

A Flat Fish, a Flatter Population: *How Genetic Tools Help Management*

Current winter flounder populations in our region, from Maine to the mid-Atlantic, are now at or near all-time lows of abundance when once they were a very common bottom-dwelling fish. In order for such an economically significant species to be managed effectively, agencies require detailed knowledge of their stock structure so that, if appropriate, managers might consider more stringent conservation action where the stocks are most vulnerable.

Currently, winter flounder are managed coast-wide as three stocks: north of Cape Cod in the Gulf of Maine, south of Cape Cod in southern New England and the mid-Atlantic Bight, and offshore at Georges Bank. Using two different state-of-the-art genetic approaches—microsatellite and single nucleotide polymorphism (SNP) analyses—**Dr. Isaac Wirgin** of NYU Medical Center investigated the coastwide stock structure of winter flounder to elucidate the genetic relatedness of populations and the extent of gene flow among them.

Wirgin's results suggest that stock structure in winter flounder is similar to that of the management paradigm, that is, they show strong differentiation between most populations north and south of Cape Cod and between Georges Bank and almost all other populations. They also found that individual estuarine populations south of Cape Cod

(for example, Long Island's north shore as compared to LI's south shore) are not as reproductively isolated as some groups had thought. The results from this work provide valuable information about the genetic stock structure of this valuable fishery that will be useful for researchers and managers. However, questions still remain about the long term management of the fishery.

Says **Antoinette Clemetson**, NYSG's marine fisheries specialist, "Although different conservation practices and regulations are in place for these different regions, whatever factors are responsible for the decline appear to be working across the geographic range of the species."

The researchers have presented their findings at the Eleventh Flatfish Biology Conference, the 66th Northeast Fish and Wildlife Conferences, and anticipate presenting at the next Groundfish Stock Assessment Review Committee for winter flounder in 2011.

—Barbara A. Branca and Lane Smith

