

Fish-habitat discussion abstract

A close correlation between fish communities and their physical habitat is widely accepted to be the norm in natural systems, and this has been demonstrated often (see suggested reading below). A number of analytical techniques have been used to document such correlations, including but not limited to canonical correspondence analysis (CCA), principal components analysis (PCA) and cluster analysis (UPGMA and others). At the NEIHP are currently investigating the utility of a sort of cluster analysis where separate distance matrices are calculated for fish community data and for habitat suite data. These methods are all heavily dependent upon the choice of which input data are analyzed; is water chemistry more or less important than temperature; are geological factors such as substrate and gradient important; how many mesohabitat categories are necessary, etc. These are all topics that should lead to an interesting and productive discussion, we hope you can attend.

Potential questions to discuss:

1. What are the most important physical factors linking fish communities to habitat?
2. Do impacted systems exhibit a weaker link between community and habitat than do "unimpacted" systems?
3. What are the best ways of demonstrating a link between fish community and habitat?

Some suggested reading from recent literature:

Bryant, M. D., N. D. Zymonas, and B. E. Wright. 2004. Salmonids on the fringe: Abundance, species composition, and habitat use of salmonids in high-gradient headwater streams, southeast Alaska. *Transactions Of The American Fisheries Society* 133: 1529-1538.

Buhrnheim, C. M. and C. C. Fernandes. 2003. Structure of fish assemblages in Amazonian rain-forest streams: effects of habitats and locality. *Copeia* 2003(2): 255-262.

Gerhard, P., R. Moraes, and S. Molander. 2004. Stream fish communities and their associations to habitat variables in a rain forest reserve in southeastern Brazil. *Environmental Biology Of Fishes* 71: 321-340.

Jowett, I. G., and J. Richardson. 2003. Fish communities in New Zealand rivers and their relationship to environmental variables. *New Zealand Journal Of Marine And Freshwater Research* 37: 347-366.