



DRAFT June 16, 2009

The Diadromous Species Restoration Research Network Science Meeting 2009
Restoration of Diadromous Fishes and Their Ecosystems: Confluence of Science and Restoration
22 – 24 July 2009 University of Maine

Annotated Bibliography for Breakout Session:

Ecosystem Interactions

Please note that this bibliography is not intended to be a complete list of publications on the topic. Rather it represents only those publications that were suggested by panelists and moderators of this breakout session. We hope to add to this list over time.

Please visit DSRRN KB webpage for full citations and abstracts:

http://www.umaine.edu/searunfish/dsrrn_activities/data.htm

Predators

- Dalton, C.M., D. Ellis, D.M. Post. 2009. The impact of double-crested cormorant (*Phalacrocorax auritus*) predation on anadromous alewife (*Alosa pseudoharengus*) in south-central Connecticut, USA. Canadian Journal of Fisheries and Aquatic Sciences 66(2): 177–186. doi:10.1139/F08-198 - Cormorants are a significant alewife predator, but this is not a limiting factor in the regional recovery of this species in this CT watershed.

Diet

- Sherwood, G.D., R.M. Rideout, S.B. Fudge, G.A. Rose. 2007. Influence of diet on growth, condition and reproductive capacity in Newfoundland and Labrador cod (*Gadus morhua*): Insights from stable carbon isotopes (δC^{13}). Deep-Sea Research, 27: 2794-2809. - Most differences in cod population growth, somatic condition, liver index and age-at-maturity could be explained by variations in diet; hypothesize that major rebuilding of Newfoundland and Labrador cod stocks will require a return to a system that supports mostly pelagic feeding (i.e. capelin) in cod.
- Sherwood, G. D., and J. H. Grabowski. Diet and habitat shifts in New England (USA) monkfish (*Lophius americanus*): insights from stable isotopes and implications for fisheries assessments. Submitted .
- Sherwood, G.D. Stable Isotope Characterization of Feeding Mode Shifts in Gulf of Maine Herring (*Clupea harengus*), Relation to Condition, and Application to Deciphering 40-Year Trends in Recruitment. Submitted.

Physical/Geomorphological Effects

- Magilligan, F.J., Nislow, K.H., and Graber, B.E., 2003, A scale-independent assessment of discharge reduction and riparian dis-connectivity following flow regulation by dams, Geology, 31: 569-572. - In an analysis of the hydrologic impact of 21 dams across the US, this study identified consistent decreases in two year discharge and an elimination of floods greater than bankfull causing a disconnect between the riparian zone and riverine influence.
- Magilligan, F.J. and Nislow, K., 2001., Hydrologic alteration in a changing landscape: effects of impoundment in the Upper Connecticut River Basin, USA, Journal American Water Resources Association 36:1551-67. - This study found significant hydrologic adjustments associated with both impoundments and changes in land use (ie % forest cover) with impoundments linked to decreased maximum peak flows and decreases in flood frequency.

- Magilligan, F.J., Nislow, K.H., Fisher, G.B., Wright, J., Mackey, G., Laser, M., 2008, The geomorphic function and characteristics of large woody debris in low gradient rivers, coastal Maine, USA, *Geomorphology*, 97(3-4): 467-482 - Results strongly reflect the legacy of intensive timber harvest and land clearing and suggest that the frequency and distribution of LWD may be considerably less than pre-settlement and/or future desired conditions.

Nutrient dynamics

- Walters, A.W., R.T. Barnes, and D.M. Post. 2009. Anadromous alewives (*Alosa pseudoharengus*) contribute marine-derived nutrients to coastal stream food webs. *Canadian Journal of Fisheries and Aquatic Sciences* 66(3): 439–448. doi:10.1139/F09-008 - The presence of alewives may impact food webs and nutrient cycling in freshwater systems. An enriched d15N signal, indicative of a marine origin, is present at all stream trophic levels with the greatest level of enrichment coincident with the timing of the anadromous alewife spawning migration.
- Post, D.M. and A.W. Walters. 2009. Nutrient excretion rates of anadromous alewives during their spawning migration. *Transactions of the American Fishery Society* 138(2): 264–268. doi:10.1577/T08-111.1 - Mass-specific nutrient excretion rates of alewives can affect local food webs and ecosystem function in small ecosystems when spawning aggregations are large.
- Simon, K.S., D.K. Niyogi, R.D. Frew and C. R. Townsend. 2007. Nitrogen dynamics in grassland streams along a gradient of agricultural development. *Limnology and Oceanography* 52:1246-1257. - Stream nutrient cycling responds to agricultural intensification within catchments. Changes in stream community structure influence whole-stream nutrient dynamics. Compensatory uptake can play an important role in streams when community composition is reorganized by human activity.
- Simon, K.S., C. R. Townsend, B. J. F. Biggs, W. B. Bowden, and R.D. Frew. 2004. Habitat-specific nitrogen dynamics in New Zealand streams containing native or invasive fish. *Ecosystems* 7(8):777-792. -Fish species and stream habitats can affect nutrient dynamics in freshwater systems, but these impacts are easily altered by other N related abiotic and biotic factors.
- Simon, K.S. and C.R. Townsend. 2003. The impacts of freshwater invaders at different levels of ecological organization, with emphasis on salmonids and ecosystem consequences. *Freshwater Biology* 48(6):982-994. - Simultaneous study at several ecological levels should yield a fuller understanding of the mechanisms underlying impacts of invading animals and plants, providing a sounder basis for predicting the impacts of freshwater invasive species.