



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Northeast Fisheries Center
Woods Hole Laboratory
Woods Hole, Massachusetts 02543

July 12, 1984

F/NEC1:RCH

TO: Supervisors, F/NEC1
FROM: Richard C. Hennemuth, F/NEC1 *RCH*
SUBJECT: Northeast Fisheries Center Redirection Plan

The Center Director has distributed his plan based on the results of the review process which has taken place over the last nine months.

Attached is the major part of the plan. There may be minor changes, but this is essentially what Al Peterson intends to submit to Washington for approval.

The complete set of base documents is in the library.

The Plan and other reports are restricted to inhouse distribution and use until the Central Office has reviewed and approved it.

There is no timetable as yet for implementation.

*OPERATIONS MEETING TO BE HELD
SOMETIME THIS WEEK TO DISCUSS
THE ATTACHED. TIME AND PLACE YET
TO BE FIRMED UP.*

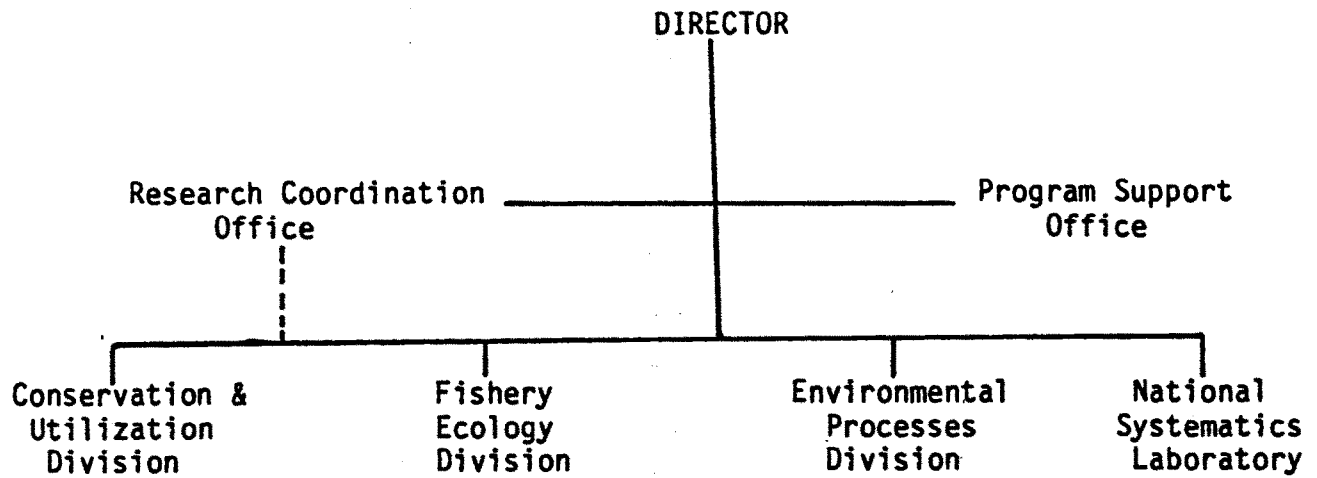


NORTHEAST FISHERIES CENTER: A PLAN FOR REDIRECTION

EXECUTIVE SUMMARY

The Director of the Northeast Fisheries Center (NEFC), in response to 1) critiques and comments from the NEFC Program Review (October 3-6, 1983); 2) technical reviews; 3) issue papers; 4) recommendations of the Committee of Three; 5) an administrative study done by the Eastern Administrative Support Center (EASC); and 6) deliberations of the NEFC Board of Directors, has formulated a plan for reorganization. The goal of the proposed plan for reorganization is the effective organization of the Center to optimize its performance relative to its mission.

All participants in the review exercise were charged with the critical examination of three subject areas: mission, organization, and performance. Organizational concerns identified and addressed by the proposed plan are: 1) the large number of positions supervised by the Director; 2) the disparity in program size; 3) consistency in program orientation toward either problems or scientific disciplines; 4) a focal point for scientific coordination and planning; 5) integration of habitat conservation-pollution studies with marine ecosystems and resource assessments studies; 6) a focal point for recreational fisheries activity; 7) coordination of physical oceanographic research; and 8) centralization of automated data processing. Based on its evaluation of organization concerns, the Center Director recommends that the NEFC restructure into four divisions supported by two offices.



The proposed organization is designed to function as a vertically integrated team to provide information in support of the mission of the National Marine Fisheries Service. The National Systematics Laboratory, because it is a national laboratory and not a program, will form its own division for administrative purposes and will provide unique expertise with taxonomic identifications. The Conservation and Utilization Division will provide information on the status of fisheries and fishery resources, the future potential relative to fishing, fish habitat, fish quality, and fishing technology. The Fisheries Ecology Division will focus on the processes (natural and man-induced) that determine the ecological basis of fishery resource production and the response of these processes to natural variables and anthropogenic activity. The emphasis of the Environmental Processes Division will be the physical, chemical, and biological environment of fishery resources and how it is impacted by anthropogenic activity. Information will flow from the Environmental Processes Division and the National Systematics Laboratory to the Fisheries Ecology Division to the Conservation and Utilization Division. The Research Coordination Office will facilitate communication among the four divisions and coordinate efforts in response to

external inquiries. The new reorganization will also call for the streamlining of administrative duties with many administrative functions being allocated to the division and/or program level. A reduced administrative unit will remain at each laboratory, but budget formulation, data entry and reconciliation, and coordination with EASC will be centralized in the Program Support Office. The Center Directorate, the Research Coordination Office, and the Program Support Office will be responsible for managing the Center.

The proposal reduces supervisory responsibility of the NEFC Director by more than 50%. With the exception of the MURT program, the program units at the division level are more equal in size. The proposed divisions are multidisciplinary scientific teams focused on specific problem areas.

The Research Coordination Office provides a focal point for scientific coordination and planning. The proposed vertically integrated organization will facilitate integration of research concerning the effects of fishing, natural environmental factors, and anthropogenic agents. Habitat conservation-pollution research will be aligned with fisheries ecology. Physical oceanographic research will be a cohesive unit concentrated within one division.

The proposal includes a Recreational Fisheries Coordinator, although it does not recommend establishing a recreational fisheries unit. Divisions and investigations will assume greater responsibility for their own automated data processing needs, although a centralized unit will still be maintained.

Aquaculture research, utilization research, and research on inshore species or habitats which are not subject to federal jurisdiction were evaluated against the recently adopted NEFC mission statement and related documents. It is concluded that aquaculture research for the purpose of food production is outside the mission of the NEFC. Nevertheless, the Aquaculture

Division contains unique expertise which can be used for other purposes, while still conducting some liaison activity which is relevant to the aquaculture industry. It is recommended that these resources be reprogrammed for the purpose of understanding the processes that determine recruitment of valuable molluscan shellfish.

The NMFS mission of achieving optimum utilization of living marine resources cannot be achieved within the Northeast Region without some technological assistance. The fishing industry depends on a fluctuating common property resource and must compete with subsidized import products. It is comprised of relatively small companies which cannot afford to maintain research capability. Major U.S. manufacturers view the industry as a relatively small market and do not wish to invest in technological development for the fishing industry.

The Center Directorate concluded that the NEFC and NMFS mission merits significant attention to inshore waters in cooperation with states. Inshore activity is appropriate when it concerns: 1) fisheries resources which are important to the Exclusive Economic Zone (EEZ); 2) critical habitat of species of the EEZ; 3) species or habitat issues of interjurisdictional importance, particularly those relevant to the Atlantic States Marine Fisheries Commission (ASMFC); and 4) problems requiring unique scientific expertise that it is impractical for individual states to maintain.

Some of the performance concerns relate to the value and use of data collected by the NEFC, progress in developing a dynamic multispecies simulation model, the productivity of physical oceanographic research, research on the effects of pollution on fisheries, NEFC responsiveness to recreational fisheries problems, automated data processing, and the emphasis of resource assessment activity on single species assessments of current

status. The Research Coordination Office will be responsible for evaluating the data collection in terms of the data's ability to supply answers to questions asked of the Center. Fuller use of the present data bases would greatly enhance this performance element.

The Center Directorate recommends that the Resource Assessment Division assume responsibility for multispecies models. The Research Coordination Office should coordinate modeling activity throughout the Center.

Physical oceanographic research should place greater emphasis on data analysis instead of data collection. The potential use of numerical models as a framework for analyzing data should be reassessed.

NEFC habitat conservation-pollution oriented research needs to be more focused with greater emphasis on biological indicators in terms of population and fishery effects. Future research should have three foci: monitoring, experimental studies, and synthesis. The experimental studies and syntheses should emphasize "case studies."

Recreational fisheries research should remain integrated with other activities. The efforts can be coordinated by the Recreational Fisheries Coordinator. The NEFC should support regionalization of the recreational fisheries statistics collection program.

Automated data processing (ADP) capability and responsibility should be decentralized. The role of microcomputers should be reexamined. The total level of funding for ADP activity is inadequate.

The Center's Resource Assessment Division staff is overcommitted. Due to the perceived needs of Regional Fishery Management Councils, ASMFC, the Regional Office, and others, there is a heavy emphasis on single species assessments of current status. This detracts from capability to address long-term scientific problems. As a step toward alleviating the problem the

Resource Assessment Division staff should conduct an inventory of their activities and develop a prioritized workplan.

Other performance concerns were noted in the administrative study conducted by EASC at the request of the Center Director. Uppermost in concerns was the frustration in communications between laboratories and EASC. There is a commitment to reduce the size of the federal government through centralization which will have to be addressed by the Center. This will be especially difficult after a regime of decentralization with its concomitant autonomy by the individual laboratories and a tendency by scientific managers to shun administrative duties. Under the reorganization, the administrative duties of budget formulation, financial data entry and reconciliation, and EASC coordination will be centralized in the Program Support Office. The divisions will have to assume more administrative duties with a reduction in the laboratory administrative staff.

By the very nature of a critical review, the emphasis in this report is focused on problems and proposed solutions. I must emphasize, however, that the NEFC is a viable, healthy institution which has been and will continue to be responsive and essential to the successful execution of the mission of the National Marine Fisheries Service.

PROPOSED PLAN FOR REORGANIZATION

Based on a thorough evaluation of the concerns as identified or implied by the Program Review and recommendations of special working groups, the Committee of Three, and the Board of Directors, the Center Director recommends that the NEFC be reorganized. The organization will consist of four divisions supported by two offices. The organizational chart is shown in Figure 2, and the functional chart is shown in Figure 3. This organization is designed to function as a vertically integrated team to optimize its performance in support of the mission of the National Marine Fisheries Service.

The Conservation and Utilization Division will provide information on the status of fisheries and fishery resources, their potential and future outlook relative to fishing, fish habitat, and fish quality. The Fisheries Ecology Division will focus on the processes (natural and man-induced) that determine the ecological basis of fishery resource productivity, and the response of these processes to natural variables and anthropogenic activity (e.g., pollution and fishing). The emphasis of the Environmental Processes Division will be the physical, chemical and biological environment of fishery resources, how it varies and how it is affected by anthropogenic activity. Information will flow from the Environmental Processes Division to the Fisheries Ecology Division to the Conservation and Utilization Division. The National Systematics Division will be the smallest division. Because it is not a program, but a national effort, it should be managed at the division level. It will provide unique expertise for solving taxonomic problems. This division will feed into the Fisheries Ecology Division.

Figure 4 contrasts the proposed divisions with current programs in relationship to problems relevant to NEFC.

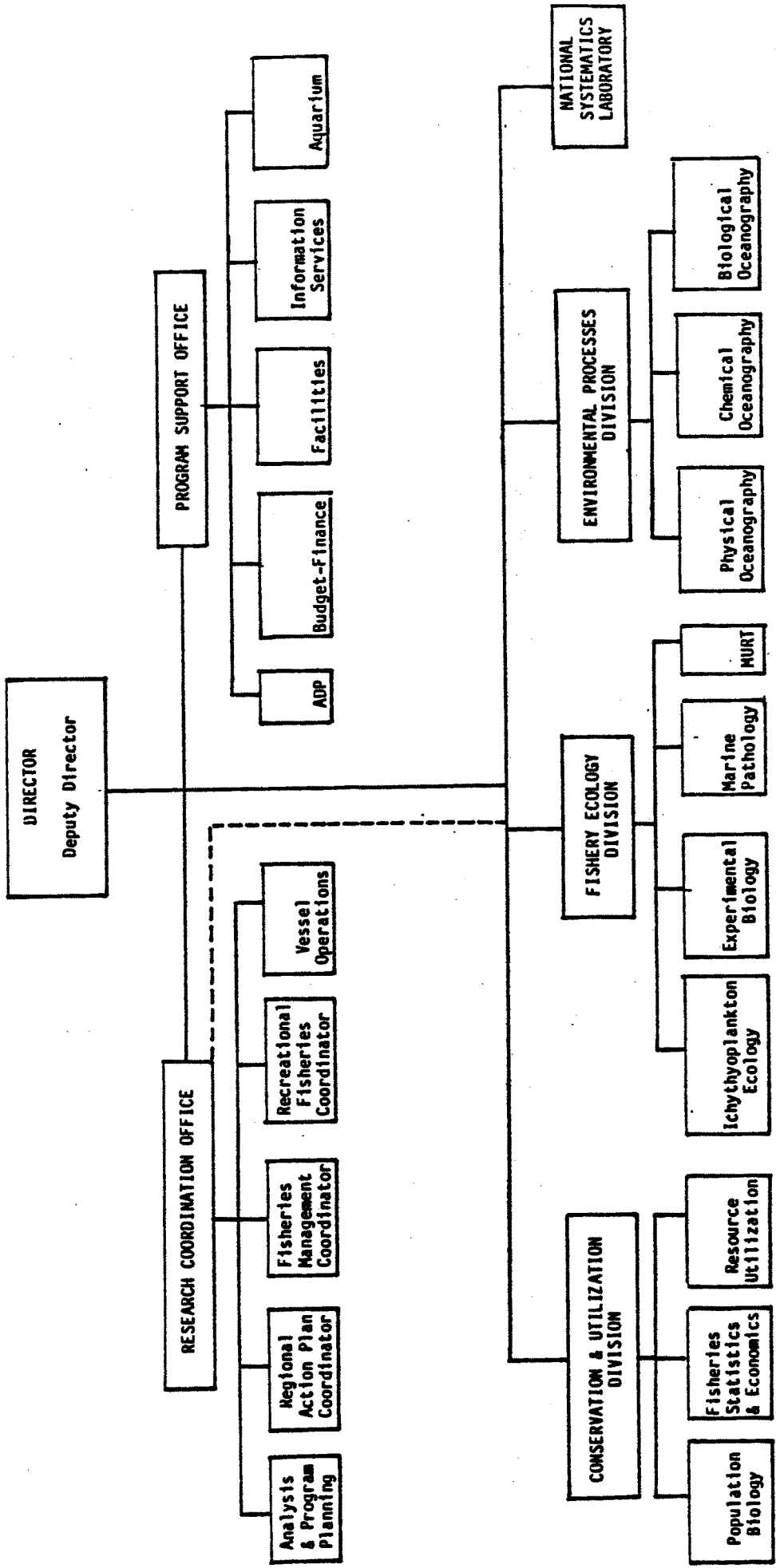


Figure 2. Proposed NEFC Table of Organization: Organizational Chart

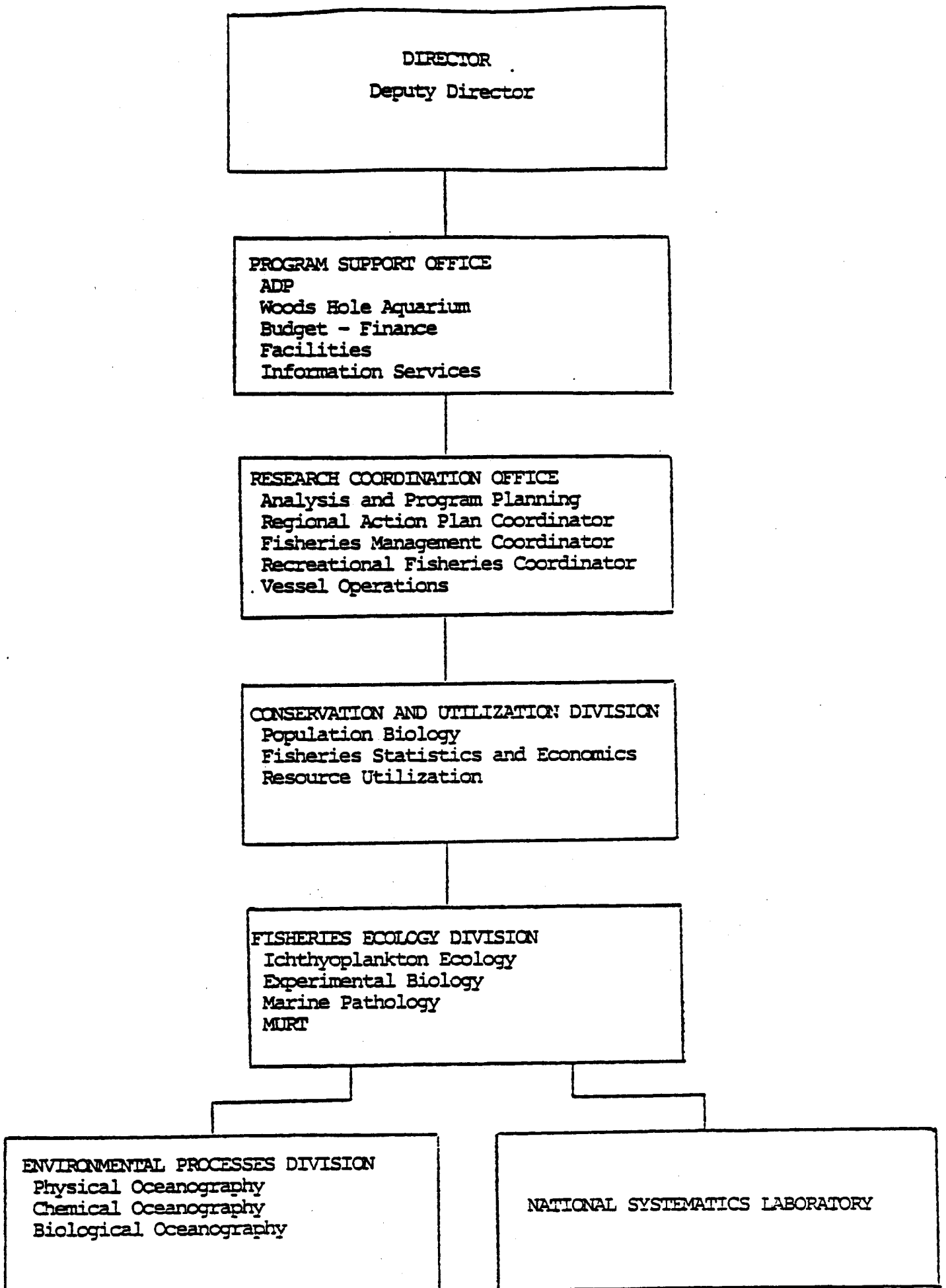


Figure 3. Proposed NEFC Table of Organization: Functional Chart

Figure 4. Problems of Concern to NEFC. Problems are defined by combinations of Phenomena and Systems Responses. The areas of major emphasis of current NEFC programs are indicated along with the partitioning of the problem that corresponds to the proposed organization (Figure 2). EAD-Environmental Assessment Division, MED-Marine Ecosystems Division, RAD-Resource Assessment Division, AEG-Atlantic Environmental Group, RUD-Resource Utilization Division, AQD-Aquaculture Division, PAB-Pathobiology Division, NSL-National Systematics Laboratory, ECN-Economics.

SYSTEM RESPONSE	PHENOMENA				Conservation and Utilization	Fisheries Ecology	Environmental Processes	Proposed Organization
	Natural	Anthropogenic (Non-Fishing)	Fishing	Socioeconomic (Non-Fishing)				
Socio-Economics		RUD EAD	ECN RUD		}	}	}	}
Fish Population Dynamics	MED RAD AEG		RAD MED	AQD				
Fish Biology	RAD MED NSL PAB	EAD PAB	RAD MED	AQD				
Production Process of Fish (e.g. Recruitment)	MED RAD AEG PAB	EAD PAB	RAD MED	AQD				
Productivity at Lower Trophic Levels	MED EAD	EAD		AQD				
Chemical	EAD	EAD						
Physical	MED AEG							

The Center Directorate (with advice of the Board of Directors), the Research Coordination Office (with advice of a Research Council), and the Program Support Office will be responsible for managing the Center. The Research Coordination Office will facilitate coordination between the four divisions and externally (i.e., with institutions such as Regional Fishery Management Councils, states, other federal agencies, international activity, and constituencies). The Program Support Office will be responsible for the operational needs of the NEFC.

Figure 2 indicates several investigations within each division or office. The Population Dynamics Investigation of the Conservation and Utilization Division will investigate the responsive populations to fishing and to the environment. It will conduct stock assessments as necessary for fisheries management. It will conduct field and laboratory-oriented research directed at determining age and growth, spatial and temporal distribution, feeding habits, and other biological parameters that affect population dynamics. Ideally, this investigation will consider a multispecies concept. Both commercial and recreational target species will be considered, including ocean game fish-apex predators.

The Fisheries Statistics and Economics Investigation will collect data characterizing the harvesting sector of commercial and recreational fisheries. It will relate: 1) fisheries resources to fisheries and 2) the harvesting sector to the fishing industry as a whole.

The Resource Utilization Investigation will conduct studies which are necessary in order to assure the public of a wholesome product. Emphasis will be placed on the microbiological and chemical (including potentially harmful anthropogenic agents) aspects of fish products. This will include the research necessary to develop standards. It will carry out applied research

to improve preservation quality, reduce processing waste, increase harvesting and processing efficiency, and develop products from non-traditional species.

The Ichthyoplankton Ecology Investigation of the Fisheries Ecology Division will focus on recruitment processes, particularly during the pelagic stage of the first year of life. The investigation will conduct broad-scale surveys to monitor spatial and temporal distribution, field experiments to identify ecological processes that determine growth and survival, and laboratory experiments which characterize response of early life stage fish to biological, physical, and chemical stress.

The Experimental Biology Investigation will focus on the biological response of later life stage (juveniles and adult finfish and shellfish) to stress and population genetics. The emphasis will be on recruitment processes, particularly of valuable molluscan bivalves, and the effects of fishing and habitat degradation on gene frequency and the implications for productivity and robustness of fish stocks.

The Marine Pathology Investigation will conduct studies to understand the role of diseases in marine ecosystems, and as a component of natural mortality. The Manned Undersea Research and Technology Unit (MURT) will provide unique expertise in in situ observations and experiments.

The Physical Oceanography Investigation of the Environmental Processes Division will characterize the physical environment of the ocean and its spatial and temporal variability. The emphasis will be on developing long (i.e., decades) time series and understanding (e.g., modeling) the processes that cause variability. The Atlantic Environmental Group is incorporated into this investigation.

The Chemical Oceanography Investigation will focus on the distribution of anthropogenic agents and the relationship between primary productivity and physical and chemical factors.

The Biological Oceanography Investigation will consider benthic community structure and productivity and how it is affected by natural and anthropogenic events occurring in the water column and the sediments. The investigation will monitor habitat quality and select and validate biological indicators.

The Analysis and Program Planning element of the Research Coordination Office will facilitate more effective use of the scientific resources of the NEFC. This element will identify appropriate scientific problems, provide a framework for the synthesis of research, be alert to alternative approaches, and advocate sound scientific methods. Depending on the size and capability of the staff, the Analysis and Program Planning element may provide analytical support to the divisions.

Regional Action Plan, Fisheries Management, and Recreational Fisheries Coordinators will also play an important role in problem identification and planning research. Each will serve to identify the needs of constituencies, coordinate activity within the NEFC, and communicate results to users.

The Vessel Operations element will be responsible for planning and coordinating the use of NOS and foreign research vessels.

The elements of the Program Support Office are necessary for the efficient operation of the NEFC. In most cases, details concerning these elements are beyond the scope of this report. However, there are some aspects of the Program Support Office that are pertinent to the scientific activities considered herein.

The ADP element will be responsible for designing and implementing an adequate ADP system, developing standards (e.g., for microcomputers, data base access), providing expertise to monitor ADP contracts, helping to educate users, and coordinating activities.

The Woods Hole Aquarium element will operate the facility as a public display and education resource. Nevertheless, it is also a valuable experimental facility, and this option will be maintained.

In accordance with the current policy to streamline operations particularly in the administrative area, more administrative duties will be allocated to the program level. Division chiefs and support staff will be assuming more responsibility for administrative functions such as travel, personnel actions, and time and attendance. A small administrative staff will reside in each laboratory for small purchasing, financial analysis, and facilities maintenance. Most duties will be centralized at the Center and will include budget formulation, data entry and reconciliation, and coordination with EASC.

The Information Services element will provide the technical basis for distributing information (e.g., graphics, editing, publishing). The Research Coordination Office and the divisions will have primary responsibility for information content.

The proposed NEFC reorganization addresses the organization concerns identified in Table 1. The proposal reduces supervisory responsibility of the NEFC Director to three Division Chiefs, two Office Directors, Deputy Center Director, and personal staff (e.g., secretary). This is a reduction of greater than 50%. The proposal also reduced the disparity in the size of the programs at the Division level with the exception of the National Systematics Division.

The proposed organization ignores laboratories (except as facilities to conduct research). Tasks are organized into multidisciplinary divisions in order to solve problems. A focal point for scientific leadership and coordination is achieved by establishing an office for this purpose.

The proposal is for a vertically integrated organization. This should facilitate integration of research concerning the effects of fishing, natural environmental factors, and anthropogenic agents. In particular, habitat conservation-pollution research will be addressed more in the context of fisheries ecology.

The proposal provides a focal point for modeling, i.e., the Office of Research Coordination, but does not consolidate modeling activity. Some modeling capability will remain within each of the proposed divisions (i.e., Population Biology Investigation of the Conservation and Utilization Division, Ichthyoplankton Ecology Investigation of the Fisheries Ecology Division, and Physical Oceanography Investigation of the Environmental Processes Division).

It is proposed that economics research be included in the Conservation and Utilization Division. This will facilitate contact with resource assessment and resource utilization activity.

The proposal includes a Recreational Fisheries Coordinator. It does not recommend establishing a recreational fisheries unit.

The physical oceanographic research of the NEFC will be consolidated within the Environmental Processes Division. This will improve coordination and result in some efficiencies. It is proposed that remote sensing activity also be consolidated within the Environmental Processes Division.

According to the proposal, a centralized automated data processing unit would be maintained. Nevertheless, divisions and investigations would assume greater responsibility for their own needs. It is clear the NEFC needs to commit more resources to ADP.

The proposal will consolidate all of the field-oriented research on juvenile and adult fish and benthic studies of the Center within the Biological Oceanography Investigation. Although the analytical and population dynamics-oriented staff of the Center will remain highly concentrated in a single investigation, the Research Coordination Office will be capable of providing some quantitative support to the other investigations.

According to the proposal, the Manned Undersea Research and Technology Unit will be incorporated into the Fisheries Ecology Division while retaining its identity. Through close association with the Experimental Biology Investigation, it should focus its research on in situ experiments addressing recruitment processes of molluscan bivalves.

One conclusion of the NEFC Program Review was that there was a need for more interaction with academia, other Centers, Fishery Management Councils, and Sea Grant. Since this conclusion is not considered explicitly within the body of this report, it is highlighted here. The Center has established or is pursuing several cooperative agreements with academic institutions. It is important that these continue to be used to facilitate cooperation and mutual benefits.

The Technical Review of Environmental Assessment activity indicated that NEFC could conduct a more effective monitoring and research program in the long run with less resource. This is particularly true if other components of NOAA and the federal government assume greater responsibility for the "source" and "fates" parts of the problem. The physical oceanographic research should

switch from a field to an analytical mode, at least until existing data has been evaluated.

If the Aquaculture Division is reprogrammed to experimental biological research on mulluscan bivalves to address recruitment processes, it is probably possible to conduct the most critical experiments at a lower funding level than is currently used for aquaculture research. All of these will produce some savings, but probably not to the extent necessary.

Specific issues were raised, particularly under performance concerns, which would be inappropriate to individually address at this time. Some of the concerns may have been symptomatic of a fractured organization. It is anticipated that these will be remedied under the new organization. The Research Coordination Office will be mandated to examine those concerns in light of the new definitive mission statement.

Integration and coordination are as much or more a matter of effective communication as organization. The distributed nature of the Center requires that we promote common objectives which will bring people together in a working relationship. The proposed reorganization lends itself to common goals and greater communication. The Research Coordination Office will be the watch dog to continually evaluate and monitor the research, both short and long term and keep the NEFC programs aligned with the mission. They will review the programs to see that they address the right problems.

While the content of this report was necessarily critical, the criticisms were viewed as constructive. The Director recommends restructuring the organization on that premise. In whatever organizational form it finally emerges, the Northeast Fisheries Center will continue to support the mission of the NMFS with the same high degree of scientific competency and cooperativeness that has historically made it an essential element of the NMFS.