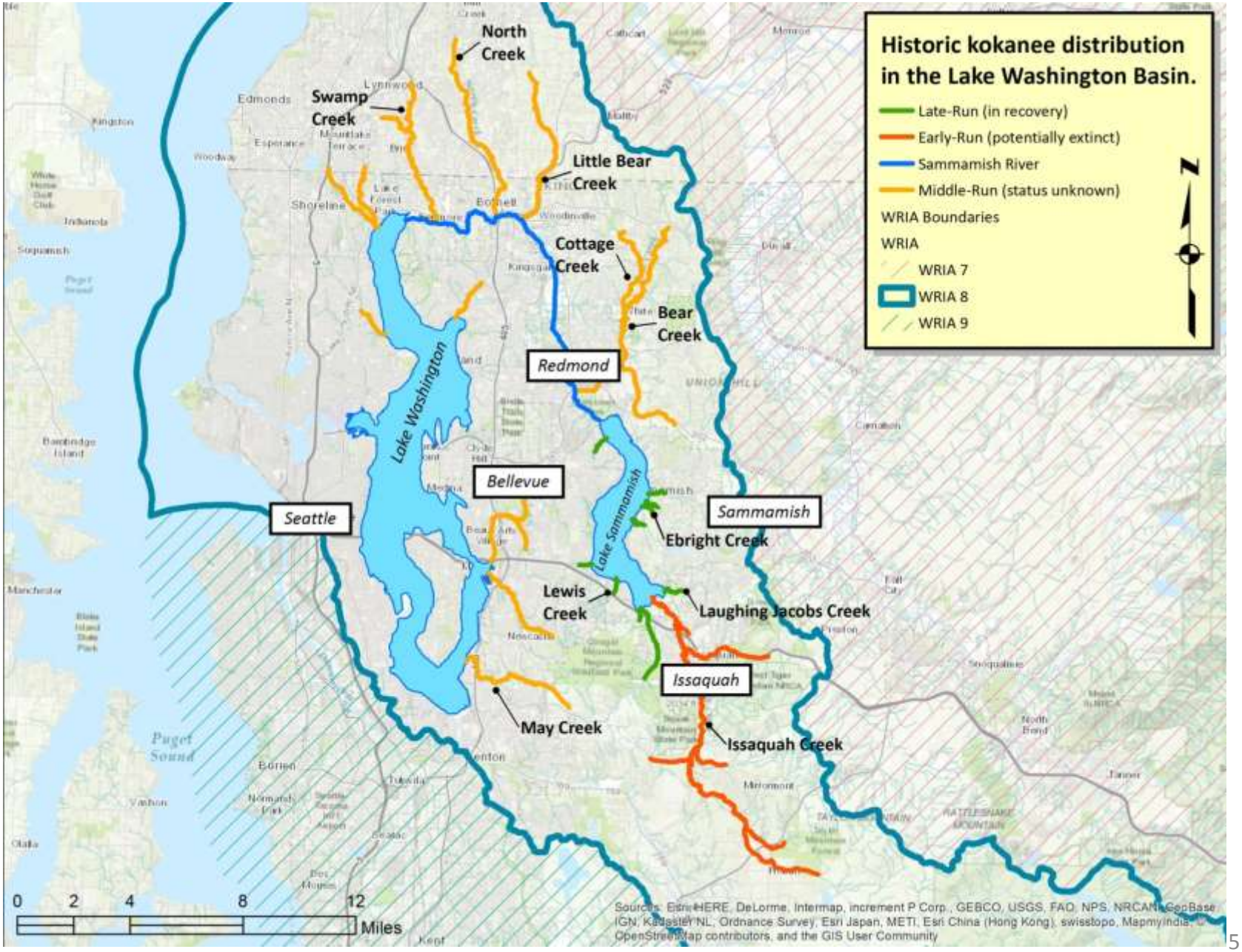
- *What is a kokanee?*
- *Goals and partners*
- *Strategic actions*
- *Current priorities*

Biology Basics

- *Non-anadromous relative of Sockeye salmon*
- *Entire life cycle occurs in freshwater lakes*
- *Lake Sammamish and Lake Whatcom only native Puget Sound pop's*
- *In the gravel for 3-5 months then move quickly to the lake*
- *Typically return in 3-4 years to spawn*
- *Primarily feed on zooplankton*

Photo credit Roger Tabor

Kokanee Distribution



Population Status

Where do they live? More places is better…

Early-mid 1990s: Lake Washington and Sammamish, and many creeks draining to them

Today: Lake Sammamish and only three creeks draining to it

Distribution

How diverse are they? More diversity is better…

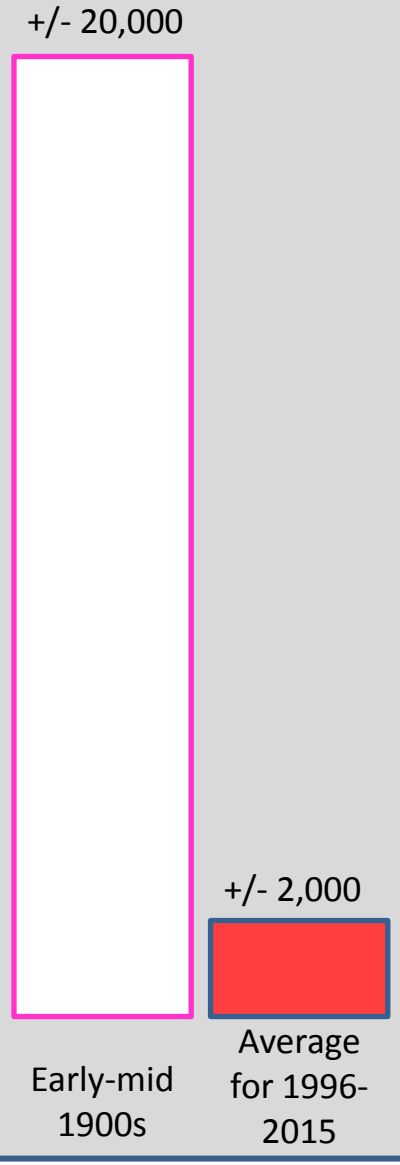
Diversity

Early run: extinct	Middle run: extinct(?)	Late run: present but near extinct

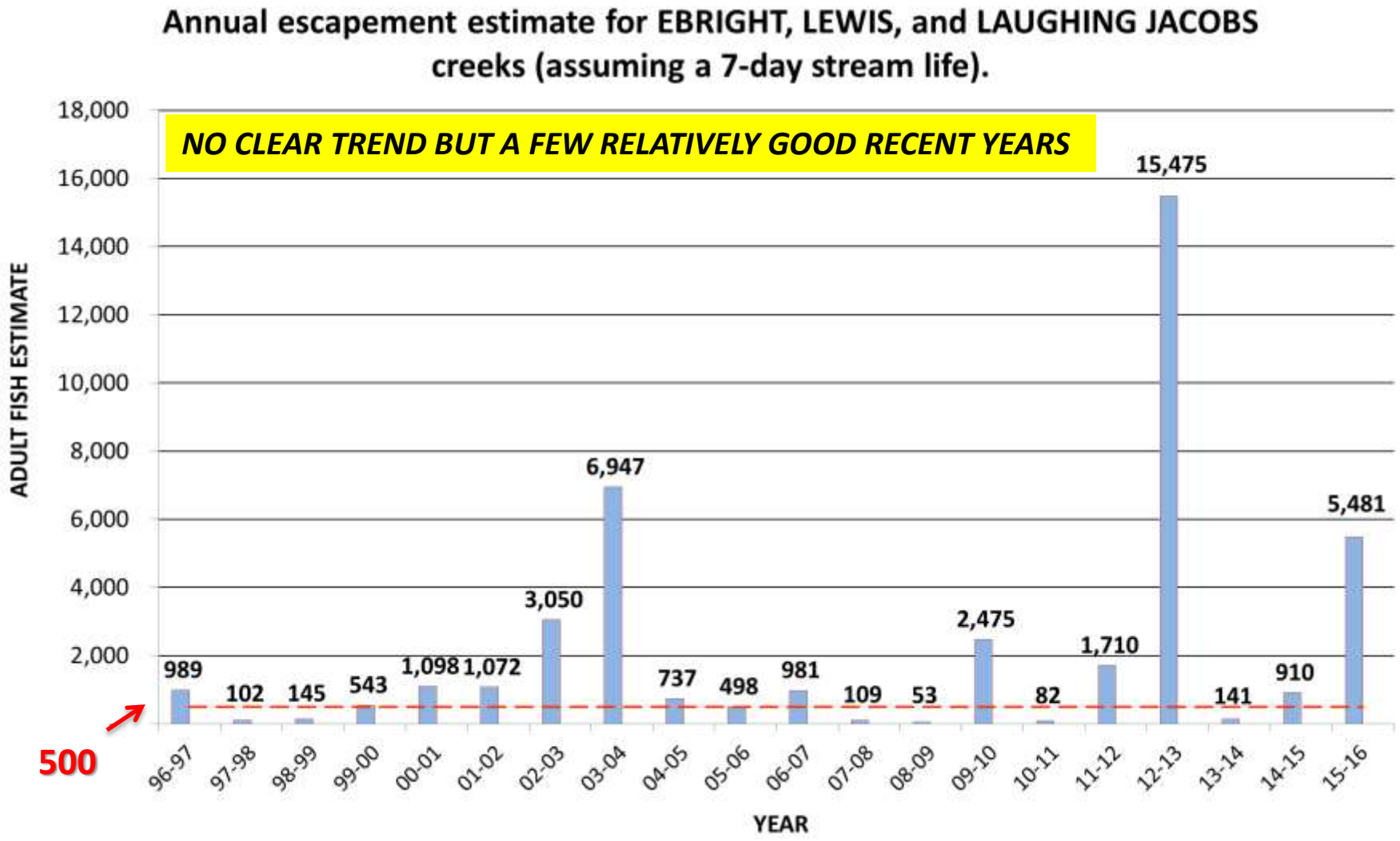
How many are there?

More fish is better…

Abundance



Recent Escapement Data



Kokanee Recovery and Conservation Goal

"Prevent the extinction and improve the health of the native kokanee population such that it is viable and self-sustaining, and then supports fishery opportunities"

Photo credit Hans Berge

Kokanee Work Group Active Partners

Conservation
Educational/Outreach
Sportsman
Landowners

- Trout Unlimited
- Save Lake Sammamish
- Friends of Issaquah Salmon Hatchery
- Friends of Pine Lake
- Mountains to Sound Greenway
- 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

Recovery Strategy Key Elements

- *Hatchery program*
- *Habitat restoration and protection*
- *Public engagement*
- *Technical work to adapt our strategies and actions*

Photo credit Celina Steiger

Photo credit King County

Photo credit King County

Hatchery Program

- *Purpose is risk management, not population augmentation: ensure we have fry going into the lake each year*
- *Funded primarily by USFWS*
- *Seven years of successful rearing and release of fry*
- *Anticipate two-five more years of the program*
- *Using data to evaluate program effectiveness now, e.g.,:*
  - *The program produces returning spawners*
  - *Hatchery origin fish are a larger proportion in smaller return years*
  - *Hatchery origin survival may not be as high as wild origin survival*

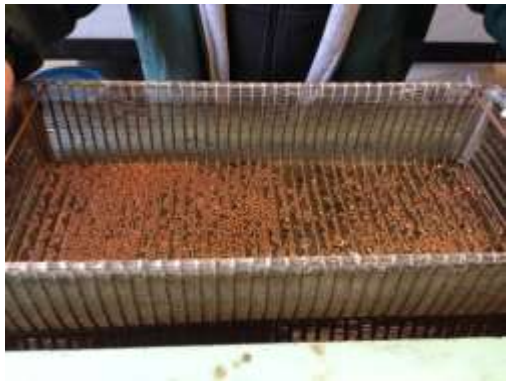
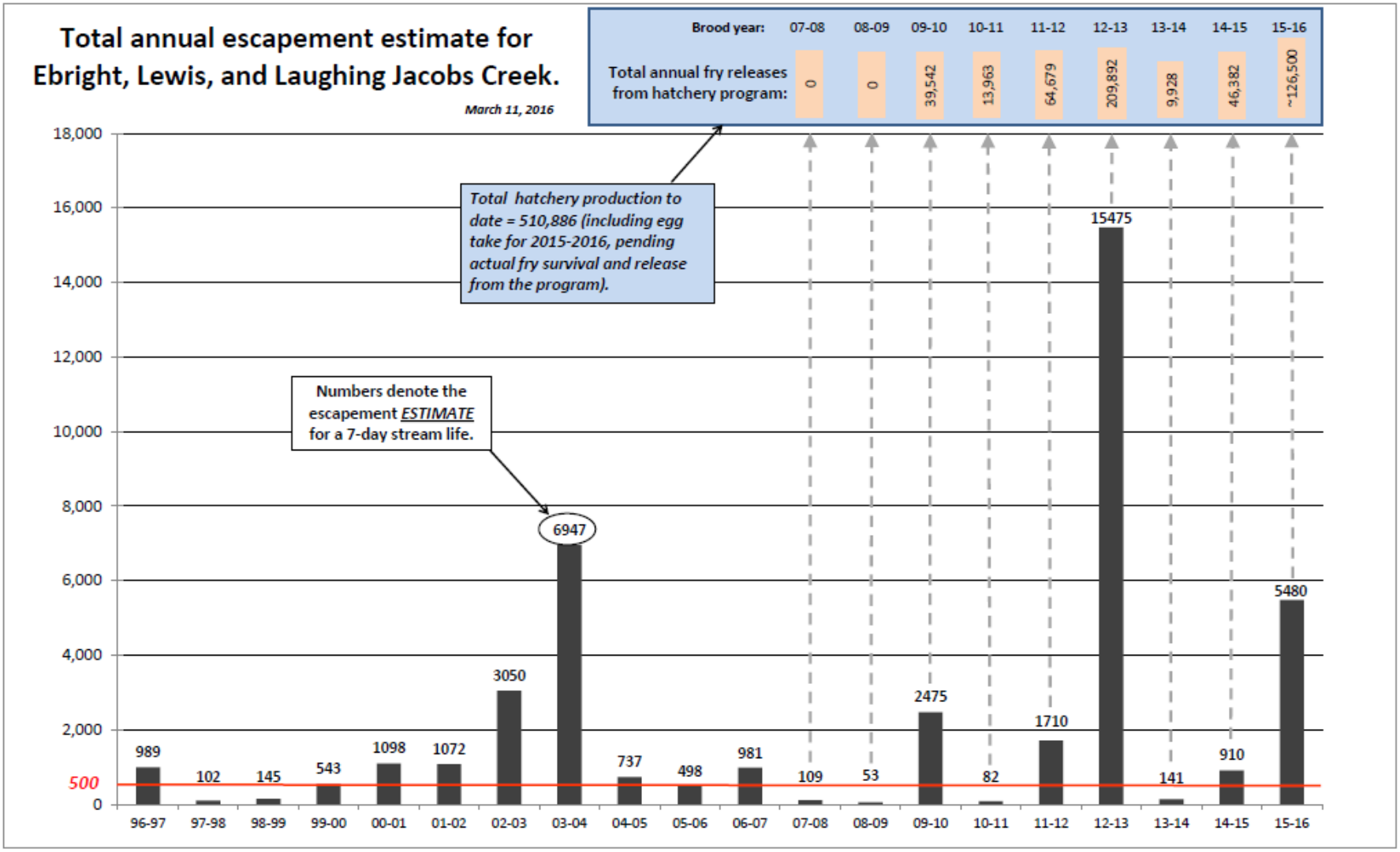


Photo credit Darin Combs

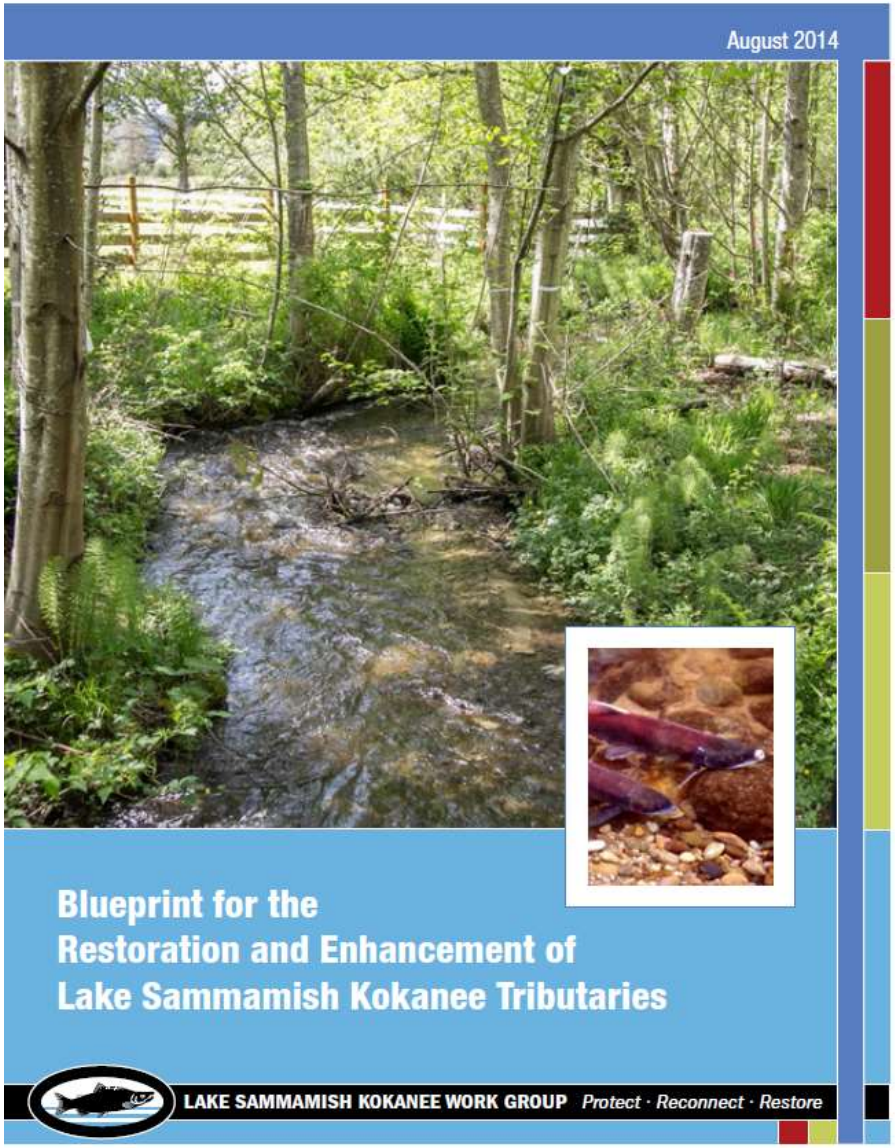
Photo credit Roger Tabor

Hatchery Production



Habitat Restoration and Protection

- *Maintain quality of existing spawning areas*
- *Expand existing spawning area*
- *Open new spawning area in additional streams*
- *New TU position (Dave Kyle) funded by the cities, Snoqualmie Tribe, Bullitt, NFWF grants, and the local TU chapter focused on getting projects done faster*
- *Rely on local jurisdictions to manage land use and stormwater effects on habitat*



Habitat Restoration and Protection – Ebright Creek

- *Private landowner funded*
- *70-year-old undersized culvert replaced with spanning bridge that passed spawners within two weeks of completion*
- *Tripled spawning area in our most productive creek*
- *Coupled with riparian restoration immediately downstream*

Photo credit King County

Before

Photo credit King County

After

Habitat Restoration and Protection – Issaquah Creek

- *Funded jointly by SRFBoard/WRIA 8, NOAA, Washington State*
- *Channel rehab eliminated migration barrier for multiple salmonids*
- *Makes future kokanee access to key upper watershed areas possible*

Before

Photo credit Jason Wilkinson

After

Photo credit Jason Wilkinson

Habitat Restoration and Protection – Zackuse Creek

- *Creek named for Snoqualmie Tribe family that lived on its banks*
- *Project involves replacing three culverts and re-establishing the channel*
- *City of Sammamish, King County, Snoqualmie Tribe, and private landowner contributing funding*
- *Will restore spawning to culturally and ecologically critical stream*
- *Done by 2018 spawning run!!!*

Blocking culvert

Photo credit King County

Undersized culvert

Photo credit King County

Degraded channel

Photo credit David Steiner

Public Engagement

- *Annual Fry Release and youth educational event – more general public participation*
- *Urban Wildlife Refuge Partnership stewardship project*
- *Kokanee Quest Geocaching project*
- *WaterWorks/Ecology proposal for kokanee stream and water quality signage*
- *Eastlake High School STEM project*

Photo credit Karen Kane

Photo credit Karen Kane

Photo credit King County

Photo credit King County

Science/Technical Work

- *Essential to evaluate and adapt our strategy and actions using data*
- *Collecting, compiling, synthesizing data and info from multiple sources: escapement surveys, fry trapping, lake monitoring buoys, stream gaging, WRIA 8 habitat monitoring, historic records, etc.*
- *Will be holding our first science and adaptive management workshop this November*
- *"Egg box" testing this fall in Redmond and Sammamish creeks*

Photo credit Roger Tabor

TU Fry trapping 2016; Photo credit Jeff Jensen

Photo credit King County

Current Key Actions

- *Expedite Blueprint habitat project implementation*
  - *"New" TU staff person Dave Kyle was hired to support this critical need*
  - *Immediate focus on delivering Zackuse culvert projects by fall 2018*
  - *Support MTSG LWD project on Issaquah Creek in State Park (for Chinook too!)*
  - *Begin planning for Laughing Jacobs confluence project (for Chinook too!)*

- *Trout Unlimited's 5th annual "Run with the Kokanee" Fun Run – Saturday, October 15 – Lake Sammamish State Park*

- *Technical Workshop – November 2016*

- *Urban Wildlife Refuge Partnership community engagement – through September 2017*

- *Annual Fry Release and Youth Education Event – April/May 2017*

- *Fundraiser – 2017*
  - *Celebrate KWG 10 year anniversary*
  - *Raise funds to support key activities*

- *Kokanee Leader Summit – early 2018 – to update and affirm our strategy*

Questions?

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Science/Technical Work – Testing "Egg Box" Technology

- *Recovery requires more kokanee spawning in more places spread farther apart*
- *We've seen recent evidence of a potential self-(re)established spawning aggregation on Tibbetts Creek*
- *First release (Spring 2013) of kokanee on Issaquah Creek produced no observed return so far*
- *This fall will test Remote Site Incubators ("egg boxes") on Idylwood Creek and Zackuse Creek*

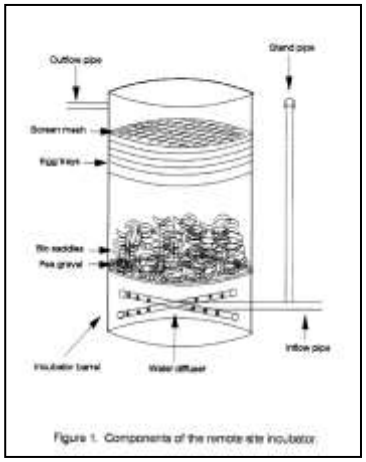
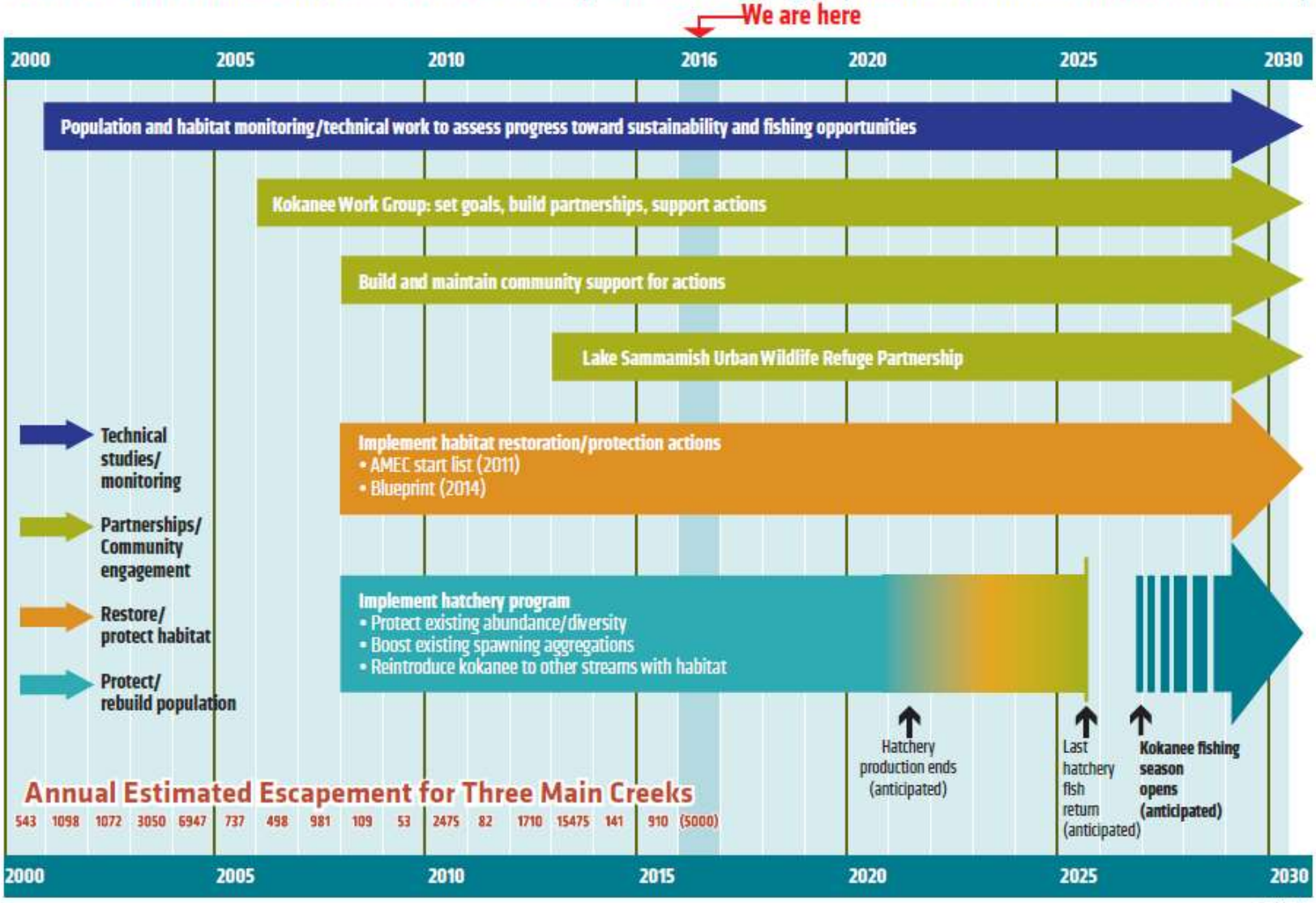
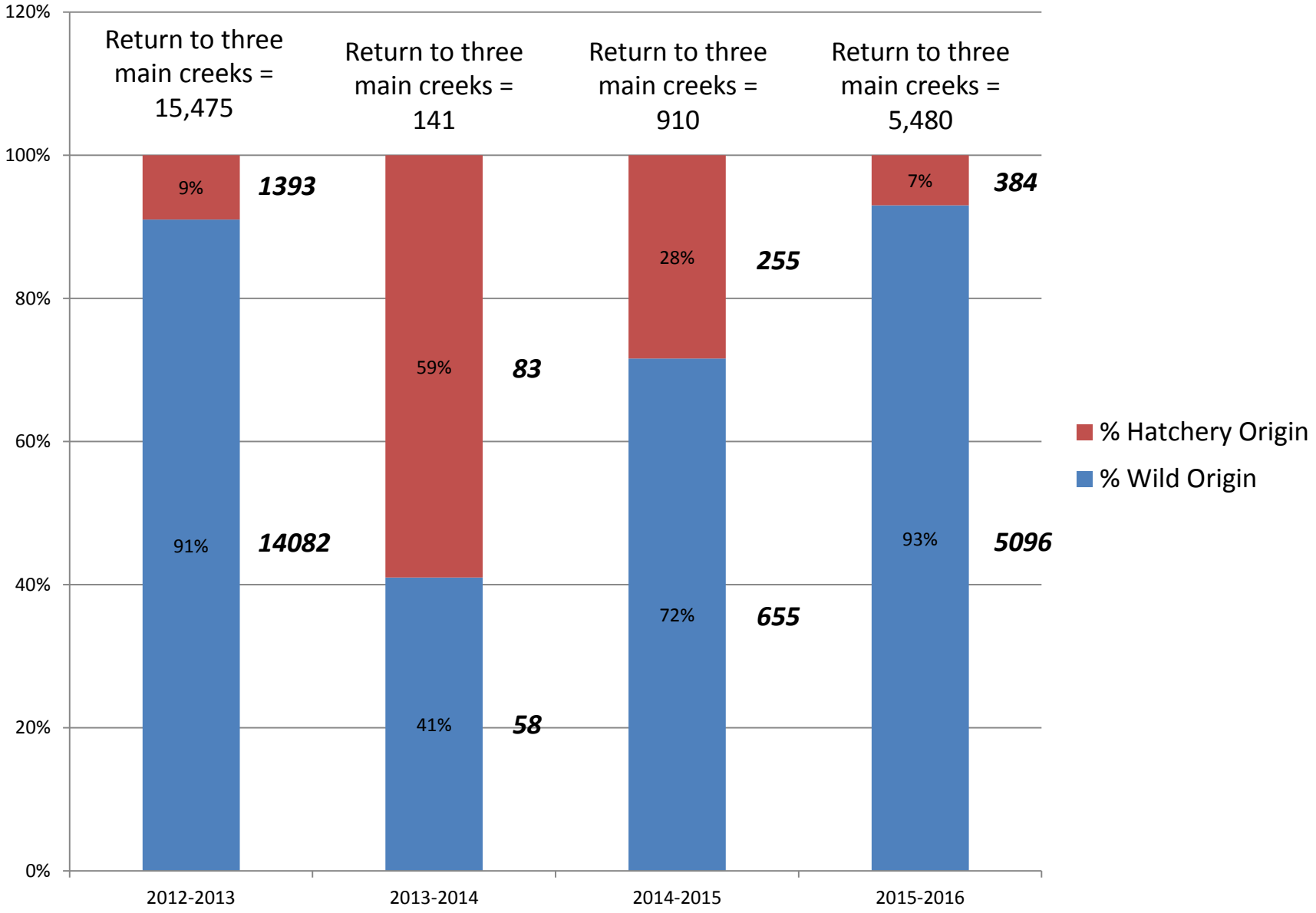


Figure 1. Components of the remote site incubator

Figure from Wampler (USFWS) and Manuel (WDFW), 1992.
https://www.fws.gov/wafwo/fisheries/Publications/FP187.pdf

LAKE SAMMAMISH KOKANEE RECOVERY STRATEGIC TIMELINE

Goal: Prevent extinction, then build a healthy, self-sustaining population to renew a kokanee fishery



Data: Hatchery vs. Wild Origin