

*J. Gibson*  
**NORTHEAST FISHERIES CENTER**

**MONTHLY  
HIGHLIGHTS**



United States Department of Commerce  
National Oceanic and Atmospheric Administration  
National Marine Fisheries Service  
Northeast Fisheries Center  
Woods Hole, Massachusetts 02543

DECEMBER 1990 - JANUARY 1991

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*In this issue:*

CURRENT POPULATION LEVELS OF FISH STOCKS

SEASONAL DISTRIBUTION ATLAS OF 45 LANDED SPECIES

GUIDE FOR ENHANCING ESTUARINE MOLLUSCAN SHELLFISHERIES

EFFECTS OF FISHING ON NORTH ATLANTIC ECOSYSTEMS

RARE SPECIMEN OF GIANT SQUID SPECIES

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The Northeast Fisheries Center's *Monthly 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. Write-ups are prepared by Jon A. Gibson, Center technical editor, based on information and reports developed by Center scientists. A name and telephone number have been included at the end of each write-up to contact for detailed information.

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## CURRENT POPULATION LEVELS OF FISH STOCKS

The Center has issued proceedings (*Northeast Fisheries Center Reference Document 90-09*) of the fall 1990 stock assessment workshop (SAW). This workshop, the 11th in a semiannual series, involved 86 participants from 11 federal, state, and private organizations. In addition to presentations on research programs, methods, and products, there were reviews of the status of several fishery resources.

Below are descriptions of stock levels (*i.e.*, depleted or not depleted) and exploitation rates (*i.e.*, over exploited, fully exploited, or under exploited) of these resources as presented in the proceedings. All of these descriptions are conditional; the reader should refer to the full SAW report for these conditions before drawing any conclusions.

Atlantic cod - Georges Bank stock: over exploited, not depleted; at current exploitation rates, catches for next three years will be about 88 million pounds (40 thousand metric tons)

Silver hake - northern & southern stocks: fully exploited

White hake: fully exploited

Red hake - northern & southern stocks: under exploited, not depleted; good recruitment in recent years

Ocean pout: fully exploited; species has low fecundity, is susceptible to over exploitation

American plaice: over exploited, depleted

Summer flounder: over exploited, seriously depleted

Black sea bass: over exploited, depleted

Scup: over exploited, depleted

Atlantic herring - Gulf of Maine stock: fully exploited, not depleted; at current exploitation rates and recent recruitment rates, catches for next three years will be about 110 million pounds (50 thousand metric tons)

Spiny dogfish: under exploited

Skates (*Raja* spp.): under exploited

Copies of the proceedings are available. Contact Dr. Andrew A. Rosenberg, FTS 840-1225 or (508) 548-5123.

## SEASONAL DISTRIBUTION ATLAS OF 45 LANDED SPECIES

Recently published by the Center, and soon available for dissemination, is the atlas, "Seasonal Distribution Patterns of Commercial Landings of 45 Species off the Northeastern United States during 1977-88." For each of the 45 species, there are four seasonal plots. For each plot, the average quarterly landings are allocated to the appropriate 10-minute squares of latitude and longitude from which they were caught.

Copies of the atlas will be available in limited numbers. Contact Sukwoo Chang, FTS 342-3067 or (908) 872-3067.

## GUIDE FOR ENHANCING ESTUARINE MOLLUSCAN SHELLFISHERIES

The Center has recently prepared a comprehensive guide for enhancing estuarine molluscan shellfish populations which have been declining in many parts of the United States. Habitat deterioration (e.g., shellfish beds silted over so that larval settlement is inhibited) is thought to be a major factor in the declines. The guide describes characteristics of suitable and unsuitable shellfish beds, ways to survey the beds, and steps to improve the habitats.

The guide recommends that "shellfish production specialists" be employed to determine conditions of beds, amounts of larval settlement, and losses to predation. These specialists would then work with fishermen, resource & habitat managers, and legislators to boost estuarine molluscan shellfishery yields. Copies of the 47-page guide are available. Contact Clyde L. MacKenzie, Jr., FTS 342-3019 or (908) 872-3019.

## EFFECTS OF FISHING ON NORTH ATLANTIC ECOSYSTEMS

The Multispecies Assessment Working Group for the International Council for the Exploration of the Sea met for the first time in the United States during December 4-13 in Woods Hole. Experts from 11 countries came together to discuss numerical modelling of the effects of fishing on the North Atlantic's ecosystems.

Specifically, the working group: (1) evaluated the effects on predatory species of large-scale fisheries for their prey species (e.g., effects of fisheries for Atlantic herring and Atlantic mackerel on Atlantic cod); (2) analyzed the role of prey availability and environmental conditions in Atlantic cod growth in the Barents Sea, Iceland, Greenland, and Newfoundland ecosystems; and (3) continued work on methods for evaluating ecosystem-level effects (including effects on marine mammals and seabirds) of resource harvesting.

A report will soon be available. To request a copy, contact Dr. Steven A. Murawski, FTS 840-1303 or (508) 548-5123.

## RARE SPECIMEN OF GIANT SQUID SPECIES

An unusually large squid, tentatively identified as *Taningia danae*, was landed at Gloucester, Massachusetts, on December 10, 1990. The squid, caught in about 900 feet of water off Georges Bank, weighed about 135 pounds and measured about seven feet long. This giant squid species has some of its tentacles armed with claws, and others bearing light-emitting organs.

Reports of giant squid are uncommon. Most recent reports concern strandings of another giant squid species (*Architeuthis dux*, or other poorly defined species of the *Architeuthis* genus) off the Canadian maritime provinces or the New England states. A widely reported stranding of *A. dux* occurred along Plum Island, Massachusetts, in 1980.

This specimen of *T. danae* was caught by the fishing vessel *Defender* from Rockland, Maine. The vessel's skipper, James Dow of Owls Head, Maine, has donated the specimen to the NMFS's National Systematics Laboratory at the National Museum of Natural History in Washington, D.C., for further study. Contact Donald Mason, FTS 837-9363 or (508) 281-9363, for details of the capture, or Dr. Michael Vecchione, FTS 357-4990 or (202) 357-4990, for details on this species.

## RECENT PUBLICATIONS AND REPORTS

Center authors are indicated in all capital letters in the list below. Unless otherwise indicated, single copies of the publications and reports are available--subject to supply--by writing to the senior Center author c/o Information Services Section, Northeast Fisheries Center, 166 Water St., Woods Hole, MA 02543 USA.

- BENWAY, R. 1990. Expendable bathythermograph observations from the NMFS/Ship of Opportunity Program for 1989. [Nat. Mar. Fish. Serv.,] *Northeast Fish. Ctr. Ref. Doc. No. 90-08*. 34 pp.
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- WILK, S.J., W.W. MORSE, and L.J. STEHLIK. 1990. Annual cycles of gonad-somatic indices as indicators of spawning activity for selected species of finfish collected from the New York Bight. *Fish. Bull., U.S.* 88(4): 775-786.

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FEBRUARY - MARCH 1991

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**NEW ENGLAND COMMERCIAL FISHERIES LANDINGS INCREASE**

**MAJOR STUDY ON FROZEN STORAGE OF SEAFOOD PRODUCTS UNDERTAKEN**

**RESOURCE SURVEY DATA MICROFILMED: SECURITY AND ACCESSIBILITY IMPROVED**

**FORMER CENTER OFFICIAL, RICHARD HENNEMUTH, DIES**

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## NEW ENGLAND COMMERCIAL FISHERIES LANDINGS INCREASE

New England commercial fisheries landings increased 15 percent in 1990 compared to 1989, up from 565.0 to 648.3 million pounds. The value also increased, from 508.9 to 543.0 million dollars. The following table compares the 1989 and 1990 landings and values for selected species.

New England Commercial Fisheries Landings  
(millions of pounds) and Values (millions of dollars)  
for Selected Species in 1989 and 1990

Species	Landings		Values	
	1989	1990	1989	1990
Atlantic herring	90	113	5	6
Atlantic cod	78	95	47	61
American lobster	49	55	135	136
Yellowtail flounder	11	31	13	27
Silver hake	23	28	4	6
Sea scallop	21	25	84	99
Pollock	23	21	10	11
Goosefish	23	20	10	12
Longfin squid	37	17	17	6
Winter flounder	14	14	19	16
Atlantic mackerel	11	14	2	3
Northern shortfin squid	10	12	3	3
White hake	11	11	4	5
Northern shrimp	8	10	8	7
American plaice	8	6	9	6
Haddock	4	5	5	6
Scup	4	5	3	3
Butterfish	5	3	3	2
Witch flounder	5	3	9	6
Swordfish	4	3	11	9
Summer flounder	6	2	10	6
Bluefin tuna	2	2	19	20

Note: Landings of scallops in meat weight; all other landings in live weight.

Detailed information on 1989 and 1990 New England commercial fisheries landings (including values) on a state, port, and species basis, as well as for lobster landings on a state basis, is available. Contact Ronnee L. Schultz, FTS 840-1264 or (508) 548-5123.

## MAJOR STUDY ON FROZEN STORAGE OF SEAFOOD PRODUCTS UNDERTAKEN

The Northeast Fisheries Center occasionally reports results of its studies on how long various fishery products can be stored at various freezing temperatures yet maintain acceptable quality. Such information not only benefits seafood retailers and consumers by assuring acceptable-quality seafood, but, especially from the Center's standpoint, also benefits fishery managers and fishermen by maximizing usage and minimizing wastage of landed resource (i.e., an indirect form of conservation). A problem with these frozen-storage studies, though, is that similar studies conducted by various agencies/institutions often yield dissimilar results. A lack of standardized methods likely causes this problem.

Accordingly, the Refrigerator Research Foundation has sponsored a nationwide study to standardize methods and thus results. The study, "Effects of Cold Storage Temperature on the High Quality Shelf Life of Selected Frozen Seafoods," focuses on Atlantic cod fillets, walleye pollock surimi, Pacific salmon (*Oncorhynchus* spp.) fillets, and headed white shrimp.

One of the several ways the Center is involved in this study is in development of methods to measure peroxide in frozen seafood, since peroxide is a recognized indicator of rancidity in other frozen foods. New methods of peroxide measurement are needed for seafood with carotenoid (reddish orange) pigmentation--such as salmon and shrimp--because the pigmentation "masks" the detection of the colored endpoint used in the titration procedure, the standard method of peroxide measurement in other foods.

The Center has developed a method (which uses silica-gel column separation with a series of progressively polar solvents) to remove carotene from salmon and shrimp samples in order to permit measurement of peroxide in those samples. However, the removal of the carotene also resulted in the removal of some peroxide. Another method will have to be developed to remove carotene from seafood samples. Other methods are being used concurrently to measure rancidity in the test products.

Results of the various aspects of this study will be reported as they become available. Contact Kurt Wilhelm, FTS 837-9308 or (508) 281-9308, or Richard S. Maney, FTS 837-9320 or (508) 281-9320.

## RESOURCE SURVEY DATA MICROFILMED: SECURITY AND ACCESSIBILITY IMPROVED

The Northeast Fisheries Center's fishery resource surveys are the longest-running series of such surveys for any marine ecosystem. Consequently, data generated by these surveys are

valuable for a wide range of scientific inquiry, including the general effects of fishing on fish populations and communities.

To assure the security of these data, as well as to enhance their accessibility by the scientific community, the Center has microfilmed all available data logs for each tow of each survey for: (1) bottom trawl surveys during 1963-90, (2) ocean quahog - Atlantic surfclam surveys during 1970-89, and (3) sea scallop surveys during 1956-90. This microfilm will be archived with microfilm developed earlier for some surveys during 1948-62.

To access the data base for these surveys, either from the logs, the microfilm, or the computer, contact Linda I. Despres-Patanjo, FTS 840-1346 or (508) 548-5123.

#### FORMER CENTER OFFICIAL, RICHARD HENNEMUTH, DIES

Richard C. Hennemuth, former Center official, died February 15 at age 60. He retired from the Center in 1988 as Research Planning & Coordination Staff Chief. Prior to that, he had held positions as Acting Center Director, Deputy Center Director, Assistant Center Director, Woods Hole Laboratory Director, and Fishery Management Biology Investigation Chief. He had earlier worked for the federal fishery research laboratory in La Jolla, California, and the Inter-American Tropical Tuna Commission.

Hennemuth will best be remembered for his involvement with, and contributions to, the international fishery science community. Among notable accomplishments, he served as principal U.S. scientist for the International Commission for the Northwest Atlantic Fisheries, helped (with former Center Director Robert L. Edwards) establish the series of bilateral and multinational fishery research programs in the Northwest Atlantic, authored the section on the future of world fisheries for President Carter's *Global 2000 Report*, and helped found the International Center for Statistical Ecology and Environmental Statistics at Pennsylvania State University. Among numerous awards, he received the Department's Gold Medal (its highest award) and the International Association for Ecology's Distinguished Statistical Ecologist Award.

In his memory, the NMFS Woods Hole Laboratory together with the Hennemuth family and friends will place a public-use bench -- with commemorative plaque -- on the laboratory grounds beside Woods Hole Harbor. Those wishing to contribute to the purchase of this memorial bench and plaque should send donations to: Dr. Marvin D. Grosslein, Officer-in-Charge, Woods Hole Laboratory, National Marine Fisheries Service, 166 Water St., Woods Hole, MA 02543 USA. Contact Dr. Grosslein, FTS 840-1252 or (508) 548-5123, for further information.

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APRIL - MAY 1991

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## PHASED-OUT INSHORE DUMPSITE SHOWS SOME RECOVERY

The third annual report has been published on the findings of a three-year study of the ability of the inshore sewage-sludge dumpsite off New York City to recover following the 1986-87 phaseout of dumping at the site. The dumpsite, officially called the 12-Mile Dumpsite because of its nearest distance to the northern New Jersey coast, was the largest sewage-sludge dumpsite in the world. The study of its recovery has been the most comprehensive and thorough investigation of its type ever conducted. Findings include:

1. Bottom currents in the dumpsite area, which are largely responsible for any redistribution of sludge, are strongly affected by wind, but flow mostly south (i.e., down the Hudson Shelf Valley) in summer and mostly north (i.e., up the valley) in winter.
2. Bottom water in the dumpsite area, which is the portion of the water column most affected by sludge, exchanges or renews itself in about a week.
3. Sludge seems initially to accumulate in the Christiaensen Basin portion of the dumpsite area, and then is occasionally resuspended in the water column and transported by wind-driven currents.
4. Seabed oxygen consumption levels, which are directly related to sludge levels, have declined in the dumpsite area to levels typical of the rest of the New York Bight.
5. Dissolved oxygen levels, which are inversely related to sludge levels, had been below 0.5 mg/l during the heavy dumping of 1983-85, but have not been below 2.5 mg/l since the 1986-87 phaseout.
6. Heavy-metal levels in sediment from the most contaminated portion of the dumpsite area declined significantly and quickly after dumping stopped.
7. Responses of marine animals in the dumpsite area to phaseout of sludge dumping have -- for the most part -- been statistically insignificant, due in part to the variability of the trawl samples, and probably also to the ability and tendency of many of these animals to move into and out of the area at will.

On June 18 and 19, the Center will host a major scientific symposium in Long Branch, New Jersey, to review and evaluate these findings, and to discuss their implications to the ultimate recovery of fishery resources and habitats, to the future of ocean dumping itself, and to the direction of future research. Contact Anne L. Studholme, FTS 342-3001 or (908) 872-3001.

## CARTILAGINOUS FISHES STILL DOMINATE FISH COMMUNITY

The Center's spring 1991 bottom trawl survey of the Northeast Continental Shelf Ecosystem found cartilaginous fishes still dominating -- in terms of biomass -- the ecosystem's fish community. The survey, conducted on board the NOAA fisheries research ship *Delaware II*, sampled fish populations at 333 sites from the western Scotian Shelf to Cape Hatteras during March 5 - April 16.

Over 69 percent of the catch by weight was composed of three species of cartilaginous fish: spiny dogfish, winter skate, and little skate. The composition of this year's spring survey catch is similar to the composition of last year's spring catch where 71 percent of the catch by weight was the same three cartilaginous species. For comparison, when the Center began its bottom trawl surveys in 1963, only 24 percent of the ecosystem's fish biomass was composed of cartilaginous fish.

A *Fishermen's Report* detailing the catches, locations, and conditions of the spring 1991 survey is available upon request. Contact Linda I. Despres-Patanjo, FTS 840-1348 or (508) 548-5123.

## SANDBAR SHARK RECAPTURED AFTER 25 YEARS AT LIBERTY

The Center has issued its annual (1990) summary issue of *The Shark Tagger*. One of the more interesting findings reported in that newsletter is the recapture of a female sandbar shark after a quarter century at liberty -- a record for time at liberty for any shark tagged in the NMFS Cooperative Shark Tagging Program. The female fish had grown on the average only about one inch per year, further confirming the very slow growth of this species and the very clear need for strong conservation measures for this and similarly slow-growing shark species.

The *Shark Tagger* reports on activities and findings of the tagging program and of all other shark-related research by the Center. The newsletter is primarily sent to the volunteer participants in the tagging program. Information on the program is available upon request. Contact John G. Casey, FTS 838-6320 or (401) 782-3320.

## NEW ZOOGEOGRAPHIC PROVINCE CHARACTERIZED

Based on our study of shallow-water fishes collected on Walters Shoals (about 400 miles south of Madagascar) during a cooperative cruise on the Soviet oceanographic ship *Vityaz* in 1988, we have characterized a new zoogeographic province. The new province extends from Gough Island, the Tristan da Cunha group of islands, and Vema Seamount, which are along the Mid-Atlantic Ridge in the Southeast Atlantic Ocean, to Walters Shoals and an un-named seamount south of Madagascar, to Amsterdam and Saint-Paul Islands, which are along the Mid-Indian Ridge in the south-central Indian Ocean. All of these locations are considered part of the West

Wind Drift chain of islands. Accordingly, we have named the new province the West Wind Drift Islands Province.

There is a high degree of endemism throughout the new province. Of the total of about 20 species of shallow-water fishes known from Walters Shoals, at least nine of them (45 percent) are endemic to Walters Shoals or some part of the West Wind Drift chain of islands. The new West Wind Drift Islands Province combines two existing provinces characterized by J.C. Briggs in his 1974 treatise on *Marine Zoogeography: the Tristan-Gough Province of his southern South America Cold Temperate Region and the Amsterdam-St. Paul Province of his Southern African Warm Temperate Region*. Contact Dr. Bruce B. Collette, FTS 357-2524 or (202) 357-2524.

#### ALBINO SPECIMEN OF ATLANTIC COD CAPTURED

In late May, an albino Atlantic cod was caught east of Pollock Rip off Cape Cod by the fishing vessel *Surf Breaker*. The skipper, Al Yuknavich of Harwich, Massachusetts, donated the specimen to the Center. It will be examined, then archived in a museum. Contact Donald D. Flescher, FTS 840-1293 or (508) 548-5123.

#### RECENT PUBLICATIONS & REPORTS

Center authors are indicated in all capital letters in the list below. Unless otherwise indicated, single reprints or photocopies of the publications and reports are available--subject to supply--by writing to the senior Center author c/o Information Services Section, Northeast Fisheries Center, 166 Water St., Woods Hole, MA 02543-1097 USA.

- Able, K.W., and D.D. FLESCHER. 1991. Distribution and habitat of chain dogfish, *Scylliorhinus retifer*, in the Mid-Atlantic Bight. *Copeia* 1991(1): 231-234.
- CHANG, S. 1990. Seasonal distribution patterns of commercial landings of 45 species off the northeastern United States during 1977-88. NOAA [Nat. Ocean. Atmos. Admin.] Tech. Mem. NMFS [Nat. Mar. Fish. Serv.]-F/NEC-78. 130 pp.
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# NORTHEAST FISHERIES CENTER

## MONTHLY HIGHLIGHTS



United States Department of Commerce  
National Oceanic and Atmospheric Administration  
National Marine Fisheries Service  
Northeast Fisheries Center  
Woods Hole, Massachusetts 02543

JUNE - JULY 1991

*In this issue:*

Center Gets New Structure, New Name

1990 Status-of-the-Stocks Report Issued

East Coast Shark Resources Surveyed

Brown Tide Returns to Eastern Long Island Sound

Dead Seals Again Found on Eastern Long Island, Cause(s)  
Still Unknown

Two New Species of Tonguefishes from Western Atlantic

New Species of Moray Eel from Walters Shoals, Madagascar  
Ridge

Recent Publications and Reports

The Northeast Fisheries Center's *Monthly 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.

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## CENTER GETS NEW STRUCTURE, NEW NAME

Effective July 28, the Northeast Fisheries Center became the Northeast Fisheries Science Center (NEFSC). This name change brings the NEFSC into line with NMFS's four other regional research establishments (i.e., Southeast, Southwest, Northwest, and Alaska Fisheries Science Centers). The most significant aspect of the programmatic reorganization is the elimination of the Fisheries Ecology Division as a discrete program, and the assignment of its Experimental Biology Branch to the existing Environmental Processes Division, and the assignment of its Ecosystem Dynamics Branch to the existing Conservation & Utilization Division.

The new name will begin appearing on Center publications, reports, etc., as existing supplies of cover stock, letterhead, etc., are depleted. Contact Dr. John B. Pearce, FTS 840-1261 or (508) 548-5123.

## 1990 STATUS-OF-THE-STOCKS REPORT ISSUED

The "Status of the Fishery Resources off the Northeastern United States for 1990" has been issued. The first section of this annual report covers trends in overall resource abundance, fishery landings, and fishery economics. The economic analysis in this issue has been considerably strengthened compared to previous issues. The second section of the report covers the population status of 34 major species or species groupings.

A limited number of copies are available free. Contact Lynn D. Forbes, FTS 840-1260 or (508) 548-5123, to request a copy, and/or Jon A. Gibson, FTS 840-1228 or (508) 548-5123, to be placed on the mailing list for the 1991 issue (which should be available in mid-fall 1991).

## EAST COAST SHARK RESOURCES SURVEYED

A longline survey of shark resources was conducted from Miami, Florida, to southern Massachusetts during April 23 - June 7. There were 140 sets of about 100 hooks each. Each set was fished for 2-3 hours. The total catch was 545 fish representing 30 species. The total catch per unit of effort (CPUE) was 3.8 fish per 100 hooks fished. The shark portion of the catch was 447 fish representing 18 species. The shark CPUE was 3.1 fish per 100 hooks fished.

The most recent previous survey of this type, in 1989, had a total CPUE of 5.0 fish per 100 hooks fished, but the results of the 1989 survey are not easily comparable with the results of this survey because the 1989 survey included catches in the Gulf of

Mexico as well. One comparison that is available at this point, though, is the catch of sandbar sharks between Miami, Florida, and Delaware Bay. The catch of this species dropped from 345 to 111 between the 1989 and 1991 surveys. Contact Jack Casey, FTS 838-6320 or (401) 782-3320.

#### BROWN TIDE RETURNS TO EASTERN LONG ISLAND SOUND

Brown tide, which is a bloom of the chrysoomonad *Aureococcus anophagefferens*, returned to eastern Long Island Sound in June. Concentrations of this phytoplankter reached levels that decimated the area's bay scallop resource and eelgrass habitat in 1985. The highest levels in June (approximately two million cells per milliliter) were eight times that known to harm marine animals. Cell levels dropped below the known harmful level in July, but it's likely that bay scallop larvae were killed by the earlier stage of the bloom. Fortunately, a portion of the area's bay scallops will spawn a new crop of larvae this fall -- hopefully when there's no bloom. [Brown tide status provided by Dr. R. Nuzzi, Suffolk County (New York) Department of Health Services.]

The first goal of brown tide study by the Center is to obtain *A. anophagefferens* in pure culture (i.e., not contaminated by bacteria). Tests are now being conducted to find antibiotics that kill contaminants, yet permit the very-antibiotic-intolerant *A. anophagefferens* to survive. Contact Dr. John B. Mahoney, FTS 342-3055 or (908) 872-3055.

#### DEAD SEALS AGAIN FOUND ON EASTERN LONG ISLAND. CAUSE(S) STILL UNKNOWN

For the third year in a row, a significant number of dead seals have been found on the shores of eastern Long Island. Between January 31 and May 17, 39 dead seals were found, composed of 30 harbor seals, 3 grey seals, 3 hooded seals, 2 harp seals, and 1 ringed seal. The hooded, harp, and ringed seals are boreal species (i.e., their normal habitat is cold/arctic waters), but they've been extending their ranges southward on both sides of the North Atlantic in recent years.

A thorough necropsy was conducted on each recovered animal, except on those too badly decomposed. In examining the stomach contents of two harbor seals, we found some biotoxins in the fish in the stomachs. However, the biotoxin concentrations didn't appear to be high enough to be the direct cause of death. These deaths remain a mystery. Contact Colleen Coogan, FTS 837-9291 or (508) 281-9291, on seal strandings/deaths, or Dr. Christopher Martin, FTS 837-9297 or (508) 281-9297, on biotoxin analysis.

## TWO NEW SPECIES OF TONGUEFISHES FROM WESTERN ATLANTIC

Systematics of a "complex" of tonguefishes from the western Atlantic have been clarified by National Systematics Laboratory (NSL) research. Until now, the common practice had been to recognize only two species in this complex: *Symphurus civitatum*, ranging along the southeastern United States to northern Mexico, and *S. plagusia*, with two subspecies ranging from the Caribbean to northern Uruguay. The NSL research shows, though, that there are five distinct species in this complex, four of which have overlapping geographic ranges. Two of the species are new to science. Contact Dr. Thomas A. Munroe, FTS 357-4225 or (202) 357-4225.

## NEW SPECIES OF MORAY EEL FROM WALTERS SHOALS, MADAGASCAR RIDGE

A new species of moray eel, *Gymnothorax parini*, from Walters Shoals on the Madagascar Ridge has been formally described. The moray was discovered on a cruise of the Soviet oceanographic vessel *Vityaz* in 1988. It has been named after Dr. Nikolai Parin, an expert on the fish fauna of seamounts and the leader of *Vityaz*'s Cruise No. 17 on which all material on this species was collected. Contact Dr. Bruce B. Collette, FTS 357-2524 or (202) 357-2524.

## RECENT PUBLICATIONS & REPORTS

Center authors are indicated in all capital letters in the list below. Unless otherwise indicated, single reprints or photocopies of the publications and reports are available--subject to supply--by writing to the senior Center author c/o Information Services Unit, Northeast Fisheries Science Center, 166 Water St., Woods Hole, MA 02543-1097 USA.

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CONSERVATION AND UTILIZATION DIVISION, NORTHEAST FISHERIES CENTER. 1991. Status of the fishery resources off the northeastern United States for 1990. NOAA Tech. Mem. NMFS-F/NEC-81. 130 pp.

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AUGUST 1991

*In this issue:*

DEMERSAL RESOURCES OVER EXPLOITED; PELAGIC RESOURCES UNDER EXPLOITED

CANNING REDUCES TOXICITY IN ATLANTIC SURFCLAMS

INSTRUMENT TO EVALUATE SEAFOOD QUALITY SHOWS PROMISE

SYSTEM DEVELOPED TO MONITOR ENVIRONMENTAL EFFECTS ON YOUNG FISH IN THE FIELD

NEW FOSSIL CRAB FROM WESTERN INTERIOR UNITED STATES

SYSTEMATICS LAB'S ANNUAL REPORT AVAILABLE

The Northeast Fisheries Science Center's *Monthly 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.

**DEMERSAL RESOURCES OVER EXPLOITED; PELAGIC RESOURCES UNDER EXPLOITED**

An *Advisory Report on Stock Status* of nine Northwest Atlantic species/stocks is available. The report stems from the 12th (spring 1991) Regional Stock Assessment Workshop, and classifies each species/stock as to its "stock level" (i.e., high, medium, or low) and its "exploitation rate" (i.e., under exploited, fully exploited, or over exploited). For each combination of stock level and exploitation rate, the report assigns standardized scientific advice for fishery managers. Below are tables which list: (1) the stock levels and exploitation rates for each species/stock, and (2) the management advice associated with each combination. Contact Dr. Andrew A. Rosenberg, FTS 840-1225 or (508) 548-5123.

Species/Stock	Stock Level	Exploitation Rate
Atlantic cod		
Gulf of Maine	Medium	Over exploited
Yellowtail flounder		
Georges Bank	Low	Over exploited
Southern New England	Low	Over exploited
Sea scallop		
South Channel	Medium	Over exploited
Delmarva	Medium	Over exploited
Atlantic mackerel	High	Under exploited
Butterfish	High	Under exploited
Longfin squid	Medium	Under exploited
Northern shortfin squid	Medium	Under exploited

		STOCK LEVEL		
		LOW	MEDIUM	HIGH
EXPLOITATION RATE	OVER EXPLOITED	Reduce Exploitation, Rebuild Stock Biomass	Reduce Exploitation, Rebuild Stock 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

## CANNING REDUCES TOXICITY IN ATLANTIC SURFCLAMS

Further experiments on the role of processing in reducing paralytic toxicity in Atlantic surfclams from Georges Bank show promise. Starting with surfclams which have about five-times more toxicity than federal standards permit, we can now produce a canned product which meets federal standards. The reduction in toxicity comes from the combined effects of removal of highly toxic tissues from the surfclams, and of heat-induced degradation of the remaining toxins.

Further experiments are needed to confirm these preliminary findings. If confirmed, these findings suggest that harvesting of moderately toxic surfclams may someday be permitted, provided that the product undergoes a standardized, certified canning process. **HOWEVER**, fishermen, processors, retailers, and consumers should be aware that this recent research in no way changes current prohibitions on landing and/or processing of any surfclams from Georges Bank. For information on canning procedures, contact Kurt A. Wilhelm, FTS 837-9308 or (508) 281-9308; for information on toxin analysis, contact Dr. Christopher Martin, FTS 837-9297 or (508) 281-9297.

## INSTRUMENT TO EVALUATE SEAFOOD QUALITY SHOWS PROMISE

A commercially available instrument, "Microfresh" (Pegasus Biotechnology, Ltd., Agincourt, Ont.), shows promise as a quick and reliable test for seafood quality, although more testing is needed. The instrument measures the "K" value which is related to the amount of hypoxanthine, a breakdown product and a quality indicator in seafood. In initial tests on Atlantic cod fillets stored on ice, the measured K value rose from 0 percent on day 0 to 47 percent on day 5 of iced storage. Contact Richard S. Maney, FTS 837-9320 or (508) 281-9320.

## SYSTEM DEVELOPED TO MONITOR ENVIRONMENTAL EFFECTS ON YOUNG FISH IN THE FIELD

The Center has completed its research, under contract to the U.S. Environmental Protection Agency (EPA), to demonstrate the usefulness of field-planted living chambers for monitoring the survival and growth of early life stages of fishes. Such chambers, or some other system designed to achieve the same objectives, will be needed to assess actual environmental effects, including pollutant effects, on these most sensitive life stages in our estuarine and coastal habitats. Field experiments, based on the use of these chambers, are also a logical extension of laboratory experiments on environmental/pollutant effects.

The chambers developed by the Center were tested at various sites in Narragansett Bay with larval winter flounder and tautog. In addition to providing EPA with the design of these chambers, the Center also provided the methods for deploying and retrieving the chambers, the designs and procedures for conducting experiments, and the techniques for stocking, rearing, and retrieving early life stages of the two

fish species. Contact Dr. Geoffrey C. Laurence, FTS 838-6350 or (401) 782-3350, or Dr. Lawrence J. Buckley, FTS 838-6368 or (401) 782-3368.

NEW FOSSIL CRAB FROM WESTERN INTERIOR UNITED STATES

Collaborative efforts between the National Systematics Laboratory and Georgia Southern University have revealed a new species of fossil calappid crab. The new species, *Necrocarcinus olsonorum*, comes from the Cretaceous Carlile Shale of Turonian Age from the northern and eastern flanks of the Black Hills Uplift in South Dakota and Wyoming. Contact Dr. Austin B. Williams, FTS 357-2639 or (202) 357-2639.

SYSTEMATICS LAB'S ANNUAL REPORT AVAILABLE

The *National Systematics Laboratory Report for Calendar Year 1990* is available. The report summarizes the lab's taxonomic research activities, scientific publications, and identification services on marine fishes, crustaceans, squids, and corals. Contact Dr. Bruce B. Collette, FTS 357-2524 or (202) 357-2524.

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SEPTEMBER 1991

*In this issue:*

FORECASTS FOR "YEARS-TO-RECOVERY" AT FORMER SEWAGE SLUDGE DUMPSITE

NMFS ISSUES STRATEGIC PLAN FOR LIVING MARINE RESOURCES

FATTY-ACID PROFILE DISTINGUISHES AQUACULTURED FROM WILD SHRIMP

SURIMI TESTING METHODS VIDEOTAPED

RELATIVE FISHING POWER OF RESEARCH VESSELS & GEAR EVALUATED

NEW SPECIES OF DEEPWATER SPIDER CRAB DESCRIBED

331-POUND ATLANTIC HALIBUT LANDED

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## FORECASTS FOR "YEARS-TO-RECOVERY" AT FORMER SEWAGE SLUDGE DUMPSITE

Continuing analysis of data from our three-year study of the ability of the New York Bight apex's 12-Mile Dumpsite to recover following cessation of sewage sludge dumping, has permitted us to forecast some recovery rates. Based on the data available, we predict that within four years, the worst of the heavy-metal pollution will have abated. We also predict that within 10 to 20 years, the concentration of *Clostridium perfringens* spores--a microbial indicator of sewage sludge pollution--will decline to the "background" level. Contact Andrew F.J. Draxler, FTS 342-3054 or (908) 872-3054.

## NMFS ISSUES STRATEGIC PLAN FOR LIVING MARINE RESOURCES

The National Marine Fisheries Service (NMFS) has issued a 21-page *Strategic Plan for the Conservation and Wise Use of America's Living Marine Resources*. The last such effort was the issuance of *A Marine Fisheries Program for the Nation* in 1976 (prior to implementation of the Magnuson Act). The new strategic plan has eight goals:

1. Rebuild overfished marine fisheries.
2. Maintain currently productive fisheries.
3. Advance fishery forecasts & ecosystem models.
4. Integrate conservation of protected species & fisheries management.
5. Improve seafood safety.
6. Protect living marine resource habitat.
7. Improve the effectiveness of international fisheries relationships.
8. Reduce impediments to U.S. aquaculture.

A regional strategic plan for the northeastern United States, based on the national plan, will soon be issued. To obtain a photocopy of the national strategic plan or to be placed on the mailing list for the regional plan when it becomes available, contact D. Lynn Forbes, FTS 840-1260 or (508) 548-5123.

## FATTY-ACID PROFILE DISTINGUISHES AQUACULTURED FROM WILD SHRIMP

A comparison of the fatty-acid profiles of pond-raised and wild white shrimp shows a higher level of omega-6 fatty acids in the former, and a higher level of omega-3 fatty acids in the latter. The higher level of omega-6 in the aquacultured shrimp results from the shrimp being fed a diet of vegetable products. Higher levels of omega-6 have been found in other aquacultured species being fed vegetable-product diets, and have been used to distinguish aquacultured from wild specimens of the same species.

Omega-3 fatty acids are those fatty acids contributed to our diet primarily from seafood, and purported to be therapeutic in the prevention of stroke and heart disease. Contact Judith Krzynowek, FTS 837-9226 or (508) 281-9226.

#### SURIMI TESTING METHODS VIDEOTAPED

To assure consistent methods during our surimi research--even if new researchers come on board--we have documented on videotape how we prepare and test surimi gel samples. Surimi is reconstituted fish flesh which is used in artificial seafood products such as crab legs; surimi gel is the intermediate product in the surimi manufacturing process which differs from the final product only by the addition of flavorings and colorizers. The surimi research is a collaborative effort with the Refrigeration Research Foundation.

Important characteristics of surimi gel that are evaluated in the videotape include elasticity and firmness. Researchers in the surimi field who want to obtain additional information or to borrow the videotape should contact Kurt A. Wilhelm, FTS 837-9308 or (508) 281-9308.

#### RELATIVE FISHING POWER OF RESEARCH VESSELS & GEAR EVALUATED

Changes in fishing vessels and gear can produce changes in fish catches; that holds for fishery research as well as for commercial fishing. Since 1963, the Center's standardized bottom trawl surveys have relied primarily on the research vessel Albatross IV, although the research vessel Delaware II has been used as well. Also, two styles of trawl doors have been used during the survey time series: BMV doors were replaced by polyvalent doors in 1985. To measure any catch differences due to using these different vessels and styles of doors, the Center has conducted--over the years--510 side-by-side tows with the two vessels, and eight experiments with the two styles of doors. Necessary catch conversion factors for fish species have been developed.

Results, including statistical analyses, of these research-gear comparison studies are available to fishery scientists elsewhere who may require them. In addition, methods have been developed which will aid other fishery scientists in developing their own catch conversion factors. For information on survey vessel and gear studies, contact Charles J. Byrne, FTS 840-1224 or (508) 548-5123; for information on statistical analyses of survey data, contact Janice Forrester, FTS 840-1238 or (508) 548-5123.

### NEW SPECIES OF DEEPWATER SPIDER CRAB DESCRIBED

National Systematics Laboratory scientists, in collaboration with NMFS Honolulu Laboratory scientists, have described a new genus and species (*Bothromaia griffini*) of spider crab (family Majidae). The new species was collected during deepwater sampling in the Mariana Archipelago of the western Pacific. Contact Dr. Austin B. Williams, FTS 357-2639 or (202) 357-2639, or Dr. Robert B. Moffitt, FTS 551-3615 or (808) 943-1221.

### 331-POUND ATLANTIC HALIBUT LANDED

A 331-pound Atlantic halibut was caught near Cashes Ledge, Gulf of Maine, and landed at the Portland Fish Exchange. Such a large specimen of this species is extremely rare today. In the 1880s, though, when longline fishermen first targeted what was then a virgin population of halibut, fish in the 600-700 pound range were regularly seen. Contact Scott McNamara, FTS 833-3322 or (207) 780-3322.

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OCTOBER 1991

In this issue:

1991 EDITION OF "STATUS OF THE FISHERY RESOURCES..." RELEASED  
RESOURCE SURVEYS CONDUCTED; REPORT AVAILABLE ON SCALLOPS  
HERRING RECOVERY IN MASSACHUSETTS BAY & NANTUCKET SHOALS CONTINUES  
GUIDE TO CATCH & RELEASE AND TAG & RELEASE EDUCATIONAL MATERIALS  
RECENT PUBLICATIONS AND REPORTS

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## 1991 EDITION OF "STATUS OF THE FISHERY RESOURCES..." RELEASED

The "Status of the Fishery Resources off the Northeastern United States for 1991" has been issued as NOAA Technical Memorandum NMFS-F/NEC-86. The 132-page report -- available upon request -- includes: (1) a description of methods used to assess the status of fish stocks; (2) a discussion of trends in resource abundance, fisheries landings, fisheries economics, and recreational fisheries; and (3) summaries of the status of 37 major species or species groups. Inquiries on the report's findings should be directed to Dr. Vaughn C. Anthony, FTS 840-1304 or (508) 548-5123; requests for copies should be directed to D. Lynn Forbes, FTS 840-1260 or (508) 548-5123.

## RESOURCE SURVEYS CONDUCTED; REPORT AVAILABLE ON SCALLOPS

The Center has recently conducted surveys of the Northeast's sea scallop resources, the Gulf of Maine's demersal fisheries resources, and (in conjunction with state fishery scientists) the western Gulf of Maine's northern shrimp resources. A *Fishermen's Report* is available on the results of the scallop survey. To receive a copy of the scallop report, and/or to be placed on the mailing list for one or more of the four types of *Fishermen's Reports* (autumn bottom trawl, spring bottom trawl, sea scallop, and Atlantic surfclam - ocean quahog), contact Linda I. Despres-Patanjo, FTS 840-1346 or (508) 548-5123.

## HERRING RECOVERY IN MASSACHUSETTS BAY & NANTUCKET SHOALS CONTINUES

For the third year in a row (1988-90), the spawning grounds of Atlantic herring off Southern New England centered in Massachusetts Bay and over the eastern half of Nantucket Shoals. Also for the third year in a row, some recently hatched herring larvae were found on Georges Bank as far east as Cultivator Shoals, but no larvae were found on the Northeast Peak of Georges Bank -- the principal spawning grounds for the entire Gulf of Maine region during the 1960s and early 1970s. The historically important spawning grounds on the eastern half of Georges Bank have now been dormant for more than a decade. Contact Wallace G. Smith, FTS 342-3060 or (908) 872-3060.

## GUIDE TO CATCH & RELEASE AND TAG & RELEASE EDUCATIONAL MATERIALS

A small but informative pamphlet has been produced to help anglers obtain educational videotapes, booklets, etc., on releasing fish properly, and to help them contact organizations and agencies sponsoring angler-assisted scientific tagging programs. The pamphlet, "Giving Something Back: Catch & Release and Tag & Release Fishing -- Angler's Guide to Programs and

Resources on the Atlantic Coast," is available free by contacting Tom Morrissey, FTS 840-1236 or (508) 548-5123. A technical report on the scientific study and workshop which were the genesis of the aforementioned pamphlet is available from the Virginia Institute of Marine Science for \$4.00; contact Jon Lucy, (804) 642-7000.

#### RECENT PUBLICATIONS & REPORTS

Center authors are indicated in all capital letters in the list below. Unless otherwise indicated, single reprints or photocopies of the publications and reports are available--subject to supply--by writing to the senior Center author c/o Information Services Unit, Northeast Fisheries Science Center, 166 Water St., Woods Hole, MA 02543-1097 USA.

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- CONSERVATION AND UTILIZATION DIVISION, NORTHEAST FISHERIES SCIENCE CENTER. 1991. Status of the fishery resources off the northeastern United States for 1991. NOAA [Nat. Ocean. Atmos. Admin.] Tech. Mem. NMFS [Nat. Mar. Fish. Serv.]-F/NEC-86. 132 pp.
- MUNROE, T.A., M.A. NIZINSKI, and M.N. Mahadeva. 1991. *Symphurus prolatinaris*, a new species of shallow-water tonguefish (Pleuronectiformes: Cynoglossidae) from the eastern Pacific. Proc. Biol. Soc. Wash. 104(3): 448-458.
- [NORTHEAST FISHERIES SCIENCE CENTER.] 1991. Report of the Twelfth Northeast Regional Stock Assessment Workshop (12th SAW), spring 1991. [Nat. Mar. Fish. Serv.] Northe. Fish. Ctr. Ref. Doc. No. 91-03. 187 pp.
- RUHSAM, C.M., and G.B. WOOD. 1991. Report of water masses receiving wastes from ocean dumping at the 106-Mile Dumpsite. [Nat. Mar. Fish. Serv.] Northe. Fish. Ctr. Ref. Doc. No. 91-02. 5 pp.
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