

2018 Flow Release Drift Monitoring

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What is Drift and Why is it Important?

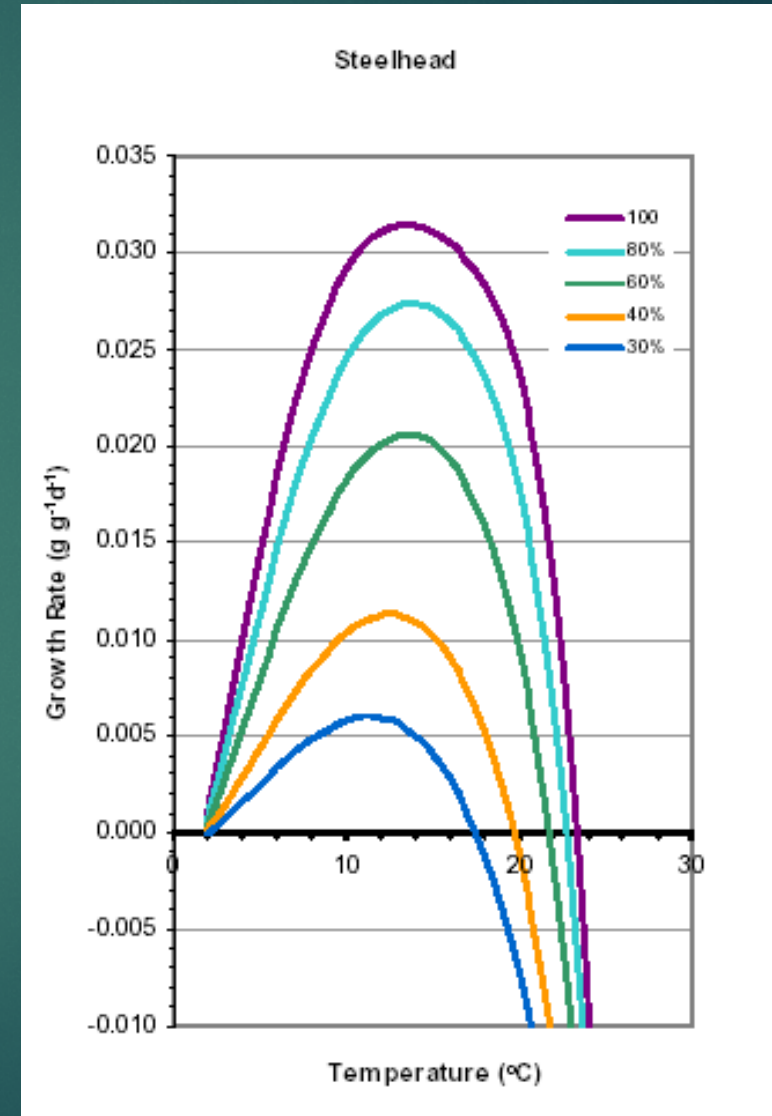
- ▶ Suspension of benthic and terrestrial macroinvertebrates into the water column
 - ▶ Behavioral (active)
 - ▶ Catastrophic (passive)
 - ▶ Constant (passive)
- ▶ Food delivery system for juvenile salmonids
- ▶ Increasing drift concentration can increase:
 - ▶ growth
 - ▶ physical habitat capacity



Jason Jagger photo

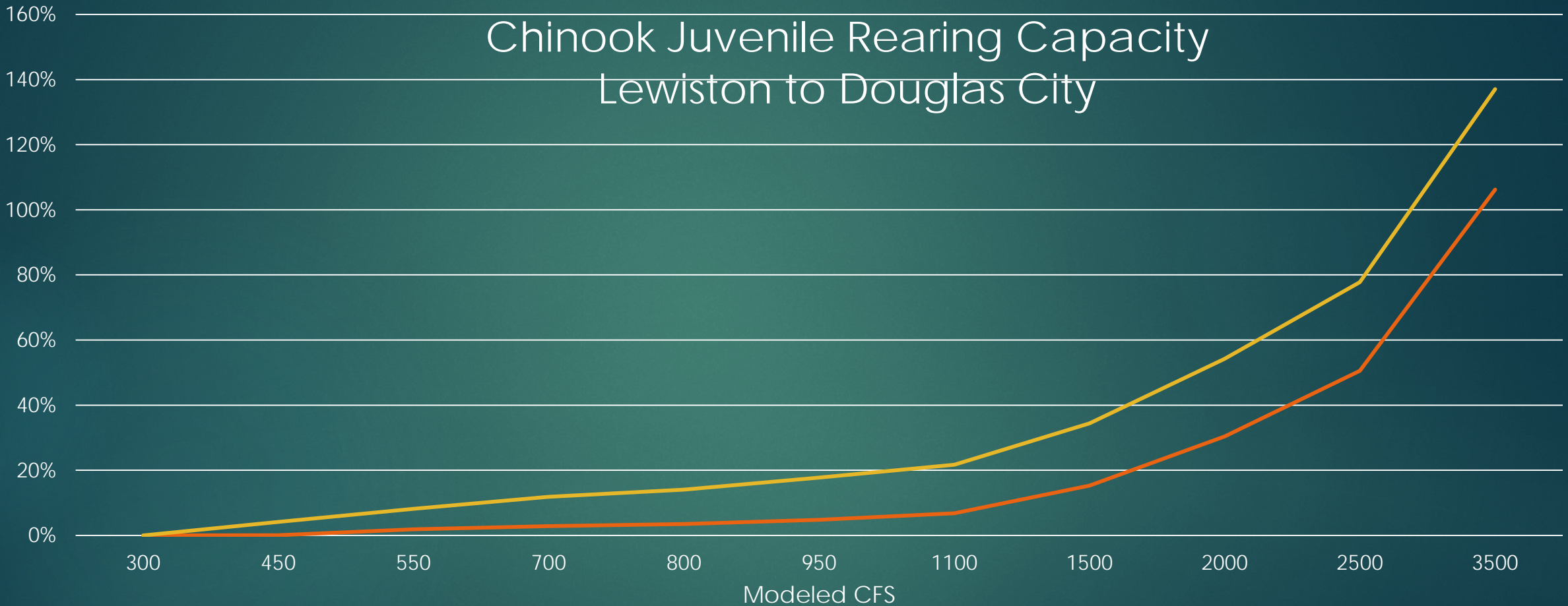
What is Salmonid Rearing Habitat?

- ▶ Physical measurement:
 - ▶ Depth
 - ▶ Velocity
 - ▶ Cover
- ▶ Production-based measurement:
 - ▶ Temperature
 - ▶ Food

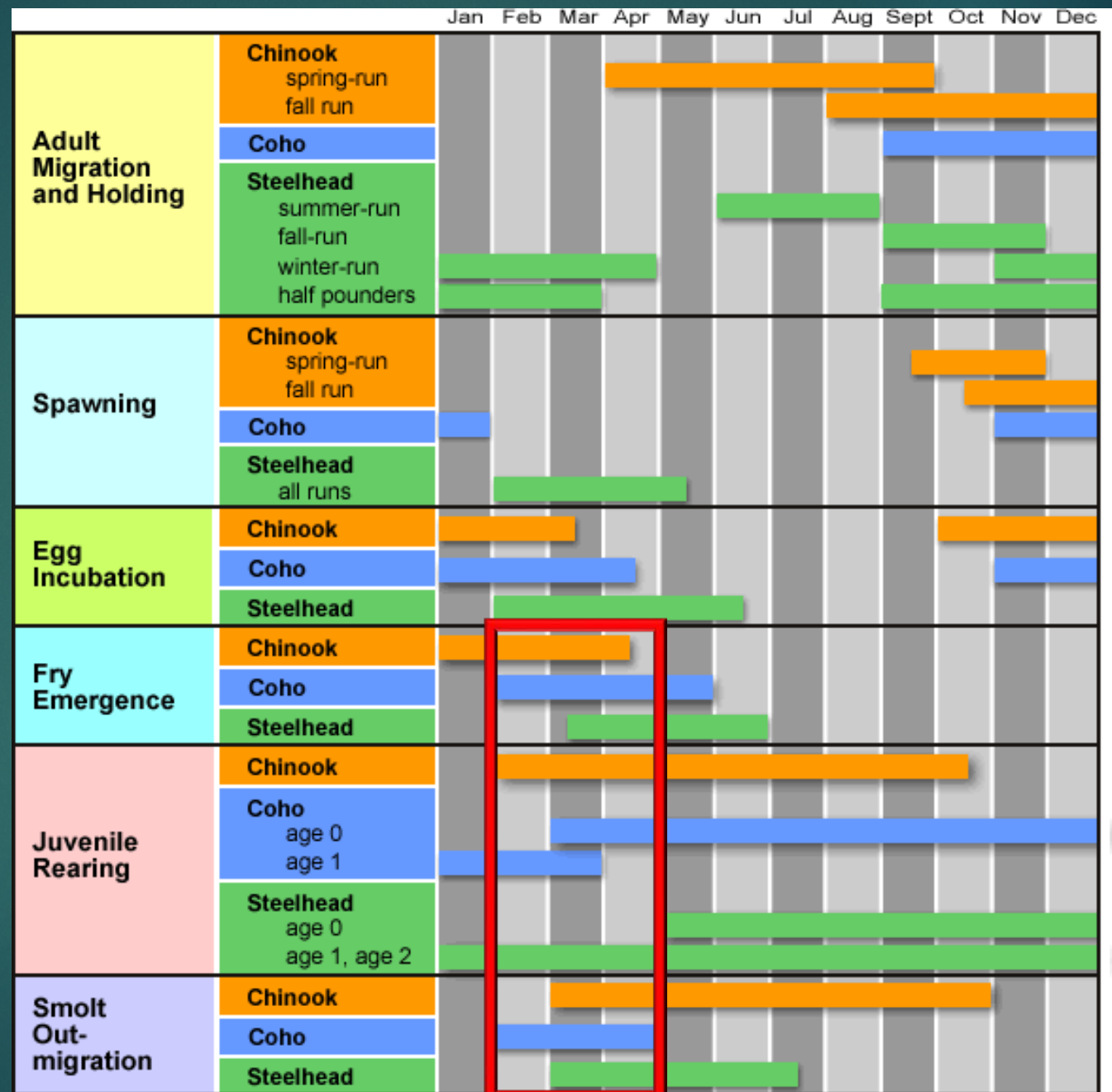




Chinook Juvenile Rearing Capacity Lewiston to Douglas City



— %Δ Fry Capacity — %Δ Parr Capacity



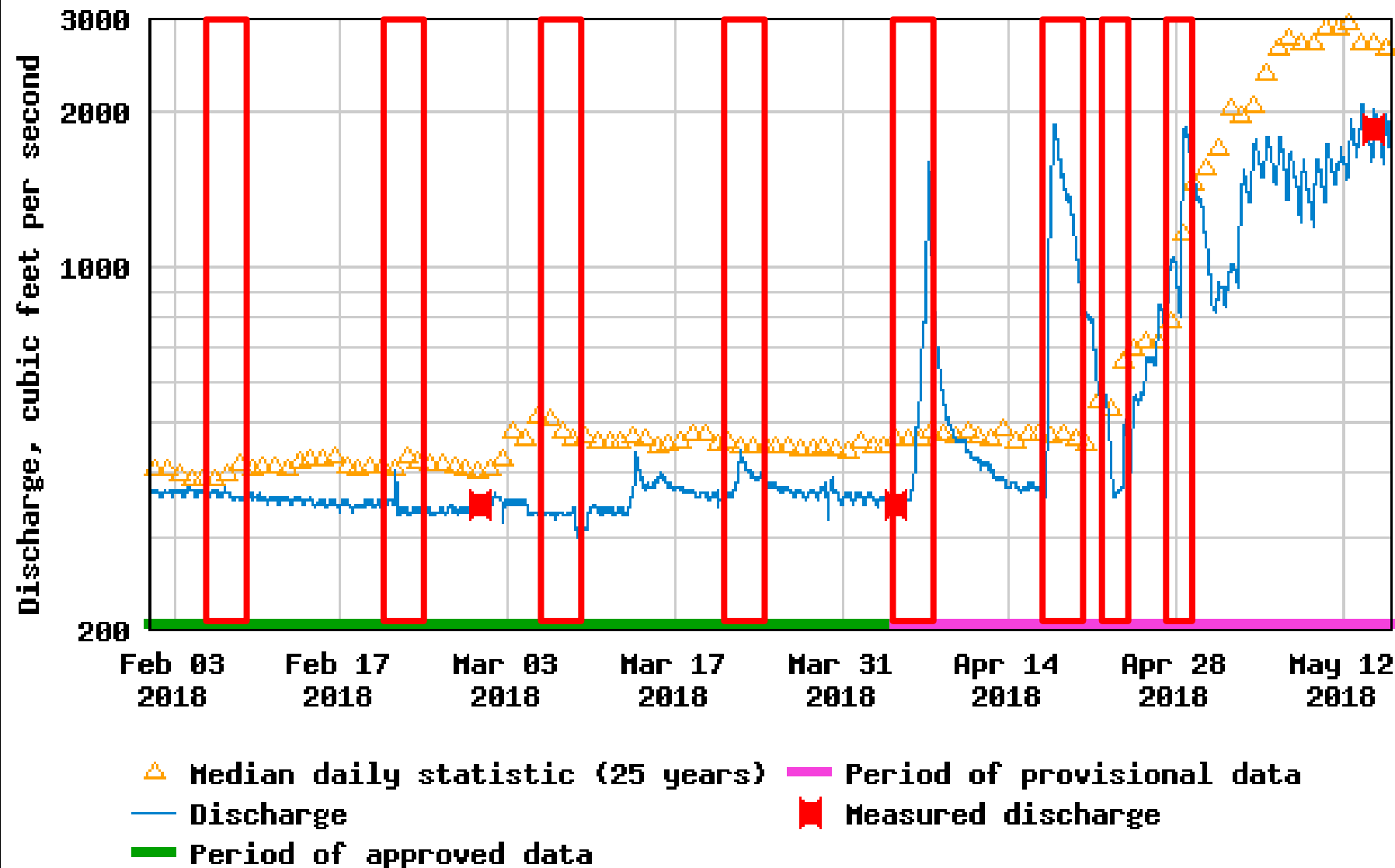
Objectives

- ▶ Describe BMI community composition and biomass of riffles
- ▶ Measure daily drift concentrations during peak Chinook Salmon emergence (February-April)
- ▶ Describe how drift concentration changes due to flow releases
- ▶ Characterize juvenile Chinook Salmon diet





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Methods – Benthic Macroinvertebrates

▶ Drift Nets

- ▶ Collected daily
- ▶ Three nets per site
- ▶ Two hours before sunset
- ▶ Measured flow three times per net

▶ Surber sampler

- ▶ Collected twice per week per site
- ▶ Composite of three locations within riffle per sample



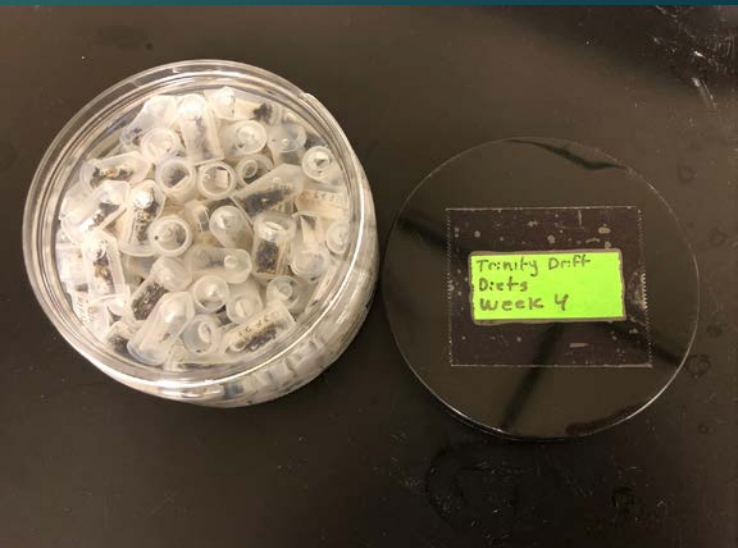
Methods – Chinook Diet



- ▶ Beach seine to collect fish
 - ▶ Fish ID'd to species
- ▶ Gastric lavage
 - ▶ All Chinook Salmon >50 mm
 - ▶ One <50 mm fish sacrificed per day per site
 - ▶ 20 diet samples per day

Methods – Lab Processing

- ▶ All samples processed at HSU lab
- ▶ Samples enumerated and identified to lowest practical level (usually family)
- ▶ BMI in diet samples placed in 1 mm size classes
- ▶ Time for processing approximately 24 hours per drift and benthic sample
 - ▶ <1 hour for diet



Preliminary Results

- ▶ Collected:
 - ▶ 168 drift samples
 - ▶ 28 benthic samples
 - ▶ ~1000 diet samples
- ▶ Large change in detritus amounts during ascending limbs
- ▶ Transition of diet from water column to surface oriented feeding (larval to pupal/adult)
- ▶ Difference in diet between small and large fish



Timeline

Task	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
Test installation and drift net performance									2017	2017	2017	
Drift and diet sampling		2018	2018	2018								
Sample analysis	2019	2019	2018 2019	2018 2019	2018 2019	2018 2019	2018	2018	2018	2018	2018	2018
Data analysis summary	2019	2019	2019	2019	2019	2019	2019	2019	2019	2019	2019	
Annual progress report												2018
Final report												2019

