

## Website Comments Received 6/18/2011-6/29/2011

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## All 9 SAPs

**Name**

S. Lyn McNutt

**Organization**

Retired Marine Scientist/Policy Analyst

**Which Priority Objective would you like to provide comment on?**

All 9 SAPs

**Comment**

Please see attached file Comments\_NOP\_McNutt06292011.doc

**Attachment:**

Attachment included in index: Comment of S. Lyn McNutt (4 pages)

**Name**

Mark Imperial

**Organization****Which Priority Objective would you like to provide comment on?**

All 9 SAPs

**Comment****Attachment:**

Attached in index: Comment of Mark Imperial, Associate Professor and Director, Master of Public Administration Program, University of North Carolina Wilmington (40 pages)

**Name**

Jan Newton

**Organization**

NANOOS

**Which Priority Objective would you like to provide comment on?**

All 9 SAPs

**Comment**

NANOOS is the PNW Regional Association of the U. S. IOOS - Integrated Ocean Observing System. As such, it exists to leverage, link, and strategically build - and maintain - a coastal ocean observing system that delivers data and information products that benefit society and the ecosystem we are a part of. IOOS is recognized in the SAP priority #9. The benefit and payoff of IOOS is fundamental to all of the 8 other priorities and this role should be explicitly recognized and utilized. Because IOOS is driven by local input of the regional stakeholders and members via the 11 Regional Associations, such as NANOOS in the PNW, we have a unique opportunity to assure that ocean observing and data delivery infrastructure is relevant, coordinated, and consistently sustained. The efficiency of IOOS is cost-saving and its outreach allows for a better informed public. On behalf of the 42-institutional member NANOOS Governing Council (state, federal, and tribal governments, industries, NGOs, academia) we endorse the support and central role of IOOS and encourage you to underscore its service to achieving all of the priorities of the SAP.

**Attachment:**

**Name**

Kyle, Steve and Cynthia Bova

**Organization**

sportfishermenofgraysharbor

**Which Priority Objective would you like to provide comment on?**

All 9 SAPs

**Comment**

(Spoken at the June 27th West Coast listening session by Steve) Our comments and letters to the Editor: **SAVE THE FOOD CHAIN! NO MORE PERMITS!** After researching gray whale migrations following the recent wave of apparent starvation deaths, it became clear to these novice whale watcher's/ fishermen what is probably happening. Since the beginning of time these massive creatures migrated along our coast feeding in and out of estuaries on mud and ghost shrimp. Today however, a powerful Pacific Coast Shellfish Growers Association somehow acquired a free pass since 1964 to chemically eradicate shrimp in Willapa Bay and Grays harbor. The shrimp populations have been decimated to near extinction!(by 90% according to Kim Patten of WSDA) Take two large estuaries out of the equation and, well, your getting the pictures!(5 DEAD WHALES IN A WEEK and who knows how many green sturgeon) Here's the kicker; The state Department of Ecology is still giving out permits to aerial spray carbaryl for more shrimp control! **PLEASE RESEARCH!** We are not making this up! Please call the Wa. state Governor 1-800-562-6000 Ask for an emergency moratorium on all biocides especially pesticides used in the water! Save a whale don't eat sprayed oysters! Save **OUR** food chain! **PEOPLE PLEASE WAKE UP!** On other chemicals being sprayed in our water (ROUND-UP,ect, ect): Excluding Native Indians, who are we, as one of the biggest invasive species in the USA, allowed to ""Play God"" to eradicate/control an erosion-controlling and oxygen-producing spartina marsh grass. As long as birds, mammals and logs carry seeds to the water's edge, it will never be eliminated, only chemically controlled forever with taxpayer dollars! Ask the ex-residents of Wash-away Beach, Wa if a mud flat is a better erosion barrier during winter storms than a healthy, stabilizing spartina marsh! It really doesn't matter if we agree or disagree on climate change and/or rising seas. But perhaps we can agree that the aerial spraying of thousands of gallons of the chemicals carbaryl, glyphosate, imazapyr and their surfacants into our bay, mainly to benefit non-indigenous oysters and their farmers, while at the same time sacrificing native shrimp, crab, spartina and salmon is just plain wrong and obscene. (And yes, according to WDFW, some spartina species slated for control are from the South America Pacific Coast and could have naturally migrated north, and thus are native! ) ( ie densaflora) Climate change is why spartina is migrating (expanding), and at the same time why it is also desperately needed wherever it comes from! People, please attend the June 27th West Coast Governors Agreement on Ocean Health meeting at the Quinault Beach Resort and Casino and tell them to wake up and ask them to study the positive impacts of spartina! (ie erosion control, fry protection from birds, purifier of waters, and an excellent oxygen prouducer to mention a few) Please tell them to please rethink the need to play God with chemicals and let our planet evolve naturally! Thank you, Steve, Kyle and Cynthia Bova----- 360. 580. 5534

**Attachment:**

**Name**

charlie clark

**Organization**

helpanger. com

**Which Priority Objective would you like to provide comment on?**

All 9 SAPs

**Comment**

We are having the greatest solar flares in the history of the keeping of data on the sun. We have new and old volcanoes erupting all over the world and earthquakes that are so big that they are moving the tilt of our planet. And you do not mention any of this data as a reason, but try to blame it on an invisible gas that plants need and other bad excuses. NASA scientist argue these facts I state in my e-mails about the events going on in our world and galaxy, and refute that my evidence of these universal effects, have any effect or very little effect. I am not happy with you experts, legislative bodies and politicians we put in power to take advantage of the "useful idiots" as I heard you call us and take advantage of the ignorant, the under privileged and uneducated who believe you will take care of us. You will be taken to terms when the time is fit for you to see and pay for your evil doings. You want to take my God (Christ Jesus) out of everything we do and you think I'm a fool for my beliefs. You are my proof there is God, because you prove that evil exists. You will remain in my prayers, God Bless- charly

**Attachment:**

**Name**

Merrick Burden

**Organization**

Marine Conservation Alliance

**Which Priority Objective would you like to provide comment on?**

All 9 SAPs

**Comment****Attachment:**

Attachment included in index: Comment of Merrick Burden, Executive Director, Marine Conservation Alliance (12 pages)

**Name**

Robert Hoekzema

**Organization****Which Priority Objective would you like to provide comment on?**

All 9 SAPs

**Comment**

General Concerns Re: National Ocean Council Strategic Action Plans

- o The NOC - SAPs are extremely ambitious. As presented, the implementation of the SAPs is extremely complex. Clarity is lacking as to what, when, and in what order each plan will be implemented. Prior to developing and implementing any of the action plans, the following steps, at a minimum, need to occur.
- o Assess the current situation. Address ocean policy-related questions such as: What has been done historically? What is currently being done? What needs to be done to develop a National Ocean Policy?
- o Conduct a SWOT analysis or similar exercise. Strengths, weaknesses, opportunities and threats need to be fully understood to maximize the benefits from effective and efficient development and implementation of national ocean policies.
- o Recommend and schedule actions needed with achievable milestones and measures. These actions should be based on a realistic assessment of fiscal and personnel resources available.
- o The NOC - SAPs will be extremely expensive to implement. Given the current state of the Nation's economy it is debatable whether the United States can afford the proposed actions.
- o SAPs need to be considered holistically. Consolidate where appropriate. There is considerable duplication among several of the nine objectives. The objectives need to be better defined and/or consolidated. In addition, timing of specific actions needs further consideration. For example, several actions proposed by the Coordinate and Support SAP should be completed before attempting to implement action plans proposed by the other SAPs.
- o Jurisdictional geographic boundaries need to be defined. What are the geographic areas encompassed by the CSMP? What upland portions will be covered by CMSP?
- o Climate change (global warming?) should not be the primary driver behind this effort. I am concerned that the basis assumption being used by NOC is that climate change, i. e. global warming, is primarily caused by greenhouse gasses produced by man. Emerging evidence relating to sunspots, suggests that the earth could be entering into a cooling period comparable to the Dalton or Maunder Minimums. Sunspot activity appears to be directly correlated with changes in global climate whether we fully understand the mechanism or not. More sunspots equal warmer periods, fewer sunspots equal colder periods. Solar scientists are predicting fewer sunspots over the next several decades. Prudent scientists should at least consider the possibility of global cooling and how we might respond to expanding ice caps, advancing glaciers, and other related outcomes.
- o Objective 4 Coordinate and Support (C&S). This SAP is key to the effective implementation of the project and should be the number 1 objective. The C&S SAP is generally well written, recognizes many of the barriers to development and implementation of a National Ocean Policy, and provides a reasonable approach to begin the process. Once adequate coordination has been completed and financial and personnel support for the project is obtained from stakeholders, the remaining SAP actions should be prioritized and implemented as resources allow.

**Attachment:**

Attachment included in index: Comment of Robert Hoekzema (1 page)

**Name**

Heather McCarty

**Organization**

Chairman, USDOC Marine Fisheries Advisory Committee

**Which Priority Objective would you like to provide comment on?**

All 9 SAPs

**Comment**

NOTE: THE ATTACHED COMMENTS COVER ALL THE PRIORITY OBJECTIVE STRATEGIC ACTION PLANS.

**Attachment:**

Attachment included in index: Comment of Marine Fisheries Advisory Committee (7 pages)

**Name**

Miyoko Sakashita

**Organization**

Center for Biological Diversity

**Which Priority Objective would you like to provide comment on?**

All 9 SAPs

**Comment**

Comments concern all 9 strategic action plans.

**Attachment:**

Attachment included in index: Comment of Miyoko Sakashita, Ocean Program Director, Center for Biologic Diversity (12 pages)

## Ecosystem-Based Management

**Name**

Renato Gullino

**Organization**

**Which Priority Objective would you like to provide comment on?**

Ecosystem-Based Management

**Comment**

Dear Sir(s),

As a supporter of DWAF , a conservacionist and someone who cares about wildlife , i strongly urge you to your best/utmost to practice sensible , science based management about our own Ecosystem in our state and around our unbeatable country . Many Tks in advance

Sincerely , Renato

**Attachment:**

**Name**

Troy Rodgers

**Organization****Which Priority Objective would you like to provide comment on?**

Ecosystem-Based Management

**Comment**

I'm against this proposed executive order. We should be exploring oil off the pacific and gulf coasts rather than making laws to prohibit it. We could use the jobs and lower dependence on foreign oil. Makes sense. Too bad you will do the opposite.

**Attachment:**

**Name**

James Oppenborn

**Organization**

St. Lucie County (Florida)

**Which Priority Objective would you like to provide comment on?**

Ecosystem-Based Management

**Comment**

The St. Lucie County Artificial Reef Program is using Ecosystem-Based Fisheries Management to provide for the conservation of marine species and habitats, and continued use by the fishing community and watermen in general. We have several factors which influence our ability to deploy artificial reefs at a fraction of the costs as other organizations. Please contact me at your convenience to discuss.

**Attachment:**

**Name**

Allen Burdett

**Organization**

Nature Coast Support Groups

**Which Priority Objective would you like to provide comment on?**

Ecosystem-Based Management

**Comment**

Initiate incentives, policies and strategies for population reduction/stabilization (i. e. increasing social security benefits for those choosing to adopt criteria which address and reduce the impacts of over-population.

**Attachment:**

**Name**

Brian Bland

**Organization****Which Priority Objective would you like to provide comment on?**

Ecosystem-Based Management

**Comment**

Each ecosystem is unique and needs to be handled differently than the rest. Local govts need to protect their ecosystems and the federal govt needs to make sure that they do. The number one problem is the management of real estate and agriculture. Coastal housing with septic tanks are a major problem as is farms that use pesticides, herbicides, and fertilizers. We cannot have anymore deadzones in our oceans!

**Attachment:**

**Name**

anne shaffer

**Organization**

**Which Priority Objective would you like to provide comment on?**

Ecosystem-Based Management

**Comment**

**Attachment:**

Attachment included in index: Comment of Anne Shaffer, Executive Director, Coastal Watershed Institute (3 pages)

**Name**

charlie clark

**Organization**

helpanger. com

**Which Priority Objective would you like to provide comment on?**

Ecosystem-Based Management

**Comment**

We are having the greatest solar flares in the history of the keeping of data on the sun. We have new and old volcanoes erupting all over the world and earthquakes that are so big that they are moving the tilt of our planet. And you do not mention any of this data as a reason, but try to blame it on an invisible gas that plants need and other bad excuses. NASA scientist argue these facts I state in my e-mails about the events going on in our world and galaxy, and refute that my evidence of these universal effects, have any effect or very little effect. I am not happy with you experts, legislative bodies and politicians we put in power to take advantage of the "useful idiots" as I heard you call us and take advantage of the ignorant, the under privileged and uneducated who believe you will take care of us. You will be taken to terms when the time is fit for you to see and pay for your evil doings. You want to take my God (Christ Jesus) out of everything we do and you think I'm a fool for my beliefs. You are my proof there is God, because you prove that evil exists. You will remain in my prayers, God Bless- charly

**Attachment:**

**Name**

Robert Hoekzema

**Organization****Which Priority Objective would you like to provide comment on?**

Ecosystem-Based Management

**Comment**

Also see attached general concerns o Objective 1: Ecosystem Based Management (EBM). Much of this SAP duplicates proposed actions recommended by the Coordinate and Support SAP. This SAP focuses on the use of an Ecosystem approach to management. Assuming this is the agreed upon approach, I suggest combining this objective with objective 4. The proposed EBM actions are mid-term. The proposed C&S actions are mostly near term and should be completed first.

**Attachment:**

**Name**

John O'Shea

**Organization**

Atlantic States Marine Fisheries Commission

**Which Priority Objective would you like to provide comment on?**

Ecosystem-Based Management

**Comment****Attachment:**

Attachment included in index: Comment of John O'Shea, Executive Director, Atlantic States Marine Fisheries Commission (1 page)

**Name**

Josh Churchman

**Organization**

Hook and line fisherman

**Which Priority Objective would you like to provide comment on?**

Ecosystem-Based Management

**Comment**

The coast right here off San Francisco might be the best example of ecosystem protection on the planet. Marine sanctuaries, rockfish conservation closures, State waters marine protected areas, all working to leave the next generation something better. At the same time. our managment council has eliminated the hook and line fishermen. All has gone to the trawl. To leave a wonderfully rebuilt ocean is great, to leave all access to this public resource in the hands of a few is simply wrong. Ask yourself, who are we protecting the ocean for, and who are we protecting it from. Healthy coastal communities need their hook and line boats.

**Attachment:**

**Name**

Berl Hartman

**Organization**

E2

**Which Priority Objective would you like to provide comment on?**

Ecosystem-Based Management

**Comment****Attachment:**

Attachment included in Index: Comment of Berl Hartman, Director, E2 New England (2pages)

**Name**

John Seebart

**Organization****Which Priority Objective would you like to provide comment on?**

Ecosystem-Based Management

**Comment**

RETURN THE OCEAN TO IT'S FULL NATURAL ABUNDANCE My name is John Seebart, I am a retired public servant. I was born on Maui and my first experiences with the ocean were here. The first time I saw what was under water was here, at Black Rock in Kaanapali in about 1952. Since then I have spent most of my leisure time in and around the ocean. Since my retirement in 2002 I have been increasingly involved with environmental issues, centered around the ocean here on Maui. I currently volunteer with the Hawaii Department of Aquatic Resources (DAR), performing various surveys, primarily in the Kaanapali area where I also volunteer with Makai(ocean) Watch. We interface with various ocean users to do education about the new, 2 year old, Kahekili Herbivore Management Area. This management area was established by the State of Hawaii to help mitigate the effects on reefs of sewage effluent injection wells operated by th County of Maui. We are working with the EPA but, the county is apparently intrasigent. I have become aware of how drastically the oceans have been depleted, and I think that this new Federal program sounds like a good thing. I would like to offer a mission statement or guiding philoshophy. I think the goal should be to: RETURN THE OCEAN TO IT'S FULL NATURAL ABUNDANCE I have been told that this would be impossible and could never happen. To which I say never is a long time. The depletion of the ocean is an inernational problem but, the U. S. has already begun to make progress in our own waters. The largest newly protected fishery is the Northwest Hawaiian Islands (Papahaaumokuakea) National Monument. Some people argue that we cannot disturb the fishing rights of various populations. The problem is that it does not matter what you rights may be if the fisheries of the oceans colapse. Furthermore, if the ocean were returned to it's FULL NATURAL ABUNDANCE it would provide more annually than it can now, and obviouly more that it will if the fisheries of the oceans colapse. Thank you and plese help the human race, RETURN THE OCEAN TO IT'S FULL NATURAL ABUNDANCE John Seebart

**Attachment:**

## Coastal and Marine Spatial Planning

**Name**

Thomas Ingram

**Organization**

Diving Equipment and Marketing Association

**Which Priority Objective would you like to provide comment on?**

Coastal and Marine Spatial Planning

**Comment**

Please see attached word document

**Attachment:**

Attachment included in index: Comment of Thomas Ingram, Executive Director, Diving Equipment and Marketing Association (8 pages)

**Name**

Terry Rowles

**Organization**

**Which Priority Objective would you like to provide comment on?**

Coastal and Marine Spatial Planning

**Comment**

The Coastal and Marine Spatial Planning needs to be defunded and disband. There is overregulation already and we don't need more regulations. This is nothing more than a ploy to gain more control over the American citizens and implement the United Nations policy- Agenda 21. In essence, denying the American citizens their constitutional rights to own property and therefore removing our liberties.

**Attachment:**

**Name**

Brian Lynn

**Organization**

Washington State Dept of Ecology

**Which Priority Objective would you like to provide comment on?**

Coastal and Marine Spatial Planning

**Comment**

The NOC needs to make a concerted and ongoing effort to help the federal agencies identify funding sources and shift priorities in order to resource this effort. The NOC has to provide the leadership and put enough energy behind this, because it is easy to say, but much harder to make it happen.

**Attachment:**

**Name**

Lia Montgomery

**Organization**

Great Lakes Conservation Initiative

**Which Priority Objective would you like to provide comment on?**

Coastal and Marine Spatial Planning

**Comment**

WE, the undersigned, vow to protect the Great Lakes and to honor their heritage for future generations as a sacred site on our North American continent. The Great Lakes, their groundwater and tributaries, are a Public Trust; Like the air we breathe, they belong to all of us. Therefore, legislators, on all levels of government, must work to achieve laws and policy objectives that reach the goal of a Great Lakes Protected Bioregion. Only the highest standards, based on sound scientific study, should be required to regulate and manage the waters and the watershed of the Great Lakes Basin, in order to safeguard, preserve and restore the health of the Great Lakes and the life they sustain. WE do not intend any new restrictions on commercial fishing, sport fishing or any public pleasure use of the Lakes, as long as these uses cause NO HARM or threat to their sustainability. Any private sector activity MUST prove its ability to operate without harm or risk of harm to the Lakes or the environment, and MUST demonstrate clear measures of restoration for any use of the water or the watershed. There MUST also be a governing body that has the mandate to strictly enforce all violations. WE firmly believe the following measures and restrictions MUST be in place if we are to ensure the health of the Great Lakes for all time:

- o No region will use more water than it supplies. All states will adhere to Compact water withdrawal limits and must work to capture water leaving the watershed. The integrity of each Lake must never be in jeopardy due to human water withdrawal and adjustments must be in place for periods of decreased natural inflow.
- o Full funding of wetland protection and restoration that promotes ecosystem health
- o A ban on all commercial export, including bottled water extraction, of Great Lakes water
- o Comprehensive ballast water regulations that stop invasive species from ocean-going vessels
- o A moratorium on all oil, gas and mineral extractions and explorations in or near the Lakes
- o A ban on all nuclear or any hazardous chemical shipments on the Lakes
- o A ban on any more tar sands pipelines
- o A ban on all industrial wind turbines on or near the Lakes
- o Restrictions on any virtual exports that potentially threatened the Lakes
- o Restrictions, strictly enforced, on chemical, toxic and sewage pollution in the Lakes, their groundwater or tributaries, including chemical run-off

**Attachment:**

Attachment included in index: Great Lakes Conservation Initiative Petition (3 pages)

**Name**

Robert Hoekzema

**Organization****Which Priority Objective would you like to provide comment on?**

Coastal and Marine Spatial Planning

**Comment**

o Objective 2: Coastal and Marine Spatial Planning (CMSP). Establishing a process to be used for CMSP appears to be the primary goal of this effort to develop a National Ocean Policy. The remaining objectives are all about the tools needed for effective and efficient CMSP by the 9 Regional Planning Bodies (RPBs) being established via Executive Order. The criteria used for establishing the RPBs are critical to successful implementation of a workable CMSP program. Flexibility should be allowed to reflect the climatic, geographic, industrial, social, and economic variations between and within the RPBs. It is unclear how this CMSP effort will coordinate with existing processes in place. The 4 objectives of CMSP need some clarification: o Objective 1-Establish nine RPBs. What criteria are being used to select RPB members? o Objective 2-National Information and Management System (NIMS). This is a daunting task. Much of the best and most recent available data is non-federal in origin and should be integrated into NIMS. o Objective 3-Preserve and enhance. sustainable and beneficial uses. "Efficient regulatory processes are essential to preserve and enhance the sustainable use of the oceans. Improving efficiency and coordination across Federal agencies, with States, tribes, local governments, indigenous community representatives, and international partners, where appropriate, will minimize the burdens of regulatory delays on all levels of government and the regulated community. " I agree with this assessment but feel that the potential exists to misuse the CMSP process and create additional hurdles and further delays for development projects to overcome. For example the statement "Using a well-designed and data-supported CMSP process can reduce these delays and costs by pre-assessing areas where certain activities may be better suited;" sounds suspiciously like identifying areas to withdraw from potential future activities such as oil and gas exploration and development. o Objective 4-Reduce cumulative negative impacts. While this goal is certainly laudable, the devil is in the details. In some cases the potential for positive economic and social impacts may outweigh potential negative impacts and may in fact be critical to maintaining national and economic security. The wealth generated may very well be needed to assist with costs associated with adapting to climate change (warming or cooling, dryer or wetter) or mitigating other negative environmental impacts.

**Attachment:**

Attachment included in index: Comment of Robert Hoekzema (1 page)

**Name**

Robert Hoekzema

**Organization****Which Priority Objective would you like to provide comment on?**

Coastal and Marine Spatial Planning

**Comment**

o Objective 2: Coastal and Marine Spatial Planning (CMSP). Establishing a process to be used for CMSP appears to be the primary goal of this effort to develop a National Ocean Policy. The remaining objectives are all about the tools needed for effective and efficient CMSP by the 9 Regional Planning Bodies (RPBs) being established via Executive Order. The criteria used for establishing the RPBs are critical to successful implementation of a workable CMSP program. Flexibility should be allowed to reflect the climatic, geographic, industrial, social, and economic variations between and within the RPBs. It is unclear how this CMSP effort will coordinate with existing processes in place. The 4 objectives of CMSP need some clarification: o Objective 1-Establish nine RPBs. What criteria are being used to select RPB members? o Objective 2-National Information and Management System (NIMS). This is a daunting task. Much of the best and most recent available data is non-federal in origin and should be integrated into NIMS. o Objective 3-Preserve and enhance. sustainable and beneficial uses. "Efficient regulatory processes are essential to preserve and enhance the sustainable use of the oceans. Improving efficiency and coordination across Federal agencies, with States, tribes, local governments, indigenous community representatives, and international partners, where appropriate, will minimize the burdens of regulatory delays on all levels of government and the regulated community. " I agree with this assessment but feel that the potential exists to misuse the CMSP process and create additional hurdles and further delays for development projects to overcome. For example the statement "Using a well-designed and data-supported CMSP process can reduce these delays and costs by pre-assessing areas where certain activities may be better suited;" sounds suspiciously like identifying areas to withdraw from potential future activities such as oil and gas exploration and development. o Objective 4-Reduce cumulative negative impacts. While this goal is certainly laudable, the devil is in the details. In some cases the potential for positive economic and social impacts may outweigh potential negative impacts and may in fact be critical to maintaining national and economic security. The wealth generated may very well be needed to assist with costs associated with adapting to climate change (warming or cooling, dryer or wetter) or mitigating other negative environmental impacts.

**Attachment:**

Attachment included in index: Comment of Robert Hoekzema (1 page)

**Name**

Ben Ford

**Organization**

Indiana University of Pennsylvania

**Which Priority Objective would you like to provide comment on?**

Coastal and Marine Spatial Planning

**Comment**

The heritage/historic preservation component of the strategic plan is missing. America has long been a maritime state (including the periods before European arrival) and a document of this type should address that aspect of our waters. Furthermore, the current conditions and perceptions of our waters are a direct result of past actions. These actions should be acknowledged in the strategic plan.

**Attachment:**

**Name**

Jean Pelletier

**Organization**

URS Corporation

**Which Priority Objective would you like to provide comment on?**

Coastal and Marine Spatial Planning

**Comment**

After reading the proposed documents, I find the lack of cultural heritage protection disturbing. As a professional in this area I have spent nearly 20 years working with Federal and State government agencies and energy companies keeping our infrastructure growing and safe while protecting our national heritage. I have had to push, pull, kick cajole, and use finical pressure to get the pipeline companies to support our laws regarding Section 106, and this lack of support further hamstrings our work by clearly showing a lack of governmental support by not including Section 106 language, or even focusing for a moment on Cultural Resource Management.

**Attachment:**

**Name**

Chris Oliver

**Organization**

North Pacific Fishery Management Council

**Which Priority Objective would you like to provide comment on?**

Coastal and Marine Spatial Planning

**Comment****Attachment:**

Attachment included in index: Comment Letter of Eight Regional Fishery Management Councils (4 pages)

## Inform Decisions and Improve Understanding

**Name**

James Oppenborn

**Organization**

St. Lucie County (Florida)

**Which Priority Objective would you like to provide comment on?**

Inform Decisions and Improve Understanding

**Comment**

The St. Lucie County Artificial Reef Program has instituted a monitoring program to gather information useful to fisheries managers and is working with local fishing groups, environmental groups, and media to educate the public about our findings. Please contact me at your convenience to discuss.

**Attachment:**

**Name**

eleanor jordan

**Organization**

citizen

**Which Priority Objective would you like to provide comment on?**

Inform Decisions and Improve Understanding

**Comment**

Stop the intrusion of goverment interference with our lives and lively-hood. We are not interested in any proposals coming from the UN; not interested in seeing Smart Growth of our oceans and gulfs. Tooooo much government in our lives and certainly we should never, ever be dominated by the wishes of the UN. all socialist and communist inspired and not up to our intellectual level. We can not support the world; we can not tax our citizens to feed the world. Leave us the hell alone.

**Attachment:**

**Name**

Luke Hanna

**Organization**

PNNL

**Which Priority Objective would you like to provide comment on?**

Inform Decisions and Improve Understanding

**Comment**

Note: The following is a summary of the notes taken at the public comment session held in Ocean Shores, WA for the "Inform Decisions and Improve Understanding" poster. Sarah Winter Whalen -Prioritize the integrity of data and science that agencies have already developed; Including local and traditional knowledge. Involve a broad range of stakeholders can help identify and close gaps in data and understanding. -Like to see University programs play a central role to bring together the previous two points. SHOULD START TO LOOK AT DATA AND RESEARCH THAT HAS ALREADY BEEN DONE. WHY RE-INVENT THE WHEEL WHEN YOU DON'T NEED TO. 1. EX: WHAT WSG HAS DONE (POSSIBLY A GRADUATE STUDENTS RESEARCH) AT WHAT RESEARCH ARE THE RESEARCH PRIORITIES ALONG THE WEST COAST? 2. EDUCATION COMMITTEE HAVE DONE ASSESSMENT ON HUNDREDS OF DIFFERENT KINDS OF EDUCATORS AND WHAT THESE EDUCATORS NEED TO PROPERLY EDUCATE K THROUGH 12 (OCEAN RELATED ISSUES? 3. HUMAN CAPACITY OF OUR REGIONS JUST WENT THROUGH GENERAL MANAGEMENT PROCESS HIGHLIGHTING PROGRAMS FOR BUILDING HUMAN CAPACITY IN THE WORK FORCE AND FOR OCEAN LITERACY (MNGMT PLAN FOR SANCTUARY) Penny Dalton If you want people to do things differently and begin to develop and implement these new systems, you must provide them with the proper training and education. A lot of attention has been focused on the overall infrastructure, but we must begin to focus on the people involved. (Unknown comment) Like to see more monitoring programs specific to West coast region People throughout the country should know that we are using a lot of chemicals- bring awareness to people that are chemicals and pesticide use.

**Attachment:**

## Coordinate and Support

**Name**

James Oppenborn

**Organization**

St. Lucie County (Florida)

**Which Priority Objective would you like to provide comment on?**

Coordinate and Support

**Comment**

The St. Lucie County Artificial Reef Program has and will continue to coordinate with the National Marine Fisheries Service, National Ocean Service, NOAA, South Atlantic Fisheries Management Council, Florida Fish and Wildlife Conservation Commission, and several local organizations to improve fish habitat on the Treasure Coast. Please contact me at your convenience to discuss.

**Attachment:**

**Name**

Robert Hoekzema

**Organization****Which Priority Objective would you like to provide comment on?**

Coordinate and Support

**Comment**

General Concerns Re: National Ocean Council Strategic Action Plans

- o The NOC - SAPs are extremely ambitious. As presented, the implementation of the SAPs is extremely complex. Clarity is lacking as to what, when, and in what order each plan will be implemented. Prior to developing and implementing any of the action plans, the following steps, at a minimum, need to occur.
- o Assess the current situation. Address ocean policy-related questions such as: What has been done historically? What is currently being done? What needs to be done to develop a National Ocean Policy?
- o Conduct a SWOT analysis or similar exercise. Strengths, weaknesses, opportunities and threats need to be fully understood to maximize the benefits from effective and efficient development and implementation of national ocean policies.
- o Recommend and schedule actions needed with achievable milestones and measures. These actions should be based on a realistic assessment of fiscal and personnel resources available.
- o The NOC - SAPs will be extremely expensive to implement. Given the current state of the Nation's economy it is debatable whether the United States can afford the proposed actions.
- o SAPs need to be considered holistically. Consolidate where appropriate. There is considerable duplication among several of the nine objectives. The objectives need to be better defined and/or consolidated. In addition, timing of specific actions needs further consideration. For example, several actions proposed by the Coordinate and Support SAP should be completed before attempting to implement action plans proposed by the other SAPs.
- o Jurisdictional geographic boundaries need to be defined. What are the geographic areas encompassed by the CSMP? What upland portions will be covered by CMSP?
- o Climate change (global warming?) should not be the primary driver behind this effort. I am concerned that the basis assumption being used by NOC is that climate change, i. e. global warming, is primarily caused by greenhouse gasses produced by man. Emerging evidence relating to sunspots, suggests that the earth could be entering into a cooling period comparable to the Dalton or Maunder Minimums. Sunspot activity appears to be directly correlated with changes in global climate whether we fully understand the mechanism or not. More sunspots equal warmer periods, fewer sunspots equal colder periods. Solar scientists are predicting fewer sunspots over the next several decades. Prudent scientists should at least consider the possibility of global cooling and how we might respond to expanding ice caps, advancing glaciers, and other related outcomes.
- o Objective 4 Coordinate and Support (C&S). This SAP is key to the effective implementation of the project and should be the number 1 objective. The C&S SAP is generally well written, recognizes many of the barriers to development and implementation of a National Ocean Policy, and provides a reasonable approach to begin the process. Once adequate coordination has been completed and financial and personnel support for the project is obtained from stakeholders, the remaining SAP actions should be prioritized and implemented as resources allow.

**Attachment:**

Attachment included in index: Comment of Robert Hoekzema (1 page)

**Name**

Kimberly Faulk

**Organization**

Advisory Council on Underwater Archaeology

**Which Priority Objective would you like to provide comment on?**

Coordinate and Support

**Comment****Attachment:**

Attachment included in index: Comment of Society of Historical Archaeology (3 pages)

## Resiliency and Adaptation to Climate Change and Ocean Acidification

**Name**

Steve LaDochy

**Organization**

California State University, Los Angeles

**Which Priority Objective would you like to provide comment on?**

Resiliency and Adaptation to Climate Change and Ocean Acidification

**Comment**

Sea level rise may become increasing important and expensive to coasts, Great Lakes and U. S. islands. I would add sea level rise before the word acidification, which is also important.

**Attachment:**

**Name**

C. Mark Eakin

**Organization**

NOAA Coral Reef Watch

**Which Priority Objective would you like to provide comment on?**

Resiliency and Adaptation to Climate Change and Ocean Acidification

**Comment**

Thank you for the opportunity to review the SAP Full Content Outline. The section on "Resiliency and Adaptation to Climate Change and Ocean Acidification" generally is very broad, making it easy to include many different areas of climate change impacts into the outline. There are some point that are missing, some inconsistencies, and some areas where the current direction needs to be modified. These are detailed below with reference to the appropriate place in the outline. ? Temperature change: While there is not room to go into all possible impacts in detail, the lack of an explicit focus on rising ocean temperatures and its impact is glaring. As written, it receives the same level of attention as any other variable. The issue isn't called global warming for nothing. This aspect deserves at least as much attention as sea level rise (full bullet in overview), phenology (full bullet in Action 3 milestones), and geopositioning (currently over emphasized with two bullets in action 4 Gaps) ? Action 2 needs to be focused on the development of the most likely scenarios, not developing a single "best" story line. The idea of a best story line is naive and arrogant in the assumption that we are far better at knowing the future than is possible. The single greatest uncertainty among the possible scenarios developed by the IPCC is the uncertainty of human behavior. This is the reason we are currently at or beyond many of the IPCC AR4's worst-case scenarios. ? Action 3 needs a specific bullet on observations of impacts that are already occurring and it should focus on a range of existing impacts. While we are indeed seeing changes in phenology, we are also seeing species range extensions and contractions, severe reductions in species populations -- some to the level of threatening extinction, bleaching and death of corals, increased infectious diseases, etc. There needs to be a milestone that points out the range of impacts that are already being seen and the severe lack of observations to rigorously monitor these. Another milestone should talk about the sort of observing system needed for future impacts that we expect and those that we do not. ? Action 6 includes a milestone on maladaptation. This is very important and needs more emphasis in the document. the need to keep in the text on maladaptation is important as well. ? While the document can't focus on all ecosystems, a mention of the most threatened or already impacted would make sense. AMong these is coral reefs, where rising temperatures are clearly recognized to be causing mass bleaching and mortality and likely increasing outbreaks of infectious disease. There is an entire chapter on the Arctic, specific mention of already identified impacts of climate change should be part of this section. Cheers, Dr. C. Mark Eakin, NOAA Coral Reef Watch Co-Chair, US Coral Reef Task Force Climate Change Working Group

**Attachment:**

**Name**

charlie clark

**Organization****Which Priority Objective would you like to provide comment on?**

Resiliency and Adaptation to Climate Change and Ocean Acidification

**Comment**

We are having the greatest solar flares in the history of the keeping of data on the sun. We have new and old volcanoes erupting all over the world and earthquakes that are so big that they are moving the tilt of our planet. And you do not mention any of this data as a reason, but try to blame it on an invisible gas that plants need and other bad excuses. NASA scientist argue these facts I state in my e-mails about the events going on in our world and galaxy, and refute that my evidence of these universal effects, have any effect or very little effect. I am not happy with you experts, legislative bodies and politicians we put in power to take advantage of the "useful idiots" as I heard you call us and take advantage of the ignorant, the under privileged and uneducated who believe you will take care of us. You will be taken to terms when the time is fit for you to see and pay for your evil doings. You want to take my God (Christ Jesus) out of everything we do and you think I'm a fool for my beliefs. You are my proof there is God, because you prove that evil exists. You will remain in my prayers, God Bless- charly

**Attachment:**

**Name**

Jordan West

**Organization**

EPA

**Which Priority Objective would you like to provide comment on?**

Resiliency and Adaptation to Climate Change and Ocean Acidification

**Comment**

I have attached a PDF document containing my comments on this SAP. Thank you.

**Attachment:**

Attachment included in index: Comment of Jorda West, EPA Global Change Research Program (2 pages)

## Regional Ecosystem Protection and Restoration

**Name**

fritzi cohen

**Organization**

Moby Dick Hotel and Oysterfarm

**Which Priority Objective would you like to provide comment on?**

Regional Ecosystem Protection and Restoration

**Comment**

From a generation that is not totally computer savvy I am hoping my lengthy comment got attached. please let me know if it failed. thank you fritzi cohen

**Attachment:**

Attachment included in index: Comment of Fritzi Cohen (4 pages)

**Name**

Allen Burdett

**Organization**

Nature Coast Support Groups

**Which Priority Objective would you like to provide comment on?**

Regional Ecosystem Protection and Restoration

**Comment**

Initiate incentives, policies and strategies for population reduction/stabilization (i. e. increasing social security benefits for those choosing to adopt criteria which address and reduce the impacts of over-population.

**Attachment:**

**Name**

James Oppenborn

**Organization**

St. Lucie County (Florida)

**Which Priority Objective would you like to provide comment on?**

Regional Ecosystem Protection and Restoration

**Comment**

The St. Lucie County Artificial Reef Program is building community support for the creation of a Treasure Coast Marine Sanctuary designed with Marine Spatial Planning to include but not be limited to: - current fishing regulations, Special Management Zones, seasonal closures, and MPAs (Experimental Oculina Research Reserve - see chart on page 2 of attachment) - energy production zonation - Nearshore Hardbottom artificial reef zonation - Zonation of juvenile habitat production within the Indian River Lagoon and Nearshore Hardbottoms - Research reef zonation Please contact me at your convenience to discuss.

**Attachment:**

Attachment included in index: Comment of James Oppenborn (24 pages)

**Name**

Stanley Petrowski

**Organization**

South Umpqua Rural Community Partnership

**Which Priority Objective would you like to provide comment on?**

Regional Ecosystem Protection and Restoration

**Comment**

Management practices on the landscape of our timber based economy region have fallen way behind the latest science. A holistic approach to restoration ecology is vital at this juncture of salmon population recovery efforts.

**Attachment:**

**Name**

James Oppenborn

**Organization**

St. Lucie County (Florida)

**Which Priority Objective would you like to provide comment on?**

Regional Ecosystem Protection and Restoration

**Comment**

The St. Lucie County Artificial Reef Program has provided fish habitat for more than 100 species of fishes, including 23 species within the South Atlantic Fisheries Management Council's Snapper-Grouper Complex. 15 of these species were represented by juveniles. 12 of the species documented are known to spend a portion of their life history in the Indian River Lagoon. Please contact me at your convenience to discuss.

**Attachment:**

**Name**

Allen Burdett

**Organization**

Nature Coast Support Groups

**Which Priority Objective would you like to provide comment on?**

Regional Ecosystem Protection and Restoration

**Comment**

Watersheds, both surface and ground waters, need to be regulated for the protection and management of all linked resources including water, plants and animals, their habitats/communities and required spatial relationships.

**Attachment:**

**Name**

Allen Burdett

**Organization**

Nature Coast Support Groups

**Which Priority Objective would you like to provide comment on?**

Regional Ecosystem Protection and Restoration

**Comment**

Strengthen regulatory agencies by eliminating special interest groups such as mining, agriculture, forestry, and growth and development interests. (i. e. coastal mining in Pasco, Hernando, Citrus, Levy, Counties in Florida)

**Attachment:**

**Name**

Allen Burdett

**Organization**

Nature Coast Support Groups

**Which Priority Objective would you like to provide comment on?**

Regional Ecosystem Protection and Restoration

**Comment**

Utilize satellite and aerial imagery to enforce wetland protection. Stop aerial spraying of native range, scrub lands, coastal hammock, and forest lands.

**Attachment:**

**Name**

stu philips

**Organization**

**Which Priority Objective would you like to provide comment on?**

Regional Ecosystem Protection and Restoration

**Comment**

Hold protection for our oceans and marine wildlife to the utmost fullest protection possible NOW! Propose priorities for ocean protection NOW! PROTECT IT ALL, COMPLETELY, TO THE UTMOST NOW, FROM NAVY SONAR AND ALL POLLUTION AND OFFSHORE DRILLING NOW, TOO UNSAFE, PROTECT THE OCEANS AND MARINE LIFE TO THE UTMOST NOW, THERE IS NO TIME LEFT, PROTECT AND RESTORE ALL OCEAN AREAS, NOW, ONSHORE AND OFFSHORE, FROM POLLUTION SOURCES AND NOISE POLLUTION, INCLUDING NAVY SONAR. THANKYOU. STOP ALL POLLUTION SOURCES NOW, AS WELL AS ALL DRILLING IN OUR OCEANS, CAUSES TOO MUCH HARM WITH SPILLS OF ANY SORT, IRREPARABLE. THANKYOU. CLEAN IT ALL UP, PREVENT SPILLS POSSIBLE, STOP ALL SONAR NOISE, PREVENT ALL POLLUTION. THANKYOU!

**Attachment:**

**Name**

Chris Lyons

**Organization**

Restore America's Estuaries

**Which Priority Objective would you like to provide comment on?**

Regional Ecosystem Protection and Restoration

**Comment**

Comments provided on attached letter.

**Attachment:**

Attachment included in index: Comment of Restore America's Estuaries (3 pages)

**Name**

Kathleen Leyden

**Organization**

Gulf of Maine Council on the Marine Environment

**Which Priority Objective would you like to provide comment on?**

Regional Ecosystem Protection and Restoration

**Comment**

see attached letter

**Attachment:**

Attachment included in index: Comment of the Gulf of Maine Council on the Marine Environment (1 page)

## Water Quality and Sustainable Practices on Land

### Name

David Dow

### Organization

Cape Cod Grassroots Environmental Activist

### Which Priority Objective would you like to provide comment on?

Water Quality and Sustainable Practices on Land

### Comment

Here on Cape Cod we are in the process of upgrading our wastewater infrastructure from septic systems in order to reduce nutrient loading to our coastal embayments. Many of our coastal embayments suffer from the effects of eutrophication (poor water quality; periodic fish kills during Summer hypoxic events in the bottom waters; loss of key aquatic habitats like eelgrass beds; deposition of rotting macroalgae on our beaches after storms which is bad for tourism; etc. ). In response to these problems associated with excess nitrogen and phosphorus loading, towns have established advisory committees and used consultants to develop Comprehensive Wastewater Management Plans (CWMPs). The CWMPs can range from sewerage of densely populated coastal regions with construction of tertiary centralized treatment plants to decentralized community cluster systems in small developments or ecotoilets in homes in more rural areas. Falmouth, Ma. plans to conduct some pilot projects on: shellfish aquaculture within embayments to remove particulate nutrients; model effects of inlet widening; test permeable reactive barriers positioned at the shoreline; test composting toilets in homes; etc. There are also potential projects that could be carried out within our coastal watersheds: vegetated barriers along streams; restore freshwater wetlands adjacent to kettle hole ponds; plant more trees on town conservation land to intercept atmospheric nitrogen from the regional airshed; reduce fertilizer and pesticide use on household lawns; grow more of our food locally (since imported food is a major source of nitrogen that enters our septic systems). Studies by the Silent Spring Institute (SSI) have shown that our septic systems are major sources of contaminants of emerging concern (endocrine disruptors; pharmaceuticals and personal care products; flame retardants; non-stick cookware toxics; etc. ) in our ground- and fresh surface waters. Since our treated sewage effluent will be reinjected back into our sole source aquifer for drinking water because of the Massachusetts Department of Environmental Protection policies against discharging sewage effluent into state ocean sanctuaries, this poses a potential future threat to our public and private drinking water supplies (which already contain low levels of cecs). Some of these cecs may be removed by advanced sewage treatment plants that combine aerobic/anaerobic treatment approaches with increased contact time between the microbes and the raw sewage. There may be limited natural attenuation of the cecs once they reach the vadose zone of our sandy soils and the underlying saturated groundwater zone. I am sure that the situation on Cape Cod is not unique. Thus there is a need for a broader approach to the water quality and sustainable practices on land NOP priority. Much more research and pilot tests are required on: decentralized cluster systems and ecotoilets in homes; watershed approaches to capture atmospheric nitrogen inputs and reducing fertilizer inputs from homes and agriculture; understanding the fate and effects of cecs and pesticides in the soil/groundwater system, including health effects on wildlife and humans; cec breakdown in centralized treatment plants and decentralized systems in less densely populated regions; effectiveness of vegetation in trapping or recycling nutrients before they reach our groundwater; etc. The effects of climate change and other human stressors on the shifting baseline biotic changes in our coastal embayments needs to be monitored over the 20-30 year period that will be required to address our wastewater challenges. This poses challenges for modelling, monitoring, and the management components of the adaptive management process mentioned in our CWMPs (i. e. scientific risk analysis is separated from risk management).

**Attachment:**

**Name**

Drew Campbell

**Organization**

Blue Earth County Government, MN

**Which Priority Objective would you like to provide comment on?**

Water Quality and Sustainable Practices on Land

**Comment**

Greetings, Thank you for hearing comments. I am serving as a County Commissioner for Blue Earth County in Minnesota. We not only have over 13,000 lakes, but we have hundreds of rivers and streams that are now at risk from our population growth, land practices of agriculture and expanding urban areas as the Rural Region loses populations. Please, when in doubt in making any policies, always error on the side of safety in protecting our water supply. If we fail here, we will certainly all realize someday that if we fail here, it will be more costly than we can imagine in the future. The bible talks about growth and to subdue the earth, to have dominion over the earth and all things in it. This comes with a huge responsibility attached to avoid and not abuse the gifts given to us all as a global community. Our population is supposed to continue to grow, and so what policy we lock into place today, will certainly effect those people of the future. I believe we have ignored for too long, the effects of Agriculture and allowed the food industry to rule over best practices and it has not worked as well as it should. Many of those in Ag are making headway to use best practices, but just as many are not and this has to stop today. Chemicals all running down into the ground water, into rivers and lakes. These water resources cannot sustain the Ag practices of today, and giving credits to do the right thing is no way to solve this issue. I don't get a credit for following the speed limit do I? Does anyone get paid to follow the rules today? Unlikely, so too Ag needs to build these best practices into their business plans, as it is a business just like any business. Thank you, Sincerely, Drew Campbell Blue Earth County Commissioner Mankato, MN 56001 507-304-4282 office 507-387-2408 home DrewsContact@aol.com or Drew.Campbell@co.blue-earth.mn.us

**Attachment:**

**Name**

deadra ullman

**Organization****Which Priority Objective would you like to provide comment on?**

Water Quality and Sustainable Practices on Land

**Comment**

More citizens have to be made aware that the plastic bags, chemicals and plastic in general that they use often ends up in the oceans to create huge gyres. Ocean life is endangered by all of this and it often takes their lives. More stores must somehow be encouraged to not even use bags, but to give credit to customers who use their own bags. Plastic production uses oil and we must all be made aware of this.

**Attachment:**

**Name**

Victoria Hansen

**Organization**

Scow Bay Steward

**Which Priority Objective would you like to provide comment on?**

Water Quality and Sustainable Practices on Land

**Comment**

CRITICAL ACTION REQUIRED Please Stop Shoreline Septics from Destroying Puget Sound! Present indicators -High levels of fecal bacteria throughout Puget Sound, shellfish closures, fish kills, missing perch spawns, lack of seabird migrations speak for themselves. Healthy shellfish are essential to healthy marine ecosystems. Without bivalves filtering our bays and waters become toxic pools. Shellfish are the most important ingredient to save Puget Sound! Please, everyone, do everything you can to support shellfish sustainability! Please Read! Listed below is the established protocol to identify and implement programs to institute restoration measures for a sustainable Puget Sound. Indicators point to Pressures on the environment. Pressures identify sources of environmental threats i. e. Sources of pollution. Action Items outline procedures to implement the restoration programs That drive legislative policy and law making. Please create policy to save our sounds!

**Attachment:**

**Name**

Jennifer Hoffman

**Organization**

EcoAdapt

**Which Priority Objective would you like to provide comment on?**

Water Quality and Sustainable Practices on Land

**Comment**

What are the mechanisms for tying together land and sea management? What agencies or entities will be responsible for managing there terrestrial impacts on the ocean. For example in the Puget sound, how does the Puget Sound Partnership tie together watershed planning, storm water management, and coastal management.

**Attachment:**

**Name**

Steve Robinson

**Organization**

SR Productions

**Which Priority Objective would you like to provide comment on?**

Water Quality and Sustainable Practices on Land

**Comment**

This issue requires funding, continued support, and to keep moving forward. We all have a lot at stake and people need know it. We should think about taking money from overseas wars and invest in protecting the environment and national heritage because we have limited resources and we have serious problems at home. A few ways to address this issue is to look at conserving our resources, and identify inefficiencies in our facilities and finally look at technology for innovative solutions. Our resources are sacred and limited.

**Attachment:**

**Name**

Joe Schumacker

**Organization**

Quinalt Nation

**Which Priority Objective would you like to provide comment on?**

Water Quality and Sustainable Practices on Land

**Comment**

Our problems with hypoxia are in part stemming from increased carbon dioxide in our atmosphere. It is also important to make the distinction between hypoxia and dead zones. We should remember that we are what we eat, and if we have issues with fecal coliform and other associated toxins and chemicals being consumed by our shellfish then we need to address it, whether its from failed septic systems or other sources. For this reason counties should be responsible for implementation and be empowered and enabled to make those necessary decisions. Regarding bullet point number 6, Identify and protect high quality coastal waters how do we qualify these areas? What is considered high quality? Is it ecosystem function? Essential habitat? We should also have comprehensive characterization of maps and habitat

**Attachment:**

**Name**

Steve Bova

**Organization**

Sport Fisherman

**Which Priority Objective would you like to provide comment on?**

Water Quality and Sustainable Practices on Land

**Comment**

We should focus on the reduction of pollution in our waterways. This include the chemical Carbaryl which has been put into our waters since 1964 which kill mud and ghost shrimp, a large food source for salmon. The use of Round-up like products to kill spartina adversely affects ecosystems as well. Spartina although not a native species provides habitat for sprat, produces O<sub>2</sub>, and prevents coastal erosion. As stated in my editorial "Spartina" in North Coast News. June 15, 2011. Page 3. All of this for the protection of oysters? Spartina densiflora - definition; native to Pacific ocean. Why does the NATURE conservancy, and the Government among others, support the eradication (with chemicals) of this species of oxygen producing spartina as it's seeds are likely being carried NATURALLY (on sea birds) in the Pacific ocean's currents from South America. Why not let NATURE take its course and let it live to produce much needed oxygen which in-turn would slow our rapid climate change and erosion NATURALLY? After researching gray whale migrations following the recent wave of apparent starvation deaths, it became clear to this novice whale watcher what is probably happening. Since the beginning of time these massive creatures migrated along our coast feeding in and out of estuaries on mud and ghost shrimp. Today however, a powerful Pacific Coast Shellfish Growers Association somehow acquired a free pass since 1964 to chemically eradicate shrimp in Willapa Bay and Grays Harbor. The shrimp populations have been decimated to near extinction! Take two large estuaries out of the equation and, well, your getting the pictures! Here's the kicker; the state department of ecology is still giving out permits to aerial spray carbaryl for more shrimp control! Please RESEARCH!

**Attachment:**

**Name**

Rick Mraz

**Organization**

**Which Priority Objective would you like to provide comment on?**

Water Quality and Sustainable Practices on Land

**Comment**

Bullet number 2: Assessing and studying isn't sufficient for getting the job done. It only informs the process, we need to look at actions to reduce hypoxia.

**Attachment:**

## Changing Conditions in the Arctic

**Name**

Fran Ulmer

**Organization**

U. S. Arctic Research Commission

**Which Priority Objective would you like to provide comment on?**

Changing Conditions in the Arctic

**Comment**

**Attachment:**

Attachment included in index: Comment of United States Arctic Research Commission (1 page)

**Name**

Robert Hoekzema

**Organization****Which Priority Objective would you like to provide comment on?**

Changing Conditions in the Arctic

**Comment**

General Concerns Re: National Ocean Council Strategic Action Plans

- o The NOC - SAPs are extremely ambitious. As presented, the implementation of the SAPs is extremely complex. Clarity is lacking as to what, when, and in what order each plan will be implemented. Prior to developing and implementing any of the action plans, the following steps, at a minimum, need to occur.
- o Assess the current situation. Address ocean policy-related questions such as: What has been done historically? What is currently being done? What needs to be done to develop a National Ocean Policy?
- o Conduct a SWOT analysis or similar exercise. Strengths, weaknesses, opportunities and threats need to be fully understood to maximize the benefits from effective and efficient development and implementation of national ocean policies.
- o Recommend and schedule actions needed with achievable milestones and measures. These actions should be based on a realistic assessment of fiscal and personnel resources available.
- o The NOC - SAPs will be extremely expensive to implement. Given the current state of the Nation's economy it is debatable whether the United States can afford the proposed actions.
- o SAPs need to be considered holistically. Consolidate where appropriate. There is considerable duplication among several of the nine objectives. The objectives need to be better defined and/or consolidated. In addition, timing of specific actions needs further consideration. For example, several actions proposed by the Coordinate and Support SAP should be completed before attempting to implement action plans proposed by the other SAPs.
- o Jurisdictional geographic boundaries need to be defined. What are the geographic areas encompassed by the CSMP? What upland portions will be covered by CMSP?
- o Climate change (global warming?) should not be the primary driver behind this effort. I am concerned that the basis assumption being used by NOC is that climate change, i. e. global warming, is primarily caused by greenhouse gasses produced by man. Emerging evidence relating to sunspots, suggests that the earth could be entering into a cooling period comparable to the Dalton or Maunder Minimums. Sunspot activity appears to be directly correlated with changes in global climate whether we fully understand the mechanism or not. More sunspots equal warmer periods, fewer sunspots equal colder periods. Solar scientists are predicting fewer sunspots over the next several decades. Prudent scientists should at least consider the possibility of global cooling and how we might respond to expanding ice caps, advancing glaciers, and other related outcomes.
- o Objective 8: Changing Conditions in the Arctic. Coordination of existing efforts to address Arctic issues is badly needed. Most residents in the State of Alaska are not aware of who the players are nor what their roles and responsibilities (many of which overlap) include. A "one-stop-shop" would be helpful. Planning efforts should include consideration of potential "beneficial" outcomes from climate change in the Arctic as well as the negative.
- o III Body of the Plan. Action 1: Improve Arctic environmental response management. The last sentence in the first paragraph needs to reference who will be informed and about what in order to make better sense.
- o III Body of the Plan. Action 2: Observe and forecast Arctic Sea Ice - Outcomes. Insert "to" between ice and support to clarify the meaning of the sentence.
- o III Body of the Plan. Action 3: Establish a distributed biological observatory - Milestones. The seventh bullet under "Why Do This" needs a typo corrected. The "of" between activities and offshore should be replaced with "from". The milestone "DBO partners conduct DBO research cruises" is repeated 3 times. Two should be eliminated.
- o III Body of the Plan. Action 6: improve coordination on Arctic Ocean issues. This action item should be the very first one.

**Attachment:**

## Ocean, Coastal, and Great Lakes Observations, Mapping, and Infrastructure

**Name**

George Gordon

**Organization**

McLean County, Illinois Board (county legislature)

**Which Priority Objective would you like to provide comment on?**

Ocean, Coastal, and Great Lakes Observations, Mapping, and Infrastructure

**Comment**

Our Number #1 priority MUST be the sustainability of this nation's water resources -- and indeed, those of the planet. Too often, powerful economic interests put pressure on government agencies (and the government as a whole) to pursue policy objectives which address narrower concerns and short-term interests. This effort to create a comprehensive National Ocean Policy is a rare opportunity to \*establish a direction\* that can gain momentum in positive and productive ways. Leaders cannot always \*achieve\* goals and objectives -- but THE DIRECTIONS THEY SET are absolutely critical in determining what options will be \*live\* options, down the road. We must not lose this opportunity to put the ecological health and viability of our oceans, coasts, and Great Lakes at the \*top\* of our priority list. It's an opportunity that won't come again!! Thank you. George J. Gordon

**Attachment:**

**Name**

Megan Bucko

**Organization**

**Which Priority Objective would you like to provide comment on?**

Ocean, Coastal, and Great Lakes Observations, Mapping, and Infrastructure

**Comment**

There are few things more precious than a mother and her newborn. I have witnessed this miracle right off the Monterey Bay near the aquarium. A mother otter and her baby float peacefully as mom cleans her baby on her belly. Months later I saw dolphins feeding further offshore. One day when kayaking at the Monterey Wharf, my son was surrounded by playful sea lions, and an albino sea lion played peekaboo with me in my kayak. These are priceless moments that may someday be lost if our coastal waters are cared for long term. Please keep these waters safe from climate change and other damaging influences to the best of your ability. Thank you for your time.

**Attachment:**

**Name**

mark robbins

**Organization**

**Which Priority Objective would you like to provide comment on?**

Ocean, Coastal, and Great Lakes Observations, Mapping, and Infrastructure

**Comment**

Build a adequate sized, dual pipeline from the Missouri River/ North Dakota basin to Lake Michigan,,,,Fire it up every spring before/or as the spring run off starts. Have several pumping stations. Lake Michigan water levels are depressed and will continue to worsen. This would give the lake area a renewable water source. The cost would be offset by the loss of flood water damage, insurance company assistance, water usuage by municipalities. This also would give numerous jobs, lower the influx of fresh water into the oceans, and possibly provide water for irrigation of crops.

**Attachment:**

**Name**

Chris Ostrander

**Organization**

PacIOOS

**Which Priority Objective would you like to provide comment on?**

Ocean, Coastal, and Great Lakes Observations, Mapping, and Infrastructure

**Comment****Attachment:**

Attachment included in index: Comment of Chris Ostrander, Director of Pacific Islands Ocean Observing System (1 page)

**Name**

Tom Carlson

**Organization**

USGS

**Which Priority Objective would you like to provide comment on?**

Ocean, Coastal, and Great Lakes Observations, Mapping, and Infrastructure

**Comment**

Increase communication between agencies acquiring data of all types to increase the utilization of data and avoiding duplication of efforts. (input from Washington State Listening Session)

**Attachment:**

**Name**

Joe Gilbertson

**Organization**

HOH Tribal Fisheries

**Which Priority Objective would you like to provide comment on?**

Ocean, Coastal, and Great Lakes Observations, Mapping, and Infrastructure

**Comment**

US Navy and USGS have tremendous seafloor mapping capabilities as well as data. It would be good to coordinate these efforts to avoid redundancy. (input from NOC Washington State Listening Session)

**Attachment:**

**Name**

Brian Lynn

**Organization**

WA Department of Ecology

**Which Priority Objective would you like to provide comment on?**

Ocean, Coastal, and Great Lakes Observations, Mapping, and Infrastructure

**Comment**

Work with OOS to determine best way to integrate state and federal (communication, coordination, etc). (input from NOC Washington Listening Session)

**Attachment:**

**Name**

Joe Gilbertson

**Organization**

HOH Tribal Fisheries

**Which Priority Objective would you like to provide comment on?**

Ocean, Coastal, and Great Lakes Observations, Mapping, and Infrastructure

**Comment**

Importance of sea surface temperature observations to coho salmon. (input NOC Washington State Listening Session)

**Attachment:**

**Name**

Jennifer Hennessey

**Organization**

WA Dept of Ecology

**Which Priority Objective would you like to provide comment on?**

Ocean, Coastal, and Great Lakes Observations, Mapping, and Infrastructure

**Comment**

- seafloor mapping is a huge priority particularly for making useful products for managers and others - need to feel like there are federal partners are there to make that happen - OOS - look forward to having those inform usable for different management applications (because it's more 'real time' focused) - states and tribes have information and assets that can be leveraged - make sure they are communicating to target those resources

**Attachment:**

**Name**

Brian Sheldon

**Organization**

Shellfish Growers

**Which Priority Objective would you like to provide comment on?**

Ocean, Coastal, and Great Lakes Observations, Mapping, and Infrastructure

**Comment**

Commentary on lack of resources for acquiring data: There is a massive amount of estuarial data in existence. Willapa Bay is an example of this. 1. On the topic of resources: many with a personal and business interest in giving their time by volunteering. 2. Data mining of what data exists will also cut costs. 3. Part of the infrastructure should be a system that can provide real time xxxxxx data for shell fish growers (and others) 4. include the uplands in the common dataset (input from NOC Washington State Listening Session)

**Attachment:**

**Name**

Steve Eova

**Organization****Which Priority Objective would you like to provide comment on?**

Ocean, Coastal, and Great Lakes Observations, Mapping, and Infrastructure

**Comment**

NOAA radio shouldn't be used for AMBER Alert. This is making users unplug their radios which in the event of a weather emergency (tsunami) is a problem. (input from NOC Washington State Listening Session)

**Attachment:**

**Name**

Joe Schumacker

**Organization**

Quinalt Nation

**Which Priority Objective would you like to provide comment on?**

Ocean, Coastal, and Great Lakes Observations, Mapping, and Infrastructure

**Comment**

Fund it . . . essential to have continuous, comprehensive monitoring to forecast trends for things such as climate change to develop adaptive management strategies. This is the most cost-effective method of getting this data.

**Attachment:**

**Name**

Robert F. Zales, II

**Organization**

National Association of Charterboat Operators

**Which Priority Objective would you like to provide comment on?**

Ocean, Coastal, and Great Lakes Observations, Mapping, and Infrastructure

**Comment**

Comment letter being mailed 6/29/2011

**Attachment:**

Attachment included in Index: Comment of National Association of Charter Boat Operators (1 page)

## **Index: Attachments to Comments**

### **All 9 SAPs**

Comment of S. Lyn McNutt

(4 pages)

## **Comments on the National Ocean Policy Documents:**

S. Lyn McNutt, P.O. Box 946, Hanalei, Kauai, Hawaii 96714  
(zensea1@gmail.com)

My first comment is that there is no way to comment on the document as a whole. Only the "Strategic Plans" are listed in the topics section. I have comments on the document as a whole, as well as the Strategic Plans.

There has been considerable effort put into this Policy, but it has a very, very top-down federal, traditional science feel to it. Studies around the world indicate that community-based, bottom-up initiatives in marine fisheries have a far better chance of success than a top-down mandated approach. While the plan gives "word service" to local, ecosystem-based management, it is certainly not the main point in the document, which relies on the "we know better than you" approach, which, by the way, has not been working.

Comments on the document as a whole follow below. An outline for a Strategic Plan for the Hawaiian Ocean Region appears at the end of my comments.

1. Why is the Arctic considered an area distinct enough to be considered in its own plan, and the Hawaiian Pacific Region is not? This makes the rest of the document somewhat open to interpretation as a political statement supporting existing NOAA programs, thereby securing funding support for the parent organization. I am sure that this is not the intent. I have written an outline for a Strategic Plan for the Hawaiian Pacific Region (See attached draft of a Strategic Plan Summary for "Changing conditions in the Hawaiian Pacific Ocean Region").
2. The NOP does not adequately address locally-managed fisheries, and is extremely top-down. Recent publications (Gutierrez, et al., Science, January, 2011) indicate that community-based management is the key to sustaining aquatic resources. The management structure in the NOP relegates local and traditional users to a "coordinating committee" (not capitalized on purpose), where the NOC shall decide if the issues brought forth by concerned citizens shall even be worthy of a listen, let alone carry any policy or management decision-making value. This is not acceptable.
3. The NOP does not use "sustainable fisheries" as its main objective, and is thereby seriously flawed in its approach to WHY we would want to have a National Ocean Policy in the first place. The objective of a national ocean policy should be to protect our marine resources, and manage them, sustainably, with direct input and real collaborative management authority from local users who rely on the resource. This includes incorporating cultural practices into management philosophy.
4. The NOP does not acknowledge or include historical, cultural or local management practices in its decision-making process, and does not mention them, except in passing. Historical use and cultural practices in places like Hawaii may very well provide the key to successful management and adaptation to changing conditions, and may very well

provide the key to sustainable management of other marine resources. The State of Hawaii recognizes this, and has passed the Aha Kiole Bill to empower the traditional ahupua'a system of management based on watershed districts from the mountains to the sea. The State of Oregon has successfully followed a similar route.

5. The role of the military is not defined in this document at all. The military, especially the Navy, is responsible for a large amount of land and ocean-based pollution, both due to toxic, hazardous waste and noise pollution. The military must not be exempt from rules and regulations that others must follow. As an example, on 2 June 2011, NOAA unilaterally extended the monk seal habitat on all Hawaiian islands from 5 m onshore to 500 m depth offshore. The military is exempted from ALL these regulations, yet in the case of units such as the Pacific Missile Range Facility on Kauai (PMRF), military activity generates more threats to endangered species, to nearshore and offshore fisheries, and to public safety than all the local use combined! Situated in a critical habitat area, they are exempted from every rule and regulation. This is NOT acceptable.
6. Marine Debris is a major problem in our oceans, especially in areas such as Hawaii. Plastics in the water column and on the beaches is changing the marine ecosystem, and not in a positive way. Plastics are in the fish we need to use for food. There is no policy for this. Another type of marine debris is ghost nets or rogue fishing equipment that become open ocean death traps for marine life. There are literally tons of nets removed from Hawaiian shores every year, and this is a result of local clean-up efforts. There is little or no federal effort. Marine debris of all types is not addressed in the NOP.
7. Over-fishing in the open ocean is creating problems worldwide, and contributes to the changing ecosystem here in Hawaii as well as the rest of the United States. Other than stating that the NOC will "work with others", there is no stated policy on how the nation will handle this problem, even within its own jurisdiction.
8. Invasive species and aquarium fishing are destroying reef ecosystems throughout the Pacific region. Aquaculture is also a very big concern in Hawaii. There is no mention of any of these problems as they relate to an open ocean environment such as the one we live in here.
9. The management structure for the NOP as proposed by the NOC marginalizes ocean users and relegates them to a "collaborative" role. Breaking down the decision-making and regulatory process using the management structure proposed in the NOP really means that "collaboration" is a "go along with it" role. There is no voice for the real ocean users when the NOC can choose to ignore requests or concerns, and the Collaboration Committee has no real say in the process at any stage. This is insulting. WE are the ocean users and stewards, not bureaucrats in Washington, D. C.

**Proposed wording for a Strategic Plan for the Hawaiian Pacific Region:**

Background: The Hawaiian Pacific Region includes the main Hawaiian Islands and archipelago, including Papahānaumokuākea (Northwest Hawaiian Islands National Monument) and covers an area roughly the distance from Florida to Nevada, completely surrounded by ocean. Hawaii is the only island state within the United States. Located in the Tropics it includes marine habitat not found anywhere else on Earth, and is home to nearly 25% of the unique species in the Pacific Ocean, and one-quarter of the listed threatened and/or endangered species in the U.S. The effects of global climate change are already apparent in Hawaiian waters with reefs dying and islands disappearing due to ocean acidification and rising sea level. Species such as the Hawaiian monk seal (found nowhere else on Earth) are under increased stress due to diminished food resources, likely due to a combination of loss of habitat, over fishing and the resulting disruption of the pelagic ecosystem. Thirty percent of the reef fish in Hawaii are endemic, and they are under extreme threat from invasive species, aquarium fishing and runoff and sedimentation from human-altered watersheds, with disruptions dating back to the colonial plantation era. Hawaii has undertaken a return to the Aha Kiole System of management that is locally based and accounts for the successful, sustainable approach to ecosystem management that existed on the islands for hundreds of years. It also allows for flexible, species-related ecosystem management that can take into account regional differences on local scales. This approach has also been endorsed by the Western Pacific Fisheries Council (WESPAC).

The problems facing the Hawaiian Island Region are unique to the United States, and must be considered separately from a policy for the contiguous 48 states and the Great Lakes. The same holds true for the Arctic and Sub-Arctic Seas, which have been given their own Strategic Plan. Hawaii must also be recognized within the National Ocean Policy as the 10<sup>th</sup> Strategic Plan.

### **Changing Conditions in the Hawaiian Pacific Strategic Action Plan Full Content Outline**

**Objective:** Address environmental stewardship needs in the Hawaiian Pacific Ocean including the archipelago, island chain and offshore areas in the face of climate-induced and other environmental changes, including those due to human interaction.

#### **I. Overview of the Priority Objective**

- Address environmental stewardship needs in the Hawaiian Pacific Ocean Region (the main Hawaiian islands and the Hawaiian archipelago, including Papahānaumokuākea) to investigate climate and environmental change, as well as increasing vulnerability due to human activity.
- Improve efforts to conserve, protect, and manage sustainably, Hawaiian Pacific marine and land resources, effectively respond to the risk of increased pollution and other environmental degradation on humans and marine life, and better understand and incorporate Hawaiian historical and cultural management practices into a locally-managed fisheries system in order to safeguard living marine resources, and the ocean that supports

- them.
- \_Develop new collaborations to better monitor and assess current and historical environmental conditions and devise procedures to respond to emergencies such as environmental accidents, threats to protected species, and changing climatic conditions.
  - \_Improve scientific understanding of the Hawaiian Ocean Region, unique within the Earth system and the United States, in terms of its role as an important oceanographic indicator of climate health on global, regional and local scales.
  - Improve the stewardship for this unique environment by understanding its cultural history, and developing collaboration at a local level to understand how Hawaii and Papahanumokuakea are changing and why, and devising a strategy to create a sustainable fishery within the national context.

## **Index: Attachments to Comments**

### **All 9 SAPs:**

Comment of Mark Imperial, Associate Professor and  
Director, Master of Public Administration Program,  
University of North Carolina, Wilmington

(40 pages)



**University of North Carolina Wilmington  
Master of Public Administration (MPA) Program**

June 27, 2011

Nancy Sutley and John Holdren  
National Ocean Council Co-Chairs  
Executive Office of the President  
722 Jackson Place NW  
Washington, DC 20503

Dear Co-Chairs Sutley and Holdren:

Attached you will find my comments on the Strategic Action Plan (primarily SAP #2 and SAP #3). My comments are informed by over 20 years of professional and research experience in the area of coastal and marine spatial planning and ecosystem management. In particular, my areas of expertise focus on institutional analysis, policy implementation, governance, and collaborative public management. Accordingly, I am very familiar with practical challenges that will confront the National Ocean Council when it comes to developing a programmatic framework that can operate within the confines of the current federal governance system. I am also familiar with the myriad of options available for improving the integration of our nation's efforts to manage our oceans, coasts, and Great Lakes.

While I applaud your staff for the work they have accomplished in such a short time, the outlines are deficient in many regards and clearly lack the requisite level of cohesiveness. In their current state, the outlines are not integrated and seem to be standalone documents with no overarching framework to guide priorities. Important terms like "objectives" are not used in a consistent fashion. More importantly, the documents seem to ignore or fail to give adequate attention to the practical challenges associated with implementing strategic action plans and the important constraints that the current governance system creates for the planning and implementation recommended in these document. In order to be effective, the SAP must embrace these challenges and confront the difficult questions that surround the implementation of the action items.

My comments on the attached documents illustrate many questions and challenges that are quite foreseeable as you move forward. I hope you will find them helpful as you move forward. If you should have any further questions regarding my comments, please do not hesitate to call me at (910) 962 – 7928 or at [imperialm@uncw.edu](mailto:imperialm@uncw.edu).

Sincerely,

Mark T. Imperial, Ph.D.  
Associate Professor and Director  
Master of Public Administration Program  
Department of Public and International Affairs

Attachments

## Coastal and Marine Spatial Planning Strategic Action Plan Full Content Outline

**Objective:** Implement comprehensive, integrated, ecosystem-based coastal and marine spatial planning (CMSP) and management in the United States.

### I. Overview of the Priority Objective

- This strategic action plan (SAP) addresses the National Ocean Policy priority objective to implement and expand the framework for effective CMSP as described in the Final Recommendations of the Interagency Ocean Policy Task Force (Final Recommendations), as adopted by Executive Order 13547, *Stewardship of the Ocean, Our Coasts, and the Great Lakes* (Executive Order).
- The Strategic Action Plan (SAP) for CMSP takes a different approach and has a significantly different structure than the other eight SAPs the other writing teams are developing.
  - This is appropriate, since much of the discussion in the Final Recommendations focuses on elements of the framework for implementing an effective CMSP process.
  - The National Ocean Policy calls upon the CMSP SAP Writing Team to reflect that approach and further develop those steps.
  - Moreover, the Executive Order and the framework for effective CMSP include specific expectations for additional guidance from the National Ocean Council (Council). The full content outline below provides a structure and some text in an effort to fulfill these expectations.

- 
- <sup>1</sup>As defined in the Executive Order, <sup>2</sup>CMSP is a “comprehensive, adaptive, integrated, ecosystem-based, and transparent <sup>4</sup>spatial planning process, based on sound science, for <sup>3</sup>analyzing current and anticipated uses of ocean, coastal, and Great Lakes areas. It <sup>6</sup>identifies areas most suitable for various types or classes of activities in order to <sup>9</sup>reduce conflicts among uses, <sup>8</sup>reduce environmental impacts, <sup>11</sup>facilitate compatible uses, and <sup>10</sup>preserve critical ecosystem services to meet economic, environmental, security, and social objectives. In practical terms, CMSP provides a public policy process for society to better determine how the ocean, coasts, and Great Lakes are sustainably used and protected -- now and for future generations.”
  - The Executive Order adopts a clear set of objectives that our Nation should pursue to further the National Ocean Policy. CMSP is one of the nine priority objectives under this implementation strategy. In his June 2009 memorandum establishing the Interagency Ocean Policy Task Force, President Obama specifically called upon the Task Force “to develop a recommended framework for effective coastal and marine spatial planning.” As a result, the Task Force spent considerable time and effort to develop such a framework, largely based on valuable input from

# Summary of Comments on MTI\_comments\_SAP2\_full\_content\_outline\_6\_13\_11.pdf

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Page: 1

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-  Number: 1 Author: imperialm Subject: Sticky Note Date: 6/14/2011 9:28:35 AM  
It is important to remember that the only authority for any of what is discussed in this and other sections is an Executive Order. An Executive Order cannot supersede legislation (they trump and E.O.) and they have no impact on state and local actors at all. Thus, the whole process is crippled from the get go. In fact, I have absolutely no reason to believe it will be effective in accomplishing any of what it sets out to do because it is a completely un-workable institutional arrangement. The following comments explain why.
-  Number: 2 Author: imperialm Subject: Highlight Date: 6/14/2011 9:25:01 AM
-  Number: 3 Author: imperialm Subject: Highlight Date: 6/14/2011 9:29:03 AM
-  Number: 4 Author: imperialm Subject: Highlight Date: 6/14/2011 9:28:54 AM
-  Number: 5 Author: imperialm Subject: Sticky Note Date: 6/14/2011 10:16:58 AM  
The question of scale is critical. The history of similar regional planning/ecosystem-based management efforts is very clear - scale will dictate how problems and recommendations are defined. It is also important to remember that the 9 regions are completely arbitrary in terms of how their boundaries will be drawn and in the end what is being proposed is a nested planning arrangement. It is just as logical (perhaps more so) to have considered other configurations of nested arrangements.
-  Number: 6 Author: imperialm Subject: Highlight Date: 6/14/2011 9:29:16 AM
-  Number: 7 Author: imperialm Subject: Sticky Note Date: 6/14/2011 9:45:35 AM  
From whose perspective? Federal agencies? The appointees to these regional planning bodies? The lack of a leadership role for states and the lack of considering local interests virtually ensures a classic federalism fight over whose priorities should end up driving the process. Since that is the current source of the lack of an "integrated" ocean policy it is hard to see how these "plans" will change the nature of the conflicts due to our federalist system.
-  Number: 8 Author: imperialm Subject: Highlight Date: 6/14/2011 9:29:31 AM
-  Number: 9 Author: imperialm Subject: Highlight Date: 6/14/2011 9:29:20 AM
-  Number: 10 Author: imperialm Subject: Highlight Date: 6/14/2011 9:29:43 AM
-  Number: 11 Author: imperialm Subject: Highlight Date: 6/14/2011 9:29:38 AM
-  Number: 12 Author: imperialm Subject: Sticky Note Date: 6/14/2011 9:46:53 AM  
I see no reason to believe that a federally driven regional planning process that has no statutory authority is going to reduce or eliminate conflicts that are the product of our current statutory and regulatory system.
-  Number: 13 Author: imperialm Subject: Sticky Note Date: 6/14/2011 9:50:58 AM  
By definition increased "use" of the oceans will result in additional environment impacts. No matter how well planned, well regulated, well designed the activity is, any activity has some discernible impact. Therefore, rather than having "reduce" as an objective, it should read as minimize unnecessary impacts to the extent practicable if you are serious about siting new uses.
-  Number: 14 Author: imperialm Subject: Sticky Note Date: 6/14/2011 9:52:27 AM  
From whose perspective are the uses compatible? Cape Wind is an excellent illustration of the problem. It has been deemed compatible from a federal perspective but the state and local perspective is quite different
-  Number: 15 Author: imperialm Subject: Sticky Note Date: 6/14/2011 9:55:10 AM  
While this may sound good, what does it actually mean? Does the environment trump all other interests? What do you do when some legitimate and necessary use of the oceans comes at the expense of the environment? How would this guide practical conflicts of our recent past? For example, when a Navy sonar system may improve national security with limited impact on the physical or economic environment but it may have some harm to whales what do you do? This

a wide spectrum of stakeholders, scientists, academics, and policy experts, as well as the general public.

- The Task Force members concluded that CMSP was a crucial element in a comprehensive national policy for the stewardship of ocean and coastal resources. The Task Force then outlined a comprehensive vision for CMSP in the ocean, coastal, and Great Lakes waters of the United States that is included in its Final Recommendations.
- The CMSP process that the Task Force identified aspires to **significantly improve how we manage and protect our priceless coastal, marine, and Great Lakes waters and resources**. At its core, CMSP begins with assembling all relevant stakeholders in each of nine coastal regions and gathering together all of the critical data elements. This includes **mapping and assessing the ecological, economic, cultural, and societal resources as well as transportation, recreation, other off-shore uses, and security information within the context of an ecosystem model**. Each of the nine regional planning bodies (RPBs) which will be established pursuant to the Executive Order, working with all interested stakeholders and the general public, will consider this assessment and associated maps and data, together with the current and projected uses of the entire planning area, to **comprehensively and proactively identify those areas best suited for certain uses based on all relevant factors**.
- The **entire process is designed to be transparent**, with close coordination between all **state** (defined to include the Territories), Federal, and tribal bodies, as well as a wide **variety of domestic and foreign stakeholders**. CMSP is intended to **create a common shared vision for what all parties see as the best uses for these regional planning areas**.
- This SAP will further explain the process of implementing the framework for effective CMSP. To help guide these regional CMSP efforts leading to the eventual development of coastal and marine spatial plans (CMS plans), this **SAP will provide national CMSP objectives and performance measures**. While the objectives and corresponding performance measures are national in scope, the CMSP process and CMS plans will be developed regionally, with regional objectives and performance measures which are informed by the national objectives. CMSP and CMS plans will be **developed cooperatively** among the Federal, State, and tribal partners on the RPBs—in **consultation with indigenous community representatives, Regional Fishery Management Councils, and scientific, technical, and other experts—with substantial stakeholder and public input**. The goal will be to provide specific, actionable, measurable, and cost-effective guidance to best achieve the many economic, environmental, security, and social benefits of CMSP throughout the ocean, coastal, and Great Lakes waters of the United States.

## II. Context and Continuity.

- As the concept is implemented, CMSP will yield **substantial economic, ecological, and social benefits**. To do so, it must incorporate the principles of sound science for ecosystem-based and adaptive management, be transparent, and be informed by all stakeholders and the general

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- 1** Number: 1 Author: imperialm Subject: Highlight Date: 6/14/2011 9:55:45 AM
- 
- 2** Number: 2 Author: imperialm Subject: Sticky Note Date: 6/14/2011 10:11:37 AM  
The only way this can occur is if the end product of the planning process is a change in how decisions are made (e.g., how resources are allocated, how permits are issued, changes in regulations, etc.). This is the flaw in the proposed process and I fear that this effort will repeat the fundamental flaw in the design of the EPA's National Estuary Program where they wasted 5 years producing plans that just recommended a bunch of projects that they didn't need a planning process to come up with in the first place. Before spending 9 years developing these plans it might be wise to consider what the plan might actually look like and what practical effect it is likely to have. Since its only authorization is an E.O and federal budget line items its inherent ability to actually change how decisions are made is inherently limited and could be terminated at the whim of a new president or a new Congress that zero funds the planning effort.
- 
- 1** Number: 3 Author: imperialm Subject: Highlight Date: 6/14/2011 10:11:53 AM
- 
- 2** Number: 4 Author: imperialm Subject: Sticky Note Date: 6/14/2011 10:16:20 AM  
Another concern with the whole section is that it seems to focus on the shoreline seaward. However, some of the biggest impacts of any additional "uses" of the ocean will be on the upland areas along the coast and deepwater ports in particular given that infrastructure (oil, natural gas, wind, aquaculture, mining, etc.) and support services are needed. Thus, all of the upland uses and impacts need to be considered as well. This is one of the reasons that the relative lack of state and local involvement is likely to greatly hinder any ability for this planning effort to make a practical difference.
- 
- 1** Number: 5 Author: imperialm Subject: Highlight Date: 6/14/2011 10:17:48 AM
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- 2** Number: 6 Author: imperialm Subject: Sticky Note Date: 6/14/2011 10:20:59 AM  
What will you do if the state and local governments and private or NGO interests disagree with the omnipotent decisions of these RPBs? Why is there opinion about the uses any better than a state's that developed its own plan for uses off their coasts. If states like VA and NC or MA and RI disagree about uses in their boundary waters, why should the RPB decide what the uses are?
- 
- 1** Number: 7 Author: imperialm Subject: Highlight Date: 6/14/2011 10:21:23 AM
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- 2** Number: 8 Author: imperialm Subject: Sticky Note Date: 6/14/2011 10:25:35 AM  
I have my doubts about how transparent the process will actually be. Moreover, from a practical perspective it is unlikely that you will have the resources to truly involve the public in the effort.
- 
- 1** Number: 9 Author: imperialm Subject: Highlight Date: 6/14/2011 10:27:27 AM
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- 2** Number: 10 Author: imperialm Subject: Sticky Note Date: 6/14/2011 10:27:09 AM  
Why would foreign stakeholders get mentioned? Why should they influence the uses of our oceans? Who are the domestic stakeholders? Lobbyists? Powerful NGOs?
- 
- 1** Number: 11 Author: imperialm Subject: Highlight Date: 6/14/2011 10:30:01 AM
- 
- 1** Number: 12 Author: imperialm Subject: Highlight Date: 6/14/2011 10:25:52 AM
- 
- 2** Number: 13 Author: imperialm Subject: Sticky Note Date: 6/14/2011 10:29:42 AM  
Why is there a systematic exclusion of local interests? In some states, particularly those with comprehensive planning or local coastal management plan requirements the local governments can effectively exclude some offshore uses by passing exclusionary zoning that prohibits certain uses. In some cases, these local plans are part of federally approved CZM plans, which then lets federal consistency authority block federal actions.
- 
- 2** Number: 14 Author: imperialm Subject: Sticky Note Date: 6/14/2011 10:36:09 AM  
It would be nice to think that this could be accomplished but practically speaking what will be produced is at best the shared vision of the voting members of the RPBs. Having as a goal the "shared vision" may also be unproductive. In their attempt to reach consensus many of the NEP's produced plans that had watered down recommendations that were the lowest common denominator of agreement. As a result, they were unable to address major problems (e.g., land use in the Delaware Inland Bays and Maryland Coastal Bays programs). Conversely, the CZM programs didn't focus on consensus and some like RI, CA, SC developed regulatory programs that addressed the difficult issues and did what they (and the science at the time) thought was the "best" way to balance competing uses of the coastal zone. The CZM model is much more appropriate for the CMSP challenge than the rather toothless NEP based on consensus.
- 
- 1** Number: 15 Author: imperialm Subject: Highlight Date: 6/14/2011 10:36:38 AM
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- 2** Number: 16 Author: imperialm Subject: Sticky Note Date: 6/14/2011 10:39:42 AM  
How will these be any different than the national CZM policies or those embedded in NEPA, CWA, CAA, NEPA, the Magnuson-Stevens FMCA, and other federal and state acts. At the end of the day, these policies will remain so all the SAP is adding is another set of policies that will have less importance than those with statutory authorization.
- 
- 1** Number: 17 Author: imperialm Subject: Highlight Date: 6/14/2011 10:40:54 AM
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- 2** Number: 18 Author: imperialm Subject: Sticky Note Date: 6/14/2011 10:42:24 AM  
This will depend on how the members of the RPBs are appointed, their rules for making decisions, what they are allowed to decide, etc. It also doesn't imply at the end of the day that the plan will be a jointly decided document.
- 
- 1** Number: 19 Author: imperialm Subject: Highlight Date: 6/14/2011 10:43:54 AM
- 
- 1** Number: 20 Author: imperialm Subject: Highlight Date: 6/14/2011 10:42:34 AM
- 
- 2** Number: 21 Author: imperialm Subject: Sticky Note Date: 6/14/2011 10:43:37 AM  
What does this mean? 30 days of comment at the end of the process or a chance to review a draft? Some elaboration on the planning and consultation process is warranted.
- 
- 2** Number: 22 Author: imperialm Subject: Sticky Note Date: 6/14/2011 10:46:16 AM
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a wide spectrum of stakeholders, scientists, academics, and policy experts, as well as the general public.

- The Task Force members concluded that CMSP was a crucial element in a comprehensive national policy for the stewardship of ocean and coastal resources. The Task Force then outlined a comprehensive vision for CMSP in the ocean, coastal, and Great Lakes waters of the United States that is included in its Final Recommendations.
- The CMSP process that the Task Force identified aspires to significantly improve how we manage and protect our priceless coastal, marine, and Great Lakes waters and resources. At its core, CMSP begins with assembling all relevant stakeholders in each of nine coastal regions and gathering together all of the critical data elements. This includes mapping and assessing the ecological, economic, cultural, and societal resources as well as transportation, recreation, other off-shore uses, and security information within the context of an ecosystem model. Each of the nine regional planning bodies (RPBs) which will be established pursuant to the Executive Order, working with all interested stakeholders and the general public, will consider this assessment and associated maps and data, together with the current and projected uses of the entire planning area, to comprehensively and proactively identify those areas best suited for certain uses based on all relevant factors.
- The entire process is designed to be transparent, with close coordination between all State (defined to include the Territories), Federal, and tribal bodies, as well as a wide variety of domestic and foreign stakeholders. CMSP is intended to create a common shared vision for what all parties see as the best uses for these regional planning areas.
- This SAP will further explain the process of implementing the framework for effective CMSP. To help guide these regional CMSP efforts leading to the eventual development of coastal and marine spatial plans (CMS plans), this SAP will provide national CMSP objectives and performance measures. While the objectives and corresponding performance measures are national in scope, the CMSP process and CMS plans will be developed regionally, with regional objectives and performance measures which are informed by the national objectives. CMSP and CMS plans will be developed cooperatively among the Federal, State, and tribal partners on the RPBs—in consultation with indigenous community representatives, Regional Fishery Management Councils, and scientific, technical, and other experts—with substantial stakeholder and public input. The goal will be to provide specific, actionable, measurable, and cost-effective guidance to best achieve the many economic, environmental, security, and social benefits of CMSP throughout the ocean, coastal, and Great Lakes waters of the United States.

## II. Context and Continuity.

- As the concept is implemented, CMSP will yield<sup>23</sup> substantial economic, ecological, and social benefits. To do so, it must incorporate the principles of sound science for ecosystem-based and adaptive management, be transparent, and be informed by all stakeholders and the general

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As well as costs. The challenge is balancing the two given the federalism dynamic with competing interests at the federal level. This balancing act must also take place within a constantly evolving institutional framework that puts these same interests in conflict.



public. <sup>1</sup> Rather than adding layers of review and delays, CMSP will significantly improve and build upon existing Federal, State, tribal, local, and regional decision-making and planning processes. CMSP is intended to facilitate sustainable economic growth in coastal communities by increasing transparency and <sup>3</sup> predictability for economic investments in coastal, marine, and Great Lakes industries, transportation, telecommunications, public infrastructure, and related businesses. <sup>5</sup> CMSP should promote national objectives such as enhanced national energy security and trade and provide economic incentives, such as more predictable and faster project implementation, for a wide range of commercial users. CMSP is intended to improve ecosystem <sup>6</sup> health and services by planning human uses in concert with the conservation of important ecological areas, such as areas of high productivity and biological diversity, areas critical to ecosystem function and resiliency, areas of spawning, breeding, and feeding; and migratory corridors. CMSP can promote enhanced ecosystem services and benefits because they are incorporated into the CMS plans as desired outcomes of the process and not just evaluated in the context of individual Federal or State agency action. <sup>7</sup> CMSP allows for a comprehensive look at multiple sector demands which will provide a more complete evaluation of cumulative <sup>8</sup> effects.

- Working in concert with the other eight SAPs, CMSP is intended to promote society goals, including greater opportunities for community and citizen participation in open planning processes that would determine the future of the ocean, our coasts, and the Great Lakes. For example, the CMSP process would recognize the social, economic, public health, and conservation benefits of sustainable recreational use of ocean, coastal, and Great Lakes resources, such as fishing, boating, swimming, and diving, by providing improved coordination with recreational users to ensure continued access and opportunities to experience and enjoy these activities consistent with economic, safety, and conservation goals. Integrated engagement and coordination will result in stronger and more diverse ocean, coastal, and Great Lakes stewardship, economies, and communities. Moreover, CMSP can assist Federal, State, tribal, and local managers in planning activities to sustain economic, cultural, and recreational uses, human health and safety, and the continued security of the United States. Through empowering the RPBs, CMSP can overcome the obstacles and take advantage of the many opportunities present in our ocean, coastal, and Great Lakes waters.

**III. National Objectives and Performance Measures** [This section begins the main body of the SAP. It will list the key national strategic objectives of CMSP and describe specific performance measures for each.]

- **Introduction to the Concept**
  - As directed by the Executive Order, this SAP enumerates national objectives and associated performance measures to promote national and regional consistency in the development and implementation of regional CMS Plans. The following four national objectives are based on the national goals and guiding principles for effective CMSP under the Executive Order. Explicitly designed to tier off these goals and guiding principles, these national objectives and their performance measures should be

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I simply cannot see how this is possible. At the end of the 9 year process the CMSP will be completed but without a massive set of statutory changes will simply add a new layer and further complicate ocean governance. During the next 9 years, the core programs and statutory policies and programs will continue to evolve and who knows, maybe Congress will even reauthorize one of them. But the amount of discretion given to the executive branch is quite limited in most of these programs so there is limited ability to change the system without congressional action as a result of the CMSP. At the end of the day, without a massive reconfiguration of the current institutional arrangement the CMSP will just add another layer and further complicate agency decision making and probably would add delays.

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The only way to achieve predictability would be if a use prescribed in the CMSP would then have a greater likelihood of getting approved? There is no reason to believe that the final plans will have this affect on other federal agency decision making. Similarly, even if it did, states could still use their federal consistency authority to deny the license. Conversely, the state plan (e.g., the one RI developed) has the advantage of creating predictability at the state and local level but the wild card is what the federal agencies will approve. Unless you address both ends of the federalism continuum the ability to create predictability is inherently limited.

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How will this balance of competing uses and interests be achieved?

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While this may be true from a planning perspective and is one of the strengths of any type of zoning-based policy at the end of the day most of the federal and state permitting programs are not structured to consider cumulative impacts. You also have to be careful when you do adopt this type of policy because it can create a rush to capture the available allocation (e.g., derbies in the commercial fishing context)

interpreted as a complement to them and not a stand-alone list of objectives. An <sup>1</sup> **appendix to this SAP** will define key terms relevant to the CMSP process.



- While providing specific and measurable guidance, these national objectives as listed below are <sup>3</sup> **designed to permit flexibility for each RPB to craft regional objectives that address specific regional and local needs while helping to achieve the national goals.**



Due to the comprehensive nature of CMSP and the degree of external variables that could influence outcomes relative to national objectives, the approach taken here includes both outcome-based and output-based performance measures. Each national CMSP objective is accompanied by either performance measures that assess outcomes and/or milestones used to track specific outputs such as the establishment of RPBs. Index measures are used to help determine relative performance before plans are in place and after they are implemented in an effort to monitor changes attributable to CMSP according to individual agency specific mandates, authorities, and other requirements.

- The CMSP National Objectives and Performance Milestones and Measures will be designed to be as specific, measurable, achievable, realistic, and timely as possible given the nature of the planning process. They will also be designed to complement each other and guide CMSP development and implementation as well as monitoring and evaluating progress toward achieving the objectives and benefits of CMS plans.
- Under the Government Performance and Results Modernization Act of 2010, the Federal government will establish Federal performance goals deemed critically important to the Nation. Having national objectives and performance measures to track their achievement will be a benchmark for tracking interagency contributions as a whole and individually. This SAP identifies CMSP characteristics that should be reflected in its national objectives and measures such as regional scope; transparency; developed cooperatively among Federal, State, tribal, and <sup>5</sup> **local authorities**, with stakeholders and the public working toward a shared vision; and incorporating ecosystem-based management for a more effective and cost-efficient means to guide and balance allocation of multi-sector activities. <sup>7</sup> **CMSP should reduce adverse cumulative impacts from human uses on marine ecosystems and provide more certainty in planning new investments.** Further, it should reduce conflicts between how best to use and preserve the environment for sustainability and environmental stewardship.



- **Four Key National Objectives and Related Performance Measures**



- **Objective 1 – Establish nine RPBs to undertake CMSP and <sup>9</sup> **develop by 2020** initial CMS plans for sustainable use and long-term protection of the ocean, coasts, and Great Lakes.** Per the Executive Order, CMSP is to be developed and implemented using a regional approach to allow for the variability of economic, environmental, and social aspects among the different areas of the United States. Each region is unique in geographic scope, cultural expectations and sensitivities, economic development, and

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It is hard to comment on aspects of this section without knowing how key terms are defined and operationalized.
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-  Number: 3 Author: imperialm Subject: Highlight Date: 6/14/2011 11:06:22 AM
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-  Number: 4 Author: imperialm Subject: Sticky Note Date: 6/14/2011 11:10:05 AM  
While conflicts between a federal and state perspective are inevitable it is hard to envision how we will not end up with essentially 9 sets of RPB policies, some of which are similar but I suspect that they will end up reflecting many of the differences that currently exist within our ocean policy (e.g., OCS oil and gas development is allowed in much of the gulf but not off the Atlantic or Pacific coast). If that is what is envisioned by "flexibility" how is that any different that the system that is currently in place? Why go through a 9 year planning process to reconfirm that for political reasons we allow some uses in some ocean areas but not others and that the mix depends upon the state you live in?
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-  Number: 5 Author: imperialm Subject: Highlight Date: 6/14/2011 12:06:46 PM
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-  Number: 6 Author: imperialm Subject: Sticky Note Date: 6/14/2011 12:07:13 PM  
Document isn't consistent in terms of referencing local authorities
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-  Number: 7 Author: imperialm Subject: Highlight Date: 6/14/2011 12:07:52 PM
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-  Number: 8 Author: imperialm Subject: Sticky Note Date: 6/14/2011 12:18:39 PM  
One of the key questions is whether the environment trumps all other interests. To say "reduce cumulative impacts" implies allowing impacts (i.e., offshore activities). However, the easiest way to reduce them is to eliminate them all together (i.e., not allowing any activities). Where do you draw the line and how much reduction is required? How much is too much? You can spend billions on science and it isn't going to answer that question since it is rooted in values and politics
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-  Number: 9 Author: imperialm Subject: Highlight Date: 6/14/2011 12:19:02 PM
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-  Number: 10 Author: imperialm Subject: Sticky Note Date: 6/14/2011 12:28:45 PM  
This is in about 9 years. While this may seem adequate, and very well may be, the amount of time needed will depend on the amount of science/technical work associated with the effort and the participation/joint decision process. It is important to remember that some of the state CZM programs took longer than this to get off the ground and most of the NEPs were at least 5 - 6 years in the making and were far less ambitious. The regional nature of the program will make meetings of advisory committees, public involvement, and the other deliberative processes take considerable time. There will also be inevitable conflicts of interest that will emerge when the plans take shape. The draft to final plan and approval process will probably be a year or 2 itself and that wouldn't include time associated with federal consistency determinations on the programmatic EIS. So it might actually be an ambitious time line depending on these factors that are not clearly discussed in the SAP

existing structures and planning for marine spatial planning, environmental protection, and resource management. Organizing, establishing, and beginning the work of the nine fully functional RPBs are critically important steps in carrying out CMSP and the overall National Ocean Policy. The members of each RPB will prepare and execute a CMSP Development Agreement early in the process, and then begin the planning process.

- **Objective 2 – By 2015, applicable non-confidential and other non-classified Federal data identified for inclusion will be incorporated into the National Information Management System and Data Portal.** The underpinning of the National Ocean Policy and CMSP framework is science-based decision making. While it is true that much additional research is needed, a significant amount of data and information already exists. However, not all of it is accessible or in a useable format for CMSP purposes. This second national objective calls for an innovative approach to data integration across the Federal government, as well as extending this approach to State, local, and tribal governments, industry, academia, and non-governmental organizations (NGOs). The National Information Management System (NIMS) as called for in the National Ocean Policy will not only target integration of diverse data sets, but it will also make this data readily available to decision makers, ocean users, stakeholders, and the public and support the development of new and/or improved decision support tools critical to the CMSP process. This section will include concrete action items to identify how Federal agencies will make data available and how the NIMS will support regional and local efforts. It will also describe how to best integrate data products available at State, regional, and local levels.
- **Objective 3 – Preserve and enhance opportunities for sustainable and beneficial ocean use through the promotion of regulatory efficiency, consistency, and transparency as well as improved coordination across Federal agencies.** Efficient regulatory processes are essential to preserve and enhance the sustainable use of the oceans. Improving efficiency and coordination across Federal agencies, with States, tribes, local governments, indigenous community representatives, and international partners, where appropriate, will minimize the burdens of regulatory delays on all levels of government and the regulated community. Most laws include strict time frames within which review and analysis of permitted activities must be completed. However, currently it is difficult to meet these time frames, which often leads to increased scrutiny, legal filings, and even financial constraints for both those industries that are seeking the permits, as well as the responsible Federal agencies. Using a well-designed and data-supported CMSP process can reduce these delays and costs by pre-assessing areas where certain activities may be better suited; providing frameworks for compiling all the relevant environmental, economic, and social data and information; and identifying in advance those activities that might have synergistic relationships. Coordinated efforts for integration of data as outlined in Objective 2 will also provide efficiencies and consistencies and will aid in the reduction of effort and time (by both Federal and private entities) required to support comprehensive National Environmental Policy Act

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It would be nice to know what this may look like. In particular, it would be nice to begin thinking about the scale that the data will be "integrated". This is a deceptively complex challenge. There is a lot of information out there and a lot of it isn't shared for important reasons (i.e., sharing some data may reveal proprietary secrets - catch data is an example). We also have observing systems that collect data that is useful for some scientific purposes but is utterly useless when it comes to making policy or management decisions due to the scale at which the data is collected. There is a technical challenge as well since some states (e.g., FL) even have trouble integrating the data collected by regional environmental agencies because of different database architecture. Conversely, EPA has some of its data systems at the regional level or state level with no way to "integrate" these systems. For example, Section 305 (b) reports historically have not compiled in a consistent fashion so you can't really compile the data into a single set of data even though the EPA has historically done just that.

**3** Number: 3 Author: imperialm Subject: Sticky Note Date: 6/14/2011 1:18:50 PM

Another important thing to consider is that compiling these data into a usable system is only half of the challenge. Unless there is time and resources to analyze/learn something new from these data, nothing changes in terms of ocean governance. This isn't a trivial problem. In Lake Tahoe they may have the most sophisticated set of environmental performance data gathering efforts. Yet, agency officials frequently lament that they don't have time to analyze all of these data. In essence, the funding is there to collect these data but not to analyze the data.

**1** Number: 4 Author: imperialm Subject: Highlight Date: 6/14/2011 1:15:42 PM

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**1** Number: 5 Author: imperialm Subject: Highlight Date: 6/14/2011 1:10:07 PM

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**2** Number: 6 Author: imperialm Subject: Sticky Note Date: 6/14/2011 1:14:42 PM

The analogy to consider is the census. It is actually a disparate data set with data collected and organized around different scales (National, States, SMAs, Counties, places, blocks, and tracks). Data organized at one level tells you nothing about another. For example, the unemployment rate in Wilmington tells me nothing about NC and vice versa. In order to have a NIMS that is useful to all of these people, it has to acknowledge and embrace this fundamental reality - the information useful to one decision maker may not be useful to another. My fear is that great time and energy will be spent developing a NIMS that is organized at a scale that is useless to the folks actually making decisions.

**1** Number: 7 Author: imperialm Subject: Highlight Date: 6/14/2011 1:19:21 PM

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System needs to incorporate land-based data as well to be useful to these clients. However, much of the discussion in the document seems oriented around the water side.

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**2** Number: 10 Author: imperialm Subject: Sticky Note Date: 6/14/2011 1:26:17 PM

You don't need a 9-year planning process to start doing this. I could give you dozens of potential changes to the institutional system that could be done immediately as could lots of others reviewing this document. We don't need one dollar of new science or a 9-year planning process to figure these out. More importantly, many will require legislative action. Others will happen on their own as these institutions continue to evolve during the 9-year planning process. One of the great lessons of the NEP was not to wait until the end of the planning process to start changing decision making processes that you know need to be changed.

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**2** Number: 12 Author: imperialm Subject: Sticky Note Date: 6/14/2011 1:28:38 PM

This will only be the case if you ensure that the information collected and analyzed satisfies all of the requirements of the other institutional decision processes that are currently in place (ESA, NEPA, FERC, COE, CZM federal consistency, etc.).

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**2** Number: 14 Author: imperialm Subject: Sticky Note Date: 6/14/2011 2:16:38 PM

I'm less confident that this will be the case than the authors obviously are. Since an EA/EIS is prepared based on a single proposed project, the data in the CMSP and NIMS would have to be at the proper scale or additional analyses would have to be done. Similarly, if someone wanted to propose a project that conflicted with the CMSP they could still do so and then they would also need to do their own analyses. It is also important to recognize that one of the great stalling tactics used by decision makers to avoid making difficult decisions is to say that they "need more information". In some ways, that is the function of the EIS process. I don't think this tendency is likely to spread no matter what the CMSP/NIMS has in it.

(NEPA) analyses. This objective will help meet the <sup>1</sup>Administration's goal of reducing redundancy in Federal processes where appropriate, lead to more efficient regulatory review, and better support coastal economies into the future.

- **Objective 4 – Reduce cumulative negative impacts on environmentally sensitive resources and habitats.** Conducting an environmental impact assessment with a cumulative impact assessment is a mandatory step for any <sup>6</sup>Federally-regulated activity, yet <sup>7</sup>assessing cumulative impacts quantitatively is challenging. Cumulative negative impacts on sensitive resources and habitats are those which result from adverse incremental impacts of human uses from the past, present, and foreseeable future. As stewards of the marine environment, Federal agencies are tasked with ensuring that beneficial environmental goods and services are not compromised by permitted activities. Similarly, a regional CMSP process involves defining and analyzing existing conditions and future conditions spatially—*before* any particular permitted activity is considered. As comprehensive, integrated assessment tools and analytical methods are developed and strengthened, so too will be the outputs of these efforts. Thus, this objective strives to avoid those impacts considered unacceptable, will lead to desirable activities being planned for those areas where resulting impacts are minimized or avoided, and will maximize existing sustainable and beneficial of the marine environment.

**IV. Regional Implementation, Actions and Milestones, and Work Products.** [This section will discuss regional implementation of CMSP consistent with the Executive Order and the framework for effective CMSP. Each of its elements should be clear and succinct; actionable; based on measurable and realistic outcomes within the stipulated milestones, timeframes, and limited resources; and adaptive, to allow for modification and addition of new actions based on new information or changing conditions. This section will also help <sup>11</sup>identify the national and regional obstacles that must be overcome, including <sup>10</sup>lack of adequate funding and other resources, better management data, and improved communications <sup>12</sup>between all levels of government. An appendix will provide the timeline for the first five years of implementing CMSP at the national and regional levels.]

- **Organization of Federal, State, and Tribal Representatives by Region.** [This section will concisely describe the <sup>13</sup>process that Federal agencies are using to identify, train, and authorize <sup>14</sup>the regional representatives to participate effectively in the work of the RPBs. It will make brief reference to the lessons learned from the Council's National CMSP Workshop and Simulation Exercise. And, it will provide Council-approved guidance as to how State and tribal government representatives on the RPBs might be identified and selected by the States and tribes to represent their jurisdictional authorities as regional CMSP gets underway.]
- **Preparation of Regional CMSP Development Agreements.** [This section will include guidance on the collaborative process whereby the RPBs would prepare CMSP development agreements. The process for CMSP provides that once the Federal composition of RPBs is determined, the Council would coordinate with the appropriate State authorities and all Federally-recognized tribal representatives in the regions to establish RPBs, and enter into a development agreement.

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- 1** Number: 1 Author: imperialm Subject: Highlight Date: 6/14/2011 2:17:04 PM
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- 2** Number: 2 Author: imperialm Subject: Sticky Note Date: 6/14/2011 2:18:50 PM  
Why isn't this its own SAP? Shouldn't this be done first before starting the planning process so it is clear what role the CMSP will have in future decision making? If the CMSP recommends changes, then congress makes the changes, there is no guarantee that the CMSP will be of use to the revised institutional arrangement.
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- 1** Number: 3 Author: imperialm Subject: Highlight Date: 6/14/2011 2:19:05 PM
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- 2** Number: 4 Author: imperialm Subject: Sticky Note Date: 6/14/2011 2:24:26 PM  
If activities are allowed, it will have some increase in cumulative impacts even if they are small. If you measure impacts and add activities to ocean space it is hard to envision how you will then reduce impacts. You will likely add benefits (e.g., economic, use, resource harvest, etc.) but the goal is to do so with less impact than would otherwise be observed without considering the cumulative impacts. If the goal is measuring these objectives you want to be sure that the information you are measuring has some meaning.
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- 2** Number: 5 Author: imperialm Subject: Sticky Note Date: 6/14/2011 2:26:42 PM  
Is this really the case or is only for certain regulatory programs
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- 1** Number: 6 Author: imperialm Subject: Highlight Date: 6/14/2011 2:26:14 PM
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- 1** Number: 7 Author: imperialm Subject: Highlight Date: 6/14/2011 2:24:51 PM
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- 2** Number: 8 Author: imperialm Subject: Sticky Note Date: 6/14/2011 2:25:09 PM  
How will this effort overcome these challenges?
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- 2** Number: 9 Author: imperialm Subject: Sticky Note Date: 6/14/2011 2:28:02 PM  
How about the state and local obstacles?
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- 1** Number: 10 Author: imperialm Subject: Highlight Date: 6/14/2011 2:28:37 PM
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- 1** Number: 11 Author: imperialm Subject: Highlight Date: 6/14/2011 2:27:41 PM
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- 2** Number: 12 Author: imperialm Subject: Sticky Note Date: 6/14/2011 2:38:20 PM  
This list misses the real institutional challenges that reside within the current governance system. First, the CMSP will be the product of an executive order and the work is funded by budget that has no underlying legislative foundation. Thus, the whole effort is highly vulnerable and is subject to change given changes in the political landscape. This is a weak foundation upon which to build a 9 year planning process that hopes to have a profound impact on steering the development and management of vast resources (OCS development alone is of major economic and geo-political importance). Second, none of what will be done will have any impact on the existing set of institutions and the programs that are administered. The CMSP may designate uses or set priorities but other federal and state statutes and programs will continue to do so. Third, the CMSP inherently lacks any authority to compel any changes in decisions or priorities. In fact, the CMSP likely will likely be subject to approval by other federal agency review processes (programmatic EIS, CZMA federal consistency review) and will create new coordination problems with federal programs (FERC, COE, FCMA) and state approval processes (CZM federal consistency programs). Thus, rather than reduce existing problems it is highly likely that the CMSP will end up adding a whole new set of coordination, communication, and policy integration problems.
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- 1** Number: 13 Author: imperialm Subject: Highlight Date: 6/14/2011 2:38:50 PM
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- 2** Number: 14 Author: imperialm Subject: Sticky Note Date: 6/14/2011 2:40:44 PM  
If federal agency officials have to be "trained" to be able to participate in a collaborative decision making process how are state officials, stakeholders, and the public going to meaningfully participate?
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- 1** Number: 15 Author: imperialm Subject: Highlight Date: 6/14/2011 2:41:12 PM
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- 2** Number: 16 Author: imperialm Subject: Sticky Note Date: 6/14/2011 2:45:19 PM  
The NEP used what was called a management conference agreement to achieve a similar objective. The problem that many of them had was that they never really specified in much detail important things like who should be involved, what issues can be decided, and what rules would be used to make decisions. Another big lesson learned is that the rules and participants involved in developing a plan may not be the same folks who will be responsible for implementing the plan. Moreover, an institutional arrangement suitable for developing the plan may not be suitable for implementing the plan. Finally, getting an agreement to join a decision/planning process is not the same thing as getting someone to join an implementation process.

The development agreement would constitute a commitment from the partners to participate in a cooperative, open, and transparent CMSP process leading to the eventual development of a CMS Plan, acknowledging that each partner may have different authorities and non-discretionary mission objectives that must be fully addressed. Each RPB will have the flexibility to tailor the agreements as necessary and appropriate to reflect regional considerations and priorities, including relevant State and tribal interests which are essential to the success of CMSP.

- The agreement would not commit any Federal, State, or tribal partner to its approval of a regional CMS Plan. To this end, the Council, in consultation with the Governance Coordinating Committee, is preparing a model agreement to assist RPBs in developing their own such agreements, and to foster efficiency and consistency in forming the RPBs. The model will identify the minimum elements for inclusion in the regional development agreements to be executed by the RPBs to ensure consistency with the national framework for CMSP. The Council's Model CMSP Development Agreement will be included as an appendix.]

- **Regional Capacity Assessment.** [This subsection will include guidance in assessing regional capacity consistent with the Executive Order and the framework for effective CMSP. Among other things, it will note that some regions and regional bodies are well ahead of others in their governing structure, resources, experience, and progress toward implementing CMSP.]

- **Examples of Initial Regional Steps.** [Although the determination of the initial regional steps will be left to each RPB, this subsection will provide helpful examples and lessons learned in developing regional CMS plans. Among other things, it will provide examples in the process of identifying and organizing each RPB under the leadership of the Federal, State, and tribal RPB Co-Leads, the value in holding a regional CMSP workshop and simulation exercise early in the process, and the other initial necessary steps to get the RPBs organized, up-and-running, and ready to produce beneficial results. <sup>2</sup> **To the extent practicable and appropriate, it will detail relevant lessons learned from other nation's marine spatial planning experiences.]**

- <sup>3</sup> **Stakeholder and Public Engagement and Participation.** [This subsection will include how the CMSP process will engage and involve environmental and trade groups, commercial and recreational fishing interests, other stakeholders, and the general public, including traditionally underserved, low-income, indigenous, isolated, and minority populations. It will include a proposed timeline, with specific dates, during which the initial engagement with stakeholders in the process should be completed, and how it will continue as the CMS plans are reevaluated and updated over time.]

- **Consultation with Scientists and Technical and Other Experts.** [This subsection will describe how the RPB might best consult with <sup>5</sup> **scientists, technical experts, and those with traditional knowledge of or expertise in coastal and marine sciences and other relevant disciplines** to ensure that the development of regional CMS plans is based on sound science and the best available information. To this end, the RPB should establish regional scientific, technical, and

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 Number: 1 Author: imperialm Subject: Sticky Note Date: 6/14/2011 2:48:42 PM  
I find it a bit troubling that this will be done if there is time. This should have been done and examined thoroughly before even considering how to structure and design this process. There are obvious problems with what is being proposed that are readily apparent to anyone familiar with similar types of programs that have been implemented in other scales and resource contexts.

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 Number: 2 Author: imperialm Subject: Highlight Date: 6/14/2011 2:46:17 PM

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 Number: 3 Author: imperialm Subject: Highlight Date: 6/14/2011 2:49:04 PM

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 Number: 4 Author: imperialm Subject: Sticky Note Date: 6/14/2011 2:51:47 PM  
In order to be meaningful, this will be extremely resource intensive and vastly prolong the process.

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 Number: 6 Author: imperialm Subject: Sticky Note Date: 6/14/2011 3:03:24 PM  
You really need to consult with people familiar with institutional analysis and governance systems. Planning is a process. The process itself can have many societal benefits (improved trust, communication, information sharing, development of shared norms, etc.). At the end of the day though, the plan that is produced is just a pile of paper. Nothing has changed and no resources are better management. It takes the implementation of the plan through the institutionalization of the shared norms (priorities, policies, rules, programs) within the existing institutional system. This happens in different ways in different planning processes. Sometimes the plan is used to guide decision making, sometimes it has the force of regulation, sometimes it specifies the changes to the regulatory system that will take place, sometimes it specifies what activities will be funded. To use the comprehensive planning analogy, many plans specify the range of land uses that are suitable in any particular area. In some cases, the plan itself has the force of a regulation. In other cases, the local officials use the plan to guide decisions. In yet other instances local officials have to change their zoning to ensure that it better guides decisions. The CMSP process is no different and a prerequisite to developing a useful plan will be determining in advance how the plan will actually be used. Otherwise, it will end up being some technical exercise had have no substantive impact on decision making.

other expert participation and consultation mechanisms to ensure that it obtains relevant information as required by the Executive Order and the framework for effective CMSP.]

- **Regional Advisory Committees (RACs).** [Consistent with the guidance in section 8 of the Executive Order, this subsection will describe how the Federal RPB Co-Lead, in consultation with the State and tribal Co-Leads and RPB members, could establish such advisory committees under the Federal Advisory Committee Act (FACA) as they may deem necessary to provide information and advice to the RPB on the development of regional CMS plans to better promote the purposes of the National Ocean Policy. In the end, each RPB would make the decision whether or not to establish any such FACA advisory body.]
- **<sup>1</sup>Regional Work Plan Development.** [Although the development of a regional work plan will be left to the RPBs, this subsection will describe the process of how these bodies might choose to develop a regional work plan consistent with the Executive Order and the framework for effective CMSP. It will also outline how these bodies might plan to conduct their work in a wise and cost-effective manner, to enable them to produce a comprehensive, coherent, valuable, and consensus-based regional CMS plans as quickly and efficiently as possible.]
- **Council Certification of Regional CMS Plans.** [This subsection will describe the process of submitting the regional work plans and, eventually, the CMS plans to the Council to review, add value to, and then certify these plans in a timely and helpful manner. It will also explain what steps the RPB is to follow if the Council fails to certify all or part of a regional work plan or CMS plan. Finally, this subsection will provide details as to how the Council will review each regional CMS plan for national consistency after **<sup>4</sup>30-days of public comment.**]
- **<sup>5</sup>Development of Regional CMS Plans.** [Although the development of the regional CMS plans will be left to the RPBs, this subsection will outline a recommended process for consideration. It will explain how the RPBs might choose to conduct their work in a wise and cost-effective manner, to enable them to produce a comprehensive, coherent, valuable, and consensus-based regional CMS plans as quickly and efficiently as possible. It will recognize that there will be different approaches, timetables, and expectations for developing these plans depending on regional conditions. It will also include possible target dates for the development of a preliminary draft, final draft, and final CMS plan. Finally, it will remind the regions of the need to include stakeholder engagement, scientific input, and public comment to ensure transparency and access the best possible ideas.]
- **Implementation of CMS Plans.** [Although the implementation of the CMS plans will be **<sup>7</sup>overseen by regional Federal, State, and tribal authorities with the necessary jurisdiction and authority,** this subsection will provide appropriate guidance, along with the development of any monitoring and assessment mechanisms and any process for adaptive management. It will also recognize how CMS plans will be incorporated into the existing decision-making processes consistent with existing statutory authority, and describe opportunities for integration with existing and future State, tribal, regional, and local efforts.]

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 Number: 1 Author: imperialm Subject: Highlight Date: 6/14/2011 3:04:18 PM

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 Number: 2 Author: imperialm Subject: Sticky Note Date: 6/14/2011 3:04:57 PM  
It would also be wise to ensure that there is a lot of input from stakeholders to the work plans that are developed.

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 Number: 3 Author: imperialm Subject: Sticky Note Date: 6/14/2011 3:08:28 PM  
I thought this was going to be a transparent and inclusive process? This isn't a particularly inclusive process. What about comments on draft plans? What is the role of the council? What is their grounds for approval or rejection of a plan? Once approved, how will other processes (draft EIS, Final EIS, federal consistency) be addressed?

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 Number: 4 Author: imperialm Subject: Highlight Date: 6/14/2011 3:05:11 PM

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 Number: 5 Author: imperialm Subject: Highlight Date: 6/14/2011 3:08:58 PM

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 Number: 6 Author: imperialm Subject: Sticky Note Date: 6/14/2011 3:10:41 PM  
Same questions apply? What is their approval process? How will plans be modified and amended once approved (a prerequisite if there is adaptive management)? Do the regional plans get subject to programmatic EIS, federal consistency review by state CZM programs?

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 Number: 7 Author: imperialm Subject: Highlight Date: 6/14/2011 3:10:54 PM

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 Number: 8 Author: imperialm Subject: Sticky Note Date: 6/14/2011 3:14:16 PM  
What does this mean? Do they actually expect EPA, DOI, NOAA, FERC, COE, fisheries councils, state agencies, etc. to drop what they are doing or change their policies to be consistent with the CMS plans? What if their enabling legislation prevents compliance and specifies other priorities? What if they have competing policies and don't want to follow the policies contained in the CMS plans. This section shouldn't be included as if it is some easy to fill in later section. This is actually the most meaningful section in this entire document because it is where things would actually change.



**V. <sup>1</sup> Council Guidance Regarding the Development of a National Information Management System and CMSP Portal.** [This section will discuss CMSP-related data and informational requirements. It will be entirely informed, if not completely written, by the Council’s interagency Data Management Working Group, which is now developing such information and data-related guidance under the auspices of the Council. The approved data standards and other information concerning the information system may be included as an appendix.]



**VI. <sup>3</sup> Legal Analysis and Guidance.** [This section will set forth the Council’s analysis of how various statutory authorities of particular agencies can be harmonized in order to support comprehensive, integrated regional CMSP. The analysis will include an effort to identify gaps and conflicts in existing Federal authorities and recommend potential steps to reconcile them. The Council will also consider how legal authorities of Federal, State, tribal, and local entities might collectively be used to support implementation of regional efforts. In this regard, the Council will coordinate with the Governance Coordinating Committee as appropriate to ensure full consideration of relevant State and tribal legal authorities. This section will also include guidance to assist RPBs in complying with various laws relevant to their operation, such as FACA and the Freedom of Information Act (FOIA).]



**VII. <sup>5</sup> Regional CMSP Dispute Resolution Mechanism.** [This section will set forth the regional CMSP dispute resolution mechanism currently under development by the Council in cooperation with the Governance Coordinating Committee. As provided in the Executive Order, the Council will design the mechanism in a way to ensure that most disputes would be resolved at the regional level, while ensuring consistency between the RPBs. The mechanism will ensure that all State and tribal partners will exercise a vital role in resolution of disputes involving State or tribal interests in a particular region. The mechanism will account for decision-making by the RPB by consensus. The mechanism will require that the Council coordinate with the Governance Coordinating Committee on matters involving State or tribal interests in the event a dispute is elevated to the Council for resolution. The mechanism will also be included in Council’s Model CMSP Development Agreement.]

**VIII. On-the-Horizon Strategic Planning Guidance.** [This section is designed to provide additional strategic, long-term guidance from the Council on implementing CMSP. It may describe the benefits and products that will flow from successful CMSP, including promoting the national and regional objectives and streamlining the process of sustainable economic development in the coastal regions. However, specific elements of this guidance will be included in this SAP only as the ORM-IPC (and OST-IPC) may deem necessary and appropriate. An appendix will provide technical and scientific information and resources likely to prove useful to regional CMS planners at the appropriate level of detail. The CMSP SAP Writing Team may consider the need for such guidance and draft appropriate language for coordination with other bodies and approval by higher authority, eventually including the Council.]

## IX. Conclusion

- This SAP to implement the priority objective of CMSP is intended to help chart a new course for improved stewardship of the ocean, our coasts, and the Great Lakes. Specifically, this SAP is a way forward for implementing a comprehensive, science-based, integrated, transparent, and

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 Number: 1 Author: imperialm Subject: Highlight Date: 6/14/2011 3:14:41 PM

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 Number: 2 Author: imperialm Subject: Sticky Note Date: 6/14/2011 3:15:38 PM  
Needs socio-economic and landuse information not just a bunch of environmental data. Scale is critical as is its form and compatibility with the needs of state and local decision makers.

 Number: 3 Author: imperialm Subject: Highlight Date: 6/14/2011 3:15:55 PM

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 Number: 4 Author: imperialm Subject: Sticky Note Date: 6/14/2011 3:18:46 PM  
This should have been done before trying to design the structure of the planning process - see earlier comments on institutional challenges. Figuring out how to map the CMSP into the existing institutional system is likely the single most important task because that will then shape what the plan should look like, how it will be used, and what type of data is required to produce the plan.

 Number: 5 Author: imperialm Subject: Highlight Date: 6/14/2011 3:19:57 PM

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 Number: 6 Author: imperialm Subject: Sticky Note Date: 6/14/2011 3:25:10 PM  
This is another important institutional consideration since the rules used to resolve disputes during the planning and implementation process will be critical. However, in the structure currently proposed there is a big problem because states can always use their best alternative to negotiated agreement (BATNA) and exist the process and use other dispute resolution mechanisms (e.g., litigation, CZM federal consistency) to achieve desired results. My fear is that this section will assume that this problem is not a big deal when it is incredibly complex problem that is highly likely to occur. Many states have vastly different perspectives on what uses are appropriate along boundary waters. The inter-state federal consistency guidance that NOAA has illustrates the wide range of challenges that can result from overlapping authorities. Federalism virtually assures a myriad of conflict interests and the planning and implementation process will be unable to avoid these challenges.

ecosystem-based planning process to achieve the sustainable stewardship and optimum uses of these vitally important areas.

- The Council and the writing team preparing this SAP are aware that the Executive Order and National Ocean Policy—and this plan under development—may create a level of anxiety among those who rely on these resources and that it may generate questions about how this plan will align with existing processes, authorities, and budget challenges. Meaningful and frequent opportunities for stakeholder and public engagement throughout the implementation of CMSP will be an essential component of addressing these concerns.
- The Council and the writing team are confident that the investments and improvements described in this SAP will significantly advance the economic interests of the United States through sustainable and productive ocean uses; improve our capacity to address the long-term challenges and impacts of climate and environmental changes; and provide a lasting foundation for improving the stewardship of and further enhancing the many vital benefits our Nation can derive from these resources. With a clear, achievable, regionally-empowered approach to CMSP, we can achieve an America whose stewardship ensures that the ocean, our coasts, and the Great Lakes are healthy and resilient, safe and productive, and understood and treasured so as to promote the well-being, prosperity, and security of present and future generations.

## <sup>1</sup> Inform Decisions and Improve Understanding Strategic Action Plan Full Content Outline



**Objective:** Increase knowledge to continually inform and improve management and policy decisions and the capacity to respond to change and challenges. Better educate the public through formal and informal programs about the ocean, our coasts, and the Great Lakes.

### I. Overview of the Priority Objective

This strategic action plan (SAP) addresses the National Ocean Policy priority objective to:

- Ensure the availability of cross-cutting scientific research and technological innovation for developing management and policy decisions for ocean, coastal, and Great Lakes ecosystems and processes;
- Engage in ocean exploration to expand knowledge that has the potential to lead to new discoveries for energy resources and improved human health and well-being;
- Develop a comprehensive awareness and understanding of current and emerging human activities, including traditional, cultural, and historical, that affect our coastal watersheds and the ocean; and <sup>3</sup>
- Increase the understanding of the importance and benefits that the ocean, coasts, and Great Lakes provide to our Nation's people. <sup>4</sup>

### II. Context and Continuity

Meeting this priority objective requires:

- <sup>6</sup> • <sup>5</sup> Supporting basic and applied disciplinary and interdisciplinary scientific research, mapping, monitoring, observation, and assessment, coupled with development of forecasts, models, interactive maps, and other decision-support tools to address priority issues in ocean, coastal, and Great Lakes environments, including climate change, risks, and vulnerabilities;
- Increasing understanding of existing, emerging, and future uses of coastal, marine, and Great Lakes resources, effects of such uses on the ecosystems, tradeoffs among uses, and ways to increase sustainability of uses;
- Increasing scientific knowledge and detailed understanding of current and emerging human activities taking place in and around our Nation's waters;
- Improving management of resources and uses through <sup>7</sup> data integration, increased scientific <sup>8</sup> knowledge supporting management, development and improvement of spatially-explicit decision-support tools, and transition of research results into information products and tools for management;
- Increasing human capacity, developing a knowledgeable workforce, and improving education in ocean-related fields, including a focus on disadvantaged and underrepresented communities;
- <sup>10</sup> • Increasing ocean literacy through formal and informal education and public outreach;
- Supporting fundamental research for ocean exploration and discovery; and

# Summary of Comments on MTI\_comments\_SAP3\_full\_content\_outline\_6\_13\_11.pdf

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Page: 1

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 Number: 1 Author: imperialm Subject: Highlight Date: 6/13/2011 2:26:43 PM

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 Number: 2 Author: imperialm Subject: Sticky Note Date: 6/13/2011 2:32:53 PM

Whose decisions and understanding are these actions trying to improve? Actions and information (i.e., science, social science, etc.) needed to improve decision making at a federal or regional level will be very different than what is needed at the state or local level. Similarly, educating the general public is different than educating policy/elected decision makers or the agencies managers. They all need different types of information. It is troubling that none of these important distinctions are made in this section. Similarly, the information needed for different decision processes is different but no where is there much mention of what decision process is trying to be improved. Alternatively, what is the problem that you attempting to fix? What is the evidence that decision making needs improvement?

 Number: 3 Author: imperialm Subject: Sticky Note Date: 6/13/2011 2:20:22 PM

At what scale? This isn't a trivial question as evidenced by the problem states had with their Section 6217 watershed boundaries.

 Number: 4 Author: imperialm Subject: Highlight Date: 6/13/2011 2:19:21 PM

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 Number: 5 Author: imperialm Subject: Highlight Date: 6/13/2011 2:20:52 PM

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 Number: 6 Author: imperialm Subject: Sticky Note Date: 6/13/2011 2:22:45 PM

The problem isn't really with "science" as it is traditionally defined because the policy and management decisions are not made based on science. They are much better categorized as "transcience" in that while the language of science is used, other factors (i.e., human values) ultimately are what is used to make the decision.

 Number: 7 Author: imperialm Subject: Highlight Date: 6/13/2011 2:23:24 PM

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 Number: 8 Author: imperialm Subject: Sticky Note Date: 6/13/2011 2:26:36 PM

This raised the all important question of "scale". In other words, at which scale(s) will this occur. The problem is an important one and is analogous to the census data that is produced. While state or county data might be useful to some decision makers others need the data at a place, block, or track level to make effective decisions. Similarly, it does not good to integrate data if the end product is of no use to decision makers. What is of particular concern in this whole section is that there never seems to be any thought given to whose decisions and understanding we are trying to improve?

 Number: 9 Author: imperialm Subject: Highlight Date: 6/13/2011 2:33:37 PM

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 Number: 10 Author: imperialm Subject: Sticky Note Date: 6/13/2011 2:36:20 PM

We need to know what the baseline knowledge is and what literacy is required before we waste a lot of public \$ on unnecessary public education programs. For example, we still do NPS education in terms of content as if it was 1990 and the message has not changed in 20 years. The problem is that the public has learned quite a bit during that period. Education is like marketing, you have to know specifically what you want to teach before you can design a program to educate

- Improving integration of social and natural sciences in developing policy and management actions for the ocean, coastal, and Great Lakes ecosystems.

### III. Body of the Plan

#### <sup>2</sup> A. Action 1 - <sup>1</sup> Prioritize research activities based on “Science for an Ocean Nation: An Update of the Ocean Research Priorities Plan.”

Federal agencies and partners will use the new “Science for an Ocean Nation: An Update of the Ocean Research Priorities Plan” (“Science for an Ocean Nation”) as the primary basis for prioritizing research activities within their agencies. They will coordinate such activities across agencies to achieve maximum efficiencies in advancing the ocean sciences. Linkages between the research priorities in “Science for an Ocean Nation” and the National Ocean Policy priority objectives are explicitly identified in the new report, thereby allowing agencies to easily identify the connections between them. This action has connections to the data gaps and research needs identified in all eight of the other SAPs. (Note: While <sup>3</sup> “Science for an Ocean Nation” has <sup>4</sup> not yet been officially released, a preliminary draft was available to the SAP writing team and the full report will be available to the public within the next few months. Meanwhile, we urge readers to refer to the 2007 predecessor of “Science for an Ocean Nation” entitled “Charting the Course for Ocean Science in the United States for the next Decade.” The new report differs from its predecessor by more strongly emphasizing the issues of ocean acidification and changing conditions in the Arctic, and by specifically linking the research priorities to the needs of the National Ocean Policy.)

##### 1. Why Do This

- The National Ocean Policy calls for use of “the best available science and knowledge to inform decisions affecting the ocean, our coasts, and the Great Lakes, and enhance humanity’s capacity to understand, respond, and adapt to a changing global environment.” It also calls on us to “improve our understanding and awareness of changing environmental conditions, trends, and their causes, and of human activities taking place in ocean, coastal, and Great Lakes waters.”
-  The new “Science for an Ocean Nation” <sup>5</sup> lays out research needs to inform policy decisions across six broad societal themes that directly connect with the objectives of the National Ocean Policy.
-  It therefore serves as a valuable framework to advance knowledge in a manner that will improve understanding and provide for informed decisions using the best available science.

##### 2. Timeframe - <sup>8</sup> Near-term

##### 3. Outcomes

- The recommendations in “Science for an Ocean Nation” significantly influence agency decisions about resource allocations and priorities within their science or education budgets.

## Page: 2

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-  Number: 1 Author: imperialm Subject: Highlight Date: 6/13/2011 2:38:11 PM
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-  Number: 2 Author: imperialm Subject: Sticky Note Date: 6/13/2011 2:39:00 PM  
If this document prioritizes research needs, why are there other action plan items about research activities? Are they things not covered?
- 
-  Number: 3 Author: imperialm Subject: Highlight Date: 6/13/2011 2:36:52 PM
- 
-  Number: 4 Author: imperialm Subject: Sticky Note Date: 6/13/2011 2:37:44 PM  
This isn't a particularly transparent way to develop the document. I have no idea what the un-released report says
- 
-  Number: 5 Author: imperialm Subject: Highlight Date: 6/13/2011 2:39:18 PM
- 
-  Number: 6 Author: imperialm Subject: Sticky Note Date: 6/13/2011 2:40:09 PM  
If these needs and the 6 themes are so compelling, why isn't this action plan organized around those themes?
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-  Number: 7 Author: imperialm Subject: Sticky Note Date: 6/13/2011 2:40:46 PM  
How about as another rationale to make best use of a limited amount of funding for research?
- 
-  Number: 8 Author: imperialm Subject: Highlight Date: 6/13/2011 2:40:56 PM
- 
-  Number: 9 Author: imperialm Subject: Sticky Note Date: 6/13/2011 2:41:36 PM  
How are these defined? Research funding programs often fund long-term studies so this might actually be of a longer-term



- <sup>1</sup> Increased knowledge leads to enhanced sustainable uses of and benefits from ocean, coastal, and Great Lakes resources.
- <sup>2</sup> Better stewardship of resources is enabled by increased understanding of ecosystem processes, impacts of human uses, and vulnerabilities.
- <sup>3</sup> Knowledge allows the creation of comprehensive and generic multi-hazard risk assessments and warning system tools to support policy and management, as well as models, policies, and strategies for mitigation of and/or finding adaptive solutions to coastal and ocean hazards, ecosystem variability, and climate change.



#### 4. <sup>3</sup> Milestones

- Agencies reference “Science for an Ocean Nation” in budget documents used to justify and defend budget decisions and include priorities from the report in annual budget requests.



#### 5. <sup>5</sup> Gaps and Needs in Science and Technology

- <sup>6</sup> “Science for an Ocean Nation” identifies a number of gaps and needs.

### **B. Action 2 – Provide science to <sup>8</sup> support emerging sustainable uses of resources.**

Federal agencies and partners will provide science and <sup>9</sup> services to support the development and production of emerging sustainable uses of ocean, coastal, and Great Lakes resources.



#### 1. Why Do This

- Fundamental and applied scientific information and technology are needed to characterize resources, their uses, and potential environmental impacts.
- Providing scientific information and services will ensure that emerging and future uses of ocean, coastal, and Great Lakes resources are economically and ecologically sustainable.
- This will also better inform the process of coastal and marine spatial planning (CMSP) regarding potential economic and environmental impacts of compatible uses, and inform ecosystem-based management (EBM) (see the CMSP and EBM SAP outlines).



#### 2. Timeframe - Long-Term



#### 3. <sup>13</sup> Outcomes

- Private industry, government agencies, and partners make better informed decisions about the feasibility and operations of sustainable uses of ocean, coastal, and Great Lakes resources based on environmental, social, and economic data and predictive modeling.
- Increased opportunities for sustainable and emerging uses of ocean, coastal, and Great Lakes resources, resulting in increased opportunities for economic growth, creation of new jobs, and increased sustainability of traditional ocean uses.

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	Number: 1	Author: imperialm	Subject: Highlight	Date: 6/13/2011 2:42:39 PM
	Number: 2	Author: imperialm	Subject: Sticky Note	Date: 6/13/2011 2:43:12 PM
I'm not sure any of these would be the direct outcome of re-prioritizing science funding				
	Number: 3	Author: imperialm	Subject: Highlight	Date: 6/13/2011 2:43:25 PM
	Number: 4	Author: imperialm	Subject: Sticky Note	Date: 6/13/2011 2:44:00 PM
However, this would seem to be an outcome, not a milestone.				
	Number: 5	Author: imperialm	Subject: Highlight	Date: 6/13/2011 2:44:08 PM
	Number: 6	Author: imperialm	Subject: Sticky Note	Date: 6/13/2011 2:44:42 PM
Hopefully, the extended version will describe this document and its recommendations in some detail.				
	Number: 7	Author: imperialm	Subject: Sticky Note	Date: 6/13/2011 2:45:11 PM
What does this mean?				
	Number: 8	Author: imperialm	Subject: Highlight	Date: 6/13/2011 2:47:52 PM
	Number: 9	Author: imperialm	Subject: Highlight	Date: 6/13/2011 2:44:58 PM
	Number: 10	Author: imperialm	Subject: Sticky Note	Date: 6/13/2011 2:49:29 PM
I thought after the deepwater blowout that we might need more science to support non-renewable, non-sustainable uses as well. What about these other uses? We still need to inform decisions about these uses?				
	Number: 11	Author: imperialm	Subject: Sticky Note	Date: 6/13/2011 2:56:02 PM
This whole document seems at times to forget that "science" or social science is just information. The information in and of itself doesn't change anything. It is only when the information is in a form understandable and accessible to a decision maker that it has the potential to be used. However, even if it is used the question of whether it leads to "better" decisions is a value-based one. Only in very rare instances is the science so definitive that it clearly defines "right" and "wrong" decisions				
	Number: 12	Author: imperialm	Subject: Sticky Note	Date: 6/13/2011 2:51:28 PM
It is unclear why any of these would be an "outcome" or how you would measure any of these. Since these parties already make these decisions, what will be "better" as a result of the research?				
	Number: 13	Author: imperialm	Subject: Highlight	Date: 6/13/2011 2:49:52 PM

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## 4. <sup>1</sup>Milestones <sup>2</sup>

- Develop joint agency aquaculture initiatives through the Joint Subcommittee on Aquaculture and other partnerships.
- Design new renewable energy technologies using the integrated oceanic and atmospheric observation system and modeling programs.
- <sup>3</sup> <sup>4</sup> Inventory the compiled nation-wide renewable energy potential and complete the national offshore wind energy resource map.
- Develop test beds to provide enhanced wind energy forecasts via the High Resolution Rapid Refresh modeling system.

## 5. <sup>5</sup>Gaps and Needs in Science and Technology <sup>6</sup>

- Research and technology development to support vibrant, profitable, and sustainable ocean, coastal, and Great Lakes resource and emerging technologies industries.
- Information necessary for existing and emerging resource uses to make informed decisions through the CMSP framework.

### C. Action 3 - Provide science support for managers and policy makers.

To enable and inform science-based decisions, Federal agencies and partners <sup>7</sup> will regularly <sup>8</sup> assess needs of resource managers and policy makers for research, data, and information, directly respond to those needs <sup>9</sup> by providing data and information, developing and improving spatially-explicit decision-support tools (e.g., integrated ecosystem assessments), and expanding <sup>10</sup> training and technical assistance. This action will connect with related training activities with the EBM SAP.

#### 1. Why Do This <sup>11</sup>

- <sup>12</sup> Robust decision-support tools and processes support rapid, effective, and publicly-supported management of growing uses of ocean, coastal, and Great Lakes resources.
- Providing needed research, data, information, and traditional knowledge will help ensure sustainability of natural resources, biodiversity, and critical ecosystem services.
- Assessing management and policy needs will also minimize the negative environmental and human health impacts (particularly due to climate change and sea-level rise) on vulnerable communities.

#### 2. Timeframe - Mid-Term

#### 3. Outcomes <sup>13</sup>

- <sup>14</sup> Ocean, coastal, and Great Lakes decision-makers use technically robust decision-support tools, processes, and services that:
  - Integrate scientific, environmental, and socio-economic information to support EBM and CMSP;

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-  Number: 1 Author: imperialm Subject: Highlight Date: 6/13/2011 2:56:24 PM
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-  Number: 2 Author: imperialm Subject: Sticky Note Date: 6/13/2011 2:57:34 PM  
These read more like recommendations than milestones.  
  
Why only focus on aquaculture (not fisheries in general) and renewable resources?
- 
-  Number: 3 Author: imperialm Subject: Sticky Note Date: 6/13/2011 2:59:04 PM  
I think this was done by the national renewable energy laboratory
- 
-  Number: 4 Author: imperialm Subject: Highlight Date: 6/13/2011 2:57:39 PM
- 
-  Number: 5 Author: imperialm Subject: Highlight Date: 6/13/2011 2:59:24 PM
- 
-  Number: 6 Author: imperialm Subject: Sticky Note Date: 6/13/2011 2:59:50 PM  
How about some more specificity?
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-  Number: 7 Author: imperialm Subject: Highlight Date: 6/13/2011 3:00:16 PM
- 
-  Number: 8 Author: imperialm Subject: Sticky Note Date: 6/13/2011 3:01:33 PM  
How? What level of government? Which agencies? Public or private?
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-  Number: 9 Author: imperialm Subject: Highlight Date: 6/13/2011 3:00:37 PM
- 
-  Number: 10 Author: imperialm Subject: Sticky Note Date: 6/13/2011 3:01:09 PM  
How do you know that this is needed if you have not assessed the needs of resource managers?
- 
-  Number: 11 Author: imperialm Subject: Highlight Date: 6/13/2011 3:01:45 PM
- 
-  Number: 12 Author: imperialm Subject: Sticky Note Date: 6/13/2011 3:02:53 PM  
What does this actually mean? Who will use these tools? At what level of government? For what decision processes? The answers to these questions are important because it will lead to different types of tools
- 
-  Number: 13 Author: imperialm Subject: Highlight Date: 6/13/2011 3:03:19 PM
- 
-  Number: 14 Author: imperialm Subject: Sticky Note Date: 6/13/2011 3:04:09 PM  
Don't they do this already? If not, what will be new?

- <sup>1</sup> Provide meaningful indicators of ecosystem health and societal goals; and
- Support prediction and scenario evaluation to make informed decisions, with particular focus on CMSP.

#### 4. <sup>2</sup> Milestones

- <sup>4</sup> Create an interagency (Federal, State, Tribal, regional, and local) team that will complete an assessment of existing and needed research, data, information, traditional knowledge, decision-support tools, and training to support ocean, coastal, and Great Lakes decision-makers.
- Develop and provide appropriate training curricula, decision-support tools, and information services to meet the needs of ocean, coastal, and Great Lakes decision-makers and other stakeholders, as identified in the interagency assessment.

#### 5. Gaps and Needs in Science and Technology

- Social science research and application related to the effective design and application of tools, technologies and information services (See Action 7).
- Quantification and valuation of ecosystem services related to coastal management decision making.

### D. Action 4 - Develop human capacity and the workforce.

Develop human capacity and a knowledgeable workforce, and provide scholarships, internships, fellowships, and other opportunities for high school, undergraduate, and graduate students, particularly from underrepresented groups, <sup>7</sup> pursuing degrees in ocean science, management, and related fields.

#### 1. Why Do This

- <sup>9</sup> Current graduation rates in geosciences are low, particularly for underrepresented groups.
- U.S. competitiveness depends on a well-educated workforce.

#### 2. Timeframe - Mid-term

#### 3. <sup>11</sup> Outcomes

- More students, particularly from underrepresented groups, graduate in academic fields related to ocean science and management at the undergraduate and graduate level.
- The number of students entering the workforce through Federally-supported fellowship and internship programs related to ocean science and management is increased.
- K-12 students are engaged in extracurricular ocean-related Science, Technology, Engineering, and Mathematics (STEM) activities.

#### 4. <sup>14</sup> Milestones

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-  Number: 1 Author: imperialm Subject: Highlight Date: 6/13/2011 3:03:23 PM
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-  Number: 2 Author: imperialm Subject: Highlight Date: 6/13/2011 3:04:15 PM
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-  Number: 3 Author: imperialm Subject: Sticky Note Date: 6/13/2011 3:04:25 PM  
Reads like recommendations
- 
-  Number: 4 Author: imperialm Subject: Highlight Date: 6/13/2011 3:04:32 PM
- 
-  Number: 5 Author: imperialm Subject: Sticky Note Date: 6/13/2011 3:05:52 PM  
Shouldn't this have been done before developing the action plan? Is the action plan item only targeted at federal agencies? If not, then they would have almost know way to know what other decision makers need to know.
- 
-  Number: 6 Author: imperialm Subject: Sticky Note Date: 6/13/2011 3:06:33 PM  
Is there a gap in science? That is what the document says earlier
- 
-  Number: 7 Author: imperialm Subject: Highlight Date: 6/13/2011 3:06:59 PM
- 
-  Number: 8 Author: imperialm Subject: Sticky Note Date: 6/13/2011 3:09:30 PM  
Is this really the problem? If so you need to address the cause. Perhaps what is really needed (particularly to address action 2 and 3) are more people with interdisciplinary backgrounds that can communicate science to decision makers and conversely are knowledgeable enough to know what types of information decision makers need. In fact, a few of those people could have produced a much better version of this action plan.
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-  Number: 9 Author: imperialm Subject: Highlight Date: 6/13/2011 3:09:47 PM
- 
-  Number: 10 Author: imperialm Subject: Sticky Note Date: 6/13/2011 3:12:17 PM  
Is this really the best you can do in terms of justification? How about doing some research and reading the following report:  
  
**Partnership for Public Service's (PPS) recent report, *Where the Jobs Are: Mission Critical Opportunities for America, Second edition (2007)***
- 
-  Number: 11 Author: imperialm Subject: Highlight Date: 6/13/2011 3:13:19 PM
- 
-  Number: 12 Author: imperialm Subject: Sticky Note Date: 6/13/2011 3:14:14 PM  
These can be improved substantially. What is it that they want to change? These read more like a combination of recommendations and goals rather than something that can be measured.
- 
-  Number: 13 Author: imperialm Subject: Sticky Note Date: 6/13/2011 3:16:48 PM  
These read more like recommendations, uninspiring ones at that. There are lots of models out there that are not even mentioned. Providing funding to develop interdisciplinary masters or Ph.D. level programs, fellowship programs that provide tuition support with service commitments, the PMI/Sea Grant Fellowship programs, etc. Expanding or building upon these existing programs may produce a bigger bang for the buck.
- 
-  Number: 14 Author: imperialm Subject: Highlight Date: 6/13/2011 3:14:26 PM
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- Award scholarships, fellowships, and internships for high school, undergraduate, and graduate students that leverage Federal investment in research, laboratories, and natural areas to support education.
- Focus on underrepresented groups by working with professional societies, nonprofits, and minority-serving institutions when recruiting applicants for scholarship, fellowship, and internship programs.
- Develop a new post-doctoral program for ocean sciences.
- Host competitions and activities for high school students that demonstrate impact on students' choices of future academic and career paths.
- Support underwater and ocean technology programs for secondary and post-secondary education with Federal resources.
- Fund studies to track changes in the future ocean workforce.

## 5. <sup>1</sup>Gaps and Needs in Science and Technology - None <sup>2</sup>

### E. Action 5 - Increase ocean literacy.

Increase ocean literacy and expand the accessibility and use of ocean content in formal and informal educational programming for <sup>3</sup>students, teachers, and the public. <sup>4</sup>

#### <sup>5</sup>1. Why Do This <sup>6</sup>

- The Ocean Project study shows high public concern about but low understanding of ocean issues.
- Studies by the National Research Council and others show effectiveness of formal and informal science education programs at raising levels of awareness and stewardship.

#### 2. Timeframe - Mid-term

#### 3. Outcomes <sup>8</sup>

- <sup>7</sup>Greater access to Federally-funded ocean research for formal and informal education institutions.
- <sup>9</sup>Increased public awareness and understanding of ocean science issues.
- <sup>10</sup>Communities are better stewards of ocean, coastal, and Great Lakes resources.

#### 4. Milestones

- Support inclusion of ocean content in revised national science education standards.
- <sup>11</sup>Support regional ocean education plans.
- <sup>13</sup>Complete a study of environmental attitudes and knowledge in middle schools with environmental education programs.
- <sup>14</sup><sup>15</sup>Develop a comprehensive ocean science curriculum for middle school based on Ocean Literacy Essential Principles. <sup>16</sup>

- 
-  Number: 1 Author: imperialm Subject: Highlight Date: 6/13/2011 3:17:21 PM
- 
-  Number: 2 Author: imperialm Subject: Sticky Note Date: 6/13/2011 3:18:59 PM  
How about a better understanding of the knowledge, skills, and abilities that resource managers involved in CMSP and other ocean management activities need to have so that we could design better masters/Ph.D programs that can produce students with the requisite skill set to be resource managers and advise decision makers?
- 
-  Number: 3 Author: imperialm Subject: Highlight Date: 6/13/2011 3:20:08 PM
- 
-  Number: 4 Author: imperialm Subject: Sticky Note Date: 6/13/2011 3:21:44 PM  
Each group would need a different type of education. What about the literacy of decision makers? How many federal, state, and local decision makers (even foundation personnel) would have adequate knowledge of all the issues?  
  
How is this going to be done? Where are the specifics?
- 
-  Number: 5 Author: imperialm Subject: Highlight Date: 6/13/2011 3:22:04 PM
- 
-  Number: 6 Author: imperialm Subject: Sticky Note Date: 6/13/2011 3:22:28 PM  
What is it that these groups need to know but don't know now?
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-  Number: 7 Author: imperialm Subject: Highlight Date: 6/13/2011 3:22:48 PM
- 
-  Number: 8 Author: imperialm Subject: Sticky Note Date: 6/13/2011 3:23:07 PM  
More of a recommendation than an outcome
- 
-  Number: 9 Author: imperialm Subject: Highlight Date: 6/13/2011 3:23:18 PM
- 
-  Number: 10 Author: imperialm Subject: Sticky Note Date: 6/13/2011 3:23:48 PM  
This is clearly measurable but you need to have a baseline that is academically and methodologically credible.
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-  Number: 11 Author: imperialm Subject: Highlight Date: 6/13/2011 3:23:59 PM
- 
-  Number: 12 Author: imperialm Subject: Sticky Note Date: 6/13/2011 3:24:25 PM  
What are these?
- 
-  Number: 13 Author: imperialm Subject: Highlight Date: 6/13/2011 3:24:36 PM
- 
-  Number: 14 Author: imperialm Subject: Sticky Note Date: 6/13/2011 3:25:21 PM  
Wouldn't you need to study programs with and without programs in a methodologically credible evaluation protocol to learn anything?
- 
-  Number: 15 Author: imperialm Subject: Highlight Date: 6/13/2011 3:25:31 PM
- 
-  Number: 16 Author: imperialm Subject: Sticky Note Date: 6/13/2011 3:26:09 PM  
Don't you have to find out what they know and agree on what they need to know before developing a curriculum

- 1 Use data from surveys of community understanding and attitudes of ocean issues to inform future educational programming, communications, and public engagement.
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## 5. Gaps and Needs in Science and Technology - None

### 7. Action 6 - Engage in ocean exploration.

Federal agencies will engage in exploration to expand our knowledge of little-known Great Lakes and oceanic biodiversity, biogeochemical processes, ecosystem services, and climate interactions to bring new understanding and benefits to research, management, policy, and the public.

#### 1. Why Do This

- Ninety-five percent of the ocean is poorly known or essentially unexplored, and the potential for discoveries to expand knowledge, lead to new energy sources, develop new products, and inspire the next generation of ocean scientists is enormous.
- For the U.S. to be a global leader in ocean exploration and knowledge of the connections between human well-being and the natural environment, we need to explore currently unexplored or poorly-known Great Lakes and oceanic biodiversity, biogeochemical processes, ecosystem services, and climate interactions at the global-scale.

#### 2. Timeframe - Mid-term

#### 3. Outcomes

- New ocean discoveries expand our knowledge and understanding of Great Lakes and oceanic biodiversity, biogeochemical processes, ecosystem services, and

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-  Number: 1 Author: imperialm Subject: Highlight Date: 6/13/2011 3:26:30 PM
- 
-  Number: 2 Author: imperialm Subject: Sticky Note Date: 6/13/2011 3:27:55 PM  
How will the surveys work? We've been funding NPS education for 20+ years and they never systemmatically surveyed these changes in attitudes
- 
-  Number: 3 Author: imperialm Subject: Sticky Note Date: 6/13/2011 3:26:59 PM  
These read more like recommendations than milestones
- 
-  Number: 4 Author: imperialm Subject: Sticky Note Date: 6/13/2011 3:28:32 PM  
Need to evaluate whatever you do in order to be "adaptive"
- 
-  Number: 5 Author: imperialm Subject: Sticky Note Date: 6/13/2011 3:30:52 PM  
Are you kidding me? This contradicts your own discussion of the need to survey, collect data, develop curriculums, etc.
- 
-  Number: 6 Author: imperialm Subject: Highlight Date: 6/13/2011 3:28:39 PM
- 
-  Number: 7 Author: imperialm Subject: Highlight Date: 6/13/2011 3:29:29 PM
- 
-  Number: 8 Author: imperialm Subject: Sticky Note Date: 6/13/2011 3:30:08 PM  
No idea why this is here. Not only does it not fit but it reads like it was inserted at the behest of some special interest.

climate interactions, and this new knowledge informs management, policy, the public, and future research.

- Scientific insights and innovative technologies enhance the Nation's competitiveness by increasing scientific and technological capability and discovering new opportunities for biomedical and business development.
- The pace, efficiency, and scope of exploration are increased, and resulting discoveries are disseminated to the global scientific and societal enterprise.

#### 4. Milestones

- Execute five expeditions in poorly-known or unknown Great Lakes and national and international ocean regions.
- Communicate new discoveries from five expeditions regularly to the public as well as to the scientific community.
- Establish five new cost-sharing partnerships with domestic and international governmental and nongovernmental entities that support global-scale systematic exploration.

#### 5. Gaps and Needs in Science and Technology

- Innovative tools, technologies, and international partnership activities to provide the most cost-effective strategies for ocean exploration and discovery.
- A suite of common products related to ocean exploration and research agreed to by Federal agencies and partners.
- An easily accessible electronic library of scientific information and products related to ocean exploration, research, and education efforts.



### **1. Action 7 - Integrate social and natural scientific information.**

**2. Federal agencies and partners will integrate information from a broad range of social sciences with the natural sciences.**



#### 1. Why Do This

- Information from social sciences and economics must be routinely integrated with the natural sciences to inform research, policy development, and management decision-making, especially for ecosystem-based management and restoration, to improve public understanding of management actions.
- Incorporating social and natural sciences will support and enhance sustainable economies and other uses.
- Using social science research to apply decision theory to ocean issues will inform ocean policy decisions and assist in developing best management practices.



#### **2. Timeframe - Long-term**

#### 3. Outcomes

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 Number: 1 Author: imperialm Subject: Highlight Date: 6/13/2011 3:31:17 PM

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 Number: 2 Author: imperialm Subject: Sticky Note Date: 6/13/2011 3:32:35 PM

This really should be the heart of the action plan since it is the most directly applicable to the goal of informing decisions and improving understanding. Others like capacity are also directly related to advancing this task.

 Number: 3 Author: imperialm Subject: Highlight Date: 6/13/2011 3:32:45 PM

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 Number: 4 Author: imperialm Subject: Sticky Note Date: 6/13/2011 3:33:59 PM

Since when is the problem confined to federal agencies? This is indicative of the problem with the whole SAP, it assumes that the only actions or decisions that matter are at the federal level.

 Number: 5 Author: imperialm Subject: Sticky Note Date: 6/13/2011 3:35:24 PM

This can be done now. Why would we want to put off making better decisions to the future? The reality is that we need to make decisions everyday without perfect information. This should be the highest priority of all of the actions.

 Number: 6 Author: imperialm Subject: Highlight Date: 6/13/2011 3:34:18 PM

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- <sup>1</sup> Methods and metrics that integrate the social and natural sciences are developed.
- <sup>2</sup> Knowledge of human behavior, attitudes and preferences, societal values, economics, and human use of and dependence on ecosystem services is routinely acquired and incorporated into ecosystem assessments, decision-making, and management of ocean, coastal, and Great Lakes resources.
- <sup>3</sup> Public attitudes and preferences are routinely incorporated into ecosystem assessments, policy, and management decisions.

#### <sup>4</sup> 4. Milestones

- <sup>5</sup> Develop one or more pilot projects that use socioeconomic and natural sciences to identify, develop, and test valuation frameworks for ecosystem services.
- Based on the results of the pilot projects, develop a framework for valuing the ecosystem services of the Nation's critical ocean, coastal, and Great Lakes resources.
- Perform trends analyses to characterize human interactions with the ocean, coasts, and Great Lakes and identify 'cutting edge' issues, with intent to maintain relevant data collection and analyses for the long term.
- <sup>6</sup> Apply, adapt, or <sup>7</sup> develop two new decision-support tools that integrate information from natural and social sciences and are targeted toward improving the ability of Federal, State, and Tribal authorities to meet their economic, environmental, public health and safety, social justice, and equity objectives related to ocean, coastal, and Great Lakes resources and uses.

#### 5. Gaps and Needs in Science and Technology

- More robust approaches to incorporate natural and social science perspectives and information in ongoing research, and policy development to support ecosystem-based management and restoration.
- More quantitative data on ecosystem processes, functions, and services, such as for different landscape and habitat types and under different environmental conditions.
- <sup>8</sup> More broadly accepted methods for determining monetary and non-monetary values of ecosystem services that are relatively inexpensive and easy to implement and for the public to understand.

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-  Number: 1 Author: imperialm Subject: Highlight Date: 6/13/2011 3:35:49 PM
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-  Number: 2 Author: imperialm Subject: Sticky Note Date: 6/13/2011 3:36:40 PM  
The reality is that these things already occur, just not to the extent desired. You need to specify what will change if we make more informed decisions
- 
-  Number: 3 Author: imperialm Subject: Sticky Note Date: 6/13/2011 3:38:24 PM  
What if the public attitudes run counter to the science?
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-  Number: 4 Author: imperialm Subject: Highlight Date: 6/13/2011 3:36:53 PM
- 
-  Number: 5 Author: imperialm Subject: Sticky Note Date: 6/13/2011 3:37:04 PM  
These read like recommendations
- 
-  Number: 6 Author: imperialm Subject: Sticky Note Date: 6/13/2011 3:39:24 PM  
Assumes that they are transferable? What is needed in each decision process is likely to be different.
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-  Number: 7 Author: imperialm Subject: Highlight Date: 6/13/2011 3:38:45 PM
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-  Number: 8 Author: imperialm Subject: Highlight Date: 6/13/2011 3:39:58 PM
- 
-  Number: 9 Author: imperialm Subject: Sticky Note Date: 6/13/2011 3:40:54 PM  
There really are a lot of generally accepted models (e.g., IMPLAN) but the problem is often not having data at the scale needed or the lack of training or use of the models by decision makers.

## **Index: Attachments to Comments**

### **All 9 SAPs:**

Comment of Merrick Burden, Executive Director, Marine  
Conservation Alliance

(12 pages)

DRAFT: July 1, 2011

Ms. Nancy Sutley, Chair  
Council on Environmental Quality  
722 Jackson Place, N.W.  
Washington, D.C. 20503

Dear Ms. Sutley:

The Marine Conservation Alliance (“MCA”) submits these comments in response to the call for public comments on the Strategic Action Plans (“SAPs”) developed by the National Ocean Council (“NOC”). MCA is a broad-based coalition of harvesters, processors, coastal communities, Community Development Quota organizations, and support service businesses involved in the groundfish and shellfish fisheries of Alaska. MCA was formed to promote the sustainable use of North Pacific marine resources by present and future generations. MCA supports research and public education regarding the fishery resources of the North Pacific and seeks practical solutions to resource conservation issues.

MCA has long supported conservation actions to improve and enhance our nation’s marine resources and the environment. This includes ocean “zoning” as part of the fishery management process under the Magnuson-Stevens Fishery Conservation and Management Act (“MSA”). We see potential benefits in enhanced coordination and dialog among agencies and constituents regarding our nation’s precious ocean resources. To that end, we are generally supportive of efforts which work at enhancing such coordination. However, MCA is unable to support the proposed NOC policy as currently written with its new, top heavy bureaucratic structures. The new policy would appear to:

- be costly to the economy with little additional conservation benefit;
- create a new, redundant, and expensive bureaucracy;

- frustrate transparency in decision making; and
- appears contrary to existing law, and will only serve to increase the potential for unnecessary litigation.

The NOC should be clear that SAPs and related policies are advisory only and that existing authorities and regulatory processes will retain primacy. This is particularly true for the Regional Fishery Management Council process under the MSA. The NOC should abandon its proposed role as final arbiter for ocean management. The NOC should instead seek to enhance existing regional efforts including those of the Regional Fishery Management Councils without this top-down approach.

Our specific comments follow.

**I. THE PROCESS BY WHICH THE NOC IS DEVELOPING ITS POLICIES IS NEITHER OPEN NOR TRANSPARENT**

Although the NOC has established a 30-day comment period on the SAPs, the reality is that the public comment process as structured is ineffectual because the SAPs provide virtually no substantive details on which to comment. For example, the Arctic SAP sets forth six proposed actions to implement separately established priority objectives. The six proposed actions are: (1) improve emergency response to oil spills and other accidents, (2) gather information on changes in Arctic sea ice, (3) establish a biological observatory to gather information on Arctic environmental conditions, (4) improve maritime communication systems, (5) improve Arctic mapping and charting, and (6) improve coordination on Arctic Ocean issues. Presenting these laudable general actions for public comment allows the NOC to say it has conducted an open public comment period and received near universal support. Who can be against improving coordination, communication, scientific data, and emergency response?

However, none of those general actions address the actual resource management issues that are critical –and on those issues public comment has not been sought.

The “Overview of the Priority Objectives” in the Arctic SAP identifies several priority objectives. For six of those priority objectives, the SAP presents the general action plans outlined in the preceding paragraph. However, the SAP sets forth two additional priority objectives for which no action plan item is set forth in the SAP. Those two priority objectives are (1) “environmental stewardship needs ... in light of climate and environmental change” and (2) “efforts to conserve, protect, and sustainably manage Arctic marine resources.” How these “priority objectives” are accomplished is nowhere discussed in the SAP. Thus, public comment on how the NOC proposes to accomplish these objectives is precluded, notwithstanding the fact that these are the critical resource management issues.

The NOC cannot respond to MCA and others by asserting that the six action items identified in the Arctic SAP are intended to also fulfill the two additional priority objectives identified in the preceding paragraph. The reason such a response fails is that each of the six action items in the Arctic SAP responds to a separately identified “priority objective.” Thus, each “priority objective” identified in the Arctic SAP corresponds to a specific action item – except for the two priority objectives identified in the preceding paragraph. As noted above, those are the two priority objectives that go beyond the general principles of improving data, communication, and coordination and which instead encompass actual resource management decisions. However, the SAP is devoid of any discussion on how the NOC plans to implement these two priority objectives and, thus, public comment is not allowed regarding these critical resource management issues.

In public fora, NOC representatives have indicated that this will all come later and there will be a “process” by which resource management actions, including marine spatial plans, are developed. But, here again, the NOC has failed to explain to the public how this process is translated into actual resource management decisions. To use a specific example, what happens at the end of all of the process if a Regional Fishery Management Council (“Council”) established under the MSA declares an area open to fishing and the NOC plan closes the area to fishing? Which resource management plan prevails?

In public fora, NOC representatives have stated the NOC has a planning process and issues such the above are not ripe for decision or public discussion. That response fails to answer the question. The question assumes the process is complete and that two competing resource management policies are on the table. The question is whose policy prevails?

Section 1 of Executive Order 13547, 75 Fed. Reg. 43023 (July 19, 2010), “directs executive agencies” to implement NOC recommendations. However, the MSA establishes specific standards to be used by the Secretary of Commerce (“Secretary”) in approving or disapproving a fishery management plan (“FMP”), including the designation of areas open and closed to fishing. The MSA provides that if the Secretary disapproves a Council FMP, the Secretary “shall specify ... the applicable law with which” the proposed FMP is inconsistent. 16 U.S.C. §1854(a)(3). The legal question, unrelated to the process by which the NOC develops its policy, is whether a marine spatial plan developed by the NOC process is considered other applicable law, thereby forcing the Secretary to disapprove the Council FMP which opens areas to fishing that the NOC marine spatial plan marks for closure.

In non-public fora, NOC representatives have stated that in this fact pattern, the NOC marine spatial plan is other applicable law requiring disapproval of the Council’s FMP. If that is

the case, then the NOC Arctic SAP priority objective of developing plans to “manage Arctic marine resources” takes on a new legal meaning. In effect, the NOC process can become a substitute for the resource management process established by Congress in the MSA. The same issues arise in the context of statutes such as the Outer Continental Shelf Lands Act and other laws governing ocean resource management.

This legal issue of who has decision making authority is fundamental to the NOC’s purposes and functions and to the SAPs. It is an issue on which the NOC has neither sought nor allowed public comment. However, this question raises at least three critical issues which demand answers at the start of the NOC process, not at its end.

First, there are serious constitutional questions regarding whether an Executive Order has the same legal standing as a law duly approved by Congress and signed by the President. The power to pass and amend laws is vested by the Constitution with the Congress. If the purpose of the NOC plans, to be implemented via Executive Order 13547, is to constrain or override the statutory process and standards set forth in the MSA and in other statutes, it likely violates the separation of powers set forth in the U.S. Constitution. Treating NOC plans as recommendations is one thing. Treating them as other applicable law with which MSA FMPs must comply is entirely different. This legal issue must be addressed before the NOC process proceeds any further.

The second critical issue is the role of the public. Although the NOC purports to be an open and transparent process, stakeholder participation is not allowed. The NOC resource management plans are developed and approved by federal agencies in a top-down management system. No stakeholders sit at the decision table. Indeed, there are no rules or procedures requiring stakeholder input. Contrast that to the MSA process where Congress required that

stakeholders be part of the decision making process. Moreover, the MSA process, through the Council's and through the Secretary's review of FMPs, provides multiple opportunities for the public to provide input, not on general principles on which everyone can agree, but on actual management options that implement these principles. The old saying "the devil is in the details" becomes applicable. In the MSA process, the public addresses each detail and stakeholders sit at the decision table to vote on the details. This open and transparent process stands in stark contrast to the NOC process where stakeholders have no role, where public comments may not be sought, and where, if the past is prologue, public comments are sought only on general principles and not the key detailed issues. Indeed, it can be argued that the NOC process constitutes a direct amendment to the MSA replacing the MSA's extensive public stakeholder process with a new and less open process.

The third critical issue raised by the legal status of the NOC process and the resulting resource management plans is who decides what is the best scientific information on which management decisions are to be made. Many statutes require the use of the best scientific information. *See, e.g.*, 16 U.S.C. §1851(a)(2). However, Executive Order 13547 directs the NOC to use the precautionary principle set forth as Principle 15 in the 1992 Rio Declaration. That principle states: "Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation." The statement that the NOC will employ the precautionary principle in the Rio Declaration when developing resource management plans raises issues of legal and interpretive significance.

One such issue involves the risk assessment trigger under the Rio Declaration that there is a "serious" threat of environmental damage. "Serious," like "beauty," may be in the

eye of the beholder and the use of this ill defined standard will lead to arbitrary and inconsistent decisions regarding when to apply any precautionary principle. Webster's New Collegiate Dictionary defines "serious" as "relating to a matter of importance" or "having important or dangerous possible consequences." Clearly, the word "serious" has some meaning more than detectable or known. There must be some consequential impact that rises to a level of significance or substantiality. The National Environmental Policy Act speaks of "major" actions "significantly affecting" the environment. The Resource Conservation and Recovery Act speaks of "imminent and substantial" endangerment. The Endangered Species Act is framed in terms of jeopardy to the very survival of the species. Which of these standards, or other standards, is the proper frame of reference for the legally untested concept of "serious"? Alternatively, are we to employ the well understood judicial injunction standard of irreparable harm? These issues merit further and focused debate.

Further, what are the factors weighed in any determination of what constitutes a "serious" matter? Is the impact on fish and wildlife or natural processes the only measure of "serious" or is that evaluation to be made in a larger context of the entire human environment. That larger context would include benefits to humans, including economic or similar benefits, that result in an overall balancing of interests to determine what is "serious"? A thing may appear "serious" only if a larger context is not provided. Given the absence of analysis regarding the need for marine spatial planning discussed below, one can only conclude that marine spatial planning advocates promoting this policy do not wish to consider the larger context.

In addressing this important risk management threshold, the Rio Declaration states "the lack of scientific certainty" shall not be a reason for postponing actions. This raises the issue of

the level of scientific certainty that is to be applied in making the “serious” determination. American jurisprudence is based on the principles of preponderance of evidence and beyond a reasonable doubt. The intent of the Executive Order and the NOC process appears to be to establish a new evidentiary standard that is less than the preponderance of evidence. Is that evidentiary standard to be some evidentiary basis even if it is a view held by a small minority? Is it to be a plausible belief or something else? If the great weight of evidence says there is no “serious” issue but a few minority opinions hold to the contrary, does this constitute scientific uncertainty justifying regulatory action?

In addition, to whom is assigned the burden of proof regarding whether there is a “serious” effect? Does the opponent of an action bear that burden or is it up to the proponent to prove by some unknown evidentiary standard that there is no “serious” impact? Placement of the burden of proof is not an insignificant legal matter. Further, it is inextricably intertwined with the issue of what level of proof is required.

Assuming these issues are somehow resolved, any Executive Order or other document seeking to implement the Rio Declaration must recognize and fully implement the standard in that Declaration that only “cost-effective” measures may be adopted “to prevent environmental degradation.”

In sum, embedded in the NOC SAPs process are numerous legally important issues that need to be addressed. Sadly, the NOC has invited public comment on none of them.

## **II. WHY DO WE NEED A NEW MARINE SPATIAL PLANNING PROCESS?**

In addition to the fundamental legal questions discussed above, MCA and the public have yet to receive an answer to the question of why a new marine spatial planning process is necessary.

There is no analysis in NOC documents to support the assumption that some new ocean governance system is required. In the North Pacific, such an assumption regarding fisheries management ignores the long record of North Pacific fisheries in sustainable production. In that regard, a review of the North Pacific fisheries is in order.

North Pacific fisheries are managed pursuant to the MSA. Under that statute, the North Pacific Fisheries Management Council (“NPFMC”) develops FMPs that are implemented if approved by the Secretary, acting through the National Marine Fisheries Service (“NMFS”). The MSA has detailed provisions prohibiting overfishing and providing for the identification and protection of essential fish habitat.

The NPFMC is comprised of federal and state government officials and knowledgeable individuals appointed by the governors of Alaska, Washington, and Oregon. Before making management recommendations, the NPFMC receives recommendations from its Scientific and Statistical Committee (“SSC”), comprised of scientists and fishery management experts, and from the public through an extensive public comment and hearing process that can extend 12 months or more. The NPFMC has never allowed a harvest level in excess of the recommendation of its scientific advisors.

North Pacific fisheries are managed with the first priority given to conservation and to maintaining a sustainable resource. There are no overfished stocks of groundfish in Alaska. Fisheries are managed with hard limits on harvest and are closed when the harvest limit is reached. Federal observers and electronic vessel monitoring systems, coupled with Coast Guard and NMFS enforcement, ensure compliance with any closure.

Ecosystem considerations are taken into account in the development and implementation of fishery management plans. For example, fishing on forage fish species is

prohibited and measures are in place to protect endangered and threatened species, marine mammals, and seabirds. Our fishery managers have closed over 600,000 square nautical miles (794,576 square miles) in order to protect marine habitat. This is an area over five times the size of the entire National Park System. Significantly, these extensive closures do not include additional seasonal and gear limitations designed to protect the marine ecosystem and its resources.

The overall result of the scientifically based, conservation oriented approach to North Pacific fisheries management and ecosystem protection is that these sustainable fisheries are a major economic force in the region and the country. The question the NOC fails to answer, or even consider, is why we need to overlay a new marine spatial planning program on top of the existing MSA management program. The NOC has provided no analysis of why the existing MSA statutory and regulatory mechanism is legally inadequate. Absent any such analysis the only answer is that marine spatial planning proponents simply want to erect a new system that will be more restrictive, without any showing of why that is necessary.

Related questions arise with respect to other laws that also already provide for ocean use planning. For example, the Outer Continental Shelf Lands Act has an extensive planning and public input process that begins with the identification of areas appropriate for energy development. These geographic leasing plans are followed by carefully scrutinized exploration plans that are in turn followed by detailed development plans. All are subject to a transparent and open public comment and review process. Areas are effectively zoned for energy development. The NOC has failed to identify the legal inadequacy of this program that justifies a new marine spatial planning program, leaving the only conclusion that proponents of marine spatial planning do not like the results and want a new and more restrictive policy that will have

the effect of reducing this nation's energy production and furthering our immediate economic dependence on imported energy.

Similarly, the Coastal Zone Management Act contains a process by which the federal government approves a state's coastal zone management plan pursuant to explicit statutory standards. Federal activities occurring in a state's coastal zone must be certified by the state as consistent with its coastal zone management plan. Again, proponents of marine spatial planning fail to explain how this existing statutory program is legally inadequate, leaving the only conclusion that marine spatial planning proponents do not like the results and seek a new mechanism to restrict activities in coastal zone areas.

### **III. CONCLUSION**

The request for comments on the SAPs is premature for three principal reasons. First, before proceeding to SAPs, the NOC must address the fundamental question of why there is a need for this process, particularly its marine spatial planning component. Second, the NOC must address the fundamental question of what is the legal basis for, and impact of, these NOC plans. Until those threshold questions are resolved, the NOC process cannot, and should not, continue. Finally, before proceeding further, the NOC must provide the public with sufficient details on which to comment. As noted above, the principles on which the public is asked to comment in the SAPs are so general and so lacking in detail as to preclude meaningful public comment and analysis. Indeed, as noted with respect to the Arctic SAP, the SAPs sometimes simply state a generalized objective such as conserving marine resources with which no one can disagree but fail to provide any explanation of how the NOC will accomplish that objective. Until those details are provided, public comment cannot be meaningful.

MCA urges your agency to terminate the NOC process as now constituted and to address the fundamental issues discussed above. Only then can we proceed to discuss how the NOC relates to the important ocean conservation issues before us.

Sincerely,

A handwritten signature in black ink, appearing to read 'Merrick Burden', written in a cursive style.

Merrick Burden  
Executive Director

## **Index: Attachments to Comments**

### **All 9 SAPs:**

Comment of Marine Fisheries Advisory Committee

(7 pages)



## Comments on the National Ocean Council Strategic Action Plan Full-Content Outlines

The Marine Fisheries Advisory Committee (MAFAC) is a 21-person Federal Advisory Committee appointed by the Secretary of Commerce to advise the Department and NOAA on living marine stewardship issues. MAFAC has received multiple briefings from senior Executive Branch leaders on the National Ocean Policy, and discussed at its May 2011 meeting the opportunity to comment on the nine Strategic Action Plan (SAP) full-content outlines. MAFAC met in public session again on June 27<sup>th</sup> and adopted these consensus findings and recommendation on the SAP outlines.

MAFAC is a strong proponent of improving the sustainability of our oceans. Like the National Ocean Policy goals, our focus is on facilitating the greatest possible uses and value from our ocean resources for current and future generations. Our actions and advice to the Secretary of Commerce and NOAA on living marine resource stewardship policies reflects our ongoing commitment to this objective.

The Committee has given the nine strategic plan outlines a careful and thoughtful review. We acknowledge the tremendous amount of work and energy that has been expended to date in developing a way forward on implementation of the new National Ocean Policy. While there are many principles and goals proposed in the outlines the Committee can agree with, it is difficult from the outlines to endorse them without more detail on the specific actions, responsibilities and costs of each plan. In addition, given the interdependencies of the nine objectives, there is a lack of synthesis and integration across the outlines that gives us some concern. We encourage the actual plans to provide more details and focus on how these plans will advance our nation beyond the status quo, how the plans interact with each other, who will carry out these plans, and how the plans will be paid for. In both the further development of the SAPs and the implementation of the plans, experts in the various fields as well as stakeholders will need to participate.

Our comments are divided into two parts: categorical comments that apply to all nine strategies, and plan-specific sets of comments on seven of the nine outlines. We appreciate the opportunity to comment and look forward to reviewing the draft plans later this summer.

### General Comments on Outlines

The following list of comments is relevant to all nine Strategic Action Plan outlines.

**Legal Impediments:** The SAP outlines give no recognition or assessment of the legal obstacles (legislative and regulatory) associated with implementing the action plans, and what actions may be necessary to remove or mitigate such roadblocks to success. This should be a standard element of each outline.

**Communication:** Inadequate emphasis on public education and outreach strategies is a flaw in all the outlines. Since improved public ocean literacy is a critical success factor for all the strategic plans, more specific communication and education actions need to be included for each of the nine objectives, not just the "Inform and Understand" objective.

**Benefits Relative to Costs:** Provide more overarching context to make the case for supporting the SAPs. More specifically, explain what specific net benefits will be produced relative to the status quo, especially through the use of specific examples rather than generalized improvement statements.

**Resources:** Explain in more detail the guidance to federal and state agencies on how to prioritize funds and support the new costs associated with the NOP and Coastal and Marine Spatial Planning (CMSP) without a corresponding negative effect on current mission priorities. Within each outline, all the actions are assumed to have equal weight when in fact prioritization of actions and desired outcomes will be an essential part of each plan.

**Division of Labor:** More clearly articulate roles and responsibilities (e.g., who does what?) of the different federal and state agencies and tribes. The SAPs are so "high level" that it is not apparent what they actually accomplish.

**Specificity:** More clearly articulate specific action items within each SAP. Lacking more details on actions and outcomes, it is difficult to evaluate and comment. One may agree in principle but where there are multiple paths to reach an outcome, without a stated preference it is impossible to endorse the outline as sufficient. A meaningful policy should consist of a four step cycle: (1) assessment of existing information; (2) planning based on that information; (3) implementation of policy solutions; and (4) feedback and evaluation of the implemented solutions; followed by a return to step (1).

**Engagement:** MAFAC supports the many actions throughout the SAPs calling for stakeholder and public engagement and participation. Expand with specific examples how the SAPs will embrace a bottom-up approach by more fully articulating the mechanisms through which public, industry and sector stakeholders can engage. Currently the need for SAPs and process ideas included in the SAPs are being generated and/or prescribed as a federal initiative, with a desire to obtain stakeholder support after the fact.

**Reduce Length/Complexity:** The nine outlines almost consume 100 pages; the eventual plans themselves will be even longer and more cumbersome. There is a lot of overlap and duplication in the strategies that could be eliminated if several of the SAPs could be combined and streamlined with a goal to reduce redundancy and overall wordiness of the SAPs. In addition, the length and complexity may unintentionally prejudice less organized, smaller constituencies from full participation in the action plan processes relative to large lobbyists, trade associations and other bigger stakeholder organizations with professional staff and fiscal resources. We encourage efforts to engage the smaller stakeholders, and the inclusion of an Executive Summary in the final document.

**Near term Focus:** Implementation of the NOP is a long term proposition that is best handled in small manageable chunks. The SAPs should provide additional focus on near-term actions, to ensure the initial resource investments are feasible and with worthwhile measurable outcomes, without raising false expectations about long term benefits that may never be realized for political, budgetary and timing reasons.

**Consistent Timeframes:** The duration of the timeframes outlined in the SAPs should be checked for consistency to ensure that near, mid, and long-term actions have the same meaning throughout the document. In addition, MAFAC encourages the NOC to define more clearly the sequence in which these actions will be implemented since it appears that order is important.

### **SAP- Specific Comments on Outlines**

#### **SAP #1- Ecosystem Based Management**

- More clearly define the expected benefits of EBM and what it means in practical terms relative to current management practices. More use of case examples would be helpful in the full plan. As currently written, the outline overly emphasizes planning and collaboration without ever demonstrating what EBM is and how it is a better way to manage our oceans. [Wallace, Morris]
- Identifying regulatory and legislative hurdles to ecosystem management will require some big -- and controversial -- thinking. The Endangered Species Act requires analysis of effects to critical

habitat for a listed species. The Marine Mammal Protection Act means there can never be too many whales or seals. These are single species concepts, not ecosystem concepts, which are locked in by statutes. For example, a particular sea grass in critical habitat may really be essential to one species, but what if changes in nutrients or salinity would kill the sea grass, yet be better for a host of other species? Our environmental laws have difficulty with the concept of collective net benefit.

- There are many good points referenced in the outline :
  - Identifying key geographic areas will be good.
  - Providing EBM decision tools will be helpful.
  - Adaptive management is important for living resources
  - Establishing a work group to make sure agencies work well together will be helpful.
  - Combining natural science and social science as the basis for management and modeling is a sound approach.
- There is no mention of likely increased costs of applying ecosystem concepts to management decisions in terms of additional data collection, model development, scientific analysis, and policy debate (think setting quotas, not based on maximizing harvest, but to allow enough fish for other species to eat as forage.) If there is no new money for EBM, what will not get done to pay for it? Many coastal states are concerned about this potential funding liability.

## **SAP #2- Coastal and Marine Spatial Planning**

- Given the current fiscal restraints facing this country, establishing nine RPBs and developing initial CMS plans by 2020 may prove to be a challenge. Therefore, MAFAC recommends that the National Ocean Council supports the early investment of resources in targeted region(s) to demonstrate both the process and the success of CMSP. The goals of such an early investment should be to demonstrate robust and effective stakeholder engagement and participation, as well as demonstrate an equitable and transparent CMSP process.
- The regional process for determining and prioritizing suitable uses of marine ecosystems include consideration of the value and continuance of current and traditional uses, particularly commercial, recreational, aquaculture and subsistence fisheries. The weights/priorities given to existing versus future uses or the means to determine the relative values of these choices is a critical piece of guidance that is missing.
- MAFAC endorses the use of a scientifically grounded GIS modeling program to serve as an important tool in involving the widest range of stakeholders in Marine Spatial Planning. We therefore support the development of the National Information Management System and the incorporation of information and data from various stakeholders. We recommend that NOAA and other federal agencies work with ocean stakeholders to ensure that data provided to the NIMS is robust and in a format that addresses privacy concerns of stakeholders.
- More clearly explain the adaptive capabilities of CMSP; how can it account for the dynamic nature of living marine resources and their natural cycles such as fisheries abundance changes over time.
- A new set of federally-driven regional planning bodies may fail to make much progress. They will need to overcome a long history of agencies acting independently with competition instead of collaboration.
- The lack of membership of Regional Fishery Management Councils on the regional planning bodies may be a fatal flaw, as Councils have been exercising spatial management and regulatory responsibilities in the US EEZ for over 35 years. This unique experience and expertise has to be represented directly in the RPB process.
- Science needs should be focused on linkages, interactions, spatial effects, and cumulative impacts. Additional emphasis is needed on tradeoffs and valuation. This research will address the current gap between data and policy.
- More clearly define the goals of the Regional Planning Bodies. Two important concepts here are preserving beneficial ocean use but reducing costly litigation. Unfortunately, one person's beneficial use is another person's nightmare. For example, off-shore wind energy may be

desirable for some, but spoils ocean views for others. And in environmental law, even just one upset, outlying stakeholder can produce years of costly litigation. Defining beneficial use with less litigation might require a mediated or stakeholder driven rulemaking process, and also require Congressional action limiting the rights of individuals to contest the rules and actions through citizen suits.

### **SAP #3- Inform Decisions and Improve Understanding**

Action 1: Prioritize research based on “Science for an Ocean Nation.”

- There should be a link to the “Science for an Ocean Nation” document.

Action 2: Provide science to support emerging sustainable uses.

- Need more specific sustainable uses outcomes; currently they are too generic.
- In the milestones, specific emerging uses are identified: aquaculture, IOOS renewable technology, and wind energy. Some interests will question whether these are sustainable uses and the science will likely be contested.

Action 3: Provide science support for managers and policy makers

- Spatially explicit decision support tools would be very valuable.
- An interagency team is proposed to assess needed research and training. This will be a daunting task at the national level. Doesn't the “Science for an Ocean Nation” set research priorities?
- Training curricula will be developed, but who will deliver the training and who will be trained?
- An inventory of decision support tools could be useful, but who will use them?

Action 4: Develop human capacity and the workforce

- Providing intentional support for students in high school and college who study coastal and ocean management is a forward-looking idea.
- The focus on underrepresented youth meets general federal priorities but doesn't specifically help oceans or coasts.
- Should document downward trends in numbers of students studying oceans and coasts to justify that this emphasis is necessary.

Action 5: Increase ocean literacy

- What are the Ocean Literacy Essential Principles?
- Connecting ocean scientists with ocean educators would be a good thing.
- Milestones with greater specificity are more likely to be accomplished. The broad generic milestones will be harder to accomplish, or even measure for accomplishment.

Action 6: Engage in Ocean Exploration

- How will areas be chosen for five new expeditions in poorly known areas with discoveries communicated to scientists and public?
- Good to mention generic strategies for cost-sharing.

Action 7: Integrate social science and natural science information

- Focus on valuation systems for ecosystem services.
- What does it mean to “analyze trends for human interactions with the ocean and coasts and identify “Cutting Edge” issues”? Specific examples would be useful.
- Managers need new decision support tools to integrate social and natural science. Fishery management assesses stocks, but does a poor job of predicting fisherman and angler behavior and this often leads to management failures.
- It would be great to have methods to determine monetary and non-monetary values for ecosystem services that are easy for the public to understand. The public has a hard time understanding economic analyses, or, they are cynical about many economic methods to determine monetary values.

- MAFAC supports the actions to fill critical data gaps, especially sea level rise, CMSP, and EBM, and the development of decision support tools for government and stakeholders.

#### **SAP #4- Coordinate and Support**

**No comment**

#### **SAP #5- Resiliency and Adaptation to Climate Change and Ocean Acidification**

- Comments on Action 1: This section is focused on forecasting and the future. In order to provide critical information about impacts, consider adding a summary of examples of living resource and human community responses to climate changes that have occurred over the past 20 years: e.g., flounder catches in Texas shifting northward, correlated with temperature increases in coastal waters; public expenditures for retrofits of storm sewer infrastructure built a century ago that no longer drain during daily high tides; etc.
- Comments on Action 2: Forecast impacts. Improved projections of changing currents, rising sea level, and shoreline changes are very important for managers.
- Comments on Action 3: Strengthen ocean observing – this is very important for climate models and closing the cone of uncertainty around forecasts.
- Comments on Action 4: Provide timely climate change information to support decision making.
- Comments on Action 5: Assess vulnerability – this is necessary to figure out the priority places for adaptation strategies.
- Comments on Action 6: Deploy and assess resilience and adaptation strategies
  - What is “gray infrastructure”?
  - This section should call for a reassessment and reframing of the federal investment in the beach renourishment program in the context of projections of rising sea level.
- The scientifically appropriate desire to identify uncertainty also can be misused as an excuse for inaction. In Florida, the implications of even a best case two-feet of sea level rise are catastrophic. The uncertainty bands should be used with caution, and in a way that helps policymakers confront the difficult but necessary risk management decisions.
- While individual MAFAC member’s stance on climate change origins varies, the Committee appreciates the SAP emphasis on climate change preparedness. We suggest that this SAP needs to establish:
  - A system of frequent, non political, published audits of the accepted climate models by a panel of experts drawn from across disciplines and agencies. This will allow the nation to constantly refine the official predictions of future climate conditions to allow the best use of the nations limited economic resources.
  - Increased non-agenda-driven (non-advocacy) information dissemination.
  - Recognition of the expected drain on scientific and financial resources as agencies deal with increased Endangered Species Act consultations as ocean use decision making increases.
- Land use decisions must be part of the adaptation discussion; otherwise, our fisheries will not have estuaries.

#### **SAP #6- Regional Ecosystem Protection and Restoration**

**No comment**

#### **SAP #7- Water Quality and Sustainable Practices on Land**

- Action 1: More clearly explain how nutrient pollution will be reduced. Will this be mandated by an agency? Which one? Who will establish the priority watersheds? Will there be an emphasis on a specific watershed (e.g., Chesapeake and Mississippi)?
- Action 2. More clearly explain how urban sources of nutrient pollution will be reduced. This document suggests a "reform of the standards for urban MS4 permitting", what does that mean to the average citizen?

- Action 3. Reducing nutrient pollution is a worthy goal. But it is expensive. More treatment, more retention, more detention, all means more land acquisition and more construction and more permitting. What are the economic consequences of the proposed actions?
- Action 4. More clearly define what agencies will be charged with trash reduction.
- Fully addressing upstream effects on downstream water quality could require modifying the Clean Water Act, which currently exempts many agricultural activities from regulation. Merely enhancing Best Management Practices is likely insufficient.
- No specific mention in this SAP of nurdles and the enormous problem of microplastic bits in the ocean. Which other SAP is handling this issue?

#### **SAP #8- Changing Conditions in the Arctic**

- While the Arctic should be a National priority, the SAP may be too ambitious for the current budget climate.
- If the Arctic does continue to shrink, commercially sustainable fisheries already developed to the south could shift north. For example, the North Pacific Regional Fishery Management Council has declared the EEZ waters in the Arctic Ocean under their jurisdiction as closed to commercial fishing. If fisheries in the Aleutian Islands continue a northward extension of their range into Arctic waters, and the Arctic has been made off-limits, then these fisheries of Aleutian Islands-origin would unnecessarily be prohibited. Therefore, it is important to emphasize the need for adaptive management with periodic re-evaluation/adjustment as necessary for the goals and outcomes of the SAP and the MSA.

#### **SAP #9- Ocean, Coastal and Great Lakes Observations, Mapping and Infrastructure**

There are many good points referenced in the outline:

- Support all of the other 8 priority objectives.
- Integrated system of observing systems
- Timely integration and dissemination of data

Action 1: Status of the Oceanic Fleet

- It makes sense to align the research fleet priorities with the research priorities of the National Ocean Policy.
- What is the rationale for a special focus on the Arctic? New ship designs to improve operational efficiencies sound like they will be expensive. What are the efficiencies needed?

Action 2: Status of unmanned and remote sensing systems

- The outline includes many details about unmanned systems and few details about remote sensing. There should be more discussion of remote sensing. An inventory of available unmanned systems that could contribute to ocean policy priorities would be valuable.
- What is the meaning of, "Autonomous operations of individual and swarms of unmanned systems"?

Action 3: Use advanced observation and sampling technologies to study global processes at all scales.

- This is a very important set of tools for understanding ocean currents, climate, and living resources.
- Adding value to currently funded observing and sampling processes is an excellent idea.
- The several data management and communication tasks included in the action are logical and necessary, especially integrate short-term data with long term ocean observing, and inventorying data and facilities that fall outside of normal assessments.

Action 4: Integrated Ocean Observing system IOOS

- This will likely be costly, but will have significant benefits for many objectives of the Ocean Policy - EBM, Arctic, CMSP, Informed Decisions.

- It is unclear how IOOS improves socio economic information to quantify benefits of a better ocean. Will IOOS observe social and economic uses of the ocean?

Action 5: Coordinate and leverage ocean and coastal mapping efforts.

- These outcomes and milestones are logical and understandable and will support better decision-making and ocean management. They include:
  - Identify mapping gaps and better allocation of mapping resources
  - Complete inventory of current federal mapping services – clearing house, registry
  - Need better mapping of shallow seafloor, turbid waters, wetland shallow bathymetry and topography
  - Merge multiple sources of seafloor and land data to characterize environments

Action 6: Integrated observation data management system

- A large integrated end-to-end data service may be so big that it is vulnerable to failures. The federal government should be the source for authoritative observation and mapping data.
- What is the IOOS Blueprint for Full Capability, which will serve as a model for data management?
- Data archives, ready access, and data interoperability to facilitate sharing across agencies and partners will all be valuable.

## **Index: Attachments to Comments**

### **All 9 SAPs:**

Comment of Miyoko Sakashita, Ocean Program Director,  
Center for Biologic Diversity

(12 pages)



*Via White House Website*

June 23, 2011

National Ocean Council

<http://www.whitehouse.gov/administration/eop/oceans/sap/comments>

**Re: Strategic Action Plan Comments**

Dear National Ocean Council:

On behalf of the Center for Biological Diversity, we are pleased to submit comments on the strategic action plans. We applaud the work of the task force in its efforts to highlight and develop a national policy for our oceans. The oceans are the source of rich biological diversity, important wildlife habitat, and complex ecosystems. Our oceans are our natural heritage, their conservation is vital to support healthy marine ecosystems and the human communities that depend on them. We support the implementation of the strategic action plans and offer the following specific comments.

Foremost, the action plans must provide the following priority objectives:

- Proactive and comprehensive approach to prevent climate change and ocean acidification, including the goals to rapidly reduce carbon dioxide pollution.
- Strong emphasis on the conservation of biological diversity and environmental protection.
- Existing environmental laws should be fully employed and coordinated.

**Strategic Action Plans**

**1. Ecosystem-Based Management**

Effective ecosystem-based management is necessary to ensure the long-term viability of coastal and marine resources, yet presents significant challenges. Viable management must be based on a thorough scientific understanding of the ecosystem in question, including the behavioral and trophic interactions of species comprising the ecosystem, as well as biogeochemical processes that influence the system (Crowder and Norse 2008). It is also necessary to understand linkages between habitat areas, such as source and sink habitats for larvae (*id.*). If ecosystem-based management is to be effective, significant resources will have to be dedicated to scientific research to expand our knowledge of ecosystem components and processes. Scientific understanding must be the governing basis for any ecosystem-based management plan.

Specifically, in Action 4 the application of the precautionary principle will be absolutely crucial to the success of ecosystem-based management. Ocean and coastal ecosystems are quite complex and most are not fully understood. The greater the uncertainty regarding the effects of a given activity on an ecosystem, the more cautious management measures must be (Pikitch et al. 2004). In addition, ecosystem-based management plans must include mechanisms to continuously monitor the health of the ecosystem and any impacts from resource uses, and provide a ready mechanism for reassessing permitted uses in light of new data.

## **2. Coastal and Marine Spatial Planning**

We support efforts to implement marine spatial planning in order to protect key habitat areas and reduce conflicts between conservation of marine biodiversity and other marine resource uses. As with ecosystem-based management, a successful marine spatial planning effort will require extensive research and analysis, careful weighing of ecosystem values, and application of the precautionary principle. The strategic action plan here does not provide adequate assurances to protect and conserve ocean resources when planning. Management decisions must be governed by the precautionary principle, especially where we lack thorough knowledge of an area or system.

Ocean zoning efforts will necessarily entail some tradeoffs between resource uses. It will therefore be necessary to assess the full range of services provided by a particular ecosystem and weight the likely impacts of proposed activities on those services (Halpern et al. 2008). Such ecosystem services include more readily measurable benefits such as protecting coastal areas from storm surge, improving water quality, and providing food sources, as well as equally valuable but difficult to quantify benefits such as conservation of biodiversity and aesthetic and spiritual value. The plan must prioritize the protection of the full range of ecosystem services and make clear that economic benefits, particularly in the short term, will not be given greater weight than long-term ecosystem health and sustainability.

Because most marine systems are subject to multiple stressors, any impact assessment must take into account the cumulative effects of all activities and other stressors on ecosystem services. In particular, impacts must be evaluated in light of any changes likely to occur in the ecosystem due to climate change and ocean acidification. We agree with Halpern et al. (2008) that ocean zoning can and must be used to address these large-scale ecological threats:

For stressors that are outside jurisdictional boundaries, zoning can at least partially address these threats by acknowledging and accounting for the ways these stressors interact with local and regional stressors. For example, sea level rise may decrease the available sea turtle nesting habitat, such that other stressors to turtles (such as long-line or trawl fishing) should probably have tighter restrictions than would be needed without climate change as a concurrent stressor.

Where information is lacking, managers must err on the side of protecting the ecosystem until new information demonstrates that the cumulative effects of any proposed activity are

unlikely to cause significant harm.

A marine spatial planning policy should clearly and explicitly prioritize the protection of certain valuable habitat types. These include:

- Critical habitat designated for species listed under the Endangered Species Act, 16
- U.S.C. § 1531 *et seq.*
- Source habitats that produce fish and invertebrate larvae and sink habitats where the larvae settle and grow
- Spawning areas (such as the bluefin tuna spawning grounds in the Gulf of Mexico) and breeding and nursery grounds (such as southeast U.S. waters for the North Atlantic right whale)
- Foraging grounds
- Migratory corridors
- Unique or highly diverse or productive habitat areas

In some areas, ensuring long-term ecosystem sustainability may necessitate prohibiting certain uses altogether. For instance, marine spatial planning provides a way to reduce fisheries bycatch and protect habitat by prohibiting the use of destructive or non-selective fishing gear, such as trawl gear, in important habitat areas (Pikitch et al. 2004; Crowder & Norse 2008). Bottom trawling causes such habitat destruction and collateral damage to non-target organisms that it is incompatible with virtually any other marine resource use.

In other cases, marine spatial planning could be used to identify important habitat areas and conflicting uses as a first step towards developing other means to better regulate activities that harm conservation and other resource uses. For instance, blue whales, fin whales, and other protected marine mammals are known to use the waters off the southern California coast for feeding and migration. These areas are also heavily used by ship traffic going to and from the ports of Los Angeles and Long Beach. Marine spatial planning should be used to identify areas where whales and ship traffic co-occur and establish mandatory speed limits in these zones. This sort of planning would allow both uses, conservation and shipping, to continue while significantly reducing the danger of ship collisions to imperiled whales.

### **3. Inform Decisions and Improve Understanding:**

We support proposals with regard to informing decisions and improving understanding by increasing knowledge and public education about the oceans.

### **4. Coordinate and Support:**

We support better coordination of international, federal, state, local, tribal, and regional management of our oceans and coasts. However, since global warming and ocean acidification are a long-term and overarching threat to the marine environment the plan should specifically address the coordination of comprehensive efforts to reduce greenhouse gas pollution, not only

to adapt to it.

The plan should address

- coordinating strong targets for greenhouse gas reductions.
- tools for comprehensive reduction of greenhouse gas.
- support for coordinated efforts to reduce greenhouse gas emissions
- opportunities for international approaches to greenhouse gas reductions

## **5. Resiliency and Adaptation to Climate Change and Ocean Acidification**

Responses to ocean acidification and climate change are essential to address in the ocean policy; the strategic action plan fails to commit to true action to address these issues. First and foremost, the plans must emphasize the prevention of dangerous levels of ocean acidification and climate change. Adaptation efforts discussed in the plan will not be effective or have long-term success without comprehensive and rapid mitigation of greenhouse gas emissions to sustainable levels that do not jeopardize marine ecosystems.

Ocean acidification should be a particular focus since is irreversible on any practical timescale. Increases in ocean acidification will persist for hundreds of thousands to millions of years (Richardson et al. 2009). Already the oceans have become about 30 percent more acidic since preindustrial times and scientists tell us that at current levels of atmospheric carbon dioxide the world's coral reefs are committed to irreversible decline (Veron et al. 2009). Scientists have found that we need to reduce atmospheric carbon dioxide below 350 parts per million to protect marine biodiversity and prevent the next major extinction event (McNeil & Matear 2008; Steinacher et al. 2009; Hansen et al. 2008; Cao & Caldeira 2008; Veron et al. 2009). Corrosive waters are already reaching surface waters along the West Coast of the United States (Feely et al. 2008; Wootton et al. 2008). Additionally, the impacts of ocean acidification are already apparent in the thinning shells of plankton in the Southern Ocean (Moy et al. 2009), the reduced calcification of corals in the Great Barrier Reef (De'ath et al. 2009), and the collapse of oyster production in the Pacific Northwest (Miller et al. 2009, Cooley et al. 2009). Our oceans and the marine life that depends upon them need rapid reductions in carbon dioxide to prevent further deleterious impacts.

To address ocean acidification and ocean climate change the strategic action plan should:

- Discuss comprehensive approaches to reducing carbon dioxide pollution to prevent the worst effects of ocean acidification and ocean climate change.
- Develop baselines and monitoring of ocean acidification and its ecological consequences.
- Fully implement environmental laws such as the Clean Air Act, the Clean Water Act, the National Environmental Policy Act, the Magnuson Stevens Act, the Marine Mammal Protection Act, the Endangered Species Act, among others to protect our oceans from ocean acidification and dangerous climate change. Several of these laws can be brought to bear to protect marine habitat and species and to reduce carbon dioxide emissions.
- Protect climate refugia. Identify and protect areas that show resistance and resilience to climate change and ocean acidification.

- Restore impacted ecosystems in order to increase resilience. Restore and preserve the structural complexity, biodiversity, and ecosystem function of coastal and marine ecosystems. Restore degraded coastal ecosystems, including tidal wetlands and estuaries.
- Minimize or eliminate non-climate stressors to increase resilience of species and ecosystems to climate change. In addition to developing new strategies to promote adaptation, comprehensively improving and implementing the range of existing conservation strategies for coastal and ocean species and ecosystems will be critical to increasing their resilience.
- Prevent overexploitation of marine species. Factor in the impacts of climate change and ocean acidification on species and ecosystems when setting harvest quotas: lower harvest quotas and use the precautionary principle by maintaining an additional buffer in quotas). Eliminate trawling, long-lining, and other nonselective fisheries that have high bycatch mortality. Protect forage fish, krill, and other species at the base of the food web, and restore large predatory fish to maintain ecosystem health.
- Reduce pollution of coastal and marine ecosystems. Improve wastewater treatment and sewer discharge; strengthen regulations for controlling agricultural and urban runoff; manage nutrient sources and wetland treatment of nutrients to limit hypoxia and eutrophication; restore marshes that clean runoff; locate some reserves away from major sources of terrestrial pollution; link marine reserves with terrestrial reserves.
- Prevent further habitat loss.
- Control invasive species and prevent new introductions.

Finally the best-available science should be used to inform a comprehensive approach to reducing greenhouse gas emissions to levels that avoid deleterious and irreversible impacts to ocean ecosystems. Several important processes delay the full impacts of greenhouse gas emissions and make climate impacts, including sea level rise, temperature rise, and ocean acidification, extremely long-lasting. These processes must be considered to inform greenhouse gas mitigation and adaptation strategies in order to prevent irreversible impacts, and include (1) the climate commitment (i.e. future warming and sea-level rise resulting from present greenhouse gas levels); (2) the irreversibility of climate change and ocean acidification from CO<sub>2</sub> emissions; (3) the triggering of tipping points; and (4) the enhancement of positive feedback cycles that amplify climate change. Each of these processes is briefly discussed.

### *The climate commitment*

Due to thermal inertia in the climate system, there is a time lag between the emission of greenhouse gases and the full physical climate response to those emissions (IPCC 2007). Thus, the climatic changes experienced so far are only part of the full response expected from the greenhouse gases already in the atmosphere (IPCC 2007, Hansen et al. 2008). The delayed effects from existing emissions are known as the “climate commitment.” Based on the greenhouse gases already emitted, the Earth is committed to additional warming estimated at 0.6°C to 1.6°C within this century (Meehl et al. 2007, Ramanathan and Feng 2008), and up to 2°C in the long-term (Hansen et al. 2008). In addition, sea-level rise will continue for centuries due to continuing thermal expansion of the oceans and melting of the Greenland ice sheet

(Meehl et al. 2007). For example, Donner (2009) found that the physical warming commitment from greenhouse gases in the atmosphere in 2000 will cause over half of the world's coral reefs to experience harmfully frequent bleaching at 5-year intervals by 2080.

### *Irreversible impacts of CO<sub>2</sub> emissions*

Although largely under-appreciated, climate-related changes that result from increases in CO<sub>2</sub> concentrations, including temperature increases and sea level rise, are largely irreversible for 1,000 years after emissions cease (Archer and Brovkin 2009, Solomon et al. 2009), while increases in ocean acidification will persist for hundreds of thousands to millions of years (Richardson et al. 2009). An important contributing factor is the long atmospheric lifetime of CO<sub>2</sub> compared to other greenhouse gases. A significant fraction of anthropogenic CO<sub>2</sub>, ranging from 20–60%, remains airborne for a thousand years or longer after emissions cease (Archer and Brovkin 2008, Solomon et al. 2009). In the case of temperature, although some of the anthropogenic CO<sub>2</sub> is removed from the atmosphere by deep ocean mixing, global average temperatures do not drop significantly for at least 1,000 years after the cessation of emissions because the removal of CO<sub>2</sub> by deep-ocean mixing is largely compensated by the loss of heat from the ocean (Solomon et al. 2009). Anthropogenic CO<sub>2</sub> also causes irrevocable sea-level rise. Long-lasting warming from persistent CO<sub>2</sub> causes the oceans to continue to expand and the continued melting of the glaciers and ice sheets contributing to millennia of sea-level rise (Solomon et al. 2009). In addition, the long tail of fossil fuel CO<sub>2</sub> in the atmosphere may trigger slow processes and feedbacks including methane hydrate release from the ocean and methane release from melting permafrost (Archer and Brovkin 2008).

As stated by Solomon et al. (2009):

It is sometimes imagined that slow processes such as climate changes pose small risks, on the basis of the assumption that a choice can always be made to quickly reduce emissions and thereby reverse any harm within a few years or decades. We have shown that this assumption is incorrect for carbon dioxide emissions, because of the longevity of the atmospheric CO<sub>2</sub> perturbation and ocean warming. Irreversible climate changes due to carbon dioxide emissions have already taken place, and future carbon dioxide emissions would imply further irreversible effects on the planet, with attendant long legacies for choices made by contemporary society. (Soloman et al. 2009: 1708-1709).

According to Archer and Brovkin (2008):

The notion is pervasive in the climate science community and in the public at large that the climate impacts of fossil fuel CO<sub>2</sub> release will only persist for a few centuries. This conclusion has no basis in theory or models of the atmosphere/ocean carbon cycle, which we review here. The largest fraction of the CO<sub>2</sub> recovery will take place on time scales of centuries, as CO<sub>2</sub> invades the ocean, but a significant fraction of the fossil fuel CO<sub>2</sub>, ranging in published

models in the literature from 20–60%, remains airborne for a thousand years or longer. Ultimate recovery takes place on time scales of hundreds of thousands of years, a geologic longevity typically associated in public perceptions with nuclear waste. The glacial/interglacial climate cycles demonstrate that ice sheets and sea level respond dramatically to millennial-timescale changes in climate forcing. There are also potential positive feedbacks in the carbon cycle, including methane hydrates in the ocean, and peat frozen in permafrost, that are most sensitive to the long tail of the fossil fuel CO<sub>2</sub> in the atmosphere. (Archer and Brovkin 2008: 283).

### *Tipping points*

Current climate forcings have the potential to trigger “tipping points,” critical points where rapid climate changes proceed without any additional forcing (Hansen et al. 2008) and the system shifts to qualitatively different state (Lenton et al. 2008). In reviewing the “tipping elements” in the Earth’s climate system that could be altered by anthropogenic climate forcing, Lenton et al. (2008) found that a mean global temperature increase of 1-2°C above ~1990 levels has the potential to trigger irreversible melting of the Greenland ice sheet, a process that could result in an eventual seven-meter sea-level rise (Hansen et al. 2006).

### *Feedbacks*

Climate forcings can trigger reinforcing positive feedbacks that can further amplify climate change. For example, the Arctic ice-albedo feedback loop is already occurring, where the loss of sea ice due to warming reduces the surface albedo and makes the Arctic more vulnerable to future warming. Scientific studies indicate that increased warming will trigger other feedbacks, including the mobilization of carbon in tropical peatlands which are vulnerable to land clearing and drainage, and the release of methane from Arctic permafrost due to warming (Richardson et al. 2009).

## **Water Quality and Sustainable Practices on Land**

We applaud the emphasis on protecting water quality and sustainable practices on land. In addition to the objectives outlined in the report we encourage the addition of the following principles to the strategic action plan. We encourage the plan to fully implement existing environmental laws, such as the commitment to use the Clean Water Act for trash and debris.

The plan should even further require:

- Full implementation of existing environmental laws, including the Clean Water Act. The Clean Water Act has many tools to protect seawater quality and the water quality its tributaries. Many of these mechanisms have been underemployed or outright ignored. For example, a system of total maximum daily should be developed for non point source pollution and to protect water flows.

- Providing adequate flow of fresh water from rivers that feed into important estuarine areas. For example, mismanagement of water resources in California has led to excessive withdrawals of fresh water from the Sacramento and San Joaquin River and Delta systems, threatening multiple, commercially and ecologically important fish species – as well as orcas – with extinction. The plan must address the effects of upstream diversions and other activities on water quantity as well as water quality, as both have a crucial influence on nearshore ecosystems.

### **Changing Conditions in the Arctic**

We support the focus on the Arctic as an area of special emphasis due to the grave threats that climate change and ocean acidification pose to Arctic marine ecosystems. While improving communications and understanding about the Arctic is important, the Arctic’s vulnerability makes it especially important to additionally take steps toward conservation and protection of the Arctic. These precautionary measures should be adopted in the plan.

An action plan that focuses on environmental stewardship of the Arctic in the face of climate change and ocean acidification must include the following components:

- A comprehensive approach to reducing greenhouse gas pollution to protect and restore the Arctic, including actions to reduce CO<sub>2</sub> as well as non-CO<sub>2</sub> pollutants (methane, tropospheric ozone, and black carbon) that make a large contribution to Arctic climate change.
- Incorporation of best-available science on Arctic climate change and ocean acidification and their impacts in all agency decision-making directly or indirectly affecting the Arctic.
- Full implementation of existing environmental laws that relate to the Arctic and climate change to promote mitigation and adaptation actions to benefit the Arctic, including implementation of the Clean Air Act, the Clean Water Act, the National Environmental Policy Act, the Magnuson Stevens Act, the Marine Mammal Protection Act, the Endangered Species Act, among others.
- An emphasis on protecting Arctic marine species that are threatened with extinction due to the rapid loss of Arctic sea-ice habitat, including full protection of these species and their critical habitat under the US Endangered Species Act. Threatened ice-dependent Arctic species that inhabit US waters include the polar bear; the ribbon, ringed, spotted, and bearded seals; and the Pacific walrus.
- A moratorium on new oil and gas leasing and development in the Arctic. Such a moratorium should be implemented immediately and remain in effect until and unless such activity can be demonstrated to not have adverse impacts on the Arctic ecosystem, and any greenhouse emissions directly or indirectly associated with such activities are shown to be consistent with a comprehensive national plan to reduce CO<sub>2</sub> and non-CO<sub>2</sub> pollutants to levels determined necessary to avoid the continued loss of sea ice and harms to the Arctic.
- Comprehensive approaches to reducing growing threats to the Arctic as sea ice disappears, such as increased shipping which brings black carbon emissions, the risk of oil spills, and direct disruption and disturbance of Arctic species.

- Actions to reduce persistent organic pollutants (POPs) in the Arctic which pose hazards to Arctic wildlife and people, through application of U.S. law and international cooperation.
- Actions to work toward international protection of the Arctic. The United States should proactively promote the large-scale protection of the Arctic through all existing international mechanisms, including the International Agreement for the Conservation of Polar Bears, the Arctic Council, and the United Nations Convention on the Law of the Sea.

Finally, while we fully support protection of the Arctic as an area of special emphasis, the ocean policy would be strengthened if it additionally placed special emphasis on other marine ecosystems that are vulnerable to collapse—foremost among them coral reef ecosystems.

Coral reef ecosystems are in danger of collapse due to the synergistic threats posed by ocean warming, ocean acidification, and numerous other anthropogenic stressors. According to coral scientists, “reefs are likely to be the first major planetary-scale ecosystem to collapse in the face of climate changes now in progress” (Veron et al. 2009: 1433). At today’s atmospheric carbon dioxide level of ~387 ppm, corals are experiencing detrimental bleaching events, and many of the world’s reefs are committed to irreversible declines (Veron et al. 2009). The committed warming from greenhouse gases already in the atmosphere is projected to cause over half of the world’s coral reefs, including reefs in the Indian Ocean and most of the Pacific, to experience harmfully frequent bleaching at five-year intervals by or before 2080 (Donner 2009). Studies projecting the impacts of ocean warming on corals indicate that the majority of the world’s corals will be subjected to recurring mass bleaching events at frequencies from which they will be unable to recover (five-year-intervals or less) by the 2020s or 2030s under mid-to-low level IPCC emissions scenarios, in the absence of thermal adaptations by corals and their symbionts (Hoegh-Guldberg 1999; Sheppard 2003; Donner et al. 2005; Donner et al. 2007; Donner 2009). Studies projecting the impacts of ocean acidification on corals predict that coral erosion will exceed calcification rates at atmospheric carbon dioxide concentrations between 450 to 500 ppm (Hoegh-Guldberg et al. 2007), and all coral reefs will dissolve at carbon dioxide concentrations of 560 ppm (Silverman et al. 2009). Due to the synergistic impacts of ocean acidification, mass bleaching, and other impacts, reefs are projected to experience “rapid and terminal” declines worldwide at atmospheric carbon dioxide concentrations 450 ppm. Clearly coral reef ecosystems are in immediate need of decisive, comprehensive, and coordinated protection.

## **Conclusion**

We thank the National Ocean Council for its efforts and look forward to participating in the formation of an effective, forward-looking national ocean policy. Please do not hesitate to contact us with any questions.

Sincerely,

/s/ Miyoko Sakashita

Miyoko Sakashita

Ocean Program Director

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## **Index: Attachments to Comments**

### **All 9 SAPs:**

Comment of Robert Hoekzema

(1 page)

## **General Concerns Re: National Ocean Council Strategic Action Plans**

- **The NOC – SAPs are extremely ambitious.** As presented, the implementation of the SAPs is extremely complex. Clarity is lacking as to what, when, and in what order each plan will be implemented. Prior to developing and implementing any of the action plans, the following steps, at a minimum, need to occur.
  - Assess the current situation. Address ocean policy-related questions such as: What has been done historically? What is currently being done? What needs to be done to develop a National Ocean Policy?
  - Conduct a SWOT analysis or similar exercise. Strengths, weaknesses, opportunities and threats need to be fully understood to maximize the benefits from effective and efficient development and implementation of national ocean policies.
  - Recommend and schedule actions needed with achievable milestones and measures. These actions should be based on a realistic assessment of fiscal and personnel resources available.
- **The NOC – SAPs will be extremely expensive to implement.** Given the current state of the Nation’s economy it is debatable whether the United States can afford the proposed actions.
- **SAPs need to be considered holistically. Consolidate where appropriate.** There is considerable duplication among several of the nine objectives. The objectives need to be better defined and/or consolidated. In addition, timing of specific actions needs further consideration. For example, several actions proposed by the Coordinate and Support SAP should be completed before attempting to implement action plans proposed by the other SAPs.
- **Jurisdictional geographic boundaries need to be defined.** What are the geographic areas encompassed by the CSMP? What upland portions will be covered by CMSP?
- **Climate change (global warming?) should not be the primary driver behind this effort.** I am concerned that the basis assumption being used by NOC is that climate change, i.e. global warming, is primarily caused by greenhouse gasses produced by man. Emerging evidence relating to sunspots, suggests that the earth could be entering into a cooling period comparable to the Dalton or Maunder Minimums. Sunspot activity appears to be directly correlated with changes in global climate whether we fully understand the mechanism or not. More sunspots equal warmer periods, fewer sunspots equal colder periods. Solar scientists are predicting fewer sunspots over the next several decades. Prudent scientists should at least consider the possibility of global cooling and how we might respond to expanding ice caps, advancing glaciers, and other related outcomes.

**Index: Attachments to Comments**

**Ecosystem-Based Management:**

Comment of Anne Shaffer, Executive Director, Coastal  
Watershed Institute

(3 pages)

June 27, 2011

Ms. Nancy Sutley  
Dr. John Holdren  
National Ocean Council  
c/o Council on Environmental Quality  
722 Jackson Place, NW  
Washington, DC 20503

Dear Chairs Sutley and Holdren:

I offer the following recommendations to the National Ocean Council in developing the Strategic Action Plans for implementation of the nine National Priority Objectives. I want to thank President Obama and the National Ocean Council for the steps you have already taken to protect our oceans and coasts.

Overall, I urge the National Ocean Council and its member agencies to take specific conservation actions to directly improve the health of ocean and coastal ecosystems in the strategic action plans, including supporting and expanding current nearshore stewardship and management, such as the Washington state HPA and Shoreline Management Planning programs. Emphasis should be on implementation-not more planning. Agencies should incorporate the National Ocean Policy and the coastal and marine spatial planning principles in processes and programs they are undertaking right now. An inclusive and transparent public planning process and the use of best available science-as well as support of additional scientific efforts where needed-to accurately define regional and cross regional ecosystem function and management priorities for decision making will lead to better outcomes for our oceans and should be adopted by agencies right away. Training our next set of scientists and managers must also be kept at the top of our priorities. The UW NANOOS and WWU Huxley Environment on the Peninsula programs are critical collaborative science and academic bodies to all our efforts, and should be included in our scientific collaborations and plan implementation efforts. In addition, I offer these comments on the nine Strategic Action Plans:

### **Ecosystem-Based Management**

Ecosystem-based management (EBM) is an approach to management that considers the entire ecosystem, yet EBM needs to do more than integrate existing local resource management and research programs. EBM needs to promote ecosystem health, protect important ecological areas and restore degraded habitats and ecosystems so that they can provide the services humans want and need. The NOC must maintain the primary goal of protecting, maintaining and restoring ocean and coastal ecosystems by using a science-based process to actively identify, understand at a cross regional scale, and protect important ecological areas such as the Olympic Coast National Marine Sanctuary and Strait of Juan de Fuca. The nearshore should be a focus of this. Specific priority should be put on the Elwha nearshore, a critical but underserved component of single largest national watershed restoration, slated to begin in September 2011. We recommend utilizing and supporting the West Coast Governor's agreement including the Integrated Ecosystem Assessment Action Plan-provided that Washington coast is appropriately incorporated in all-including pilot-IEA programs.

### **Coastal and Marine Spatial Planning (CMSP)**

In conjunction with the tenets of science-based decision making and robust public and stakeholder engagement, the *Final Recommendations* acknowledge that the ocean's ability to "provide sustained delivery of ecosystem services" as well as economic benefits depends on its ecological health. Therefore,

the NOC must maintain ecosystem health as a primary goal in designing the CMSP process. The CMSP plan should: 1) provide a strong national objective to protect, maintain, and restore ecosystem health; 2) include guidance to the regional planning bodies to clearly acknowledge ecosystem health as the foundation of the ocean's benefits to us; 3) require periodic assessments of ecosystem health; 4) instruct regional planning bodies to employ EBM and consider the cumulative impacts of a use; 5) allow certification of final CMS plans only if they meet the national objective of protecting, maintaining and restoring ecosystem health; and, 6) incorporate and build on Washington state legislated programs, (including Puget Sound, Strait of Juan de Fuca , and Coast) such as the West Coast Governors agreement, and SMP programs, and; 7) provide procedures for regional planning bodies to identify important ecological areas through a regional assessment. As individual regions begin to develop comprehensive ocean use plans, the identification and protection of ecologically important areas must be a priority. Again, the WCGA should be used as the primary regional planning body.

### **Inform Decisions and Improve Understanding**

Improving our knowledge and understanding of the ocean is a critical step towards improving ocean management. The NOC should prioritize integrating the data and science that agencies have developed, including traditional and local knowledge, and involving a broad range of stake holders in identifying and working to close gaps in data and our understanding of the ocean. Established university programs can and should play a central role in bringing together this knowledge and data.

### **Coordinate and Support**

Support for NOP implementation will be best generated by including all levels of decision makers, as well as non-governmental stakeholders, in a coordinated and meaningful way in the design and implementation of the action plans. The NOC has prioritized a transparent and inclusive process for formulation and implementation of the NOP; we appreciate this approach. It is essential that this effort not be viewed as a top-down mandate, but rather garner the full support of all levels of government. States, tribes, and local governments must view the NOP as an enabling mechanism to address ocean management issues that are important to their region. The NOP should support enforcement of existing laws, including the Washington state Hydraulic Project Approval (HPA) program.

### **Resiliency and Adaptation to Climate Change and Ocean Acidification**

The environmental changes associated with climate change and ocean acidification are having immediate and lasting effects on our living marine resources, coastal habitat and infrastructure, and the goods and services that they provide. Enhancing the resiliency of living marine resources by reducing significant and cumulative threats, and providing opportunities for adaptation to these stresses should be a guiding goal of not only this Action Plan, but should also be an imbedded goal in other Strategic Action Plans. The Action Plan should include specific guidance and actions for each of the following elements: (1) mitigation; (2) integrated observation, research, and modeling; (3) sea-level rise; (4) resilience and adaptation policies and programs; and (5) mechanisms for funding. These elements are essential for our nation to adequately manage for resilient oceans, coasts and Great Lakes that are able to adapt to the profound changes associated with climate change and ocean acidification.

### **Regional Ecosystem Protection and Restoration**

It is critical that this plan identify and implement specific and measurable short-term and long-term goals for protecting important ecological areas - including nearshore. Immediate and near term conservation goals must be included in the plan. Implementation of this plan can be carried out to the maximum extent feasible, through existing programs and partnerships and should integrate with existing state programs and federal programs such as the Washington state Hydraulic Project Approval (HPA), Shoreline Management Program (SMP), Estuary Habitat Restoration Program, National Wildlife Refuges, National Marine Sanctuaries and Monuments. New implementing regulations should be explored and utilized when appropriate. Focus should be on research and management that addresses cross regional habitat ecosystem function.

**Water Quality and Sustainable Practices on Land**

This priority objective is critical for ocean users, coastal communities and ocean industries. Land based pollution is a major contributor to poor coastal water quality which impacts tourism, fishing and other industries and has a direct negative impact on our region's quality of life. Stronger enforcement of existing laws and regulations would go a long way in improving water quality. The NOC should recognize the significant federal authority over land-based pollution, and set specific targets for reducing common pollutants such as trash, nutrients, bacteria, sediments, invasive species and carbon dioxide by targeting specific sources of pollution such as non-point runoff from lawn treatments and septic systems, agriculture, concentrated animal feeding operations and water treatment facilities. Another important component is to identify, protect and conserve high quality ocean, coastal, and Great Lakes waters.

I urge the NOC to implement the National Ocean Policy with the primary goal of protecting, maintaining, and restoring the Nation's ocean, coastal, and Great Lakes resources and ensuring resilient ecosystems. Healthy oceans and coasts are the foundation of a healthy environment, healthy communities and increased economic opportunities for the Nation as a whole.

Sincerely,



Anne Shaffer  
Executive Director

**Index: Attachments to Comments**

**Ecosystem-Based Management:**

Comment of John V. O’Shea, Executive Director,  
Atlantic States Marine Fisheries Commission

(1 page)



# Atlantic States Marine Fisheries Commission

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*Robert H. Boyles, Jr. (SC), Chair*

*Paul Diodati, (MA), Vice-Chair*

*John V. O'Shea, Executive Director*

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*Healthy, self-sustaining populations for all Atlantic coast fish species or successful restoration well in progress by the year 2015*

June 28, 2011

Nancy Sutley, Chair  
White House Council on Environmental Quality  
722 Jackson Place, NW  
Washington, D.C. 20503

Dear Dr. Sutley,

On behalf of our Commission, I offer the following comments to the National Ocean Policy's Strategic Action Plans for you to consider as the Administration and the public move forward in managing and preserving our oceans.

For nearly 70 years, the Atlantic States Marine Fisheries Commission has facilitated fisheries management across jurisdictional boundaries. Our results demonstrate the great capacity of cooperative fisheries management. The National Ocean Policy and Strategic Action Plans need to reflect a similar emphasis on cooperation. This is especially important in all of the Strategic Action Plans, but can be exemplified with the move towards ecosystem-based management.

Implementing ecosystem-based management (EBM) will require more data sets, assessments, and models, and thus more resources. As partners in providing data, our member states have concerns regarding the source of these additional resources and what tradeoffs will be made to support these initiatives. Managers struggle to gather basic information on managed stocks, let alone the expanse of data needed to implement EBM. As part of moving forward with the National Ocean Policy, whether EBM or another endeavor, the decision-making process needs to outline how expected benefits will offset the increased costs of implementation and how tradeoffs in funding will be determined.

As you move forward with the National Ocean Policy, I look forward to a simpler, more direct approach to integrated management. The Interstate Fisheries Commissions and their member states possess a wealth of knowledge and experience in interjurisdictional management and should be considered important constituents and partners in developing and executing a sustainable ocean policy.

Sincerely,

A handwritten signature in blue ink that reads "John V. O'Shea".

John V. O'Shea

cc: ASMFC Commissioners

## **Index: Attachments to Comments**

### **Ecosystem-Based Management:**

Comment of Berl Hartman, Director, E2 New England

(2 pages)

E2 STATEMENT FOR THE REGIONAL LISTENING SESSION IN EXETER NEW HAMPSHIRE, JUNE 27, 2011

My name is Berl Hartman and I am speaking on behalf of E2, Environmental Entrepreneurs. E2 is a nationwide group of nearly 900 business and professional leaders who promote strong environmental policy based on its economic merits. We are entrepreneurs, investors and professionals who have started well over 1000 companies, which in turn have created over half a million jobs. Our members in the financial sector collectively manage over \$90 billion of venture capital and private equity.

**We appreciate the important work of the National Ocean Council and this opportunity to speak with you about the Strategic Action Plans outlines.**

As you know, our oceans and great lakes are a powerful engine of economic development that depends on healthy oceans. America's ocean economy contributes more to the country's GDP than the entire farm sector.

**However, oceans are challenged with unprecedented activity as never before:** recreational uses, wind farms and other renewable energy facilities, offshore drilling, shipping, sand and gravel mining, fishing, and marine aquaculture facilities are all competing for ocean resources. Without a clear governing policy, we face severe degradation of this unique national resource.

A National Oceans Policy is long overdue and together with the nine strategic action plans will help address these issues.

For the Strategic Action Plans to be most effective, we recommend that they be strengthened in four ways:

- 1. Explicitly state that the goal of Ecosystem-Based Management is to maintain healthy, productive and resilient ocean ecosystems.** Healthier oceans will lead to a higher GDP and increased job growth. For example, in 2009, there were more than 18,000 closings and advisory days at ocean, bay and Great Lakes beaches. The economic impact of those closings reverberates through the economy. Beach closings mean fewer travelers to our shores, less revenue for hotels, restaurants, recreational fishing, and other activities. These uses all require healthy, productive resilient ecosystems.
- 2. Include specific, near-term actions to improve ecosystem health, show progress and provide accountability.** For example:
  - Reduce plastic pollution in the ocean by instituting controls on the flow of trash into our waterways;
  - Establish numeric criteria to reduce nutrient pollution that contributes to ocean dead zones;
  - Establish a system of sentinel ocean observation sites to provide critical information to understand and measure ocean acidification and its impacts.

3. **Commit to incorporating the National Ocean Policy and Principles into agency rules and procedures in the near term.** This will ensure the longevity of the National Ocean Policy and embed the policy firmly into agency practice and procedures.
4. **We strongly support the use of Coastal and Marine Spatial Planning (CSMP)**  
**Successful execution of this strategic action plan will form the foundation for many of the other plans. Thus it is critical that the CSMP plan:**
  - Includes economic as well as ecological planning
  - Provides certainty for responsible development, including renewable energy while protecting sensitive habitats
  - Takes account of the importance of river systems and on shore activity in maintaining ocean health;**We also recommend two near term actions to help ensure the success of this plan:**
  - Create a protocol for regional planning bodies to use to identify important ecological areas in their coastal and marine spatial plans; and
  - Complete the regional ecosystem assessments that will form the foundation for these plans as quickly as possible.

**Thank you for the opportunity to express our views on this important issue.**

**Sincerely,**



**Berl Hartman**  
**Director, E2 New England**

**Index: Attachments to Comments**  
**Coastal and Marine Spatial Planning:**

Comment of Thomas Ingram, Executive Director, Diving  
Equipment and Marketing Association

(8 pages)

**COMMENTS FOR MARINE SPATIAL PLANNING WORKSHOP  
WASHINGTON D.C.**

**THOMAS INGRAM, EXECUTIVE DIRECTOR  
DIVING EQUIPMENT AND MARKETING ASSOCIATION**

**JUNE 21, 2011**

I am commenting today on behalf of the Diving Equipment and Marketing Association (DEMA), the world's largest association for the recreational scuba diving industry. DEMA is a non-profit trade association with more than 1,500 business members, established in 1975. DEMA represents equipment manufacturers, diver training organizations, the diving media, retail establishments and diving destinations all over the globe. Our mission is to promote sustainable growth in recreational scuba diving and snorkeling while protecting the environment.

The professionals that make up the members of the diving industry include certified diving instructors, credentialed vessel captains, environmental experts, marine biologists, business professionals, underwater photographers, geologists, archaeologists, physical education specialists, health experts and many others. Even the most casual diver is an environmentally-concerned observer, and diving is a healthy activity that includes families, children, retirees, college students, and others.

Recreational scuba diving and snorkeling are NOT inherently consumptive activities. Divers take photographs, study and catalog coral and other underwater structures, use their navigation and search skills to see new sites, and share their experiences with others. Divers are educated in controlling buoyancy while in the water, and actively seek ways to improve the diving environment and enjoy the experience.

The most active divers today are between the ages of 38 and 53. A majority of active divers enjoy a household income greater than \$100,000, travel extensively throughout the US and overseas, and contribute greatly to the US economy in their purchases of goods and services. DEMA, representing the professionals that service these customers, strives to help divers and all citizens understand the need for responsible use of these precious aquatic resources.

DEMA recognizes and appreciates President Obama's concern for the health of our nation's waterways and the need to develop a national policy for the oceans, our coasts and the Great Lakes. Members of the diving profession and diving participants use these waters daily for healthy, safe recreation, and these bodies of water help to generate thousands of jobs, and produce millions in tax revenues for local, state and federal government.

The small and medium sized businesses that make up the recreational diving industry depend on these bodies of water for their livelihoods. Without healthy lakes, coastal areas and oceans, there simply is no place to scuba dive or snorkel, and consequently, no recreational diving business.

DEMA strongly agrees with certain key components of the President's Executive Order regarding "Stewardship of the Ocean, our Coasts and the Great Lakes," including the need for science-based environmental stewardship practices, agency and organizational transparency, and stakeholder collaboration. We also believe that economic consideration including recognition of the value of jobs and tax revenues connected to recreational diving and the use of our waterways should be considered as policies are developed from this Executive Order. Additional information regarding the economic impact of recreational scuba diving and snorkeling is provided below, with the goal of outlining the need for including economics in this discussion.

## **THE ECONOMICS OF RECREATIONAL DIVING AND SNORKELING**

There are approximately 2.7 to 3.5 million active divers in the US alone, with estimates as high as 6 million worldwide. According to *Understanding the Potential Economic Impact of SCUBA Diving and Snorkeling: California (2006)*, Linwood H. Pendleton, Associate Professor, Environmental Science and Engineering Program at the University of California, Los Angeles, estimated that there are about 11 million snorkelers in the US. The Professional Association of Diving Instructors (PADI) estimates that there are some 20 million snorkelers worldwide.

Leeworthy and Wiley estimate that about 5.07% of the US population participates in snorkeling (approximately 11 million) and they participate at the rate of 92.5 million diver-days annually. Leeworthy and Wiley further estimate that 1.35% of the US population participates in scuba diving (about 2.79 million) at the rate of 22.8 million diver-days annually (**See EXHIBIT E**).

A 2006 DEMA study indicated that divers remain active in the sport for a long time. Studies indicate that divers have a participation "half-life" of about 5 years. That is, some five years after receiving their initial training and diver "certification," about 50% of the diver population will have discontinued their diving activity. Approximately 5 years later an additional 50% of the initial diver population will cease or reduce diving activities, and so on. In the US about 200,000 new divers are trained and certified each year.

Interestingly, many "divers" never actually become "certified." A large number (by some estimates more than one million globally) participate in "try diving" experiences. These individuals are under the direct supervision of a diving professional, and though they never complete a certification course, they nonetheless participate in diving activities, many on living coral reefs in the ocean. Although not counted in the totals of divers certified, these individuals are also part of the economic contribution provided by diving.

Recreational scuba divers and snorkelers contribute to US and international tourism revenue by purchasing dive trips, equipment and other diving-related items, and by spending on ancillary items such as hotels, food, fuel, air transportation, water and ground transportation, and other items while traveling to local and distant dive destinations. Divers contribute to sales tax revenues for local counties, municipalities and states, and to federal and state tax revenues through the creation of diving tourism-related jobs.

### Value of Recreational Divers and Snorkelers

Recreational divers, snorkelers, fishers, and others are attracted by the presence and accessibility of coral reefs, making them a significant part of diving tourist and travel promotional strategies. Although not all diving in the US is conducted on coral reefs, the studies cited below do provide some guidance with regard to the economic potential of diving. Since diving is also conducted in colder climates, and in lakes, rivers and quarries, the estimates cited herein are less than the real value of recreational diving.

### **STUDIES**

In the March 2003 *An Assessment of the Socio-Economic Impact of the Sinking of the HMS Scylla* the South West Regional Economy Centre at the University of Plymouth indicated that for every 10,000 diver days, three full time equivalent (FTE) jobs were created, half of which were direct (associated directly with diving) and half of which were indirect (associated with hotels, restaurants and other tourist and service employers). This same study indicates a contribution to the GDP of approximately £669,000 (approximately US\$1,027,800) for every 10,000 diver-days (See EXHIBIT D).

A 2000 report from the World Resources Institute indicates that coral reefs in the Caribbean alone contribute \$2.1 billion for dive-specific tourism. This same presentation recorded more than 8.80 million visitor-days in Florida annually by snorkelers and scuba divers. The annual direct economic value of coral reefs to world tourism is estimated at some \$9.6 billion.

A study of Martin County Florida published in 2004 indicates that snorkeling on Martin County reefs generates about \$465,000 in annual expenditures within the county, of which one-half are spent on boat, oil, and gas. Scuba diving on Martin County reefs generates about \$672,000 in annual expenditures within the county of which about one-half is spent on boat, oil, and gas. For all activities combined, the use of natural reefs generates \$6,886,000 in annual expenditures within the county. Total annual reef-related expenditures, including natural and artificial reefs, are estimated at \$12,000,000.

According to the *Socioeconomic Study of Reefs in Southeast Florida* (October 2001, Florida Fish and Wildlife Conservation Commission, National Oceanic and Atmospheric Administration, in association with Florida State University), reef-related expenditures generated over \$4.395 billion in sales in Palm Beach, Broward, Miami-Dade and Monroe Counties combined, during the 12-month period from June 2000 to May 2001. These sales resulted in generating \$2.047 billion in income to Palm Beach, Broward, Miami-Dade, and Monroe County residents during the same time period. During the same period, reef-related expenditures provided 71,300 full and part-time jobs in these four southeast Florida counties. Two-thirds of the economic contribution was associated with natural reef-related expenditures in Miami-Dade and Palm Beach Counties, seventy five percent of the economic contribution was associated with natural reefs in Monroe County, and about fifty percent was associated with natural reefs in Broward County (See EXHIBIT A – Economic Contribution of Reef-Related Expenditures in Four Florida Counties).

It should be clear that recreational diving and snorkeling contribute significantly to tourism-related businesses, in addition to the revenue contribution from diving activities derived directly by diving-related businesses. It should also be clear that recreational diving and snorkeling generate jobs in many different sectors, some of which are highly specialized, requiring extensive training.

As noted, it is estimated that three full time equivalent (FTE) jobs are created for every additional 10,000 diver-days. With approximately 115 million combined snorkeling and scuba diver-days annually in the US alone, it is projected that such recreational diving activity, through direct and indirect contributions, delivers about \$11 billion to the US annual GDP (See EXHIBITS D and E) and creates more than 340,000 FTE jobs.

## **RECOMMENDATIONS FROM THE RECREATIONAL SCUBA AND SNORKELING INDUSTRIES**

Given the need for economic considerations DEMA and the Recreational Diving Industries recommend the following:

1. A clear balance must be maintained between the overall health of the aquatic resources and access and use by interested parties.
2. As is understood in many Marine Protected Areas throughout the United States, there should be a clear recognition that scuba diving and snorkeling are NOT inherently consumptive activities.
3. Spatial planning should NOT unnecessarily include restrictions on non-consumptive activities.

With the recognition that recreational scuba diving and snorkeling are not inherently consumptive in nature DEMA also recognizes and suggests that spatial planning should support consumptive activities such as spear fishing within any given area when the following criteria are met:

1. Hook-and-line fishing activities are allowed and supported by sound science and policy.
2. Sound science exists to support consumptive activities such as spear fishing
3. Policy generally supports such consumptive activities

DEMA also suggests that consumptive activities such as spear fishing are appropriate anywhere hook-and-line fishing is permitted, providing that sound science and policies support such consumptive activities.

Non-consumptive, low intensity level activities should be allowed to continue, and should not be restricted.

## **CONTINUING INTEREST IN PROVIDING SUPPORT TO THE GOVERNMENT REGARDING USE OF AQUATIC RESOURCES**

Since its inception DEMA as an organization has worked for the betterment of the environmentally sensitive resources on which our industries depend, while balancing the needs of diving businesses, and encouraging diving consumers to further protect these

resources. Our efforts to protect the ocean, create jobs and recruit additional stewards for oceans and coral reefs have been enhanced by programs such as our Ships 2 Reefs program, providing information to those who would create environmentally safe artificial reefs. DEMA has also been privileged to advocate for the reauthorization of the National Marine Sanctuaries Act, and comment on establishment of Marine Life Protected Areas, as well as other efforts to protect the underwater environment.

We openly offer our assistance in understanding the economics of these industries or in other ways that make the most sense to this Committee.

Thank you for the opportunity to provide input on this important matter.

## EXHIBITS

### EXHIBIT A – Economic Contribution of Reef-Related Expenditures in Four Southeast Florida Counties

Economic Contribution of Reef-Related Expenditures to Each County  
June 2000 to May 2001 – Residents and Visitors

Type of Economic Contribution	Palm Beach County	Broward County	Miami-Dade County	Monroe County
Sales – All Reefs (in millions of 2000 dollars)	\$505	\$2,069	\$1,297	\$490
Artificial Reefs	\$148	\$961	\$419	\$127
Natural Reefs	\$357	\$1,108	\$878	\$363
Income – All Reefs (in millions of 2000 dollars)	\$194	\$1,049	\$614	\$139
Artificial Reefs	\$52	\$502	\$195	\$33
Natural Reefs	\$142	\$547	\$419	\$106
Employment – All Reefs (number of full- and part-time jobs)	6,300	36,000	19,000	10,000
Artificial Reefs	1,800	17,000	6,000	2,000
Natural Reefs	4,500	19,000	13,000	8,000

Source: *Socioeconomic Study of Reefs in Southeast Florida*, Johns, Leeworthy, Bell, Bonn

### EXHIBIT B – Florida Coral Reefs Recreational Use

Recreational Use of Coral Reefs in Florida	
Snorkeling	4.24 million visitor days
Scuba Diving	4.56 million visitor days
Fishing	9.72 million visitor days
Glass-bottom Boats	0.12 million visitor days
TOTAL	18.64 million visitor days

*Ref: Dr. Vernon R. Leeworthy, Chief Economist, Office of National Marine Sanctuaries*

**EXHIBIT C - Recreational value of coral reefs in Hawaii in 2001 (US dollars)**

	<b>Consumer Surplus</b>	<b>Value Added of Direct Expenditure</b>	<b>Value Added of Indirect Expenditure</b>	<b>Multiplier Effect</b>	<b>Total Value Added</b>
<i>Snorkelers</i>					
Residents	10,053,899	2,318,704	-	579,676	12,952,279
US West	47,833,826	20,882,055	23,136,504	11,004,640	102,857,025
US East	33,174,006	14,482,250	20,450,444	8,733,174	76,839,874
Japan	13,340,508	5,823,854	2,189,058	2,003,228	23,356,648
Canada	5,236,964	2,286,218	3,587,133	1,468,338	12,578,653
Europe	3,809,326	1,662,977	2,246,766	977,436	8,696,505
Other	11,782,791	5,143,826	6,794,101	2,984,482	26,705,200
<i>Subtotal</i>	<i>125,231,322</i>	<i>52,599,883</i>	<i>58,404,007</i>	<i>27,750,973</i>	<i>263,986,183</i>
<i>Scuba Divers</i>					
Residents	3,450,231	5,137,088	-	1,284,272	9,871,591
US West	1,588,179	3,152,878	3,545,777	1,674,664	9,961,498
US East	1,101,444	2,186,603	3,134,126	1,330,182	7,752,355
Japan	1,255,768	2,492,969	2,710,742	1,300,928	7,760,407
Canada	173,878	345,185	549,745	223,733	1,292,541
Europe	126,477	251,085	344,327	148,853	870,742
Other	391,212	776,641	1,041,228	454,467	2,663,548
<i>Subtotal</i>	<i>8,087,190</i>	<i>14,342,448</i>	<i>11,325,946</i>	<i>6,417,099</i>	<i>40,172,682</i>
<i>Total Recreational Value</i>					
Residents	13,504,130	7,455,792	-	1,863,948	22,823,870
US West	49,422,006	24,034,932	26,682,281	12,679,303	112,818,522
US East	34,275,450	16,668,853	23,584,570	10,063,356	84,592,229
Japan	14,596,276	8,316,823	4,899,800	3,304,156	31,117,055
Canada	5,410,842	2,631,403	4,136,878	1,692,070	13,871,193
Europe	3,935,804	1,914,062	2,591,094	1,126,289	9,567,249
Other	12,174,003	5,920,467	7,835,329	3,438,949	29,368,748
<b>Total</b>	<b>133,318,511</b>	<b>66,942,331</b>	<b>69,729,953</b>	<b>34,168,071</b>	<b>304,158,866</b>

*Multiplier effect: The total economic contribution of the reefs of Hawaii includes the contribution of reef expenditures to sales, income and employment. Expenditures by visitors generate income and jobs within industries that supply reef-related goods and services, such as charter/party boat operations, restaurants and hotels. These industries are called direct industries. In addition the visitor expenditures create multiplier effects wherein additional income and employment is created as the income earned by the reef related industries and their employees, is re-spent in the local economy. These additional effects of reef-related expenditures are called indirect and induced. Indirect effects are generated as the reef-related industries purchase goods and services from other industries locally. Induced effects are created when the employees of the direct and indirect spend their money locally.*

**EXHIBIT D - The Impact of Scylla on the South West Economy with Projected US GDP**

The Impact of Scylla on the South West Economy					
Extra Diver Days					US Diver-Days 115,300,000
	2500	5000	7500	10000	
<b>Employment (FTE)</b>					
Direct	3.9	7.7	11.6	15.5	<b>Projected US Employment (FTE) 342,441</b>
Indirect	3.5	7.1	10.6	14.2	
<b>Total</b>	<b>7.4</b>	<b>14.8</b>	<b>22.2</b>	<b>29.7</b>	
<b>GDP (£)</b>					
Direct	66,060	132,120	198,180	264,240	
Indirect	101,275	202,551	303,826	405,102	
<b>Total</b>	<b>167,335</b>	<b>334,671</b>	<b>502,006</b>	<b>669,342</b>	
<b>TOTAL Contribution to GDP</b>					<b>Projected US GDP Contribution (Direct and Indirect) US\$ 11,856,415,621.34</b>

**EXHIBIT E – Participation in SCUBA and Snorkeling Recreation (2000)**

	Participation Rate (%)*	Number of Participants (millions)*	Number of Days (millions) ***
<b>United States</b>			
Snorkeling	5.07	10.46	92.5
Scuba Diving	1.35	2.79	22.8
<b>California</b>			
Snorkeling	0.34	0.71	3.818
Scuba Diving	0.14	0.29	1.383

From Leeworthy and Wiley (2001), \*Percent of the US population that participated in the activity, \*\*Number of participants is equal to the participation rate multiplied by the non-institutionalized population 16-years or older in all households in the US as of September 1999, \*\*\*The number of days the respondents participated in each activity over a year. Note figures from top to bottom of table differ due to the use of different base population levels in each report

**Index: Attachments to Comments**  
**Coastal and Marine Spatial Planning:**

Comment of Great Lakes Conservation Initiative  
(3 pages)

**It is with this firm resolve that WE intend to guard our Great Lakes and to hold our government accountable by all means necessary in order to Protect the Great Lakes FOREVER!**

**GREAT LAKES PROTECTED BIOREGION SUPPORTERS**

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- Max Kilkenney CO
- Kevin Naze WI
- Jerry L. Rasmussen IA
- Jean Bjorn IL
- Elaine Barr KS
- Lia Montgomery WI

**Index: Attachments to Comments**  
**Coastal and Marine Spatial Planning:**

Comment of Eight Regional Fishery Management  
Councils

(4 pages)



June 29, 2011



Honorable Nancy Sutley, Chair  
National Ocean Council  
722 Jackson Place, N.W.  
Washington, D.C. 20503



RE: Regional Fishery Management Councils' Comments on Draft Strategic Action Plan for Coastal and Marine Spatial Planning

Dear Ms. Sutley:



Please consider the following comments to reflect the position of the eight Regional Fishery Management Councils (RFMCs) on the issue of Coastal and Marine Spatial Planning (CMSP). First of all we wish to thank the National Ocean Council (NOC) for including representatives of the RFMCs in the June 21-23 National CMSP Workshop. The NOC, associated agency staff, and the staff of the Meridian institute are to be congratulated for a very well organized and informative workshop. The Workshop presentations and panel discussions provided attendees with a greater understanding of the intent of the CMSP process, as well as a better understanding of the role of the regional planning bodies (RPBs) and ultimately, the CMS plans themselves. While we appreciate the workshop discussions and the enlightenment they provided on many aspects of CMSP, there are a few lingering issues of extreme importance to the RFMCs that we wish to comment upon.



With regard to the composition of the RPBs, we wish to underscore the 35 years of experience that the RFMCs bring to the table, and suggest that it is not only prudent to include explicit RFMC representation on the RPBs, but that it would be remiss not to do so. During the workshop discussions the experience of the RFMCs was noted on numerous occasions, and there appeared to be overwhelming support for their inclusion on each RPB, across a variety of government and stakeholder groups. We have decades of experience in compiling technical information and data, analyzing that information, and making well-informed decisions on fishery management actions that include an array of marine spatial management aspects. These decisions are made in close coordination with other federal and state agencies, as well as tribal entities and coastal community representatives, in a transparent public process. In summary, we bring a wealth of experience to the table that would be very beneficial to the success of the RPBs. While the draft framework indeed calls for a consultation mechanism with the RFMCs, there is no specificity to that provision and we believe that the most effective consultation mechanism would simply be to provide each RFMC with an explicit seat on the RPBs.



With regard to the full content outline of the draft strategic action plan (outline), we note that many aspects of the CMSP process are more fully described, yet many sections simply note that "this section will include further description...". At the workshop we were assured that there will be a great degree of flexibility in the RPB process across regions, and in the development of the final CMS plans. We agree wholeheartedly that such regional flexibility will be crucial to the success of this process.

We also feel that it is important to underscore our primary concerns with the CMSP initiative, which we have voiced on a number of previous occasions. These concerns are shared by many stakeholders beyond the RFMCs, and addressing them directly would go a long way to ensuring the successful implementation of the CMSP initiative. The first has to do with resources necessary to accomplish this initiative. While the CMSP outline emphasizes that this initiative does not intend to create new layers of bureaucracy, but to build on existing decision-making and planning processes, it does not specify how the rather daunting data compilation and analysis will be achieved. In the absence of a dedicated staff to each RPB, it can only be assumed that this significant undertaking will be achieved by utilizing the existing fiscal and human resources of numerous federal agencies, potentially compromising their existing, critical missions. As with our previous comments, we are concerned with the impacts this might have on NOAA's fisheries management mission, which is already oversubscribed in its science and regulatory responsibilities. We suggest further clarity on this aspect of CMSP implementation.

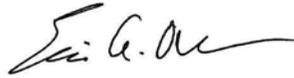
The second major concern, again reiterating a primary concern we have expressed previously and which is shared by a broad cross-section of stakeholders, is with the regulatory authority implied by the draft CMSP framework. While the framework contends that the CMSP initiative will not create any new regulatory authorities, it conflicts itself with the statement that, upon approval of each regional CMS plan, each agency will implement the CMS plan to the extent possible. This statement portends an implicit regulatory authority, which in some cases could be construed as superceding existing regulatory authorities (such as the authorities of the RFMCs under the Magnuson-Stevens Act). This concern has been raised repeatedly by the RFMCs, coastal States, and other stakeholders, and the strategic action plan outline does not contain any clarification of this lingering concern. We suggest that further resolution of this question is necessary to get the good faith buy-in and positive participation of critical players in the CMSP process.

Related to this concern is the regional CMSP dispute resolution mechanism – the outline simply says that “this section will describe the mechanism currently under development by the Council...”. As with many sections of the outline, it is difficult to provide meaningful comment on something that is not yet provided in writing, yet this is a critical component of the whole CMSP process, and one which is of extreme interest to those participating, or potentially participating, in that process. To that end we encourage the NOC to provide an additional public comment period once the outlines are fully populated into a more specific strategic action plan.

Finally, we wish to suggest the possibility of the NOC engaging in a CMSP pilot project once the strategic action plan is finalized. The CMSP process will very likely be an iterative learning process, and there are regions where experience exists with current regional ocean partnerships and/or Governors alliances – that experience could serve well to test the strengths and weaknesses of the process, and to fine-tune the strategic action plan before applying it on a National scale, across all nine regions.

In closing, we would once again like to reiterate our overall perspective that CMSP can be a very positive initiative, as long as it leverages existing, successful processes and does not create new, large, and expensive bureaucratic or regulatory processes. We believe that the RFMCs can be productive partners in this process given the opportunity to properly participate, as members of the RPBs. Again, thank you for the opportunity to comment on this important issue.

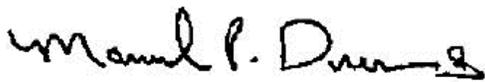
Sincerely,



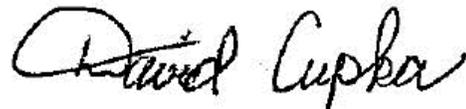
Eric A. Olson, Chair  
North Pacific Fishery Management Council



Mark Cedergreen, Chair  
Pacific Fishery Management Council



Manuel P. Duenas, Chair  
Western Pacific Fishery Management Council



David Cupka, Chair  
South Atlantic Fishery Management Council



John Pappalardo, Chair  
New England Fishery Management Council



Eugenio Poleiro-Soler, Chair  
Caribbean Fishery Management Council



Rick B. Robins, Chair  
Mid-Atlantic Fishery Management Council



Robert Shipp, Chair  
Gulf of Mexico Fishery Management Council



Chris Oliver, Executive Director  
North Pacific Fishery Management Council



Don McIsaac, Executive Director  
Pacific Fishery Management Council



Chris M. Moore, Executive Director  
Mid-Atlantic Fishery Management Council



Paul J. Howard, Executive Director  
New England Fishery Management Council



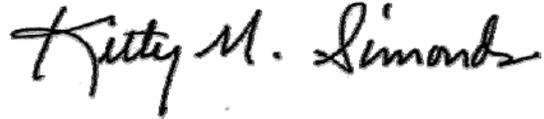
Miguel Rolon, Executive Director  
Caribbean Fishery Management Council



Robert K. Mahood, Executive Director  
South Atlantic Fishery Management Council



Steve A. Bartone, Executive Director  
Gulf of Mexico Fishery Management Council



Kitty M. Simonds, Executive Director  
Western Pacific Fishery Management  
Council

Cc: Dr. Jane Lubchenco, NOAA  
NOC Governance Coordinating Committee  
Dr. Douglas DeMaster

**Index: Attachments to Comments**  
**Coastal and Marine Spatial Planning:**

Comment of Society of Historical Archaeology  
(3 pages)



**SOCIETY for  
HISTORICAL  
ARCHAEOLOGY**

Nancy Sutley, Chair  
Council on Environmental Quality  
Executive Office of the President  
722 Jackson Place, NW  
Washington, DC 20503

Chair Sutley,

The Society for Historical Archaeology (SHA) and the Advisory Council on Underwater Archaeology (ACUA) would like to commend the President and the Council on Environmental Quality (CEQ) for your efforts in developing a national policy for the stewardship of the marine environment, and specifically, for developing the Final Recommendations of the Interagency Ocean Policy Task Force, adopted by Executive Order 13547 (EO) on July 19, 2010. The SHA, and its affiliated organization, the ACUA, were particularly encouraged by Section 2(a)(vi) of the EO, which reads, "respect and preserve our Nation's maritime heritage, including our social, cultural, recreational, and historical values." Additionally we would like to thank the CEQ for the opportunity to comment on the Strategic Action Plans (SAP) for the National Priority Objectives outlined in the policy.

We support the CEQ's recommendation for the U.S. accession to the Convention on the Law of the Sea (CLOS), which includes Articles 149 and 303. Together, these articles provide for the obligation of States Parties to protect underwater cultural heritage (UCH), though it does not provide sufficient detail on how these resources are to be protected.

In November 2001, the 31<sup>st</sup> general conference of the United Nations Educational, Scientific and Cultural Organization (UNESCO) adopted the UNESCO *Convention on the Protection of the Underwater Cultural Heritage*. This convention, which supports Articles 149 and 303 of the CLOS, provides a framework for managing activities directed at UCH. An important part of the 2001 Convention is the Annex Rules, a detailed set of guidelines and best practices for managing activities directed at UCH based on the International Council on Monuments and Sites (ICOMOS) *Charter on the Protection and Management of Underwater Cultural Heritage* (1996). The Annex Rules outline basic principles for the practice of responsible underwater archaeology and provide specific guidance for research, documentation, and artifact curation.

These documents were developed over several years with the input of the international community. The U.S. Delegation that was led by the Department of State expressly approved of the Annex Rules. While the U.S. has not yet ratified the Convention, most U.S. agencies with responsibility for protecting UCH have indicated that their activities directed at UCH will be done in a manner consistent with the Annex Rules. Included among these agencies are: the Advisory Council on Historic Preservation (ACHP), the National Park Service (NPS), the National Oceanographic and Atmospheric Administration (NOAA), the Bureau of Ocean Energy Management, Regulation and Enforcement (BOEM, formerly Minerals Management Service), the Naval History and Heritage Command (NHHC), the Coast Guard (USCG), and the Department of Agriculture (USDA). Federal Agency letters on the subject are available online at <http://www.sha.org/underwater/default.cfm>. It should also be noted that the NPS and NOAA played an important role in the development of both the Convention and the Annex Rules to ensure consistency with the existing U.S. historic preservation laws and the U.S. Federal

Archaeology Program. While not all participants could agree on every aspect of the Convention, support for the Annex Rules was unanimous.

The 2001 Convention came into force in January 2009, after ratification by 20 nations; and currently, 37 nations have ratified the Convention. The Annex Rules represent the current professional and international standard that should be applied to the practice of underwater archaeology even by non-Parties. The SHA and ACUA believe that CEQ has taken a positive step forward by acknowledging the importance and significance that underwater cultural heritage (including maritime heritage) has to the local, regional, and national history of this country. To further support this effort, and because many programs in the federal government already conduct archaeological research in a manner consistent with the Annex Rules, we ask that the CEQ recommend to all executive departments, agencies, and offices that are members of the Council, and any other executive department, agency, or office whose actions affect the ocean, our coasts, and the Great Lakes, to endorse and incorporate the Annex Rules as the basic requirement for the practice of archaeology on UCH under their authority, jurisdiction, or control. As CEQ has a leadership role in the implementation of the National Environmental Policy Act (NEPA), which would apply to federal activities directed at UCH, we further request that CEQ institute a policy or directive stating the federal agencies implementation of NEPA should be done in a manner consistent with the Annex Rules.

With the 10<sup>th</sup> Anniversary of the 2001 UNESCO Convention approaching (November 2, 2011), it is worth noting that France, one of the maritime nations that initially shared the U.S. concerns with the Convention, is now considering moving toward becoming a party. As many of the world's concerns for protecting our UCH can be traced to the U.S. not exercising control over the looting and unauthorized salvage by persons subject to U.S. jurisdiction, the SHA and ACUA also encourage the Administration to address the issue of controlling the looting and unwanted salvage of UCH in U.S. waters and abroad and require that authorized activities be conducted consistent with the Annex Rules.

The SHA and ACUA believe that many of the National Priority Objectives within the SAP Outlines allow for the incorporation of the Annex Rules to support better protection and preservation of UCH. In particular, the SAP outline for Objective 4, *Coordinate and Support*, identifies several opportunities for the incorporation of the Annex Rules. Specifically, the overview for this objective states, "One of the significant obstacles to effective management...is the complex set of Federal, State, Tribal, and local laws, authorities, mandates, and governance structures..." Also, within the body of the plan, Item D. Action 4, addresses the identification and dissemination of Best Management Practices. Since most of the U.S. agencies with responsibility for protecting UCH have indicated their support of the 2001 Annex Rules, the incorporation of these Rules into the National Ocean Policy will provide a platform for cooperation between agencies, as well as establish a set of best management practices for the protection of UCH. We believe this would further advance the CEQ's excellent work in encouraging stewardship of our rich marine environment and also support Section 6(i) of the President's Executive Order of July 19, 2010.

Formed in 1967, SHA is the largest international scholarly group concerned with the archaeology of the modern world. The ACUA is an international non-profit organization affiliated with the SHA. SHA and ACUA actively promote protection, scholarly research, and the

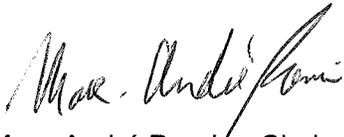
dissemination of knowledge about historical and underwater archaeology. Our memberships are international in scope, representing professionals from more than 25 nations.

If SHA or ACUA can be of any assistance in this endeavor, please do not hesitate to contact us.

Sincerely,

A handwritten signature in black ink, appearing to read 'William B. Lees', with a long horizontal flourish extending to the right.

William B. Lees, President  
Society for Historical Archaeology

A handwritten signature in black ink, appearing to read 'Marc-André Bernier', written in a cursive style.

Marc-André Bernier, Chair  
Advisory Council on Underwater Archaeology

**Index: Attachments to Comments**

**Resiliency and Adaptation to Climate Change and  
Ocean Acidification:**

Comment of Jordan West, EPA Global Change Research  
Program

(2 pages)

## **Comments on full content outline for *Resiliency and Adaptation to Climate Change and Ocean Acidification***

### **Jordan West, EPA Global Change Research Program**

- **Temperature**

Given this SAP is about climate change (formerly known as “global warming”), the lack of attention to temperature changes is odd. While sea level rise is emphasized in the third bullet of the overview, temperature is not mentioned until page 2, where it is buried within the milestones, within a bullet, within parentheses, within an “e.g.” list. It is mentioned two other places in the 10 page document, but always buried in a bullet as almost an afterthought. The extensive impacts of ocean warming are already evident and will continue to worsen -- after all, sea level rise is a direct result of temperature increase – so this climate driver needs much greater attention.

- **Observed Impacts**

As mentioned above, extensive impacts of ocean warming are already evident. There is a big emphasis in the document on forecasting and preparing for future impacts, and not enough emphasis on impacts that are already underway. Examples of documented impacts already occurring include range shifts, local extinctions, mass bleaching and mortalities on coral reefs, emerging and increasing ocean diseases. These already-occurring impacts need to be monitored and studied.

- **Scenario Planning**

I was surprised to see Action 2 call for the development of “a ‘best’ story line”. The notion that we will ever be able to predict a single correct future a few years from now, much less 100(!), runs counter to all current wisdom in the climate change community. Uncertainty associated with global climate models, downscaling techniques, ecosystem responses, human behavior and feedbacks, and management effectiveness make the notion of predicting a single “best” answer impossible. This document needs to get real and talk about scenario planning using a range of plausible scenarios of future climate change, which includes development of strategies that will be robust across multiple outcomes, and the transformation of management to allow the agility and flexibility to adjust management practices as effects become evident.

- **Maladaptation**

This is a very important concept since any adaptation action we take could do more damage than good if we do not build consideration unintended consequences into all adaptation planning. The concept is buried in a milestone bullet in Action 6 but needs much more emphasis in the SAP.

- **Sensitive Ecosystems**

While I understand that a review of all ecosystems is not possible, it seems like this document should mention “poster child” systems that are already being hugely impacted, such as coastal wetlands and coral reefs. The Arctic is very vulnerable and is getting huge emphasis throughout the document, not to mention its own chapter, and that is good. But it

seems the least you can do is mention in this chapter the high urgency status of certain other systems that are already getting creamed by the combined effects of climate change and ocean acidification.

**Index: Attachments to Comments**

**Regional Ecosystem Protection and Restoration:**

Comment of Fritzi Cohen

(4 pages)

This comment is submitted respectfully by Fritzi Cohen.

I am generally very concerned that habitat restoration frequently falls into the bad habit of deciding what needs to be eradicated in the existing habitat under consideration. And typically what needs to be eradicated has been determined to be invasive, and more often than not that Determination is more subjective than based on observation and good science. I am a victim of the invasive species program in Wa. State. From the very beginning I fought the program to eradicate spartina alterniflora, in Willapa Bay where my business the Moby Dick Hotel and Oysterfarm is located. Our focus was the pesticides and I was discouraged from attacking the actual decision to declare spartina a dangerous invasive plant. After 20 years of fighting off a variety of pesticides and being involved in litigation against the state and county I believe it is necessary to challenge the decision itself. Spartina as Jim Morris in the video presentation States is beloved on the east coast, and reviled on the West Coast. We have been told that None of the ecosystem services that the grass provides on the East and Gulf Coast have any relevance on the West Coast. Whats happened on t he West Coast has been all about politics not about science. I am particularly concerned about the West Coast Governors Program for restoring the Health of the Ocean. In their minds restoring the Ocean's resilience is equated with eradicating spartina from Mexico to Alaska.

<http://www.youtube.com/user/fearlessfund?feature=mhum#p/a/u/0/V8848lhaDXE>

The link above is Jim Morris, Director of the Baruch Institute Marine and Coastal Resources, U of S. Carolina who was a presenter at a panel organized by the Fearless Fund at the PIELC conference in Eugene. We decided to upload the entire lecture because of many requests from educators and others. Jim's lecture is on Spartina. I hope you find it interesting. I also hope that the West Coast Governors will reconsider eradicating spartina from Mexico to Alaska in their plan to restore the oceans health. One virtue of spartina alterniflora and spartina patens both of which have been studied on this matter is their ability to phytoremediate crude oil that may invade a coastal wetland. These plants are allies in restoring the health of the ocean, the enemies are those who are determined to destroy them.

Below is a link to a California organization that has done a superb job of explaining the controversy. I am hoping that you will seriously consider my comments and theirs. In this time of scarce resources it is sinful to take actions that are not only expensive but that are definitely not in the best interest of restoring the health of the ocean, and do not belong in any National Ocean Policy.

<http://milliontrees.wordpress.com/2011/06/06/spartina-alterniflora-treasured-on-the-east-coast-reviled-on-the-west-coast/>



## Spartina alterniflora: Treasured on the East Coast, reviled on the West Coast

milliontrees | June 6, 2011 at 4:42 pm | Tags: Clapper Rail, imazapyr, James Morris, Spartina | Categories: Ecology, Herbicides/Pesticides | URL: <http://wp.me/pT04m-tp>

*Spartina alterniflora* (Smooth Cordgrass) is a species of marsh grass native to the Atlantic and Gulf coasts of the United States, where it is considered a valuable plant making important contributions to the coastal ecology:

- Its dense growth provides protection against storm surge and "erosion control along shorelines, canal banks, levees, and other areas of soil-water interface."<sup>[i]</sup>
- It filters nutrients, sediments and toxins from the water that flows off the land before reaching the ocean, acting as a natural water treatment facility.

- It provides cover and food for birds, [mammals and marine animals that live in the coastal marsh](#). Many other marsh plants occupy the same marshlands.



*Spartina alterniflora*, Smooth Cordgrass. USDA photo

Where Smooth Cordgrass has died back in its native range, the dieback has been considered a serious environmental threat:

- In 2001 the Governor of Louisiana declared a “state of emergency” when Smooth Cordgrass declined and the state obtained \$3 million of federal funding to study and hopefully reverse the decline. This study resulted in the development of a method of aerial seeding of Smooth Cordgrass to restore declining areas of marshland.[\[ii\]](#)
- A similar, but smaller dieback of Smooth Cordgrass in Georgia led to a collaborative research and on-going monitoring effort by 6 research institutions in Georgia.[\[iii\]](#)
- Similar dieback of Smooth Cordgrass has been reported as far north as the coast of Maine. A researcher at the Connecticut Agricultural Experiment Station is quoted in that report as saying, **“In New Orleans, if their marshes were intact, the storm surge of Katrina would not have reached the levees.”**[\[iv\]](#)

### **The war on Smooth Cordgrass in the West Coast**

Smooth Cordgrass is not native on the Pacific Coast of the United States. Therefore it is treated as an alien invader to be eradicated with herbicides:

- \$12 million was spent to eradicate Smooth Cordgrass in San Francisco and Willapa Bay from 2000 to 2010[\[v\]](#)
- \$16.3 million is projected to be spent on eradication efforts on the entire West Coast from 2011 to 2020[\[vi\]](#)

In 2006, 2,000 acres were treated with herbicides to eradicate Smooth Cordgrass in the San Francisco Estuary. Most were retreated 3 to 5 times after initial treatment. In 2010, twenty five sites were slated for retreatment, usually with herbicides. The San Francisco Estuary Invasive *Spartina* Project (ISP) “defines a need for a **zero tolerance threshold on invasive *Spartina* in the San Francisco Bay.**”[\[vii\]](#)

The ISP reports that imazapyr (Habitat) will be used in most sites, although it will sometimes be mixed with glyphosate (Roundup). The ISP acknowledges that:

- “little is known about the interactive effects” of combining these herbicides or any of the surfactants used with these herbicides.
- These herbicides will be applied using a variety of methods, including aerial spraying by helicopter.
- Although the ISP considers imazapyr a relatively non-toxic herbicide, it also acknowledges that imazapyr has only been used since 2005. Therefore, **“Only few toxicity studies exist for birds...no data exist for the potential toxicity of imazapyr to shorebirds.”**<sup>[viii]</sup> Given that one of the stated purposes of eradicating Smooth Cordgrass is to benefit the endangered Clapper Rail, it seems surprising that nothing is known about the effects of imazapyr on any shorebird, including the Clapper Rail.

### **Why is Smooth Cordgrass treasured on the East Coast and reviled on the West Coast?**

That question was asked and answered by Professor James Morris at an Environmental Law Conference in Eugene, Oregon on March 5, 2011. Professor Morris studies Smooth Cordgrass at the Baruch Institute for Marine & Coastal Sciences at the University of South Carolina. We urge our readers to [watch a video of his presentation](#) to the conference in Oregon. We will draw upon that video in addressing the claims<sup>[ix]</sup> made by those who are attempting to eradicate Smooth Cordgrass on the West Coast:

**Indictment:** Smooth Cordgrass will invade mud flats, eliminating valuable habitat for plants and animals that inhabit that segment of marshland.

**Defense:** According to Professor Morris, Smooth Cordgrass was introduced to the West Coast in shipments of Eastern oysters over 100 years ago without eliminating mudflats. Europe has had similar experience with Smooth Cordgrass which was introduced there to reduce sediment in harbors. Professor Morris showed pictures of Danish and Dutch estuaries in which Smooth Cordgrass has existed since the 1930s without radically altering the composition of the marshland.

**Indictment:** Smooth Cordgrass will invade waterways, making them impassable.

**Defense:** Again, since this has not happened in 100 years, there is no reason to assume it will happen in the future. Furthermore, the USDA describes the narrow range of Smooth Cordgrass: “the width and thickness of vegetative colonies are controlled by a number of site specific conditions such as elevation, shoreline slope, and frequency, depth and duration of flooding” as well as salinity and acidity. In other words, the range of Smooth Cordgrass is limited.

**Indictment:** Smooth Cordgrass does not provide habitat value equal to the native species of cordgrass with which Smooth Cordgrass competes, particularly for the endangered Clapper Rail.

**Defense:** Mike Casazza at the Dixon Field Station of the USGS is presently studying the effect of eradicating Smooth Cordgrass on the reproductive success of the Clapper Rail: “Removal of invasive *Spartina* accomplishes the goal of *Spartina* eradication, but if rails fail to survive and reproduce, then the goal of species protection is unfulfilled...the potential for impact from invasive *Spartina* removal and the potential for mitigation by rail ecology and behavior remain poorly understood.”<sup>[x]</sup> Clapper Rails live in Smooth Cordgrass on the East Coast: “numerous” Clapper Rail families were observed nesting in Smooth Cordgrass on Dewees Island, South Carolina.<sup>[xi]</sup>

**Indictment:** Smooth Cordgrass is outcompeting the native Pacific Cordgrass (*Spartina foliosa*) by displacement and hybridization.

**Defense:** This is probably true because of the characteristics of the Pacific Cordgrass: “*S. foliosa* occupies a very limited range in the intertidal zone, and the leaves and stems wither in fall and shed in the winter, leaving sparse standing matter that is ineffective at trapping sediment. Seedlings of *S. foliosa* are seldom found in established marshes and appear only intermittently in sheltered upper mudflats.”<sup>[xii]</sup> In other words, the range of the native cordgrass is narrower, it does not grow as densely, and it is not foliated year around, thereby creating opportunities for the non-native cordgrass to occupy bare ground. Since marsh grasses are beneficial to the environment and its inhabitants, the ability of Smooth Cordgrass to occupy this vacuum seems a benefit, particularly since native cordgrass is less capable of removing sediments from water, reducing its effectiveness as a filter of pollutants from water flowing into the bay.<sup>[xiii]</sup>

**Smooth Cordgrass is treasured on the East and Gulf Coasts because it performs valuable ecology services. Although it performs the same ecological functions on the West Coast, it is being eradicated. The evidence available to us suggests that we are spending a lot of money and effort, as well as using a lot of herbicides, to eradicate Smooth Cordgrass only because it is not native to the West Coast.**

- **Smooth Cordgrass provides superior storm surge protection particularly during winter months when native cordgrass is dormant.**
- **Smooth Cordgrass is more capable of filtering pollutants from water flowing into the bay.**
- **Smooth Cordgrass provides at least equal habitat quality to the endangered Clapper Rail and probably other marsh plants and animals as well.**
- **Smooth Cordgrass has not blocked waterways or eliminated mud flats in comparable situations over long periods of time**

We invite our readers to supply us with evidence that there are legitimate reasons for the campaign against Smooth Cordgrass.

**Index: Attachments to Comments**

**Regional Ecosystem Protection and Restoration:**

Comment of James Oppenborn

(24 pages)

# ***Oculina* Banks: Habitat, Fish Populations, Restoration, and Enforcement.**

**Christopher C. Koenig  
Department of Biological Sciences  
Florida State University**

**Report to the South Atlantic Fishery Management Council  
December 2001**

## **Abstract**

The shelf-edge *Oculina* coral reef ecosystem, known only from off the central east coast of Florida, is unique among coral reefs and exists nowhere else on earth. The azooxanthellate (i.e., lack symbiotic algae) branching coral typically produces 1 – 2 meter diameter coral heads which often coalesce into thicket-like habitats with exceedingly high biodiversity, similar to that of tropical coral reefs. Historical accounts indicate very high densities of economically important reef fish as well as grouper spawning aggregations associated with the coral habitat. The uniqueness, productivity, and vulnerability of the *Oculina* habitat moved the South Atlantic Fishery Management Council (SAFMC) in 1984 to declare a significant portion (92 nmi<sup>2</sup>) of the habitat an HAPC. This legislative action purportedly protected the coral from trawling, dredging, and most other mechanically disruptive activities. Evidence of demographic impacts of fishing on grouper spawning aggregations further stimulated the SAFMC in 1994 to close the original HAPC for a period of 10 years to bottom fishing as a test of the effectiveness of a fishery reserve in protecting the reproductive capacity of groupers. Further expansion of the original HAPC to cover 300 nmi<sup>2</sup> was instated in 2000. A 1995 submersible survey suggested that much of the habitat, the economically important fish populations, and the grouper spawning aggregations described in the 1970s were decimated by 1995. A broad-scale submersible and ROV survey conducted in September 2001 found that most (90%) of the *Oculina* habitat within the EORR is reduced to an unconsolidated rubble and the damage north of the EORR may be greater. To our knowledge, only about 8 hectares (20 acres) of fully intact *Oculina* thicket habitat remain in the OHAPC and probably in the world. Restoration experiments were run from 1996 to 1999 to evaluate the transplantation potential of *Oculina*. High rates of transplant survival induced NMFS to support a significant restoration effort in 2000 and 2001. Results of the restoration efforts of 2000 indicate that restoration structures designed to simulate *Oculina* habitat are attracting groupers, snappers, and amberjack, and may be sites of grouper spawning aggregations. *Oculina* habitat and fish populations within the EORR were described quantitatively (expressed in terms of density, nos./hectare) using a system of two cameras with attached lasers. Although fish populations observed in 2001 were not directly comparable to those observed in 1995, there was a noted increase in grouper numbers and size and especially an increase in the abundance of males of gag and scamp, suggesting the reoccurrence of spawning aggregations of both species. Juvenile speckled hind were observed in *Oculina* thickets, suggesting a nursery function for this species. Evidence is very strong that shrimpers are still illegally trawling within the OHAPC, and suggestions are made to eliminate such threats to this vulnerable, but productive habitat. We have initiated work on a habitat map of the OHAPC and produced a protocol to continue habitat mapping.

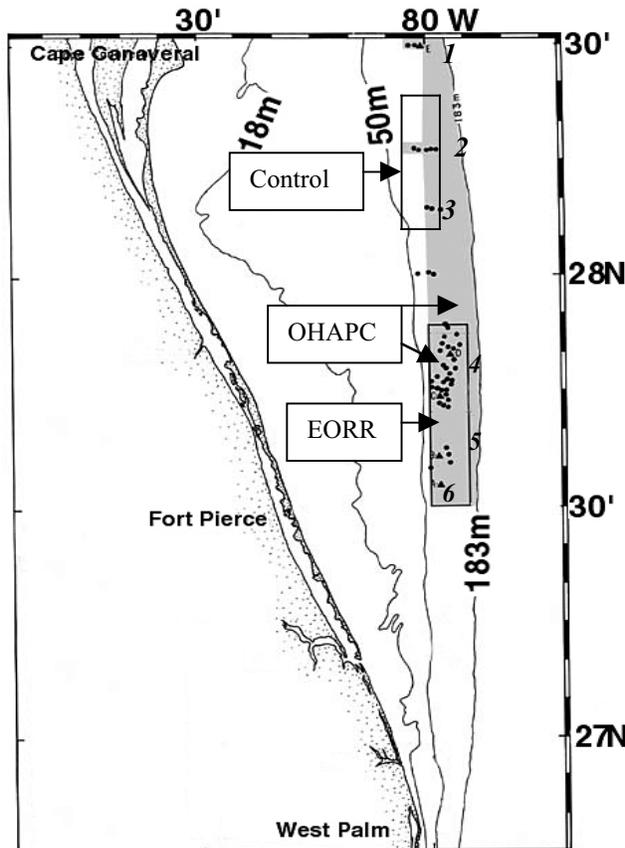
# INTRODUCTION

## Background

The shelf-edge *Oculina* coral reef ecosystem, known only from off the central eastern coast of Florida (Figure 1), is unique among coral reefs, existing nowhere else on earth. This area is called the *Oculina* Banks because the coral, *Oculina varicosa* (ivory tree coral), grows primarily on limestone ridges and pinnacles which are distributed throughout the area. The Banks extend about 167 km (90 nmi) along the shelf edge from Fort Pierce to Daytona, Florida, from about 32 to 68 km offshore in depths of 70-100 m (Avent et al., 1977; Reed, 1980; Thompson and Gulliland, 1980; Virden et al., 1996). The azooxanthellate (i.e., lack symbiotic algae) branching coral typically produces 1 – 2 meter diameter coral heads which often coalesce into thicket-like habitats with exceedingly high biodiversity (Reed et al. 1982, Reed and Mikkelsen 1987), similar to that of tropical coral reefs. The Banks are important because they are unique and productive; very high densities of economically important reef fish as well as grouper spawning aggregations have been recorded in the past.

## History of Research and Management in the *Oculina* Banks

From as early as the 1970s researchers conducted acoustic and submersible studies of the *Oculina* Banks. These studies included initial descriptions of the pinnacle and ridge structures (MacIntyre and Milliman 1970, Avent et al.



1977, Thompson and Gulliland, 1980) and various studies of the surficial geology (Hoskin et al., 1983; Hoskin et al., 1987; Scanlon et al., 1999). Other studies focused on the habitat-structuring organism, *Oculina varicosa*, in terms of its growth form and distribution (Reed 1980), growth rate (Reed 1981), reproduction (Brooke 1998), and the effects on survival of transplantation (Koenig et al. 2000), upwelling (Reed 1983) and bioerosion (Reed and Hoskin 1987). Studies on the habitat-associated invertebrate communities (Reed et al., 1982; Reed and Mikkelsen, 1987) indicated very high species diversity. Submersible studies in early April 1980 showed a very high abundance of reef fish, including groupers, snappers, and amberjack and the occurrence of grouper spawning aggregations (Reed and Gilmore 1981, Gilmore and Jones 1992). However, comparable observations made a decade and a half later in 1995 showed dramatic declines in both economically important species and in the grouper aggregations (Koenig et al. 2000).

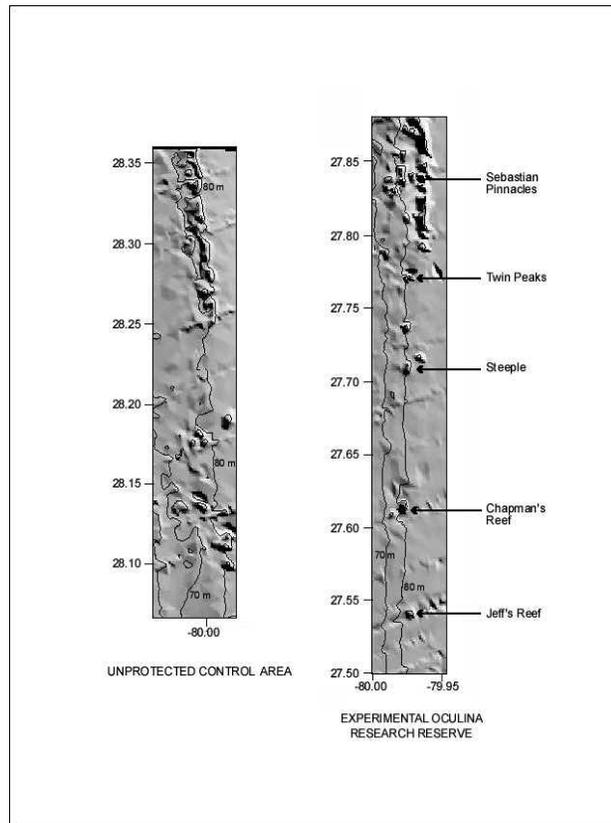
Figure 1. Chart of *Oculina* Banks Habitat Area of Particular Concern (OHAPC), includes the Experimental *Oculina* Research Reserve (EORR) showing dive areas visited in 2001 (numbers 1-6). Dots are historic dive sites visited in the 1970s and 1980s. Dive areas: 1. Cape Canaveral, 2. Cocoa Beach, 3. Eau Gallie, 4. Sebastian, 5. Chapman's Reef, and 6. Jeff's Reef. Note: the shaded area is the entire OHAPC, the EORR is the smaller inset box.

It was soon recognized that the *Oculina* habitat was not only unique and valuable fish habitat, it was also delicate and vulnerable to mechanical disruption. So, in 1984 a 92-nmi<sup>2</sup> portion was designated as the *Oculina* Habitat Area of Particular Concern (OHAPC) by the South Atlantic Fishery Management Council (SAFMC) within the Fishery Management Plan for Corals and Coral Reefs. This action prohibited the use of trawls, dredges, traps, and long lines in this area. In 1994, acting on information suggesting that aggregation fishing induced severe demographic changes in grouper populations, the SAFMC closed

the original HAPC to bottom fishing for a period of 10 years and called it the Experimental *Oculina* Research Reserve (EORR). The intent of this closure was to experimentally evaluate the effects of a marine protected area (MPA) on fish communities and grouper spawning aggregations. In 2000 the SAFMC expanded the OHAPC to 1029 km<sup>2</sup> (300 nmi<sup>2</sup>) and prohibited the use of all gears that could cause mechanical disruption of the habitat.

In early September 2001, eight days of the “Islands in the Stream Expedition” (Co-PIs: A. Shepard, C. Koenig, J. Reed, G. Gilmore) were devoted to submersible (Clelia) and ROV studies in the OHAPC. The objectives of this cruise included: (1) estimation of the percentage of live relative to dead and destroyed *Oculina* habitat within the OHAPC, (2) quantitative characterization of the living habitat, (3) quantitative evaluation of the fish populations in the EORR and comparison with historic observations, (4) evaluation of fish populations associated with the restoration reefballs deployed in 2000, and (5) to initiate development of a GIS-based habitat map of the OHAPC. The primary purpose of this paper is to report on the present condition of the OHAPC with respect to habitat, fish populations, restoration, and surveillance and enforcement.

Figure 2. Shaded relief map (Scanlon et al. 1999). Coordinates are decimal degrees. Image to right is the EORR closed in 1994; image to left is just north west and includes protected habitat (OHAPC) and unprotected habitat (west of 80°W longitude).



## MATERIALS AND METHODS

### *Habitat surveys:*

We used a Phantom S4 ROV for habitat surveys. Our objectives in these surveys were: (1) to sample as much of the high relief areas as possible to estimate the percent live coral habitat remaining in areas where it had once flourished, and (2) to revisit historical sites identified in the 1970s to see if the habitat has changed since then. The first objective was met by running the ROV from south to north (with the Florida Current) at speeds of 0.5 to 1.5 knots. The ROV was tethered to a down weight with a 20 m line so that the tension was taken off the umbilical. The umbilical was clipped to the winch cable that suspended the down weight off the bottom while the ship drifted under power to the north in the current. Although the ROV could be maneuvered up and down to some extent, the ROV operator, captain, and winch operator were in constant communication. The captain would anticipate high-relief structures with the echosounder and relay that information to the winch and ROV operators and the ROV operator would indicate to the winch operator the extent to which the ROV was to be raised or lowered to avoid collision with high-relief structures.

ROV transects were arranged so that they crossed ridges and pinnacles, the structures supporting *Oculina* thicket habitat. The ROV transects were random in the sense that we had no a priori knowledge of the habitat condition. Reference point coordinates were recorded while ROV transects were under way to identify changes in habitat and/or depth. ROV videotapes were later reviewed to determine the condition of the habitat on the ridges and pinnacles, and to classify habitats as intact, sparse, or dead. Intact habitats are undisturbed, being composed of large coral heads of 1 to 2 m in diameter, arranged in a thicket-like pattern, and providing multi-scale interstices for a variety of reef fish. Sparse habitat has the appearance of disturbed habitat and is composed of small colonies sparsely distributed in a field of rubble, providing little cover for larger species of fish. Dead habitat is composed of unconsolidated coral rubble, providing little to no habitat cover for any species of reef fish. The

ROV transects can be thought of as long thin random samples of ridges throughout the region. The relative area of each habitat class (intact, sparse, or dead) was estimated as the percent time the ROV passed over that habitat class. Our best estimates of habitat condition are in the EORR because our sampling intensity was greatest there.

We also tried to revisit a number intact coral habitat sites throughout the OHAPC that were observed and videotaped during the 1970s (Reed 1980). However, the coordinates of those sites were based on LORAN A and C, which is far less accurate than DGPS, which is now used for positioning. Thus, we could not be certain that the same sites observed in the past were revisited, with the exception of the Cape Canaveral site. That site is associated with a distinct ridge and cannot be confused because there are no surrounding ridges.

#### *Habitat characterization:*

A protocol for mapping deep reefs was developed by Koenig and Coleman (unpublished) and was adapted to the OHAPC conditions for the 2001 cruise (a copy is included in the Appendix). We used a submersible and an ROV in our studies and relied heavily on the side-scan sonar maps developed by Scanlon et al. (1999) to provide the locations (based on geomorphology) for investigation.

Habitat was characterized through the use of belt transects with the submersible. Harbor Branch Oceanographic Institution's (HBOI) submersible, Clelia, was equipped with two video cameras, down-looking and forward-looking, and a set of lasers associated with each. The down-looking camera had 2 parallel laser beams, 25 cm apart, in the field of view; these lasers gave us scale and allowed us to standardize quadrat size. The forward-looking camera had 3 lasers, two parallel beams 10 cm apart and one beam, in line with the others and 10 cm apart from the adjacent laser, converging on the other two. The converging beam was adjusted so it touched the adjacent beam at a distance of 5 m. The three lasers allowed us to determine sizes of fish, coral heads, and habitat features, but most importantly, distance. We used the distance estimates to determine visibility, and the area (length x width) of the belt transects. Transect areas were calculated (see below under 'Fish Populations') and fish counts were recorded for each transect as numbers per square meter of transect, then the fish densities for each transect were averaged for all transects within that habitat type and expressed as numbers per hectare.

Percent live coral cover was determined from the down-looking video. Random frames from transect videos were selected and standardized relative to the laser metric in the frame. Standard-size quadrats were overlain with a set of 100 randomly distributed dots. The percentage of dots touching live coral was taken as the percent cover. Randomly selected coral heads were measured using the laser metric in the frame.

#### *Fish Populations:*

The forward-looking camera with its three lasers was used to estimate fish density. We realize that the error associated with determining the density of small cryptic species is great, but our main concern was with larger economically important species (Koenig et al. 2000). Nevertheless, all fish seen in a transect were counted. Species that tend to follow the submersible and circle it, such as amberjack, were not repeatedly counted as they passed through the video field, but their total abundance was estimated as a group by observers in the submersible.

Estimates of the area of a transect require several values: the effective distance for identifying fish species (D), the camera's horizontal angle of view (A), and the length of the transect (L). The effective distance (D) may not be the limits of visibility, but instead the limit at which the fish can be identified with a high degree of certainty. In the work we report here, the visibility was consistently greater than 5 m, but we used 5 m as our standard distance for counting and counted no fish beyond that distance from the camera. The horizontal angle of view (A) depends on the camera used and the position of the zoom. Transects on the IIS 2001 cruise were run with an Insite-Tritech high sensitivity (0.0003 lux), high resolution (560 video lines), monochrome  $\frac{1}{4}$  inch CCD underwater (rated to 3000 m) video camera with a 92 degree angle of view (no zoom). The exact coordinates (DGPS) of the sub at the start and end points of transects were recorded and transect length (L) was measured using an ArcView program.

First we calculated the width of the field of view (W) at distance (D) by:

$$W = 2 (\tan (\_A)) (D),$$

Then we calculated the area of the transect (TA) as:

$$TA = (L \times W) - (W \times D)$$

Estimating the area of a transect allowed us to calculate the average density (number per hectare) and standard error of observed fish species.

### *Restoration*

In EORR locations like Sebastian Pinnacles (Figures 1 and 2), virtually all the coral has been reduced to unconsolidated rubble, apparently by trawling (Koenig et al. 2000). Preliminary coral transplant experiments were conducted from 1996 to 1999 and demonstrated the high survival rates of transplanted coral. In 2000 on Sebastian Pinnacles, we started the first large-scale transplanting. Two types of transplant structures were deployed, reefballs (Figure 3) and reefdisks (Figure 4). Reef balls, perforated hemispherical concrete structures of 1-m diameter and 0.7 m high, simulate *Oculina* coral heads and provide fish with benthic structure similar to natural coral heads. Reefdisks, small 0.3 m diam concrete disks with attached vertical 0.4 m PVC posts with attached coral, were deployed to evaluate the effect of fragment size on transplant survival and growth (smaller fragments mean less impact to donor sites).



Figure 3. Reefball with attached *Oculina*. The orange float is for relocation with the ship's ecosounder.



Our purpose for deploying reefballs and reefdisks were two-fold, first to start large-scale restoration in denuded areas, and second, to evaluate the most effective restoration approaches. One hundred and five reefballs were arranged in clusters of 5, 10, and 20 in a randomized block design (Table 1) to determine the most effective cluster size in terms of attracting fish, and especially grouper spawning aggregations. Four hundred and fifty reefdisks (Table 1) were also deployed in a randomized block design to evaluate fragment size in terms of survival and growth of the coral transplants.

Figure 4. Reefdisks with attached *Oculina* fragments.

We observed reefballs and the reefdisks deployed in 2000 with the submersible in 2001, thirteen months after deployment. Although our observations were too soon after deployment to determine transplant survival and growth, we recorded the reef fish populations associated with the reefballs. Over time we will continue our observations of these restoration sites to follow coral growth and fish populations. We anticipate that coral fragments will grow to cover the concrete structures to further simulate natural habitat with a concomitant development of reef fish populations.

### *Surveillance and Enforcement*

We looked for trawl tracks in all areas searched with the submersible. We also obtained a list of trawling violations in the OHAPC from the Office of General Council for Enforcement and Litigation, NOAA, NMFS, SERO. We also contacted the Coast Guard office in Charleston and will give a presentation to their group on the *Oculina* Banks and the necessity for surveillance and enforcement.

## **RESULTS**

### *Habitat Surveys:*

We made 7 ROV transects over high-relief features within the EORR and 3 outside the EORR for a total of 9,686 m of ROV video on ridges. Only the portions of the transects that were on these features were counted, and several transects that did not include high-relief features were excluded. Within the EORR, 7,645 m of ridge features were viewed in 7 transects in both the Chapman's Reef area (3 transects) and the Sebastian area (4 transects). Of the 7,645 m of ridge transected within the EORR, 464 m (6%) were intact habitat, 302 m (4%) were sparse habitat, and 6,877 m (90%) were unconsolidated rubble. The only intact habitat we found was Jeff's Reef and the western ridge of Chapman's Reef. Jeff's Reef is about 4 hectares in area and the western ridge of Chapman's Reef about the same size, so the total area of live thicket habitat is about 8 hectares, or about 20 acres. The only sparse habitat we found was on the south-facing eastern ridge of Chapman's Reef. Outside the EORR, we found only unconsolidated rubble in 2,041 m of transected ridges. In nearly all cases, there were occasional small colonies of live *Oculina* associated with the unconsolidated rubble. We also observed sparsely distributed small colonies of *Oculina* on low relief rocky bottom often associated with large boulders. Some of these colonies were dead but standing.

We attempted to revisit sites documented in the 1970s (Reed 1980). Although there was uncertainty about the exact site locations, none of the sites assumed to be the same as those observed in the 1970s were now intact. The Cape Canaveral site, where the location was certain, was reduced to rubble.

### *Habitat Characterization:*

Submersible videotape analyses are not yet finished. When finished we will have quantitative descriptions of the habitat conditions we observed with the submersible and will quantitatively classify habitats accordingly. The down-looking camera allows us to calculate coral habitat coverage and sizes of coral heads; the forward-looking camera allows us to calculate colony heights, diameters, and spacing. We also have descriptions of the surficial geology (Scanlon et al. 1999) and ROV transects over features of both high and low relief. We anticipate putting together a first-cut habitat classification scheme and map of the OHAPC over the next year which will be available in a GIS format for easy access to the geo-referenced data. In 2002 we are planning a multibeam survey which will give us a more accurate map of the geomorphological features upon which we will build our habitat maps.

### *Fish Populations*

On the 2001 OHAPC cruise we were able to estimate transect areas and therefore described the fish populations in terms of density (numbers per hectare). This is a superior method of video sampling fish populations because it allows statistical comparisons of fish population densities both spatially and temporally, which is important for the evaluation of the effectiveness of an MPA. There is a clear relationship between fish population densities and habitat condition (Figures 5, 6, and 7) as observed in 2001 in the southern part of the EORR at Jeff's and Chapman's Reefs. Even pelagic amberjack species were much more abundant in areas of intact habitat.

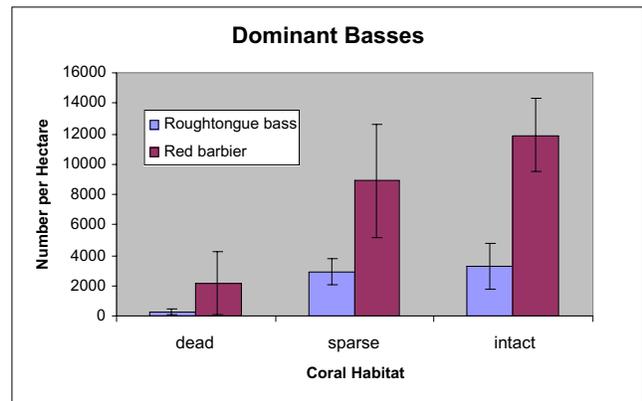


Figure 5. Density of dominant basses (*Antheinae*) in three habitat classes. Error bars represent standard errors.

We are unable to make quantitative comparisons between our submersible observations in 1995 and those made in 2001 because observations were made in different seasons, and because the approach used in 1995 was intended as a survey rather than a quantitative evaluation of fish populations. At that time we had no idea of the condition of the habitat and the associated fish populations, nor did we have sidescan images to guide us in our submersible studies. At that time the only live habitat we found was on Jeff's Reef, a 4 hectare ridge in the southern-most portion of the

EORR (Figure 2). So, our comparisons between 1995 and 2001 must be restricted to Jeff's Reef and must be qualitative.

Our 1995 observations were made in March, during the gag and scamp spawning season, and the 1980 observations (Koenig et al. 2000) were made during the same period. However, our 2001 observations were made during early September, well after aggregations have dispersed. Nevertheless, we saw more and larger groupers (we have not completed our fish measurements) in 2001 and male gag and scamp were common in intact habitat. This observation suggests that both gag and scamp aggregations are functional again in intact habitat areas where they were observed in 1980. We also observed juvenile (yellow phase) speckled hind associated with the *Oculina* habitat suggesting that *Oculina* thickets function as juvenile habitat for this species. Amberjack were more abundant in 2001 than in 1995.

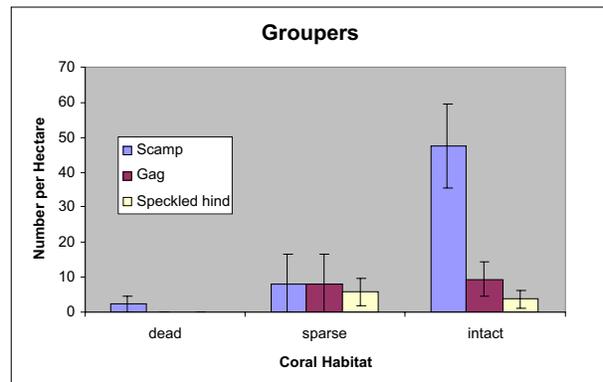


Figure 6. Density of groupers in three habitat classes. Error bars represent standard errors.

### Restoration

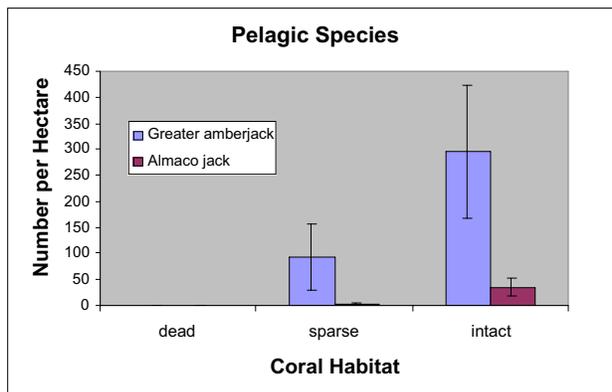


Figure 7. Density of pelagic species in three coral habitat classes. Error bars represent standard errors.

Reef fish abundance around reefballs was much greater than over the dead habitat that surrounded them (compare Tables 2, 3, and 4). Especially important is the observation of economically important species associated with the reefballs. These species include groupers, snappers and amberjack. We observed behaviors similar to that of courtship behavior in scamp (see Gilmore and Jones (1992) for description), but it appeared to be between males. It is possible that some of the reefball sites are already functioning as spawning aggregation sites, but we won't be certain until we observe the area during the spawning season. We also observed male gag in the vicinity of the reefballs.

We could not be certain of the survival rates of the transplanted coral associated with reefballs and reeferisks. However, the few close-up views we had of the coral suggest very high rates of survival. We must wait until the coral has had more time to grow to be certain.

### Surveillance and Enforcement

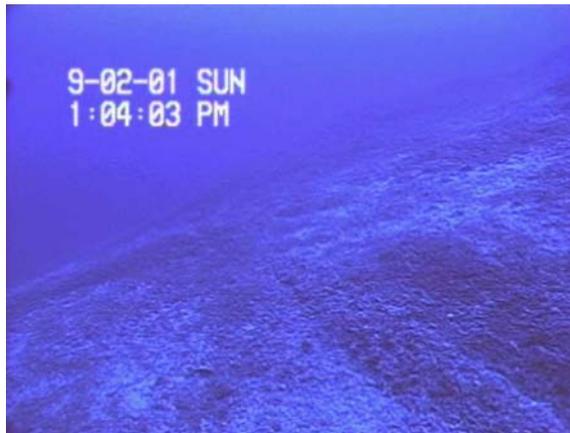
During our submersible observations of the reefballs and reeferisks we noted that two of the reeferisk clusters were missing and left in their place were several broken pieces of PVC. The PVC was broken, not detached, from the concrete-disk bases indicating strong mechanical impact. In the vicinity of the missing reeferisk clusters were apparent trawl tracks in the rubble (Figure 8).

Poaching trawlers apparently continue to operate within the EORR and other parts of the OHAPC. Arrests for poaching occurred on 21 July 1993, 2 October 1994, 19 November 1994, and 19 January 2000.

## DISCUSSION

This report describes the present condition of the OHAPC in terms of the habitat, fish populations, and restoration work. The data are predominantly derived from the first leg of the 2001 “Islands in the Stream” Expedition which involved the use of a manned submersible (HBOI’s Clelia) and an ROV (see <http://oceanexplorer.noaa.gov/explorations/islands01/islands01.html> for details). We are still processing these data, so this report is not complete. In eight days, sixteen sub dives and thirteen ROV dives were conducted throughout the EORR and other portions of the OHAPC (Figures 1 & 2), resulting in more than 70 hours of underwater videotape documentation. Unexplored areas and their associated fish populations were surveyed, characterized, quantified, and video documented. Over all, the habitat is in very poor condition, with about 90% of it reduced to an unconsolidated rubble, and poaching trawlers continue to operate within the OHAPC. In contrast, the apparent success of the restoration experiments and the observations of increased grouper abundance suggesting the reoccurrence of aggregations is encouraging.

Figure 8. Apparent trawl tracks in the Sebastian area of the EORR.



### *Habitat Surveys*

ROV surveys were designed to sample the geomorphology most likely to support intact coral thicket habitat, namely, ridges and pinnacles. We found no new sites of live coral thickets and the status of known intact coral habitat was either similar or worse compared to past studies. Intact coral thickets were still in good condition at Jeff’s Reef and the western ridge of Chapman’s Reef, both of which are at the southern end of the EORR. In other places, live coral primarily inhabited low-relief (< 1 m) sites, but the small size and dead standing colonies suggest these low relief areas are marginal for the survival and growth of the coral. Future experiments should examine *Oculina* senescence and test the hypothesis that low relief provides marginal survival conditions.

Although trawling activities have undoubtedly contributed to destruction of *Oculina* coral habitat of the *Oculina* Banks, impacts from other factors may also be significant. The incriminating evidence implicating trawlers includes trawl tracks, lost and broken experimental coral transplant structures, and recent (2000) arrests of poaching trawlers. Also, reefs in the northern OHAPC that had extensive live coral in the 1970s and 80s had been reduced to rubble when revisited in 2001. Other factors that may account for damaged coral habitat include (1) Extreme temperatures. Bottom temperature in the OHAPC range from 7.4 to 26.7°C, as upwelling events occur annually (Reed, 1981), but the impact on *Oculina* is unknown. (2) Excessively high nutrient and sedimentation levels. Upwelling events may raise nutrient and sedimentation levels by an order of magnitude, but *Oculina*, especially the shallow form, appears tolerant of turbidity and sedimentation (Reed, 1981, 1983). (3) High currents. Currents on the bottom in the OHAPC may exceed 100 cm sec<sup>-1</sup>, enough to erode tips of coral branches (Reed, 1981; Hoskins et al., 1983), but it is unknown whether entire colonies can be destroyed by high currents and it seems unlikely that currents would destroy habitat in one area, but not in an adjacent area. (4) Pathogens. Deep-water corals may be susceptible to pathogens as are shallow-water reef corals, but there have been no directed studies of coral diseases in the OHAPC or in any other deep-water coral habitats. (5) Anthropogenic impacts other than trawling. Explosive depth charges used in the area during World War II may have also impacted the coral. (6) Freshwater seepage may cause localized mortality. However, among the many factors that potentially could have killed *Oculina* coral, the most likely for most of the OHAPC is trawling because most of the banks are reduced to unconsolidated rubble which would likely result from mechanical impacts. Nevertheless, further research on potential impacts from factors other than trawling could provide explanations for some of the coral loss.

### *Habitat Characterization*

Quantitative habitat characterization is important because it allows meaningful temporal comparisons, an important consideration for MPAs. It is impossible to ascertain whether the habitat is growing or senescing from single observations. To determine the trajectory of habitat development periodic measurements must be made. For example, we do know whether sparse coral habitats are growing back from some historical mechanical disruption or if the habitat remains as such because ambient conditions don't allow continued growth and development. Also, we know that linear growth is between 1 to 2 cm per year, but under marginal habitat conditions growth might be very much slower than this.

In the future we intend to establish permanent reference stations in selected habitat classes throughout the OHAPC. Habitat classes will be based on quantitative descriptors of coral coverage and the size of coral heads. Reference stations with permanent monuments will allow quantitative evaluation of future changes in OHAPC habitats and fish populations. Selection of reference stations will be based on our habitat descriptions, which are a combination of geomorphology and benthic biological features, and will include selected historic sites observed and videotaped in the 1970's, in 1995, and in 2001. Emphasis will be on intact *Oculina* habitat, but we will also establish reference sites in other areas of the OHAPC, including sparse and dead coral habitat.

### *Fish Populations*

Overfishing has resulted in a drastic decline of reef fish stocks throughout the southeastern U.S. (SAFMC, 1999). Most of the snapper-grouper complex that inhabited the OHAPC are considered overfished. These include red porgy, black sea bass, gag, scamp, snowy grouper, red grouper, Warsaw grouper, speckled hind, red snapper, and vermilion snapper. It is not certain whether hook and line fishing has continued within the EORR but clear evidence of it was reported to the SAFMC in 1997 (Koenig, unpublished data), three years after the area was closed to bottom fishing. Nevertheless, there are signs of recovery of the fish populations, especially the dominant groupers and amberjack. Future observations should be scheduled in the late winter and early spring so that comparisons can be made to historical observations.

Fish population quantification through the use of belt transects is much preferable to non-quantitative surveys because they provide a statistical basis for spatial and temporal comparisons. Such quantitative measurements are relative abundance, not absolute abundance, so comparisons in time and space must be consistent. That is, comparisons should only be made between the same seasons and at the similar times of the day because populations change seasonally (e.g., seasonal aggregations) and all fishes have diurnal activity patterns. Also, as shown in this report, comparisons must be within similar habitat types.

Positive trends in fish populations within the EORR include observations of relatively abundant gag and scamp populations and males of both species. Over the past couple of decades the size, age, and proportion of males of these species has declined in both the Gulf and the south Atlantic regions (Koenig 1996, Coleman et al. 1996, McGovern et al. 1998, and Koenig et al. 2000), apparently the result of intense aggregation fishing. But the protection of aggregations through the use of year-round MPAs appears to reestablish historical demographics, including sex ratio (Koenig, unpublished data from the Gulf MPAs). The presence of gag and scamp males in the EORR and the greater size of these fish relative to observations in 1995 support the contention that MPAs protect the demographics of these species. However, it is necessary to observe the spawning aggregations in February and March, the time of peak spawning, before we can be certain.



We observed juvenile speckled hind in association with the *Oculina* thickets of Jeff's and Chapman's Reefs (Figure 9). Speckled hind has been vastly overfished in the past several decades, to the point where they are being considered for threatened species status. Apparently, *Oculina* serves a juvenile habitat function for this recovering species.

Figure 9. Juvenile speckled hind on Chapman's Reef among *Oculina* thickets.

After just one year, all species of groupers observed in 1980, with the exception of Warsaw grouper, were seen in association with the reefballs. Also, there were signs suggestive of the formation of scamp and possibly gag spawning aggregations in association with these artificial structures. These signs included the presence of males of both species and scamp male gray-head patterns characteristic of spawning sites. However, these encouraging signs must be verified with observations during the spawning season.

### *Restoration*

A good understanding of *Oculina* life history is important to the success of restoration efforts. For example, we know that coral fragments survive to grow into new colonies, but we also know that *Oculina* produces billions of free-swimming larvae each year. Why then does recruitment appear to occur in the OHAPC at a such a slow rate? On all the concrete structures we have deployed thus far (56 reefblocks and 105 reefballs) we have observed a new recruit only once. Yet artificial reefs and wrecks off St. Augustine and Jacksonville are covered with small *Oculina* colonies (Koenig, personal observation). Clearly, current regimes at several scales and settlement conditions play important roles in recruitment. But our understanding of recruitment process in this species is very poor.

Starting in 1996 and continuing through 1998 we tested the survival of *Oculina* fragments affixed to PVC posts on reefblocks (18 concrete blocks strapped together). We deployed 56 such reefblocks, half (28) of which had coral attached to the four upper corners of the blocks. Half the reefblocks were deployed in the northern portion of the EORR and half were deployed in the southern portion. Over the years, including 2001, we observed some reefblocks from different regions of the EORR with both ROV and submersible, as conditions would allow. In all cases that we observed where the coral was present, it was alive and growing. In not a single case did we find attached fragments that were dead, although some fragments were apparently stripped off by fishing activities, because in those cases the reefblocks were entangled with fishing line.

When we began our reefblock studies of *Oculina* fragment survival a significant problem we encountered was the collection of enough coral to conduct the transplant experiments. We selected heavily damaged sites for these collections and had to collect the coral with an ROV equipped with a front-mounted dip net. But recently we discovered that large deepwater wrecks within and just outside of the OHAPC are covered with large *Oculina* colonies (Figure 10). Some of these wrecks were sunk by U-boats during World War II, but some are thought to have been around since the turn of the last century. Some *Oculina* colonies on these wrecks are several meters in diameter (Mike Barnette, Association of Underwater Explorers, personal communication). This year for the first time we collected some of the coral growing on these wrecks to use in our restoration work. Mr. Barnette and his associates volunteered to collect the coral using trimix gas in open circuit SCUBA. They easily collected more than enough in a single dive. Now that we are aware of this coral resource, we are testing survival rates on coral that is broadcast directly onto the bottom from the surface without any structure to support the fragments off the bottom. If coral survival rates are high for this simple and inexpensive broadcast method, we will use it to start coral growing in rubble areas throughout the HAPC. Restoring destroyed *Oculina* habitat is similar to restoring a forest from a plowed field; it will take many decades.



Figure 10. *Oculina* coral heads on wreck in the OHAPC.

It is important to understand the causes of habitat loss before restoration efforts are put into place. Without this understanding, we can't be sure that our efforts will be productive. In the *Oculina* Banks the evidence is strong that trawling is responsible for a large part of the damage we have observed. That is not to say that trawling is responsible for all of it. We know nearly nothing about natural senescence of *Oculina* coral or natural causes of mortality. The reference sites we intend to establish will contribute to our understanding of natural (non-

anthropogenic) mortality because we will be able to follow the course of development of individual coral heads over time while we are monitoring environmental factors. However, in areas where the habitat has been reduced to unconsolidated rubble, and there are trawl tracks and missing and broken reeferisks, the most likely cause of the destroyed habitat is trawling. Therefore our restoration structures were deployed in these trawl-destroyed areas.

This year, 2001, we deployed another set of reefballs (120) in six clusters of 20 each and reeferisks (450) in 18 clusters of 25 each near the sets we deployed last year, in the Sebastian area of the EORR (Table 6). In the 2000 set we observed that smaller reef fish such as the red barbier and the rough-tongue bass, which are extremely abundant in live *Oculina* habitat, occurred in relatively low numbers around the reefballs. Assuming that this was because of a lack of small-scale habitat complexity, we tested that idea by increasing the internal complexity of half of the clusters of reefballs with plastic-coated wire mesh. This experiment will be evaluated in the future.

### *Surveillance and Enforcement*

Observations show that trawling activities have impacted and continue to impact the OHAPC. The typical penalty to trawlers caught poaching in the OHAPC is confiscation of their catch. This was the penalty imposed on the trawler caught poaching in 2000. However, if the fine is insufficient and is perceived by the captain of the trawler as the cost of doing business, poaching will continue. For example, trawlers presumably go into the OHAPC because catch per effort is increased. Say the catch per effort is doubled, but the trawler is only caught in the reserve 10% of the time he poaches. A confiscated catch is relatively insignificant to his poaching gains. I do not know how often night time surveillance of the OHAPC is conducted because I was told by Coast Guard officials that that is classified information and the Coast Guard will not release it, but I would doubt that it is more than once every 10 days. In that case, if our trawler example poaches every night he would only be caught 10% of the time on average.

The poaching arrests may not represent the degree of poaching that is going on in the OHAPC. When the trawler was caught in 2000 there were actually three trawlers observed in the OHAPC, but only one was run down after a half-hour chase (J. Reed, personal communication). And they were caught at 9 AM, not at night, suggesting that if they had left before sun-up they would not have been caught.

NMFS agents confiscated the plotter trawling zone information from the vessel caught poaching in 2000, but this information on illegal trawling locations is not available to fishery managers and scientists working in the area because it is considered proprietary and cannot be released without the consent of the vessel owner (Karen Raine, NMFS senior enforcement attorney, personal communication). However, this information is important to managers because it shows where surveillance should be concentrated and it is important to scientists to compare trawled and untrawled habitat.

Special protection should be given to the remaining *Oculina* thicket habitat occurring on Jeff's Reef and on the western portion of Chapman's Reef. To our knowledge these are the only *Oculina* thicket habitats remaining in the world, and it amounts to only about 8 hectares (20 acres). A trawler could easily destroy all of it in a single night.

I have several recommendations to improve surveillance and enforcement within the OHAPC. (1) The SAFMC and scientists conducting experiments within the OHAPC should be appraised of the level of night time surveillance that is taking place and has taken place within the OHAPC in the past so that the level of surveillance effort is understood by all concerned. (2) The information derived from poachers on the location of their illegal activities should be made available to managers and scientists so that this information can be used for management and restoration purposes. (3) Special measures should be taken to ensure that the only known remaining *Oculina* thicket habitat is protected. (4) Penalties to poachers should be stiff enough to deter future poaching, like confiscation of their vessels. (5) Novel approaches to surveillance/enforcement should be installed as soon as possible such as vessel monitoring systems (VMS) and listening buoys in key areas identified by confiscated plotter information and in the area of Jeff's and Chapman's Reefs.

### *Habitat classification and mapping in the OHAPC*

Habitat maps are fundamental to the study and management of living natural resources. In the marine environment, the development of objective, systematic, and intuitively understandable habitat maps has just begun (Mumby and Harbourne 1999). In the southeastern United States, habitat mapping is urgently needed in areas of greatest fishery

production, such as shelf-edge reefs so that management of these most essential of fish habitats can be effectively managed. We are in the process of developing a habitat map of the OHAPC (see our protocol to habitat mapping in the Appendix).

A habitat map includes three primary components: geomorphology, community structure and distribution, and a data management system. The geomorphological map consists of acoustic imagery of the bottom, either sidescan or multibeam, and is the first step in developing a map. Patterns of community distribution are then associated with the various geomorphological features and described using video documentation with ROVs and submersibles. The data management system integrates these data into a geographically referenced database, or Geographic Information System (GIS), that provides easy access to the data.

NMFS, with funding from the National Coral Reef Initiative, intends to support a synoptic multi-beam bathymetric and survey of the entire OHAPC in May 2002 (Andy Shepard, NURC-Wilmington, personal communication). And the principal investigators of this years Island in the Stream study have a proposal into the Ocean Exploration Program to continue the 2001 work into 2002. If these projects come about we will be able to put together a first-cut OHAPC habitat map by late 2002 or early 2003.

## **Acknowledgements**

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## TABLES

Table 1. Time and location of reefball and reefer deployment in the Sebastian Pinnacles area of the EORR in September 2000.

Structure	Date	Location	Site	Latitude	Longitude	Deployment
ReefBall	9/8/00	Sebastian Pinnacles	B1a	27° 50.974'	79° 57.698'	Cluster-8, 1 frag.ea., no floats
ReefBall	9/8/00	Sebastian Pinnacles	B1a'	27° 50.895'	79° 57.710'	Cluster-2, 1 frag.ea, 2 floats
ReefBall	9/8/00	Sebastian Pinnacles	B1b	27° 51.098'	79° 57.750'	Cluster-20, 1 frag.ea., 2 floats
ReefBall	9/8/00	Sebastian Pinnacles	B1c	27° 51.200'	79° 57.700'	Cluster-5, 1 frag.ea, 2 floats
ReefBall	9/8/00	Sebastian Pinnacles	B2a	27° 51.501'	79° 57.742'	Cluster-20, 1 frag.ea, 2 floats
ReefBall	9/10/00	Sebastian Pinnacles	B2b	27° 51.600'	79° 57.700'	Cluster-5, 1 frag.ea, 2 floats
ReefBall	9/10/00	Sebastian Pinnacles	B2c	27° 51.700'	79° 57.700'	Cluster-10, 1 frag.ea, 2 floats
ReefBall	9/10/00	Sebastian Pinnacles	B3a	27° 51.960'	79° 57.831'	Cluster-5, 1 frag.ea., 2 floats
ReefBall	9/10/00	Sebastian Pinnacles	B3b	27° 52.085'	79° 57.902'	Cluster-20, 1 frag.ea., 2 floats
ReefBall	9/10/00	Sebastian Pinnacles	B3c	27° 52.208'	79° 57.911'	Cluster-10, 1 frag.ea., 2 floats
Reefer	9/9/00	Sebastian Pinnacles	D1a	27° 51.000'	79° 57.650'	Cluster-25, 1 small frag.
Reefer	9/9/00	Sebastian Pinnacles	D1b	27° 51.100'	79° 57.690'	Cluster-25, 1 small frag.
Reefer	9/9/00	Sebastian Pinnacles	D1c	27° 51.200'	79° 57.650'	Cluster-25, 1 small frag.
Reefer	9/9/00	Sebastian Pinnacles	D2a	27° 51.000'	79° 57.750'	Cluster-25, 1 large frag.
Reefer	9/9/00	Sebastian Pinnacles	D2b	27° 51.100'	79° 57.790'	Cluster-25, 1 large frag.
Reefer	9/9/00	Sebastian Pinnacles	D2c	27° 51.200'	79° 57.750'	Cluster-25, 1 large frag.
Reefer	9/9/00	Sebastian Pinnacles	D3a	27° 51.500'	79° 57.700'	Cluster-25, 1 small frag.
Reefer	9/9/00	Sebastian Pinnacles	D3b	27° 51.600'	79° 57.650'	Cluster-25, 1 small frag.
Reefer	9/9/00	Sebastian Pinnacles	D3c	27° 51.700'	79° 57.650'	Cluster-25, 1 small frag.
Reefer	9/9/00	Sebastian Pinnacles	D4a	27° 51.500'	79° 57.800'	Cluster-25, 1 large frag.
Reefer	9/9/00	Sebastian Pinnacles	D4b	27° 51.600'	79° 57.750'	Cluster-25, 1 large frag.
Reefer	9/9/00	Sebastian Pinnacles	D4c	27° 51.700'	79° 57.750'	Cluster-25, 1 large frag.
Reefer	9/9/00	Sebastian Pinnacles	D5a	27° 51.960'	79° 57.780'	Cluster-25, 1 small frag.
Reefer	9/9/00	Sebastian Pinnacles	D5b	27° 52.085'	79° 57.850'	Cluster-25, 1 small frag.
Reefer	9/9/00	Sebastian Pinnacles	D5c	27° 52.208'	79° 57.861'	Cluster-25, 1 small frag.
Reefer	9/9/00	Sebastian Pinnacles	D6a	27° 51.960'	79° 57.880'	Cluster-25, 1 large frag.
Reefer	9/9/00	Sebastian Pinnacles	D6b	27° 52.085'	79° 57.950'	Cluster-25, 1 large frag.
Reefer	9/9/00	Sebastian Pinnacles	D6c	27° 52.208'	79° 57.961'	Cluster-25, 1 large frag.

Table 2. Reef fish associated with three clusters of reefballs with 5 reefballs per cluster.

5 per cluster			
Species		Number	Percentage
Roughtongue bass	<i>Pronotogrammus martinicensis</i>	7	41.18
Scamp*	<i>Mycteroperca phenax</i>	3	17.65
Red porgy*	<i>Pagrus pagrus</i>	2	11.76
Snowy grouper*	<i>Epinephelus niveatus</i>	2	11.76
Bank seabass*	<i>Centropristis ocyurus</i>	1	5.88
Tattler	<i>Serranus pheobe</i>	1	5.88
Bank butterflyfish	<i>Chaetodon aya</i>	1	5.88
	Sum	17	

\*economically important species

Table 3. Reef fish associated with three clusters of reefballs with 10 reefballs per cluster.

10 per cluster			
Species		Number	Percentage
Roughtongue bass	<i>Pronotogrammus martinicensis</i>	120	41.52
Greater amberjack*	<i>Seriola dumerili</i>	109	37.72
Almaco jack*	<i>Seriola rivoliana</i>	20	6.92
Scamp*	<i>Mycteroperca phenax</i>	15	5.19
Red snapper*	<i>Lutjanus campehanus</i>	6	2.08
Reef butterflyfish	<i>Chaetodon sedentarius</i>	4	1.38
Blue angelfish	<i>Holocanthus bermudensis</i>	3	1.04
Short bigeye	<i>Pristigenys alta</i>	2	0.69
Cardinalfish	<i>Apogon pseudomaculatus</i>	2	0.69
Bank butterflyfish	<i>Chaetodon aya</i>	2	0.69
Spinycheek Soldierfish	<i>Corniger spinosus</i>	2	0.69
Sharpnose puffer	<i>Canthigaster rostrata</i>	1	0.35
Wrasse	Labridae	1	0.35
Red barbier	<i>Hemanthias vivanus</i>	1	0.35
Snowy grouper*	<i>Epinephelus niveatus</i>	1	0.35
	Sum	289	

\*economically important species

Table 4. Reef fish associated with three clusters of reefballs with 20 reefballs per cluster.

20 per cluster			
Species		Number	Percentage
Greater amberjack*	<i>Seriola dumerili</i>	100	41.32
Roughtongue bass	<i>Pronotogrammus martinicensis</i>	53	21.90
Red barbier	<i>Hemanthias vivanus</i>	25	10.33
Almaco jack*	<i>Seriola rivoliana</i>	20	8.26
Scamp*	<i>Mycteroperca phenax</i>	14	5.79
Wrasse	Labridae sp.	10	4.13
Blue angelfish	<i>Holocanthus bermudensis</i>	5	2.07
Speckled hind*	<i>Epinephelus drummondhayi</i>	3	1.24
Reef butterflyfish	<i>Chaetodon sedentarius</i>	3	1.24
Red porgy*	<i>Pagrus pagrus</i>	2	0.83
Red snapper*	<i>Lutjanus campehanus</i>	2	0.83
Tattler	<i>Serranus pheobe</i>	2	0.83
Puffer	<i>Canthigaster rostrata</i>	1	0.41
Queen angelfish	<i>Holocanthus ciliaris</i>	1	0.41
Snowy grouper*	<i>Epinephelus niveatus</i>	1	0.41
	Sum	242	

\*economically important species

Table 5. Reef fish community<sup>1</sup> recorded on rubble bottom in Sebastian area.

Species		Number	Percentage
Red barbier	Hemanthias vivanus	100	45.87
Roughtongue bass	Holanthias martinicensis	51	23.39
Yellowtail reeffish	Chromis enchrysurus	19	8.72
Tattler	Serranus pheobe	16	7.34
Wrasse	Labridae	15	6.88
Bank butterflyfish	Chaetodon aya	7	3.21
Reef butterflyfish	Chaetodon sedentarius	6	2.75
Blue angelfish	Holocanthus bermudensis	2	0.92
Snapper, unknown*	Lutjanus sp.	2	0.92
	Sum	218	

<sup>1</sup> fish observed in 5 transects covering a total of 3609 m<sup>2</sup>

\*economically important species

Table 6. Time and location of reefball and reefer deployment in the Sebastian Pinnacles area of the EORR in October 2001.

Structure	Date 2001	Location	Site	Latitude	Longitude	Deployment
ReefBall	22-24 Oct.	Sebastian Pinnacles	B4a	27 50.769	79 57.807	Cluster-20, internal complexity
ReefBall	22-24 Oct.	Sebastian Pinnacles	B4b	27 50.673	79 57.506	Cluster-20, internal complexity
ReefBall	22-24 Oct.	Sebastian Pinnacles	B4c	27 50.595	79 57.721	Cluster-20, no inter complexity
ReefBall	22-24 Oct.	Sebastian Pinnacles	B4d	27 50.465	79 57.708	Cluster-20, no inter complexity
ReefBall	22-24 Oct.	Sebastian Pinnacles	B4e	27 50.390	79 57.795	Cluster-20, no inter complexity
ReefBall	22-24 Oct.	Sebastian Pinnacles	B4f	27 50.254	79 57.791	Cluster-20, internal complexity
Reefer	21 Oct.	Sebastian Pinnacles	D7a	27 50.769	79 57.861	Cluster-25, 1 large fragment
Reefer	21 Oct.	Sebastian Pinnacles	D7b	27 50.662	79 57.853	Cluster-25, 1small frag.
Reefer	21 Oct.	Sebastian Pinnacles	D7c	27 50.591	79 57.782	Cluster-25, 1 large frag.
Reefer	21 Oct.	Sebastian Pinnacles	D7d	27 50.462	79 57.768	Cluster-25, 1 large frag.
Reefer	21 Oct.	Sebastian Pinnacles	D7e	27 50.380	79 57.846	Cluster-25, 1 small frag.
Reefer	21 Oct.	Sebastian Pinnacles	D7f	27 50.252	79 57.847	Cluster-25, 1 small frag.
Reefer	21 Oct.	Sebastian Pinnacles	D7g	27 50.147	79 57.844	Cluster-25, 1 large frag.
Reefer	21 Oct.	Sebastian Pinnacles	D7h	27 50.054	79 57.844	Cluster-25, 1small frag.
Reefer	21 Oct.	Sebastian Pinnacles	D7i	27 49.976	79 57.848	Cluster-25, 1small frag.
Reefer	21 Oct.	Sebastian Pinnacles	D7j	27 49.973	79 57.742	Cluster-25, 1 large frag.
Reefer	21 Oct.	Sebastian Pinnacles	D7k	27 50.053	79 57.733	Cluster-25, 1 large frag.
Reefer	21 Oct.	Sebastian Pinnacles	D7l	27 50.142	79 57.740	Cluster-25, 1 large frag.
Reefer	21 Oct.	Sebastian Pinnacles	D7m	27 50.261	79 57.744	Cluster-25, 1small frag.
Reefer	21 Oct.	Sebastian Pinnacles	D7n	27 50.384	79 57.736	Cluster-25, 1small frag.
Reefer	21 Oct.	Sebastian Pinnacles	D7o	27 50.472	79 57.662	Cluster-25, 1large frag.
Reefer	21 Oct.	Sebastian Pinnacles	D7p	27 50.591	79 57.684	Cluster-25, 1 small frag.
Reefer	21 Oct.	Sebastian Pinnacles	D7q	27 50.664	79 57.756	Cluster-25, 1 large frag.
Reefer	21 Oct.	Sebastian Pinnacles	D7r	27 50.774	79 57.756	Cluster-25, 1 small frag.

# APPENDIX

## Protocol for OHAPC Habitat Classification and Mapping

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### Introduction:

Habitat maps are fundamental to the study and management of living natural resources. In the marine environment, the development of objective, systematic, and intuitively- understandable habitat maps has just begun (Mumby and Harborne 1999). In the southeastern United States, this mapping is urgently needed in areas of greatest fishery production, such as shelf-edge reefs (50 – 120 m deep), particularly in areas where there has been extensive fishing-induced damage, attendant loss of fishery production, and declining biodiversity (e.g., Oculina Coral Banks off central eastern Florida, Koenig 2000). In addition, these areas are likely to experience heavier fishing pressure as shallower areas become depleted, and increased oil and gas exploration for new energy sources. Most of these areas in the Gulf of Mexico not only lack habitat maps, but also lack adequate descriptions of the benthic geomorphology, the basis on which habitat maps should be developed.

As pointed out by Mumby and Harborne (1999) a problem associated with most habitat mapping is that the term “habitat” is rarely defined explicitly. Thus, the terminology used in habitat mapping often mixes geomorphology (e.g., spur and groove) with physiognomy (e.g., coral reef), ecology (e.g., turf algae), and geological history (e.g., relict reef) in a non-systematic way. This is because the majority of habitat mapping is carried out subjectively on an *ad hoc* basis. In addition, very few habitat maps have quantitative descriptors for the habitat classes. Their systematic scheme of habitat classification presented here avoids a multitude of problems of interpretation and scale associated with non-systematic classification and ambiguous descriptions of marine habitats. It also provides a basis for the scientific investigation of habitat function on national and international scales.

The “Islands in the Stream”(IIS) expedition, by visiting offshore areas of the southeastern United States, Mexico, Belize, and Cuba, has the unique opportunity to lay the groundwork for an internationally consistent, objective, and systematic classification of shelf-edge habitats throughout the region. The purpose of this document is to provide the rationale and procedures for the development of benthic habitat maps in shelf-edge areas that will be surveyed by IIS-2001, 2002. The “islands” or sites to be visited can be thought of as representative sites for each region. We propose making habitat descriptions based on a combination of exploratory dives by submersibles, and relatively simple transect studies, to be conducted by a submersible, by ROV, and, where practicable, by SCUBA divers. Future habitat mapping could then be based on these descriptions, in a sense, to connect the dots that will eventually lead to complete coverage of shelf-edge reefs of the regions. Also, archived video records from this expedition, when connected to accurate geographic coordinates, would serve as benchmarks for future comparisons.

### Methods

The approach we propose to mapping shelf-edge habitat follows closely that used by Mumby and Harborne (1999) for habitat classification and mapping of shallow coral reefs in the Caribbean. They subdivided geomorphological and biological components into tiers. For instance, their first tier of geomorphological features contained major categories such as “forereef”, “backreef”, “reef crest”, “lagoon”, and the second tier for tier one category “lagoon” included such subdivisions as “shallow lagoon” or “deep lagoon”.

Brief quantitative definitions are provided for each category and subcategory. For instance, “deep lagoon” was defined as > 12m deep, and “shallow lagoon” defined as < 12 m. For the benthic community, the first-tier category “coral classes” was defined as > 1% hard coral cover, and the second tier under this category included

“branching coral”, “sheet coral”, “fire coral”, and “massive encrusting corals” with definitions for each. These benthic community categories are classified using standard multivariate hierarchical classification techniques. Measures of similarity of the communities are calculated first, then a clustering algorithm is used to classify community types.

We add to Mumby and Harbourne’s classification scheme by including the associated fish community. We consider this an important inclusion because fish production is the primary impetus for the habitat mapping, and changes that might occur when areas are declared MPAs would likely be most immediately apparent in the fish communities.

A classification of OHAPC geomorphology, benthic habitat characteristics, and fish communities are given in Tables 1, 2, and 3, respectively. Quantitative descriptors may be modified depending on the results of our studies. Each habitat class will have an associated geomorphology and fish community with quantitative descriptors defining the limits.

The choice of both similarity index and clustering method is important to the resulting classification pattern and should be chosen on the basis of ecological understanding (Krebs 1999). The communities of fishes and motile invertebrates associated with the various habitats can also be classified using the same similarity and clustering techniques. Habitats of special significance, such as the grouper spawning habitat, could be described in fine detail, whereas other shelf-edge habitats of lesser immediate importance could be described in less detail. Thus, the hierarchical approach to habitat mapping proposed here allows the researcher to describe and classify habitats of interest in great detail and those of lesser interest in a more general way, but additional descriptions can be added at any time as interest increases.

Habitat maps readily accessible to scientists and resource managers result from the application of this classification scheme. Indeed, the maps, even if applied only in the areas surveyed by IIS-2001, would provide a benchmark for monitoring temporal and spatial changes in the habitat and its associated community. Each location polygon on a habitat map would include the following in a GIS database:

- a geomorphological descriptor
- a benthic sessile community descriptor
- a motile community descriptor.
- an associated time of observation (to evaluate temporal changes)

Mumby and Harbourne (1999) used optical remote sensing (by satellite and/or aircraft) to provide a broad-scale map of the geomorphology of the regions. We can’t use this method because shelf-edge depths are too great to be detected by remote optical techniques. Thus, we will rely on acoustic remote sensing (side-scan sonar or multibeam bathymetry) to provide the primary geomorphological categories. Percent cover (and other measures such as density of dominant taxa) data must be collected optically *in situ*. Quadrat methods (e.g., strip transects) using a down-looking video camera with a laser metric are most efficient for this purpose at shelf-edge depths. A forward-looking video system should be used to record the abundance, size, and species composition of fishes and motile invertebrates and to observe growth forms of habitat components.

**Procedure:**

1. Examine and classify major geomorphological features of the shelf-edge reefs from the side-scan (or multibeam) images of the study area. (If such maps do not exist, they should be produced, otherwise habitat mapping is very difficult.)
  - (a) Classify and define first tier (major) categories; examples include:
    - Pinnacles
    - ridges (Paleo-shorelines)
    - drowned patch reefs
    - low relief hard bottom
    - rocky outcrops
    - hard bottom with a veneer of sand
    - sand waves

- (b) Subdivide first tier into second tier categories (and third, depending on level of interest). As an example using Paleo-shorelines, subdivided into:
- upper ridge
  - escarpment
  - rubble bottom
  - other
2. Conduct a brief reconnaissance of the defined geomorphological feature to be mapped noting subcategories of features and discontinuities in habitat characteristics.
  3. Make quantitative strip (belt) transects within defined geomorphological features using videography (digital is preferable) and visual observations (recorded on a tape recorder and written) with an ROV and a submersible. For example, surveys along a Paleo-shoreline ridge should be made parallel along the ridge, along the steep slope, and along the boulders at the base of the ridge, rather than perpendicular transects, which would cut across several subcategories.

The ROV can be used to document habitat features such as sand waves and silty sediments that have few benthic macro-organisms. The submersible would be most useful for “live bottom” characterization. Still photos of high resolution should be taken of dominant or representative organisms after transects are run. All surveys should record an accurate lat/lon position (or track) of the sub or ROV so that observational/video information can be referred to the acoustic image.

In high current conditions, as exist in the OHAPC, the ROV can be used for long transects with the current in a controlled drift. Such transects are useful for describing the habitat conditions, but not for quantitatively characterizing the habitat nor for quantifying fish populations.

Transects:

- Documentation: Use digital video and audio and/or written notes to record habitat features and fish community.
  - Number of transects: At least five (5) transects within each defined feature should provide an adequate sample size (Aronson et al. 1994).
  - Length of transects: Length should be at least 25 m.
  - Sub or ROV speed: The speed at which transects are made should be slow enough to ensure clear images on the down-looking video, that is, speeds of 0.1 to 0.2 m/s (= 0.36 to 0.72 km/hr) or less. (Faster speeds produce blurred images in the down-looking video, depending on distance off the bottom.) This means that each transect should take between 2 and 4 minutes to complete.
  - Videography. Transects should be run with two video systems in place, one downward-looking camera, and one forward-looking (oblique) camera. Each video system should have laser metrics in the recorded image. Submersible and ROV should maintain an elevation of approximately 0.5 to 1.0 meter off the bottom for transect duration to ensure that the downward looking camera produces a clear image.
    - (i) Downward-looking video: two parallel-beam lasers a known distance apart, say 25 cm, can be used to judge quadrat size and organism size in the downward-looking video frames.
    - (ii) Forward-looking video: Three lasers arranged horizontally in one plane projected at an oblique angle so that they reach the seafloor ahead of the path of the sub. Two lasers, 10 cm apart, project parallel beams and the third laser, 10 cm from the adjacent laser, projects a beam that converges on the parallel beams. The converging laser is set to touch the beam of the adjacent laser at 5 m and the distal laser at 10 m. The parallel beam lasers give scale at a distance, and the converging laser allows the determination of distance from the camera.
4. Samples of both sediments and dominant sessile organisms should be collected. Sediment samples (including rocks) can be collected using a Van Veen grab. Samples of dominant sessile organisms (or any unknown or

unusual organisms) should be collected with a manipulator arm and placed in a sample basket attached to the outside of the submersible or ROV.

(a) Sediment samples:

- Method: Store at room temperature in pint plastic freezer containers labeled with the lat/lon position of collection, date, and any other relevant information (e.g., in strong currents, record the direction and angle of the winch cable supporting the Van Veen so that sample position corrections can be estimated.)
- Timing: Sediment samples can be collected at any time, but for efficient use of ship time, collection at night is preferred.
- Rationale: Sediment samples are important for the interpretation of surficial geology and acoustic backscatter characteristics of the side-scan sonar.

(b) Biological samples:

- Method: specimens should be preserved aboard ship in 5% formalin and labeled with lat/lon, date, and other relevant notes (e.g., characteristics of growth, relationships with other organisms, etc.)
- Rationale: Biological samples collected for species identification primarily, but also for determination of ecological relationships.

5. *Data analysis and handling of records.*--Videotapes (mini DVs, preferably) and notes (written notes and audio tapes) from the various transects should be duplicated and carefully archived making sure that transect begin and end positions, and dates are recorded. Time and date should be recorded on the tapes. Videotape annotation should begin on board ship. Annotations should include: divers names, date, dive no. tape ID, time code in and out (min:sec), real time (hr:min), fish species and no. observed, invertebrate species and no. observed, brief habitat descriptions, human impacts, depth, and notes. Analysis of community characteristics can begin on board the ship, if there is an appropriate tape deck and high-resolution monitor available. Easily determined are the following:

- % cover
- density of dominant sessile species
- species composition
- species richness and other species diversity measures
- spatial pattern of dominant species (i.e., random, regular, or clumped).

Procedures for analyzing the video frames (quadrats) for these characteristics are standard and are clearly presented in Krebs (1999). Percent cover may be quickly analyzed from the videos using the method used by Aronson et al. (1994), which entails laying sets of random dots over random captured images from the down-looking camera. The proportion of dots touching live coral is an estimate of the % cover.

For the purposes of the habitat characterization and classification:

- habitat structuring organisms may be evaluated as major taxa, for example, gorgonians or sponges, or they may be further subdivided on the basis of morphology and color. (Species identification may be done later, if necessary, from both the videos and the preserved biological samples.)
- Similarity of benthic communities can be analyzed using Morisita's index of similarity. Krebs (1999) recommends this measure from over 20 such measures because it is not affected by sample size as other measures are. (The Bray-Curtis measure, used by Mumby and Harborne (1999) is strongly affected by sample size and is not recommended.) For cluster analysis, Krebs recommends average linkage clustering by the UPGMA (unweighted pair-group method using arithmetic averages) method. Computer programs compiled by Krebs (1999) to perform these and many more analyses can be purchased from Exeter Software (<http://www.exetersoftware.com>).

## **Operational Considerations**

### Sampling, behavior, site location, and speed

*Transect type.* Strip transect samples are preferable to square or round quadrat samples because transects (long thin quadrats) cut across many variations or patches (habitat heterogeneity) in the habitat and thus increase

precision. For short transects, only a compass heading is necessary to achieve a straight line. It is far better to take multiple short transects than few long ones. Multiple random transects are useful for density (number per unit area) determination and many other community measures, but a single long transect will only allow the measurement of spatial pattern, as it is a single sample, or if subsampled, it is at best multiple samples in systematic arrangement. We therefore recommend many short random transects.

*Transects in highly altered habitat.* In areas with high incidence of habitat alteration, the focus may be on distinguishing between altered and intact habitat (e.g., the *Oculina* Banks). In this case, a systematic survey is preferable to random transecting to ensure maximum coverage of areas. Thus, in each geomorphological feature of concern, transects should be conducted in long parallel transects. The ROV is preferable over the submersible for this component because of the ease of deployment and use. This component is simply to search and find. Other than this change in transect protocol, the habitat characterization should proceed as described. Transect locations should be drawn out ahead of time across acoustic images of each feature of interest. Once an intact habitat is located, random transects should be conducted with the submersible (and/or the ROV) within that habitat.

*Choosing transect locations.* It is preferable, but not necessary that transect locations be chosen ahead of time. Transect start position and heading can be randomly generated using a random numbers table. These positions can be drawn out on an expanded side-scan image of the feature of interest. In this way, the topside sub tracker can orient the sub pilot to transect positions, especially in conditions of low visibility. The same methods can be used for ROV transects under low current conditions. However, in all cases, the transect start and stop position should be recorded.

In the absence of acoustic imagery, sea floor features can be located by repeated passes of the supporting vessel's echosounder over the bottom. Features identified in this manner can then be plotted, producing a very rough acoustic map that can be used to orient subsequent ROV or submersible transects. A quick reconnaissance dive using ROV would determine whether or not a submersible dive was desirable. Rough transect positions could be drawn across the plotted feature as a reference.

*Submersible or ROV speed.* If speed cannot be determined from the submersible's navigation system, it can be estimated by recording the time it takes to travel a known distance. If the point of convergence of the converging forward-looking lasers is set at 5 m in front of the submersible, an object at that point can be used as a reference point. If the desired speed is 0.1 m/s, then it should take 50 s to arrive at the reference point, and so on. In poor visibility, the laser metrics do not operate appropriately for determining speed. In this event, sub pilots should move at a speed equivalent to what might be considered a "slow walk" for a period of 4 minutes.

*Returning to previously selected locations.* There may be inaccuracies in determining position of the submersible due to a number of factors. Therefore, returning to the same exact location on a repeat dive or at some later date could prove difficult and time consuming. If it is necessary to return to the same spot, a monument may be erected at that spot. A monument constructed of a lead weight (5 kg +) and a hard plastic float (ca. 0.5 L volume) tethered to it at about 2 – 4 m above the weight will allow relocation acoustically and visually. Such monuments are simple and inexpensive and last many years; other more expensive monuments may have acoustic pingers to facilitate relocation.

*Fish behavior relative to submersible or ROV.* There are a number of factors to consider when sampling motile species (fish and invertebrates) if valid measures and comparisons are to be made. The most important consideration is that different species have different behaviors relative to the submersible and the time of observation. Factors associated with the submersible such as lights, disturbance of the bottom by thrusters, movement, and just the physical presence affect behaviors and therefore community measures. Some species tend to follow and circle the submersible (e.g., amberjack, scamp), some species remain stationary (e.g., bigeyes), others are cryptic (e.g., cardinal fish) and still others are cryptic at times and schooling at others (e.g., antheids). Observation notes should include such behaviors and any other behaviors, such as color changes and presumed courtship behavior. The most important temporal factors affecting behavior are time of day and season. Within a season, observations should be made during daylight hours, avoiding early morning and late afternoon (crepuscular periods). Annual comparisons should be made within the same seasons.

*Data recording.*-- Data collection should involve verbal records, written records, videography, and still photography. On each dive, the beginning of the record should include date, time, dive number, pilot, position, depth, and mission. Also, each transect should indicate transect number and position. Emphasis is placed on collection of high quality video imagery to record behavior and diagnostic characteristics of animals and plants, but still photographs should be taken frequently because their higher resolution is useful for organism identification.

Site-related descriptions: In the verbal and/or written site records the following items should be included.

- hierarchical habitat descriptors (use standard classification terminology)
- qualitative habitat descriptions including dominant organisms
- behavioral observations
- evidence of human impacts (e.g., trawl lines, fishing gear, artificial reef).

**LITERATURE CITED:**

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Krebs, C.J. 1999. Ecological Methodology (2<sup>nd</sup> ed.). Addison-Welsey Publishers, Inc., Menlo Park, CA, 620 pp.

Mumby, P.J. and A.R. Harborne. 1999. Development of a systematic classification scheme of marine habitats to facilitate regional management and mapping of Caribbean coral reefs. Biological Conservation 88 (199):155-163.

Table 1. Geomorphological features of the OHAPC cast in a hierarchical classification scheme.

First Tier			Second Tier		
Code	Label	Characteristic	Code	Label	Characteristic

1	Pinnacle	Isolated limestone prominence	1.1	Low relief	< 0.5 m
			1.2	Medium relief	0.5 – 2.0 m
			1.3	High relief	> 2.0 m
2	Ridge	Long continuous limestone prominence	2.1	Low relief	<0.5 m
			2.2	Medium relief	0.5 – 2.0 m
			2.3	High relief	> 2.0 m
3	Depression	Scoured area typically at the base of a ridge or pinnacle	3.1	Low relief	< 2.0 m
			3.2	High relief	> 2.0 m
4	Flat	Featureless bottom of mud or sand	4.1	No relief	< 0.5 m

Table 2. Benthic habitat features of the OHAPC cast in a hierarchical classification scheme

First Tier			Second Tier		
Code	Label	Characteristic	Code	Label	Characteristic
1	Hard bottom with live coral	Live <i>Oculina</i> present (> 0.1% coverage)	1.1	Intact <i>Oculina</i> habitat	Intact colonies > 1 m diam in thicket-like habitat with > 50% coral coverage.
			1.2	Disturbed <i>Oculina</i> habitat	Broken and toppled coral heads with < 50% coral coverage.
			1.3	Small isolated <i>Oculina</i> colonies	No evidence of large coral colonies in the past.
2	Hard bottom without live coral	Little (< 0.1 % coverage) or no <i>Oculina</i> coral	2.1	Unconsolidated dead coral rubble	Rubble reduced to finger-size pieces
			2.2	Intact dead <i>Oculina</i> colonies	Colonies are dead but standing.
			2.3	Limestone ledges and rocky outcrops	Bare limestone prominences
			2.4	Limestone pavement	Bare limestone with < 0.5 m relief
			2.5	Hard clay outcrops	Rock-like clay prominences with extensive bore holes
3	Soft bottom	Mud, sand or clay	3.1	Silty sand	Very little epibenthos
			3.2	Sand shell hash	Moderate epibenthos
			3.3	Soft clay	White with little epibenthos
4	Artificial structure	Restoration structures and wrecks	4.1	Reef balls	Dome-shaped structures with attached <i>Oculina</i>
			4.2	Reef blocks	Block-shaped structures with or without attached <i>Oculina</i>
			4.3	Reef disks	Cement disks with <i>Oculina</i> attached to PVC post.
			4.4	Wrecks	Typically large with possible extensive <i>Oculina</i> growth on deck

Table 3. Habitat associations of economically and ecologically important reef fish of the OHAPC cast in a hierarchical classification scheme.

First tier			Second tier.		
Code	Label	Characteristic	Code	Label	Characteristic
1	Spawning aggregations of economically important species.	Densities > 30/hectare plus courtship behavior plus gonad evidence and/or observation of spawning.	1.1	Gag	Densities > 30/hectare, males present, hydrated ovaries, and/or observation of spawning.
			1.2	Scamp	Densities > 30/hectare, courting males, hydrated ovaries
			1.3	Black sea bass	Densities > 30/hectare, courting males, hydrated ovaries.
2	Economically important juveniles	Juveniles common	2.1	Speckled hind	Juveniles present > 10/hectare
			2.2	Snowy grouper	Juveniles present > 10/hectare
			2.3	Warsaw grouper	Juveniles present > 10/hectare
3	Economically important adults	Consistent presence of adults	3.1	Gag	Present
			3.2	Scamp	Present
			3.3	Red grouper	Present
			3.4	Red snapper	Present
			3.5	Red porgy	Present
			3.6	Warsaw grouper	Present
			3.7	Snowy grouper	Present
			3.8	Black sea bass	Present
			3.9	Greater amberjack	Present
			3.10	Almaco jack	Present
4	Ecologically important species	Species with high densities.	4.1	Roughtongue bass	Density greater than 1000/hectare
			4.2	Red barbier	Density greater than 1000/hectare
			4.3	Yellowtail reeffish	Density greater than 1000/hectare
			4.4	Purple reeffish	Density greater than 1000/hectare

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**Regional Ecosystem Protection and Restoration:**

Comment of Restore America's Estuaries

(3 pages)

June 29, 2011

Ms. Nancy Sutley, Dr. John Holdren, and Members  
National Ocean Council  
c/o Council on Environmental Quality  
722 Jackson Place NW  
Washington, DC 20503

Re: RAE Comments on the *Regional Ecosystem Protection and Restoration* Strategic Action Plan Outline

Dear Chairs Sutley and Holdren, National Ocean Council Members:

On behalf of Restore America's Estuaries (RAE) and our eleven member organizations, we offer the following comments to the National Ocean Council (NOC) on the *Regional Ecosystem Protection and Restoration* Strategic Action Plan Outline. Since 1995, RAE has worked to preserve the nation's network of estuaries by protecting and restoring the lands and waters essential to the richness and diversity of coastal life. Through our eleven member organizations, we have successfully completed more than 900 coastal restoration projects nationwide, involved more than 265,000 volunteers, and restored more than 65,000 acres of coastal habitat.

RAE applauds the work of the National Ocean Council in developing its Strategic Action Plan Outline for the Regional Ecosystem Protection and Restoration objective. The initial draft incorporates many comments that were previously submitted to guide development of this outline, and we believe this interim product represents a solid foundation from which to work toward combating degradation of the nation's coastal habitats.

Among the many important provisions within the outline, we strongly support Actions 2, 4, and 8 and wish to provide specific recommendations on these sections that we believe will further enhance the document and improve our ability to achieve this objective:

**Action 2 – Strengthen conservation partnerships**

- Given the existence of numerous corps organizations with a focus on conservation, we recommend the “Coastal Conservation Corps” be revised to a “Coastal Restoration Corps.” We strongly believe that the corps should be focused on restoration, at least for citizen engagement, rather than conservation, which often connotes the purchase of property in order to protect it from development and other anthropogenic impacts. In contrast, the focus of this corps will be to actively involve community-based organizations in local projects.
- While youth are indeed a key demographic for the Corps, people of all ages should be engaged in Corps activities in order to harness the full extent of our workforce.
- The Corps' focus should be community-based, which would leverage the will and resources of an entire community rather than only the corps participants. A great deal more work will be accomplished by recruiting community volunteers to participate in projects alongside corps participants.

- The difference between the umbrella/national group and the participating local organizations in the Corps should be more clearly stated. Specifically, more clarification is needed with the statement: “Enable one coastal Conservation Corps to participate in the network in each region of the U.S.” Instead, we suggest the statement: “Have at least one local corps organization from each region of the U.S. be represented on the national level via participation in the Coastal Restoration Corps network.”
- The development of a Coastal Conservation Corps is currently listed with a long-term timeframe. Since development of the Corps concept is already underway, we recommend that goals be identified in the short-, mid-, and long-term.

#### **Action 4 – Create carbon-based incentives for coastal habitat conservation**

- In addition to the reasons provided in the outline, a further reason to do this work is because it will assist coastal managers in preventing the release of large amounts of carbon into the atmosphere through wetland degradation. Existing wetland soils store tremendous amounts of carbon. Integrating carbon storage with carbon sequestration can provide a powerful means of reducing greenhouse gas emissions globally.
- Voluntary carbon markets are one incentive for developing wetland greenhouse gas protocols and methodologies. As a result, projects that sequester carbon via habitat restoration should be positioned for inclusion in future compliance markets, in part because upcoming policies and regulations will have requirements along these lines [e.g. California statute AB32 requires a California market, which will go into effect in January 2012].
- A key policy outcome of this plan is a greater understanding of the opportunities for including the carbon benefits of wetlands, sea grasses, and mangroves in local, state and federal policies. The text in the current document is too narrow as it limits the consideration of these benefits to ecosystem service calculations. We recommend that the outcome be adjusted to reflect this broader perspective.
- Under Milestones, a clarification is needed. Methodologies do not “assess carbon sequestration capacity for different coastal wetland types...” Instead, protocols and methodologies are rigorous standards and requirements for project developers to quantify net greenhouse gas benefits of a project and to meet other greenhouse gas offset standards and requirements. If the intent is a catalog of carbon sequestration capacity by habitat type, then the term “research” or “assessment” may be more accurate.

#### **Action 8 – Improving the effectiveness of coastal and estuarine habitat restoration projects**

- In addition to updating the existing NERI database to allow use by all restoration agencies, the update also should incorporate new, user-friendly technologies that enhance the general public’s ability to navigate and garner useful information from the website. A good example can be found at NOAA’s Restoration Atlas:  
[http://seahorse2.nmfs.noaa.gov/restoration\\_atlas/src/html/index.html](http://seahorse2.nmfs.noaa.gov/restoration_atlas/src/html/index.html).

Restore America’s Estuaries greatly appreciates the opportunity to comment and looks forward to continuing to work with the National Ocean Council on these important objectives.

Sincerely,

Jeff Benoit  
President and CEO  
Restore America's Estuaries

Peter Clark  
President (and RAE Vice Chair)  
Tampa Bay Watch

Jonathan F. Stone  
Executive Director (and RAE Treasurer)  
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**Regional Ecosystem Protection and Restoration:**

Comment of Gulf of Maine Council on the Marine  
Environment

(1 page)



# Association of US Delegates to the Gulf of Maine Council on the Marine Environment

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LORI HALLETT  
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June 2011

Dear Members of the National Ocean Council:

The Gulf of Maine Council on the Marine Environment (GOMC) is pleased to submit comments regarding the draft National Ocean Council's (NOC) *Regional Ecosystem Protection and Restoration Strategic Action Plan* (SAP). Specifically we urge the explicit recognition of the Gulf of Maine in **Action #1 - Support shared regional ecosystem protection and restoration priorities** (p. 3) as one of the priority geographic focus areas.

For over twenty-years the Gulf of Maine Council has served as a bi-national public/private partnership of governors and premiers, state and federal agencies, NGOs, and businesses from the three Gulf of Maine states (Maine, New Hampshire, and Massachusetts) and two Canadian provinces (New Brunswick and Nova Scotia). Our mission is to collaborate and coordinate policies and activities to protect and restore our shared ecosystem.

The SAP indicates that "... it will focus initially on regions where Federal agencies are working collaboratively with states, local governments, tribes, and other stakeholders to support regional ecosystem priorities." In the Gulf of Maine this collaboration among US federal agencies, and their Canadian counterparts, is precisely what has occurred for nearly a quarter of a century. These ecosystem priorities are described in GOMC five-year Plans that are based on a logic model process. Each Plan contains measurable goals, objectives and evaluation strategies. Most recently the region completed the *US Gulf of Maine Restoration and Conservation Plan—a Needs Assessment for Massachusetts, New Hampshire, and Maine*. (Please see the attached executive summary.) This initiative identifies the priority investments needed to conserve and restore this unique ecosystem.

In closing, we recommend that the Gulf of Maine be recognized in the SAP as one of the five priority geographic areas where the efforts of the NOC will be focused initially.

Sincerely,

  
GOMC

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**Changing Conditions in the Arctic:**

Comment of the United States Arctic Research  
Commission

(1 page)



# United States Arctic Research Commission

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Deputy/Alaska Office Director  
Anchorage, AK

June 13, 2011

Dear Members of the National Ocean Council,

On behalf of the U.S. Arctic Research Commission, I write to commend your efforts, under the auspices of the new National Ocean Policy, to develop a strategic action plan (SAP) for "Changing Conditions in the Arctic."

The SAP, as currently configured, successfully encapsulates many of the recommendations put forward by the USARC, such as those in the Commission's "Report on Goals and Objectives for Arctic Research 2009-2010." The emphasis on fundamental observations of environmental change in the Arctic (e.g., Arctic Observing Network), containment of and response to oil spills in ice-covered waters, adaptation to human-induced climate change, Arctic marine transportation, and other subjects are common elements of both documents. It's clear that knowledge gained by research will contribute to wise decision-making on nearly all elements of Arctic Ocean policy.

In addition to recommending goals and objectives for Arctic research, the USARC's duties include improving cooperation and coordination on Arctic research, not only in the Federal government, but also with State and local governments, Alaska Natives, and internationally. To this end, and given the broad range of topics and federal entities involved in constructing the SAP, the USARC considers the SAP a good example of how "interagency coordination" can be successfully achieved such that the whole is greater than the sum of the parts. We continue to encourage the managerial craftsmanship already displayed.

Our understanding is that this plan, once approved by the Council, and in collaboration with the Office of Management and Budget, would be used to develop an annual interagency ocean budget guidance memorandum. We appreciate the difficult budgetary situation our nation is in, but we are buoyed by the fact that the Administration places a high priority on implementing the new National Ocean Policy, and we remain confident that resources to do so will be provided.

The USARC stands ready and willing to assist, in any way, to advance this effort.

Sincerely,

A handwritten signature in blue ink that reads "Fran Ulmer".

Fran Ulmer  
Chair

**Index: Attachments to Comments**

**Ocean, Coastal, and Great Lakes Observations,  
Mapping, and Infrastructure:**

Comment of Chris Ostrander, Director, Pacific Islands  
Ocean Observing System

(1 page)

My name is Chris Ostrander and I am the Director of the PacIOOS, the Pacific Islands Ocean Observing System. PacIOOS is a partnership of 20 federal, state, and territorial agencies, environmental NGO's, industry, and academic partners working together to develop and operate a Pacific Islands regional ocean observing and information system as one of 11 regional associations within the National IOOS program.

The IOOS Program was created to ensure sustained observation of our nation's ocean and coastal waters and to develop information products to ensure a safe, clean, productive ocean and resilient coastal zone. We, and our partners, are encouraged to see and strongly endorse multiple actions within the SAP outlines (Action 4, within SAP 9, Action 2, within SAP 1, and Action 2, within SAP 5), which call for initial implementation of the Integrated Ocean Observing System. These Actions mirror the intent of the Integrated Coastal Ocean Observing System Act (ICOOS) and the Ocean and Coastal Mapping Integration Act signed into law by President Obama in 2009.

These legislation define the structure of IOOS, including roles and responsibilities of the IOOS partners---charging the regional observing systems, like PacIOOS, to ensure the timely dissemination and availability of usable data to support national defense, marine commerce, energy production, research, weather and marine forecasting, public safety, outreach and training, and ecosystem-based marine and coastal resource management.

Essential to marine and coastal resource management, and the associated Coastal and Marine Spatial Planning Objective of the National Ocean Policy, is the integration of diverse data and information into a national (and presumably regionally focused) coastal and marine spatial data visualization system that is easily usable by the public, private enterprise, and decision makers at all levels. This system, called out in Objective 2 of the CMSP Strategic Action Plan as the National Information Management System and referred to in Action 3 of the Inform Decisions and Improve Understanding Strategic Action Plan, is presently under development through the national and regional IOOS partners.

Here in the Hawaiian Islands, PacIOOS has developed a data management and visualization system, in collaboration with dozens of federal, state, and NGO partners, with the intent to make readily accessible all available and obtainable coastal and marine spatial and point data, whether real-time, near real-time, or historic. We have proposed, along with the State of Hawaii Office of Planning, who administers the State's GIS Program, the Hawaii Department of Land and Natural Resources, the Nature Conservancy, and the University of Hawaii Sea Grant College Program that this existing PacIOOS data engine serve as the central information source for future CMSP activities in the State. Our sister regional associations within IOOS have developed complementary visualization and information management systems in their regions, and many are actively working to advance the provision of information to inform CMSP at their local levels. We, the members of PacIOOS, encourage the National Ocean Council to build the National Information Management System, to inform CMSP, upon the existing IOOS national and regional information management framework. The IOOS data systems are robust, reliable, accessible, and have been designed to serve and meet the needs of diverse groups of stakeholders throughout all coastal regions of our nation.

**Index: Attachments to Comments**

**Ocean, Coastal, and Great Lakes Observations,  
Mapping, and Infrastructure:**

Comment of the National Association of Charter Boat  
Operators

(1 page)



# National Association of Charterboat Operators

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*First vice-president*

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**Mississippi Charter Boat Captains**  
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Homer (AK) Charter Association  
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Prince William Sound Charter Boat Assoc.  
Seward Charterboat Association  
Sitka (AK) Charter Boat Operators Assoc.  
United Boatmen of New Jersey  
Virginia Charter Boat Association  
Waukegan Charter Boat Association  
Westport Charterboat Association

June 30, 2011

Michael Weiss  
Deputy Associate Director for Ocean and Coastal Policy  
National Ocean Council  
722 Jackson Place, NW  
Washington, DC 20503

Dear Mr. Weiss:

NACO is a national non-profit association of charter boat owners and operators that was established in 1991. We appreciate the opportunity to comment on the outlines that were released for each of the National Ocean Policy's nine priority objectives.

We are commenting and our comment letter is too large to send electronically. Therefore, I will be sending this USPS today.

Thank you,

Capt. Robert F. Zales, II  
President