

Ecosystem Monitoring Program 2017



**NOAA
FISHERIES**

**Northwest
Fisheries
Science Center**

Fish Community Preliminary Results

Regan McNatt, Susan Hinton, Jeff Grote,
and Dan Lomax



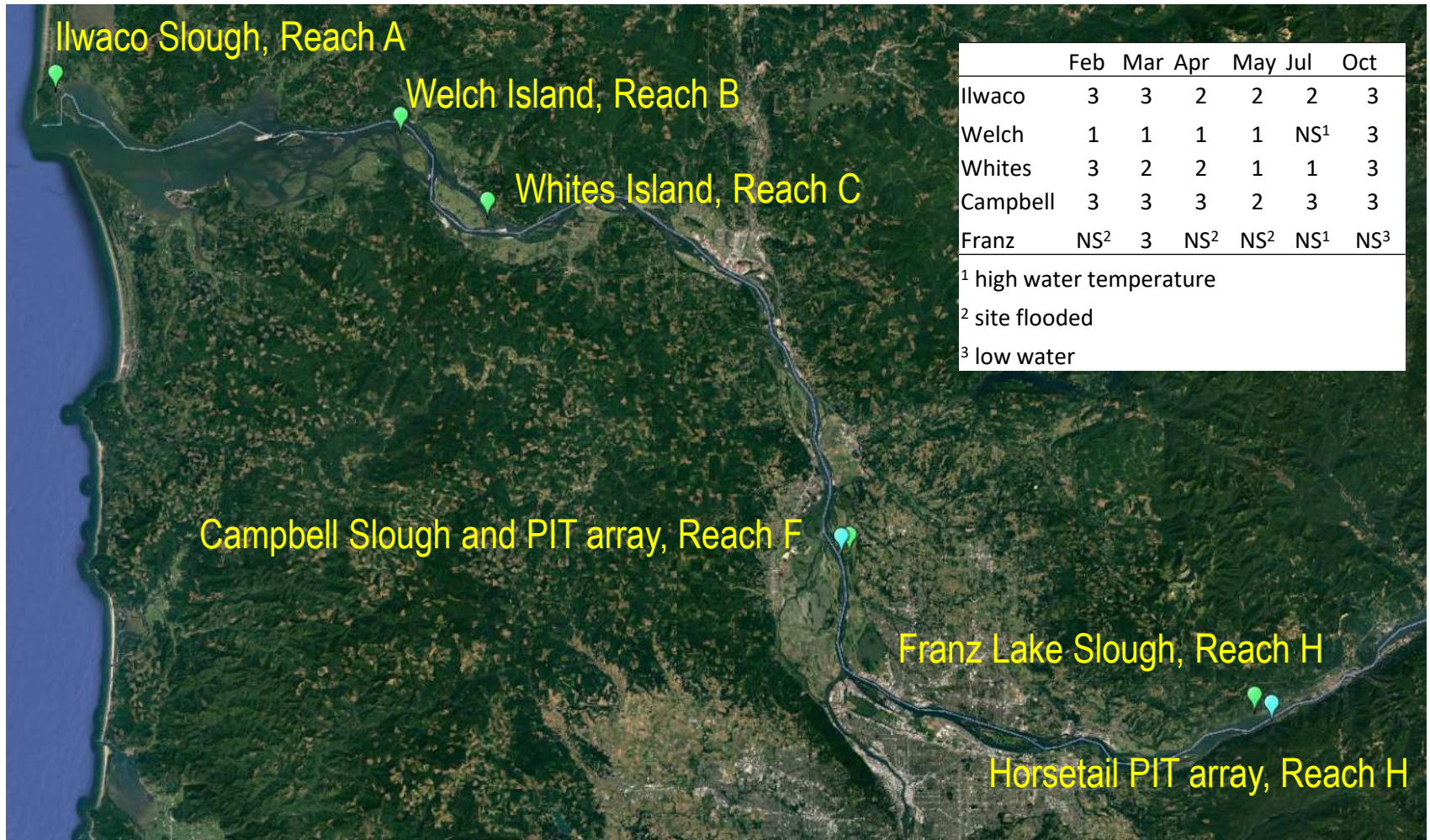
October 23, 2018

Outline

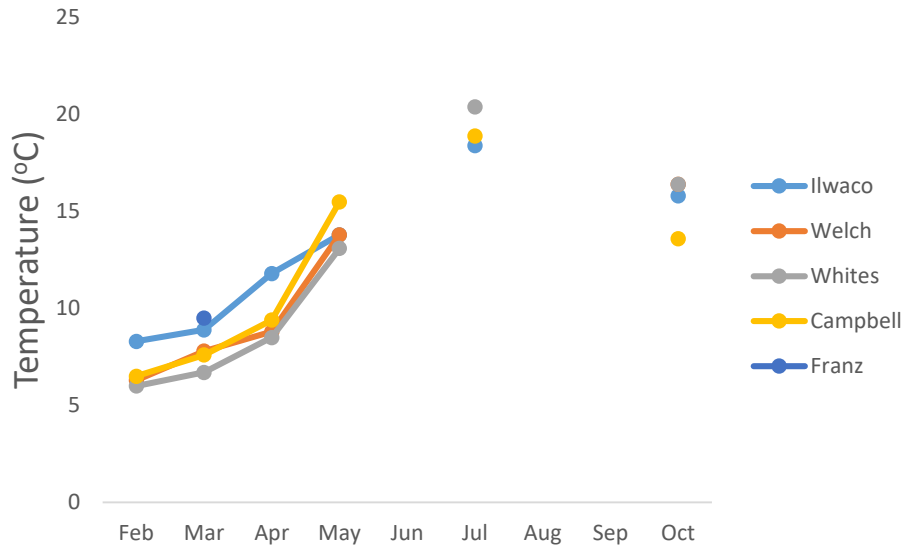
- Sites sampled
- Physical properties
- Fish Community
- Salmonid Community
- PIT arrays



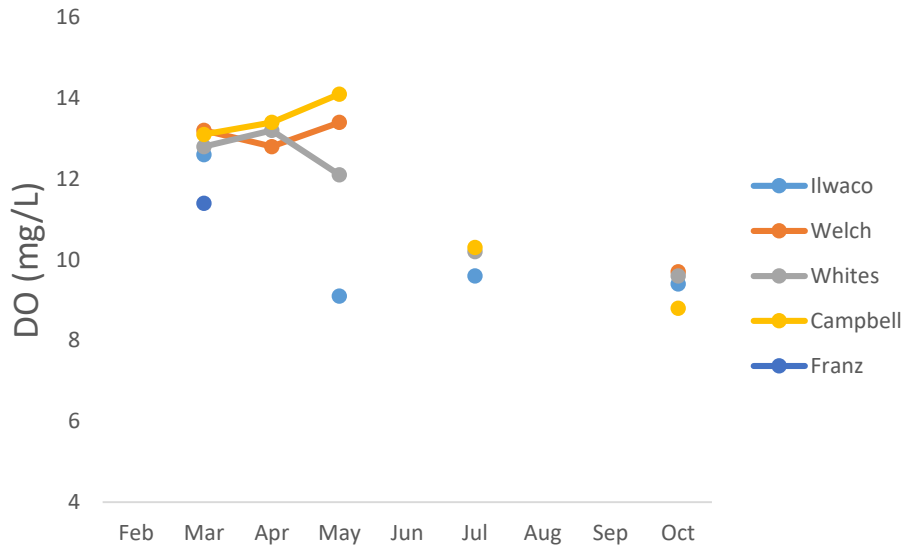
Trend Sites and PIT Arrays



Temperature and DO at time of sampling

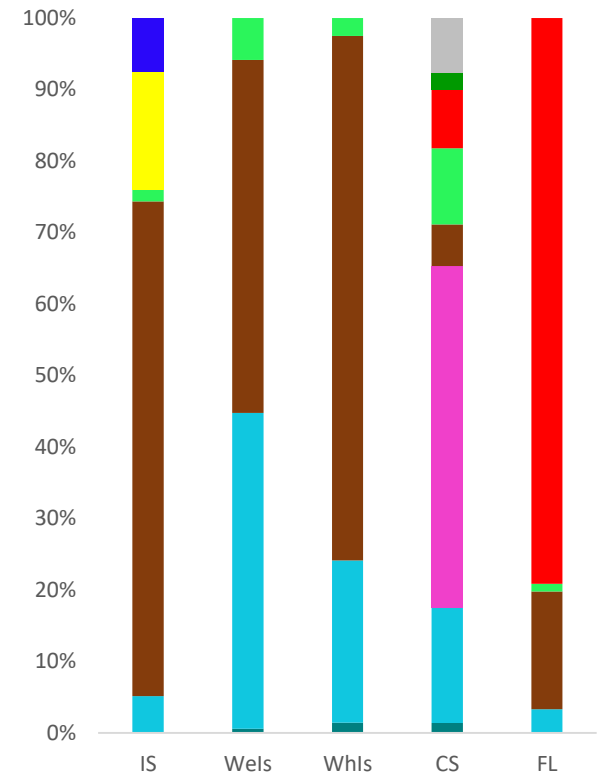
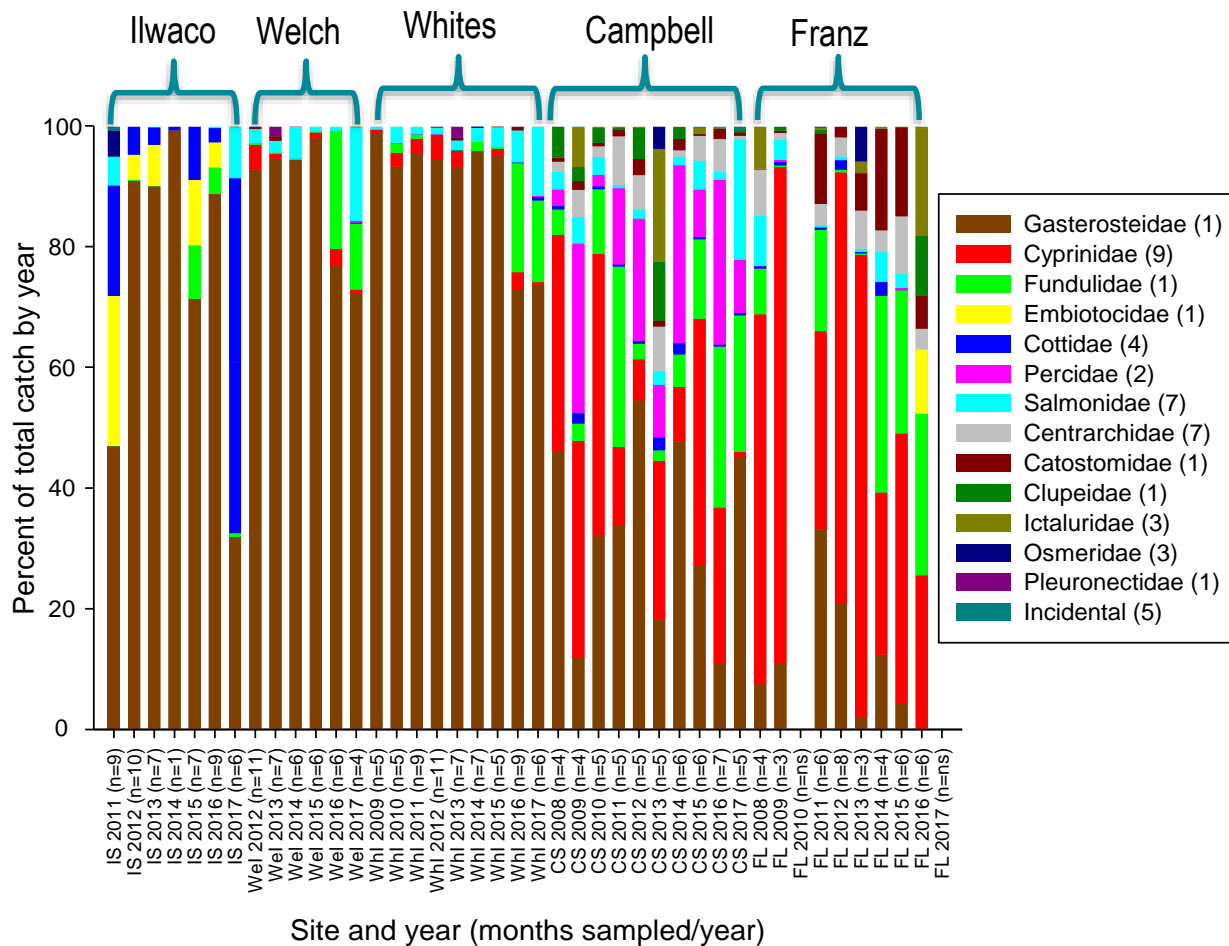


- Water temperature increasing with time
- Approaching stressful levels by June-July



- Levels taken at time of sampling are within parameters of adequate water quality
- Ilwaco tends to be lower but not hypoxic

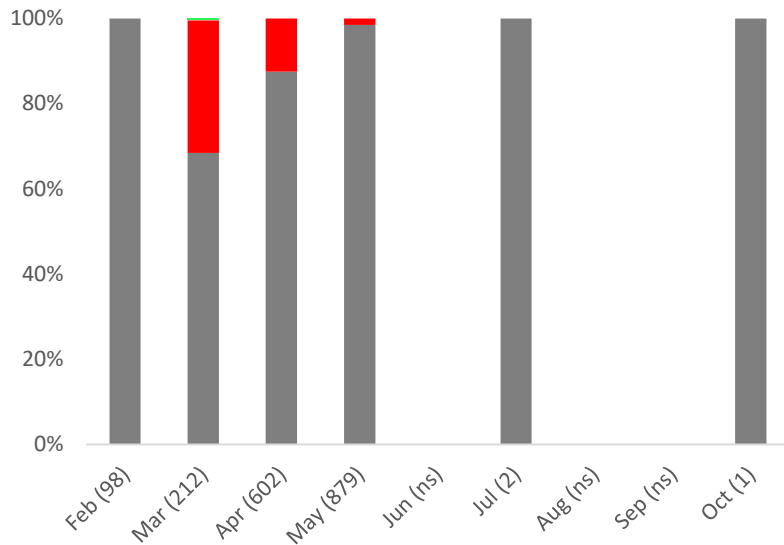
Fish Community Composition



Previous Years

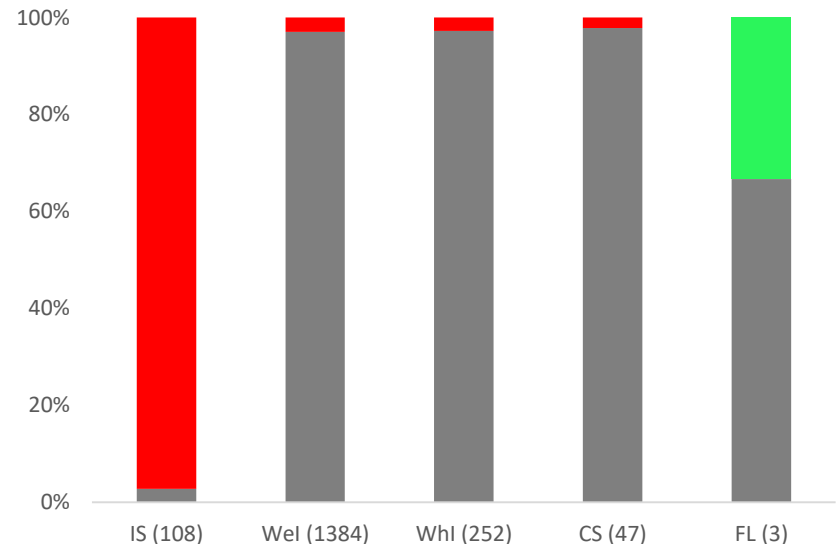
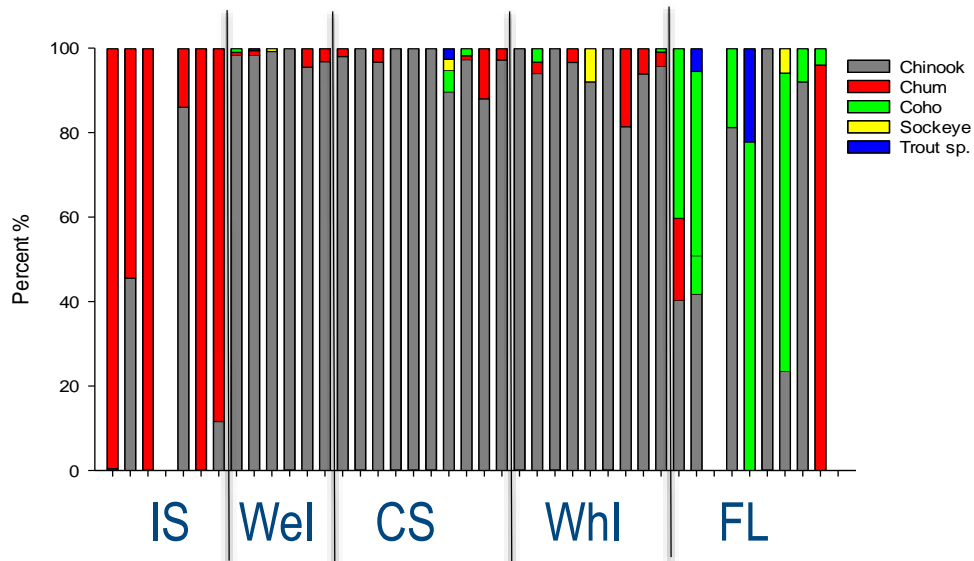
2018

Seasonal and Site Composition of Salmonids



- Chinook present throughout the season
- Chum presence highest in March
- Single subyearling coho at Franz
- No trout or sockeye in 2018

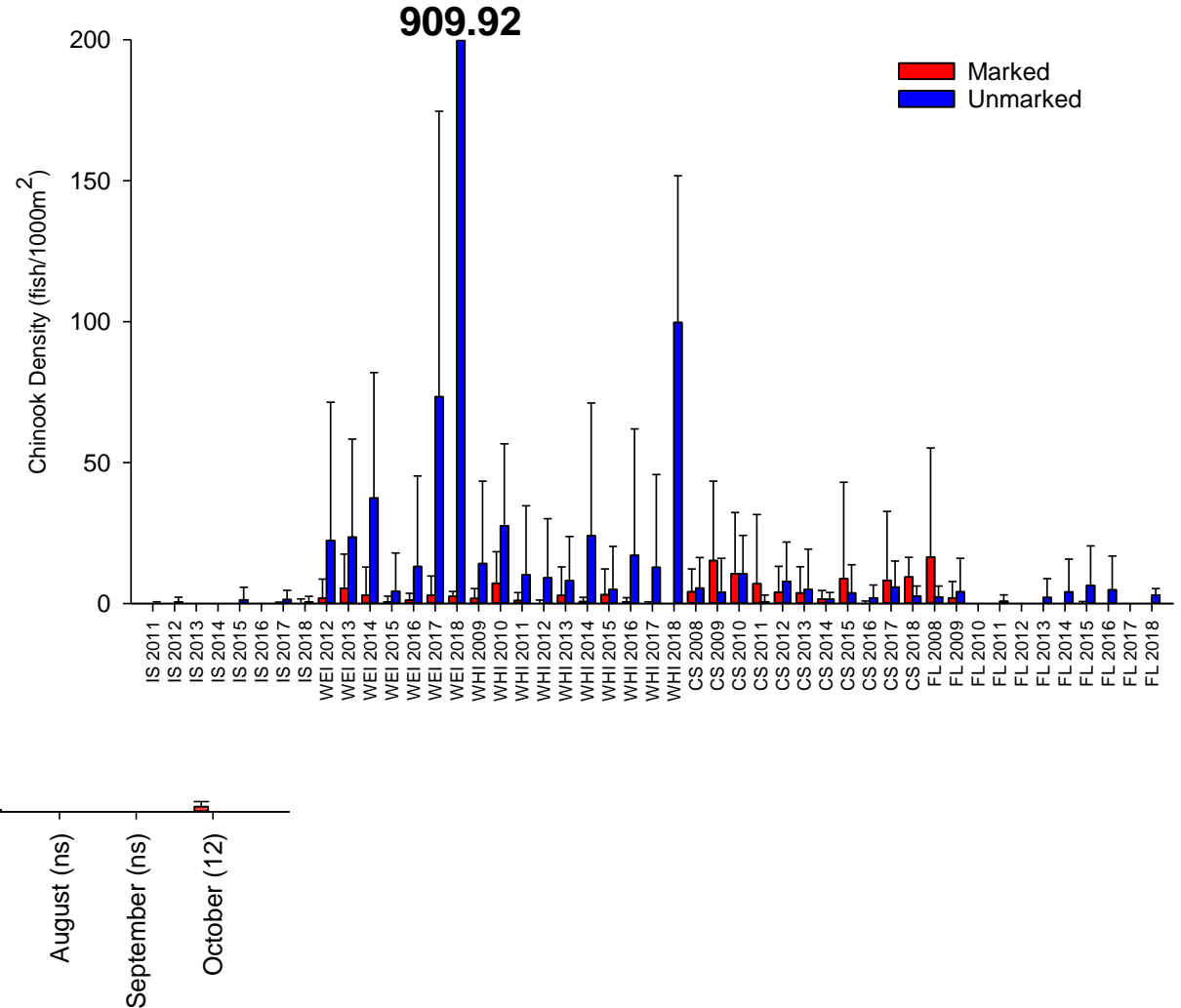
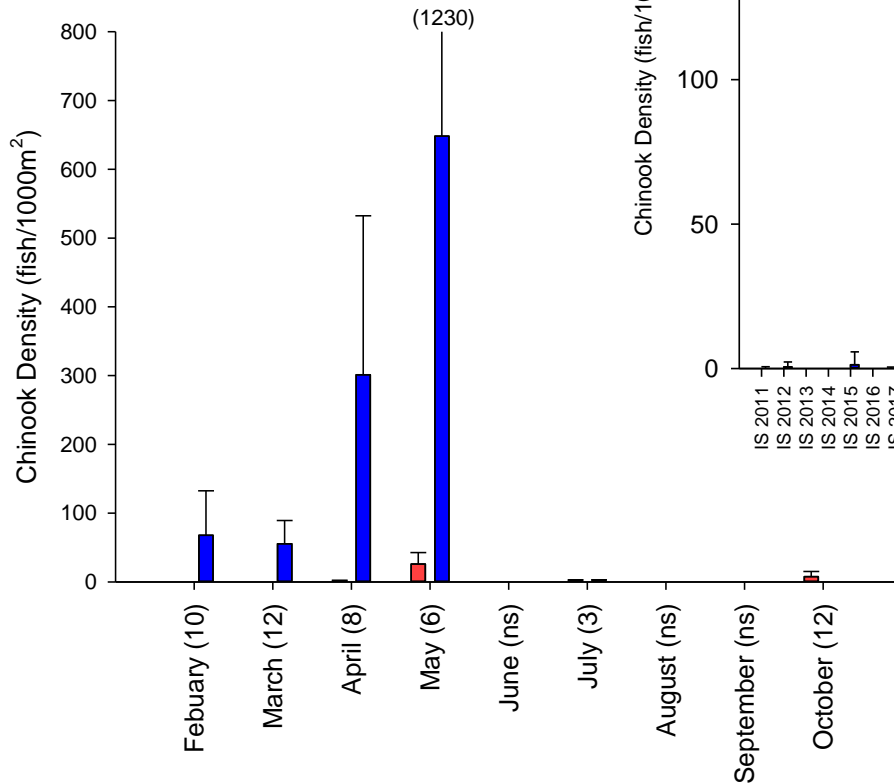
- Chinook and chum present at all sites
- Chum presence highest in Ilwaco
- Chinook dominated salmon catches at most sites



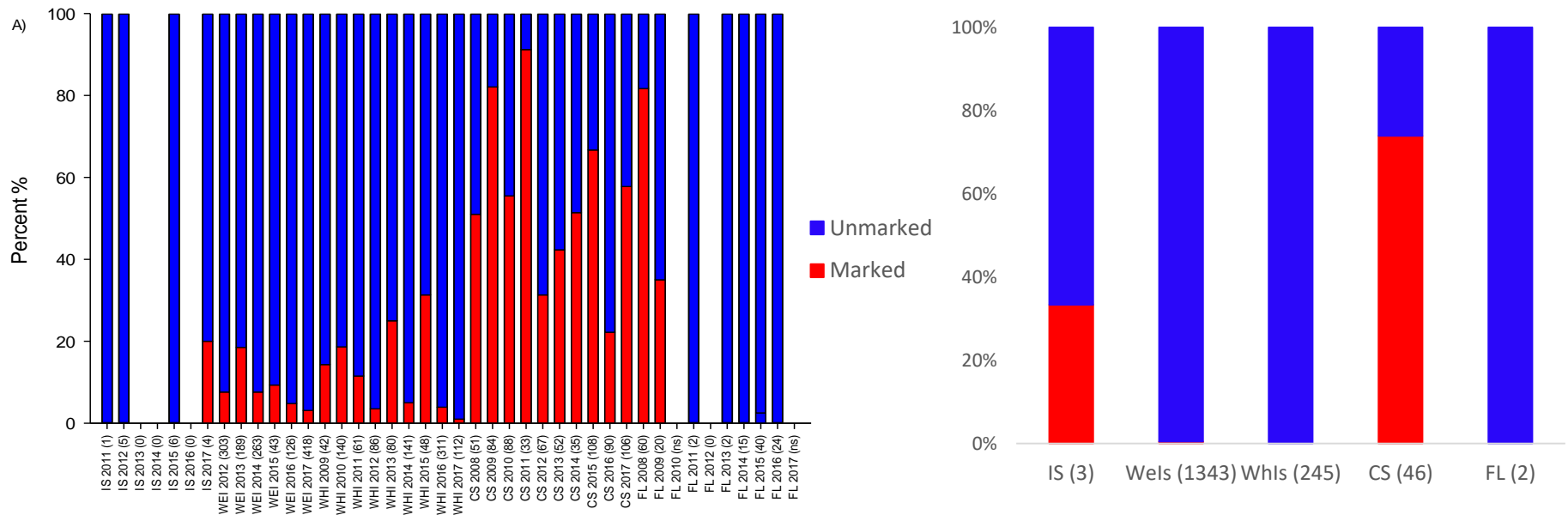
Chinook Density

All years

2018

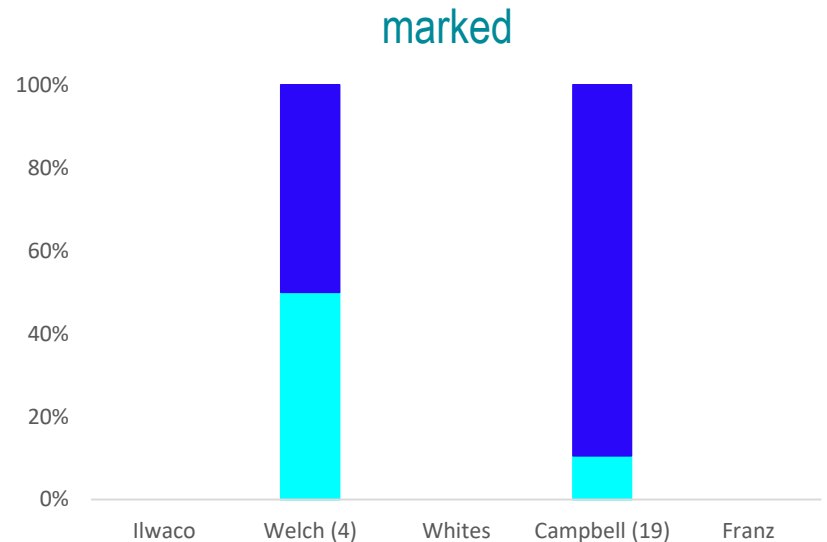
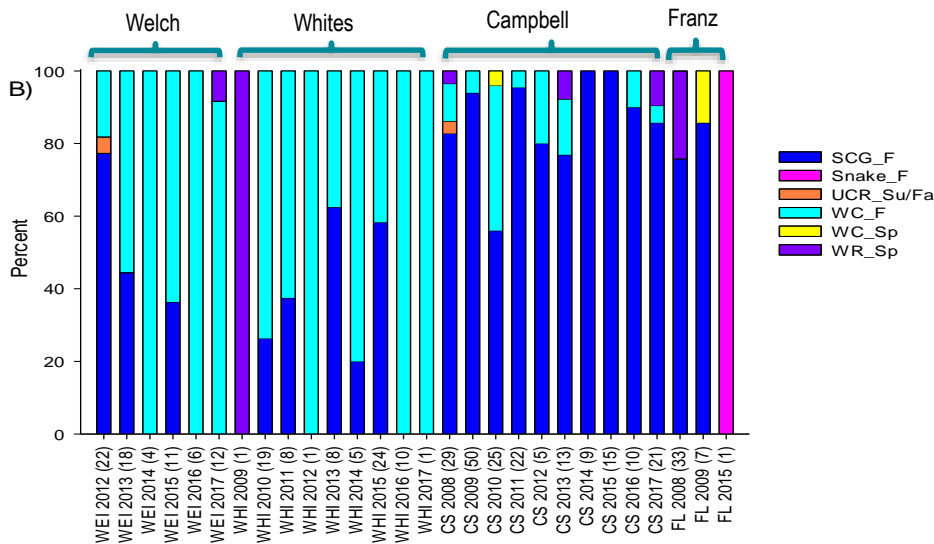
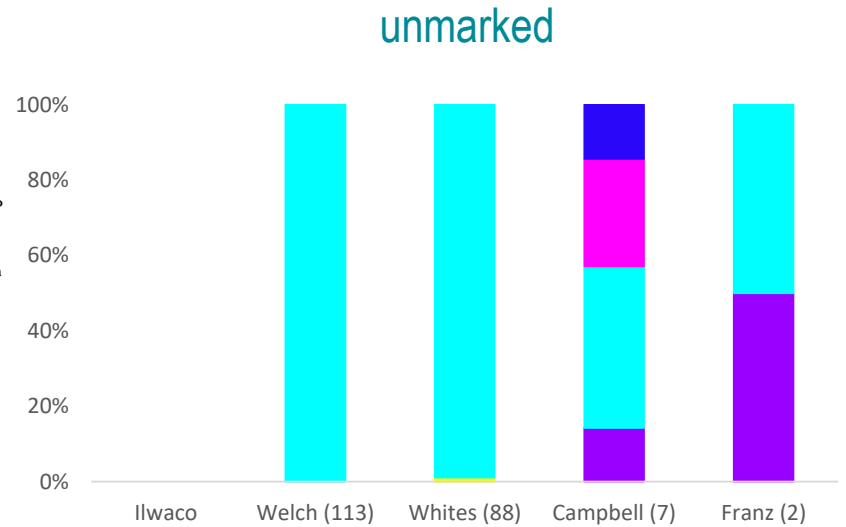
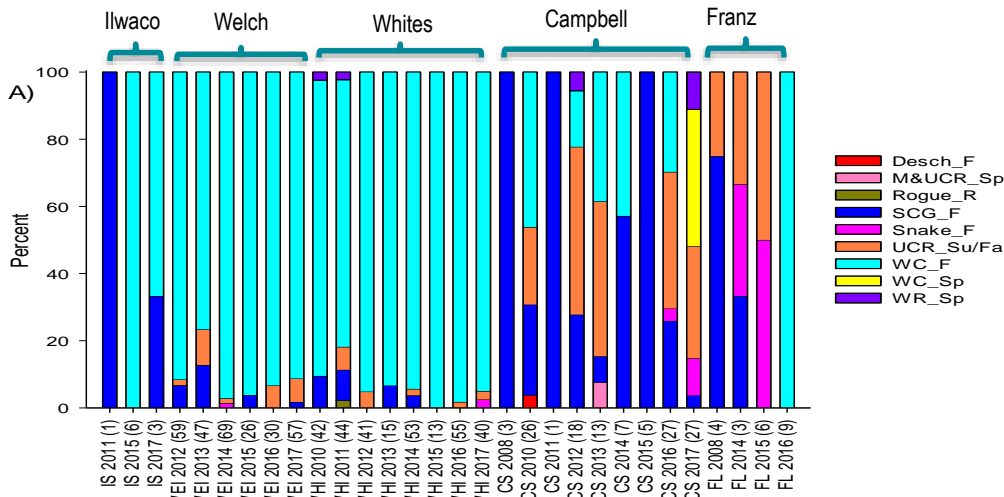


Percentage of marked and unmarked Chinook



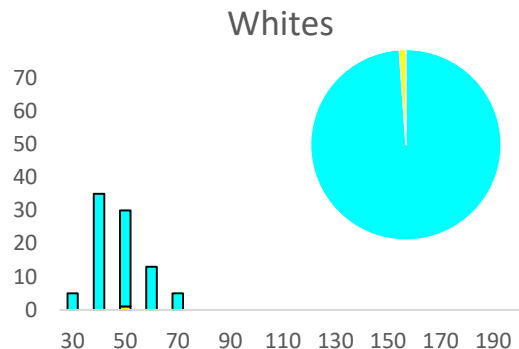
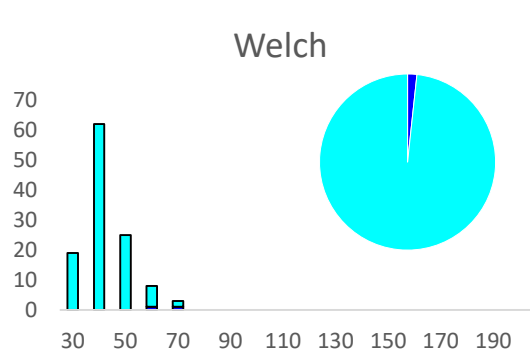
- Highest percentage of marked Chinook at Campbell
- Very high numbers of unmarked Chinook at Welch and White
- Increase in marked Chinook at Ilwaco—due to one marked fish caught in October

Genetic Composition of Chinook

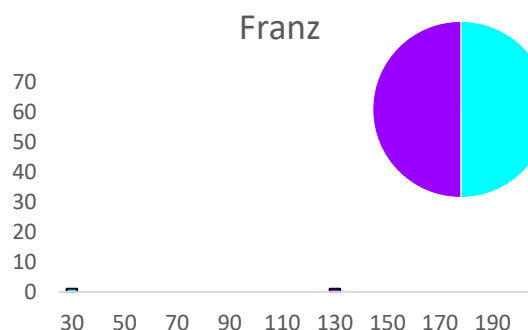
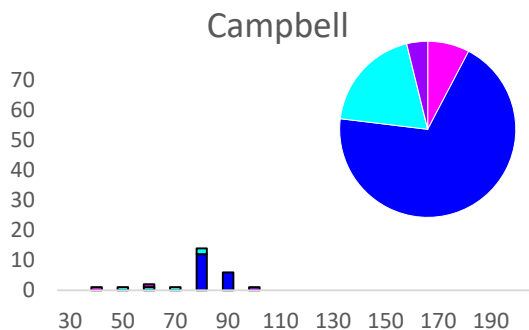


Length Frequency of Stocks 2018

(marked & unmarked)



N



FL (mm)

- Welch and Whites dominated by fry of West Cascade fall stock
- Greatest diversity and size range at Campbell

PIT Arrays 2018



Horsetail Restoration Site



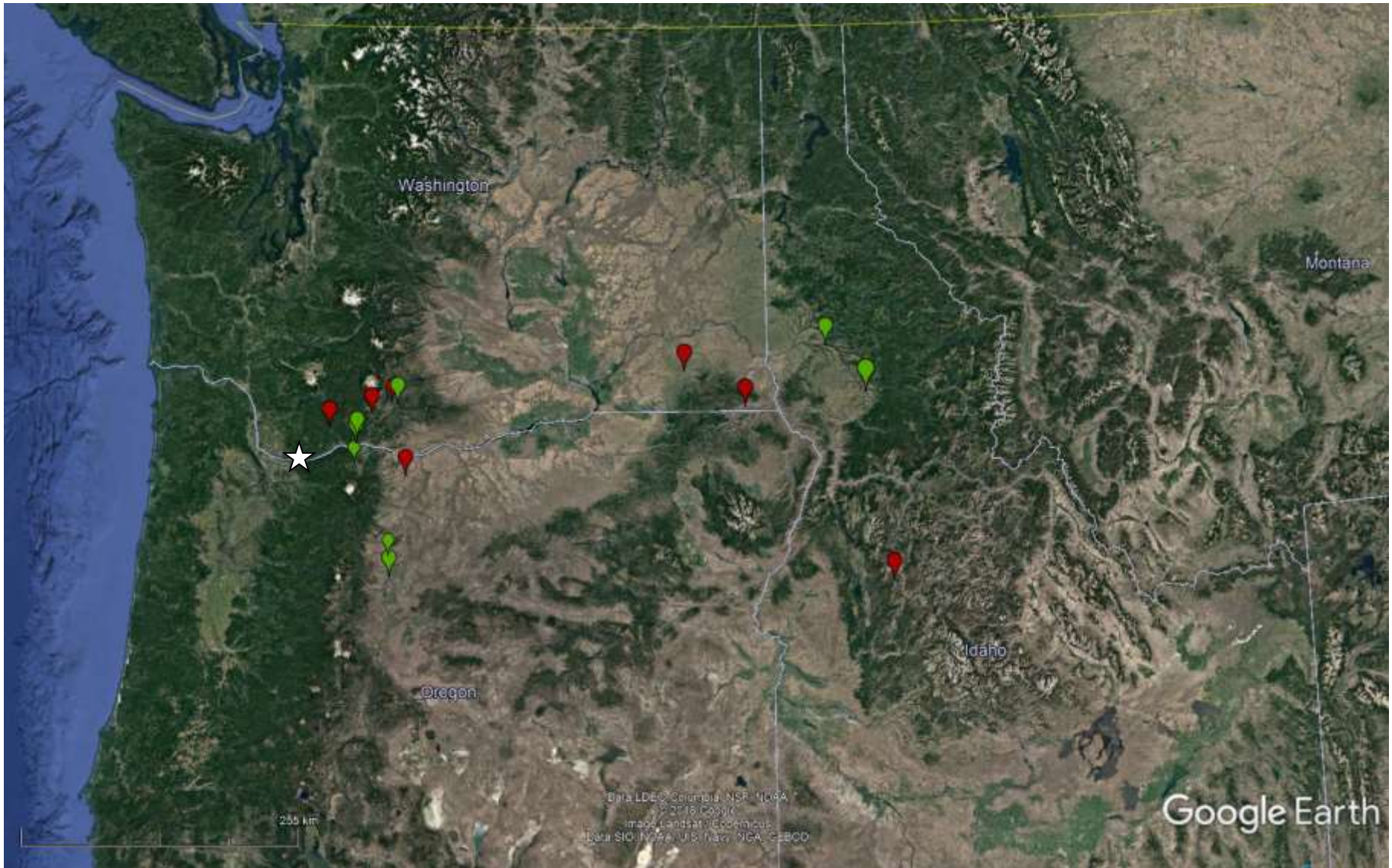
- Culvert underneath I-84 in Columbia River Gorge
- Installed in May 2013
- Intermittent operation from 2014-2016
- 2017 three upstream (Horsetail/Oneonta Creek) and two downstream (Columbia) antennas
- 2018 two antennas on upstream side and three antennas on the downstream side of culvert

Horsetail 2018 Detections

- 40 unique detections from Apr 10 – Aug 29
- 9 Fall Chinook (hatchery)
 - Max residence time = 19.1 d, median 4.65 m
- 15 Spring Chinook (hatchery)
 - Max residence time = 10.7 d, median 28 s
- 1 Summer Chinook (hatchery)
 - Residence time = 6.6 h
- 6 Summer steelhead (hatchery)
 - Max residence time = 67.4 d, median 8.75 m
- 3 Wild steelhead (unknown run type)
 - Max residence time = 12.3 d, median 9.5 m
- 1 Hatchery coho (unknown run type)
 - Residence time = 6.9 h
- 3 Northern Pikeminnow
 - Max residence time = 28.2 d, median 10.9 d
- 2 “Orphans”
 - Max residence time = 4.9 h, median 4.4 h



Origins of salmonids detected at Horsetail



Campbell Slough Site - Refurbished

- Old antennas were broken, did not span the channel well at various water levels, and cables were frequently damaged by rodents
- Revamped site in late February 2018, operational starting Feb 28

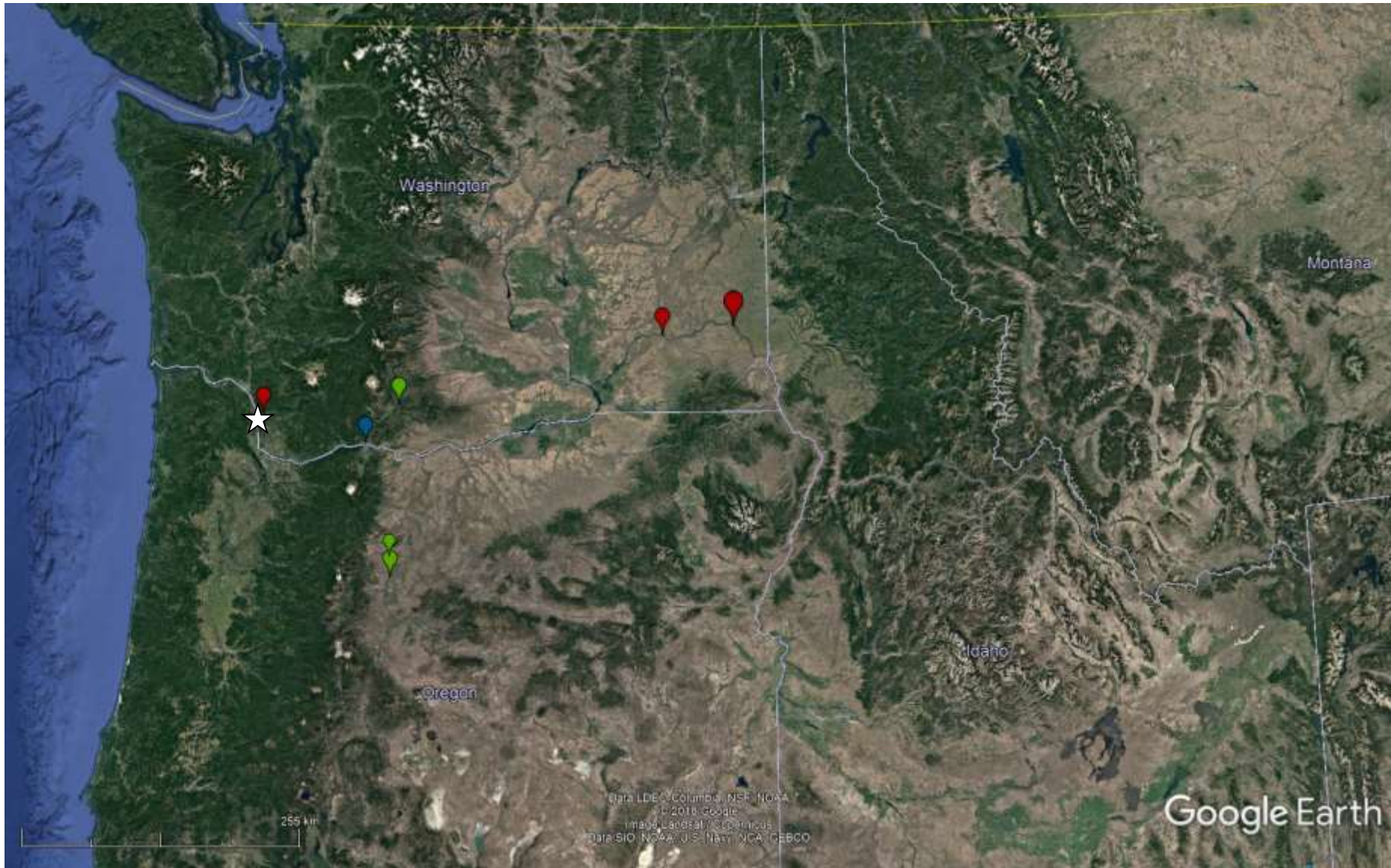


Campbell Slough 2018 Detections

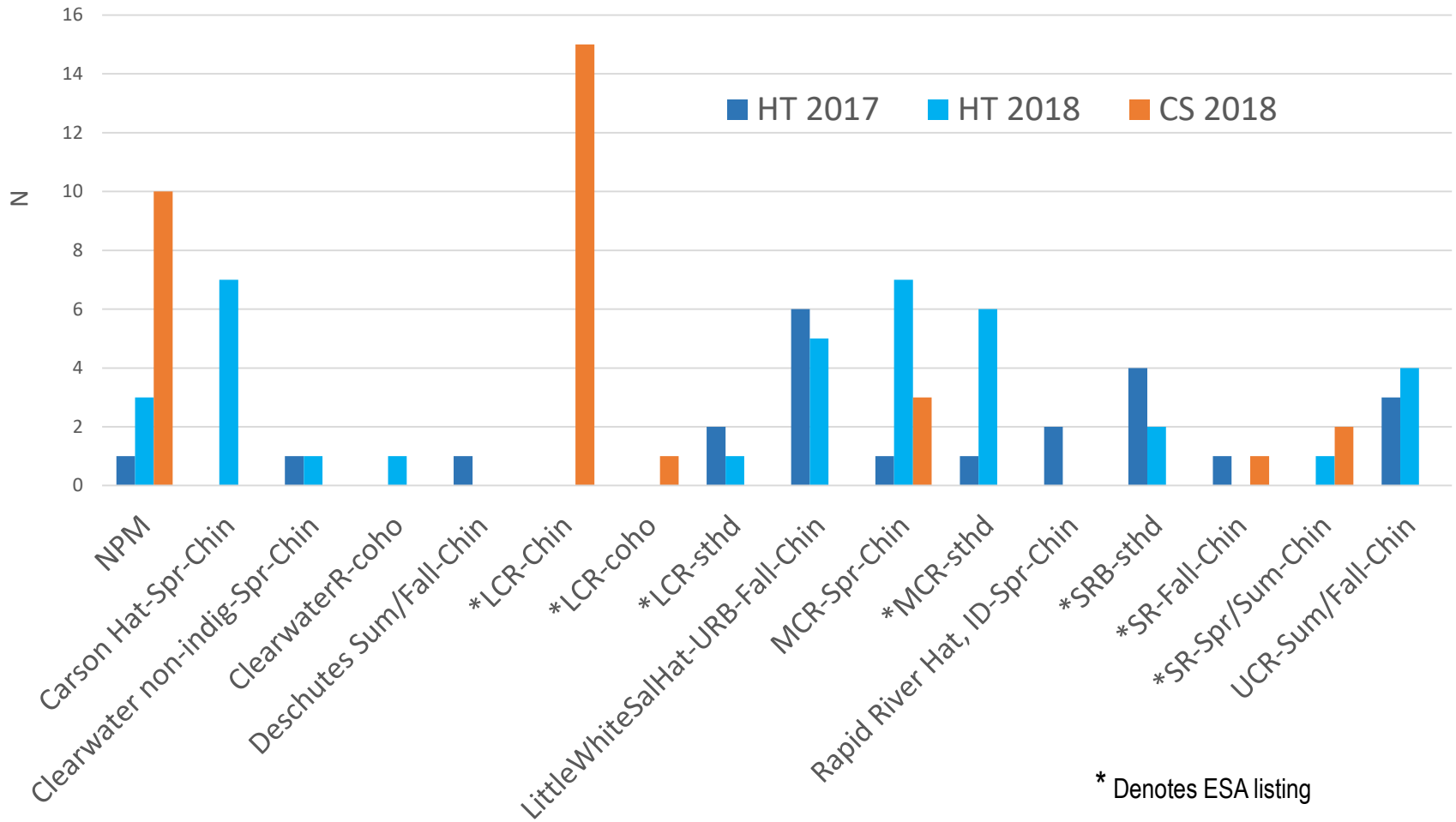
- 32 unique detections from Apr 12 – Jul 17
- 16 fall Chinook (hatchery)
 - Max residence time = 34.4 d, median 29 m
- 3 Spring Chinook (hatchery)
 - Max residence time = 2 s, median 1 s
- 2 wild Chinook (unknown run-Snake Basin)
 - Max residence time = 6 h, median 3 h
- 1 wild Coho (unknown run)
 - Residence time = 1 s, moved upstream from Lewis R
- 10 Northern Pikeminnow
 - Max residence time = 84.8 d, median 22 h



Origins of salmonids detected at Campbell



ESU/DPSs at Horsetail and Campbell



Highlights

- Relatively “normal” hydrologic year
- Fish community patterns are holding, greatest diversity at Campbell followed by Ilwaco and Franz, least diversity at Welch and Whites
- Typical seasonal and geographic trends of Chinook and chum, very large catches of Chinook at Welch in 2018
- Most sites dominated by unmarked Chinook, except Campbell in May
- Greatest stock diversity at Campbell, West Cascade fall prevalent elsewhere
- PIT detection reestablished at Campbell
- Diversity of stocks detected at Horsetail, LCR Chinook at Campbell
- Overlapping use of Northern pikeminnow and salmon



Acknowledgements/Questions

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