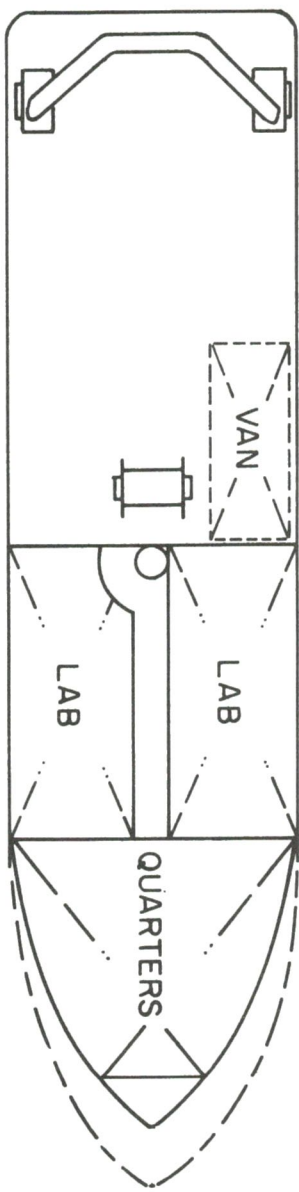


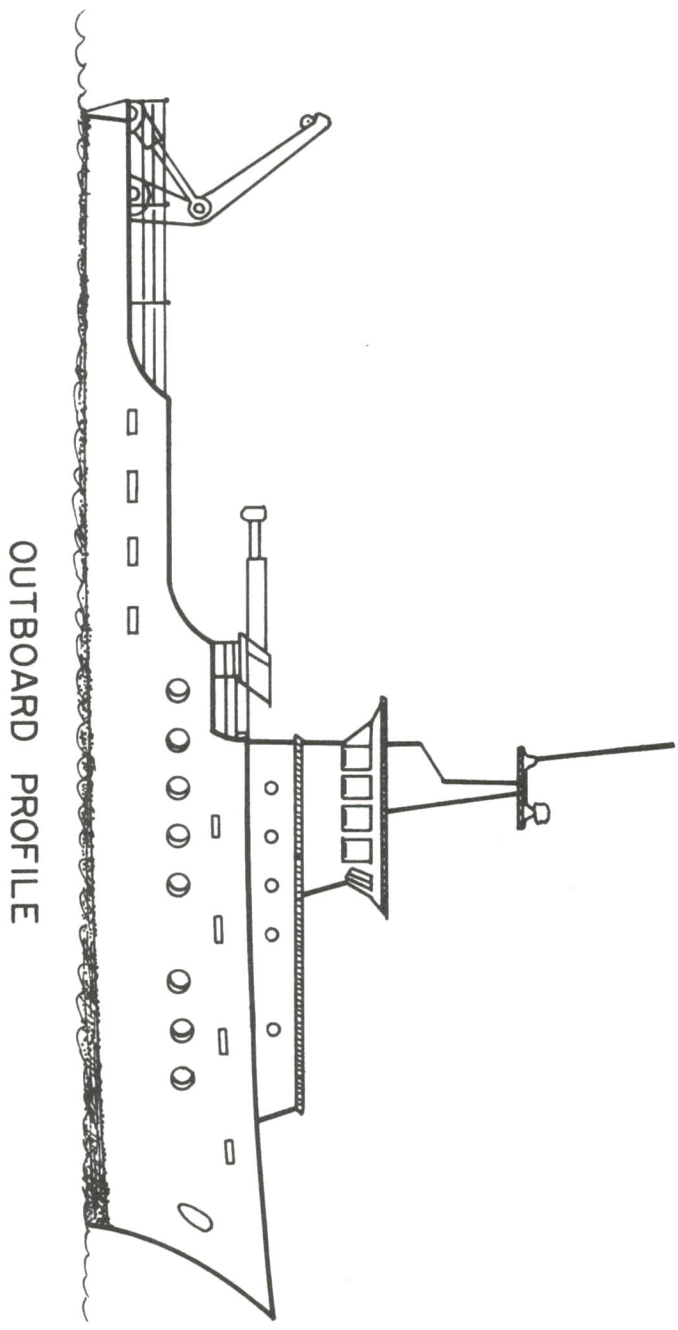
NECCRF SHIP - PRINCIPAL CHARACTERISTICS

TABLE 2

125 ft.	Length Overall (LOA)
30 ft.	Beam (B)
10 ft.	Draft (H)
14 ft.	Depth to working deck (D)
425 L. tons	Displacement - full load (Δ_F)
300	Registered Gross Tonnage (RGT)
12 knots	Speed - max. cruising (V_m)
0 to 5 knots	slow (V_s)
1200	Shaft Horsepower - normal @ V_m (SHP_N)
1650 ft ²	Open deck area (A_o)
10	Research Personnel (R)
8	Crew (C)
1.25	R/C ratio



MAIN DECK PLAN



OUTBOARD PROFILE

FIGURE 2 - CONCEPTUAL SKETCH OF NECCRF SHIP

3. The sustained speed and range should be sufficient to permit working at the edge of the continental shelf for several days at a time, without sacrificing efficient fuel consumption.
4. The arrangements should provide adequate deck space for at least one portable van without unduly cramping the open working area, and enclosed space for "fixed" laboratories, galley, and accommodations for scientific party and crew.
5. All aspects of the design should feature simplicity in the interests of a) promoting adaptability and b) minimizing both construction cost and operating costs associated with crew size, maintenance and repair. More specific characteristics are given in Table 2. Figure 2 is a conceptual sketch of the proposed vessel.

It has been estimated that the annual operating cost would be about \$350,000, figuring about 240 days at sea. Cost to the user should be about \$700 per day.

The ship would be operated and proposals for use would be evaluated by an elected council representing the participating research institutions. The home port would be selected, with the aid of NSF, on the basis of location and cost.

Such an arrangement would spread the cost among those who stand to gain most from the results, make the vessel available to any investigator with interest in New England waters, and at the same time guarantee high quality research.

1. The ship should be sufficiently versatile to serve as a platform for a wide variety of scientific and engineering coastal research activities.
2. Its design should be conventional and based on propulsion and sea-keeping characteristics which have been proven by operation in New England coastal waters during all seasons of the year.

The characteristics of such a ship, again based on the questionnaires, are:

In short, the existing research fleet in New England consists of vessels which are either too small or too large for regional coastal investigations. Nevertheless it appears that a substantial demand exists for a vessel of intermediate size. Questionnaires returned by individual scientists at the 12 NECCRF charter member institutions along showed requirements adding up to more than 100 weeks of use per year.

3. Two major marine laboratories - U.R.I. and W.H.O.I. - with large and capable deepsea ships. These ships are scheduled up to two years in advance and are usually committed to the deep ocean, often being away from home for months at a time. Neither of the big laboratories has a suitable vessel which can be committed to coastal research. Even if the bigger ships were available, their use in local waters could not be justified economically.

2. Universities, marine laboratories and state agencies with vessels less than 65-foot long and severely handicapped for regional purposes because of limitations in range, seakeeping ability and scientific payload.

1. Universities with ample laboratory facilities ashore but no seagoing capability. Marine Scientists at these institutions have used EASTWARD or PANULIRUS or various "piggy-back" arrangements, so that much of their research is remote from New England.

This situation is reflected in the existing fleet at academic institutions in New England, which can be divided into three categories:

Under the circumstances it is paradoxical that a relatively small fraction of the marine research in New England has been directed at the waters of the Gulf of Maine and the Continental Shelf south of Cape Cod. Most of the research at sea has been done in local near-shore waters - estuaries, harbors, and beaches - or in the deep ocean beyond the edge of the shelf. To find a comprehensive discussion of the hydrography of the Gulf of Maine or the Middle Atlantic Bight, for example, one has to go back to the works of Bigelow and his associates early in this century.

New England has a long standing tradition of research into all aspects of the ocean, and many of the pioneering oceanographic expeditions set out from New England ports. Coupled with this is a reputation of even longer duration as one of the world's great centers of advanced learning. Increasingly in recent years, even these institutions that are located inland, miles from the sea, have been turning their attention to the sea and its problems, and have been developing laboratory facilities for marine studies.

Research needs of the region can be categorized as "inshore" and "offshore" needs. Inshore needs involve the problems of the shoreline itself and the estuaries and sounds along the coast, while offshore needs concern more remote waters, out to the edge of the continental shelf and occasionally beyond. Most of the research activities associated with inshore needs of New England can be adequately served by the existing fleet of small vessels, except for weather limitations. However, most offshore coastal research requires the capabilities of a vessel which, at present, is not available in New England.

The New England coastal region is a large area, comprising two distinct physiographic regimes - the Gulf of Maine and a portion of the Middle Atlantic Bight - with strong seasonal contrasts in the marine environment. It is also a region plagued by hazards such as winter gales, summer fog, autumn hurricanes and year-round heavy traffic. Finally, it is an area of critical importance in the development of marine resources, both biological and mineral.

The general specifications for the proposed ship were based on consideration of the special characteristics of the New England region itself, the research needs of marine scientists in the region as expressed in a widely-circulated questionnaire, and the existing academic research fleet.

3. PROPOSED SHIP

The Advisory Group feels that NECCRF could fulfill a number of roles in addition to managing a much needed coastal research facility. It could serve to coordinate the research needs of academic institutions with these of government agencies. It could provide a forum in which all interested parties could address matters of concern about the marine environment of the region. Perhaps more important, it could function as a kind of "mini-UNOLS" to help make more efficient use of existing coastal research vessels in New England. The accompanying directory is a step in that direction.

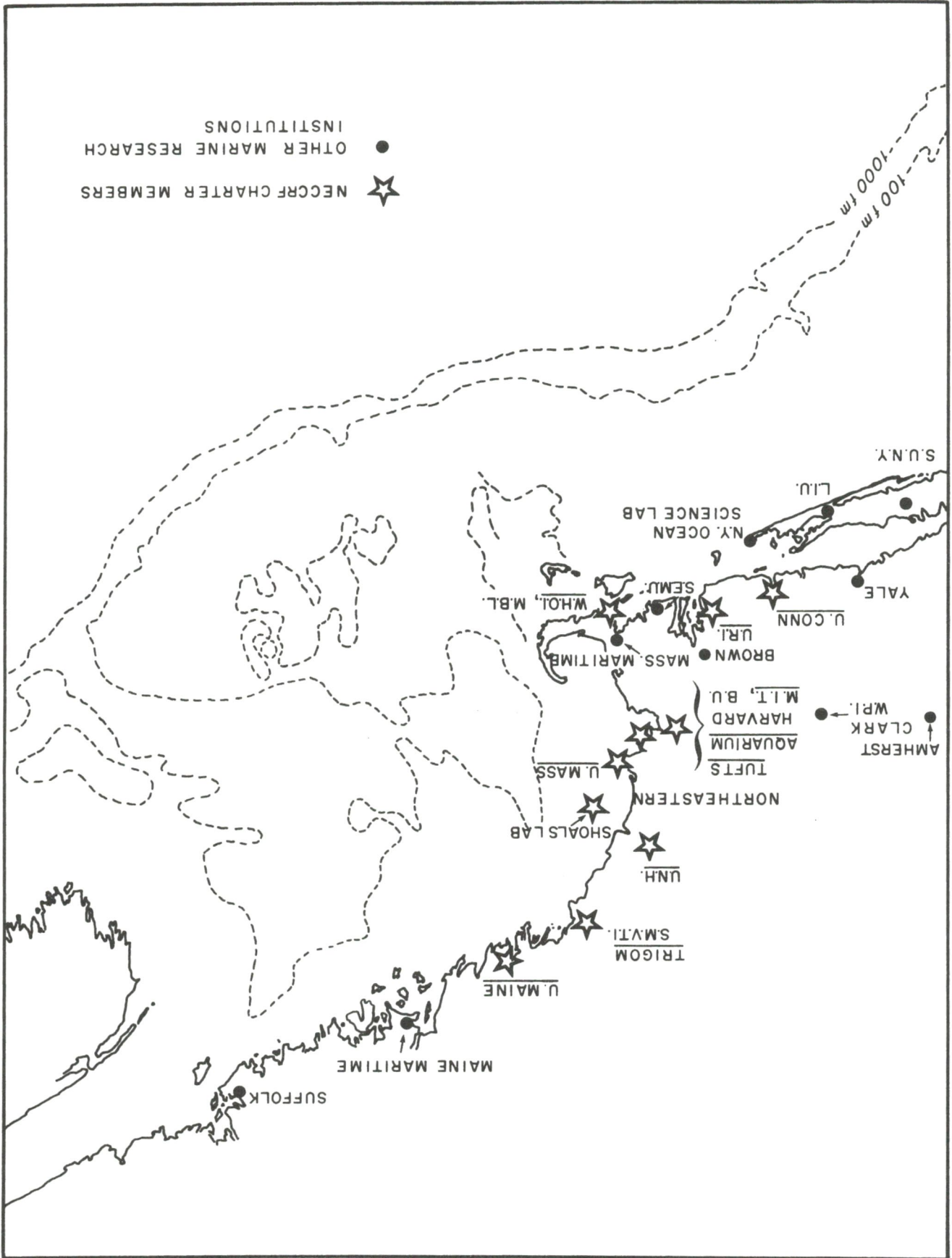
Block funded by NSF and other federal, regional and state agencies with an interest in New England coastal waters. This would reduce the daily cost to users and would also provide a capability to investigate special situations such as an oil spill or to accommodate occasional unfunded proposals of special merit.

REPRESENTATIVE	INSTITUTION
Dr. Erik Mollo-Christensen	Massachusetts Institute of Technology
Dr. Guy McLeod	New England Aquarium
Dr. Nathan W. Riser	Northeastern University
Dr. Donald Horton	TRIGOM
Dr. Chester Roys	Tufts University
Dr. Peter Dehlinger	University of Connecticut
Dr. Bernard J. McAlice	University of Maine
Dr. Edward S. Giffilian III	University of Massachusetts
Prof. E. Eugene Allmendinger	University of New Hampshire
Dr. Scott Nixon	University of Rhode Island
Dr. W. R. Wright	Woods Hole Oceanographic Institution
Dr. John M. Kingsbury	Shoals Marine Laboratory

NECCRF CHARTER MEMBERS

TABLE 1

FIGURE 1. New England Coastal Region



The NECCRF Advisory Group was formed in June 1972 for the purpose of responding to the UNOLS recommendation. New England educational and non-commercial laboratories engaged in marine research as well as several regional government agencies were invited to participate. Twenty institutions expressed an interest in NECCRF. Twelve of this number appointed representatives to the NECCRF Advisory Group. They are listed in Table 1. Figure 1 shows the region.

We emphasize that NECCRF is open to any additional members who may wish to join in the future, and use of the ship would be open to anyone interested in research in the New England Coastal Zone. The Advisory Group submitted a proposal to the National Science Foundation in 1973 calling for construction of a 125-foot oceanographic research ship with associated shore facilities to be used on a cooperative basis to help meet the coastal seagoing research needs of all scientists and ocean engineers interested in the region. Cost of the ship is estimated at \$1,136,000.

The objective is to develop a complete facility for research in coastal waters so that a scientist need provide only his own specialized equipment. The ship would be equipped with the fundamental navigation and data-gathering instruments that are in general demand. Deck and laboratory space would be provided for portable vans with more sophisticated gear. Technicians would be available to keep the gear operative and to oversee its use at sea; they would also be responsible for routine data processing and keeping cruise records. Shore facilities would include a home port with docking facilities, adequate utilities, convenient access to fuel and supplies, space for storage and maintenance of equipment and an office for the operation manager. Operation would normally be in the Gulf of Maine and on the Continental Shelf and Slope between Montauk Point and Cape Sable, but no fixed geographical limits would be imposed. Users would be chosen, on the basis of scientific merit and regional coastal zone needs, by an advisory panel elected by NECCRF members.

Ship design and construction costs would be funded by the National Science Foundation. The design would be undertaken by a capable naval architectural firm in consultation with NECCRF and NSF representatives. Operating costs would be divided between the individual projects of the users and a form of multi-agency block funding. Under this arrangement, at least half of the total cost would be

2. NECCRF

based on regional needs and/or scientific merit. Direct operations and maintenance would be assigned to a participating institution or institutions within the region. Suggested regions were New England (Maine to Block Island), Mid-Atlantic (Block Island to Cape Hatteras), Southeast (Cape Hatteras to Florida), Gulf of Mexico, Great Lakes, Pacific Southwest and the Pacific Northwest.

1. BACKGROUND: UNOLS Recommendations

The need for coastal zone research vessels to meet the needs of academic research institutions was raised at the first UNOLS Meeting in November 1971 at La Jolla, California. Such vessels, it was envisioned, should be more capable than those presently used in the growing efforts of institutions responding to the existing and documented needs of coastal zone research. At subsequent meetings the UNOLS Advisory Council directed that a working group be formed to examine the needs for coastal zone research facilities, and ships in particular, and to develop a plan to implement those needs.

The working group thus formed considered that the recommendations should be directed principally to academic research needs, both basic and applied, including the role played by graduate research. Emphasis was placed on multi-institutional operational arrangements. The group compiled and reviewed a series of federal, regional and industry reports on the problems and needs for coastal zone research disciplines. A synopsis of requirements was included in its report along with a comprehensive bibliography. There were five major conclusions:

- a. That capable multi-purpose ships are a fundamental need for coastal research.
- b. That interest of the scientific and regional community, within given geographical regions, can best be served by a multi-institutional, cooperative ship facility.
- c. That a Coastal Facility should include more than ships and dockside facilities. There must be an inventory of basic instruments and facilities for calibration and repair, as well as data processing. Furthermore there is a need to consider specialized coastal facilities such as coastal drilling rigs, habitats, submersibles, and even large, low-cost mobile barges.
- d. That the acquisition of, and support for, regional cooperative coastal research vessel systems should be assigned a singularly high priority; and that funding for the support and operation of Cooperative Regional Research Facilities be developed taking into consideration the obligations Federal, State and Regional Agencies which have responsibilities and needs to support Coastal Zone Research.
- e. That the scheduling and use of a Cooperative Coastal Research Facility be controlled by a regional organization. Facility use should be awarded on the basis of regional needs and scientific merit.

It was felt that in each geographic region the community of research users should be represented by a regional organization which would seek to identify the regional requirements and develop a plan for the acquisition and operation of regional facilities. A regional policy group should determine overall scheduling policies

UNOLS¹, NEGRF² AND
A PROPOSED REGIONAL SHIP

PREPARED FOR THE NEERS³ MEETING, WOODS HOLE, MAY 1974

¹University National Oceanographic Laboratory System
²New England Cooperative Coastal Research Facility
³New England Estuarine Research Society