Sea Grant
NJ Sea Grant Consortium

Research Projects
2014-2016

Genetic Monitoring to Improve Fish Stock Assessments

R/6410-0018

Dr. Malin Pinsky - Principal investigator
Department of Ecology, Evolution and Natural Resources
Rutgers, The State University of New Jersey
848 -932-8242
malin.pinsky@rutgers.edu

Dr. Kenneth Able
Institute of Marine and Coastal Sciences
Rutgers, The State University of New Jersey
609-296-1024
able@marine.rutgers.edu

Dr. Olaf Jensen
Institute of Marine and Coastal Sciences
Rutgers, The State University of New Jersey
410-812-4842
ojensen@marine.rutgers.edu

The Rutgers University Marine Field Station has been collecting larval fish, or ichthyoplankton, on a weekly basis since 1989. These 26 years of data provide a valuable means of examining how fish populations and communities off the central New Jersey coast are changing with time. This study will focus on using the long-term larval fish data in a novel way: performing genetic monitoring of summer flounder (*Paralichthys dentatus*) to determine population abundance.

Summer flounder is an economically important and popular species for commercial and recreational fishermen in New Jersey and the Mid-Atlantic region. In 2009, for New Jersey alone, the commercial summer flounder fishery was worth over $3 million, while the recreational industry generated over $1.4 billion in sales (NMFS 2011). Given the high economic value of summer flounder, it is important that managers be able to accurately estimate population abundance, or stock size, in order to set sustainable fishery catch limits. Setting a sustainable catch limit not only reduces overfishing, it also benefits fishermen and consumers in the long run by reducing uncertainty. Historically, summer flounder management has been a contentious topic between managers and fishermen. The steep population decline in the 1980s resulted in marked fishing restrictions and conservation measures to improve stock abundance. Today, the summer flounder stock has been successfully rebuilt, but there is still debate about how to properly manage the species.

Stock assessments for summer flounder and many other commercially important fish are often based off of a small number of bottom-trawl and other surveys. By using genetic monitoring to assess the size of the summer flounder stock, this project aims to provide an independent estimate of summer flounder population size. Comparisons between estimates of stock size from genetic monitoring and traditional survey methods may help to reduce uncertainty in stock abundance and ultimately improve management strategies. If shown to be useful in stock assessment for summer flounder, genetic monitoring can then be expanded to other important or data-poor fisheries.

Taking a tissue sample from a 9mm long summer flounder larvae for genetic analysis.

National Marine Fisheries Service. (2011) Fisheries economics of the United States, 2009, U.S. Dept. of Commerce, NOAA Tech. Memo. NMFS-F/SPO-118.
Available from
http://www.st.nmfs.noaa.gov/st5/publication/index.html.