The National Council on Marine Resources and Engineering Development

During the Administration of President Lyndon B. Johnson
November 1963 - January 1969

Vol. I Administrative History

A Marine Science Mandate

The Johnson Administration marks a turning point in this Nation's status as a maritime power -- in its re-awakening to the potential of the oceans to serve our broadest goals and aspirations related to economic growth, national security, and a humane quality of urban living. In the short interval beginning in August, 1966, the Administration has stimulated the breadth and depth of awareness as to our stake in the oceans, in the Federal Establishment, industry and academe and a realistic assessment of past neglect of our "maritime presence." It has strengthened the level of scientific understanding of the sea; then created policies, programs and institutional arrangements that would accelerate the translation of resources of the seas, the coastal margins, Great Lakes and the seabed to man's benefit.

The vehicle for this intensified maritime orientation was the Marine Resources and Engineering Development Act, Public Law 89-454. Section 2 of the Act set forth the unprecedented declaration of marine science policy and objectives.

SEC. 2. (a) It is hereby declared to be the policy of the United States to develop, encourage, and maintain a coordinated, comprehensive, and long-range national program in marine science for the benefit of mankind to assist in protection of health and property, enhancement of commerce, transportation, and national security, rehabilitation of our commercial fisheries, and increased utilization of these and other resources. 80 STAT. 203.

(b) The marine science activities of the United States should be conducted so as to contribute to the following objectives: 80 STAT. 204.

(1) The accelerated development of the resources of the marine environment.

(2) The expansion of human knowledge of the marine environment.

(3) The encouragement of private investment enterprise in exploration, technological development, marine commerce, and economic utilization of the resources of the marine environment.

(4) The preservation of the role of the United States as a leader in marine science and resource development.

(5) The advancement of education and training in marine science.

(6) The development and improvement of the capabilities, performance, use, and efficiency of vehicles, equipment, and instruments for use in exploration, research, surveys, the recovery of resources, and the transmission of energy in the marine environment.

(7) The effective utilization of the scientific and engineering resources of the Nation, with close cooperation among all interested agencies, public and private, in order to avoid unnecessary duplication of effort, facilities, and equipment, or waste.

(8) The cooperation by the United States with other nations and groups of nations and international organizations in marine science activities when such cooperation is in the national interest.

Paradoxically for a nation with a strong maritime heritage, an explicit Act was needed to establish a mandate to use the seas more effectively, thus to turn a fragmented, unsteady and loosely-knit conglomerate of narrow programs into a broadly-based, coordinated and continuing national effort. Apart from its eloquent statement of national policy, the Act went further by specifying who was responsible for getting the job done. It recognized that marine science responsibilities were spread over

-- 24 bureaus of eleven Federal agencies;

-- 50 subcommittees of Congress;

-- 77 academic institutions with oceanographic curricula;

-- hundreds of diverse industrial firms: petrochemical, mining, fishing, shipping, recreation, aerospace;

-- over 100 foreign nations where maritime interests interact with the U. S.; and

-- over 100 international organizations involving maritime functions in which the U.S. participates.

The Act conferred the leadership responsibility for imparting momentum and direction to these scattered interests and activities to the President of the United States.

It also provided the President with two instruments of assistance -- 1) an interim policy planning and advisory Council chaired by the Vice President and including the five cabinet officers and three department heads with primary marine science functions in the Federal Government; and 2) a public advisory Commission to report to the President and Congress on a long term national (not simply Federal) plan and optimum Federal organization.

The first decision facing the President after signing the Act into law June 17, 1966, concerned its mode of implementation.

This legislation had been generated almost entirely by Congressional initiative. It had received little Administration encouragement; in fact, opposition from the Bureau of the Budget and the Office of Science and Technology. Moreover, the marine sciences had been characterized by the absence of conspicuous crises and of pressures from any politically influential interest groups so that the Administration was

under no explicit pressure to take action. Finally, the only analogous body to the Marine Sciences Council -- in space affairs -- had been left unactivated for three years under Eisenhower and had not been found subsequently as necessary to advance space activities because of initiatives then being taken by NASA.

In marine science affairs, however, there was no NASA. Also, the then prevailing mechanism for Federal coordination through an interagency committee of the Federal Council for Science and Technology had matured to its full course of authority and policy problems then requiring solution were deemed to lay beyond its 1959 charter and power of its Chairman. Neither the Congress nor a special panel of the President's Science Advisory Committee were sanguine about the Federal Council having the muscle to advance the field to its next required notch of activity and leadership.

Activating the Marine Sciences Council

The President took note of a PSAC study (originally intended to slow down Congressional initiative) and of long-standing interest by Senator Magnuson in the untapped harvest of the sea, the national interest in its effective utilization and the unique requirement for Federal leadership.

Following enactment of PL 89-454, the President promptly requested Vice President Humphrey to carry out the full legislative mandate with

no holds barred, even requesting that initial recommendations for action be formulated within five months, in the time frame of the Fiscal Year 1968 budget, then in course of final preparation.

The Vice President responded with characteristic energy and desire for constructive accomplishment. He first recruited an Executive Secretary for the Council, selecting Dr. Edward Wenk, Jr., a research administrator who had unique experience in science policy affairs of both the Executive and Legislative branches and was professionally recognized as an ocean engineer.

Unifying Themes

During the critical infancy of the Council, the Vice President and Executive Secretary together developed unifying concepts and modus operandi that would epitomize its subsequent function in such a kaleidoscope of different goals, programs and institutions. In short, these percepts were:

1. The Council's key function is to help the President to make wise decisions and assert his statutory leadership, not to function as an operating agency;

2. It should strengthen individual agencies and coordinate separate marine activities to foster an enterprise that is greater than the sum of its constituent parts;

3. Its scope of activity, in keeping with the spirit of the Act, should be broadened to "Marine Science Affairs" so as to extend the activity from what had been ocean research to development to cover the full range of technology that is society - not science - oriented. In other words, science and engineering were to be considered "means," not "ends," blended with economics, law, foreign affairs, etc.;

4. To make science work, it would be necessary to understand the institutional framework and processes by which public purposes are served, and to generate plans of action that would seek avoidance of institutional impediments and deliberately couple science better to economic, social and political structure of the Nation;

5. The Federal Government will have to continue to provide national leadership to finance research and exploration, but as with land resources it is envisaged that competitive private enterprise will undertake marine resource exploitation; incentives would have to be sought for private investment;

6. The geographically differentiated problems of managing coastal marine environment will require state and local participation and partnership;

7. In view of our national policy to study and use the sea for the benefit of all men, and considering the inherent international character of scientific exploration and deep ocean resources, a multi-national approach to uses of the sea is essential;

8. New ideas should be sought in and outside of Government, and a seed bed provided to nourish creative approaches to ocean problems;

9. Professional identity of the office should be established so as to earn respect and trust of normally competing Federal agencies, Congressional Committees, and private interests.

Initial Opposition

Although this field is politically feeble and financially modest by comparison with other technically based endeavors such as atomic energy, the players in the game valued the status quo and resisted the entrance of a new competitor for attention even if not for budget.

The two forces initially hostile to boat rocking were the Navy and the scientific community. The petroleum interests, by far the most potent outsider, simply kept a careful surveillance of what was happening. The Navy's strategy was revealed first in their behind-the-scenes opposition to PL 89-454; their offer to take over Council staff functions when it was formed; their subsequent attempt to inhibit Council development by trying to keep control over the precursor interagency committee which they chaired and staffed; their undercutting of the Council with fictional propaganda (which the press didn't buy). When each of these ploys was met in turn, certain Navy factions sought to gain control of the Commission, first by offering to staff it; then by "brain-washing;" finally, by a public statement of their willingness to match

mission requirements with technical expertise so as to take over any future civilian-oriented activities at sea.

The opposition from the scientific community was more passive than active. In the first instance, they were ambivalent as to growth in the area -- promoting it vocally, but only so far as it would increase funding for academic research and not involve new communities of interest in "their" ocean. A similar attitude prevailed vis-a-vis the role of industry. Opposition here assumed the quality of their not taking the initiative of an interest group in helping ease a program through the Congress -- even though their own funds were at stake.

The Council encountered numerous other impediments to its accomplishing its role for the President -- but at one or another scale, they were epitomized by the previous chronicles -- bureaucratic opposition by sister agencies, a lack of support by outside interest groups. Both problems have been somewhat mitigated by the Council's own activist stand -- with saleable programs and a willingness to invest the energy necessary to "sell" them. The success of the Council in this situation depended critically on the visible support of the President and Vice President.

A "Maritime Presence" in the White House

Creation of the Council has had a marked effect on the entire enterprise -- in expanding perspective in a field that was largely

defense-dominated and derived its outside stimulus from a narrow base in the scientific community, to one now oriented to broader goals of national security, economic growth and improved quality of living, and involving industrial, banking, state and community interests.

Another consequence of this metamorphosis has been to elevate the substance of issues and level of attention from what had previously been a concern of project leaders and bureau chiefs in the Federal Government to matters deserving to be placed on the President's agenda.

Since creation of the Council, the President has addressed himself to maritime issues in over 35 messages, speeches or directives -- more than any prior incumbent at any time in our history. In his 1968 State of the Union message, for example, President Johnson said, "This year I shall propose that we launch, with other nations, an exploration of the ocean depths to tap its wealth and energy and its abundance." In February, his Foreign Aid message called for Congressional support of his food from the sea program; March saw an "International Decade of Ocean Exploration" proposed in the Conservation Message; and later the same month his Special Message on Marine Sciences set forth goals and milestones for twelve different ocean functions. His most recent action, in November, was announcement of a contingency plan to handle emergencies of massive oil spillage.

Challenge and Response

The challenge of the seas is often characterized by geographical facts: The sea is three times the area of all continents combined but we know less about them, almost, than the Moon. They wash over 13,000 miles of our ocean coastline. One of our States - Hawaii - is completely surrounded by ocean and the continental shelf off Alaska is equal to the area of the state itself, 1/2 the total of our national holdings.

But these are not the most compelling statistics.

There are 1 1/2 billion hungry people in the world, yet the productivity of the sea is 5 to 50 times today's catch and could go far to mediating famine and despair.

Seventy-five percent of our population lives along the coasts or Great Lakes; nine of our 15 largest metropolitan areas are on the oceans or Lakes; all of the megalopoli of the year 2000 are there. Yet only 3 percent of our coastline has been set aside for public use; 20 million children within sight of potential water recreation are denied their use, thirty million people swim in the oceans; 11 million fish in salt water, eight million engage in recreational boating there, yet pollution of bays and estuaries threatens the entire natural legacy.

And then we note 90 percent by value of our intercontinental traffic travels by ship, but we carry only 7 percent in our flag merchant

marine, itself averaging 19 years old. Our port structures average 45 years.

Since 1956, our fishing catch has dropped from second to sixth place, and we import 3/4 of what we consume while similar quantities go uncaught off our nearby waters.

And growing international interest in such questions as "who owns the seabed?" and "how do we disburse benefits from its exploitation?" turn the oceans into potential areas for conflict.

Measured in jobs, profits, potential for international conflict, the oceans indeed affect the lives of all our citizens, and millions intimately.

Presidential Actions

Some sixty issues have been brought to the President by the Council, as follows:

To meet the War on Hunger: a Food From the Sea program to accelerate technology for extracting fish protein concentrate and to open markets abroad.

To chart marine resources, foster international understanding and to improve our scientific comprehension, the International Decade of Ocean Exploration was proposed to engage cooperative efforts of many nations.

To prevent neo-colonial races for marine resources -- steps to develop international law that would preserve traditional freedom of

the seas, recognize legitimate interests of all nations in eventual benefits from that portion of the deep ocean floor beyond national sovereignty and create incentives for private investment through a proposal for a new U.N. Committee on the Sea Bed.

To meet conflicts in use of the coastal zone -- where people and the sea meet, groundwork was laid for establishing quality standards in bays and estuaries and for local or regionally managed coastal authorities responsible for land management in the public interest.

To provide a cornerstone of multi-disciplinary research and sources of manpower for the seventies, investments in Sea Grant Colleges and Programs were increased.

As a step toward limiting the arms race - proposals were offered in the Councils of the UN to prohibit emplacement of nuclear weapons on the seabed of the deep ocean.

To insure safety of life and property at sea, contingency plans were instituted to meet potential disasters from massive oil spillage.

In addition, steps have been taken to:

-- rehabilitate waterfronts to serve ocean shipping of the future;

-- to focus attention on the strategic and economic importance of the Arctic;

-- to improve navigation accuracy for civilian use;

-- to improve safety of offshore structures and research submarines;

-- to foster marine applications of new technology by use of spacecraft and buoys;

-- to upgrade the Government's oceanographic data systems to meet a variety of uses, and needs both in and out of Government.

The Council has thus isolated explicit goals out of numerous and diffuse alternatives, mobilized fragmented resources to gain some impact of "critical mass," brought science and engineering into the mainstream of public policy, and begun to overcome institutional barriers that block transfer of scientific discovery to practical benefit.

Another way to explain "what's new" is to recall that the momentum and texture of a program depend on two motivating forces: a "pressure" of science generated knowledge clamoring for application, and a "suction" of unsatisfied need. The last two years have found a new emphasis on the latter motivation -- with explicit attention to the coupling between science and society.

Funding

These policy and program developments came in a most unhospitable budget era, however. Despite stringent economies to meet the $6 billion savings insisted on by the Congress and agreed to by the President, Fiscal Year 1969 is now estimated at $485 million for marine sciences -- up 9 percent from FY 1968, and up 35 percent from FY 1966, during which time Federal Research and Development as a whole increased only 8 percent.

Targets for such developments having the highest promise of payoff were carefully studied and sifted on a Government-wide basis for the first time, and earned support from the President during years when budgets were always tightly drawn.

The budgets grew during this Administration as follows:

(in millions)

	1966	1967	1968	1969
Navy	171	268	232	259
Civilian	169	170	221	226
Total	340	438	453	485

The most significant increases were in the Navy, developing a deep submergence capability in the aftermath of the THRESHER loss, and in civilian affairs, based on Council goals.

The Technique of New Initiatives

These presidential initiatives largely emerged from areas selected for special emphasis by the Council, centered around identifying unmet opportunities to serve national goals. In fact, such topics represent the first task of the Council -- designating targets, programs that define the necessary activities, funding requirements, and, if necessary, the agency responsible.

In the first year of operation priorities were selected of some nine initiatives from over 100 recommendations of the President's Science Advisory Committee, the National Academy of Sciences, and other sources.

In his second annual report on marine sciences to Congress, the President again highlighted particular domestic programs deserving increased funding and gave a strong foreign policy orientation to the program.

Preparation of President's Report

The second major task of the Council has been preparation of the report which the President is obliged by law to submit annually to the Congress. The report includes:

-- a description of the Government-wide program, with funding and activities delineated by purpose as well as agency. This step in program planning and budgeting was intended to facilitate resource allocation in terms of the program's contribution to public needs. Funding by purpose is summarized in Table 1.

-- an abstract of individual agency accomplishments, including a progress report on implementation of earlier initiatives.

-- justification for new Federal initiatives and the program as a whole.

-- recommendations for new legislation (none on Federal reorganization were developed because the legislation gives this primary charge to the advisory Commission).

-- discussion of unresolved issues -- especially those deserving of further study by non-Federal as well as Federal interests. These were developed in the purpose categories mentioned earlier, but joined in a concluding chapter intended to open a broad inquiry as to "What is the Nation's -- and the world's -- stake in the oceans?"

TABLE I

Total Federal Marine Science Program by Major Purpose[1]
(In millions of dollars)

	Estimated FY 1967	Estimated FY 1968	President's Budget FY 1969
1. International cooperation and collaboration	7.1	7.6	8.2
2. Military security	161.8	136.9	150.1
3. Fishery development and seafood technology	38.1	41.2	42.7
4. Transportation	11.9	15.2	15.4
5. Development of the coastal zone[2]	21.4	28.7	28.6
6. Health	6.6	5.2	6.0
7. Nonliving resources	7.2	8.1	9.8
8. Oceanographic research[3]	61.5	78.4	99.7
9. Manpower and education	4.0	7.2	7.9
10. Environmental observation, prediction, and services	24.4	24.5	26.5
11. Ocean exploration, mapping, charting, and geodesy	77.4	74.5	92.1
12. General purpose ocean engineering	14.8	18.2	26.8
13. National data centers	1.8	2.0	2.4
Total	438.0	447.7	516.2

[1] Details may not add to totals due to rounding.

[2] Includes shore development, pollution management, recreation.

[3] Research beneficial to more than one of the headings above.

The report deliberately emphasized the transition from a knowledge- to a use-orientation by the selection of the title "Marine Science Affairs" rather than "oceanography." Chapters are organized by basic needs or national purposes, rather than by agency. The scope of Federal activities so embraced is roughly twice what had earlier been defined by the Federal Council for Science and Technology as a "national oceanographic program," because technology as well as science is embraced by the scope of the legislation.

After drafting by the secretariat, the report was submitted to Council members and observers for clearance, at which time numerous unresolved issues, unclear jurisdictions, or controversial programs were clarified and resolved.

By its scope and content, the report serves as a planning document to assist the Federal Government at various echelons to focus on common goals. It can aid Congress in relating elements that come before some 20 appropriation subcommittees and an equal number of legislative subcommittees concerned with the complex matrix of marine science affairs. Industry, academia, state governments, and foreign governments may also be aided in articulating their individual goals and programs to the Federal effort.

Fifteen thousand copies of the annual report were printed by the Government Printing Office and the supply has been virtually exhausted --

one indicator, at least, of the breadth of interest in Federal marine leadership.

Congressional Relations

Congressional interest in marine affairs continued during the two years of Council life, but was radically changed in focus. What for many years had been an effort to diagnose whether the Executive Branch was adequately coordinating a multi-agency program, shifted more specifically to the substantive issues themselves. The base of interest also widened to include committees beyond the Senate Commerce Committee and House Merchant Marine and Fisheries Committee that had been shotgun parents of PL 89-454.

The creation of the Council also provided a focus for Government-wide response to Congressional calls on marine affairs. The number of such appearances on the Hill had totalled six up until 1966, primarily the Director of the Office of Science and Technology or chairmen of his Interagency Committee. Since August, 1966, the Council's Executive Secretary has appeared 17 times.

The purposes were:

-- to interpret the President's program in "posture" hearings;

-- to defend Council appropriations;

-- to defend individual agency appropriations that have Government-wide benefits;

-- to interpret the Administration's position on international legal regimes;

-- to explain issues that cross agency lines.

The issues concerned:

-- Sea Grant Program
-- Fish Protein Concentrate
-- Marine Sanctuaries
-- Extension of Council and Commission
-- Legal Regime for the Seabed
-- Territorial Seas
-- Estuarine Studies
-- Recreational Boating Safety
-- Regional Harbor Studies and Deep Draft Ports
-- Tideland Great Lakes Shorelines
-- Ocean Survey and Prediction
-- Assistance to U.S. Fishing Industry
-- Wetlands Conservation
-- Seashore Parks
-- Great Lakes Basin Compact
-- Alewife Control
-- Marine Science program review
-- Submersible safety
-- Oil pollution
-- Outer Continental Shelf revenues
-- Federal marine science reorganization (8 different bills restructuring agencies with marine science missions)
-- Federal agency and Council appropriations

Internal Council Operations

Presidential policies, appearances, and messages of the Vice President and Executive Secretary became the public reflection of this step toward Federal Administration and marine science affairs. However, it is the policy planning, communication, argument and persuasion behind the scenes, however, that is not only vital to achievement, but constitutes the essential process of government that spells difference between success and failure.

Membership

By legislation, the Council comprises the:

Secretary of State	Chairman of AEC
Secretary of the Navy	Director of NSF
Secretary of the Interior	Secretary of HEW
Secretary of Commerce	Secretary of Transportation (when Coast Guard was moved from Dept. of the Treasury)

Participation of principals was encouraged from the beginning, with only statutory alternates (of policy rank) permitted to speak for them at Council meetings. Attendance at 14 sessions by principal or alternate was 85%. The Vice President has presided at twelve meetings.

The Vice President also invited in observer status heads of agencies who are not specified as members, but whose interests embrace marine affairs sufficiently as to warrant their direct participation in the decision-making process.

These include:

Director of the Budget

Director of the Office of Science and Technology

Chairman, Council of Economic Advisors

Administrator, NASA

Administrator, AID

Secretary, Smithsonian Institution

Leadership

As Council Chairman, the Vice President ultimately played three roles - as a "formulator of science policy" and as an "ocean advocate," both mentioned earlier. But within the Council apparatus, he also served as an "assistant President." It was at Council meetings, in preparation before and follow up afterward, that a vital quality of government-wide management was stamped on often incoherent actions of the federal family. Eleven agencies could easily be headed in 22 directions. Minutes of Council meetings were recorded , incidentally, as a means of enforcing discipline within agency over agreements made at plenary sessions by agency heads.

Functions

Thus, in assisting the President in federal management, the Council sought:

-- to identify unmet needs and opportunities and establish priorities in areas deserving special emphasis;

-- to recommend goals and milestones;

-- to identify impediments to achievement - both gaps in scientific knowledge and institutional constraints that block scientific application and strategies for their circumvention;

-- to coordinate through a committee structure marine activities of federal agencies and to recommend a lead agency for responsibility if several claim -- or all disclaim -- responsibility to implement an agreed-upon program;

-- to resolve conflicts so as to develop a single government position if two or more agencies disagree on major policy issues;

-- to eliminate marginal activities;

-- to help develop long-range perspective of economic, legal and social consideration in converting scientific discovery to a technology for identifying alternative policies and criteria for choice;

-- to identify incentives for private investment and means for mobilizing their participation in mutually advantageous ventures;

-- to formulate policy guidelines for the Sea Grant Program;

-- to coordinate federal programs of international cooperation;

-- to follow through to insure implementation of Presidential initiatives.

In carrying out these functions, the Council has tended to be a goal oriented creative body rather than simply an arbiter of longstanding jurisdictional disputes. Nevertheless, the Vice President has been willing to resolve issues and especially to get recalcitrant Council members off the well-known pot - usually by injection of the right humor at the right time at Council debates.

The Council carried out these functions with the assistance of three auxiliary components:

-- Committees of the Council

-- Policy studies on contract

-- Panels of experts

Committee Structure

The Vice President directly appointed four committees and requested the Secretary of State to appoint a fifth, as follows:

-- Marine Research, Education and Facilities (formerly Interagency Committee on Oceanography)

-- Ocean Exploration and Environmental Services

-- Food From the Sea

-- Multiple Uses of the Coastal Zone

-- International Policy in the Marine Environment

The standing committees in their respective areas, were charged with exchanging data on present and future plans, planning ahead together, identifying issues and bringing to the Council for action policy recommendations to be sent to the President if adopted. Committees were also requested to settle issues at an assistant-secretary level whenever possible.

The Vice President also appointed an ad hoc Committee to consider the report of the Commission on Marine Science, Engineering and Resources. Their charge is to evaluate Commission findings and recommendations, prepare a paper representing a consensus where it exists, or minority

views, which the Council would then consider and forward to the President as a commentary on implementing Commission recommendations.

Ad hoc committees and panels have also been appointed by the Executive Secretary dealing with:

-- Role of disadvantaged youth in satisfying marine science manpower needs;

-- Data management(especially to monitor the SDC contract);

-- Oil spill contingency planning;

-- Arctic marine science program;

-- Coordination of oceanographic ship operations.

Advisors

Advisory groups serving the Council comprise ad hoc panels of experts, convened to help evaluate agency programs, and formal bodies representing constituency interests where views are sought publicly and collectively rather than individually and privately. As to the latter, explicit requests for advice have been requested from:

Council of Oceanographic Laboratory Directors

National Academy of Sciences

National Academy of Engineering

National Security Industrial Association

National Petroleum Council

American Bar Association

American Society of Mechanical Engineers

American Society of Civil Engineers

Marine Technology Society

National Oceanography Associates

Society of Naval Architects and Marine Engineers

Reports to the Council have been provided by the first six organizations, several of which have proved of considerable value.

Seminars have also been convened of two interest groups - one of industry, and one of state governments.

Evaluation of Agency Programs

As to individual experts -- some 100 persons, in such fields as marine biology, geophysics, military affairs, law, economics, business administration, etc., have been assembled annually in categorical task groups -- to evaluate the government-wide program: strengths and weaknesses,

gaps, priorities, mismanagement. The review is conducted as a hearing, with agency presentations coordinated by Council Committees. Task Group reports are filed, but to encourage candor are not generally released but are available to agency heads for review. Chairmen of each task group are then convened in a "master panel" and their report is transmitted to the Council when it reviews the agency or committee recommendations, as to have the benefit of an independent appraisal.

By this technique, the "evaluation" for the President required in the organic Act is referred both to the "quality" of federal programs, and to the degree to which they contribute to the broad goals of the Act.

Staff

Providing the Council with full time professional staff, independent of agency ties and at a senior pay level permitted development of a strong Presidential staff arm in marine affairs. Among other factors, the Executive Secretary was provided complete freedom to choose staff on the basis of competence. Specialists were then sought in ocean sciences, engineering, national security affairs, public administration, law, economics and international relations. The staff of 14 identify policy issues, collect and analyze facts and prepare position papers for Council deliberation and action. Such papers are "floated up" through the Committee structure or panels if appropriate - and when acted on in plenary session,

usually are abstracted into specific recommendations to the President, or acted on by mutual consent if consistent with prior Presidential action. When approved, these become incorporated into operating policies, programs and budgets of participating agencies, with Council staff monitoring to assure implementation.

The other major activity of staff is preparation of the Annual Report required by PL 89-454 to be submitted to the Congress by the President.

Only in a few cases does the Council, through its staff, undertake any continuing program responsibilities.

One assignment given the Council by statute is policy guidance of Sea Grant.

Another assignment by the Council itself was overseeing of the contract study on developing an improved system of data management.

The President assigned to the Council the responsibility for coordination of the International Decade of Ocean Exploration.

Marine Sciences Commission

Because this legislation originated in the Congress, its legislative history has not been treated in detail. Its origins can be traced to the 86th Congress, to a 1959 landmark study by the National Academy of Sciences that revealed the primitive state of U.S. oceanography and

to a crescendo of enthusiasm of that post-Sputnik era to outrun Soviet competition. For seven years, the Congress wrestled with the question of providing the impetus they felt lagging in the federal enterprise. The solutions all revolved around reorganization.

The Bill that emerged was the amalgram of different and separate approaches in the two Houses: the Council concept was supported by the Senate, based on a proposal in the House dating back to 1961. The Commission was a creation of the House of Representatives based on a proposal laid before the Marine Technology Society, backed by the Navy and later by OST and BuBud as a device to block the Council concept.

Thus, when the Bill was passed, there was an unfortunate polarization between Council and Commission backers that threatened success of both operations. The problem was intensified by a public misinterpretation of the legislation suggesting that the two bodies were competitive, simply because both dealt with marine sciences.

The Commission was not appointed until January 9, 1967, which was further interpreted by some as deliberate delay to let the Council get a head start. (The delay was entirely a matter of White House priorities.)

Members of the Commission were nominated by the Council's Executive Secretary after a clearance by the Vice President, with a veto

power in the White House, and reciprocally White House nominees were subject to the Secretary's approval. Nominations were based on the decision to have a blue ribbon group, above self interest as far as possible, reflecting different disciplines, industries, institutional groupings and geography involved in marine science affairs.

The Commission has met 15 times with excellent attendance and high participation by its members. Some friction did develop between the two bodies when the Commission staff initially assumed the 'competitive' outlook, they also initially adopted a point of view that the Council was their primary target to shoot down in justifying alternative Federal organization. After the Commission began to gain confidence in its independent role and found it could get competent, candid advice from the Council, relationships substantially improved. Commission Chairman Stratton and the Council Executive Secretary went to considerable effort to minimize friction between the two bodies.

As the Commission neared completion of its task, the Council's ad hoc Committee met for a full week to review panel drafts and react.

The meeting proved exceedingly fruitful in developing a backdrop of the significance of a maritime presence and also the present hostile environment that faces all science proposals today.

A critique was informally presented to the Commission - with serious concerns over failure to treat defense and shipping issues, and over a

presentation that appeared technology - rather than society oriented.

Further drafting by the Commission is currently underway, but it is doubtful if their report will be received in sufficient time for the President to comment.

Public Relations

To transform a largely scientific enterprise into more advanced phases of exploration and development, and to gain support in the usual competition for funds required that the Council not only serve as a prophet in perceiving the future role of the oceans but also as advocate for that role. This was especially evident when it was realized that no one of the 11 Federal agencies involved could serve as a natural advocate for civilian marine science affairs. As a consequence, chief advocate had to be the Vice President, who in letters to members of Congress, formal statements, published articles, numerous visits to oceanographic institutions and wires to professional meetings, conferred prestige of his office on the field and urged support of the President's program. He also introduced marine-related opportunities in talks with foreign leaders both here and abroad.

Re-inforcing that advocacy function, the Executive Secretary has written and spoken extensively -- 11 articles and 47 speeches -- before widely varying interest groups. A dialogue was also sought with individuals who are leaders in fields related to the ocean -- to explain the Government's program, to stimulate and cultivate interest and to gain support, but also to invite new ideas, points of view and comment.

Private enterprise invests substantial sums in development of coastal areas, in transportation, in exploration and extraction of offshore oil, gas, fish.

The States have rights and responsibilities as to inshore waters and offshore activities.

The universities and private research laboratories are key sources of basic knowledge and manpower needed by all participants.

To that end, the Government has sought ideas and points of view of the non-Federal sector. Forty percent of the Council's budget is utilized to pick our Nation's best brains through contract studies and consultants.

The Council convened the first meeting ever to bring together all the marine science research directors in the country. It sought industry guidance through such bodies as the National Petroleum Council, American Mining Congress, National Security Industrial Association. It engaged in two-way communications with Governors and senior officials of some 23 States.

It called on the National Academies of Sciences and of Engineering to help in the planning of the International Decade of Ocean Exploration.

Because public understanding is so essential to the program, the Council has endeavored to make available not only information on its activities but those of its constituent agencies: In the President's annual report, and reports on spacecraft oceanography, Ship Operation Schedules, Aquatic Sciences in the Great Lakes, and Marine Science Activities of some 99 nations.

Finally, the Council has recently contracted with the Science Information Exchange to prepare a catalogue of marine science research -- a compendium of who is doing what, where, and with whose funds.

Contract Study Reports

The Council to date has awarded 24 contracts to non-Governmental organizations for surveys, studies, and planning assistance in support of its mandate for policy development and coordination. Most of these result in a study report which is then distributed by the Clearinghouse for Federal Scientific and Technical Information.

State and Regional Bodies

Direct communication about marine science affairs has occurred between the Vice President or the Council's Executive Secretary and the offices of the Governors of California, Maine, Maryland, Florida, Massachusetts, New York, Washington, Rhode Island, New Hampshire and Delaware. Governors' Conferences on the oceans have occurred recently in Maryland, Massachusetts, New York and Delaware and were attended by Council representatives.

As early as the second Council meeting, the Vice President requested a survey of State marine activities via a questionnaire and, later, a contract was awarded for a study of State and local laws and jurisdictions involving marine resources and sciences. These efforts

identified numerous advisory committees, interstate groups, and regional organizations that have been established to deal with a myriad of ocean-related problems and objectives.

Single points of contact are sought in each State and where one exists or is developing (e.g., California Interagency Council for Ocean Resources; Florida Institute of Oceanography), efficient communication channels are being designed.

The Council works closely with the four Federal-State River Basin Commissions now in operation; and assistance has been given to the Economic Development Commissions such as the Coastal Plains Commission of the Southeast.

Contracts Awarded by the National Council on Marine Resources and Engineering Development

Subject	Contractor	Amount
To collect and evaluate economic and industrial statistics on Marine Resources and Engineering Development.	Surveys & Research Corp., 1030 15th St. NW., Washington, D.C. 20005.	$6,400
A study of areas of legal conflict of immediate concern.	William L. Griffin, 1725 DeSales St. NW., Washington, D.C. 20036.	4,200
Report of achievements and problems of the International Indian Ocean Expedition and recommendations for the improvement of future expeditions.	Robert G. Snider, 112 West Foster Ave., State College, Pa.	6,000
A study of the international legal problems involved in the scientific exploration and investigation of the marine environment and its resources.	William T. Burke, Ohio State University, 1659 North High St., Columbus, Ohio 43210.	7,100
A study of the international legal problems involved in the management, use, development, recovery, and control of the mineral resources of the marine environment.	Louis Henkin, Columbia University School of Law, 435 West 116th St., New York, N.Y. 10027.	10,000
A study of international legal problems concerning living resources of the sea.	Paul W. Dodyk, Columbia University School of Law, 435 West 116th St., New York, N.Y. 10027.	7,425
A seminar on the liability aspects of activities in the marine environment.	American Trial Lawyers Association, Kraindler & Kraindler, 99 Park Ave., New York, N.Y. 10016.	1,000
A study of legal problems arising out of the management, use, development, recovery, and control of the marine resources along the coasts of the United States.	Albert Garretson, New York University School of Law, New York, N.Y.	20,000
A study of legal problems arising out of the management, use, development, and recovery of natural resources of the Great Lakes Area of the United States.	Board of Regents of the University of Wisconsin, Madison, Wis.	20,000
A study of requirements for and management of marine data systems.	System Development Corp., Santa Monica, Calif.	75,000
Nonmilitary needs for underwater technology.	Southwest Research Institute, San Antonio, Tex.	63,000

Contracts Awarded by the National Council on Marine Resources and Engineering Development—Continued

Subject	Contractor	Amount
A study of the utility of systems analysis for a U.S. fishery.	Litton Industries, Transportation Systems, Marine Technology, Inc., Beverly Hills, Calif. Subcontractor—Litton Industries Mellonics Division, Sunnyvale, Calif.	89, 373
Potential of aquaculture for providing food from the sea.	American Institute of Biological Science, 3900 Wisconsin Ave., Washington, D.C.	30, 756
The potential of observation of the oceans from spacecraft.	General Electric Missiles & Space Division, Valley Forge, Pa.	59, 433
Multiple use of the waters and coasts of the Chesapeake Bay.	Trident Engineering Associates, Annapolis, Md.	27, 254
Competing demands for land and water use in the Greater Seattle Harbor.	Management & Economics Research, Inc., Palo Alto, Calif.	35, 235
Economic potential of selected resources of the U.S. Continental Shelf and Slope.	Economic Associates, Inc., 1150 Connecticut Ave. NW., Washington, D.C.	55, 000
The relation of government programs to private investment enterprise in marine resources and engineering development (a cooperative study with the National Science Foundation).	National Planning Association, 1606 New Hampshire Ave. NW., Washington, D.C.	75, 057

International Relations

Communicating U.S. marine science interests abroad became both a sine qua non of considering that U.S. interests in the oceans could not be isolated from those of other nations, and that our own initiatives to explore and use the ocean should be made known abroad so as to encourage their participation, or at least to prevent misunderstandings of U.S. intentions. The emphasis on international cooperation can be traced to PL 89-454, including Section 6, which is unique among provisions of the Act in that it gives the Council an explicit assignment to coordinate our marine science activities abroad.

The Council has pursued international cooperation in a variety of ways and looks upon its role in this area as one deserving highest priority and promising sizeable benefits. The travels of the Vice President to Korea, Indonesia, Africa and Western Europe in 1967 during which he broached marine affairs with leading foreign officials was mentioned earlier. The Executive Secretary accompanied the Vice President on several of these visits and made a separate trip to Europe in 1968 where he talked to Government leaders of the United Kingdom, Netherlands, Belgium, Italy, Germany and the USSR. Working through the Council's Committee on International Policy in the Marine Sciences (CIPME) and by virtue of staff contracts, activities of the UN, its specialized agencies, and other intergovernmental organizations are monitored and aided. These bodies include:

-- International Oceanographic Commission

-- Intergovernmental Maritime Consultative Organization

-- Food and Agricultural Organization

-- Organization for Economic Cooperation and Development

-- NATO Antisubmarine Warfare Laboratory at La Spezia, Italy

-- Great Lakes Basin Commission

-- International Joint Commission (U.S.-Canada Boundary Waters)

Results have been highly promising, especially in support of the Decade.

Intensified ocean activities have the potential of creating conflict between the users whether they are nations or industries. Some coastal states have already asserted national jurisdictional claims hundreds of miles seaward. As nations pre-empt such ocean areas, "freedom of the seas" disappears. The importance of up-dating the international community's rules and machinery for dealing with the ocean, now, through cooperative efforts to prevent such conflicts and to promote resource development and conservation, can hardly be over-emphasized.

President Johnson laid out the general lines of the United States' approach to these questions in July 1966 when he said: "Under no circumstances, we believe, must we ever allow the prospects of rich harvest and mineral wealth to create a form of colonial competition among the maritime nations." He said we must "...avoid a race to grab and to hold the lands under the high seas ... (and) insure that the deep seas and the ocean bottoms are, and remain, the legacy of all human beings."

Meanwhile, we are playing a leading role in international discussions on ocean policies and programs at the United Nations. In response to Malta's proposals for internationalizing the seabed and the General Assembly's prompt action to establish a 35-nation ad hoc Committee to study the issue, the United States Government (1) set forth a draft declaration of principles to guide the exploration and use of the deep ocean floor, beyond national jurisdiction; (2) put forward our proposal for an International Decade of Ocean Exploration; (3) proposed setting aside

virgin marine preserves for scientific purposes and protecting existing marine life; and (4) presented a proposal on the question of de-nuclearizing the deep seabed, urging that the 18-nation Disarmament Committee in Geneva consider the factors vital to a workable, verifiable, and effective international agreement to prevent emplacing weapons of mass destruction on the deep seabed.

Also, we co-sponsored a resolution to continue the ad hoc Committee as a Standing Committee, so discussions of these and other matters relating to the ocean will be broadened. The General Assembly has considered these proposals and will continue to debate them.

Support of Individual Agency Actions

The Council has given vigorous support to a variety of individual agency activities which are considered important to the Nation's total marine program by:

-- assisting in the establishment of a Food-From-the-Sea office by the Agency for International Development

-- conducting liaison tasks in support of the OCEANOGRAPHER'S around-the-world cruise to carry out scientific and goodwill projects

-- providing policy guidance for the Sea Grant Act administered by the National Science Foundation

-- preparing staff papers and developing recommendations to assist the Department of State and the U.S. delegation to the U.N. to have the General Assembly adopt a Marine Resources Resolution

-- aiding the Bureau of Commercial Fisheries in obtaining approval from the Food and Drug Administration for production of Fish Protein Concentrate for human consumption

-- supporting strong funding of the Navy's Deep Ocean Technology program

-- recommending release to U.S. industry of the Transit Satellite Navigation System of the Navy

-- urging Congressional approval of a replacement Coast Guard ship designed to conduct subpolar oceanographic studies

-- approving invitations to foreign aquanauts for participation in Sealab III.

Analysis

In considering these Federal programs, it should be recognized that the marine sciences area differs significantly from that of outer space with which it is often compared. First, development of marine resources anticipates substantial private as well as public investment, thus extending beyond the water's edge what has been traditionally the role of private industry in the development of resources. Second, decisions as to programs and priorities require extensive cooperation between Federal and non-Federal institutions as, for example, with the states when dealing with conflicting uses of the coastal zone; with academia when projecting maritime research; and with industry in the development of resources so as to encourage investment where risks are high, profits long-deferred, and the public interest not served by marketplace economics.

Attention of the Nation has been directed by the popular press and by the heightened public interest in science to the mysteries of the ocean. But this emotional attraction fails to meet the tougher question of "what portion of the nation's energy and wealth should be devoted to ocean endeavors?" The plurality and diversity of these endeavors themselves add to the difficulty of any monolithic approach which would consider priorities for ocean-related activities by themselves, and not in relation to other national purpose.

The first prerequisite for a solution to this present situation is the need for leadership. The legislation provides for this through the President, but it by no means can guarantee that the field will earn presidential support except as the President himself may assess priorities in relation to other topics on his own agenda. The 26 months that have elapsed since passage of the Marine Science Act are too short an interval to evaluate the merits either of the organic legislation or of the implementation. However, the President's reference to marine sciences in his State of the Union address and his budgetary support for new initiatives accord this field high-level recognition and attention intended by framers of the legislation.

The President, in transmitting Council recommendations to the Congress, credits the Marine Sciences Council with "significant progress in mobilizing the resources of the Federal Government" in this area. The direct contributions by the Council chairman and members have certainly

been a factor in any such accomplishment: in seeking to utilize science to meet national problems; by encouraging a goal-oriented, activist style of operation; by a focus on quality rather than quantity of operations; by communication with the Congress, the scientific, industrial, and academic communities; and by willingness of the chairman to resolve issues and mediate conflicts.

The Marine Resources and Engineering Development Act gave permanent responsibility to the President to advance this field. The Council was given only interim authority to advise and assist until June 30, 1969, so as not to inadvertently inhibit the Commission in its analysis. Thus, in marine sciences, options for the future are completely open. Decisions may be required as to more permanent policy planning and coordinating machinery, requirements for a new Federal operating agency, and means whereby public and private interests may be blended and the necessary capital attracted to advance the Nation toward the long-range objectives now being identified by the Council and the Commission.

Before January 9, 1969, the national Commission on Marine Science, Engineering and Resources will table such proposals for national review and action.