

# RESEARCH HIGHLIGHTS



February 1992

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The Northeast Fisheries Science Center's *Research Highlights* is a news bulletin on selected Center research findings. News write-ups focus on practical applications and implications of those findings to fisheries resource and habitat management. A name and telephone number have been included at the end of each write-up to contact for detailed information. Names of organisms follow--to the extent possible--the lists of scientific and common names of fishes, mollusks, and decapod crustaceans published by the American Fisheries Society. Any mention of trade names does not imply endorsement. *Research Highlights* is produced by the NEFSC Information Services Unit with the assistance of the Center's scientific staff.

# Northeast Fisheries Science Center

## Research Highlights

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### Status of Several Stocks Still Disappointing

The 13th Northeast Stock Assessment Workshop, hosted by the Northeast Fisheries Science Center in Woods Hole, Mass., during December 2-6 and January 13-14, has issued its report which includes assessments of five Northeast fish stocks. Below are two tables based on these assessments: the first one noting the stock level, recent recruitment, and exploitation rate for each stock; the second one showing the generic management advice associated with each possible combination of stock level and exploitation rate.

Stock	Stock Level	Recent Recruitment	Exploitation Rate
Atlantic cod (Georges Bank)	Medium	Several good year classes	Over exploited (47 %) <sup>a</sup>
Haddock (Georges Bank)	Very low	Very poor	Over exploited (37 %) <sup>a</sup>
Winter flounder (Inshore) <sup>b</sup>	Low to Medium <sup>b</sup>	Variable <sup>b</sup>	Fully to over exploited <sup>b</sup>
Summer flounder (Maine - N.C.)	Low	Declined steeply	Over exploited (61 %) <sup>a</sup>
Atlantic herring	High	Several strong year classes	Under exploited (11 %) <sup>a</sup>

<sup>a</sup>Estimated annual exploitation rate of fully recruited fish.

<sup>b</sup>Composed of many substocks, with conditions varying by substock.

Stock Level				
	Low	Medium	High	
Exploitation Rate	Over exploited	Reduce exploitation Rebuild stock biomass	Reduce exploitation Rebuild age structure	Reduce exploitation Increase yield per recruit
Fully exploited	Reduce exploitation Rebuild stock biomass	Maintain exploitation rate and yield	Maintain exploitation rate and yield	
Under exploited	Maintain low exploitation while stock rebuilds	Increase exploitation slowly to reference level	Increase exploitation to reference level	

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Four other species/stocks (Gulf of Maine haddock, black sea bass, sea scallops, and harbor porpoise) received a lesser level of analysis by the workshop participants. The 183-page workshop report is available as *Northeast Fisheries Science Center Reference Document 92-02*.

Contact Dr. Steven A. Murawski, FTS 840-1303 or (508) 548-5123,  
for assessment information,  
and Helen Mustafa, FTS 840-1244 or (508) 548-5123,  
for a copy of the report

### **NEFSC Scallop Survey Shows Abundance Up on Georges Bank, Down in Mid-Atlantic**

The Northeast Fisheries Science Center's 1991 survey of sea scallop resources shows abundance on the U.S. side of Georges Bank to be at its highest level since the bank was split between the United States and Canada in late 1984. In particular, the 1988 year class appears outstanding in the Great South Channel, and strong in the southeast part, northern edge, and northeast peak portions of the bank.

Abundance in the Mid-Atlantic region has declined from the record-high levels of the late 1980s. The 1988 year class appears very strong in the Virginia - North Carolina area, moderately strong in the Delmarva area, and weak in the New York Bight.

Contact Susan E. Wigley, FTS 840-1359 or (508) 548-5123,  
or Dr. Fredric M. Serchuk, FTS 840-1245 or (508) 548-5123

### **No Evidence Yet of Atlantic Herring Spawning on Eastern Georges Bank**

Samples of larval Atlantic herring collected by the Northeast Fisheries Science Center during the 1991-92 spawning season show no evidence yet of herring spawning on eastern Georges Bank. Heavy foreign fishing in the late 1960s and early 1970s extirpated the huge eastern Georges Bank spawning stock. As in recent years (since 1985), this year's larval samples showed the highest larval abundance on Nantucket Shoals just west of the Bank.

Contact Wallace G. Smith, FTS 342-3060 or (908) 872-3060.

### **Abstracts Available from NEFSC's 12th Shellfish Biology Seminar**

Twenty-seven talks and four posters were presented at the Northeast Fisheries Science Center-sponsored 12th Shellfish Biology Seminar, held in Milford, Conn., during February 24-26. Topics of the presentations included: (1) a new disease affecting hatchery-reared eastern oyster spat (juveniles); (2) genetic

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techniques for conferring resistance in eastern oysters to MSX disease, and the confounding problem of Dermo disease in MSX-resistant oysters; (3) scallop aquaculture methods in the United States and People's Republic of China; (4) pollutant-caused habitat loss in Norwalk (Conn.) Harbor; and (5) seafood safety.

One presentation postulated that the population of introduced Asian clams, *Corbicula fluminea*, in the Potomac River has set off a chain reaction of: (1) increased grazing by the clams leading to a decreased standing crop of phytoplankton; (2) the decreased phytoplankton leading to increased sunlight reaching the bottom; (3) the increased sunlight leading to increased growth of submerged aquatic vegetation; and (4) the increased vegetation creating new habitat for several fish species and fostering a significant new fishery for largemouth bass.

Abstracts are now available upon request. They will also be published in a future issue of the journal *Environmental Management*.

Contact Dr. Walter J. Blogoslawski, FTS 642-5235 or (203) 783-4235

### **Aquaculture Re-emerges as NEFSC Research Subject**

Prior to the early 1980s, the U.S. Department of Commerce -- the parent department of the Northeast Fisheries Science Center (NEFSC) -- had a mandate to conduct research and development on behalf of the nation's aquaculture industry. Since then, the U.S. Department of Agriculture has largely had that mandate. Accordingly, the NEFSC, which had a comprehensive shellfish aquaculture research and development program up until the early 1980s, has since oriented its shellfish research towards the management of wild populations and natural habitats of bivalve mollusks.

Growing international concerns, though, over interactions between: (1) aquacultural populations, areas, and operations; and (2) wild populations, habitats, and fisheries, have prompted the National Marine Fisheries Service (NMFS) to reconstitute -- to a limited extent -- its aquaculture research program to include studies designed to reduce impediments to U.S. aquaculture. These studies will include objectives to: (1) determine aquacultural effects on wild populations and habitats, and how to reduce adverse effects; (2) develop means to permit aquacultural products in the marketplace without jeopardizing conservation of wild populations; and (3) determine the potential of aquaculture for enhancing recovery of protected species and depleted fisheries.

To address these issues in the Northeast, the NEFSC has appointed Dr. Walter J. Blogoslawski as the Center Aquaculture Coordinator. Dr. Blogoslawski will be involved with: (1) developing interagency cooperative research projects for meeting NMFS's new aquacultural objectives in the Northeast; (2) forecasting growth of domestic aquacultural projects and their effects on wild populations; (3) publishing an annual list of NMFS cooperative aquacultural projects and presenting technical talks on NEFSC aquacultural-related research; (4) reviewing new aquacultural technology to produce seafood under controlled and stable market conditions; and (5) advising on use of aquacultural wastes to produce additional seafood without degrading nearshore habitat.

Contact Dr. George D. Grice, FTS 840-1239 or (508) 548-5123.

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### **NOAA Contributes to Global Biodiversity Strategy**

During this past July, the National Marine Fisheries Service's National Systematics Laboratory represented NOAA at a Keystone colloquium on biodiversity to discuss, critique, and contribute to a global biodiversity strategy. That effort has resulted in a joint publication by the World Resources Institute (WRI), the International Union for the Conservation of Nature and Natural Resources, and the United Nations Environment Program. The publication is available from WRI, 1735 New York Ave., NW, Washington, DC 20006.

**For information on NOAA's role in the effort, contact Dr. Michael Vecchione, FTS 357-4990 or (202) 357-4990**

### **Action Plan Issued for Gulf of Maine Environmental Quality**

The Gulf of Maine Council on the Marine Environment has issued an action plan and a separate executive summary for its activities until the end of the century. The council, composed of the five governors/premiers of the states/provinces bordering the gulf, developed the plan to maintain and enhance marine environmental quality in the gulf, and to allow for existing and future sustainable use of the resources of the gulf. For a copy of the plan, write: GMCME Secretariat, N.B. Dept. of the Environ., P.O. Box 6000, 364 Argyle St., Fredericton, NB E3B 5H1, Canada.

**Contact Dr. John B. Pearce, FTS 840-1261 or (508) 548-5123**

**Information Services Unit  
Northeast Fisheries Science Center  
National Marine Fisheries Service  
166 Water Street  
Woods Hole, MA 02543-1097**

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