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Base Realignment and Closure - 93: Impacts on Western Aquidneck Island an Opportunity for Enrichment

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by
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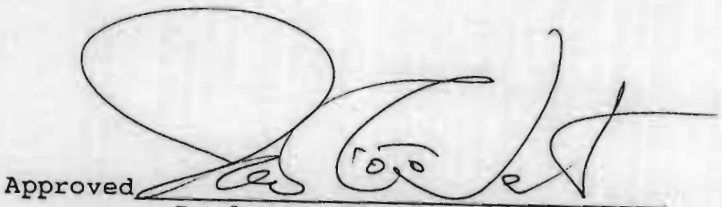

Approved

Professor Niels West

University of Rhode Island
1994

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I - INTRODUCTION

This paper will develop a conceptual Use/Resource model which may be of use in analyzing coastal zone conflicts. The Use/Resource model will be applied to provide an outline for a cooperative enrichment plan for Western Aquidenck Island, Rhode Island. Future studies of Western Aquidenck Island or other coastal communities may be able to use the model to quantify the level of Use/Resource cooperation. Heuristic application of the Model along Western Aquidenck may highlight the level of conflict or cooperation in working towards an enrichment plan.

The focus of the enrichment plan will be to improve the quality of life in the western coastal zone of the Island by properly balancing use and preservation of the coastal resources. The paper will focus on six key natural resources found on this island. These resources are; biodiversity, fish (benthic and pelagic), water quality, water space, wetlands, and land. The beneficial relationships which have recently been made possible through the enactment of federal legislation intended to speed and smooth the post cold war transition from a military to civilian focused industrial economy will be examined. The National goals of reducing military infrastructure will be compared with the State and local goals for boosting the Aquidneck Island Economy.

National Goals

In the late 1980's the cold war came to an end with the collapse of the USSR economic and political system. The USSR was forced to reduce its military permitting the United States to reduce it's expenditures in military operations accordingly. The National goal of reducing military expenditure is being carried out by simultaneously reducing the number of personnel on active duty and the amount of operational equipment. To permit a gradual orderly reduction in military forces Congress began reducing the military budget and directed that the Secretary of Defense realign the military bases to achieve cost effective operations. The Base Realignment and Closure (BRAC) process[1] is the primary method by which the military infrastructure is being reduced. There have been three post cold war BRAC's (1988, 91, 93) with another scheduled for 1995. The end result of the BRAC process will be fewer operational military installations.

In the Coastal waters of the United States this process will mean fewer operational Naval Bases. The Naval Station in Newport RI, home to US Navy ships of the line for over 120 years,[2] was closed as a result of BRAC 93. Newport RI remains the center for the Naval War College (NWC), the Naval Education and Training Center (NETC) and the Naval

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[1] Base Closures and Realignments, U.S. Code, Title 10, Sec 2687 (1994).

[2] "The Last Ship," Providence Journal, 17 May 1994, sec. A, p. 1.

Undersea Warfare Center (NUWC). The impact of BRAC 93 (closing the Naval Station) on the coastal zone of western Aquidneck island will be examined using the structure of the Use/Resource model.

Local Goals

Both local and State goals for Aquidneck island will also be examined. For many years the towns of Newport, Middletown and Portsmouth operated as separate townships which did little to capitalize on the strengths of each other and their natural physiographic assets. This has recently changed with the formation of the Economic Innovation Council (EIC). This organization seeks to generate entrepreneurial business opportunities. The towns have embarked on a series of meetings and joint planning sessions to define how these island communities may best capitalize on each others strengths. A plan Aquidneck Island 2000[3] has proposed a series of unique goals/elements for the island. This paper examines the goals which will have a impact on the coastal zone of western Aquidneck island. Some of the specific goals that will be examined are;[4] [5]

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[3]Newport Chamber of Commerce and Economic Innovation Council, Aquidneck Island 2000 Aquidenck Island Economic Guide Plan, 20 November 1993, p. 2.

[4]Aquidneck Island Community Compact, Draft Funding Proposal for The West Side Development Project to the U.S. Department of Commerce Economic Development Administration, 20 May 1994, p. 1.

- Redevelopment of west side industrial sites to support job creation in marine and tourism industries;
  -- Boat building
  -- Marine Technology

- Design of and intermodal transportation system;

- Rail line repair and Sakonnet River Bridge construction for freight/commuter/tourist connection to Fall River, Cape Cod and Boston;

- Creation of commercial and public recreation activity centers.
  -- Provide opportunities to enjoy Natural Beauty
  -- Develop a quality tourist trade on Aquidneck island
  -- Develop Cruise Ship Terminal
  -- Recreation Path
  -- Sailing opportunities
  -- Golf opportunities

These goals will be discussed in light of the various forces at play in the coastal zone of western Aquidenck island.

User Groups - The user groups with an interest in Western Aquidenck Island include: The United States Navy, the Cities of Newport, Middletown and Portsmouth, the State of Rhode Island, recreational boaters/fisherman, commercial fisherman, construction companies, real estate agents, Rail Road line owners and environmental special interest groups. The Use/Resource model will be used to provide a framework for conflict resolution and will be proposed as an analytical framework. As part of the conflict resolution the author will examine the multifaceted economic, governmental, and political forces in the coastal zone along

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[5]Aquidenck 2000, p. 2.

western Aquidneck island. The key interests of these seemingly disparate groups will be matched to see if a pattern emerges which points to the success of a plan which will maximize the utility of the resource while minimizing the conflict among the user groups.

II - HISTORY OF WESTERN AQUIDENCK ISLAND

An understanding of the physical formation of Narragansett Bay and surrounding coastal areas is helpful in understanding the setting in which user resource conflict occurs. The interested reader may find numerous textbooks and general references available for a more in depth treatment of the geology, hydrology and biological majesty of this Bay.

Physiography

The Narragansett Bay is the third largest bay along the East coast of the United States. Its climate is greatly influenced by the distribution of land and water. This land water distribution acts to moderate the temperature extremes. The winter temperatures are somewhat higher and summer somewhat lower than inland locations. The annual precipitation is 42.09 inches with 41.6 days of frozen precipitation.[6] Severe weather in the form of hurricanes

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[6]Naval Education and Training Center, Local Area Forecaster's Handbook, (Newport, RI: Naval Training Meteorology and Oceanography Detachment, 1989), p. II-1.

and or destructive tropical and extratropical storms is a statistical certainty. Hurricanes effect the Aquidenck island area on the average once every eight years with hurricane force winds impacting the area on the average once every 15 years.

The topography of western Aquidenck island was shaped by bedrock geology, glaciation, and recent erosion. The geology controlled locations of ancient river valleys which were gouged out by glaciers. The hills are formed by bedrock highs. A mantle of poorly sorted till, an average of 20 feet thick, was spread over the bedrock during the Wisconsin glaciation. As the glaciers melted, ocean levels rose and flooded the river valleys, forming the passages of Narragansett Bay.[7]

The flora and fauna along the western coastline of Aquidenck Island are strongly influenced by human activity. The coastline is interspersed with areas of low shrub, perennial weeds and grasses. Significant portions of deciduous forest were cleared to permit operation of a rail line and a Navy owned road (Burma road) in the western portion of Aquidenck. The fauna have also been affected by human activity and largely consist of mammals which can adapt to man's influences.

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[7]Naval Education and Training Center, Newport, Rhode Island, Focused Feasibility Study Site 01- McAllister Point Landfill, July 1993, p. 1-4.

The Bay occupies three former river valleys which were submerged by the advance of the Atlantic Ocean. The Bay is 20 miles long and 11 miles wide and covers 102 square miles. The average depth of the bay is 30 feet. The Eastern Passage which separates Western Aquidenck island from, Conanicut, Gould and Prudence islands has a 80 ft channel with depths in excess of 150 feet near the mouth of the bay.[8]

Hydrology

Aquidenck island has a north south primary axis. The watershed of the island also follows this primary axis.

> Western Aquidenck island is part of the Narragansett Bay draining basin. This basin covers and area of 1850 square miles. 1030 square miles are in Massachusetts and 820 square miles are in Rhode Island. All surface water drainage from the basin flows into Narragansett Bay. Three major rivers, the Taunton, Blackstone and Pawtucket, as well as the Providence River and a number of smaller rivers and streams, drain into Narragansett Bay.[9]

The potential for pollutant migration from surface runoff through the western portion of Aquidenck island is considerable if areas of contaminated soil are present in drainage areas.

Surface water classifications have been made by the Rhode Island Department of Environmental Management.

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[8]Ibid., p. 1-5.

[9]Ibid., p. 1-7.

> Most of Narragansett Bay is classified as SA which means it is suitable for bathing and contact recreation, shellfish harvesting for direct human consumption and fish and wildlife habitat. Some areas are classified as SB which means that they are suitable for public drinking water with appropriate treatment, agricultural uses, bathing, other primary contact recreational activities, and fish and wildlife habitat. Areas classified as SC are suitable for boating, other secondary contact recreational activities, fish and wildlife habitat, industrial cooling and good aesthetic value.[10]

The most significant risk to surface water is from Agricultural runoff, surface runoff from landfills and hydrocarbons from rail lines, roads and parking lots.

Regional Ground Water Hydrogeology

In depth discussion of the ground water along western Aquidenck Island will not be presented here. For the purposes of this discussion it is important to note that the groundwater is found in an aquifer formed from unconsolidated glacial till and outwash. The ground water moves from under the watershed along western Aquidneck via an aquifer network, some of which is pumped from wells with the remainder flowing into Narragansett Bay. One of the most significant risks to groundwater contamination along the western Aquidenck island comes from underground storage tanks, landfills and Agricultural irrigation.

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[10]Ibid., p. 1-9.

III THE USE/RESOURCE MODEL

This section describes the conceptual model which will be used as an analytical tool throughout the remainder of the paper. General characteristics of the different user groups and their approaches to the utilization of coastal resources is discussed. This is followed by a discussion of Western Aquidenck.

General Groups and Categories

The forces at play in the study area do not differ significantly from any other coastal zone in the United States or its territories. There are two basic groups desiring access to the coastal resources. They may be broadly defined as the "Developer" and the "Conservationist". Conceptually both the developer and the conservationist represent two diametrically opposed views with regard to use of the resources.

Developer Characteristics

In the following discussion the group of individuals who make their living by developing coastal resources for profit will be known as a "developer." The "developer" represents those who desire access to coastal resources for the purpose of exploiting the resource for commercial gain (profit). The developer's bottom line is always profit. Conservation of the coastal resource only enters if the profit margin

stands to gain by the consideration. For example, a fisherman may agree to limit his catch to avoid decimating the stock. The fisherman would support a quota system that limits the quantity of fish in the market to ensure optimization of a profit function[11]. The group of individuals includes, but is not limited to;

- Manufacturers of oil, gas, chemicals, minerals.
- Harvest business, fish, Aquaculture (Benthic, Pelagic)
- Resort development, hotels, motels, tennis, golf, sailing rental centers.
- Dwelling development, beach/bay view housing, marina development, retail development to capitalize on Nautical themes.

The tendency for a development group to minimize its marginal cost[12] is often apparent in the consumption of the resource. To optimize profit, marginal cost must be kept at a minimum. In most cases the cost of acquiring the raw natural resource represents the most expensive part of the marginal cost curve. Understandably, the developer will do what is necessary to acquire the natural resource at the lowest possible price. There is often an unseen cost not directly accounted for in acquiring a natural resource. These unseen costs are called externalities[13].

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[11]Edwards, Steven F., An Introduction to Coastal Zone Economics; Concepts, Methods, and Case Studies, (New York: Taylor & Francis, 1987), p. 11.

[12]Gwartney, James D., and Stroup, Richard L., Economics Private and Public Choice, (New York: Harcourt Brace Jovanovich College Publishers, 1992), p. 456.

[13]Ibid., p. 86.

Externalities may be either positive (beneficial) or negative.

Negative externalities are created when a developer uses a resource and does not include the full cost of the resource in its marginal cost curve. An example may illustrate the concept. Two companies are located along a river, company A and Company B. Company A is up river from Company B. Both companies need fresh clean water for producing widgets. Company A has a full supply of fresh clean water to produce its widgets. As a result of company A's widget manufacturing process it discharges it's waste into the river which then flows down to company B. Before company B can begin to use the water it must clean it to the point where it can be used. The cost of cleaning the water represents a negative externality which is passed down the river by company A. Who should bear the cost associated with the production of widgets at company A? Ideally, company A includes the cost of properly disposing of its manufacture by-product by including the cost of cleaning its wastes in the price of it's widgets.

Before the awakening of environmental awareness in the late 1960's/early 1970's, developers were able to formulate a system of federal legislative support that did not require them to include external costs in their products. Development meant jobs, income and prosperity. In some cases developers of coastal resources developed to the point

of destroying the very resources they came to develop. The building of hotels on beach front property to take advantage of the beach view has ruined the view that the developers valued. This is another form of a negative externality which has reduced the view or aesthetic value of the beach front property. In the late 60's and early 70's the conservationist movement began to take hold and succeeded in influencing government to force developers to internalize what might have been passed along as an external cost. Collectively this group will be called "conservationist"

The Conservationist

The Conservationist objectives are to protect specific coastal resources. As a corollary objective is to seek an improved quality of life through a clean well managed environment. The group generally desires to protect the coastal zone in its current state and reverse, where possible, any damage to existing coastal resources. In this paper this group will be characterized as follows;

- Intrinsic value of coastal resources is greater than the sum of individual market worth.
- Aesthetic value is a key concept presented as a non-market item that is highly valued by a significant sector of society.
- Restrict/prevent growth in the coastal zone.
- Prevent any actions that may harm,
  -- Wildlife
  -- Modification of coastal morphology.
  -- Water quality

- Undiscovered potentials. Unknown teleconections to other systems affecting man's ability to live a healthy life on the planet.

While most of the general population would agree with the ideals held up by the conservationist, the question in the market based economy is; How much will upholding these ideals cost? The continual tension between the developer and the conservationist is who pays for these ideals? How much is a clean beach worth? The list of questions goes on and on. It is this very tension that has given rise to an entire subdiscipline in the field of economics, natural resource valuation.[14]

Resource Utilization Model

The following model (Figure 1) has been developed to help provide a frame work for examining the conflict between competing resource uses along Western Aquidneck Island. The model is presented as a 2 X 2 contingency table where one axis represents the resource and the other axis the conservationist/Developer continuum.

Use Spectra - provides a framework for analyzing institutional approaches to resource use. At the extreme ends of the Conservationist/Developer axis is the Conservationist who in its purest form wants to conserve all resources. In the context of this paper the conservationist is generally concerned with public good. At the other end

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[14]Ibid., p. 717.

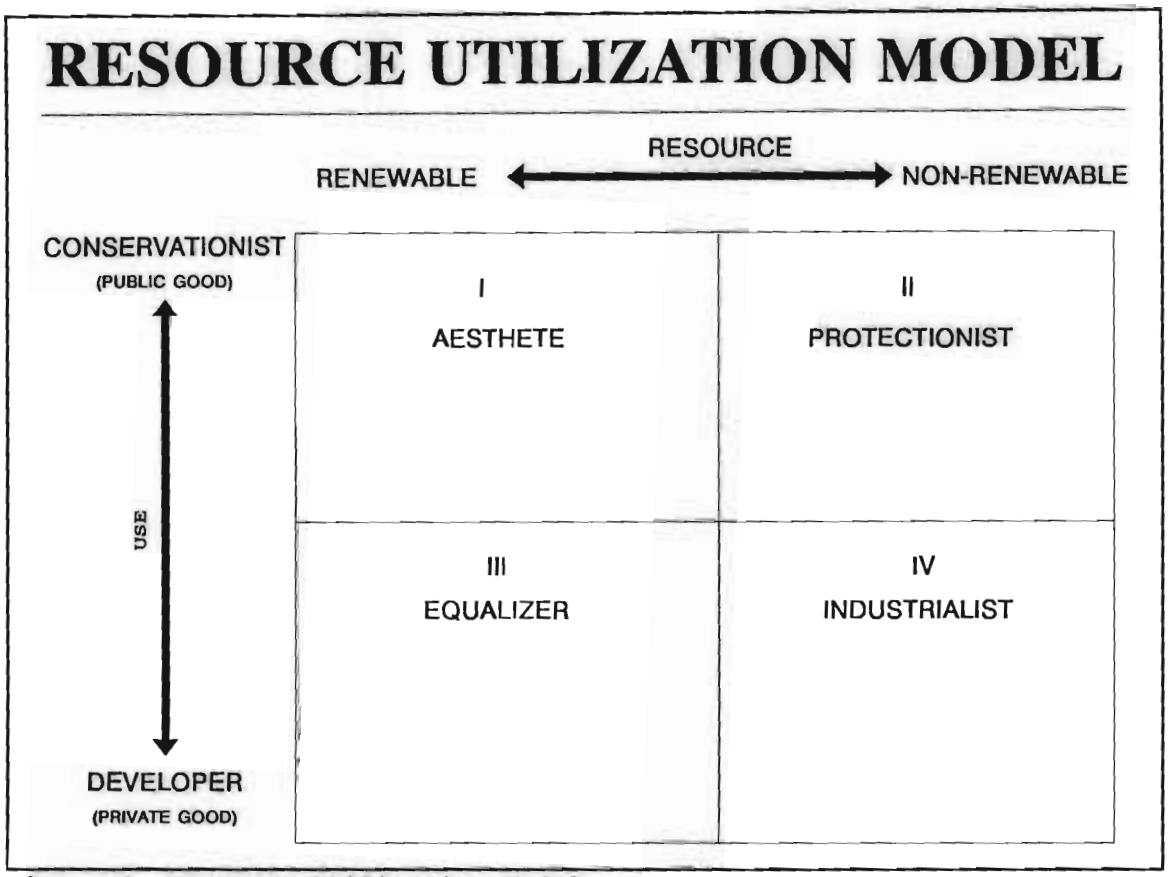

Figure 1 Resource Utilization Model

of the use spectrum is the developer who is largely motivated by profit maximization. For this discussion the developer is primarily concerned with private good.

Resource Spectra - provides a framework for analyzing the coastal resource or commodity. The horizontal axis represents the renewable/non-renewable spectrum. Renewable resources are located at the far left end of the spectra and non-renewable resources to the far right. Fish provide a good example of a renewable resource, trees, marsh grass and other living things are generally categorized as renewable. Significant exceptions exist in the plant and animal world when species approach or reach extinction. For the purposes

of this discussion the author has presumed that renewable resources can maintain a long term sustainable yield. Examples of non-renewable resources include land and coastal waters.

This model provides a highly simplified way of identifying conflicting interests in the context of a scarce resource. Each cell represents a group of individuals who share a common set of ideals. The goals embodied by the intersection of each user and resource is summarized by the four terms in each of the four cells. The characteristics of each of these groups is described below. The group names are:

- Aesthete (Block I)
- Protectionist (Block II)
- Equalizer (Block III)
- Industrialist (Block IV)

The naming convention is intended to reflect something about the characteristics that organizations found in these quadrants of the Resource Utilization Model would share.

Moving from left to right, the model reflects an increased dependence on non-renewable resources. Moving from top to bottom in the model the groups range from a strict conservationist at the top to the developer at the bottom. In reality few groups fall squarely into the extremes presented in the model but represent a continuum in two dimensions. The objective of the coastal manager along

Western Aquidneck Island is to build reasonable compromises among all the use groups.

Block I (Aesthete) is represented by a group of individuals who are conservationist and are strongly driven by an altruistic sense of what is good for the earth and its inhabitants. Groups in this quadrant highly value the aesthetic element of natural resources thus their name "Aesthete." This group desires to drive the resource spectrum to reflect "what it would be like if man weren't around to impact the process". This group desires a benign renewable resource consumption by the human population. This group highly values the observation of a natural un-adulterated environment.

Block II (Protectionist) is represented by the group of individuals that desire to stop the consumption of non-renewable resources and protect the living creatures from extinction. This group seeks to reduce the consumption of non-renewable resources by finding alternative renewable resources. Groups in this category seek to protect the non-renewable resources thus their name "Protectionist". This group strongly feels that the use of non-renewable resources is harmful to the earth and appear to be in conflict with present day practices and the condition which would prevail without the consumption of non-renewable resources. This group's approach towards using non-renewable resources is similar to "Aesthete" use/non use of renewable resources.

Block III (Equalizer) represents the group of individuals that makes a living from renewable resources and desires to develop those resources to the maximum extent possible without adversely impacting their financial well being. If self regulated this group will develop until renewable resources are consumed at the replacement rate. The tendency for this group is to continue consuming to the point where their consumption is equal to the rate of resource renewal. This balance between the consumption of non-renewable and renewable resources provides this group with its name "Equalizer." This group is only concerned with aesthetics if it affects the value of the resource that they are developing. For example, a realtor would be concerned with coastal development that may block/obstruct the view from a coastal housing development. Fisheries are another excellent example of a group which fall into the Block III organization. Common to all groups in this category is their desire to maximize their profit while exerting political pressure to ensure the continued profitability of their enterprise.

Block IV (Industrialist) is represented by the group of individuals that desires to consume/manufacture items from non-renewable resources as long as it is economically profitable. Groups in this cell use raw materials to produce durable consumer goods. Groups in this quadrant are referred to as "industrialist" to reflect their orientation

towards the production of durable goods. Coastal examples include Marina development, light industry (boat building) and marine technology industries.

Group Resource/Use Classification

To properly test the validity of this model a survey of users should be developed. This was not done for this paper; none-the-less it is believed that the conceptual model has some validity. To successfully categorize each of the users in the coastal Zone of study the following classification scheme will be used. It is anticipated that this classification scheme may provide a useful framework to classify the resource conflicts occurring in the coastal zone. Properly classifying user groups is one of the most critical steps in developing a successful management plan. Each critical resource in the coastal zone will be presented and categorized on the renewable or non-renewable resource axis discussed above. Next the user groups will be placed along the use continuum. The importance of each resource to the user groups will then be evaluated.

Resource Spectrum

The significant resources in the coastal zone of Aquidenck island from left to right on the resource spectrum are Bio-diversity, Fish, water quality, wetlands, waters and land. Generally the further to the left on the resource spectrum

the more sensitive the resource is to external use pressures.

Bio-diversity - is a general descriptive term which reflects the ability of an ecosystem to support multiple species of plants and animals. An ecosystem which reflects high bio-diversity is capable of sustaining itself indefinitely. The healthy biological community will consist of a number of different complimentary species. If left in a natural state such a community will regulate itself through a complex system of predator prey relationships. This balance is delicate and can easily be upset by man.

Fish - While it could be argued that this resource should be considered part of the Bio-diversity resource it is singled out because this group is highly sought after as a food source for man. The fish in Narragansett Bay that are considered economically important include both benthic and pelagic species. The pelagic fish (water column) which are sought after by the sport fisherman include the striped bass, bluefish, tautaug and squid. The benthic fish (bottom dwellers) include the lobster, quahog (clams), scallops, mussels and cod. In some parts of Narragansett Bay it appears that Oysters have been making a comeback as water quality has improved.[15] The shellfish are very sensitive to water quality. Most of the bi-valve mollusks (clams) are

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[15]Flippen, Alan, "After 50 Years, R.I. Oysters May be Making a Comeback"Oysters," New York Times, 5 Nov. 1989, sec. A, p. 40.

filter feeders and concentrate both organic and inorganic pollutants in their bodies. For this reason shellfish may not be safely taken from areas where water quality is poor.

Water Quality - The quality of the water is important to almost every water use of Narragansett bay. Fishing, swimming, boating and almost every other biological resource depends on clean bay water. The water quality in the bay is reduced from two main types of pollution point and non-point sources. Point source pollution comes from factories and sewage outfalls. Non-point source pollution comes from runoff from highways, parking lots, farmland and residential areas. Point source pollution is relatively simple to measure because the pollution enters the receiving waters at specific locations. Non-point source pollution however is extremely difficult to measure and control because its production occurs throughout the watershed and requires a regulatory system much more detailed and involved compared to the system controlling point source pollution.

Wetlands - are another resource of western Aquidenck island. Most of the wetlands occur where surface waters from the western watershed meet Narragansett bay. Wetlands are not particularly abundant along western Aquidenck island due to the topography of the Island. The relief of the island lends itself to excellent drainage and thus there is a relative paucity of wetlands.

Land/Water Space - The East passage is limited by the width of the bay between Aquidenck, Gould and Prudence islands. The water is further limited by the presence of a shipping channel. In some areas deep water is limited on the western portion of the island. Three of the most important deep water access points include: Goat island, Coddington Cove, and Melville Basin. Each of these natural deep water areas have been enhanced by dredging through the years by the Navy and the private sector. Water depths between 20 - 60 feet are ideal for harvesting lobster and other shellfish.

Land space on the island is by definition limited. The island land cover consists of a mix of agriculture, housing, shopping centers and light industry. The existing zoning ordinances further restrict land use. The location of deep water access close to shore is also a limiting factor on uses of the land in the coastal zone. Deep draft vessels such as Navy Ships, cruise liners and cargo ships all require deep water access to permit efficient offload/onload operations. This fact limits deep draft port development to those sections of the coast where water depths are adequate.

Use Spectrum

As was previously discussed the developer and conservationist form the two extremes of the use continuum (Figure 1). Each user group demonstrates characteristics typical of either developers or conservationist. The categories of resource users are; light industry, construction, non-extractive and open space groups. Examples of these groups may be found in Table I. Each group will be reviewed with respect to their primary characteristics. Each user group usually has a well defined set of values/goals that influence the degree of development/conservation. The users of marine resources along western Aquidenck island range from development to conservation. While few organizations fall entirely within one of the cells in Figure 1 they do tend to favor one of the two endpoints in the continuum.

Table I shows some of the groups who are resource users along western Aquidenck island. Each column represents an attempt to group the organizations with an interest in the coastal zone of western Aquidenck island. The categories have been selected to allow comparison and grouping of organizations who behave in a similar fashion with regard to consumption of resources.

Light Industry - This group is characterized by corporations and businesses that make a living in part through the extraction and processing of natural resources.

Table I Users of Coastal Resources

DEVELOPERS			CONSERVATIONIST
EXTRACTIVE LIGHT INDUSTRY	BUILDERS	NON-EXTRACTIVE	NATURAL STATE
OCEAN TECHNOLOGY	HOME BUILDERS	BIRD WATCHING	CONSERVATION SOCIETY
COMMERCIAL FISHING	COMMERCIAL BUILDER	SAILING BOATING	SAVE THE BAY
RECREATIONAL FISHING	MARINA/PORT DEVELOPMENT	PICNICKING	AQUIDENCK ISLAND FOUNDATION
SPORT DIVING/FISHING	TENNIS, GOLF COURSE BUILDERS	HIKING, CYCLING	
NUWC		US NAVY	

They may be considered to be primary consumers or processors of resources. Examples of activities falling in this category include; Ocean Technology development, boat building, commercial and recreational fishing, sport diving/fishing. Ocean technology groups such as the Naval Undersea Warfare Center, and boat building may require water space and some shore citing to test and develop new technologies.

Commercial/recreational fisherman depend on the availability of abundant fish supplies for their livelihood. Sport divers and spear fisherman also depend on active underwater biota to make the diving pleasurable and in some cases profitable. The light industry group is a primary user of fish, waters and land.

Builder - This group is primarily motivated by private good or profit. The home and commercial builders need to

continue to build in order to stay in business. Often realty companies will be allied with the builders because of the profit they stand to gain through selling new developments. The resources that they use range from water quality to land/water space consumption. In terms of water quality builders may adversely impact water quality through development plans which increase non-point source runoff. Point source pollution such as sewage effluent may also be caused by construction activities especially if existing sewage treatment capacity insufficient to deal with the added load. The specific developments may include marinas, and coastal laboratories. While it is possible to build test and evaluation centers away from the coast final test and evaluation ranges are required to conduct operational tests. These evaluation centers may contribute to development pressure in the coastal region.

Non-Extractive - There are a number of non-extractive activities which can be accommodated within the study area. These activities include, hiking, roller-blading, cycling. These uses focus on the enjoyment of the aesthetic value of the zone. Aesthetic value is a collective term used to describe the attributes of a scenery in this case the coastal zone which are pleasing to the senses. In order to maximize the use of the aesthetic resources of Western Aquidenck Island it is necessary to designate an area where these resources may be enjoyed. The non-extractive

enjoyment that is possible by simply viewing the Narragansett Bay does result in some development pressure. While picnicking, cycling and roller-blading do not consume the resource some development pressure is exerted to make this non-extractive recreation possible. Overview locations, and recreation trails are needed to provide sustained opportunities for these kinds of non-consumptive use. Such activities favor safe, healthy transit paths. Probably the most significant non-extractive user group in the Western Aquidenck Island coastal zone is the United States Navy (USN).

On the local level the USN is highly visible within the study area through NETC, NUWC, NWC and various military housing developments most of which are also located within the coastal zone. Recently (April 1994) Newport ceased to be homeport for US Navy Ships of the Line. Additionally, the Shore Intermediate Activity which repaired the ships located in Newport was also closed (May 1994). These closures, mandated by the Base Realignment and Closure process, have created opportunity for development of alterative uses of the Navy waterfront.

The fact that the Navy is decreasing in size means that at the local level the Navy is no longer expanding its uses of Natural resources such as valuable coastal property. Because of this reduction the Navy may declare property in excess of its needs. For the coastal zone manager the

important point in today's defense climate is to understand that the Navy is looking for opportunities to reduce its infrastructure by declaring property as surplus. One of the most significant facts impacting the Navy's ability to make property available for alternate uses is the environmental health of the property. Environmentally sensitive management of natural resources is a top priority among Naval Base Commanding Officers.

The Navy has a mandate to conduct all of its operations in an environmentally safe and effective fashion. This directive, The Environmental and Natural Resources Program Manual, provides detailed guidance for the effective environmental management of Navy property. This publication provides guidance to Base Commanding Officers for satisfactory daily operations. This Navy guidance coupled with environmental legislation details very specific courses of action for the base Commanding Officer. In condensed form his direction is to operate a base in consonance with the natural environment consistent with Navy goals, and Federal and State Legislation. Three things are important from this section:

- Commanding Officers of Naval Bases are required to protect and properly manage natural resources under their control.
- Due to world political changes the Navy is getting smaller and will be declaring property as surpluses to reduce infrastructure costs.

- All Federal and most State environmental laws regarding environmental remediation apply to the Navy bases who desire to transfer property.

These three factors indicate that the Navy is allied with groups who desire a clean environment.

Conservationist - One of the most effective local level natural state organizations is "Save the Bay". This organization stated mission is:

> ...to ensure that the environmental quality of Narragansett Bay and its watershed is restored and protected from the harmful effects of human activity. Save the bay seeks carefully planned use of the Bay and its watershed to allow the natural system to function normally and healthfully, both now and in the future.

Its actions include:

- Watching over activities and programs of government and citizenry that degrade the environmental quality of the Bay, basin and watershed.
- ...initiating programs.. that increase environmental awareness and public knowledge.
- Initiating action that will directly clean up the Bay.[16]

Since its inception Save the Bay has actively defended preservation of the Bay and has largely been responsible for many of the significant improvements in Bay quality over the last 24 years. There are other local level organizations too numerous to mention here which also act as conservationist users. Generally this group does not directly use coastal resources but through its programs

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[16]Massie, Fredrick D., ed., Save the Bay 1991 Annual Report (Providence RI: Universal Press, 1991), p. 3.

aimed at limiting growth it may effectively bind coastal resources and prevent development.

IV - FEDERAL/STATE ENVIRONMENTAL LEGISLATION

During the late 1960's there was an awakening of environmental conscience in the United States. This was brought on by a number of incidents (Oil spills, polluted rivers, pesticide contamination, etc.) that focused attention on the problems of pollution. This was the period where science began to reveal the extent of the hazards present in the unchecked release of pollutants to the waters and atmosphere. In response to the growing environmental awareness, Congress wrote a series of environmental laws in an effort to reverse the degradation of the physical environment. The enacted legislation can be grouped into two regulatory approaches; laws which were intended to deter and those which sought remediation through inducement. Both approaches have been used to influence policy/decision making in Coastal Zone Management.

Deterrent Environmental Legislation

Deterrent environmental legislation can be defined as any legislative act that imposes restrictions on the actions of persons, groups or industries which tend to adversely impact the environment. Deterrent environmental legislation can be proactive or reactive. Proactive legislation seeks to deter

harmful environmental acts before they occur, while reactive environmental legislation is often penal in nature and addresses acts which adversely impact the environment. Some examples of proactive deterrent environmental legislation are;

- **Clean Water Act (CWA)** (1967) 33 USC, as amended by the Federal Water Pollution Act (1972) were intended to restore an maintain the quality of the Nation's waters.[17] This act is important to the coastal zone of western Aquidneck Island because of the numerous sewage outfalls that empty into the Bay.

- **The National Environmental Policy Act (NEPA)** (1969) was one of the first pieces of deterrent environmental legislation passed in this country. This legislation was intended to deter harmful development practices. NEPA calls for the development of environmental impact statements (EIS) for any major federal action which would significantly impact the quality of the human environment. To ensure that the full range of potential impacts were considered in the EIS this process was open to public comment. The "public forum" element of NEPA was contained within many pieces of environmental legislation that followed. Greater detail on the NEPA may be found in 42 USC 4321 et seq.

- **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)** CERCLA provides remedies for releases or threatened releases of hazardous substances from a hazardous waste facility and for clean-up actions that will cure releases and prevent future releases. CERCLA was amended by the Superfund Amendments and Reauthorization Act 1986 (SARA). CERCLA and SARA are frequently referred to as "Superfund." CERCLA is a comprehensive response program for <u>past</u> hazardous waste activities.[18]

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[17]Naval Facilities Engineering Command, Installation Restoration Manual, p. 1-7.

[18]Philpott, A.R., Naval Justice School Newport RI, <u>The Environmental Law Deskbook</u>, (Newport, RI: NETC Press, October 1991), p. 23-1.

CERCLA is managed by the Environmental Protection Agency. It is invoked in cases where any hazardous substances, pollutants, or contaminants have been released or are being released into the environment. In former defense sites this legislation acts as a significant deterrent in preventing damage to the environment. There are two methods of dealing with sites that have been contaminated with hazardous substances, removal and remediation. Removal refers to the physical removal of the hazardous substance from an area and is normally limited to 2 million dollars and 12 months of work. Remediation is a dedicated long term program to restore the environmental quality of an area. Most of the environmental cleanup work required on Navy Property on Aquidneck Island is of the remedial nature. To assist Defense activities in financing site cleanup/remediation the Defense Environmental Restoration Account (DERA) was established.

SARA modified CERCLA by establishing new priorities and timetables, modifying affected parties' rights in litigation, and restructuring the criteria for remedy selection. SARA significantly altered federal facility compliance under CERCLA. Federal facilities are subject to the same provisions of CERCLA that apply to any non-governmental activity.

National Contingency Plan (NCP) 40 CFR Part 300. The NCP provides detail for clean-ups under CERCLA. Under

CERCLA § 9605(a), the NCP provides a methodology for discovering, evaluating, and remedying releases of hazardous substances. The NCP also contains criteria for listing sites on the National Priorities List (NPL).

The National Priority List (NPL) The NPL is generated using a Hazardous Ranking System which are found in 42 C.F.R. Part 300 in the NCP. Because all hazardous waste sites are evaluated using the same criteria it is possible to compare which sites have the greatest potential to harm human health. The Navy currently is remediating sites in the coastal zone of western Aquidenck Island which are listed on the National Priority List.

Defense Environmental Restoration Program (DERP) - 10 U.S.C. § 2701 et. seq., provides the Secretary of Defense the authority to carry out environmental restoration at military facilities. DERP is a DoD program but it is implemented in consultation with EPA and consistent with CERCLA § 9620.[19]

[19]Ibid., p. 23-5.

Inducement Environmental Legislation

Of all the legislation passed during the early 1970's the premier act intended to stimulate States to develop coastal plans was the Coastal Zone Management Act.

Coastal Zone Management Act (CZMA) (1972)(16 U.S.C. § 1451 et seq. as amended). The CZMA is an ideal example of legislation intended to act in a proactive fashion to shape the outcome of policy in the coastal zone. It was enacted to encourage states to manage and conserve coastal areas as a unique, irreplaceable resource. It is intended to assist in the protection, enhancement, restoration and development of coastal resources. This inducement is accomplished by providing financial support to states with operational Coastal Zone Management Programs. One important aspect of the Coastal Zone Management Act is that the Federal Government actions must be consistent with the Federally approved Coastal Zone management Plan.

> The Coastal Zone Management Act is a cross cutting statute which can apply to a broad range of actions. Like NEPA, CZMA compliance should be on the planning checklist for activities in coastal regions. The CZMA provides statute for the state government to regulate activities in the coastal zone. Amendments to the CZMA require that Federal actions are consistent "to the maximum extent practicable" (i.e., consistent with the State's Federally approved coastal management plan). The act has the enforceable provisions of the relevant approved state management programs whenever those activities:
>
> 1. are within or outside the coastal zone and affect any land or water use or natural resource of the coastal zone; or

2. constitute undertaking any development project in the coastal zone.[20]

The CZMA amendment 1990 significantly strengthened the obligations of the Federal Government to operate consistent with a state's CZM plan. Since CZMA's enactment in 1972 some thirty (out of a total of 36) coastal jurisdictions have approved plans covering in excess of 80% of the nations coastal zone. The widespread adaptations of Coastal Zone planning complicates the job of the federal facilitator in the coastal zone. When a federal agency is considering an action in the coastal zone it is important that the proposed action is closely coordinated with the state's Coastal Zone Management Plan (CZMP). As the Navy considers a new round of base closures it is especially important for the Federal facility coordinator to know and understand the States CZM plan. A Federal, State and Environmental Protection Agency agreement known as a Federal Facility Compliance Agreement has been worked out for NETC in Newport. This agreement provides procedural guidance for the environmental managers at NETC.[21] By developing an agreement such as this, the complex web of Federal, Executive Branch, and State environmental legislation is worked out.

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[20]Ibid., p. 12-1.

[21] United States Environmental Protection Agency Region I and the State of Rhode Island and the United States Department of the Navy; Federal Facility Agreement under CERCLA §120.

As the Federal environmental legislation was put into place during the early 1970's the Navy had other threats to contend with in addition to the environmental ones. The cold was at its height and serious choices had to be made between maintaining operations and developing new environmental programs. It was against this back drop that the Navy started its Environmental programs.

V - THE NAVY ENVIRONMENTAL PROGRAM

The continued operational/budgetary dichotomy between Navy mission and the environmental stewardship will be discussed in this section. The current philosophy or vision statement of the Department of the Navy with regard to the environment will be examined.

History

The Department of the Navy (DoN) was established in 1798. The mission of the Navy was and remains the protection of US interests on the Sea and in the littoral. Some of the DoN's major functions are to:

> organize, train, equip and furnish Navy and Marine Corps forces for the conduct of prompt and sustained combat incident to operations at sea, including operations of sea-based aircraft and land-based naval air components--specifically, forces to seek out and destroy enemy naval forces and to suppress enemy sea commerce, to gain and maintain general naval supremacy, to establish and maintain local superiority in an area of naval operations, to seize and defend advanced naval bases, and to conduct such land, air, and space

> operations as may be essential to the prosecution of a naval campaign.[22]

It is important to note that environmental programs are neither explicitly nor implicitly addressed in the charter. There were no forces to cause the DoN to change its primary mission focus to include environmental programs for almost 172 years. The DoN like most federal organizations, did not have a direct charter to develop and enforce programs in environmental protection. With the implementation of the procedural provisions of the National Environmental Policy Act (NEPA) 42 U.S.C. 4321-4347 in 1972 this began to change. After the passage of the NEPA in 1969 the Department of the Navy was specifically bound to follow the National Environmental Policy articulated by Congress.

The Council on Environmental Quality (CEQ) regulations[23] (40 CFR parts 1500-1508) provided some specific guidance for the DoN and other federal organizations. The CEQ provided guidance for compliance with NEPA but the specific guidance and degree of involvement was very clearly stated in 32 CFR 775. This Code provided policy guidance;

> The Department of the Navy will act with care to ensure that, in conducting its mission of providing for the national defense, it does so in a manner consistent with national environmental policies. In so doing the Navy recognizes that the NEPA process includes the

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[22]Armed Forces Staff College, PUB 1, 1993, p. 1-14.

[23]Council on Environmental Quality, U.S. Code, Title 40, Sec. 1500-1517. (1992)

> systematic examination of the likely environmental consequences of implementing a proposed action. To be an effective decision making tool this process will be integrated with other Navy-Marine Corps project planning at the earliest possible time.[24]

To implement these requirements the Navy had to provide instructions and guidance to Navy leaders fleet wide. These instructions were issued in notices within the DoN. Currently, the key instruction providing guidance to the operational level in Environmental program management is The Environmental and Natural Resources Program Manual discussed earlier. This publication like others which preceded it provides detailed guidance to help bridge the gap from the relatively broad guidance given in the CFR to areas and issues that face Naval leaders. The guidance given in this publication is broken down at the local level into site environmental plans.

The Decade of the 1970'S has been known as the "Stewardship Decade" of the environmental era.[25] It was during this period that the Navy like many other branches of the federal government were developing a systematic approach to dealing with past environmental transgressions and trying to find ways to maintain readiness without unduly sacrificing the environment. It was during this time frame

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[24]Procedures for Implementing the National Environmental Policy Act, U.S. Code, Title 32, Sec. 775.3 (1993)

[25]King, Lauriston R., and Jennings, Feenan D., "The Executive and the Oceans: Three decades of United States Marine Policy," (MTS) Journal, (February 1988): 20.

that the Navy developed an organizational structure to formulate policy, implement programs and establish priorities with regard to environmental programs.[26]

Effective reorganization was considered vital to the success of the now mandated environmental programs. Some of the organizational changes were mandated by the 32 CFR §755.4 others were evolutionary during the "Stewardship Decade."

This section of the CFR provided specific duties to the Assistant Secretary on the Navy for Installations and the Environment, the Chief of Naval Operations and the Commandant of the Marine Corps. It is important to keep in mind that these environmental programs were being developed during the 1970's at a time when the cold war showed no signs of thawing. The Navy was simultaneously being tasked with being prepared to meet and defeat any maritime threat while maintaining a level of environmental stewardship that the USN had not been required to adhere to before. An equal level of environmental compliance was not required of adversarial forces. What presented a greater risk to the US way of life, environmental issues or the unchecked spread of communist power? No doubt these were serious concerns for the senior Naval leaders during the 1970's.

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[26]Curlin James W., Organizing the National Effort, NACOA, 1979, p. 15.

Organizational Structure

It has been said that there are policy implications in organizational structure.[27] The Department of the Navy is no different in this respect. A quick review of the roles and functions of the Navy is necessary to understand the placement of the environmental group within this structure.

The Chief of Naval Operations is the Navy's military chief who is charged with the complete responsibility for operations as well as supporting logistics and administration. He assists the Secretary of the Navy in executing his responsibilities.[28] The important tasking and operational linkage in the Navy is called the chain of command. For this paper the important part of the chain of command is detailed in Figure 2 the Navy Installation Restoration Manual. As may be seen the Chief of Naval Operations (CNO) through his Vice Chief and Assistant Vice Chief provides direction to the Deputy Chief of Naval Operations (DCNO) for Logistics (N4).

The DCNO for logistics is responsible for coordinating with the Assistant Secretary of the Navy (Installations and the Environment), the Deputy Assistant Secretary of Defense, other services, EPA, and other Federal Agencies. While funding will be discussed below it is important to note that

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[27]Lawrence Juda, Lecture on Federal Ocean Policy, as quoted in Marine Affairs 602, University of Rhode Island, Jun 1993.

[28]PUB 1, p. 1-14.

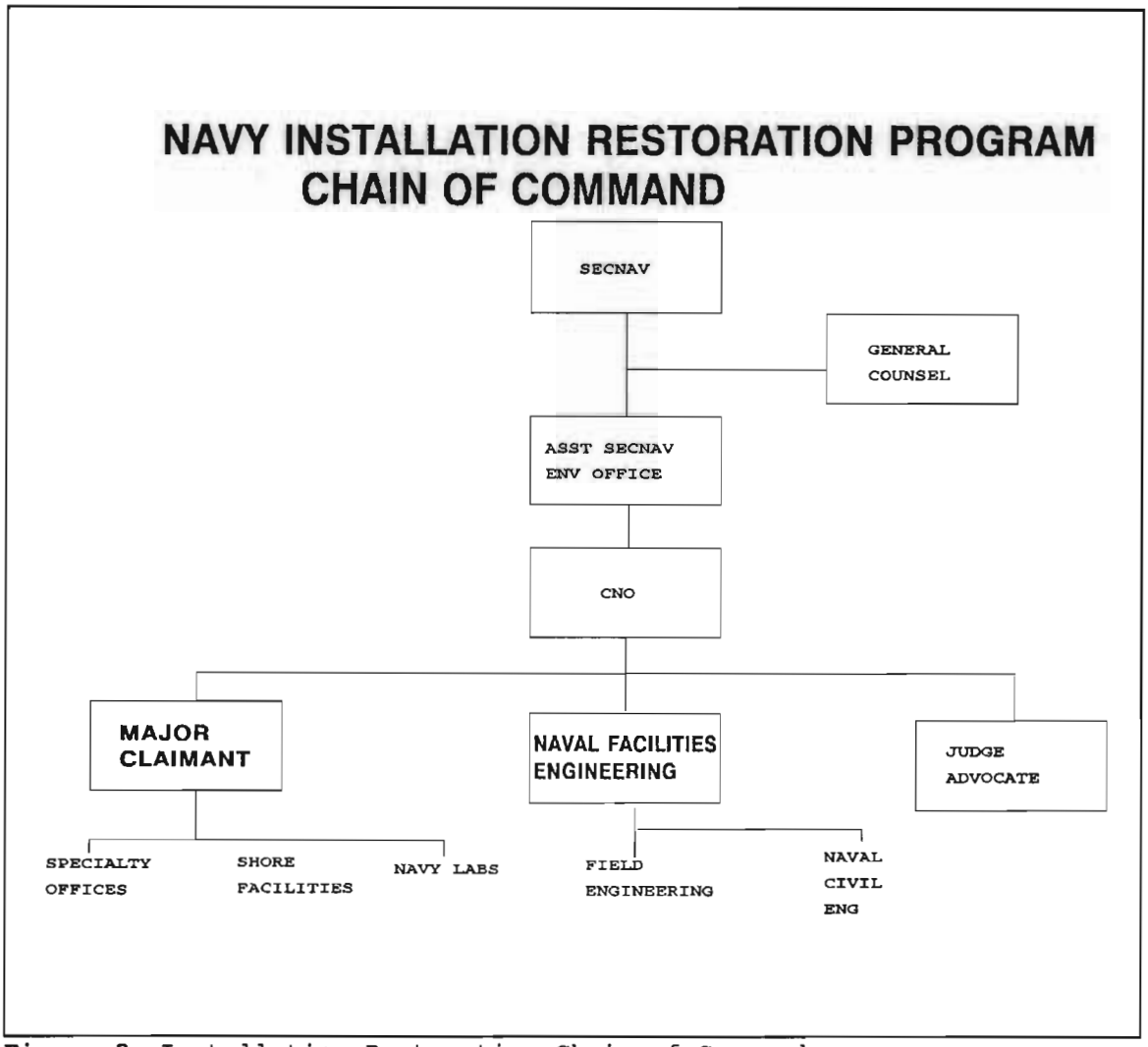

Figure 2 Installation Restoration Chain of Command (IR Manual, 1988)

other Assistant CNO'S are tasked with establishing requirements and providing resources, consistent with their missions and functions.[29] The environmental group within logistics is designated N45. This office is the responsible organization on the CNO staff for environmental affairs. It is responsible for the overall environmental program

[29]Department of the Navy, Office of the Chief of Naval Operations, Environmental and Natural Resources Program Manual, OPNAVINST 5090.1A, (Washington, DC) 2 Oct 1990, p. 1-9.

administration which provides guidance to the operational level.

The operational level is divided into two branches Support and Regional Operations. Support operations are primarily carried out by the Naval Facilities Engineering Command and the Regional operations are carried out by the Major Claimants.[30] Individual shore activities report to the Major Claimants. It is at the shore activity level that

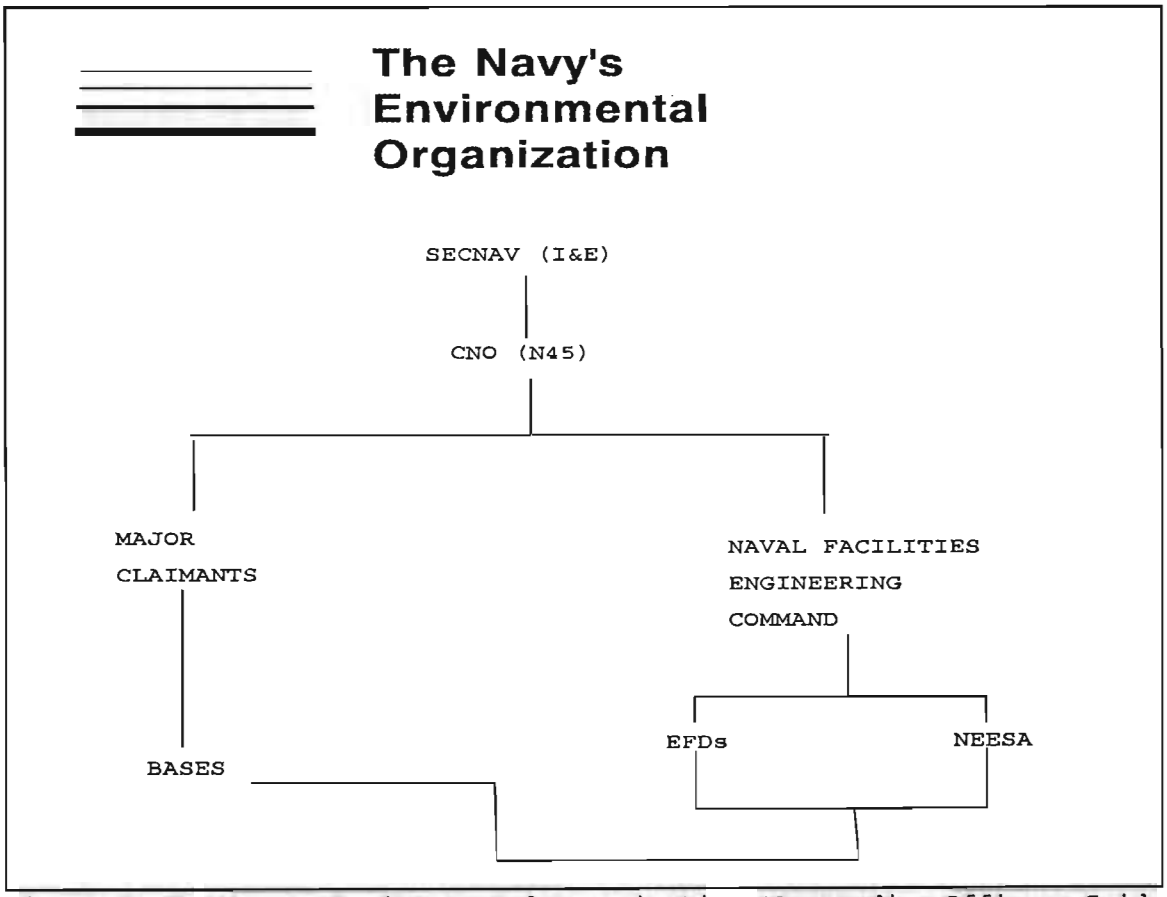

Figure 3 The Navy's Environmental Organization (Commanding Officers Guide to Environmental Compliance, p. 21)

[30]Major Claimant is part of the organizational structure of the Navy. In the Chain of Command they are found just below the Chief of Naval Operations.

effective or ineffective environmental programs are most easily evaluated. Ideally, major claimants are supported by the support operations structure (see Figure 3) The level of support provided by commands in the Support Structure is almost solely dependent upon funding that the Major Claimant makes available. This chain of command is also important for instilling leadership/management guidance to lower echelon Navy activities. It is via this support structure that the Navy's environmental philosophy and vision are articulated.

Environmental Philosophy/Vision

The Navy Environmental vision has been well thought out and articulated to all leaders in the Navy. The Vision statement is:

"Demonstrate Environmental Leadership While Executing the Navy Mission."[31]

This vision is to be carried out through a broad --- environmental and natural resources program that integrates environmental awareness into all Navy functions and operations. The program focus on four areas;

- **Installation Restoration** - restores past hazardous waste disposal sites on Navy shore activities;
- **Compliance** (ashore and afloat) - ensures compliance with present federal, state, and local environmental laws and regulations;

[31]Office of the Chief of Naval Operations (N45), Director, Environmental Protection, Safety and Occupational Health Division, United States Navy Environmental Program Meeting the Challenge, p. 1.

- **Pollution Prevention** - prevents or minimizes future pollution; and
- **Stewardship** - which provides for conservation of our natural and historical resources.[32]

This vision statement appears throughout all major plans and programs put forward in the Navy. Guidance to support this vision is published in the Environmental and Natural Resources Program Manual[33] which provides guidance at the operational level. This particular manual provides detailed coverage in each of the four program areas mentioned above.

To properly support this vision it is important for the Navy to provide adequate resources in the form of personnel, training and funding.

Resource Allocation

Environmental programs in the Navy must compete with all other programs for the scarce department dollars. It is often said in government service that budget making is policy making. The lines of funding environmental programs in the Navy are not as clear as the chain of command which is charged with administrating these same programs. Funding for the major claimant environmental programs comes through two primary funding paths, directly from the DoN budget and

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[32]Ibid., p. 2.

[33]OPNAVINST 5090.1A

via Compliance/Restoration accounts.[34] Figure 4 shows these two general funding paths. While the funding paths are not as clear cut as the chain of command they are roughly parallel. It is up to the major claimants to articulate their funding needs up the chain of command to support operational programs. The ability of a major claimant to successfully defend its budget submission for environmental programs will determine how well it will execute the Navy Environmental Vision.

The funding path for the DoN environmental programs does not differ from the funding path for other Navy operations. It must be remembered that the Environmental Vision is only one of a number of vision statements which to be effective must be funded to appropriate levels. Federal law (CWA, CAA, CERCLA, NEPA, CZMA etc.) mandates that all activities operate within certain environmental constraints. To operate within the imposed constraints a certain level of funding is required. The level of funding required to ensure DoN compliance must always compete with programs required to support war fighting. It must be remembered that the environmental programs in most cases do not directly contribute to the overall Navy mission of;

> ...Maintaining sea control... to protect American interests around the globe.

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[34]The Naval Energy and Environmental Support Activity, Navy Commanding Officers Guide to Environmental Compliance, January 1991, p. 24.

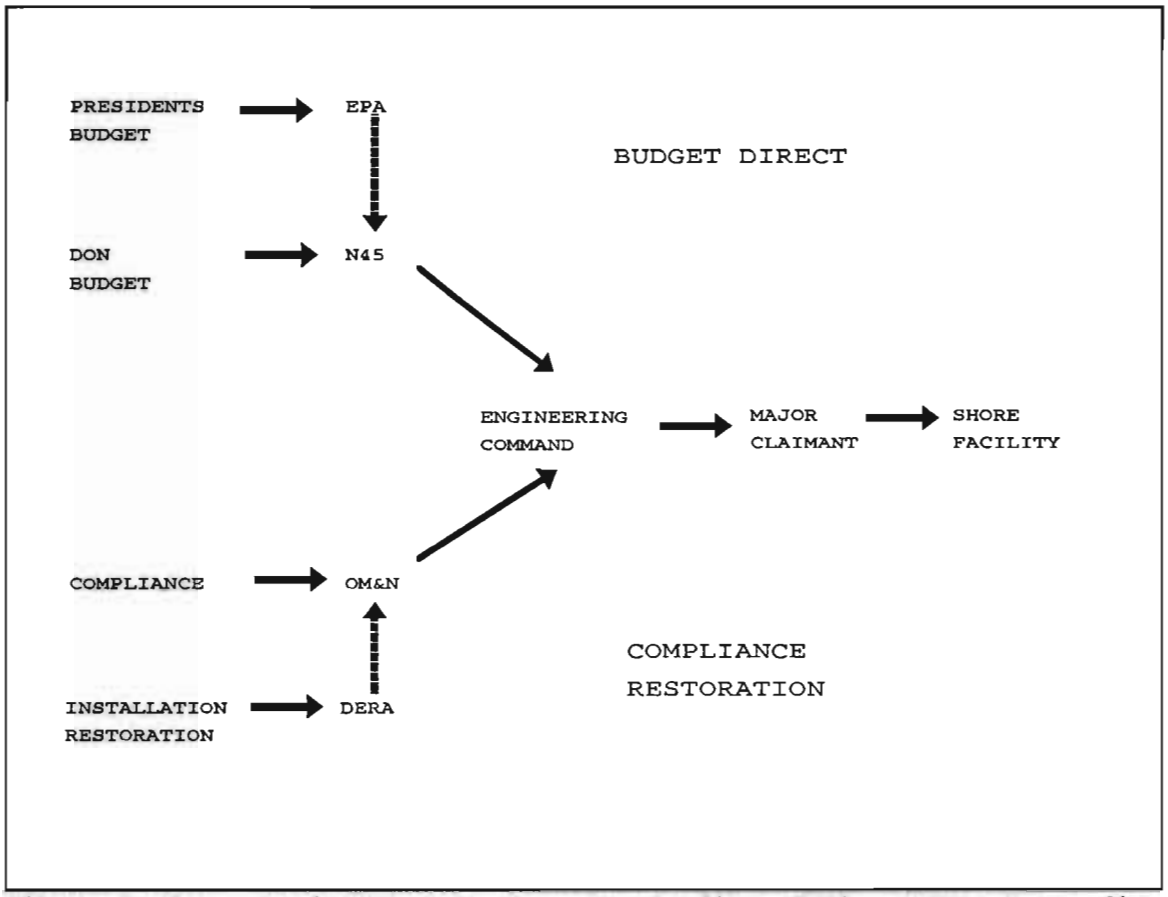

Figure 4 Navy Environmental Program Funding Path (Navy Commanding Officers Guide to Environmental Compliance, p. 24)

This fact creates a continual budget dichotomy in the resource allocation decisions of the Naval Leader.

Enforcement/Compliance

Enforcement of environmental compliance for Naval Shore activities is carried out in accordance with Federal regulations and EPA policy.[35] The shore activity is responsible to the major claimant for carrying out an aggressive environmental compliance program. There are

[35]OPNAVINST 5090.1A, p. 4-1.

Table II Navy Environmental Program Inspection System

INSPECTING ORGANIZATION	ACTIVITY	MAJOR CLAIMANT	INSPECTOR GENERAL
TIER I	ANNUAL		
TIER II		TRI ANNUAL	
TIER III			POTENTIALLY UNANNOUNCED

(From OPNAVINST 5090.1A)

three tiers of oversight for the Naval Shore activity. Table II shows the Environmental Compliance Evaluation (ECE) frequency for each tier. This three tier approach permits multiple opportunities for discovery of non-compliance onboard Shore installations. In addition to these self policing mechanisms the EPA Federal Facility Compliance Strategy Appendix I lists the major enforcement response authorities for the major environmental statutes.[36] Additionally, the state or EPA may inspect any Federal site for compliance. Normally inspections by outside agencies will be announced however, regulatory agencies are authorized to inspect Federal facilities at any time.

The Navy environmental program appears to be structurally sound upon review from the Secretary of the Navy Office to the Shore Facility level. It is not within the scope of this review of the Navy Environmental organization to fully evaluate the effectiveness of the

[36]Philpott, A. R., Environmental Law Desk Book, Newport, RI: NETC Press, October 1991, p. 3-3.

program. In a historic context the Navy's Environmental Vision statement is new. While environmentally sensitive Naval operations are a relatively new concept, the top leadership is committed to achieving the objective. Continued commitment to environmentally sound mission effectiveness will be necessary to resolve the obstacles ahead. Some organizational changes may be required to achieve the vision. Key areas for growth/reorganization appear to be;

- organizing the environmental program offices in accordance with Compliance, Pollution Prevention, Stewardship, and installation restoration.
- streamlining budget process for base facilities.

The Navy appears to have a well charted course to achieving environmental excellence and a leadership role.

Local Level

At the local level the Navy's vision of environmentally sound operations meets with the legacy of environmental contamination which is present on some bases which were directed to close as part of the BRAC 93. As previously stated rapid conversion has been directed to reduce Navy infrastructure costs. This vision of rapid conversion may be slowed in some cases by requirements for environmental remediation.

Navy Conversion Vision - The Navy has recognized the importance of a fast efficient conversion from an industrial

base that supports only Navy projects to projects which may have applications in environmental cleanup and other open industry applications. This conversion vision was reflected in recent testimony (May 4, 1994) by Cheryl A. Kandaras[37] who addressed issues central to the western Aquidenck island coastal zone. Some of those issues are;

- Installation Restoration (IR)
- Environmental Compliance
- Pollution Prevention
- Partnering
- Department of the Navy Environmental Strategic R&D Plan
- Base Realignment & Closure Environmental Program

Each of these issues will be discussed below.

Installation Restoration - The Installation Restoration (IR) program is designed to discover, investigate, characterize, and clean up contaminated sites according to applicable laws and regulations.[38] MS Kandaras testified that CERCLA is the primary focus of the Navy's Installation Restoration (IR) program. And as part of this process she reemphasized that maximum local community input must be balanced with the need to have some measure of national

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[37]Kandaras, Cheryl A., Principal Deputy Assistant Secretary of the Navy before the Subcommittee on Military Readiness and Defense Infrastructure of the Senate Armed Services Committee on Environmental Restoration, Compliance, Pollution Prevention, and Natural Resource Conservation, 4 May 1994.

[38]Ibid.

consistency. In restoring Naval installations development and evaluation of dual use technologies was emphasized throughout.

Partnering - This concept was stressed as a valuable means for coordinating the installation restoration effort. As a tool to encourage partnering Ms. Kandaras emphasized that Naval installations are creating Restoration Advisory Boards (RABS). The new RABs will be co-chaired by a person from the Department of the Navy, and a community member, and will expand opportunities for community participation. The RABs will ensure that local citizens, including affected disadvantaged communities, are informed and involved in cleanup planning and decisions.

Environmental Compliance - was recognized as a "principal challenge" for Navy under the Clean Water Act. Compliance work in western Aquidenck island is taking place by the Navy to prevent sewage from occasionally escaping directly into the bay by upgrading the sewage systems. This multi-million dollar project will prevent sewage from going to the bay during loss of power.

Pollution Prevention - The Navy has instituted effective pollution prevention programs which target the following areas: hazardous waste minimization, shipboard systems, solid waste and recycling, maintenance process improvement, hazardous material control, ozone depleting substances, and acquisition management.

The Navy Environmental Strategic R&D Plan - seeks to focus the Navy's Research and Development effort by adopting a Department of the Navy Environmental Quality R&D Strategic Planning Process. This process brought together the specific R&D needs of the environmental community with the research community. This effort consolidated research needs, funding availability, and research capability into a single "green book" of environmental R&D projects. This document is also the basis for coordination with other services and preparing the Tri-service Environmental Quality R&D plan.

The direction for a speedy conversion process is clear. It is in the Navy's best interest to rapidly reduce infrastructure to focus the shrinking capital resources on a force reduced infrastructure.

VI - THE BASE REALIGNMENT AND CLOSURE (BRAC) PROCESS

As briefly discussed in the introduction, the BRAC process is the overall method directed by Congress to correctly shape and size the military forces. This process was placed into the hands of the Secretary of Defense by Public Law[39]. This law has been modified almost annually since but the intent of the program remains the same. The law directs that;

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[39]U.S., Congress, House, Defense Authorization Amendments and Base Closure and Realignment Act, Pub. L. 100-526, 100th Cong., 2nd sess., 1988, S. 2749.

The Secretary shall:

(1) close all military installations recommended for closure by the Commission on Base Realignment and Closure in the report transmitted to the Secretary pursuant to the charter establishing such Commission;

(2) realign all military installations recommended for realignment by such Commission in said report; and

(3) conduct these closures within a set time period.

BRAC Conditions

The BRAC process is closely controlled by Congress. In short the Secretary of Defense in conjunction with a Base Closure and Realignment Commission will make its recommendations to both the House and Senate. The list of recommended closures and realignments may be either approved or disapproved with no changes permitted once the list has been approved.

Funding - The funding required to support the BRAC process is worked into the Defense Department annual budget submissions and as such it is subject to Congressional authorization and appropriation. The program directs the Navy to make funds available for economic assistance as well as community planning assistance.[40] The Secretary of the Navy is authorized to determine if financial resources available to a community (Grant or otherwise) are adequate to stimulate the local level community. Environmental

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[40]Ibid., sec. 204(a)(2).

restoration is viewed as a tool which may assist the local level community to regain its economic viability following base closure. The Secretary is authorized to use money from environmental restoration accounts to reduce an adverse environmental impact to the community.[41]

The Secretary of Defense is authorized great latitude with regard to reassignment and disposal of military property. This function is normally carried out by the General Services Administration. The disposal of surplus property is carried out under the Federal Property and Administrative Services Act of 1949 (40 U.S.C. 483) and the Surplus Property Act of 1944 (50 U.S.C. App. 1622(g)).[42]

Applicability of Other Law - A smooth speedy BRAC process is necessary to ensure that the intended savings by closing bases and facilities will indeed materialize. To avoid becoming bogged down with the process of Drafting Environmental Impact Statements, Congress waived the requirements of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.) with regard to selecting which installations should be closed or realigned. However, once selected for closure the NEPA shall apply to all actions prior to completion of the closure process.[43] Even though

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[41]Ibid., sec., 204(a)(3).

[42]Ibid., sec., 204(b).

[43]Ibid., sec., 204(c)(1)(B)(2).

NEPA is not a primary determinant in closing or realigning a base it is one of the major costs in the process.

How BRAC Changes Things

BRAC 93 impacted the coastal zone of Western Aquidenck Island by closing Naval Station located in Coddington Cove. This paper uses the term Naval Station to mean the area where the ships were moored and repaired by the Shore Intermediate Maintenance Activity (SIMA). This closure of the Naval Station will have three main impacts on the local community; economic, industrial, environmental. Preliminary data supplied by NETC indicate that total Newport Base Naval employment was reduced by approximately 1836 jobs over the past two years (1991-1993). Another 500 jobs are estimated to be lost in 1994.[44] [45] Perhaps more important than the payroll impact is the loss of the secondary industries that supported ship operations.

BRAC and the Environment

Base Realignment & Closure environmental programs are recognized as a vital part of creating a military of the right size to deal with future threats. MS Kandaras[46]

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[44]Aquidenck Island Community Compact, p. 5.

[45]Naval Education and Training Center, Department of the Navy, RI Area Annual Report 1993, (Newport, RI: Public Affairs Office, p. 21.

[46]Kandaras, p. 10.

pointed out that prompt characterization and cleanup is a critical, and a highly visible portion, of the BRAC program. While NEPA is not a major inhibitor to the transfer of formerly used Defense property to civilian applications, Section 120 of CERCLA puts significant restrictions on conditions of transfer. CERCLA's Section 120 requires that real property transferred by deed warrant that all remedial actions necessary to protect human beings and the environment have been taken prior to property disposal. The obvious delay in the speedy conversion of surplus military property is funding. The President included a "fast track cleanup" in his Five-part Plan for revitalizing base closure communities.

The "Fast Track Cleanup" is supposed to expedite the environmental cleanup process as directed by President Clinton. The plan:

> ...included $2.2 billion for "fast-track" environmental cleanup as part of his $5 billion plan to aid the communities affected by military base closings. Each of the 129 communities which are affected by base closures will "have a team that will work to make clean parcels available within 18 months, develop interim actions to take care of 'hot spots' and complete environmental assessments within a year." These assessments, which must precede actual cleanup, normally take about three years.[47]

This fast track cleanup is further intended to rapidly return property to the civilian sector and is intended to stimulate economic growth thereby minimizing the economic

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[47]"Base Closings: Sites to Receive "Fast-Track" Cleanup," American Political Network, (LEXIS) Greenwire, 6 July 1993, p. 2.

impacts caused by the closure of the bases. If successful the money allotted to this program will act as seed money to reduce the local level impact of the closures and realignments. The environmental costs of the BRAC process

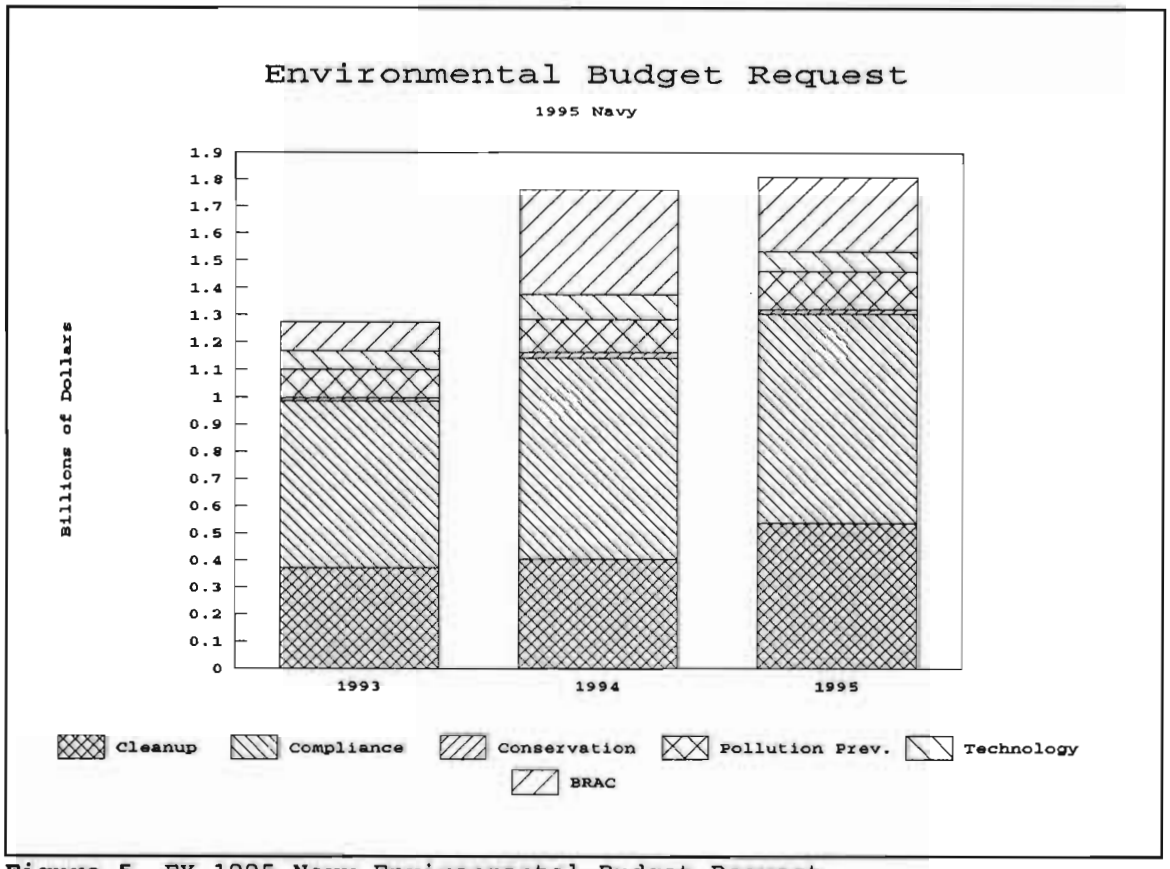

Figure 5 FY 1995 Navy Environmental Budget Request. (Kandaras, 1994)

is one of the most expensive parts of the Navy's 1995 budget. Figure 5 shows the Departments Budget for environmental programs. By law, all environmental costs associated with base realignment and closure must come from the BRAC account. MS. Kandaras noted the importance of properly accounting for environmental costs in the closure and realignment process. While the NEPA does not apply to

the recommendations of the commission it does apply to the closure process and as such is accounted for as part of the budget submission process.

Planning Assistance - In addition to monetary assistance the Presidents Five part plan (page 53) makes local level planning assistance available for communities impacted by base realignment and closure. This planning assistance comes in the form of helping local communities develop reuse plans. This planning assistance is intended to smooth the transition from the military application to the commercial/civilian applications. This planning assistance program should help impacted communities by ensuring among other things that NEPA documentation is completed within 12 months of Navy receipt of the community final reuse plan.[48] To assist in this planning process Restoration Advisory Board (RABS) are supposed to be formed. (See section on Partnering Pg. 48)

VII - USE/RESOURCE GROUP INTERACTION ON AQUIDENCK

This section will make use of the conceptual Use/Resource model discussed above (page 9) to determine if significant Use/Resource conflicts or alliances exist.

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[48]Kandaras

Public Participation

Public participation in the utilization of defense properties located along Western Aquidenck island has been limited to the public hearings required by CERCLA. Recently, the Economic Innovation Council (page 3) has begun to act as a representative of the development interests of the three townships owning property along western Aquidneck Island. The real question that needs to be answered before all of the BRAC programs and associated funding is available is; has Rhode Island, specifically Western Aquidenck Island, been impacted by the Base Realignment and Closure Process? Some of the changes which have occurred which are likely to impact the island are; 1) the island is no longer home to U.S. Navy Ships of the line, 2) the officers Candidate School will move to Pensacola Florida and 3) the Naval Undersea Warfare Center is growing as a result of consolidating labs moved from New London CT. All of these changes have caused an impact on the Towns on Aquidenck island. A study of the degree of economic impact is beyond the scope of this paper. However, to fully assess the impact of the above mentioned changes to various groups a socio/economic/environmental impact assessment should be completed. Such a study should have input from all stake holder groups which also should be represented on the Restoration Advisory Board. This board should collect data indicating which groups were most severely impacted by the

changes. The RABs may also be helpful in facilitating exchange of information and in formulating community goals.

User Group Co-Existence Analysis

The user groups introduced above (page 4) need to be examined with respect to their approach to using coastal resources. The coastal zone of Western Aquidenck Island is similar to all other coastal zones in that there are naturally complimentary and conflicting uses of the coastal resources. This section will heuristically apply the conceptual Use/Resource model to the Western Aquidenck Island users. The testing of this model will be left to future studies.

Method - In conducting this analysis each user group would be required to rank the resources that are most important to their constituency. The use groups include the following; United States Navy, the Cities of Newport, Middletown and Portsmouth, the State of Rhode Island, recreational boaters/fisherman, commercial fisherman, construction companies, real estate agents, Rail Road line owners and environmental special interest groups. For conclusive results questionnaires should be developed to permit each user group to rank what it considers to be its most important resource.

To permit a discussion of probable user group alliance/conflict scenarios the author will use simulated

data that may be replaced by field collected data in future studies. Where possible published user group goals and or known objectives have been used to guide the ranking of these resources. The rankings are by no means an absolute reflection of how the actual user groups would rank the same resources.

Table III shows six of the key resources in the coastal zone of western Aquidenck Island. For purposes of discussion and demonstration only six resources have been

Table III Example Use/Resource Ranking

RESOURCES	BIO-DIVERSITY	FISH	WATER QUALITY	WATER SPACE	WETLAND	LAND
CONSERVATIONIST	2	4	1	5	3	6
NON-EXTRACTIVE	3	4	2	1	6	5
BUILDERS	5	6	4	2	3	1
LIGHT-INDUSTRY	5	1	2	3	4	6
AVG	3.75	3.75	2.25	2.75	4	4.5

chosen. With a detailed questionnaire it may be possible to identify additional natural resources important to the user groups. Within each user group the natural resources were ranked according to its perceived importance to the group.

User Group Goals

Each user group is presumed pursue goals which are most beneficial to its interests. The rankings in Table III are supposed to reflect the general goals of the user groups presented above (page 22). In summary they are:

- **Light Industry** - Maximize profit function by acquiring raw materials at minimum cost.
- **Builders** - Build homes and commercial establishments at a profit. Allied with realty companies if it improves profit potential.
- **Non-Extractive** - Maximize non-consumptive enjoyment/aesthetic values of the coastal zone.
- **Conservationist** - Ensure that the environmental quality of Narragansett Bay and its watershed is restored and protected from the harmful effects of human activity.

If an actual survey was conducted the resource rankings may vary from the projected resource priorities. After collecting the results of the Use/Resource questionnaire the data would be analyzed to determine natural groupings. The resource rankings assigned by each user group would be examined for correlations with other user groups. For example, if the Navy's top resource rankings were water space, water quality, and bio-diversity and these same resources were chosen by Save the Bay as the top resource concerns these groups would have a well correlated resource use. On the other hand if a construction company ranked water space/quality and bio-diversity as its least important resources its resource use would be inversely correlated or directly opposed to the ranking provided by Save the Bay.

User groups who rank the resources in similar fashion would be considered resource allies. User groups who differ in their resource rankings would be considered non-allied resource consumers. For example, Save the Bay would, in all likelihood be non-allied with a company that specialized in disposal of contaminated dredge spoils in Narragansett Bay. The two organization's goals and thus resource rankings would be diametrically opposed. Univariate statistics (t statistics and binomial tests) may also be of use in determining differences in user group resource rankings.

Observations

A simplified set of resource rankings was used in this paper (Table III). Each resource was ranked from one to six for each user group. The first rank indicates that it was the user groups most important resource. A review of the authors ranking indicates that the most important resource for all the user groups is water quality followed by water space. The least important resource appears to be the land. What is significant here is not the exact ranking of each of the resources but the potential this method has for mapping each user on a resource continuum. With a properly designed questionnaire it may be possible to determine which user groups have compatible or conflicting goals for coastal zone resources. This fact may be helpful for the coastal zone manager.

User Group Conflict Analysis

There are conflicting coastal users along western Aquidneck Island. This section uses the Use/Resource model to heuristically identify likely trends. The Model also attempts to identify which Western Aquidenck resource users appear to have the greatest conflict. Table III is used to highlight potential conflicts among the four different coastal user groups.

The conservationists are somewhat difficult to describe as a user group because the objective of their existence is often one of non-use. By protecting a coastal resource from use the conservationists are able to prevent social degradation of the resource. Conservationist users include organizations such as Save the Bay, the Aquidenck Island Foundation and other National and local Environmental organizations. The organizations situated towards the Conservationist terminus prefer preservation of the coastal resources. They view themselves as the defenders of those resources and resource uses which are non-consumptive and which are often unable to articulate the need for Non-Governmental Organization intervention. Organizations such as Save the Bay act to prevent any action which has a consumptive impact on resources of the Bay (See Save the Bay Mission above p. 27).

For the land based resources, the Aquidenck Island Foundation acts as a monitor of these resources. Generally

both groups will act to prevent irresponsible consumption of the coastal resources. Ideally they will also be able to demonstrate methods to maintain sustainable development of the resources. Generally the conservationist groups act to bind the resource into a non-use mode. This group puts pressure towards upper left corner of block I. Their goals indicate that they desire "...the bay and its watershed...to function normally and healthfully." Who defines normal and healthy as a stated end state for the Bay? The various user groups may not agree on how clean is clean, or healthy by who's standards? User groups in Block I will tend to interpret definitions in a fashion which will help them achieve their goals. Differences in interpretation can only be properly addressed by surveying the targeted populations. For example, would Save the Bay consider Bay water sufficiently cleaned if it met the EPA's standards of clean and healthy? How does a recreational boater define clean and healthy? An organization such as Save the Bay needs to provide pressure on the legislature to enable the attainment of the highest clean water standard. At the other end of the spectrum the developer will not voluntarily include the costs of negative environmental externalities in its production. The builders can usually demonstrate to the legislature that their development can provide employment opportunities even though it may provide environmental stresses. Organizations like Save the Bay act to raise the

awareness of negative externalities which other organizations may have on Narragansett Bay.

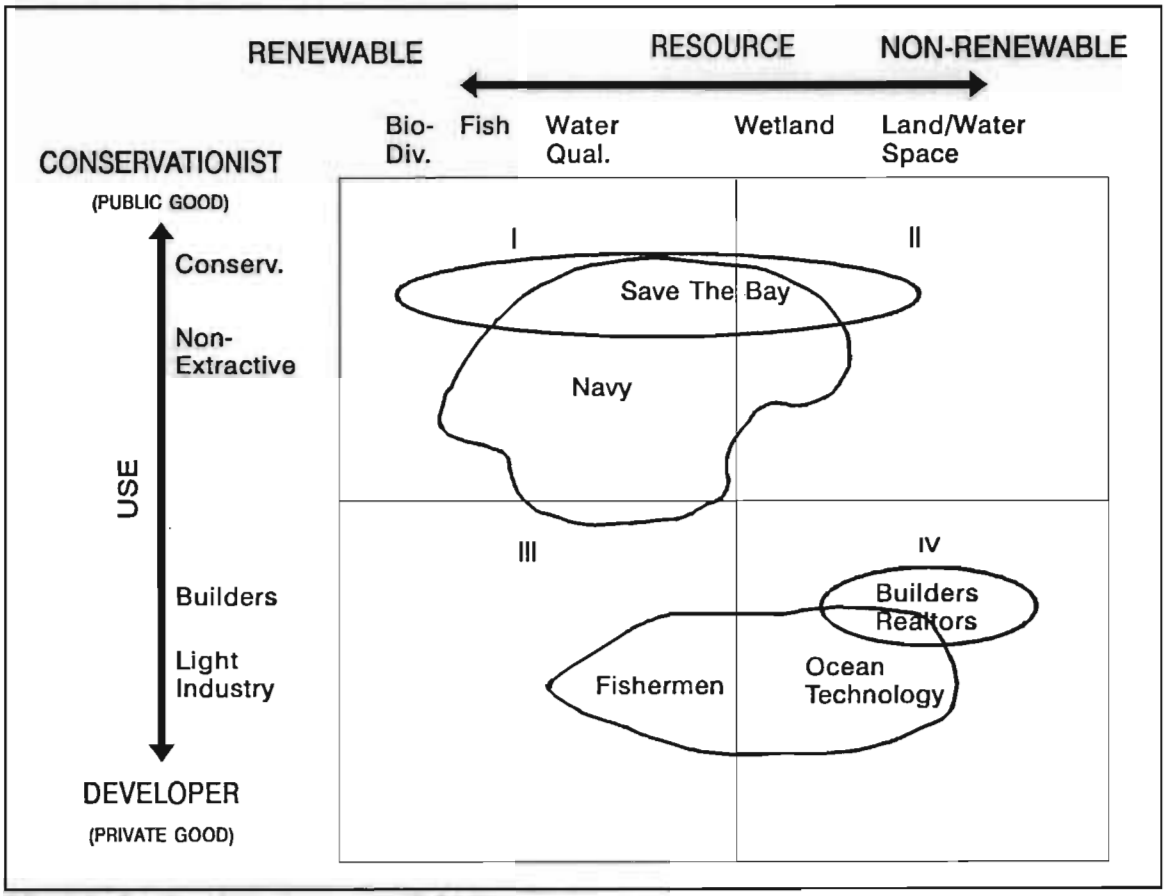

Figure 6 Use/Resource Model Groups

The key conflicts among the users in the coastal zone appear to be between the light industry/builders on one hand and the conservationist groups on the other. It should not be surprising to find them at opposite ends of the use spectrum and opposite ends of the resources spectrum. The Conservationist appear to value water quality highly while this is not necessarily of major concern to the builder. Table III shows the relative priorities assigned by the author. As with all other user groups the builder would

have to make choices in ranking its resources from most to least important. This ranking would provide some indication of how the builder may be expected to exert political influence in an effort to advance his own interests. Using the ranking from univariate statistics (for example average values provided in Table III) or other statistical grouping tools, builders would be placed in the Use/Resource model in block IV. They highly valued land (1) and waterspace (2) which are non-renewable resources placing the builder in block IV. Figure 6 provides a general idea of what the Use/Resource model may look like if actual data had been used to identify and classify the conflicts.

Each outline in Figure 6 forms a grouping space where one might expect to find organizations with similar resource use objectives.

Use/Resource Model Groups

The Use/Resource Model may help in visualizing the groupings of the Builders compared with that of the light industrial groups. For example Figure 6 shows the light industrial group to straddle blocks IV and III. This is because the fisherman are concerned with renewable resources while developers of ocean technology only require waterspace to test out new equipments. For this paper both have been treated as if the drive for profit were a unifying factor but careful analysis may reveal that this is not necessarily

the case. Non-Extractive groups such as cycling clubs, hikers and even the Navy are non-consumptive users of the resources found in the coastal zone. Conservationist groups may be found in the upper tier of the Use spectrum. This group is hypothesized to take the position that all the coastal resources are important. Organizations such as save the Bay may find other resources important but not as important as water quality. This type of grouping allows the coastal manager to see (as clearly as may be feasible) the natural groupings present in the coastal zone.

Use/Resource Conflict Analysis

For purposes of illustrating the operation of the model we may assume that user groups will evaluate coastal resources differently; some will value it high while others will value it lower. For example, bio-diversity (the ability of a plant and animal system to sustain itself independently) is considered to be important by the conservationist while the builders and light-extractive groups find it less important. Conflict on the utilization of surface waters may occur between fisherman and other boaters in that the former is more concerned with the catch while the other seeks the benefit of the solitude usually associated with the marine environment. Conflict may also exist where the majority of the users do not consider a resource important while one user group finds it extremely

important. For example, boaters may not consider water quality as important as a shell fisherman. A boat can operate on polluted water while commercial shell fisherman has a much higher water quality demand.

All conflict can be resolved but the challenge to the coastal zone manager is to resolve the conflict at the lowest possible social or economic cost. Some of these conflicts are present within the study area. For example, the Economic Innovation Council (EIC) is proposing developing a ocean technology capability. This might be expected to create a demand for shore citing (land) while the land available on the Island is limited. The State of Rhode Island Port Authority formerly leased industrial quality property to Robert Derecktor as a ship repair facility which subsequently went bankrupt leaving a trail of environmental hazards in its wake. After the operation failed the shipyard site was returned to the Navy without remediating the environmental problems. In a case such as this who should pay the clean up cost, the State, the Navy, the entrepreneur desiring to build a ocean technology lab? The question becomes whether or not an ideal plan or program exists which will allow each user group to benefit from the plan.

There is no doubt that the final resolution of the conflicts that may arise in the coastal zone is a political process. This political process often leads to solutions

which are not well received by any of the user groups. For each conflict it may be possible to isolate the fact or factors which cause the conflict. For example in the case of the builders dependence on land the question should be asked what type of land is needed. Each conflict can be broken down into a series of sub-user/resource issues. For the developer the prime market is for houses with a water view. But available land for residential development is almost impossible to find. More importantly the residents along western Aquidenck island do not want this type of development. This introduces yet another category of user, the current land owner. While not included in the present analysis current landowners desire to maintain their value on their property and in some cases just desire to prevent further development for aesthetic reasons.

Despite the apparent enormity of these conflicts solutions do exist.

User Group Solution Alignment

The conflicts discussed in the previous sections are often real and unavoidable. The real question in the political process which shapes the utilization of coastal resources is, which of the two conflicting users has the greatest political power? This section will use the Resource/Utilization model to heuristically analyze trends and attempt to identify which user groups appear to be

allies in the use of the identified coastal resources. These the alliances will point to a potential equitable unified plan in the coastal zone. Finally this plan will be outlined and recommendations made with regard to overcoming planning and funding challenges.

Solution Groups

Solution groups are user groups who appear in the same quadrant of the Use/Resource Model. For example the light industry ocean technology organizations appear to share block IV with the builders. Together these two groups make up a solution group. Figure 6 depicts the alignment of the solution groups. A review of the Use/Resource continuum indicates the existence of a few natural groupings. The Navy with its increased emphasis on local level environmental remediation programs actually leans towards the conservationist end of the spectrum. This should not be surprising as the Navy is not expanding its military operations on Western Aquidenck Island. Consequently it is not likely that it would be allied with development forces. The Navy has adequate property to carry out the mission currently assigned and may even have a surplus. This surplus may be returned to the towns of Newport, Middletown, and Portsmouth. Non-extractive groups such as Save the Bay strongly favor improvement of water quality through programs which reduce point source and non-point source pollution.

These objectives are directly in line with Navy environmental Goals and objectives.

The groups found near the developer end of the use spectrum are the commercial builders. These groups require both land and access to the Bay. As mentioned above, this group can exert a great deal of political power because they can demonstrate increased employment opportunities. The most significant force in the group is NUWC. This organization occupies the second largest part of Federal property on Aquidneck Island. NUWC is expanding its Newport facilities to build a "Superlab" for submarine research.[49] While this move is part of BRAC induced cost savings it will not require acquisition of additional property for building the New lab. The net impact to the coastal zone from this development will be secondary effects created by increased traffic volume and increased runoff caused by new parking and buildings. Because NUWC expansion does not require additional property outside of the current federal reservation it is not considered to be a significant player shifting the center of political alliance away from the conservationist end of the spectrum. The coastal developers, home builders marina operators may exert additional building pressure because of the establishment of a proposed "superlab" at NUWC. To test the perceived

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[49]Beall, Christopher, "Navy airs Conn. transfer plan," The Providence Journal-Bulletin, 26 May 1994, sec. D18.

development pressures of this lab on the surrounding a detailed Use/Resource questionnaire should be developed and administered.

The fisherman of Narragansett Bay, (a light extractive industry) require clean water to extract a safe, reliable harvest from the bay. Even though fisherman are considered an extractive industry they appear to favor a clean Bay where there are no restrictions on where they may fish. This indicates that they would be allied with groups favoring cleaning the water. Clean Bay water will have a positive impact on their revenue generating potential.

It appears that the conservationist have the strongest political alliances in the study area. The conservationist appear to share a large part of block I with the Navy. Fishermen also exert a pressure towards cleaner water and use of renewable resources. The Navy is a strong force in favor of the conservationist block I because it now has a charter to conduct operations in a manner consistent with good stewardship. Additionally the Navy has access to Presidentially approved funding and planning assistance to help ameliorate the impact of Base Realignment and Closure. The only question that remains to be answered is, what level of funding can be acquired by a well orchestrated local, State and Navy plan? A multifaceted plan should be developed and submitted as a coordinated effort to demonstrate a unified planning process which is in keeping

with the Presidents plan to reduce adverse impact to local level economies from the BRAC.

Funding the Plan

Successful change and conversion requires three contributions, (1) dedicated workers, (2) a solid conceptual plan and (3) capital. The ability to demonstrate the benefit of a unified coastal zone plan is the first significant hurdle. Establishing who should provide the capital to execute a unified plan will be even more challenging. There are five potential funding sources available for an enhancement program for Western Aquidneck island. They are: (1) Swords to plowshares (SERDP) Dual use Technology development. (2) Environmental programs (CERCLA, fast track cleanup, etc) (3) The Coastal Zone Management Act (CZMA)[50] (4) Rail line development funds from the Department of Transportation (DOT) or Rhode Island DOT and (5) Private sources. Each of these potential funding sources will be matched with the group/groups who would be the most likely candidate for developing a proposal/funding request. Funding for this type of program would be raised by a combination of local, State and Federal funding sources. Of these funding sources the Environmental programs are the only ones that are required by law.

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[50]Coastal Zone Management Act, U.S. Code, Title 16, Secs. 1451-1462 (1993), (U.S. Code Service: Lawyers Cooperative Publishing, 1993)

Proposals under swords to plowshares and CZMA are subject to a forceful bureaucratic/political process. The money that is available under these programs is highly sought after by the members of Congress in order to strengthen their constituency. Communities from all over the country must compete for these limited funds. While a unified local level plan stands the greatest chance of success, multiple funding sources must be sought at the national level which complicates the funding process. However, the development and presentation of a unified plan which reflects strong Federal, State and local cooperation stands a better chance of success than a piecemeal application or request for funding.

Strategic Environmental Research and Development Program - This program was developed to encourage development of dual use technology which may be helpful for Defense applications as well as environmental cleanup and monitoring. The Naval Undersea Warfare Center (NUWC) is best suited to apply for research and development funding under this program. They may be able to develop undersea technology which may be useful in monitoring and cleaning the bay. With the Navy's new emphasis on littoral warfare, Narragansett Bay is the ideal home for developing this technology. Again this type of program request is strengthened by coupling it with associated local enrichment efforts.

Environmental Programs - Currently, NETC is managing the clean-up of an estimated eight sites listed on the National Priority List. The NETC environmental group manages this cleanup effort and is the natural choice for most sites which were contaminated by the Navy. Funding and cleanup under the "fast Track Programs" may be a possibility if there is strong local desire to use any of the formerly utilized Navy property for commercial development.

CZMA Funding Request - The Coastal Zone Management Act (CZMA) was intended to provide a legislative program for unifying planning in the coastal zone. Part of the CZMA legislative incentive was to provide financial incentive for State planning and coastal programs. The state of Rhode island has an approved Coastal Zone Management Plan. Most of the Western Aquidenck Island is covered in the Prudence Island Quadrangle.[51] The State under the Coastal Zone Management Act is the best organization to request funding under section 306 (implementation) of the act.

Rail Line Development Funding - The Economic Innovation Center (EIC) has indicated that it will work to develop the necessary political alliance and private sector initiatives to build a light rail, and freight railroad on the island. (As discussed above on page 4) RIDOT has indicated that in can help provide access to appropriate federal funding to

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[51]The Coastal Resources Center Graduate School of Oceanography, The State Of Rhode Island Coastal Resources Management Program, University of Rhode Island, November 16, 1977, p.118.

support this initiative.[52] The most significant challenge with this plan is going to be building the political alliances necessary for the development of a rail line that will be able to efficiently move passengers and cargo if necessary around the island and to inland destinations. This funding request should be coordinated by the EIC in consonance with RIDOT.

Private Source Funding - Given proper planning and a reasonable opportunity for profit private funding should be relatively easily procured. It will be necessary for the EIC to coordinate this effort. A significant amount of planning and good salesmanship will be needed to demonstrate the potential for a positive profit experience along the western coastal zone of Aquidenck Island. While the Economic Innovation Center has encouraged private investment they have only designated Ocean technology and boat building as potential areas for development.

IX - RECOMMENDATIONS

This paper was intended to identify key use groups which may provide useful coalitions for analysis. The Use/Resource model suggests a conceptual approach which needs to be tested in the field. The following specific recommendations are made for future studies and

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[52]Aquidenck Island Community Compact, p. 3.

implementation in boosting Aquidenck Island quality of life and economy:

(1) Initiate a Restoration Advisory Board to improve Federal/State/Local level planning.

(2) Investigate application of a "Fast Track Cleanup" programs to release Navy property to surrounding townships.

(3) Develop a survey which will assist in quantitative analysis of coastal user groups. Use the survey to group the users within a Use/Resource model. Use the results of this grouping to establish combined planning teams which capitalize on the strengths of each of the groups.

(4) Capitalize on planning assistance which was made available through the Presidents five point plan for communities effected by the BRAC process.

(5) Utilize resources of University of Rhode Island Marine Affairs and Graduate School of Oceanography to conduct needed study and development plans.

A enrichment plan for Western Aquidenck Island should capitalize on financial opportunities that may be present due to BRAC funding. A fully developed plan should have the following key elements:

Objective: To enhance the local/RI economy by creating an environmentally sound Island community with a significant high technology, light industrial base that capitalizes on renewable resources and preserves non-renewable resources for non-consumptive activities.

Plan: Develop an integrated plan which capitalizes on the strengths of each user group. Light Industry, Commercial Builders, Non-consumptive and Conservationist organizations. Identify and aggressively pursue complimentary ideals or elements and relationships as evidenced through a survey based data collection effort. Use principles of total quality management (TQM) to refine the stated objective for economic invigoration. Tie each element of the integrated plan to a potential funding source and pursue the sources in unison and mass.

X - CONCLUSION

The closure of the Naval Station on Aquidenck Island provides an excellent opportunity for testing the Use/Resource model involving the Federal, State, and Local effort to invigorate the Rhode island Economy and natural resource development plans. The combination of high value real estate ideally suited for light industrial development and the natural resources which are protected through a cooperative effort between the Navy and other local user groups. A coordinated economic and natural resource management plan Aquidenck Island may dramatically increase the value western Aquidenck Island to the State and local community. The political and financial support for balanced local level programs designed to ameliorate the impact of the Defense realignment process appears strong. Given this climate the probability for a successful coordinated BRAC conversion plan is considered high.

ABBREVIATIONS

BRAC	-	Base Realignment and Closure
CEQ	-	Council on Environmental Quality
CERCLA	-	Comprehensive Environmental Response,Compensation, and Liability Act
CNO	-	Chief of Naval Operations
CWA	-	Clean Water Act
CZMA	-	Coastal Zone Management Act
CZMP	-	Coastal Zone Management Plan
DCNO	-	Deputy Chief of Naval Operations
DERP	-	Defense Environmental Restoration Program
DoN	-	Department of the Navy
ECE	-	Environmental Compliance Evaluation
EIC	-	Economic Innovation Council
IR	-	Installation Restoration
NEPA	-	The National Environmental Policy Act
NPL	-	National Priority List
NWC	-	Naval War College
NETC	-	Naval Education and Training Center
NUWC	-	Naval Undersea Warfare Center
RABS	-	Restoration Advisory Boards
RIDOT	-	Rhode Island Department of Transportation
SIMA	-	Shore Intermediate Maintenance Activity
TQM	-	Total Quality Management
USN	-	United States Navy

REFERENCES

Aquidneck Island Community Compact, Draft Funding Proposal for The West Side Development Project to the U.S. Department of Commerce Economic Development Administration, Middletown, RI: Economic Innovation Council, 20 May 1994.

Armed Forces Staff College (AFSC) PUB 1, The Joint Staff Officers Guide 1993. Norfolk, VA: National Defense University, (1993).

Base Closings: Sites to Receive "Fast-Track Cleanup," American Political Network, (LEXIS) Greenwire, 6 July 1993.

Coastal Zone Management Act, U.S. Code, Title 16, secs., 1451-1462 (1993), (U.S. Code Service: Lawyers Cooperative Publishing, 1993)

Council on Environmental Quality, U.S. Code, Title 40, Sec. 1500-1517. (1992)

Curlin, James W. Organizing the National Effort, NACOA, (1979).

Department of the Navy, Office of the Chief of Naval Operations, Environmental and Natural Resources Program Manual OPNAVINST 5090.1A. Washington, DC: 2 Oct 1990.

Edwards, Steven F. An Introduction to Coastal Zone Economics; Concepts, Methods and Case Studies. New York: Taylor & Francis, (1987).

Flippen, Alan, "After 50 Years, R.I. Oysters May be Making a Comeback"Oysters," New York Times, 5 Nov. 1989, sec. A, p. 40.

Gwartney, James D. and Stroup, Richard L. Economics Private and Public Choice. New York: Harcourt Brace Jovanovich College Publishers, (1992).

Kandaras, Cheryl A., Principal Deputy Assistant Secretary of the Navy testimony before, The Subcommittee on Military Readiness and Defense Infrastructure of the Senate Armed Services Committee on Environmental Restoration, Compliance, Pollution Prevention, and Natural Resource Conservation. 4 May 1994.

King, Lauriston R. and Jennings, Feenan D. "The Executive and the Oceans: Three decades of United States Marine Policy," (MTS) Journal, (February 1988): 20.

Naval Education and Training Center, Department of the Navy, RI Area Annual Reports.

Naval Education and Training Center, Local Area Forecaster's Handbook. Newport, RI: 1 April 1989.

Naval Facilities Engineering Command, Navy Installation Restoration (IR) Manual.

Naval Education and Training Center, Focused Feasibility Study site 01- McAllister Point Landfill. Newport, RI: July 1993.

Philpott, A. R., Naval Justice School, The Environmental Law Deskbook. Newport, RI: NETC Press, October 1991.

Procedures for Implementing the National Environmental Policy Act, U.S. Code, Title 32, Sec. 775.3. (1993).

The National Environmental Policy Act of 1969, as Amended, U.S. Code, Title 42, secs., 4321-4347, (1970).

"The Last Ship", Providence Journal, 17 May 1994, sec. A, p. 1.

The Coastal Resources Center Graduate School of Oceanography, The State Of Rhode Island Coastal Resources Management Program. University of Rhode Island, 16 November 1977.

U.S., Congress, House, Defense Authorization Amendments and Base Closure and Realignment Act, Pub. L. 100-526, 100th Cong., 2nd sess., 1988, S. 2749.

United States Environmental Protection Agency Region I and the State of Rhode Island and the United States Department of the Navy; Federal Facility Agreement under CERCLA Section 120.