

RESEARCH HIGHLIGHTS



November-
December
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.

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Demersal Resources Continue Decline

The NMFS's Northeast Fisheries Science Center's autumn 1992 bottom trawl survey shows a continuing decline in demersal resource biomass in the Northeast U.S. Shelf Ecosystem. The survey sampled 354 sites between Nova Scotia and North Carolina during 8 September - 28 October on board the NOAA research vessel *Albatross IV*.

The total combined catch by weight of 23 important species dropped about 35 percent below the 1989-91 average. Two categories of species, spiny dogfish and "other" (mostly other cartilaginous fishes -- skates, rays, and large sharks), comprised 71 percent by weight of the total combined catch. This autumn 1992 survey shows the same basic pattern of declining demersal resource biomass, and of cartilaginous fish dominance, shown by the spring 1992 survey.

A *Fishermen's Report*, showing the location, conditions, and catch at each sampling site, is available.

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

for more on survey results

Contact Barbara J. Lewis, (508) 548-5123

for a copy of the report

1992 Landings of Pelagic Resources Mixed

Preliminary estimates of 1992 landings of the pelagic resource complex of Atlantic mackerel, butterfish, longfin squid, and northern shortfin squid show mixed results. Atlantic mackerel landings decreased from 16.5 thousand metric tons (tmt) in 1991 to 12.2 tmt in 1992. Butterfish increased from 2.0 to 2.6 tmt. Longfin squid decreased from 19.4 to 18.0 tmt. Northern shortfin squid increased from 11.9 to 18.0 tmt.

These estimates will be audited for accuracy and then compiled into NMFS's popular annual publication on *Fisheries of the United States*, which should be released by late spring - early summer.

Contact Ronnee L. Schultz, (508) 548-5123.

Center Prepares for Major Oil Spill

The 5 January 1993 wreck of the oil tanker *Braer* off the Shetland Islands, and the subsequent spillage of 25 million gallons of Norwegian light crude into marine fish habitats, highlights the need for government to be prepared to respond effectively and efficiently to such events. In this context, the U.S. and Canadian federal governments and the Maine state government recently participated in their biennial exercise, "CANUSLANT," to coordinate government response to marine spills of oil and other hazardous materials that would affect both countries. The October 1992 exercise simulated an oil spill off Portland, Maine, and an acid spill off Yarmouth, Nova Scotia.

For its part, the NMFS's Northeast Fisheries Science Center (NEFSC) provided information and advice to the NMFS's Northeast Regional Operations

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Office (NEROO) for the latter's use in responding to the spills. (For example, should dispersants be used to reduce oil damage to spawning areas?) The NEROO and other NOAA participants said the NEFSC's information and advice were timely and beneficial, and agreed well with that provided by Maine and Canada.

Contact Robert N. Reid, (908) 872-3000.

Pollution Linked to Fish Embryo Mortality along East Coast

The problem of overfishing currently dominates management of the Northeast's marine fishery resources. If/when that problem is solved, another problem -- pollution -- will likely begin to dominate management. The NMFS Northeast Fisheries Science Center has recently published a paper in *Environmental Biology of Fishes* on the role of pollution in the direct mortality of Atlantic mackerel embryos, and in the indirect mortality of early life stages of Atlantic mackerel, windowpane, and winter flounder due to contamination of adults of these species prior to their spawning.

There appears to be a threefold increase in the mortality of Atlantic mackerel embryos, and in the mitotic (cell division) error of adult windowpane and winter flounder, from the least-polluted to most-polluted sites in the Northwest Atlantic. This threefold increase suggests that pollution, operating through chromosomal abnormality during egg production and embryo development, may account for a significant portion of early life stage mortality in the most-polluted locales.

The article, "Pollution and Developmental Abnormalities of Atlantic Fishes," also speculates on natural selection for pollution tolerance, and on the consequences of such selection for fish populations and fishery management.

Contact Dr. Arlene Crosby Longwell, (203) 783-4200.

New Species of Midwater Fish Described

A third new fish species -- the midwater snapper *Paracaesio waltervadi* -- has been described from December 1988 collections by the Russian research vessel *Vityaz* on Walters Shoals south of Madagascar.

Contact Dr. Bruce B. Collette, (202) 357-2524.

Center Authors Sweep 1991 "Best Paper" Awards in NMFS Journals

A paper by National Systematics Laboratory ichthyologist Dr. Thomas A. Munroe has been selected as the best paper appearing in the 1991 volume of *Fishery Bulletin*. Munroe's paper deals with "Western Atlantic Tonguefishes of

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the *Symphurus plagusia* Complex (Cynoglossidae: Pleuronectiformes), with Descriptions of Two New Species."

A paper by Sandy Hook Laboratory fishery biologist Clyde L. MacKenzie, Jr., has been selected as the best paper appearing in the 1991 volume of *Marine Fisheries Review*. MacKenzie's paper deals with the "History of the Fisheries of Raritan Bay, New York and New Jersey."

Contact Jon A. Gibson, (508) 548-5123.

Center Official Honored by AAAS

The American Association for the Advancement of Science (AAAS) has bestowed the rank of AAAS Fellow on NMFS's Northeast Fisheries Science Center Deputy Director Dr. John B. Pearce. Pearce will be formally recognized for his contributions to the biological sciences on 14 February 1993 during the AAAS's annual meeting in Boston, Massachusetts.

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