Waves of Change:

Implementing an Ecosystem-Based Approach to Ocean Resource Management

The Ocean Conservation, Education and National Strategy for the 21st Century Act (H.R. 21)

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Disclaimer

This report was prepared as part of a two-semester Workshop in Applied Earth Science Management at Columbia University. Our task was to analyze the Ocean Conservation, Education, and National Strategy Act for the 21st Century (H.R. 21). This plan is a simulation of potential implementation for the OCEANS Act. The Act is currently stalled in the House of Representatives. For the purposes of this report, it is assumed that the bill was enacted on October 1, 2008.

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Executive Summary

Two blue ribbon commissions recently examined current United States ocean policy and found that the nation's uncoordinated system of ocean governance has proven unsuccessful at sustaining marine ecosystem services such as climate regulation and food provision. They attribute declines in ocean ecosystem health to six major threats: climate change; chemical, nutrient and biological pollution; land use and coastal development issues; habitat damage; unsustainable fishing; and invasive species.

In response to the commissions' findings and subsequent recommendations, the Ocean Conservation, Education and National Strategy for the 21st Century Act (H.R. 21) was proposed in early 2006 to address these problems. The bill seeks to promote a coordinated National Ocean Policy, strengthen the National Oceanic and Atmospheric Administration (NOAA) and integrate ocean governance at multiple levels using science to inform policymaking in an ecosystem-based approach to management.

To fulfill these goals within the first year following passage of H.R. 21, we must develop a support framework, analyze existing systems, prepare for the future, and educate ocean managers on both ecosystem-based management and best practices for implementing H.R. 21. As such, we propose to establish a central office for National Ocean Policy within an existing NOAA office. This office would be responsible for regulations, reporting, education, and data integration as they relate to H.R. 21 and will support external parties in implementing H.R. 21 and ecosystem-based management.

By the end of the first year, nine Regional Ocean Partnerships will have formed to focus research efforts and maintenance of local ecosystems. NOAA will have enhanced responsibilities that include promulgating the standards of a National Ocean Policy, forming a Regulations Department, and strengthening lines of communication between regional and federal agencies. By improving regional and national governance, H.R. 21 will give rise to new standards for ongoing stewardship of marine ecosystems.

Section 1 Introduction

1.1 America's Waters: A Widespread Perspective

Millions of Americans' livelihoods directly depend on the ocean. The Joint Ocean Commission Initiative Report for the Senate in 2006 estimated that $1.1 trillion, or nearly 10% of the U.S. GDP, is generated from a wide range of activities conducted in coastal areas (JOCI 2006). The same report described that coastal areas generate 2.2 million ocean-related jobs, most of which are in the tourism and recreation industry. There are also a significant number of jobs in the port and commercial fishing industries (JOCI 2006).

In 2000, coastal and Great Lakes counties in the U.S. accounted for only 13% of the land mass, but 51% of the population (Rappaport and Sachs 2002). By 2025, the percentage of the population living in coastal areas is projected to rise to 75% (Rappaport and Sachs 2002). A 2002 study found that coastal geography is "an underlying determinant of growth and prosperity," as the income per square kilometer of coastal and Great Lakes counties is over eight times that of inland counties (Rappaport and Sachs 2002).

Seventy-eight percent of U.S. international trade relies on ocean-based transport and $700 billion in sea-borne cargo passes through U.S. ports each year (BTS 2003; USCOP 2004). The commercial fishing industry contributes $28 billion and the recreational saltwater fishing industry $20 billion annually to the U.S. economy (USCOP 2004). The retail recreational boating industry generates over $30 billion each year (USCOP 2004). Further, a significant portion of the fossil fuel energy that drives the U.S. economy comes from U.S. continental shelf. Approximately 27% of oil and 15% of natural gas consumed in the U.S. in 2006 came from offshore facilities of the U.S. exclusive economic zone (MMS 2007).

Simply put, American citizens benefit tremendously from the use and development of ocean resources. Entire industries, ranging from coastal fisheries to boardwalk developers, rely on the goods and services provided by marine ecosystems. Therefore, it is no surprise that in the last three years there have been numerous attempts to raise awareness about the simultaneous value and frailty of America's marine ecosystems and initiatives to galvanize Congress into enacting measures to protect America's oceans.

1.2 House Resolution 21: The Oceans Conservation, Education and National Strategy Act for the 21st Century

In 2004, the Pew Oceans Commission and the U.S. Commission on Ocean Policy produced two landmark reports on ocean health and ecosystem function. USCOP's report was submitted to Congress and detailed recommended actions for restoring marine ecosystem health, many of them similar to those found in the Pew report. The report advocated a more comprehensive national ocean policy, with particular emphasis on developing interagency coordination and a regional governance regime. The Oceans Act of 2000 had required President Bush to respond to USCOP's report within 90 days and his Ocean Action Plan, released in December 2004, emphasized the need to enhance ocean leadership and coordination and codify the National Oceanic and Atmospheric Administration (NOAA) in statute. The Ocean Action Plan incorporates many of the recommendations of both ocean commissions.

Bills to codify NOAA had been introduced by Representative Vernon Ehlers (D-MI) in the 108th (H.R. 4607) and 109th (H.R. 50) Congresses. They proposed that NOAA be recognized within the Department of Commerce headed by an Under Secretary of Commerce for Oceans and Atmosphere who would also serve as the NOAA Administrator. To reform ocean governance, Representative James Greenwood (R-PA) had introduced H.R 4900 during the 108th Congress, and Representative Curt Weldom (R-PA) had introduced H.R. 2939 during the 109th Congress. Both bills stalled in the House of Representatives and were never considered for votes.

Representative Sam Farr (D-CA) introduced H.R. 21 on the first day of the 110th Congress, as a streamlined and more palatable version of the previous bills. Three other members of the House Ocean Caucus joined Representative Farr by co-sponsoring the bill: Reps. Tom Allen (D-ME), Wayne Gilchrest (R-MD) and Jim Saxton (R-NJ).

In its current form, H.R. 21 is a comprehensive ocean bill designed to establish a new national coordinated system of regional ocean governance in the spirit of the bipartisan recommendations of the two national ocean commissions. Properly known as the Ocean Conservation, Education and National Strategy for the 21st Century Act, the bill introduces measures for improving stewardship of America's oceans in order to ensure continued marine ecosystem health. At its core, H.R. 21 promotes a coordinated National Ocean Policy, strengthens NOAA and emphasizes the integration of scientific information into policymaking.

The magnitude of marine environmental problems outlined in the reports from the USCOP and POC indicate the need for large-scale national reorganization of ocean governance. H.R. 21 advocates an ecosystem-based approach to management in order to address diverse threats to the health of marine organisms and habitats. Increased integration of science into policy decisions, regional partnerships, and improved lines of communication between federal agencies lays the foundation for ecosystem-based management (EBM). EBM is a new approach to ocean governance that emphasizes the application of interdisciplinary scientific study to the regional management of ocean ecosystems.

Section 2
Scientific and Legislative Background

2.1 Scientific Background on Major Marine Ecosystem Problems

The USCOP and POC reports attribute declines in ocean ecosystem health to six major threats: climate change; chemical, nutrient and biological pollution; land use and coastal development issues; habitat damage; unsustainable fishing; and invasive species. These six problems are having deleterious impacts on marine organisms and habitats. Our understanding of the ocean has traditionally been based on oceanography and marine biology, which have together fostered an understanding of the physical and biological components of ocean ecosystems. As marine science continues to evolve, the need for interdisciplinary study is becoming more and more evident. The following sections summarize the six major threats to marine and Great Lakes ecosystems to be addressed by the new governance mechanisms of H.R. 21.

Six Major Threats to Marine Ecosystems
1. Climate Change
2. Chemical, Nutrient and Biological Pollution
3. Unwise Land Use and Coastal Development
4. Habitat Damage
5. Overfishing and Bycatch
6. Invasive Species

Climate Change

The major effect of climate change on marine ecosystems will be rising water temperatures (Wu 2007). A change in water temperature will affect several other ocean-related systems such as:

- Surface-driven wind circulation
- Coastal stability
- Formation of storms
- Ocean circulation
- Risks to coastal infrastructure
- Threats to marine biodiversity (Lomas, *et al.* 2002; Collins, *et al.* 2007; IPCC 2007).

Even the most optimistic projections from the Intergovernmental Panel on Climate Change predict that by 2099 sea level will rise by 0.18 meters and sea surface temperatures will rise by 1.8 °C (IPCC 2007).

Sea level rise associated with the thermal expansion of seawater and melting of the Greenland and Antarctic ice sheets will inundate wetlands, mangroves and other coastal ecosystems (IPCC 2007).

Chemical, Nutrient and Biological Pollution

The release of toxic chemicals, offshore spillage of petroleum and poor management of coastal water resources have all caused considerable damage to ocean and Great Lakes ecosystems (Worm, *et al.* 2006). The proximity of these ecosystems to heavily populated areas makes them especially susceptible to influxes of nutrient, chemical and biological pollution.

Anthropogenic waste, i.e. sewage, is one form of nutrient input into aquatic systems. An analysis of U.S. beach closings reported that sewage spills and overflows caused or contributed to 25% of beach closing or advisory days during 2004 (NRDC 2005). Sewage loading can lead to high fecal coliform bacteria concentrations, increased biochemical oxygen demand and severely hypoxic conditions. In 2005, three million gallons of raw sewage spilled into a small tidal tributary in North Carolina and caused widespread oxygen depletion and fish kills (NRDC 2005). In Delaware, sewage runoff has been shown to alter estrogen levels in coastal fish and compromise their ability to reproduce (Atkinson, *et al.* 2003).

Biological pollution in the form of algal blooms can also have serious impacts on freshwater and marine ecosystems. Harmful algal blooms cause respiratory distress among human and marine mammal populations alike, polluting the shorelines with toxic vapors (Rabelais, *et al.* 1996).

Unwise Land Use and Coastal Development

More than half of all Americans live in coastal counties, and the coastal population is predicted to continue to rise throughout the next century (Pew Oceans Commission 2003). This results in some major problems, including the following:

- Coastal development is proceeding ten times faster than at inland sites.
- Development leads to excessive use of transport fuels.
- Development leads to clearing of sensitive coastal habitats such as wetlands and mangroves (Platt 1994; Wilkinson, *et al.* 1997; Wilson 1999).

The loss of productive coastal ecosystems and the services they provide will have immediate consequences for humans. As an example, wetlands provide natural protection from floods, and when wetlands are given over to development, it reduces the floodwater mitigation potential of the coastal zone (Dickert & Tuttle 1985).

Habitat Damage

Bottom trawling is a striking example of a practice that causes marine habitat damage. This destructive fishing practice involves scraping a large net across the seafloor in order to catch fish and has an ecological impact comparable to clear-cutting in terrestrial forests (Jennings, *et al.* 2001). In addition to decimating fish populations, bottom trawling levels seafloor topography, rips coral from the seabed and destroys essential fish habitat (Jennings, *et al.* 2001; Robinson 2004).

Marine aquaculture can also result in significant damage to ocean ecosystems (Vecchione & Collette 1996). For example, aquaculture can decrease water and sediment quality by inducing high organic and nutrient loading in surrounding waters. When this input accumulates in the sediment, hypoxic conditions prevail (Delgado 1999). This phenomenon, coupled with accelerated siltation, sedimentation and turbidity due to land use-related erosion, can cause serious damage to benthic habitats (Rebalais, *et al.* 2002; Wilson & Carpenter 1999).

Overfishing and Bycatch

Commercial fishing is a multi-billion dollar global industry with strong historical ties to many coastal communities in the United States. Risky fishery management decisions, justified by claims of scientific uncertainty, have led to long periods of overfishing, i.e. removing more fish from the sea than can be replaced by reproduction amongst the remaining individuals (Pontecorvo 2003). This process has led to the overexploitation of nearly one-third of global fish stocks (U.S. Commission on Ocean Policy 2004). A notable example of this overexploitation occurred on Georges Bank, off the coast of New England, where stocks of commercial fish were reduced by over fifty percent in less than four decades of intensive fleet fishing (Fogarty and Murawski 1998). The cumulative impact of overfishing and other factors on fish stocks has serious consequences for ecosystem structure. In addition to the removal of targeted species, overfishing can impact additional species through ecosystem interactions including top-down and bottom-up effects (Pontecorvo 2003).

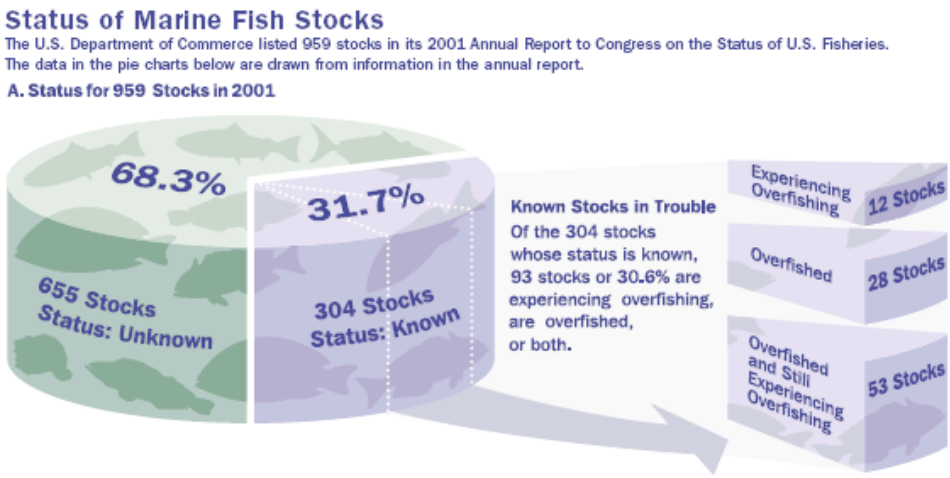


Figure 1: Almost one-third of measured stocks are overfished, subject to overfishing or both.
Source: Pew Oceans Commission 2003

Bycatch is another marine ecosystem impact of fishing that occurs when non-targeted species are caught in addition to targeted fish. Species that are mistakenly caught can sometimes be sold but are usually thrown overboard either dead or severely traumatized. Bycatch is an acute problem for marine mammals, sea turtles, sharks and seabirds such as albatross (Campbell 2002).

Invasive Species

Invasive species impact both ocean and freshwater ecosystems. Escaped farmed species or non-native species discharged in ballast water can sometimes rapidly overcome native species or consume scarce resources to the detriment of native populations. Increased levels of trade over the past several decades have increased the numbers of exotic species reaching U.S. shores (Maki & Galatowitsch 2004). Coastal waters experience a heightened susceptibility to invasion and represent one of the most infiltrated systems on the planet (Everett 2000).

Invasive species flourish because they lack a natural predator where they are introduced. As a result, predation pressure is removed from the invasive species, while native species are still being preyed upon (Wasson, *et al.* 2005). This enhances invasive species' ability to out-compete native species, which usually results in the decreased abundance of native species. Furthermore, studies have shown that invasive species can evade predation by propagating in areas that have temperature and salinity gradients unfavorable to native predators (Xipling & Purcell 2005).

One prominent freshwater invasive exotic species is the zebra mussel. Beginning in the mid-1980s, zebra mussels were inadvertently introduced into the Great Lakes via ballast water discharge (Leach 1993). They have now spread and established extensive populations in the rivers and freshwater ecosystems of twenty U.S. states and two Canadian provinces. Due to the very large filtering capacity of these mussels, they are responsible for the reduction of chlorophyll levels and phytoplankton population densities in these ecosystems. Studies have shown that zebra mussels can also play a negative role by changing the dynamics of nutrient and contaminant cycling and the manner in which PCBs bio-accumulate in the marine food web (U.S. EPA 2006).

Interconnections between Ecosystem Threats

Most environmental processes are interrelated; therefore, these marine environmental problems rarely occur in isolation (Semiletov 2007). The complex relationships between local marine ecosystems, basin-wide circulation patterns and global nutrient cycling, for instance, represent the breadth of oceanic linkages (Evans & Fasham 1993; Collins 2007; Walter 2007). For example, in coral reef ecosystems the water is

often nutrient-poor, and the system depends on benthic organisms to turn over sediment and re-suspend nutrients in the water column. Alternatively, kelp forests receive the majority of their nutrients via currents and rely less on re-suspension due to benthic organisms. It is clear that the removal of benthic organisms in each system would produce cascades of different effects.

The interconnection of ecosystem threats can be observed in many situations. Global climate change and habitat damage are linked in situations such as mangrove submersion via sea level rise. Booming coastal development has caused marked increases in ocean pollution and overfishing (Ernst 2003; Crowder 2006). Just as synergy can lead to heightened positive impacts, ecosystem threats can feed into each other as well. A recent and dramatic demonstration of ocean threat convergence was seen in the effects and aftermath of Hurricane Katrina. In New Orleans, coastal development below sea level and wetland loss combined with increased hurricane severity, to produce catastrophic results.

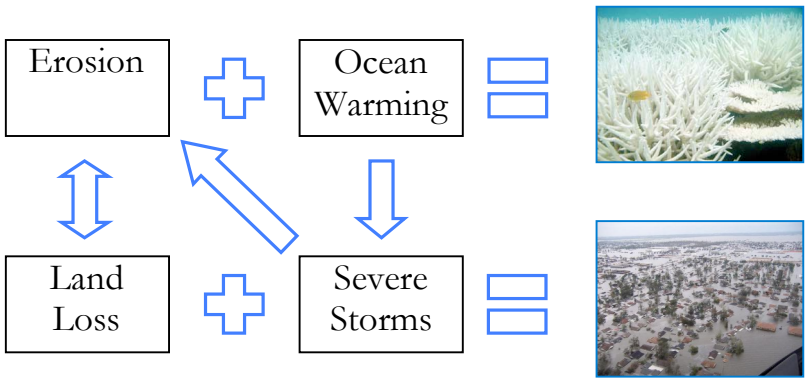


Figure 2: Interdependence of ocean problems. Erosion plus global warming leads to coral bleaching. Land loss and severe storms leads to disastrous effects, as seen in Hurricane Katrina. Problems also act on each other. Ocean warming leads to severe storms, which exacerbates erosion, while erosion and land loss heighten the effects of each other.

2.2 Shortcomings in Regional and National Governance of Marine Ecosystems

Our understanding of the ocean has traditionally been based on oceanography and marine biology, which have separately allowed for an understanding of the physical and biological components of ocean ecosystems. As marine science continues to evolve, the need for interdisciplinary study is becoming more and more evident, as is the need for integrated management systems. The marine environmental problems facing the oceans today are interrelated and of larger in scope than were initially envisioned by policymakers when they developed the current system for ocean resource management. Regional and national management of marine ecosystems has been marred by miscommunication, confusion over territorial jurisdiction, and a lack of efficiency in incorporating scientific data and findings into new policies.

Shortcomings in present development include lack of administrative authority, inadequate communication, failure to create an environment of shared responsibility, and inefficient data and policy management. Insufficient analysis and planning results in the following:

- Data and research overlaps,
- Failure to integrate data into regional networks,
- A dearth of reports that sufficiently detail regional and national trends in ecosystem management,
- A lack of knowledge in key scientific areas.

The most concerning shortcomings in regional and national governance are often seen in the lack of sufficient education for top-level marine resource managers.

Managers may have the prowess and leadership capabilities to develop their own agencies, but often there is a lack of inter-agency communication. Furthermore, local communities have been left out of decision-making processes and top-level managers often fail to incorporate scientific findings and data trends into policy-making decisions. Issues such as fisheries management, endangered species conservation, marine transportation and offshore energy extraction are managed independently of one another, and administrators are often uninformed about management activities in other sectors. Because agency jurisdiction does not generally correspond with aquatic ecosystem boundaries, additional coordination in management is necessary. In addition to fragmentation within the marine science and management communities, there is a substantial communication gap between the realms of science and policy. This fundamental disconnect must be addressed in order to sustain the health of marine ecosystems.

2.3 Understanding Ecosystem-Based Management (EBM)

H.R. 21 advocates ecosystem-based management (EBM) as the primary method for reviewing and integrating ongoing scientific research into responsible policy decisions. The approach of EBM is rooted in the precautionary principle, which suggests that management actions should be taken before problems reach a critical stage. EBM makes use of the precautionary principle to facilitate action in the absence of complete scientific understanding. It couples this proactive stance with a commitment to adaptive management in which science informs policy.

EBM aims to govern based on ecological boundaries rather than political boundaries in consideration of overall ecological integrity and ecosystem health. It is a holistic approach in which the primary objective is the preservation and maintenance of ecosystem services (Robinson, *et al.* 1999; O'Boyle & Jamieson 2006). Ecosystem services are defined here in the broadest terms, referring not only to direct human benefits provided by healthy oceans, such as transport or fisheries, but also indirect and less tangible benefits such as nutrient cycling and climate regulation.

Because EBM examines ocean threats from a wide scientific perspective, cumulative and synergistic impacts are recognized in this system of management (Hardman-Mountford 2005). EBM requires a creative blend of scientific ingenuity and technical innovation to feasibly develop and sustain necessary information, monitoring, and feedback mechanisms (Pahl-Wostl 2007; Robinson 1999). EBM also encourages the use of adaptive management to facilitate heightened responses, as knowledge of natural relationships in ecosystems evolves over time (Guerry 2005).

What is Ecosystem-Based Management?

- Recognizing ecological boundaries
- Addressing the complexity of natural processes
- Engaging many stakeholders
- Recognizing the role humans play in ecosystems
- Relying on adaptive management
- Integrating ecological, social and economic goals
- Maintaining healthy ecosystems for continued provision of human goods and services

Source: EBM Tools 2007

2.4 The Legislative Solution For Establishing Ecosystem-Based Management

H.R. 21 establishes three public policy objectives in order to establish EBM:

Institute a National Oceans Policy

Under a new National Ocean Policy, the Federal government is required "to protect, maintain, and restore the health of marine ecosystems in order to fulfill the ecological, economic, educational, social, cultural, nutritional, recreational and other requirements of current and future generations of Americans" (H.R. 21). All Federal government activities must adhere to this new policy. The Federal government must also employ a precautionary approach in situations where there is

incomplete or inconclusive information about the effects of government activities on ocean waters or resources.

Authorize NOAA in Statute

President Nixon authorized NOAA under Executive Order 11564 on October 5, 1970. A major component of H.R. 21 is to create statutory authorization and direction for NOAA, thus recognizing the increasing importance of effective ocean resource management on the domestic policy agenda.

Establish New Governance Structures

H.R. 21 organizes national and regional governance structures for EBM implementation at all levels. Nationally, the bill calls for a National Ocean's Advisor, a Committee on Ocean Policy, and a Council of Advisors on Ocean Policy. Regionally, the bill calls for the creation of nine Regional Ocean Partnerships (ROPs) in the North Pacific, Pacific, West Pacific, Gulf of Mexico, Caribbean, Southeast Atlantic, Northeast Atlantic, Mid-Atlantic and Great Lakes regions. The bill establishes these partnerships to:

- Enhance communication between resource managers at multiple levels of government
- Assess ecosystems
- Identify important ecological areas
- Enable strategic, EBM planning.

Further, the bill develops a sustainable funding stream in the form of the Oceans and Great Lakes Trust Fund. This Fund will draw resources from general revenue, interest, and the sales of a Healthy Oceans Stamp.

Together, these three objectives pave the way for successful implementation of EBM in oceans under U.S. jurisdiction.

2.5 Opposition to H.R. 21

Opposition to H.R. 21 revolves around concerns over its potential conflict with existing laws, such as the National Environmental Policy Act (NEPA). There is also concern that the implementation of H.R. 21 will be redundant and will require an additional layer of federal bureaucracy that would result in regulatory delays and slow project approvals. Also there are fears of jurisdictional confusion and conflict and increased public lawsuits due to the sweeping regulatory and structural changes presented in H.R. 21. Even though H.R. 21 proposes a decentralized and regionally-based ocean governance strategy, regional stakeholders, especially the states and Regional Fishery Management Councils, have expressed concern about the increased federal role in regional ocean governance proposed by H.R. 21. They fear that federal intervention might inhibit regional decision-making, and encumber regional actions. Finally, there is also concern about the funding for H.R. 21. The bill does not include a mechanism for offsetting its proposed costs, as House of Representatives rules require, and the Healthy Oceans Stamp will not fully cover initial and long-term costs. The establishment of the $1.3 billion Ocean and Great Lakes Conservation Trust Fund will come from General Treasury revenue and is likely to reduce the funding available for existing or alternate ocean programs (Morello 2007). However, H.R. 21 has a group of supporters who recognize the positive effects of implementing such a policy. These supporters include members of the House of Representatives Oceans Caucus and environmental nongovernmental organizations such as Environmental Defense, Natural Resources Defense Council, and the Ocean Conservancy.

Section 3
Implementation

The following section represents our proposal for implementation of H.R. 21. The plan was developed as a simulation as part of a Workshop in Applied Earth Systems Management at Columbia University.

3.1 Implementation Goals

To ensure the program's success and to address the concerns expressed about the legislation, we identified three benchmarks for success in the first year of H.R. 21's implementation. Meeting these three elements will help reach the ultimate goal of improved ocean health.

1. **Maintain a coalition of supporters**
   In designing the program, we set out to show our supporters that we intend to actively implement H.R. 21. Throughout the first year following passage of the bill, we must maintain these supporters by communicating our progress and the lessons we have learned. Meanwhile, we must engage new stakeholders to champion our plans for improvement of ocean ecosystem health.

2. **Establish baselines**
   In the first year of implementation, we will need to evaluate the status of ongoing ocean governance initiatives, assess the current marine science research efforts, and examine the accessibility and integration of ocean ecosystem data. In order to measure our success down the road, we need to know the status quo at the start of implementation. These first year baselines will prepare us for our third goal.

3. **Prepare for long-term initiatives**
   During the first year, we will anticipate the future needs of EBM and lay the foundation to meet those needs. We will gather data to measure performance and use the data to devise long-term plans.

3.2 Implementation Actions

Based on these goals, we designed a comprehensive program to implement H.R. 21 in the first year. The program for the first year of implementation establishes a centralized framework at NOAA to provide support to and resources for the regional ocean partnerships (see Figure 3).

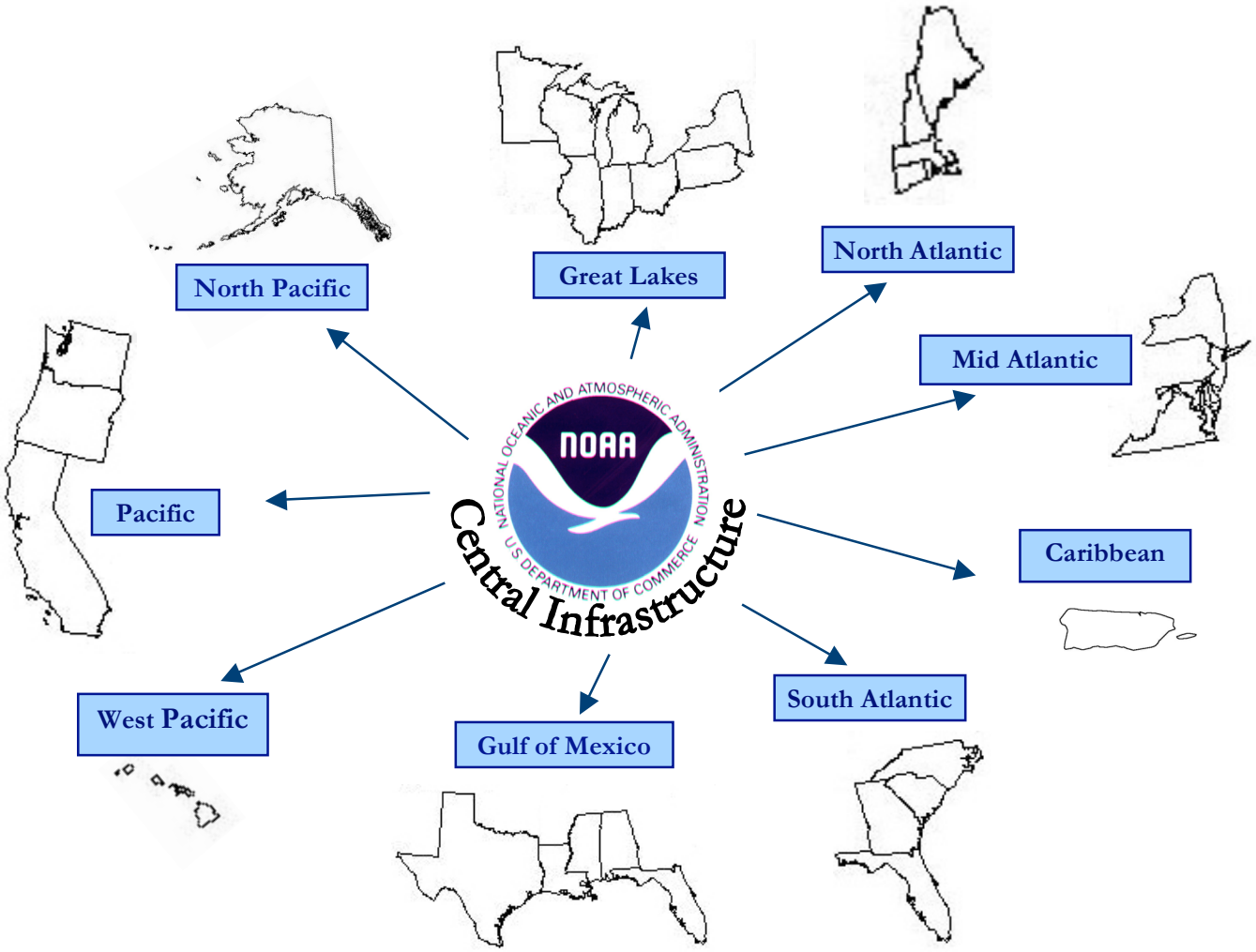


Figure 3: NOAA as a central hub for a decentralized regional ocean governance structure.

Implementation will occur in three specific ways:

- **Organizational Development** – We need to develop a robust ocean management infrastructure to sponsor the work of H.R. 21. Within this framework, NOAA will serve as the lead agency with input from other federal and state agencies.
- **Analysis and Planning** – In order to establish baselines we must analyze programs and prepare long-term plans.
- **Education** – We must educate ocean resource managers on best practices in EBM implementation. This is the majority of our implementation strategy because these managers are responsible for hands-on fieldwork necessary to make this bill a success.

3.3 Organizational Development

Implementation Action: Organizational Development
Actions: • Complete first year appointments • Establish a centralized hub within NOAA • Write regulations to promulgate National Ocean Policy • Establish Ocean and Great Lakes Trust Fund • Develop a Healthy Oceans Stamp **Key Staff:** • National Oceans Advisor , 2 Analysts, and 3 Assistant **Line Office:** Executive Office of the President • Regulations Director and Assistant • Administrative Officer • Policy Analyst • Legal Analyst **Line Office:** National Ocean Policy Program Coordination Office • Accountant **Line Office:** Office of NOAA's Chief Financial Officer **Overall Budget:** $3,246,996

3.3.1 Actions

In order to implement H.R. 21 it is important for us to develop an integrated organizational framework at the national and regional levels. Within the first year, we will complete appointments for national offices and regional ocean partnerships. We will also establish a central hub within NOAA to serve all the needs of National Ocean Policy. NOAA will contract the development of regulations for the promulgation of the National Ocean Policy. Finally, the U.S. Treasury will establish an Ocean and Great Lakes Conservation Trust Fund to fund the implementation of National Ocean Policy initiatives. In part this fund will draw revenues from the sale of a Healthy Oceans Stamp developed by the United States Postal Service.

3.3.2 Complete Appointments

The Act specifically mandates that new appointments must take place within the first year of implementation. These include a National Oceans Advisor, members of the Council of Advisors on Ocean Policy, members of the Science Advisory Board and Federal Representatives for the Regional Ocean Partnerships.

National Oceans Advisor

The Executive Office of the President will appoint a National Oceans Advisor. The Advisor will be a non-voting Executive Director and Chair of the Committee on Ocean Policy (COP). The COP is responsible for facilitating interagency coordination regarding implementation of the bill. The Advisor will be responsible for holding meetings of the COP, organizing the work of the COP and establishing any necessary subcommittees. The Advisor will report to the President on implementation of H.R. 21, activities of the COP and other ocean-related policy issues of the United States in consultation with the Administrator.

Council of Advisors on Ocean Policy

The National Oceans Advisor will provide the President with possible candidates for the Council of Advisors on Ocean Policy. The President will finalize the Council appointments.

The Council will have at least 15 members. There must be at least one member from each of the following representative groups:

- State governments
- Local governments
- Native American tribes
- The marine science research community
- The marine science education community
- Fisheries
- Non-fishing marine activities
- Agriculture, which may include timber
- Watershed organizations
- Nongovernmental organizations

Science Advisory Board

The NOAA Administrator will appoint members to the Science Advisory Board. The Science Advisory Board will provide scientific expertise and guidance to the NOAA Administrator.

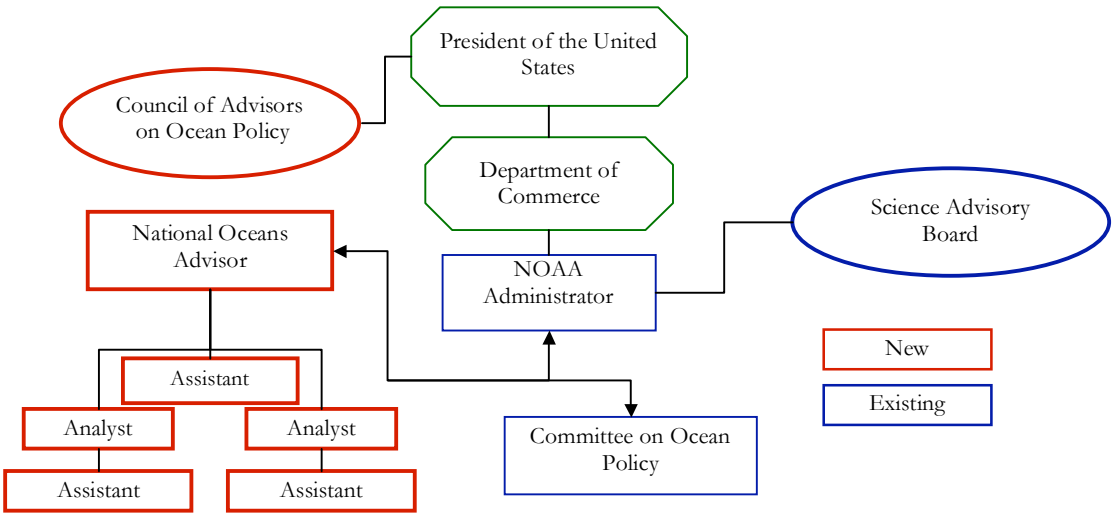


Figure 4: National Oceans Advisor and staff, Science Advisory Board and the Council of Advisors on Ocean Policy

Federal Agency Representatives on Regional Ocean Partnerships

A major component of this bill is the establishment of nine Regional Ocean Partnerships (ROPs) designed to govern ocean activities on regional and ecosystem scales. The ROPs consist of federal, state, and local representatives. Within the first year, each of the following eight federal agencies will assign members to each of the Regional Ocean Partnerships.

- National Oceanic and Atmospheric Administration
  - The Administrator or his or her representative will serve as chair of each ROP
- Department of Interior
- Environmental Protection Agency
- Department of Agriculture
- Army Corps of Engineers
- Department of Defense
- Department of Homeland Security
- Department of Commerce

3.3.3 Reconfigure NOAA

To meet our first goal of maintaining stakeholder support, we reorganized an existing office in NOAA to serve as a central hub for H.R. 21 implementation. The existing Program Coordination Office in NOAA currently has one representative from each of NOAA's line offices. We have reconfigured this office into the National Ocean Policy Program Coordination Office (NOP-PCO) and established four new departments within it as follows:

- *Regulations*
  The Regulations Department is tasked with establishing and codifying regulations for compliance with the National Ocean Policy.
- *Reporting*
  The Reporting Department is responsible for coordinating several reports in the first year of implementation.
- *Data Integration*
  The Data Integration Department is tasked with integrating existing data sources into regional ecosystem databases.
- *Education*
  The Education Department is responsible for educating stakeholders through improved communications, nine regional workshops and a national conference.

Full staff descriptions for all new offices are included in Appendix A.

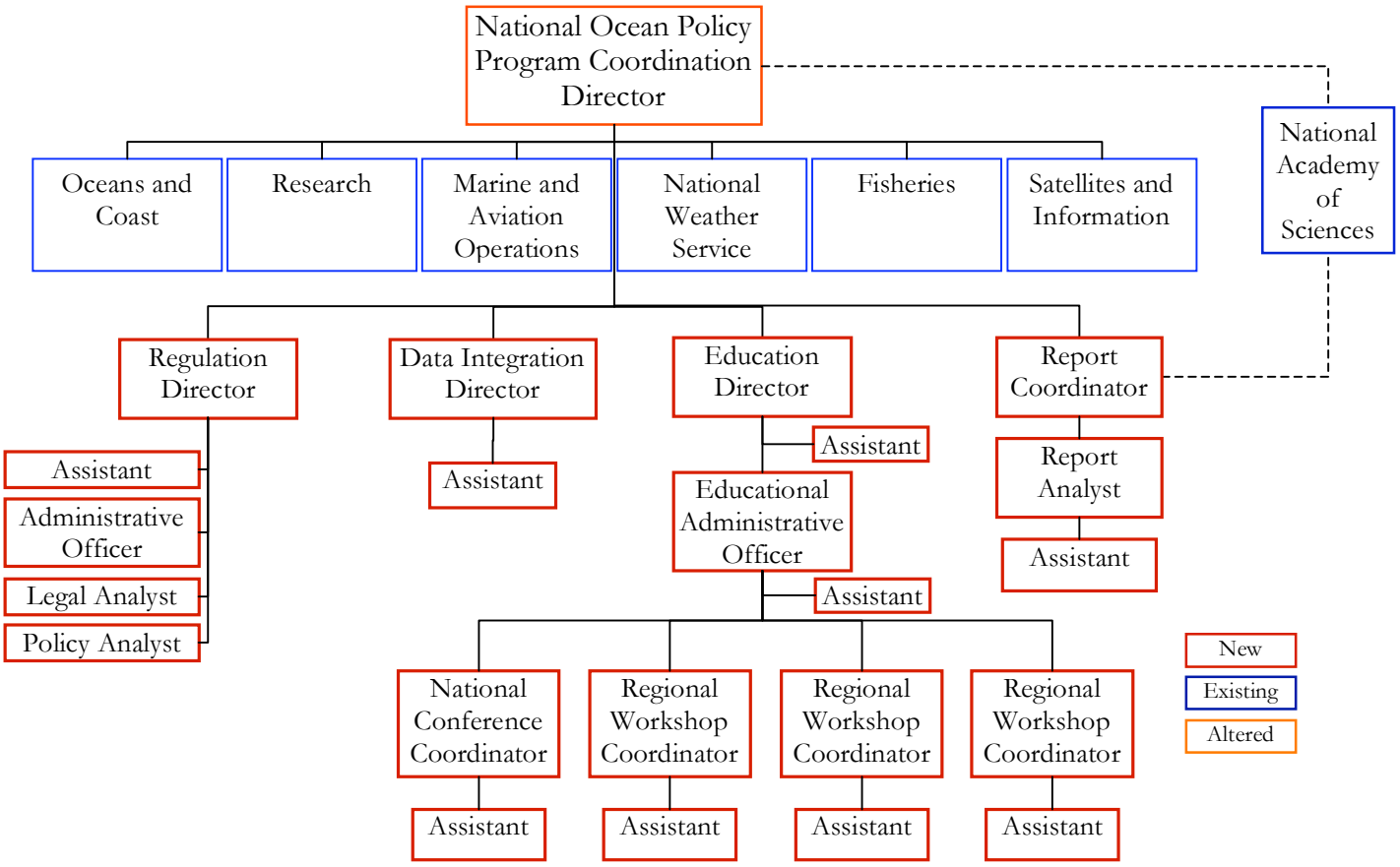


Figure 5: National Ocean Policy Program Coordination Office

3.3.4 Draft Regulations

In order to implement the National Ocean Policy, we will need to develop internal procedures and guidelines and draft regulations for compliance with the policy. The legislation mandates that regulations be developed within the first year of enactment. A third-party contractor will draft regulatory options for NOAA's consideration in order to ensure they are in the best interests of all federal agencies. The Regulations Department of the NOP-PCO will oversee the contracting of the National Ocean Policy regulations. This department includes a Director, two analysts and an assistant.

3.3.5 Assure Funding Stream

Trust Fund

The bill establishes an Ocean and Great Lakes Conservation Trust Fund that will provide financial resources for implementation. According to H.R. 21, the U.S. Treasury Department is responsible for establishing and administering the Fund.

Record Keeping Rules

The NOAA Administrator will establish record-keeping rules for the Ocean and Great Lakes Conservation Trust Fund. The Funds Management Branch of NOAA's Finance Office will be responsible for record keeping. We have added one additional accountant to the Department in order to support the additional work created by H.R. 21.

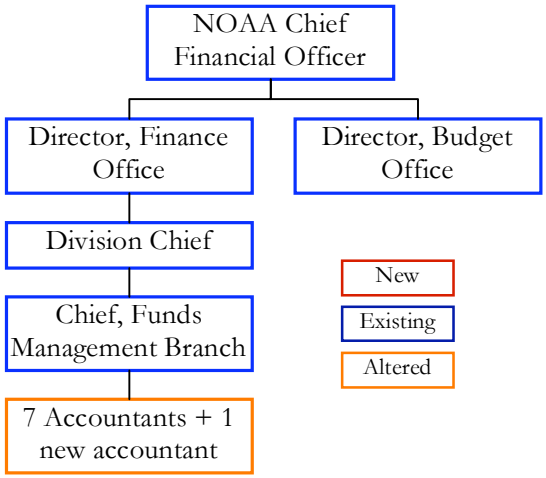


Figure 6: NOAA's Finance Office

Healthy Oceans Stamp

As part of the Ocean and Great Lakes Conservation Trust Fund, the United States Postal Service will design and sell a Healthy Oceans Stamp. NOAA's Chief Financial Officer will complete the required paperwork immediately for submission to the U.S. Postal Service. Once this is done, the USPS will design, manufacture, market, and retail the stamps.

This Healthy Oceans Stamp will be a designated "semi-postal." This is a stamp that is sold at a higher price than a first-class postage stamp, with the additional revenue going to the Oceans and Great Lakes Trust Fund. Based on an examination of the annual profits of three previous semi-postals, an estimate of $5 million in annual revenue is expected from the Healthy Oceans Stamp. Most semi-postals are sold on two-year contracts, which are often renewed, and the revenue is distributed at the end of the contract (GAO 2005). Thus, the Healthy Oceans Stamp will be introduced within a year of H.R. 21's enactment, but it could be at least two years, if not more, before the funds can be distributed. Refer to Appendix C for a more thorough description of these estimates.

3.4 Analysis and Planning

Implementation Action: Analysis and Planning
Actions: • Integrate ocean ecosystem databases • Complete Strategic Plan for Research and Development • Contract with NAS to begin a report on Data Management, Archival, and Distribution • Contract with NAS to complete a Study of Regional Ocean Governance **Key Staff:** • Data Integration Director and Assistant • Report Coordinator and Assistant • Report Analyst **Line Office:** National Ocean Policy Program Coordination Office **Overall Budget:** $2,909,421

3.4.1 Actions

Within the first year of implementation, the NOP-PCO needs to establish baselines that represent the status quo and potential for growth in marine science research and ocean governance. During the first year of implementation, a set of regional ocean ecosystem databases needs to be integrated with existing NOAA systems. We must complete a Strategic Plan for Research and Development, while contracting two reports to the National Academy of Sciences. These databases and reports will provide information for program evaluation in years two and beyond.

3.4.2 Strategic Reports

Two major strategic plans must be completed during the first year of implementation of H.R. 21. They serve as a cornerstone of the successful long-term development of the regional EBM regime mandated in the bill. The first is a Strategic Plan for Research and Development and the second is a Report on Data Management, Archival and Distribution. These critical reports will define the long-term research, technological, and data management infrastructure development of the emerging system of ocean governance.

The Reporting Department of the NOP-PCO will be responsible for the development and coordination of these reports. The Report Coordinator's Office will include the Report Coordinator, a Report Analyst, and an Administrative Assistant.

<u>Strategic Plan for Research and Development</u>

The Strategic Plan for Research and Development will include an assessment of the science and technology needs of the new NOAA administration and a strategic plan that assigns long-term responsibilities within NOAA for the successful implementation of the mandated goals of H.R. 21.

The Joint Subcommittee on Ocean and Science Technology (JSOST), established by the Committee on Ocean Policy, is already responsible for releasing an annual national report similar to the Strategic Plan. Thus, the Report Coordinator will work closely with the JSOST to coordinate NOAA's role.

The Report Coordinator will develop the Strategic Plan with input from existing NOAA staff and external stakeholders. The Report Coordinator will use the regional workshops as a tool to gain insight from interested stakeholders. These may include the following:

- Other federal agencies related to ocean affairs
- State agency representatives
- Representatives from JSOST
- Local government officials
- Academic experts
- Industry and NGO leadership

Once the Reporting Department has drafted the Strategic Plan, the Report Coordinator will enter into an arrangement with the National Academy of Sciences for review of the plan. Both the plan and review will be transmitted to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science no later than 18 months after the date of enactment.

<u>Report on Data Management, Archival and Distribution</u>

In the first year, the Report Coordinator must also contract with the National Academy of Sciences (NAS) for a review of the existing environmental data and administration systems within NOAA. This review is

known as the Report on Data Management, Archival and Distribution. The review will gauge NOAA's ability to do the following:

- Provide adequate capacity to manage, archive and disseminate environmental information
- Establish, develop, and maintain information bases
- Develop effective interfaces among the environmental data and information systems
- Integrate and interpret data from different sources
- Reanalyze and reprocess the archived data

3.4.3 Study of Regional Ocean Governance

H.R. 21 mandates that NOAA commission a Study of Regional Ocean Governance from the National Academy of Sciences. This study will guide the long-term development of the regional EBM governance regime.

The Report Coordinator's Office will be responsible for commissioning the Study of Regional Ocean Governance from the National Research Council of the National Academy of Sciences within the first year of implementation. The National Research Council will then propose a budget and convene any necessary expert committees to orchestrate this extensive study. NAS will deliver the findings to the Report Coordinator for distribution to the new NOAA Administrator, the Committee on Ocean Policy and each of the Regional Ocean Partnerships.

3.4.4 Data Integration

H.R. 21 requires NOAA to establish a functioning network of Ocean Ecosystem Resource Information Systems (OERIS). These systems will be used to organize and disseminate all available data on ocean ecosystems. Eventually the OERIS network must incorporate the data requirements of regional managers. The existing data management systems of NOAA will be integrated. These systems will also link to third-party data sources and users at other agencies across the United States.

To oversee this critical development in the first year, there will be a temporary, full-time Data Integration Director established within the NOP-PCO for FY 2008. The Data Integration Director position will immediately be staffed through a negotiated temporary detail from another federal agency. This Director will bring critical outside experience and knowledge regarding environmental data and information systems and their management to NOAA during the early transition. The Data Integration Director will manage OERIS development while utilizing the existing data infrastructure at NOAA.

The Integrated Ocean Observing System (IOOS) is an existing information system of observational data throughout the U.S. oceans. IOOS conveniently links three subsystems of data analysis and modeling, data management, and observations and data telemetry. IOOS has a national backbone that collects data from national observing systems and a Regional Coastal Ocean Observing System (RCOOS) that focuses on regional marine ecosystem scales. The RCOOSs thus provide an existing framework upon which the regional OERIS can build. Elements of RCOOSs are currently operational, and regional associations are developing to coordinate regionally integrated observing systems that will contribute to IOOS development as a whole. However, a new framework must be established in order to successfully integrate IOOS with other NOAA and third party systems to create a network of regional OERISs mandated by H.R. 21.

3.5 Education

Implementation Action: Education
Actions: • Prepare biannual ecosystem-based management newsletters • Hold 9 regional workshops • Hold a national conference **Key Staff:** • Education Director and Assistant • Educational Administrative Officer and Assistant • 3 Regional Workshop Coordinators and Assistants • 1 National Conference Coordinator and Assistant **Line Office:** National Ocean Policy Program Coordination Office - Education Department **Overall Budget:** $1,805,240

3.5.1 Actions

This implementation action emphasizes the use of education to spread both understanding and application of the National Oceans Policy. Education of managers will clarify stakeholder roles in the implementation of the National Oceans Policy and the application of EBM. To educate managers we will send biannual newsletters, hold an EBM workshop in each of the 9 regions, and hold a nation conference of stakeholders.

3.5.2 NOP-PCO Education Department

The Education Department of the NOP-PCO will require a large staff in order to coordinate all educational activities. The department will have an Education Director on temporary detail from another federal agency. The department will also include an Administrative Officer, three regional workshop coordinators, a national conference coordinator, and their respective assistants.

3.5.3 Ecosystem-Based Management Newsletters

The Education Department will send out biannual email and postal newsletters to stakeholders. These newsletters will highlight successful applications of EBM. The newsletters will also focus on recently accepted grants to demonstrate the types of projects that have received NOAA funding. Finally, recent findings from innovative scientific research will also be highlighted in the newsletters. The newsletters serve as an opportunity to keep an open line of communication between regional and national ocean managers. This will emphasize the best practices of EBM in Regional Ocean Partnerships across the United States.

3.5.4 Regional Workshops

One regional workshop will be organized during the first year of implementation for each of the nine Regional Ocean Partnership areas. These workshops are region-specific and are designed to educate managers on EBM and best practices of successful EBM implementation. The following are some examples of potential workshop topics:

- Seeing the potential for EBM in your region;
- How to address the needs of local industries including oil, gas, and fisheries;
- How to educate the public regarding the health and safety of their oceans;
- Clarification of roles in emerging regulatory systems.

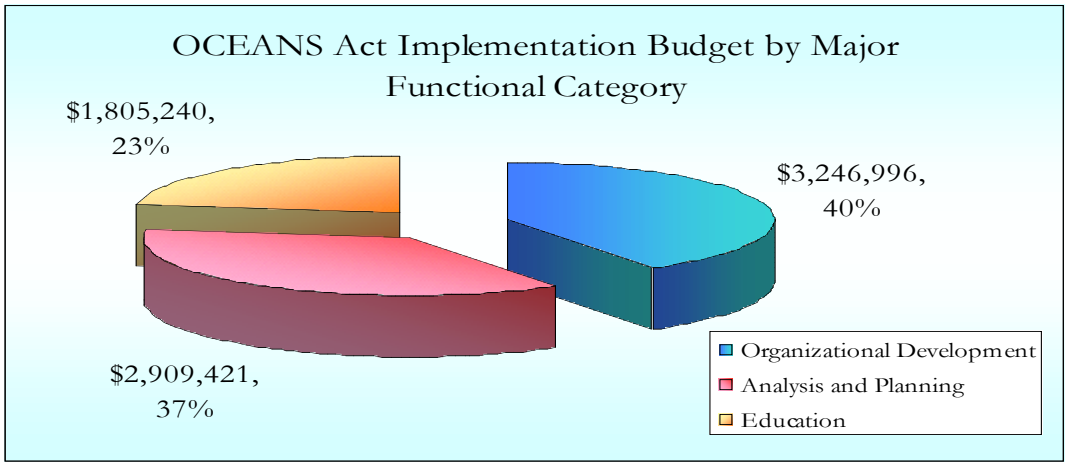
These workshops will require event planning and coordination. In order to implement these workshops, the NOP-PCO will hire three Regional Workshop Coordinators. The office will also contract the conference logistics to a private firm that specializes in workshop organization.

3.5.5 National Conference

A national conference will provide a forum for federal, state, and local managers to present EBM efforts and strategies. The national conference will also allow NOAA to present managers with the National Ocean Policy regulations and compliance procedures. The emphasis of these conferences will be to gather federal and regional managers from different Regional Ocean Partnership areas. Innovative applications of EBM will be discussed. Expert speakers will provide scientific insight into the successful implementation of EBM. This will highlight the need for outside stakeholder involvement. In addition, presentations will be made by government employees and by members of various stakeholder NGOs. We anticipate roughly 500 attendees at the national conference.

3.6 First Year Implementation Budget

For the first implementation year, FY 2008, we have estimated a budget totaling $7,961,657 to address the major functional program criteria while maintaining a high degree of fiscal efficiency. This budget supplements the existing FY2008 budget of NOAA for achieving the mandates of H. R. 21.



Total Budget: $7,961,657

Figure 7: First Year Implementation Budget of H.R. 21 by functional category

Our streamlined implementation strategy maximizes the use of existing resources within NOAA through new staff member integration into existing organizational hierarchies. There is a particular emphasis on initial research mandates and stakeholder education programs to facilitate long-term implementation goals. In addition, the out-sourcing of complex temporary research projects will contribute to maximum fiscal efficiency, while also providing invaluable third-party insight. This supplemental budget constitutes only a 0.28% increase to the existing NOAA FY2008 budget of $2,877,985,000.

Detailed budget information can be found in Appendix B. All mandates of H.R. 21 not represented by line items utilize existing NOAA staff or are beyond the scope of FY 2008 budget implementation. No revenue sources aside from direct Congressional appropriation are anticipated for FY 2008, as the Healthy Oceans Stamp is not expected to begin generating revenue until FY 2009. An examination of historical semi-postal revenues and future revenue projection for the Healthy Oceans Stamp has been included in Appendix C.

3.7 Measuring Progress

The first year program goals of H.R. 21 are task oriented. Staff must be hired, offices must be quickly formed, and preparations for workshops and conferences must begin immediately. Therefore, developing a strong set of performance measurement systems is vital. The performance measurement systems outlined below are designed to measure progress in the first year and beyond. Short-term performance measurement will focus on gauging progress of tasks and staffing assignments. Long-term performance measurement involves two different approaches: continued use of the short-term system for each subsequent year and an additional system that places responsibility on Regional Ocean Partnerships to develop ecosystem health indicators.

3.7.1 Short-Term Performance Measurement

Short-term performance measurement is based on gauging the implementation success of first year program goals. Short-term success will lay the groundwork for long-term progress and the ultimate goal

of H.R. 21 – improving marine ecosystem stability, resilience and productivity. The stability, resilience and productivity of ocean ecosystems are unlikely to show marked improvements within the first year of H.R. 21's implementation. However, we hope the lines of reporting and communication established to ensure the achievement of first-year goals will constitute a strong foundation for continued adaptive management for NOAA's future programs. Efforts made in the first year will help promote an ecosystem-based approach to marine and coastal resource management.

Table 1: Key Objectives and Legislative Mandates of Short Term Program Elements

KEY OBJECTIVES AND LEGISLATIVE MANDATES	
ORGANIZATIONAL DEVELOPMENT ACTIVITIES	
Finalize Appointments	• Select persons to serve on NOAA's Scientific Advisory Board, the President's Council of Ocean Advisors and all nine Regional Ocean Partnerships.
Arrange Funding	• Transfer initial funds from general revenue to the Ocean and Great Lakes Conservation Trust Fund
	• Make the Healthy Oceans stamp publicly available
Write Regulations	• Analyze Federal activities to determine gaps in compliance with the National Ocean Policy
ANALYSIS AND PLANNING ACTIVITIES	
Strategic Reports	• Complete draft reports on Data Management (with NAS assistance) and Strategic Research & Development
Study of Ocean Governance	• Engage the National Academy of Sciences for a study of ocean governance
Data Integration	• Organize a network of Ocean Ecosystem Resource Information Systems
EDUCATION ACTIVITIES	
Educate Managers	• Arrange a series of regional workshops leading up to a national conference designed to share lessons learned and best practices

We developed specific indicators to measure progress towards detailed completion of detailed objectives. Each of these indicators helps to answer a question about movement towards project milestones. Specific, quantitative measurements are used to provide numerical reference points from which improvements can be measured. For these quantitative measures, refer to Appendix D. The integration of more general questions about progress will facilitate upper management's ability to quickly and accurately estimate improvement. Because we expect short-term goals to be met within one year of H.R. 21's enactment, performance during the first year will need to be measured on a quarterly timeline. This schedule will allow managers to readjust priorities as necessary to ensure that adequate progress is made.

The Report Coordinator will collect data from NOAA's line offices and outside resource management agencies. Information will be gathered at the source (outside of NOAA Headquarters, as appropriate) and then passed to the NOP-PCO Report Coordinator, who will collect and analyze facts and figures for incorporation into quarterly performance reports and progress updates. The Regulation, Education and

Data Integration Directors within the NOP-PCO, and NOAA's Assistant Administrators will then identify implementation strategy changes with the advice and consent of the NOAA Administrator.

3.7.2 Measuring Long-Term Success and Improved Ecosystem Health

In pursuit of the overarching goal of H.R. 21, to improve the overall management and health of national ocean resources, NOAA and the ROPs will need to employ adaptive management tools. Above all, this adaptive management system will track long-term changes in ocean ecosystems to ensure marine health and sustainability. Ten months after enactment of H.R. 21, NOAA should provide guidelines to ROPs for the development of ecosystem health indicators. The guidelines will be broad because indicators are ecosystem specific. For example, a measurement that is appropriate in the Chesapeake Bay is not necessarily applicable to the same measure in Alaska. Thus, the guidelines will delineate broad categories within which ROPs will report on specific indicators of marine and coastal ecosystem stability, resiliency and productivity.

Guidelines for Developing Long-Term Indicators of Ecosystem Health

To measure ecosystem health, we used the six primary threats as identified by the commissions as categories for indicators. Below are the six primary issues identified as areas of concern in H.R. 21:

- Impact Global Climate Change
  - Indicators should be focused on measurement of ambient greenhouse gases, excessive or unsafe use of fossil fuels, measurement of offshore manufacturing pollution, and impacts of increases in ambient and long-term temperature.
- Regulate Coastal Development
  - Indicators should be focused on measuring amount of new projects in the area, assessing long term environmental impacts of development efforts, gauging short term damages from overdevelopment, and highlighting species impacted by hazardous development efforts.
- Decrease Chemical Pollution
  - Indicators should be focused on status of pollution in ecosystems, continued research of harmful effects pollutants may have, and effectiveness of remediation efforts such as clean ups and improved production processes.
- Decrease Habitat Damage
  - Indicators should be focused on identifying habitat stressors, assessing current state of ecosystems, predicting impacts on future health of habitats, and investigating robustness of future and current policy measures in the area.
- Decrease Overfishing and Bycatch
  - Indicators should be focused on measuring fishery stocks and current practices by fisheries, measuring levels of bycatch in the region, assessing popular fishing methods used within the area, and taking stock of how successful policies have been in reducing bycatch on a year to year basis.
- Inhibit Invasive Species
  - Indicators should be focused on levels of trans-continental shipping, amount of damages incurred due to introduction of invasive species, measuring effectiveness of policies that police such species, and tracking specific ecosystem characteristics that the invasive species impact.

ROPs will develop specific regional indicators of ecosystem health. A baseline will be established for each indicator. Improvements should be measured chronologically, though the frequency of measurement can be determined based on each individual indicator. Please review the box below for a specific example of ecosystem indicators.

Ecosystem Indicators:
A Chesapeake Bay Example

Here are specific examples of indicators used to gauge questions about ecosystem health in the Chesapeake Bay region:

What is the status of bay health?
- Measure of striped bass, native oyster and blue crab abundance.

What specific factors are impacting bay health?
- Measure of specific pollutant levels, indicators of water health such as concentrations of dissolved carbon and chlorine.

What is the status of restoration and protection efforts in the region?
- The number of watershed management plans developed and level of enforcement for existing management policies.

Source: Chesapeake Bay Program 2007

In addition to ecosystem indicators, ROPs will measure implementation of EBM by gauging the following performance indicators:

- What level of contact with has been made with the public in the region?
  These types of contact can include town hall meetings, citizen advisory committees, science education days for the public, and informing the public with progress and status reports on regional programs;
- What scientific research was used to gauge ecosystem health?
  Specify contacts with scientific agencies, academic research used, and joint regional studies that are ongoing and have been undertaken.

Section 4
Conclusion

4.1 Looking Forward

H.R. 21 introduces a bold new vision of dynamic ocean governance founded on a rigorous integration of scientific and socio-economic information. Beginning in Washington and spreading to all ocean regions nationwide, this bill triggers a wave of change, transforming antiquated and disparate ocean governance regimes. The strategy for first-year implementation presented in this report begins with a fundamental reshaping of central ocean leadership in the Executive Office and NOAA. At the headquarters level, there will be a focus on expert strategic planning and the development of critical data management, information technology, and regional governance infrastructure. This will be paired with an initial first year intensive regional educational and outreach program.

In the wake of initial implementation, further studies will be completed, regional strategies will be fine-tuned and benchmarked, and integrated scientific information will be leveraged by newly developed infrastructure. U.S. ocean management will evolve through an adaptive governance structure in which the principles of EBM are continually applied and tested. This dynamic system will ensure a streamlined and steady flow of essential information between NOAA, the hub of national ocean governance, and the Regional Ocean Partnerships.

Integrated approaches and innovative science will emerge through enhanced collaboration between regional regulators and stakeholders. Building on the successful implementation of this first year program, continued EBM-based governance of marine resources will ensure the long term stewardship of our oceans for future generations.

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Appendices

Appendix A: Detailed Staffing & Organizational Chart

Organizational Development

Office of the National Oceans Advisor

National Oceans Advisor
Grade: Executive Schedule 5
Responsibilities: Appointed by the Executive Office of the President, the National Oceans Advisor will serve as the non-voting Executive Director and Chair of the Committee on Ocean Policy (COP). As the chair, the Advisor will be responsible for:

- Regularly convening and presiding at meetings of the Committee
- Organizing and directing the work of the Committee
- Establishing and overseeing subcommittees as necessary

The Advisor will advise the President on implementation of HR 21, activities of COP and all other ocean-related policy issues of United States in consultation with the NOAA Administrator. The Advisor will further coordinate within the Executive Office and with the NOAA Administrator to ensure National Ocean Policy priorities are considered and addressed in federal decisions and actions. The Advisor will also perform any other ocean-related Executive functions deemed necessary by the President to advance National Ocean Policy objectives.

Administrative Assistant to the Advisor
Grade: GS 10
Responsibilities: The Administrative Assistant to the Advisor will directly support the functions of the Advisor. This will include managing the Advisor's schedule, handling logistical details associated with the COP, coordinating with the other staff members and other miscellaneous organizational functions.

Two Policy Analysts
Grade: GS 12/13
Responsibilities: The National Oceans Advisor will have a staff that includes two seasoned Policy Analysts who will correspond with the Committee on Ocean Policy (COP) and other federal agencies during H.R. 21 implementation. They will serve in the preparation of any necessary reports and briefings, and conduct Executive level policy analysis for the Advisor, while ensuring any administrative support required by the Advisor is provided. They will be charged with ensuring the National Oceans Advisor remains informed on all relevant ocean-related policy issues, and ensure timely and accurate recommendations and reports are provided to the Executive Office on the Advisor's behalf.

Two Administrative Assistants
Grade: GS 5-9
Responsibilities: Each Policy Analysts will each have an Administrative Assistant. These Administrative Assistants will support the functions of the Analysts and assist the Assistant to the National Oceans Advisor as necessary, particularly in providing administrative support for the COP.

Regulations and Compliance

Regulations Director
Grade: GS 13/14
Responsibilities: Oversee the Regulations Department in the initial drafting of regulations promulgating H.R. 21, coordinating with officers other members of the NOP-PCO and General Counsel as necessary. To initiate this process, the Director will first arrange for the third-party contracting of a regulatory research report and recommendations proposal, to be used in final regulation development. The Director will also manage Department coordination with the stakeholder education programs of the NOP-PCO. Long-term duties will include the management and oversight of all federal agency action reviews mandated under Title I of H.R. 21. The Director will also be responsible for overseeing the implementation and management of long-term regulatory compliance monitoring and reporting to senior staff as necessary.

Administrative Assistant
Grade: GS 5/6/7/8
Responsibilities: Assist the Director and staff of the new Regulatory Compliance Department in carrying out their administrative functions. This includes organizational, clerical, research, communications, and general administrative assistance as needed.

Administrative Officer
Grade: GS 11/12/13
Responsibilities: To work with directly with Regulations Director to develop draft regulations for the implementation of H.R. 21 and support as necessary the development of stakeholder education programs. Following this, he/she will be mainly involved in compliance monitoring activities and handling any reporting demands, though also involved in the review of agency action reports submitted under the Title I of H.R. 21.

Policy Analyst
Grade: GS 9/10/11/12/13
Responsibilities: To work with other office staff to develop draft regulations for the implementation of H.R. 21 and support as necessary the development of stakeholder education programs. The Policy Analyst will review action reports from a policy perspective and report back to the agency on implementation.

Legal Analyst
Grade: GS 9/10/11/12/13
Responsibilities: To work with other office staff to develop draft regulations for the implementation of H.R. 21 and support as necessary the development of stakeholder education programs. The Legal Analyst will review action reports from a legal perspective and report back to the agency on plans for implementation.

Finance Office
Accountant
Grade: GS 13
Responsibilities: To serve as an accountant, augmenting existing NOAA Finance Office accounting staff to accommodate additional accounting requirements associated with new staff, revenues, and contracts.

Analysis and Planning

Data Systems Integration

Data Integration Director, NOP-PCO, Temporary FY2008 Detail
Grade: GS 14
Responsibilities: The Data Integration Director is a data and research management systems expert, detailed as a temporary consultant from another federal agency for critical advising and management during the launching of the Ocean Environmental Resource Information Systems (OERIS) The Director will develop and establish new data management strategies for NOAA. The Director will also serve an advisory role to the Reporting Department staff in their implementation duties. This will be done in coordination with existing NOAA Line Office staff and external third parties. The Director will also providing general guidance to regional workshop staff planning information gathering sessions for OERIS, explore new data platform designs, appraise the progress of regional stakeholder data gathering, administer resources in accordance with data management priorities, and serve as a liaison to other agencies.

Administrative Assistant
Grade: GS 5-9
Responsibilities: The Data Integration Director will have an Administrative Assistant who will provide personal and organizational assistance to the Director in the performance of her/his duties. Ideally this person would be an existing assistant, detailed with the Data Integration Director for the year.

Reporting Department
Report Coordinator
Grade: GS 12/13
Responsibilities: The Report Coordinator will oversee the contracting of two reports with the National Academy of Sciences (NAS), and the development of strategic plans in association with the NAS. Following first year implementation duties, the Report Coordinator will oversee long-range reporting, assessment, and strategic planning efforts within the NOP-PCO.

Report Analyst
Grade: GS 9/10/11/12/13
Responsibilities: Assist the Report Coordinator in the drafting of strategic planning documents and report. Initially, the Analyst will assist with the contracting for mandated NAS reports. The Analyst will communicate with NAS to monitor report progress. The analyst will be responsible for a large portion of strategic plan drafting in coordination with other NOP-PCO and existing NOAA staff.

Administrative Assistant
Grade: GS 5-9
Responsibilities: The Administrative Assistant will serve mainly as a personal aide to the Coordinator in the performance of his/her duties, particularly in organizing meetings, gathering information, and handling travel arrangements. Additional duties include assisting in the development of strategic plans and reports, coordinating with the NAS as necessary, and putting together the survey and compiling results.

Education

Education Director of NOP-PCO- Temporary Detail
Grade: GS 14
Responsibilities: The Education Director NOP-PCO will serve as a temporary expert, on detail from another federal agency, to oversee the launch of the critical educational and outreach components of first year implementation. The Director will plan, organize, direct, coordinate and evaluate all education of regional stakeholders and NOAA staff members. The Director will orchestrate the first-year efforts of all educational staff, both supervising and advising. The Director will work closely with the Educational

Administrative Officer in the development of educational components of the regional and national workshops.

Administrative Assistant
Grade: GS 5-9
Responsibilities: To provide personal organizational and clerical assistance to the Education Director as necessary, and handle any necessary logistics, such as travel.

One Educational Administrative Officer
Grade: GS 12
Responsibilities: The Educational Administrative Officer (AO) will oversee the development of the stakeholder educational program for the regional workshops and the national conference in consultation with the Education Director and coordination with the coordinator staff. The AO will also finalize any reports and serve as the final approval on all workshop and conference materials. In the long term, the AO will develop and oversee all educational and stakeholder outreach efforts of the NOP-PCO.

Administrative Assistant
Grade: GS 5-9
Responsibilities: To serve as personal organizational assistant to the AO, and help develop and publish educational and stakeholder outreach materials.

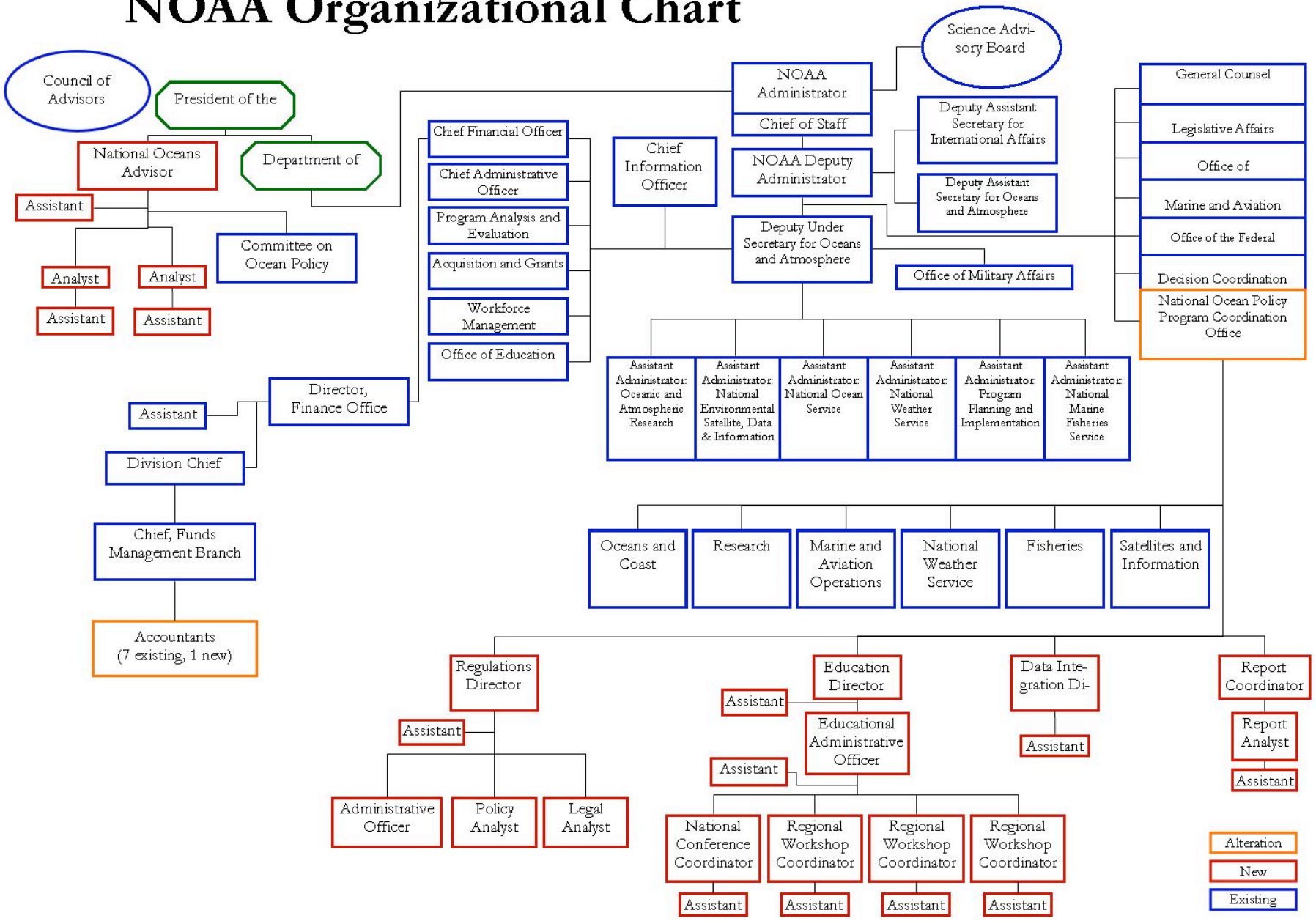
National Conference Coordinator
Grade: GS 12-13
Responsibilities: The National Conference Coordinator will report directly to the AO. The Conference coordinator will have the primary responsibility of organizing the national conference including coordinating with the national conference logistical contractor, all stakeholder attendees, educational staff, and guest speakers.

Assistant to National Conference Coordinator
Grade: GS 5-9
Responsibilities: The Assistant will support the National Conference Coordinator in the performance of all conference organization-related tasks as needed.

Three Regional Workshop Coordinators
Grade: GS 12/13
Responsibilities: There will be three regional workshop coordinators that report to the AO. Each Coordinator will be responsible for three regions. The workshop coordinators will be responsible for coordinating one workshop in each region. They will need to coordinate with the workshop logistics contractor, all regional partnership representatives, and stakeholder attendees.

Three Assistants to the Regional Workshop Coordinators
Grade: GS 5-9
Responsibilities: Each Regional Workshop Coordinator will have one Administrative Assistant. These Assistants will help coordinate the workshops by organizing schedules and maintaining contact with regional partnership representatives.

NOAA Organizational Chart



Appendix B: Detailed Budget

Budget Totals: By Expense Type

Salary	$2,396,996
Fringe Benefits*	$787,413
Overhead†	$382,129
Travel	$155,000
Personnel Liability Insurance‡	$22,291
Contracted Reports	$3,950,000
Workshop Logistical Contracts	$267,827
	$7,961,657

*32.85% of salary (OMB M-06-22)

†12% of salary and benefits (OMB M-06-22)

‡0.7% of salary and benefits (OMB M-06-22)

Budget Totals: By Functional Category

Organizational Development	$3,246,996
Analysis and Planning	$2,909,421
Education	$1,805,240
	$7,961,657

Organizational Development — **$3,246,996**

Office of the National Oceans Advisor

Position	**Grade**	**Salary**
Advisor	*Exec 5*	$136,200
Assistant to Advisor	*GS-10*	$65,912
Analyst	*up to GS-13*	$103,220
Analyst	*up to GS-13*	$103,220
Analyst Assistant	*up to GS-13*	$59,852
Analyst Assistant	*up to GS-13*	$59,852
Staffing Total:	***$528,256***	
Fringe Benefits	*32.85%*	$173,532
Overhead	*12%*	$84,215
Personnel Liability Insurance	0.7%	$4,913
Misc Total:	***$262,659***	
Workshop Travel		$6,000
Supplemental Advisor Travel		$15,000
Science Advisory Board Travel Expenses		$20,000
Travel Total:	***$41,000***	
		$831,915

Regulations Department

Position		Grade	Salary
Regulations Director		*up to GS-14*	$121,967
Administrative Assistant		*up to GS-9*	$59,852
Administrative Officer *(.5 FTE)*		*up to GS-13*	$51,610
Policy Analyst *(.5 FTE)*		*up to GS-13*	$51,610
Legal Analyst *(.5 FTE)*		*up to GS-13*	$51,610
	Staffing Total:	***$336,649***	
Fringe Benefits		*32.85%*	$110,589
Overhead		*12%*	$53,669
Personnel Liability Insurance		0.7%	$3,131
	Misc Total:	***$167,388***	
Workshop Travel			$1,500
Supplemental Travel			$5,000
	Travel Total:	***$6,500***	
Regulatory Development Contract			$1,750,000
			$2,260,537

Finance Office Augmentation

Position		Grade	Salary
Accountant		*up to GS-13*	$103,220
	Staffing Total:	***$103,220***	
Fringe Benefits		*32.85%*	$33,908
Overhead		*12%*	$16,455
Personnel Liability Insurance		0.7%	$960
	Misc Total:	***$51,323***	
Workshop Travel			$0
Supplemental Travel			$0
	Travel Total:	***$0***	
			$154,543

Analysis and Planning **$2,909,421**

Data Integration Department

Position		Grade	Salary
Data Integration Director		*up to GS-13*	$121,967
Administrative Assistant		*up to GS-9*	$59,852
	Staffing Total:	***$181,819***	
Fringe Benefits		*32.85%*	$59,728
Overhead		*12%*	$28,986
Personnel Liability Insurance		0.7%	$1,691
	Misc Total:	***$90,404***	
Workshop Travel			$1,500
Supplemental Travel			$5,000
	Travel Total:	***$6,500***	
			$278,723

Reporting Department

Position		Grade	Salary
Report Coordinator		*up to* GS-13	$103,220
Report Analyst		*up to* GS-13	$103,220
Report Coordinator Assistant		*up to GS-9*	$59,852
	Staffing Total:	*$266,292*	
Fringe Benefits		*32.85%*	$87,477
Overhead		*12%*	$42,452
Personnel Liability Insurance		0.7%	$2,476
	Misc Total:	*$132,406*	
Workshop Travel			$30,000
Supplemental Travel			$2,000
	Travel Total:	*$32,000*	
NAS Study on Ocean Governance			$1,500,000
NAS Review of Strategic Plan on Research and Development			$350,000
NAS Report on Data Management, Archival & Distribution			$350,000
	Reports Total:	*$2,200,000*	
			$2,630,698

Education **$1,805,240**

NOP-PCO Education Department

Position		Grade	Salary
Educational Director		*up to GS-13*	$121,967
Administrative Assistant		*up to GS-9*	$59,852
Educational Administrative Officer		*GS-12*	$86,801
Educational Administrative Assistant		*up to GS-9*	$59,852
National Conference Coordinator		*up to GS-13*	$103,220
Conference Coordinator Assistant		*up to GS-9*	$59,852
Regional Workshop Coordinator		*up to GS-13*	$103,220
Assistant		*up to GS-9*	$59,852
Regional Workshop Coordinator		*up to GS-13*	$103,220
Assistant		*up to GS-9*	$59,852
Regional Workshop Coordinator		*up to GS-13*	$103,220
Assistant		*up to GS-9*	$59,852
	Staffing Total:	*$980,760*	
Fringe Benefits		*32.85%*	$322,180
Overhead		*12%*	$156,353
Personnel Liability Insurance		0.7%	$9,121
	Misc Total:	*$487,653*	
Workshop Travel			$61,500
Supplemental Travel			$7,500
	Travel Total:	*$69,000*	
National Conference Logistics Contract (1)*			$81,306
Regional Conferences Logistics Contracts (9)*			$186,521
	Workshop Contracts Total:	*$267,827*	
*Please see more detailed workshop budget, below.			**$1,805,240**

Detail: National Conference and Workshops

National 3-Day Conference (with 500 participants)	
Hotel Conference Room ($1500*3Days)	$4,500
Three Expert Keynote Speakers--compensation ($1500ea)	$4,500
A/V ($750/day)	$2,250
Printing Costs (handouts/brochures/invitations/correspondence)	$4,500
Miscellaneous Supplies	$1,500
Internet ($100/day)	$300
Postage	$205
Continental Breakfast Catering ($4000*3Days)	$12,000
Lunch Catering ($6000*3Days)	$18,000
One Formal Dinner	$10,000
Contractor Fees (20% of event cost)	$11,551
Additional travel expenses:	
NOAA & other federal agency facilitators/instructors (8*$1500)	$12,000
	$81,306

Regional Workshop (with 50 participants--one of nine workshops)	
Hotel Conference Room ($1500*3Days)	$4,500
One Expert Keynote Speaker--compensation	$1,500
A/V ($750/day)	$2,250
Printing Costs (handouts/brochures/invitations/correspondence)	$450
Miscellaneous Supplies	$500
Internet ($100/day)	$300
Postage	$21
Continental Breakfast Catering ($400*3Days)	$1,200
Lunch Catering ($600*3Days)	$1,800
One Formal Dinner	$1,000
Contractor Fees (20% of event cost)	$2,704
Additional travel expenses:	
NOAA & other federal agency facilitators/instructors (3*$1500)	$4,500
	$20,725

Appendix C: Healthy Oceans Stamp Revenue Projections

In Title V, Section 507 of H.R. 21, there is a mandate that a "Healthy Oceans Stamp" be released within 12 months of the bill's enactment. This Healthy Oceans Stamp will be a designated "semi-postal," a stamp that is sold at a higher price than a first-class postage stamp, with the additional revenue going to the Oceans and Great Lakes Conservation Trust Fund. Based on an examination of the annual profits of three previous semi-postals, an estimate of $5 million in annual revenue is expected from the Healthy Oceans Stamp. Because the United States Postal Service (USPS) incurs additional costs to produce and market these stamps, some of the revenue is diverted back to them to cover costs not recovered by the stamps first class postage rates. From the projected $5 million first-year semi-postal revenue, it is estimated that $185,000 per annum will remain with the USPS.

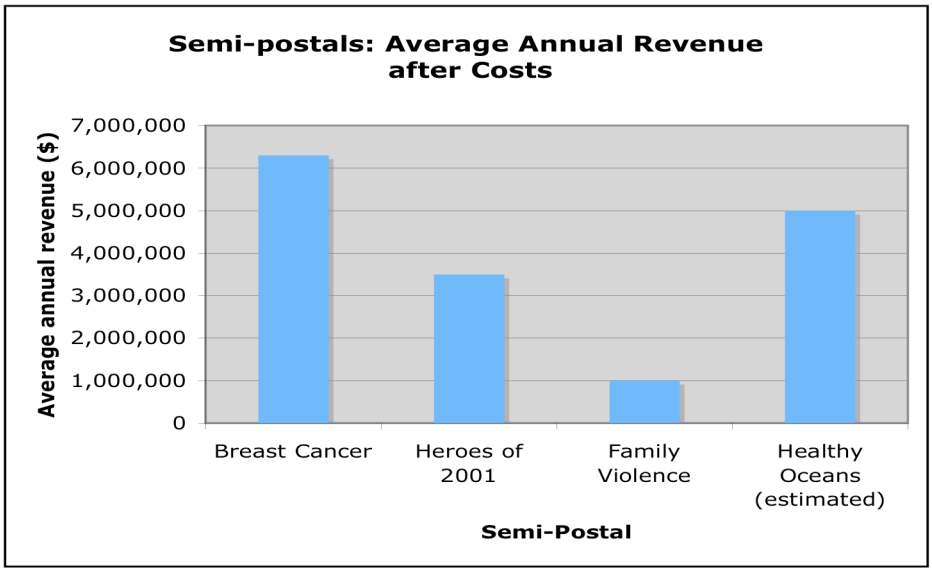


Figure 1: The columns show the average annual revenue generated from the 3 existing semi-postals after costs, and includes an estimate for the Healthy Oceans Stamp. Source: GAO 2005

Revenue Projection Methodology

It is expected that the Healthy Oceans Stamp will generate annual revenue consistent with that of historically successful semi-postals. This estimate is based on several characteristics of semi-postals that a 2005 GAO study indicated as determinants in sales. Some of these parameters are: the appeal of the cause the stamp addresses, the involvement of advocacy groups in stamp support, and the design of the stamp itself (GAO 2005). Firstly, the large numbers of Americans who live in coastal states and/or use the ocean for recreation increases the mass appeal of the stamp. Secondly, ocean conservation NGOs will likely be vocal supporters and promoters of stamp sales. Thirdly, the possibility of a beautifully stirring image to grace the Healthy Oceans Stamp could increase appeal and sales. Thus, a conservative estimate of $5 million after costs is predicted; however, with strong advocacy and support, sales could generate up to around $8 million per year. (The $5 million is based on an average of annual revenue from the Breast Cancer and Heroes of 2001 stamps, and the $8 million is based on averages of annual revenues from the most successful years of the Breast Cancer and Heroes of 2001 stamps).

Another important consideration to the semi-postal model is the "lag time," or wait time between the introduction of the stamp to the market and the years it takes before revenue is realized. Most semi-

postals are sold on two-year contracts, which are often renewed, and the revenue is distributed at the end of the contract (GAO 2005). Thus, the Healthy Oceans Stamp will be introduced within a year of H.R. 21's enactment, but it could be at least two years, if not more, before the funds can be distributed.

For Further Reference

United States Government Accountability Office, 2005. " U.S. Postal Service: Factors Affecting Fund-Raising Stamp Sales Suggest Lessons Learned." A Report to Congressional Committees." Government Accountability Office. Washington, D.C.

Appendix D: Performance Measurement

Short-Term Indicators and Inquiries to Gauge Progress Towards Completion of Phase One Program Elements

	GENERAL QUESTIONS AND SPECIFIC PROGRESS INDICATORS
ORGANIZATIONAL DEVELOPMENT ACTIVITIES	
Arrange Funding	1st Quarter: *Have general revenues been transferred to the Ocean & Great Lakes Trust Fund?* • Amount of money appropriated to the OGL Trust Fund
	1st Quarter: *Has a stamp application been submitted to the U.S. Postal Service?* 4th Quarter: *Is the Healthy Oceans Stamp publicly available?* • Number of post offices where the Healthy Oceans stamp is available • Revenue to date from Healthy Oceans stamp sales
	Ongoing: *Is the Ocean & Great Lakes Trust Fund being disbursed appropriately?* • Number of Federal agency projects funded out of OGL Trust Fund (by topic and by region) • Amount of funding allocated to Federal agency projects (by topic and by region) • Amount of funding allocated to state agency projects (by topic and by region)
Finalize Appointments	1st Quarter: *Has a list of candidates been created?* 2nd Quarter: *Has the President's Council of Ocean Advisors had its first meeting?* *Has it drafted a mission statement?* • Number of members appointed to President's Council of Ocean Advisors • Percent of necessary appointments made to President's COA
	1st Quarter: *Has a list of candidates been created?* 2nd Quarter: *Has NOAA's Science Advisory Board had its first meeting?* *Has it drafted a mission statement?* • Number of members appointed to NOAA's Science Advisory Board • Percent of necessary appointments made to NOAA's SAB
	1st Quarter: *Have lists of candidates been created for all nine Regional Ocean Partnerships?* 3rd Quarter: *Have the ROPs had their first meetings?* 4th Quarter: *Have the ROPs drafted work plans for their Regional Strategic Ocean Plans?* • Number of representatives appointed to serve on Regional Ocean Partnerships (by region and nationally) • Percent of necessary ROP appointments made (by region and nationally) • Number of state agencies represented on ROPs (by region and nationally) • Number of Federal agencies represented on ROPs (by region and nationally)
Write Regulations	1st Quarter: *Has a finalized contract, identifying the scope of regulations for review, been signed?* 4th Quarter: *Has a report on NOP consistency been received from the contractor?* • Number of NOP consistency regulations reviewed by the approved contractor (by quarter and to date) • Issues addressed by NOP consistency regulations (by agency) • Agencies affected by NOP consistency regulations (by issue) • Severity of changes resulting from new NOP regulations
ANALYSIS AND PLANNING ACTIVITIES	
Submit Deliverables	4th Quarter: *Have all NOP consistency regulations been written?*

	Has the draft data management report been submitted? *Has the draft strategic R&D report been submitted?*
Data Integration	2nd Quarter: *Has a draft contract, identifying the scope of research studies, been created?* 4th Quarter: *Has the finalized contract been signed?* • Length and cost of contract with the National Academy of Sciences for completion of the ocean governance study • Length and cost of contract with the National Academy of Sciences for completion of the data management report
	Ongoing: *Have OERIS systems been installed and networked?* *Are OERIS systems being used appropriately, and by whom?* • Number of operational Ocean Ecosystem Resource Information Systems • Location of operational OERIS • Number of OERIS data input sources (by region and nationally) • Number of OERIS data users (by region and nationally) • Number and location of OERIS' connected in national OERIS network
EDUCATION ACTIVITIES	
Educate Managers	1st Quarter: *Has the workshop series been scheduled?* 3rd Quarter: *Are the workshops complete, and is participant data being analyzed?* • Number of regional workshops held (by region and nationally) • Number of regional workshop attendees (by region and by agency) • Number of regional workshop products, i.e. summary reports (nationally and by region) • Percent of positive responses to workshop series surveys
	1st Quarter: *Has the national conference been scheduled?* 3rd Quarter: *Is the conference complete, and is participant data being analyzed?* • Number of national conferences held • Number of national conference attendees (by region and by agency) • Number of national conference products, i.e. summary reports • Percent of positive responses to national conference surveys

Appendix E: Master Calendar of H.R. 21 in the First Year

		1st Month (October)	1st Quarter (Oct - Dec)	2nd Quarter (Jan - Mar)	3rd Quarter (Apr -Jun)	4th Quarter (Jul - Sep)
Organizational Development	Appointments	Create a list of potential candidates for Council of Ocean Advisors	Finalize the appointment of the candidates by President	Draft mission statement for the Council of Ocean Advisors		Finalize the mission statement for the Council of Ocean Advisors
			NOAA Administrator fill Science Advisory Board			
			Notify agencies/request for submission of Regional Ocean Policy Representatives		Identify federal representatives for ROP's	
	Staffing		Hire 15 staff members*			
	Regulations		Define scope of contract	Hire Admin Officer and Analysts	Contractor finish draft regulations	NOAA Administrator present regulations to the Committee on Ocean Policy
			Hire Contractor for National Ocean Policy Regulations			
	Funding	Appropriations from Congress	Hire the accountant to Finance Office of NOAA			
		Trust Fund receives appropriations				
	Stamp	Submit application for Healthy Oceans Stamp		Dept. of Treasury responds to Stamp Application		Healthy Oceans Stamp available for sale

Analysis and Planning	Strategic Reports		Report Coordinator begin to work on Strategic Plan for Research and Development	Draft Strategic Plan for Research and Development	Circulate to draft Strategic Report R & D to Regional Workshops	Submit Strategic Plan for Research and Development
			Proposal Data Management			
			NAS Contract for Data Management Study			NAS complete recommendation of Data Management
	Data Integration	Temporarily transfer from NOAA to fill into the position of Data Integration director	Establish OERIS network compatible with existing Integrated Ocean Observing System (IOOS)			Incorporate IOOS into OERIS
	Ocean Governance Study		Proposal for Ocean Governance Study	NAS Contract for Ocean Governance Study		
Education	Newsletter		Begin outlining the program	Distribute EBM Newsletter		Distribute EBM Newsletter
	Regional & National Workshops		Establish potential attendee list (for all workshops)	Finalize Workshop Content (including survey)	Regional Workshops completed; survey data gathered	
			Schedule for the regional workshops and the national conference			National Conference
			Logistics Contract established			

***The staff hired includes:**

One Accountant to Finance Office of NOAA
One Educational Director
One Administrative Assistant
One Educational Administrative Officer
One Educational Administrative Assistant
Three Regional Workshop Coordinator
Three Assistants to Regional Workshop Coordinators
One Regulations Director
One Administrative Assistant to Regulations Director
One Data Integration Director
One Data Integration Assistant