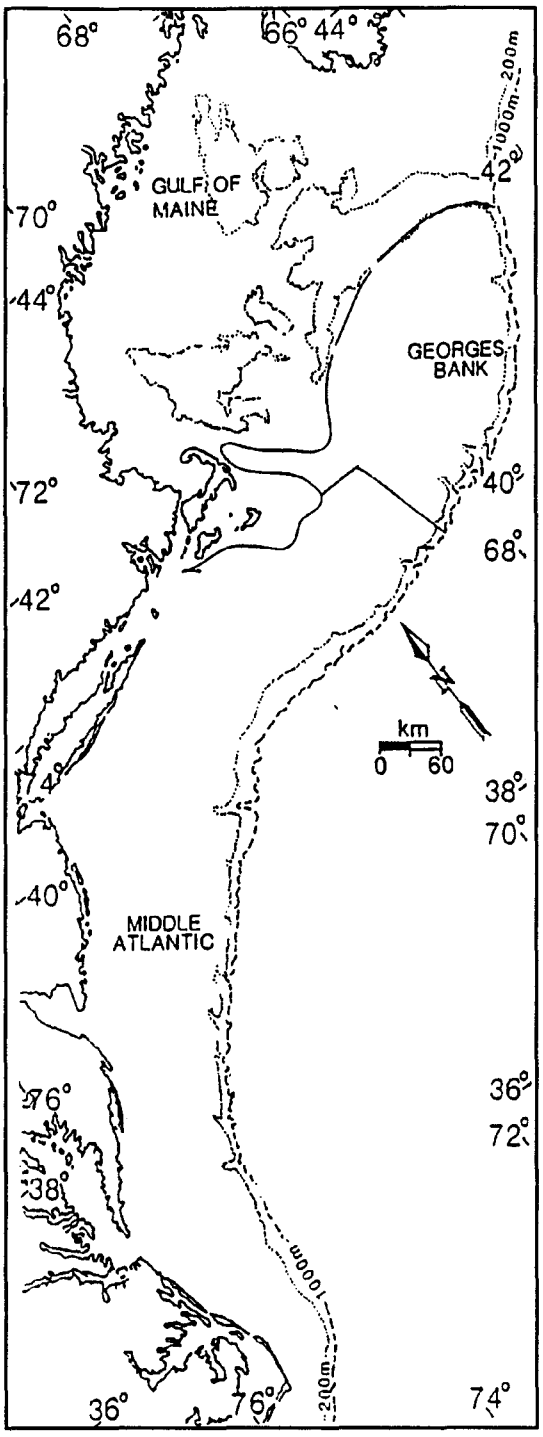


RESEARCH DIRECTORY FY-1988

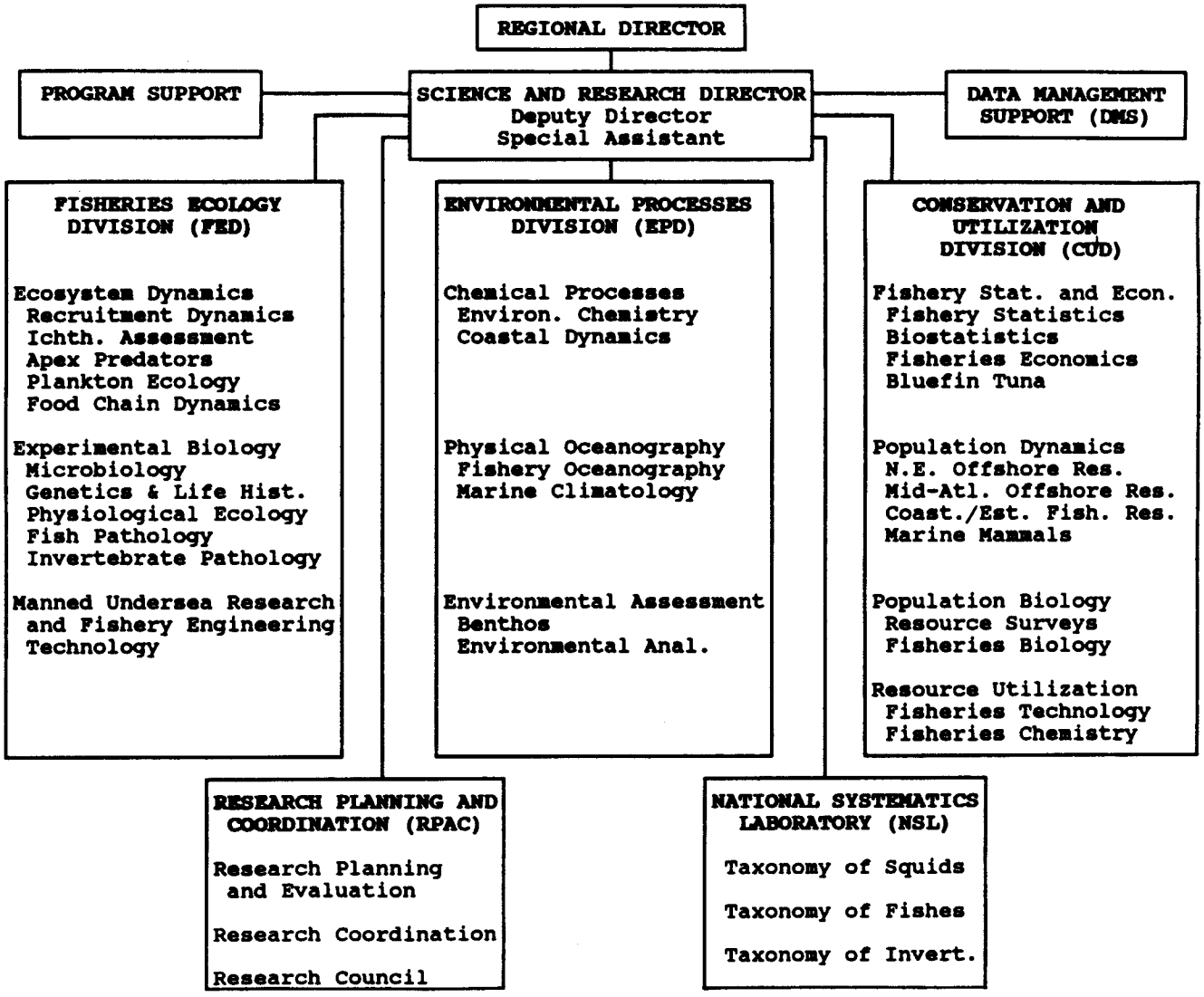
NORTHEAST FISHERIES CENTER

NATIONAL MARINE FISHERIES SERVICE

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
U.S. DEPARTMENT OF COMMERCE

NORTHEAST FISHERIES CENTER

ORGANIZATIONAL CHART



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NORTHEAST FISHERIES CENTER
MISSION STATEMENT

Under the National Marine Fisheries Service mission of "Achieve a continued optimum utilization of living resources for the benefit of the Nation," it is the responsibility of the Northeast Fisheries Center to plan, develop, and manage multi-disciplinary programs of basic and applied research designed to:

1. Better understand the living marine resources (including marine mammals) of the northwest Atlantic Ocean and the environmental quality essential for their existence and continued productivity;

2. Describe and provide to management, industry, and the public, options for the utilization and conservation of living marine resources and maintenance of environmental quality which are consistent with national and regional goals and needs, and international commitments.

To fulfill its mission the Center shall:

1. Develop the scientific basis to determine and provide information on the status of stocks/populations of living marine resources, the status of fisheries for exploited species, the effects of pollution and human alterations on the habitats of the resources, the effects of environmental variability, the quality and safety of fishery products, and the enhancement of anadromous fishery resources;

2. Collect, document, and interpret scientific and economic data as technical support for management plans, international negotiations, and fishery development programs;

3. Provide technical advice, review, and monitoring of fishery plans and grant programs;

4. Pursue fundamental research on specified topics; and

5. Maintain strong relations with the academic community and industry (through grants, contracts, and cooperative programs as appropriate), and with the users and general public.

The Center shall cooperate with other Fisheries Centers of the National Marine Fisheries Service in the sharing of expertise and in multi-Center programs consistent with national goals and needs and international commitments.

FY 88: GOALS/OBJECTIVES, ANTICIPATED ACTIVITIES AND PRODUCTS

CONTENTS

MARINE CLIMATOLOGY

FACILITY: NEC, NARRAGANSETT **CONTACT:** R. ARMSTRONG

GOALS/OBJECTIVES:

Conduct research and analyses and provide descriptions of near real-time and of long-term variations in marine environmental conditions influencing fisheries and pollution effects off the northeastern U.S.

ANTICIPATED FY88 ACTIVITIES:

1. Acquire and maintain environmental data records of:

    a. Infrared data from NOAA satellites

    b. Decade, and longer, time-series records of meteorologic and oceanographic data

    c. Water temperature structure from ship-of-opportunity monitoring along standard transects.

2. Analyze data for seasonal and year-to-year variations.

3. Describe synoptic sea surface temperatures from near-real-time and retrospective satellite data.

ANTICIPATED FY88 PRODUCTS:

1. Report and videotape of ocean conditions from satellite data relative to 1987 dolphin strandings.

2. Report of analyses of satellite-derived ocean features in relation to whale sightings from international study in North Atlantic in summer of 1987.

3. Sea surface temperature charts of shelf waters from satellite infrared data.

4. Draft annual report on receiving water masses for dumping at Deepwater Dumpsite 106.

5. Data base on variability in thermal structure across the New York Bight.

6. Draft reports summarizing environmental conditions in the New York Bight from ships-of-opportunity data for 1967-1987.

7. Annual summary report of environmental conditions in northwestern Atlantic for submission to NAFO (North Atlantic Fisheries Organization).

8. Historic baselines from long-term records for near real-time evaluations of current environmental conditions.

9. Draft report on conditions controlling shelf water temperatures off southern New England.

FISHERY OCEANOGRAPHY

FACILITY: NEC, WOODS HOLE **CONTACT:** D. MOUNTAIN

GOALS/OBJECTIVES:

Focus on measuring physical oceanographic conditions on the Continental Shelf from Cape Hatteras through the Gulf of Maine; and through cooperation with other investigations, determine their influence on variations in the fates, trajectories, and effects of pollutants in coastal and offshore waters, biological productivity, larval survival, and fish stock recruitment. Measurement programs include both broad-scale monitoring of water mass characteristics and circulation patterns, and small-scale studies of specific physical processes.

ANTICIPATED FY88 ACTIVITIES:

Major activities include:

1. a) Sample the 12-Mile Dumpsite; b) relate descriptions of the hydrography and circulation to the chemical and biological distributions in the vicinity of the 12-Mile Dumpsite as the volume of dumping decreases.

2. Continue survey of the Continental Shelf from Cape Hatteras to Nova Scotia for hydrographic characteristics.

ANTICIPATED FY88 PRODUCTS:

1. Computerized, quality controlled, hydrographic data collection from monitoring cruises.
2. Graphical portrayals and summary of data collected on monitoring cruises in previous year.
3. Computer processing system for temperature data collected by XBT probes.
4. Computerized XBT data base and contoured maps of temperature.
5. Report on the first year of hydrographic data collected during 12-Mile Dumpsite Study.
6. Draft report on recirculation around Georges Bank from two-year study.
7. Draft article on slope water characteristics for US-USSR cooperative research volume.
8. Draft report describing oceanographic conditions in the Middle Atlantic Bight from MARMAP (Marine Resources Monitoring, Assessment, and Prediction) data.
9. Draft report on physical-biological interactions in Gulf of Maine.

ENVIRONMENTAL CHEMISTRY

FACILITY: NEC, SANDY HOOK **CONTACT:** A.F. DRAXLER

GOALS/OBJECTIVES:

Conduct experiments, field research, and monitoring to:

1. Determine the temporal and spatial distribution of anthropogenic contaminants in estuarine and continental shelf resources and habitats, the ability of the marine environment to assimilate these materials, and logical points of remedial action; and

2. Examine chemical processes which govern the fate of organic carbon and contaminants in natural and polluted continental shelf sediments, and their effect on benthic fauna and the demersal food web that they support.

ANTICIPATED FY88 ACTIVITIES:

1. Measure organic and inorganic contaminants in tissue, sediment, and water at 12-Mile Dumpsite.

2. Measure amplified effects on sediment chemistry (redox, sulfide, methane) and response of benthic fauna after the cessation of high carbon loading at the 12-Mile Dumpsite.

3. Monitor the standing stock of phytoplankton biomass resulting from primary production in the waters of the Continental Shelf (in cooperation with Coastal Dynamics Investigation). Continuous, underway, automatic measurements are taken of *in vivo* chlorophyll, temperature, and conductivity at 2 meters with 300 meter horizontal resolution.

4. Take fluorometer measurements of conductivity, temperature, and depth for vertical resolution. Resume vertical discrete size-fractionated chlorophyll at all MARMAP (Marine Resources Monitoring, Assessment, and Prediction) stations.

ANTICIPATED FY88 PRODUCTS:

1. Quarterly and annual reports on sample collection and analysis for 12-Mile Dumpsite Study.

2. Manuscript on the relationship of anthropogenic loading and natural factors to seasonal hypoxia in the New York Bight (five-year study).

3. Paper on ranking of 50 US estuaries based on sediment trace metal contamination.

4. Summary report on sampling of trace metal contaminant distribution in sediments of the New York Bight (seven years, with Benthos Investigation and USEPA).

5. Analyses of NOAA S&T sediment and fish tissue samples for trace metals.

6. Completion of year 4 samples for reproductive success of winter flounder.

7. Draft of atlas on nutrient distributions from Cape Hatteras to Nova Scotia (five-year ecosystem baseline).

COASTAL DYNAMICS

FACILITY: NEC, SANDY HOOK **CONTACT:** W.C. PHOEL

GOALS/OBJECTIVES:

Conduct ecosystem monitoring, field research, and laboratory experiments to quantify natural variability which influences fish production on the northeast Continental Shelf and the effects of anthropogenic loading on coastal resources species and habitats.

ANTICIPATED FY88 ACTIVITIES:

1. Conduct field studies of benthic metabolism at the 12-Mile Dumpsite and NY Bight apex.

2. Conduct field studies of effects of hypoxia and other related stress on demersal fish, shellfish, and prey species.

3. Conduct laboratory studies of effects of phytoplankton blooms suspected of being toxic to fish, shellfish, and prey species.

4. Monitor chlorophyll and phytoplankton natural variability on continental shelf (on MARMAP and ship-of-opportunity cruises; underway fluorescence is measured on NEFC vessels).

ANTICIPATED FY88 PRODUCTS:

1. Manuscript on the role of satellites in estimating primary productivity on the NW Atlantic Continental Shelf (with Bigelow Lab).

2. Atlas on the chlorophyll distribution from Cape Hatteras to Nova Scotia: 1977-1985.

3. Draft paper on the community relationships of inshore demersal fishes, Cape Ann to Cape Fear.

4. Draft paper on seabed oxygen consumption rates on the NW Atlantic Continental Shelf.

5. Draft paper on total plankton respiration on the NW Atlantic Continental Shelf.

6. Draft paper documenting a 1986 low dissolved oxygen/fish kill event off coastal NJ.

7. Revised paper on growth potential of Gonyaulax tamarensis in lower New York Bay.

8. Revised paper on "Algal Assay of Relative Abundance of Phytoplankton Nutrients in NE Coastal and Shelf Waters."

9. Paper on incidence of G. tamarensis in New Jersey.

10. Paper on occurrence and effects of the potentially ichthyotoxic dinoflagellate Gyrodinium aureolum in NY/NJ coastal waters.

11. Annual report of NMFS diving activities.

BENTHOS

FACILITY: NEC, SANDY HOOK **CONTACT:** R. REID

GOALS/OBJECTIVES:

1. Analyze benthic data of the northeast Continental Shelf to describe spatial-temporal changes as indicators of biological effects of environmental change and of available forage for resource species.

2. Determine factors limiting shellfish populations.

ANTICIPATED FY88 ACTIVITIES:

1. a) Conduct monthly surveys of inner NY Bight benthos (jointly with other investigations) to determine responses of benthos to phaseout of sewage sludge disposal at the 12-Mile Dump- site; b) process and analyze existing data.

2. Conduct clam seeding, SCUBA observations, and predator studies in Barnegat, Raritan, and Great South Bays.

3. Conduct experiments with contaminants in sediment trays to determine influence on settling shellfish and other invertebrates.

4. Complete biennial benthic survey of distribution and abundance of juvenile surf clams and ocean quahogs.

ANTICIPATED FY88 PRODUCTS:

1. Report on 1980-85 NY Bight benthic monitoring.

2. Report on statistical analysis of NY Bight benthic data (with Environmental Analysis Investigation).

3. Quarterly and annual progress reports on sludge dumpsite recovery study.

ENVIRONMENTAL ANALYSIS

FACILITY: NEC, SANDY HOOK **CONTACT:** S. WILK

GOALS/OBJECTIVES:

1. Determine effects upon benthic fishery resources resulting from the phased cessation of sludge dumping in the 12-Mile Dumpsite of the New York Bight apex. Area of observation is 100 square miles in and around historic dumpsite.

2. Determine whether exposure to hypoxia and/or PAH contaminated sediments at levels commonly found in the New York Bight can independently or synergistically impair the growth and survival of winter flounder.

ANTICIPATED FY88 ACTIVITIES:

1. Conduct quantitative trawling in the NY Bight area:

   a. Intensively at 3 stations;

   b. Broadscale at a 22 station array.

2. Analyze food habits of selected species from intensive series.

3. Perform regular observations of gross pathology from all catches.

4. Conduct laboratory studies to examine the chronic effects of hypoxic conditions on the activity, feeding, and growth of young-of-the-year winter flounder.

ANTICIPATED FY88 PRODUCTS:

1. Quarterly and annual reports of findings relative to 12-Mile Dumpsite Study.

2. Manuscript of first year's results related to finfish and macroinvertebrates at 12-Mile Dumpsite.

3. Manuscript on food habits of juvenile bluefish during estuarine residency.

4. Manuscript on benthic species in Raritan Bay habitat utilization.

RECRUITMENT DYNAMICS

FACILITY: NEC, NARRAGANSETT **CONTACT:** G. LAURENCE

GOALS/OBJECTIVES:

1. Conduct quantitative research on the physical and biological mechanisms controlling recruitment processes of major demersal fish species in the Georges Bank, Gulf of Maine, and inshore regions with particular emphasis on early life stage (egg, larval, and juvenile) survival of cod, haddock, and flounders.

2. Seek to answer a specific problem of both commercial and sport fisheries; namely, to define some of the natural causes for year-class failures following spawning.

ANTICIPATED FY88 ACTIVITIES:

1. Conduct studies to determine the magnitude and timing of mortality of cod and haddock life stages on Georges Bank.

2. Conduct research of Georges Bank juvenile gadid behavior and distribution.

3. Develop methods to qualitatively and quantitatively sample juvenile fishes on Georges Bank.

4. Determine the relevant biological and physical parameters affecting growth and mortality rates of juvenile fishes on Georges Bank.

5. Conduct laboratory studies of bluefish egg and larval development to provide scientific data for use in back calculation of spawning stock biomass for assessment purposes.

6. Conduct field program for monitoring RNA-DNA ratios as indicators of growth and condition of the early life stages of fishes.

7. Conduct laboratory and field studies of winter flounder early life stage survival related to pollution impacted areas in Narragansett Bay and Long Island Sound.

8. Coordinate and integrate research results from laboratory and field studies into meaningful applications through modelling.

ANTICIPATED FY88 PRODUCTS:

1. Completed intensive surveys of cod and haddock late larval and early juvenile stages on Georges Bank.

2. Methods to qualitatively and quantitatively sample juvenile fishes on Georges Bank.

ICHTHYOPLANKTON ASSESSMENT

FACILITY: NEC, SANDY HOOK **CONTACT:** W. SMITH

GOALS/OBJECTIVES:

1. Investigate, through broad-scale surveys of fish eggs and larvae, factors controlling interannual variability in community structure of fish stocks in shelf waters off northeastern United States.

2. Provide sole source of fishery-independent estimates of adult spawning biomass of ecologically economically important finfishes.

3. Contribute to discovery of underutilized resources.

ANTICIPATED FY88 ACTIVITIES:

1. Conduct autumn, winter, early and late spring, and summer surveys of coastal and demersal fish eggs and larvae (e.g., cod, summer flounder, menhaden, hake, sea robins, herring, pollock, sand lance, yellowtail flounder, bluefish, redfish, anchovies, butterfish).

2. Conduct analyses to determine spawning success.

ANTICIPATED FY88 PRODUCTS:

1. Manuscript on evaluation of 10-year ichthyoplankton survey data base.

2. Estimate of adult spawning stock biomass of Atlantic mackerel, based on collections made in spring and summer 1987.

3. Atlas describing MARMAP (Marine Resources Monitoring, Assessment, and Prediction) ichthyoplankton coverage for 1984 - 1987.

4. Estimate of adult spawning stock biomass of bluefish in 1985 based on survey data.

PLANKTON ECOLOGY

FACILITY: NEC, NARRAGANSETT **CONTACT:** J. GREEN

GOALS/OBJECTIVES:

1. Perform ichthyo- and zooplankton sample collection and data management analysis for Northeast Continental Shelf and Antarctic ecosystem monitoring surveys, and invertebrate/fish predation studies.

2. Provide management liaison and coordination for the Ecosystems Dynamics Branch with national and international, governmental, and academic agencies.

ANTICIPATED FY88 ACTIVITIES:

1. Conduct analysis and data management of zooplankton conditions on the Northeast Continental Shelf.

2. Conduct research on invertebrate predation and micronekton distribution and abundances.

3. Conduct surveys of distribution of target organisms using CPR (continuous plankton recorder) and bongo micronekton sampling gear at appropriate time.

4. Evaluate sampling methodologies for micronekton and zooplankton.

5. Develop and test advanced technology for ecosystems monitoring.

6. Continue Antarctic krill study for US Antarctic Marine Living Resources (AMLR) Program.

7. Develop procedures for converting zooplankton species abundance to species biomass.

8. Monitor monthly: zooplankton, phytoplankton, surface temperature, and surface salinity in the Gulf of Maine and NY Bight using Ships of Opportunity; and process acquired samples and data.

9. Monitor and process daily solar radiation data at Newport, RI.

10. Conduct studies of larval predators and pre-recruits/post larvae and their predators with Recruitment Dynamics Investigation.

ANTICIPATED FY88 PRODUCTS:

1. Estimates on: a) fecundity for mackerel; and b) microzooplankton abundance and distribution in relation to survival of larval cod and haddock.

2. Reports on: a) scientific consequences of a reduced MARMAP (Marine Resources Monitoring, Assessment and Prediction) sample sorting program; and b) evaluation of MARMAP zooplankton survey sample design.

3. Interim report on stochastic analysis of long term cycles of zooplankton abundance on the NE US Continental Shelf.

PLANKTON ECOLOGY (cont'd)

4. a) Report on annual operations of US/Polish Plankton Sorting and Identification Center; and b) sorted and identified 900 plankton samples from NEFC, 250 plankton samples quarterly from Northwest and Alaska Fisheries Center, and 125 plankton samples quarterly from Southeast Fisheries Center.

5. Reports on: a) gear comparison studies of IGYPT and MOC 10 in cooperation with Canadian scientists; and b) the development of estimating secondary production in cooperation with Woods Hole Oceanographic Institution, Center for Analysis of Marine Systems.

6. Reports to North Atlantic Fisheries Organization (NAFO): a) annual research report; b) sea surface temperature and salinity in the Gulf of Maine and NY Bight for CY87; and c) solar radiation for CY87.

7. a) Update of program development plan for US Antarctic Marine Living Resources (AMLR); b) interim report on krill assessment intercalibration study; and c) manuscript on new techniques for krill ageing.

8. Publication (first in atlas series) on dominant zooplankton taxa of the northeast coast of the US.

9. Reports on: a) micronekton-juvenile fish sampling and survey methods; and b) use of image analysis for plankton studies.

10. Reports on: a) variability in Gulf of Maine - Georges Bank zooplankton abundance correlated with hydrographic conditions; and b) predation of juvenile squid on juvenile fish from samples taken during bottom trawl surveys.

11. Computer software to enable timely reporting of current conditions and their comparison with historic data base for the top five most abundant taxa of zooplankton and phytoplankton and the Gulf of Maine and New York Bight transects; issue first reports.

12. Manuscripts on: a) efficiency of monitoring mesoscale changes in zooplankton abundance with bongo nets (point sampling) vs Continuous Plankton Recorder (CPR) and Underway Recorder; b) distribution of copepods in the coastal Gulf of Maine feeding grounds of herring; and c) plastics contamination from Nova Scotia to the Antilles.

13. Reports on zooplankton and phytoplankton conditions, a) Massachusetts to Cape Sable, 1961-1987; b) New York to Gulf Stream, 1971-1987.

14. Provide information on zooplankton for offshore dumping, drilling, and fish predation studies.

APEX PREDATORS

FACILITY: NEC, NARRAGANSETT **CONTACT:** J. CASEY

GOALS/OBJECTIVES:

Conduct research on highly migratory species of apex predators (emphasis is on several species of large sharks) to: a) delineate migration patterns; b) determine age and growth relationships; c) evaluate predator-prey relationships; and d) provide biological data required for management of the stocks.

ANTICIPATED FY88 ACTIVITIES:

1. Conduct cooperative shark tagging program to delineate the migratory patterns of sharks.

2. Conduct longline research cruises to sample catches on commercial and sport vessels.

3. Conduct studies on sharks concerning a) predator-prey interaction; b) reproductive biology; and c) age and growth.

4. Conduct studies on reproductive biology of sharks.

5. Conduct age and growth studies of sharks.

ANTICIPATED FY88 PRODUCTS:

1. Newsletter "Shark Tagger."

2. Manuscripts on feeding ecology of sandbar shark.

3. Manuscript on food of the blue shark.

4. Symposium papers on reproduction limitations on shark fisheries, a review of shark tagging studies, and reproduction in the male white shark.

5. Analysis of reproduction in shortfin mako.

6. Manuscript on condition indices for the blue shark.

7. Manuscript on evacuation rate and ration for the blue shark.

8. Paper on overview of blue shark feeding ecology.

9. Report on liver constituent analysis.

10. Manuscript on blue shark age from length frequency data.

11. Completed readings of age and growth of scalloped hammerhead.

12. Manuscript on age and growth of the dusky shark.

13. Completed analyses of length-weight relationships for sharks.

FOOD CHAIN DYNAMICS

FACILITY: NEC, WOODS HOLE **CONTACT:** M. GROSSLEIN

GOALS/OBJECTIVES:

1. Achieve a better understanding of marine food webs involving fish.

2. Develop models for evaluating natural ecological controls and man-induced habitat effects on fish production, and for predicting long term effects of various fishery management strategies and environmental regimes on multispecies fish communities.

ANTICIPATED FY88 ACTIVITIES:

1. Monitor the diet of major fish predators on Georges Bank on groundfish and juvenile fish cruises, and process/analyze food habits archive to estimate selectivity coefficients and consumption rates for multispecies Virtual Population (VPA) models.

2. Continue recruitment initiative on Georges Bank gadoids with focus on fish predators and evaluate the importance of predation on postlarval haddock via a recruitment model.

3. Analyze time series (1969-1986) of diet of major fish predators in relation to food availability, and estimate consumption of fish (as prey).

ANTICIPATED FY88 PRODUCTS:

1. Completed data entry and audits of backlogged stomach data 1963-1966, 1969-1972, 1981-1986.

2. Report on diet of 180 species from NW Atlantic.

3. Paper on interannual variability in fecundity of haddock on Georges and Browns Banks (joint US-Canada study).

4. Data needs for multispecies VPA model of Georges Bank.

5. Report on macro-benthic invertebrate fauna of Georges Bank - Gulf of Maine region.

6. NAFO (North Atlantic Fisheries Organization) report on 1987 US research in NW Atlantic.

7. Paper on mapping yield potentials of aggregate fish and shellfish resources based on research vessel surveys and stock assessments.

8. Report on first stage haddock recruitment model and evaluation of effects of advection, temperature, and food supply on growth and mortality of 0-group fish.

9. Analysis of consistency of fish abundance estimates derived from egg surveys and trawl surveys for selected species.

GENETICS AND LIFE HISTORY

FACILITY: NEC, MILFORD **CONTACT:** A. LONGWELL-MAZZONE

GOALS/OBJECTIVES:

The general problem being addressed is recruitment variability of juvenile shellfish and fish into the fishery resource populations. Hard clams and winter flounder in Long Island Sound are used as prototypes. Particular problems addressed as part of this general problem are: a) early reproductive success and recruitment; b) impact of early-life success and recruitment; c) contribution of mutagenic and tetragenic pollutants to diminished early reproductive success; d) development of genetic resistance to pollutants and early reproductive success; e) relationship between genotype, genetic heterozygosity, and reproductive success over space and time.

ANTICIPATED FY88 ACTIVITIES:

1. Develop estimations of fecundity, fertilization success, total pre-hatch mortality, development rate, cytogenetic abnormality, and teratogenic effect of animals from Long Island Sound sites.

2. Develop estimations of numbers of females contributing offspring to various subpopulations, and relationships among genotype, genetic heterozygosity, and reproductive success.

3. Conduct a) laboratory and field tests to determine effects of population density on settlement and growth of animals; and b) field experiments to evaluate predation.

4. Examine mitochondrial and hyper-variable mini-satellite DNA of flounder and clams.

5. Develop efficient chromosome techniques for finfish and examine chromosome band variability in flounder.

6. Develop culture techniques for sea scallops.

ANTICIPATED FY88 PRODUCTS:

1. Report on hard clam embryo data.

2. Technical reports on: a) culture strategies for meeting nutritional requirements of bivalve larvae; and b) winter growth of surf clams in southern temperate climates.

3. Manuscripts on: a) accumulated environmental data on field samples of mackerel and winter flounder -- embryo viability and somatic mutation; and b) methods for the above.

4. Manuscript on basis for the thesis that genetic diversity influences recruitment via genetic adaptation to temperature change.

5. Analyses of: a) 1987 and 1988 season winter flounder embryo samples; and b) 1987 and 1988 season hard clam embryo studies.

MICROBIOLOGY

FACILITY: NEC, MILFORD **CONTACT:** R. UKELES

GOALS/OBJECTIVES:

Gain an understanding of marine and estuarine microbiology from field data and laboratory experiments relative to the fundamental significance of microbiology to productivity of the fisheries. Nutrition and disease aspects of microbiology are studied.

Studies include: a) how microalgae affect bivalve mollusks that utilize microalgae as food sources; b) molluscan disease in laboratory and wild populations, and determining micro-ecology of bacteria at offshore beds; c) whether environmental or genetic factors cause defects in the immune systems of fish and shellfish from various stocks, thereby increasing their susceptibility to disease.

ANTICIPATED FY88 ACTIVITIES:

1. Investigate effects of nutrients or pollutants upon microalgae and secondary effects upon feeding mollusks in controlled laboratory experiments.

2. Conduct taxonomic and biochemical analyses of algal assemblages and seston collected from Long Island Sound field stations.

3. a) Operate a 36-unit axenic semi-continuous microalgal culture system and open tanks for algal mass culture; and b) perpetuate the microalgal culture collection.

4. Monitor offshore planted hard clam beds to determine impact of disease on molluscan recruitment.

5. Develop the theme, agenda, and accommodations for the 8th shellfish biology seminar.

6. Determine whether residence of adult winter flounder in stressed environments increases susceptibility of offspring to disease.

7. Investigate the effects of copper and cadmium exposure on immune functions in blood cells of the sea scallop.

ANTICIPATED FY88 PRODUCTS:

1. Interim report on bacterial ecology of planted Mercenaria during recruitment studies in Long Island Sound.

2. Hold 8th Annual Shellfish Biology Seminar summarizing clam recruitment studies.

3. Abstracts of 14 papers for Shellfish Biology Seminar.

4. Manuscripts on: a) bacterial changes in a new aquarium using ozone as a disinfectant; b) ozone depuration of bivalves containing PSP - pitfalls and possibilities; c) assessment of Vibrio bacteria associated with oyster beds in Long Island Sound; and d) route of antigen uptake in bath-immunized fish.

PHYSIOLOGICAL ECOLOGY

FACILITY: NEC, MILFORD **CONTACT:** F. THURBERG

GOALS/OBJECTIVES:

Determine the effects of water quality in coastal areas on the reproductive success of key species. Marine animals are examined through physiology, biochemistry, and analytical chemistry, to determine the effects of contaminants on their normal life functions and the recruitment of young into marine populations. The reproductive capacity and general health of these animals are measured through laboratory exposure to known quantities of specific pollutants and through collections of animals from selected clean and polluted field sites, especially coastal and inshore sites. Data useful in relating cause and effect is developed by coupling laboratory and field research. The winter flounder, hard clam, and American lobster are three species being intensively studied.

ANTICIPATED FY88 ACTIVITIES:

1. Conduct a series of laboratory studies using an extensive flow-through pollutant exposure system in which selected animal species are subjected to precise levels of specific contaminants for periods of time up to one year.

2. a) Conduct field collections of winter flounder and lobsters in ripe, egg-bearing condition for spawning in the laboratory; and b) measure hatching success, normal development, blood studies, and tissue biochemistry,etc.

3. Conduct analytical chemical analysis of water, sediment, and animal tissues (including eggs and whole larvae) for heavy metal and PCB contamination.

4. a) Conduct physiological and biochemical studies concerning winter flounder recruitment and lobster reproduction in Long Island Sound estuaries; and b) compare vitellogen egg-yolk protein from winter flounder collected from clean and polluted estuarine areas.

5. a) Conduct field studies on the role of anoxia in winter founder fin erosion in estuarine areas; and b) laboratory studies on effects of low dissolved oxygen on the health of winter flounder.

ANTICIPATED FY88 PRODUCTS:

1. Manuscript on biochemical methods for determining spawning potential in sea scallops.

2. Manuscripts: on a) scanning electron microscope studies on winter flounder gills collected from clean and polluted areas; and b) effects of PCBs on lobster reproduction in an estuarine population.

3. Analyses of: a) metals and PCBs in lobster tissue; and b) PCBs in liver and gonads of estuarine fish.

4. Reports on: two-year studies of winter flounder and hard clam reproductive success in Long Island Sound.

FISH PATHOLOGY

FACILITY: NEC, MILFORD **CONTACT:** A. CALABRESE

GOALS/OBJECTIVES:

1. Evaluate the response of winter flounder larvae to bacterial pathogens by morphological and immunological methods, and compare the responses of larvae from parents collected in polluted and nonpolluted environments.

2. Determine whether the rate of atresia (egg degeneration) is higher in winter flounder from polluted environments by histopathological methods.

3. Develop in vitro, rapid screening methods to test the immune response of fish and correlate these responses to polluted and nonpolluted environments.

ANTICIPATED FY88 ACTIVITIES:

1. Examine winter flounder larvae from "clean" and "polluted" sites in Long Island Sound with regard to developmental abnormalities and their responses to known pathogens.

2. Examine ovaries from winter flounder collected from fish caught in "clean" and "polluted" sites and develop an appropriate computer-analyzed, data base for comparing rates of atresia (egg degeneration) in the various samples.

3. Evaluate the responses of spleen and anterior kidney preparations in striped bass and Atlantic salmon with regard to antibody production and phagocytic response (peritoneal cells) to antigens under in vitro conditions (Study conducted in cooperation with US Fish and Wildlife Service).

ANTICIPATED FY88 PRODUCTS:

1. Manuscript on copepod parasitism of marine fish larvae.

2. Final draft corrections on manuscript "Vacuolated Hepatocytes in Winter Flounder. A Modified Form of Apoptosis."

3. Manuscript on cytopathological analysis of fin-erosion disease in winter flounder.

INVERTEBRATE PATHOLOGY

FACILITY: NEC, OXFORD **CONTACT:** F. KERN

GOALS/OBJECTIVES:

1. Investigate temporal distribution and severity of neoplastic and related disorders in mollusks from the mid and north Atlantic coast of the United States.

2. Develop national and global strategies to control the spread and reduce severity of shellfish diseases.

3. Develop new disease diagnostic techniques and apply them in providing diagnostic services for assessing the health status of riverine, estuarine, coastal, and oceanic shellfish populations.

4. Integrate state-federal research activities for determining the health, status, and disease prevalence of shellfish populations, particularly in Chesapeake Bay.

ANTICIPATED FY88 ACTIVITIES:

1. Assist states, commissions and councils in the development of shellfish health management strategies.

2. Provide diagnostic information on invertebrate diseases to various local, national, and international working groups and agencies.

3. Assess mortalities and diagnose diseases in selected populations of mollusks in Chesapeake Bay.

4. Conduct research experiments on cause and effect relationships of neoplastic disease in Mya arenaria, and other marine organism as appropriate.

5. Develop diagnostic methods in molluscan diseases.

6. Assess blue crab tissues collected during cooperative studies with the University of Maryland on crab-shedding tank mortalities.

ANTICIPATED FY88 PRODUCTS:

1. Assessment of the health status of ocean molluscs collected on appropriate NEFC surveys.

2. Reports of significant pathological findings to appropriate agencies regarding diseases of clams, oysters, and other invertebrate species.

3. Training of state, university, federal, and international scientists in molluscan pathology.

MANNED UNDERSEA RESEARCH

FACILITY: NEC, WOODS HOLE **CONTACT:** J. UZMANN

GOALS/OBJECTIVES:

Facilitate technology transfer and evaluate the application of state-of-the-art submersibles, remotely operated vehicles (ROV), and other *in situ* methodologies to NEFC research problems.

ANTICIPATED FY88 ACTIVITIES:

1. Evaluate newly developed, commercially available ROV systems as viable alternatives to manned submersible systems.

2. Investigate behavioral ecology of hagfish (Myxinidae) and sea fleas (Amphipoda) using ROV systems.

ANTICIPATED FY88 PRODUCTS:

1. Draft paper on the migration and dispersion of tagged lobsters in offshore Gulf of Maine Fishery.

2. Draft paper on a survey of the macrobenthos in the Gulf of Maine using manned submersibles.

3. Draft paper on the distribution of sea pens in the Gulf of Maine.

4. Draft paper on the impact of lost demersal gill nets in two fishing areas of the Gulf of Maine.

FISHERIES ENGINEERING

FACILITY: NEC, NARRAGANSETT **CONTACT:** A. BLOTT

GOALS/OBJECTIVES:

1. Increase understanding of size selectivity and investigate techniques to make scallop gear more selective.

2. Study means of reducing fishing ability of lost gill nets.

3. Operate R/V Gloria Michelle to support the above studies, other NEFC projects and those of other fisheries organizations.

ANTICIPATED FY88 ACTIVITIES:

1. Continue in situ studies of the selectivity of rigid cage scallop gear with various size and shape mesh and rings installed.

2. Conduct full scale tests of hydrodynamic means of increasing scallop gear selectivity which have been determined by model tests in 1987.

3. Conduct in situ tests on biodegradable net float and float line hangings.

4. Conduct cruises on R/V Gloria Michelle for FY88:

Scallop Gear Cruises
Larval Herring Cruise
ROV Operations
Mass. Inshore Surveys
Hard Clam Recruitment
Winter Flounder Collection
Shrimp Survey

ANTICIPATED FY88 PRODUCTS:

1. Report on study of hydrodynamic characteristics of scallop dredge gear.

2. Report on study of the size selectivity of the rigid case scallop dredge.

3. Specifications for construction of NEFC standard #36 bottom survey trawl.

RESOURCE SURVEYS

FACILITY: NEC, WOODS HOLE **CONTACT:** T. AZAROVITZ

GOALS/OBJECTIVES:

1. Provide quantitative population data for stock assessments and ecological studies.

2. Evaluate vessel and gear-related differences in fishing power.

ANTICIPATED FY88 ACTIVITIES:

1. Conduct bottom trawl surveys.

2. Conduct sea scallop surveys.

3. Conduct surf clam-ocean quahog survey.

4. Conduct vessel fishing power and gear evaluation studies, and determine conversion coefficients.

5. Continue revision of historical database.

6. Evaluate and implement improved technology in survey cruises.

7. Continue to improve data entry, data processing, and archiving procedures.

ANTICIPATED FY88 PRODUCTS:

1. Data from resource surveys pertaining to distribution, abundance, biological characteristics, and associated environmental parameters.

2. Preliminary data summaries in the form of "Fishermen's Reports."

3. Biological specimens for cooperative research programs.

4. Paper on effects of vessel fishing power on standardized bottom trawl survey time series.

5. Evaluation of the Center's bottom trawl survey program.

6. Improved Survey Data Base System (SVDBS) in cooperation with Fishery Biology Investigation.

7. Shipboard data entry system for shellfish.

8. Evaluation of effects of different trawl door configuration on bottom trawl survey catch rates.

9. Revised and corrected historical databases in consistent formats.

FISHERIES BIOLOGY

FACILITY: NEC, WOODS HOLE **CONTACT:** J. PENTTILA

GOALS/OBJECTIVES:

Provide age determinations, age-length keys, and determine growth and maturation rates, and other biological information for assessments and other studies.

ANTICIPATED FY88 ACTIVITIES:

1. Age commercial fishery and research vessel survey samples.

2. Conduct research on growth rates, maturation, and state-of-art ageing techniques.

3. Develop ageing methods for "new" species.

4. Analyze precision of age-length keys, review sampling and processing requirements, and make improvements to data entry system.

ANTICIPATED FY88 PRODUCTS:

1. Data files and age-length keys for determinations of population age structure and estimates of other biological parameters.

2. Ageing techniques, training, and consultation in ageing procedures.

3. Manual on age determination methods.

4. Maturation schedules for mackerel.

5. Completed scallop ageing methods research.

FISHERIES STATISTICS

FACILITY: NEC, WOODS HOLE **CONTACT:** R. SCHULTZ

GOALS/OBJECTIVES:

Provide basic fisheries statistics for the northeast region including landings and values, catch-effort, gear, employment, number of plants, processed products, canned and industrial products, exports, imports and biological data for economic and biological monitoring and assessment of the fishing industry and the nation's fisheries resources of the northwest Atlantic.

ANTICIPATED FY88 ACTIVITIES:

1. Provide data for publication in "Fisheries of the United States" and daily publication of landings values for major ports in the market news "Blue Sheet."

2. Collect, tabulate, enter on computer, audit, and report daily, weekly, monthly, and annual fisheries statistics.

3. Collect length frequency data and aging structures for size and age-at-catch analysis.

4. Monitor and report landings of certain regulated species for quota purposes.

ANTICIPATED FY88 PRODUCTS:

1. Field-processed fisheries statistics on a daily, weekly, monthly, and annual basis.

2. Biological samples collected at ports and aboard sea-sampling vessels.

3. Catch-effort data collected through interviews with vessel captains.

BIOSTATISTICS

FACILITY: NEC, WOODS HOLE **CONTACT:** J. PALMER

GOALS/OBJECTIVES:

1. Provide accurate and timely data for estimating the impacts of fishing on living marine resources, monitoring the effects of regulatory measures, and compiling fishery statistics.

2. Develop and manage databases containing U.S. and foreign fisheries statistics including the commercial fisheries database (CFDBS) and others.

ANTICIPATED FY88 ACTIVITIES:

1. Compile monthly landings, effort and biological data for inclusion in CFDBS or other databases.

2. Develop improved data management systems consistent with advancing ADP technology.

3. Provide data reports, as required.

4. Provide statistical consulting, as requested.

ANTICIPATED FY88 PRODUCTS:

1. Data summaries for user groups, as requested.

2. Monthly commercial fishery statistics reports to NMFS.

3. Input for "Status of Fishery Resources."

FISHERIES ECONOMICS

FACILITY: NEC, WOODS HOLE **CONTACT:** P. LOGAN

GOALS/OBJECTIVES:

Provide economic information, data, and analyses pertaining to New England and Mid-Atlantic fisheries.

ANTICIPATED FY88 ACTIVITIES:

1. Produce status and trends information.

2. Produce regional trade information.

3. Model bioeconomics of New England groundfish fishery.

4. Develop regional fleet entry/exit data base.

5. Develop recreational fishing demand determinants.

6. Develop general economic data base.

ANTICIPATED FY88 PRODUCTS:

1. Updated economic overview for "Status of Fishery Resources."

2. Final report on regional trade balance.

3. Conversion of economic data files.

4. Economic profiles of principal commercial fisheries in northeast region.

5. Report on unified vessel entry/exit database.

6. Economics working papers to U.S. Delegation to North Atlantic Salmon Commission (NASCO).

BLUEFIN TUNA

FACILITY: NEC, WOODS HOLE **CONTACT:** H. FOSTER

GOALS/OBJECTIVES:

Provide data for catch reporting and stock assessment by the Southeast Fisheries Center for tunas and associated pelagics in support of the International Commission for the Conservation of Atlantic Tunas (ICCAT).

ANTICIPATED FY88 ACTIVITIES:

Interview recreational and commercial hook-and-line fishermen by telephone and at dockside to obtain CPUE data, along with information on gear, port of landing, and biological samples for Atlantic bluefin tuna and associated pelagic species (billfish, other tunas, sharks).

ANTICIPATED FY88 PRODUCTS:

Data tape containing 1987 interview data for Southeast Fisheries Center. Biological specimens include otoliths and vertebrae from tagged tunas and billfish.

NEW ENGLAND OFFSHORE FISHERY RESOURCES

FACILITY: NEC, WOODS HOLE **CONTACT:** F. SERCHUK

GOALS/OBJECTIVES:

Provide information on the status of fishery resources and technical interactions in fisheries, including mixed species catches, discards, and by-catches.

ANTICIPATED FY88 ACTIVITIES:

1. Complete stock assessment updates and revisions.

2. Conduct research on technical interactions in New England multi-species trawl fishery.

3. Conduct research on by-catch and discard in shrimp, trawl, and dredge fisheries.

4. Organize and participate in Regional Stock Assessment Workshop with other Branch Investigations and cooperators.

ANTICIPATED FY88 PRODUCTS:

1. Updated stock assessments for previous year's fishing.

2. Contributions to Technical Memorandum "Status of Fishery Resources."

3. Revision of stock assessments to reflect significant changes.

4. Evaluation of spawning stock biomass per recruit (SSB/R) as a scientific basis for the management of the Northeast Multispecies Fishery and as a performance measure to gauge the effectiveness of the FMP for the Northeast Multi-species Fishery in attaining FMP objectives.

5. Report on the status of mixed species demersal finfish resources in New England and the scientific basis for management (joint report with other Branch Investigations).

6. Report on the status of the sea scallop resource.

7. Report on the status of the fishery resources off the Northeastern United States for 1988.

8. Paper on current technical concerns with sea scallop management.

9. Paper on sources of variation in catch per unit effort of yellowtail flounder harvested off the coast of New England.

10. Paper on patterns of exploitation and biological status of pollock on the Scotian Shelf, Georges Bank, and in the Gulf of Maine region.

MID-ATLANTIC OFFSHORE FISHERY RESOURCES

FACILITY: NEC, WOODS HOLE **CONTACT:** S. MURAWSKI

GOALS/OBJECTIVES:

Provide information on the status of fishery resources and biological interactions among living marine resources including exploited and unexploited species.

ANTICIPATED FY88 ACTIVITIES:

1. Complete stock assessment updates and revisions.

2. Conduct research on biological interactions in New England multi-species trawl fishery.

3. Conduct research on measuring the significance of predator-prey interactions in developing stock assessment information.

4. Analyze biological interactions among exploited and unexploited living marine resources.

5. Continue analysis of information collected during submersible dives to assess the environmental effects of offshore shellfishing procedures.

6. Organize and participate in Regional Stock Assessment Workshop with other Branch Investigations and cooperators.

ANTICIPATED FY88 PRODUCTS:

1. Updated stock assessments for previous year's fishing.

2. Contributions to Technical Memorandum "Status of Fishery Resources."

3. Revision of stock assessments to reflect significant changes.

4. Report on alternative statistics for measuring the annual availability of Lolligo squid to the US fishery.

5. Report on results of new research alternative methods to compute MSY for species such as surf clams that exhibit extreme variability in annual recruitment.

6. Report on status of fishery resources off the Northeastern United States for 1988.

7. Paper on biological bases for mixed-species fisheries, species co-distribution in relation to environmental and biotic variables.

8. Paper on a comparison of fish size composition in the North Sea and on Georges Bank.

9. Paper on factors relating to the reproductive biology of Georges Bank haddock.

10. Paper on the effects of density dependent population mechanisms on assessment advice for the Northwest Atlantic mackerel stock.

COASTAL/ESTUARINE FISHERY RESOURCES

FACILITY: NEC, WOODS HOLE **CONTACT:** W. GABRIEL

GOALS/OBJECTIVES:

1. Provide information on the status of fishery resources.

2. Develop improved stock assessment methods.

ANTICIPATED FY88 ACTIVITIES:

1. Complete stock assessment updates and revisions.

2. Develop, adapt, and evaluate improved analysis methods for stock assessment of interest to all of the investigations in the Population Dynamics Branch.

3. Design and improve designs for data collection programs in the branch and in other elements of the Conservation and Utilization Division.

4. Participate in research under Emergency Striped Bass Study.

5. Develop salmon data base and analyze it in support of North Atlantic Salmon Commission (NASCO) Working Group.

6. Organize and participate in Regional Stock Assessments Workshop with other Branch Investigations and cooperators.

ANTICIPATED FY88 PRODUCTS:

1. Updated stock assessments for previous year's fishing.

2. Contributions to Technical Memorandum "Status of Fishery Resources."

3. Revision of stock assessments to reflect significant changes.

4. Revised bluefish assessment.

5. Report on approaches to assessment of black sea bass.

6. Report on the historical and present use of spawning stock biomass per recruit analyses for management purposes.

7. Report on status of US salmon stocks.

8. Summary of results of FY87 striped bass research.

9. Report of status of the fishery resources off the Northeastern United States for 1988.

10. Report of status of mixed species demersal finfish resources in New England and scientific basis for management (joint report with other Branch Investigations).

11. Manuscript on assessing the effects of pollutant exposure on estuarine populations.

12. Statistical evaluation of variances in catch at age matrices in virtual population analyses.

13. Paper on spawning stock biomass per recruit analysis, with an example for Georges Bank haddock.

MARINE MAMMALS

FACILITY: NEC, WOODS HOLE **CONTACT:** G. WARING

GOALS/OBJECTIVES:

Through research contracts monitor: a) the status of the several species of marine mammals in the Northeast region, including the abundance and general population biology; b) the effect of incidental mortality of marine mammals in fisheries; c) the effect of habitat degradation on marine mammals; and d) the status of the critically endangered northwest Atlantic right whale population.

ANTICIPATED FY88 ACTIVITIES:

1. Design and implement contracts for required research.

2. Analyze data collected under contract for past several years.

3. Plan and monitor contracts on harbor porpoise abundance study, statistical studies of photoidentification methods, marine mammal prey dynamics, and harbor seal monitoring.

4. Monitor the intensive cooperative research program with the University of Rhode Island to study of the Northwest Atlantic right whale population.

5. Implement contracts for large whale studies for FY88, including sighting surveys, humpback whale distribution, and humpback whale individual identification.

ANTICIPATED FY88 PRODUCTS:

1. Continuation of ongoing contracts.

FISHERY TECHNOLOGY

FACILITY: NEC, GLOUCESTER **CONTACT:** B. TINKER

GOALS/OBJECTIVES:

Develop and provide information on the wholesomeness, quality, and safety of US seafood products with the purpose of educating the US consumers and industry, and to contribute to the assurance of the quality of these products in the competitive world market. Address problems associated with: a) inconsistent quality of seafoods; b) seafood labeling (edibility profiles); c) fish processing waste utilization; and d) the inability of the industry to apply new technological developments.

ANTICIPATED FY88 ACTIVITIES:

1. Conduct research and technology transfer on fish waste utilization, utilization of skates, and edibility characteristics of seafood.

2. Conduct research to determine preservative effects of chemical additives on fish and shellfish.

3. Investigate machinery for processing underutilized fish and shellfish.

4. Determine the nutrient values of liquid fish produced from fish wastes.

5. Develop process for the production of fish hydrolysates from fatty fish wastes.

6. Conduct yield studies on skate.

7. Conduct fresh and frozen shelf life studies on skate wings.

ANTICIPATED FY88 PRODUCTS:

1. Nutrient values of liquid fish produced from fish wastes.

2. Manuscript on "Investigation of Waste Heat Recovery for Generating Space Heat and Refrigeration."

3. Manuscript on "Batch Processing Line for Producing Liquid Fish from Fish Wastes."

4. Production of fish hydrolysate for agricultural testing -- fertilizer and animal feed.

5. Process for producing fish hydrolysates from fatty fish wastes.

6. Storage stability of fish hydrolysates using various organic acid/mold inhibitors.

7. Edibility characteristics of fish species.

8. Technology transfer to industry, Sea Grant, and Fishery Development Foundations.

FISHERY CHEMISTRY

FACILITY: NEC, GLOUCESTER **CONTACT:** J. LICCIARDELLO

GOALS/OBJECTIVES:

Develop and provide information on the wholesomeness, quality, and safety of US seafood products with the purpose of educating the US consumers and industry, and contribute to the assurance of the quality of these products in the competitive world market. Through chemistry research, address: a) inconsistent fish quality and product labeling; b) microcontaminants in seafoods; c) lack of information on nutritive value of seafoods; and d) development of methodology for the production of pure fish oil fractions.

ANTICIPATED FY88 ACTIVITIES:

1. Determine the feasibility of separating triglycerides by HPLC (high performance liquid chromotography) for enriched triglycerides of poly-unsaturated fatty acids.

2. Perform nutritional analyses of nomenclature sample.

3. Investigate techniques for head space analyses to measure spoilage of fish products.

4. Investigate the potential of NW Atlantic species as a fish oil resource for therapeutic use.

5. Determine mineral composition of hydrolysates prepared from various species.

6. Determine the effects of processing on sterols and fatty acids.

7. Develop automation methodology to reduce the time required for sample preparation, cleanup and use less solvent.

8. Determine the efficiency and dose level of gamma radiation necessary for the inactivation of pathogenic bacteria in shellfish.

9. Conduct survey of microbiological quality of prefabricated seafoods.

10. Determine the effect of low dose irradiation on shelf life and quality of iced squid.

ANTICIPATED FY88 PRODUCTS:

1. Manuscript on effects of isobaric and hyperbaric oxygen atmospheres on enzymatic production of dimethylamine (DMA) and formaldehyde (FA).

2. Presentation on HPLC methodology.

3. Mineral composition of hydrolysates prepared from various species.

SYSTEMATICS OF MARINE ANIMALS

FACILITY: NEC, WASHINGTON, D.C. **CONTACT:** B.B. COLLETTE

GOALS/OBJECTIVES:

Lay a foundation for species identification so that species harvested or important in the ecosystem can be correctly identified.

ANTICIPATED FY88 ACTIVITIES:

Taxonomy of Squids

1. Revise the inshore squids (Family Loliginidae).

2. Revise taxonomy of the short finned species (Illex species).

3. Study early life history of squids.

Taxonomy of Fishes

1. Identify NW Atlantic sand lances (Ammodytes).

2. Revise Bigelow & Schroeder's "Fishes of the Gulf of Maine."

3. Revise the frigate tunas (Auxis).

4. Revise Atlantic halfbeaks and needlefishes.

5. Properly locate louvar (Luvarus) systematically.

6. Revise selected groups of herrings and anchovies (Clupeoidei).

Taxonomy of Crustaceans

1. Classify hydrothermal vent crustaceans.

2. Classify Guam deep-water crabs.

3. Develop list of crustacean names.

4. Develop catalog of penaeoid shrimp genera.

5. Revise western Atlantic mud shrimps.

ANTICIPATED FY88 PRODUCTS:

1. Revision of western Atlantic sand lance.

2. Description of new species of crustaceans from hydrothermal vents.

3. Illustrated key to American commercial penaeoid shrimps.

4. List of common and scientific names of North American decapod crustaceans.

5. Key to cephalopods of the northeast U. S.

6. In situ observations on a large squid spawning bed.

DATA MANAGEMENT SUPPORT

FACILITY: NEC, WOODS HOLE **CONTACT:** E. HEYERDAHL

GOALS/OBJECTIVES:

Provide professional support in the development and use of automated information technology and systems.

ANTICIPATED FY88 ACTIVITIES:

Provide support for:

1. Data transcription;

2. Remote access to large computer timesharing;

3. User assistance in utilizing automated systems;

4. Regional coordination in the planning and procurement of automated technologies.

5. National Marine Service IT-95 planning and procurement.

ANTICIPATED FY88 PRODUCTS:

1. NEC financial reporting system.

2. Analysis and design for a centerwide relational data base.

3. Automated state/federal coastwide data system.

PROGRAM SUPPORT - INFORMATION MANAGEMENT AND TRANSFER

FACILITY: NEC, WOODS HOLE **CONTACT:** M. LAIRD

GOALS/OBJECTIVES:

1. Provide NEC staff with published scientific and technical literature needed to design research projects and analyze research findings;

2. Maintain a research aquarium and assist in aquarium-based research needed by NEC staff to conduct its research projects;

3. Provide NEC staff with technical writing and editing assistance needed to publish research findings; and

4. Provide scientific, technical, and public constituents of the NEC with data, information, reports, and publications emanating from NEC research projects.

ANTICIPATED FY88 ACTIVITIES:

1. Maintain scientific libraries at the Gloucester, Woods Hole, Milford, Sandy Hook, and Oxford Laboratories.

2. Maintain one contract and two informal agreements, respectively, with the Marine Biological Laboratory, University of Rhode Island, and Yale University to provide library services at the Woods Hole, Narragansett, and Milford Laboratories.

3. Provide professional librarian services on-site at the Woods Hole, Milford, Sandy Hook, and Oxford Laboratories, and off-site at the Gloucester and Narragansett Laboratories.

4. Maintain a research aquarium and provide aquarium-related research assistance at the Woods Hole Laboratory.

5. Publish the NEC's subseries of the NOAA Technical memorandum NMFS series; produce progress reports ; and provide professional editorial services on-site at the Woods Hole Laboratory, and off-site at other NEC facilities.

6. Conduct information referral at the Woods Hole, Milford, Sandy Hook, and Oxford Laboratories; prepare informational materials (publication and report lists, news releases, etc.); and conduct K-12 educational programs and cooperative extension projects (e. g., underutilized seafood preparation demonstrations).

ANTICIPATED FY88 PRODUCTS:

1. Write/edit and publish NOAA Technical Memorandum NMFS-F/NEC series.

2. NEC's Monthly Highlights.

3. NEC's End-of-Year Report.

4. Informational products for constituents (e.g., annual list of NEC publications and reports).

5. Information to news media (e.g., NEC's News Releases).

RESEARCH PLANNING AND COORDINATION

FACILITY: NEC, WOODS HOLE **CONTACT:** R. HENNEMUTH

GOALS/OBJECTIVES:

1. Implement a planning process which sufficiently addresses the internal and external need to integrate Center research programs for reporting purposes.

2. Evaluate the results of the research supported by the Center.

3. Establish and maintain communication linkages with all users of NEFC information.

4. Work closely with the users to assure their information needs are appropriately communicated and understood.

5. Work closely with NER staff and NEFC scientists to assure that research products address the information needs of users.

6. Identify studies at various institutions that have the potential to augment NEFC research, and coordinate the integration of these efforts into the NEFC research program.

ANTICIPATED FY88 ACTIVITIES:

1. Construct plans forms for protocol document and redefine for final approved distribution.

2. Conduct program review - internal and external.

3. Collect useful information for inclusion in quarterly reports.

4. Review, analyze, and synthesize input from research units.

5. Conduct an assessment of the Center's research program (as indicator of the quality of the program area).

6. Maintain coordination of the following program area:

- o Estuaries
- o Aquaculture
- o Habitat Research (RAP)
- o Marine Recreational Fisheries
- o Sea Grant
- o Remote Sensing
- o Vessel Operations
- o Fishery Management Council Liaison
- o Intergovernmental Affairs

ANTICIPATED FY88 PRODUCTS:

1. Regional Ecosystem Monitoring and Management PDP.

2. Quarterly progress reports on the NEC research program.

3. Documentation of major information flow pathways within NEC and between NEC and outside.

4. Documentation of NEC planning and evaluation process.