

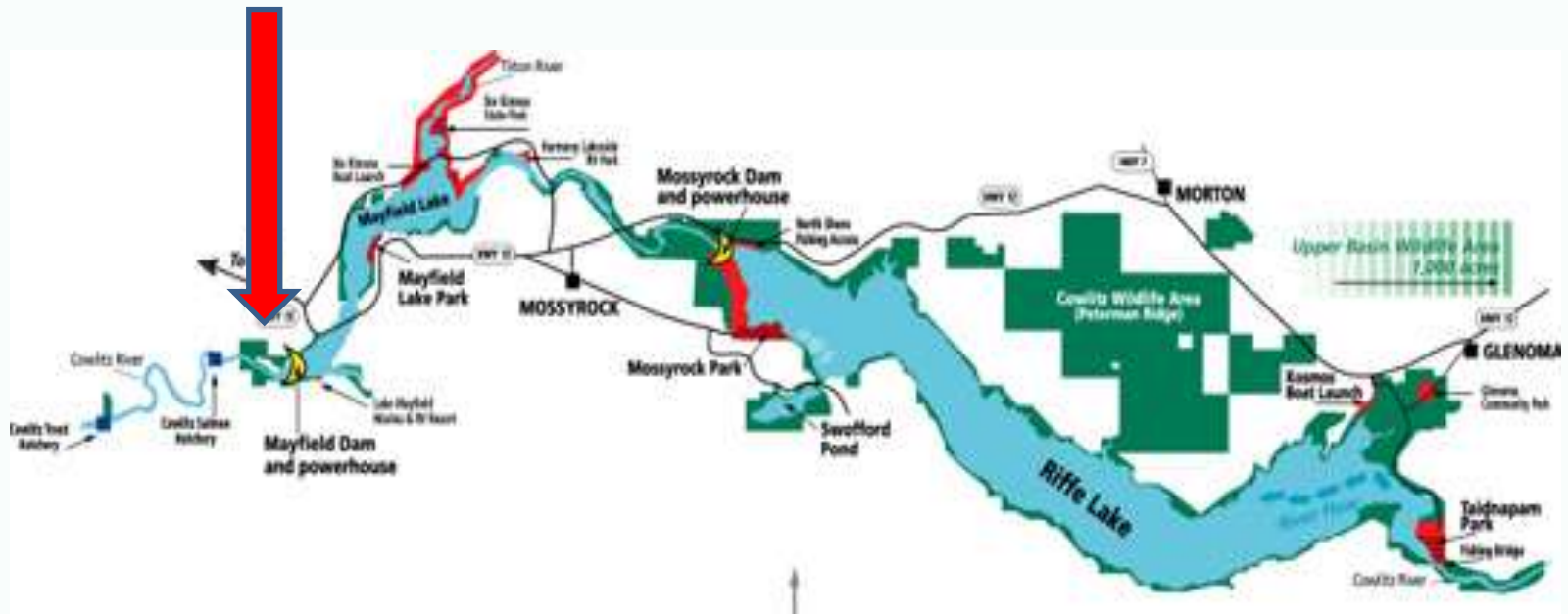
MAYFIELD DAM JUVENILE BYPASS SYSTEM (JBS)

Presented by: Scott Gibson



COWLITZ RIVER PROJECT

Mayfield Counting House





PROJECT HISTORY

- **Mayfield Dam – 1963**
- **Mossyrock Dam – 1968**
- **Barrier Dam – 1968**
- **Cowlitz Salmon Hatchery-1968**
- **Cowlitz Trout Hatchery-1968**



Discharge

Hydro Ln

Transport Pipeline

Secondary Separator

Power Tunnel

North Louver

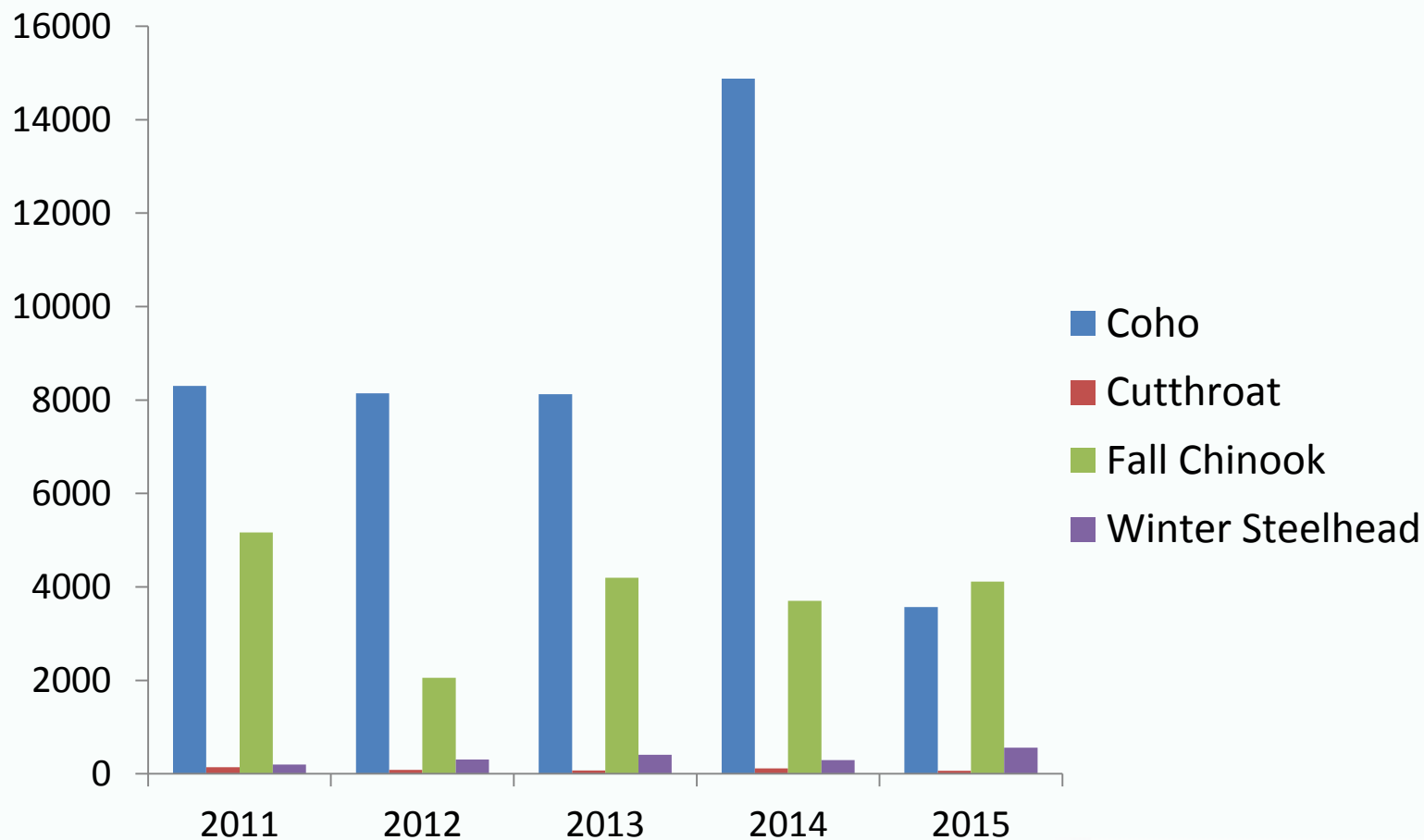
South Louver

Collection Facility

JBS COLLECTION FACILITY



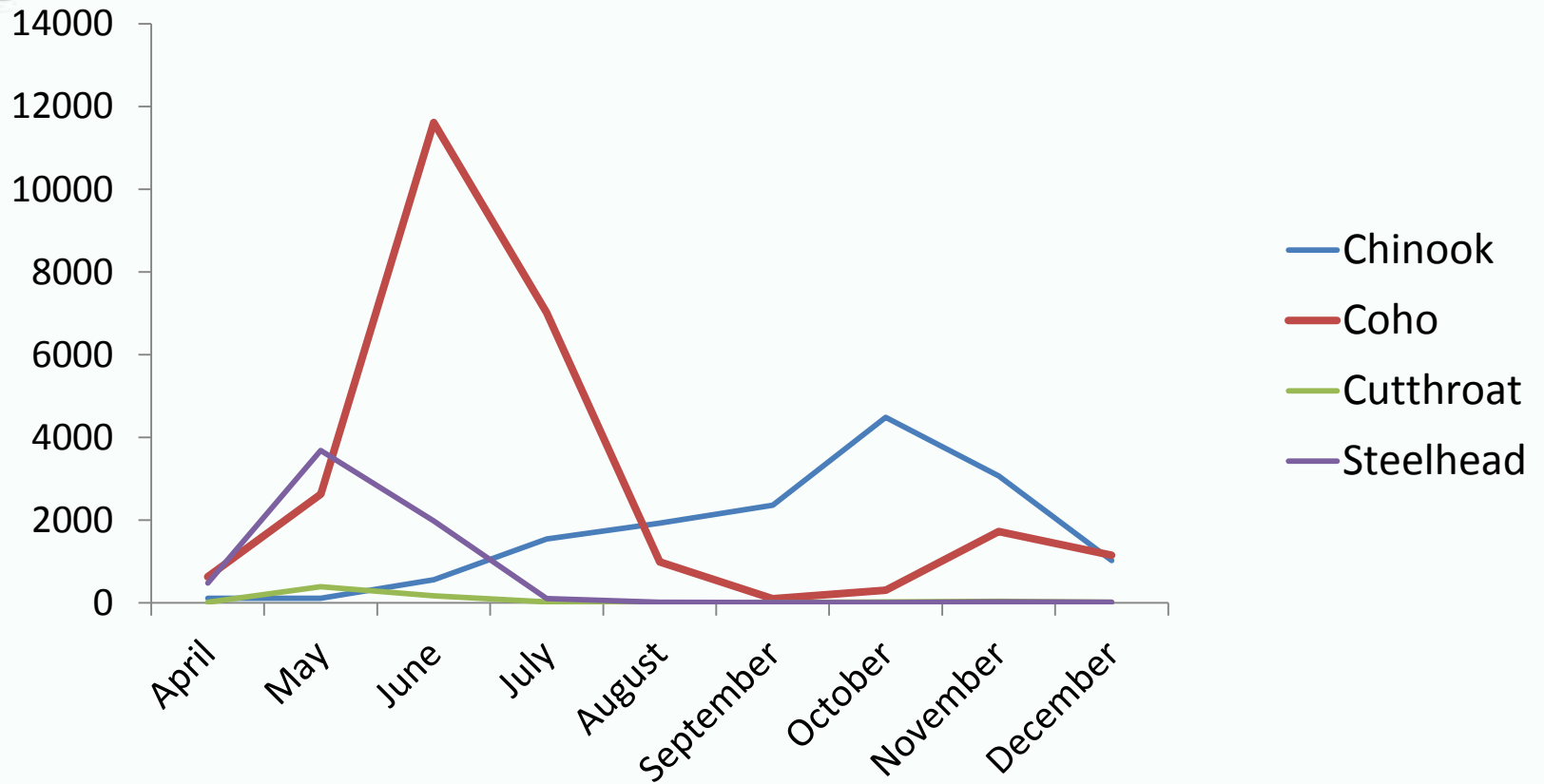
ADULT SALMONIDS RELEASED IN THE TILTON BASIN 2011-2015



JUVENILE SALMONIDS COLLECTED AT THE JBS 2011-2015



MONTHLY FIVE YEAR AVERAGE



NON-TARGET SPECIES

- **Brown Bullhead**
- **Bluegill**
- **Largemouth Bass**
- **Northern Pikeminnow**
- **Sculpin**
- **Redside Shiner**
- **Suckers**
- **Tiger Muskie**
- **Yellow Perch**



FISH PASSAGE EVALUATIONS



- 2013 marked the first year of a three year fish passage evaluation study
- Chinook, coho and steelhead were the primary focus
- Paired release methodology (Acoustic, VIE, and PIT tags)
- Calculate overall Fish Passage Survival (FPS) through all major components of the JBS

JBS EVALUATION APPROACH

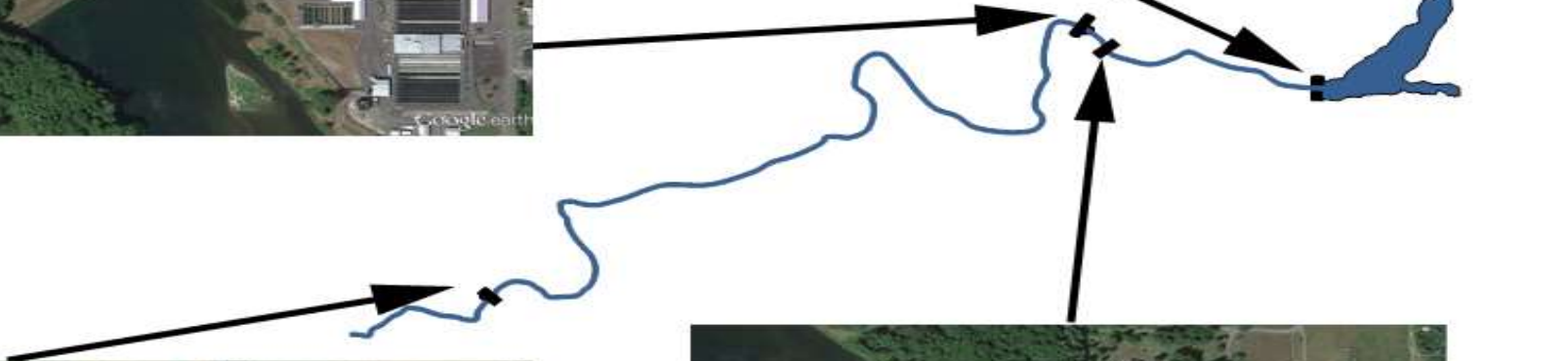


ACOUSTIC TAG DETECTION SITES

Mayfield Dam (RM 52)



Barrier Dam (RM 49.6)
Survival Detection Site 2



Cowlitz Trout Hatchery (RM 42.2)
Survival Detection Site 3



Upper Barrier (RM 50.1)
Survival Detection Site 1

PRELIMINARY RESULTS

- **Chinook – 34%**
- **Coho – 79%**
- **Steelhead – 91%**



CHALLENGES



- Parasites including nematodes and copepods infected many of the migrating Chinook juveniles and in some cases caused high mortality.
- Weekly samples were analyzed of the gills, spleen, kidney and skin to be monitored for any bacterial infections that may have compromised the juveniles health.
- Pathology evaluations confirmed that mortality was caused by the infectious parasites.



CURRENT AND FUTURE EVALUATIONS

- **PIT tag 2,250 out-migrating Chinook smolts in 2016**
- **Continue monitoring the parasitic load throughout the course of the collection season**
- **Results from 2016 will guide the direction for future fish passage evaluations**

QUESTIONS?

