

RESEARCH HIGHLIGHTS



May-June
1993

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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.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
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FACILITIES

Woods Hole Laboratory

National Marine Fisheries Service
166 Water Street
Woods Hole, MA 02543-1097
(508) 548-5123
Officer-in-Charge: Dr. John B. Pearce

James J. Howard

Marine Sciences Laboratory
National Marine Fisheries Service
Building 74, McGruder Road, Sandy Hook
Highlands, NJ 07732
(908) 872-3000
Officer-in-Charge: Anne L. Studholme

National Systematics Laboratory

National Marine Fisheries Service
National Museum of Natural History
10th & Constitution Avenue, N.W.
Washington, DC 20560
(202) 357-2552
Director: Dr. Bruce B. Collette

Narragansett Laboratory

National Marine Fisheries Service
28 Tarzwell Drive
Narragansett, RI 02882
(401) 782-3200
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Milford Laboratory

National Marine Fisheries Service
212 Rogers Avenue
Milford, CT 06460
(203) 783-4200
Officer-in-Charge: Dr. Anthony Calabrese

Gloucester Laboratory

National Marine Fisheries Service
30 Emerson Avenue
Gloucester, MA 01930
(508) 281-9300
Officer-in-Charge: Robert J. Learson

Oxford Cooperative Laboratory

National Marine Fisheries Service
904 South Morris Street
Oxford, MD 21654
(410) 226-5193
Contact: Frederick G. Kern

INFORMATION SERVICES UNIT

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Mid-Atlantic Landings and Values Decreased in 1992

Commercial landings of fish and invertebrates in Mid-Atlantic and Chesapeake states (New York, New Jersey, Delaware, Maryland, and Virginia) decreased from 1,004 million pounds in 1991 to 948 million pounds in 1992. Value -- measured as dockside or "ex-vessel" prices -- decreased from \$297 million to \$282 million.

Virginia led other states in landings with 631 million pounds; New Jersey led in value with \$98 million. Cape May/Wildwood, N.J., led other ports in both landings and value with 94 million pounds worth \$35 million.

The following table gives landings and values (in millions) by major species for both 1991 and 1992:

| | 1991 | | 1992 | |
|---------------------------------------|-----------------|------|-----------------|------|
| | Lb ^a | \$ | Lb ^a | \$ |
| Sea scallop | 13.6 | 51.1 | 10.1 | 47.8 |
| Blue crab | 108.8 | 38.9 | 65.1 | 33.6 |
| Atlantic surfclam | 65.2 | 28.6 | 71.0 | 30.6 |
| Northern quahog | 4.7 | 21.7 | 4.5 | 20.6 |
| Ocean quahog | 47.6 | 16.2 | 47.5 | 16.7 |
| Longfin & northern shortfin squids | 29.0 | 13.4 | 36.0 | 13.9 |
| Summer flounder | 6.9 | 9.0 | 9.6 | 11.8 |
| American lobster | 4.5 | 14.8 | 3.5 | 11.7 |
| Eastern oyster | 4.5 | 13.3 | 3.3 | 10.4 |
| Tilefish | 2.6 | 4.1 | 3.3 | 5.3 |
| Swordfish | 1.7 | 5.6 | 1.5 | 4.4 |
| Silver hake | 10.6 | 4.5 | 8.0 | 3.9 |
| Scup | 7.4 | 4.8 | 5.8 | 3.6 |
| Softshell | 1.9 | 5.9 | 0.7 | 2.4 |
| Weakfish | 3.1 | 2.4 | 2.5 | 1.8 |
| Bluefish | 5.3 | 1.8 | 4.7 | 1.1 |
| Atlantic mackerel | 20.5 | 2.1 | 10.6 | 0.9 |

^aBivalve landings in meat weight; others in live weight.

Copies of *Northeast Fisheries Science Center News Release 93-3* ("Preliminary 1992 Landings and Values of Middle Atlantic and Chesapeake Finfish and Shellfish") are available upon request. The release lists overall landings and values on a state, major port, and major species basis.

Contact Harold N. Foster, (508) 548-5123x212

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First-quarter Landings of Traditional Groundfish Down

Preliminary data by the Northeast Fisheries Science Center on the region's landings of Atlantic cod, haddock, and yellowtail flounder during January-March show a collective 28-percent decline from the same period last year. Cod are down from 14.1 to 10.6 million pounds; haddock are down from 1.2 to 0.4 million pounds; yellowtail are down from 3.3 to 2.3 million pounds.

Contact John B. Mahoney, (508) 548-5123x309.

Spring Survey Catch Continues Decline

The Northeast Fisheries Science Center's spring 1993 bottom-trawl survey of the Northeast's continental shelf found continuing dominance of the biomass by cartilaginous fish species. Three cartilaginous species -- spiny dogfish, little skate, and winter skate -- accounted for 63 percent of the survey's total catch by weight. The Northeast's three "traditional" groundfish species -- Atlantic cod, haddock, and yellowtail flounder -- accounted for 4 percent. Also, this spring's total survey catch by weight decreased for the fourth year in a row. The 1993 total catch was 16 percent below the five-year (1989-93) average.

The survey used the NOAA fisheries research ship *Albatross IV* to sample 329 sites between Cape Sable, Nova Scotia, and Cape Hatteras, North Carolina, during March 9 - April 30.

Contact Thomas R. Azarovitz, (508) 548-5123x283.

Species Abundances Change, but Overall Size Composition Stable, in Georges Bank Fish Community

The Northeast Fisheries Science Center has published three articles in a special issue of the *Journal of Northwest Atlantic Fishery Science* which is entitled "Changes in Biomass, Production and Species Composition of the Fish Populations in the Northwest Atlantic over the Last 30 Years, and Their Possible Causes." The Center's articles examine the general effects of multispecies fisheries upon fish communities, and the specific effect of harvesting in the Georges Bank fish community on the recent shift in species dominance from "traditional" groundfishes (e.g., haddock, yellowtail flounder) to cartilaginous fishes (e.g., spiny dogfish, little skate). Copies of the articles are available.

An interesting finding in one of the articles is that while the abundance levels of individual species within the Georges Bank fish community have changed greatly, the size (e.g., length) composition of the fish community as a whole has been fairly stable. This suggests that the Georges Bank fish community has a "highly networked" food web; when one species is fished down, a similarly-sized, less-heavily-fished, competitor species can quickly increase its

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numbers and easily fill the former's niche. An implication of this finding is that it may be desirable to deliberately and significantly reduce the abundance levels of cartilaginous fishes in order to enhance the effectiveness of any fishery management actions designed to restore the abundance levels of traditional groundfishes.

Contact Lynn Forbes, (508) 548-5123x260,
for a copy of the articles

Contact Dr. Steven A. Murawski, (508) 548-5123x303,
for further information on multispecies fisheries ecology.

Benthic Macrofauna Validated as Habitat Quality Indicators

Multivariate statistical analysis by the Northeast Fisheries Science Center of data collected during three summers in the New York Bight has validated certain benthic macrofauna species as indicators of habitat type and quality. With respect to habitat quality, 80 species of benthic macrofauna have been assigned to one of four categories of sensitivity to contaminated habitats: I--most sensitive; II--sensitive; III--insensitive; and IV--most insensitive. In general, certain amphipods (e.g., *Ampelisca agassizi*, *Byblis serrata*, and *Corophium crassicornis*) were well represented in category I; certain polychaetes (e.g., *Capitella* spp., *Nephtys incisa*, *Pherusa affinis*, and *Tharyx acutus*) were well represented in category IV. A reprint of the published article on this research is available.

Contact Dr. Sukwoo Chang, (908) 872-3067.

Research Briefs

- We will begin a research project designed ultimately to advise fishery managers on the effects of species interactions in the performance of fishery management plans for the Georges Bank fish community. Contact Dr. Michael J. Fogarty, (508) 548-5123x255.
- With Rutgers University, we will begin a research project on the effects of large pile-supported piers or platforms on fish in the lower Hudson River. Contact Anne L. Studholme, (908) 872-3001.
- We are testing a method, which is a combination of two previously developed methods, for detecting tripolyphosphate additives, which are used for moisture retention, in seafood products. We now have a method which distinguishes between use and nonuse of this additive in experimental samples, and -- with more study -- could realistically have a method which detects abuse of this additive. Contact Judith Krzynowek, (508) 281-9226.

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- We have improved a method of determining health and growth of larval fish which measures nucleic acid levels in their cells. Contact Donna A. Busch, (401) 782-3270.
- A new species of cutlassfish, *Lepidopus altifrons*, has been described; it is known to occur from Nova Scotia and Georges Bank south to southern Brazil at 200-500 meters depth. Contact Dr. Bruce B. Collette, (202) 357-2524.

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

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