

Responses of Atlantic salmon stream communities to marine-derived nutrients

Margaret Guyette

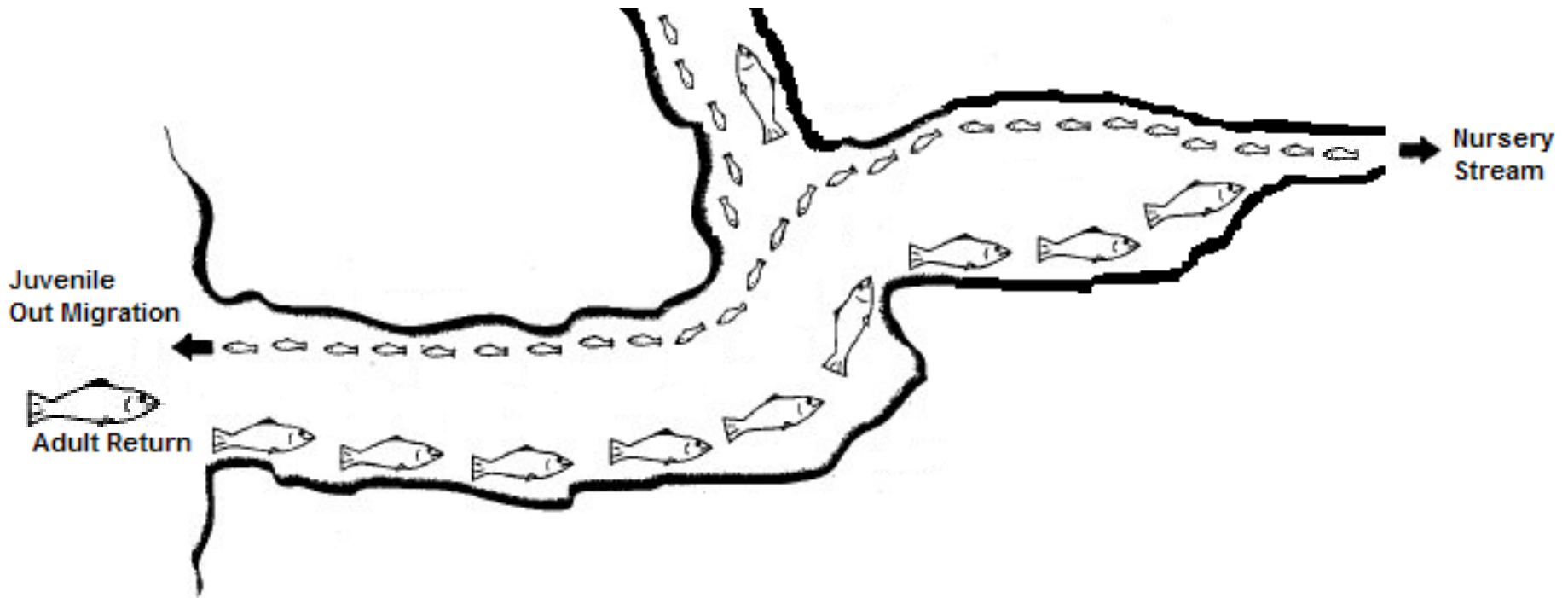
**Postdoctoral Associate
Department of Wildlife Ecology
University of Maine**

Co-Authors

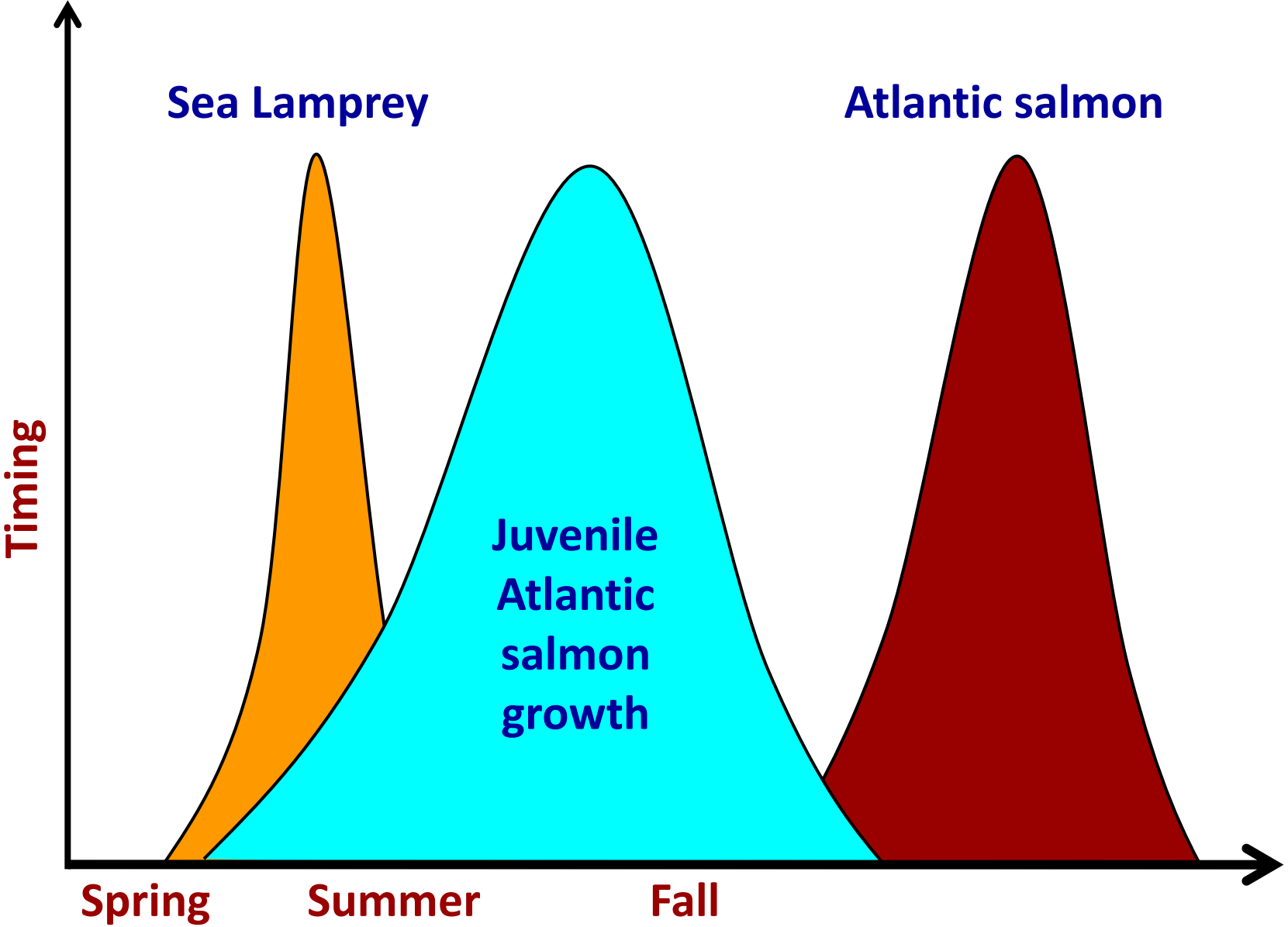
Cynthia Loftin & Joseph Zydlewski

**U.S. Geological Survey
Maine Cooperative Fish and Wildlife Research Unit
Department of Wildlife Ecology
University of Maine, Orono**

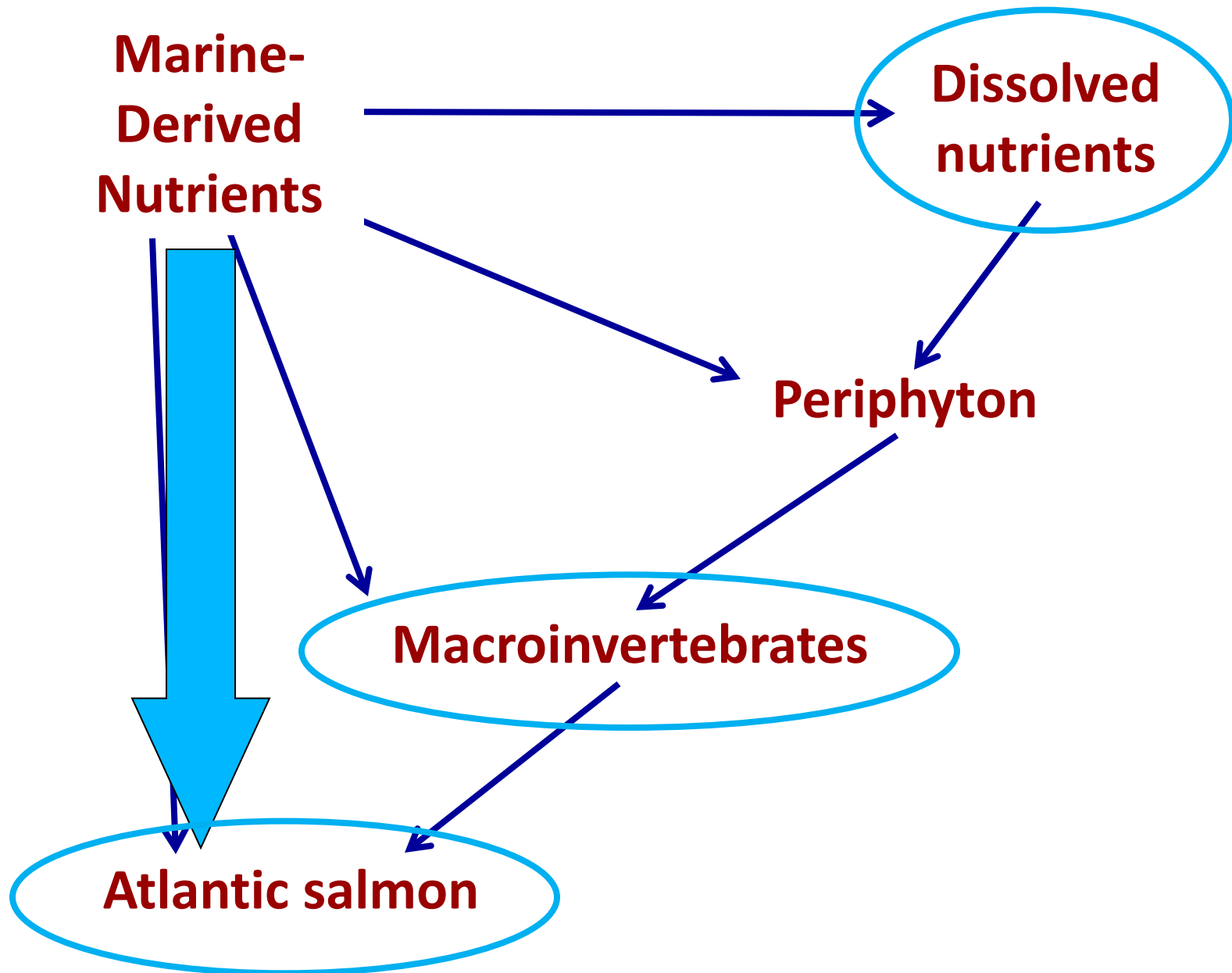
Anadromous fish transport marine-derived nutrients (MDNs) into freshwater systems



Anadromous fish in small streams



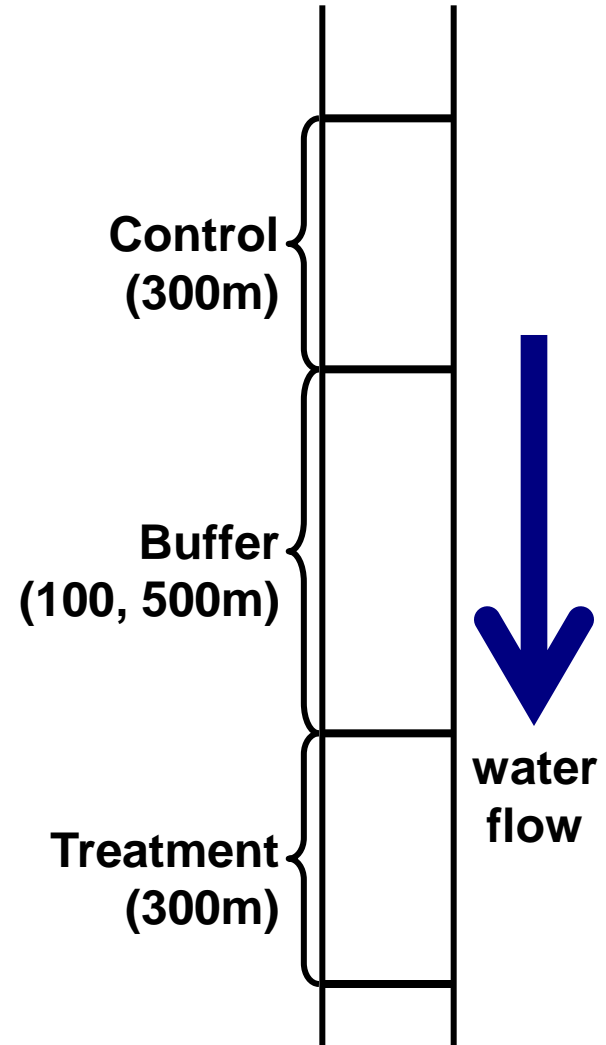
Anadromous fish in small streams



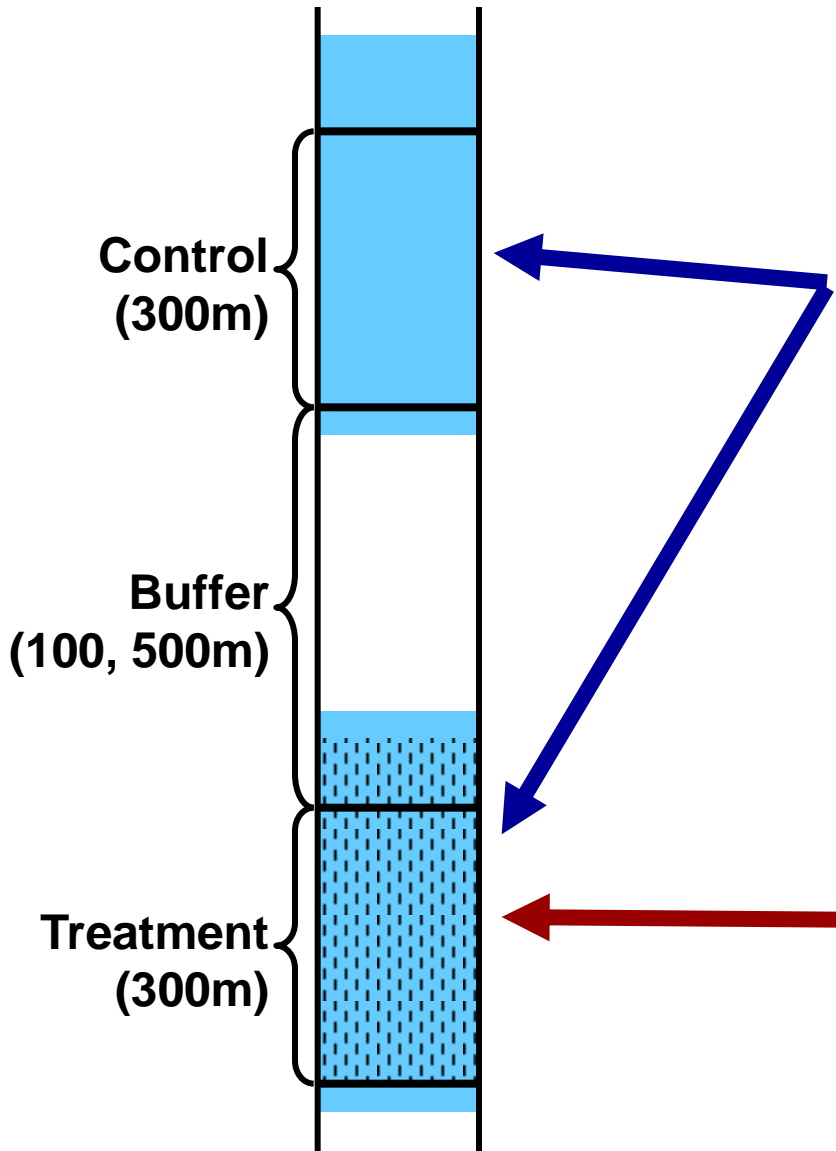
Experimental Design

Experimental Design

4 headwater streams



Experimental Design



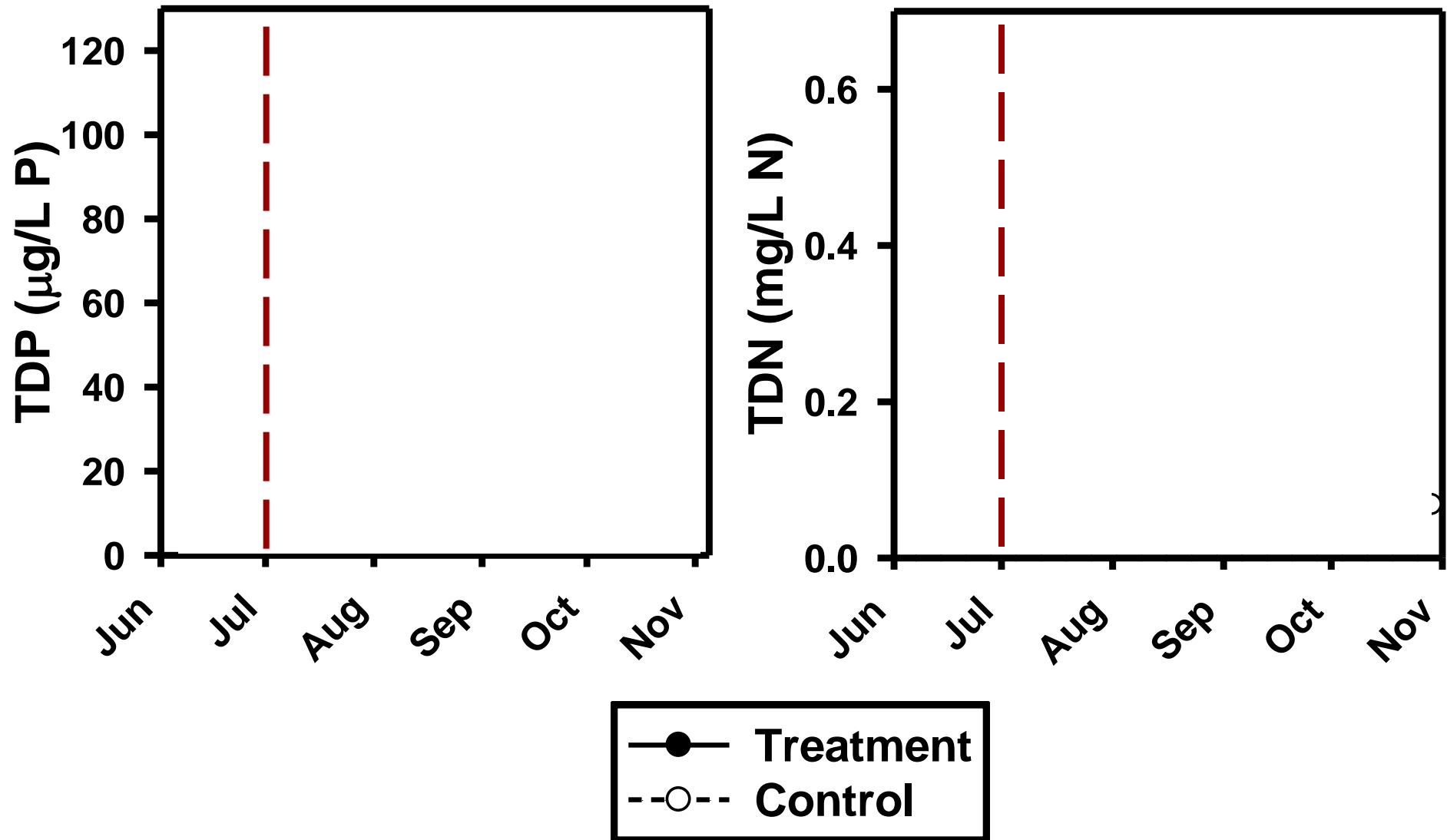
May
2009
2010



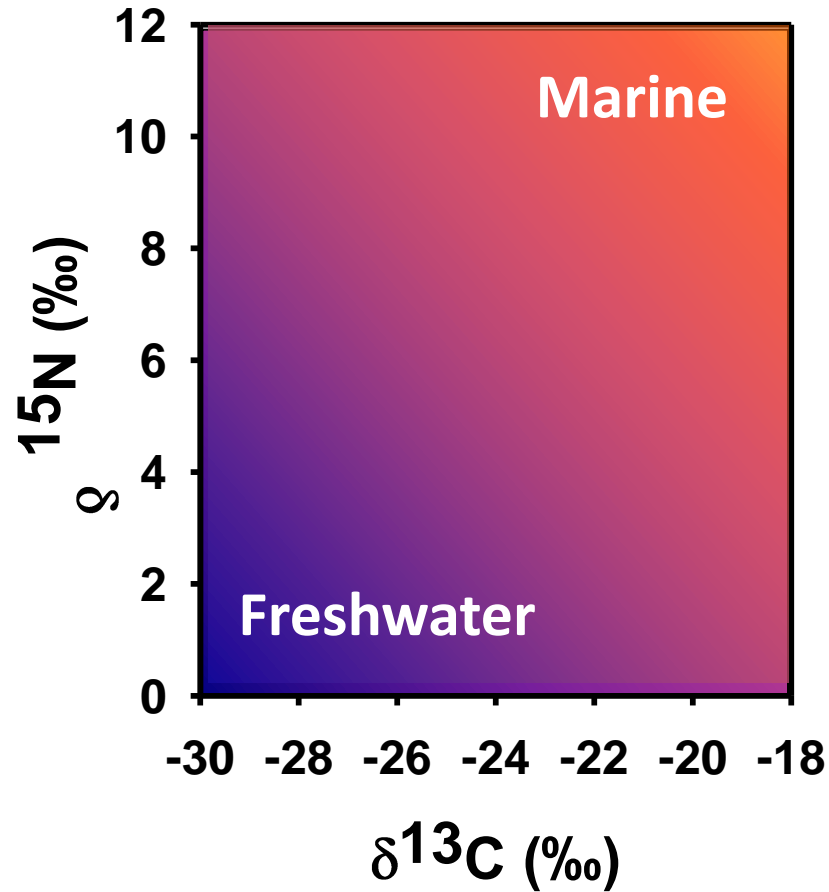
July
Oct
2009
2010

Results: Nutrients in Water

2010

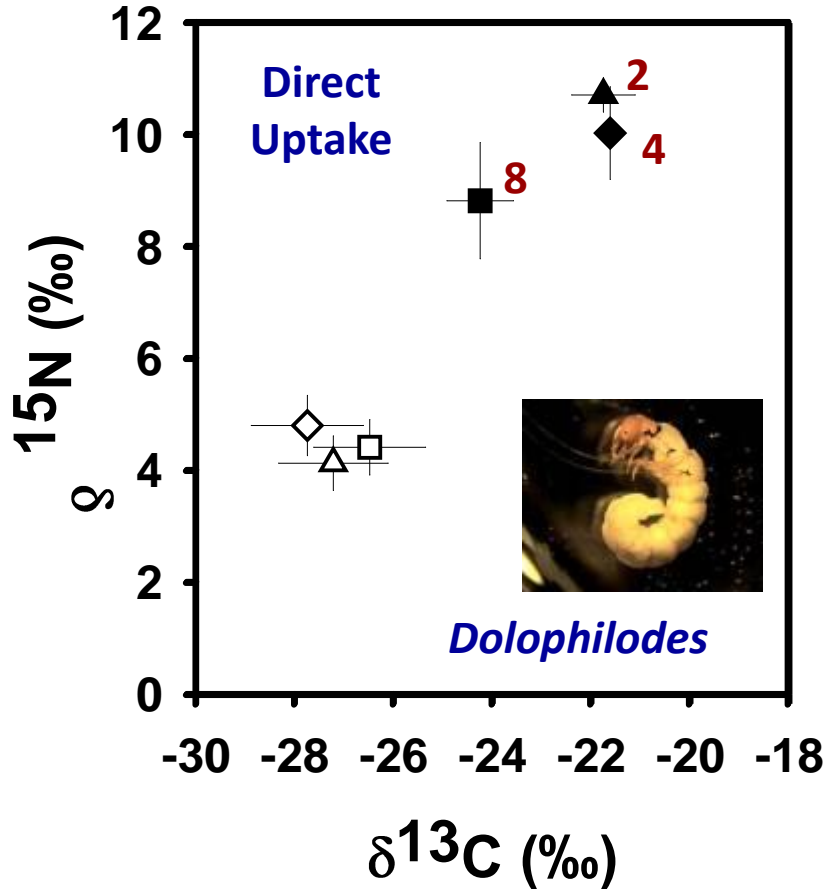


Stable Isotopes and MDN Assimilation

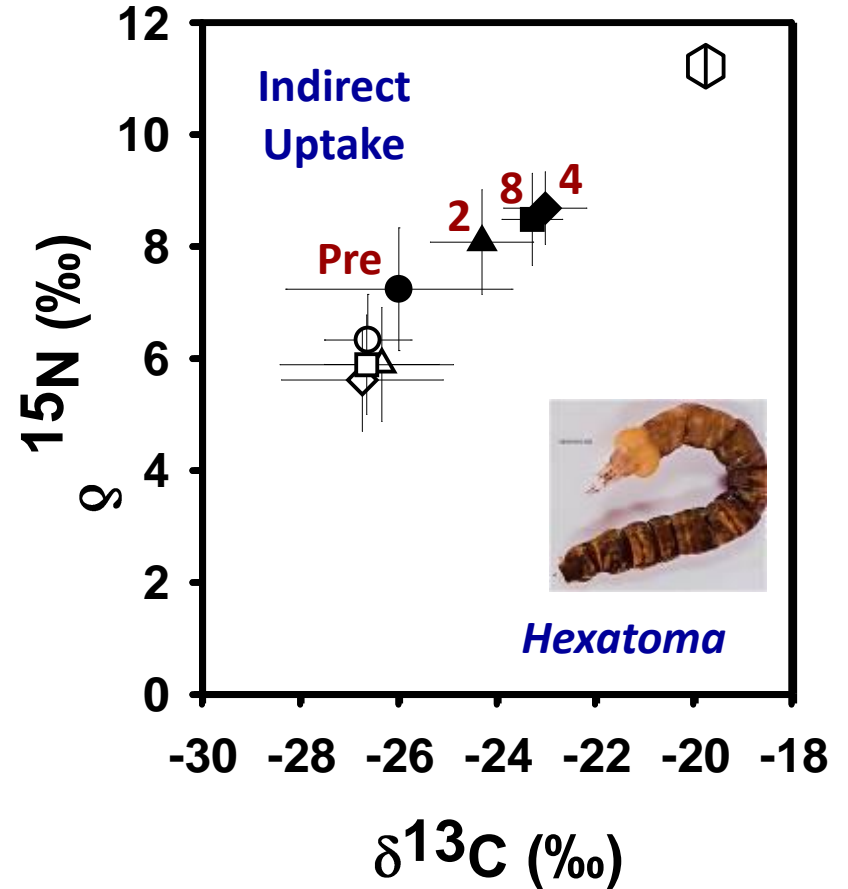


Results: Macroinvertebrates

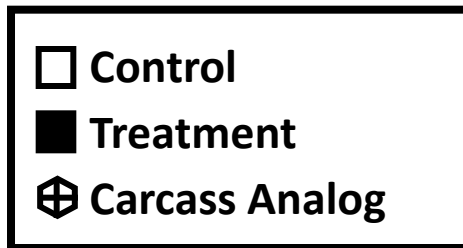
Pre Analog Addition
Analog Addition
Post Addition



Pre Analog Addition
Analog Addition
Post Addition



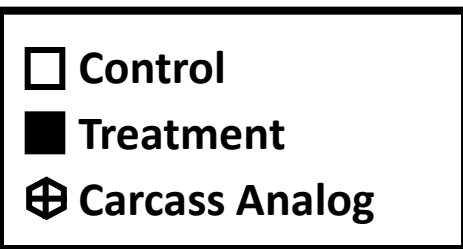
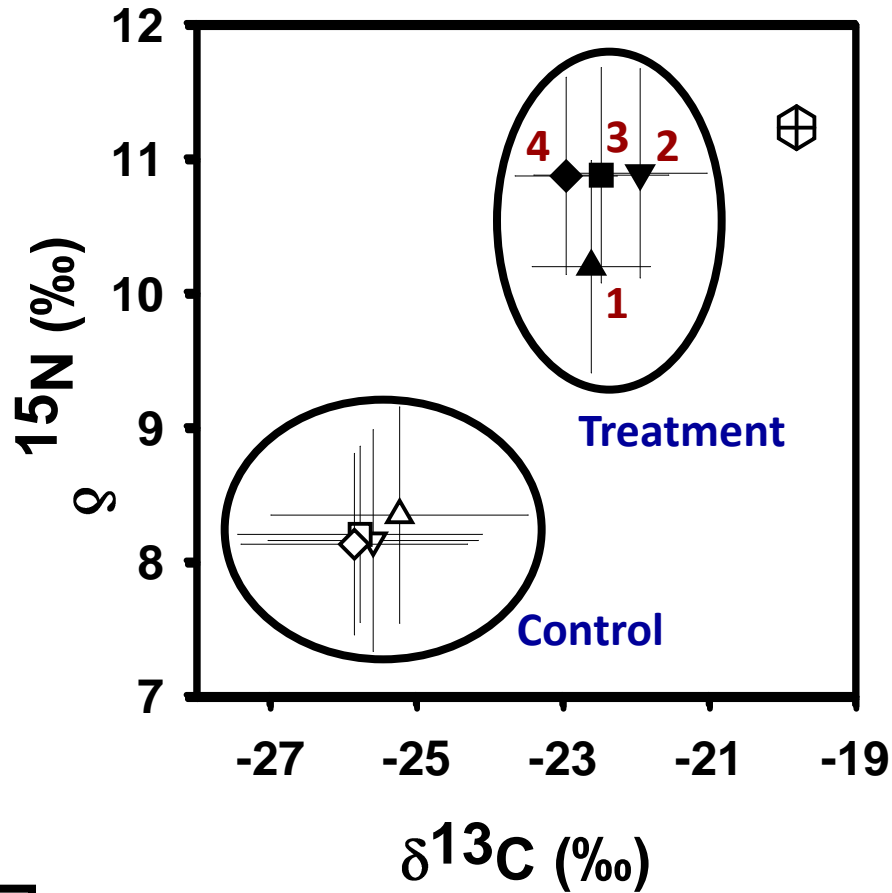
Fine filter feeder



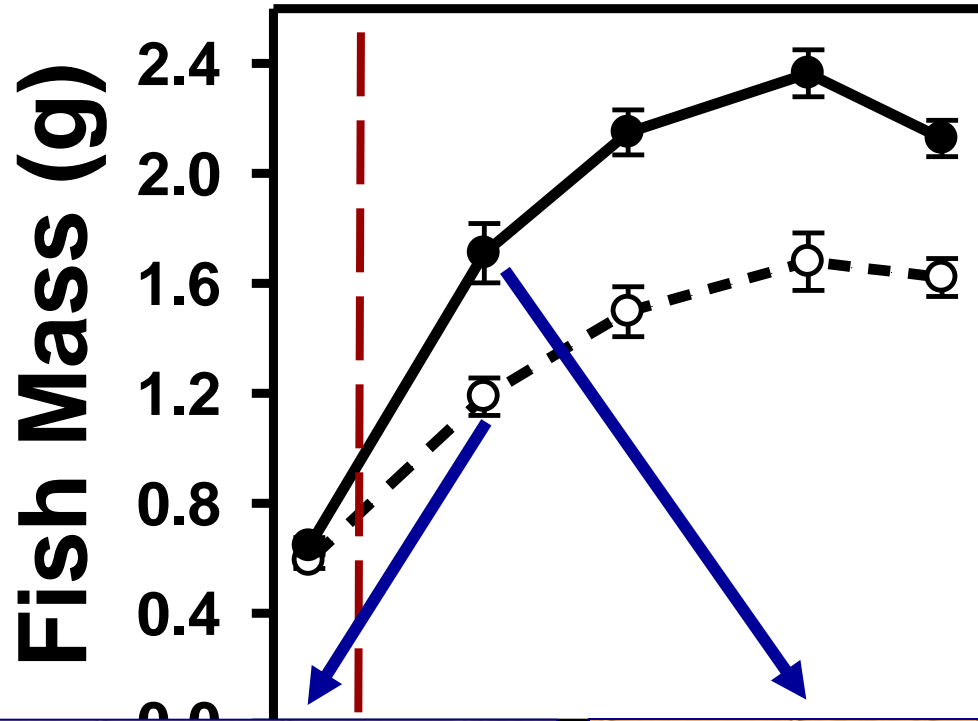
Predator

Results: YOY ATS

Pre 2 Months After



Results: YOY ATS Size

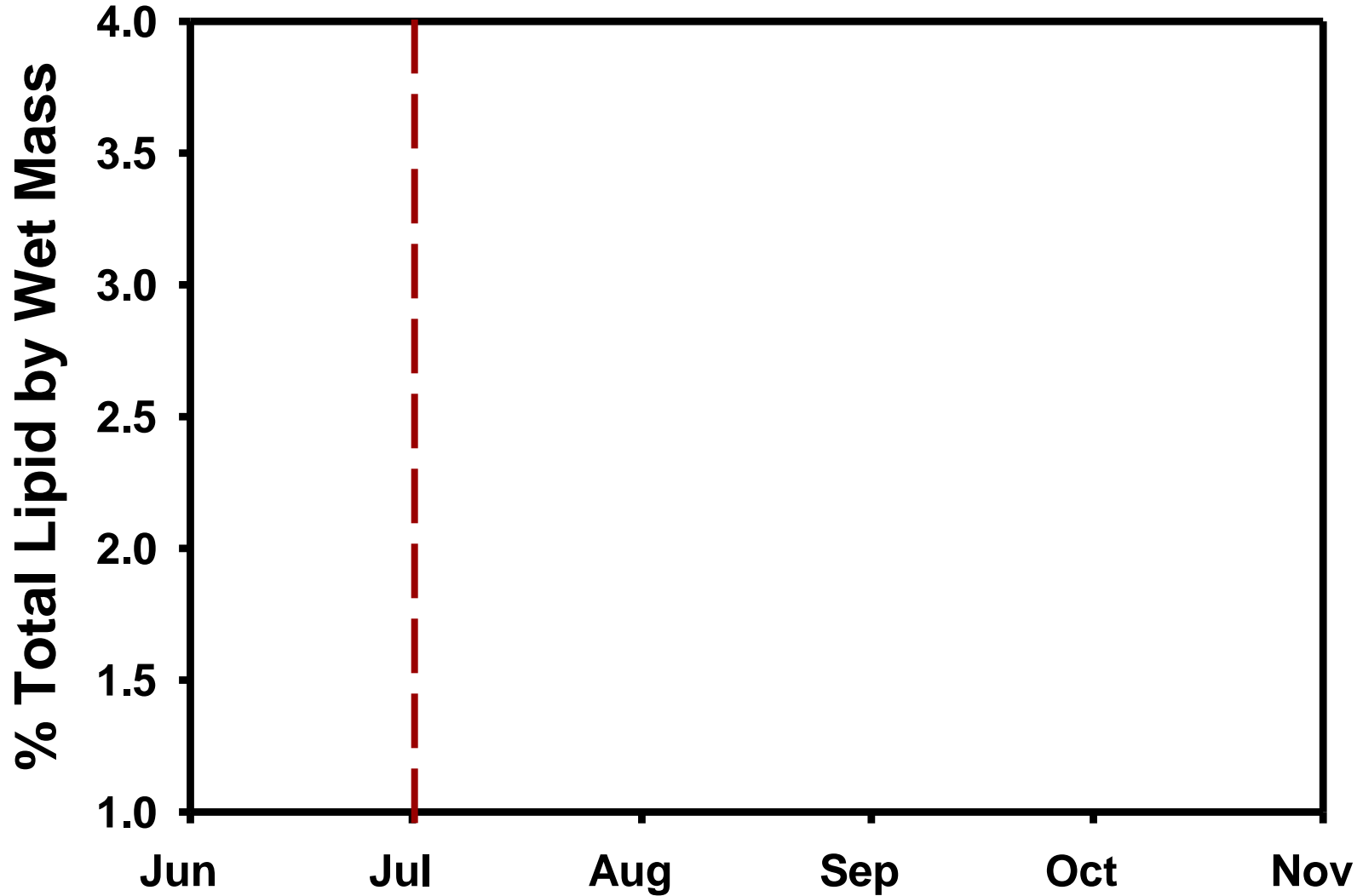


Control

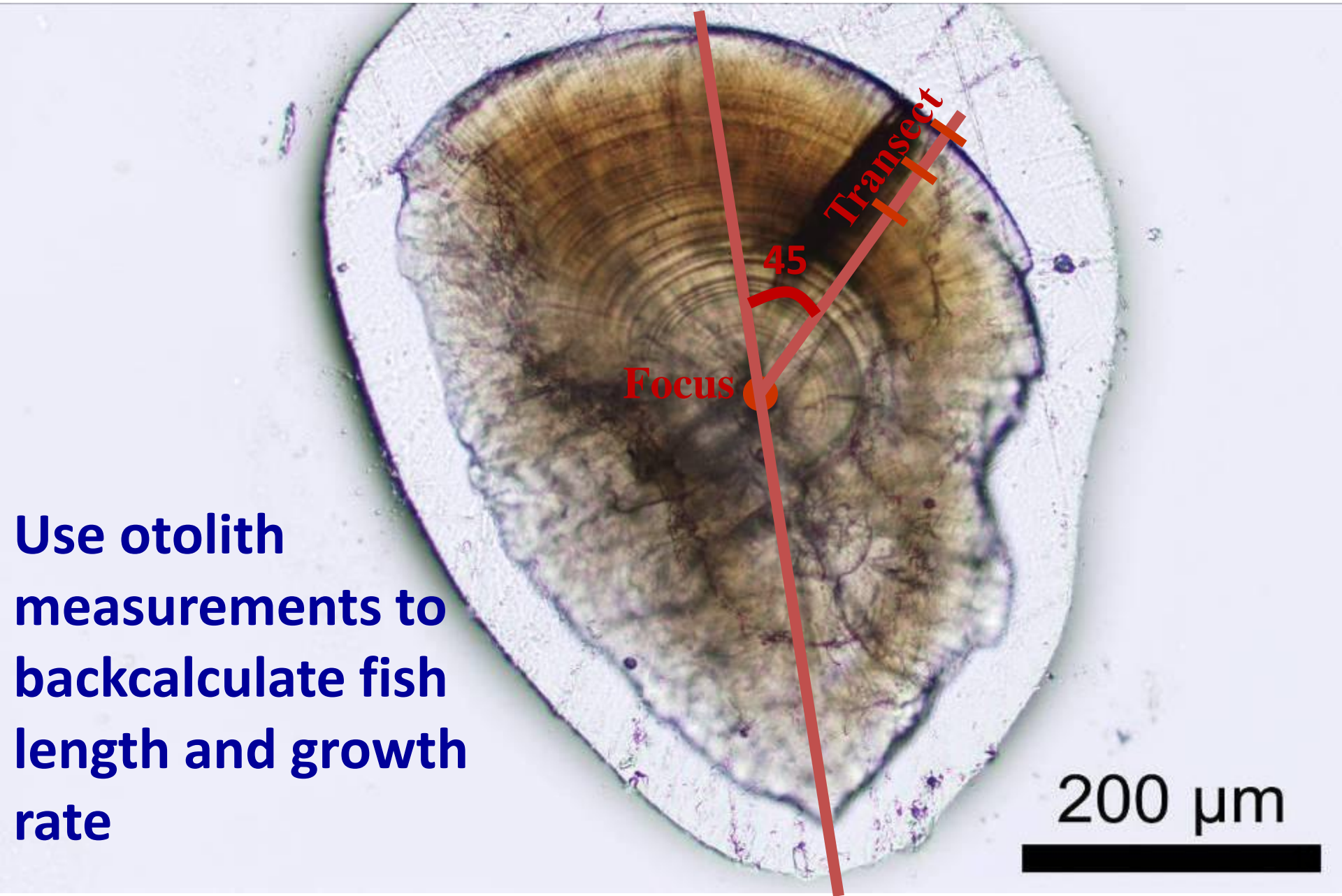


Treatment

Results: YOY ATS Condition



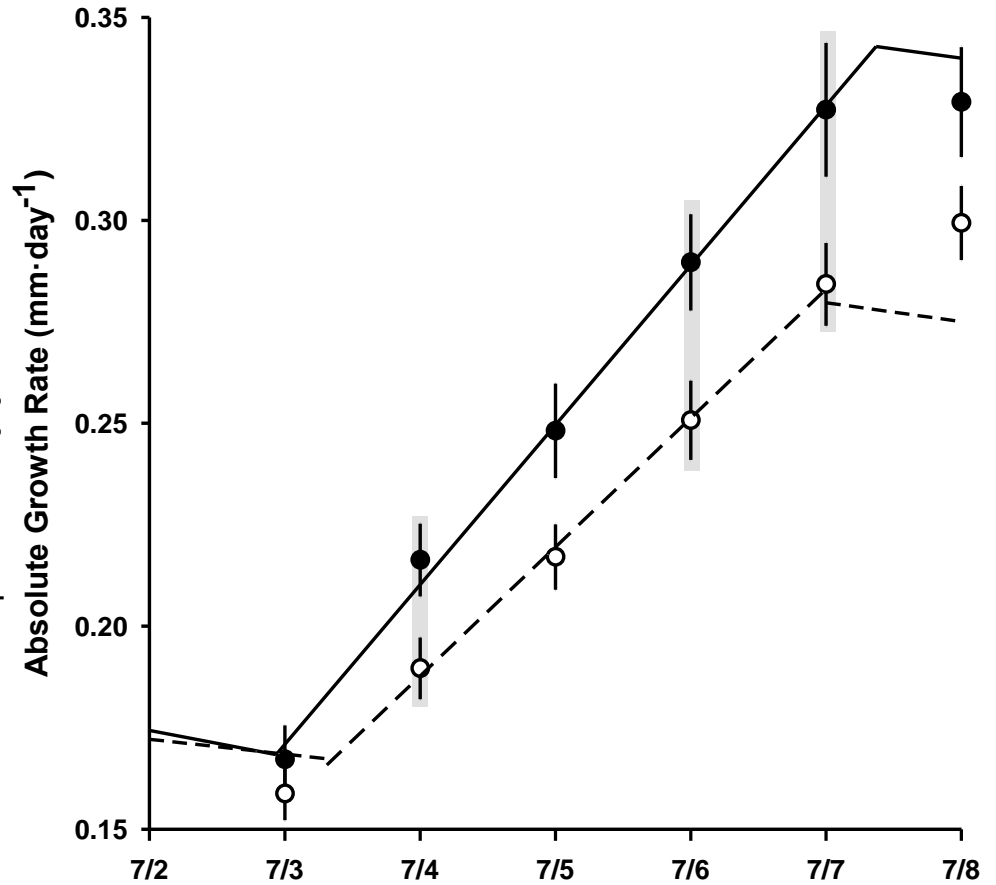
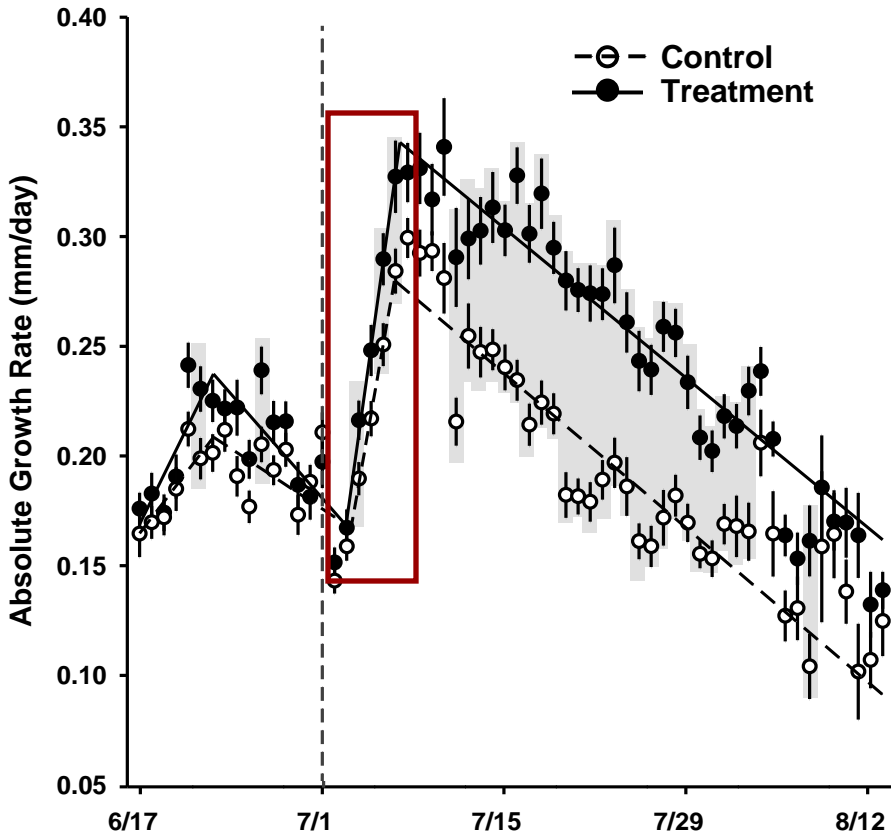
ATS Growth



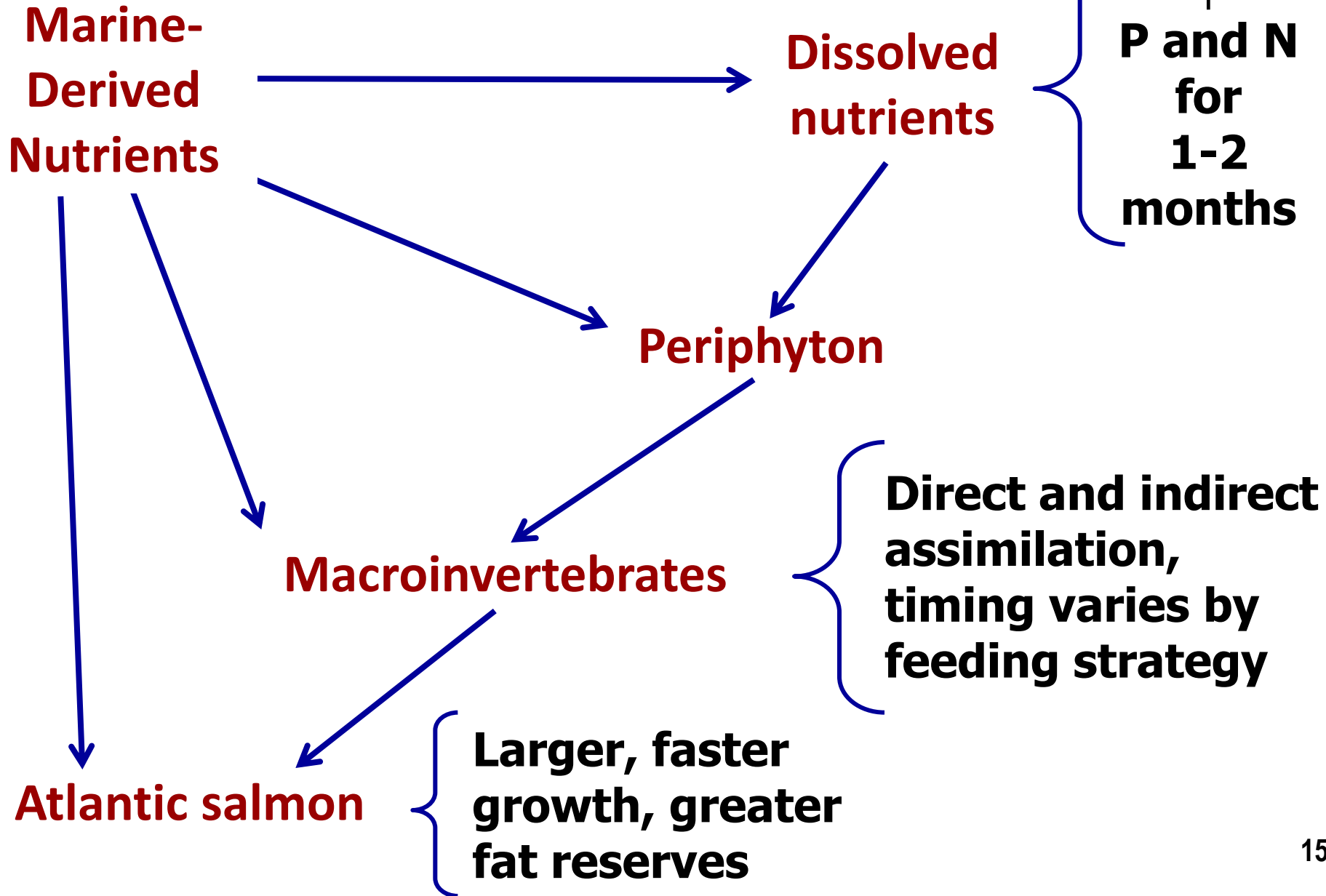
Use otolith
measurements to
backcalculate fish
length and growth
rate

200 μm

Results: ATS Growth Rates



Summary



Acknowledgements

- U.S. Fish & Wildlife Service, Craig Brook National Fish Hatchery
- Maine Department of Marine Resources, Bureau of Sea Run Fisheries and Habitat
- University of New Brunswick, Stable Isotopes in Nature Laboratory (Fredericton, NB)
- U.S. Geological Survey, Maine Cooperative Fish and Wildlife Research Unit
- University of Maine, Department of Wildlife Ecology
- University of Maine, Sawyer Environmental Chemistry Research Laboratory
- Landowners for granting permission to access private land
- Committee: Bill Halteman, Jasmine Saros, Kevin Simon
- Field/Lab Assistants: Meg Butler, Shannon Prescott, Winslow Dresser, Sarah Becker, Caroline Worcester, Brock Sanborn, Margaret Homerding, Andrea Long, Jess Shrader, Collin Wells, Kaiya Torrey, Wayne Heideman, Zach Goater, Pam Winokur, Alyssa Templeton, Andi Li, Ben Bouchard, Matt Fuller, Rusty Rust, Sadie Hartford, Scott Dove, Megan Hutcherson, Alex Small, Zak Glover, John Marshall, Bret MacKay, Steve Dunham, Andy O'Malley
- Volunteers: Monika Parsons, Paul Damkot, Viorel Popescu, Silas Ratten, Dimitry Gorsky, Dave Kazyak, Kevin Ryan, Sarah Drahovzal, Gus Wathen, Rory Saunders, Mike Bailey, Mark Renkawitz, Ed Hughes, Erynn Call, Cory Michaud, Jess Jansujwicz

