

**Effect of Spawning Salmon on Seasonal  
Changes in Structure and Function of  
the Macroinvertebrate Community of  
Kennedy Creek**

**Jon Honea**

**College of Forest Resources  
Center for Water and Watershed Studies**









Question: What is the effect of salmon spawning on the seasonal changes in aquatic macroinvertebrates?

1. Flood scour and salmon redd excavation...

- remove macroinvertebrates.
- alter macroinvertebrate habitat.



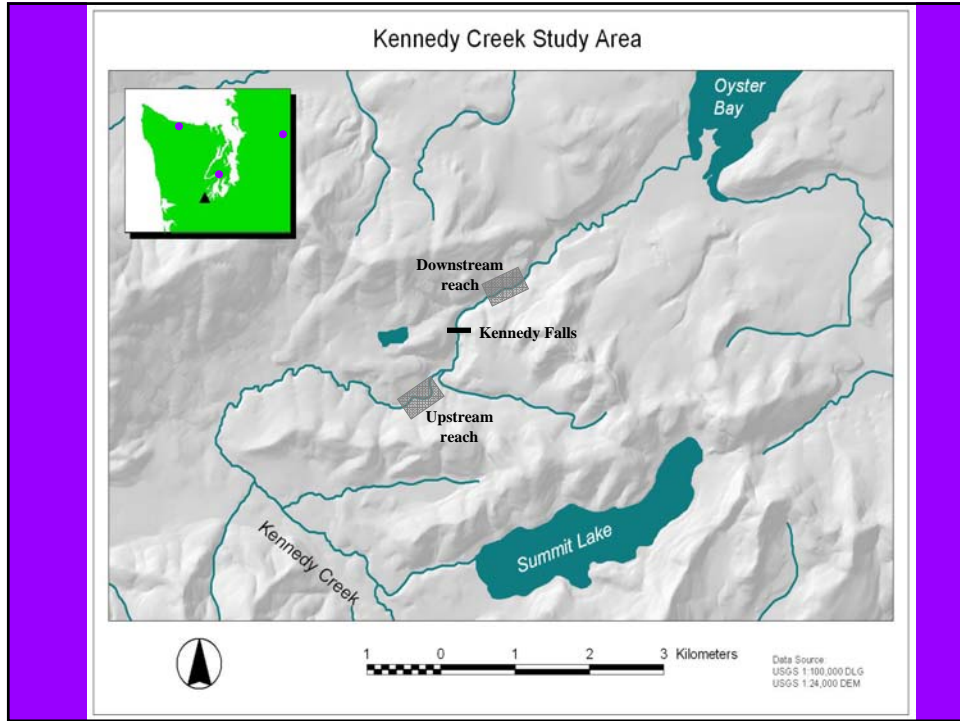
Question: What is the effect of salmon spawning on the seasonal changes in aquatic macroinvertebrates?

2. Macroinvertebrates are attracted to salmon carcasses and eggs.
3. They consume salmon eggs and carcass tissue.
4. Their growth rate increases with consumption of salmon.

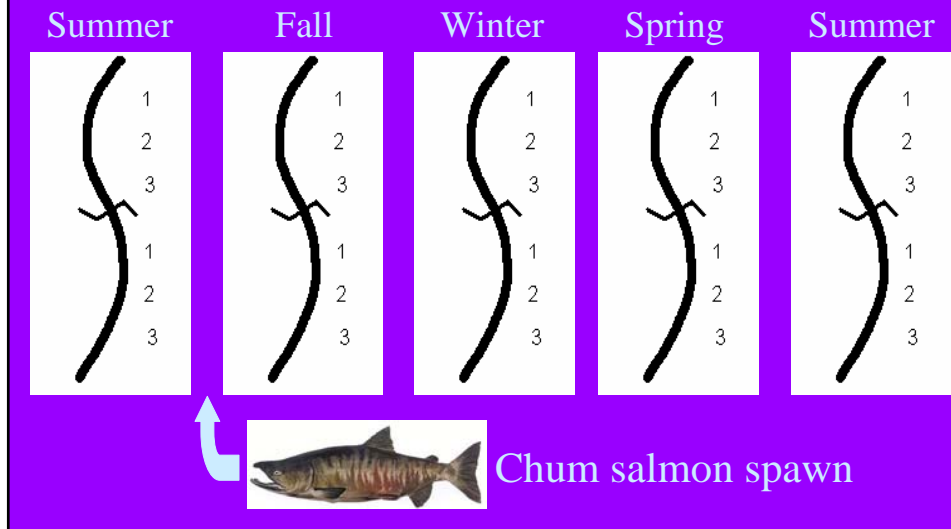


## Outline

- Study site and design.
- Isotopes analysis to determine food sources
- Macroinvertebrate biomass changes over one year
- Bioenergetics: combine food sources and biomass changes to study relation between salmon and macroinvertebrate community biomass changes



## Seasonal Changes in Aquatic Macroinvertebrates



### Macroinvertebrate characteristics measured:

#### Salmon-derived carbon (C) and nitrogen (N)

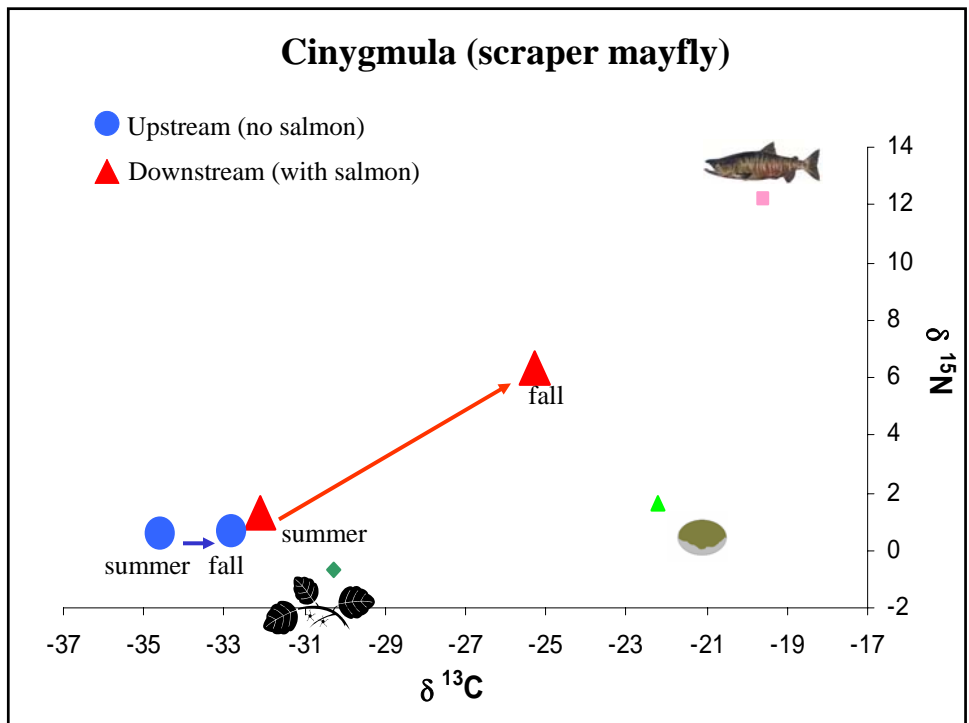
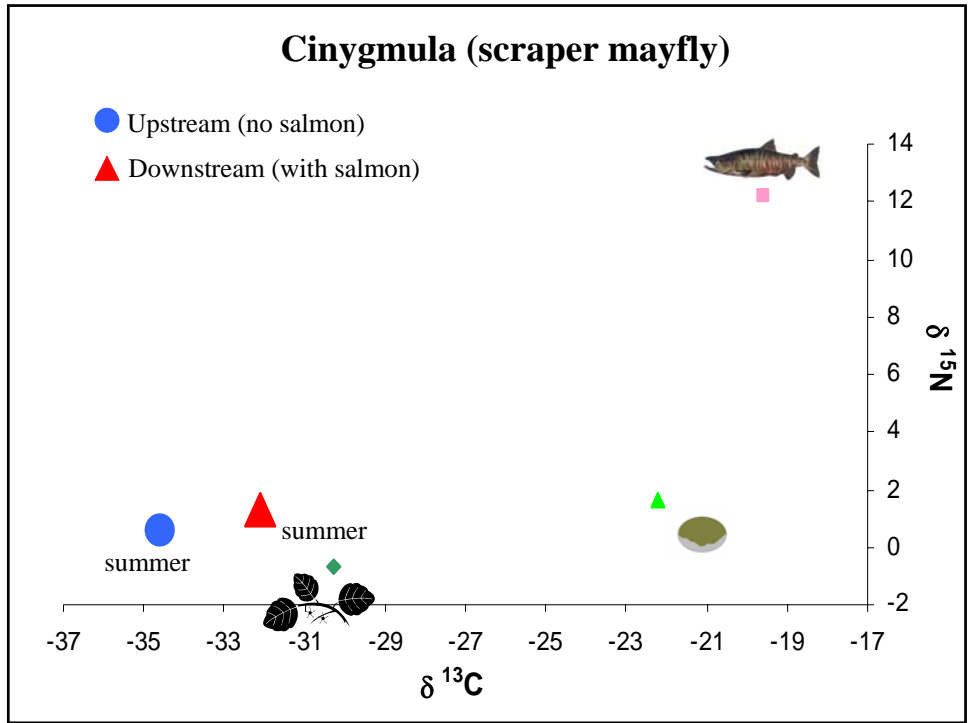
- Representative taxa of functional feeding groups

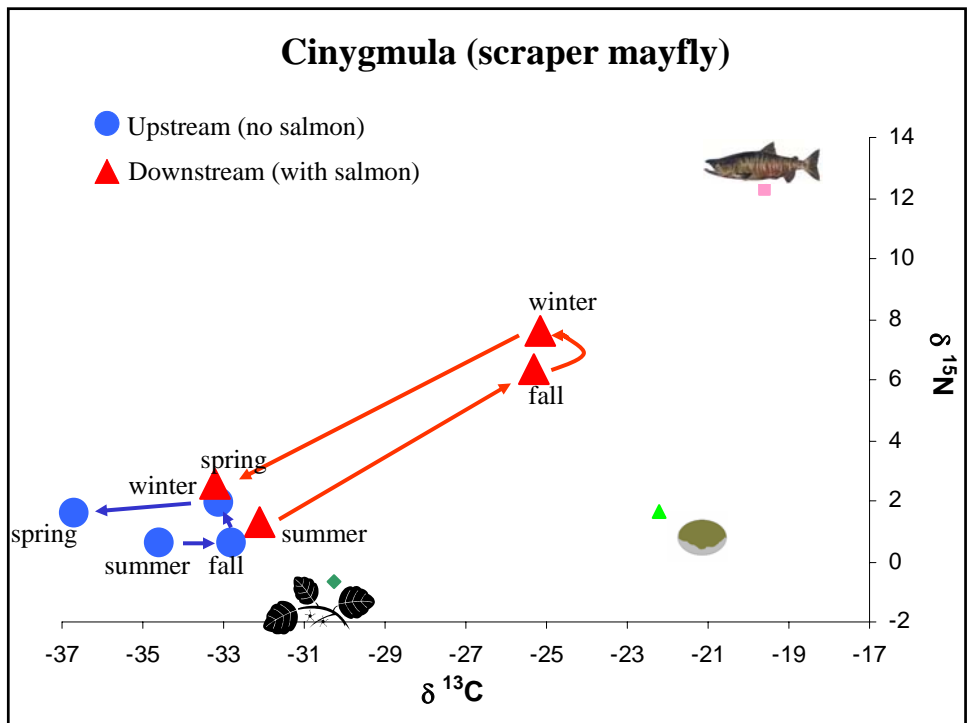
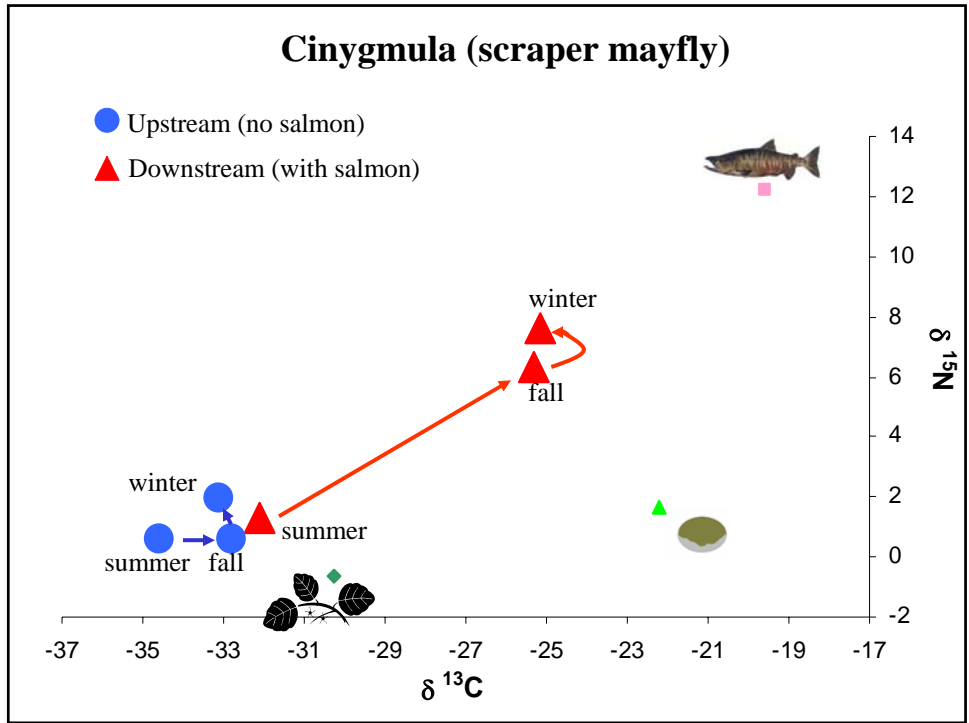
#### Biomass and density

- Taxa (mostly to genus)
- Functional feeding groups (FFG)
- Total community

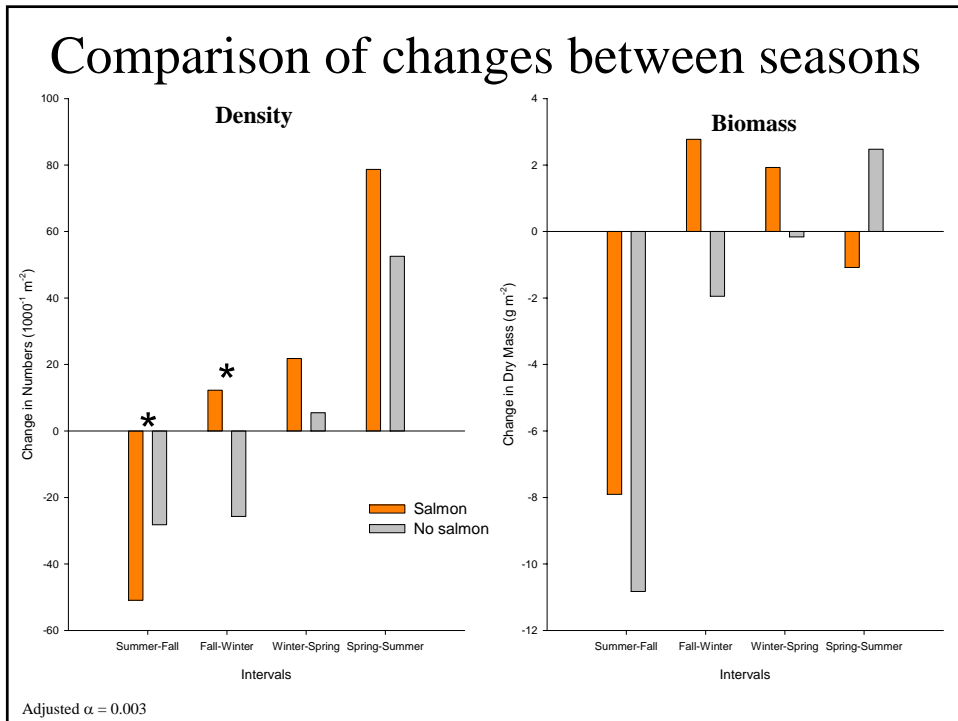
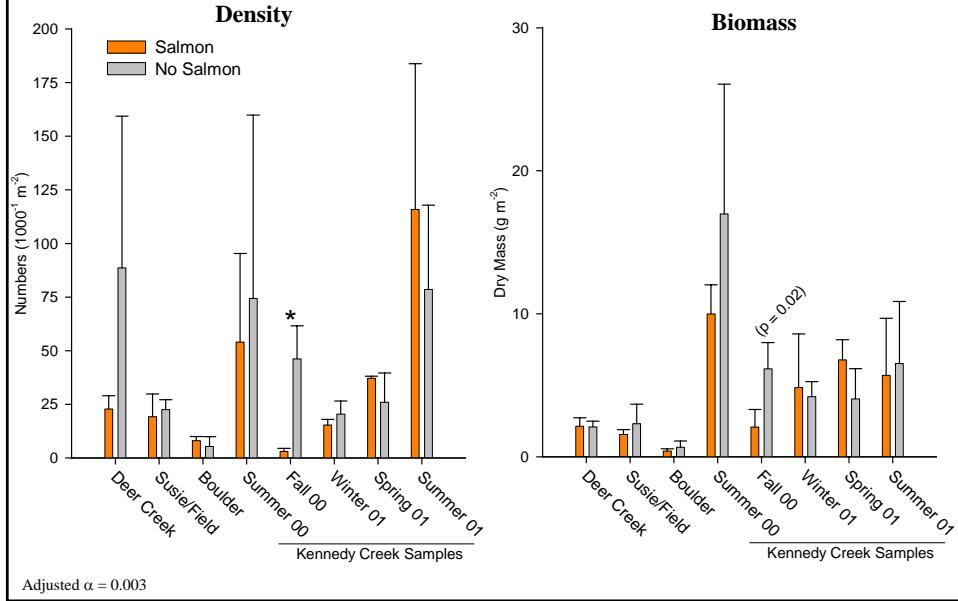
#### FFG and community biomass supported by salmon

- Fraction of biomass derived from salmon
- Total biomass for each FFG
- Total biomass derived from salmon in each FFG
- Sum FFGs for community biomass derived from salmon

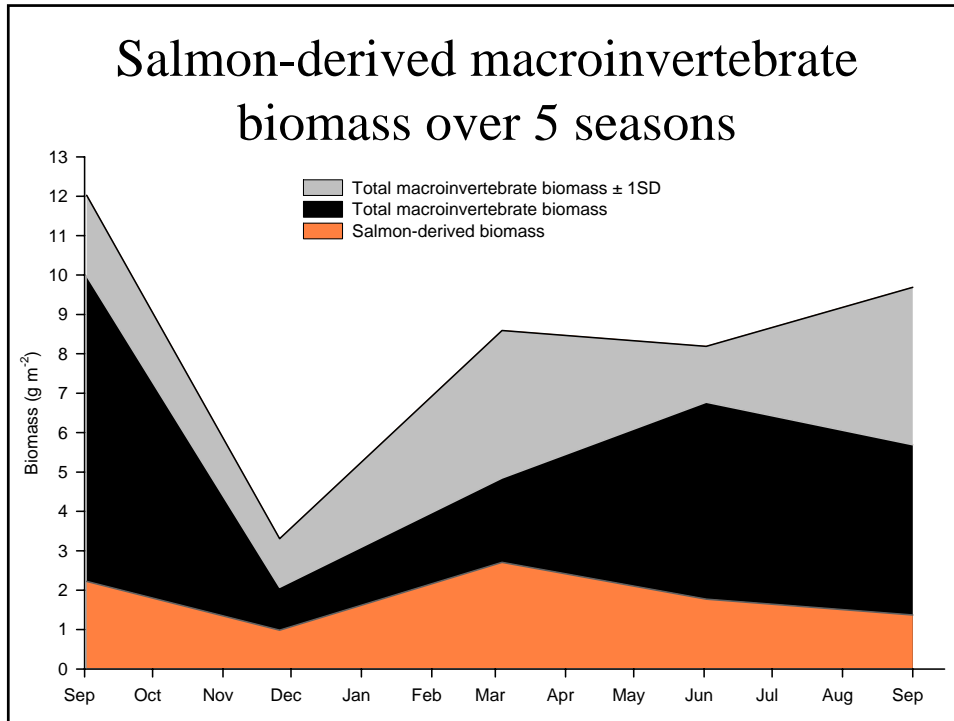




## Comparison of reaches with and without salmon







## Committee Members

**Robert Gara (Chair), Prof. of Entomology**  
**Robert Bilby, Weyerhaeuser Corp.**  
**Peter Kiffney, NOAA Fisheries**  
**Robert Naiman, Prof. of River Ecology**  
**Vincent Gallucci (GSR), Prof. of Aquatic Sciences**



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**College of Forest Resources**

**Olympic Natural Resources Center**

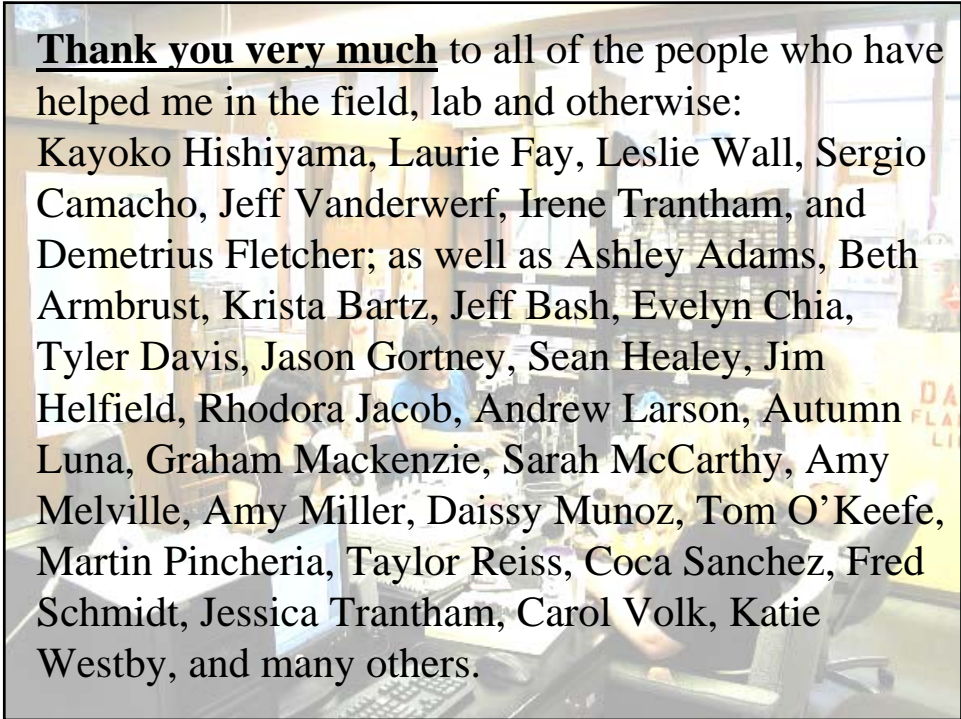
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**Center for Water and Watershed Studies**

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**American Water Resources Assoc.**

**Wild Steelhead Coalition**



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