

## The Decline of Winter Flounder: Influences of Changes in Connectivity Between Estuaries and the Inner Continental Shelf R/6210-0014

Kenneth W. Able, Ph.D. – Principal Investigator  
Professor, Department of Marine and Coastal Sciences  
Director, Rutgers University Marine Field Station  
able@marine.rutgers.edu  
609-296-5260 x 230

Thomas M. Grothues, Ph.D. – Co-Principal Investigator  
Associate Research Professor, Department of Marine  
and Coastal Sciences, Rutgers University  
grothues@marine.rutgers.edu  
609-296-560 x 262

The goal of this research is to better understand the connection between estuarine and continental shelf habitats and address issues related to the decline of winter flounder and management of its habitats.

Numerous scientific studies report that in late fall winter flounder move into estuaries in anticipation of spawning. However, current research results indicate that winter flounder movements are variable, and spawning may take place in estuaries and on the continental shelf. Estuaries are dynamic environments that can present hostile conditions to adults and eggs in winter, and as seen in other fish species, can result in the evolutionary adoption of a wider spawning habitat to account for environmental conditions that can be detrimental to their survival. The validity of the current spawning habitat definitions remains unclear, with the implication that legal mechanisms for winter flounder protection are either too restrictive or not restrictive enough.

Past efforts utilized acoustic tags that enabled the project's researchers to track the movement of winter flounder in and near estuaries. The effort undertaken to capture winter flounder for tagging purposes in estuaries and the data from the acoustic tags has helped them to create a clearer picture of how winter flounder might use an estuary once they enter it. But the question of how the winter flounder that remain in the ocean utilize continental shelf habitats remains largely



unanswered. The project will conduct a reevaluation of the seasonal movements of adults and determine the spawning sites for winter flounder (estuary and/or ocean) in New Jersey with archival tags or data storage tags, an approach unique to this species. The data storage tags will allow them to back calculate the movement of tagged fish over a greater time period and larger area. Success of the project depends on recapture and cooperation among recreational and commercial fishers to return the tags and will be encouraged by a substantial reward program.

Information on previous efforts can be found at [http://njsea.grant.org/jersey-shoreline/vol26\\_no1/regulatory\\_solutions.html](http://njsea.grant.org/jersey-shoreline/vol26_no1/regulatory_solutions.html)

### *About the Tag*

**Dimensions:** (diameter x length): 15mm x 46mm  
0.6 x 1.8 inches

*Fishermen who catch a tagged winter flounder should contact either of the researchers for return instructions.*



Tag shown actual size