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Towards the Management of Narragansett Bay:

An Institutional Analysis 198 pp

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Narragansett Bay Estuary Program

**TOWARDS THE MANAGEMENT
OF NARRAGANSETT BAY:
AN INSTITUTIONAL ANALYSIS**

The Intergovernmental Policy Analysis Program
The University of Rhode Island

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FOREWORD

The United States Congress created the National Estuary Program in 1984, citing its concern for the "health and ecological integrity" of the nation's estuaries and estuarine resources. Narragansett Bay was selected for inclusion in the National Estuary Program in 1984 and designated an "estuary of national significance" in 1988. The Narragansett Bay Project (NBP) was established in 1985. Under the joint sponsorship of the U.S. Environmental Protection Agency and the Rhode Island Department of Environmental Management, the NBP's mandate is to direct a five-year program of research and planning focussed on managing Narragansett Bay and its resources for future generations. The NBP will develop a comprehensive management plan by December, 1990, which will recommend actions to improve and protect the Bay and its natural resources.

The NBP has established the following seven priority issues for Narragansett Bay:

- * management of fisheries
- * nutrients and potential for eutrophication
- * impacts of toxic contaminants
- * health and abundance of living resources
- * health risk to consumers of contaminated seafood
- * land-based impacts on water quality
- * recreational uses

The NBP is taking an ecosystem approach to address these problems and has funded research that will help to improve our understanding of various aspects of these priority problems. The Project is also working to expand and coordinate existing programs among state agencies, governmental institutions, and academic researchers in order to apply research findings to the practical needs of managing the Bay and improving the environmental quality of its watershed.

This report represents the technical results of an investigation performed for the Narragansett Bay Project. The information in this document has been funded wholly or in part by the United States Environmental Protection Agency under assistance agreement #CX812768 to the Rhode Island Department of Environmental Management. The results and conclusions contained herein are those of the author(s), and as they do not necessarily represent the views or recommendations of the NBP, no official endorsement should be inferred. Final recommendations for management actions will be based upon the results of this and other investigations.

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LIST OF ABBREVIATIONS

CRMC	Coastal Resources Management Council
EPA	Environmental Protection Agency
FWPCA	Federal Water Pollution Control Act
DEM	Department of Environmental Management
OSP	Office of Statewide Planning
GLRI	General Laws of Rhode Island
COE	Army Corps of Engineers
NOAA	National Oceanic and Atmospheric Administration
CFR	Code of Federal Regulations
CZMA	Coastal Zone Management Act
MFC	Marine Fisheries Council
NBC	Narragansett Bay Water Quality Management District Commission
NEI	New England Interstate Water Pollution Control Commission
SPP	Statewide Planning Program
DOH	Department of Health
POTW	Publicly Owned Treatment Works
PWSA	Port and Waterways Safety Act
RHA	Rivers and Harbors Act
MSD	Marine Sanitation Device
ISDS	Individual Sewage Disposal System

CHAPTER ONE

INTRODUCTION

This study has been undertaken to accomplish two purposes: describe the existing institutional management structure that governs Narragansett Bay including agency overlaps and interactions and; assess the role scientific information has played in shaping management policies and procedures.

In order to describe this existing structure, statutes, regulations, and case studies are used to identify responsibilities of the many federal, state, and local agencies and institutions that presently govern activities on and around Narragansett Bay.

The existing structure is analyzed in order to determine areas of overlapping jurisdiction, agency interaction, and the implications of such overlaps and interactions on effective management of the Bay.

In order to assess the role of scientific information, this project has, through case studies, examined the type of scientific information that is or is not used, who provides this information, and the mechanisms which are, or are not used to incorporate such information into the policy making process.

The study is divided into three components: a contextual review, a case study analysis, and a policy decision making process analysis.

The contextual review consists of two major portions:

- o identification of relevant published documents;
- o development of an inventory of agencies (federal, state, and local) which have legislative and/or regulatory authority over activities that impact Narragansett Bay. This inventory is presented in a functional form.

The case study analysis consists of three major portions, each portion focusing on a particular topic affecting the Bay, and the corresponding agencies, laws and regulations that are highlighted by that topic.

The first topic is that of coastal zone development via a case study and analysis of the currently ongoing Chepiwanoxet development proposal for a condominium/marina complex in Warwick, Rhode Island.

The second portion focuses on the topic of point source pollution via a case study of industrial pretreatment regulations for wastewater treatment.

The third portion focuses on the topic of impacts to the Bay resulting from its interstate nature via a case study of differential water quality classification between Rhode Island and Massachusetts in Mount Hope Bay.

These three case studies not only highlight the most active agencies and statutes affecting the Bay, but also the points where these agencies have overlapping and/or conflicting authority, communication links between these agencies, the different levels of agency participation and any conflict resolution processes that exist.

The third component of the study is a review and analysis of the policy decision making processes. A majority of the analysis is contained within the case studies; what is separated out in this chapter is an assessment of the role of scientific information within decision making processes.

It is hoped that this study provides a base for further management studies within the Narragansett Bay Project, eventually leading to an examination of possibilities for streamlining management.

CHAPTER TWO

NARRAGANSETT BAY

Narragansett Bay comprises approximately 102 square miles of area within the state of Rhode Island (excluding the portion that makes up Mount Hope Bay). Its depth, in some locations, exceeds eighty feet, but a majority of the Bay is eighty feet or less.

The physical, chemical and biological characteristics of the Bay make up an estuary, defined as a semi-enclosed body of water that is open to the ocean, with sea water that is diluted by freshwater inputs from land drainage and rainfall.

Approximately ninety percent of the freshwater input to the Bay comes from various rivers, which generally flow through the neighboring state of Massachusetts first. The river water collects both nutrients and pollutants as it travels towards the Bay.

The other ten percent of freshwater input comes from rain falling directly on the Bay, as well as discharge waters from wastewater treatment facilities along the shore. These two sources also provide varying amounts of nutrients and pollutants.¹

Narragansett Bay provides an enormous natural resource for the state of Rhode Island. Economically, the Bay generates jobs and revenue from the fisheries, tourist and boating industries. The Bay is a transportation route for the import and/or export of various products and provides a discharge area for waste products generated each day.

The Bay and surrounding coastal zone is also a recreational resource for swimming, sailing, boating, fishing and other activities, and is also important ecologically, providing habitat for a great variety of life associated with marine environments.

In addition, although it may be difficult to quantify in terms of monetary value, the Bay as an aesthetic resource is very important to many people.

Each use of the Bay and coastal zone affects at least one other use of the Bay; sometimes the affect is harmless, while at other times, the affect is detrimental, depending on the combination of uses involved.

Recognizing the importance and equal value of all uses, and their affects on the Bay as an environmental entity, various laws and agencies have been created in an attempt to manage uses to everyone's benefit and at the same time, avoid degrading or abusing the environment.

Often, each new law and/or agency was developed after a need for management, coordination, and protection was recognized through new knowledge. In some cases, this new knowledge originated through scientific studies of estuaries in general, or the Bay itself.

Many of these laws and agencies which govern the Bay, like the uses they were designed to manage, interact with and impact one another. The following study describes these interactions and assesses the role scientific information has played in shaping agency decisions regarding uses of Narragansett Bay.

NOTES

1. Stephen Olsen, et al. 1980. An Interpretive Atlas of Narragansett Bay. (University of Rhode Island Publications Office, Kingston, Rhode Island), pp. 5, 7, 17-19.

CHAPTER THREE
CONTEXTUAL REVIEW

This component of the study consisted of two parts; identifying relevant published documents which would be useful for this study and later studies; and development of an inventory of agencies having legislative or regulatory authority impacting Narragansett Bay.

Documents

The identification of documents was an ongoing process throughout the duration of the study. The bibliography at the back of this report contains the citations for these documents.

Inventory

The purposes of the inventory were threefold:

- o to identify the federal, state, and local agencies which have authority and/or play a role in the existing management structure of the Bay;
- o to identify the statutes that empower agencies with their authority, and the regulations and standards developed to implement this authority;
- o and to identify the points where the agencies overlap in their authority.

In carrying out the research for the inventory, it was found that such a list of agencies and statutes would become endless if an attempt was made to capture every possible authority and the

details of all regulations that impact the Bay in the broadest sense of the word "impact".

For example, in researching the authority of the Coast Guard, it was found that this agency is responsible for such detailed items as regulating the type and number of life preservers on vessels.

In order to capture the authorities and regulations that directly impact the Bay in a narrower sense of the word, two boundaries were chosen: resource protection and water quality.

Thus, although there are agencies and statutes other than those presented here, such as the Public Utilities Commission, with regulatory authority for ferry boats transporting passengers across the Bay, it was necessary, given the scope of the study, to confine the inventory to those agencies and regulations directly impacting resource protection and water quality.

Three major subjects are used to outline the inventory: Point Source Pollution; Coastal Zone Development; and Fisheries Resources. Each subject heading is further divided into subheadings.

SUBJECT: Point Source Pollution
OVERVIEW:

Point source pollution is pollution that can be traced back to a specific origin, such as discharge from an industrial plant or a wastewater facility. The partner to point source pollution is non-point source pollution, pollutants that cannot be traced back to a specific source, such as urban runoff.

In order to organize the agencies and statutes, this subject is further divided into the government level, and six subheadings.

SUBHEADING ONE: Industrial Waste

GOVERNMENT LEVEL: Federal

LEAD AGENCY: Environmental Protection Agency (EPA)

LEAD STATUTE: Federal Water Pollution Control Act of 1972 as amended (FWPCA).

Section 307 mandates EPA to establish toxic and pretreatment effluent standards for discharges of pollutants into waters and Publicly Owned Treatment Works (POTWs). The type of pollutants which are covered by these standards are generally introduced by industries, and include such things as heavy metals, and cyanides.

Section 402 enables EPA to issue permits for discharges that meet standards promulgated under Section 307 and others. No entity is allowed to discharge anything without this permit, called an NPDES permit. Thus, any industry that discharges directly into waters, or any POTW that collects industrial waste, and then discharges effluent into waters, is required to meet standards and have a permit.

Section 402 also allows an individual state to be delegated EPA's permitting responsibility. Rhode Island was delegated this responsibility in October, 1984. The regulations and standards promulgated under these sections are contained in the Code of Federal Regulations, Chapter 40, Parts 403, 413, 433, and 122.

GOVERNMENT LEVEL: State

LEAD AGENCY: Department of Environmental Management
(DEM)

LEAD STATUTE: General Laws of Rhode Island 46-12 (GLRI)

GLRI 46-12-2 designates DEM as the state water pollution control agency for all purposes of the FWPCA. Included among the powers and duties assigned to this department are the authority to issue a permit for the discharge of any pollutant, to provide for specific effluent limitations and levels of treatment technology, and to require POTW's to adopt and implement requirements regarding the pretreatment of pollutants (46-12-3, (k) and (n)).

The regulations and standards promulgated under these sections are contained in the Rhode Island Water Quality Regulations for Water Pollution Control; Regulations for the Rhode Island Permit Discharge Elimination System; and the Rhode Island Pretreatment Regulations.

GOVERNMENT LEVEL: Local

LEAD AGENCY: Publicly Owned Treatment Works

LEAD STATUTE: Federal Water Pollution Control Act of 1972
as amended.

The pretreatment standards promulgated under the FWPCA, contained in Chapter 40, parts 403, 413 and 433 of the Code of Federal Regulations require POTW's with particular characteristics to develop and implement pretreatment programs and standards unless the NPDES state exercises its option to assume local responsibilities as in 40 CFR 403.10(e).

If the state does have a pretreatment program, which Rhode Island does, the state may assume responsibility for implementing the POTW's pretreatment program, but this does not preclude POTWs from independently developing pretreatment programs (40 CFR 403.10(e)).

The Narragansett Bay Water Quality Management District Commission (NBC), with authority over and responsibility for the Fields Point Wastewater Treatment Facility, received approval of its pretreatment program in September, 1984, while DEM did not have an approved state pretreatment program until October, 1984. NBC has promulgated its regulations and standards in the Rules and Regulations for the Use of Wastewater Facilities Within the Narragansett Bay Water Quality Management District.

SUBHEADING TWO: Publicly Owned Treatment Works
GOVERNMENT LEVEL: Federal
LEAD AGENCY: Environmental Protection Agency
LEAD STATUTE: Federal Water Pollution Control Act of 1972
as amended.

Section 301 prohibits the discharge of any pollutant by any person except as in compliance with other sections of the Act.

The other sections relevant to discharge by POTWs are 301(1)(B) and 402.

Section 301(1)(B) mandates EPA to have achieved, for POTWs, effluent limitations based upon secondary treatment. Section 307 mandates EPA to promulgate pretreatment standards for the introduction of pollutants into treatment works, and Section 402

enables EPA to issue a permit for discharges if the discharges meet all relevant standards and requirements.

GOVERNMENT LEVEL: State
LEAD AGENCY: Department of Environmental Management
LEAD STATUTE: General Laws of Rhode Island 46-12

DEM is the state agency responsible for administering state grants to municipalities and political subdivisions for the construction of sewage treatment works; for approving the construction, modification and operation of discharge systems; for issuing permits for the discharge of any pollutant; for approving the discharge of pollutants into the waters of the state pursuant to standards, and for requiring POTWs to adopt and implement pretreatment requirements, among other things (46-12-3)

The regulations and standards promulgated for the implementation of these responsibilities are contained in the Rhode Island Water Quality Regulations for Water Pollution Control, the Regulations for the Rhode Island Pollutant Discharge Elimination System, and the Rhode Island Pretreatment Regulations.

GOVERNMENT LEVEL: Local
LEAD AGENCY: Individual Publicly Owned Treatment Works
LEAD STATUTE: Federal Water Pollution Control Act of 1972
as amended.

The FWPCA requires EPA to promulgate effluent and pretreatment standards for all direct dischargers, including

POTWs (Section 307). The FWPCA also requires that, in order for a POTW to operate, it must have a national (NPDES) or state (RIPDES) permit which signifies that the discharge from the POTW meets these standards (Section 402).

The standards promulgated by EPA require local POTWs with certain characteristics to have a pretreatment program. This ensures that each POTW can maintain compliance with its NPDES discharge permit (40 CFR 403.8).

The pretreatment program of the Narragansett Bay Water Quality Management District Commission (NBC), the local POTW of Providence, contains a permitting system of its own. The objective is, in part, to enable NBC to maintain compliance with its federal and/or state discharge permit.

This permitting system is contained within the Rules and Regulations for the Use of Wastewater Facilities Within the Narragansett Bay Water Quality Management District.

SUBHEADING THREE: Individual Sewage Disposal Systems (ISDS)
GOVERNMENT LEVEL: Federal
LEAD AGENCY: None
LEAD STATUTE: None

There are no known federal agencies or legislation dealing with ISDS.

GOVERNMENT LEVEL: State
LEAD AGENCY: Department of Environmental Management
LEAD STATUTE: General Laws of Rhode Island 42-17.1 and 46-12

GLRI 42-17.1-2(1) mandates DEM to establish minimum standards relating to the location, design, construction and maintenance of all sewage disposal systems. GLRI 46-12-3(j) mandates DEM to approve the construction, modification and operation of discharge systems.

The Rules and Regulations Establishing Minimum Standards Relating to Location, Design, Construction and Maintenance of ISDSs, provide the necessary engineering requirements for ISDSs, such as slope and grade, materials etc. These regulations mandate that no person may construct, install or alter an ISDS without approval from DEM, which is in the form of a permit (SD 2.01).

OTHER AGENCY:

General Law 46-23 enables the Coastal Resources Management Council (CRMC) to issue, modify or deny permits for any physical alteration of coastal wetlands and all directly related contiguous areas which are necessary to preserve the integrity of such wetlands, among other things (46-23-6 (D)).

CRMC has defined contiguous areas as including all lands directly adjoining shoreline features that extend inland 200 feet.¹ Thus, anyone proposing a ISDS within this 200 foot zone must obtain a CRMC assent in addition to the DEM approval mentioned above.

The CRMC has promulgated standards for ISDSs, has designated locations in the coastal zone where ISDSs are prohibited, and has incorporated DEM approval as a prerequisite that must be obtained before CRMC will grant assent.²

GOVERNMENT LEVEL: Local

LEAD AGENCY: City or Town Councils

LEAD STATUTE: Rules and Regulations Establishing Minimum Standards Relating to Location, Design, Construction and Maintenance of Individual Sewage Disposal Systems.

Section 2.01(b) establishes that a building permit from a municipality to an applicant may be granted only after the municipality has been presented with DEM's written approval of any ISDS that services the building or facility.

SUBHEADING FOUR: Sewage from Vessels

GOVERNMENT LEVEL: Federal

LEAD AGENCY: Environmental Protection Agency, United States Coast Guard.

LEAD STATUTE: Federal Water Pollution Control Act of 1972 as amended.

Section 312 mandates EPA, in consultation with the United States Coast Guard, to promulgate performance standards for marine sanitation devices, "MSDs" (equipment for installation on board a vessel which is designed to receive, retain, treat, or discharge sewage, and any process to treat such sewage).

The United States Coast Guard is mandated to promulgate regulations, consistent with the EPA performance standards, governing the design, construction, installation and operation of any MSDs on board vessels (Section 312(b)(1)).

Enforcement of the regulations and standards is also the responsibility of the Coast Guard (Section 312(k)). The regulations and standards are contained in 40 CFR 140 and 33 CFR 159 for the EPA and Coast Guard, respectively.

GOVERNMENT LEVEL: State

LEAD AGENCY: Department of Environmental Management,
Coastal Resources Management Council

LEAD STATUTE: General Laws of Rhode Island 46-12 and
46-23

Section 46-12-3 of the General Laws mandates DEM to promulgate standards of water quality and classify the waters of the state accordingly, and to make, issue, amend and revoke reasonable rules and regulations for the prevention, control and abatement of pollution.

These rules, regulations and standards are contained in the Water Quality Regulations for Water Pollution Control, and are applicable to vessels as one type of point source (Section 5, definition of a point source).

In particular, Section 8.2 of these Water Quality Regulations may apply to MSDs. It reads:

No person shall place or discharge
pollutants potentially containing
pathogenic organisms into any waters of
the state unless the pollutant has
received disinfection prior to discharge.

"Discharge of pollutant" is defined in Section 5 as any addition of any pollutant ... from any point source (vessel).³

The Coastal Resources Management Council, through the State of Rhode Island Coastal Resources Management Program, as amended, 1983, also has regulations disallowing sewage from vessels.

Sections 300.4(E) (1) (c) and 300.5(C) (4) state that:

Discharge of sanitary wastes to tidal waters from boats using the facility [marina] by devices other than those approved by the United States Coast Guard is prohibited.

Discharge of sanitary sewage to tidal waters from houseboats or floating businesses using marina or port facilities by devices other than those approved by the Coast Guard is prohibited.

In addition, Section 300.6(A) (3) defines point source discharges as including transport vehicles or vessels from which sewage is or may be discharged; and Section 300.6(D) (1) states that point source discharges are prohibited in many instances in Type 1 and Type 2 waters.

OTHER STATUTES:

Section 312(f) (3) and (4) of the FWPCA enables any state to apply to EPA for a complete prohibition on the discharge of any sewage from all vessels, if the state determines that protection and enhancement of the quality of some or all waters within the state require greater environmental protection. In order for this to be approved however, EPA must determine that adequate facilities for safe, sanitary removal and treatment of sewage from all vessels are reasonably available. Thus, EPA grants final approval of such a prohibition, although the state acts as the initiator.

GOVERNMENT LEVEL: Local

LEAD AGENCY: None

LEAD STATUTE: None

There are no known local regulations regarding sewage disposal from vessels directly to the waters.

SUBHEADING FIVE: Oil and Hazardous Waste from Vessels

GOVERNMENT LEVEL: Federal

LEAD AGENCY: Environmental Protection Agency, United
States Coast Guard

LEAD STATUTE: Federal Water Pollution Control Act as
amended.

EPA is mandated to develop regulations which designate hazardous substances which, when discharged in any quantity, present a danger (Section 311(b)(2)(A)).

Section 311(b)(3) of the FWPCA mandates that discharge of oil or hazardous substances into or upon navigable waters in harmful quantities as determined by the President, is prohibited.

Oil is defined as "oil of any kind or in any form, including, but not limited to petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredge spoil" (Section 311(a)(1)). Harmful quantities of oil are contained in 40 CFR 110.1-110.9.

The FWPCA also established a procedure for development of the National Contingency Plan for removal of oil and hazardous substances (Section 311(c)(1) and (2)).

OTHER STATUTES

Section 101 of the Port and Waterways Safety Act of 1972 enables the Coast Guard to establish procedures and standards for the handling and discharge of explosives or other dangerous articles or substances.

Section 201 of this same Act establishes that, in order to secure vessel safety and protection of the marine environment, the Coast Guard shall establish rules and regulations for the design, construction and maintenance of vessels that carry liquid cargo in bulk which is inflammable or combustible, oil, and/or hazardous polluting substances designated under the FWPCA.

These standards are found in 33 CFR 157, Rules and Regulations for the Protection of the Marine Environment Relating to Tank Vessels Carrying Oil in Bulk.

GOVERNMENT LEVEL:	State
LEAD AGENCY:	Department of Environmental Management, Coastal Resources Management Council
LEAD STATUTE:	General Laws of Rhode Island 46-12 and 46-23

The Water Quality Regulations for Water Pollution Control, established by DEM according to its authority under GLRI 46-12-3, provide for hazardous waste and oil discharges through Sections 10.5 and 10.6 which read:

No person shall place or discharge
hazardous waste or hazardous substances
into any waters of the state ...unless
such waste has received pretreatment....

No person shall place or discharge oil or petroleum products into the waters of the state unless the oil or petroleum products are treated as required by the Oil Pollution Control Rules and Regulations as amended.

These Oil Pollution Rules mandate that no discharge, or transfer of oil from ship to shore or shore to ship, nor ballasting of an oil carrying vessel shall occur unless certain conditions and standards specified therein have been met. These conditions include such things as procedures to be followed, and orders of approval from DEM.

The State of Rhode Island Coastal Resources Management Program as amended, 1983, established by CRMC according to its authority under GLRI 46-23-6, provides standards for energy-related activities and structures occurring within tidal waters. Energy-related activities include all operations involved in petroleum processing and transfer, among other things. A permit from CRMC is required for both ships and facilities involved in bulk-oil transfers. Some of the standards are located in the program, while others are found in the 1978 Energy Amendments to the Rhode Island Coastal Resources Management Program.⁴

These 1978 amendments further define energy-related activities as including the siting, construction and operation of energy facilities, transportation of petroleum products, vessel to shore transfer, vessel to vessel transfer, and storage of petroleum products.⁵

OTHER STATUTES

GLRI 46-9-2 requires that all vessels operating within Narragansett Bay shall take a licensed pilot on board, and shall be subject to regulations established by the State Pilotage Commission. GLRI 46-9-7 mandates that these regulations shall include, but not be limited to, those necessary to enable the Commission to respond to such emergencies or catastrophic conditions that may occur, whether environmental or otherwise.

Thus, the Commission might respond to a vessel collision or accident in which oil or hazardous wastes were spilled.

GLRI 46-9-2 also provides that every vessel transporting oil within state waters is required to have a state licensed pilot on board, unless the vessel is a common carrier (vessel for hire) and its owner holds a certificate of convenience and necessity from the Division of Public Utilities.

GLRI 23-19.1, the Rhode Island Hazardous Waste Management Act of 1978 may also apply to vessels in some cases. This Act is intended to establish a program of regulation over the storage, transportation, treatment and disposal of hazardous wastes. This disposal applies to land and water, and DEM is the authority mandated to adopt plans, rules and regulations necessary to ensure proper hazardous waste management.

GLRI 23-19.1-10 establishes a permitting system, whereby anyone operating a hazardous waste facility and/or anyone storing, transporting, treating or disposing of any hazardous waste must obtain a permit from DEM.

GOVERNMENT LEVEL: Local
LEAD AGENCY: None
LEAD STATUTE: None

Local authorities have no known jurisdiction over vessel point source pollution.

SUBHEADING SIX: Transport of Dredge Material for Disposal
GOVERNMENT LEVEL: Federal
LEAD AGENCY: United States Army Corps of Engineers
LEAD STATUTE: Marine Protection, Research and Sanctuaries Act of 1972 (MPRSA)

Section 103 of this Act designates the Army Corps of Engineers as the permitting agency for transportation of dredge material for the purpose of dumping it into ocean waters. Dredge material can be a point source if contaminated with heavy metals and/or oil, and although the actual disposal would take place outside the Bay, transport could occur across waters of the Bay.

GOVERNMENT LEVEL: State
LEAD AGENCY: Department of Environmental Management
LEAD STATUTE: General Laws of Rhode Island 46-17.1-1 and 46-17.1-2

This statute is the state counterpart to the federal Marine Protection, Research and Sanctuaries Act. It establishes that the transporting of waste and dredge materials over territorial waters is prohibited without a state permit, and that dumping of

dredge material within territorial waters is also prohibited without a state permit.

The permitting agency is designated as DEM, however, in the case of *Save Our Sound Fisheries Assn. v. Callaway* (387 F.Supp. 292) this section of the General Laws was deemed to be unenforceable and pre-empted by MPRSA.

OTHER AGENCY:

It would appear that CRMC also has jurisdiction over dredge material transporters through Section 300.9(A)(2) of the State of Rhode Island Coastal Resources Management Program, which defines dredged material disposal, in part, as the process of discharging the sediments produced by a dredging operation. "The process of" may be interpreted as including transportation of dredge material.

GOVERNMENT LEVEL: Local

LEAD AGENCY: None

LEAD STATUTE: None

There is no known local regulation of the transport of dredge material for the purpose of disposal.

SUBJECT: Coastal Zone Development

OVERVIEW:

Coastal zone development is a broad term used here to describe activities that occur within the tidal waters of the state (all of Narragansett Bay, from mean high tide seaward to the three mile territorial sea boundary), inland to a distance of two hundred feet.

The activities include, but are not limited to the construction of residential dwellings (homes, hotels), recreational facilities (cabanas, piers, wharves, marinas), sewage disposal facilities, dredging, and industrial facilities (ports, fishing docks, fish processing facilities).

Of course, each activity may be related to some type of point source pollution, discussed in the previous section.

In order to organize the agencies and statutes, this subject is further divided into two subheadings and the relevant government level.

SUBHEADING ONE: Dredging and Dredge Spoil Disposal
GOVERNMENT LEVEL: Federal
LEAD AGENCY: United States Army Corps of Engineers (COE)
LEAD STATUTES: Rivers and Harbors Act of 1899, as amended.
Federal Water Pollution Control Act of 1972
as amended.

The activities of dredging, filling and/or disposing of dredge material is often a necessary part of construction along the coastal zone and in the tidal waters, whether the construction is for recreational, industrial, commercial or residential purposes. Dredging is also a necessary maintenance task for marinas, ports, and navigational channels.

Section 10 of the Rivers and Harbors Act of 1899 requires authorization from the Secretary of the Army, acting through COE, for any excavation, filling, or any alteration, or modification of the course, location, condition, or capacity of any port, harbor, canal, or channel of any navigable water.

Section 404 of the FWPCA expanded COE jurisdiction through the authority to grant permits for discharge of dredge or fill materials into navigable waters, at specified disposal sites.

The regulations for Section 10 and Section 404 permits are found in 33 CFR 322 and 33 CFR 323, respectively.

OTHER AGENCY:

Section 404 of the FWPCA allows EPA to prohibit specification of a particular disposal site when it is determined that

discharge at that location would have unacceptable adverse effects.

GOVERNMENT LEVEL: State
LEAD AGENCY: Coastal Resources Management Council (CRMC)
LEAD STATUTE: General Laws of Rhode Island 46-23

Section 46-23-6(D)(b) authorizes CRMC to issue, modify or deny permits for dredging, filling or any other physical alteration of coastal wetlands and all directly related contiguous areas which are necessary to preserve the integrity of such wetlands.

The rules and regulations of the CRMC for all activities and areas under their jurisdiction are contained in The State of Rhode Island Coastal Resources Management Program as amended.

Section 300.9 of this program contains CRMC's requirements for dredging and dredge materials disposal, which includes obtaining a CRMC permit and DEM water quality certification for these activities. These approvals are in addition to the federal permit required from the Army Corps of Engineers.

OTHER AGENCY:

GLRI 46-6-1 designates DEM as the regulator for the depositing of mud, dirt and other substances in public tidewaters, prescribing where material may be deposited. In addition, GLRI 46-17.1-1 designates DEM as the permitting agency for disposal of dredge material within territorial waters.

The Water Quality Regulations for Water Pollution Control require that DEM give certification prior to discharge of any pollutant (which includes dredge spoil, Section 5).

OTHER STATUTE:

Section 401(a)(1) of the FWPCA mandates that any applicant for a federal permit to conduct any activity which may result in discharge to navigable waters (such as disposing of dredge material) shall provide the permitting authority (in this case, COE) certification from the State (see above), ensuring that such potential discharge will not violate effluent limitations and standards established under Sections 301, 302, 306, and 307 of the FWPCA.

In Rhode Island, DEM is the state agency designated to carry out all purposes of the FWPCA, and is therefore the agency which reviews and certifies dredge spoil disposal applications made to COE.

GOVERNMENT LEVEL:	Local
LEAD AGENCY:	City or Town Councils
LEAD STATUTE:	Code of Ordinances

The City of Warwick is the only City or Town known to have enacted a local law regarding dredge spoil disposal. In this City, Section 8-1.1 of the Warwick Code of Ordinances requires City Council approval in order to dispose of dredge material on land within the City of Warwick.

The Coastal Zone Management Program Development and Approval Regulations are found in 15 CFR 923. They detail specific requirements for State programs, and include procedures for identifying the inland and seaward boundaries (15 CFR 923.30, Subpart D) as well as three possible techniques for control of land and water uses within the Coastal Zone (15 CFR 923.42 - 923.44, Subpart E). Each state program is required to utilize one or a combination of the three techniques provided.

This Act also requires that any applicant for a federal permit to conduct an activity affecting land or water uses in the Coastal Zone of the State, shall provide the permitting agency with certification that the activity complies with the state's approved program.

In addition, every federal agency conducting, supporting and/or undertaking activities or development projects directly affecting the coastal zone, shall conduct or support those activities in a manner consistent with the state's program, to the maximum extent practicable (Sections 307(c)(1), (2), (3)).

The CZMA also mandates that the Secretary shall not approve a states coastal zone management program unless the views of federal agencies principally affected by the program have been adequately considered (Section 307(c)(a)).

Through this statute then, many federal agencies, at different points in time, could become involved, directly or indirectly, in a states coastal zone development.

The United States Fish and Wildlife Service of the Department of the Interior becomes involved in coastal zone development not

only through the CZMA, but also through the Fish and Wildlife Coordination Act. Section Two of this Act states that:

whenever any body of water is proposed or authorized to be impounded, diverted, the channel deepened, or otherwise controlled or modified for any purpose by any department or agency of the United States, or by any public or private agency under federal permit, such department or agency shall consult with the Fish and Wildlife service...with a view to the conservation of wildlife resources....

Thus, the Corps of Engineers in considering construction permits, for example, must consult with the Fish and Wildlife Service.

GOVERNMENT LEVEL: State
LEAD AGENCY: Coastal Resources Management Council
LEAD STATUTE: General Laws of Rhode Island 46-23

CRMC is authorized to formulate plans and programs for the management of coastal resources, identify permitted uses, locations, and protection measures; to formulate standards; and approve, modify, set conditions for or reject any proposal for any development or operation within, above, or beneath the tidal water below the mean high water mark (Section 46-23-6(A)(e) and 46-23-6(B)).

CRMC is also authorized to issue, modify, or deny permits for dredging, filling or any other physical alteration of coastal wetlands and all directly related contiguous areas which are necessary to preserve the integrity of such wetlands, and to grant permits for the use of coastal resources (46-23-6(D)).

Through this authority, CRMC has developed the State of Rhode

Island Coastal Resources Management Program, designating twenty-seven activities regulated under their area of jurisdiction, which consists of tidal waters, and land and water inland to a distance of 200 feet from the shoreline (Section 100.1).

Council assents are required for all activities in these areas, which includes such things as building residential structures, commercial/industrial structures, public recreational structures, the construction and/or operation of sewage treatment facilities or individual sewage disposal systems, energy related activities/structures, upland dredge material disposal, and construction of public roads, bridges, parking lots, railroad lines and airports.

The regulations and standards for these activities are found within the program.

OTHER AGENCIES

DEM is authorized to promulgate standards of water quality (GLRI 46-12-3(g)), which are contained in the Water Quality Regulations for Water Pollution Control.

These regulations become applicable if construction or development activity in the coastal zone might affect water quality. Section 12.1 requires that no person shall discharge any pollutant into the waters of the State without either having obtained approval from DEM, or an RIPDES permit. The definition of pollutants includes solid waste, incinerator residue, garbage,

wrecked or discarded equipment, rock, sand, and cellar dirt among other things (Section 5).

Thus, any construction activity that takes place in the coastal zone where it is likely to affect the quality of the water, or result in a discharge to the water, must be approved by DEM to ensure that water quality is not degraded.

GLRI 46-6-2 designates DEM as the approval authority for building into or over public tidewaters any wharf, pier, bridge, or other structure, or driving any piles into the land under public tidewaters, or filling of any flats.

The Office of Statewide Planning in the Department of Administration is responsible for the preparation, maintenance and implementation of plans for the physical, economic and social development of the State. This agency prepares a State Guide Plan, which deals with land use, physical development and environmental concerns (GLRI 42-11-10).

GLRI 46-23-6(A) requires that all CRMC plans and programs shall be developed around basic standards and criteria, including, among other things, consistency with this State Guide Plan.

According to the State Guide Plan Overview⁶ and the Rhode Island Statewide Planning Program Work Program⁷ the Office of Statewide Planning reviews all permit applications which are submitted to the CRMC, and makes written comments on whether or not the application is consistent with the State Guide Plan, however, it is apparently no longer the case that a review of every application occurs.

The Statewide Planning Program is also responsible for conducting the State's Intergovernmental Review Program process (IRP). This program was established by Presidential Executive Order 12372 in 1982, and replaced what was known as the A-95 procedure.

The IRP mandates federal agencies to utilize state processes for review and coordination of direct federal development, and/or federal financial assistance activities (EO 12372).

Under the State process, SPP receives all proposals that pertain to any federal program or activity listed in the Appendix of State Executive Order 83-11. The Appendix includes several federal programs or activities which relate to Narragansett Bay such as:

- o) applications for federal grants for Coastal Zone Management Administration, construction of wastewater treatment works, water pollution control, water quality management planning;
- o) proposals that would occur within or affect the coastal zone, including areas and activities governed by the CRMC, and proposals that would occur within or affect coastal waters;
- o) licenses or permits for discharge of pollutants to the water, and actions under Section 10 of the Rivers and Harbors Act of 1899, Sections 402 and 404 of the FWPCA, Section 103 of the MPRSA.

The Statewide Planning Program reviews proposed federal activities and proposed activities partially funded by federal agencies, against applicable elements of the State Guide Plan and the Coastal Resources Management Program (and others), and

determines whether or not the proposals are consistent with the CRMC program through consultation with CRMC.⁸

GOVERNMENT LEVEL: Local
LEAD AGENCY: City and Town Councils
LEAD STATUTE: General Laws of Rhode Island 45-24

Through zoning ordinances, local governments are empowered to regulate and restrict the height, number of stories and size of buildings and other structures, the location and use of buildings, structures and land for trade, industry, residence or other purposes, and to prohibit or limit uses of land in areas deemed to be subject to seasonal or periodic flooding (GLRI 45-24-1).

Local zoning ordinances are applicable to all land within a municipality's jurisdiction, including land in the coastal zone, to the mean high tide line.

Land use decisions for the coastal zone are, therefore, determined in part by the City or Town Council's choice of what the best use of the land should be, and the zones that they create to regulate those uses, such as residential districts, waterfront business districts, commercial districts, etc.

In addition, municipalities appoint local building officials to administer the State Building Code, which regulates the types of materials used in construction, among other things (GLRI 23-27.3-107.1 and 23-27.3-107.5).

SUBJECT: Fisheries Resources

OVERVIEW:

In 1953, the Submerged Lands Act gave all coastal states, including Rhode Island, title and ownership to the land and natural resources under and within navigable waters. This state jurisdiction extended from a state's coastline, seaward to a distance of three miles.⁹

The natural resources within this three mile limit, or "territorial sea" include fish, shrimp, oysters, clams, crabs, lobsters, sponges, kelp and other marine animal and plant life.¹⁰

Narragansett Bay is enclosed by an imaginary line drawn from Point Judith to Sakonnet Point, and thus the waters of Narragansett Bay are internal, and all resources within those waters are under the jurisdiction of the state.

In 1976, this jurisdiction was reinforced with regard to fisheries resources by legislation known as the Fisheries Conservation and Management Act (FCMA). Section 306(a) says:

Nothing in this Act shall be construed as extending or diminishing the jurisdiction or authority of any state within its boundaries.

The FCMA went further by specifying that federal involvement in fisheries management within state waters could only occur under three conditions:

- o there must be a council management plan for the fishery (for example, a cod fishery) in question ("council" refers to the New England Fisheries Management Council created by Section 302 of the Act);

- o fishing for that species must be done predominantly beyond the three mile territorial sea;
- o state action or inaction must substantially and adversely effect the management plan.¹¹

In Rhode Island, the conditions allowing federal intervention are expected to occur rarely, if at all, because state management plans for various species are virtually the same as federal plans.¹²

Federal involvement in fisheries management within state waters is further affected by the Fish and Wildlife Coordination Act (P.L. 85-624). This Act requires that any federal or federally permitted agency proposing to modify any body of water (for example, dredge a channel), must consult with the state agency administering control over wildlife resources, and the United States Fish and Wildlife Service. The purpose of this requirement is to ensure conservation during development projects (Section 2(a)).

SUBHEADING:	Fisheries Management
GOVERNMENT LEVEL:	State
LEAD AGENCY:	Marine Fisheries Council (MFC)
LEAD STATUTE:	General Laws of Rhode Island 20-3

The state agency primarily responsible for marine fisheries in Rhode Island is the Marine Fisheries Council (MFC) created by GLRI 20-3. With the exception of the Town of New Shoreham, which manages the resources within the Great Salt Pond, local governments have no authority over fisheries.¹³

The MFC has regulatory jurisdiction over all marine animal species, and has the specific powers and duties to promulgate and adopt rules and regulations governing the following activities:

- o The manner of taking fish, lobsters and shellfish.
- o The legal size limits of fish, lobsters and shellfish to be taken or possessed.
- o The seasons and hours during which fish, lobsters and shellfish may be taken or possessed.
- o The numbers or quantities of fish, lobsters and shellfish which may be taken or possessed.
- o the opening and closing of areas within the coastal waters to the taking of any and all types of fish, lobsters and shellfish (GLRI 20-3-2).

Another power of the MFC is to designate areas of the shore as shellfish management areas for the purpose of enhancing the cultivation and growth of marine species, and managing their harvest (GLRI 20-3-4).

OTHER AGENCIES

In carrying out its responsibilities, MFC interacts with another state agency, DEM's Division of Fish and Wildlife (DFW) which provides the data base for, and recommends regulations to the MFC under GLRI 20-1-1 and 20-1-2.¹⁴ Shellfish Management Areas are designed by the MFC "on the advice and cooperation of the director of environmental management" (GLRI 20-3-4) and the director also "may issue licenses for the taking of fish, shellfish, and lobsters" (GLRI 20-2-1).

DEM's Division of Enforcement is responsible for enforcing the regulations mandated by MFC (20-1-8) while DEM's Division of Water Resources has the power to open and close areas for shell-fishing based on the sanitary condition of the water (GLRI 20-8.1-3)¹⁵.

A third state agency which affects shellfishing in Rhode Island is the Department of Health. Within this Department, the Division of Food and Sanitation is mandated to adopt regulations to assure the sanitary quality of shellfish brought in for sale, and also for the conduct of shellfish businesses (GLRI 21-14-3).¹⁶

A fourth state agency involved in fisheries is the Coastal Resources Management Council (GLRI 46-23). Along with the Chiefs of the Divisions of Enforcement and Fish and Wildlife of DEM, the chairman of CRMC serves in an advisory capacity to the MFC (GLRI 20-3-1).

According to the State of Rhode Island Coastal Resources Management Program, in considering applications, CRMC or any interested party, may raise substantive objections to an application. Substantive objections are defined, in part, by "evidence which demonstrates that the proposed activity or alteration has a potential for significant adverse impacts on...biological communities including shellfish and finfish resources...."(Sections 110.1 and 110.2). Thus, CRMC may play a role in fisheries management through this mechanism.

CRMC is also the permitting agency for aquaculture activities in coastal waters, however, CRMC must notify and consider the recommendations of DEM and MFC in their review of aquaculture permit applications (GLRI 20-10).

Contextual Review Analysis

The major federal agencies involved in management of the Bay are the Environmental Protection Agency, U.S. Coast Guard, U.S. Corps of Engineers, National Oceanic and Atmospheric Administration, and U.S. Fish and Wildlife Service.

The major pieces of federal legislation are the Federal Water Pollution Control Act; the Rivers and Harbors Act; Marine Protection, Research and Sanctuaries Act; Port and Waterways Safety Act; Coastal Zone Management Act; Fish and Wildlife Coordination Act; and the Submerged Lands Act.

One function of federal legislation appears to be that of providing environmental standards which act as minimum requirements on a national level, but which may be made more stringent by each state.

For example, the FWPCA mandates EPA to develop pretreatment regulations and standards, but these regulations allow for states, and even individual treatment facilities, to have stricter limitations.

This function allows states some leeway, in that site-specific environmental considerations can be addressed, while at the same time, a national minimum is in place to ensure that something is done in every state.

Another role of federal legislation is to provide an oversight capability, allowing a federal agency to approve or disapprove regulations that are made by states.

For example, the CZMA provides that NOAA must approve state management plans; the FWPCA requires EPA to review state water

quality standards and approve pretreatment programs.

Presumably, this role allows for the expertise available at the federal level to be utilized at the state level. This also ensures a certain degree of consistency among states, which is important due to the interstate nature of most coastal waters.

An additional role for federal legislation is to provide for the maintenance of certain traditional federal responsibilities, in particular those of navigation and interstate commerce.

For example, the intent of the Rivers and Harbors Act in providing the Corps of Engineers with its responsibilities was to ensure that navigable waters remained free of obstructions that might impair interstate commerce. Over time, Corps responsibility has been expanded to the consideration of environmental concerns as well.¹⁷

The major state agencies involved in the management of the Bay are the Coastal Resources Management Council, Department of Environmental Management, Marine Fisheries Council, and the Office of Statewide Planning.

In most cases, the authorities vested in these agencies are legislated through the General Laws of Rhode Island, and often the authority originated through federal legislation.

For example, the General Laws give DEM authority to establish pretreatment standards, but this authority developed out of federal regulations requiring states to have pretreatment standards in order to obtain approval for state discharge permitting systems.

Thus, state governmental agencies are characterized by having

been delegated power to implement federal statutes. Typically, resulting state statutes resemble federal statutes, in that they are subject specific, for example, governing water pollution, navigation, environmental management, coastal zone management, etcetera.

The major municipal agencies are the City and Town Councils, and although these local bodies possess police power for ensuring public health, safety, and welfare, in most cases the police powers have not been extended to establishing environmental protection regulations.

This study has found only two situations in which localities have established environmental regulations. The first is in the City of Warwick with its ordinance governing disposal of dredge spoil within city limits. The second is local responsibility for establishing pretreatment programs and standards in the absence of the state assuming responsibility, and in this case, local pretreatment programs are required by the Rhode Island state program.

This general absence of local environmental regulation may result from non-delegation of the powers necessary to implement and enforce environmental regulations on a local level by state and/or federal agencies. It may also result from localities not wishing to take authority over environmental activities.

Lack of local regulation may be a constraint for Bay management, since municipalities have a great deal of knowledge regarding effects of site-specific, local alterations to the environment.

Under the subject heading of Point Source Pollution, four overlaps emerge from the inventory. Additional overlaps in jurisdictional authority emerge from each of the case studies, and are discussed in those sections.

The first overlap is with regard to individual sewage disposal systems. Both DEM and CRMC have authority over ISDSs when they are in or are to be in the coastal zone. DEM regulates via the Rules and Regulations Establishing Minimum Standards Relating to Location, Design, Construction and Maintenance of ISDSs. CRMC also regulates location of ISDSs and construction characteristics through Section 300.6 of its program.

Thus, two agencies have authority over ISDSs in the coastal zone, and an applicant desiring to construct or modify an ISDS must get two separate approvals; an ISDS permit from DEM, and a CRMC approval. Further analysis of the implications of this overlap is found in the case study of the Chepiwanoxet development.

The second overlap regards sewage from vessels. In this case, both CRMC and DEM prohibit sewage from vessels (a point source) without disinfection or from non-Coast Guard approved devices.

The third overlap is with regard to oil and hazardous waste from vessels. Once again, the overlap occurs between DEM and CRMC; DEM regulates discharge of oil into waters of the state, transfer of oil from ship to shore and shore to ship, and ballasting of oil carrying vessels through the Oil Pollution Control Rules and Regulations; CRMC regulates all operations

involved in energy-related activities in tidal waters through Section 300.8 of its program.

An informal and undocumented procedure is apparently used by the two agencies to determine which takes the lead in these situations.

The fourth overlap is with regard to the transport of dredge material for disposal. In this case, the overlap is between COE DEM, and CRMC who are all authorized to issue permits for transport of dredge material.

Although the DEM statute has been deemed unenforceable and pre-empted by the federal law, it remains unamended, and may serve to cover any situations that might escape the federal law.

Under the subject heading of Coastal Zone Development, four overlaps emerge from the inventory. Once again, it should be noted that additional overlaps in jurisdictional authority emerge from each of the case studies and are discussed in those sections.

In the first overlap, both COE and CRMC regulate dredging and dredge spoil disposal through dual permitting procedures. An applicant hoping to carry out this activity must obtain both a CRMC permit and a COE permit before commencing a project of this type.

CRMC attempts to coordinate the dual system by designing their requirements such that they complement the Corps', and allowing an applicant to apply for the Corps' permit concurrently with the CRMC application, rather than making it strictly a prerequisite.¹⁸

In the second overlap, both DEM and CRMC regulate dredging and dredge spoil disposal; DEM regulates this activity through the Water Quality Regulations for Water Pollution Control which require certification that activities will not degrade water quality.

DEM is also appointed as the regulator for deposition of substances in tidal waters, and as the permitting agency for dredge spoil disposal within territorial waters through GLRI 46-6-1 and 46-17.1-1.

At the same time, CRMC is authorized through its enabling legislation, GLRI 46-23-6 (D) (b), as having the authority to issue permits for dredging and filling, and its regulations require CRMC permits for dredging and disposal.

Thus, it appears that three agencies have authority for dredging and disposal in Narragansett Bay, COE, DEM, and CRMC. COE authority was given for the purpose of maintaining navigation; DEM for the purpose of maintaining water quality, and CRMC for the purpose of coastal zone management.

Once again, there is apparently an informal agreement between DEM and CRMC regarding their cross jurisdictional permitting authority, however, the statutes stand unamended.

A third overlap under the subject heading of Coastal Zone Development emerging from the inventory regards construction in navigable waters, and essentially this is the same overlap that occurs with dredging. Three agencies, COE, DEM, and CRMC have approval responsibilities for any work in navigable waters.

COE issues permits for construction of wharves and piers through Section 10 of the Rivers and Harbors Act; DEM issues certification that the wharves and piers will not degrade water quality through the Water Quality Regulations, and is authorized as the approval authority for construction of wharves and piers through GLRI 46-6-2; and CRMC is a permitting authority for such construction through GLRI 46-23-6 (D) and its program.

With regard to construction on the shoreline itself, there is a fourth jurisdictional overlap between municipalities who are authorized to zone their land for certain uses under GLRI 45-24, and CRMC which has, through its regulations developed under GLRI 46-23, zoned the same land for certain uses.

The various agencies and respective responsibilities presented in this inventory are diagrammatically represented in matrices following the summary.

Summary

This inventory of jurisdictions, statutes and regulatory powers has provided a framework that has shown two major regulatory thrusts in the existing Bay management structure:

1. statutes and regulations that pertain to water quality of the Bay, and their implications for marine resources, recreational and other Bay activities.
2. statutes and regulations that pertain to development activities as they ultimately impact the quality of the Bay.

The relationship between these two thrusts as they converge in the management of Narragansett Bay are described and analyzed in the case studies to follow.

There are three observations which are germane to any inventory of statutes and jurisdictions. They are:

1. The perception and utility of statutes and regulations have changed from a narrow intent to a more comprehensive viewpoint.

For example, water pollution statutes and regulations were originally developed from a narrow standpoint of health considerations, but have grown to be inclusive of environmental concerns. Coastal zone statutes were initially developed around the idea of the coastal zone as a geographic interface with consideration of such fragile environments as salt marshes and marine wetlands. Now the statutes are rapidly moving towards concern for all and every development in the coastal zone, recognizing the inextricable relationship between land use and the adjacent coastal waters.

2. In the implementation of federal environmental policies and statutes, primary responsibility (ie. permitting) has been delegated to state and local jurisdictions.

The major regulatory control in Bay management remains the permitting system; and, with the exception of navigational controls which remain under the jurisdiction of the federal government, there has been a delegation of powers from the federal to the state level of government. The state has undertaken delegated responsibilities for permitting, and implementation of necessary programmatic actions, of which the permitting system is essential.

3. The inventory has also shown that, by far, standards, regulations and operational permitting are for generic phenomena, ie., problems that are statewide in scope, as opposed to standards, regulations and operational permitting that are for Narragansett Bay specifically.

The following three case studies (Chapter Four) illustrate the effects of the two major jurisdictional and regulatory thrusts of water quality and development activities, as well as the observations made above.

1. Chepiwanoxet Proposal

A case study of a developmental activity as impacted by land-use and water quality regulations.

2. Industrial Pretreatment

A case study of the process of the delegation of powers, the process of intergovernmental review and approval, and the apparent lack of a common strategy for implementation during the two processes.

3. Mount Hope Bay

A case study of differential water quality classifications in two adjacent states as a result of the process of delegation of powers, and the recognition of the state as the ultimate implementor of water quality standards.

POINT SOURCE POLLUTION

PROMULGATION OF REGULATIONS AND STANDARDS FOR

AGENCY	RESPONSIBILITY	Pretreatment	Direct Discharges	Discharge from POTWS	MSD Performance	MSD Design	Oil/Hazardous Waste from Vessels	Water Quality	ISDS	Handling/ Discharge of Explosive/ Dangerous Substances	Design of Vessels
U.S. EPA		▲	▲	▲	▲		▲				
U.S. Coast Guard						▲				▲	▲
R.I. Department of Environmental Management		▲	▲	▲			▲	▲	▲		
R.I. Coastal Resources Management Council							▲		▲		
R.I. State Pilotage Commission							▲				
Publicly Owned Treatment Works		▲									

POINT SOURCE POLLUTION

▼ PERMITTING/▲ OVERSIGHT
AUTHORITY FOR

AGENCY	RESPONSIBILITY	Pre-treatment	Direct Discharge	Discharge from POWS	Discharge to POWS	Transport of Dredge Material	ISDS	Hazardous Waste Disposal
U.S. EPA		▲	▲	▲				
U.S. Army Corps of Engineers						▲		
R.I. Department of Environmental Management		▲	▲	▲		▲	▲	▲
R.I. Coastal Resources Management Council						▲	▲	
Publicly Owned Treatment Works		▲						

POINT SOURCE POLLUTION
ENFORCEMENT OF REGULATIONS
AND STANDARDS FOR

AGENCY	RESPONSIBILITY									
	Pretreatment	Direct Discharges	Discharge from POTWS	MSD Performance	MSD Design	ISDS	Water Quality	Hazardous Waste	Handling/Discharge of Explosive/Dangerous Substances	
U.S. EPA	▲									
U.S. Coast Guard				▲	▲			▲	▲	
R.I. Department of Environmental Management	▲	▲	▲			▲	▲			
Publicly Owned Treatment Works	▲									

COASTAL ZONE DEVELOPMENT

▲ REGULATION/▲ PERMITTING
 ▲ OVERSIGHT AUTHORITY FOR

AGENCY	RESPONSIBILITY	Dredging/Dredge Spoil Disposal	Construction in Coastal Zone	Planning for Coastal Zone
U.S. EPA		▲		
U.S. Army Corps of Engineers		▲	▲	
U.S. Fish and Wildlife Service		▲	▲	
National Oceanic and Atmospheric Administration				▲
R.I. Department of Environmental Management		▲	▲	
R.I. Coastal Resources Management Council		▲	▲	▲
R.I. Office of Statewide Planning				▲
City/Town Councils		▲	▲	▲

WATKINS

FISHERIES RESOURCES

AGENCY	RESPONSIBILITY						
	Regulatory	Designation of Shellfish Management Areas	Enforcement	Licensing	Area Closures Due to Sanitary Conditions	Quality Control	Aquaculture
R.I. Marine Fisheries Council	▶	▶					▶
R.I. Department of Environmental Management			▶	▶	▶		▶
R.I. Department of Health						▶	
R.I. Coastal Resources Management Council							▶

NOTES

1. Stephen Olsen and George Seavey. 1983. State of Rhode Island Coastal Resources Management Plan. (University of Rhode Island Publications Office, Kingston), Section 100.1.
2. Ibid, Section 300.6.
3. The FWPCA, Section 312 (f)(1), mandates that no state may adopt statutes or regulations with regard to the design, manufacture, installation, or use of any marine sanitation device. Section 8.2, therefore, may be the state's way to cover any situations that cannot be handled by federal law.
4. Olsen and Seavey, Section 300.8.
5. United States Department of Commerce. National Oceanic and Atmospheric Administration. 1978. State of Rhode Island Coastal Resources Management Program and Final Environmental Impact Statement. pp. 216-245.
6. Rhode Island Statewide Planning Program. 1984. State Guide Plan Overview. Report Number 48. (Providence, Rhode Island), pg. 01.11.
7. Rhode Island Statewide Planning Program. 1984. Work Program. (Providence, Rhode Island), pp. II-46 - II-47.
8. Ibid, pp. II-35 - II-36.
9. The Submerged Lands Act. Public Law 31-65. Section 3.
10. Ibid, Section 2(e).
11. Francis S. Cameron. 1977. "Implications of the Changes in Fisheries Law for the U.S. Coastal States. In U.S. Coastal Belt: Conflict, Resolution, Promise. Edited by Lewis M. Alexander. (Center for Ocean Management Studies, University of Rhode Island, Kingston, Rhode Island), pg. 54.
12. John Cronin. Department of Environmental Management. Division of Fish and Wildlife. Personal Communication. December 17, 1985.
13. Ibid.
14. Ibid.
15. Ibid.
16. Ibid.

17. United States Army Corps of Engineers. No date. Are You Planning Work in a Waterway or Wetland? (New England Division, Waltham, Massachusetts), pg. 4.
18. Olsen and Seavey, pg. 79.

CHAPTER FOUR

CASE STUDY ANALYSES

As previously mentioned, three topics affecting the Bay were examined via case studies; coastal zone development, point source pollution and interstate jurisdiction.

The purposes of these examinations were to highlight jurisdictional authorities most active in Bay management, locate additional overlaps and/or conflicting authority not captured by the inventory, the communication and/or procedural links between agencies, and conflict resolution processes.

The first topic, that of coastal zone development, was examined via a case study of the development proposal for a condominium/marina complex on Chepiwanoxet Island, Warwick, Rhode Island.

I. TOPIC ONE: COASTAL ZONE DEVELOPMENT

CHEPIWANOXET PROPOSAL ANALYSIS

A. INTRODUCTION

Chepiwanoxet is a peninsula of approximately ten acres which extends from the mainland into Greenwich Bay. The peninsula partially encloses a smaller area of the Bay known as Greenwich Cove.¹

In 1981, the firm of Greenwich Bay Yacht Basin Associates (GBYBA) began an effort to construct a condominium and adjoining marina on the Chepiwanoxet peninsula.² The effort for this development is still underway and is, at the time of this writing, under litigation in the Rhode Island court system.

The issue which is being litigated was raised in October, 1985, when a Coastal Resource Management Council (CRMC) subcommittee began its hearings on the GBYBA application. The subcommittee raised the issue of whether the application would be considered under the 1978 or the 1983 (amended) CRMC program. The issue is critical because, although not certain, it is probable that the applicant's project would not be approved by CRMC under the 1983 program.

In December, 1985, the subcommittee ruled that the 1983 program would apply to the project proposed by GBYBA. The applicants immediately appealed this ruling to the Superior Court. Save The Bay and the Rhode Island Shellfishermen's Association joined as defendants/intervenors in the matter.

On March 11, 1986, Mr. Justice Orton held that the subcommittee should be estopped from applying the 1983 plan to the GBYBA proposal.

In their appeal to the Supreme Court asking for a reversal of Justice Orton's ruling, Save The Bay and the Shellfishermen's Association now contest certain procedural actions and the findings of fact upon which the decision was based. In appellant's brief it is argued that the issue of estoppel was not properly in the pleadings before the Court and was not a proper matter for decision.

Additionally, appellant's argue that certain findings of fact by the Superior Court, leading to its decision, are issues which ought to be litigated.

As this case proceeds to a hearing at the State Supreme Court, the key issues for this case study are the procedures for development, and an evaluation of these procedures to draw out jurisdictional overlaps and regulatory inconsistencies.

In order to carry out the development, GBYBA was required by various laws to obtain approvals/permits from different local, state and federal agencies. The attainment of these approvals/permits is the variable which ultimately determines whether or not, and how, development occurs, and thus is the focal point of this case study.

B. PROCEDURES FOR DEVELOPMENT

Prior to the start of construction, GBYBA needed the following: an individual sewage disposal system permit from the Department of Environmental Management (DEM), a zoning change from the City of Warwick; City approval to dispose of dredge material on land within city limits; water quality certification for the condominium from DEM; water quality certification for the marina from DEM; a Section 10 permit from the Army Corps of Engineers; and a CRMC permit for the entire project (the latter two permits had not been obtained at the time of this writing).

CRMC is the state agency which is charged with the responsibilities of planning and management for the coastal zone, formulating policies and adopting regulations necessary to implement the plans and management programs, and issuing or denying permits for any work in the coastal zone.³

It is the policy of CRMC that all local and state ordinances, regulations and/or statutes must have been complied with prior to consideration by CRMC for approval of an activity.^{4,5}

Therefore, the first step taken by GBYBA was to obtain the necessary approvals from the City of Warwick. Two approvals were necessary in this case; the zoning change, and permission to dispose of dredge material on land. The request for a zoning change triggered an additional set of prerequisites.

According to the City Planning Department, the change of zone was predicated upon formal approval of the individual sewage disposal system (ISDS).⁶ Therefore, GBYBA applied for a permit from DEM's Division of Land Resources.

DEM is charged with establishing minimum standards relating to the location, design, construction and maintenance of all sewage disposal systems.⁷

The Rules and Regulations Establishing Minimum Standards Relating to Location, Design, Construction, and Maintenance of ISDSs allow DEM to schedule a public hearing if the system is designed to receive more than 5,000 gallons per day and substantial objections to the construction are received.⁸

A hearing was convened by DEM, and based on the evidence presented, DEM did grant GBYBA the permit to build the ISDS.⁹ However, the change of zone was also predicated upon the attainment of a water quality certification.^{10,11} For this, GBYBA applied to DEM's Division of Water Resources, which administers the water pollution laws. Authorized by The General Laws of Rhode Island, 46-12-3, the Water Quality Regulations For

Water Pollution Control require state certification that discharges of pollutants will not violate water quality standards.¹²

DEM granted this certification after finding that the condominium would not result in a violation of water quality criteria.¹³

Having obtained both the ISDS permit and water quality certification, GBYBA petitioned the Warwick City Council for the zoning change. At the same time, GBYBA sought approval to dispose of dredge material upon the peninsula, which was required by Section 8-1.1 of the City's Code of Ordinances.

This ordinance requires City Council approval after a public hearing, and in order to save time, the hearing dealt with both the zoning change request and the dredge disposal issues.^{14,15}

At the conclusion of the hearing, GBYBA received both approvals. Their next step was to obtain any necessary state approvals.

Since operation of the marina had the potential to discharge pollutants, its construction was subject to the Water Quality Regulations, Section 15, and therefore a second water quality certification from DEM was needed.

DEM issued the certification, however, it contained several stipulations, the main one being a reduction of the marina from 200 slips to 55 slips.¹⁶

DEM felt the reduction was necessary to ensure that water quality criteria would not be violated.¹⁷ GBYBA sought an appeal from this condition, and a public hearing was held under

42-35-9 of Rhode Island's General Laws, the Water Quality Regulations, and the Administrative Rules of Practice and Procedure for DEM.¹⁸

GBYBA also appealed another, separate DEM decision, which was the denial of variances from two of the ISDS regulations. Both appeals were consolidated into one hearing.¹⁹ After hearing the testimony from both parties, the hearing officer upheld both the 55 slip limit and the denial of variances.²⁰

At this point, GBYBA had obtained the necessary local and state approvals for consideration by CRMC, even though the design of their project had changed. Their next step was to apply for CRMC approval and a permit from the Army Corps of Engineers (COE). Each of these authorities has additional internal procedures necessary for their processing of an application. At the present time, these items have not been granted.

The internal procedures of CRMC involved another Division of DEM, the Division of Air and Hazardous Materials (DAHM). CRMC submitted GBYBA's application to this Division in order to confirm data which indicated that dredge material from the construction was non-hazardous. This data was collected by an independent firm for GBYBA, and CRMC submitted it DAHM under an informal and broad interpretation of the state's Hazardous Waste Management Act (GLRI 23-19.1). This internal procedure has been discontinued in the recent past.²¹

The involvement of COE comes via the Rivers and Harbors Act of 1899. Section 10 of this Act mandates that any work which takes place in navigable waters of the United States requires a

permit from COE. This work includes dredging, and construction of certain structures (such as the concrete float system to be used as docks).²²

COE's internal procedure includes review of the application by other federal agencies. This review is required by federal laws such as the National Environmental Policy Act, the Coastal Zone Management Act, and the Fish and Wildlife Coordination Act.²³ The other federal agencies make recommendations to COE which are considered in the decision of whether or not to issue the Section 10 permit.

At present, the Environmental Protection Agency, National Oceanic and Atmospheric Administration, and Department of the Interior have commented, and each expressed major concerns over the affect of the original 200 slip marina. Their comments indicate however, that the reduction to 55 slips would probably be more acceptable, and they ask to be allowed to comment separately on this new reduced plan.^{24,25,26}

C. EVALUATION

Upon evaluating the procedure undertaken by GBYBA to obtain these approvals/permits, and the events surrounding the processing of their application, inconsistencies within the system appear, which may impede Bay management.

The apparent format of the approval/permitting system where these inconsistencies occur may be described as pyramidal, meaning that approvals/permits for any type of project are obtained in a step-by-step manner until an application reaches

CRMC at the top, or apex, of the pyramid.

CRMC is located at the apex by virtue of its coastal program, in which the prerequisites must be met before CRMC will issue its permit. In all cases where an activity is not prohibited outright by the program, the prerequisites consist of either "proof of certification of compliance with all applicable state and local statutes, ordinances, and regulations" (for a Category A application)²⁷, or "a demonstration that all applicable local zoning ordinances, building codes, flood hazards standards, and all safety codes, fire codes, and environmental requirements have or will be met, and that there will be no significant deterioration in the quality of the water in the immediate vicinity as defined by DEM" (for a Category B application)²⁸.

In addition to these initial requirements, each individual activity may have another, more specific set of prerequisites which vary from one activity to another. For example, prerequisites for construction of a residential structure consist of a local building permit, an ISDS permit, satisfaction of all local zoning ordinances, building codes, flood hazard standards, and state fire codes and environmental requirements;²⁹ prerequisites for filling in tidal waters are water quality certification from DEM and assent from the Army Corps of Engineers.³⁰

Because CRMC requires these prerequisites, the appearance of a coordinated pyramidal system is created, with CRMC acting as an "umbrella" authority which judges each application on its overall, holistic effects to the Bay.

The position of CRMC at the top of the sequence is formally established by its enabling legislation. GLRI 46-23-1 in part reads:

... it shall be the policy of this state that preservation and restoration of ecological systems shall be the primary guiding principle upon which environmental alteration of coastal resources will be measured, judged and regulated That these policies can best be achieved through the creation of a coastal resources management council as the principal mechanism for management of the state's coastal resources (emphasis added).

In addition, 46-23-6 (C) (a) reads:

The Council shall have the following coordinating powers and duties: Functioning as a binding arbitrator in any matter of dispute involving both the resources of the state's coastal region and the interests of two or more municipal or state agencies.

However, the pyramidal format created is not, in practice, a coordinated system, because the steps taken to reach CRMC are not always linked, and there are jurisdictional overlaps and regulatory inconsistencies.

Jurisdictional Overlaps and Regulatory Inconsistencies in the Approval Permitting System.

The first jurisdictional overlap that results in a regulatory inconsistency is between local zoning ordinances and the CRMC zoning plan contained within its program.

Historically, localities have been delegated the police powers of zoning land uses, establishing fire codes, electrical codes, and building codes in order to protect the health and welfare of the people.

Zoning is a police power measure enacted by units of local government under permissive legislation ... zoning regulations establish, in advance of applications for development, groups of permitted uses that vary from district to district.³¹

GLRI 45-24 enables localities to regulate and restrict the height, number of stories and size of buildings and other structures, the location and use of buildings, structures and land for trade, industry, residence or other purposes, and to prohibit or limit uses of land in areas deemed to be subject to seasonal or periodic flooding (emphases added).

Therefore, local governments determine whether a particular parcel of land, such as Chepiwanoxct, is to be used for residential structures, for waterfront businesses, or for any other use of the land. This jurisdiction extends to the mean high water mark where jurisdiction of the state begins.³²

However, CRMC has also zoned the coastal area within its jurisdiction, which includes tidal waters and "all lands and waters directly adjoining shoreline features that extend inland two hundred feet from the inland border of that shoreline feature."³³

CRMC's enabling legislation does not specifically delegate zoning powers to the Council; rather it mandates the Council to plan for and manage the resources of the state's coastal region. The resource management process includes the formulation of plans and programs for the management of each resource, the identification of permitted uses (emphasis added), locations, protection measures and so forth (46-23-6(A)(e)).

Through such broad power, CRMC created its program, which includes a zoning scheme in which the entire coastal zone, extending inland two-hundred feet, is designated with specific uses which may be considered for approval or are prohibited outright.³⁴

Thus, within an area of land along the coast from the mean high water mark to two-hundred feet inland, there are two jurisdictional authorities and two separate zoning schemes governing allowable uses.

In creating the CRMC zoning plan, localities were contacted in order to discuss the zoning, and account for local plans. When the final hearing was held, a majority of towns had endorsed the CRMC program.³⁵

However, localities often amend zoning ordinances to allow a variety of opportunities and a building of the tax base, and not all opportunities for local growth could be foreseen and included in the CRMC program.

Therefore, since local zoning and CRMC zoning were never formally linked, and are not exact replicas of one another, the land in the coastal zone is governed by two authorities, each responsible for determining allowable use. The end result of this situation is that a locality may give permission to an applicant to carry out a land use within the coastal zone that is prohibited by CRMC's zoning plan.

Chepiwanoxet is an example of this result. The City had zoned this area as Waterfront Business. Through an amendment, a portion was zoned Residential District. This deemed both the

marina and condominium appropriate uses according to the City. However, according to CRMC's zone of Type Two, both marinas and residential structures are prohibited outright.³⁶

A dual message is given ... permissibility by the locality versus prohibition by CRMC. The regulatory inconsistency and jurisdictional overlap breaks the pyramidal format of the approval/permit system.

A second jurisdictional overlap and regulatory inconsistency which has been identified as breaking the pyramidal format is within the regulations of two state agencies, DEM and CRMC.

The Water Quality Regulations for Water Pollution Control administered by DEM divide the waters of the Bay into several areas. Each area has been assigned a present and proposed water quality designation of either SA, SB, or SC (Table One).

Each designation has corresponding physical, chemical and biological standards as well as corresponding uses which are suitable for those areas and water quality (Tables Two and Three).

DEM is responsible for ensuring that no discharges are placed into waters of the state that would cause the physical, chemical, or biological standards to be violated. This enables the water quality to remain suitable for the uses named.^{37,38}

In order to ensure that a proposed activity will not result in a discharge that would violate existing standards, DEM reviews all projects that may affect water quality. If it is determined from this review that criteria will not be violated, DEM issues a

TABLE ONE
NARRAGANSETT BAY DRAINAGE BASIN
And Other Sea Waters

<u>Section</u>	<u>Present Water Quality Conditions</u>	<u>Classification</u>
Outer Apponaug Cove and northwest of a line from Cedar Tree Point to end of Neptune Ave. on the west shore	SB	SB
Warwick Cove north of a line from boat ramp at Oakland Beach to rock abutment of abandoned railroad trestle on east shore	SB	SB
Greenwich Cove south of Long Point	SC	SC
Greenwich Cove north of Long Point and west of a line from the northerly point of Long Point to the southerly point of Chepianoxet Island	SB	SB
Potter Cove at Prudence Island	SB	SB
The waters in the vicinity of East Ferry west of a line from Bryer Point to a point approximately 1500 feet south of Narragansett Ave. (61 acres)	SB	SB
West Passage off Jamestown in the vicinity of West Ferry, south and east of a line from the Rhode Island Department of Health range marker located at the western end of Watson Avenue to Dutch Island Light House and north and east of a line from the southwest corner of the Old Ferry dock to the northeast extremity of Dutch Island	SB	SB
The waters within 500 feet of the firing pier of the U.S. Navy Torpedo Testing Station, Gould Island	SB	SA
The waters in the vicinity of the outfall from boat building facilities at Arnold Point, East Passage	SC	SC
The waters in the vicinity of the United States Fuel Station at Melville, East Passage	SC	SC
The waters in the vicinity of Taylor Point which are within 300 feet of Jamestown marine outfall sewer (7 acres)	SC	SC
The waters in the vicinity of Taylor Point, exclusive of those waters described above, south of a line from the northernmost extremity of Taylor Point to can buoy 13, north of a line from a point of land approximately 1000 feet		

TABLE TWO

6.33 Class-Specific Criteria - Sea Waters

<u>Criterion</u>	<u>Class</u>	
	<u>SA</u>	<u>SB</u>
Dissolved oxygen	Not less than 6.0 mg/l at any time.	Not less than 5.0 mg/l at any time.
Sludge deposits-solid refuse-floating solids-oils-grease-scum	None allowable	None allowable
Color and turbidity	None in such concentrations that would impair any usages specifically assigned to this Class.	None in such concentrations that would impair any usages specifically assigned to this Class.
Coliform bacteria per 100 ml	Not to exceed a median MPN of 70 and not more than 10% of the samples shall ordinarily exceed an MPN of 230 for a 5-tube decimal dilution or 330 for a 3-tube decimal dilution.	Not to exceed a median value of 700, and not more than 10% of the samples shall exceed a value of 2300.
Fecal coliform bacteria/100 ml	Not to exceed a median value of 15 and not more than 10% of the samples shall exceed a value of 50.*	Not to exceed a median value of 50, and not more than 10% of the samples shall exceed a value of 500.*

Class SC

Not less than 5 mg/l during at least 16 hours of any 24-hour period not less than 4 mg/l at any time.

None except that amount that may result from the discharge from a waste treatment facility providing appropriate treatment.

None in such concentrations that would impair any usages specifically assigned to this Class.

None in such concentrations that would impair any usages specifically assigned to this Class.

TABLE THREE

6.22 Sea Water -

- Class SA - bathing and contact recreation
 - shellfish harvesting for direct human consumption
 - fish and wildlife habitat
- Class SB - shellfish harvesting for human consumption after depuration
 - bathing, other primary contact recreational activities
 - fish and wildlife habitat
- Class SC - boating, other secondary contact recreational activities
 - fish and wildlife habitat
 - industrial cooling
 - good aesthetic value

water quality certification for the activity.³⁹

This certification is one step in the apparent pyramidal approval/permitting system for any activities in the coastal zone which have the potential of resulting in a discharge to the water.

The State of Rhode Island Coastal Resources Management Program administered by CRMC also divides the waters of the Bay into several areas, each being designated as a Type 1,2,3,4,5, or 6. In this case, there are no corresponding physical, chemical or biological criteria describing water quality, however there are twenty-seven uses which have been determined to be either not suitable and therefore prohibited (P); potentially suitable and therefore considered under a Category A or B assent (A,B) or not applicable (NA) for each type water. These uses can be seen in Table Four, and an example of how CRMC has divided the Bay can be seen in Diagram One.⁴⁰

Generally, CRMC will not consider a permit application if the activity is to occur in a prohibited area (although an applicant may attempt to receive a permit through a special exception procedure for prohibited activities under Section 130 of the Program).

CRMC will consider issuing a permit for an activity if it is allowed through a Category A or B assent. In considering whether or not to grant the permit, CRMC takes into account certain prerequisite approvals/permits, one of which is often water quality certification or some other demonstration that water quality will not be violated.⁴¹

TABLE FOUR

Type 3 Waters

	Tidal Waters	Beaches and Dunes	Undeveloped Barrier Beaches	Moderately Developed Barrier Beaches	Developed Barrier Beaches	Coastal Wetlands	Cliffs, Bluffs, and Banks	Rocky Shores	Manmade Shorelines	Areas of Historic/Archaeological Significance
Filling, Removal, and Grading of Shoreline Features	NA	B	P	A'	A'	P	P	B	A'	B
Residential Structures	P	P	P	P	A	P	P	P	A	B
Commercial/Industrial Structures	B	B	P	P	B	P	B	B	B	B
Public Recreational Structures	B	B	P	B	B	P	B	B	B	B
Recreational Mooring Areas	B	NA	NA	NA	NA	NA	NA	NA	NA	NA
Marinas	B	B	P	B	B	P	B	B	B	B
Launching Ramps*	B	B	P	B	B	P	B	B	B	B
Residential Docks,* Piers,* and Floats	A	A	P	A	A	A	A	A	A	B
Mooring of Houseboats	B	NA	NA	NA	NA	P	NA	NA	NA	NA
Mooring of Floating Businesses	P	NA	NA	NA	NA	P	NA	NA	NA	NA
Municipal Sewage Treatment Facilities	P	P	P	P	B	P	P	B	B	B
Individual Sewage Disposal Systems	P	P	P	P	A	P	P	P	B	B
Point Discharges — Runoff	A	A	A	A	A	A	A	A	A	A
Point Discharges — Other	B	B	P	B	B	P	P	P	B	B
Non-Structural Shoreline Protection	A	A	A	A	A	A	A	A	A	A
Structural Shoreline Protection Facilities	B	B	P	P	B	P	B	B	B	B
Energy-related Activities/Structures	B	P	P	P	B	P	B	B	B	B
Dredging — Improvement	B	NA	NA	NA	NA	P	NA	NA	NA	NA
Dredging — Maintenance	A	NA	NA	NA	NA	P	NA	NA	NA	NA
Open-Water Dredged Material Disposal	B	NA	NA	NA	NA	P	NA	NA	NA	NA
Upland Dredged Material Disposal	NA	B	B	B	B	P	B	B	B	B
Beach Nourishment	B	B	B	B	B	P	NA	NA	NA	B
Filling in Tidal Waters	B	NA	NA	NA	NA	P	NA	NA	NA	NA
Aquaculture	B	NA	NA	NA	NA	P	NA	NA	NA	NA
Mosquito Control Ditching	A	NA	NA	NA	NA	A	NA	NA	NA	B
Mining	P	P	P	P	P	P	P	P	P	P
Construction of Public Roads, Bridges, Parking Lots, Railroad Lines, Airports	B	P	P	P	B	P	B	B	B	B

The water quality certification prerequisite coordinates the DEM and CRMC procedurally, but this does not eliminate a basic inconsistency which breaks down the pyramidal format.

The following four examples demonstrate the inconsistency:

Greenwich Cove south of Long Point, has been assigned a class of SC by DEM. This same body of water has been assigned to Type 1 - Conservation Area by CRMC (Diagram One and Diagram One Overlay).⁴²

According to the CRMC designation, commercial/industrial structures, public recreational structures, marinas, launching ramps, residential docks and piers, point discharges and other uses are prohibited in the tidal waters of this area.⁴³

According to DEM's SC designation, the water quality in this area is the lowest quality allowable. Thus, in some cases DEM might easily be able to certify many of the activities that are prohibited by CRMC. As long as the point discharge, structure, marina etc., would not violate the physical, chemical, or biological standards, which are lower than the other two categories, DEM could be in a position of approving an activity that another state agency disapproves.

In addition, DEM's standards for SC are what is necessary to maintain a water quality suitable for boating, and yet CRMC's designation for this area, while not prohibiting boating per se, does prohibit supporting uses for and resulting from the activity of boating (public recreational structures, marinas, launching ramps, docks, piers, and point discharges). Thus, one agency, DEM, appears to be implying that boating is a suitable use; while

another, CRMC, seems to be limiting this use to a degree.

In a second example, the same inconsistency arises: Wickford Cove is assigned a class of SC by DEM, while CRMC divides the Cove into three different Types, one of which is a Type 1 - Conservation Area (Diagram Two and Diagram Two Overlay).⁴⁴

Once again, DEM may be able to certify many activities that the Type 1 designation prohibits; and their designations imply acceptability of an activity by one agency, with limitations of the same activity by another agency.

In a third example, outer Apponaug Cove is assigned a class of SB by DEM, and designated Type 3 - High Intensity Boating by CRMC (Diagram One and Diagram One Overlay).⁴⁵

In this area, the CRMC designation allows the Council to consider marinas, point discharges and industrial/commercial structures, and yet it seems likely that DEM would often be denying certification for those proposed uses, because DEM's standards for class SB are what is necessary in order to maintain water quality suitable for bathing (among other things). The activities allowed by CRMC's High-intensity Boating Type are incompatible with and very likely to infringe upon SB uses, even if they would not degrade water quality per se.

In a fourth example, an area of Narragansett Bay in the vicinity of Quonset Point has been assigned a class of SB by DEM, and Type 6 - Industrial Waterfront and Commercial Navigation Channels by CRMC (Diagram Two and Diagram Two Overlay).⁴⁶

Once again, it would seem likely that DEM, under the current classification, would often be denying certification for the

proposed uses considered appropriate by CRMC (municipal sewage treatment facilities, point discharges, marinas, dredging).

DEM's standards are those necessary to maintain water quality suitable for bathing (among other things), and yet CRMC's designation of the area as Industrial Waterfront and Commercial Navigation Channels allows many uses that are incompatible with and very likely to infringe upon the SB uses, even if those uses would not degrade water quality per se.

The effect of having two schemes governing water use is, once again, that a dual message is given ... permission by one state agency versus prohibition by another state agency. In addition, the two schemes have resulted in incompatible and conflicting uses being designated for some areas within the Bay.

This is another inconsistency in the approval/permitting system and overlap in authority which breaks down the pyramidal format.

A third jurisdictional overlap and regulatory inconsistency is between construction standards and replacement cost calculations required by local and state building codes, and those required by CRMC.

This issue has been raised with regard to the extent of repairs and alterations required on buildings uses in the coastal zone.

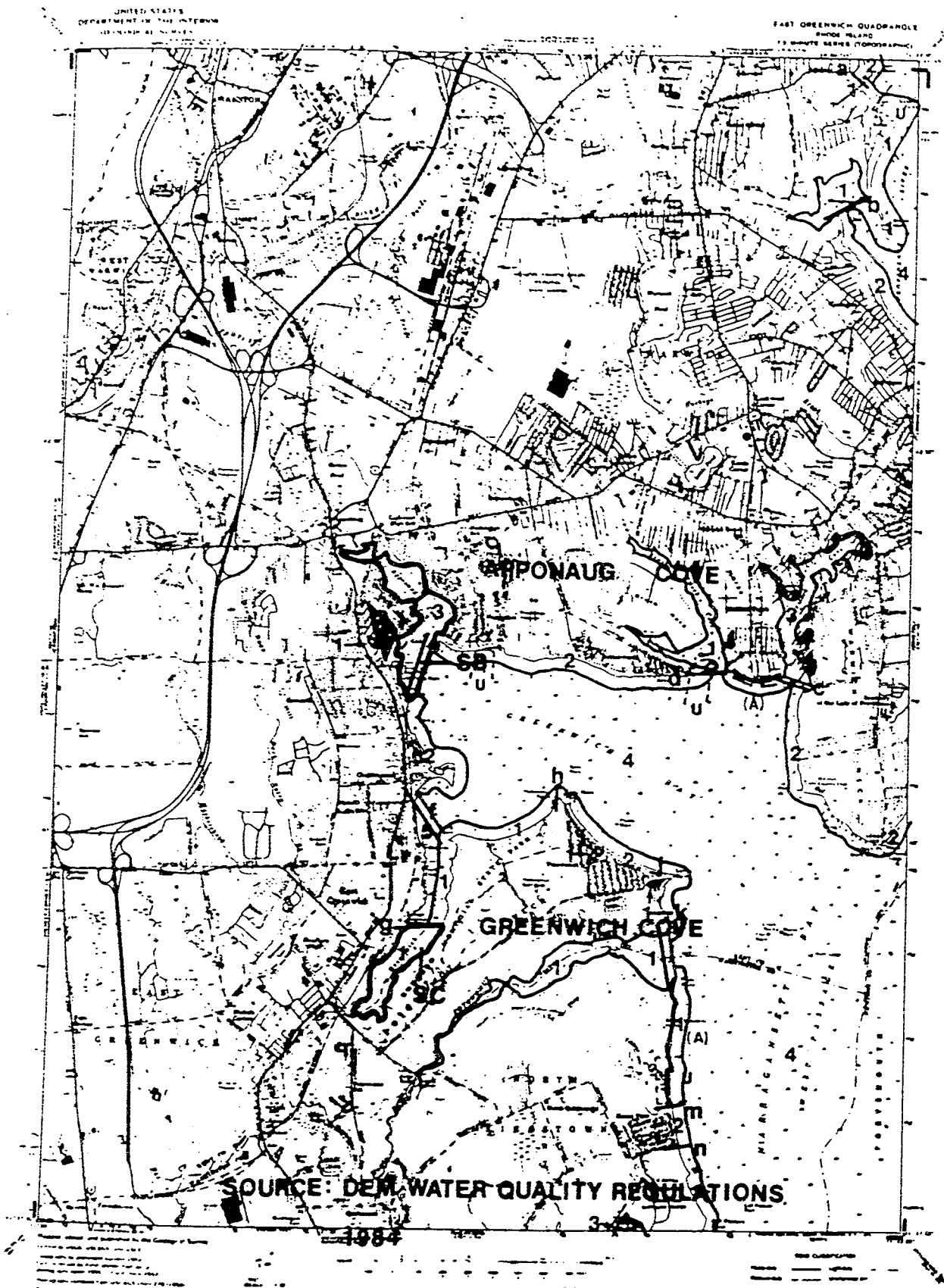
Under the state's building code, repairs and alterations are normally permitted on existing buildings when such repairs and alterations are less than fifty percent of the replacement value.

However, CRMC rules stipulate that "any substantial improvements" on existing structures require CRMC jurisdictional proceedings of review and approval,⁴⁷ and CRMC would claim that fifty percent is substantial improvement.

In this case, the overlap in jurisdiction emerges when an improvement is judged to be substantial, requiring a de novo review by the Building Code administration, CRMC, and additionally, the federal flood insurance program.

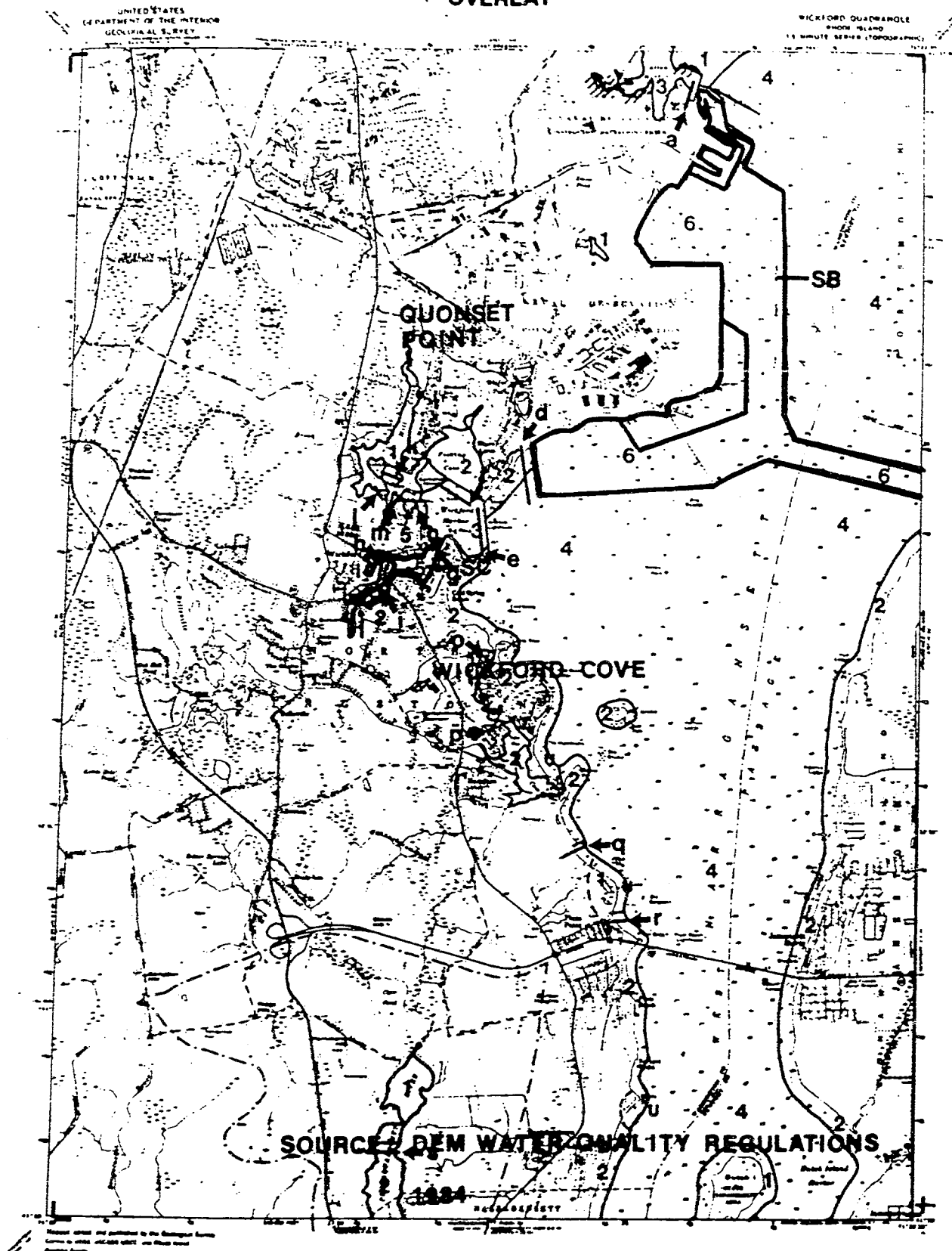
This issue is now being addressed by corrective legislation that is currently being drafted as an amendment to the State Building Code. The amendment will not only reflect the CRMC regulation, and the State Building Code, but the Federal Emergency Management Agency's flood insurance program as well.

DIAGRAM ONE + OVERLAY



SOURCE: CRMC PROGRAM 1983

DIAGRAM TWO + OVERLAY



SOURCE: CRMC PROGRAM 1983

D. SUMMARY

Regulatory inconsistencies and jurisdictional overlaps are found within the approval/permitting system that determines whether or not development will occur in the coastal zone on a case-by-case basis:

- o Two governmental authorities, municipalities and CRMC, regulate land use in the coastal zone between the mean high tide line and 200 feet inland via two zoning schemes. In some cases, the zoning schemes may be inconsistent with each other, the result being that two governmental authorities pose conflicting messages as to whether a land use is allowed or prohibited.
- o Two governmental authorities, DEM and CRMC, regulate water use in Narragansett Bay via water quality classification and use classification schemes respectively. In some cases, the two schemes are inconsistent with each other. One result is that conflicting messages are given as to whether a water use is allowed or prohibited; another result is that uses which are totally incompatible with one another may both be designated as appropriate for a specific area of the Bay.
- o Two sets of construction materials standards, and two different replacement cost calculation methodologies are required, one by local and state building codes, and one by CRMC. In some cases, a building inspector may be expected to apply two different standards to the same construction, and the extent of rehabilitation of damaged structures in the coastal zone may be a basis for inter-jurisdictional conflict.

These inconsistencies are, in part, an extension of the differing bases for each agency's existence and authority. For example:

- o the basis for local zoning of land use is that this is a police power necessary for the protection of public health, safety and welfare, as well as necessary for balanced community growth.

- o the basis for CRMC zoning of land and water use is that existing and expected land and water uses were already in place prior to CRMC's existence. In order to accomodate these uses and, at the same time, protect the environment of the Bay, a method of regulating future activities was needed, and thus CRMC's zoning was developed.
- o the basis for DEM's water quality classification is to maintain existing quality and, where possible, upgrade the quality in order to achieve the goals of the Federal Water Pollution Control Act.

It should be noted that the CRMC program with its zoning model approach to management provided a mechanism to meet the management issues present at that time. Some of these issues were, and continue to be:

- o The extraordinary number of cases before CRMC requiring deliberative decisions, and the need for an administrative approval process to resolve certain matters without deliberation and public hearings.
- o The need to provide direction for potential developers.
- o The need for a program which included a plan for environmental concerns, and was more comprehensive than a system based on individual cases.

However, the existing approval/permitting system described in the preceeding pages may not always provide the expected outcome of a CRMC judgement that is comprehensive and holistic.

Prerequisite approvals/permits serve to increasingly legitimize an activity; in other words, after an applicant receives one permit, then another, even if changes are made to the proposal in order to obtain a specific permit, the applicant has "passed" each test.

Thus, by the time the application reaches CRMC with all tests having been passed, CRMC is actually restricted in its considerations. The CRMC lists few standards for most activities under its jurisdiction other than meeting the prerequisites and conforming to its zoning model, and thus they have almost nothing left with which to judge the proposal. Holistic questions such as the degree of incremental impacts, and potential long-term effects on the Bay of each approved activity cannot be addressed.

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28. Ibid, pg. 66.
29. Ibid, pp. 68-69.
30. Ibid, pg. 81.
31. John W. Reps. 1964. Pomeroy Memorial Lecture: Requiem for Zoning. Planning (selected papers from ASPO National Planning Conference, Boston, MA., April 5-9), pgs. 59-60.
32. State jurisdiction seaward of mean high tide is based in common law.
33. Olsen and Seavey, pg. 20.

34. Ibid, pgs. 23-28.
35. Stephen Olsen, personal communication, 4/15/86.
36. In the Chepiwanoxet case, the City of Warwick approved the GBYBA proposal and amended its zoning to allow the residential portion of the project. Thus, a section of the property was zoned as a residential district, and the rest remained waterfront business, allowing the marina portion of the project.
- At the time of local approval, CRMC's plan had zoned this part of the coast Type 4, which designated marinas as a permitted use. Thus, prior to 1983, the two schemes for this specific area of the Bay were consistent.
- However, in 1983, CRMC amended its plan, rezoning Chepiwanoxet as Type 2, which prohibits marinas and residential structures. Whether the original or amended version of the plan is applied to the Chepiwanoxet proposal is presently being litigated.
- These events show that, even though localities were negotiated with in creating the 1983 plan (see note 11 above), not all instances of conflict could be foreseen, and in fact an inconsistency was actually created where there had not been one before.
- Furthermore, even if the courts determine that the original CRMC plan is applied in the Chepiwanoxet case, this does not rule out comparable inconsistencies arising in other parts of the Bay.
37. Department of Environmental Management, Division of Water Resources. 1984. Water Quality Regulations for Water Pollution Control. Sections 6.1, 6.3, 7.1 on pgs. 9, 11, and 20 respectively.
38. Although portions of the Bay are presently zoned SD, this classification is not considered as an acceptable goal for classification of any water, and the regulations do not designate any suitable uses for this class. (Section 6.5, Water Quality Regulations for Water Pollution Control).
39. Department of Environmental Management, Office of Environmental Coordination. 1984. Guide to Environmental Permits. pg. 24., and Water Quality Regulations, Section 15(a).
40. Olsen and Seavey, pgs. 22-28, 109.
41. Ibid, pgs. 21, 66, 88.
42. Olsen and Seavy, pg. 109, and Water Quality Regulations, pg. 17.
43. Olsen and Seavey, pg. 23.

44. Olsen and Seavey, pg. 107, and Water Quality Regulations, pg. 19.
45. Olsen and Seavy, pg. 109, and Water Quality Regulations, pg. 17.
46. Olsen and Seavey, pg. 107, and Water Quality Regulations, pg. 19.
47. Olsen and Seavey, Section 300.3(D)(4)(d), pg.70.

TOPIC TWO: POINT SOURCE POLLUTION
INDUSTRIAL PRETREATMENT

A. INTRODUCTION

When the Federal Water Pollution Control Act (FWPCA) was enacted in 1972, major changes were made in the nation's water pollution control strategy. This new legislation was very extensive, and named the Environmental Protection Agency (EPA) as the federal agency which was to carry out the mandates of the Act.¹

Various sections relate to a process known as pretreatment, the actions taken by an industry to remove pollutants from waste streams prior to discharge into either receiving water directly, or a publicly owned treatment work (POTW) which subsequently discharges into receiving water.

Without pretreatment, direct and indirect industrial discharges are a point source of pollution; even if discharge is made indirectly to a POTW, pollutants can harm the physical and/or biological workings of the facility such that the pollutants pass through into the receiving water body.

The FWPCA mandated EPA to set standards of pretreatment for pollutants introduced to POTWs.² Some of these standards are specifically directed at electroplating and metal finishing industrial discharges. The promulgation and enforcement of these electroplating and metal finishing standards is an important component in the management of Narragansett Bay due to the large

number of Rhode Island firms which discharge into the Bay directly, or via POTWs.

Section 301 (a) of the FWPCA makes it unlawful to discharge any pollutants into the navigable waters of the United States, unless that discharge is in compliance with the regulations and standards set forth under several other sections of the Act. The other sections of importance to this study are 307, the regulations for pretreatment standards, and 402, the regulations for the National Pollution Discharge Elimination System (NPDES).

Section 307 requires EPA to promulgate regulations establishing pretreatment standards. These standards limit the quantity and type of pollutants leaving an industry and entering POTWs.

Section 402 discusses the NPDES program which enables EPA to issue permits allowing a particular discharge, as long as the discharge complies with the regulations and standards developed under the other sections of the Act. Section 402 also sets forth the rules whereby a state may take over the issuing of NPDES permits.

The actual promulgation of the pretreatment standards and regulations has been a long and complicated process.

B. THE HISTORY OF PRETREATMENT

The FWPCA required EPA to establish the pretreatment regulations and standards within one-hundred and eighty days after its enactment.³ However, EPA was unable to do this, and as a result, EPA was sued by several environmental groups in 1976.⁴

The result of this suit was a "Settlement Agreement" (June, 1976) in which a revised schedule was set forth, establishing new dates for EPA to promulgate regulations and standards for pretreatment, as well as toxic pollutants.⁵

On July 12, 1977, EPA published interim effluent guidelines and standards specifically for those industries in the electroplating business, but these were suspended on May 14, 1979.⁶

In December of 1977, EPA had prepared a report which examined the economic results of their proposed pretreatment standards for the electroplating point source category. This report was of concern to Rhode Island, because this category included those industries involved in metal finishing; both electroplating and metal finishing are important businesses in the state.⁷

The report, entitled Economic Analysis of Proposed Pretreatment Standards for Existing Sources of the Electroplating Point Source Category, described the universe of metalfinishing firms as composed of three sectors:

Job Shops - Independent, small operations that typically plate with copper, nickel, chromium, and zinc;

Printed Board Manufacturers - Independent producers of wire or circuit boards whose products involve copper and electroless plating;

Captive Operations - Production centers, found within manufacturing firms, that provide finishing services to the products of the parent company.

The results of this study were that compliance with the proposed pretreatment standards could impact 20% of all independent establishments and one percent of captive operations.

It was determined that closures were possible in 20% of the job shops, and 14% of the printed board manufacturers. No closures were predicted for captive operations, although it was estimated that 1% might divest the operation and purchase finishing from job shops. Overall, 19% of the independent operations, and 7% of all operations might close as a result of pretreatment standards.

Other results from imposing pretreatment standards were an estimated rise in price from job shops of 5%, and 4% from printed board manufacturers, as well as 19% unemployment in the job shop sector, and 13% unemployment in the printed board makers sector.⁸

EPA's next action was to promulgate general pretreatment regulations (as opposed to specific electroplating pretreatment regulations) on June 26, 1978. EPA also promulgated new electroplating/metal finishing standards in September of 1979. Portions of the general regulations were, once again, challenged in court.^{9,10}

While EPA was attempting to finalize the regulations and standards, the State of Rhode Island was investigating the most efficient method of controlling the development and operation of sewage treatment plants. This investigation was carried out by the Sewage Facilities Task Force, created by Governor Garrahy in 1979.

The task force recommended that a state/regional sewer authority be created to serve the City of Providence. This authority would, among other things, administer an industrial pretreatment program.¹¹

The Rhode Island General Assembly developed the Narragansett Bay Water Quality Management District Commission (NBC) in 1980.¹² This Commission is charged with the acquisition, planning, operation and maintenance of publicly owned sewage treatment facilities in their District (Providence and portions of Cranston, Johnston, North Providence, and Lincoln, which had been served by the City of Providence sewage treatment system).¹³

The interaction between EPA and NBC began in 1980, when the newly created NBC, along with other Rhode Island facilities, was notified that it was to begin implementing the national pretreatment program, even though the general regulations had yet to be finalized.¹⁴

On January 28, 1981, EPA issued amended versions of the general pretreatment regulations. However, while these amended regulations standards remained in effect, EPA announced that their effective

date was indefinitely postponed, because EPA was required to conduct a Regulatory Impact Analysis.¹⁵

In October of 1981, EPA announced an end to this postponement, establishing a new effective date for the general pretreatment regulations of December 12, 1982. This effective date, however, was changed by the U.S. Circuit Court of Appeals. The Court ordered in July of 1982, that EPA was to establish, retroactively, March 30, 1981 as the effective date of all general pretreatment regulations.¹⁶

Meanwhile, in Rhode Island, NBC had started to carry out its responsibilities, acquiring the City of Providence's Field's Point Wastewater Treatment Facility in May, 1982. At this time they also acquired the facility's National Pollution Discharge Elimination System (NPDES) permit.¹⁷ This permit had been issued by EPA under Section 402 of the FWPCA, and allowed the facility to discharge into the Bay, providing that the discharge complied with certain conditions.

However, prior to its takeover by NBC, discharges from Field's Point had violated the conditions of its NPDES permit in 1979 and in 1981. The City of Providence had been issued Administrative Orders from EPA notifying the City of the violations, one of which was a violation of the pretreatment program schedule.¹⁸

Since the City had never met the requirements of these Administrative Orders, Field's Point remained in violation of its NPDES permit at the time NBC acquired the facility.

EPA issued a new Order to NBC on July 22, 1982, directing it to submit a report on the development of a pretreatment program by

August of 1982, and to submit a program for review by EPA and the State's Department of Environmental Management (DEM) by October 31, 1982.¹⁹

NBC pursued a contract with a consultant, Charles Krasnoff and Associates, Inc., in order to comply with this new Administrative Order.²⁰

In October, 1982, Krasnoff, Inc. submitted a report to NBC which contained an industrial wastewater pretreatment program, including numerical limitations on the discharge of nine toxic substances which were to act as pretreatment standards for firms in the District.²¹

During this time, EPA continued to amend the regulations and standards for pretreatment. The present version of the general regulations was issued on January 21, 1983,²² and the present version of the electroplating standards was issued on July 15, 1983 (these regulations separated metal finishers from electroplaters, 40 CFR 433, and 40 CFR 413 respectively).²³

On March 29, 1984, NBC submitted its program to EPA for approval, which was granted the following September.²⁴ NBC is now in the implementation phase of their program, which presently utilizes the EPA electroplating and metal finishing standards issued in July of 1983. These EPA standards will be in effect until July of 1987, when industries will be required to meet NBC's more stringent standards, which were established by the Krasnoff report.^{25,26}

C. FEDERAL VS. LOCAL REQUIREMENTS

The FWPCA mandate to EPA for promulgating pretreatment standards has been carried out through the General Pretreatment Regulations, published in 40 CFR 403. These regulations established two classes of discharge standards, "prohibited discharges" and "categorical standards".

Prohibited discharges apply on a national level to all effluents which will enter a POTW, and are identified in 40 CFR 403.5.

Categorical standards apply on a national level to specific industrial subcategories which discharge into POTWs. These standards are published in separate parts of the same title in the Code of Federal Regulations. For example, the standards which apply to electroplating and metal finishing sources are published in 40 CFR 413 and 433 respectively.

The NBC pretreatment program contains regulations and standards which are similar to federal regulations and standards in two ways. First, the federal prohibited discharges (40 CFR 403.5) are included in the NBC's discharge limitations. Also, NBC is presently using EPA's electroplating and metal finishing categorical standards for eight heavy metals, cyanide and total toxic organics. The dates for meeting these standards were 6/30/84 and 2/15/86 for electroplaters and metalfinishers respectively. On 7/1/87, standards adopted by NBC will become effective. 27

For the most part, the NBC regulations and standards are stricter and more detailed than the federal counterparts. This is allowed by Section 307 (b) (4) of the FWPCA which reads:

Nothing in this subsection shall affect any pretreatment requirement established by any

state or local law not in conflict with any pretreatment standard established under this subsection.

and through EPA's General Pretreatment Standards, 40 CFR 403.4, which reads:

Nothing in this regulation is intended to affect any pretreatment requirements, including any standards or prohibitions, established by state or local law, as long as the state or local requirements are not less stringent than any set forth in National Pretreatment Standards.

The following describes where the NBC regulations and standards depart from those produced by EPA.

Prohibited Discharges

The federal regulations establish pollutants which are entirely prohibited from being discharged into POTWs. These pollutants are, for the most part, described qualitatively rather than quantitatively:

The following pollutants shall not be introduced into a POTW: Pollutants which create a fire or explosion hazard in the POTW; pollutants which will cause corrosive structural damage to the POTW, but in no case discharges with a pH lower than 5.0; solid or viscous pollutants in amounts which will cause obstruction to the flow in the POTW; any pollutant...released...at a flow rate and/or...concentration which will cause interference; heat in amounts which will cause interference; heat in amounts which will inhibit biological activity...but in no case heat in such quantities that the temperature at the POTW exceeds 40°C (104°F)....²⁸

The NBC regulations include these same limitations

in Article 5.4:

No person shall discharge . . . any . . . wastewater which has a temperature higher than 104°F, any . . . liquids, solids or gases . . . which are sufficient . . . to cause fire or explosion, a pH lower than 5.0, or substances that would cause obstruction to the flow.

However, this article continues with several more specific prohibitions which include, among others, toxic or non-toxic gases in sufficient quantity to interfere with the treatment process (Article 5.4B), water or waste which would emit chemical contaminants into the atmosphere in a confined area of the treatment plant (Article 5.4C), wastewater with a pH higher than 10 (Article 5.4E), more than 25 mg/l of petroleum and other oils (Article 5.4F), and garbage that has not been properly shredded (Article 5.4H).

In addition, Article 5.2 describes five other categories prohibited from being discharged into the treatment facility. These are groundwater and storm water, gasolines, septage, slugs, and sludges resulting from industrial or pretreatment processes.

NBC regulations are not only more detailed, but they are also more quantitative. For instance, in regard to those pollutants which might cause an explosive hazard, the NBC rules add:

At no time shall two successive readings on any explosive hazard meter . . . be more than 5% . . . nor any single reading be over 10% of the Lower Explosive Limit of the meter (Article 5.4D).

In regard to the emission of chemical contaminants into the atmosphere, emissions must not exceed the Threshold Limit Value established by the American Conference of Governmental Industrial Hygienists . . . (Article 5.4C).

Other quantitative measures limit the suspended solids concentration of wastewater at 268 mg/l (Article 5.4J) and the BOD concentrations at 217 mg/l (Article 5.4L).

Thus, NBC's prohibited discharges are more stringent both in their specificity of waste types, as well as by the incorporation of quantitative limitations.

Categorical Standards

The federal regulations establish that pretreatment standards for pollutants discharged to a POTW by specific industries will be published separately for each industry.²⁹ The standards for electroplaters are located in 40 CFR 413, while those for metal finishers are in 40 CFR 433.

These two regulations contain specific numerical limitations on the amount of heavy metals, cyanide and toxic organics which may be discharged in the wastestream from an industrial facility.

These same limitations are included in Article 5.4N of the NBC rules, to be effective until 7/1/87 when all users must comply with the more stringent limitations. Table One shows these discharge standards.³⁰

TABLE ONE

	EPA (Over 10,000 gpd) Effective for Electroplaters 6/30/84 Maximum	EPA Effective for Metal finishers 2/15/86 Maximum	NBC Effective for All Users 7/1/87
Cadmium	1.2 mg/l	0.69 mg/l	0.02 mg/l
Chromium	7.0	2.77	1.11
Copper	4.5	3.38	1.13
Cyanide	1.9	1.20	0.52
Lead	0.6	0.69	0.58
Mercury	-	-	N/Detectable
Nickel	4.1	3.98	0.32
Silver	1.2	0.43	0.072
Zinc	4.2	2.61	1.45
TTO	2.13	2.13	2.13

In developing the more stringent standards, three considerations were noted: to protect the collection and treatment system, to ensure an acceptable sludge, and to protect the receiving water quality.³¹

The water quality of the upper Bay is poor, containing levels of heavy metals that exceed values known to be harmful to marine life. The Krasnoff report found that the major sources of these heavy metals are the electroplating and metal finishing industries.³²

The report also found that the City of Providence, because of the large amounts of heavy metals that were flowing through the Field's Point Facility, was the major contributor of pollution to the upper Bay.³³

Utilizing engineering techniques, scientific data on circulation, water quality, and the concentration of heavy metals in Narragansett Bay, the levels of pollutants which could be discharged without exceeding toxicity levels were determined. These levels were then translated into local standards.

These NBC standards are being revised at this time to reflect more recent data.

D. PRETREATMENT STANDARDS AND THE DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Within the realm of Narragansett Bay, pretreatment had historically been an issue between EPA, the City of Providence, and NBC. Until October of 1984, the state played a passive role. This included review and certification of NPDES permits that EPA drafted, and being provided the opportunity to review

the manner in which a federally permitted activity, such as pretreatment, was conducted. These roles were mandated by Section 401 of the FWPCA.

Under Section 402 of the FWPCA, any state can take over EPA's NPDES permitting activities, once they have a program approved by EPA. However, the General Pretreatment Regulations mandated that a condition of having an NPDES program was establishment of a pretreatment program. Without a pretreatment program, NPDES approval can be refused and/or withdrawn.³⁴

In October of 1984, Rhode Island received approval of its Rhode Island Pollution Discharge Elimination System (RIPDES) program which incorporated a pretreatment program.³⁵

However, since the state did not have this NPDES permitting program when NBC applied for approval of their pretreatment program, DEM's role was only as a reviewer of NBC's program, and EPA retained sole approval responsibility.³⁶ Now the state has the authority to play a more active role in other POTW pretreatment programs as discussed in the following section.

E. DISCUSSION

The chronology of events that has developed over the past few years enables some deductions to be made regarding recent enforcement actions taken against electroplaters in Rhode Island, and the different roles that have been assumed by the federal, state and local agencies.

Institutional Roles

All three levels of government have been involved in establishment of pretreatment regulations and standards in Rhode Island. Each governmental level has taken on certain roles and/or functions in the process, most of which have been determined by law and influenced by variables such as timing and funding.

As previously mentioned, the FWPCA designed the federal role, which, through EPA, was to establish standards. In writing the FWPCA, Congress, presumably because it recognized that each state and locality had individual characteristics, such as high versus low intensity industrial development or unique environmental characteristics, allowed these federal standards to be made more stringent by each state and/or local authority.

The FWPCA however, did not clarify how to implement the standards, and thus the federal role has been to attempt to stimulate implementation at the state and local level,³⁷ and to establish minimum standards that act as a "floor" or base-line for the entire nation, which states and localities may choose to adopt as final requirements or as interim requirements until site-specific standards can be developed and implemented.

Beyond establishing these standards, EPA has the ultimate role for ensuring that the requirements of the FWPCA are met by the states, localities and POTWs. For although some responsibilities may be taken over by a state, locality, or POTW, authority is not really "delegated" in the truest sense of the

word, as EPA always retains oversight and approval capability.³⁸

DEM's involvement in the implementation of pretreatment standards is a relatively new occurrence, and therefore its role is still evolving.

It is believed that the delay in DEM's involvement was, in part, because neither the FWPCA nor EPA's resultant regulations and standards mandated state responsibility. Participation by the DEM hinged on whether or not it wanted to take over NPDES permitting responsibility.

DEM did not choose to take over EPA's permit program until 1984.³⁹ It may be surmised that the DEM did not assume the program, and therefore the capability to directly oversee local pretreatment programs until 1984 because 1) the DEM may have viewed EPA's actions as sufficient up until that time, and/or 2) DEM did not have staff capabilities to assume the responsibility.

DEM has stated that one reason the Department has now taken over the NPDES Permit Program is to bring the permit system up to date and to revise discharge standards.⁴⁰

Thus, the state role in pretreatment was limited until 1984, when Rhode Island was approved as an NPDES state with an approved pretreatment program, administered by DEM.

DEM's approved pretreatment program, rather than being a promulgation of more stringent standards as allowed, was an adoption of the federal base-line regulations.⁴¹ Thus, the role of DEM in pretreatment has been to legitimize federal

standards on a state basis, but their role will continue to evolve particularly with regard to oversight and enforcement.

DEM has stated that it will be their responsibility to insure that the RIPDES permittees implement the national pretreatment program.⁴²

In order to carry out this responsibility, DEM has identified its role as being both a facilitator and an enforcement agency for these permittees:

Under delegation [of the NPDES program] DEM will adopt EPA's mechanism on determining "significant non-compliance" and will act to bring violators either back into compliance via operation and maintenance assistance or will begin administrative legal action within two quarters of non-compliance.⁴³

The role of local POTWs, unlike the state's role, has not been voluntary. EPA regulations mandated that, in the absence of state responsibility, POTWs with certain characteristics were required to develop pretreatment programs.⁴⁴

NBC, because their facility met the characteristics, and in line with the requirements of their NPDES permit to discharge, has temporarily adopted federal baseline standards, with their own more stringent standards becoming effective at a later date.⁴⁵

Thus, the role of the local POTW has been to develop and implement programs on the local level, with standards that are based on site-specific data and needs.

Enforcement

Recently, the respective agencies have exhibited a degree of overlapping authority with regard to enforcement of standards in Rhode Island. EPA and DEM challenged the electroplating firm of Victory Polishing and Plating, while NBC has taken action against the firm of F. Ronci Co. Thus, all three levels of government have begun enforcement of regulations in the state at this time.

EPA's role as an enforcement agency has been influenced by delays in finalizing its pretreatment regulations, which took several years. The delays were due, in part, to the legal challenges and Economic Impact Analysis showing that electroplating industries would be impacted by the regulations, and therefore some jobs were estimated to be lost.

When EPA was able to finalize the standards for the electroplating industries, the compliance deadlines were set as April and June, 1984.⁴⁶ Apparently, however, EPA had lost credibility as an enforcement agency, since failures to meet prior deadlines had never been punished. Therefore, some industries have allegedly not observed these 1984 deadlines either, believing that failure would still go unpunished.

Another factor suggested as a reason for non-compliance with the latest deadlines is that the regulations were not easily interpreted by POTWs, and thus, many did not have a sense of what their responsibilities were.⁴⁷

It is surmised that another factor in non-compliance is the rationale that, since NBC had an additional deadline of 1987,

industries would hesitate to spend funds necessary to meet EPA standards when in three years, they would be spending additional funds to meet the more stringent NBC standards.

Since the final federal regulations, standards and compliance dates have been in place, EPA has still been unable to take action against every violator for two reasons.

One is that EPA does not know of all industrial users in the nation that are subject to the standards. Individual firms are often going out of or coming into business, and EPA is continually trying to identify the total number of firms for whom they must enforce standards.

The second reason is that, as the approval authority for state and local pretreatment programs, EPA must review each program on a case-by-case basis in order to ensure that the individual program empowers the authority with the necessary capabilities to achieve compliance. This is a very time consuming process.⁴⁸

However, an estimated fifty federal enforcement actions have occurred against electroplaters across the nation, two of which were in Rhode Island.⁴⁹ These actions were taken in order to set an example to the broader community, indicating that enforcement is a reality, and providing a model for those authorities with newly delegated programs.⁵⁰

The electroplating and metal finishing standards were the first to be enforced because, of all industrial users, they constitute the largest group subject to categorical pretreatment standards.⁵¹

When EPA discussed the pending action against the Victory firm with DEM and NBC in November of 1984, it was DEM's first opportunity to act on its new responsibilities under the RIPDES program, and DEM chose to join EPA in the legal challenge.⁵²

NBC had their pretreatment program approved by EPA in September of 1984,⁵³ only two months prior to EPA's discussion of the forthcoming action against Victory. Thus, when EPA asked NBC if the Commission wished to join in the action in November of 1984, NBC declined, in part, because their staff resources were limited at that time (Juan Mariscal, NBC, January, 1987), and also because they felt that their first efforts should be directed at getting users onto a compliance schedule:

The NBC program had just been initiated at the time the [EPA and DEM] complaints were filed and because Commission policy is that an effort should first be made to get users subject to categorical standards onto a compliance schedule as soon as possible.⁵⁴

NBC's more recent action against F. Ronci Co. was taken because NBC felt the company allegedly had not complied with its compliance schedule.⁵⁵

Thus, the recent divergence that has occurred regarding enforcement of pretreatment appears to be primarily a result of timing, in that three major events all happened in 1984: EPA compliance deadlines passed and subsequent testing of industrial effluents by EPA showed violations and a need to enforce; the State became an approved permitting state with pretreatment regulations, standards and enforcement powers; and a major local

authority had their pretreatment program approved, allowing it to begin implementation and enforcement of its own.

F. SUMMARY

The issue of pretreatment in Rhode Island has been in a period of transition where responsibilities are gradually being transferred from the federal government to state and local authorities.

The difficult, time-consuming federal role has been to establish minimum standards for the entire nation, locate all industrial users, and review individual programs. Another role is to oversee both state and local programs to ensure that standards are being met, and undertake enforcement if the state or POTW fails to do so.

DEM's role has been to assume federal responsibilities by taking over the NPDES program (now known as RIPDES) and under this program, issuing permits to direct dischargers such as POTWs; establishing a state pretreatment program and ensuring development of local pretreatment programs; ensuring that state pretreatment standards, as a minimum, are met by the local authorities, and if they are not, to undertake enforcement action; and act with EPA as an overseer for local programs.

The role of the local authorities has been to establish programs with site-specific standards necessary to protect their facility and the surrounding environment, and also to ensure that

their standards are met through their own enforcement capabilities.

To a degree, the federal, state, and local agencies have shown some divergence in the past two years with regard to enforcement. This is attributed to the timing of events in which agencies found themselves in a transition period where final deadlines passed, responsibility was being transferred from one level to another, and programs were just getting off the ground.

It appears that, although each agency's decision regarding its respective role was based on various rationale, there was never a collective or common strategy worked out between agencies on the most effective way of reaching compliance with the standards.

Meanwhile, NBC has produced a very coherent enforcement program in response to federal requirements, which includes:

- o site specific sampling;
- o adoption of standards based on impact on receiving waters and sewer system capabilities.
- o each individual user of NBC facilities violating pretreatment standards being issued a compliance schedule;
- o a systematic method of court action when compliance schedules are not met and/or violations occur;
- o allocation of adequate resources to implement the enforcement program.

Ultimately, it may be said that the existence of statutes and regulations, without ongoing enforcement, does not result in compliance. Minimally, an enforcement program requires:

- o a strategy;
- o clearly defined program goals and actions;
- o adequate resources for the program to be carried out.

NOTES

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7. United States Environmental Protection Agency. 1977. Economic Analysis of Proposed Pretreatment Standards for Existing Sources of the Electroplating Point Source Category. EPA-230/1-78-001. pg. i.
8. Ibid, pp. i-x.
9. The Federal Register. September 28, 1982. Volume 47, Number 188. pg. 42698.
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29. Ibid, Part 403.6.
30. The Narragansett Bay Commission, pg. 19.
31. Krasnoff, pg. i.
32. Ibid, pg. ii.
33. Ibid, pg. 148.
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37. Ed Bender. Environmental Protection Agency. Personal Communication. July 14, 1986.
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40. Ibid.
41. Based on a comparison of the Rhode Island Pretreatment Regulations, Department of Environmental Management, Division of Water Resources, and the General Pretreatment Regulations for Existing and New Sources of Pollution. Code of Federal Regulations, Chapter 40, Part 403.
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43. Ibid, pg. 39.
44. The Code of Federal Regulations. Chapter 40, Part 403.8(a).
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III. TOPIC THREE: INTERSTATE JURISDICTION

MOUNT HOPE BAY

A. INTRODUCTION

Mount Hope Bay is an estuary which receives freshwater input from several rivers, the Taunton, Kickamuit, Cole and Lees. Ninety percent of the drainage area for Mount Hope Bay is located within Massachusetts, while two-thirds of the Bay itself is in Rhode Island.¹

The drainage area within Massachusetts is heavily developed, and the Taunton River alone has received waste treatment plant effluents, raw sewage, bacteriological and high oxygen demand wastes, as well as heavy metals, and toxic chemicals from industries.²

These pollutants, introduced by activities within Massachusetts, inevitably flow into and affect the water quality of those portions of Mount Hope Bay which are under the jurisdiction of Rhode Island. Thus, at the time of the original sampling and classification process described in the following section, Rhode Island was faced with classifying a water body whose quality was, in part, determined by another state.

The purpose of this case study was to determine the basis for different water quality classifications in Mount Hope Bay at the

Rhode Island-Massachusetts state line, and its significance to management efforts.

The differing classifications can be seen in Figure One, which shows the present classification in Rhode Island waters as being lower than those in Massachusetts.

The actual water quality is, of course, equal at this political boundary; theoretically, Rhode Island waters should be higher in quality since they are farther from point sources of pollutants, notably the Fall River, Somerset, and Taunton wastewater treatment facilities.

This case study centered on three possible explanations for the differing classifications:

- o were the differences in numerical water quality standards significant enough to cause separate classifications?
- o did the states interpret their standards differently?
- o did the states have separate purposes for classifying waters?

Following a determination of which rationale is correct, the implications of having two schemes for one interstate area of water are analyzed as they may relate to Bay management.

B. DESCRIPTION AND HISTORY OF THE CLASSIFICATION SYSTEM

The fresh and marine waters of Rhode Island have been divided according to a suitable use classification scheme based on water quality standards and criteria.

There are three use classifications for marine waters. Class SA waters are considered to have a quality suitable for bathing

and contact recreation, shellfish harvesting for direct human consumption, and fish and wildlife habitat. Class SB waters are considered to have a quality suitable for shellfish harvesting after depuration, bathing and other primary contact recreational activities, as well as fish and wildlife habitat. Class SC waters are considered suitable for boating, fish and wildlife habitat, industrial cooling, and secondary contact recreation activities.³

Each class has a separate set of water quality criteria, defined as:

The designated concentration of a constituent that...will protect an organism...or a prescribed water use.⁴

For example, Class SA waters have a designated concentration of not less than 6.0 mg/l of dissolved oxygen.⁵ Other parameters are also designated, such as sludge deposits, color and turbidity, and coliform bacteria. Collectively, these criteria make up the standards for the water class. Standards are defined as:

The physical, chemical, biological and aesthetic characteristics...as described by...water quality criteria.⁶

The intentions behind the use classification system and water quality standards are to designate activities which are suitable uses; to protect those uses, the public health and welfare; as well as to enhance the quality of water.⁷

The standards play two roles: they establish water quality goals for each specific water body; and they serve as the regulatory basis for treatment of wastewaters being discharged into water bodies.⁸

Achieving water quality goals can be hindered by many circumstances, such as unenforceable regulations, or pollutants which cannot be traced to a single source. As long as such a circumstance can be corrected or administered to by the actions of a single state, the potential for eventual success in achieving a goal is retained.

However, when activities or circumstances that affect a specific water body are under the jurisdiction of two or more states, the water quality goals of one state may be much more difficult to achieve.

In the New England area, many water bodies fall under the jurisdiction of two or more states. One example in which this interstate jurisdiction has affected Rhode Island's achievement of its water quality goals is Mount Hope Bay, which is bisected by the Rhode Island-Massachusetts state line.

All Rhode Island waters were originally classified in 1946 by the Division of Sanitary Engineering, Department of Health. This was not mandated by legislation, rather it was undertaken by the Division in order to inform the public about their waters.⁹

The original classification was based on samples and data taken by Division personnel and analyzed in their own

laboratory. However, the Division found that additional sampling was needed to accurately classify the waters, because in some cases, the original samples had not represented the daily influences on the water body.

Therefore, Division personnel began a twenty-four hour monitoring program. Monitoring has been continued since then, but is now carried out by the Division of Water Resources within the Department of Environmental Management.^{10,11}

In 1947, the New England Interstate Water Pollution Control Compact was approved by Congress under Public Law 292. The Compact was created in response to a need for an interstate agency which could work with the New England states on abating water pollution.¹²

The logic for establishing and joining such an intergovernmental organization comes from the recognition that:

Natural and man-made forces which affect marine resources are unaffected by arbitrary political boundaries. Rhode Island's coastal resources and any utility its inhabitants may derive from them, may be seriously threatened by actions and policies well removed from the state's political jurisdiction. Because of this strong interdependency among neighboring states, and to ensure coordination and maximum efficiency, the interstate agency must be recognized as a most valuable level of governmental control.¹³

The Compact was incorporated into Rhode Island's General Laws (46-16-1) in that same year, through Public Law 1947, Chapters 1838 and 1901, and created the New England Interstate Water Pollution Control Commission (NEI).

The first states to sign this Compact, and thereby agree to its directives, were Massachusetts, Rhode Island, and Connecticut in 1947, followed by New York in 1949, Vermont and New Hampshire in 1951, and Maine in 1955.¹⁴

NEI was to serve two purposes, one of which was to establish reasonable physical, chemical, and biological standards of water quality standards for various classes of use.¹⁵

The design of this NEI classification scheme was patterned after the one developed by Rhode Island's Division of Sanitary Engineering in 1946, and contained standards for several parameters (such as dissolved oxygen, bacteria, pH, etc.), and corresponding uses.¹⁶

In signing the NEI Compact, each state agreed to classify their interstate waters according to a present and proposed highest use system, and have their system approved by NEI.¹⁷ The resulting Rhode Island and Massachusetts systems were approved by NEI in 1955, and can be seen in Figure Two.¹⁸

The second role of NEI was to serve as a forum for resolving potential interstate conflicts which arose during the evolution of states' classification schemes.¹⁹

Thus, the New England states had begun to classify their waters several years prior to the existence of federal involvement in state water quality programs, and NEI served to define minimum water quality objectives for interstate waters.²⁰

However, in 1965, the Federal Water Pollution Control Act (FWPCA) was amended.²¹ Section Five of these Amendments created a new provision relating to water quality standards of interstate waters. In part, this Section reads:

If the Governor of a State or a State water pollution control agency files...a letter of intent that such State...will before June 30, 1967, adopt (A) water quality criteria applicable to interstate waters...within such State, and (B) a plan for the implementation and enforcement of the water quality criteria adopted...such State criteria and plan shall thereafter be the water quality standards applicable to such interstate waters....²²

One effect of this amendment was that Massachusetts and Rhode Island could adopt new criteria for their interstate waters such as Mount Hope Bay, with sole approval by the Secretary of the Department of Health, Education and Welfare.²³

Massachusetts held public hearings in March of 1967, changing the classification of Mount Hope Bay,²⁴ while Rhode Island maintained the previous classification. This change resulted in the classification seen in Figure Three.²⁵

The reasons why Massachusetts chose to alter their classification cannot be documented, however, the difference at the state line was manifested in this manner.

It has been suggested that at one point, Rhode Island requested NEI to resolve this interstate conflict, as this was, in part, one of the duties of NEI. However, there is no record of any such adjudication. Massachusetts may have felt that, since the 1965 Amendments, under which they had reclassified the Bay, were administered and approved by a federal agency, NEI was

no longer the appropriate jurisdiction to attempt resolution.

However, the Amendments, unlike NEI, had no provision for resolving interstate conflicts, and although there may have been an administrative regulation calling for compatible standards at state lines, a record of such a regulation and/or any attempt by the federal agency to achieve compatibility in Mount Hope Bay cannot be documented.

In any case, the role of NEI as a conflict resolution forum was effectively bypassed, and the differences at the state line remained.

There is no record of any new events occurring with regard to Mount Hope Bay until 1971, when the Environmental Protection Agency (EPA), now administering the FWPCA, called for a conference to discuss pollution in the Bay.²⁶

The conference centered on a document which had been prepared by EPA entitled The Report on Pollution of the Interstate Waters of Mount Hope Bay and its Tributary Basins.

At the first session of this conference, Massachusetts voiced many concerns regarding this report, primarily that there were several errors, distortions, and omissions in crediting Massachusetts with progress that had been made in pollution abatement up to that time.²⁷

At the conclusion of the conference, EPA had modified its original recommendations on how to abate pollution in the Bay. However, from the available documentation, it appears that the conference never dealt with the issue of the incompatible classification system, but rather only dealt with methods which

might be used to abate pollution, such as providing disinfection, and creating implementation schedules for solution of combined sewer overflows.²⁸ The difference at the state line, once again, remained unchanged.

C. BASIS FOR DIFFERENTIAL CLASSIFICATION

Since the actual reason(s) why Massachusetts changed the classification in 1967 cannot be documented, three questions were posed that might provide an explanation. Once again, these questions were:

- o were the differences in numerical water quality standards significant enough to cause separate classifications?
- o did the states interpret their standards differently?
- o did the states have separate purposes for classifying waters?

In order to determine whether or not the differences in classification were a result of differences in standards corresponding to each class, a comparison was made of the two states' standards. These standards are shown in Table One.^{29,30}

Basically, these numerical standards are the same, with only slight variations between the states. It is believed that the variations are not significant enough to account for the degree of difference in classification.

In order to determine whether or not the differences in classification were a result of contrasts in interpretation, a

comparison was made between each state's use suitability categories. These categories may be seen in Table Two.^{31,32}

Once again, both Rhode Island and Massachusetts are basically in agreement. Each state interprets the quality of each class of water as suitable for the same uses. For example, both states consider SA waters, with its corresponding numerical standards, as suitable for bathing.

With the elimination of the above explanations, and through careful examination of incidents surrounding the origin of separate classifications described previously, it can only be surmised that Massachusetts and Rhode Island must have had different purposes for classifying the waters as they did.

When Massachusetts altered their scheme in 1967, two things occurred within Massachusetts' jurisdiction. The first was that existing use classifications became higher; one section of the Bay going from SD to SB, another section from SC to SA, and another from SB to SA (Figures Two and Three).

The second thing to occur was that the existing and proposed highest classifications became identical (Figure Three).

There appears to be no documentable evidence explaining why Massachusetts was able to raise the use classes to higher categories, ie. there is nothing to say that the chemical quality of the water improved such that classes could also be improved.

However, having identical existing and proposed use classifications implies that the present water quality of, and

level and type of discharges in Mount Hope Bay were acceptable to Massachusetts; no further upgrading nor regulation of industry and wastewater facilities would be necessary. It would appear to follow that Massachusetts' purpose for their classification scheme may have been to maintain existing quality.

In Rhode Island however, use classes were not raised, and existing and proposed designations remained the same as they had been (Figure Three), implying that present water quality of, and level and type of discharges in Mount Hope Bay were unacceptable to Rhode Island. Further upgrading and regulation was necessary, but could not be complete, because Rhode Island could only impose regulations on Rhode Island dischargers, not Massachusetts dischargers.

It would appear to follow that Rhode Island's purpose for its classification scheme was not only to maintain the existing quality, but also, where necessary, to enhance that quality, a purpose which is defined in the most recent water quality regulations.³³

Thus, the interstate nature of Mount Hope Bay has resulted in the same water being classified for separate uses, because of a difference in the two states' purposes.

Although this difference is seemingly illogical, its lack of resolution becomes more clear when one looks at the legislation on which the classification was based.

The NEI Compact, which was the original impetus for classifying interstate waters, did not contain provisions

requiring compatibility at state lines, nor any institutional mechanism for administering to conflicts in compatibility.

NEI was only to establish a system, and approve those systems of the signatory states. Their role in serving as a forum for resolving interstate conflicts apparently evolved within this approval process, meaning that NEI looked for compatibility when initially approving each states' system.³⁴

As has been shown, the original classification within Mount Hope Bay was compatible. However, with the Clean Water Act Amendments, compatibility was lost, and NEI was bypassed. NEI had no legislative mechanism to force resolution, nor did the Clean Water Act Amendments provide such a mechanism to the federal agency.

Thus, without cooperation on the part of the signatory states, both NEI and the federal agency were and continue to be ineffectual in finding a remedy to this issue. The failure, therefore, is within the institutional framework of these bodies.

In addition, there has apparently been no significant public policy issue resulting from this classification difference that warrants pressing for a resolution.

If this should become an issue of significance, which Rhode Island cannot deal with on an in-state basis, DEM in its capacity as the state water pollution control agency, could attempt adjudication through the existing NEI mechanism, or any EPA mechanism that might exist, although cooperation by Massachusetts would remain essential to resolution.

E. SUMMARY

In Rhode Island and other New England states, individual use classification systems have been adopted and applied for several years.

The system originated in the State of Rhode Island, but was incorporated into the program of an interstate organization, the New England Interstate Water Pollution Control Commission, and subsequently, states party to the Commission.

The Commission was to play two roles: provide uniformity and direction to all New England states in their attempt to abate pollution of interstate waters; and to act as a forum for resolving interstate conflicts which might arise in this attempt.

In Rhode Island, an interstate conflict which has remained unresolved is the separate classes assigned to Mount Hope Bay by this state and Massachusetts at the state line.

The basis for the differential classification is twofold: a difference in the two states' purposes behind the classes they assigned; and two institutional mechanisms, the NEI Compact and the Clean Water Act, that failed to provide for conflict resolution within the procedures of their respective agencies.

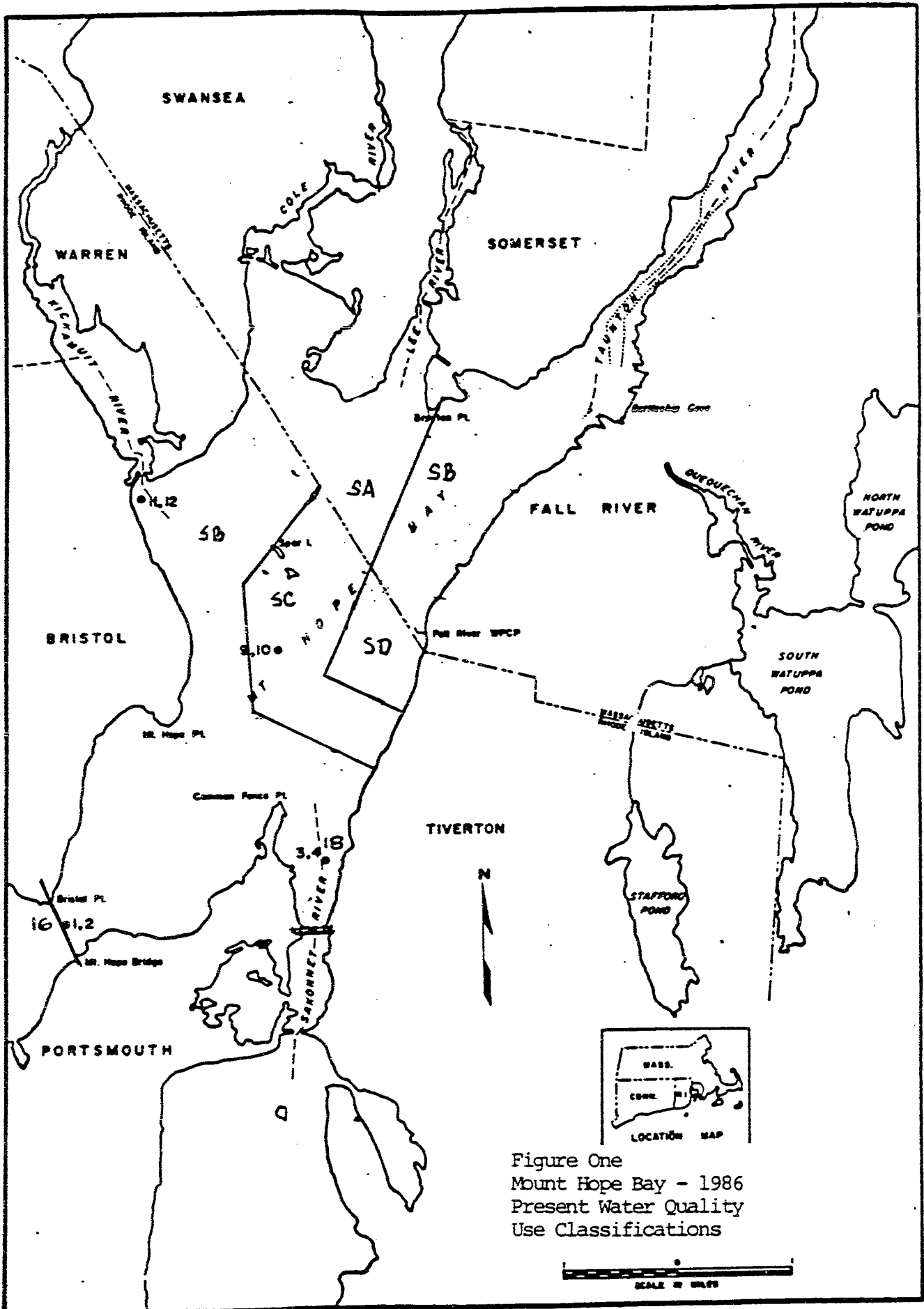


Figure One
Mount Hope Bay - 1986
Present Water Quality
Use Classifications

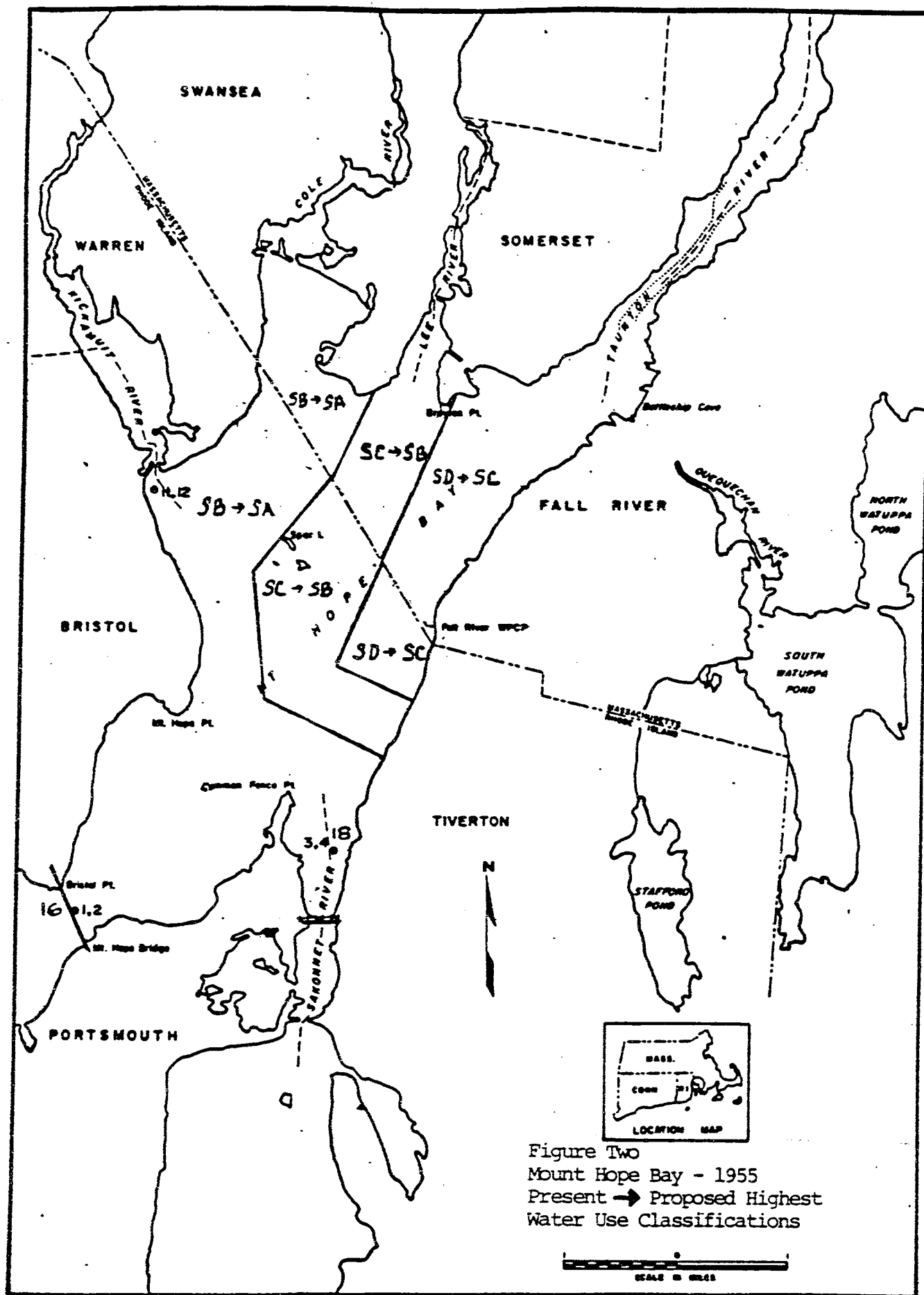


Figure Two
Mount Hope Bay - 1955
Present → Proposed Highest
Water Use Classifications

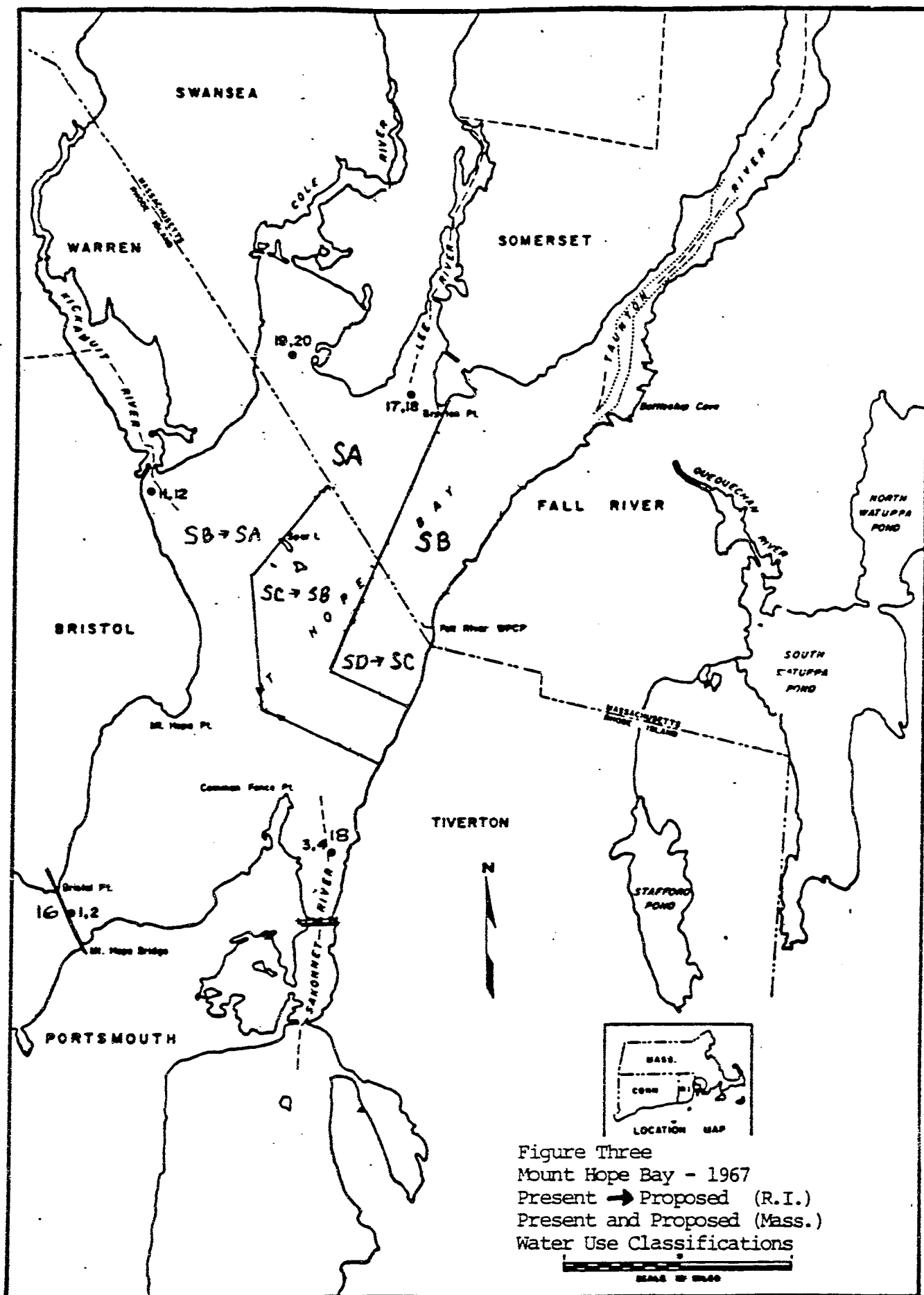


Figure Three
Mount Hope Bay - 1967
Present → Proposed (R.I.)
Present and Proposed (Mass.)
Water Use Classifications

TABLE ONE
COMPARISON OF MASSACHUSETTS
AND RHODE ISLAND
WATER QUALITY STANDARDS

Parameters- Class SA	Massachusetts	Rhode Island
Dissolved Oxygen	6.0 mg/l	6.0 mg/l
Temperature	None except where increase will not exceed limits on most sensitive use.	None except where increase will not exceed limits on most sensitive use, in no case exceed 83 F or raise normal temp. more than 1.6 F June 15-Sept. or 4 F Oct.-June.
pH	6.5 - 8.5	6.8 - 8.5
Total Coliform	<70MPN/100 ml median, not more than 10% of samples shall exceed 230MPN/100 ml.	<70MPN/100 ml median, not more than 10% of samples shall exceed 230MPN/100 ml.
Sludge Deposits	No standard	None allowable
Color/Turbidity	None that would exceed limits on most sensitive use.	None that would impair any uses of this class.
Fecal Coliform	No standard	<15MPN/100 ml median not more than 10% of samples shall exceed a value of 50.
Taste/Odor	None that would be objectionable.	None allowable.
Chemicals	No standard	None that would impair uses of this class.

TABLE ONE CONTINUED

Parameters- Class SB		
Dissolved Oxygen	6.0 mg/l	5.0 mg/l
Temperature	None except where increase will not exceed most sensitive use.	None except where increase will not exceed most sensitive use, in no case >83 F, or raise temp. more than 1.6 F June-Sept, or 4 F Oct-June.
pH	6.5 - 8.5	6.8 - 8.5
Total Coliform	<700MPN/100 ml median, not more than 20% of samples shall exceed 1000MPN/100 ml.	<700MPN/100 ml median, no more than 10% of samples shall exceed 2300.
Sludge Deposits	No standard	None allowable
Color/Turbidity	None that would exceed limits on most sensitive use.	None that would impair uses.
Fecal Coliform	No standard	<50MPN/100 ml median, no more than 10% of samples shall exceed 500.
Taste/Odor	None that would be objectionable.	None that would impair uses.
Chemicals	No standard	None that would impair uses.

TABLE ONE CONTINUED

Parameters- Class SC	Massachusetts	Rhode Island
Dissolved Oxygen	6.0 mg/l	5.0 mg/l
Temperature	None except where increase will not exceed limits on most sensitive use.	None except where increase will not exceed limits on most sensitive use, in no case >83 F or raise temp. more than 1.6 F June-Sept. or 4 F Oct-June.
pH	6.5 - 8.5	6.5 - 8.5
Total Coliform	No standard	None that would impair uses.
Sludge Deposits	No standard	None except that amount resulting from waste treatment facility providing appropriate treatment.
Color/Turbidity	No standard	None that would impair uses.
Fecal Coliform	Shall not exceed a log mean of 1000MPN/100 ml, nor shall more than 10% of samples exceed 2500.	No standard
Taste/Odor	None that would be objectionable.	None that would impair uses.
Chemicals	No standard	None that would impair uses.

*Please note that for some parameters, there are some additional details not included here. Each states' regulations may be referred to for such specifics.

TABLE TWO
MASSACHUSETTS AND RHODE ISLAND
USE SUITABILITY CLASSIFICATIONS

Class	Massachusetts	Rhode Island
SA	Protection and propagation of fish, aquatic life and wildlife; primary, secondary contact recreation; shellfish harvesting without depuration.	Bathing and contact recreation; shellfish harvesting for direct human consumption; fish and wildlife habitat.
SB	Protection and propagation of fish, aquatic life and wildlife; primary, secondary contact recreation; shellfish harvesting with depuration.	Shellfish harvesting for human consumption after depuration; bathing; other primary contact recreation activities; fish and wildlife habitat.
SC	Protection and propagation of fish, aquatic life and wildlife; secondary contact recreation.	Boating, other secondary contact recreational activities; fish and wildlife habitat; industrial cooling; good aesthetic value.

NOTES

1. United States Department of Commerce, National Oceanic and Atmospheric Administration. 1978. State of Rhode Island Coastal Management Program and Final Environmental Impact Statement. (Washington, D.C.), pg. 26.
2. Ibid, pg. 27.
3. Department of Environmental Management, Division of Water Resources. 1984. Water Quality Regulations for Water Pollution Control. pp. 10-11.
4. Ibid, Section 5, pg. 9.
5. Ibid, Section 6.33, pg. 16.
6. Ibid, Section 5, pg. 9.
7. Ibid, Section 6.1, pg. 9.
8. Ibid, Section 6.1, pg. 10.
9. Carleton Maine. Department of Environmental Management (retired). Personal Communication. January 14, 1986.
10. Ibid.
11. Department of Environmental Management, Division of Water Resources. 1985. Water Pollution Control Program Plan FY 86. (Providence, Rhode Island), pg. 45.
12. Jennie E. Bridge. 1980. Water Quality Standards Comparison. (New England Interstate Water Pollution Control Commission, Boston, Massachusetts), pg. 1.
13. Governor's Technical Committee on Narragansett Bay and the Coastal Zone. 1970. Report of the Governor's Technical Committee on the Coastal Zone. (Providence, Rhode Island), pg. 32.
14. New England Interstate Water Pollution Control Commission. New England Interstate Water Pollution Control Compact. (Boston, Massachusetts).
15. New England Interstate Water Pollution Control Compact. General Laws of Rhode Island 46-16-1. Article V.
16. Maine, January 14, 1986.
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18. Department of Health. 1955. Mount Hope Bay Within the Boundaries of the State of Rhode Island Present and Proposed Highest Use Classification. And, The Commonwealth of Massachusetts. 1955. Classification of Main Stem of Taunton River.
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23. The Department of Health, Education and Welfare was administering this Act in 1965, as opposed to the Environmental Protection Agency, which had not yet been created.
24. The Commonwealth of Massachusetts, Department of Natural Resources, Division of Water Pollution Control. Notice of Public Hearing Relating to the Taunton River. February 24, 1967.
25. Department of Environmental Management, Water Quality Regulations for Water Pollution Control, pg. 15. And, The Commonwealth of Massachusetts, Water Resources Commission, Division of Water Pollution Control. Massachusetts Water Quality Standards. April 7, 1978. pp. 76, 78.
26. E.V. Fitzpatrick, Director, Division of Surveillance and Analysis, Environmental Protection Agency. Letter to Alfred Peloquin, Executive Secretary, New England Interstate Water Pollution Control Commission. November 23, 1971.
27. The Providence Journal Bulletin. December 8, 1971. "Mt. Hope Bay Talks Recess for Facts".
28. Conclusions and Recommendations of the Conferees, Mount Hope Bay Enforcement Conference. January 6, 1972.
29. Massachusetts Water Quality Standards, pp. 8-9.
30. Water Quality Regulations for Water Pollution Control, pp. 16-18.
31. Massachusetts Water Quality Standards, pg. 5.

32. Water Quality Regulations for Water Pollution Control, pp. 10-11.
33. Ibid, Sections 6.1, 6.5, 7.2, 7.3.
34. Eva J. Hoffman, Project Manager, Narragansett Bay Project. March 13, 1986. Letter soliciting proposals for Narragansett Bay Workplan FY 86, with attachments. "Monitoring Mount Hope Bay for Bacteriological Contamination", pg. 5.

CHAPTER FIVE
THE ROLE OF SCIENTIFIC
INFORMATION IN
DECISION MAKING PROCESSES

A. INTRODUCTION

One of the tasks involved in this study of the governance of Narragansett Bay has been to review the role that scientific expertise and input plays in policy formulation and decision making processes affecting the Bay.

Two methodologies were utilized in this phase of the study:

1. An analysis of the case studies (Chapter Four): this allowed the study team to determine what the role of science has been in existing management processes.
2. A review of the existing literature: this enabled the study team to determine whether or not the present role played by science in the management of the Bay is consistent with the current body of knowledge regarding science and policy formulation.

It is through these methodologies that the study team has been able to make its observations.

B. CASE STUDY ANALYSES

Analyses of the case studies indicate that scientific input to the existing management processes has occurred in the following manner:

1. Basic scientific research and findings have been central to the establishment of base-line data.
2. This base-line data has provided the foundation for establishing standards and generating regulatory controls.
3. Basic scientific research may also be used for the review and modification of existing standards when conflicts regarding the validity/achievability of those standards arise.
4. In the implementation and enforcement of these standards and regulatory controls, scientific input has taken the form of applied science, or engineering data, which is used to validate conformance to standards.

These three statements emerged during the development of the case studies when it became evident that federal policies and programs consistently utilized existing scientific knowledge in order to establish federal guidelines, particularly in the case of water quality and pretreatment standards. The case studies also showed that the state utilized science for development of water quality standards and classification system, which were derived from base-line data provided by qualified engineering and scientific personnel within state agencies via sampling studies, with subsequent approval of the standards and classification system by federal agencies.

In another example of the role of scientific research, it was found that the Coastal Resources Center (CRC) was utilized to provide the scientific research capability necessary to develop the Coastal Resources Management Program. CRC was and is in a unique position wherein they are able to give the Program the

advantage of an institutional relationship with The University of Rhode Island's Graduate School of Oceanography. This relationship has made on-going marine research studies available to a responsible state agency (CRMC), and in turn, has provided CRC with a context for directed research.

Given this broad construct where basic scientific research provides a foundation for standards and regulatory controls, while applied science validates conformance or non-conformance, the findings of each case study relative to science input are now discussed.

Chepiwanoxet

The central question in this case study was the impact of the proposed development and accompanying ISDS on the water quality and shellfish beds of Greenwich Bay.

Water quality standards were first established in 1946 by the state of Rhode Island, and subsequently in conjunction with other states under the New England Interstate Water Pollution Control Commission Compact (NEI).

In 1972, the Federal Water Pollution Control Act (FWPCA) gave the U.S. Environmental Protection Agency the authority to review and approve state standards.

While the basic scientific research that went to the establishment of the initial standards was not institutionally sponsored (eg. by the University of Rhode Island), participants did include professionals representing the state health

agency, with particular representation from engineering disciplines.

The sampling undertaken by these professionals is an example of basic research being used to establish base-line data from which standards were developed.

With respect to Individual Sewage Disposal Systems, state agencies had existing basic scientific knowledge available to them when the standards and regulations were developed, initially as that knowledge pertained to health problems, and subsequently as that knowledge pertained to both health and environmental concerns through the Departments of Health and Environmental Management.

This case study also showed that applied science, or engineering data, and impact analyses were required in order to validate conformance to existing standards by developers.

This role of applied science being used in management was shown when the developer commissioned a water current study in order to meet a specific inquiry regarding impact of the marina on the nearby shellfish management area. This engineering study was used in an attempt to show that standards would not be violated by the proposed development.

While not directly related to the Chepiwanoxet case, it is noted that a series of applications for ISDS permits has generated a task force which is to review existing ISDS standards to determine their appropriateness, particularly as they relate to fragile coastal environments.

A research effort currently underway at The University of Rhode Island by Professor Arthur Gold regarding comparative performance of ISDS systems is being utilized in the task force's review.

This indicates the role of basic scientific research in the review and modification of existing standards, and indicates that there is a symbiotic relationship between basic research efforts and program implementation.

Industrial Pretreatment

Analysis of this case study for the role of science reaffirmed that basic research is utilized to establish base-line data from which standards and regulations can be derived.

The basic scientific research involved in the development of industrial pretreatment regulations was national in scope and was translated into the federal pretreatment program and standards by the United States Environmental Protection Agency. The state of Rhode Island has adopted these national standards intact.

Responsibility for implementation of the national program was delegated to local agencies (eg. The Narragansett Bay Water Quality Management District Commission or NBC). The national program allows the establishment of site-specific local standards, provided that such standards are at least as stringent as the federal/state standards.

While NBC derived these local standards from an engineering study which was based on sampling of effluents (applied science),¹ this engineering study included findings from basic research conducted by The University of Rhode Island's Marine Ecosystem Research Laboratory (MERL). The MERL studies were used by the engineers to develop parameters for the recommended standards.

This case study has also shown that enforcement of the pretreatment program by NBC has required continuous sampling of affected industrial effluent. The NBC pretreatment staff provides the engineering capability for this sampling effort; thus, once again it may be seen that there is a role for applied science in validating conformance to standards.

While site-specific local standards for pretreatment are in place for NBC, it is noted that, in order to effectively manage the influence of heavy metals and other pollutants coming from industrial sources, it will be necessary to utilize basic scientific research now being generated by the Narragansett Bay Project² that establishes base-line data showing the cumulative impact of all sources. This data may be translated into standards that limit pollutants based on how much the Bay environment can tolerate.

Mount Hope Bay

The problem statement in the case study was the water quality classification conflict which exists at the Rhode Island-Massachusetts state boundary in Mount Hope Bay. In attempting to establish the basis for the conflict, it was once again found that scientific input had played a role in the establishment of standards used to create the classification system.

While basic science might have been utilized in an attempt to resolve the conflict by a review and modification of standards via, for example, a task force that would develop a common sampling methodology, base-line data, and uniform classifications, this avenue appears not to have been utilized.

However, it is felt that neither this type of scientific input, nor an NEI Commission with stronger institutional abilities to resolve disputes would have led to conflict resolution in this case.

It is the absence of any major public policy issue arising from the discrepancy at the state line which has resulted in a failure to resolve the problem. Without a major public policy issue, there is little motivation to pursue resolution.

The only public policy issue which has arisen is with regard to the inability to harvest shellfish in Rhode Island waters. However, this may well be resolved by the current Narragansett Bay Project study (1986)³ in which new base-line data on water quality is being generated. This new data may provide for a

reevaluation of the existing classification, once again providing an example of the role of basic science in reviewing and modifying existing standards.

C. LITERATURE REVIEW

There has been a major growth in the amount of literature pertaining to the relationship between science and public policy. No section of a report such as this could possibly summarize all the major findings of the current literature. However, some points that reflect the issues raised in this study are presented here.

It has been found that the literature tends to support case study findings discussed above relative to the relationship of science and regulatory management processes that currently govern Narragansett Bay.

One statement made as a result of analyzing the case studies is that:

Scientific research and findings help to define problem statements; but while science input is a necessary ingredient for identifying a problem, it cannot be viewed as an ingredient which acts as a determinor of public policy and/or regulatory controls.

This is supported by the following statements from the literature:

Scientific evidence frames the issue; it does not by itself determine the regulatory outcome.⁴

Statutes and regulations maintain social stability, they do not provide an advancement of knowledge; as such, statutes and regulations effect coercion and sanctions in order to enforce social stability. In contrast, science is descriptive and explanatory.⁵

Bench science investigates natural phenomena; it provides the basis for understanding and subsequent action: but in its raw form - results from many individual studies - scientific information cannot be used for policy purposes.⁶

This study also makes the point that scientific research findings must be interpreted or translated, and analyses of economic and social impact of controls resulting from that translation must be made.

For an extended discussion of this premise, please see the entire article by Schmandt.⁷ Briefly, however, at one point in his discussion, Schmandt quotes from the Legislative Record of the Air Quality Act of 1967 and then comments upon that quote with the following:

The quotation is noteworthy for the clear separation of function between the development of criteria, which should be based on scientific knowledge alone, and of control activities, which must also consider economic and technical factors.⁸

The following two instances also support the premise that decision processes must review the scientific basis of the problem, the social and economic impact analyses, as well as the legal implications, program options, and policy implications.

In the first instance, Majone uses the example of "environmental standard setting" and explains two stages within the standard setting process:

In the first stage, qualitative environmental goals are translated into numerically stated criteria or ambient standards such as "Sulfur dioxide content of air should not exceed 0.05 ppm for 350 days per year or 1 ppm at any time," or "Average coliform concentration not greater than one organism per 100 milliliters. In the second stage effluent standards are set to limit the amount of pollution that can be discharged at any given source to levels that are compatible with the stated quality criteria, for example, "No plant may discharge effluent containing more than 60,000 pounds of BOD a day.

But for most pollutants that are either known or suspected to be damaging to health, firm knowledge about the amount of damage done by given concentrations under various environmental conditions is simply not available.⁹

The second instance is the current (1987) effort by the Rhode Island Department of Environmental Management to adopt air quality standards.

The translation of identified hazardous compounds into regulations through the establishment of point-source limits has been characterized by Dr. Harold Ward, Director of Brown University's Center for Environmental Studies.

Ward described the numbers as being "as good as one can come up with on the risk assessment question, however, ultimately, the limits represent public policy decisions, not scientific conclusions."¹⁰

At loggerheads

Biz ready to blitz new DEM air quality standards charging prohibitive costs

By Talbot Brewer

PROVIDENCE—Rhode Island's business community is gearing up to fight new state limits on the emission of 40 common industrial solvents—air pollution controls that could cost industry tens of millions of dollars.

The state Department of Environmental Management (DEM) currently plans to put the new standards in place this spring. Yet despite the fact that the proposed limits have been circulating outside the agency and are being openly debated, DEM refused to release the draft proposal this past week, saying it is not a public record.

DEM director Robert L. Bendick stressed that he is continuing to work with the business community in an effort to formulate fair regulations, adding that he was unsure whether the latest revisions in DEM's proposed limits have yet been circulated among concerned parties.

Ironically, the state Chamber of Commerce Federation supported the legislation establishing the new Air Toxics Program and cooperated in its development over the last year. But now, business and industry's principal voice is vowing to oppose DEM's new air quality regulations if the state agency's current proposals are not significantly relaxed.

According to Maurice LeDuc, who chairs the federation's environmental affairs committee, compliance with the proposed standards is technologically impossible without shutting down whole industries. In other cases, LeDuc contends, compliance would be prohibitively expensive.

LeDuc estimates that Rhode Island's five to 10 largest industrial concerns collectively would have to spend at least \$10 million to meet the new air quality standards. Small jewelers, electroplaters and metal-finishers would be hit particularly hard, he added.

The compounds in question

The Air Toxics Program is aimed at controlling a group of industrial solvents known as volatile organic compounds. The most common of these solvents are trichloroethylene, perchloroethylene, methylene chloride, and 1,2 dichloroethane.

Many volatile organic compounds are suspected or known carcinogens. Others have been shown to induce gene mutations, cause chronic illnesses or damage fetuses. All are said to increase lower-atmosphere concentrations of ozone—an irritant to skin and eyes.

The current controversy is flaring up

over DEM's proposals for the average concentration limits that companies would be required to meet, as measured at their property line.

DEM senior engineer Barbara Morin, the pen behind the controversial numbers, maintains that her calculations are consistent with risk-assessment techniques endorsed by the National Academy of Sciences and the federal Environmental Protection Agency (EPA).

CONTINUED ON PAGE 10.

Toxins

(continued from page 1)

Morin said that her numbers are extrapolated by computer from high-dosage animal studies and purport to represent the concentration that would cause one additional death for every 1 million people exposed continually over a 70-year period.

Representatives of such environmental advocacy groups as the Rhode Island Lung Association and the Rhode Island Audubon Society believe the DEM engineer has come up with a cautious but feasible set of emission standards. Caution, they argue, is appropriate, given the lack of scientific knowledge about the long-term effects these solvents may have on the human body. They note that these effects may well be "synergistic," or greater than the sum of each chemical's independent effect.

Morin's risk assessments also have the endorsement of Dr. Harold Ward, director of Brown University's Center for Environmental Studies.

Ward, who sits on the committee that has overseen development of the regulations, called the numbers "as good as one can come up with on the risk assessment question." He explained, however, that risk assessment is subject to "very substantial uncertainties" and that, ultimately, the limits represent public policy decisions, not scientific conclusions.

But the chamber's LeDuc sees the numbers as arbitrarily derived and overly conservative, in some cases by a factor of 1000.

"Who's deciding what is risky?" LeDuc asks. "Barbara Morin is. And she's gone too far. Nobody will be able to meet these standards. Not even your local filling station. The question becomes: Do we chase this ghost number to protect some ghost person who is mathematically created in a computer model somewhere?"

According to Morin, LeDuc could not possibly know how difficult or expensive compliance would be, because what little data exists on the emissions of Rhode Island companies has been generated by her office. She characterized his attack as an attempt to minimize the financial impact of these regulations on manufacturers.

"It makes sense that industry would not want to be forced to spend more than they have to spend," said Morin. "There's nothing evil about that—it's a natural tendency."

Morin refused to publicly disclose DEM's proposed air quality limits, even though the state agency has shared them with other interested parties. LeDuc, who had them in hand, also refused to make them public.

A spokesman for the DEM director said

the proposed numbers are still being reviewed for scientific validity, adding that the agency doesn't want to make public proposed limits that may be altered before being offered at formal public hearings. One consideration, the DEM spokesman continued, is that if proposed air quality limits are amended over the next few months, the public might get the "misimpression" that DEM is "caving in to" business community pressure.

Morin said her proposed standards have yet to undergo a full review and may well be relaxed before this spring's planned public hearings. She said two engineers on her staff are currently studying industrial use of the solvents in question, together with available emission control technology and potential substitute solvents, in order to evaluate the feasibility of the standards.

"We're not going to stick with anything that is impossible to implement," she said. Morin also noted that once the regulations take effect, the state will work with non-complying companies, allowing them as much as two years to bring their emissions within the new limits.

Chamber Federation executive vice president Francis J. Holbrook said last week that he remains a supporter of the Air Toxics Program but stands ready to "take whatever recourses are available to us under the law" if the standards are not relaxed.

Holbrook said court challenges and legislative lobbying would be considered if the regulations can not be made "palatable."

According to LeDuc, who works out of the Coventry plant of the German chemical giant American Hoechst (see related story, page 1), DEM's proposed air standards may be open to legal challenge because of the impossibility of compliance or the structure of the regulations, which he feels discriminate against big businesses.

LeDuc says the regulations are potentially discriminatory because, for example, they would gauge the compliance of dry cleaners—major users of the suspected carcinogen perchloroethylene—on the basis of their pollution control technology rather than on their actual emissions.

Large industrial plants, on the other hand, would be required to meet actual emissions requirements as measured by state inspectors at their lot-lines, he added.

Morin agreed that consideration of company size and resources has shaped the law to some degree but said that did not make it vulnerable in court. "You can't require the same kind of expenditures from a multinational corporation as you can from a corner dry cleaner," she said.

Currently, the state does not limit industrial emissions. The federal government regulates emissions of six substances,

known as the "criteria pollutants"—carbon monoxide, sulfur dioxide, lead, ozone, nitrogen oxide and suspended particulates.

The EPA has come under fire from the American Lung Association and other environmental health groups for dragging its feet on implementation of the Clean Air Act of 1970. In fact, the state of Rhode Island, through the Department of Attorney General, is one of a number of states and environmental groups suing EPA in an effort to force stricter Clean Air Act enforcement. The act gave the EPA one year to identify, study and enforce limits on hazardous air pollutants.

Seventeen years later, the EPA has yet to limit emissions of the 37 compounds it identified as hazardous, including many of those that will soon be regulated by Rhode Island state law.

Implementation of federal regulations has been delayed by the scientific debate over whether there is a "threshold" concentration below which hazardous chemicals pose no danger. The EPA has maintained that there is no threshold and, consequently, that it would be impossible to set limits to provide the public with "an ample margin of safety," as the law requires.

The same controversy has flared between industry and government in Rhode Island.

Morin's computer risk assessments assume that no exposure threshold exists below which suspected carcinogens pose no danger.

LeDuc responds that this and other conservative assumptions have led Rhode Island down the road to overregulation.

Katherine Spiratos, environmental health program consultant for the Rhode Island Lung Association, disagrees. "I think that Barbara [Morin] has gone through a very comprehensive assessment of all the compounds in question, taking into account their potential effects on a sensitive human population, and I don't think her numbers are arbitrary," said Spiratos. "She has paid a lot of attention to feasibility."

Regulation of suspected and known carcinogens is a particularly emotional issue in Rhode Island, where, according to state Department of Health data evaluation chief Jay Buechner, cancer mortalities rank "at the top or near the top" of all states in the country. Buechner added, however, that existing scientific evidence suggests that most cancers are caused by lifestyle choices, not by the environment.

The proposed DEM air quality regulations will undergo public hearings within two to three months. They will then either be implemented or sent back to the drawing board by state hearing officers.

Morin said she hopes to have the program in place by late spring of 1987.

Under the current draft of the regula-

tion, the new emissions limits would be enforced through a new system of operating permits. Companies that use or emit more than 100 pounds of any of the 40 compounds covered by the law would be required to register with the Department of Environmental Management within two months of enactment of the regulations.

Chemical hazards list

This is a list of substances that the Department of Environmental Management has proposed be subject to new state air quality standards. DEM has refused to make public either this list, which was obtained by the Providence Business News, or the proposed limits for each chemical, saying both the regulated chemicals and proposed limits are still subject to change before being formally offered at public hearings.

Acrylonitrile
Aniline
o-Anisidine
Arsenic
Benzene
Benzidine
Benzotrichloride
Benzyl chloride
Biphenyl
Cadmium
Carbon tetrachloride
Chloroform
Chromium
3,3 Dichlorobenzidine
1,2 Dichloroethane
Dichloromethane
Diethyl sulfate
Diethyl phthalate
Diphenylamine
Epichlorohydrin
Ethylene oxide
Hydrazine
Hydrochloric acid
Hydrogen fluoride
Manganese
Methyl cellosolve
MDI
MOCA
Nickel
5-Nitro o-anisidine
2-Nitropropane
Perchloroethylene
Toluene
TDI
o-Toluidine
1,1,2 Trichloroethane
Trichloroethylene
Triethylamine
Styrene
Xylene

Averch has stated the identical idea in the following terms:

To have utility for decision making, information has to have, or be made to gain, properties beyond those it naturally has as a product of scientific inquiry. In addition to being valid, information has to be timely, relevant and actionable. Otherwise, it will have little value for pending decisions; although information without these properties may increase the personal sensitivity and awareness of decision makers about the issues they confront.¹¹

This study has also made the statement that for a continuing process of interplay between scientific input and regulatory management of the Bay, there must be an institutional mechanism which can relate scientific findings to the management process.

Advances in scientific knowledge increase our understanding of the effect of decisions.¹²

The literature search has suggested that there is no one to one relationship between scientific inquiry and input, and public policy. There is however, a relationship wherein any management of an environment requires an institutional mechanism for the orderly process of information exchange to take place.

Environmental management does not consist of unilateral movements, wherein scientific inquiry drives managers, nor of scientists driving the development of regulations.

Rather, at times, environmental management may require directed scientific research, and thus, either federal and/or state funds will be needed.

However, basic research will continue to explore the frontiers of knowledge, with the drive for such research not directed towards environmental management. It is important however, that the results of this non-directed research be recognized as essential to a complete management process.

For example, the research currently underway in the MERL laboratories describes and enables a more complete understanding of estuarine environments in general. However, because the model utilized is Narragansett Bay, there is a wealth of information which may be pertinent and of utmost significance to management decisions.

As previously stated, there is currently no institutional mechanism in this state for the orderly and systematic transfer of such information and data, nor the accompanying capabilities for translation of the data, impact assessment, and decision making which would enable holistic management of the Bay.

D. SUMMARY

A review of case studies and existing literature has shown that the role of science is involved in three steps leading towards policy formulation:

Step 1: Identification of a Problem

Scientific inquiry and investigation identifies the extent and nature of a problem in such a way that policy formulation is possible. For example, scientific inquiries made into the nature and extent of non-point source pollution in Narragansett Bay identified a problem amenable to public policy formulation.¹³

Step 2: Policy Formulation

The State of Rhode Island and/or the federal government formulates a public policy which addresses the problem identified in step one, in this case, non-point source pollution.

Step 3: Policy Implementation

The implementation of the public policy occurs with the adoption, promulgation, and enforcement of standards and regulations.

In each of the steps, scientific input necessarily underwrites the process. For example in step one, the inquiry and findings of the non-point source study are the basis for the problem statement; ie. that non-point sources contribute a significant amount of pollution to the Bay.

In step two, the scientific input behind the problem statement provides a basis for dividing non-point sources into categories or types. Such division can result in public policy formulation regarding the control and regulation of these categories or types of non-point source pollution.

In step three, the implementation stage, scientific input will play a role in creating the standards and regulations which have to be established. These standards and regulations must be able to withstand a test of whether or not they are arbitrary and capricious; a test normally based on the reasonableness of the scientific inquiry which generated the standards and regulations, as well as the achievability of those standards and regulations.

Thus, it is evident that both basic and applied science have played roles in management of the Bay. However, one may ask how to involve science to an even greater degree in decision making.

When a specific scientific research project is requested by a decision maker, then the research may very well influence policy formulation to a great degree. However, those scientific efforts which are being conducted for the sake of generating new knowledge about the bio-physical processes of the Bay must also be involved, and at present there appears to be no formalized institutional mechanism for transferring this new knowledge to the decision maker. Such a mechanism will require the following attributes:

1. The capability to derive findings from basic scientific research which are significant to the management process.
2. The capability to provide management agencies with findings which may be of public significance.
3. The capability to keep scientific researchers informed about the objectives of the management process.
4. The capability to translate scientific findings into public policies and programmatic formats.

NOTES

1. Charles J. Krasnoff and Associates, Inc. 1982. Industrial Wastewater Pretreatment Program. Pretreatment Limitations. (Providence, Rhode Island). 151+ pp.
2. For example, see Michael Pilson, et al. 1986. Principal Investigators for the Whole Bay Pollutant Distribution and Source Strength Monitoring-Metals and Nutrients. Narragansett Bay Project. Semi-annual Progress Reports.
3. Eva J. Hoffman, Project Manager, Narragansett Bay Project. March 13, 1986. Letter soliciting proposals for Narragansett Bay Workplan FY 86, with attachments. "Monitoring Mount Hope Bay for Bacteriological Contamination", pg. 5.
4. Jurgen Schmandt. 1984. Regulation and Science. Science, Technology, and Human Values 9(1): 26.
5. Harry W. Jones, ed. 1966. Law and the Social Role of Science. (The Rockefeller University Press, New York). pp. 124-125.
6. Schmandt, pg. 28.
7. Ibid, pp. 23-38.
8. Ibid, pg. 36, footnote # 34.
9. Giandomenico Majone. 1979. Process and Outcome in Regulatory Decision-Making. In: Carol H. Weiss and Allen H. Barton, eds. Making Bureaucracies Work (Sage Publications, Beverly Hills). pp. 240-241.
10. Providence Business News. February 16, 1987. "At Loggerheads: Biz ready to blitz new DEM air quality standards charging prohibitive costs." pg. 10.
11. Harvey A. Averch. 1985. A Strategic Analysis of Science and Technology Policy. (The Johns Hopkins University Press, Baltimore). pp. 98-99.
12. Hugh Gibbons. 1981. The Relationship Between Law and Science. Idea: The Journal of Law and Technology 22(1): 52.
13. Eva J. Hoffman and James G. Quinn. 1984. Hydrocarbons and Other Pollutants in Urban Runoff and Combined Sewer Overflows. (Graduate School of Oceanography, The University of Rhode Island, Kingston, Rhode Island). 691 pp.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

The scope of work undertaken for this study included data collection; descriptions of existing conditions and processes; and a presentation of problem definitions. Specifically not included in the scope of this study was the attempted resolution of the issues raised, since subsequent phases of the Narragansett Bay Project are to be directed towards such resolution. However, in order to assist in the development of subsequent phases, brief recommendations regarding possible resolutions of issues are presented following a summary of findings.

A. SUMMARY OF FINDINGS

Two primary findings have emerged from this study of the existing Bay management structure. The first is that the agencies with jurisdiction over the Bay exercise their authority through functional controls. For example, DEM has jurisdiction over pollution of the Bay, and this jurisdiction is exercised, in part, through the regulatory controls of water quality classifications and discharge permits. Similarly, municipal zoning ordinances, and broad categories of permitted uses regulate land-use by localities and the CRMC respectively.

The second primary finding is that there are three principal layers of authority or jurisdiction with respect to the Bay:

- a) A quasi-independent state-wide commission:
Coastal Zone Management Council jurisdiction over coastal zone land uses and adjacent water classification.
- b) A state-functional department:
Department of Environmental Management jurisdiction over water quality, and individual sewage disposal systems (ISDS).
- c) Local government:
municipal jurisdiction over land-use through zoning and building permits.

This fragmented, tri-governmental layering of authority with their respective responsibilities, and the nature of existing controls result in inconsistencies which have been analyzed in previous sections of the report. In short, it may be concluded that:

- a) Land-uses permitted by the CRMC based on CRMC water use types should be reconciled with water quality classifications designated by the DEM Water Quality Regulations for Water Pollution Control.
- b) Land-uses permitted by the CRMC should be reconciled with municipal zoning schemes as designated by local zoning ordinances.
- c) ISDS regulations should complement water quality classifications of the Bay.
- d) The fragmentation of jurisdiction precludes and inhibits the opportunity for needed policy changes and policy formulation for management of the Bay.

The existing process which attempts to resolve these inconsistencies is one of "overrides", meaning that where inconsistencies exist, a sequential approval system, statutorily prescribed, provides the only mechanism for resolution. This approval system consists of the initial determination of land-use along the coast made by localities through municipal zoning;

determination of the appropriateness of the proposed land use as it affects water quality by DEM; and finally, CRMC approval based on consistency with its program. This results in the fragmented jurisdiction wherein the authorities may be in conflict with one another.

Although these inconsistencies exist, each jurisdiction has legal legitimacy, and judicial courts have ruled that within each jurisdiction, ministerial powers cannot be waived. Therefore, in at least one instance, an outcome of the existing process has been that a municipality has had to approve of and grant a permit for a land-use which is in direct contradiction to the CRMC program. Thus, the system as it presently exists is one of "overrides", in which there are inconsistencies which prevent purposeful and holistic management of the Bay.

Such a system tends to isolate decisions at different levels of governance, and also has a tendency to abdicate responsibilities. If there is to be effective management, it seems evident that existing inconsistencies must be resolved.

B. TOWARDS RESOLUTION OF INCONSISTENCIES

What the study analysis has shown is that, in order to resolve the fragmentation, there are three basic requirements: regulatory consistency; coordination; and a mechanism for policy choices.

Regulatory Consistency

The first need is to reconcile land-uses permitted by the CRMC with DEM water quality classifications. As was shown in Chapter Four, Section One, land-uses allowed by the CRMC are in some cases, incompatible with water quality classifications, such that one state agency is at odds with another state agency in the permitting process.

Achieving compatibility may be constrained, in part, by the fact that these two functions, controlling land-use and water quality, are separate at the federal government level as well, in that EPA drives DEM while NOAA drives CRMC. Water quality classifications are based on the existing condition of the water, and the federal and state intent is to prevent further degradation.

However, a major variable which influences water quality is the development that occurs on land adjacent to the water. While the existing review process considers whether development will degrade water quality, there is the inherent conflict within this process: DEM regulates water quality such that land-uses are dependent upon existing water quality, ie. water quality is an independent variable while land-use is a dependent variable. On the other hand, CRMC regulates land-use such that water quality is dependent upon the existing (or future) land-use, ie. land-use is the independent variable while water quality is a dependent variable.

Since considerable leeway is provided under the CRMC enabling legislation, it may be possible to reconcile this conflict.

However, trade-offs will have to be considered. For example, in a specific site, if marina development is considered appropriate by the CMRC, a potential change in water classification may result. Clearly, if such determinations are made on a case-by-case basis, the continuing differences will be exacerbated. If, on the other hand, institutional agreements are made for a procedure which can account for these inevitable changes, water classification in the Bay could accomodate the state policies of both water quality maintenance and environmentally sound coastal land-use.

The second need was that of reconciling land-uses permitted by the CRMC with municipal zoning schemes. As was discussed in Chapter Four, Section One, and again mentioned above, land-uses allowed by a municipality may in some cases be disallowed by the CRMC, and thus, the two jurisdictions are inconsistent.

It is noted that during the preparation of the CRMC program, extraordinary efforts were made to discuss the program with local officials. Although no major objections were raised by municipalities during the hearings conducted prior to its adoption, individual communities never formalized the CRMC program as part of municipal statutes. The municipalities apparently accepted the jurisdictional overlaps, rather than make substantive land-use changes.

A method for reconciling land-use policies between the municipalities and the CRMC, would be to encourage localities to

develop and adopt local coastal zone plans as part of their zoning ordinances.

To ensure consistency between such municipal coastal zone plans and the CRMC program, a provision whereby CRMC would review the local plan for consistency and subsequently give approval, could be required.

It is apparent that the trend for development along the coastline is of increasing concern to municipalities; it is no longer just a state issue. A consistent state-local system would help solidify a working relationship between the two governmental institutions regarding land-use decisions such that both local and regional concerns are represented. The impetus for the local municipalities to adopt their own coastal zone plan would be these major development trends that are taking place. An additional impetus to drive communities to undertake such efforts would be the awarding of grants to help cover portions of the cost for developing plans.

Another argument for having local coastal zone management plans is that, since the CRMC program is far more general than municipal zoning ordinances, local plans could be more specific and inclusive of all parcels of land, providing for a more comprehensive management approach.

Any effort towards achieving consistency between the local government and CRMC land-uses will tend to lessen discontinuities in the regulatory system. A "double approval system" could still be maintained wherein a project would require approval on both a local and state level; the significant difference would be that

the basis for approval or disapproval would have a consistent framework.

Two possible routes for implementation may be considered. The first would be to enact legislation requiring coastal municipalities to adopt local coastal zone plans that are determined to be consistent with the CRMC program by review and approval of the CMRC.

The second route, also through enacting legislation, would be to enable local governments to adopt such coastal zone plans, and then adding the aforementioned incentive of having the state participate in the development process by awarding grants on the basis of the amount of shoreline the community has, with that award being contingent upon local adoption of the plan.

Variations on both these routes are possible.

It is important to note that there appear to be increasing pressures on coastal municipalities to adopt some type of growth management techniques, and that there is a growing public interest in this issue. Many coastal communities have already adopted growth management controls and have incorporated such provisions in their ordinances.

The third need was that of having ISDS regulations that complement water quality classifications.

A task force is currently reviewing ISDS procedures and standards, and it appears that recommendations will be made to calibrate standards which are reflective of fragile environments within the state, such as the coastal zone.

Coordination

The Narragansett Bay coastal region is undergoing and will continue to undergo change, as are all such subsets of the State of Rhode Island. While development pressures and continuing urbanization of the coastline is perhaps the most current issue, upgrading of water quality in the Bay will undoubtedly be a forthcoming issue with the massive public expenditures directed towards improvement of sewage facilities along the Bay. This will in turn create further opportunities for greater uses of the Bay.

Resource planning for Narragansett Bay remains relatively uncoordinated. The Rhode Island Statewide Planning Program; DEM water resources planning, CRMC planning; and municipal growth management planning remain relatively independent, and institutional linkages have yet to be developed between these groups, let alone the regulatory controls emanating from them as they pertain to the Bay.

Elements of coordination do exist within state agencies in a broader context. For example, within DEM, there is departmental coordination between the divisions that are responsible for water resources and quality, and ISDSs.

In addition, under the FWPCA a continuing planning process of water quality management plans for each of the river basins in the state is required.

DEM and the Statewide Planning Program jointly prepare the continuing planning process document, which includes waste

treatment facility planning, and generic river basins planning.^{1,2}

While the function of coordination has normally meant no more than information transfers and exchange, it would appear that on a technical agency level, such exchange and problem identification is an essential function for the management of the Bay.

However, no currently existing agency, department, or division within state government has the statutory power to coordinate the systems of regulatory controls.

CRMC remains relatively separate, and even the last link between DEM and CRMC has been recently severed by the termination of DEMs Division of Coastal Resources' role as the administrative arm of CRMC. How and on what basis institutional linkages can be established will require further evaluation of the different functions DEM and CMRC perform, and what each agency perceives its role to be.

If CMRC's function becomes narrowly quasi-judicial as a coastal land zoning board, then it may follow that planning implementation functions could reside outside the CMRC organizational framework.

However, if CRMC evolves into a more comprehensive coastal management body, its jurisdictional powers and administrative capabilities will require further review.

Public Policy Mechanism

Management is a purposeful process. It has at least four basic aspects: goal identification, strategy selection, implementation, and assessment.³

Taken as a whole, the management of Narragansett Bay will require the integration of a number of disparate goals now existing within the different agencies of government. They include a wide array of functional goals, ie. improving and/or maintaining water quality; appropriate land uses; preservation of open lands and fragile environments; increasing recreational opportunities; providing for the development of fishing and shellfish resources; protection of fish and wildlife; providing for the orderly use of the waters of Narragansett Bay.

Identification of goals is central to answering the question of what should be managed, and in answering this question policy choices will have to be made.

Regulatory agencies and the statutory powers under which they operate do not have the power to identify goals or make trade-off choices. In the complex system of the Narragansett Bay region, competing uses, and the different public needs of Rhode Island's society must be identified, sorted, and public policies formulated.

At present, there is no "keeper of the Bay". There is no mechanism for determining policy, the adequacy of existing regulations, where jurisdictional gaps must be closed, nor for examining relationships between parts of the existing system.

Policy choices regarding how to maintain an equilibrium between uses of the Bay, and changes which may be required, are issues which must be addressed holistically.

Whether a "super-agency" organization can function effectively remains debateable. Charles Lindblom, writing about the awareness of the environment as an interconnected system cautions:

It is a system. We are deeply impressed as we have never been before with the interrelationships of the parts. Believing, then, that everything is interconnected, we fall into the logical fallacy of believing the only way to improve those interconnections is to deal with them all at once.

Clearly, everything is connected. But because everything is connected, it is beyond our capacity to manipulate variables comprehensively. Because everything is interconnected the whole of the environmental problem is beyond our capacity to control in one unified policy. We have to find critical points of intervention - tactically defensible, or strategically defensible points of intervention.⁴

Part of the approach towards management of the Bay will be the painstaking steps for a review of the strengths and weaknesses of our present system.

NOTES

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Towards the Management
of Narragansett Bay:
An Institutional Analysis

RESPONSE TO COMMENTS

prepared for

The Narragansett Bay Project
The Department of Environmental Management

Intergovernmental Policy Analysis Program
The University of Rhode Island

June 30, 1987

In January, 1987, the Intergovernmental Policy Analysis Program submitted its report, Towards the Management of Narragansett Bay: An Institutional Analysis. The following April, the Policy and Management Issues Review Committee of the Narragansett Bay Project responded to the report with several comments and requests for changes. This addendum attempts to respond to those comments, and clarify particular statements and/or sections of the original report.

Page 11

COMMENTS

Does Massachusetts have a statewide pretreatment program?

A recent lawsuit has questioned NBC's pretreatment authority.

RESPONSES

The neighboring state of Massachusetts has not been delegated NPDES permitting responsibility and does not have a statewide pretreatment program.

It is noted that F. Ronci Co. has challenged NBC's pretreatment authority in court based on the following considerations:

- 1) The NBC is improperly constituted.
- 2) The hearing wherein F. Ronci Co.'s alleged violations were discussed was not carried out constitutionally and denied due process.
- 3) Other procedural and technical failures.

Thus, it appears that this lawsuit is based on alleged technical process failures, rather than substantive challenges of EPA's and DEM's delegation of powers to NBC regarding authority over pretreatment regulations.

Page 14

COMMENT

CRMC's jurisdiction is much wider than presented here. A liberal interpretation of the enabling legislation can give CRMC jurisdiction over developments of 6 units or greater, or areas with greater than one acre of parking in any area which would affect freshwater flows to estuarine areas. Aggressive pursuit of these areas of jurisdiction has been limited by staffing problems, not lack of authority.

RESPONSE

The purpose of this section of the report was simply to inventory agencies having legislative or regulatory authority impacting Narragansett Bay, identify the statutes that empower agencies with their authority, and the regulations and standards developed to implement this authority.

The statute giving CRMC authority relative to Individual Sewage Disposal Systems was identified, and the fact that CRMC has promulgated regulations and standards pertaining thereto was noted. The purpose of the inventory was not to discuss liberal interpretations of enabling legislation, or issues that may or may not interfere with pursuit of jurisdiction.

The authors did not mean to imply that CRMC's jurisdiction in this area was limited in any way. Rather, the sole attempt was to identify the agencies, statutes, regulations and standards that exist at the present time.

It is noted that jurisdiction is established by case precedent, and as the comment suggests, not every issue relative to CRMC's jurisdiction in the area of ISDSs has been addressed.

Page 32

COMMENT

Although SWP reviews some CRMC applications, their comments are not binding on CRMC. Also in A-95 review, SWP's positive comments is no guarantee that CRMC will issue any permit. Also CRMC can issue an assent before SWP comments are received.

RESPONSE

The report does not say that A-95 review is binding. IRP review (which replaced the A-95 process) is a review (advisory) function, not a determinative function. Therefore, it provides some consistency in state policies in reference to a number of state agency operations.

Page 51

COMMENT

This chart is misleading because some of these functions overlap. For example, when an agency issues a permit it also has enforcement functions. The terms here may be the problem. Does oversight mean enforcement, or does permitting authority include enforcement? Also, CRMC has

oversight function of town activities (has final say on permit for the activity can overrule towns).

RESPONSE

In this chart, regulation refers to an agency having regulations governing the responsibility. Oversight refers to a procedure of review and comment regarding an application for a permit, or making sure that a mandate is being carried out; the review and comment may or may not ultimately influence or be binding on the actual granting of the permit by the permitting agency. Permitting refers to an agency directly responsible for issuing a permit; in some cases, that same permitting agency may or may not have an enforcement branch to ensure that the conditions of the permit are met. Thus, the permitting authority may include enforcement, however, a second agency may actually carry out the enforcement.

Page 55

COMMENT

When did the GBYBA apply for a permit?

RESPONSE

GBYBA first approached the City of Warwick in November, 1981. The Individual Sewage Disposal System permit was granted, after a public hearing, on September 28, 1982.

Page 65

COMMENT

Coastal feature does not necessarily mean shoreline or mean high line; it could mean marsh, dunes, bluff, etc.

RESPONSE

The term coastal feature is not mentioned on page 65. If this comment was in regard to page 64, third paragraph, the sentence regarding coastal features was a direct quote, and it is not implied that shoreline features are defined or limited in any way.

COMMENTS

But apparently CRMC's authority supercedes that of the towns; i.e. the towns can be overruled by CRMC. However, CRMC won't consider anything without town permission. So in reality both must assent to the project. But because the goals of each are different, they review for different things. This may be a pain but, is this inconsistency.

There may be some confusion here. The DEM water quality classifications represent goals to protect the desired use. The actual conditions can vary considerably from the goals.

RESPONSES

It is maintained that having two zoning schemes for the same land area is an inconsistency in the institutional framework associated with management of the Bay. The inconsistency is in the realm of statutory requirements; in other words, local zoning may allow waterfront development including marinas. CRMC may prohibit marinas. It is not simply a matter of differing goals, but a matter of the statutory regulations. This inconsistency in the statutes and regulations is what is stressed by the authors, not the issues of whether or not the agencies review for different things.

In regard to water quality classifications, a water quality standard defines the water quality goals of a water body, or portion thereof, by designating the use or uses to be made of the water and by setting criteria necessary to protect the uses (emphases added. Section 6.1, Water Quality Regulations for Water Pollution Control).

The review comment is that the DEM water quality classifications represent goals to protect the desired use. Based on the above definition, the authors agree. However, the following statement, that the actual conditions can vary considerably from the goals, while true in theory, is not supported by the regulations. The authors refer to Appendix A, page 14 of the State of Rhode Island, Division of Water Resources, Department of Environmental Management, Water Quality Regulations for Water Pollution Control, which in part read:

NARRAGANSETT BAY DRAINAGE BASIN
And Other Sea Waters

<u>SECTION</u>	<u>Present Water Quality Conditions</u>	<u>Classifications</u>
Outer Apponaug Cove and Northwest of a line from Cedar Tree Point to end of Neptune Ave. on the west shore	SB	SB
Greenwich Cove south of Long Point	SC	SC
Wickford Cove	SC	SC
The waters in the vicinity of Quonset Point, north and east of a line from the southeastern corner of the boundary fence at Electric Boat to General Rock buoy, north of a line from Sauga Point to buoy 3, north and west of a line from buoy 3 to buoy 13, north and west of a line from buoy 13, to buoy 12, west of a line from buoy 12, to nun buoy 18 and south and west of a line from nun buoy 18 to a point approximately 3,000 feet north of Quonset Point	SB	SB

These particular areas of Narragansett Bay have been pointed out here because these were the ones utilized in the original study, and are indicative of the majority of situations in the Narragansett Bay Drainage Basin; of the 59 sections which have been classified with salt water designations (SA, SB, or SC), a total of 50 (including the ones shown above) have a Present Water Quality Conditions designation which is the same as its corresponding Classification (goal).

Thus, while the authors agree that, in theory, actual conditions could certainly vary considerably from the goals as stated in the review comment, the water quality regulations indicate that in most cases, actual conditions do not vary from the goals.

COMMENT

Title of table? Label tops of columns - which present, which proposed (date of proposal). This table seems very incomplete. Are these the non-SA areas only?

RESPONSE

This page was extracted directly from the State of Rhode Island Water Quality Regulations for Water Pollution Control, therefore the headings are the same as presented in response to the previous comment, and have been placed in the text of the report. There was no indication in the Regulations of the dates that each of the proposed highest use classifications were made. The inclusion of this page was only intended act as a representative sample of how waters of the Bay have been divided into sections and assigned classes; it is only coincidental that this particular page does not have SA areas.

COMMENT

This area illustrated here is where the East Greenwich sewage treatment plant discharges. It is heavily contaminated with sewage which makes bathing and shellfishing impractical; however the area has very nice salt marshes and park lands along the shore so that protection of the shoreline for wildlife protection makes sense. The DEM prohibited activities are to protect human health; CRMC wants to protect habitat in this case. Because the two classification systems were set up for different reasons (SA and SB have primarily human health implications; SC is what is left). CRMC looks at all the other implications. In this framework, the inconsistency is superficial.

This area is affected by leakage in ISDSs and boat sewage. That is why DEM doesn't want people to swim or shellfish in Wickford Cove. But again, the area has lots of suitable wildlife habitats (marshes). Also boating and SB waters (swimming) are not so incompatible as boating and SA waters (clams).

RESPONSE

It was not the intention of the authors to imply, in any of the four highlighted sections of the Bay, that either of the classifications were correct or incorrect. These areas were utilized as examples of how the two classification schemas might come into conflict when an activity along the shore (or perhaps in the water) is proposed. The permitting process must adhere to the classification system, and thus, this permitting process will, in some cases, lead to one agency of state government granting a permit or approval, and another agency denying. This is not superficial.

Page 74

COMMENT

Not sure that either "inconsistency" would "breakdown" the format because the criteria are different.

RESPONSE

The pyramidal format, as it has been used in the Chepiwanoxet case study, describes the set of permits which are required by CRMC before a CRMC permit may be granted.

The fact that local and state permits are required before CRMC considers an application, creates the appearance of a logical sequence of permits or approvals. This step-by-step approval process builds up to the final CRMC permit at the top of "apex" of the sequence.

The term inconsistency refers to any point in an agency's procedures where a second, or even third, agency also has procedures for meeting their own regulations; and the second or third agency's procedures end up interfering with effective Bay management.

The interference that arises as an outcome of such overlapping jurisdiction, whether created through legislative mandate or program implementation, are situations where one agency's regulations allow an activity that another agency's regulations disallow.

Thus, the continuity of the seemingly sequential process is broken by two agencies that are in conflict with one another. This is particularly noteworthy in the case of the CRMC, which has one set of zoning regulations, and the localities, which have an equally legitimate set of zoning regulations that do not always coincide with CRMC's.

This is also noteworthy in the case of CRMC, which has typologies governing water use, and DEM, which has an equally legitimate set of classifications governing water use which do not always coincide with CRMC's.

Pages 76, 77

COMMENT

A figure caption and legend would be helpful. Could figures and tables be interspersed throughout rather than at the end of each chapter.

RESPONSE

The authors attempted to place figures and tables in order as they appeared in the text. With regard to the Diagrams on these pages, the text referred to Diagram One, then Diagram Two, back to Diagram One, and back to Diagram Two. The authors made a judgement call regarding their placement, and it was felt that they should follow all references to them.

With regard to the Mount Hope Bay case study, since the figures and tables were referred to at different points in the text, it was also decided that they should be grouped together at the end of the chapter.

Pages 79, 80

COMMENT

Holistic reviews by CRMC come through SAM Plans.

RESPONSE

Institutional mechanisms have yet to be developed in order to carry out SAM plans. As long as these institutional mechanisms are non-existent, SAM plans are advisory in nature. For instance, DEM and SWP have a contractual mechanism to carry out 303e basin plans. For holistic review, CRMC may, or should have, a role in development of such a plan, but there is no existing institutional mechanism for such involvement (i.e. contractual relationship).

CRMC's present role and function of reviewing applications as the principal decision making mode, does not bring to CRMC issues which are more holistic; such problems usually do not arise in the existing CRMC process.

Page 88

COMMENT

The sewage task force pertained to Providence only.

RESPONSE

The authors made the general statement that "the State of Rhode Island was investigating the most efficient method of

controlling the development and operation of sewage treatment plants" based on the task force's final report which, directly quoted, states that the responsibilities of the task force were, in part, to:

"Investigate the most efficient method of control over the development and operation of the Providence sewage treatment plant and other plants,

Investigate how the state can accelerate the construction of the required upgrading and expansion of the Providence and other Rhode Island sewer systems (emphases added)".

The final recommendations made by the task force did, however, pertain to the Providence system alone.

Page 99

COMMENT

DEM participation also could have been limited earlier by lack of federal dollars for the additional staff and computer facilities required.

RESPONSE

As noted in the third paragraph, and consistent with the comment, one of the reasons put forth as to why DEM may not have been able to assume responsibility at an earlier time, was a lack of staff capabilities.

Page 101

COMMENT

NBC has also taken action against Abate & Ursillo, Co.

RESPONSE

Please note that NBC took enforcement action against Abate & Ursillo, Co., on March 20, 1987.

Page 101-102

COMMENT

The hesitancy was assumed by some but was not true. The NBC, in essence, gave industries time to put in pretreatment systems.

RESPONSE

The authors surmised that, despite being given time to put pretreatment systems in place, industries may have been reluctant to invest in systems that would meet EPA standards, when they were aware that NBC would be forthcoming with standards that would require stricter standards, and therefore, possibly require different systems to be able to meet those stricter standards.

Page 103

COMMENTS

Was there any attempt to get a consensus for a united front? Wasn't NBC data used as evidence by EPA? Did NBC feel that the two companies had made a good faith effort to comply? Why did EPA proceed with NBC data but without NBC legal participation. The committee felt there was more here than presented.

The EPA and DEM worked with NBC on the action against Victory and used NBC files for evidence.

Also please note here the Ronci action of 1986.

RESPONSES

Yes, there was an attempt to get consensus on the suits. EPA, DEM and NBC all met together to discuss the action to be taken against Victory Polishing and Plating Co., Inc. and National Plating in November of 1984. This is stated on page 103 of the report. It was at this time that DEM agreed to take action along with EPA against Victory and National while, as stated on page 103, NBC's policy was to get users onto a compliance schedule first (Personal Communication, Howard Cohen, December 20, 1985 and NBC, Industrial Wastewater Pretreatment Program Annual Report, pg. 13.).

Yes, data from the NBC files were used as evidence by EPA in the Victory and National cases. NBC documents were subpoenaed and staff members were deposed in this suit. EPA and DEM worked with NBC in this action (NBC News, March, 1986, Volume 3, Issue 2; Juan Mariscal, NBC, January 1987 review comments, Tom Brueckner, June 23, 1987).

It is the authors' presumption that NBC had not come to a conclusion regarding efforts towards good faith by these firms. However, NBC acted in concert with EPA in the suit.

EPA proceeded with NBC data because this was the credible data available at the time. By entering into participation in the suit during the establishment of a compliance schedule, NBC's credibility would be questioned (please see page 103 of the report). It also was, and continues to be, NBC policy that their enforcement actions will be undertaken separately.

The case against Ronci is discussed in the second to last paragraph.

Page 105

COMMENTS

There were meetings between EPA, DEM and NBC on each agencies' respective role.

Does site-specific sampling refer to sampling of individual industries? Please clarify.

RESPONSES

It is the authors' belief that EPA, DEM, and NBC dealt with each agency's respective role in these cases. However there was never a discussion of a commonly developed, long-term strategy on how to get all users in compliance.

Yes, site-specific sampling refers to the action of taking a sample of a specific industry's discharge, and determining whether or not that discharge violates standards. This is separate from the activity of going to designated points in the sewer system, for example, taking a sample, and determining that discharges in general must be violating standards.

Page 111

COMMENT

Part B seems redundant - already discussed earlier. Reiteration could be useful, however, if people only read certain chapters.

RESPONSE

This case study was developed separately, and in order to develop the history of the NEI, which was needed to reconstruct the issue, the authors felt it was necessary to discuss the history of the water quality classification as well, even though some parts were repeating what was explained in the Chepiwanoxet case study.

COMMENTS

What was EPA doing during this time? What was FDA doing?

Transcripts of the public hearing in Massachusetts? Newspaper accounts? Interviews with old timers in Fall River? Old timers at NEI? Who in Rhode Island asked NEI to help? Does he know who was at NEI at the time? Did anyone from Rhode Island attend the Massachusetts hearing?

RESPONSES

As explained in footnote 23, EPA had not been created at the time these events were occurring. EPA was not formed until December 2, 1970, and therefore, the FWPCA was being administered by the Department of Health, Education and Welfare.

There was no indication in any part of the search that the FDA was involved in the differential classification of Mount Hope Bay at the state line. FDA made a position statement at the EPA conference regarding The Report on Pollution of the Interstate Waters of Mount Hope Bay and its Tributary Basins. This statement was made within the framework of the National Shellfish Sanitation Program, and dealt with the shellfish resources in the Bay. FDA recommended that a pollution abatement program for the Bay include consideration for reclamation of both commercial and recreational shellfish growing areas in Mount Hope Bay; and EPA's recommendations concerning control and/or elimination of both municipal and industrial pollutants which rendered the Bay unfit for direct market harvesting were endorsed. This statement did not deal with the classification issue. The authors did research to see if there were any impacts affecting FDA activities because of the differential classification, and could find none.

Many efforts were made to reconstruct the events that took place in regard to this issue. NEI sent information available in its files. An extensive search in DEM's Division of Water Resources files yielded no records of this event. Several agency officials who were active in the state at this time were contacted, including Carleton Maine, Rhode Island Departments of Health and Environmental Management; Charles Dickerson, NEI; Walter Shea, NEI; Al Peloquin, former Director of NEI; and Charles Foster, former Massachusetts Secretary of Environmental Affairs. In addition, many other agency personnel who are currently in office were contacted including Russ Isaacs, Massachusetts Department of Environmental Quality Engineering; Al Kupperman, Massachusetts Department of Environmental Quality Engineering; Walter Newman, Environmental Protection Agency, Office of Environmental Evaluation; Steve Morin, John Cronin,

Captain Frank Papa, and Phil Albert from the Rhode Island Department of Environmental Management.

Despite these efforts and conversations, very little information was forthcoming, and in many cases, the information that did come forth was conjecture, with no substantiating evidence. Therefore, the authors were obliged to indicate that this information could not be documented; this does not mean however, that the attempt to do so was not made.

Page 121

COMMENT

What is Massachusetts' current attitude about resolution?

RESPONSE

Massachusetts does not appear to recognize or feel that there is any problem that needs to be resolved based on the interviews with DEQE.

Page 122

COMMENT

This whole case study did not really identify either the original cause of the conflict nor why it remains. As a result, this chapter lacks a punch line.

RESPONSE

Pages 111 - 116 provide a history of how the conflict originated; a change in federal legislation allowed re-classification of interstate waters in a unilateral manner.

On page 121, the authors discuss why the conflict remains:

1. There has been a lack of cooperation on the part of the signatory states;
2. There was a failure in the institutional framework of NEI and EPA, in that these organizations had no conflict resolution mechanism;
3. There has not been a significant public policy issue resulting from this classification difference.

While research led to some conjecture as to whether or not the Massachusetts classification system was embedded in a state - local conflict (that is, the unwillingness of the state to mandate upgrading of a number of local sewer facilities without additional state financial aid, and/or to exert regulatory

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jurisdiction), this remains largely undocumented, meaning that there is no evidence to substantiate such a state - local power struggle. While it may be a plausible explanation for the resultant classification, the authors' inability to document the case precluded discussion in the report.

Page 133

COMMENT

The committee found this whole chapter too general.

RESPONSE

The authors were expected to derive the information for this chapter through an analysis of the case studies. It was found, however, that these case studies, chosen by the Narragansett Bay Project Committee, not the authors, yielded very little information about the role of science. As described on page 133, two methodologies were to be used:

1. An analysis of the case studies to determine the role of science in existing management processes,
2. A review of existing literature to determine if the present role played by science is consistent with current knowledge.

Since the role of science in these case studies was limited, the authors' analysis was necessarily limited; thus the "general" nature of the chapter.

Page 138

COMMENT

Use of MERL data was minimal then, and there has been no effort for a follow up using more recent results.

RESPONSE

While the use of MERL data may have been minimal, it was cited in the Krasnoff report. In addition, the authors wish to note that several attempts have been organized to try to establish institutional linkages between MERL and the state agencies dealing with the Bay (DEM, DOH, SWP). This data was included as part of the Working Draft Document submitted to the Narragansett Bay Project on May 13, 1986.

Page 142

COMMENT

Why discuss air quality standards? What does that have to do with Narragansett Bay management (different division, different legislation)?

RESPONSE

The discussion of air quality standards was used as a generic example to support the point that all scientific research findings, including those relative to Narragansett Bay, must be translated into public policies, which in turn must be socially and economically viable. For example, managers must be able to translate the finding that 0.05 mg/l of chlorine causes tumors on the gills of fish, into a policy regarding the emission of chlorine into the environment. That policy, in turn, must result in less chlorine entering the environment, and at the same time ensure that industrial users discharging chlorine as a part of their manufacturing process are not put out of business.

If the management structure of Narragansett Bay is to utilize scientific information in the generation of standards then, there must be a translation mechanism, as has been shown with the example of air quality standards.

Page 158

COMMENT

Some coordination does take place with SAM plans and pre-permit application meetings of CRMC. These are vehicles already in place for coastal management.

RESPONSE

The authors recognize the existance of SAM plans and pre-permit application hearings. However, the coordination being referred to was meant to imply a more generic sense of the word, i.e. an "institutional mechanism" or "linkage" between agencies that is more formal, and not based solely on a specific application(s).

Page 159

COMMENT

CRMC has legislative authority to serve as a coordinating body. There is no mention of group sessions, SAM plans, ISDS task force, stormwater task force, SWP technical committee, etc.

RESPONSE

While CRMC's legislative authority may be to serve as a coordinating body, the lead role of coordination has yet to be assumed by the agency. The ISDS task force was organized by DEM. The SWP technical committees providing technical advice are institutionally embedded in the SWP program. The authors recognize that there is a lead coordinating role by CRMC in the pre-permit application function, however, the authors are speaking of coordination above and beyond the context of a specific application.

For example, the question regarding the amount of water to be released from the Pawtuxet River may have a profound impact on the quality of Narragansett Bay, and yet at no time will this issue come before CRMC as a permit application. There is no existing institutional mechanism to involve CRMC in this decision stream.