Paper Analysis 2

Mumby et al. 2018 – Feeding ecology and niche overlap of Lake Ontario offshore forage fish assessed with stable isotopes

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Whenever I read a paper regarding food webs or aquatic ecology within the Great Lakes, I always remember this book I read – “The Death and Life of the Great Lakes” – as being one of the books that was foundational in getting me excited (and admittedly a little dejected too) about aquatic ecology. I HIGHLY recommend the book to anyone interested in aquatic ecology and anthropogenic impacts on aquatic systems.

Take-home points:

* Low isotopic niche overlap amongst species led researchers to conclude that there is high resource partitioning occurring amongst GL forage fish and little chance of competition.
* The niche structure they identified is maintained across the lake

Novel methods or results:

* How do you set a horizontal gillnet (as opposed to a vertical gillnet)?

Strengths:

* Description of isotope methodology
* Sampling distribution
* Simple modeling approach – easy to comprehend!

Weaknesses:

* Did they collect temporal/spatial isotope baselines? I don’t think so
* Fig 2 – Hard to see two of the ellipses plotted because they’re gray
* Fig 3 – Points are cluttered and hard to determine which regression line is with which points.
* Fig 5 & 6 – Wish there was consistency in how they decided to present their figures
* I wish they had some reference to which figures they were discussing in the Discussion section
* The organization of their Discussion section was very difficult to follow

General Thoughts/Questions:

* I was a little surprised to find out that Rainbow Smelt are non-native to the Great Lakes. That was probably something I should have known before but didn’t!
* I was also saddened to hear that five (5!) pelagic species of cisco have been extirpated from the lake as a result of introduced species.
* I found it interesting that the management objectives for Lake Ontario seem contradictory and opposite: maintain non-native forage fish populations to support the lucrative sport fishery while also supporting and restoring native game and forage fish populations, including extirpated species of Coregonids. I wonder how they’re going to accomplish that objective seeing as the current niche space of the ecosystem seems to be too narrow to allow for that.
* I thought their Introduction paragraph describing carbon and nitrogen isotopes was beautiful – simple, to-the-point, and covered the topic.
* Why do they say that Rainbow Smelt feed at multiple trophic positions but then say their results support the conclusion that Smelt are feeding only on one prey – *Mysis*?