

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

JANUARY 1989

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RECENT PUBLICATIONS AND REPORTS

The Northeast Fisheries Center's Monthly Highlights is an administrative report on key Center research activities during the month. The report focuses on the practical applications of research findings to fisheries resource and habitat management. A name and telephone number have been included at the end of each research highlight to contact for more information.

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**MONTHLY
HIGHLIGHTS**



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FEBRUARY 1989

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1988 NEW ENGLAND FISH HARVESTS UP IN WEIGHT, DOWN IN VALUE

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1988 NEW ENGLAND FISH HARVESTS UP IN WEIGHT, DOWN IN VALUE

Preliminary figures for commercial landings of New England fish and shellfish during 1988 were 568.6 million pounds, valued at 493.2 million dollars. These 1988 figures are up 23.4 million pounds, but down 19.2 million dollars, from the 1987 figures.

This marks the first time since 1984 that the value of New England landings has failed to increase. In the past, decreases in the value of New England landings have generally been attributed to increases in the imports of less expensive Canadian fishery products. However, imports of cod and other finfish from Canada to New England dropped from 1.08 billion pounds in 1987 to 0.95 billion pounds in 1988, indicating that there are probably other market factors affecting prices.

Detailed information on the landings and values on a state, port, and species basis is available. Contact Ronnee L. Schultz, FTS 840-1264 or (508) 548-5123.

FLATFISH LIVER DISEASE IS INDICATOR OF COASTAL WATER QUALITY

The Center has issued a report, "Fish as Sentinels of Environmental Health," on liver disease, including cancer, in Boston Harbor's winter flounder, and on organic contaminants, especially polychlorinated biphenyls (PCBs) and polycyclic aromatic hydrocarbons (PAHs), in the harbor's sediments. The report finds that the relationship between the high prevalences of disease and the high concentrations of contaminants is only circumstantial--no specific cause-and-effect relationship has yet been established.

The fact, however, that flatfishes from areas with high organic contaminant concentrations (e.g., Boston Harbor, Mass., Commencement Bay, Wash.) have high liver disease prevalences, and that flatfishes from areas with low concentrations (e.g., eastern Long Island Sound, western Gulf of Maine) have low prevalences, suggests that flatfish liver disease is a good indicator of environmental quality in the nation's coastal waters.

A limited number of copies of the report, issued as NOAA Technical Memorandum NMFS-F/NEC-61, are available. Contact Dr. Robert A. Murchelano, FTS 840-1263 or (508) 548-5123.

SHELL DISEASE SYNDROME IN MARINE CRUSTACEANS IS DESCRIBED

The Center has published a report on "The Shell Disease Syndrome in Marine Crustaceans." Crustacean shell disease goes under a number of different names, but it's probably the most common and widespread microbially-induced disease in crustaceans.

The report, issued as NOAA Technical Memorandum NMFS-F/NEC-64, discusses the causes and development of the disease syndrome, and then looks at its role in natural habitats, degraded habitats, impounded populations, and aquacultured populations. Also

(cont.)

included is a table summarizing the reported occurrences of shell disease in economically important crustaceans throughout the world.

A limited number of copies of the report are available. Contact Dr. Carl J. Sindermann, (301) 226-5193.

HISTORICAL ACCOUNT OF RARITAN BAY'S WINTER FISHERY FOR BLUE CRABS

An article on "The Winter Dredge Fishery for Blue Crabs in Raritan Bay, New Jersey," has been published. Based on historical accounts, interviews with past and present fishermen, and trips on fishing boats, the article reconstructs the history of this fishery which is at least 100 years old. The first boats were sailing sloops which were used for clamming in the summer and oystering in the autumn. Until the mid-1930s, the three-foot-wide dredges were hand-hauled.

In the 1970s and most of the 1980s, daily crab catches per boat ranged from 4 to 30 bushels. In the 1988-89 season, however, catches ranged mostly from 30 to 50 bushels. The article speculates on the relationship between the extraordinarily warm summers of 1987 and 1988 and the significantly larger catches this past season.

Reprints of the article are available. Contact Clyde M. MacKenzie, FTS 342-8267 or (201) 872-0200.

YOUNG STRIPED BASS AFFECTED BY POOR WATER QUALITY

Presentations at the federal Emergency Striped Bass Study's recent annual Striped Bass Workshop had three key findings. First, the 1988 juvenile abundance indices were very low for the Maryland waters of Chesapeake Bay, somewhat higher than last year but still relatively low for the Roanoke stock, and very high for the Hudson stock and the Virginia waters of Chesapeake Bay.

Second, water quality was poor in the Choptank, Nanticoke, and Potomac Rivers, but good in upper Chesapeake Bay--findings which correlated well with the juvenile abundance indices for these areas.

Third, bioassays revealed a 100 percent mortality of larval striped bass being held in Nanticoke River water during a 20-hour period when the pH dropped from 7.2 to the low 6s and then climbed back to 7.2 again. This is the first time such acid rainfall mortality has ever been documented in the field. Contact Dr. R. Anne Richards, FTS 840-1357 or (508) 548-5123.

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Contact: Frederick G. Kern

SHELLFISH HARMED BY FEEDING ON METAL-CONTAMINATED PHYTOPLANKTON

Reduced growth, loss of weight, and even mortality can occur in shellfish when they feed on phytoplankton contaminated with toxic metals. This finding stems from laboratory experiments in which young post-set eastern oysters and northern quahogs were fed diets of three common microalgae species (Isochrysis galbana, Dunaliella tertiolecta, and Phaeodactylum tricornutum) that had been induced to tolerate, and had been cultured in, a growth medium with high levels of cadmium.

As these cadmium-tolerant strains of single-celled microalgae accumulated the metal in their cells, they also developed abnormal proportions of protein, fat, and carbohydrate. Thus, toxicity and nutrition may interact when shellfish feed on metal-contaminated phytoplankton.

The implications of this finding are being considered for those shellfish populations exposed to toxic metals in polluted riverine outflow, inshore industrial and sewage discharges, and offshore industrial and sewage sludge dumping. Contact Gary H. Wikfors, FTS 642-5225 or (203) 783-4225.

COOLING OF SURFACE WATERS IN SUMMER 1988

Surface waters along the Mid-Atlantic coast, particularly New Jersey and Delaware, cooled significantly in summer 1988. A NOAA data buoy moored off northern Delaware recorded five periods of surface cooling altogether occupying 75 percent of the summer. Recreational fishermen reported that at times during the summer they had to go 20-25 miles offshore to find surface temperatures and pelagic fishes that they would normally find near shore.

The most prominent period of surface cooling was in August. The NOAA data buoy off northern Delaware recorded a drop of 11°F; a NOAA shore station along the Atlantic City, New Jersey, beach recorded a drop of 23°F; and a NOAA satellite showed the surface cooling extending over almost the full width of the continental shelf from northern Virginia to eastern Long Island, New York. At the same time, record and near-record high air temperatures were being reported on land throughout much of the Northeast.

Each cooling event in surface waters was associated with strong, persistent southwesterly winds, or steady high winds. The southwesterly winds led to upwelling along the coast of cool subsurface waters; the high winds to mixing of surface waters with cool subsurface waters. Contact Margaret Sano, FTS 838-6284 or (401) 782-3284.

HARD DATA FOR BLUE SHARK AGE DETERMINATION

To be sure that the rings seen in blue shark vertebrae are actually annular growth rings, we injected 544 tagged blue sharks with the common antibiotic tetracycline which stains the vertebrae. All tissues, including the rings, added to the vertebrae after injection didn't show the stain. Consequently, if the rings are annular, then one unstained ring should be present for each year the shark is at liberty after injection.

We've had two of the injected sharks returned. One was returned so soon (nine months) after its release that it had not had time to deposit an annular ring. The other was returned in December 1988 after more than 18 months at liberty. Under ultraviolet light, the vertebrae of the December-returned shark revealed one clear unstained ring outside the bright yellow stained rings. In the 18 months of liberty, the blue shark had grown from 45.7 inches to 65.4 inches, or about 13.0 inches per year.

These findings support our hypothesis that the vertebral rings of blue sharks are annular, as well as the accuracy of our other methods for age and growth determination in this species. Contact John G. Casey, FTS 838-6320 or (401) 782-3320.

RECENT PUBLICATIONS AND REPORTS

Reprints of publications and copies of reports listed below are available in limited numbers by writing to the senior Center author (whose name appears in capitals) care of: Information Services Section, Northeast Fisheries Center, Woods Hole, MA 02543 USA.

CONSERVATION & UTILIZATION DIVISION, NORTHEAST FISHERIES CENTER.
1988. Status of the fishery resources off the northeastern United States for 1988. NOAA [Nat. Ocean. Atmos. Admin.] Tech. Mem. NMFS [Nat. Mar. Fish. Serv.]-F/NEC-63. 135 pp.

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FARLEY, C.A., P.H. Wolf, and R.A. Elston. 1988. A long-term study of "microcell" disease in oysters with a description of a new genus, Mikrocytos (g.n.), and two new species, Mikrocytos mackini (sp. n.) and Mikrocytos roughleyi (sp. n.). Fish. Bull., U.S. 86(2): 581-593.

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- PACHECO, A.L., ed. 1988. Characterization of the Middle Atlantic water management unit of the Northeast Regional Action Plan. NOAA [Nat. Ocean. Atmos. Admin.] Tech. Mem. NMFS [Nat. Mar. Fish. Serv.]-F/NEC-56. 322 pp.
- PETERSON, A.E., JR. 1988. Future of Atlantic salmon management: Law of the Sea/fair sharing. Mar. Rec. Fish. 12: 175-181.
- SERCHUK, F.M., and S.E. WIGLEY. 1988. Status of sea scallop resources off the northeastern United States, 1988. [Nat. Mar. Fish. Serv., Northe. Fish. Ctr.,] Woods Hole Lab. Ref. Doc. No. 88-03. 30 pp.
- Smolowitz, R.J., and F.M. SERCHUK. 1988. Marine fisheries technology in the United States: status, trends and future directions. Oceans '88 Proc. 3: 975-979.
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- VECCHIONE, M. 1987. Commercial fishing for gulf butterfish, Peprilus burti, in the Gulf of Mexico. Mar. Fish. Rev. 49(4): 14-22.
- WILLIAMS, A.B. 1988. Cojoined twin adult shrimp (Decapoda: Penaeidae). Fish. Bull., U.S. 86(2): 595-596.

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MARCH 1989

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MODEL ESTIMATES AT-SEA EXPLOITATION OF U.S. SALMON

METHOD TESTED FOR FISHERMEN TO DETERMINE SEA SCALLOP "MEAT COUNT"
AT SEA

The Northeast Fisheries Center's Monthly Highlights is an administrative report on key Center research activities during the month. The report focuses on the practical applications of research findings to fisheries resource and habitat management. A name and telephone number have been included at the end of each research highlight to contact for more information.

MODEL ESTIMATES AT-SEA EXPLOITATION OF U.S. SALMON

A mathematical model of U.S. Atlantic salmon stocks suggests that as many as 70 percent of adult U.S. salmon may be captured sometime in their life by the interception fisheries in Greenland and Canada. These interceptions occur as the fish move between their at-sea feeding grounds and their homewater spawning streams. The model, based on U.S. tag-return data, assumes two possible migration routes for the fish between the fishing areas and homewaters.

Results of the model were presented by Center scientists at a March meeting in Copenhagen, Denmark, of the International Council for the Exploration of the Sea's North Atlantic Salmon Working Group. Also presented at the meeting was a Center paper on the use of otolith (ear stone) image analysis to determine a salmon's continent of origin. These image analysis techniques are almost as accurate and certainly more cost effective than the biochemical analysis methods currently in use. Contact Dr. Kevin D. Friedland, FTS 840-1369 or (508) 548-5123.

METHOD TESTED FOR FISHERMEN TO DETERMINE SEA SCALLOP "MEAT COUNT" AT SEA

As part of the Joint Industry-Government Sea Scallop Cooperative Research Program, scientists from NMFS's Northeast Region have prepared a report which evaluates the use of a volumetric measuring device for determining sea scallop "meat counts." (Meat count refers to the number of scallop meats per pound--the current basis of scallop management.) Based on laboratory and field experiments, the report shows that meat counts determined volumetrically are as accurate and precise as meat counts determined using weight-based procedures. The report also describes a standardized volumetric sampling method, along with sampling guidelines, for scallop fishermen to determine the meat count of their catch at sea.

A limited number of copies of the report, "The Use of a Volumetric Measuring Device for Determining Sea Scallop Meat Count," are available. Contact Dr. Fredric M. Serchuk, FTS 840-1245 or (508) 548-5123, or CDR Ronald J. Smolowitz, FTS 837-9300 or (508) 281-9300.

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APRIL 1989

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LONG ISLAND SOUND POLLUTION LINKED TO WINTER FLOUNDER EMBRYO MOR-
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"FISHERMEN'S REPORT" AVAILABLE FOR SPRING BOTTOM TRAWL SURVEY

A Fishermen's Report, based on the Center's 1989 spring bottom trawl survey, is available. The report lists the composition and size of catches for 24 commercially and recreationally important species at 299 sites between the western Scotian Shelf and Cape Hatteras. The report also includes information on the exact location (latitude & longitude and loran C bearings), tow direction, time of day, water depth, and bottom temperature of the sampling sites. This spring's survey was conducted aboard the Delaware II during February 27 -April 13.

Compared to the spring 1988 survey, this spring's survey caught fewer Atlantic cod and summer flounder. The largest catches of pollock and haddock were from the Northeast Peak of Georges Bank (Canadian waters). The largest catches of yellowtail flounder were from the offshore waters of Long Island. Catches of Atlantic herring were broadly distributed from Cape Hatteras to the Gulf of Maine.

The Fishermen's Report series is composed of three annual issues: (1&2) spring and autumn bottom trawl surveys, and (3) sea scallop survey. A Fishermen's Report is also issued after each Atlantic surf clam - ocean quahog survey which is conducted about every other year (the last one being in 1986). To subscribe to one or more of these issues, contact Linda I. Despres-Patanjo, FTS 840-1346 or (508) 548-5123.

GUIDE PUBLISHED TO NORTHEAST'S SQUIDS AND OCTOPI

A guide to the squids and octopi of the Northeast's continental shelf has been published. The guide includes: (1) an identification key (with diagnostic illustrations) to the 11 species commonly found between Nova Scotia and Cape Hatteras, (2) information on two oceanic species that are regularly swept onto the Northeast's shelf by Gulf Stream eddies and can be confused with some of the shelf species, and (3) a checklist of 89 other oceanic species and 18 more southerly shelf species that might occur occasionally on the Northeast's shelf. Contact Dr. Michael Vecchione, FTS/(202) 357-4990.

SHELLFISH BIOLOGY SEMINAR HELD; FOCUS ON POLLUTANT EFFECTS

The Center's ninth annual Shellfish Biology Seminar was recently held in Milford, Connecticut. Abstracts of the 17 talks and 7 posters are available. This year's seminar focused on coastal development and resulting pollutants on shellfish stocks and their spawning grounds. Pollutants covered in the talks included heavy metals, petroleum hydrocarbons, pesticides, herbicides, and polychlorinated biphenyls (PCBs). Also covered were effects of pathogenic bacteria and viruses as well as

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

LONG ISLAND SOUND POLLUTION LINKED TO WINTER FLOUNDER EMBRYO MORTALITY

Our three-year-old study of winter flounder reproduction in Long Island Sound shows increased mortality of flounder embryos the closer they are to polluted metropolitan areas. For those sites sampled during 1986-88, the shallow waters in New Haven (Connecticut) Harbor had the highest rate of embryonic mortality; the deep waters off Shoreham, New York, had the lowest rate. Contact Dr. Arlene Longwell, FTS 642-5207 or (203) 783-4207.

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KRZYNOWEK, J., D. D'ENTREMONT, and J. MURPHY. 1989. Proximate composition and fatty acid and cholesterol content of squid, Loligo pealei and Illex illecebrosus. *J. Food Sci.* 54(1): 45-48.

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SINDERMAN, C.J. 1989. The shell disease syndrome in marine crustaceans. NOAA Tech. Mem. NMFS-F/NEC-64. 43 pp.

STUDHOLME, A.L. 1989. Phaseout and closure of the 12-mile sewage sludge dumpsite: a case study on ecosystem response. Pages 68-92 in Proceedings 7th International Ocean Disposal Symposium, 12-25 Sept. 1987, Wolfville, Nova Scotia, Canada. 702 pp.

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MAY 1989

IN THIS ISSUE:

OXYGEN LEVELS IMPROVE AT FORMER DUMPSITE

GUIDE PREPARED ON FISH LENGTHS AT AGE

PAST NORTHERN QUAHOG RECRUITMENT FAILURE REVEALED BY SHELL
GROWTH-RING ANALYSIS

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OXYGEN LEVELS IMPROVE AT FORMER DUMPSITE

There's more evidence that the inner New York Bight's 12-Mile Dumpsite is recovering, following the end of sewage sludge dumping there in December 1987. Summertime dissolved oxygen levels at the dumpsite haven't dropped below 4.0 mg/l since the phaseout of sludge dumping began in March 1986. Prior to this period, summertime levels had dropped to less than 0.5 mg/l. This evidence of water quality improvement, combined with earlier-reported (October 1988 issue of Monthly Highlights) evidence of sediment quality improvement, gives hope for the ultimate recovery of the dumpsite's fisheries habitats.

The information on the dumpsite's dissolved oxygen levels is contained in a report on the "Response of the Habitat and Biota of the Inner New York Bight to Abatement of Sewage Sludge Dumping: Second Annual Progress Report--1988." The report also indicates that, historically, northeasterly storms have led to net transport of sediments out of the Hudson Shelf Valley and into the Hudson Canyon, and that our studies have shown recent sediment transport down the shelf valley. Copies of the report will soon be available as NOAA Technical Memorandum NMFS-F/NEC-67. Contact Robert N. Reid, FTS 342-8220 or (201) 872-3020.

GUIDE PREPARED ON FISH LENGTHS AT AGE

We've prepared "Guidelines for Estimating Lengths at Age for 18 Northwest Atlantic Finfish and Shellfish Species." This report, soon to be available for distribution as NOAA Technical Memorandum NMFS-F/NEC-66, also lists the maximum ages observed for 19 finfish species collected during the Center's bottom trawl surveys. For each species which shows significant differences in lengths at age due to differences in sex or geographical area, separate information is provided for each sex or area as available. Contact John M. (Jay) Burnett, FTS 840-1286 or (508) 548-5123.

PAST NORTHERN QUAHOG RECRUITMENT FAILURE REVEALED BY SHELL GROWTH-RING ANALYSIS

A survey of northern quahog populations off Greenwich and Milford, Connecticut, showed--through examination of shell growth-rings--that both populations have similar age distributions ranging from 1 to 50 years. There was a gap of ages 20-30 in the Greenwich population, though. This age gap appears to be recruitment failure and corresponds to a period of intense shellfishing in Greenwich. Shellfishing concentrated in Greenwich in the late 1950s to late 1960s due to closure of other shellfishing grounds for public health reasons. In contrast to Greenwich, steady recruitment occurred at Milford where fishing effort was less. Contact Ronald Goldberg, FTS 642-5246 or (203) 783-4246.

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JUNE 1989

IN THIS ISSUE:

ASSESSMENT INFORMATION PREPARED FOR POLLOCK STOCK

NEW CATALOG FOR REGISTRY OF MARINE PATHOLOGY

SYSTEMATIC LAB'S ANNUAL REPORT AVAILABLE

CENTER ICHTHYOLOGIST RECEIVES AWARD

The Northeast Fisheries Center's Monthly Highlights is an administrative report on key Center research activities during the month. The report focuses on the practical applications of research findings to fisheries resource and habitat management. A name and telephone number have been included at the end of each research highlight to contact for more information.

ASSESSMENT INFORMATION PREPARED FOR POLLOCK STOCK

The Center has prepared a report on "Stock Assessment Information for Pollock... in the Scotian Shelf, Georges Bank, and Gulf of Maine Regions." It will soon be available as NOAA Technical Memorandum NMFS-F/NEC-65.

The economic importance of pollock has increased in recent years as the abundance of such groundfishes as Atlantic cod, haddock, and yellowtail flounder has decreased. The annual harvest of pollock from these regions increased from about 25,000 metric tons (mt) in the late 1960s to about 65,000 mt in 1986 and 1987. Canada has accounted for about two-thirds of the harvests, the United States about one-fourth, and other countries the remaining one-twelfth.

The pollock fisheries of the past 15 years have been sustained by the recruitment of the relatively strong 1971, 1975, 1979, and 1982 year classes. Contact Ralph K. Mayo, FTS 840-1310 or (508) 548-5123.

NEW CATALOG FOR REGISTRY OF MARINE PATHOLOGY

An updated catalog of the holdings of the Registry of Marine Pathology (ROMP) has been prepared and is available upon request. The registry, established in 1975, is composed of over 500 microscope slides showing more than 400 kinds of diseased and parasitized tissue of marine fishes, mollusks, and crustaceans. These ROMP slides are particularly useful to students and practitioners in pathology, toxicology, and aquaculture.

The new catalog includes over 80 new accessions since the last updating in 1981, and offers five different indices (i.e., host animal, pathogen, geographic location of collection, diagnosis, and ROMP accession number) for ease of use. In preparation is a color photographic atlas of ROMP holdings which will supplement the catalog. The registry is now in the process of being incorporated into the Smithsonian Institution's Registry of Tumors in Lower Animals. Contact Sharon A. MacLean, FTS 838-6210 or (401) 782-3200.

SYSTEMATIC LAB'S ANNUAL REPORT AVAILABLE

The National Systematics Laboratory's 1988 Annual Report is available upon request. The report focuses on a summary of the results of the laboratory's taxonomic research into marine fishes, crustaceans, squids, and corals. Also covered are identification services and scientific publications during 1988. Contact Dr. Bruce B. Collette, FTS/(202) 357-2552.

-continued-

CENTER ICHTHYOLOGIST RECEIVES AWARD

At the recent annual meeting of the American Society of Ichthyologists and Herpetologists in San Francisco, Dr. Bruce B. Collette, Director of the National Systematics Laboratory, was presented with the first Robert H. Gibbs, Jr., Memorial Award. The award is offered annually "for an outstanding body of published work in systematic ichthyology by a citizen of the Western Hemisphere." Dr. Collette has published over 130 papers including three major monographs on tunas, bonitos, and Spanish mackerels which received "best publication" awards from the Fishery Bulletin. Contact Dr. Michael Vecchione, FTS/(202) 357-2524.

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JULY 1989

IN THIS ISSUE:

NMFS-TAGGED SHARK SETS TIME-AT-LIBERTY RECORD

PREDATORS OF JUVENILE NORTHERN QUAHOGS (HARD CLAMS) IDENTIFIED

RECENT PUBLICATIONS AND REPORTS

The Northeast Fisheries Center's Monthly Highlights is an administrative report on key Center research activities during the month. The report focuses on the practical applications of research findings to fisheries resource and habitat management. A name and telephone number have been included at the end of each research highlight to contact for more information.

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National Marine Fisheries Service
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National Systematics Laboratory Director.....Dr. Bruce B. Collette
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Data Management Support Staff Chief.....Dr. Eugene G. Heyerdahl
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NMFS-TAGGED SHARK SETS TIME-AT-LIBERTY RECORD

A recent recapture of a tagged sandbar shark after more than 24 years at liberty has set a new time-at-liberty record for the NMFS Cooperative Shark Tagging Program and for any shark in the Atlantic Ocean. The male sandbar was tagged during summer 1965 in Delaware Bay by a NMFS scientist, and then recaptured this summer in the Gulf of Mexico by a commercial longliner.

When the fish was tagged, it was 52 inches long; when it was recaptured, it was 72 inches long. The average growth rate was less than one inch per year! Other tag returns have shown this species to be slow growing.

The NMFS Cooperative Shark Tagging Program has established that many species of sharks have slow growth, slow maturation, and low reproductive potential (i.e., they're live bearers), all indicating that they could be easily overfished and should be carefully managed. Contact John G. Casey, FTS 838-6320 or (401) 782-3200.

PREDATORS OF JUVENILE NORTHERN QUAHOGS (HARD CLAMS) IDENTIFIED

Juvenile mud crabs (family Xanthidae) and adults of two species of amphipods (small shrimp-like animals) appear to be major predators of juvenile northern quahogs (hard clams) during the quahogs' first week of settling. That's a finding from our study of causes of natural mortality in economically important species, particularly during the highly vulnerable early life stages.

The predatory potential of the juvenile crabs and adult amphipods upon the juvenile quahogs is exemplified by the situation in Barnegat Bay, New Jersey (prime habitat for northern quahogs). During October 1987 in the bay, we found an average of 17 juvenile mud crabs for every square meter of the bottom. In the lab, we found that these crabs each consumed at least 100 juvenile quahogs a day. Contact Clyde L. MacKenzie, FTS 342-8267 or (201) 872-3067.

RECENT PUBLICATIONS AND REPORTS

Reprints of publications and copies of reports listed below are available in limited numbers by writing to the senior Center author (whose name appears in capitals) care of: Information Services Section, Northeast Fisheries Center, Woods Hole, MA 02543 USA.

BENWAY, R.L., and J.W. JOSSI. 1989. Expendable bathythermograph observations and continuous plankton records from the NMFS/ship of opportunity program for 1988. [Nat. Mar. Fish. Serv.,] Northe. Fish. Ctr. Ref. Doc. No. 89-05. 10 pp.

- BERMAN, M.S., A.L. McVey, and G. Ettershank. 1989. Age determination of Antarctic krill using fluorescence and image analysis of size. *Polar Biol.* 9: 267-271.
- CASEY, J. 1989. Gamefish profile: Isurus oxyrinchus, the shortfin mako shark. Pages 91-94 in *The yearbook of the Northeast big game fisherman*, vol. 2.
- FAHAY, M.P. 1989. The ontogeny of Steindachneria argentea Goode and Bean with comments on its relations. Pages 143-158 in D.M. Cohen, ed. *Papers on the systematics of gadiform fishes*. *Contrib. Sci. (Los Ang.)* No. 32.
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- Lazzari, M.A., K.W. Able, and M.P. FAHAY. 1989. Life history and food habits of the grubby, Myoxocephalus aeneus (Cottidae), in a Cape Cod estuary. *Copeia* 1989(1): 7-12.
- LOUGH, R.G., and R.W. Trites. 1989. Chaetognaths and oceanography on Georges Bank. *J. Mar. Res.* 47: 343-369.
- NORTHEAST FISHERIES CENTER. 1989. Report of the seventh NEFC stock assessment workshop (seventh SAW). [*Nat. Mar. Fish. Serv.*,] *Northe. Fish. Ctr. Ref. Doc. No. 89-04*. 108 pp.
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- POLACHECK, T. 1989. Yellowfin tuna, Thunnus albacares, catch rates in the western Pacific. *Fish. Bull.*, U.S. 87(1): 123-144.
- ROPES, J.W. (deceased September 1988). 1989. The food habits of five crab species at Pettaquamscutt River, Rhode Island. *Fish. Bull.*, U.S. 87(1): 197-204.
- SANO, M.A., LTJG. 1989. Report of water masses receiving wastes from ocean dumping at the 106-Mile Dumpsite, 1 October 1987 through 30 September 1988, with additional summary for calendar year 1988. [*Nat. Mar. Fish. Serv.*,] *Northe. Fish. Ctr. Ref. Doc. No. 89-06*. 11 pp.
- WILLIAMS, A.B., and C.A. Child. 1989. Comparison of some genera and species of box crabs (Brachyura: Calappidae), southwestern North Atlantic, with description of a new genus and species. *Fish. Bull.*, U.S. 87(1): 105-121.

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AUGUST & SEPTEMBER 1989

IN THIS ISSUE:

NOAA AND UNIVERSITIES OF MASSACHUSETTS AND RHODE ISLAND JOIN FORCES

STOCK ASSESSMENT WORKSHOP REPORT AVAILABLE

FISHERMEN'S REPORT AVAILABLE FOR SEA SCALLOP SURVEY

NEW GENUS, TWO NEW SPECIES OF BOX CRABS

The Northeast Fisheries Center's Monthly Highlights is an administrative report on key Center research activities during the month. The report focuses on the practical applications of research findings to fisheries resource and habitat management. A name and telephone number have been included at the end of each research highlight to contact for more information.

NOAA AND UNIVERSITIES OF MASSACHUSETTS AND RHODE ISLAND JOIN FORCES

NOAA and each of the Universities of Massachusetts (UMass) and Rhode Island (URI) have begun a formal program to share scientists and resources for studying timely marine issues. Called the Cooperative Marine Education and Research (CMER) Program in each case, the partnership with UMass is now undertaking five research projects, and with URI two projects, involving NOAA's Northeast Fisheries Center.

The NOAA/UMass CMER's five fisheries-related projects ultimately seek to: (1) reduce chances of rancidity in frozen Atlantic mackerel; (2) develop uses for wastes from mackerel processing; (3) determine if skates out-compete traditional groundfishes (e.g., haddock) for prey during early life stages; (4) understand better the spawning and early development of skates; and (5) relate movements of northern right whales to environmental conditions (e.g., water temperatures).

The NOAA/URI CMER's two fisheries-related projects involve: (1) an economic analysis of the U.S. market for blue mussels; and (2) a better understanding of the seasonal and areal changes in abundance of the coastal Gulf of Maine's Calanus spp. copepods, a major prey for many of the Gulf's economically important fish species. Contact Dr. John Boreman, (413) 545-2842.

STOCK ASSESSMENT WORKSHOP REPORT AVAILABLE

A report is now available on the Spring 1989 Stock Assessment Workshop. The workshop, held during April 24-27 in Woods Hole, involved 56 participants from eight state marine fisheries agencies, two regional fishery management councils, two academic institutions, two NMFS fisheries centers, one NMFS regional office, and one NOAA program office.

Included in the 122-page report are descriptions of the status of some of the region's major pelagic stocks -- butterfish, longfin squid, northern shortfin squid, and Atlantic mackerel. Special topics also covered include recent trends in water temperatures in the Northeast Continental Shelf Ecosystem, and interactions between gillnet fisheries and marine mammals. Contact Dr. Tim D. Smith, FTS 840-1251 or (508) 548-5123.

FISHERMEN'S REPORT AVAILABLE FOR SEA SCALLOP SURVEY

The Center's Fishermen's Report on the 1989 research vessel survey of the Northeast's sea scallop resource is available for the asking. It contains information on the total number and shell-height/meat-weight composition of sea scallops captured at each sampling site, as well as the Loran C bearings, depth, and

bottom temperature of each site. Sampling occurred at 435 sites from Cape Cod-Georges Bank to the Chesapeake Bight during June 9 through August 9. NOAA research vessels used on the survey were the Albatross IV, Chapman, and Oregon II. (Since then, the Albatross IV has been slated for decommissioning.)

To receive a copy of this issue of the Fishermen's Report, or to be placed on the mailing list for one or more of the four reports issued in this series (spring bottom trawl, autumn bottom trawl, Atlantic surf clam-ocean quahog, and sea scallop), contact Linda I. Despres-Patanjo, FTS 840-1346.

NEW GENUS, TWO NEW SPECIES OF BOX CRABS

Exploratory trawling with the old Bureau of Commercial Fisheries research vessels Pelican, Combat, Silver Bay, and Oregon, and with the NOAA research vessel Oregon II, yielded large collections of decapod crustaceans which were stored at the National Museum of Natural History. Recent study of those crustaceans has produced one genus (Cyclozodion) and two species of box crabs (family Calappidae) in the Northwest Atlantic new to science. Contact Dr. Austin B. Williams, FTS/(202) 357-2639.

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OCTOBER 1989

IN THIS ISSUE:

1989 SMALL-MESH FISHERY FOR SILVER HAKE IMPROVED

FISHERMEN'S REPORT AVAILABLE FOR SURF CLAM - OCEAN QUAHOG SURVEY

GROUND BREAKING FOR NEW SANDY HOOK LABORATORY

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1989 SMALL-MESH FISHERY FOR SILVER HAKE IMPROVED

This year's small-mesh trawl fishery for silver hake (whiting) on that portion of Georges Bank near Cultivator Shoal appears to be better than last year's. Based on 123 fishermen's logbooks received so far from 20 fishing vessels participating in the 15 June through 31 October 1989 fishery, 6.0 million pounds of silver hake have been caught and 5.5 million pounds have been landed. In the 1988 fishery, 5.0 million pounds were caught and 4.9 million pounds were landed. Not only have catches and landings improved this year over last, but the catch-per-hour-fished has also increased.

The small-mesh trawl fishery is conducted in an area otherwise limited to large-mesh trawls by the Northeast Multispecies Fishery Management Plan to conserve small/young groundfish (Atlantic cod, yellowtail flounder, etc.). A major premise of the small-mesh fishery is that because of its specific location and timing, few of the plan-regulated groundfishes will be caught. This seems to be the case this year as last. So far in 1989, 87 percent of the catches and 96 percent of the landings have consisted of silver hake. For comparison, 1988's values were 80 and 97 percent, respectively. Approximately one percent of this year's catches in the small-mesh fishery were plan-regulated species--mostly Atlantic cod, yellowtail flounder, American plaice (dab), and white hake. Almost 1.0 million pounds of other species have been caught in this year's fishery and largely discarded--mostly red hake, skates, and dogfishes. Contact John B. Mahoney, FTS 840-1309 or (508) 548-5123.

FISHERMEN'S REPORT AVAILABLE FOR SURF CLAM - OCEAN QUAHOG SURVEYS

A Fishermen's Report is available upon request on the results of the Center's 1989 research vessel survey of the Northeast's Atlantic surf clam and ocean quahog resources. For each of the 351 sampling sites of the 26 June - 21 July survey, the report lists the catches of these shellfishes and other items during a five-minute tow of a submersible-pump dredge equipped with a five-foot blade. Surf clam catches are broken down in the report into four categories of shell height: (1) 2-4.75 inches, (2) 4.76-5.00 inches, (3) 5.01-5.50 inches, and (4) greater than 5.50 inches. (The current minimum size in the commercial fishery is 5.00 inches.) Ocean quahog catches are not broken down into size categories. Additional data given for each site include location (latitude & longitude and Loran C), tow course, depth, and bottom temperature.

To receive a copy of this report, or to subscribe to print more of the four reports in this series (sea scallop, surf clam,

- ocean quahog, spring bottom trawl, and autumn bottom trawl), write to: Resource Surveys Investigation, Northeast Fisheries Center, Woods Hole, MA 02543. Contact Linda I. Despres-Patango, FTS 840-1346 or (508) 548-5123.

GROUNDBREAKING FOR NEW SANDY HOOK LABORATORY

A groundbreaking ceremony was held at Sandy Hook, New Jersey, on 11 October to mark construction of a 36,000-square-foot marine research laboratory to be occupied by scientists from the Center and from state agencies and academic institutions in New Jersey. The new laboratory, to be completed in about three years and named the James J. Howard Marine Sciences Laboratory to honor the late U.S. Representative from New Jersey who strongly supported marine research, is a response to a 21 September 1985 fire which leveled one of the two buildings comprising the old Sandy Hook Laboratory.

The new laboratory, to be funded by the state with space leased to the Center, will house experimental seawater and analytical chemistry labs. As part of the construction package, the one remaining building of the old Sandy Hook Laboratory (a designated national historic building) will be renovated for library, conference room, and light lab use. Contact Anne I. Studholme, FTS 342-8201 or (201) 872-3001.

RECENT PUBLICATIONS AND REPORTS

Reprints of publications and copies of reports listed below are available in limited numbers by writing to the senior Center author (whose name appears in capitals) care of: Information Services Section, Northeast Fisheries Center, Woods Hole, MA 02543 USA.

AZAROVITZ, T.R., J. McGurrian, and R. Seagraves, eds. 1989. Proceedings of a workshop on bottom trawl surveys. Atl. States Mar. Fish. Comm. Spec. Rep. No. 17. 70 + 6 app. pp.

BENWAY, R.L. 1989. Water column thermal structure across the shelf and slope southeast of Sandy Hook, New Jersey in 1988. NAFO [Northwest Atl. Fish. Organ.] SCR [Sci. Council Res.] Doc. 89/65. Ser. No. N1644. 11 pp.

MAYO, R.K., S.H. CLARK, and C. Annand. 1989. Stock assessment information for pollock, Pollachius virens (L.), in the Scotian Shelf, Georges Bank, and Gulf of Maine regions. NOAA [Nat. Ocean. Atmos. Admin.] Tech. Mem. NMFS [Nat. Mar. Fish. Serv.]-F/NEC-65. 30 pp.

- [NORTHEAST FISHERIES CENTER.] 1989. Report of the Eighth NEFC Stock Assessment Workshop (Eighth SAW), 24-27 April 1989. [Nat. Mar. Fish. Serv.,] Northeast Fish. Ctr. Ref. Doc. No. 89-08. 122 pp.
- PENTTIA, J.A., G.A. NELSON, and J.M. BURNETT, III. 1989. Guidelines for estimating lengths at age for 18 Northwest Atlantic finfish and shellfish species. NOAA [Nat. Ocean. Atmos. Admin.] Tech. Mem. NMFS [Nat. Mar. Fish. Serv.]-F/NEC-66. 39 pp.
- SANO, M.H., and C.P. FAIRFIELD. 1989. Anticyclonic warm-core Gulf Stream rings off the northeastern United States during 1989. NAFO [Northwest Atl. Fish. Organ.] SCR [Sci. Coun. Res.] Doc. 89/64. Ser. No. N1644. 19 pp.
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- STROTT, G.A. 1989. Variation in the shelf front water position in 1988 from Georges Bank to Cape Hatteras. NAFO [Northwest Atl. Fish. Organ.] SCR [Sci. Coun. Res.] Doc. 89/63. Ser. No. N1643. 9 pp.
- Van Dusen, K., and A.C. Johnson Hayden, with the collaboration of J.B. PEARCE, R.L. SCHULTZ, B.F. HIGGINS, and 60 others. 1989. The Gulf of Maine: sustaining our common heritage. Maine State Planning Office, Augusta. 60 pp.
- VECCHIONE, M. 1989. Zooplankton distribution in three estuarine bayous with different types of anthropogenic influence. Estuaries 12(3): 169-179.

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**MONTHLY
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NOVEMBER 1989

IN THIS ISSUE:

NORTHERN SHRIMP LANDINGS SHOULD INCREASE

PROCEEDINGS OF BOTTOM TRAWL SURVEY WORKSHOP AVAILABLE

SURVEY SHOWS SUMMER DISTRIBUTION OF GULF-OF-MAINE HARBOR PORPOISES

FISHERMEN'S REPORT AVAILABLE FOR AUTUMN BOTTOM TRAWL SURVEY

The Northeast Fisheries Center's Monthly Highlights is an administrative report on key Center research activities during the month. The report focuses on the practical applications of research findings to fisheries resource and habitat management. A name and telephone number have been included at the end of each research highlight to contact for more information.

NORTHERN SHRIMP LANDINGS SHOULD INCREASE

Abundance of northern shrimp (Pandalus borealis) in the Gulf of Maine has sharply increased due to recruitment of the strong 1987 year class. Those are the results of a recent stock assessment by federal and state scientists on the Atlantic States Marine Fisheries Commission's Northern Shrimp Technical Committee. Consequently, landings during the upcoming winter fishery (December 1989 through May 1990) should increase over those during last winter's fishery.

The 1988 and 1989 surveys of northern shrimp abundance in the Gulf of Maine (which used the Center's inshore research vessel Gloria Michelle) yielded significant catches of the 1987 year class. The recent assessment also appears to show relatively low fishing mortality in the past few years. Contact Dr. Stephen H. Clark, FTS 840-1312 or (508) 548-5123.

PROCEEDINGS OF BOTTOM TRAWL SURVEY WORKSHOP AVAILABLE

The proceedings of a bottom trawl survey workshop held in Woods Hole, Mass., during 1-3 November 1988 are now available. Included in the workshop proceedings are descriptions of the 1 federal, 2 state-federal, and 14 state survey programs along the Atlantic Coast. Also included are summaries of discussions on survey design, sampling gear & techniques, data analyses & applications, and coordination & cooperation of survey programs. Contact Thomas R. Azarovitz, FTS 840-1283 or (508) 548-5123.

SURVEY SHOWS SUMMER DISTRIBUTION OF GULF-OF-MAINE HARBOR PORPOISES

To estimate the population size of the Gulf of Maine's harbor porpoises, the Center is studying both the summer distribution of the population and the best methods of abundance estimation. Preliminary analysis of data gathered during a 17-28 July 1989 cruise of the NOAA research vessel Chapman as part of this harbor porpoise study shows the summer distribution to be in inshore waters from Machias to Penobscot Bay, along the Nova Scotian coast, on Grand Manan Banks, and in offshore waters up to 840 feet deep off the northern Maine coast. No harbor porpoises were sighted west of Penobscot Bay or on the more southerly offshore banks and ledges. Contact Dr. Thomas Polacheck, FTS 840-1397 or (508) 548-5123.

FISHERMEN'S REPORT AVAILABLE FOR AUTUMN BOTTOM TRAWL SURVEY

A Fishermen's Report, based on the Center's 1989 autumn bottom trawl survey, is available free of charge. The report lists the composition and size of catches of 24 commercially

and/or recreationally important species at 329 sites between the western Scotian Shelf and Cape Hatteras. The report also includes information on the exact location (latitude & longitude and Loran C bearings), tow direction, time of day, water depth, and bottom temperature of the sampling sites. This autumn's survey was conducted aboard the NOAA research vessel Delaware II during 11 September - 2 November.

The Fishermen's Report series is composed of four reports: the spring and autumn bottom trawl surveys, the surf clam - ocean quahog survey, and the sea scallop survey. Anyone wishing to subscribe to one or all of these reports should write to Linda I. Despres-Patanjo, National Marine Fisheries Service, Woods, MA 02543, or call FTS 840-1346 or (508) 548-5123.

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NORTHEAST FISHERIES CENTER

MONTHLY HIGHLIGHTS



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The Northeast Fisheries Center's Monthly Highlights is an administrative report on key Center research activities during the month. The report focuses on the practical applications of research findings to fisheries resource and habitat management. A name and telephone number have been included at the end of each research highlight to contact for more information.

STOCK ASSESSMENT WORKSHOP REPORT AVAILABLE; SIGNIFICANT FINDINGS FOR HERRING AND SURFCLAM FISHERIES

A report on the Center's Fall 1989 Stock Assessment Workshop is available. Covered in the report are various aspects of the populations of, fisheries for, and/or research on Atlantic cod, Atlantic herring, Atlantic surfclams, black sea bass, haddock, pollock, scup, sea scallops, and summer flounder. The workshop was held in Falmouth, Mass., during 27 Nov. - 1 Dec. Sixty-eight individuals from federal, regional, state, and academic organizations participated.

Two of the more important results of the workshop were that: (1) the biomass of spawning aged/sized Atlantic herring in the Gulf of Maine has recovered to levels last seen in the late 1960s; and (2) the existing populations of surfclams in the mid-Atlantic region can support current catch levels well into the 1990s, but catch rates will likely decline slowly as strong year classes--first off New Jersey, then off Delmarva--are fished down. Contact Anne T. Lange, FTS 840-1301 or (508) 548-5123.

2ND WINTER FLOUNDER BIOLOGY WORKSHOP HELD; ABSTRACTS AVAILABLE

The Center held its Second Winter Flounder Biology Workshop on 5 and 6 Dec. in Mystic, Conn. Coverage included habitat issues, physiology, migration patterns, reproductive success, disease, growth & development, and pollutant effects. Limited copies of the program and abstracts are available. Contact Dr. Anthony Calabrese, FTS 642-5209 or (203) 783-4209.

NEW LIST OF NAMES FOR DECAPOD CRUSTACEANS

A list of scientific and common names of decapod crustaceans (shrimps, lobsters, and crabs) of the United States and Canada has been issued by the American Fisheries Society (AFS) as a companion volume to their lists on fishes and mollusks. All freshwater species known in North America north of Mexico, and all marine species known from waters within 320 km of the United States and Canada are included; coastal islands are covered, but not the West Indies.

The AFS list contains 1,614 species whose occurrence in the region has either been authenticated in published accounts or verified in established research collections. Selected species are illustrated in color. Development of this publication was chaired by Dr. Austin B. Williams of NMFS's National Systematics Laboratory which is administered by the Center. Inquiries about the publication should be directed to: AFS, 5410 Grosvenor Ln.- Suite 110, Bethesda, MD 20814.