The Northeast Fisheries Center's "Bimonthly Report" is an unedited compilation of reports submitted by the Chiefs/Directors of the Center's nine major research programs, summarizing key research activities and publications during the bimonthly period. This "Bimonthly Report" does not constitute a publication and is for information only. All data should be considered provisional. Reference to trade names does not imply endorsement.
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SURF CLAMS GROWN IN WIRE CAGES

Surf clams, Spisula solidissima, have been reared in wire mesh cages in Long Island Sound in an experiment to determine spatial effects of intensive culture. Previous experiments have indicated a distinct biovolume carrying capacity within cages, regulated by ambient levels of primary productivity, temperature and seawater current. The present experiment investigates growth of clams in a two-dimensional array of 16 cages, separated by 1 m. Additionally, two cages were placed 6 m off the grid in opposite directions. Cages had 0.37 m² area and were partially buried in the seabed. Cages were stocked with 24 mm clams at 500/m². Clams in the outlying cages were significantly larger than those clams from cages of the array.

Within the grid, cages from the 4 sides of the perimeter had larger clams than in those in the interior. Results indicate the need to consider the physical effects of cages, as well as the intensity of planting in field grow-out. Contact Mr. Edwin Rhodes (203-783-4226 or FTS 642-5226).

ALGAL CHEMICAL COMPOSITION STUDIED

Analyses have been completed for chemical composition of four algal species cultured in our standard growth medium E and an experimental medium (ENV) that differs from E only in the exclusion of vitamin components cyanocobalamin and thiamine. Semi-continuous carboy cultures were sampled in the stationary phase of growth, and subsamples were analyzed for dry weight, protein, carbohydrate, and lipid. No differences in dry weight or chemical composition were consistent for all four species cultured in E vs ENV media. Cells of the diatom strain D-828 from E and ENV media were identical in composition, and differences in composition of Dunaliella tertiolecta and Tetraselmis maculata from the two media were minimal. In contrast, Pyramimonas grossi cells cultured in E medium were considerably larger than those from ENV, although the ENV cells contained substantially more carbohydrate. These results indicate that vitamin enrichment of culture media may not be necessary for some algal species used as molluscan foods. The general similarities in composition of these algae grown with and without vitamin enrichments support the results of the oyster feeding study described before in which the two algal culture media had no substantial effect upon oyster growth. Contact Dr. Ravenna Ukeles (203-783-4223 or FTS 642-5223).

COMPUTER-ASSISTED BACTERIAL IDENTIFICATION SCHEME DEVELOPED

Identification of pathogenic bacteria is important in controlling diseases of cultured marine animals. It is needed to predict the effects of a disease, to decide upon therapeutic measures, and to trace the disease source. Numerical identification keys developed for use
with commercial biochemical systems speed the identification of human pathogens, but do not include most marine bacteria. To aid our identification of marine bacterial pathogens, we have developed a computer program which makes use of the principles of numerical taxonomy. The biochemical characteristics of an unknown bacterium can be compared rapidly with those of all previously characterized pathogens for which biochemical reactions have been stored on floppy disks. We are currently analyzing the statistical reliability provided when varying numbers of biochemical characteristics are used in the program. With these data as a guide, we should be able to measurably increase the speed and reliability of our bacterial identification. Contact Dr. Richard Robohm (203-783-4237 or FTS 642-5237).

POLLUTANTS AFFECT FISH EMBRYOS

An experiment testing the effects of temperature and salinity extremes on incidence of mitotic chromosome abnormalities in early-stage Fundulus embryos revealed this to be rather minimal. On the basis of these experimental results, it is very unlikely that the greater incidences of mitotic abnormalities observed in earlier studies with planktonic Atlantic mackerel embryos in polluted coastal waters and the New York Bight apex, could be attributed to adverse natural environmental conditions alone. As other evidence indicates, temperature and salinity must influence cytogenetic effects in concert with environmental pollutants. Contact Dr. Arlene Longwell (203-783-4207 or FTS 642-5207).

PUBLICATIONS AND REPORTS


SHIP-OF-OPPORTUNITY TEMPERATURE AND PLANKTON TRANSECTS

A total of 10 XBT (Expendable Bathythermograph) and 3 CPR (Continuous Plankton Recorder) Transects were occupied during September - October as follows: Gulf of Maine - 1 CPR and 2 XBT, Middle Atlantic Bight - 2 CPR and 4 XBT, Gulf of Mexico - 4 XBT.

Contact: Bob Benway FTS 838-7142.

NEARSS TERMINAL DEMONSTRATION

Personnel of AEG assisted in two demonstrations of telephone communications terminal for accessing and analyzing satellite data designed by members of the Northeast Area Remote Sensing System (NEARSS). The demonstrations were conducted at the University of Rhode Island on October 10 for NEARSS members and on October 16 for Sea-Grant representatives (New Jersey, Delaware and Rhode Island) and for personnel of the National Weather Service and the National Environmental Satellite Data and Information Service.

Contact Reed Armstrong FTS 938-7142.

GULF STREAM RING LOCATIONS

Announcements of Gulf Stream ring locations in mid-September and mid-October were sent to Commander, Atlantic Area, U.S. Coast Guard for publication in the October and November issues of the Atlantic Notice to Fishermen.

Contact: Reed Armstrong, FTS 838-7142.
ELEVATED LEVELS OF ORGANIC CONTAMINANTS FOUND IN MASSACHUSETTS BAY SEDIMENTS

Under contract to NOAA's Northeast Monitoring Program, Battelle Laboratory (Duxbury, MA) has completed a comprehensive survey of toxic organics in sediments and selected biota of Boston Harbor, Massachusetts Bay and Cape Cod Bay. The survey confirmed the heavy pollution of Boston Harbor sediments, and identified sewage discharges and storm water runoff as the dominant sources. Massachusetts Bay sediments landward of Stellwagen Bank contain significantly elevated levels of PCBs and polycyclic aromatic hydrocarbons (PAHs). Amounts of PCB per square kilometer of sediment in this area are 2-3 times as high as in the New York Bight (this is partly because most of the Bay is deeper and retains more fine sediments which attract contaminants; it does not merely reflect contaminant inputs in the two areas). Limited comparisons with earlier data indicate concentrations may be increasing in the Bay.

PCBs and PAHs are also elevated in Cape Cod Bay and offshore Gulf of Maine sediments, though not to as great an extent as in Massachusetts Bay. Winter flounder and American dab in the Bay have only low levels of these contaminants. Jonah crabs have higher concentrations, but maximum values found were still only about a tenth of the 2 parts per million action level for PCBs in fish and shellfish. The potential exists for further uptake from the reservoir of contaminated sediments, however. The report will be printed in the Northeast Center's Technical Memorandum Series.

HISTORY OF RARITAN BAY OYSTERING DESCRIBED

As an outgrowth of a conference on the uses and abuses of Raritan Bay, a center shellfish biologist has compiled a history of the Bay's oyster industry. Extensive interviews with former oystermen provide much new information for the study. The probable distribution of oysters in pre-colonial times is discussed. Heavy harvesting of the natural beds started in the early 1700's. These beds became depleted, but by 1825 a major industry based on seed oysters transplanted mostly from Virginia beds began. In the 1950's, an estimated 400 boats and 1,000 to 3,000 people worked the beds. The transplanting, harvesting and marketing of the oyster in the New York City area is described, and illustrated with numerous drawings and photographs from the late 1800's. The industry prospered until about 1910, when increasing pollution began leading to outbreaks of typhoid fever, some of which were traced to Raritan Bay oysters. By 1925, the industry had essentially died.
The history also discusses environmental conditions in the oystering areas over time. Man's adverse impacts include siltation, increased salinities resulting from diversions of water from rivers feeding the bay, destruction of oyster beds by dredging channels, and contamination of water by sewage and industrial effluents. Currently, the bottoms of most oyster beds in the bay are in good physical condition and could grow oysters, but continuing pollution problems make a rebirth of the industry unlikely.

WINTER FLOUNDER CASE STUDY INITIATED IN LONG ISLAND SOUND

A multidisciplinary study of winter flounder, *Pseudopleuronectes americanus*, in Long Island Sound was begun in October. For at least two years, 12-20 flounder will be collected monthly at selected sites representing polluted and "clean" habitats, including estuarine areas of particular concern. Only mature fish will be taken because our focus is on the reproductive effort. Among the parameters chosen for study are: blood chemistry, scanning electron microscopy of the gill, tests for gamete viability and egg hatchability, liver glycogen, lipid, and free sugars, and aspects of kidney metabolism, and bacterial analysis of the gill and stomach contents. New stress parameters will be tested for feasibility in monitoring during the initial phase of this work. Chemical analysis of water and sediments from each site, as well as fish tissues, will support these investigations. In addition to field collections, groups of flounder will be exposed in the laboratory to either clean or to highly polluted sediments, the latter collected from an impacted estuary. Other groups have also expressed interest in contributing their expertise to this study.
UNDERSEA RESEARCH SYMPOSIUM HELD

NOAA and the University of Connecticut held a national symposium on undersea research at the Avery Point campus in May. Undersea scientists from academia and state and federal government research laboratories presented thirty-five (35) papers on recently completed and ongoing research programs in the areas of Fisheries, Pollution, Sea Floor Properties and Processes, and Ocean Services. Symposium participants included state and federal legislators and fishing industry representatives. Keynote presentations were made by Dr. John Byrne, NOAA Administrator and a representative of Senator Lowell Weicker. The symposium was used to formally announce NOAA's newest National Undersea Program representing the New England and Great Lakes regions and define the priority research goals for the immediate (10-20 yrs) future of the NURP-UCAP (University of Connecticut at Avery Point) program.

NATIONAL UNDERSEA RESEARCH PROGRAM AT UNIVERSITY OF CONNECTICUT OFF TO FAST START

The NEFC worked closely with the University of Connecticut undersea program staff as a "Technical Monitor" to generate federal funding support and coordinate undersea research programs from the Great Lakes and New England regions for FY 1984 and 1985. Since January 1984, the NURP-UCAP budget was increased from $90,000 to $1,100,000 with a requested budget of $2,500,000 for FY 1986. Several submersible research programs were conducted during the summer of 1984. Forty-four (44) major research proposals have been received for 1985 operations (primarily Lake Superior and Gulf of Maine), based on 50-60% coverage of scientific community. This level of participation is more than twice the level of participation from any of the other national undersea programs. For FY 1986 we anticipate receiving in excess of 60 research proposals. Virtually all of these 44 proposals are supportive of NOAA's missions and goals.

GEORGES BANK - SUBMARINE CANYON PRE DRILLING BASELINE STUDY COMPLETED

The fifth (5th) consecutive summer of faunal, habitat and contaminant pre drilling baselines was completed at seven (7) site specific monitoring stations within and downstream of exploratory drilling sites on Georges Bank. Submersible based studies were completed at stations on Georges Bank and at the heads of Lydonia, Oceanographer and Veatch Submarine Canyons. July, 1984 represented the 5th consecutive summer of estimating species (lobster, crab, shrimp, scallop, hake, tilefish, flounder, etc.) abundance, community structure, animal-substrate associations, sediment and body burdens
of contaminants (trace metals, PCB's and petroleum hydrocarbons) and overall ecology of "key indicator species" (Jonah crab, scallop, lobster and tilefish). Year to year variability in these parameters has been determined. A sufficient (reasonable) data base (baseline) on ocean floor fauna and habitats now exists to judge impacts of production drilling, should such activities take place in the near future. Extensive information on sedimentary regions exists for each of these study sites, based on cooperative studies with the U.S. Geological Survey, Woods Hole, Massachusetts.

SUBMERSIBLE ASSESSMENT OF "GHOST" GILL NETS - JEFFRIES LEDGE AND STELLWAGEN BANK

Fifteen submersible dives were made on Jeffries Ledge and Stellwagen Bank, Gulf of Maine, to assess the nature and magnitude of the "ghost" gill net problem in high gill net activity areas (worst case areas). A total of 100 acres was searched by diver scientists from the Massachusetts Division of Marine Fisheries, NEFC and the University of Connecticut in the research submersible Johnson-Sea-Link, operated by the Harbor Branch Foundation, Fort Pierce, Florida. Dive system support for this program comes from NOAA's Office of Undersea Research. Within this high intensity gill net fishing area five (5) sections of "ghost" nets were discovered, totalling 300 fathoms of net, less than half of a regular string of commercially fished nets. Entrapment of fish and crustaceans was documented on video tape. Fishing behavior of "live" gill nets was also documented, along with the sunken gill netter Born Free in 250 feet of water. Results of this first year study of a planned 3-year program were presented to the New England Fisheries Management Council in October.

PUBLICATIONS AND REPORTS


Ichthyoplankton Investigation

MARMAP SURVEYS FIND DIVERSE ASSEMBLAGE OF LARVAL FISHES

The early autumn survey of fish eggs and larvae has been completed in the Middle Atlantic Bight portion of the MARMAP survey area. Preliminary observations of plankton samples revealed a diverse assemblage of larvae which included: hake, silver hake, eel pout, Gulf Stream flounder, smallmouth flounder, summer flounder, plaice, tonguefish, black sea bass, lanternfish, butterfish, and bluefish. Such a wide spectrum of larval fish is not uncommon in the Middle Atlantic Bight in September but the occurrence of young bluefish late in the month is unusual and marks the latest capture date of this species north of Cape Hatteras in our 7-year data base.

New Advance In Automating Plankton Sorting

In order to reduce the problems we have had dealing with planktonic groups with too little visual contrast to be easily digitized, we have replaced the Vidicon camera with a high resolution Newvicon tube camera. This allows us to work at much lower light levels, and to keep the background uniformly black, while increasing the brightness of the animals to any required level. This has reduced video noise, making it possible to do less image tailoring. The result is sharper images, and the ability to look at smaller items (e.g., fish eggs) with changing magnification.

We had one week of meetings with 4 scientists from Japan who are also working on applications of image analysis to plankton studies. The Japanese group, led by Dr. Takeo Ishii, will use our system to
distinguish between toxic and non-toxic forms of Dinophysis, to identify water masses using chaetognaths as indicator species, and, in a cooperative study, to test the feasibility of aging krill on the basis of morphometry.

Work was begun on a study of zooplankton community size inspection along a transect from upper Narragansett Bay to the edge of the continental shelf. This study combines the sampling of a URI, GSO series from the Bay with a contemporary set of samples from D transect of MARMAP cruise Albatross IV No. 83-04. The study will utilize image processing techniques to evaluate the image analysis plankton sample processing system under development at the Narragansett Laboratory and will be presented at the ASLO-AGU meetings in December.

Trans-Atlantic Shark Migrations

Age and growth work was initiated on the blue shark, Prionace glauca, with an inventory of samples on hand. We have many vertebrae from tag-recaptured sharks and it is hoped that by using these and a study of marginal increments, an age study with validation can be accomplished. Field collections of blue shark vertebrae will supplement our archived samples. Work continued on a videotape for sport and commercial fishermen on shark identification during tagging. While in Florida, Wes Pratt videotaped sharks at the Shark Institute in Marathon and at Sea World in Orlando. These will be edited together with stock taken on Wieczno and with future footage taken at tournaments, on cruises, and opportunistically at other public aquaria. We were visited by Dr. Sho Tanaka, a researcher in
shark age and growth from Tokai University, and by Dr. Toru Taniuchi, a specialist in shark reproduction. Both are currently working on deep water sharks of Japan. We discussed mutual interests.

Results of the cooperative shark tagging program showed 19 recaptures during September and October. These included a blue shark tagged off New York that was recaptured after 8 mo off the coast of Portugal, and a blue shark at liberty for over 4 yr that was recaptured aboard a Japanese longliner. Fortunately, this latter shark was examined by Observer G. Henterager, who obtained measurements and a sample of the vertebrae for age studies. Other recaptures included sandbar sharks that were at liberty for 8 and 10 yr. Both were tagged in the Mid-Atlantic Bight and were recaptured off Florida, and off Tampico, respectively. We also had a recapture from a swordfish at liberty for 5 yr. This individual is estimated at 30 lb released weight, approximately 360 lb (round weight) at recapture. Jack Casey delivered a paper at the first International Game Fish Conference at Cape D'Agde, France.

A manuscript entitled "Stomach Contents of Young Sandbar Sharks, Carcharhinus plumbeus, in Chincoteague Bay, Virginia" by Robert J. Medved, Charles E. Stillwell, and John G. Casey has been accepted by the publications office of the Fishery Bulletin and will appear in the next issue.

First MARMAP Atlas Showing NEFC Sampling Coverage of the Northeast Continental Shelf Exclusive Economic Zone

The Northeast Fisheries Center has been actively mapping the
distribution and abundance of fishery resources within the Northeast Continental Shelf Ecosystem. This large marine ecosystem (LME) extending from the Canadian maritimes to North Carolina encompasses 260,000 km² and represents one of the world's most productive fishing areas. During the 7 year period 1977 through 1983, NEFC conducted 74 surveys of the entire shelf, measuring seasonal and annual variability in the ichthyoplankton, zooplankton, nutrients, chlorophyll, primary productivity, and hydrography of the northeast ecosystem. The first Atlas in the MARMAP series was submitted for printing in October. The Atlas describes the kinds of measurements made on the surveys and the locations of all the observations. The results of the surveys have already appeared in several published reports. Among the discoveries based on the survey results include: 1) the extensive shelf-wide population explosion of sand eels, 2) the coherence and relative stability of the zooplankton of the shelf showing little change over the past 70 years, 3) a description of the different spawning strategies of shelf fish stocks (e.g. cod, haddock, redfish, bluefish, mackerel, menhaden, sea robins, anchovies, sandeel, silver hake, and other hakes), 4) the identification of biological hot spots on the shelf where primary productivity exceeds an average value of 450 GC/m²/yr which is twice the average productivity of the Scotian Shelf and the North Sea.

During 1985 the MARMAP surveys will be directed to assessing the spawning biomass of bluefish stocks from Florida to Cape Cod, Georges Bank haddock and cod, silver hake and sandeel. Following publication,
copies of the Atlas will be available from NEFC headquarters at Woods Hole. Other published reports based on the survey results are also available from NEFC. For further information, please contact K. Sherman, NEFC, Narragansett, RI, 401-789-9326.

Publications


HOW MANY SPECIES OF FRIGATE TUNAS EXIST?

Two species of frigate tunas (Auxis rochei and A. thazard) have long been recognized in the Indo-Pacific. However, the situation in the Atlantic has been unclear. Are the same two species present, or is there only one, more variable species? Juvenile Auxis are the most abundant of the tunas, indicating that the adults may also be abundant and represent an under-utilized resource. To solve the taxonomic problems world-wide, Dr. Bruce B. Collette of the National Systematics Laboratory is collaborating with Dr. William J. Richards of the Southeast Fisheries Center. Additional specimens, both juvenile and adult, are needed. Contact Bruce B. Collette 202/357-2524.

REVIEW OF FAR EAST HALFBEAKS COMPLETED

As part of a year-long visit to the National Systematics Laboratory and Division of Fishes of the Smithsonian Institution, Dr. Jinxiang Su of the Shanghai Fisheries College has collaborated with Dr. Bruce B. Collette on a review of halfbeaks found in the Far East. Although currently utilized only for bait and not for food in the United States, halfbeaks constitute an important group of food-fishes in many other parts of the world such as China, Japan, Australia, and New Zealand. Seventeen species in 6 genera are now reliably known from the Far East. Five of these species are restricted to that region. Contact Bruce B. Collette 202/357-2524.

SPECIES IDENTIFICATION SHEETS PUBLISHED FOR WESTERN INDIAN OCEAN

FAO has published the fifth in a series of regional species identification sheets for fishery purposes, the western Indian Ocean (Fishing Area 51). This set of sheets consists of 5 loose-leaf volumes plus an index. Families of bony fishes arranged alphabetically by family and genus occupy 4 volumes plus part of the fifth. Cartilaginous fishes, lobsters, shrimps, and turtles fill the rest of the fifth volume. Each account includes scientific name, other scientific names used, vernacular names, distinctive characters, size, distribution, fishing grounds, and catch. There are figures of the entire animal, inset figures demonstrating diagnostic characters, similar species and a map of distribution within the fishing area. The sheets, written by more than 60 taxonomic experts, were edited by Walter Fischer and Gabriella Bianchi of FAO. Contributions from the Systematics Laboratory include accounts of 9 families of bony fishes by Bruce B. Collette and Daniel M. Cohen: Belonidae, Bregmacerotidae, Coryphaenidae, Echeneidae, Hemiramphidae, Moridae, Pomatomidae, Rachi centridae, and Scombridae. This set of sheets, as well as previous sets for the west Central Atlantic and east Central Atlantic are obtainable through Walter Fischer, FAO, Rome. Contact Bruce B. Collette 202/357-2524.
OYSTER BAR MUD CRAB SPECIES COMPLEX RESOLVED

A trilogy of papers in the Fishery Bulletin 81(4), dated 1983 but published in October 1984, by A. B. Williams and associates, solves a long standing problem regarding the taxonomic status of the oyster bar mud crab, *Panopeus herbstii*. Formerly regarded as a single species manifesting environmental forms, the complex was reevaluated on the basis of morphology, electrophoresis of blood proteins and ecology and determined to be composed of six closely related species: 1 on the eastern U. S. Coast, 1 on the northern Gulf Coast plus 1 associated with *Spartina* in both these areas, 1 in the Caribbean and western south Atlantic; and 2 analogs of North American species in South America below Cape Frio. *Panopeus* species are significant predators on oysters. Contact A. B. Williams 202/357-2639.

PUBLICATIONS


PATHOBIOLOGY DIVISION

FISH PATHOLOGY: STATUS AND TRENDS

Virtually the entire months of September and October have been spent sampling fish for the Center commitment to the S&T program. Mr. Newman, Ms. Evans, Ms. Everline, and Ms. MacLean participated in sampling trips to Texas, Louisiana, Mississippi, Alabama, Florida, and Georgia. Numerous difficulties were encountered; most were equipment and weather related. Other problems resulted from the short start-up time and inadequate coordination of sampling activities conducted using state vessels. However, adequate numbers of spot and croaker have been obtained from most areas and now are being processed for histopathological evaluation. Most of the fishes sampled were juveniles and did not contain any grossly visible gill, kidney, or liver lesions.

CARCINOMAS IN WINTER FLOUNDER

The final draft of a manuscript entitled "Epizootic carcinoma in winter flounder, Pseudopleuroneotes americanus" was prepared and submitted to a professional journal on September 28. The manuscript describes lesions designated as hepatocarcinoma and cholangiocarcinoma in winter flounder from Boston Harbor, Massachusetts. Approximately 8.0% of 200 winter flounder collected from the Harbor in April and June 1983 had hepatic carcinomas. Sixty-eight percent of the fish from the Harbor displayed a hepatic vacuolar cell lesion which is believed to be associated with the pathogenesis of the neoplastic lesions observed. Although liver tissues have been frozen for evaluation of PCB and PAH content, no analyses have been made yet. Cooperative studies planned with the Commonwealth of Massachusetts, Division of Marine Fisheries will be implemented in FY 85.

FIN EROSION IN WINTER FLOUNDER

The statistical evaluation of data (MESA, NEMP) on the prevalence of fin rot disease in winter flounder has been completed. The prevalences of fin rot in winter flounder from discrete inshore (depths to 27 m) areas of the U.S. northeast coastline from Delaware Bay to the Merrimack River were compared to a reference area consisting of an offshore area (27 m to 200 m) from Delaware Bay to Provincetown, Massachusetts. Disease prevalences in the four inshore areas (New York Bight apex, contiguous waters of the New York Bight apex to the south and north, Block Island Sound, Cape Cod, Massachusetts Bays) are being evaluated. Tests for normality revealed the need for transformation of the data prior to the application of tests of significance. Dr. Kneeland McNulty of the Sandy Hook Laboratory and Dr. O'Connor provided invaluable advice/assistance in selection and application of the statistical procedures employed.

LARVAL STRIPED BASS SENSORY TISSUES EXAMINED

Recruitment failure of striped bass larvae is presently considered to be one of the main reasons for diminished stocks of juvenile and adult fish in the Chesapeake Bay. The development of the olfactory organ and free neuromasts in the perioolfactory region are being studied in detail using light and electron microscopic methods. Unlike most other species of fish,
Larval striped bass feed in darkness (McHugh and Heidinger, 1977) suggesting non-visual detection of their prey. The sensory tissues of both larval and adult fish are known to be affected by environmental pollution, particularly by heavy metals and/or low pH.

Scanning electron microscopic (SEM) observations of the olfactory organ and associated neuromasts from cultured striped bass larvae at the time of first feeding (3-5 days) have indicated that the olfactory pit is covered with ciliated receptor cells and that the cupula (center) of the neuromasts contains ciliated and/or microvillous processes. Observations made on progressively older larvae by SEM revealed that: (1) the olfactory pit increased in size along its long axis and ciliated cells became redistributed in a manner that approximates the adult condition, (2) the indifferent (nonsensory) epithelium exhibited accelerated growth along the edge of the olfactory pit leading to the formation of the anterior and posterior pores (nares) typical of a mature nasal chamber, and (3) neuromasts increase in number and assume a more prominent condition in the more mature specimens.

It is presumed that the sensory tissues examined are functional and permit the detection of prey at close distances during conditions of low light intensity or increased particulate material in the water column.

COOPERATIVE FISH PATHOLOGY STUDIES WITH POLAND

Quality control checks on mackerel blood smears examined in Poland for the presence of Haematractidium scombri were made on those specimens collected during Wieczno cruise 8301. The prevalence of infection as reported by ZSIOP in Poland was 15.5% (13/84), a considerably lower prevalence than had been expected among predominantly age 2-age 4 mackerel. Re-examination of these smears showed the prevalence to be 32.1% (27/84). All of the positive readings not recorded by ZSIOP were infections <0.1% intensity, and could be overlooked easily. Communication with ZSIOP regarding this problem should help resolve it, but meanwhile, blood smears made on the cruise AR 8301 are being re-examined also.

MUSSEL MORTALITIES IN SANDY HOOK

Mass mortality of Mytilus edulis in the Sandy Hook region was investigated at the end of August. Two sites were examined. Windrows of intact shells were seen on the beach at Sea Bright. A sample was collected from that site and mortality evaluated. The sample consisted of 55 live, 4 moribund, and 133 empty shells. Data indicate a recent mortality of over 70%. A second site (Sandy Hook Bay) was also examined. Samples of M. edulis and Geukensia demissa were collected. No mortality was evident in the ribbed mussel population, but in the blue mussels there were 72 live and 10 empty shells, indicating a mortality of 11%. Samples were returned to Oxford for histopathology. No infectious agents were apparent in preliminary studies and an environmental etiology is suspected.

A paper by Farley, Otto, and Reinisch entitled "New occurrence of epizootic sarcoma in Chesapeake Bay soft clams (Mya arenaria)" was submitted for publication.
CENTER SCIENTISTS CONTRIBUTE TO NAFO SPECIAL SESSION ON SQUIDS

Center scientists participated in the Special Session on the Biology and Ecology of Squids (Loligo and Illex) in the Northwest Atlantic at the Northwest Atlantic Fisheries Organization (NAFO) annual meeting, September 5-7. During this session, 22 papers were presented and discussed. Center contributions included a yield per recruit analysis for Loligo squid by Anne Lange, Michael Sissenwine, and Emory Anderson which demonstrated that yields could be increased by directing effort towards inshore migrants in summer and a paper on Illex distribution by Lange, Merton Ingham and Carol Price which demonstrated an apparent tendency for Illex squid to concentrate along the continental slope oceanic front. Ray Maurer and Ray Bowman also contributed a paper on feeding and consumption rates for both species. Contact Anne Lange, FTS 840-1301 or (617) 548-5123.

STATUS OF STOCKS REPORT RELEASED

The annual report describing the status of stocks in the Northeast Region for 1983 was released in mid-September. This report, "Status of the Fishery Resources off the Northeastern United States for 1983" (NOAA Tech. Memo. NMFS-F/NEC-29), contains summary information for stocks of 24 finfish and shellfish species of commercial and recreational importance. New sections in this year's report include a resource status summary and an economic overview of fisheries in the Northeast Region. Contact Emory D. Anderson, FTS 840-1251 or (617) 548-5123.

SEA SCALLOP RESOURCES SHOW DIFFERENTIAL IMPROVEMENT

Center scientists have completed the analyses of data collected during the 1984 survey in the Georges Bank, Mid-Atlantic and Gulf of Maine regions aboard the Center's R/V Albatross IV. Overall catch rates on Georges Bank and in the Mid-Atlantic were higher than the record low values obtained in 1983, although improvement was localized. In the Mid-Atlantic, abundance increased in the New York Bight area (New Jersey to Long Island), remained the same in the Delmarva area and declined off Virginia-North Carolina. On Georges Bank, abundance markedly increased in the Northern Edge and Peak region due to exceptional recruitment from the 1981 year class, remained the same in the Southeast Part, but continued to decline in the South Channel. In the Gulf of Maine, high catch rates occurred on Fippenies Ledge. Contact Fred Serchuk, FTS 840-1245 or (617) 548-5123.
CENTERSCIENTIST RECEIVES SILVER MEDAL

Dr. Vaughn Anthony has been awarded the Department of Commerce Silver Medal in recognition of his achievements in fish stock assessments and related work. The award recognizes Dr. Anthony's research accomplishments, his leadership in national and international assessment-oriented committees and working groups, and his innovations in communicating research findings to Center constituents in the form of semi-technical reports and popular articles. These contributions have resulted in significant improvements in the management of fishery resources worth millions to the national economy. Contact Mike Sissenwine FTS 840-1239 or (617) 548-5123.

PUBLICATIONS AND REPORTS


ICES INTERNATIONAL PCB's CALIBRATION

Participation by NOAA laboratories in International Intercomparison Exercises was a major recommendation made by the Quality Assurance Working Group last year. As a result, this laboratory received some PCB isomerid standards from NOAA's Office of Oceans Assessment Division. We worked up three aliquots according to the AOAC method and analyzed them on a Perkin-Elmer Sigma 2000 gas chromatograph using a spitless capillary system with an electron capture detector. Concentrations of the separate PCB isomerids in the fish oil were determined, and the analytical results were forwarded to Dr. John Calder for submitting all NOAA results to the National Swedish Environment Protection Board.

ACID RAIN ANALYSES

Several members of the Gloucester Laboratory volunteered anywhere from 5 to 12 hours on a weekend in the second phase of the statewide Acid Rain Monitoring Project being directed by the University of Massachusetts Water Resources Research Center at Amherst. More than 100 samples of water from lakes, ponds, and streams in Essex County not sampled in Phase I of this study were analyzed for pH and alkalinity. A second testing will be repeated in April 1985. Identical samples were returned to Amherst for metal analysis of about 20 elements.

EDIBILITY CHARACTERISTICS OF LOCAL FISH

Training sessions were given to laboratory panelists to reacquaint them with the technique to determine the edibility characteristics of locally caught fish. Thus far, the sensory panelists have determined the flavor and texture edibility characteristics of fresh and 6 day ice stored herring, bluefish, and whiting. This experiment is to continue until all the locally caught species of fish are characterized by their flavor and texture using the protocol developed at the U.S. Army Natick Research & Development Laboratory.

REVISED PRODUCT STANDARDS

A Technical Working Group of industry and government members met to discuss the proposed draft of U.S. Standards for Grades of Fish Portions and Fish Sticks. The group meeting resulted in a modification of the present draft standards. An additional result will be the sounding of industry and other users as to the applicability and requesting of comments on the requirement of percent fish flesh. A review of the new draft will be held next January.