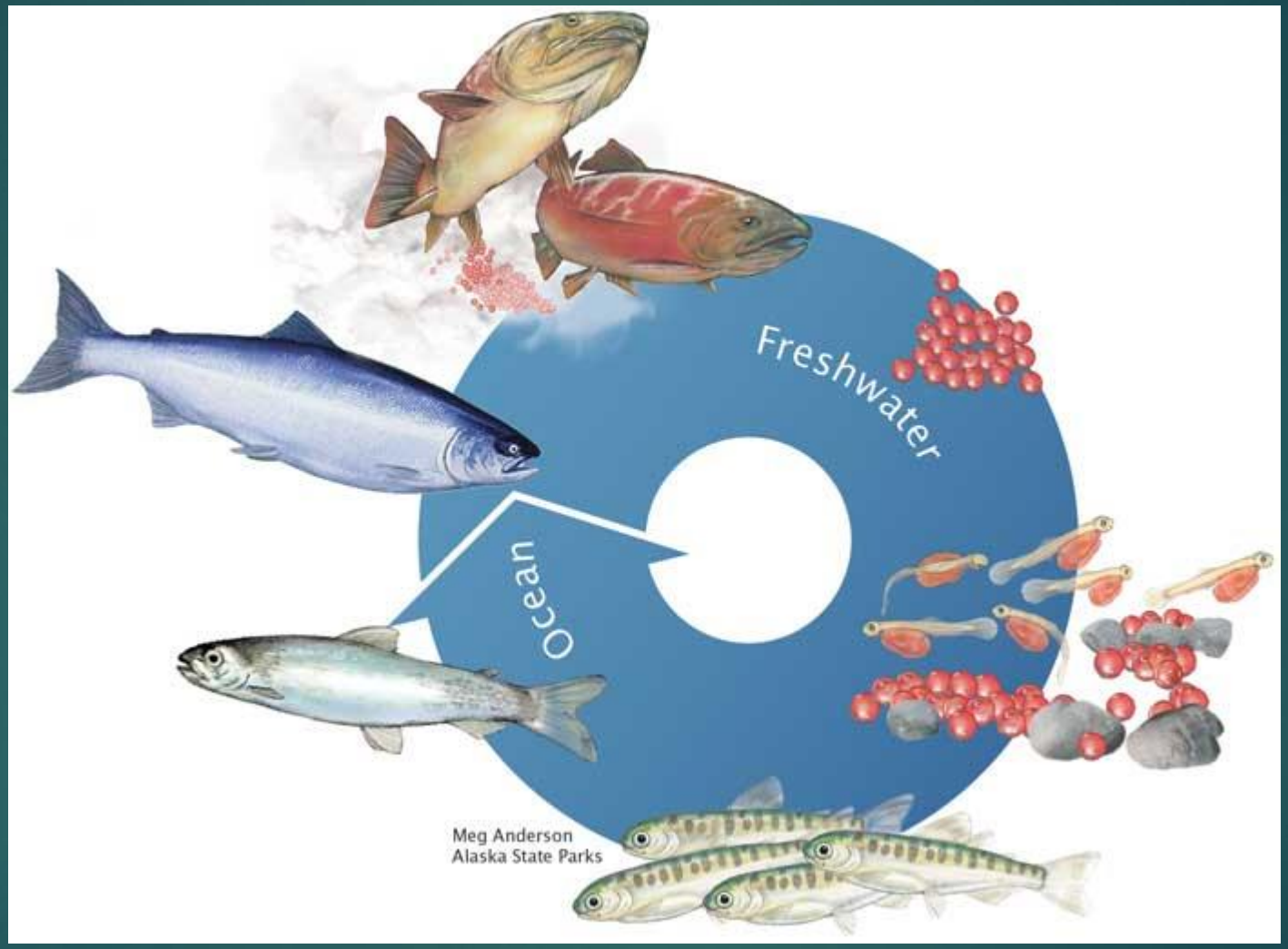
Cedar River Hatchery

PAST TO PRESENT



Sockeye Salmon life history stages

- Cedar River Hatchery Timeline
  1991: Interim Hatchery operation begins in co-manager response to low abundance of Cedar River Sockeye. Gillnets utilized to collect broodstock
  1993: Interim Hatchery capacity upgraded to 9 million with addition of Kitoi incubators; first in-river weir installed near Cavanaugh Ponds (RM 6.4)
  1996: 28 Kitoi incubators added to increase total eggtake potential to 18.7 million
  2001: First year of sockeye fry feeding experiment initiated
  2002: First year of IHNV detected in hatchery incubators
  2008: New collection site at RM 1.7 in Renton, first year of all sockeye releases being fed prior to release
  2011: New permanent Hatchery completed and operational; 138 Kitoi incubators, fry release goal of 34 million
  2012: Most eggs taken to date, 20+ million

Interim Sockeye Hatchery 1991-2010

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Interim Hatchery

Primary Achievements

- Slow rate of decline in sockeye by augmenting fry production
- Test and perfect the efficacy of recently developed sockeye culture techniques (Incubation, feeding experiments, IHNV disinfection protocols)
- Provide large number of differentially marked fish to support the Lake Washington studies (in-river fry, lake pre-smolt and smolt survival; percent hatchery contribution to adult return)
- Provided opportunity for sport fisheries in 2002, 2004, and 2006

Permanent Cedar River Hatchery completed and operational on September 26, 2011
Facility owned and funded by Seattle Public Utilities, operated by Washington Department of Fish and Wildlife

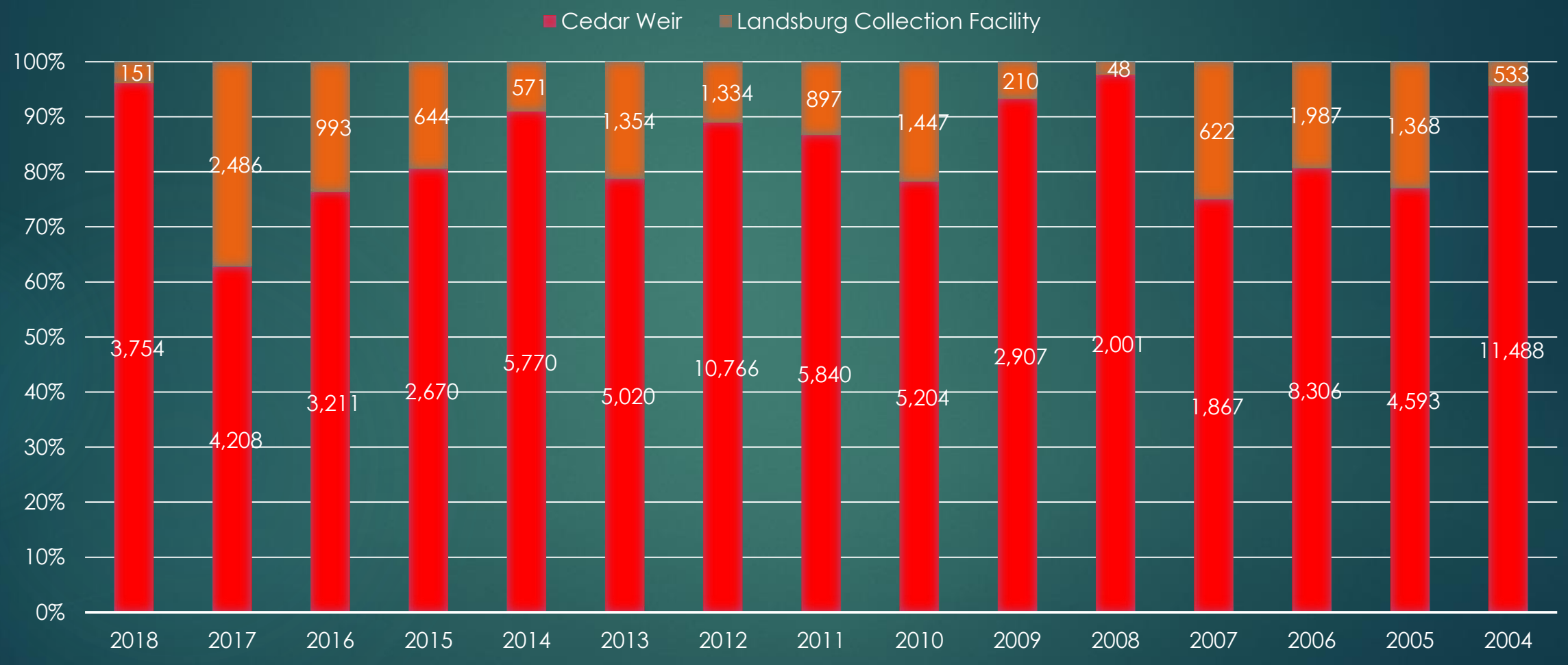
Permanent Hatchery

Managed under the Adaptive Management Plan

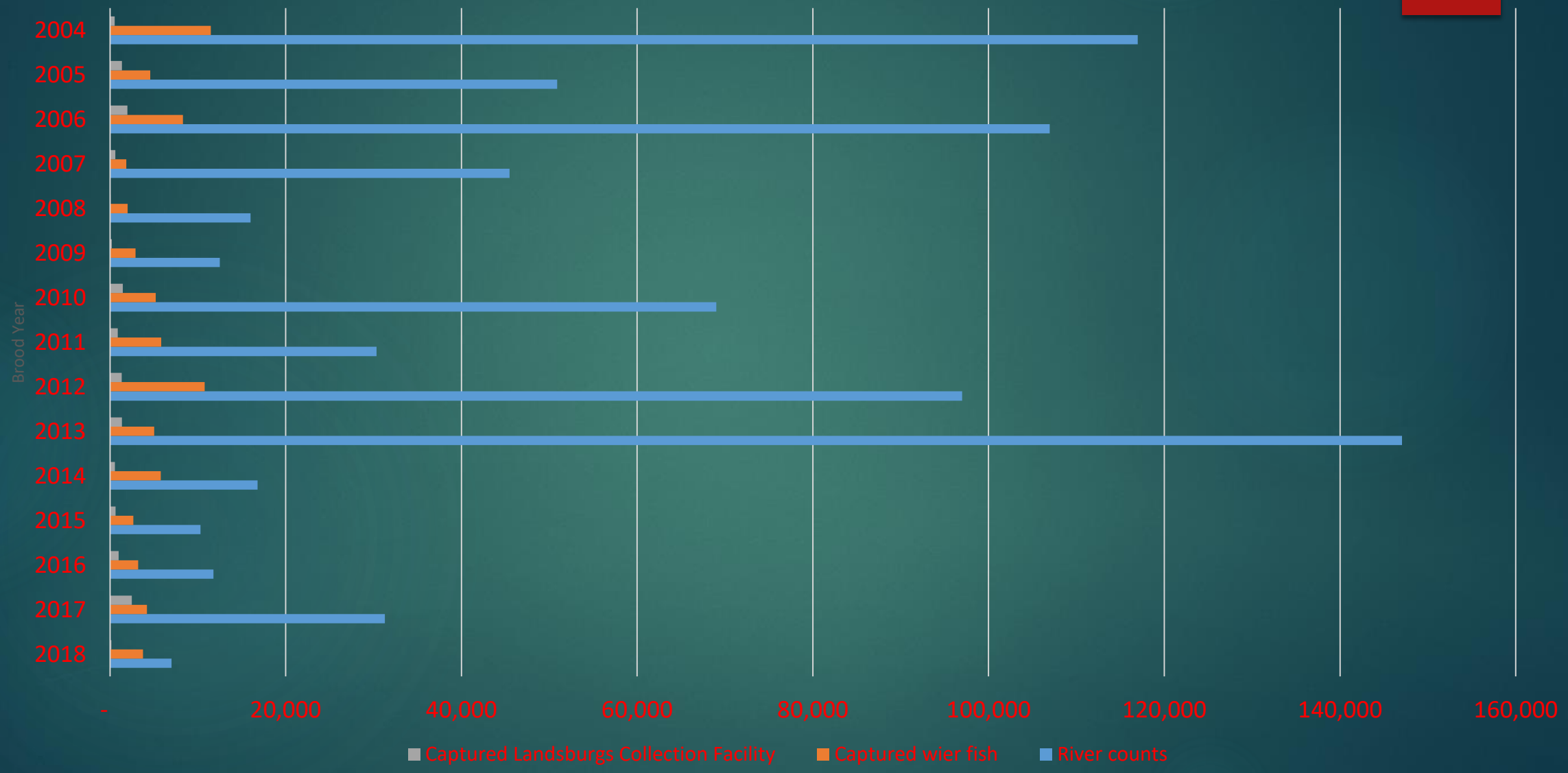
- Defines an operating and management framework for the hatchery
- First Goal: Operate a biologically and environmentally sound long term program that will provide for the recovery and persistence of a well adapted, genetically diverse, healthy, harvestable population of Cedar River sockeye
- Second Goal: Avoid or reduce detrimental effects on the reproductive fitness and genetic diversity of naturally reproducing salmon populations in the Cedar River
- Success of the hatchery, and its ability to provide fisheries, is dependent on the health and productivity of the natural run. Both are necessary for success!

Weir is managed for two equally important goals: Collect sockeye broodstock and minimize impacts to Chinook

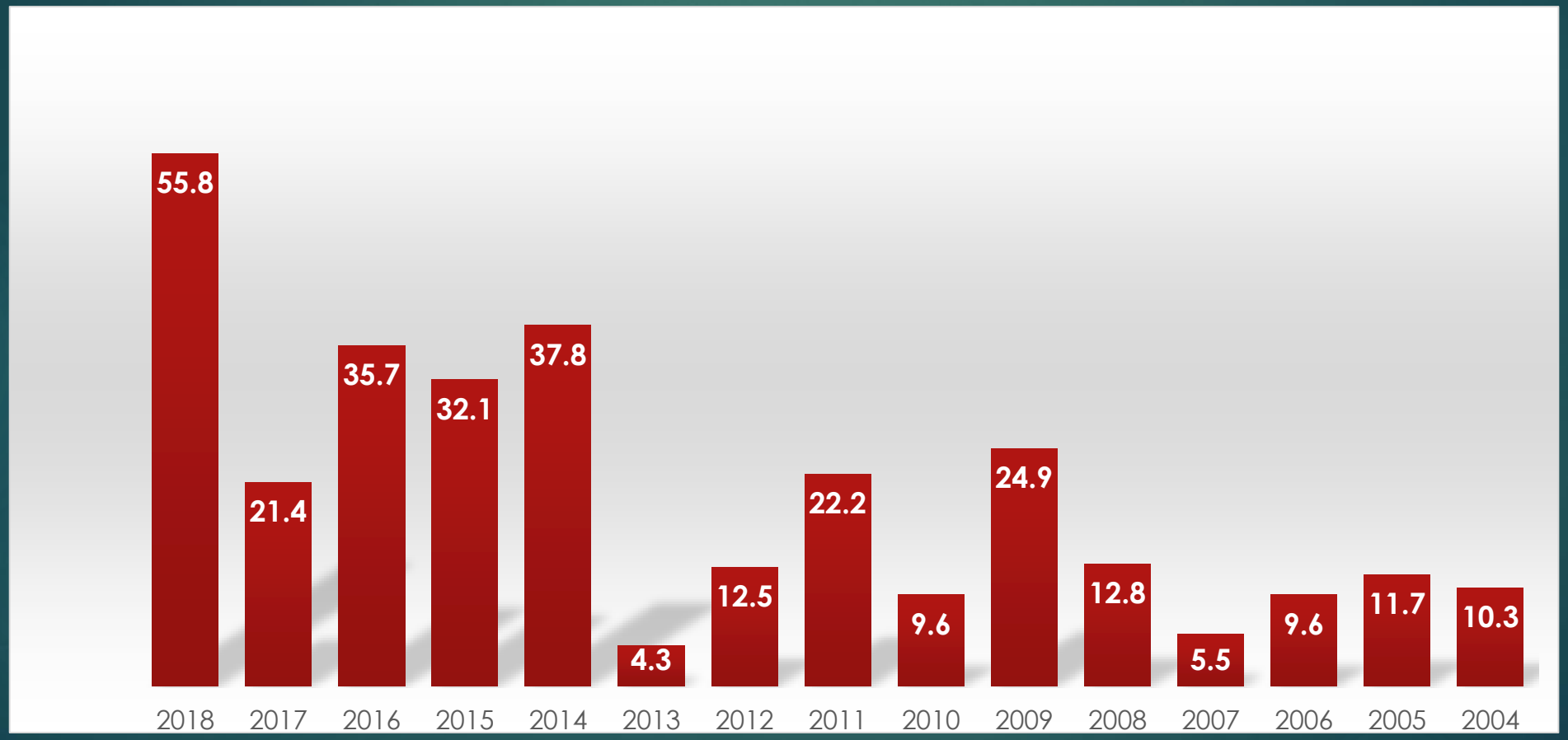
COMBINED TOTAL SOCKEYE COLLECTED FOR CEDAR WEIR AND LANDSBURG FISH COLLECTION FACILITY



Run size versus fish captured



Cedar River Weir Capture Efficiency



Broodstock Collection Weir: Limiting Factors

- Susceptible to high flows, which can limit collection capability during prime fish movement and migrational times
- Must be removed before flood events or it will be severely damaged, which is typically in early to mid November, sometimes sooner
- Must be managed under Chinook Protocols with the goal of no significant delay to upstream Chinook migration (ESA listed stock)
- Seattle Public Utilities is currently working with a consultant and funding a design for a new weir to address some of these limitations

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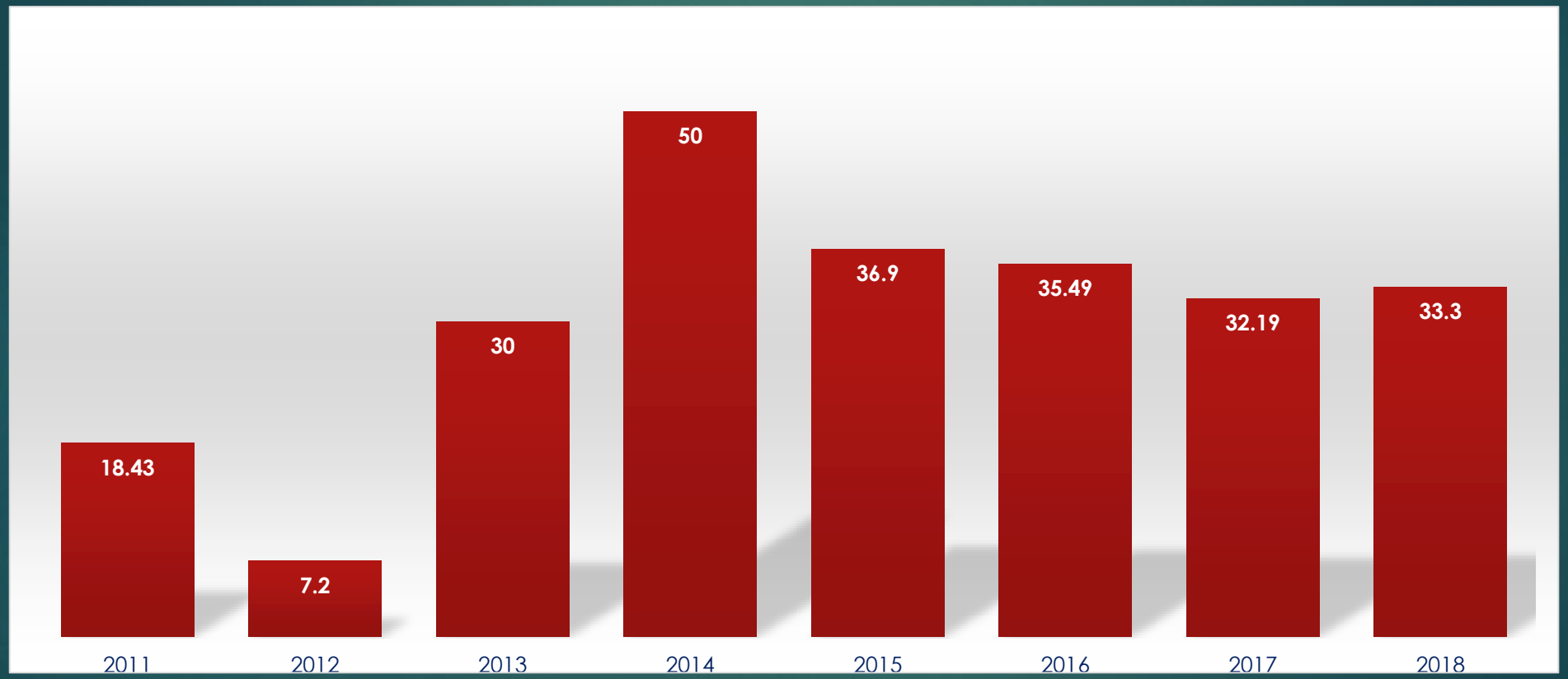
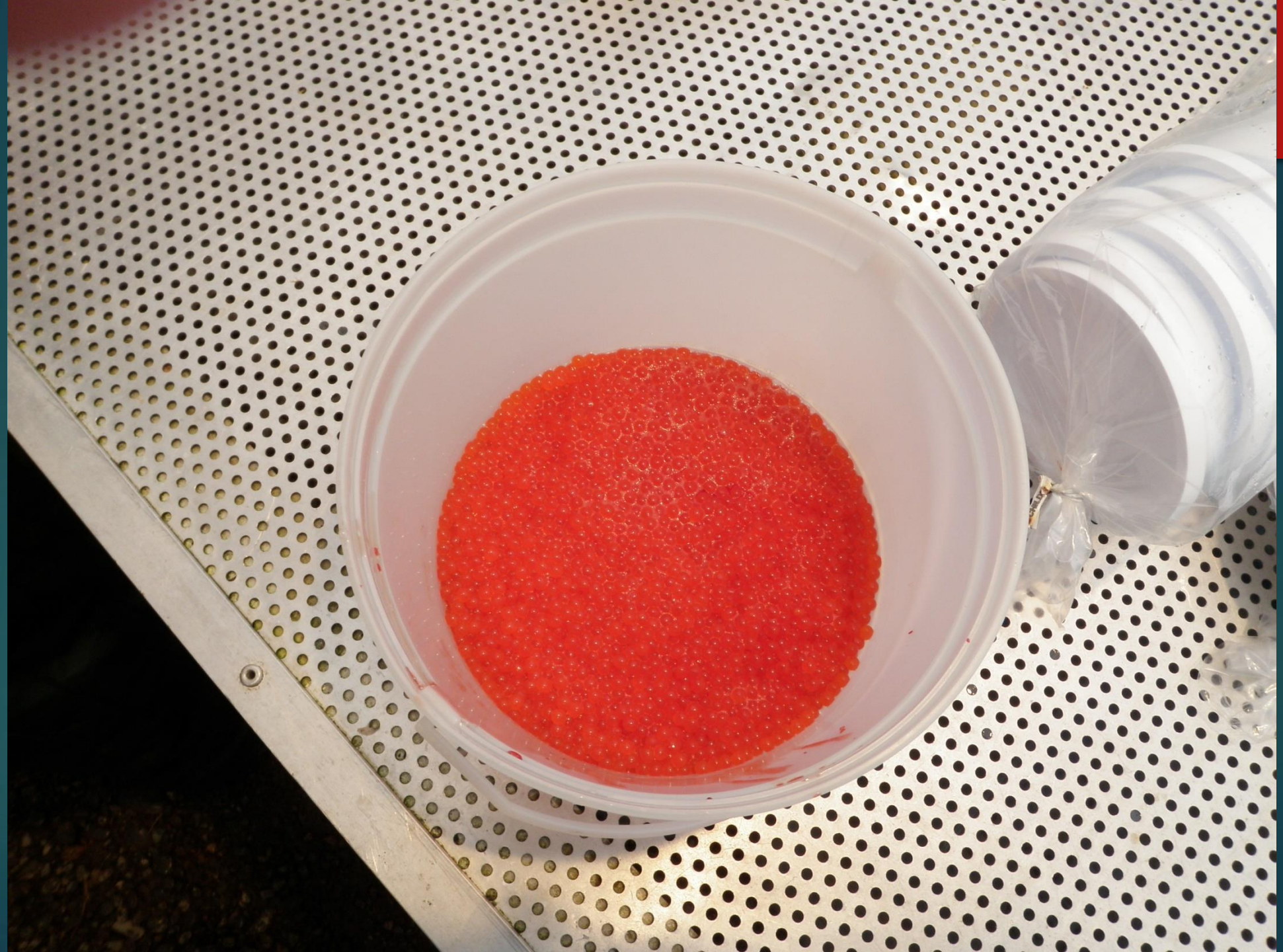
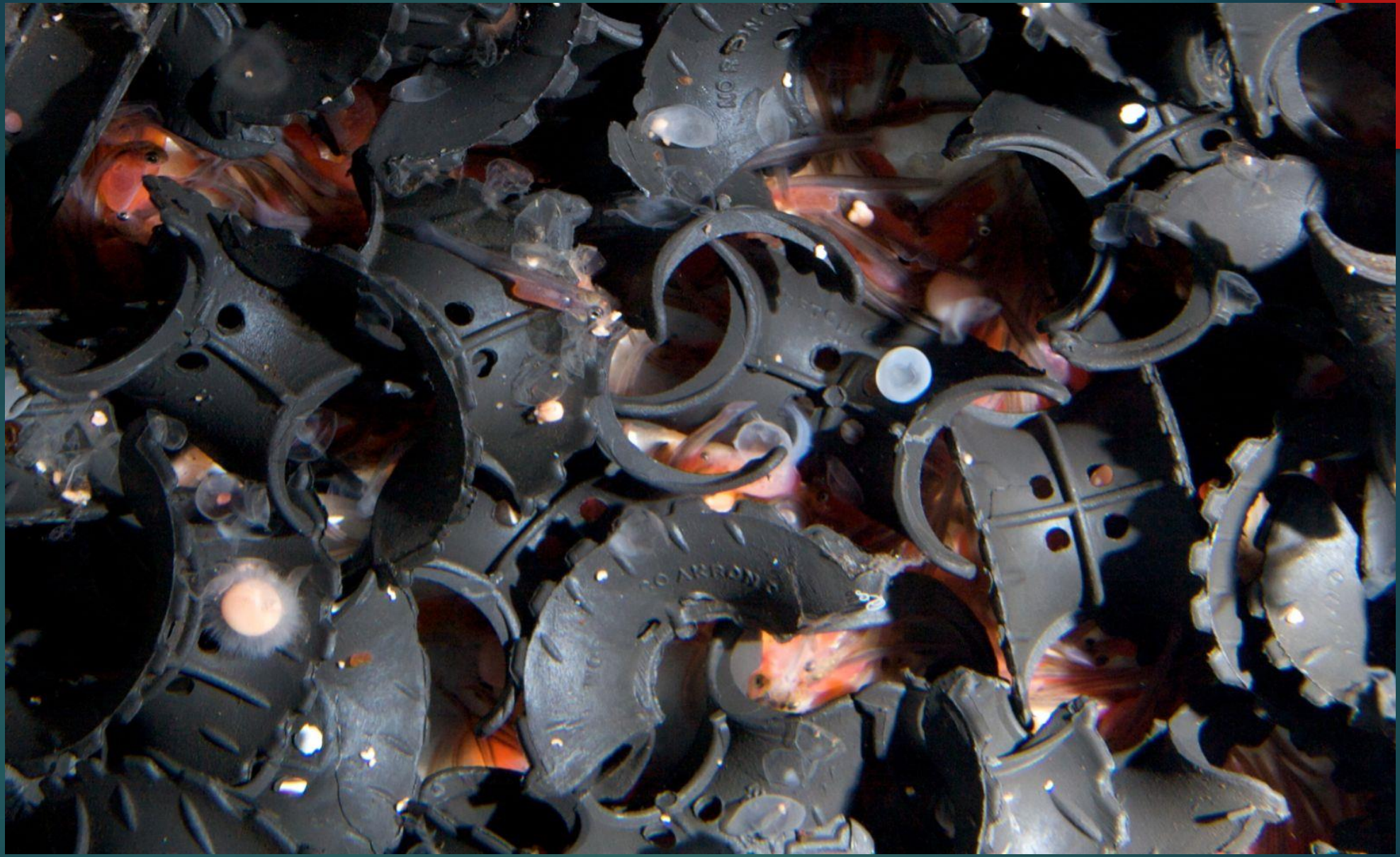
Percentage of Pre-Spawn Mortality in Adult Holding Ponds



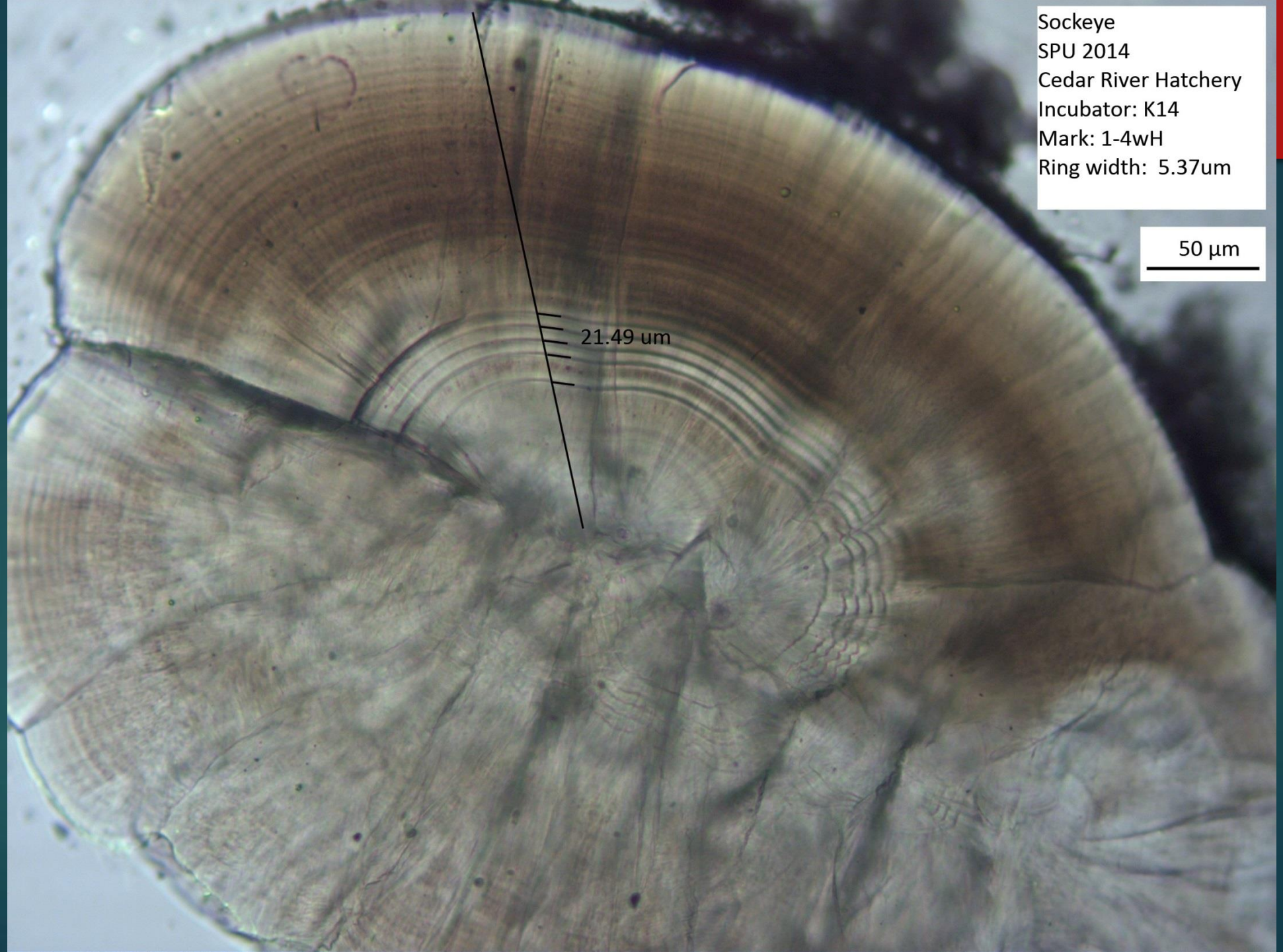
Pre-spawn mortality has increased dramatically in recent years both in-river, and in adult holding facilities at the hatchery



Anthony Harris / SPU



Incubation room consists of 138 Kitoi Incubators, and 47 intermediate rearing troughs


Sockeye
SPU 2014
Cedar River Hatchery
Incubator: K14
Mark: 1-4wH
Ring width: 5.37um
50 µm
21.49 um

36552

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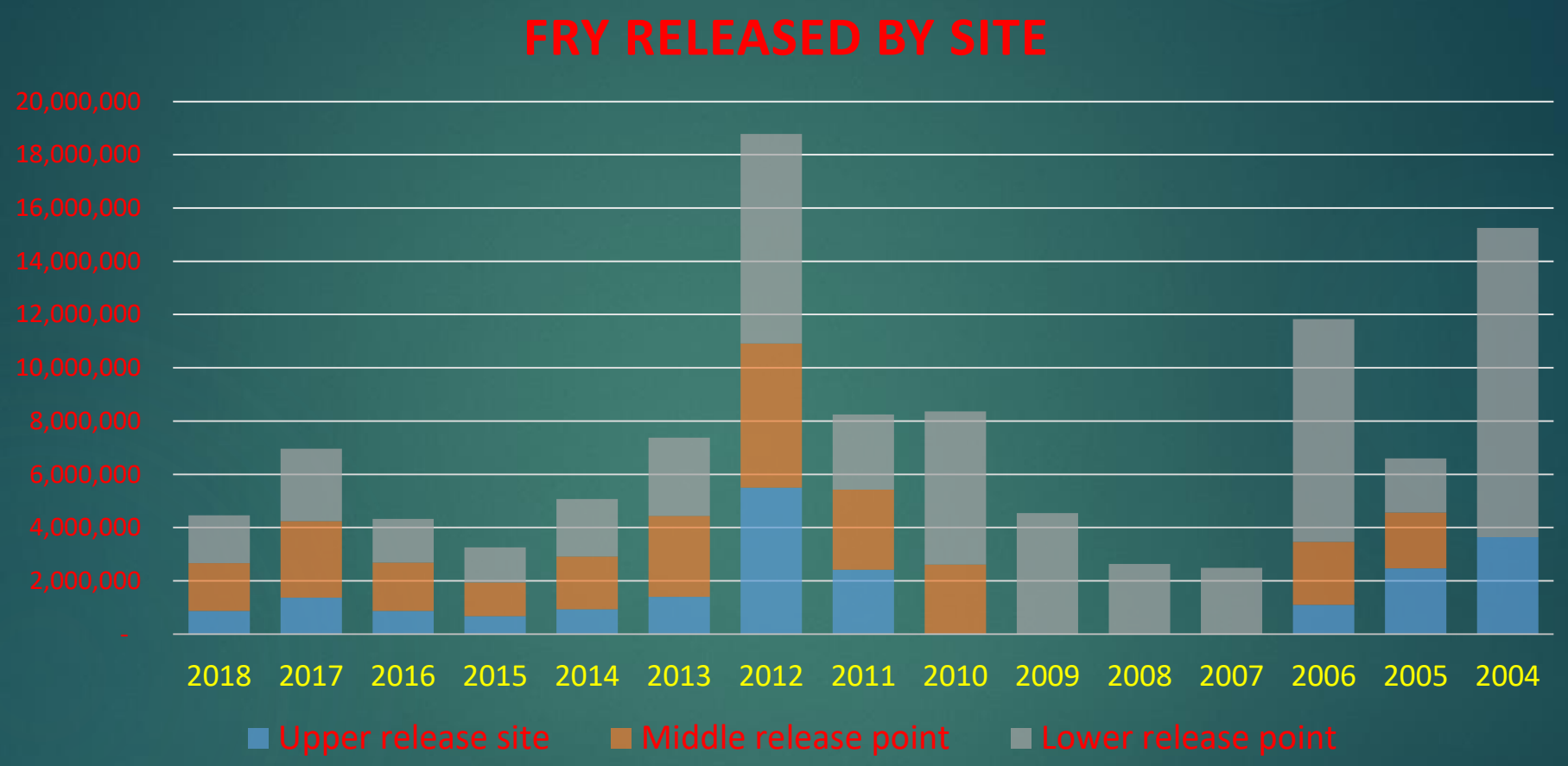
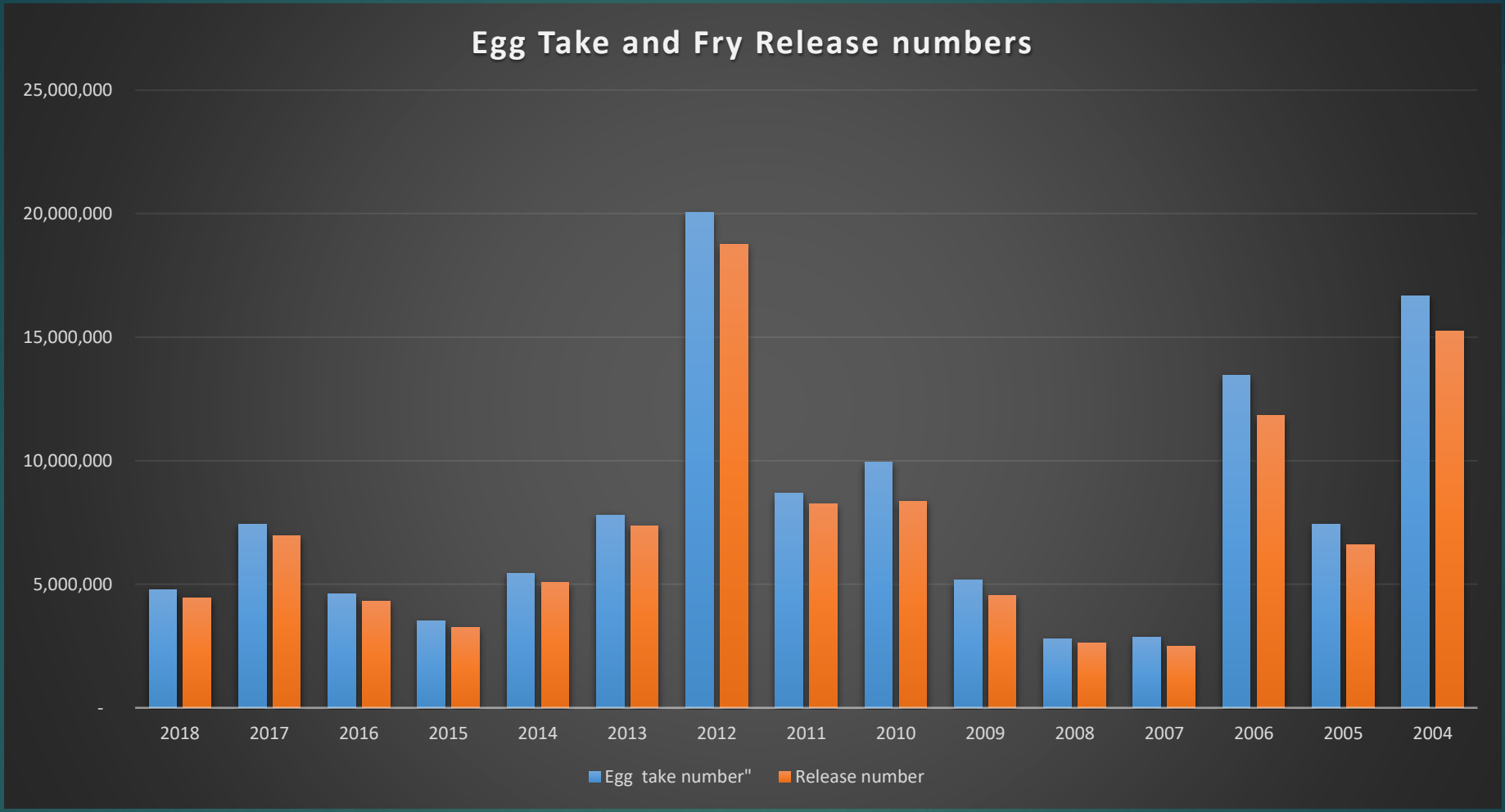
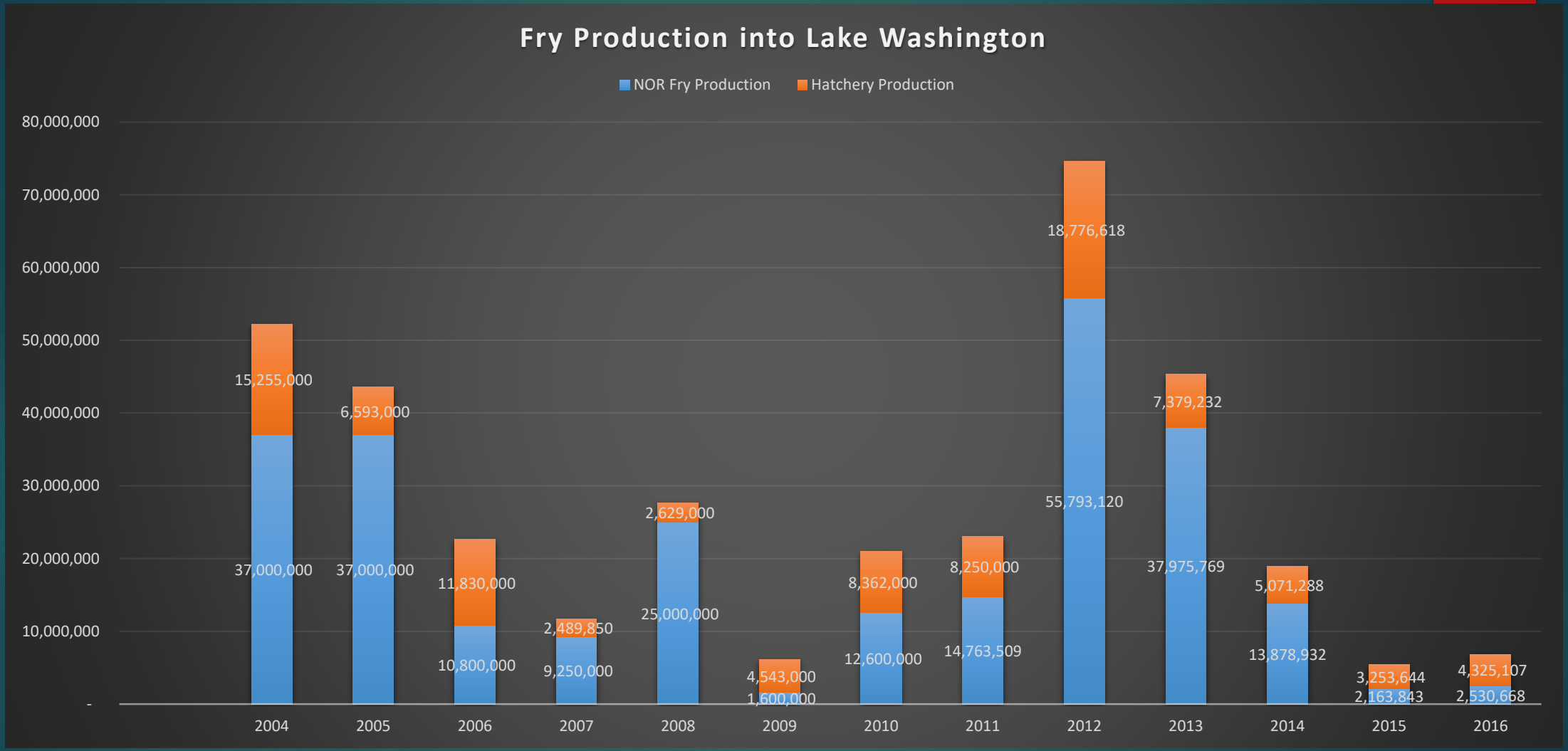


Fry are generally released in 3 different locations to spread out adult returns and supplement natural spawning

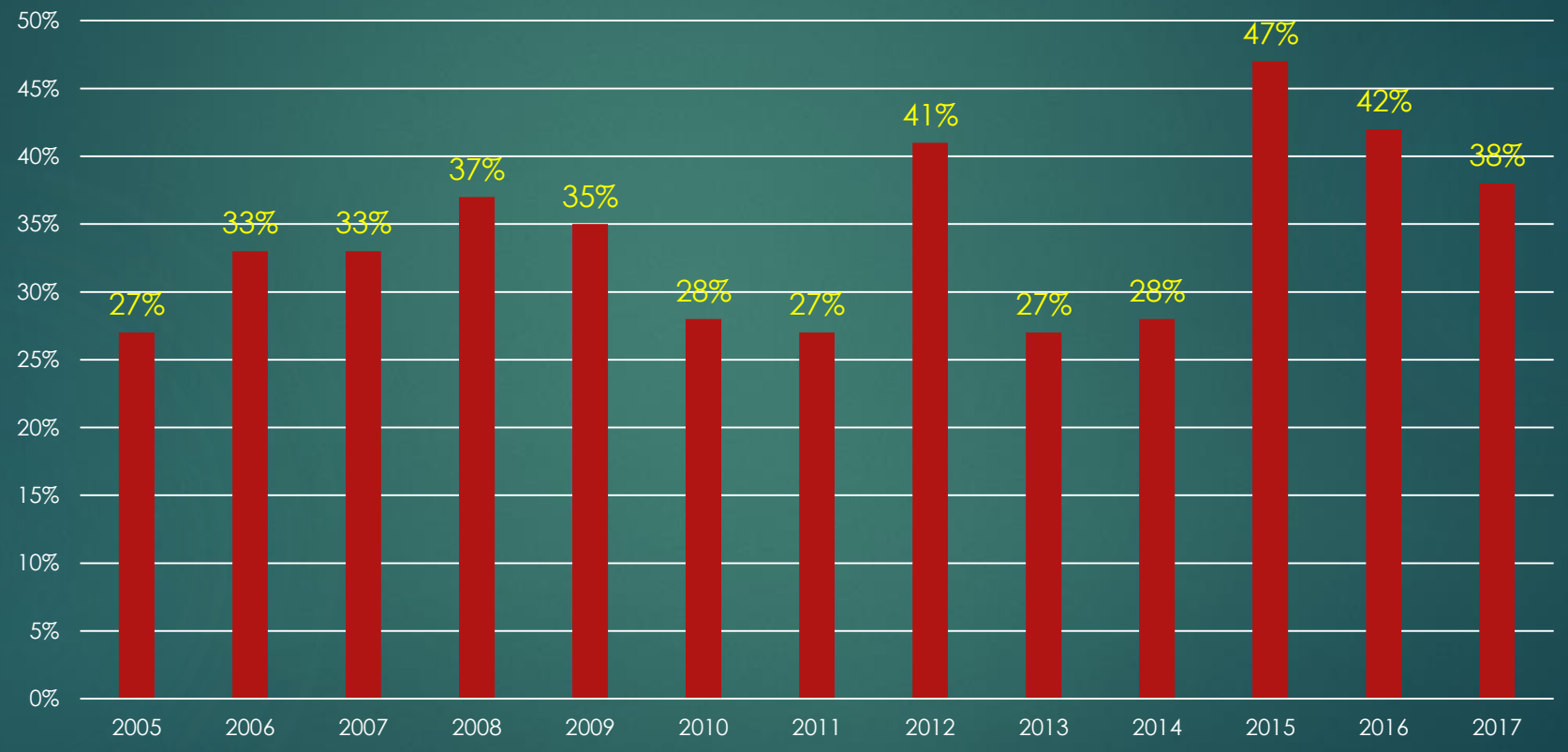


Egg to fry survival in the hatchery has averaged over 90%



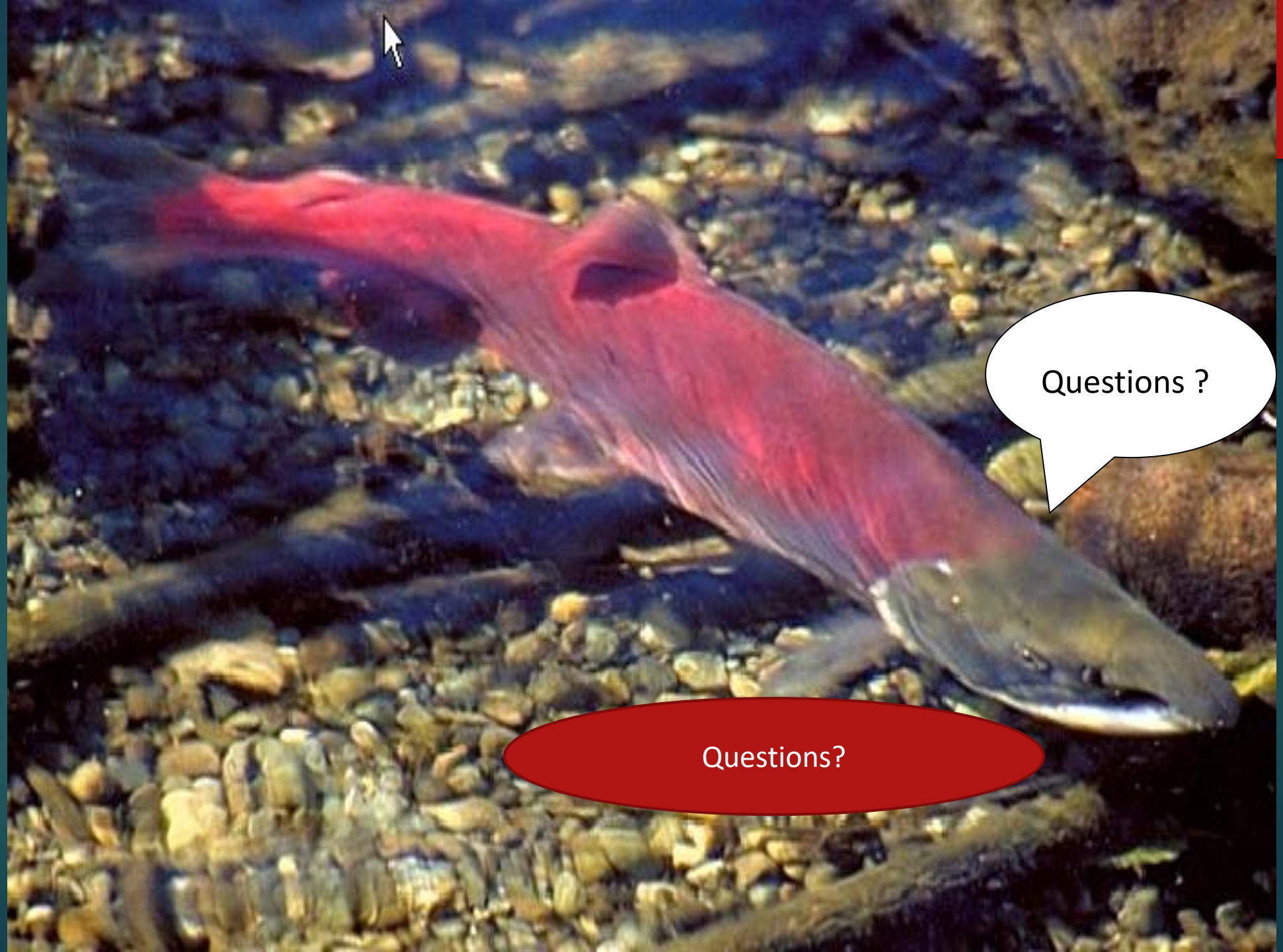
Despite combined 70 million fry migrants in 2012, not enough adults returned in 2016 to provide a fishery

Percentage of Hatchery fish sampled at Ballard Locks



Research and Monitoring

- Thermally mark all hatchery sockeye
- Recover marked adults, determine contribution
- Fry production estimates
- Smolt evaluations
- Adult sockeye distribution, homing, survival
- Sockeye age composition


Questions ?
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