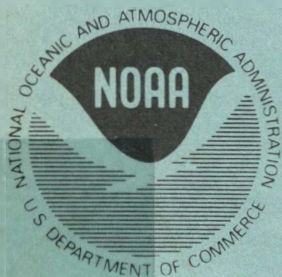


PROGRAM DEVELOPMENT PLAN FOR Ocean Dumpsite Research And Monitoring Program (ODRMP)

AUGUST 1976



U.S. Department of Commerce
National Oceanic & Atmospheric Administration
Office of Marine Resources
Marine Environmental Protection Office
Rockville, Maryland 20852

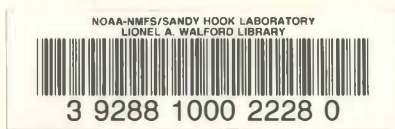
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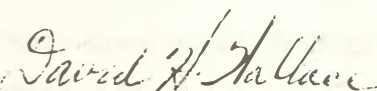


PREFACE

This Program Development Plan describes the National Oceanic and Atmospheric Administration Ocean Dumpsite Research and Monitoring Program, which is to be initiated during fiscal year 1977 in response to provisions of the Marine Protection, Research, and Sanctuaries Act of 1972 (Public Law 92-532), and in support of the EPA/NOAA Interagency Agreement Concerning Baseline Surveys and Evaluations of Ocean Disposal Sites, of March 1975.

This program is structured to meet these provisions, and to provide scientific support to the ocean dumping regulatory programs established by the Environmental Protection Agency.

The Plan will be modified, based upon changes in schedules and funding, as required.


David H. Wallace
Associate Administrator for Marine Resources

ABBREVIATIONS AND ACRONYMS

AIP	Annual Implementation Plan
COE	Corps of Engineers
DWD	Deepwater Dumpsite
EDS	NOAA Environmental Data Service
EPA	Environmental Protection Agency
ERL	NOAA Environmental Research Laboratories
FIA	Freedom Information Act
MESA	Marine Ecosystems Analysis
MLC	NOAA Main Line Component
MPRSA	Marine Protection, Research, and Sanctuaries Act of 1972, as Amended
MR	Office of Marine Resources, NOAA Headquarters
NESS	National Environmental Satellite Service
NMFS	NOAA National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NODC	NOAA National Oceanographic Data Center (An Element of EDS)
NOS	NOAA National Ocean Survey
NSF	National Science Foundation
OCSEAP	Outer Continental Shelf Environmental Assessment Program
OCZM	NOAA Office of Coastal Zone Management
ODRMP	Ocean Dumping Research and Monitoring Program
OSG	NOAA Office of Sea Grant
PDP	Program Development Plan
POE	Primary Organization Elements
Q&RA	Quality and Reliability Assurance
USCG	United States Coast Guard

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SECTION 1

SUMMARY

This Program Development Plan (PDP) describes the National Oceanic and Atmospheric Administration (NOAA) Ocean Dumpsite Research and Monitoring Program (ODRMP), which is to be initiated during fiscal year 1977 in response to provisions of the Marine Protection, Research, and Sanctuaries Act of 1972 (Public Law 92-532).

Major subjects discussed include requirements for the conduct of studies on the effects of ocean dumping, goals and objectives, technical approach, schedules, management plan, and other pertinent elements of the program including costs and benefits. This PDP contains the basic rationale and framework for the economical and effective implementation of the ODRMP.

The ODRMP is an integrated scientific effort designed to meet both the immediate needs of the ocean dumping regulatory agencies as well as the broader responsibilities placed on NOAA to carry out research on the effects of dumping in the marine environment. This PDP gives attention to the requirements levied upon NOAA to provide decision-making information to a variety of users. Among such users are federal and state administrators, industry, the conservation community, and the general public. In particular, Environmental Protection Agency (EPA) and Corps of Engineers (COE) regulatory responsibilities are given special consideration. The ultimate goal of the ODRMP is to obtain information on the effects of ocean disposal of waste material that will strengthen resource management and regulation decision processes. Such decisions include, but are not limited to: whether or not dumping should continue in given areas, means and techniques for disposal, choice of alternate oceanic sites for disposal, etc. Thus, this is more than merely a data collection and processing program.

The major technical elements of the ODRMP are dumpsite baseline establishment, selected experimental studies, and monitoring of dumpsites. In addition, data collection, processing, and assessment efforts are an integral element of the program. Output is in the form of comprehensive reports containing specific recommendations with respect to ocean dumping of waste materials.

Further information on this PDP may be obtained from the Office of Marine Resources, NOAA, Rockville, Md. 20852.

METHODS

GENERAL

The National Oceanic and Atmospheric Administration (NOAA) has approved this Project Development Plan (PDP) for a program of studies on the effects of disposal of waste materials in coastal waters including the Great Lakes. The program will be known as the Great Lakes Research and Monitoring Program (GLRMP). Major elements of this program include field surveys to describe actual environmental conditions including water variables and interrelationships, laboratory experiments, monitoring activities, and special studies.

The GLRMP is intended to assess requirements imposed upon NOAA by Section 201 of the Marine Protection, Research, and Assessment Act of 1972 (Public Law 95-352), and to provide scientific support to the ocean dumping regulatory provisions established by the Environmental Protection Agency (EPA) and the Corps of Engineers (COE) pursuant to Title I of this legislation.

2.1 SPID

The legislative basis for the GLRMP is provided by Title II, Section 201 of the Marine Protection, Research, and Assessment Act of 1972 (Appendix A). This legislation, approved on October 27, 1972, created the SECRETARY OF COMMERCE significant responsibilities for initiating and conducting research related to ocean dumping. Title II contains three operative sections or titles which authorize funds to carry out the purposes of the title:

- Section 201 provides for a comprehensive and continuing program of monitoring and research regarding the effects of ocean dumping.
- Section 202 sets forth a comprehensive and continuing program of research in the respect to the possible long-range effects of pollution, monitoring and control activities designed to assess environmental quality.

SECTION 2

INTRODUCTION

2.1 GENERAL

The National Oceanic and Atmospheric Administration (NOAA) has prepared this Program Development Plan (PDP) for a program of studies on the effects of disposal of waste materials in coastal waters including the Great Lakes. The program will be known as the Ocean Dumping Research and Monitoring Program (ODRMP). Major elements of the program include field surveys to describe actual environmental conditions including major variations and interrelationships, laboratory experiments, monitoring activities, and special studies.

The ODRMP is intended to meet requirements imposed upon NOAA by Section 201 of the Marine Protection, Research, and Sanctuaries Act of 1972 (Public Law 92-532), and to provide scientific support to the ocean dumping regulatory programs established by the Environmental Protection Agency (EPA) and the Corps of Engineers (COE) pursuant to Title I of this legislation.

2.2 NEED

The legislative basis for the ODRMP is provided by Title II, Section 201 of the Marine Protection, Research, and Sanctuaries Act of 1972 (Appendix A). This legislation, approved on October 23, 1972, assigned the Secretary of Commerce significant responsibilities for initiating and promoting research related to ocean dumping. Title II contains three operative sections as well as a section authorizing funds to carry out the purposes of the title:

- Section 201 provides for a comprehensive and continuing program of monitoring and research regarding the effects of ocean dumping;
- Section 202 calls for a comprehensive and continuing program of research with respect to the possible long-range effects of pollution, overfishing and other man-induced changes to ocean ecosystems; and

- Section 203 states that the Secretary shall conduct and encourage research and other activities to determine and demonstrate means of minimizing or ending all dumping of materials within five years of the effective date of the Act.

This PDP addresses Section 201 of Title II. The basic purpose of Public Law 92-532 was to put an end to the unregulated dumping of material into U.S. coastal waters. This was to be accomplished by requiring that the disposal of waste material into such waters be subject to permit systems established and administered by EPA and COE. The dumping of municipal and industrial wastes is regulated by EPA under Section 102. For ocean disposal of dredged materials, the Act authorized the COE to develop its own regulations for evaluation of permit applications and to issue permits (after notification to the EPA Administrator). Thus, the Federal permit program for ocean dumping is administered jointly by the EPA and the COE. While both agencies have research capabilities which can be brought to bear on the ocean dumping problem, the Department of Commerce (i. e., NOAA) is required to conduct a comprehensive and continuous research and monitoring program.

In addition to its obligations to assist the permit program, NOAA has a broader responsibility to conduct pollution-related research in support of programs concerned with the protection of marine fisheries, and also in response to other legislative mandates and agency missions.

2.3 RELATED RESEARCH

The ODRMP integrates all programs relating to ocean dumping effects now being carried out or planned by the various NOAA organizational elements.

2.3.1 MESA New York Bight Project

In 1973 NOAA initiated the MESA program for the purpose of developing comprehensive information on selected coastal areas and strengthening the basis on which decisions affecting the coastal zone are made. The first coastal region selected for an intensive study of its ecosystem was the New York Bight, an ocean area extending from the eastern extremity of Long Island, New York, to Cape May, New Jersey, and seaward to the edge of the continental shelf. The Bight thus defined encompasses an area of approximately 38,850 km² (15,000 nmi²). Large amounts of pollutants are introduced to the Bight from municipal, domestic, and industrial wastes, ocean dumping, urban runoff, and atmospheric

fallout. MESA studies within the Bight provide an understanding of the important physical, chemical, geological, and biological processes within the Bight and their overall effects. Initial emphasis of the MESA project was placed on studying ocean dumping problems, primarily of the presently used sewage sludge dumpsite located about 12 nmi south of Long Island. MESA is a seven-year multidisciplinary effort with many components of NOAA contributing their expertise.

2.3.2 Deepwater Dumpsite Studies

At the request of EPA, NOAA initiated in 1974 a series of three seasonal investigations of Deepwater Dumpsite 106 (DWD 106) to assess the impact of present dumping activity at that site and to provide a data base for future assessments. Due to the toxic nature of the materials dumped in this site and their volume, and because of the complex environmental conditions in the area, the site is of high priority to EPA for evaluation of dumping impact.

The dumpsite is located 106 nmi southeast of Ambrose Light and 90 nmi due east of Cape Henlopen, Delaware. It is used by more than 25 different dumpers in the New York-New Jersey area to dispose of acid waste and industrial chemicals. In 1974, about 100-million gallons of liquid wastes were dumped at the site. Typical waste materials include hydrochloric acid byproducts, residual sludge from galvanizing and plating operations, liquid wastes from production of textile manufacturing and from etching and photographic processes, water solutions of inorganic salts, and similar materials derived from diverse manufacturing processes.

In February 1976, NOAA conducted a third and final baseline study in the DWD-106, and is presently undertaking a series of experimental studies at the site, including several test dumps. It is expected that monitoring of the site will begin in FY 1977.

2.3.3 Other NOAA Research

Within NOAA there are a number of other ongoing research efforts which, although developed in response to other programmatic requirements, also have direct applicability to the ocean dumping research mandate of Public Law 92-532. NOAA's National Marine Fisheries Service (NMFS) is conducting a number of studies under its environmental research programs which have direct relevance to ocean dumping. In particular, NMFS research by the Middle Atlantic Coastal Fisheries Center at Sandy Hook, New Jersey, is

providing information on the effects of pollutants on marine life and the fate of pathogens. NMFS is also conducting a major study on dredge spoil effects in eastern Long Island Sound. It is also the responsible Department of Commerce agency for evaluating ocean dumping permits under provisions of the Fish and Wildlife Conservation Act.

The National Environmental Satellite Service (NESS) is developing ocean remote sensing technology to monitor currents, turbidity and waste dumping plume distribution, ocean color, chlorophyll-a, sea surface temperature, and water mass character changes. The availability of these new technologies will be considered by ODRMP.

The Office of Sea Grant (OSG) supports a variety of research projects that are related to the overall ocean dumping research effort. These include studies on methodology and effects of both industrial and dredge spoil disposal.

2.3.4 Coordination of NOAA Ocean Dumping Research

A key element in assuring an effective NOAA ocean dumping research and monitoring program is coordination of ongoing efforts among the NOAA components. Major tasks of the ODRMP in this respect will be that of maintaining cognizance of this kind of work being done by or sponsored by NOAA components and of integrating the results of this work into the ODRMP. This will become particularly important as development of an interagency research strategy and operating experience begin to identify more specific research priorities.

The ODRMP staff will be responsible for maintaining cognizance of these and similar programs, and as specific research needs become better understood, may recommend modifications in such programs to meet mutual objectives. In this instance, ODRMP funds may be utilized to augment or otherwise assist in adjusting ongoing programs to meet specific ODRMP objectives.

2.3.5 Interagency Coordination

While not expressly stated in Section 201, the legislative history of P. L. 92-532 and statements by Senate and House members during oversight hearings in recent years indicate that it was the intent of Congress to assign NOAA a lead coordinative role in ocean dumping research. This was intended to ameliorate a situation wherein ocean dumping research was being conducted or sponsored by a number of Federal departments or agencies in a largely independent and uncoordinated manner. There was concern in 1972 that there was

duplication of research effort as well as areas of inquiry which were not being adequately covered.

As a result, NOAA was designated under the Act to establish a comprehensive and continuing Federal program of monitoring and research on the effects of ocean dumping. NOAA's program must identify national research needs, inventory the current Federal program in order to identify duplication or gaps, and to take or recommend corrective action where necessary. The legislation makes a clear distinction between the regulatory and enforcement roles of EPA, the COE, and the U. S. Coast Guard as defined in Title I, and the research role of NOAA described in Title II.

NOAA and EPA have in effect an interagency agreement on the conduct of dumpsite evaluations (Appendix B) which delineates the respective agency responsibilities for evaluations of those dumpsites covered under the EPA permit system (Title I, Section 102). A similar joint agreement between NOAA and the COE is under consideration for dredge spoil dumpsites covered under that agency's permit system (Title I, Section 103). EPA's dumpsite regulation informational requirements were published in the Federal Register in October 1973, and were revised for republication (Ocean Dumping Criteria and Regulations) on June 28, 1976.

Interagency coordination will take place on a bilateral and multilateral basis. Bilateral coordination in the case of Section 201 is a continuous process of informal contacts between NOAA officials and their counterparts in the other concerned agencies. An example of a more formal coordination mechanism is the above mentioned EPA/NOAA interagency agreement which was signed in March 1975 (Appendix B). Similar bilateral agreements with other agencies will be sought where appropriate. There is no presently active multi-agency grouping for the purpose of coordinating the Federal ocean dumping research and monitoring effort. Such an interagency committee may be formed in the future, if it appears that some benefit to the ODRMP would result therefrom.

2.4 BENEFITS AND RESULTS

The ODRMP will serve as a federal focus to achieve a substantially improved understanding of the impact that ocean disposal practices have on marine ecosystems, and will allow predictions of the impacts of continued ocean disposal at existing active dumpsites and at proposed new sites. The results of these laboratory and field studies will provide

local and regional resource managers with the necessary information for managing the ocean disposal activities in a manner that considers the kind and amount of material entering the ocean environment and the desire to minimize degradation of the marine ecosystem.

The ODRMP will provide a comprehensive data base from which recommendations can be made regarding:

- Multiple use of the marine environment
- Trends and corrective actions related to misuse of the ocean environment
- Possible assimilation potential of the ocean environment with regard to the character and quantity of materials that can be disposed without significant ecosystem degradation
- Alternate site selection criteria

Given the complexity of the coastal environment, the many poorly understood relationships involved, and the difficulties of predicting and detecting potential long-range or low-level effects, it is obvious that a program of baseline studies in itself will not provide all information necessary to accurately predict the impact of ocean disposal on the ecosystem. Therefore, ODRMP contains elements of experimental studies to improve understanding of processes and effects under given circumstances. It is believed that this approach will:

- (1) Improve our understanding of the distribution and general abundance of major biological components as a basis for qualitative predictions of possible impacts of ocean disposal;
- (2) Synthesize information on effects of target pollutants and activities on selected organisms, and identify new laboratory studies where important gaps exist;
- (3) Provide improved circulation models for the continental shelf; and
- (4) Establish baseline levels of trace metals and hydrocarbons in the natural environment (sediments, water, and organisms).

SECTION 3

GOALS AND OBJECTIVES

3.1 GOALS

- To establish a comprehensive and continuing program of monitoring and re-search regarding the effects of the dumping of waste material into ocean waters off U.S. coasts.
- To provide evaluations of the environmental effects and the social and economic factors involved in the practice of dumping of wastes into U.S. coastal waters.

3.2 OBJECTIVES

The objectives of the ODRMP are:

- A. To conduct scientific investigations of dumpsites to determine the environmental effects of past and present dumping activities.
- B. To conduct scientific investigations of proposed new dumpsites to determine the environmental suitability of those areas for dumping.
- C. To conduct periodic monitoring of selected dumpsites to measure the effects of: (a) continued dumping, (b) termination of dumping, and (c) increased or decreased rates of dumping.
- D. To conduct laboratory and field studies to assist in interpretation of the dumpsite investigations.
- E. To conduct laboratory and field studies not necessarily related to dumpsites but required for a fuller understanding of the physical, chemical, and biological interactions between dumped materials and the affected coastal environments.
- F. To conduct laboratory and field studies to improve our understanding of the pathways and fate of dumped contaminants that enter the biological food-chain.
- G. To develop scientifically sound criteria to be used to differentiate between harmful and nonharmful materials.

H. To develop disposal site selection criteria capable of matching dumped wastes to disposal sites best able to safely accommodate them.

I. To conduct studies of the social and economic factors involved in the practice of dumping of wastes into U.S. coastal waters.

1.1 GENERAL

The purpose of this study is to develop a methodology for...

1.2 PROGRAM OVERVIEW

The NOAA has a long history of research with respect to the effects of dumping of wastes into coastal waters. In the past, studies have been conducted in a number of areas, including the Great Lakes...

A major objective of the program is to develop a methodology for assessing the environmental impacts of dumping activities and to develop management options of local, state, and federal governments in various geographic areas. This section describes the geographic distribution of dumping activities in the coastal waters of the United States and the approach to be followed in fulfilling the objectives required by the law.

1.2.1 Geographic Areas

Existing and potential dumping sites are shown in Figure 1-1. The map shows the distribution of dumping sites in the United States. These sites are shown as a function of the NOAA and, if found to be environmentally significant, will be regulated by the regulatory agencies to develop a management plan. Also shown in Figure 1-1 are the sites planned for use by other agencies.

The only existing and potential dumping sites are in the New York Bight and off the coast of Maryland. Both sites have received extensive attention and special studies have been conducted by NOAA and EPA Region II, respectively. Studies of the sites are being conducted by NOAA and EPA Region II, respectively. Studies of the sites are being conducted by NOAA and EPA Region II, respectively. Studies of the sites are being conducted by NOAA and EPA Region II, respectively.

SECTION 4

TECHNICAL APPROACH

4.1 GENERAL

This section outlines how the ODRMP will be developed and implemented.

4.2 PROGRAM OVERVIEW

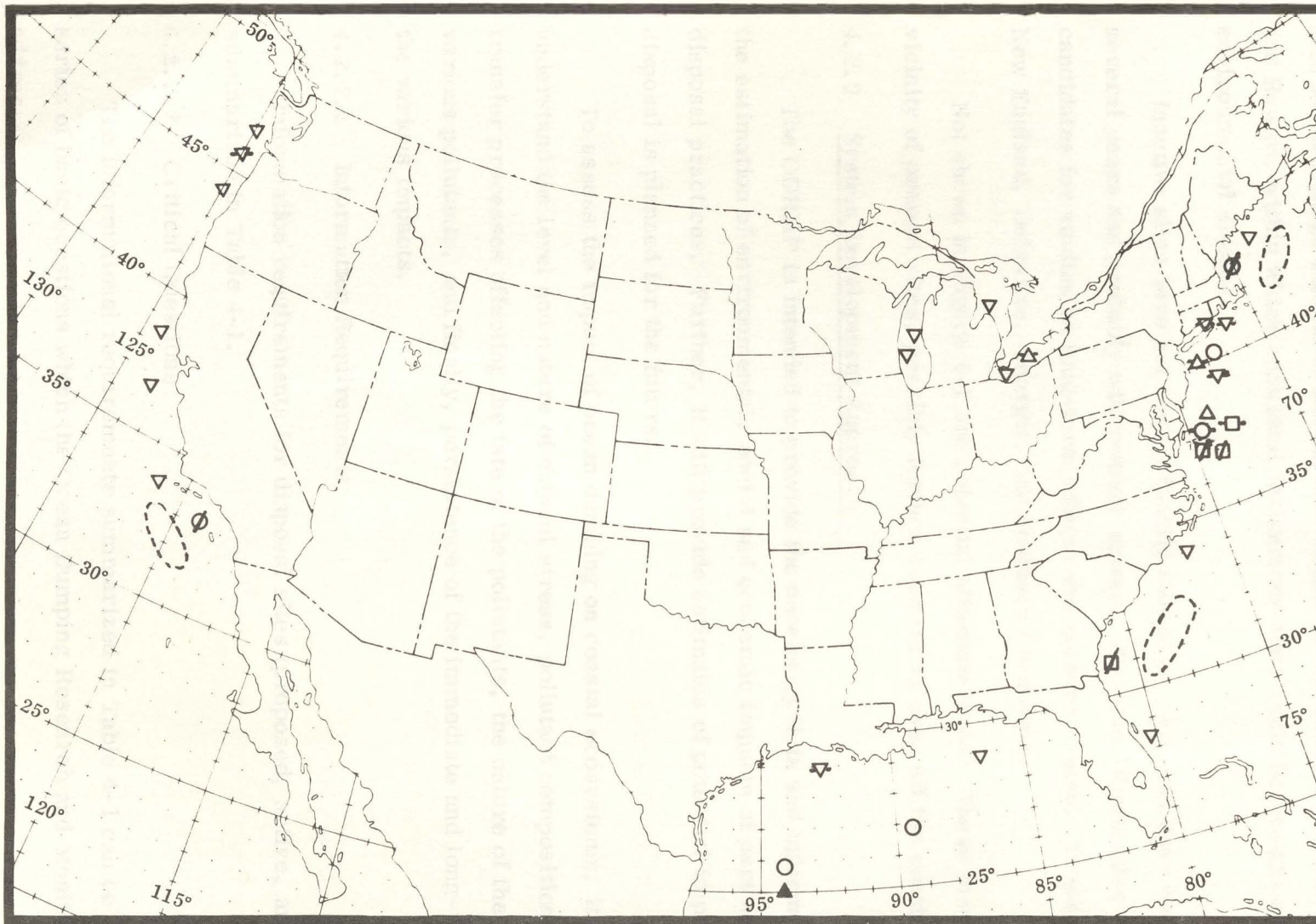
The ODRMP has a broad geographic area of concern with major dumping activities underway along the east coast and in the Gulf of Mexico. In addition, there is dumping, in some cases to a lesser degree, along the west coast and in the Great Lakes.

A major objective of the program is to meet the research requirements of regulatory and resource management agencies of local, state and federal government in various geographic areas. This section describes the geographic distribution of dumping activities in the coastal waters of the United States and the approach to be followed in providing the information required by users.

4.2.1 Geographic Areas

Existing and potential dumpsites and areas of possible investigation under the ODRMP are shown in Figure 4-1. Sites may be designated in the future as alternates to existing dumpsites. These alternate sites will be evaluated under the ODRMP and, if found to be environmentally satisfactory, could be designated by the regulator agencies to replace existing dumpsites. Also indicated on Figure 4-1 are coastal areas planned for use by incinerator ships.

The only active sewage sludge disposal sites are in the New York Bight and off Delaware (Philadelphia site). Both areas have received intensive baseline and special studies investigation (by NOAA and EPA Region III, respectively). Dredge spoil sites are found in rivers, bays, and estuaries, as well as in offshore areas. Offshore (open-water) dredge spoil sites are presently being studied by the Corps of Engineers in Lake Erie, Gulf of Mexico, and the State of Washington, with some work completed in Long Island Sound (by NOAA).



- △ Sewage Sludge
- Toxic Chemical
- Industrial Waste
- ▽ Dredge Spoil Sites NOAA May Study, To Be Determined With COE
- ▲ Incinerator Site to be Established

- Planned Incinerator Regions
- △ □ ▽ Sites Closed to Dumping
- △ ○ □ ▽ Sites Studied in Detail to June 1976

Note: Not shown are one industrial waste dumpsite north of Puerto Rico and one incinerator region off Hawaii.

Figure 4-1. Major Geographical Areas of Concern

A chemical incineration site may be established in the Gulf of Mexico approximately 170 miles south-southeast of Galveston within the next year. This follows a series of tests conducted by EPA using the incinerator ship VULCANUS, which determined that at-sea disposal of organo-chlorine wastes is feasible and environmentally acceptable. EPA may also identify large coastal areas off New England, Southeastern United States, California and Hawaii, within which additional incinerator sites could be designated following suitable environmental studies.

Inactive sites have not been officially closed by EPA, but have not been used for several years and probably will remain unused. However, these sites remain potential candidates for studies on long-term effects and recovery rates. These sites are found off New England, Delaware, Georgia, and Southern California.

Not shown in Figure 4-1 are potential alternate sites. These may be located in the vicinity of present sites, possibly further seaward or even off the continental shelf.

4.2.2 System Development Approach

The ODRMP is intended to provide the necessary data and information required for the estimation of environmental, social and economic impacts of past and present ocean disposal practices. Further, it will provide estimates of potential impacts at sites where disposal is planned for the future.

To assess the impact of ocean dumping on coastal ecosystems, it is necessary to understand the level and nature of natural stress, pollutant composition and quantity, transfer processes affecting the fate of the pollutants, the nature of the effects of the various pollutants, and finally, persistence of the immediate and long-term effects of the various impacts.

4.2.2.1 Information Requirements

Information requirements for disposal sites (proposed, active, and inactive) are summarized in Table 4-1.

4.2.2.2 Critical Questions

The informational requirements summarized in Table 4-1 can be formulated into a series of basic questions which the Ocean Dumping Research and Monitoring Program will address:

Table 4-1. Information Requirements

- Identification of critical habitats in the dumpsite area, along routes between loading point and disposal site, and onshore habitats that could possibly be subjected to impact.
- Knowledge of trajectory pathways so that the hazard to critical habitats at some distance from the dumpsite itself can be assessed.
- Knowledge of vertical and horizontal mixing, and interaction of the dumped material with suspended and bottom sediments.
- Effects of chronic pollutant levels on the physiological and behavioral effect of important species potentially impacted by source plumes from the dumping area (Acute toxicity levels give a preliminary estimate of the maximum limits for chronic toxicities; thus acute toxicity research precedes chronic effects research.)
- Identification of all "important" species within reach of dumping impact; e. g. , threatened, endangered, and commercial species; those present in the foodchain of these species, those providing cover or serving other beneficial purposes; those having aesthetic value; and those playing significant roles in important ecosystems.
- Knowledge of the marine ecosystem to be able to assess how changes in particular populations would effect the rest of the environment and man.
- Baseline concentrations of trace metals and other potential pollutants in the biota and their physical environment.
- An understanding of pollutant source, transport, and uptake so that concentration levels can be predicted and effective monitoring programs developed.

- What are the basic physical, chemical, biological and geological characteristics and their variabilities in each proposed or existing dumpsite area?
- What is the existing distribution and concentration of potential contaminants associated with the various materials dumped at each disposal site?
- What is the nature and magnitude of contaminant inputs and environmental disturbances that may be assumed to accompany the disposal of materials at each dumpsite?
- What are the fates and pathways of dumped materials, their transfer mechanisms within the ecosystem, their specific ecological effects, and how are they altered by physical, chemical and biological processes?
- What key indicators can be used to adequately monitor the condition of the dumpsite environment and any changes it is undergoing?
- What environmental site-selection criteria should be used in the selection of new dumpsites?
- What criteria should be used in determining whether, and how much, dumping should be carried on at existing dumpsites?
- What are the social and economic effects of dumping materials into the ocean and Great Lakes and how are these effects altered by differing disposal methods?

Provision of answers to these questions constitutes the fundamental basis of the ODRMP.

4.2.2.3 Schematic Overview of the Ocean Dumping Research and Monitoring Program

A schematic overview of the relationship between the goals and objectives, approach, program integration, outputs and users is shown in Figure 4-2. The primary feature of the system is user orientation. Baseline and monitoring studies are carried out to acquire data from which information for users can be developed. Where necessary to improve data acquisition or to improve interpretation of the data, special studies will be conducted.

The program implementation steps required are detailed in Figure 4-3. Major steps include development of user requirements and existing data sources. From this information, the ODRMP can be focused on the acquisition of data to complement data being acquired

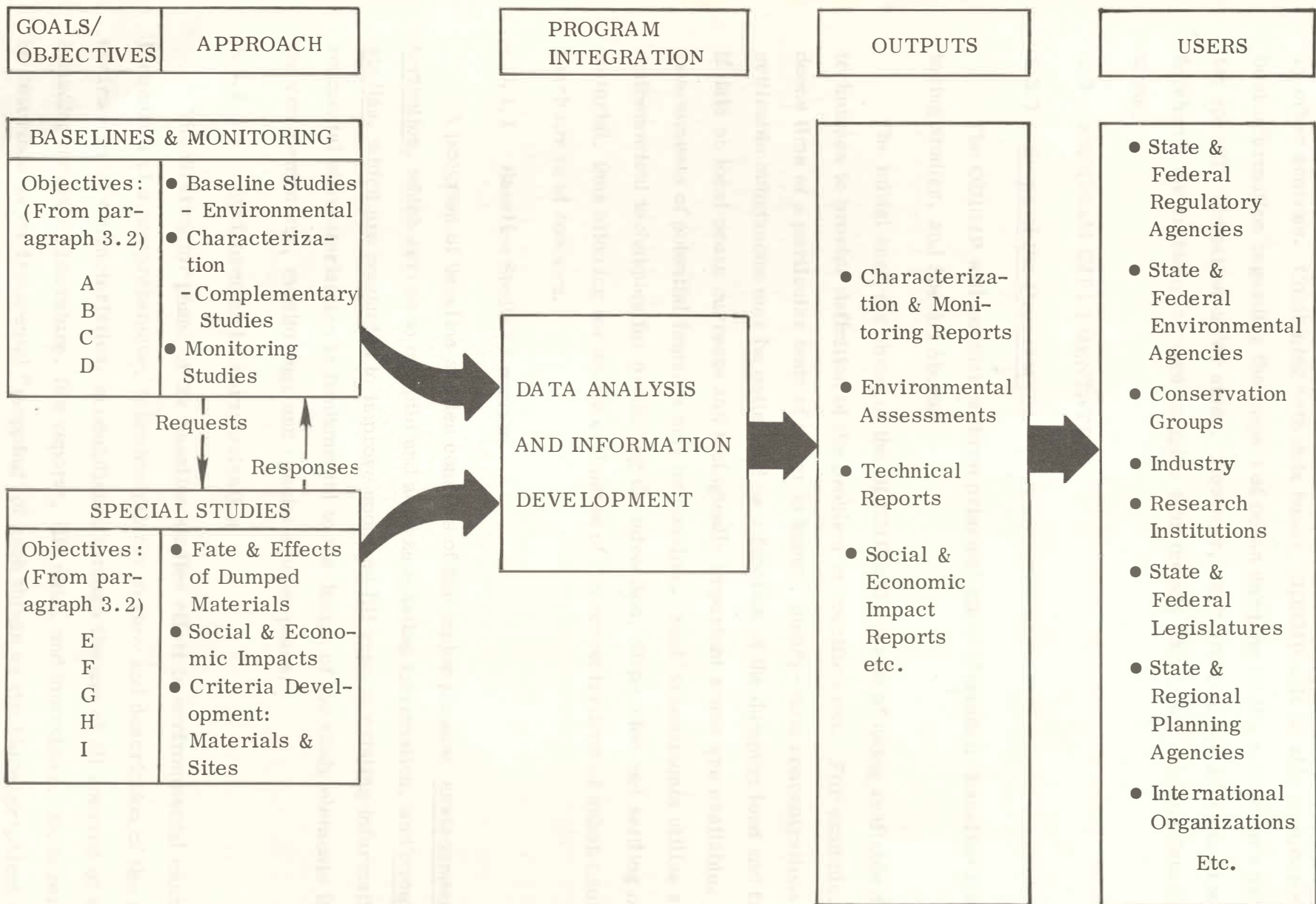


Figure 4-2. Schematic Overview of the Relationship Between the Goals and Objectives, Approach, Program Integration, Outputs and Users

by other sources. Combining both data bases, ODRMP will be able to provide users with the best information regarding the impact of ocean dumping on the ecosystems associated with the specific dumpsites under study. However, each problem must be examined in detail beforehand; the problem is more complex than merely extracting existing data from files alone.

4.3 PROGRAM IMPLEMENTATION

4.3.1 Scope of the Program

The ODRMP will consist of three principal study elements: Baseline Studies, Monitoring Studies, and Special Studies.

The initial analysis phase of the ODRMP will consist of using available data and techniques to provide definition of the problem in specific area. For example, if the residence time of a particular body of water is known, steady-state concentrations of non-settleable substances may be estimated as a function of the dumping load and frequency. If data on local ocean currents and biologically important areas are available, initial assessments of potential impacts may be possible. Such assessments utilize available mathematical techniques for predicting the advection, dispersion and settling of dumped material, thus allowing for useful estimates of the concentrations of substances that will reach areas of concern.

4.3.1.1 Baseline Studies Program

A program of baseline studies consists of two major phases: environmental characterization, which serves to compile and analyze existing information, and complementary studies, which are conducted to improve upon and fill gaps in existing information. Environmental characterization is fundamental to the design of the study elements included in the complementary, monitoring, and special studies plans.

4.3.1.1.1 Environmental Characterization

The first major phase of the baseline studies effort is environmental characterization. It consists of a comprehensive, interdisciplinary review and description of the regional environmental characteristics, accomplished through the use of all sources of existing data, including published literature, file reports, file data, and interviews. Such reviews might be described as environmental "mapping" of such things as the biogeographical distribution

and abundance of important organisms, unique and environmentally sensitive areas, circulation patterns, and other physical transport mechanisms. These studies serve to gather and organize the area's existing base of environmental data for application in impact analysis and prediction and future detection of environmental change, and to identify information gaps.

As such, these studies provide a basis for developing and refining the total baseline program and for the design of the monitoring and the special studies elements. Workshops, contracts, and interagency agreements and cooperation in data searches and analyses will be utilized to maximize the efficiency and the thoroughness of this existing data search.

4.3.1.1.2 Complementary Studies

Complementary baseline studies complete the baseline information acquisition process initiated with the background studies. Complementary studies are the balance of field, laboratory, and other research required to expand upon and fill data gaps identified by environmental characterization.

There are two generic types of complementary studies. One is conducted to expand the qualitative and semi-quantitative data base. These studies are directed toward such fundamental data needs as the distribution and general abundance of the major biological components of the marine ecosystem, ocean circulation, and other information of importance in evaluating the effects of disposing of materials in coastal waters. A major limitation of data from such qualitative studies is their generally descriptive nature, which does not always permit development of the holistic insight needed for improved prediction. This limitation reinforces the important role of special studies designed to develop better understandings of causal mechanisms and predictive relationships.

The second type of complementary study involves quantitative assessments of information such as indicator organisms, biotic communities, baseline levels of major contaminants and other elements that can be used to assess future alterations of the dumpsite study area. These studies should be based on sound statistical sampling and analytical designs and result in conclusions that can be stated in terms of probability.

4.3.1.2 Monitoring Studies

In general, the baseline is considered to be those conditions existing prior to disposal in an area, and monitoring to be a program of measurements after the onset of disposal.

Although monitoring has been defined as sampling to detect changes in the baseline, the line between development of baselines and subsequent monitoring often cannot be defined clearly. In actual practice, continued monitoring can result in improved statistical validity or refinement of the baseline. In some instances, monitoring programs can proceed to develop time-series data which can reveal trends without an initial baseline description of the area in question.

However, a baseline normally is considered to precede a monitoring program, and to provide specific guidance for the continuing monitoring activity. Much the same problems apply to development of a monitoring program as apply to baselines.

4.3.1.3 Special Studies

Both baseline and monitoring studies have limitations in determining the effects of waste disposal activities in ocean areas. Basic processes and mechanisms operating in areas require experimental studies. These studies complement the remainder of the work, and may further allow generic applications.

Studies will be conducted to provide answers to specific problems related to dumping program objectives. Selected experiments will be conducted on the fate and pathways of dumped material, transfer mechanisms within the ecosystem, and specific effects of dumped material. For example, research on transport processes for pollutants in waters with differing water mass characteristics may be transferrable to similar problems elsewhere.

Both laboratory and field investigations will be conducted to develop or confirm the reliability of criteria to differentiate between harmful and non-harmful materials. Also, disposal site selection criteria will be developed.

Consideration of the socio-economic factors associated with ocean dumping is necessary for input into the analysis of the broader issue of waste disposal in coastal areas. This broader issue requires that all realistic alternatives for waste disposal, on land as well as offshore, be examined in terms of socio-economic environmental factors in order to develop a sound strategy for disposing of wastes in coastal areas. Although recognizing the necessity of examining this total picture of waste disposal, socio-economic studies to be undertaken by the ODRMP will concentrate initially on the ocean dumping alternative.

The most immediate need is a general socio-economic study which would provide a theoretical basis and a general methodology that could be applied in evaluating the socio-economic impact of ocean dumping in specific areas. This general study would have components including conflict identification, risk assessment, and quantification and trade-off assessments.

4.3.2 Site Priorities

In selection and priority assignment of dumpsites for study, the following factors will be considered (ranking not indicated):

1. Public health hazards
2. Environmental damage (actual or potential)
3. Future of dumping at the site
4. EPA/COE program priorities
5. NOAA program priorities
6. Material dumped - quantity and composition
7. Social-economic effects
8. Public concern
9. Available resources

4.3.3 Basic Assumptions

The following basic assumptions were used in developing the design and implementation strategy for the ODRMP:

- The program will include active and inactive dumpsites used for disposal of industrial waste, sewage sludge, dredge spoil and other related materials in marine estuarine waters and in the Great Lakes.
- The nature of the surveys and program priorities in general will be determined by the requirements of and constraints on EPA, COE, and NOAA using the criteria documented in Section 4.3.2 above. Respective agency requirements and commitments will be spelled out in formal interagency agreements.

- Establishment of environmental baselines at dumpsites may require seasonal surveys to establish temporal variability.
- Monitoring surveys will be conducted at least annually after completion of initial baseline survey phase.
- The area of study will extend beyond the legally defined dumpsite as a result of such factors as currents, proximity to beaches and spawning areas, etc.
- The nature of wastes dumped varies widely from site to site, e. g., sewage sludge, dredge spoil, acid wastes, etc., and may involve constituents of a very toxic nature.
- Information concerning the quantity and composition of the material to be dumped will be obtained from the regulatory agencies (EPA and the COE).

4.3.4 Study Limitations

Baseline studies have limitations in completely meeting predictive and assessment objectives. An inherent problem in establishment of baselines is statistical definition of the natural variation, both spatial and temporal, against which monitoring can then determine deviations or trends from a norm. The establishment of baselines implies obtaining such time-series data as are necessary to adequately define temporal variability. Sampling requirements for determination of statistically valid baselines will vary widely according to the parameter concerned, as will sensitivity requirements in detecting deviations for purposes of evaluating environmental impact. For example, a bathymetric baseline can often be established with a single survey, whereas in the case of plankton, natural variability may be so great that long time-series data may be required. Particularly in the case of some biological indicators, this variability may be so great that a true baseline cannot be established within available time and resource constraints. Therefore, in actual practice, establishment of baselines for some parameters may involve development of quasi-quantitative estimates against which only major changes can be detected.

A second limitation in the use of baseline data for ocean dumpsite studies is that they are largely descriptive in nature and do not necessarily contribute to the understanding of causal mechanisms. This points to the need for experiments and other special research studies which can develop better understandings of causal mechanisms and predictive relationships.

4.4 USER REQUIREMENTS

The ODRMP is designed to acquire data on the effects of existing and proposed ocean dumping and to convert it to information useful to decision-makers and the interested public. In order to ensure that the information generated by the program makes the maximum contribution to improved management of ocean dumping, it will be necessary to identify all potential users and to provide opportunities for continuous interaction between the program management and such users.

It is stressed that the program is not beginning from a lack of knowledge about users and their requirements, these having been established in the past few years through ocean dumping interactions in the New York Bight, in the Delaware and Maryland coastal areas, and in the Gulf of Mexico. There is, however, a need for bringing additional groups into the existing framework and for establishing effective communication between the ODRMP and all potential users of its output. This will necessitate conferences, workshops, interagency groups, advisory panels, and other forums.

Primary identified users of the information developed by the ODRMP and their general informational requirements are described below. These requirements are preliminary only at this time.

4.4.1 Environmental Protection Agency

Title I (Section 102) of the Marine Protection, Research and Sanctuaries Act (MPRSA) assigns to the U.S. Environmental Protection Agency (EPA) responsibility for regulating the disposal of waste materials into the coastal waters of the United States. In carrying out its responsibilities, EPA has established a permit system which specifies the conditions under which ocean disposal can be carried out. In order to properly administer the permit system, EPA has a basic need for scientific data and information on the physical, chemical, and biological interactions involved when various waste materials are dumped in coastal waters.

In general, EPA is concerned with the immediate effects of ocean disposal of sewage sludge, industrial wastes, and waste materials other than dredge spoil. The agency requires an improved understanding of the short-term fate and effects of sewage sludge and industrial waste disposal in coastal waters. In addition, EPA needs technical support in setting criteria for decisions as what can be dumped and in what concentrations. Synergis-

tic and antagonistic effects also must be explored more fully. EPA will rely on NOAA for assessments of actual or potential harm to pelagic and benthic marine organisms as a result of a specific dumping activity.

EPA also has a requirement for certain monitoring studies in areas where low-level radioactive wastes have previously been disposed in oceanic areas.

4.4.2 Corps of Engineers

The COE under Title I (Section 103) of the MPRSA is responsible for issuing permits for disposal of dredge spoil materials in coastal waters. The informational requirements associated with the disposal of dredge material are generally the same as described above for the EPA.

4.4.3 U. S. Coast Guard

The U. S. Coast Guard (USCG) is responsible for conducting a surveillance and enforcement program for the purpose of assuring that ocean dumping activities are carried out according to the conditions placed on dumpers by the Title I permit.

Primary USCG informational requirements with respect to the ODRMP have not yet been identified.

4.4.4 National Oceanic and Atmospheric Administration

The informational requirements for NOAA are the subject of the technical program described in this PDP. In addition, however, the ODRMP will provide data acquisition and analysis support to other NOAA programs. Information requirements generally include:

- Inputs of material by ocean dumping
- Transfer processes affecting the materials dumped
- Distribution, concentration, and variability of the materials in various components of marine ecosystems
- Effects of toxic materials on the various components of marine ecosystems.

4.4.5 Other Agencies

Other potential users of the data and information developed by the ODRMP include:

- Food and Drug Administration

- National Institutes of Health
- Department of Agriculture
- Energy Research and Development Administration
- Nuclear Regulatory Commission
- Department of the Interior

In addition to the federal agencies, state organizations such as the Departments of Sanitation, Public Health, Environmental Conservation, and Fish and Wildlife are also expected to derive benefit from the data and information acquired from the ODRMP.

4.5 DATA MANAGEMENT

A data management plan established by the ODRMP office will provide for managing such functions as:

- Planning and describing from the earliest program stages for acquisition, reduction, application, archiving and reporting program generated data;
- Controlling, documenting and scheduling data flow;
- Quality control of all aspects of data acquisition, transmission, processing and archival;
- Establishing standard data formats and processing media; and
- Acquiring project data and related supporting information.

4.5.1 Data Acquisition

Data acquisition efforts are carried out to obtain and process information from baseline, monitoring, and special studies.

4.5.1.1 Baseline Studies

Baseline studies include environmental characterization and complementary study phases. The data acquisition activities for each phase are described below.

4.5.1.1.1 Environmental Characterization

During this phase, national data centers will be assessed for data summaries of oceanographic, marine climatological, geological and geophysical data. In addition,

searches will be conducted to identify and document literature and data resources which are not included in the national data centers. Where appropriate, these additional data will be acquired and analyzed.

4.5.1.1.2 Complementary Studies

The acquisition of baseline data, i. e., the process of determining so-called natural states or natural fluctuations within particular time frames, involves measuring the parameters under which physical, chemical, and biological systems operate either individually or together. The information obtained represents a benchmark against which long-term natural changes and man-induced changes can be identified, separated, and measured quantitatively and qualitatively. Characterization surveys and complementary studies are a fundamental requirement in any broad-scale investigation of an oceanographic system. The ideal situation is to obtain baseline data on systems while they are still relatively unaffected by the activities of man; however, baseline data may also be used to quantify the effects of existing pollution.

The survey phase of baseline studies must be carried out in a manner that considers seasonal variability. Complementary studies on given aspects of environmental conditions will include determination of heavy metal, nutrient, synthetic organics, and hydrocarbon concentrations in sediment, in the water column, and biota; sampling and laboratory examination of benthos and bottom-dwelling fish; mid-water trawling; plankton and neuston sampling; determination of geological characteristics; and determination of water column conditions such as currents, temperature, salinity, pH, etc.

There are always difficulties in obtaining complete and adequate baseline data. In particular, wide natural fluctuations occur in ocean systems, both spatially and temporally; these difficulties must be taken into account when designing statistically adequate baseline programs. However, statistical adequacy implies repetition, which in turn costs more in time and dollars. We are thus hoping to concentrate on parameters that are the most meaningful for each problem at hand, but still keeping the approach broad enough so that the survey results can be considered a sufficient baseline.

In addition, a great deal of existing data have not previously been evaluated for this purpose. These existing data, analyzed as part of the environmental characterization phase, should prove valuable when reprocessed for baseline purposes.

4.5.1.2 Monitoring Studies

Monitoring studies will be conducted annually, except where special problems require more frequent surveys. Separating man-induced from naturally occurring phenomena requires a comprehensive system of regional, national, and international monitoring capable of making observations of requisite variables at appropriate frequencies. Comparing the data derived from a well-conceived and efficiently operated monitoring system against the previously measured baseline data should provide early warning of any changes occurring in a given marine environment. Monitoring should also provide a means to measure the efficacy of any remedial actions taken.

4.5.1.3 Special Studies

Matter that has been dumped into the sea can affect marine life directly through toxicity, oxygen depletion, biostimulation, and habitat changes. Research on toxicity and other pollution stresses has traditionally concentrated on acute effects which are usually measured by ascertaining the dose required to kill 50 percent of the test organisms following short-term exposure. This basic approach does not take into account the equally important effects of long-term, sublethal concentrations on behavior, survival, reproduction, and community structure. Substantial additional work is required not only on acute effects, but on chronic or sublethal toxicity as well, particularly for industrial wastes disposed at sea. In addition, means of relating laboratory bioassay results to actual conditions in the environment are needed.

Another important aspect in evaluating the effects of chemical pollutants on marine organisms is the impact of the pollutant through the food chain. We know that certain noxious substances, DDT, for example, can be passed through the food chain and concentrated in the larger fishes without apparent harm, but with potentially serious effects on organisms higher up in the food chain. This is an area of critically needed research being addressed by NOAA, EPA, the NSF, and other government agencies.

Oxygen depletion at a dumpsite can kill off the less mobile organisms and can render the water column in the vicinity of the site uninhabitable. Biostimulation is the result of nutrients from polluted materials stimulating plankton growth over and above natural levels. This can have beneficial as well as harmful effects on the marine environment, as we know from natural upwelling and the high productivity of estuaries. Habitat changes

can also result from dumped material on the seafloor, changing the nature of the substrate.

There are many unanswered questions concerning the environmental impact of ocean dumping that in turn affect the capability for predicting impact of dumping on an ecosystem. The overall requirement for special studies can be subdivided into broad categories.

- Dispersal and Transport of Pollutants
- Chemical Nature of Marine Pollutants; Interactions with Sea Water
- Fate of Pathogens; Pathways of Pollutants in the Food Web
- Baseline Environmental Data
- Improved Standardized Research Methods

Some of these problems can be addressed by the dumpsite baseline program, but others will require in-depth research.

4.5.2 Data Handling, Processing, and Archiving

Procedures will be established by the ODRMP office, with the assistance of the NOAA Environmental Data Service (EDS), for handling, processing, transmitting, sorting and archiving the diverse kinds and large quantities of data that will be collected and used in the ODRMP. In addition to data collected by the ODRMP data acquisition units, the data management system must provide a vehicle by which data may flow to and from data sources outside the ODRMP system.

Raw data will be forwarded to the applicable laboratory for processing and analysis. A designated individual, such as a laboratory director or chief scientist, will remain responsible for the raw data and its timely processing until such data have been analyzed, reported and archived. This individual will also forward a completed Report of Observations/Collections by Oceanographic Programs (ROSCOP II) form to the NOAA National Oceanographic Data Center (NODC) within 30 days of end of each cruise.

Automatic methods for collection and processing of ODRMP data will be used wherever possible so that the data can be processed and integrated efficiently and rapidly, and the results presented to the ODRMP investigators and the scientific community as soon as possible. Where manual data logging is necessary, it will be in a format approved by the ODRMP office.

4.5.2.2 Data Formats

The ODRMP office will establish procedures to ensure that consistent acquisition methods and data formats are used by all participating groups. Approved formats will be designed to meet NODC requirements, as well as ODRMP requirements, through consultation with NODC, users, collaborators and staff scientists.

4.5.3 Data Analysis

An assessment of the potential impact of ocean dumping on the coastal environment concerns four categories of analysis involving familiarity with disparate data types and differing analytical routines.

1. Exposure mapping/transport
2. Resource identification and valuation
3. Vulnerability of coastal and marine ecosystem components
4. Risk and permanency of damage to resources.

Analytical techniques will be developed that can deal quantitatively with each of these areas, utilizing available data bases and data acquired from the ODRMP. These data sources, among others, are critical for development of an environmental record of an area.

4.5.4 Data Reporting and Distribution

Program results will be presented to the scientific community as soon as possible by publications in appropriate journals. A copy of each paper will be sent to the ODRMP office; in case of presentations at scientific meetings, an abstract will be provided to the ODRMP office. An additional 25 copies will be forwarded to the EDS for archival.

SECTION 5

SCHEDULE

5.1 GENERAL

This section contains a listing of ODRMP milestones and study schedules. The milestones are largely administrative and managerial in nature; milestones marking significant operational events will be added as the program develops. The specific sites listed in the study schedule were developed in part with EPA and COE in accordance with known priorities meeting both regulatory and scientific program goals.

5.2 ODRMP MILESTONES

Complete EPA/NOAA Interagency Agreement	3/75
Complete ODRMP Issue Paper	6/75
Submit Annual Report to Congress	6/75
Complete Baseline Study Phase in DWD-106	2/76
NOAA/EPA Develop FY 77 Areas of Operation	2/76
Procure First Major Equipment Package	5/76
Begin Experimental Phase of DWD-106 Study	6/76
Submit Annual Report to Congress	7/76
ODRMP Program Development Plan	8/76
Operational Assignment of Program to MLC	10/76
Augment ODRMP Staff	12/76
Publish Reports from July DWD Operation	2/77
Conclude Corps of Engineers Agreement	2/77
Establish ODRMP Advisory Committee	2/77
Develop FY 78 Program	2/77
Begin Conduct of FY 77 Baseline Studies	4/77
Prepare Report Evaluating Use of Submersibles	4/77
Begin First Monitoring Study	4/77
Provide Comprehensive Final Report on DWD-106	6/77
Prepare Annual Report to Congress	6/77

5.3 ODRMP STUDY SCHEDULE

	<u>FY 1976</u>	<u>FY 1977</u>	<u>FY 1978</u>	<u>FY 1979</u>	<u>FY 1980</u>
DWD-106 ^{1/}	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Galveston ^{2/}		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
New Orleans ^{2/}		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Puerto Rico ^{2/}		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
New England			<input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
S. California			<input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Incinerator Site(s) ^{3/}			<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Regional Studies ^{4/}			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other Active Sites ^{5/}			<input type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>

- 1/ Baseline Study Phase in DWD-106 Completed
- 2/ Estimated Two Seasonal Baseline Studies Required
- 3/ One Known Site to be Designated in Gulf of Mexico
- 4/ Planned Regional Studies for Selection of Incinerator Sites
- 5/ To be Designated

Baseline and Experimental Study Monitoring Study

SECTION 6

MANAGEMENT PLAN

6.1 GENERAL

The underlying philosophy in the management of the ODRMP will be to direct the proposed investigations effectively and efficiently and with maximum interaction on the part of the users so that the end products will be of maximum benefit to all.

Overall direction of the ODRMP is depicted in Figure 6-1. Program direction, authority, and feedback of program progress is provided at each level of management.

Overall coordination and direction of the ODRMP will be the responsibility of a small team established to design and manage surveys of individual dumpsites, to provide for contractual ship and equipment support, and to manage the preparation of reports, etc. These efforts will be carried out through contractors or NOAA Main Line Components (MLC's). One position will be provided to form the team in FY 76, and three more in FY 77.

6.2 NOAA HEADQUARTERS DIRECTION

Overall program direction and policy guidance for the ODRMP is the responsibility of the Associate Administrator for Marine Resources. The Associate Administrator for Environmental Monitoring and Prediction will provide guidance and advice on the design and implementation of applicable portions of monitoring programs.

6.3 ASSIGNMENT OF MANAGEMENT RESPONSIBILITIES

Direct management responsibility for the ODRMP is planned to be assigned to the National Ocean Survey (NOS) beginning October 1, 1976.

6.4 PROGRAM MANAGER'S RESPONSIBILITY

The Program Manager's fundamental responsibility is to ensure that ODRMP is developed and implemented as planned and that the resulting program, when operational, is capable of satisfying the program objectives. He will have the authority and resources (as designated by the NOS Director) to redirect activities in accordance with the best interests of the program as it develops and becomes operational, in accord with MR guidance. It is his responsibility to ensure that the program and its elements are developed in the most cost-beneficial manner. Ultimately his responsibility will be to ensure that the operational program will function efficiently and satisfy user requirements to the maximum degree achievable within the constraints of available resources. The basic

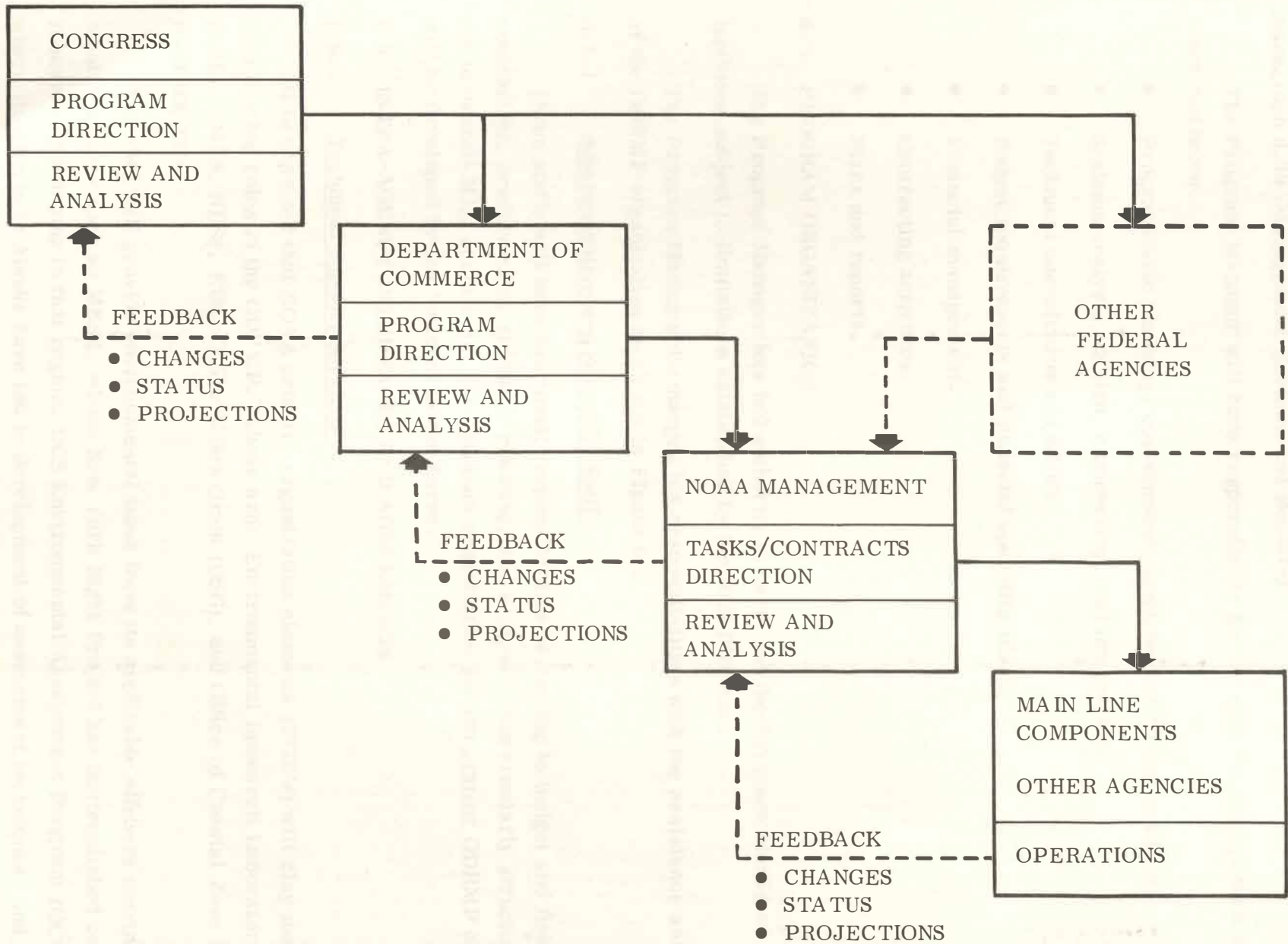


Figure 6-1. Overall Management Direction and Control

documents by which the Program Manager will monitor program status are described in paragraph 6.10 (Management Reviews and Reports).

The Program Manager will have responsibility for the specific management functions identified below:

- Program-wide planning, coordination, implementation and analysis .
- Systems analysis, design, engineering, and integration.
- Technical consultation and advice.
- Budget requirements and financial operating plans.
- Financial management.
- Contracting activities.
- Plans and reports.

6.5 PROGRAM ORGANIZATION

The Program Manager has full authority to carry out the Program Management functions subject to limitations established by the NOS Director.

The Program Manager discharges his responsibilities with the assistance and support of the ODRMP organization as shown in Figure 6-2.

6.5.1 Administrative and Scientific Staff

These staffs will have functional responsibilities pertaining to budget and finance, contracting, procurement, scientific planning, and analyses, and similarly structured input to overall MLC operation. The optimum organization for integrating ODRMP objectives will be developed by the National Ocean Survey.

6.6 INTRA-AGENCY INTERFACES AND AGREEMENTS

6.6.1 Technical Support Services

It is expected that NOAA primary organization elements (POE's) will play major coordinative roles in the ODRMP. These are: Environmental Research Laboratories (ERL), NMFS, NESS, EDS, Office of Sea Grant (OSG), and Office of Coastal Zone Management (OCZM).

The ERL will provide environmental input from its applicable offshore marine assessment programs such as MESA, whose New York Bight Project has accomplished considerable research on dumping in that region, OCS Environmental Assessment Program (OCSEAP), where its efforts in Alaska have led to development of assessment techniques, and from its general research-oriented programs and scientists.

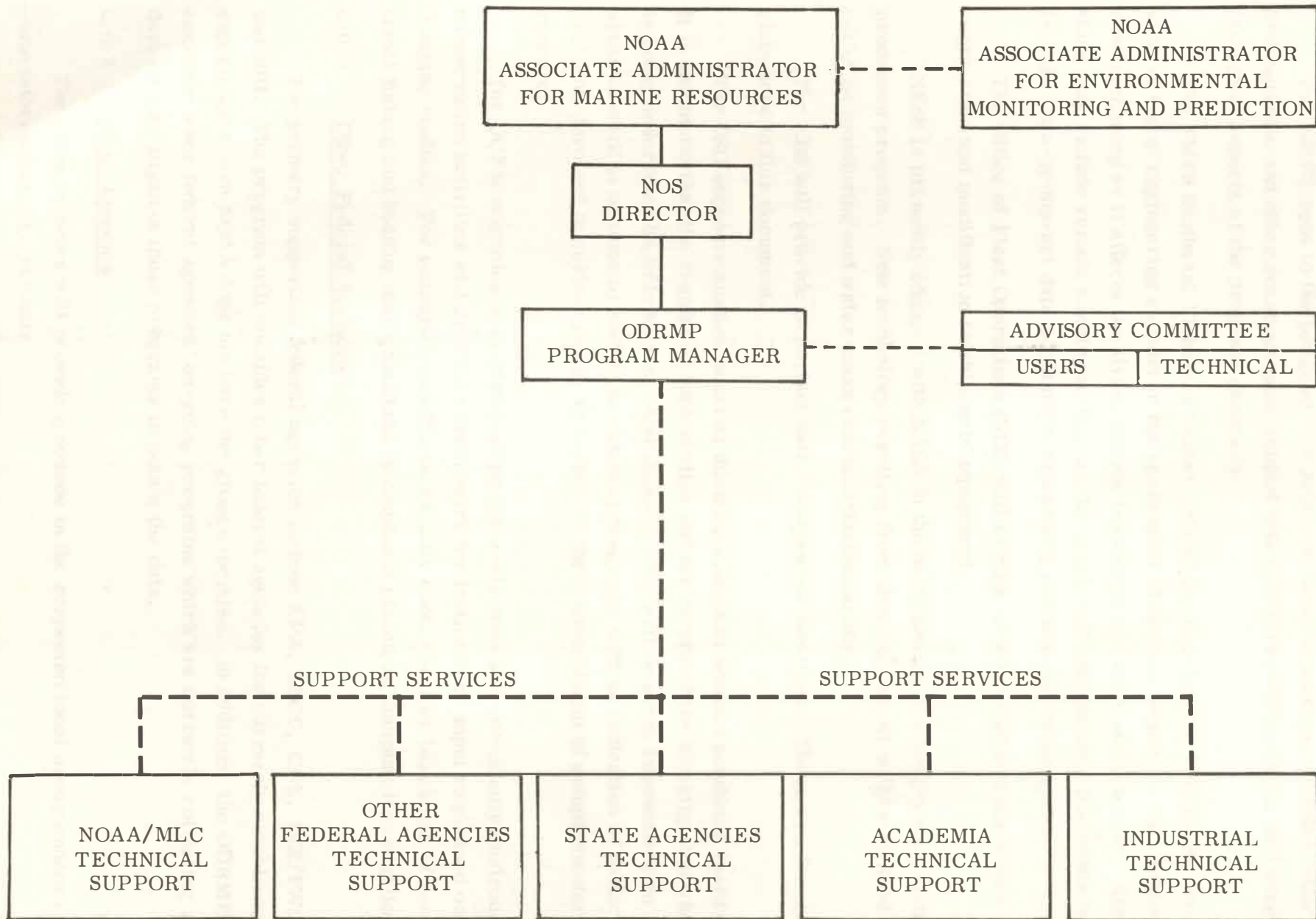


Figure 6-2. ODRMP Program Organization

The NMFS input to the program will relate to living resources, pollutant effects, hydrographic and other oceanographic related data collection and analysis, and support biological aspects of the program generally.

The NMFS Southeast Fisheries Center, Fisheries Engineering Laboratory, will provide technical engineering support in the application of remote sensing to the problem of ocean dumping as it affects the living marine resources and their environment. Applications may include remote sensing technology from aircraft and satellite platforms and include state-of-the-art data acquisition processing and analysis techniques.

The Office of Fleet Operations (NOS) will provide ship support and assistance in contracting and modification to shipboard equipment.

NESS is presently engaged with NASA in the development of a long-term coastal processes program. New technology resulting from this joint effort will be utilized in pollution monitoring and water mass characterization studies.

The EDS will provide important data management functions. These are described elsewhere in this document.

The OSG supports studies in ocean dumping effects at several academic institutions. It is axiomatic that the results of such studies and the nature of the investigation where it is being undertaken be fully known. Additionally, OSG will be given information on future areas of work to be done by the ocean dumping program, with an indication of particular problems involved in certain sites, as a guide to their sponsorship of complementary research.

The OCZM activities and relationships vis-a-vis state and community environmental conservation activities will provide a framework for institutional input to planned ocean dumping studies. For example, specific community concerns over beach use of recreational fishing and boating may contribute to emphasis placed on dumping investigations.

6.6.2 Other Federal Agencies

The primary supporting federal agencies include EPA, USCG, COE, DOI/FWS, FDA, and NIH. The program will consider other federal agencies for currently established experience where NOAA does not have the given expertise. In addition, the ODRMP will consider other federal agencies' on-going programs which are currently collecting required data or may augment those programs to obtain the data.

6.6.3 State Agencies

The state agencies will provide guidance in the respected local areas concerning state information requirements.

6.6.4 Academia

Academia will provide research support as appropriate.

6.6.5 Industrial

Industry may be contacted to provide informational requirements and other support as appropriate.

6.7 ADVISORY COMMITTEES

6.7.1 NOAA Technical Coordination Committee

The Technical Coordination Committee is composed of representatives from the POE's cited. Its primary function is to strengthen coordination and cooperation among the NOAA components concerned with the ODRMP. The ODRMP relies on this Committee for broadly-based guidance on its technical program, project design, and information dissemination. The Committee is presently chaired by MR and meets periodically.

6.7.2 Users Advisory Committee

A Users Advisory Committee will be established with membership representing major user constituencies including public and industry groups, environmental institutions, and government and community interests. Examples are the National Wildlife Federation, State Conservation Agencies, EPA, etc. This committee should meet at least once annually.

6.8 AUTHORITY

The authority under which this program is implemented is Title II, Section 201 of the MPRSA of 1972. The text of Section 201 is as follows:

"The Secretary of Commerce, in coordination with the Secretary of the Department in which the Coast Guard is operating and with the Administrator shall, within six months of the enactment of this Act, initiate a comprehensive and continuing program of monitoring and research regarding the effects of the dumping of material into ocean waters or other coastal waters where the tide ebbs and flows or into the Great Lakes or their connecting waters and shall report from time to time, not less frequently than annually,

his findings (including an evaluation of the short-term ecological effects and the social and economic factors involved) to the Congress."

The complete text of Title II is included as Appendix A.

6.9 MANAGEMENT REVIEWS AND REPORTS

Management reviews will be held throughout the program to identify program progress, potential problem areas, and priorities.

6.9.1 Quarterly Program Reviews

The ODRMP Manager will conduct a quarterly review of the overall program. The review will include technical progress, accomplishments and problems, schedule status and problem areas, cost status and resource requirements. ODRMP Office elements and supporting centers and laboratories will provide inputs to these reviews and participate as necessary.

6.9.2 NOAA Program Reviews

The ODRMP Manager will conduct a review of the program with NOAA management at least annually. The scope, format, and content of this review will be established in coordination with NOAA management.

6.9.3 Operational Readiness Reviews

Prior to initiation of operations for each survey, a comprehensive review will be conducted to verify that all planning, acquisition, and integration activities required have been completed. These reviews will be conducted approximately one month prior to the scheduled start of each survey.

6.10 PROGRAM REPORTS AND SCIENTIFIC PUBLICATIONS

6.10.1 Annual Technical Summary Report

The ODRMP Manager will prepare an Annual Technical Summary Report to document significant program achievements and technical progress during the preceding fiscal year.

6.10.2 Field Activity Reports

Each Field Operations Manager will prepare a Field Activity Report for submission to the ODRMP Manager. The Field Activity Report will document significant program achievements and technical progress and identify problem areas which occurred during the preceding fiscal quarter. The format and content of this report will be specified by the ODRMP Manager.

6.10.3 Environmental Assessment Reports

Completion of seasonal baseline studies in given dumpsites, together with applicable experimental study findings, will result in a final comprehensive report containing major findings and subsequent recommendations concerning regulator actions. A significant part of this report will be the development of a monitoring strategy for the area in question, with suitable rationale.

6.10.4 Dumpsite Characterization Reports

Dumpsite Characterization Reports will provide a comprehensive multiseasonal, multidisciplinary analysis of the regional ecosystem. The report will focus on the documentation of ecological characteristics, temporal variability, etc., as a baseline of information from which future changes can be measured.

6.10.5 Section 201 Annual Report to Congress

The annual report to Congress will include documentation of the status of ocean dumping activities, related research on ocean dumping and evaluation of the short-term ecological effects and the social and economic factors related to ocean dumping activities. The report is due each year in June, documenting the activities of the previous calendar year.

6.10.6 Scientific Publications

The Freedom Information Act (FIA) is applicable to all program data acquired and collected throughout the ODRMP. Interpretation of this Act establishes the following policies:

- The FIA applies to data as soon as it appears on paper (tabular, unedited, unverified numbers).
- Any citizen or group will have access to data, even unedited and unverified, if they want it. Such data, if released, will be identified and appropriately stamped.
- Unpublished data sets are not the property of the scientist(s) who collect data. Since public dollars are spent in collecting the data, such unpublished data sets are subject to FIA.
- Crediting data sources is largely a matter of professional ethics. Any author using unpublished data collected at government expense will properly credit the individuals or group(s) responsible for acquiring or collecting data. This credit can take the form of joint authorship or credit within the text of the publication.

- Any analyses or interpretations made of the data and subsequent publications are the responsibility of the author. The responsibility for acceptance or rejection of such analyses or interpretation rest with anyone who reads the report.

5.3. GENERAL

Tables 7-1 through 7-4 provide information on the status of the program's activities for the years 1974, 1975, and 1976. The information is presented in the form of a summary of the program's activities for each year. The information is presented in the form of a summary of the program's activities for each year.

5.3.1. BUDGET SUMMARY

Table 7-1 shows the status of the program's activities for the years 1974, 1975, and 1976. The information is presented in the form of a summary of the program's activities for each year.

Table 7-1. Status of Major Program Activities

	1974	1975	1976	1977	1978	1979
Baseline Studies	8,200	8,200	8,200	8,200	8,200	8,200
Special Studies	215	215	215	215	215	215
Totals	8,415	8,415	8,415	8,415	8,415	8,415

Program levels are composed of major efforts that are to be completed by the end of the year. It is anticipated that the program's activities for 1974 will be completed by the end of the year. The program's activities for 1975 will be completed by the end of the year. The program's activities for 1976 will be completed by the end of the year. The program's activities for 1977 will be completed by the end of the year. The program's activities for 1978 will be completed by the end of the year. The program's activities for 1979 will be completed by the end of the year.

The program's activities for 1974 will be completed by the end of the year. The program's activities for 1975 will be completed by the end of the year. The program's activities for 1976 will be completed by the end of the year. The program's activities for 1977 will be completed by the end of the year. The program's activities for 1978 will be completed by the end of the year. The program's activities for 1979 will be completed by the end of the year.

Table 7-1

SECTION 7

RESOURCES

7.1 GENERAL

Resources information is provided in this section based upon best estimates as of July 1976 and incorporating known levels of expenditures from previous experience gained in the New York Bight and DWD-106 dumpsite investigations.

7.2 BUDGET SUMMARY

Table 7-1 shows the estimated annual total cost for carrying out the Ocean Dumping Research and Monitoring Program.

Table 7-1. Costs by Major Element (in thousands)

	FY 76	FY 77	FY 78	FY 79	FY 80	FY 81
Baseline Studies	\$ 368	\$ 990	\$2,220	\$2,710	\$2,495	\$ 2,495
Monitoring Studies		65	105	165	280	300
Special Studies	235	315	550	625	725	725
Totals	\$ 603	\$1,370	\$2,875	\$3,500	\$3,500	\$ 3,520

Program levels are composed of major efforts that vary in cost by time-phased accomplishments. It is anticipated that initial completion of baseline data acquisition by 1979 will result in a subsequent decrease in annual monitoring costs thereafter for the given sites involved. This is offset by insertion of new requirements beginning in the mid-year, e. g., by at-sea incinerator sites, dredgespoil sites, and other alternate sites to be established by the regulatory agencies. Thus, the mix of efforts will vary within this time frame, with given validated requirements substituted for ones satisfied.

Further breakout of the funding by budgetary categories through FY 1981 is shown in Table 7-2.

Table 7-2. Estimated Program Costs (in thousands)

	FY 76	FY 77	FY 78	FY 79	FY 80	FY 81
Vessel Costs	\$ 120	\$ 200	\$ 500	\$ 600	\$ 600	\$ 600
Personnel, Travel Supplies, etc.	50	250	550	550	550	550
Data Collection, Pro- cessing, Analysis and Reports	413	820	1420	2050	2050	2050
Equipment	20	100	400	300	300	300
Totals	\$ 603	\$1,370	\$2,870	\$3,500	\$3,500	\$3,500

7.3 MANPOWER REQUIREMENTS

The ODRMP Office is planned to function as a management group which provides for long-range planning, coordination of operations and reporting, and for tracking program progress and expenditures. As such, the program staff is limited in number and will be increased in accordance with program needs. The program staffing for each year is as follows:

ODRMP	FY 76	FY 77	FY 78	FY 79	FY 80	FY 81
	1	4	9	9	9	9

7.4 DATA ACQUISITION, PROCESSING, AND ANALYSIS

Major costs are associated with the acquisition, processing, and analysis of data acquired. Average costs for data handling for each dumpsite survey are as follows:

Data Collection	\$ 127,000
Computer Processing	20,000
Sorting and Identification	55,000
Analysis and Research	40,000
Reports	<u>18,000</u>
	\$ 260,000

7.5 VESSEL COSTS

Table 7-3 shows the estimated vessel cost projected for survey areas. Costs are based on \$3000 per day per ship.

Table 7-3. Vessel Costs (in thousands) *

FY 76	FY 77	FY 78	FY 79	FY 80
\$120 **	\$165 ***	\$240	\$250	\$250

* Does not include costs for submersibles, which may be used as required

** Includes three investigations in DWD-106

*** Includes investigation in four sites

7.5.1 Vessel Time Requirements

The vessel time necessary to conduct one survey has been developed as seen in Table 7-4 by relationship to dumpsite size. The vessel days column indicates the time required to conduct a given survey, either baseline or monitoring. Initial seasonal characterization for baseline purposes may necessitate two to four such surveys, while the annual monitoring characterization may require one survey. It is possible that analysis of the seasonal baseline work could modify the annual monitoring time requirements.

The vessel days required to survey each area are related in general by dumpsite size. There is no absolute relationship of vessel days to dumpsite size, however, because in given areas survey activity is a function of the particular features and problems encountered. At most locations it will be necessary to also conduct survey work outside the dumpsite area itself.

Table 7-4. Typical of current cost per field operation

ITEM	DESCRIPTION	COST
1	Personnel	\$ 20,000
2	Navigation and Travel	50,000
3	Watches, RTD, Composites	50,000
4	Cable	40,000
5	Lab Equipment	10,000
Total		\$170,000

Table 7-4. Vessel Time Requirements

NOAA Survey Area	EPA Dumpsite Numbers	General Location	Area		Vessel Days/Survey
			km ²	mi ²	
I	203, 209, 212, 215	New York Bight	20.7	8	
II	227	Cape May, New Jersey	388.5	150	14
III	554	Gulf of Mexico Galveston	1165.5	450	20
IV	-	-	-	-	-
V	518	Gulf of Mexico New Orleans	911.7	352	20
VI	303, 306, 309, 312	New Jersey/Delaware	803	310	15
VII	109	Massachusetts	5.2	2	6
VIII	230	Puerto Rico Trench	72.5	28	7
IX	615	Southern California	77.7	30	7
X	To be identified	-	(518)	(200)*	(10)*
XI	To be identified	-	(518)	(200)	(10)
XII	To be identified	-	(518)	(200)	(10)
XIII	To be identified	-	(518)	(200)	(10)
XIV	To be identified	-	(518)	(200)	(10)
XV	To be identified	-	(518)	(200)	(10)

* Figures in parentheses are planning estimates for alternate dumpsites.

Table 7-5. Typical Equipment Cost Per Field Operation

ITEM	DESCRIPTION	COST
1	Recorders	\$ 20,000
2	Samplers and Trawls	50,000
3	Winches, STD, Components	50,000
4	Cable	40,000
5	Lab Equipment	10,000
Total		\$170,000

APPENDIX A



Public Law 92-532
92nd Congress, H. R. 9727
October 23, 1972

An Act

86 STAT. 1052

To regulate the transportation for dumping, and the dumping, of material into ocean waters, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Marine Protection, Research, and Sanctuaries Act of 1972".

Marine Protection, Research, and Sanctuaries Act of 1972.

FINDING, POLICY, AND PURPOSE

SEC. 2. (a) Unregulated dumping of material into ocean waters endangers human health, welfare, and amenities, and the marine environment, ecological systems, and economic potentialities.

(b) The Congress declares that it is the policy of the United States to regulate the dumping of all types of materials into ocean waters and to prevent or strictly limit the dumping into ocean waters of any material which would adversely affect human health, welfare, or amenities, or the marine environment, ecological systems, or economic potentialities.

To this end, it is the purpose of this Act to regulate the transportation of material from the United States for dumping into ocean waters, and the dumping of material, transported from outside the United States, if the dumping occurs in ocean waters over which the United States has jurisdiction or over which it may exercise control, under accepted principles of international law, in order to protect its territory or territorial seas.

DEFINITIONS

SEC. 3. For the purposes of this Act the term—

(a) "Administrator" means the Administrator of the Environmental Protection Agency.

(b) "Ocean waters" means those waters of the open seas lying seaward of the base line from which the territorial sea is measured, as provided for in the Convention on the Territorial Sea and the Contiguous Zone (15 UST 1606; TIAS 5639).

(c) "Material" means matter of any kind or description, including, but not limited to, dredged material, solid waste, incinerator residue, garbage, sewage, sewage sludge, munitions, radiological, chemical, and biological warfare agents, radioactive materials, chemicals, biological and laboratory waste, wreck or discarded equipment, rock, sand, excavation debris, and industrial, municipal, agricultural, and other waste; but such term does not mean oil within the meaning of section 11 of the Federal Water Pollution Control Act, as amended (33 U.S.C. 1161) and does not mean sewage from vessels within the meaning of section 13 of such Act (33 U.S.C. 1163).

Ante, p. 816.

(d) "United States" includes the several States, the District of Columbia, the Commonwealth of Puerto Rico, the Canal Zone, the territories and possessions of the United States, and the Trust Territory of the Pacific Islands.

(e) "Person" means any private person or entity, or any officer, employee, agent, department, agency, or instrumentality of the Federal Government, of any State or local unit of government, or of any foreign government.

(f) "Dumping" means a disposition of material: *Provided*, That it does not mean a disposition of any effluent from any outfall structure to the extent that such disposition is regulated under the provisions of the Federal Water Pollution Control Act, as amended (33 U.S.C. 1151-1175), under the provisions of section 13 of the Rivers and Harbors Act

of 1899, as amended (33 U.S.C. 407), or under the provisions of the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011, et seq.), nor does it mean a routine discharge of effluent incidental to the propulsion of, or operation of motor-driven equipment on, vessels: *Provided further*, That it does not mean the construction of any fixed structure or artificial island nor the intentional placement of any device in ocean waters or on or in the submerged land beneath such waters, for a purpose other than disposal, when such construction or such placement is otherwise regulated by Federal or State law or occurs pursuant to an authorized Federal or State program: *And provided further*, That it does not include the deposit of oyster shells, or other materials when such deposit is made for the purpose of developing, maintaining, or harvesting fisheries resources and is otherwise regulated by Federal or State law or occurs pursuant to an authorized Federal or State program.

(g) "District court of the United States" includes the District Court of Guam, the District Court of the Virgin Islands, the District Court of Puerto Rico, the District Court of the Canal Zone, and in the case of American Samoa and the Trust Territory of the Pacific Islands, the District Court of the United States for the District of Hawaii, which court shall have jurisdiction over actions arising therein.

(h) "Secretary" means the Secretary of the Army.

(i) "Dredged material" means any material excavated or dredged from the navigable waters of the United States.

(j) "High-level radioactive waste" means the aqueous waste resulting from the operation of the first cycle solvent extraction system, or equivalent, and the concentrated waste from subsequent extraction cycles, or equivalent, in a facility for reprocessing irradiated reactor fuels, or irradiated fuel from nuclear power reactors.

(k) "Transport" or "transportation" refers to the carriage and related handling of any material by a vessel, or by any other vehicle, including aircraft.

TITLE I—OCEAN DUMPING

PROHIBITED ACTS

SEC. 101. (a) No person shall transport from the United States any radiological, chemical, or biological warfare agent or any high-level radioactive waste, or except as may be authorized in a permit issued under this title, and subject to regulations issued under section 108 hereof by the Secretary of the Department in which the Coast Guard is operating, any other material for the purpose of dumping it into ocean waters.

(b) No person shall dump any radiological, chemical, or biological warfare agent or any high-level radioactive waste, or, except as may be authorized in a permit issued under this title, any other material, transported from any location outside the United States, (1) into the territorial sea of the United States, or (2) into a zone contiguous to the territorial sea of the United States, extending to a line twelve nautical miles seaward from the base line from which the breadth of the territorial sea is measured, to the extent that it may affect the territorial sea or the territory of the United States.

(c) No officer, employee, agent, department, agency, or instrumentality of the United States shall transport from any location outside the United States any radiological, chemical, or biological warfare agent or any high-level radioactive waste, or, except as may be authorized in a permit issued under this title, any other material for the purpose of dumping it into ocean waters.

ENVIRONMENTAL PROTECTION AGENCY PERMITS

Sec. 102. (a) Except in relation to dredged material, as provided for in section 103 of this title, and in relation to radiological, chemical, and biological warfare agents and high-level radioactive waste, as provided for in section 101 of this title, the Administrator may issue permits, after notice and opportunity for public hearings, for the transportation from the United States or, in the case of an agency or instrumentality of the United States, for the transportation from a location outside the United States, of material for the purpose of dumping it into ocean waters, or for the dumping of material into the waters described in section 101 (b), where the Administrator determines that such dumping will not unreasonably degrade or endanger human health, welfare, or amenities, or the marine environment, ecological systems, or economic potentialities. The Administrator shall establish and apply criteria for reviewing and evaluating such permit applications, and, in establishing or revising such criteria, shall consider, but not be limited in his consideration to, the following:

- (A) The need for the proposed dumping.
- (B) The effect of such dumping on human health and welfare, including economic, esthetic, and recreational values.
- (C) The effect of such dumping on fisheries resources, plankton, fish, shellfish, wildlife, shore lines and beaches.
- (D) The effect of such dumping on marine ecosystems, particularly with respect to—
 - (i) the transfer, concentration, and dispersion of such material and its byproducts through biological, physical, and chemical processes.
 - (ii) potential changes in marine ecosystem diversity, productivity, and stability, and
 - (iii) species and community population dynamics.
- (E) The persistence and permanence of the effects of the dumping.
- (F) The effect of dumping particular volumes and concentrations of such materials.
- (G) Appropriate locations and methods of disposal or recycling, including land-based alternatives and the probable impact of requiring use of such alternate locations or methods upon considerations affecting the public interest.
- (H) The effect on alternate uses of oceans, such as scientific study, fishing, and other living resource exploitation, and non-living resource exploitation.
- (I) In designating recommended sites, the Administrator shall utilize wherever feasible locations beyond the edge of the Continental Shelf.

In establishing or revising such criteria, the Administrator shall consult with Federal, State, and local officials, and interested members of the general public, as may appear appropriate to the Administrator. With respect to such criteria as may affect the civil works program of the Department of the Army, the Administrator shall also consult with the Secretary. In reviewing applications for permits, the Administrator shall make such provision for consultation with interested Federal and State agencies as he deems useful or necessary. No permit shall be issued for a dumping of material which will violate applicable water quality standards.

(b) The Administrator may establish and issue various categories of permits, including the general permits described in section 104 (c).

(c) The Administrator may, considering the criteria established pursuant to subsection (a) of this section, designate recommended sites or times for dumping and, when he finds it necessary to protect critical areas, shall, after consultation with the Secretary, also designate sites or times within which certain materials may not be dumped.

(d) No permit is required under this title for the transportation for dumping or the dumping of fish wastes, except when deposited in harbors or other protected or enclosed coastal waters, or where the Administrator finds that such deposits could endanger health, the environment, or ecological systems in a specific location. Where the Administrator makes such a finding, such material may be deposited only as authorized by a permit issued by the Administrator under this section.

CORPS OF ENGINEERS PERMITS

SEC. 103. (a) Subject to the provisions of subsections (b), (c), and (d) of this section, the Secretary may issue permits, after notice and opportunity for public hearings, for the transportation of dredged material for the purpose of dumping it into ocean waters, where the Secretary determines that the dumping will not unreasonably degrade or endanger human health, welfare, or amenities, or the marine environment, ecological systems, or economic potentialities.

(b) In making the determination required by subsection (a), the Secretary shall apply those criteria, established pursuant to section 102(a), relating to the effects of the dumping. Based upon an evaluation of the potential effect of a permit denial on navigation, economic and industrial development, and foreign and domestic commerce of the United States, the Secretary shall make an independent determination as to the need for the dumping. The Secretary shall also make an independent determination as to other possible methods of disposal and as to appropriate locations for the dumping. In considering appropriate locations, he shall, to the extent feasible, utilize the recommended sites designated by the Administrator pursuant to section 102(c).

(c) Prior to issuing any permit under this section, the Secretary shall first notify the Administrator of his intention to do so. In any case in which the Administrator disagrees with the determination of the Secretary as to compliance with the criteria established pursuant to section 102(a) relating to the effects of the dumping or with the restrictions established pursuant to section 102(c) relating to critical areas, the determination of the Administrator shall prevail. Unless the Administrator grants a waiver pursuant to subsection (d), the Secretary shall not issue a permit which does not comply with such criteria and with such restrictions.

Waiver.

(d) If, in any case, the Secretary finds that, in the disposition of dredged material, there is no economically feasible method or site available other than a dumping site the utilization of which would result in non-compliance with the criteria established pursuant to section 102(a) relating to the effects of dumping or with the restrictions established pursuant to section 102(c) relating to critical areas, he shall so certify and request a waiver from the Administrator of the specific requirements involved. Within thirty days of the receipt of the waiver request, unless the Administrator finds that the dumping of the material will result in an unacceptably adverse impact on municipal water supplies, shell-fish beds, wildlife, fisheries (including spawning and breeding areas), or recreational areas, he shall grant the waiver.

(e) In connection with Federal projects involving dredged material, the Secretary may, in lieu of the permit procedure, issue regulations which will require the application to such projects of the same criteria, other factors to be evaluated, the same procedures, and the same requirements which apply to the issuance of permits under subsections (a), (b), (c), and (d) of this section.

PERMIT CONDITIONS

SEC. 104. (a) Permits issued under this title shall designate and include (1) the type of material authorized to be transported for dumping or to be dumped; (2) the amount of material authorized to be transported for dumping or to be dumped; (3) the location where such transport for dumping will be terminated or where such dumping will occur; (4) the length of time for which the permits are valid and their expiration date; (5) any special provisions deemed necessary by the Administrator or the Secretary, as the case may be, after consultation with the Secretary of the Department in which the Coast Guard is operating, for the monitoring and surveillance of the transportation or dumping; and (6) such other matters as the Administrator or the Secretary, as the case may be, deems appropriate.

(b) The Administrator or the Secretary, as the case may be, may prescribe such processing fees for permits and such reporting requirements for actions taken pursuant to permits issued by him under this title as he deems appropriate.

(c) Consistent with the requirements of sections 102 and 103, but in lieu of a requirement for specific permits in such case, the Administrator or the Secretary, as the case may be, may issue general permits for the transportation for dumping, or dumping, or both, of specified materials or classes of materials for which he may issue permits, which he determines will have a minimal adverse environmental impact.

(d) Any permit issued under this title shall be reviewed periodically and, if appropriate, revised. The Administrator or the Secretary, as the case may be, may limit or deny the issuance of permits, or he may alter or revoke partially or entirely the terms of permits issued by him under this title, for the transportation for dumping, or for the dumping, or both, of specified materials or classes of materials, where he finds that such materials cannot be dumped consistently with the criteria and other factors required to be applied in evaluating the permit application. No action shall be taken under this subsection unless the affected person or permittee shall have been given notice and opportunity for a hearing on such action as proposed.

Review.

(e) The Administrator or the Secretary, as the case may be, shall require an applicant for a permit under this title to provide such information as he may consider necessary to review and evaluate such application.

(f) Information received by the Administrator or the Secretary, as the case may be, as a part of any application or in connection with any permit granted under this title shall be available to the public as a matter of public records at every stage of the proceeding. The final determination of the Administrator or the Secretary, as the case may be, shall be likewise available.

Public information.

(g) A copy of any permit issued under this title shall be placed in a conspicuous place in the vessel which will be used for the transportation or dumping authorized by such permit, and an additional copy shall be furnished by the issuing official to the Secretary of the department in which the Coast Guard is operating, or its designee.

PENALTIES

Sec. 105. (a) Any person who violates any provision of this title, or of the regulations promulgated under this title, or a permit issued under this title shall be liable to a civil penalty of not more than \$50,000 for each violation to be assessed by the Administrator. No penalty shall be assessed until the person charged shall have been given notice and an opportunity for a hearing of such violation. In determining the amount of the penalty, the gravity of the violation, prior violations, and the demonstrated good faith of the person charged in attempting to achieve rapid compliance after notification of a violation shall be considered by said Administrator. For good cause shown, the Administrator may remit or mitigate such penalty. Upon failure of the offending party to pay the penalty, the Administrator may request the Attorney General to commence an action in the appropriate district court of the United States for such relief as may be appropriate.

(b) In addition to any action which may be brought under subsection (a) of this section, a person who knowingly violates this title, regulations promulgated under this title, or a permit issued under this title shall be fined not more than \$50,000, or imprisoned for not more than one year, or both.

(c) For the purpose of imposing civil penalties and criminal fines under this section, each day of a continuing violation shall constitute a separate offense as shall the dumping from each of several vessels, or other sources.

(d) The Attorney General or his delegate may bring actions for equitable relief to enjoin an imminent or continuing violation of this title, of regulations promulgated under this title, or of permits issued under this title, and the district courts of the United States shall have jurisdiction to grant such relief as the equities of the case may require.

(e) A vessel, except a public vessel within the meaning of section 13 of the Federal Water Pollution Control Act, as amended (33 U.S.C. 1163), used in a violation, shall be liable in rem for any civil penalty assessed or criminal fine imposed and may be proceeded against in any district court of the United States having jurisdiction thereof; but no vessel shall be liable unless it shall appear that one or more of the owners, or bareboat charterers, was at the time of the violation a consenting party or privy to such violation.

(f) If the provisions of any permit issued under section 102 or 103 are violated, the Administrator or the Secretary, as the case may be, may revoke the permit or may suspend the permit for a specified period of time. No permit shall be revoked or suspended unless the permittee shall have been given notice and opportunity for a hearing on such violation and proposed suspension or revocation.

(g) (1) Except as provided in paragraph (2) of this subsection any person may commence a civil suit on his own behalf to enjoin any person, including the United States and any other governmental instrumentality or agency (to the extent permitted by the eleventh amendment to the Constitution), who is alleged to be in violation of any prohibition, limitation, criterion, or permit established or issued by or under this title. The district courts shall have jurisdiction, without regard to the amount in controversy or the citizenship of the parties, to enforce such prohibition, limitation, criterion, or permit, as the case may be.

Liability.

Ante, p. 816.

Ante, pp. 1054,
1055.

(2) No action may be commenced--

(A) prior to sixty days after notice of the violation has been given to the Administrator or to the Secretary, and to any alleged violator of the prohibition, limitation, criterion, or permit; or

(B) if the Attorney General has commenced and is diligently prosecuting a civil action in a court of the United States to require compliance with the prohibition, limitation, criterion, or permit; or

(C) if the Administrator has commenced action to impose a penalty pursuant to subsection (a) of this section, or if the Administrator, or the Secretary, has initiated permit revocation or suspension proceedings under subsection (f) of this section; or

(D) if the United States has commenced and is diligently prosecuting a criminal action in a court of the United States or a State to redress a violation of this title.

(3) (A) Any suit under this subsection may be brought in the judicial district in which the violation occurs.

(B) In any such suit under this subsection in which the United States is not a party, the Attorney General, at the request of the Administrator or Secretary, may intervene on behalf of the United States as a matter of right.

(4) The court, in issuing any final order in any suit brought pursuant to paragraph (1) of this subsection may award costs of litigation (including reasonable attorney and expert witness fees) to any party, whenever the court determines such award is appropriate.

(5) The injunctive relief provided by this subsection shall not restrict any right which any person (or class of persons) may have under any statute or common law to seek enforcement of any standard or limitation or to seek any other relief (including relief against the Administrator, the Secretary, or a State agency).

(h) No person shall be subject to a civil penalty or to a criminal fine or imprisonment for dumping materials from a vessel if such materials are dumped in an emergency to safeguard life at sea. Any such emergency dumping shall be reported to the Administrator under such conditions as he may prescribe. Exemption.

RELATIONSHIP TO OTHER LAWS

SEC. 106. (a) After the effective date of this title, all licenses, permits, and authorizations other than those issued pursuant to this title shall be void and of no legal effect, to the extent that they purport to authorize any activity regulated by this title, and whether issued before or after the effective date of this title.

(b) The provisions of subsection (a) shall not apply to actions taken before the effective date of this title under the authority of the Rivers and Harbors Act of 1899 (50 Stat. 1151), as amended (33 U.S.C. 401 et. seq.).

(c) Prior to issuing any permit under this title, if it appears to the Administrator that the disposition of material, other than dredged material, may adversely affect navigation in the territorial sea of the United States, or in the approaches to any harbor of the United States, or may create an artificial island on the Outer Continental Shelf, the Administrator shall consult with the Secretary and no permit shall

be issued if the Secretary determines that navigation will be unreasonably impaired.

(d) After the effective date of this title, no State shall adopt or enforce any rule or regulation relating to any activity regulated by this title. Any State may, however, propose to the Administrator criteria relating to the dumping of materials into ocean waters within its jurisdiction, or into other ocean waters to the extent that such dumping may affect waters within the jurisdiction of such State, and if the Administrator determines, after notice and opportunity for hearing, that the proposed criteria are not inconsistent with the purposes of this title, may adopt those criteria and may issue regulations to implement such criteria. Such determination shall be made by the Administrator within one hundred and twenty days of receipt of the proposed criteria. For the purposes of this subsection, the term "State" means any State, interstate or regional authority, Federal territory or Commonwealth or the District of Columbia.

"State,"

(e) Nothing in this title shall be deemed to affect in any manner or to any extent any provision of the Fish and Wildlife Coordination Act as amended (16 U.S.C. 661-666e).

60 Stat. 1080;
72 Stat. 563.

ENFORCEMENT

SEC. 107. (a) The Administrator or the Secretary, as the case may be, may, whenever appropriate, utilize by agreement, the personnel, services and facilities of other Federal departments, agencies, and instrumentalities, or State agencies or instrumentalities, whether on a reimbursable or a nonreimbursable basis, in carrying out his responsibilities under this title.

(b) The Administrator or the Secretary may delegate responsibility and authority for reviewing and evaluating permit applications, including the decision as to whether a permit will be issued, to an officer of his agency, or he may delegate, by agreement, such responsibility and authority to the heads of other Federal departments or agencies, whether on a reimbursable or nonreimbursable basis.

(c) The Secretary of the department in which the Coast Guard is operating shall conduct surveillance and other appropriate enforcement activity to prevent unlawful transportation of material for dumping, or unlawful dumping. Such enforcement activity shall include, but not be limited to, enforcement of regulations issued by him pursuant to section 108, relating to safe transportation, handling, carriage, storage, and stowage. The Secretary of the Department in which the Coast Guard is operating shall supply to the Administrator and to the Attorney General, as appropriate, such information of enforcement activities and such evidentiary material assembled as they may require in carrying out their duties relative to penalty assessments, criminal prosecutions, or other actions involving litigation pursuant to the provisions of this title.

Infra,

REGULATIONS

SEC. 108. In carrying out the responsibilities and authority conferred by this title, the Administrator, the Secretary, and the Secretary of the department in which the Coast Guard is operating are authorized to issue such regulations as they may deem appropriate.

INTERNATIONAL COOPERATION

SEC. 109. The Secretary of State, in consultation with the Administrator, shall seek effective international action and cooperation to insure protection of the marine environment, and may, for this purpose, formulate, present, or support specific proposals in the United Nations and other competent international organizations for the development of appropriate international rules and regulations in support of the policy of this Act.

EFFECTIVE DATE AND SAVINGS PROVISIONS

SEC. 110. (a) This title shall take effect six months after the date of the enactment of this Act.

(b) No legal action begun, or right of action accrued, prior to the effective date of this title shall be affected by any provision of this title.

SEC. 111. There are hereby authorized to be appropriated not to exceed \$3,600,000 for fiscal year 1973, and not to exceed \$5,500,000 for fiscal year 1974, for the purposes and administration of this title, and for succeeding fiscal years only such sums as the Congress may authorize by law.

Appropriation.

SEC. 112. The Administrator shall report annually, on or before June 30 of each year, with the first report to be made on or before June 30, 1973 to the Congress, on his administration of this title, including recommendations for additional legislation if deemed necessary.

Annual report to Congress.

TITLE II—COMPREHENSIVE RESEARCH ON OCEAN DUMPING

SEC. 201. The Secretary of Commerce, in coordination with the Secretary of the Department in which the Coast Guard is operating and with the Administrator shall, within six months of the enactment of this Act, initiate a comprehensive and continuing program of monitoring and research regarding the effects of the dumping of material into ocean waters or other coastal waters where the tide ebbs and flows or into the Great Lakes or their connecting waters and shall report from time to time, not less frequently than annually, his findings (including an evaluation of the short-term ecological effects and the social and economic factors involved) to the Congress.

Report to Congress.

SEC. 202. (a) The Secretary of Commerce, in consultation with other appropriate Federal departments, agencies, and instrumentalities shall, within six months of the enactment of this Act, initiate a comprehensive and continuing program of research with respect to the possible long-range effects of pollution, overfishing, and man-induced changes of ocean ecosystems. In carrying out such research, the Secretary of Commerce shall take into account such factors as existing and proposed international policies affecting oceanic problems, economic considerations involved in both the protection and the use of the oceans, possible alternatives to existing programs, and ways in which the health of the oceans may best be preserved for the benefit of succeeding generations of mankind.

(b) In carrying out his responsibilities under this section, the Secretary of Commerce, under the foreign policy guidance of the President and pursuant to international agreements and treaties made by

- the President with the advice and consent of the Senate, may act alone or in conjunction with any other nation or group of nations, and shall make known the results of his activities by such channels of communication as may appear appropriate.
- Annual report to Congress. (c) In January of each year, the Secretary of Commerce shall report to the Congress on the results of activities undertaken by him pursuant to this section during the previous fiscal year.
- Inter-agency agreements. (d) Each department, agency, and independent instrumentality of the Federal Government is authorized and directed to cooperate with the Secretary of Commerce in carrying out the purposes of this section and, to the extent permitted by law, to furnish such information as may be requested.
- Federal-State cooperation. (e) The Secretary of Commerce, in carrying out his responsibilities under this section, shall, to the extent feasible utilize the personnel, services, and facilities of other Federal departments, agencies, and instrumentalities (including those of the Coast Guard for monitoring purposes), and is authorized to enter into appropriate inter-agency agreements to accomplish this action.
- Appropriation. SEC. 203. The Secretary of Commerce shall conduct and encourage, cooperate with, and render financial and other assistance to appropriate public (whether Federal, State, interstate, or local) authorities, agencies, and institutions, private agencies and institutions, and individuals in the conduct of, and to promote the coordination of, research, investigations, experiments, training, demonstrations, surveys, and studies for the purpose of determining means of minimizing or ending all dumping of materials within five years of the effective date of this Act.
- SEC. 204. There are authorized to be appropriated for the first fiscal year after this Act is enacted and for the next two fiscal years thereafter such sums as may be necessary to carry out this title, but the sums appropriated for any such fiscal year may not exceed \$6,600,000.

TITLE III—MARINE SANCTUARIES

- "Secretary." SEC. 301. Notwithstanding the provisions of subsection (h) of section 3 of this Act, the term "Secretary", when used in this title, means Secretary of Commerce.
- 15 UST 471. SEC. 302. (a) The Secretary, after consultation with the Secretaries of State, Defense, the Interior, and Transportation, the Administrator, and the heads of other interested Federal agencies, and with the approval of the President, may designate as marine sanctuaries those areas of the ocean waters, as far seaward as the outer edge of the Continental Shelf, as defined in the Convention of the Continental Shelf (15 U.S.T. 74; TIAS 5578), of other coastal waters where the tide ebbs and flows, or of the Great Lakes and their connecting waters, which he determines necessary for the purpose of preserving or restoring such areas for their conservation, recreational, ecological, or esthetic values. The consultation shall include an opportunity to review and comment on a specific proposed designation.
- 43 USC 1301. (b) Prior to designating a marine sanctuary which includes waters lying within the territorial limits of any State or superjacent to the subsoil and seabed within the seaward boundary of a coastal State, as that boundary is defined in section 2 of title I of the Act of May 22, 1953 (67 Stat. 29), the Secretary shall consult with, and give due consideration to the views of, the responsible officials of the State involved. As to such waters, a designation under this section shall become effective

five sixty days after it is published, unless the Governor of any State involved shall, before the expiration of the sixty-day period, certify to the Secretary that the designation, or a specified portion thereof, is unacceptable to his State, in which case the designated sanctuary shall not include the area certified as unacceptable until such time as the Governor withdraws his certification of unacceptability.

(c) When a marine sanctuary is designated, pursuant to this section, which includes an area of ocean waters outside the territorial jurisdiction of the United States, the Secretary of State shall take such actions as may be appropriate to enter into negotiations with other Governments for the purpose of arriving at necessary agreements with those Governments, in order to protect such sanctuary and to promote the purposes for which it was established.

(d) The Secretary shall submit an annual report to the Congress, on or before November 1 of each year, setting forth a comprehensive review of his actions during the previous fiscal year undertaken pursuant to the authority of this section, together with appropriate recommendation for legislation considered necessary for the designation and protection of marine sanctuaries.

(e) Before a marine sanctuary is designated under this section, the Secretary shall hold public hearings in the coastal areas which would be most directly affected by such designation, for the purpose of receiving and giving proper consideration to the views of any interested party. Such hearings shall be held no earlier than thirty days after the publication of a public notice thereof.

(f) After a marine sanctuary has been designated under this section, the Secretary, after consultation with other interested Federal agencies, shall issue necessary and reasonable regulations to control any activities permitted within the designated marine sanctuary, and no permit, license, or other authorization issued pursuant to any other authority shall be valid unless the Secretary shall certify that the permitted activity is consistent with the purposes of this title and can be carried out within the regulations promulgated under this section.

(g) The regulations issued pursuant to subsection (f) shall be applied in accordance with recognized principles of international law, including treaties, conventions and other agreements to which the United States is signatory. Unless the application of the regulations is in accordance with such principles or is otherwise authorized by an agreement between the United States and the foreign State of which the affected person is a citizen or, in the case of the crew of a foreign vessel, between the United States and flag State of the vessel, no regulation applicable to ocean waters outside the territorial jurisdiction of the United States shall be applied to a person not a citizen of the United States.

Sec. 303. (a) Any person subject to the jurisdiction of the United States who violates any regulation issued pursuant to this title shall be liable to a civil penalty of not more than \$50,000 for each such violation, to be assessed by the Secretary. Each day of a continuing violation shall constitute a separate violation.

(b) No penalty shall be assessed under this section until the person charged has been given notice and an opportunity to be heard. Upon failure of the offending party to pay an assessed penalty, the Attorney General, at the request of the Secretary, shall commence action in the appropriate district court of the United States to collect the penalty and to seek such other relief as may be appropriate.

Jurisdiction,

(c) A vessel used in the violation of a regulation issued pursuant to this title shall be liable in rem for any civil penalty assessed for such violation and may be proceeded against in any district court of the United States having jurisdiction thereof.

(d) The district courts of the United States shall have jurisdiction to restrain a violation of the regulations issued pursuant to this title, and to grant such other relief as may be appropriate. Actions shall be brought by the Attorney General in the name of the United States, either on his own initiative or at the request of the Secretary.

Appropriation.

SEC. 301. There are authorized to be appropriated for the fiscal year in which this Act is enacted and for the next two fiscal years thereafter such sums as may be necessary to carry out the provisions of this title, including sums for the costs of acquisition, development, and operation of marine sanctuaries designated under this title, but the sums appropriated for any such fiscal year shall not exceed \$10,000,000.

Approved October 23, 1972.

LEGISLATIVE HISTORY:

- HOUSE REPORTS: No. 92-361 (Comm. on Merchant Marine and Fisheries) and No. 92-157 (Comm. of Conference).
- SENATE REPORT No. 92-451 (Comm. on Commerce).
- CONGRESSIONAL RECORD:
 - Vol. 117 (1972): Sept. 8, 9, considered and passed House.
 - Nov. 24, considered and passed Senate, amended.
 - Vol. 118 (1972): Oct. 13, Senate and House agreed to conference report.
- WEEKLY COMPILATION OF PRESIDENTIAL DOCUMENTS:1
 - Vol. 8, No. 44 (1972): Oct. 28, Presidential statement.

APPENDIX B

EPA/NOAA INTERAGENCY AGREEMENT

CONCERNING BASELINE SURVEYS AND EVALUATIONS OF OCEAN DISPOSAL SITES, UNDER MARINE PROTECTION, RESEARCH AND SANCTUARIES ACT

SECTION I. BACKGROUND AND PURPOSE

A. Title I of the Marine Protection, Research and Sanctuaries Act, 33 U.S.C. 1401-1444, directs the Administrator of EPA to regulate the dumping of materials into ocean waters, including issuance of permits for such dumping, establishment of criteria for reviewing and evaluating permit applications, and designation of sites and times for such dumping.

The Administrator of EPA will require baseline surveys and evaluations of existing and proposed disposal sites for the purpose of evaluating or predicting the effect of ocean disposal operations on the marine environment and guiding regulatory decisions and for the preparation of EIS's. Such surveys and evaluations will involve collection, analyses and interpretation of existing data and information related to existing or proposed sites and field surveys designed to determine physical, chemical, geological and biological characteristics of these sites.

B. Title II of the Marine Protection, Research and Sanctuaries Act directs the Secretary of Commerce, in coordination with the Secretary of the Department in which the Coast Guard is operating and with the Administrator of EPA, to initiate a comprehensive and continuing program of monitoring and research on the effects of ocean dumping, and to report his findings at least annually to the Congress. Responsibility for conduct of this program has been delegated to NOAA.

C. The purpose of this interagency agreement is to provide for coordination between EPA and NOAA in a program of ocean disposal site baseline surveys and evaluations. This program is consistent with the coordination required under the Act, and is intended to assure that NOAA programs of monitoring and research, while fulfilling NOAA's mandate under Title II of the Act, also provide information required by EPA for site evaluation and management.

SECTION II. PROVISIONS

A. EPA will identify its requirements for disposal site surveys and evaluations for regulatory purposes. Specifications of information required will be developed in cooperation with NOAA, and EPA will give full consideration to NOAA views and guidelines in formulation or revision of regulations and guidelines specifying requirements for such studies.

B. EPA will develop and provide to NOAA a schedule of priorities for surveys and Environmental Impact Statements at existing and proposed disposal sites.

C. NOAA will provide detailed study plans to EPA, and conduct the necessary studies. EPA will provide information on the types and quantities of wastes discharged. Funding will be either under NOAA resources or by reimbursement from EPA. In the event that NOAA cannot contract or undertake the required surveys in accordance with EPA's operational program priorities under either NOAA or reimbursable EPA funding, EPA will contract or undertake these surveys directly to the extent of its resources.

D. As a result of surveys and evaluations of each disposal site, NOAA will prepare a report or reports on findings in cooperation with EPA. NOAA will provide copies of all survey data, as requested, together with these reports. The reports will be structured, as possible and feasible, to serve as input to preparation by EPA of Environmental Impact Statements required for each disposal site.

E. Where deemed necessary, NOAA will provide EPA and EPA contractors technical assistance in the interpretation of the NOAA collected oceanographic data during the preparation of Environmental Impact Statements. This effort may be reimbursed to NOAA by EPA at the discretion of the agency coordinators (see Section III.A.).

F. Where EPA imposes monitoring requirements on permittees, these requirements will be developed in consultation with NOAA to reduce the possibility of duplication of effort and insure the standardization of equipments, methodologies, and quality control.

G. Under Section 112 of the Marine Protection, Research and Sanctuaries Act, the EPA Administrator is required to report annually to the Congress on his administration of Title I. Under Section 201 of the Act, the Secretary of Commerce is required to report at least annually on the findings of the program of monitoring and research. In order to meet these reporting requirements in a coordinated manner, the following provisions will apply:

(1) The EPA report will summarize the numbers and types of surveys made, the emphasis on their relation to site designation and other aspects of the regulatory program, and the application of the information to the needs of the regulatory program.

(2) The NOAA report will summarize the detailed scientific findings of the surveys, with emphasis on describing the ambient conditions in the disposal sites and the general scientific conclusions drawn from these and other such surveys.

(3) Both agencies will make provision for full exchange of information on all aspects of the ocean dumping program, and each agency will be afforded full opportunity to review and comment on the report of the other agency.

(4) Data and information obtained under this agreement shall be available through free access from appropriate data centers to all parties. Freedom of information will be adhered to under the broadest interpretation. EPA will be provided with copies of all data requested and will have access to original data upon request. All data collected by NOAA or NOAA contractors will be formatted and transmitted to the National Oceanographic Data Center, National Geophysical and Solar Terrestrial Data Center, and other centers as desired by EPA.

SECTION III. IMPLEMENTATION

A. Each agency will designate a staff member as responsible for coordinating implementation of the provisions of the Interagency Agreement. These staff members will be responsible for establishing channels of communication and coordination within their respective agencies.

B. The agency coordinators will be responsible for establishing a schedule of baseline surveys which take into account EPA's priorities and needs; and the budgetary resources and capabilities of each agency. Budget requests will be developed in coordination with a concerted effort to program adequate resources. EPA will support NOAA's request to OMB for resources to conduct the agreed upon program. Provisions for reimbursement will be made as necessary, where NOAA budgetary resources are not adequate to meet EPA's schedule and priorities, particularly when these occur without adequate lead time for budgetary planning.

C. The agency coordinators may, as determined necessary, explore the feasibility of cooperative programs including but not limited to (1) establishment of a mutually supported centralized staff to design and implement ocean surveys for dumpsite characterization purposes, (2) formation of bilateral EPA/NOAA ad hoc committees for special purposes associated with dumpsite characterization, e.g., for survey finding assessment and analysis, and (3) possible dedication of NOAA vessels and/or EPA laboratories for periods of time.

D. The Administrators or their designated policy representatives shall meet annually to receive a report on implementation of the provisions of this Interagency Agreement. The report shall include:

(1) Progress reports covering completed and ongoing baseline surveys and evaluations of ocean dumping sites.

(2) An agreed upon program of work for the coming year.

(3) Estimated budgets for both agencies required to fund the program.

(4) Any problems being encountered in implementation of the program.

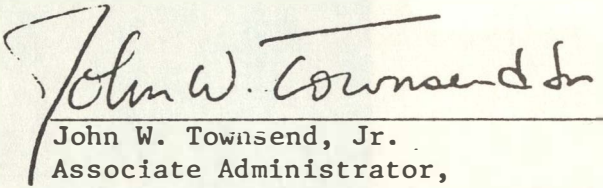
E. Each agency shall apprise the other prior to the issuance of releases to the news Media of preliminary findings and final conclusions of baseline surveys and evaluations carried out cooperatively pursuant to this agreement.

F. Interagency agreements on individual surveys or for provision of special services in support of the ocean dumping permit program must be approved by the respective agency coordinators before they are effective.

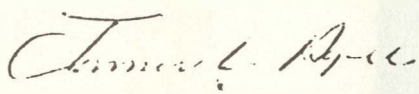
SECTION IV. OTHER

A. Nothing contained herein shall abrogate the statutory responsibility or authority of either agency signatory to this agreement.

b. This agreement may be terminated by the Administrator of either agency by written notification at least 60 days prior to effective date of termination. Terms and provisions of this agreement may be modified by concurrence of both agency coordinators or their representatives and approval by the Administrators of both agencies.



John W. Townsend, Jr.
Associate Administrator,
National Oceanic and Atmospheric
Administration



James L. Agee
Assistant Administrator, for
Water and Hazardous Materials
Environmental Protection Agency

3/6/75

(date)

3/20/75

(date)