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## 2015 AQ Summit: Research Update by Damian C. Brady

Damian C. Brady

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# The Role of Estuarine Science in Informing the Location and Dynamics of Growing Areas



Damian C. Brady, Ph.D.

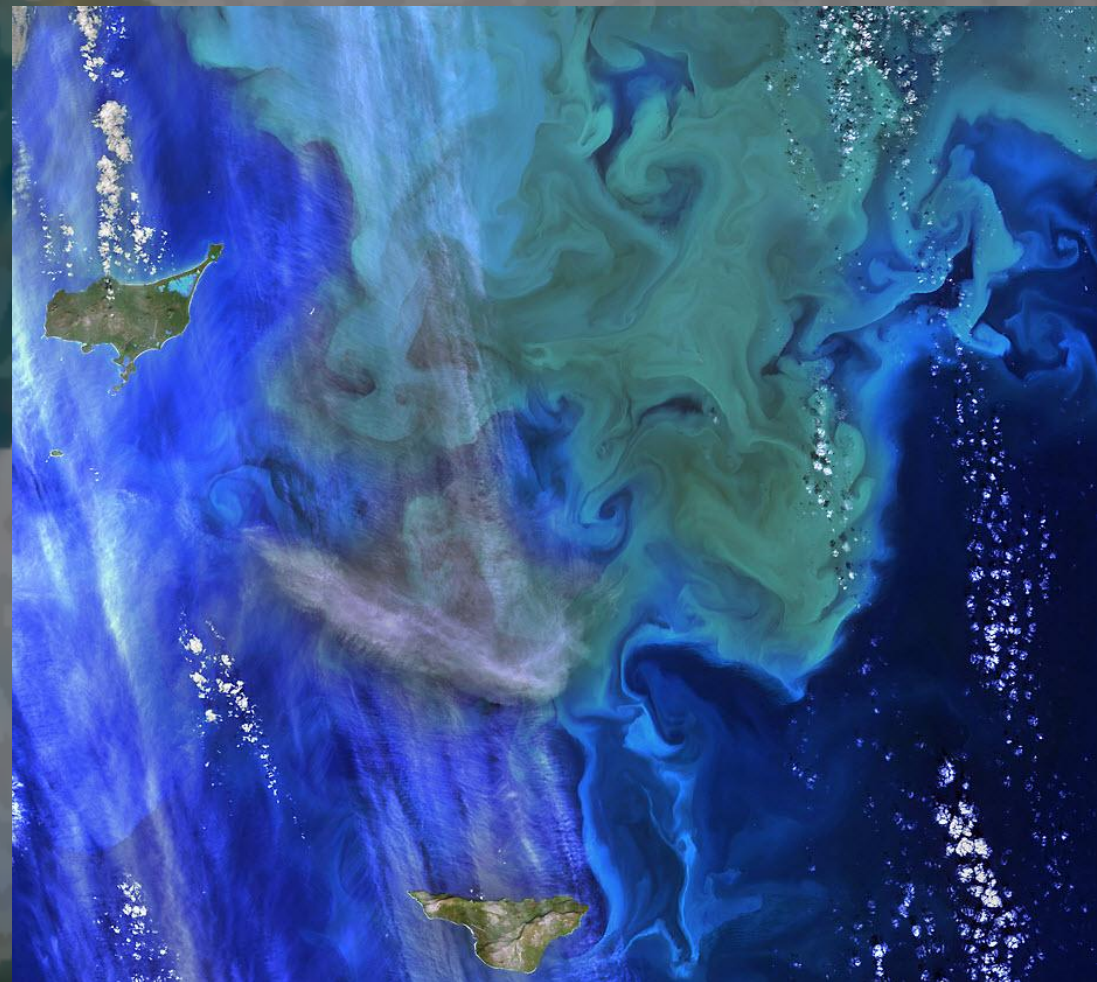
Maine Sea Grant

Ira C. Darling Marine Center

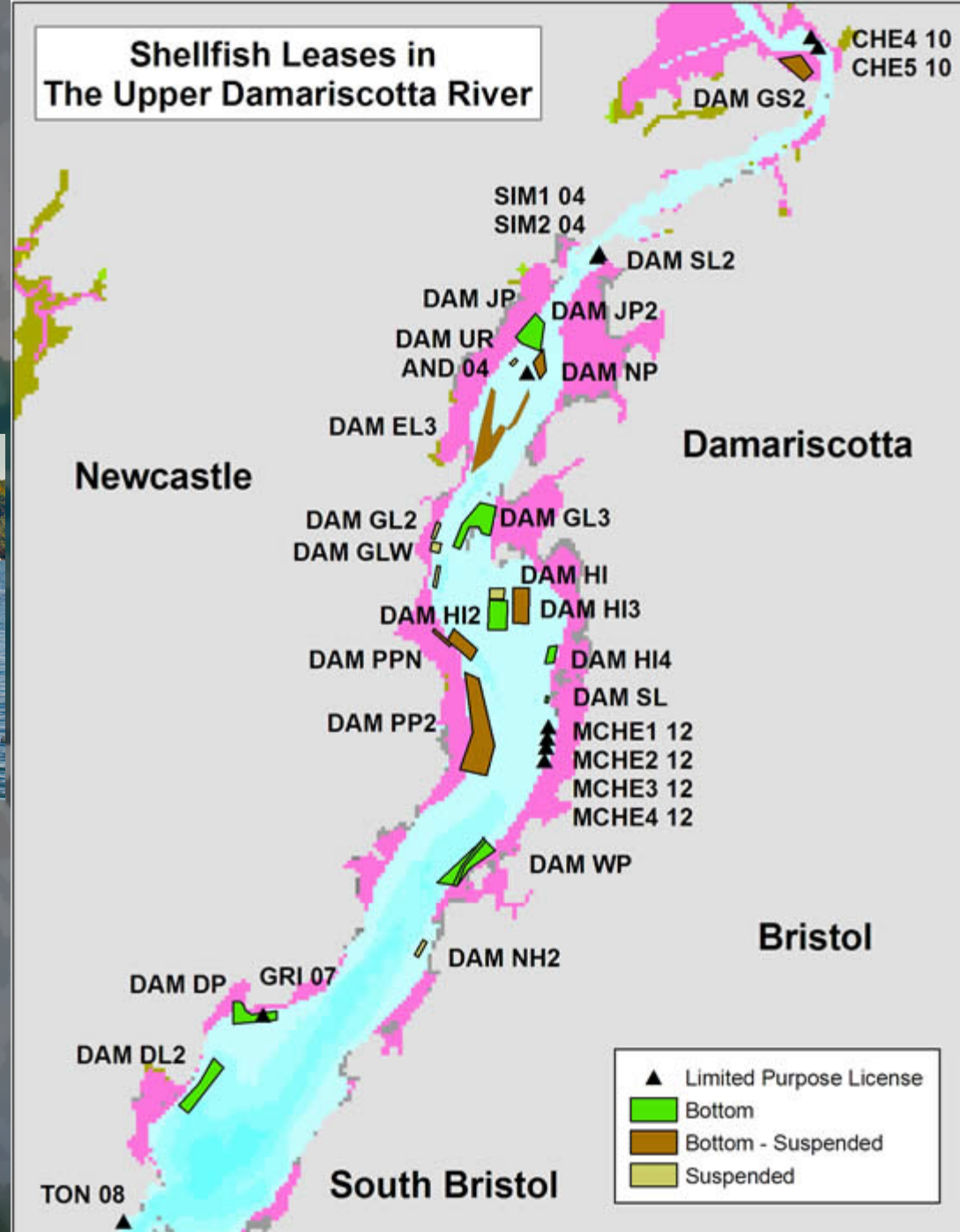
School of Marine Sciences

University of Maine

# Modern Farming



# Damariscotta River

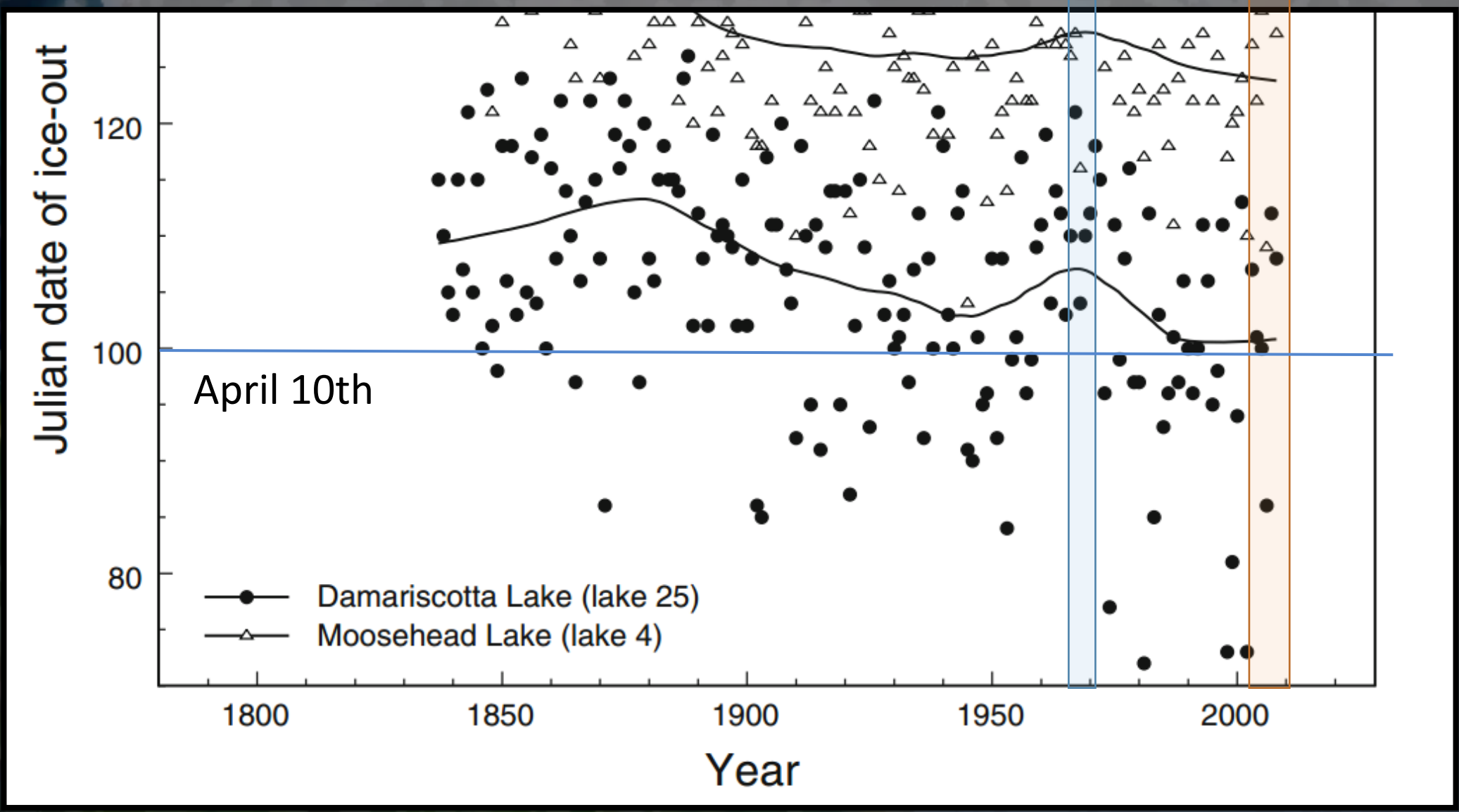


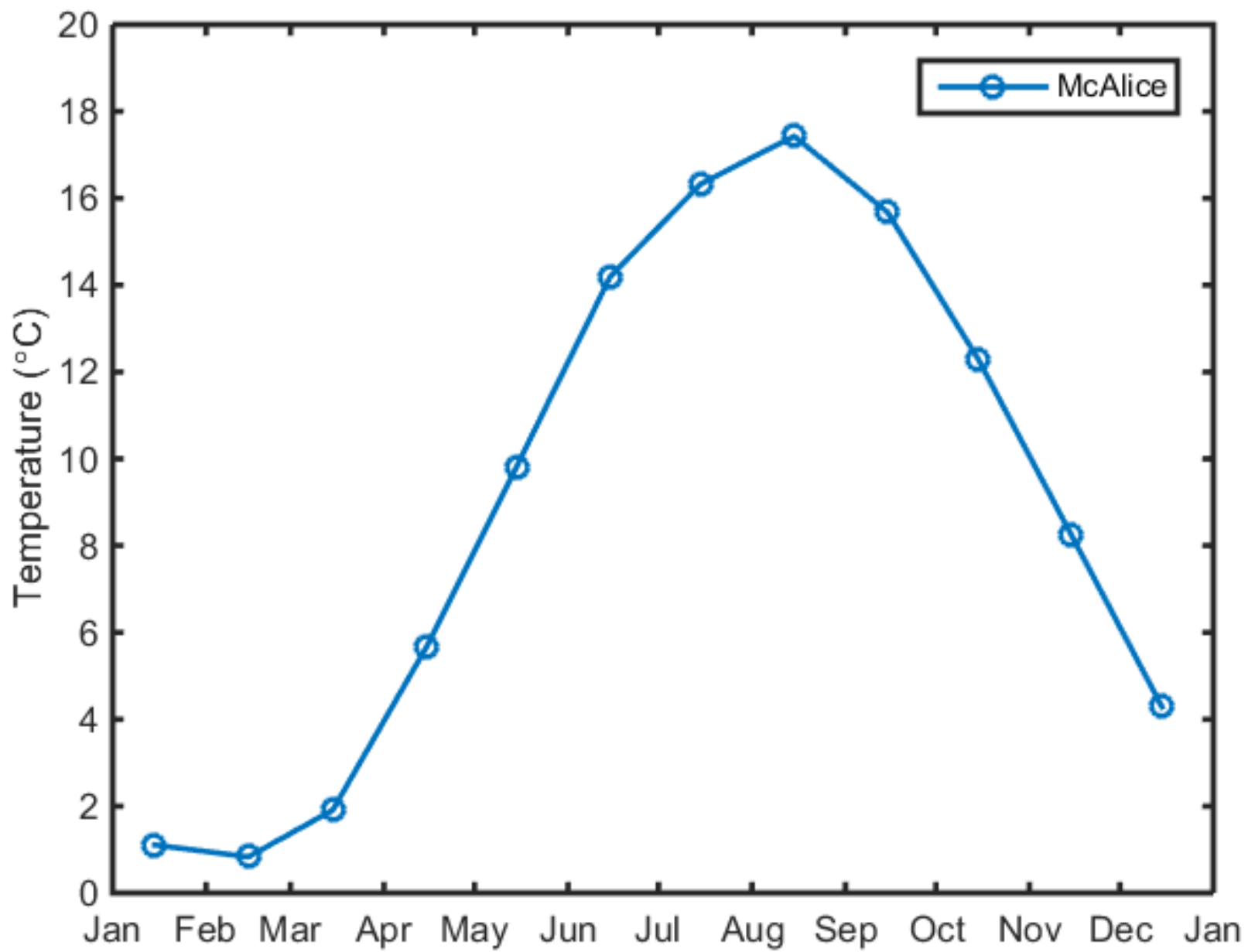
# The times (and estuaries) are a changin'

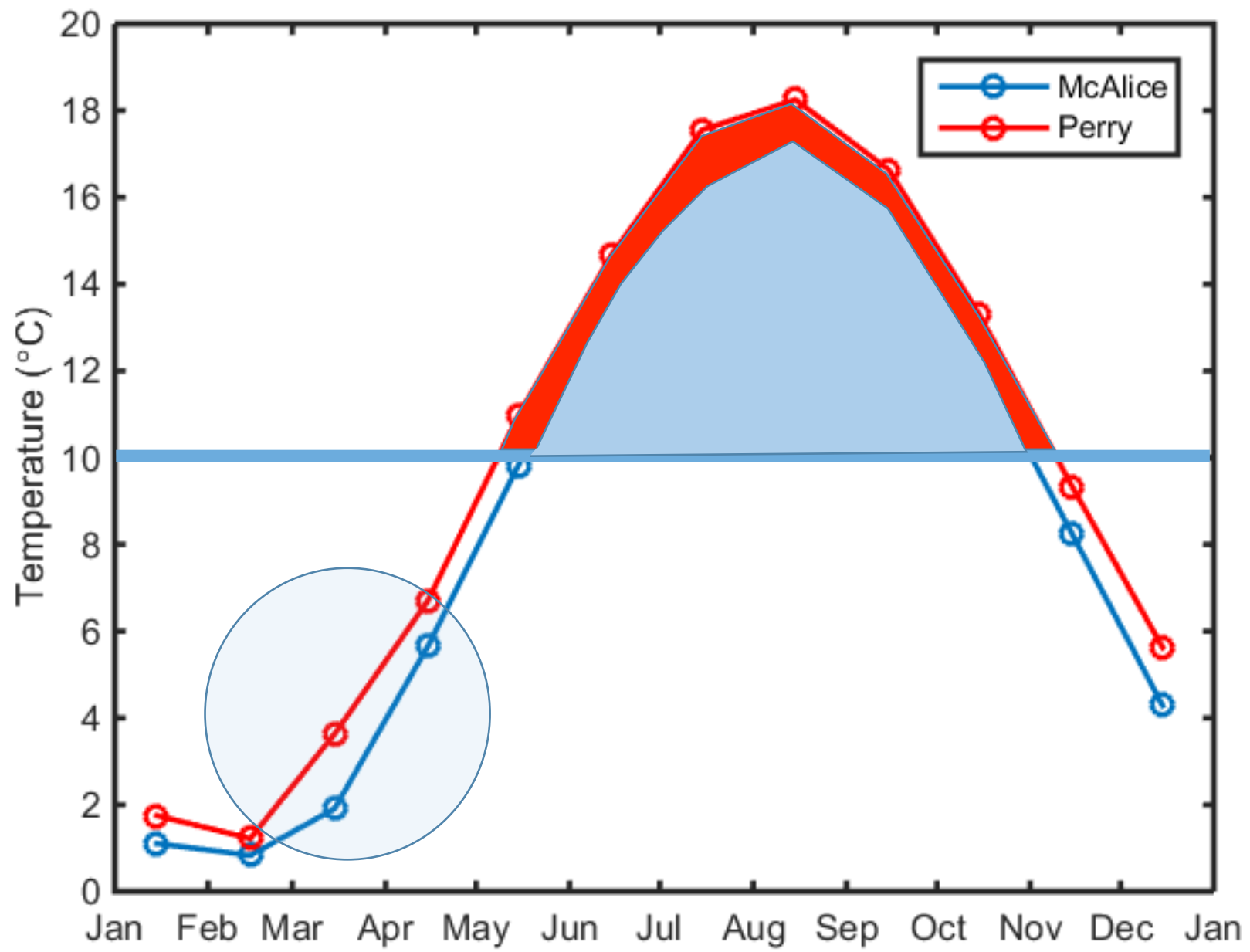
- Bernie McAlice took temperature (and other measurements) from the Darling Marine Center dock for approximately 10 years (1967-1977)
- Mary Jane Perry (current Director) has been collecting CHL and temperature for the last 14 years



# Lake Ice Out Dates in the Damariscotta River



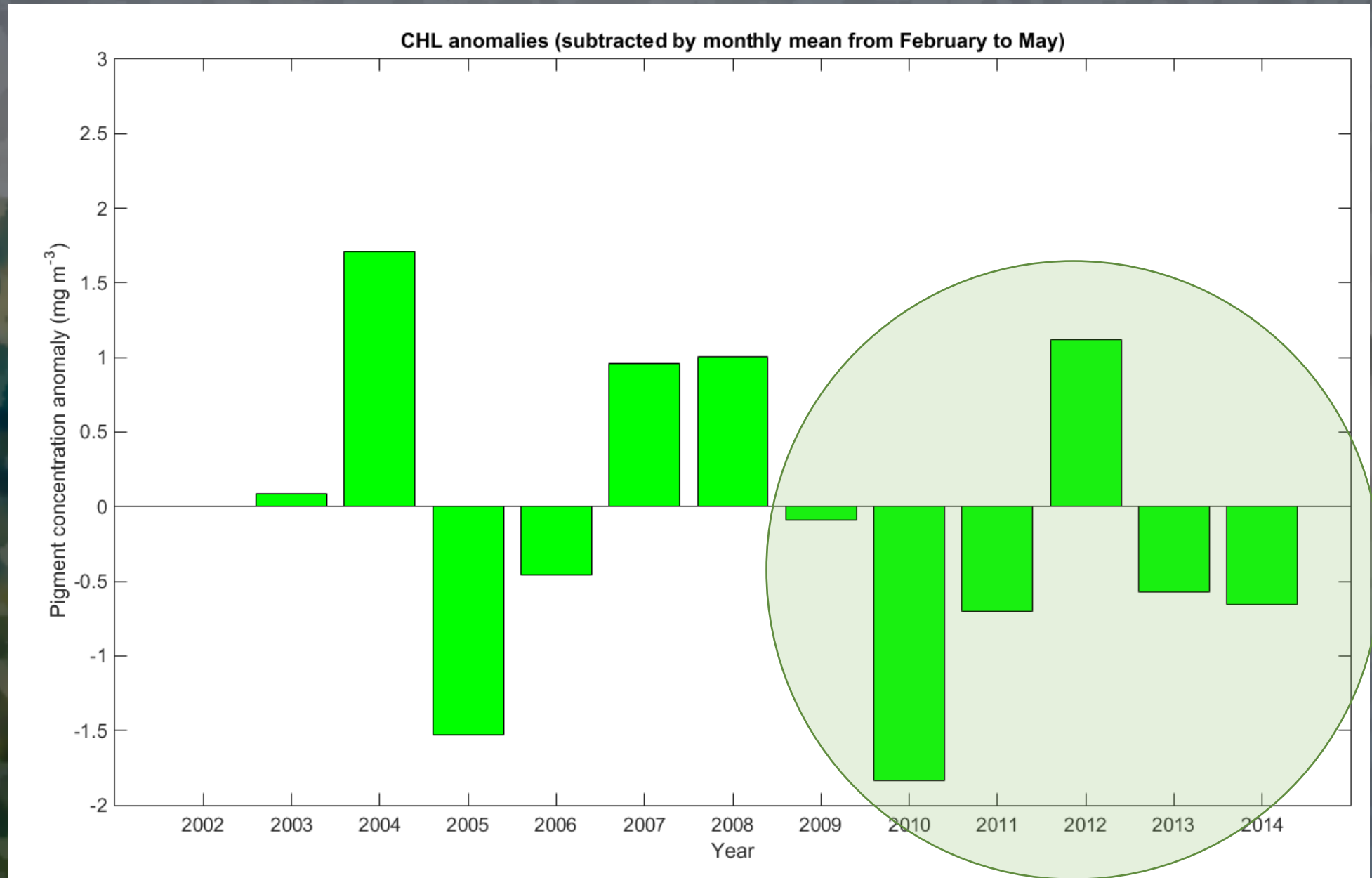




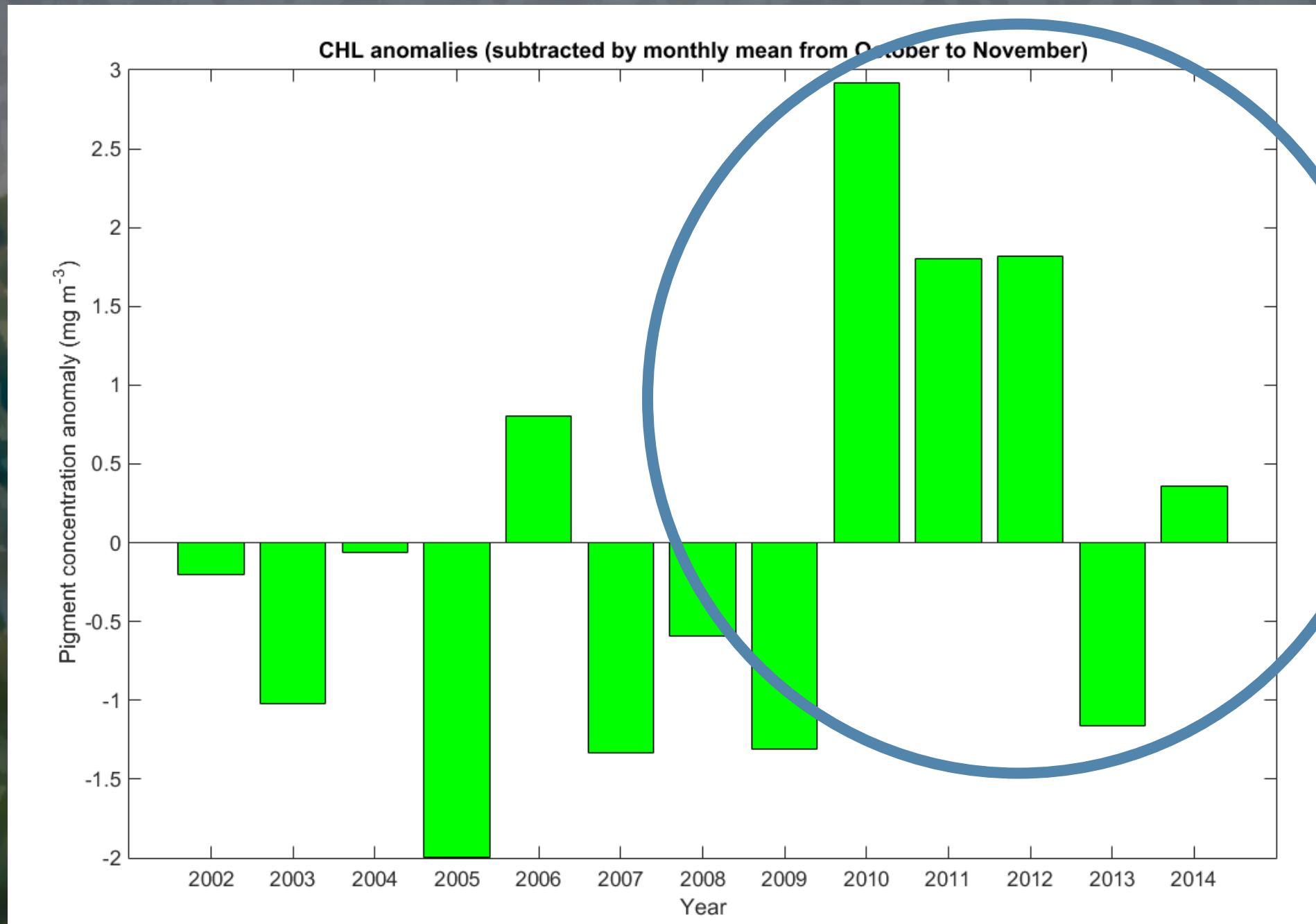


# Spring

- Spring Bloom?



# Bigger Fall Blooms



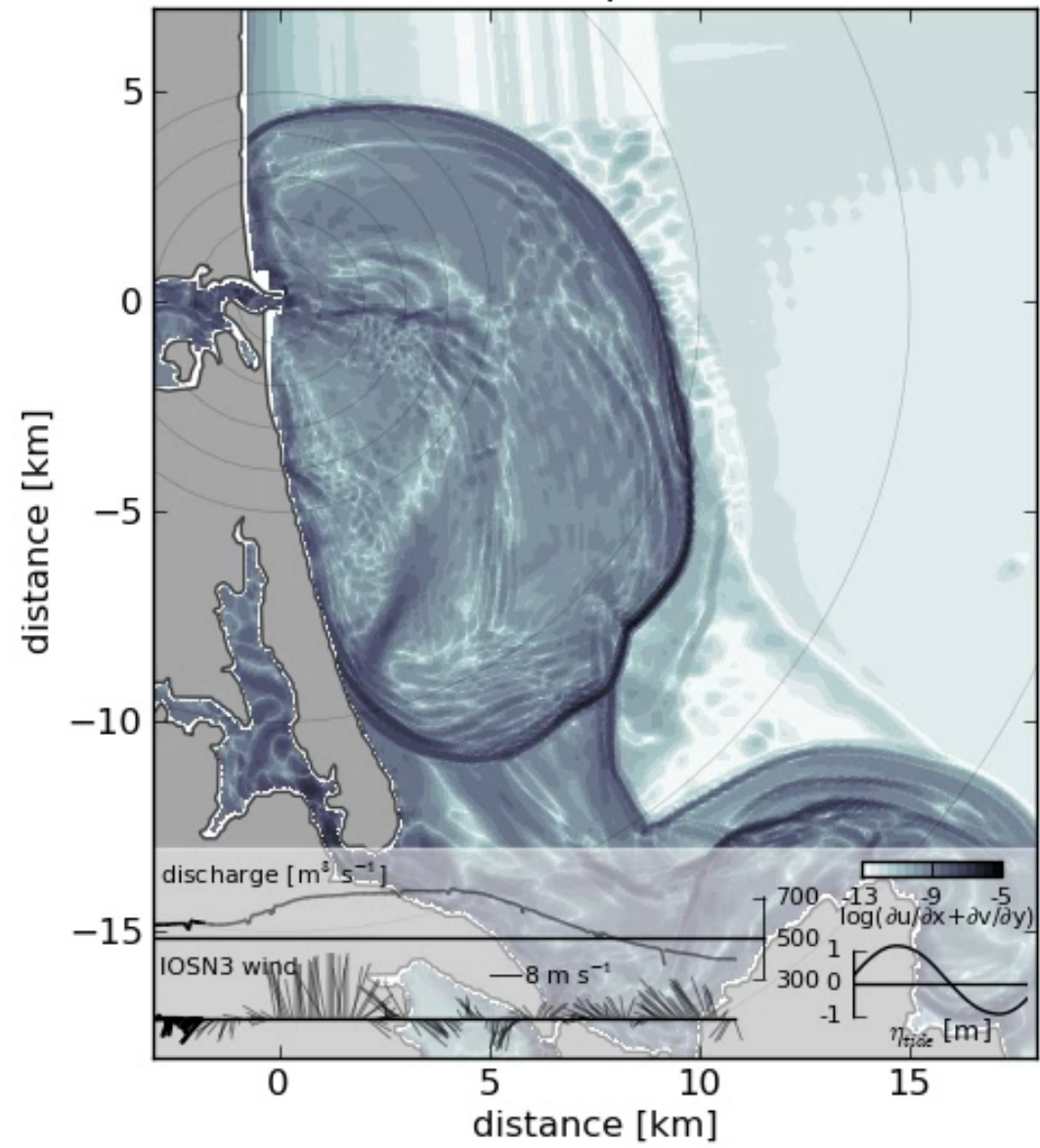
# Estuaries are NON-LINEAR

- Decades of study have gone into predicting estuarine responses to change for the purposes of water quality management

# Hydrodynamic Models

- Transport of food, waste, and disease

15:43 GMT, April 26, 2011



Decade

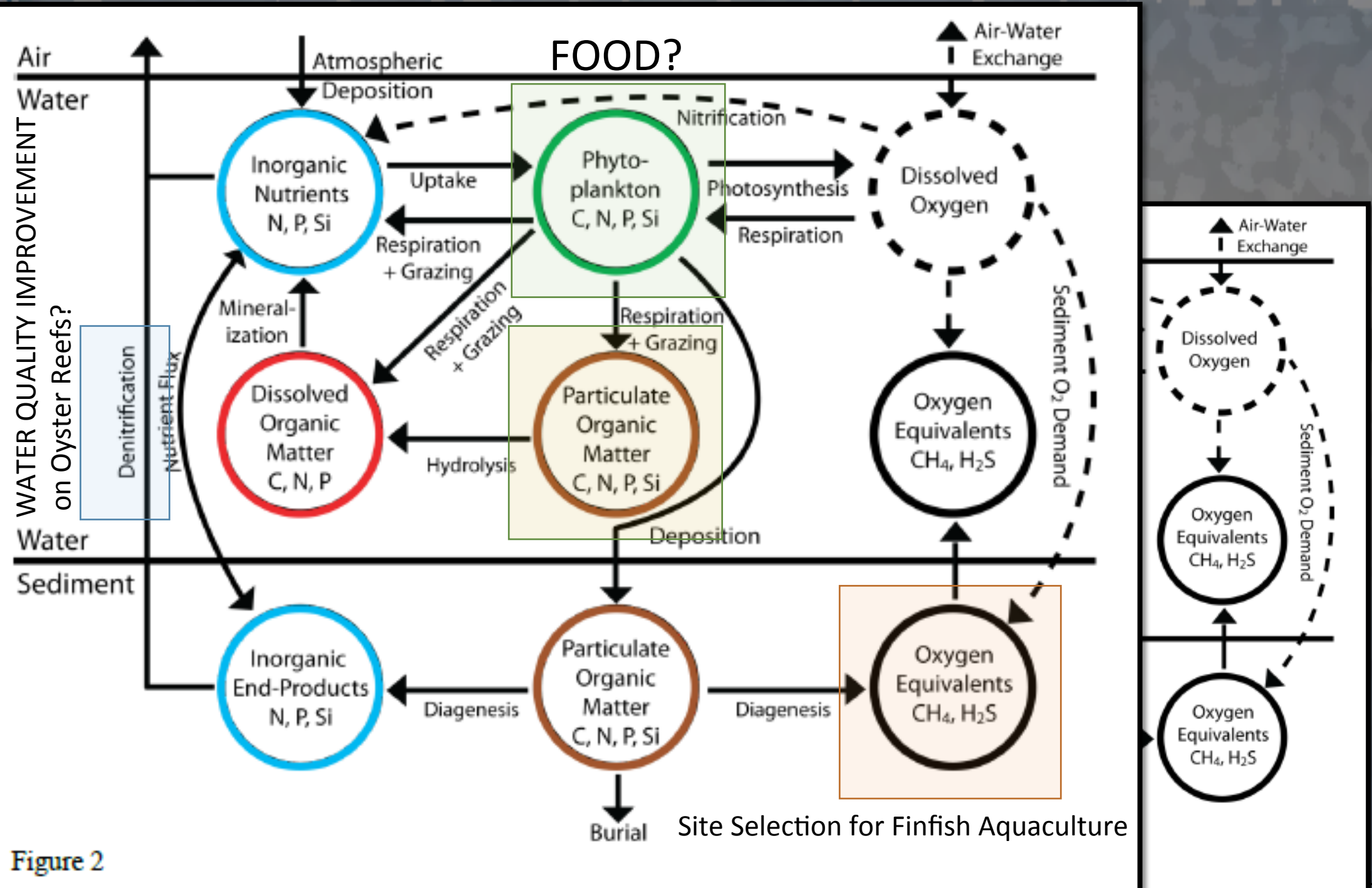
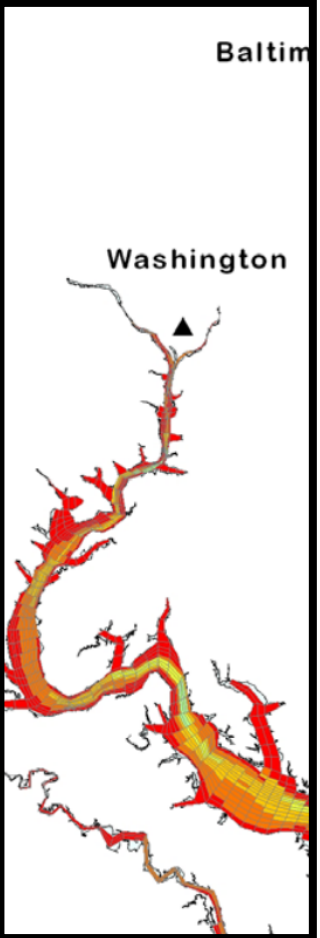
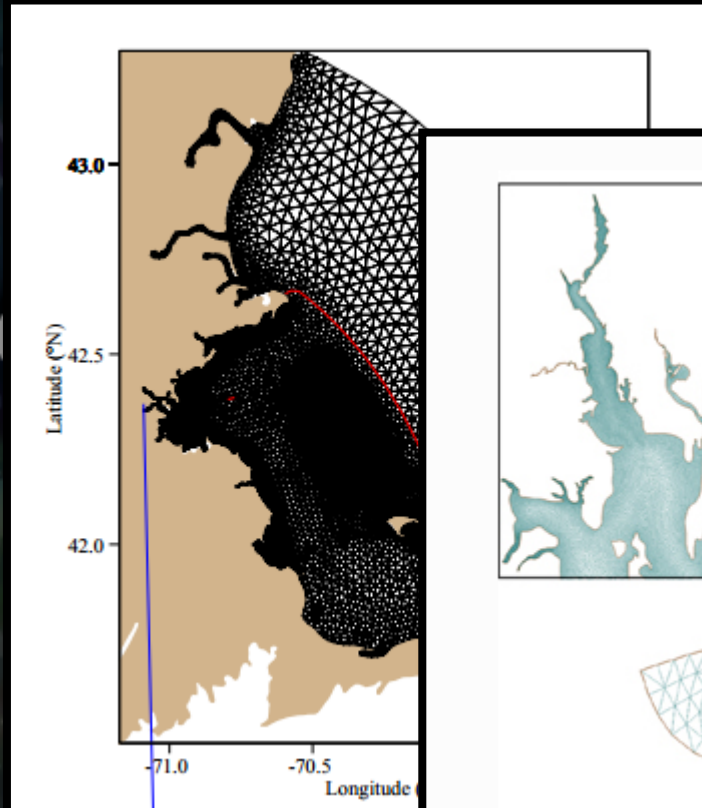


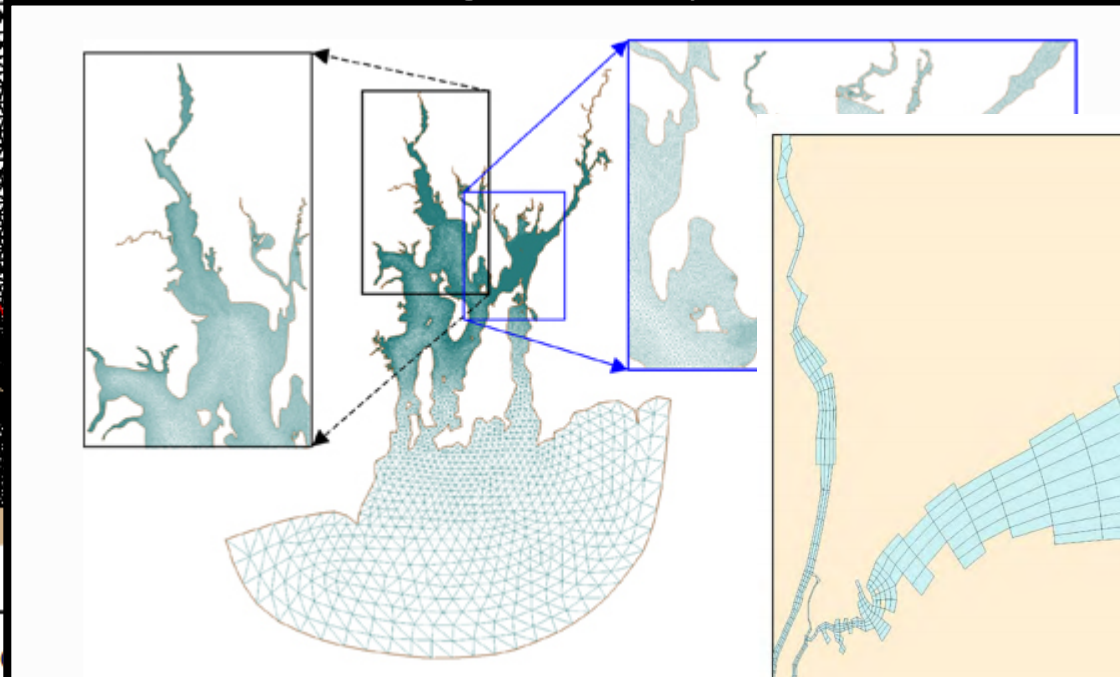
Figure 2

# These Water Quality Models are All Over the Place

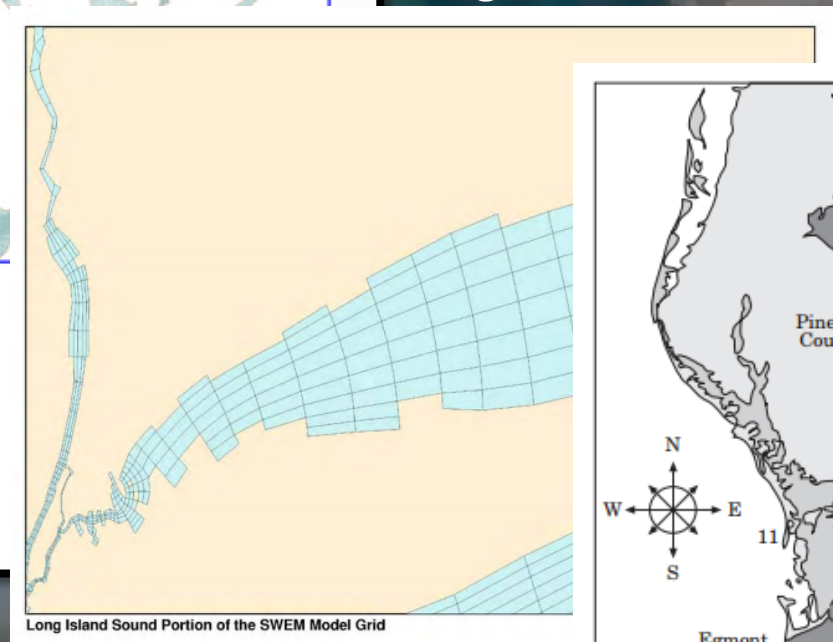
Massachusetts Bay



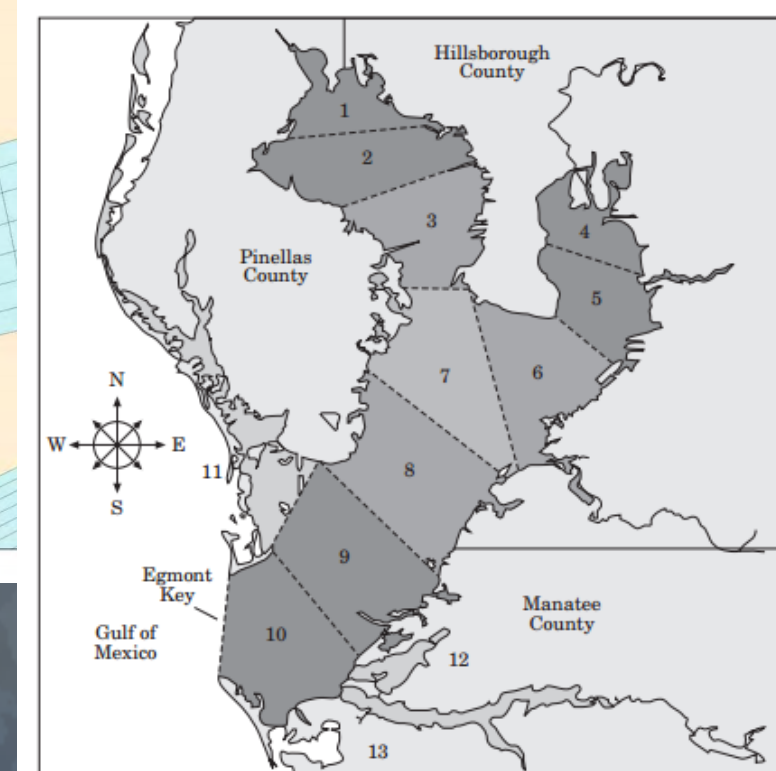
Narragansett Bay



Long Island Sound

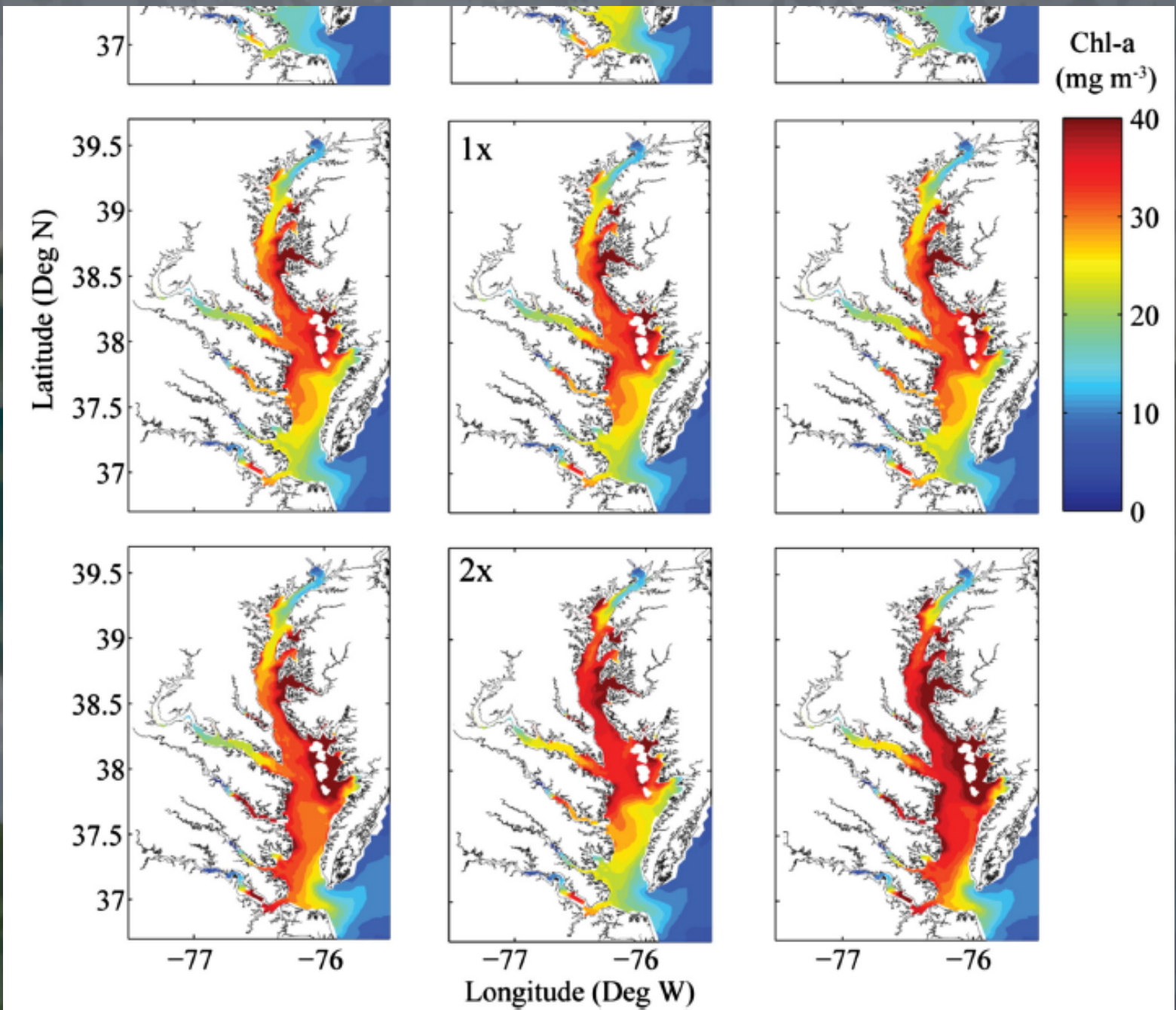


Tampa Bay



# Smart Maps

- Distribution of CHL under various loading conditions
- Easily adaptable to identifying growing areas



# Holy Grail for Environmental Managers

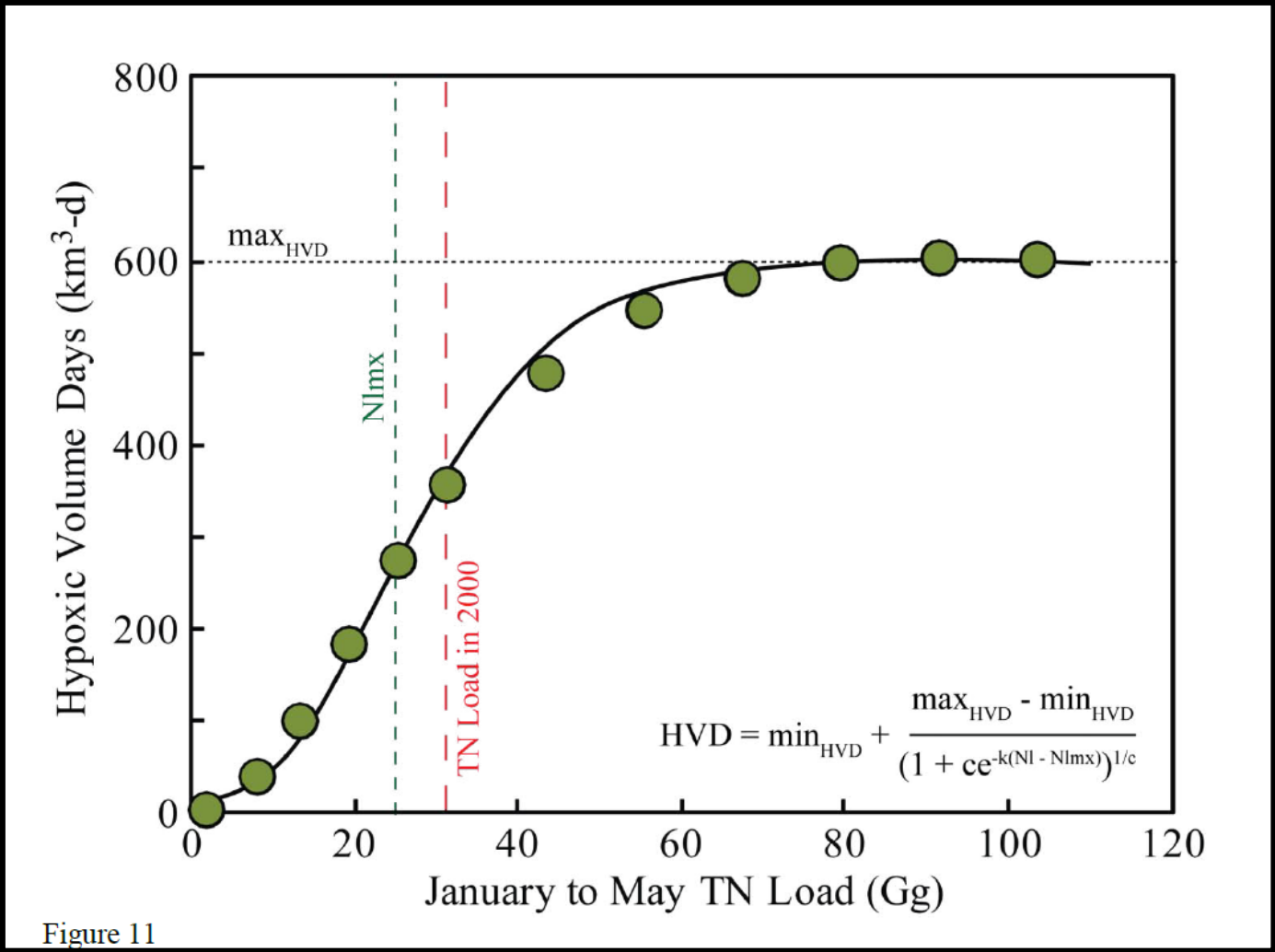
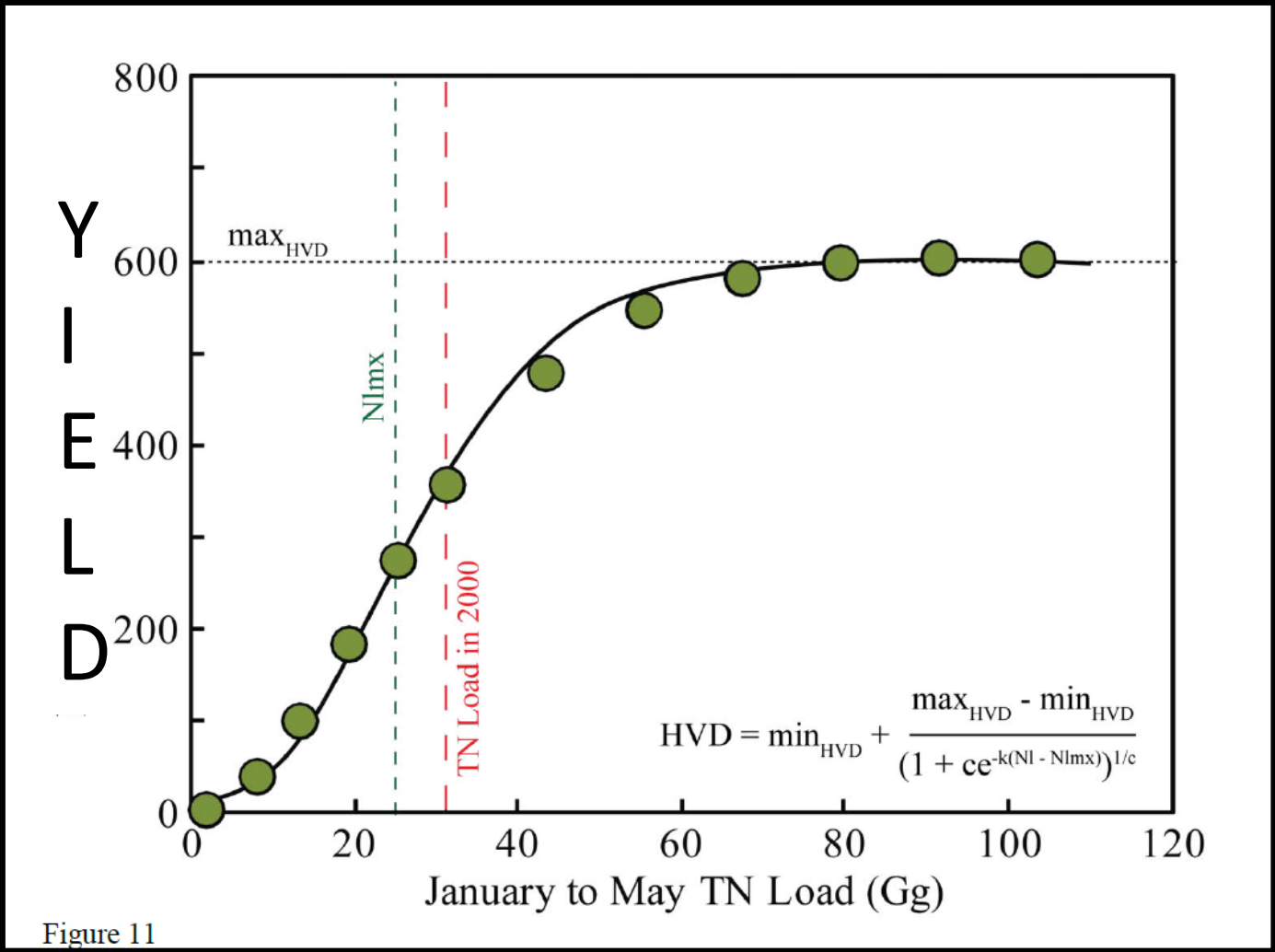


Figure 11



# Holy Grail for Aquaculturists?



# Visualization and Communication

- Get these products (remote sensing and models) out of the ivory towers and agencies and into the hands of farmers
- It's up to Estuarine Scientists to add a level of analysis to make this material more useful...not more impenetrable



Many Thanks!

