

Water Quality and Sustainable Practices on Land: Public Comments Received 1/24/2011-4/29/2011

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Name

Jed Pitre

Organization

Which Priority Objective would you like to provide comment on?

Water Quality and Sustainable Practices on Land

What near-term, mid-term, and long-term actions would most effectively help the Nation achieve this policy objective?

Near term-eliminate use of plastic grocery bags.

Mid/Long term-work towards reduction of plastic waste.

What are some of the major obstacles to achieving this objective; are there opportunities this objective can further, including transformative changes in how we address the stewardship of the oceans, coasts, and Great Lakes?

I think the general public is not aware of the extent of plastic waste in the oceans. More education stressing the connection between land-based activities and the oceans is needed.

What milestones and performance measures would be most useful for measuring progress toward achieving this priority objective?

Identify major sources of plastic wastes. Once sources have been identified and measures to reduce the source waste have been implemented, it should be relatively easy to monitor effectiveness.

Name

Kory McFarland

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

Water Quality and Sustainable Practices on Land

What near-term, mid-term, and long-term actions would most effectively help the Nation achieve this policy objective?

Public Education and Outreach to Educator's for the dissemination of the known causes of Ocean & Coastal degradation. Plastic and Styrofoam pose a short and long Term Health and Bio-Risk to Our Ocean Life and Shore Life, especially Shore Bird's.

What are some of the major obstacles to achieving this objective; are there opportunities this objective can further, including transformative changes in how we address the stewardship of the oceans, coasts, and Great Lakes?

The Lobby's that Profit from Plastic and Styrofoam Use and Sale.

What milestones and performance measures would be most useful for measuring progress toward achieving this priority objective?

Baning the Material's on Beaches and in Coastal Region's where above material's are not used in Medical Care or Defense of the People.

Verifying by Legislation and research in Material's reduction Measurement's through Universities and other School setting's.

Name

Sean McNamara

Organization

University of Hawaii Sea Grant College Program: Center for Sustainable Coastal Tourism

Which Priority Objective would you like to provide comment on?

Water Quality and Sustainable Practices on Land

What near-term, mid-term, and long-term actions would most effectively help the Nation achieve this policy objective?

Greater focus on the increasing levels of coastal tourism and the impacts on our coastal resources as well as the economic benefits of coastal tourism.

What are some of the major obstacles to achieving this objective; are there opportunities this objective can further, including transformative changes in how we address the stewardship of the oceans, coasts, and Great Lakes?

There is currently no Federal overarching agency mandated to work on this.

What milestones and performance measures would be most useful for measuring progress toward achieving this priority objective?

Impact studies, economic and environmental baselines, and outreach.

Attachment: Attachment included in index: “University of Hawaii Sea Grant College Program: Center for Sustainable Coastal Tourism.” Found on page 80 of document.

Name

Bert R. Tomon, Esq.

Organization

Inter Lake Yachting Association, Admiralty Officer

Which Priority Objective would you like to provide comment on?

Water Quality and Sustainable Practices on Land

What near-term, mid-term, and long-term actions would most effectively help the Nation achieve this policy objective?

continued protection of the purity of the Great Lake waters. Two cycle engines pollute; a tax credit to replace these engines with cleaner four cycle engines would be great; or a phase in project.

What are some of the major obstacles to achieving this objective; are there opportunities this objective can further, including transformative changes in how we address the stewardship of the oceans, coasts, and Great Lakes?

Bird control! Middle Island in the Lake Erie (Canadian side) is destroyed by bird droppings; the island is 'painted white' and absent of vegetation.

What milestones and performance measures would be most useful for measuring progress toward achieving this priority objective?

aglae blooms in our fresh water during mid Summer have been under control; however, somehow, we lost our hold.

Name

dave dabay

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

Water Quality and Sustainable Practices on Land

What near-term, mid-term, and long-term actions would most effectively help the Nation achieve this policy objective?

Upgrade the shore side sewage treatment systems and hold them to the same standard that you currently do the recreational boater, along with the fines and penalties. Some parts of Maryland routinely dump hundreds of thousands of gallons of raw, untreated sewage in to our waters and have been for years. The excuses are too old, too irrelevant, and too tiresome. Fix the systems and leave the recreational boater alone

What are some of the major obstacles to achieving this objective; are there opportunities this objective can further, including transformative changes in how we address the stewardship of the oceans, coasts, and Great Lakes?

as with everything - cost

What milestones and performance measures would be most useful for measuring progress toward achieving this priority objective?

eliminate the regular sewage discharges by budgeting adequate infrastructure dollars to repair or replace the current treatment systems

Name

Eleanor Wheeler

Organization

retired

Which Priority Objective would you like to provide comment on?

Water Quality and Sustainable Practices on Land

What near-term, mid-term, and long-term actions would most effectively help the Nation achieve this policy objective?

Near-term: monitor the health of our coasts and especially the waterways as UMass - Dartmouth is doing in Falmouth, MA.

mid-term: determine the causes of our degrading waterways, i.e. old septic tanks, black-topping roads and parking lots and draining directly into waterways, turning them into a slick of oil

long-term: support installation of local sewer systems and filtration of water before draining into waterways

What are some of the major obstacles to achieving this objective; are there opportunities this objective can further, including transformative changes in how we address the stewardship of the oceans, coasts, and Great Lakes?

Opportunities to furthur: Move what UMass-Dartmouth is doing to a federal level, using volunteers to collect samples as they are doing and students to understand the data.

Support education of people by volunteers and require routine pumpouts or replacement of old septic systems now and require proof as those of us living on boats are required to do.

Create a plan to turn the water quality around and put a time line on conformance, much like I've done for Aerospace research.

What milestones and performance measures would be most useful for measuring progress toward achieving this priority objective?

Milestones would be 1) setting up a monitoring system by areas 2) developing tracking systems, 3) determining causes of water degradation 3) putting a plan in place to turn it around 4) implementing the plan

Performance measures: each area would have their own plan and performance measures 1) number of sites and quality of data collecting 2) sites set up to read data 3) determination of causes of water degradation 4) implement near-term plan for recovery in each area (i.e. routine pump-outs) 5) implement long-term recovery plan (i.e. sewer systems)

Name

Robert Duthie

Organization

DuthieLearning

Which Priority Objective would you like to provide comment on?

Water Quality and Sustainable Practices on Land

What near-term, mid-term, and long-term actions would most effectively help the Nation achieve this policy objective?

Eliminate legal & illegal dumping of commercial and pleasure boat black water tanks on the coasts and inland rivers.

What are some of the major obstacles to achieving this objective; are there opportunities this objective can further, including transformative changes in how we address the stewardship of the oceans, coasts, and Great Lakes?

Lack of working pumpout facilities in marinas and ports.

What milestones and performance measures would be most useful for measuring progress toward achieving this priority objective?

% of marinas and ports providing pumpout services.

Name

Lu Ann Buscher

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

Water Quality and Sustainable Practices on Land

What near-term, mid-term, and long-term actions would most effectively help the Nation achieve this policy objective?

I am really concerned about the drilling that the government is allowing oil companies to do in our oceans. Those companies are only out for profit and it is the government's responsibility to stop them from compromising the health of the oceans and, subsequently, OUR health. It is my sincere hope that our great and powerful government will stand up to the oil companies, in spite of all the campaign contributions and lobbying, as it is in the best interest of all people. Therefore, I ask that you put an end to all new drilling as well as establish marine reserves.

What are some of the major obstacles to achieving this objective; are there opportunities this objective can further, including transformative changes in how we address the stewardship of the oceans, coasts, and Great Lakes?

Of course, with rising gas prices and trouble in the Middle East, the demand for oil is up and stopping new drilling will be greatly opposed by many, especially the companies that stand to profit from the drilling. However, perhaps these conditions will put us in the necessarily dire situation to change our lifestyles and further develop technology that ends our ill-fated dependence on oil.

What milestones and performance measures would be most useful for measuring progress toward achieving this priority objective?

Name

eddy edwards

Organization

Which Priority Objective would you like to provide comment on?

Water Quality and Sustainable Practices on Land

What near-term, mid-term, and long-term actions would most effectively help the Nation achieve this policy objective?

the nation should take serious the potential for acid mine drainage into our Great Lakes when the EPA defers to the state of michigan the enforcement of the clean water act. in Michigan alone, is the EPA neglecting their duty to protect our clean water. In the upper peninsula of michigan, a foreign mining company is prepared to start sulfide mining and plans to dump water from the sulfide mine into the salmon river that feeds into lake superior. with the history of the flambeau sulfide mine in wisconsin so close to us, it should be critical for the EPA to act to protect our great lakes instead of delegating its responsibility to the state of michigan.

What are some of the major obstacles to achieving this objective; are there opportunities this objective can further, including transformative changes in how we address the stewardship of the oceans, coasts, and Great Lakes?

What milestones and performance measures would be most useful for measuring progress toward achieving this priority objective?

Name

Eddie Gantzer

Organization

Montana State University Student

Which Priority Objective would you like to provide comment on?

Water Quality and Sustainable Practices on Land

What near-term, mid-term, and long-term actions would most effectively help the Nation achieve this policy objective?

In the near-term, it would be ideal to see an end to beach closures and massive fish kill areas due to pollutants from on land plants. It is also crucial in first steps to protecting our water to identify the problems on land that are causing problems, and admitting that what happens offshore affects our shorelines and oceans. Mid-term goals should include setting goals to reduce pollutants from things such as factories as well as our daily garbage. The long-term action should be sticking to these goals. Harder said than done, but necessary, is the ability to follow through. Some ways of reducing pollutants from the land include attempting to develop agricultural means in which the pesticides are not poison to the water they come in contact with. Also, using educational techniques and increasing recycling efforts would be a crucial step. In the film Addicted to Plastic many alternatives are suggested, although the costs and small-scale productions are an issue. So many organizations have set standards such as eradicating Malaria or other diseases by a set date, but have failed. In the long term the Interagency Ocean Policy Task Force should attempt and set obtainable goals on land that will help save what we have not yet destroyed of our oceans.

What are some of the major obstacles to achieving this objective; are there opportunities this objective can further, including transformative changes in how we address the stewardship of the oceans, coasts, and Great Lakes?

The largest obstacles that we have in keeping our supplies of water clean and usable water come from ourselves. Generating numbers and realizing that our current rates of consumption and misuse are unsustainable does something, but no effect can happen unless actions are made. Education is one of the most crucial aspects of this. As a student at Montana State University who grew up in Minneapolis, I have been around fairly eco-conscious environments and people my entire life. However, I had no idea of the extent that the ocean and even our lakes and streams were being polluted and filled with our waste, while at the same time being depleted of all that they have to offer us. End of the Line and Addicted to Plastic were two films shown which set of a big impression in me. Also, simply the fact that my university offered a seminar class on Ocean Conservation and Sustainability made me realize that we cannot take the ocean for granted. So, quite simply, I think that the lack of awareness is one of the largest obstacles.

This lack of awareness can be especially difficult in dealing with water quality based off of the practices on land because it is more difficult to see the direct influences. In our relative ignorance as Americans it does not seem apparent that the fertilizers we put on our lawns or the pesticides used on our crops would affect the fish in our sea. Not even just the fish, but our entire world. As Sylvia Earle has pointed out, as well as the End of the Line author Charles Clover, our oceans supply with much more than a place for our cruises and recreational dives in the Caribbean. The pollutants, including plastics, do harm the fish and other animals, but these animals can in turn harm us in two crucial ways.

First of all, if pollutants get built up in the fish and we eat these fish, it is us that take the direct hit or impact. Also, if fish quantities (which have been predicted to be eradicated as early as 2048) as well as other aquatic life are suffering, our economies will as well. Considering many countries consumption and economic dependence

on fishing and the coastal life, we need to fix or at the very least maintain a balance in order to keep our lives and the marine life going.

Another major challenge that virtually every economic, environmental, and societal problems face is good funding. New fertilizers, transportation, and plastics require research as well as promotion of the new products. They also need to be able to transfer a person or company s brand loyalty, which would be done with expensive advertising as well as testing.

What milestones and performance measures would be most useful for measuring progress toward achieving this priority objective?

In order to achieve levels of water quality that are acceptable much work must be done on land first, as the run off, garbage, and other factors make their way quickly and easily into our oceans. The simplest ways to measure performance of actions taken to enhance water quality in the ocean and our other bodies of water is to look at the beach closings and physical destruction. Many times, such as in the case of algae blooms, it is obvious of the destruction occurring. An initial way to measure the progress is purely aesthetically and recreationally. After a sense of this stability has been achieved effects of the land pollutants should be looked at scientifically. If a system can be developed to monitor the changes of different chemicals in the Great Lakes, rivers, gulf areas and coastlines we will be able to see how the prescribed plan is taking effect, if any.

Name

Margo Blaha

Organization

Florida Institute of Technology

Which Priority Objective would you like to provide comment on?

Water Quality and Sustainable Practices on Land

What near-term, mid-term, and long-term actions would most effectively help the Nation achieve this policy objective?

a) Near-term: Use independent science to identify and quantify point and non-point sources of pollution and contamination along the coast (i.e. agricultural and residential sources of pollution).

What are some of the major obstacles to achieving this objective; are there opportunities this objective can further, including transformative changes in how we address the stewardship of the oceans, coasts, and Great Lakes?

What milestones and performance measures would be most useful for measuring progress toward achieving this priority objective?

Name

Peter Saunders

Organization

National Council for Science and the Environment

Which Priority Objective would you like to provide comment on?

Water Quality and Sustainable Practices on Land

What near-term, mid-term, and long-term actions would most effectively help the Nation achieve this policy objective?

To enhance water quality in the ocean, along our coasts, and in the Great Lakes by promoting and implementing sustainable practices on land, the Federal Government and its agencies should:

- A. Enhance and increase water quality monitoring.
- B. Increase financial resources and research for estimating the value of natural assets including the ecological and recreational resources of waterfronts and shorelines (including beaches and wetlands) and for tracking the role of the oceans and Great Lakes in the national, state, and local economies. In support of this:
 - i. Climate risk and other specific risks associated with our coastlines should be integrated into the decision making process for economic development and planning in these regions.
 - ii. Researchers should carry out an affordable study to evaluate the socioeconomic consequences of sea level rise.
- C. Provide key signals about the risks of development in hazardous coastal regions, and they should work together to make sure that development fully accounts for those risks, including the option of not developing in exposed areas.
- D. Support local and regional planners to develop better knowledge on how activities within watersheds affect receiving waters.
- E. Restore and mitigate wetlands and floodplains, including through public-private partnerships.
- F. Take immediate action to conserve ecosystems that are already known to sequester carbon, while supporting research on coastal and ocean carbon sequestration.
- G. Update the CZMA regulations to require effective and strong enforcement of state and local coastal management plans and recertification of local plans.

What are some of the major obstacles to achieving this objective; are there opportunities this objective can further, including transformative changes in how we address the stewardship of the oceans, coasts, and Great Lakes?

What milestones and performance measures would be most useful for measuring progress toward achieving this priority objective?

Attachment: Attachment included in index: “National Council for Science and the Environment’s 11th National Conference on Science, Policy and the Environment: Our Changing Oceans.” Found on page 25 of document.

Name

Joyce Dillard

Organization

Which Priority Objective would you like to provide comment on?

Water Quality and Sustainable Practices on Land

What near-term, mid-term, and long-term actions would most effectively help the Nation achieve this policy objective?

What are some of the major obstacles to achieving this objective; are there opportunities this objective can further, including transformative changes in how we address the stewardship of the oceans, coasts, and Great Lakes?

Ocean Policy should tie in with the Clean Water Act which effects the Clean Air Act. We should see input from the US Geological Survey and recognize not all earthquake issues have been placed on the table.

Land use issues, which are local government issues, need to be incorporated with the national approach. There is federal funding from other agencies like HUD that effects the state of ocean environment that is not addressed at the NEPA level.

Pollutants are a problem and scientific approaches are needed, not just Best Management Practices BMPs. Science needs to be viewed as an economic engine.

What milestones and performance measures would be most useful for measuring progress toward achieving this priority objective?

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Practices on Land

Ocean Sustainability

Water Quality and Sustainable Practices on Land

What near-term, mid-term and long-term actions would most effectively help the Nation achieve this policy objective?

To help the water quality of our Nation we need to start somewhere. Even the smallest of objectives will help. (Clover) By starting with the reduction of dumping waste in our oceans and decreasing the use of plastic we can make a change. Near-term we need to get the message out that plastic is old news and that we should start reusing, recycling and taking better care of our planet. Just because plastic is very economically efficient it is not eco-friendly. Plastic may be the easiest choice but it is not the only choice. We need to choose and choose now. Mid-term we need to make sure that the plastic is not being dumped in our beautiful oceans. We should not be harming our oceans because of a lack of ambition. We should have a better recycling system put together to make sure that nothing is being thrown out and out into our water. (Connacher) If we take the time on land to make sure that it stays organized and clean then we should be able to keep our oceans clean as well. (Palumbi) The long-term effect should be a cleaner ocean. After time the small practices of keeping things where they should be will slowly let the ocean heal itself from the damage we have already caused. The long-term should be better recycling.

What are some of the major obstacles to achieving this objective; are there opportunities this objective can further, including transformative changes in how we address the stewardship of the oceans, coasts, and Great Lakes?

A major obstacle that would effect this objective is the decisions of the people. We as a Nation have to make the change. Guidelines can be set as well as opportunities that can given are here to help, but unless people themselves decide to do something about making that change it wont happen. Many things can be breached with the subject of water quality and sustainable practices on land. Opportunities will present themselves when the time is right. Step two cant happen before step one. Once we get over the first step we can experience many things that we can attribute to the recycling and the choice of the people. If in the mid-term people become aware of the oceans water and the practices we are trying to promote on land then we could have more support and the more support that we have the more we can do and the bigger the difference is that we can make.

What milestones and performance measures would be most useful for measuring progress toward achieving this priority objective?

Recycling. If we recycle better and more and get the whole Nation involved we can better our environment and the oceans. We can tell what kind of progress we

are making by watching the amount of recycling we are obtaining and by taking a closer look at our oceans. If we stop finding water bottles on the beaches and we hear that the amount of plastic floating around has been reduced then we will know that we have changed and made progress.

Nicole Holasek

4/25/11

Final

References

Clover, Charles. *The End of the Line*. New York: The New Press, 2006. N. pag.
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Connacher, Ian, dir. *Addicted to Plastic*. 2007. DVD-ROM.

Palumbi, Stephen, writ. TED. Web. 29 Mar. 2011.



Coastal States Organization
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April 28, 2011

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

Re: CSO Recommendations on *Objective 7: Water Quality and Sustainable Practices on Land*

Dear Chairs Sutley and Holdren and National Ocean Council Members:

On behalf of the governors of the nation's thirty-five coastal states and territories, the Coastal States Organization (CSO) submits the following comments in order to inform the National Ocean Council (NOC) as it develops a Strategic Action Plan (Plan) for the national priority objective relating to "Water Quality and Sustainable Practices on Land." CSO applauds the recognition of water quality as a key priority under the National Ocean Policy and encourages the NOC to prioritize the National Coastal Nonpoint Pollution Control Program as part of its strategic efforts. CSO's recommendations for the Water Quality Strategic Action Plan will ensure a strong recognition of existing mechanisms to improve the health of coastal waters and are critical to the success of the nation's water quality efforts.

By the late 1980s, it was clear that protection of coastal waters from nonpoint source pollution demanded a federal-state shared approach¹ and, because water quality is not only a result of what occurs in the water but also what occurs on land, better coordination between coastal area managers and water quality experts.² In response, Congress enacted the Coastal Zone Act Reauthorization Amendments (CZARA) on November 5, 1990, including a new Section 6217 entitled "Protecting Coastal Waters." Section 6217 requires that states with coastal zone management programs approved under Section 306 of the Coastal Zone Management Act

¹ Carpenter, S.R., N.F. Caraco, D.L. Correll, R.W. Howarth, A.N. Sharpley, and V.H. Smith. 1998. Nonpoint pollution of surface waters with phosphorus and nitrogen. *Ecological Applications*. 8:559-568.

² Boesch, Donald F., Richard H. Burroughs, Joel E. Baker, Robert P. Mason, Christopher L. Rowe, Ronald L. Siefert. 2001. Marine Pollution in the United States. Prepared for the Pew Oceans Commission, Arlington, VA.

(CZMA) develop Coastal Nonpoint Pollution Control Programs (coastal nonpoint programs). Section 6217 sets out two levels of partnerships:

- 1) Partnership of state coastal zone management agencies and state water quality agencies and
- 2) Partnership of NOAA (with authority under CZMA § 6217) and EPA (with authority under Clean Water Act § 319).

As such, the Coastal Nonpoint Program is fundamentally about improved coordination and pollution prevention, seeking to build partnerships and networks that facilitate the implementation of appropriate methods to limit polluted runoff before problems occur.

The Program is unique in that it establishes a set of management measures for states to use in controlling polluted runoff. The measures are designed to implement controls for runoff from six main sources: forestry, agriculture, urban areas, marinas, hydromodification (shoreline and stream channel modification), and wetlands and vegetated shorelines, or riparian areas. These measures are backed by enforceable state policies and actions—state authorities that will ensure implementation of the program. The 34 coastal and Great Lakes states and territories which participate in the Coastal Zone Management Program are required to develop coastal nonpoint pollution control programs; twenty-two have approved programs and twelve have conditionally approved programs in progress.

The Coastal Nonpoint Program focuses forward on pollution prevention, by minimizing the creation of polluted runoff rather than cleaning up already contaminated water—which is a very difficult and expensive process. The program encourages the coordination of pollution prevention efforts at the local levels, particularly improvements to address land use planning and the implementation of best practices to protect coastal water quality. Some of the land use practices implemented through the program include: preserving natural vegetation, offsetting development within sensitive habitats and erosion-prone areas, and limiting impervious surfaces such as pavement, decking, and roof tops, to the maximum extent practicable. State coastal nonpoint programs show the value of these efforts.

Specifically, Georgia leveraged public and private resources to create a leading-edge green infrastructure Coastal Stormwater guidance that integrates natural resource protection of priority habitats and species (including state listed species and freshwater wetlands), land use, and ecosystem services to manage water quality and quantity by reducing runoff at the source.³ The program has also enabled the State Department of Community Health to have GIS mapping capacity for the first time which is used to track the age and pumpout records of individual septic systems, a major culprit for coastal water quality concerns.

The Ohio Department of Natural Resources and Ohio Sea Grant have partnered to develop and implement the Ohio Clean Marinas Program in the Lake Erie Watershed. As of March 2011, there are 36 certified clean marinas with an additional 32 marinas pledged to join. This program encourages marinas to adopt best management practices to reduce nonpoint pollution runoff and

³ For more information, visit <http://www.georgiastormwater.com>.

improve water quality.⁴ The Ohio Nonpoint Program overall reported significant progress in protecting more than 48 acres of riparian and wetland areas through the acquisition of conservation easements, restoring more than 27,395 linear feet of impaired streams and restoring more than 29 acres of riparian forested areas, and reducing nonpoint source pollutant loadings of Nitrogen by 551 pounds/year, Phosphorus by 544 pounds/year, and Sediment by 694 tons/year. These success stories at the state level prove the value of these programs.⁵

Reduced capacity at the federal and state level to review and implement measures for a full program has left coastal watersheds particularly vulnerable, reducing the ability for states to implement innovative tools. Federal support for approval of state programs is vital to reducing impacts from nonpoint source pollution, which is considered a primary cause of coastal water pollution in the United States.

Obstacle: Lack of Adequate Funding

Clean coastal waters are fundamental to healthy coastal economies. This program has established Federal and State coordination processes along with localized interagency infrastructure that works to achieve these results, which align with the goals the President has set for the NOC. Unfortunately, one of the most damaging obstacles to the program's continued success is lack of funding. Funding has been reduced, and last year, eliminated⁶ for the coastal nonpoint pollution control program which is contrary to the interests of communities that depend on clean coastal waters for their livelihood and for all Americans who recognize that these fragile environments greatly contribute to quality of life.

Recommendation: Support Funding for Coastal Nonpoint Program

CSO recommends that the Strategic Action Plan identify, coordinate and promote available and potential state and federal funding including adequate monetary and human resources for EPA and NOAA to fully implement the coastal nonpoint pollution control program. The coastal nonpoint implementation grants fund mandated programs in the states and territories that work closely with local governments to abate nonpoint runoff pollution. A better understanding of the comprehensive resources available to – and provided by – local, state and federal entities to protect our ocean, coasts and the Great Lakes will allow the NOC and all those involved maximize their efforts and our chances for success. Without funding, states and territories cannot provide vital services and face potential penalties.

⁴ For more information, visit <http://www.ohioseagrant.osu.edu/cleanmarinas/>.

⁵ Additional examples of Coastal Nonpoint Program successes are documented by NOAA at <http://coastalmanagement.noaa.gov/nonpoint/success.html>.

⁶ Annual funding provided under NOAA's appropriations line for Coastal Zone Management Nonpoint

Implementation Grants:

FY06: \$3 million

FY07: ~\$3 million

FY08: \$3.9 million

FY09: \$3.9 million

FY10: \$0

FY11: Under continuing resolution through September 2011: \$0

Obstacle: Coordination Capacity Within and Among Federal Agencies

Section 6217 was not intended as a completely new and separate Federal program; rather, it was designed to combine the strengths of two existing programs under the CZMA and CWA, led by NOAA and EPA respectively, providing a comprehensive framework and management approach to coastal nonpoint source pollution. While the program was designed to take advantage of expertise from both responsible agencies, insufficient coordination within and among those agencies can hinder the full implementation of the program.

Recommendation: Use Existing Framework to Improve Federal Coordination

CSO recommends that the Strategic Action Plan:

- Encourage EPA and NOAA to clarify standards within the agencies so that regions and agency headquarters are applying the standards of review consistently;
- Eliminate conditions which are outside the scope and authority of State CZM Programs and focus on actions that States can reasonably be expected to implement;
- Facilitate the Full Approval of all Coastal Nonpoint Programs by striving for faster resolution of remaining issues and improved coordination amongst federal partners; and,
- Improve Program Administration by clarifying and simplifying policies and improving process efficiencies within the federal agencies.

The states and territories strongly support the NOC in its work to implement the Water Quality objective. CSO appreciates the opportunity to comment and work with the National Ocean Council on this Action Plan.

Sincerely,



Braxton Davis
Chair
Coastal States Organization



Kristen M. Fletcher
Executive Director
Coastal States Organization

**Comments for the National Ocean Policy Strategic Action Plans
from the
National Council for Science and the Environment's
11th National Conference on Science, Policy and the Environment:
Our Changing Oceans**

For three days in January 2011, the National Council for Science and the Environment (NCSE) convened 1,250 leaders in ocean science, policy, management and education, conservation and business to explore issues affecting the world's changing oceans. Their objectives were to advance science based decision-making on oceans by:

1. sharing the most current state of the science;
2. linking science to policy and other decisions;
3. communicating key messages and reframing issues;
4. developing targeted and actionable recommendations; and,
5. catalyzing long-term collaborations

Meeting participants put forth a spectrum of ideas on specific challenges facing the world's oceans. Here we present those recommendations that are germane to the National Ocean Policy process, mapped onto the nine Priority Objectives from the Final Recommendations of the Interagency Ocean Policy Task Force. Recommendations that were not targeted for the National Ocean Policy Strategic Action Plans (e.g., recommendations directed at Congress or the private sector) are not included here.

Because there is considerable overlap among these priority areas, some recommendations are included in more than one area, but we also encourage those working on individual priorities to view recommendations in related areas (for example, ecosystem-based management is very much connected with marine and spatial planning).

Because of the nature of the conference, there is considerable diversity in the types of ideas put forth - research, policy, education and outreach; regional, national and international; single agency, multi-agency and public-private partnerships. There is also considerable diversity in the budgetary implications of the recommendations. We recognize that the current budgetary situation places considerable constraints on the NOC process; constraints that may limit that ability of the government to implement some excellent ideas contained in this document. We ask you to be a forward looking as possible in considering the recommendations included here and "do your best."

In addition to the nine priority areas, we encourage the National Ocean Council to develop sets of cross-cutting recommendations in the areas of education (including public education, and pre-professional STEM and workforce education as well as attention to diversity of those knowledgeable about the oceans) and science (inventory and monitoring, observations, and fundamental and applied research). We are concerned that without such cross-cuts, the need for a comprehensive and integrated approach to ocean and coastal education and research, is not likely to be addressed.

We also encourage cross-cutting looks at particular issues such as the importance of oceans for human health and well-being and energy – both traditional (oil and gas) and alternative (wind and waves).

These recommendations are presented in spirit of constructive suggestions from the conference participants. Not all of the conference participants endorse all of the recommendations, and no recommendation should be interpreted as official input from the organizations where conference participants work. For additional information about the conference please go to www.OurChangingOceans.org.

We hope that you find this input helpful. We would be pleased to meet with the members of the National Ocean Council and your various teams and to assist in other ways.

Best wishes and success with your important work.

Margaret Leinen
Conference Chair

Peter Saundry
Executive Director

Priority Area 7. Water Quality and Sustainable Practices on Land

To enhance water quality in the ocean, along our coasts, and in the Great Lakes by promoting and implementing sustainable practices on land, the Federal Government and its agencies should:

- A. Enhance and increase water quality monitoring.
- B. Increase financial resources and research for estimating the value of natural assets including the ecological and recreational resources of waterfronts and shorelines (including beaches and wetlands) and for tracking the role of the oceans and Great Lakes in the national, state, and local economies. In support of this:
 - i. Climate risk and other specific risks associated with our coastlines should be integrated into the decision making process for economic development and planning in these regions.
 - ii. Researchers should carry out an affordable study to evaluate the socioeconomic consequences of sea level rise.
- C. Provide key signals about the risks of development in hazardous coastal regions, and they should work together to make sure that development fully accounts for those risks, including the option of not developing in exposed areas.
- D. Support local and regional planners to develop better knowledge on how activities within watersheds affect receiving waters.
- E. Restore and mitigate wetlands and floodplains, including through public-private partnerships.
- F. Take immediate action to conserve ecosystems that are already known to sequester carbon, while supporting research on coastal and ocean carbon sequestration.
- G. Update the CZMA regulations to require effective and strong enforcement of state and local coastal management plans and recertification of local plans.

Objective 7: Water Quality and Sustainable Practices on Land: Enhance water quality in the ocean, along our coasts, and in the Great Lakes by promoting and implementing sustainable practices on land.

- *Marine Debris*: Form regional Marine Debris Alliances to better address marine debris issues.
- *Land-based Pollution*: Quantify contributions of land-based pollutants, identify priority habitats, and create better land use planning practices, such as low-impact development and green infrastructure, to mitigate land-based pollution.

Two of the most important issues affecting water quality of coastal oceans are marine debris and land-based pollution. In 2010, the WCGA announced intentions to establish a West Coast Marine Debris Alliance among California, Oregon, Washington, and British Columbia. To date, the WCGA has leveraged additional resources and funding and initiated international engagement with British Columbia. The WCGA and future West Coast Marine Debris Alliance will help to establish baselines of marine debris for the West Coast, develop comprehensive strategies to reduce marine debris, as well as provide a process to evaluate success. A detailed strategy is currently in development for cooperatively addressing marine debris through mechanisms such as extended producer responsibility, product stewardship and life-cycle analysis, and waste reduction and recycling programs.

To alleviate pollution from land-based sources, it will be necessary to quantify runoff of pollutants, sediments, and nutrients; identify and protect priority habitat areas, and involve more strategic land use planning measures, such as green infrastructure (GI), low-impact development (LID), and stormwater management that can mitigate effects of polluted runoff on our ocean and coasts. Reduction of pollution into the marine environment should result in the reduction of harmful algal bloom events, dead zones, beach closures and poor water quality advisories, and fish kills.

Without sustained funding resources, coastal water quality programs do not have the resources and technical capacity to prevent the introduction, accelerate the removal, and minimize the impacts of marine debris or to effectively monitor and mitigate for costly polluted runoff events. The federal government should provide incentives that encourage GI and LID. Endorsing existing partnerships involved in water quality and sustainable land practices can provide a solid framework to improve federal cooperation and incorporate additional agencies without undermining current efforts. For example, under the CZM Program and Clean Water Act, NOAA and the US EPA can combine efforts on non-point source pollution.



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San Luis Obispo Coastkeeper
Santa Barbara Channelkeeper
Santa Monica Baykeeper
Ventura Coastkeeper

April 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: National Ocean Council Strategic Action Plan for Water Quality (Objective 7)

Dear Chairs Sutley and Holdren and National Ocean Council Members:

The California Coastkeeper Alliance represents 12 Waterkeeper groups spanning the coast from the Oregon border to San Diego. The Alliance and its member Waterkeepers work daily to protect and enhance clean, abundant water flows throughout the state. On behalf of the Alliance, I am pleased to submit these comments on the “National Ocean Council Strategic Action Plan for Objective 7: Water Quality and Sustainable Practices on Land” (Strategic Water Quality Action Plan or Action Plan).

The stated purpose of the Action Plan is to “enhance water quality in the ocean, along our coasts, and in the Great Lakes by promoting and implementing sustainable practices on land.” In order to achieve this, the Action Plan must outline effective actions to reduce polluted runoff. Polluted runoff (both stormwater and non-stormwater runoff) is the most significant and widespread source of contamination of coastal waters. The Commission on Ocean Policy found that “[n]inety percent of impaired water bodies do not meet water quality standards at least in part because of nonpoint source pollution.”¹ Additionally, “millions of dollars are spent on treating the symptoms of stormwater pollution but much less is spent on efforts to control its causes.”² The Commission has found that “substantial enhancement of coastal water quality will require significant reductions in nonpoint source pollution.”³

In order to curtail impacts to coastal waterways caused by land-based polluted runoff, the Action Plan should measure progress toward enhancing “water quality in the ocean, along our coasts, and in the Great Lakes by promoting and implementing sustainable practices on land” by measuring reductions in stormwater runoff, reduced impervious surface areas, and increased stormwater capture and storage.

¹ U.S. Commission on Ocean Policy, *An Ocean Blueprint for the 21st Century: Final Report*, p. 213, available at http://oceancommission.gov/documents/full_color_rpt/14_chapter14.pdf (COP Report).

² *Id.* at 217.

³ COP Report at 204.

I. THE ACTION PLAN SHOULD INCLUDE TASKS THAT WILL RESULT IN MEASUREABLE, NEAR-TERM REDUCTIONS IN STORMWATER RUNOFF, REDUCED IMPERVIOUS SURFACE AREAS, AND INCREASED STORMWATER CAPTURE AND STORAGE.

A. Stormwater Runoff Is a Significant Source of Coastal Pollution.

Stormwater runoff is a significant source of coastal pollution, particularly for popular coastal recreation areas such as Southern California. As noted by the Commission on Ocean Policy,

[p]oor stormwater management may increase flooding, causing property damage from flash floods and leading to higher insurance rates. Stormwater is also a source of bacterial contamination, leading to increased disease incidence, thousands of beach closures in the United States each year, and loss of revenues from coastal tourism and sport fishing. Millions of dollars are spent on treating the symptoms of stormwater pollution but much less is spent on efforts to control its causes.⁴

A UCLA and Stanford University study found that nearly 1.5 million cases of gastrointestinal illnesses occur annually as a result of fecal contamination in Southern California's waters. The researchers estimated that health care costs for the cases range from \$21 million annually (based on very conservative assumptions) to \$414 million.⁵ Moreover, stormwater discharges from roadways pollute nearby waters with metals (copper, lead, and zinc) from brake pads and tires, as well as synthetic organics (petroleum products and pesticides), sediment, nutrients, debris, oxygen-demand substances (decaying vegetation, animal waste, and other organic matter), and other pollutants.

Land use decisions dramatically affect the amount and type of stormwater runoff created, and so can significantly impact coastal water quality. For example, aquatic ecosystem health becomes "seriously impaired" when over 10% of the watershed is covered by impervious surfaces. By comparison, impervious surfaces cover 25%–60% of the area in medium-density residential areas, and can exceed 90% at strip malls and other commercial sites.⁶ A comprehensive approach is required to minimize disturbance to the natural hydrology, minimize water flow over surfaces, and maintain water quality....⁷ The Commission formally recommended that state and local governments "adopt or revise existing codes and ordinances to require land use planning and decision making to carefully consider the individual and cumulative impacts of development on water quality, including effects on stormwater runoff."⁸

B. Low-Impact Development Techniques Have Multiple Benefits in Addressing the Problem of Contaminated Stormwater Runoff.

To control runoff effectively and reduce expensive cleanup costs downstream, pollution should be better controlled at the source. Implementation of low-impact development (LID) measures is critical to reducing stormwater pollution into coastal waters. LID slows and sinks stormwater flow reducing

⁴ *Id.* at 217.

⁵ UCLA, "Regional Public Health Cost Estimates of Contaminated Coastal Waters: A Case Study of Gastroenteritis at Southern California Beaches," *Environmental Science and Technology* 40(16), 4851–4858 (2006).

⁶ COP Report at 216-17.

⁷ *Id.* at 220 (emphasis added).

⁸ *Id.* (emphasis added).

polluted runoff and creating new, low-energy localized water supplies.⁹ Pollution prevention through LID also offers additional benefits over after-the-fact conventional treatment, such as pollution reduction, reduced stormwater runoff volume and rate, potentially increased groundwater recharge (potentially creating a low-energy, localized water supply), habitat protection, and greater cost-effectiveness.

U.S. EPA found that using LID methods, rather than traditional stormwater management controls, results in cost *savings* of between 15% and 80%. Despite 39 federal funding sources for watershed protection along coastal waters, there is no single funding source dedicated to the implementation of LID.¹⁰ Thus, despite the laudable number of resources, tools, and manuals that EPA has created and disseminated on the benefits of LID,¹¹ coastal states do not have the funding necessary to implement LID techniques.

West Coast states have already begun development and implementation of LID strategies. Several key reports on LID have been released offering numerous other specific task recommendations.¹² These include revising state codes to encourage green design and remove disincentives to LID. Federal regulations should be revised to facilitate and require minimizing and reducing impervious surfaces, protecting existing vegetation, maintaining predevelopment runoff volume and infiltration rates, and providing water quality improvements.

Near-Term Action: Direct U.S. EPA and other members of the Council to develop specific guidance on how coastal states can finance LID techniques to reduce coastal stormwater pollution, through existing funding sources, such as the Clean Water State Revolving Fund, and carve out a new pot of funding dedicated specifically for LID in coastal areas, with preference given to designated national marine sanctuaries and other marine protected and managed areas.

Near-Term Action: Develop a thorough report on the coastal water-energy carbon nexus, including ocean desalination, with follow-up recommendations of tasks that will simultaneously: (a) reduce polluted runoff, (b) reduce demands on water supply, and (c) mitigate climate change by encouraging low-energy (and discouraging high-energy) sources of fresh water.

Mid-Term and Longer-Term Action: Develop a process that would ensure that state governments update their codes and ordinances as needed to enhance the use of LID to reduce pollution, increase water supplies, reduce flooding risks, and/or ensure stormwater permit compliance. For example, those states that accept funding for model projects should be required to make associated regulatory updates uncovered by the projects' results. This would be the mid-term action; the longer-term action would be to ensure the implementation of these processes coast-wide.

Mid-Term and Longer-Term Action: Conduct a federal survey of coastal land use and make recommendations as to how policies and programs, such as the U.S. Fish and Wildlife Service Coastal

⁹ See, e.g., OPC, "Resolution Regarding Low-Impact Development" (May 15, 2008) ("LID Resolution"), available at http://www.opc.ca.gov/webmaster/ftp/pdf/docs/Documents_Page/Resolutions/LID%20resolution.pdf.

¹⁰ See U.S. Environmental Protection Agency, Catalog of Funding Sources for Watershed Protection, available at <http://cfpub.epa.gov/fedfund/search1.cfm>.

¹¹ U.S. Environmental Protection Agency, Low Impact Development, available at <http://www.epa.gov/owow/NPS/lid/>.

¹² See, e.g., Low Impact Development Center, "A Review of Low Impact Development Policies: Removing Institutional Barriers to Adoption" (Dec. 2007); U.S. EPA, "Reducing Stormwater Costs through Low Impact Development (LID) Strategies and Practices," EPA Pub. No. 841-F-07-006 (Dec. 2007); Tetra Tech, Inc., "State and Local Policies Encouraging or Requiring Low Impact Development in California" (Jan. 2008); all available at http://www.opc.ca.gov/webmaster/ftp/pdf/agenda_items/20080229/06_LID/0802COPC_06_LID%20memo.pdf; see also additional information on U.S. EPA website, available at: <http://www.epa.gov/nps/lid/>.

Program and National Coastal Wetlands Conservation Grant Program can be used to facilitate a measureable increase in acres of wetlands and coastal habitats restored and protected, *and* a measureable decrease in the amount of impervious surface area through conversion or retrofit. This would be the mid-term action; the longer-term action would be to ensure the implementation of these recommendations coast-wide.

II. THE ACTION PLAN SHOULD ADVANCE INTEGRATED SOLUTIONS TO ACHIEVE OVERALL WATER, OCEAN, AND CLIMATE GOALS.

The Action Plan should focus on *integrated solutions* that advance the nation's overall water, ocean, and climate change goals. National policies, funding and programs should be designed and implemented with careful attention to the overall impacts of our water sources – such as stormwater capture versus ocean desalination – on our goals of clean, healthy oceans and lower greenhouse gas emissions. The Council should endeavor to capitalize on the energy and environmental benefits of increasing stormwater capture and storage through low-impact development, by crafting an Action Plan that discourages energy-intensive and environmentally destructive water sources such as ocean desalination, with reference to the Strategic Plan for Objective 5: Resiliency and Adaptation to Climate Change and Ocean Acidification, as needed.

Stormwater control through LID and other measures can address multiple different problems at once, including water quality, climate change adaptation/mitigation (through flood control), and water supply issues. As to the water supply, stormwater capture and storage can provide significant, low-energy, localized water sources that reduce a growing focus on destructive ocean desalination as a water source. The California Energy Commission has found that water management consumes 19% of the state's electricity generated every year. If our water sources are not sustainable from an energy and climate change perspective, they will increasingly harm, rather than benefit, the ocean environment.

In an August 2008 report,¹³ the Los Angeles County Economic Development Corporation (LAEDC) ranked conservation and “local stormwater capture” as the area's most cost-effective, energy efficient, relatively immediate water sources. By contrast, ocean desalination using current technology, which devastates sensitive near-shore ecosystems, ranked *lowest* on the list of water supply strategies in terms of greenhouse gas emission impacts.¹⁴ The Scoping Plan for California's landmark “AB 32” greenhouse gas emission reduction law promotes stormwater capture/reuse, conservation and recycling as energy-efficient alternatives that can create *millions* of acre-feet of “new,” local water supplies. The AB 32 Scoping Plan specifically promotes LID as an energy-efficient, sustainable water source, and adds that up to 333,000 acre-feet of stormwater could be captured annually in urban Southern California alone.¹⁵ Similarly, the January 2009 California Little Hoover Commission report on water governance states that:

[a] 2005 report by the Los Angeles and San Gabriel Rivers Watershed Council noted that 500,000 acre-feet of stormwater runoff flow from the Los Angeles County basin to the ocean each year. The report noted that if the region could instead capture that water and

¹³ LAEDC, *Where Will We Get the Water? Assessing Southern California's Future Water Strategies* (rev'd Aug. 14, 2008); available at http://www.laedc.org/sclc/studies/SCLC_SoCalWaterStrategies.pdf.

¹⁴ Though these comments do not specifically address the Climate Change section, we urge the Governors to include in the Climate Change Work Plan a specific process for discouraging ocean desalination as a water supply source, at a minimum until all other conservation, stormwater capture, recycling and other energy-efficient and sustainable water sources have been exhausted.

¹⁵ California Air Resources Board, “Climate Change Scoping Plan: Volume 1,” at C-135 (Dec. 2008), available at http://www.arb.ca.gov/cc/scopingplan/document/appendices_volume1.pdf.

reuse it, Southern California would be less dependent on water imports from Northern California.¹⁶

Such water strategies should be significantly encouraged, and strategies that are destructive to the ocean should conversely be discouraged in the Council's Strategic Action Plans. The above water supply benefits information demonstrates that LID implementation runs across both the Climate Change and Water Quality Action Plans; both Action Plans should reflect this information.

III. THE ACTION PLAN SHOULD INCLUDE FOCUSED ACTIONS TO REDUCE NON-STORMWATER POLLUTED RUNOFF THROUGH ENFORCEABLE "BEST MANAGEMENT PRACTICES."

A. Non-Stormwater Runoff Is a Significant Source of Coastal Pollution.

Many coastal waterways critical to fish health do not meet standards and are in fact significantly polluted, in many cases well above water quality standards.¹⁷ The Commission on Ocean Policy Report found that "substantial enhancement of coastal water quality will require significant reductions in nonpoint source pollution."¹⁸ Since the 2004 release of the COP Report, significant new scientific research has been unveiled demonstrating that polluted runoff-caused contamination harms and kills fish even at low *and legal* concentrations. Most recently, a study by NOAA and Washington State University found that five of the most common pesticides used in California and the Pacific Northwest – diazinon, malathion, chlorpyrifos, carbaryl and carbofuran – act in "deadly synergy" by suppressing an enzyme that affects the nervous system of salmon.¹⁹ Exposures to a single chemical did no harm, but pairing chemicals lowered enzyme activity, sometimes fatally. Moreover, scientists noticed effects at lower pesticide levels when chemicals were applied in combinations. The scientists concluded that "[s]ingle-chemical risk assessments are likely to underestimate the impacts of these insecticides on salmon in river systems where mixtures occur." This means that even if our existing water quality laws are implemented fully, they will fail to protect fish, because the standards on which they are based are too low.

A NOAA/NMFS study of juvenile fall Chinook salmon similarly found that salmon accumulate significant concentrations of chemical contaminants even during relatively short residence times in estuaries, and that juvenile salmon from polluted environments "exhibit abnormalities ranging from subcellular effects to changes in immune function and growth. In many cases the effects alter physiological processes, such that the potential for survival is reduced." The study further found that because the pollutants suppressed the salmon's immune systems, there was an increased susceptibility to infectious disease.²⁰ This is consistent with multiple sets of findings from scientists presenting at the 2008 Annual Meeting of the American Association for the Advancement of Science (AAAS), who reported that pesticides that run off the land and mix in rivers and streams *combine to have a greater than expected toxic effect* on the salmon nervous system than the pesticides would have individually. The scientists concluded that "[c]urrent risk assessments based on a single chemical will likely underestimate

¹⁶ California Little Hoover Commission, "Clearer Structure, Cleaner Water," at 81 (Jan. 2009), available at <http://www.lhc.ca.gov/studies/195/report195.pdf>.

¹⁷ See California Coastkeeper Alliance website, available at <http://www.cacoastkeeper.org/programs/mapping-initiative/ca-polluted-water-maps>.

¹⁸ COP Report at 204.

¹⁹ Laetz, Cathy, *et al.*, "The Synergistic Toxicity of Pesticide Mixtures: Implications for Risk Assessment and the Conservation of Endangered Pacific Salmon," *Environmental Health Perspectives*, Vol. 117, No. 3 (March 2009), available at http://www.eenews.net/public/25/9960/features/documents/2009/03/03/document_gw_01.pdf. See also Goodman, Sara, "Mix of common farm pesticides deadly to salmon – study," *New York Times* (March 3, 2009).

²⁰ Casillas, E., *et al.*, NOAA-NMFS-NWFSC, "Estuarine Pollution and Juvenile Salmon Health: Potential Impact on Survival" (2007), available at <http://www.nwfsc.noaa.gov/publications/techmemos/tm29/papers/casillas.htm>.

impacts on wildlife in situations where that chemical interacts with other chemicals in the environment,” and that the findings may have relevance for human health because these toxins act on the nervous systems of salmon and humans in a similar way.²¹

While the Clean Water Act fails to mandate controls on many sources of non-stormwater runoff, the Action Plan should fill the gap until that problem is corrected. The Commission on Ocean Policy found that “[i]mprovements to the [nonpoint] programs should . . . require enforceable best management practices and other management measures throughout the United States . . .”²² and recommended that “[t]o ensure protection of coastal resources nationwide, Congress should provide authority under the Clean Water Act and other applicable laws for federal agencies to establish enforceable management measures for nonpoint sources of pollution . . .”²³ The existing federal programs of incentives and voluntary efforts²⁴ are insufficient to reduce non-stormwater polluted runoff.

The Action Plan must move beyond solely voluntary and incentive-based actions, which will not achieve clean coastal waters, and instead include a set of tasks that will result in the adoption and full implementation of state programs mandating enforceable controls on polluted runoff. This action would be a model for the rest of the country, and potentially spur the adoption of similar controls within the Clean Water Act, as called for by the Commission.

B. Action Is Needed to Address Growing Contamination and Associated Damage

Near-Term and Mid-Term Action: (a) Support the Commission’s call for “enforceable best management practices,” both in state law and in the Clean Water Act for *all* sources of polluted runoff, and (b) adopt specific tasks to implement this COP Report recommendation in each coastal state.²⁵ This would be the near-term action; the mid-term action would be to ensure the implementation of enforceable BMPs on all sources of polluted runoff – including irrigated agriculture – nationwide.

Near-Term and Mid-Term Action: Direct U.S. EPA and U.S. Fish and Wildlife Service to compile and augment scientific research on synergistic impacts of pesticides and other key pollutants on coastal habitats, fish and wildlife (particularly salmon). This would be the near-term action; once agencies have collected and analyzed the scientific information, they should make recommendations for new standards as needed, which should then be adopted in a mid-term time frame.

Mid-Term Action: Ensure the development of a national monitoring network of coastal, near-shore and marine ecosystems that includes: (a) clearly defined goals that fulfill user needs and provide measures of management success, (b) a core set of variables to be measured at all sites, (c) regional flexibility to measure additional variables where needed, (d) and technical coordination that establishes standard procedures and techniques.²⁶

²¹ Scholz, Nat, NOAA, “Health effects of pesticide mixtures: Unexpected insights from the salmon brain,” (AAAS Annual Meeting, Feb. 2008), available at http://www.eurekalert.org/pub_releases/2008-02/nh-nsa_1021208.php (emphasis added); see also NOAA Office of Communications, “New findings on emerging contaminants: Chemicals in our waters are affecting humans and aquatic life” (AAAS Annual Meeting, Feb. 2008), available at http://www.eurekalert.org/pub_releases/2008-02/s-nfo020808.php.

²² COP Report at 218 (emphasis added).

²³ *Id.* at 220 (emphasis added).

²⁴ See Work Plan Action 1.1, available at http://westcoastcoceans.gov/Docs/PollRunoffACT_Draftworkplan_May09.pdf.

²⁵ While California’s Porter-Cologne Water Quality Control Act already mandates such controls on polluted runoff, and the mandates of Porter-Cologne are beginning to be implemented, full statewide implementation of these mandates has yet to occur.

²⁶ *Id.* at 234.

We respectfully request that the Action Plan include the above-described actions to protect water quality, in order to effectively ensure the good health of coastal and marine waters and affected habitat and life.

Thank you for your continued strong support and action for a vibrant coast and ocean.

Regards,



Sara Aminzadeh
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7. Water Quality and Sustainable Practices on Land: Enhance water quality in the ocean, along our coasts, and in the Great Lakes by promoting and implementing sustainable practices on land.

1. What near-term, mid-term, and long-term actions would most effectively help the Nation achieve this policy objective?

Achieving enhanced water quality should be a key focus of Ecosystem-based management, as water quality profoundly affects the health of virtually all ecosystems.

Near-term actions should focus on restoration of water quality in coastal areas, including estuaries, using provisions of the Clean Water Act and other existing legal authorities. This will require remedial actions far inland in many areas, and the scope of effort must be national in extent, indeed international to address causes of ocean acidification. The need for near-term actions to improve water quality is identified by each of the Regional Ocean Councils of the mainland United States, as noted in the following excerpts from their documents:

New England Regional Ocean Council: "The impacts of increasing human uses including many new industrial uses, and the effects of fractured management are showing in degraded water quality, depleted fish stocks, and damaged habitat, as evidenced by documented "dead zones" in the Long Island Sound and decreased anadromous fisheries in the Gulf of Maine. The New England states have also identified the links between human activity on the land with the health of our coasts and estuaries."

Mid-Atlantic Regional Ocean Council: "Water quality impairments continue to have negative impacts on ecosystem function and limit the quality of life in our coastal communities. And increased activity and disturbances in offshore areas threaten sensitive and unique habitats and ocean features. The risks of failing to address these ocean and coastal problems are grave, with serious implications at the regional, national, and global level for sustaining human communities and the resources on which we depend."

Gulf of Mexico Alliance:

" Improving Ecosystem Health. Much of the economic activity in the Gulf Coast is dependent on or related to a healthy Gulf ecosystem. Coastal and marine planners in the Gulf region are faced with a complex environment in which to make difficult decisions regarding protection, restoration, enhancement, and management of various coastal and natural resources. **There are numerous threats to the Gulf, including one of the world's largest zones of hypoxia, or areas of water with little to no oxygen.** Each year, the hypoxic zone negatively affects the region's seafood production, illustrating the enormity and complexity of the threats facing the region's ecosystem and, subsequently its economy." (emphasis added).

The Sierra Club's Mississippi River Issue Team has a campaign to reduce phosphorus and nitrogen loading from the Mississippi River watershed and decrease the size of the "dead zone" in the northern Gulf of Mexico. The Sierra Club supports similar efforts by the Gulf Restoration Network.

The Council of Great Lakes Governors:

"The Council of Great Lakes Governors has established nine priorities to guide the restoration and protection of the largest single source of fresh water in the world, the Great Lakes:

- Ensure the sustainable use of our water resources while confirming that the States retain authority over water use and diversions of Great Lakes waters.
- Promote programs to protect human health against adverse effects of pollution in the Great Lakes ecosystem.
- Control pollution from diffuse sources into water, land and air.
- Continue to reduce the introduction of persistent bioaccumulative toxics into the Great Lakes ecosystem.
- Stop the introduction and spread of non-native aquatic invasive species.
- Enhance fish and wildlife by restoring and protecting coastal wetlands, fish and wildlife habitats.
- Restore to environmental health the Areas of Concern identified by the International Joint Commission as needing remediation.
- Standardize and enhance the methods by which information is collected, recorded and shared within the region.
- Adopt sustainable use practices that protect environmental resources and may enhance the recreational and commercial value of our Great Lakes."

We also note that the \$5 billion Great Lakes Restoration Initiative is underway, with the EPA playing a leadership role.

West Coast Governors Agreement on Ocean Health (WCGA):

"Washington, Oregon, and California will launch a West Coast-wide effort to address coastal water quality concerns through the following actions:

- Urge the federal government to fully fund polluted runoff programs.
- Reduce polluted runoff through a variety of methods, including low impact development.
- Develop predictive capabilities for harmful algal blooms and hypoxia events.
- Reduce and prevent marine debris by augmenting clean-up and removal efforts, expanding recycling programs, enforcing litter laws, and increasing public education and outreach.
- Improve our ability to prevent and respond to oil spills.
- Seek low sulfur fuel standards for marine shipping to improve coastal air quality (emissions contribute to water pollution)."

As noted by the regional planning bodies, addressing land based impacts on coastal and ocean waters requires coordinated actions ranging from the international to the level of individuals and their behaviors. Control of polluted runoff is especially challenging, as much such runoff is from non-point sources. EPA must assure that states establish and monitor Total Maximum Daily Loads as required to meet water quality standards, with high priority given to impaired waterbodies.

Reduction of polluted runoff at local levels can occur through regulatory means such as building codes, grading ordinances, and NPDES permits, together with education and outreach efforts discouraging use of lawn fertilizers, herbicides, and pesticides. Some specific examples of actions at various levels of government include restrictions on the types of fertilizers and pesticides that can be used in proximity to coastal areas, promotion of the use of porous pavement in areas (e.g. parking lots, paths etc.) near coastal waterways, and promotion of other measures for reducing runoff and increased recharge of groundwater during rainfall events. Air quality standards must also be enforced, as nonpoint sources on land are augmented by atmospheric deposition from regional airsheds. In addition to controlling runoff, improved performance of septic tanks in homes will be needed, as they are also a major source of nutrients into estuaries and coastal waters.

As mentioned previously, reduction of carbon dioxide emissions is needed to combat ocean acidification worldwide. The EPA should exercise its full authorities for reducing such emissions from sources within the United States.

Mid-Term and Long-Term actions should include making changes in laws and regulations, especially at the federal level, as needed to fully implement the concepts of ecosystems-based management, and correct any gaps or conflicts in legislation that may be identified during the short-term efforts to implement the NOP. In particular, the Clean Water Act should be reauthorized and amended as necessary, and a national energy policy promoting clean and renewable energy, with reductions in greenhouse gases, should be adopted. The Coastal Nonpoint Source Pollution Control Program has been in place since 1990, but nonpoint source pollution problems persist. It would appear that amendments to improve the effectiveness of this program should be considered.

Even short and mid-term actions, however, should be taken with an awareness of likely long-term scenarios that include significant sea level rise, ocean acidification, and possibly more frequent severe weather events - including storm surges. Major changes in coastal infrastructure appear likely and necessary in the long-term.

2. What are some of the major obstacles to achieving this objective; are there opportunities this objective can further, including transformative changes in how we address the stewardship of the oceans, coasts, and Great Lakes?

Implementation of ecosystem-based management as the foundation for the National Ocean Policy should result in such transformative changes, as noted from the following quotes from a consensus statement on marine ecosystem-based management:

"Ecosystem-based management differs from current approaches that usually focus on a single species, sector, activity or concern; it considers the cumulative impacts of different sectors.

Specifically, ecosystem-based management:

- emphasizes the protection of ecosystem structure, functioning, and key processes;
- is place-based in focusing on a specific ecosystem and the range of activities affecting it;
- explicitly accounts for the interconnectedness within systems, recognizing the importance of interactions between many target species or key services and other non-target species;
- acknowledges interconnectedness among systems, such as between air, land and sea; and
- integrates ecological, social, economic, and institutional perspectives, recognizing their strong interdependences. "

(Source: 1 McLeod KL, Lubchenco J, Palumbi SR, and Rosenberg AA. 2005. Communication Partnership for Science and the Sea scientific consensus statement on marine ecosystem-based management. www.compassonline.org/pdf_files/EBM_Consensus_Statement_v12.pdf)

The other source of transformative change can come from implementation of Coastal and Marine Spatial Planning (CMSP) in support of ecosystem-based management. The use of CMSP tools is becoming much more widespread as computers with graphic capabilities are becoming more affordable and broadband access to the Internet has made these tools, and associated databases, available to NGOs and the general public. CMSP tools can display maps and other aids for visualizing complex sets of information, and decision support tools to help decision makers choose between alternatives.

Major obstacles to promoting and implementing sustainable practices on land include lobbying by current users and producers of chemical fertilizers and pesticides, including the farm lobby; current budgetary shortfalls at the state level, and a push for deficit reduction at the federal level, making it difficult to fund needed infrastructure improvements such as wastewater treatment plants and storm drain systems; and general inertia resulting in avoidance or postponement of necessary actions.

3. What milestones and performance measures would be most useful for measuring progress toward achieving this priority objective?

Measurements of nutrients and toxics in runoff during storm events are useful performance measures – reduced levels would indicate progress. However, since there is such a large amount of nutrients stored in sediments, reduction of eutrophication in terms of reduced plankton blooms and ecological improvement will probably take decades, rather than years, to be seen. A measure of response to nutrients that is useful is measuring dissolved oxygen levels in deeper waters during the summer. Increased levels of DO would signify progress toward achieving this objective. Improved diversity in benthic communities and reduced incidence of harmful algal blooms would be additional indicators of progress toward the goals. Similarly, return or increase of sea grass beds would signify improved water quality, as would downward trends in beach closures

following storm water events and reduced closures of nearshore shellfish beds due to bacterial contamination.

For persistent toxic chemicals, monitoring levels in fish and shellfish are useful performance measures. The concentrations of chemicals in fish consumed by humans are clear and understandable by the general public and more useful than measuring levels of these chemicals in the sediments, where they tend to concentrate. The bioavailability of toxic chemicals in the sediments may be more important than their concentration (for example, metals in sandy sediments are more bioavailable than higher concentrations in muddy/silty sediments, because they bind tightly to sulfides in silty sediments).

Within an ecosystem-based management framework, new performance measures will be required beyond traditional water quality parameters. It is important to begin developing baseline EBM parameters against which future progress toward EBM goals can be measured.



WATER QUALITY AND SUSTAINABLE PRACTICES ON LAND STRATEGIC ACTION PLAN COMMENT April 29, 2011

FIVE KEY ACTIONS FOR THE WATER QUALITY STRATEGIC ACTION PLAN

The **Environmental Law Institute (ELI) Ocean Program**¹ submits this comment to highlight key opportunities for meeting the Environmental Protection Agency’s statutory obligations under the Clean Water Act and the National Oceanic and Atmospheric Administration’s statutory obligations under the Coastal Zone Management Act. These recommended actions would build on the national ocean policy, stewardship principles, and water quality national priority objectives and utilize the water quality strategic action plans (SAPs) and accompanying information established in response to Executive Order 13547, “Stewardship of the Ocean, Our Coasts, and the Great Lakes.”²

Specifically, this comment focuses on how the Water and Sustainable Practices on Land SAP (Water Quality SAP) can inform and support implementation of existing statutory and regulatory obligations.

Table 1. Summary of Actions to include in the Water Quality SAP

- 1. Near-Term Action:** Incorporate Ocean Policy EO and Water Quality SAP objectives into planned stormwater rulemaking.
- 2. Medium-Term Action:** Update ocean discharge criteria.
- 3. Medium-Term Actions:** Improve coastal water-quality standards and develop ocean TMDLs.
- 4. Medium- to Long-Term Action:** Improve Coastal NPS Programs under CWA § 319 and CZMA § 6217 with renewed efforts and dedicated implementation funding.
- 5. Near-Term Action:** Ensure that all strategic action plans are appropriately integrated.

According to Executive Order 13547 (Ocean Policy EO), it is now the national policy to “protect, maintain, and restore the health and biological diversity of ocean, coastal, and Great Lakes ecosystems

¹ ELI’s comment is based on several years of research focused on law and policy mechanisms to implement ecosystem-based management for the oceans, including coastal and marine spatial planning. For more information, see ENVIRONMENTAL LAW INSTITUTE (ELI) AND CENTER FOR OCEAN SOLUTIONS, COASTAL AND MARINE SPATIAL PLANNING: LEGAL CONSIDERATIONS (2010); ELI, MARINE SPATIAL PLANNING IN U.S. WATERS: AN ASSESSMENT AND ANALYSIS OF EXISTING LEGAL MECHANISMS, ANTICIPATED BARRIERS, AND FUTURE OPPORTUNITIES (2009) (included here as an appendix); ELI, OCEAN AND COASTAL ECOSYSTEM-BASED MANAGEMENT: IMPLEMENTATION HANDBOOK (2009); ELI, EXPANDING THE USE OF ECOSYSTEM-BASED MANAGEMENT IN THE COASTAL ZONE MANAGEMENT ACT (2009). Additional information and reports are available at http://www.eli.org/Program_Areas/ocean_projects.cfm.

² Executive Order 13547, Stewardship of the Ocean, Our Coasts, and the Great Lakes (July 19, 2010).

and resources.”³ To achieve this national ocean policy, President Obama has established a new National Ocean Council and mandated all federal agencies to: implement the national ocean policy, the stewardship principles, and the national priority objectives; participate in the coastal and marine spatial planning process; and comply with certified coastal and marine spatial plans “... to the fullest extent consistent with applicable law.”⁴ This Ocean Policy EO incorporates by reference the detailed final recommendations developed by the precursor Interagency Ocean Policy Task Force (Task Force).⁵

In developing nine Strategic Action Plans to support implementation of the national priority objectives, the National Ocean Council is to “identify specific and measurable near-term, mid-term, and long-term actions, with appropriate milestones, performance measures, and outcomes to meet each [national priority] objective.”⁶

To achieve the Water Quality National Priority Objective, the Task Force recommended development of an SAP to “[e]nhance water quality in the ocean, along our coasts, and in the Great Lakes by promoting and implementing sustainable practices on land.”⁷ Among other required elements, the Task Force called for this Water Quality SAP to address “[t]he relative contributions of significant land-based sources of pollutants, sediments, and nutrients to receiving coastal waters and ways to address them, including recommendations of how to integrate and improve existing land-based conservation and pollution programs.”⁸ It also calls for “[b]est management practices, use of conservation programs, and other approaches for controlling the most significant land-based sources of nutrients, sediments, pathogens, toxic chemicals, solid waste, marine debris, and invasive species.”⁹ Therefore, the key focus of the Water Quality SAP is decreasing land-based sources of marine pollution.

The Clean Water Act (CWA) is the chief federal law designed to address land-based sources of marine pollution, along with the **Coastal Zone Management Act (CZMA)**, which creates a grant-based program to support state efforts to address nonpoint sources of coastal pollution.¹⁰ These laws and the institutions that implement them are the primary federal mechanisms available to satisfy the requirements of the Water Quality SAP. Therefore, many of the Water Quality SAP’s near-term, mid-term, and long-term actions should be designed to improve the existing legal, regulatory, and management framework under the CWA and CZMA.

Authority for addressing point and nonpoint sources of ocean pollution under the Clean Water Act varies depending on the specific provisions in the statute. Figure 1 provides an overview of the key regulatory elements of the CWA and how they apply to the ocean.

³ Executive Order 13547, § 2.

⁴ *Id.* § 6.

⁵ *Id.* § 1.

⁶ Interagency Ocean Policy Task Force, Final Recommendations of the Interagency Ocean Policy Task Force 7 (July 19, 2010).

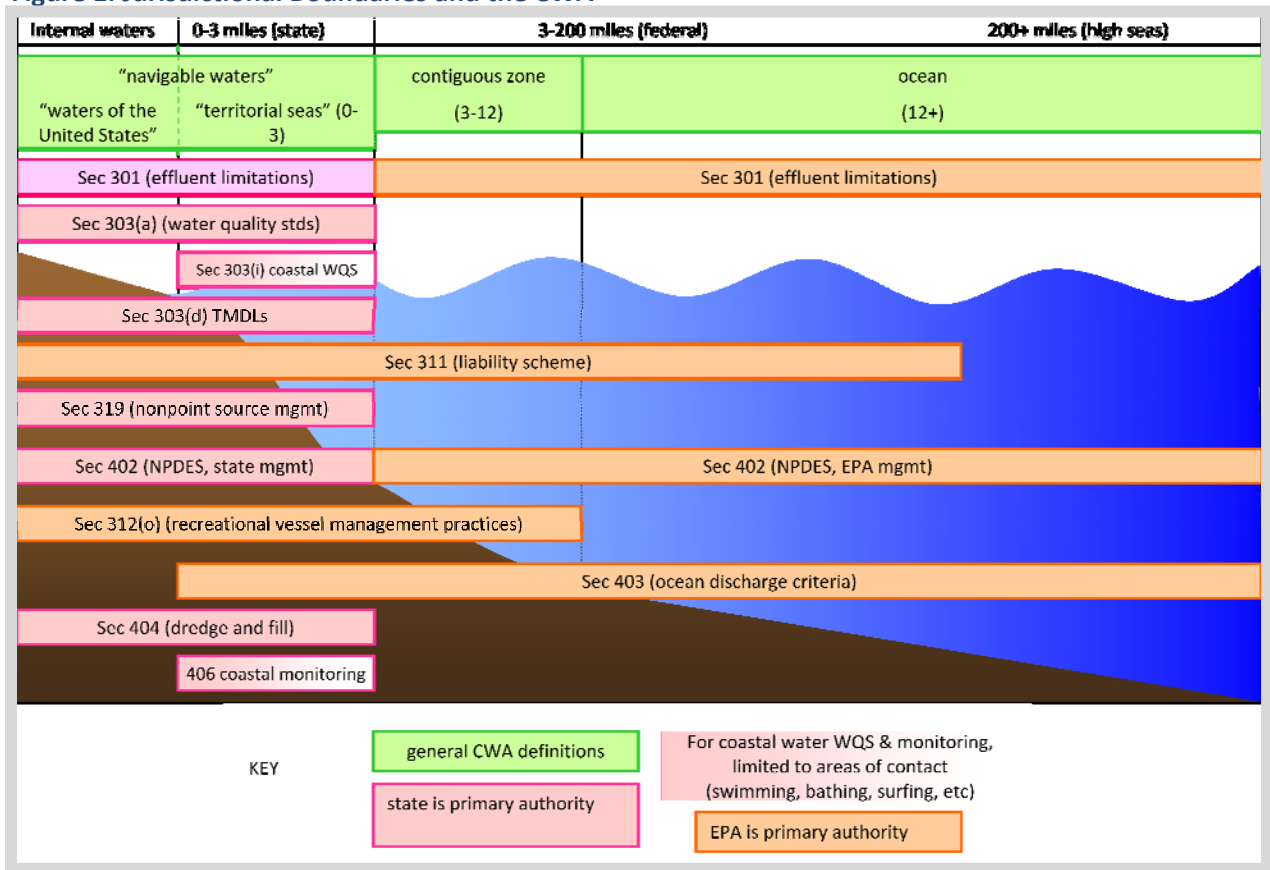
⁷ *Id.* at 38.

⁸ *Id.* at 39.

⁹ *Id.*

¹⁰ Other important laws designed to address pollution are those related to accidental spills, including the Oil Pollution Act and the Comprehensive Environmental Response, Compensation and Liability Act.

Figure 1. Jurisdictional Boundaries and the CWA



Because the Water Quality SAP focuses specifically on land-based sources of ocean pollution, this comment likewise focuses on land-based point sources and nonpoint sources (excluding pollution derived from at-sea activities). Some key types of land-based point source discharges into the marine environment include: captured and discharged stormwater from urban environments; discharge from publicly-owned treatment works; and industrial dischargers (e.g. pulp mills, refineries, seafood processors, and desalination plants).¹¹

¹¹ Environmental Protection Agency [hereinafter EPA], Table 1: Types of NPDES Permitted Ocean Dischargers, at <http://water.epa.gov/aboutow/owow/programs/criteriatable1.cfm>.

RECOMMENDED WATER QUALITY SAP ACTIONS

1. Near-Term Action: Incorporate Ocean Policy EO and Water Quality SAP objectives into planned stormwater rulemaking, including:

- Stormwater Regulations Revision to Address Discharges from Developed Sites¹²
Status: September 2011, Notice of proposed rulemaking expected
- NPDES Permit Requirements for Municipal Sanitary and Combined Sewer Collection Systems, Municipal Satellite Collection Systems, Sanitary Sewer Overflows, and Peak Excess Flow Treatment Facilities.¹³
Status: November 2011, Notice of proposed rulemaking expected

For both of these rules under development, the Water Quality SAP action could specifically:

- Call for completion of the final rules in the next year to 18 months;
- Ensure that these rules explicitly recognize EPA's responsibility in implementing the Ocean Policy EO including ocean policy, stewardship principles and specific objectives of the Water Quality SAP; and
- Call for inclusion of explicit language geared at improving the water quality of coastal waters with these rules.

One of the most significant sources of land-based ocean pollution is urban runoff. When urban runoff is collected in a stormwater system, the stormwater discharged into the ocean is considered a point source and therefore subject both to the National Pollution Discharge Elimination System (NPDES) requirements and the ocean discharge criteria. When stormwater runs directly from the watershed to the sea, it is a non-point source.¹⁴

EPA regulates three types of stormwater discharges: (1) municipal separate storm sewer systems (MS4s) with different requirements based on size; (2) construction activities for sites greater than one acre; and (3) industrial activities.¹⁵ Despite the particular impacts of stormwater on the marine environment, “[n]one of the EPA's regulatory pronouncements for the stormwater permit program contain any special provisions for stormwater discharges into the marine waters.”¹⁶

¹² EPA, Stormwater Regulations Revision to Address Discharges from Developed Sites [hereinafter Revised Stormwater Regulations] at <http://yosemite.epa.gov/opei/RuleGate.nsf/byRIN/2040-AF13?opendocument> (last visited April 27, 2011).

¹³ EPA, NPDES Permit Requirements for Municipal Sanitary and Combined Sewer Collection Systems, Municipal Satellite Collection Systems, Sanitary Sewer Overflows, and Peak Excess Flow Treatment Facilities [hereinafter SSO Rulemaking], at <http://yosemite.epa.gov/opei/rulegate.nsf/byRIN/2040-AD02?opendocument> (last visited April 27, 2011)

¹⁴ For a discussion of nonpoint source pollution, see *infra* notes 34-47 and accompanying text.

¹⁵ EPA, Stormwater Program, at http://cfpub.epa.gov/npdes/home.cfm?program_id=6.

¹⁶ Robin Kundis Craig, *Urban Runoff and Ocean Water Quality in Southern California: What Tools Does the Clean Water Act Provide?*, 9 Chap. L. Rev. 313, 352 (2006) To provide a sense of the magnitude of the problem, Kundis Craig summarizes an EPA report on the pollutants:

urban runoff picks up and carries with it a number of kinds of pollutants that impair ocean water quality, including: sediment, which can decrease light penetration and smother coastal ecosystems such as coral reefs; nutrients, which can cause plankton blooms, known as harmful algal blooms, and ultimately lead to decreased dissolved oxygen levels; oxygen-demanding substances, such as decaying organic matter, which also lead to decreases in dissolved oxygen

EPA is already engaged in stormwater rulemaking, but no draft rules are available yet.¹⁷ First, EPA is revising developed-site stormwater regulations.¹⁸ In response to a 2008 National Research Council report reviewing the stormwater program and recommending improvements, the agency is considering establishing requirements for managing stormwater discharge from new and re-developed sites and potentially expanding the scope of the municipal separate storm sewer systems (S4).¹⁹

Second, EPA is revising its sanitary sewer overflow regulations.²⁰ EPA is developing a proposed rulemaking, including addressing operation and maintenance requirements and a prohibition on sanitary sewer overflows and a potential new regulatory framework for applying NPDES permit conditions.

These ongoing rulemakings provide an opportunity to develop regulations in compliance with the Ocean Policy EO requirements related to the Water Quality NPO. For example, to support the Water Quality NPO, EPA could develop more stringent stormwater rules, or expand the breadth of the stormwater regulations to cover additional sources in order to better address urban runoff that impacts coastal waters. For both of these regulations under development, the Water Quality SAP could specifically:

- call for completion of the regulatory process in the next year to 18 months;
- ensure that this regulation explicitly recognizes EPA's responsibility in implementing the Ocean Policy EO including stewardship principles and specific objectives of the Water Quality SAP; and
- call for inclusion of explicit language geared at improving the water quality of coastal waters with this regulation.

Also, EPA is in the process of developing several other relevant regulations that could provide opportunities to insert language relevant to the Ocean Policy EO. In addition to the possible regulatory changes discussed in this comment, other potentially relevant regulations in the pre-proposal phase include:²¹

- Criteria and Standards for Cooling Water Intake Structures (includes regulation of "plants using less than 50 MGD of cooling water, new offshore oil and gas facilities, and all existing manufacturing facilities")
- Development of Best Management Practices for Recreational Boats under Section 312(o) of the Clean Water Act (includes recreational boats in state waters and the contiguous zone)
- [NPDES] Permit Regulations for New Dischargers and the Appropriate Use of Offsets with regard to Water Quality Permitting (examining the use of offsets and options for addressing new dischargers in impaired waters prior to and after TMDL development).

levels; pathogens and disease-causing organisms, which lead to beach closures; road salts (in areas of the country with snow), which can result in toxic concentrations of chlorine; hydrocarbons from oil products, which can kill marine organisms; heavy metals such as copper, lead, chromium, and zinc, which are often toxic; and other toxic pollutants.

Id. at 323.

¹⁷ For more information, see <http://cfpub.epa.gov/npdes/stormwater/rulemaking.cfm>.

¹⁸ EPA, Revised Stormwater Regulations, *supra* note 12.

¹⁹ *Id.*

²⁰ EPA, SSO Rulemaking, *supra* note 13.

²¹ EPA, *Rulemakings by Phase: Pre-Proposal*, at <http://yosemite.epa.gov/opei/RuleGate.nsf/content/phasespre.html?opendocument> (last visited Jan. 4, 2011).

- Revisions to the National Oil and Hazardous Substances Pollution Contingency Plan; Subpart J Product Schedule Listing Requirements (EPA is considering changes to the dispersant effectiveness and toxicity requirements and is considering changes to 40 CFR 110.4 which addresses the use of dispersants).
- Water Quality Standards for the State of Florida's Estuaries and Coastal Waters (EPA is required by consent decree to develop numeric nutrient water quality criteria for Florida estuaries and coastal waters by August 2012).

2. Medium-Term Action: Update ocean discharge criteria.

In order to support the Water Quality NPO, EPA could revive its efforts to develop new ocean discharge criteria. The prior proposed rule, which was withdrawn, included elements that still resonate today. Some of these described by Kundis Craig (2001) include the following:

- Definition of a 3-200 mile “use” as “Healthy Ocean Waters.”
- Creation of discharge criteria based on the above use.
- Establishment of “special ocean sites” that would limit new discharges, and would encourage states to adopt areas as “no discharge zones”²²

Such discharge criteria could inform land-based dischargers who are introducing pollutants into the marine environment.

Ocean Discharge Criteria offer another opportunity to achieve water quality objectives in accordance with the Ocean Policy EO and Water Quality SAP. In addition to the NPDES program laid out in CWA Section 402, Section 403 sets forth additional requirements for NPDES permits for discharges to the territorial sea, contiguous zone, and ocean, and calls for EPA to establish ocean discharge criteria.²³ In accordance with this section, EPA may permit a point source discharge to these waters only if it determines that the discharge will not result in “unreasonable degradation of the marine environment.” Unreasonable degradation is defined by regulation as:

- (1) Significant adverse changes in ecosystem diversity, productivity and stability of the biological community within the area of discharge and surrounding biological communities,
- (2) Threat to human health through direct exposure to pollutants or through consumption of exposed aquatic organisms, or
- (3) Loss of esthetic, recreational, scientific or economic values which is unreasonable in relation to the benefit derived from the discharge.²⁴

EPA determines whether a discharge will cause unreasonable degradation of the marine environment based on ten factors set forth in the regulations.²⁵ If EPA determines that the discharge will not cause

²² Kundis Craig & Miller, *supra* note 23 at 26-29 (2001).

²³ 33 U.S.C. § 1343(a); For a thorough discussion of ocean discharge criteria, see Robin Kundis Craig & Sarah Miller, *Ocean Discharge Criteria and Marine Protected Areas: Ocean Water Quality Protection Under the Clean Water Act*, 29 B.C. Env'tl. Aff. L. Rev. 1 (2001).

²⁴ 40 C.F.R. § 125.121.

²⁵ 40 C.F.R. § 125.122(a).

unreasonable degradation after any necessary permit conditions have been applied, it may issue the permit. Conversely, if the agency determines that the discharge will cause unreasonable degradation even with permit conditions, or that there is insufficient information to determine whether unreasonable degradation will occur, it may not permit the discharge. Notably, if the discharge complies with state water quality standards for that pollutant, it is presumed not to cause unreasonable degradation of the marine environment.²⁶

Despite an attempt in the early 2000s, EPA has not updated ocean discharge criteria since 1980, and as currently written, the criteria provide limited guidance for dischargers. Therefore, the ocean discharge criteria could be a target for improvement consistent with the Water Quality SAP. One advantage of building from this provision is that EPA has sole authority to regulate all ocean discharges in accordance with the ocean discharge criteria. In other words, the agency has the ability to regulate ocean point source discharges in all ocean waters.

3. Medium-Term Actions: Improve coastal WQS and develop ocean TMDLs.

The Water Quality national priority objective fits squarely within the framework of the Clean Water Act's water quality standard (WQS) and Total Maximum Daily Load (TMDL) requirements that apply in the coastal region out to three miles from shore (i.e. state waters).²⁷

To date, there has been limited focus by states and EPA to fully develop ocean WQS, identify impaired ocean waters, and develop large marine ecosystem (LME)-scale ocean TMDLs. The Water Quality SAP and subsequent actions can help fill this gap with the following three actions:

- i. Through the development of *Water Quality Standards Regulatory Clarifications*, EPA is currently proposing changes to WQS regulations, noting that the existing regulations have been in place since 1983. According to EPA, "The proposed rule will provide clarity in the following six key areas: 1) antidegradation, 2) Administrator's determination, 3) uses, 4) variances; 5) triennial review scope and requirements, and 6) updating regulation to reflect court decisions. EPA expects to publish a proposed rule in the Federal Register in summer 2011."²⁸ EPA could include Water Quality SAP objectives as part of this WQS update.
- ii. EPA could update or develop additional ocean-specific guidance or regulations to encourage and facilitate the development of more comprehensive ocean WQS and TMDL programs, including the development of LME-scale TMDLs.²⁹
- iii. States and EPA could focus on preventing pollution in "threatened waters" to drive a more proactive and prevention-based response.

²⁶ 40 C.F.R. § 125.122(b).

²⁷ Clean Water Act, §§ 303; USC §§ 1313.

²⁸ EPA, *Rulemakings by Phase: Pre-Proposal*, at <http://yosemite.epa.gov/oepi/RuleGate.nsf/content/phasespre.html?opendocument> (last visited Jan. 4, 2011).

²⁹ To date, EPA has the following ocean guidance related to WQS and TMDLs: Nutrient Criteria Technical Guidance Manual: Estuarine and Coastal Marine Waters (2001); , Estuarine and Coastal Marine Waters: Bioassessment and Biocriteria Technical Guidance (2000); EPA, Questions and Answers on Ocean Acidification and the Clean Water Act 303(d) Program (Nov 15, 2010) (developed as part of the settlement requirement with the Center for Biological Diversity: *CBD v. EPA*, No. 2:09-cv-00670-JCC (W.D. Wash. 2010)).

Water quality standards (WQS) “define the goals for a waterbody by designating its uses, setting criteria to protect those uses, and establishing provisions such as antidegradation policies to protect waterbodies from pollutants.”³⁰ If technology-based NPDES permit limits fail to meet applicable water quality standards, the permits must be revised to incorporate the WQS. If a state’s effluent limitations are not stringent enough to achieve the applicable WQS, states must develop **total maximum daily loads (TMDLs)**, which provide a mechanism for bringing impaired waters into compliance with WQS. Specifically, TMDLs are developed for water bodies that are impaired due to one or more pollutants. They are planning documents that provide an analysis of the sources of pollutant(s), and create a budget of the amount of pollutants that various sources can contribute to the total allowable load.

California provides an example of how WQS and TMDLs work in practice.

California’s designated ocean uses (excluding bays and estuaries) are for “industrial water supply; water contact and non-contact recreation, including aesthetic enjoyment; navigation; commercial and sport fishing; mariculture; preservation and enhancement of designated Areas of Special Biological Significance (ASBS); rare and endangered species; marine habitat; fish migration; fish spawning and shellfish harvesting.”³¹ California establishes bacterial, physical, and chemical pollutant criteria based on these uses. For example, the water-contact standard for coliform bacteria is less than 10 coliform bacteria per milliliter (with allowance for occasional increased loads), and the standard applies to the area from shore to 1,000 feet or the 30-foot depth contour (whichever is farther).³² Beyond the nearshore, this standard does not apply.

Under the TMDL provision, CWA § 303(d), California has 1,883 impaired water bodies.³³ While there is no oceanwide TMDL, several TMDLs have oceanic components. For example, in San Diego County, several TMDLs specifically relate to the bays, estuaries, and the ocean, including the following:

- Shelter Island Yacht Basin Dissolved Copper TMDL;
- Beaches and Creeks in San Diego Region Bacteria TMDLs;
- Baby Beach at Dana Point Harbor and Shelter Island Shoreline Park at San Diego Bay Bacteria TMDLs;
- San Diego Bay Marine Sediment TMDLs (six locations);
- TMDLs for Impaired Lagoons, Adjacent Beaches, and Agua Hedionda Creek (impairments include nutrients/eutrophication, sedimentation/siltation, total dissolved solids, and bacteria);
- Tijuana River Valley (including the estuary and focused on sedimentation and trash); and
- Los Penasquitos Lagoon (focused on sediment).

These TMDLs cover a range of pollutants including copper, bacteria, sediments, nutrients, total dissolved solids and trash. In addition to these TMDLs, San Diego County has several TMDLs that relate specifically to freshwater waterbodies that ultimately empty into the ocean.

³⁰ EPA, Water Quality Standards, at <http://water.epa.gov/scitech/swguidance/waterquality/standards/index.cfm> (last visited Dec 27, 2010).

³¹ State Water Quality Resources Control Board, Water Quality Control Plan: California Ocean Plan 3 (2001), available at http://water.epa.gov/scitech/swguidance/waterquality/standards/upload/2003_12_15_standards_wqslibrary_ca_ca_9_wqcp_waters.pdf (last visited Dec. 27, 2010).

³² *Id.* at 4.

³³ State Water Resources Control Board, Total Maximum Daily Load Program, at http://www.waterboards.ca.gov/water_issues/programs/tmdl/background.shtml#current (last visited Dec 27, 2010).

As the 2003 EPA nonpoint source (NPS) guidance points out, the NPS program largely focuses on waters identified as impaired under Section 303(d) of the CWA. However, very few TMDLs exist that relate to the ocean, and those that do target bays, estuaries, and river mouths rather than open ocean waters or large marine ecosystems (LMEs). The need to address NPS pollution in coastal waters throughout the ecosystem, and the fact that the CWA Section 319 NPS program specifically targets water bodies designated as impaired provide added reasons for reviewing the condition of coastal waters for impairment and developing TMDLs for entire large marine ecosystems.

While terrestrial watershed-based TMDLs should address many of the same problems that would be identified in a large marine ecosystem TMDL (i.e. an ocean TMDL), some impairments may be better characterized by a regional ocean assessment. For example, the cumulative effects of plastic pollution, entering from land-based sources into the ocean, has created impacts on the scale of oceanic gyres. This could be better understood and appreciated if a single TMDL were developed to analyze the problem and consider potential region-wide solutions at the regional scale. Further, ocean TMDLs could bring unknown challenges to light. For example, ocean noise pollution, toxic pollutants from antifouling agents used to keep ships free from barnacles and other encrusting organisms, or invasive species traveling in ballast water are specifically ocean issues, which would not be addressed by a focus on terrestrial water bodies alone.

Therefore, the Water Quality SAP could create an action for EPA to update the 2003 guidance with new guidance that better reflects the need to minimize pollution inputs into the ultimate receiving waters: the oceans and coasts. Also, the national coastal and marine spatial planning SAP or the regional CMSP programs could adopt a region-based approach to ocean and coastal water quality, with or without new EPA guidance.

4. Medium- to Long-Term Action: Improve Coastal NPS Programs under CWA § 319 and CZMA § 6217 with renewed efforts and dedicated implementation funding.

One potential Water Quality SAP action could be to renew efforts to ensure that all state coastal NPS programs move from conditional to fully approved programs and to ensure that states are fully implementing approved programs. Another potential Water Quality SAP action could be to establish commitments from the agencies with relevant funding programs to specifically and permanently dedicate funding to support implementation of coastal NPS programs.

Clean Water Act Section 319 addresses nonpoint source pollution (NPS pollution). NPS pollution is one of the greatest modern impacts to ocean and coastal ecosystems, as well as freshwater ecosystems. Instead of creating a regulatory program for NPS pollution, the CWA establishes an incentive-based system. In particular, Section 319 enables states, territories, and tribes to obtain grant money for NPS activities.³⁴ All states have approved programs, and EPA provides around \$200 million annually in grant money under this program.³⁵

³⁴ CWA § 319; See also EPA, Clean Water Act Section 319, at http://www.epa.gov/owow_keep/NPS/cwact.html.

³⁵ EPA, Clean Water Act Section 319(h) Grant Funds History, at <http://water.epa.gov/polwaste/nps/319hhistory.cfm> (last visited April 24, 2011).

The most recent EPA guidance and grant guidelines for Section 319 are from 2003.³⁶ According to these guidelines, funding is provided as (1) base funds allowing the states broad leeway in use of the funds; (2) 20% of the base funds for use in NPS TMDL development; (3) incremental funds targeting watershed-based plans to address NPS impairments in Section 303(d)-listed waters; and (4) 20% of incremental funds for use in developing NPS TMDLs, watershed plans to implement NPS TMDLs, and watershed-based plans in 303(d)-listed waters. These guidelines place an added emphasis “on watershed-based planning and on restoring impaired waters through developing and implementing TMDLs, [and] represent the current state of the art in fashioning watershed-based solutions to prevent and remedy water quality problems.”³⁷ The 2003 guidance points out that EPA has been working to strengthen the watershed-based approach—an approach it characterizes as following four principles: “(a) Diverse, well integrated partnerships; (b) a specific geographic focus; (c) action driven by environmental objectives and by strong science and data; and (d) coordinated priority setting and integrated solutions.”³⁸

Coastal NPS pollution regulation under the Coastal Zone Management Act. CZMA Section 6217 is another grant-based program to help coastal states develop coastal nonpoint source programs. Specifically, Section 6217 targets NPS pollution from six sources: forestry, agriculture, urban areas, marinas, hydromodification, and loss of wetlands and riparian areas. In order to obtain funds under this program, states are required to develop a coastal NPS program that protects coastal waters, identifies land uses that may contribute significantly to coastal water degradation, identifies critical coastal areas, implements management measures needed to achieve and maintain water quality standards and protect designated uses, provides technical assistance to local governments and the public, provides opportunities for public participation, establishes mechanisms for administrative coordination among state agencies and local officials, and proposes changes to the coastal zone boundary if need be.³⁹

The development of coastal NPS programs has been a challenge. The original timeline, and the one still required by the statute, called for states to create coastal NPS programs by 1996 or risk losing incrementally more funding each year through 1999, with a potential total loss of 30% of CZMA funding by 1999 and each year thereafter.⁴⁰ Because of the difficulty in establishing coastal NPS programs with enforceable policies, however, NOAA and EPA relaxed the implementation requirements with the creation of new guidance.⁴¹ Currently coastal states have coastal NPS programs that are approved or conditionally approved by NOAA and EPA (Table 2). While most states have fully approved programs, twelve states representing a majority of the U.S. coastline do not yet have fully approved programs. Only one state in the Gulf of Mexico, Florida, has a fully approved program.

³⁶ 68 Fed. Reg. 60653 (Oct 23, 2003)

³⁷ *Id.* at 60654.

³⁸ *Id.* at 60655

³⁹ 16 U.S.C. § 1455b(b) (1990).

⁴⁰ *Id.* at § 1455b(c)(3). As stated in the law, “If the Secretary finds that a coastal State has failed to submit an approvable program as required by this section, the Secretary *shall* withhold for each fiscal year until such a program is submitted a portion of grants otherwise available to the State...” *Id.* (emphasis added). Based on this requirement, it would seem that EPA and NOAA are out of compliance with the statute by allowing states additional time to develop programs without withholding funding.

⁴¹ NOAA & EPA, Flexibility for State Coastal Nonpoint Programs [hereinafter Flexibility Guidance] (1995); NOAA & EPA, Final Administrative Changes to the Coastal Nonpoint Pollution Control Program Guidance for Section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA) 5 (1998).

Table 2. Coastal NPS Program Approval Status⁴²

Fully Approved Programs			Conditionally Approved Programs	
American Samoa	Maryland	Northern Mariana Islands	Alabama	Michigan
California	Massachusetts	Pennsylvania	Alaska	Mississippi
Connecticut	Minnesota	Puerto Rico	Georgia	Ohio
Delaware	New Hampshire	Rhode Island	Hawaii	Oregon
Florida	Hampshire	South Carolina	Indiana	Texas
Guam	New Jersey	Virgin Islands	Louisiana	Washington
Maine	New York	Wisconsin		
	North Carolina			

One of the major challenges that the Coastal NPS Program faces is **dedicated funding**. As originally conceived, the coastal NPS program provided a small amount of funding to states (with an accompanying 1:1 matching requirement) to support development of a coastal NPS program, but not funding to implement it.⁴³ In 1994, Michael Donahue, Executive Director of the Great Lakes Commission, testified that, although Congress originally appropriated \$1.8 million for program development, the annual cost of compliance with the coastal NPS program requirements was between \$390-590 million.⁴⁴ The intent was that once developed, other programs and funding opportunities could support implementation of the coastal NPS programs including those funds managed by EPA, USDA, the Army Corps of Engineers and other agencies.⁴⁵ While Congress did appropriate money to fund implementation for a brief period of time the funding needed, this lasted only for four years (Table 3).

Table 3. NOAA Coastal Nonpoint Pollution Control Program Funding History⁴⁶

Fiscal Year	Pres. Request	Appropriation
FY 92	0 M	2.0 M
FY 93	2.0 M	1.9 M
FY 94	1.9 M	4.0 M
FY 95	4.0 M	5.0 M
FY 96	8.0 M	0 M
FY 97	2.6 M	0 M
FY 98	1.0 M	1.0 M
FY 99	6.0 M	4.0 M
FY 00	6.0 M	2.5 M
FY 01 ¹	4.5 M	10 M
FY02 ¹	10 M	10 M
FY03 ¹	10 M	10 M
FY04 ¹	10 M	9.5 M
FY05 ¹	0 M	3.0 M
FY06 ¹	0 M	3.0 M
FY07 ¹	0 M	0 M
FY08 ¹	0 M	3.9 M
FY09 ¹	0 M	3.9 M

⁴² NOAA, Coastal Nonpoint Program Approval Findings, at

http://coastalmanagement.noaa.gov/nonpoint/pro_approve.html#Alaska (last visited April 25, 2011).

⁴³ Personal communication, April 25, 2011 (on file with author).

⁴⁴ Andrew Solomon, *Comment: Section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990: Is There Any Point?*, 31 *Env'tl. L.* 151, 161 (2001).

⁴⁵ Personal communication, April 25, 2011 (on file with author).

⁴⁶ NOAA, personal communication, April 25, 2011 (on file with author);

Fiscal Year	Pres. Request	Appropriation
FY10 ¹	0 M	0 M
¹ From FY92-FY00, Congress appropriated funding for states to develop their Coastal Nonpoint Pollution Control Programs. Since FY01, Congress has appropriated funds for program implementation. In addition to the amounts listed above, EPA provided \$1M towards the program in FY98. In FY99 and FY00, NOAA provided an additional \$4M each year to the states for implementation through CMZA section 306 and 309 grants. SOURCE: NOAA, 2011		

Another major federal law that relates to NPS pollution is the Farm Security and Rural Investment Act (Farm Bill), which includes funding programs to address NPS pollution from agriculture.⁴⁷ These and other funding laws are not explored in this comment, but will be critical to the success of the Water Quality SAP.

5. Near-Term Action: Ensure that all strategic action plans are appropriately integrated.

In addition to the Water Quality SAP, the NOC is developing strategic action plans for eight other priority objectives. These are: (1) Coastal and Marine Spatial Planning; (2) Inform Decisions and Improve Understanding; (3) Coordinate and Support; (4) Resiliency and Adaptation to Climate Change and Ocean Acidification; (5) Regional Ecosystem Protection and Restoration; (6) Ecosystem-Based Management; (7) Changing Conditions in the Arctic; and (8) Ocean, Coastal, and Great Lakes Observations, Mapping, and Infrastructure. As a “foundational principle”, the concepts, objectives, and actions taken to effectively implement the Water Quality SAP may inform, influence, or affect implementation of the other national priority objectives. The NOC should, accordingly, ensure that all strategic action plans are appropriately aligned and integrated.

For example, one major way to address ocean and coastal water quality is to prevent further degradation by protecting and preserving healthy and threatened water bodies. Furthermore, the CWA Section 319 nonpoint source program largely focuses on restoring impaired water bodies that are listed under CWA Section 303(d). The mechanisms to address these challenges and the challenges themselves should also be addressed under the Regional Ecosystem Protection and Restoration SAP.

⁴⁷ For example, the Environmental Quality Incentives Program provides funding for NPS pollution. See 68 Fed. Reg. 60653, 60657 (Oct 23, 2003)

ADDITIONAL INFORMATION: Tools, Boundaries, and Institutions

Potential CWA mechanisms to address ocean and coastal pollution from:

- Direct point source discharge from land into ocean
- Indirect point source discharge into freshwater to ocean
- Nonpoint source discharge into ocean

Tool	Direct	Indirect	NPS
NPDES	Revise permit regs	Revise permit regs	N/A
WQS	Improve guidance	Improve guidance	N/A
TMDL	LME-scale ocean TMDLs and/or guidance	LME-scale ocean TMDLs and/or guidance	Create plan to address NPS w/ TMDL
ODC	Revise ODC	N/A	N/A
NPS	N/A	N/A	Improve implementation & secure dedicated funding

Clean Water Act: Target and Tools

Target	CWA Tool(s)
Urban & suburban development	NPDES stormwater permits (MS4 & industry), NPS program, TMDLs, ocean discharge criteria
Agriculture & forestry	WQS, TMDLs, NPS programs
Animal feedlots	NPDES CAFO permits, ⁴⁸ WQS, TMDLs, NPS programs
Nutrients	WQS, TMDLs, NPS programs
Sediments	WQS, TMDLs, NPS programs
Pathogens	Coastal WQS, NPS programs
Toxic chemicals	WQS, NPDES
Solid waste	NPDES
Marine debris	WQS, TMDLs, NPS programs
Invasive species	NPDES, TMDLs

⁴⁸ But see *Nat'l Pork Producers Council v EPA*, No. 08-61093 (5th Cir. 2011), partially vacating EPA's concentrated animal feedlot rules.

CWA Tools, Boundaries and Institutions

Tool	Boundary	Institution
NDPES (point source permitting)	0-3 3-200	State EPA
WQS (designated uses + criteria) TMDL (pollutant load limits for impaired waters)	0-3	State
Recreational vessels (best management practices)	0-12	EPA
Coastal WQS (fecal coliform WQS for contact areas)	<3	State
NPS (grants, tech support, etc for NPS program)	0-3	State
Liability (accidental discharges)	0-200	EPA/CG
Ocean Discharge Criteria (applies to NPDES permits)	0-200	EPA
<p><u>CWA definitions</u></p> <ul style="list-style-type: none"> • Navigational waters <ul style="list-style-type: none"> • Waters of the US (internal) • Territorial Seas (0-3 miles) • Contiguous zone (3-12 miles) • Ocean (3+ miles) 		

February 11, 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: Recommendations for the Water Quality and Sustainable Practices on Land Strategic Action Plan

Dear Chairs Sutley and Holdren and National Ocean Council Members,

The undersigned organizations provide the following comments in order to inform the National Ocean Council (“NOC”) as it develops a Strategic Action Plan (“Action Plan”) for the national priority objective relating to “Water Quality and Sustainable Practices on Land.” The NOC properly recognizes the need to address many of the pollutants and sources contributing to water quality problems through its adoption of a priority objective to “enhance water quality in the ocean, along our coasts, and in the Great Lakes by promoting and implementing sustainable practices on land.”¹ The NOC, via the upcoming Action Plan, must confront with deliberate and targeted action the problems facing our waterways, and it must recognize the federal government’s existing – yet often ignored – legal authority over land-based sources of pollution.

As is further explained below, the Action Plan should include meaningful elements to: (1) target specific pollutants such as trash, nutrients, bacteria, sediments, invasive species and carbon dioxide; (2) target specific sources of these pollutants such as urban runoff, agriculture, Concentrated Animal Feeding Operations (“CAFOs”) and Publicly Owned Treatment Works (“POTWs”); (3) enhance and support improved data collection and coordinated use; and (4) identify, coordinate and promote funding for the protection of our oceans, coasts and the Great Lakes. **Table 1** attached hereto includes a summary of our major recommendations. Inherent in all of these recommendations is the need for the NOC to ensure adequate and responsible enforcement of existing laws and regulations.

I. TARGET SPECIFIC POLLUTANTS

The Final Recommendations properly recognize various pollutants that impact the oceans, our coasts and the Great Lakes.² The Action Plan should address each of these pollutants individually, given the unique impact of each, as well as in concert where common solutions exist.

A. Trash

1. Problem

Over 100 studies from around the world and three well-designed long-term data surveys³ reveal that most plastic on beaches and in coastal waters comes from land-based sources, with smaller

¹ The White House Council on Environmental Quality, Final Recommendations of the Interagency Ocean Policy Task Force, at 38 (July 19, 2010) [hereinafter Final Recommendations].

² Final Recommendations, *supra* note 1, at 39.

contributions originating from ocean-going vessels and fishing.⁴ Contributions from land based activities, such as those associated with food packaging, household cleaning products and recreation, often comprise around 50%-80% of the total debris.⁵

Presently, the U.S. Environmental Protection Agency (“EPA”) and the states formally identify only 57 waterways in the entire U.S. as being impaired for trash, all of which are waterways in Southern California or Hawaii or the Anacostia River.⁶ Field data and visual observations demonstrate that these listings are a gross underrepresentation of actual waterway impairments due to trash. Even casual observations of many urban waterways reveal substantial trash contamination and a lack of meaningful stormwater controls.

2. Recommendations

As a first step to combating this problem, the NOC and EPA, in particular, must ensure that responsible State and local water quality entities have the resources to determine, list, and update waterway impairments due to trash. Then, Clean Water Act (“CWA”) § 303(d) lists must accurately reflect existing waterway impairments due to trash. These listings should include not only impairment of inland waters, but also coastal and ocean waters subject to section 303(d). In addition, the NOC, EPA and the States must ensure that Total Maximum Daily Loads (“TMDLs”) are developed for these waterways, including waste load allocations (WLAs) for point source discharges, load allocations (LAs) for non-point sources and a margin of safety. WLA’s must then be incorporated as enforceable limits in all applicable NPDES permits, including municipal stormwater permits issued under CWA § 402(p).

These types of requirements can have a positive impact in reducing the amount of trash entering waterways and, subsequently, the ocean. For example, as a result of a trash TMDL for the Los Angeles River and Ballona Creek,⁷ the City of Los Angeles alone has installed over 30,000 catch basin screens and inserts, and plans to install thousands more in the coming years. The Los Angeles Regional Water Quality Control Board estimates that efforts by the City of Los Angeles alone under the TMDL already

³ The Ocean Conservancy’s International Coastal Cleanup, the United States National Marine Debris Monitoring Program (NMDMP), and the monitoring program of North-East European nations (OSPAR).

⁴ Some specialized regions have higher contributions from fishing. For example, beach debris on remote islands can have a higher proportion of commercial fishing waste. David K. A. Barnes et al., *Accumulation and Fragmentation of Plastic Debris in Global Environments*, 364 Phil. Trans. Royal Soc’y Biol. Sci. 1985, 1986 (2009). Although this action plan addresses land-based sources of water quality degradation, it is important that the NOC identify an appropriate avenue to address ocean-based sources of pollution (and it is not immediately apparent whether any of the action plans will cover this issue). With regard to marine debris, this should include fishing vessels that release broken gear, which then becomes derelict fishing gear that poses a significant threat to marine life. Sewage and waste discharges from vessels are another source of water quality degradation.

⁵ José G.B. Derraik, *The Pollution of the Marine Environment by Plastic Debris: A Review*, 44 Marine Pollution Bull. 842, 843-44 (2002)

⁶ See U.S. EPA, Watershed Assessment, Tracking & Environmental Results, “Impaired Waters, Cause of Impairment Group: Trash”, http://iaspub.epa.gov/tmdl_waters10/attains_impaired_waters.control?p_cause_group_id=1092. In addition to those waterways identified on the EPA summary list, Maryland also listed part of the Baltimore Harbor in 2008. See State of Md., *The 2008 Integrated Report of Surface Water Quality in Maryland*, at 8 (2008), available at [http://www.mde.state.md.us/programs/Water/TMDL/Integrated303dReports/Documents/www.mde.state.md.us/assets/document/2008_IR_Parts_A_thru_E\(1\).pdf](http://www.mde.state.md.us/programs/Water/TMDL/Integrated303dReports/Documents/www.mde.state.md.us/assets/document/2008_IR_Parts_A_thru_E(1).pdf)

⁷ The overall goal of these TMDLs is to eliminate trash larger than 5 millimeters from being discharged via the stormdrain system during a one-year, one-hour, storm in the subdrainage area.

have achieved an annual reduction of more than 1.2 million pounds of trash entering Los Angeles-area waterways.⁸ The Anacostia River Trash TMDL recently approved by EPA, although not as protective as required by law, aims to reduce trash in the river by more than 1.2 million pounds annually.⁹ Without utilizing this important water quality tool, EPA (and by extension, the NOC) will not only miss an opportunity to address the problem of marine debris but will fail to perform its mandatory duty with regard to pollution abatement under the Clean Water Act.

EPA also should explore creative opportunities to use the existing authority of its Water, Waste, and Superfund programs to address trash, particularly plastic pollution, which ends up in the marine environment. There appear to be ways that the Water and Waste programs could help to reduce the introduction of trash into the marine environment, and the Superfund program may be able to help with the cleanup of plastics once they reach the ocean. EPA can also work with NOAA and other federal and state agencies to support and advance relevant programs.

EPA should identify and support opportunities to advance the approach of extended producer responsibility (“EPR”), or product stewardship, to reduce the amount of packaging in the waste stream. Such packaging contributes significant quantities of the plastic waste that ultimately ends up polluting the ocean. The EPR approach is being used successfully to address other problematic elements in the municipal waste stream, most significantly electronics (or “e-waste”), but also increasingly carpeting, paint and other difficult items. EPR requires that the manufacturers of these products take financial responsibility for their responsible management at end-of-life. Over time, holding manufacturers responsible for these costs will lead them to think more about how the products they make are designed in the first instance. This approach should not only result in increased diversion of wastes from landfills for recycling and reuse, but ultimately could reduce the amount of material being generated in the first place.

When applied to packaging, EPR – which is growing in popularity in states across the nation – could help to significantly lessen the quantity of plastics that are making their way into our oceans. EPA can help advance EPR by focusing on this approach in the stakeholder process it has convened to advance sustainable funding of municipal recycling. EPA could also commission a study of how best to structure EPR in the U.S., and it can support the work that states are doing on EPR.

B. Nutrients

1. Problem

⁸ Pers. Comm. with Michael Lauffer, Chief Counsel, California State Water Resources Control Board (Oct. 30, 2010).

⁹ See Md. Dep’t of the Env’t & D.C. Dep’t of the Env’t, Total Maximum Daily Loads of Trash for the Anacostia River Watershed, Montgomery and Prince George’s Counties, Maryland and the District of Columbia, at ix-x (Sept. 21, 2010), *available at* http://www.mde.state.md.us/programs/Water/TMDL/ApprovedFinalTMDLs/Pages/programs/waterprograms/tmdl/approvedfinaltmdl/tmdl_final_anacostia_trash.aspx.

Today, nutrient pollution is pervasive and pernicious. According to a recent estimate of assessed waters, nutrient pollution is connected directly or indirectly to 51% of impaired river and stream miles, 52% of impaired lake acres, and 58% of impaired square miles of bays and estuaries.¹⁰

Nutrients contribute to a host of water quality problems, including causing an overabundance of algal growth and resulting low oxygen levels (such as the mammoth hypoxic, or “dead,” zone in the Gulf of Mexico), nitrate toxicity to infants, diminishment of aquatic community structure and function, and harmful – even toxic – algal blooms. As part of its National Estuarine Eutrophication Assessment, NOAA’s Center for Coastal Monitoring and Assessment concludes that “the majority of estuaries assessed had overall eutrophic conditions rated as moderate to high.”¹¹ In addition, the *Toledo Blade* sampled Lake Erie water in August, 2010, and found water at Port Clinton City Beach “had a level of the toxin microcystin that was 4.965 micrograms per liter, nearly five times the World Health Organization’s threshold of 1 microgram per liter for drinking water (though less than the 20 micrograms per liter threshold for recreational water).”¹² These problems call for a suite of strategies aimed at addressing the various sources of nutrient pollution. Many of these strategies do not require new legal authority and could be implemented right away.

2. Recommendations

Most important among these strategies is ensuring that EPA and the states adopt comprehensive numeric nutrient criteria. As EPA knows well, water quality standards that adequately protect waters’ designated uses are critical to the proper functioning of the Clean Water Act’s regulatory structure. However, numeric nutrient water quality standards are largely absent in critical waterways across the country. EPA’s own internal watchdog, the Office of Inspector General (OIG), found that states and EPA had failed to make needed progress in establishing numeric nutrient standards; as of 2008, half the states had no numeric criteria whatsoever, and many other states lacked such standards for whole categories of water bodies.¹³ In the Mississippi basin, the news is worse. Of the ten states that contributed the most nitrogen to the Gulf of Mexico, only one -- Tennessee -- had any kind of numeric nitrogen standard, and seven of the ten states responsible for the most phosphorus delivery to the Gulf had no numeric phosphorus standards.¹⁴ These statistics are dispiriting in view of EPA’s duty to promulgate water quality standards where states fail to issue necessary standards, 33 U.S.C. § 1313(c)(4), and in light of the widespread recognition that nutrient pollution is negatively affecting our coasts, the ocean and the Great Lakes.

The absence of numeric criteria is not an academic problem. Numeric standards are the foundation for clean-up plans when the standards are not met, and they help State water officials determine how much pollution a given industrial or municipal discharger must remove from its waste stream. Given these

¹⁰ U.S. EPA, *An Urgent Call to Action: Report of the State-EPA Nutrient Innovations Task Group*, at 5-6 (Aug. 2009), available at <http://www.epa.gov/waterscience/criteria/nutrient/nitgreport.pdf> [hereinafter Urgent Call].

¹¹ Bricker, S., B. Longstaff, W. Dennison, A. Jones, K. Boicourt, C. Wicks, and J. Woerner, *Effects of Nutrient Enrichment In the Nation’s Estuaries: A Decade of Change*, NOAA Coastal Ocean Program Decision Analysis Series No. 26, Key Findings at 1 (2007) (available at <http://ccma.nos.noaa.gov/publications/eutroudate/>)

¹² Tom Henry, “Toxic algae blooms choking Lake Erie,” *Toledo Blade*, August 29, 2010; <http://www.toledoblade.com/article/20100829/NEWS16/8280386>

¹³ U.S. EPA, Office of Inspector General, *EPA Needs to Accelerate Adoption of Numeric Nutrient Water Quality Standards*, Rep. No. 09-P-0223, at 5 (Aug. 26, 2009), available at <http://www.epa.gov/oig/reports/2009/20090826-09-P-0223.pdf>.

¹⁴ *Id.*

functions, one can easily see the benefit of a numeric standard, as opposed to the alternative -- a narrative standard. While water quality officials can take a numeric standard (X milligrams per liter, for instance) and establish regulatory requirements aimed at achieving that number, it is far harder to write a cleanup plan or a discharge limit to address narrative prohibitions. For example, some states prohibit unnatural levels of algae, but figuring out how much is natural and how much is unnatural is very subjective, and that kind of ambiguity often leads state regulators to throw up their hands and do nothing.

As former Assistant Administrator for Water Benjamin Grumbles wrote in 2007, there are several benefits from numeric standards:

- “easier and faster development of TMDLs;
- “quantitative targets to support trading programs;
- “easier to write protective NPDES permits;
- “increased effectiveness in evaluating success of nutrient runoff minimization programs; and
- “measurable, objective water quality baselines against which to measure environmental progress.”¹⁵

Given the myriad benefits of numeric nutrient standards, the failure of narrative standards to protect the nation’s waters from various nutrient-related harms, and the repeated calls that EPA has made to states to get numeric standards in place, EPA and the NOC should acknowledge that these requirements are necessary to achieve the mandates of the Clean Water Act, and thus must either ensure that states adopt numeric standards immediately, or promulgate federal standards.

The OIG report found that states essentially disregarded downstream impacts (like the Dead Zone in the Gulf of Mexico) in the standard-setting process, even though federal regulations require states to consider such effects.¹⁶ One can imagine that it is hard to convince decisionmakers in Iowa, Indiana, or Illinois that they need to strictly control in-state sources of pollution that cause harm off the Louisiana coast.

The OIG's solution is basic: EPA must lead where the States have fallen behind. The agency has the authority to establish necessary standards when States do not, and EPA can better withstand parochial political pressures. The IG recommends that EPA identify "significant waters of national value" that need numeric standards, and establish the standards, taking into account the needs of downstream waters. We agree; for example, the agency should promptly develop numeric criteria for the Mississippi, its tributaries, and the Gulf of Mexico. In July of 2008, several organizations petitioned EPA to promulgate necessary numeric standards and TMDL clean up plans – and showed with particularity the need for such leadership in the Mississippi basin. EPA has not taken action on that petition.¹⁷

¹⁵ Memorandum from Benjamin H. Grumbles, EPA Assistant Administrator for Water, to Directors, State Water Programs, et al., at 2 (May 25, 2007).

¹⁶ See 40 C.F.R. § 131.10(b) (“In designating uses of a water body and the appropriate criteria for those uses, the State shall take into consideration the water quality standards of downstream waters and shall ensure that its water quality standards provide for the attainment and maintenance of the water quality standards of downstream waters.”).

¹⁷ See Minn. Ctr. for Env'tl. Advocacy et al., Petition for Rulemaking Under the Clean Water Act: Numeric Water Quality Standards for Nitrogen and Phosphorus and TMDLs for the Mississippi River and the Gulf of Mexico, at 55-69 (July 30, 2008), available at <http://www.elpc.org/documents/NutrientPetitionFINAL.pdf>.

The OIG report and the groups' petition are consistent with a prior report of the National Research Council, which faulted EPA's lack of leadership when it came to implementing the Clean Water Act along the Mississippi River. The report labeled the river an "orphan" from the standpoint of pollution monitoring and assessment, and identified several ways in which EPA could help bring about positive change, including by developing needed standards and TMDLs.¹⁸ The agency should promptly grant this petition and get about the business of getting standards and pollution reduction plans in place that will protect and clean up these critical national resources. The NOC should support these efforts in the Action Plan.

Finally, the NOC also should support the development of rapid detection methods for harmful algal blooms in both fresh and marine waters.¹⁹

C. Bacteria

1. Problem

In 2009, the number of closing and advisory days at ocean, bay, and Great Lakes beaches reached 18,682 days nationwide, their sixth-highest level in the 20 years NRDC has been tracking them.²⁰ The continuing high number of closing and advisory days, combined with a relatively constant level of bacterial contamination at ocean, bay, and Great Lakes beaches, suggests that our nation's beaches require a more concerted effort to identify and control the sources of water pollution that put swimmers at risk.

During 2009, stormwater runoff was identified as a source of more than 80% of the closing/advisory days for which a source was identified. This indicates that there are sources of human or animal wastes that are not being adequately addressed and that are getting washed into the ocean when it rains.

In its most recent report on waterborne disease and outbreaks associated with recreational water, the Centers for Disease Control and Prevention concluded that the incidence of infections associated with recreational water use has steadily increased over the past several decades.²¹ Data on the incidence of waterborne illness in the United States are notoriously bad because many people who get sick have no idea that ingesting contaminated water was the cause, but epidemiological studies like those that the EPA has conducted in the Great Lakes show that as many as 10% of beachgoers report getting sick after swimming at beaches that are open for swimming. With population growing in U.S. coastal areas, we

¹⁸ See generally McKnight Foundation Environment Program, User's Guide: Mississippi River Water Quality and the Clean Water Act, available at http://www.mcknight.org/files/pdfs/MSWQCWA_user_guide.pdf.

¹⁹ See, e.g., EPA National Water Program Strategy: Response to Climate Change, Key Action Update for 2010-2011, at 28 (Aug. 2010).

²⁰ NRDC, Testing the Waters, A Guide to Water Quality at Vacation Beaches, at 1 (July 2010) [hereinafter Testing the Waters], available at <http://www.nrdc.org/water/oceans/ttw/ttw2010.pdf>. NRDC reports closing/advisory days for events lasting six consecutive weeks or less. Extended events (lasting between 7 and 13 consecutive weeks) and permanent events (lasting more than 13 consecutive weeks) are reported separately and are not included in this total. *Id.* at 4.

²¹ J.S. Yoder, et al., *Surveillance for Waterborne Disease and Outbreaks Associated with Recreational Water Use and Other Aquatic Facility-Associated Health Events—United States, 2005–2006*, 57 *Morbidity & Mortality Wkly. Rep.: Surveillance Surveys*, Sept. 12, 2008, at 1-29, available at <http://www.cdc.gov/mmwr/preview/mmwrhtml/ss5709a1.htm>.

can expect to see more Americans getting sick from beachwater until the sources of contamination are addressed.

2. Recommendations

The Action Plan should recognize the importance of tightening and enforcing controls on all sources of beachwater pollution. The most economical and effective way to do this in many cases is to boost green infrastructure in coastal communities that control sewage overflows and stormwater runoff which are consistently the largest known sources of beachwater pollution.

Utilizing methods like green roofs, permeable pavement, roadside plantings and rain barrels is often the cheapest and most effective way to address water pollution from stormwater runoff. By stopping rain where it falls – allowing it to filter into the ground or storing it – green infrastructure prevents runoff and overflows from the start. EPA recognizes the value of green infrastructure as a wet weather tool and provides guidance on how to manage wet weather with green infrastructure²² and on how to incorporate green infrastructure into TMDLs.²³ NRDC has published a number of studies demonstrating the effectiveness of green infrastructure, including *“Rooftops to Rivers: Green Strategies for Controlling Stormwater and Combined Sewer Overflows.”*²⁴

Again, there are existing regulatory and funding opportunities to do this. EPA’s Clean Water State Revolving Fund (SRF) program and its Drinking Water SRF program instructed states to set aside 20 percent of their allocation through the American Recovery and Reinvestment Act (ARRA) for green projects. The President’s proposed Fiscal Year 2011 budget contains language requiring green projects; these efforts should continue and gain the NOC’s long-term support. However, it is important that the SRF and annual budget maintain an adequate level of funding to support green infrastructure improvement projects.

D. Sediments

1. Problem

Every year, 2.1 million acres of agricultural property and forests are converted to suburban and urban land uses,²⁵ resulting in at least 80 million tons of sediment entering our nation’s waterbodies each year.²⁶

Construction activity is a major source of anthropogenic sediment loads to water resources and a significant source of pollutants that adhere to sediment particles, including nutrients that cause

²² See, e.g., U.S. EPA, Managing Wet Weather with Green Infrastructure, http://cfpub.epa.gov/npdes/home.cfm?program_id=298 (accessed Oct. 27, 2010).

²³ See, e.g., U.S. EPA, Incorporating Green Infrastructure Concepts into Total Maximum Daily Loads (TMDLs) (Oct. 2008), http://www.epa.gov/owow/tmdl/stormwater/pdf/tmdl_lid_final.pdf

²⁴ NRDC, Rooftops to Rivers: Green Strategies for Controlling Stormwater and Combined Sewer Overflows (June 2006), available at <http://www.nrdc.org/water/pollution/rooftops/rooftops.pdf>.

²⁵ USDA Economic Research Service, Conservation Policy: Farmland and Grazing Land Protection Programs, <http://www.ers.usda.gov/Briefing/ConservationPolicy/farmland.htm> (accessed Oct. 27, 2010).

²⁶ U.S. EPA, Environmental Assessment for the Proposed Effluent Limitation Guidelines and New Source Performance Standards for the Construction and Development Category (2002) (citing S.J. Goldman, K. Jackson & T.A. Bursztynsky, Erosion and Sediment Control Handbook (McGraw-Hill 1986)).

eutrophication. Construction activities alter the natural processes that normally protect against the generation of stormwater, increasing erosion and stormwater runoff and sediment to receiving waters. During construction, sediment loads can increase from 2 to 40,000 times over pre-construction levels.²⁷ Excessive sediment is among the top causes of impairment of the Nation's waters.²⁸ Sediment pollution from construction devastates water resources, smothers aquatic organisms, and wreaks havoc with drinking water sources. Changes in hydrology from development ravage coastlines, annihilate stream channels, and contribute to massive flooding.²⁹

2. Recommendations

As part of the solution to sediment problems, NOC should support the following:

- Adequate visual inspection and monitoring to identify sources of land-based sediment pollution, including construction sites;
- Both technology based and water quality based numeric effluent limits for construction permits;
- TMDL WLA s for discharges to impaired waterways;³⁰
- Post-construction requirements to match preconstruction runoff volume; and
- LID and green infrastructure techniques to maximize onsite retention.

Forestry practices also contribute large amounts of sediment to waterways. A recent Ninth Circuit Court of Appeal decision clarified that logging roads with systems of ditches, culverts, and channels that collect and convey stormwater runoff are point sources under the Clean Water Act.³¹ The NOC should recognize this important regulatory approach to controlling sediment from logging practices.

E. Invasive Species

1. Problem

Invasive species pose a serious threat to the environmental and economic interests of the United States. Today, thousands of these non-native plants, animals, and pathogens have been introduced by humans and are reshaping our country. There are four major vectors through which invasive species are introduced and spread: ballast water, shipping locks and canals, commercial trade of live organisms, and recreational boating.

Invasives feed on native species, disrupt the food chain, and, in some instances, destroy entire native populations. Invasives also interfere with infrastructure such as by clogging water intake pipes, and they

²⁷ Goldman et al., *supra* note 26.

²⁸ U.S. EPA, National Water Quality Inventory – 2004 Report to Congress (Jan. 2009), *available at* www.epa.gov/owow/305b/2004report/.

²⁹ *See, e.g., id.*; *see also* U.S. EPA, Developing water quality criteria for suspended and bedded sediments (SABS): potential approaches (draft) (2003) (citing M. Jha, Ecological and Toxicological Effects of Suspended and Bedded Sediments on Aquatic Habitats: A Concise Review for Developing Water Quality Criteria for Suspended and Bedded Sediments (SABS) (U.S. EPA, Office of Water 2003)).

³⁰ *See* 40 C.F.R. 122.44(d)(1)(vii)(B); *see also Friends of Pinto Creek v. EPA*, 504 F.3d 1007 (9th Cir. 2007)(prohibiting new sources in the absence of available waste load allocations).

³¹ *Nw. Env'tl. Def. Ctr. v. Brown*, --- F.3d ----, 2010 WL 3222105 (9th Cir. 2010).

limit our ecosystems' ability to provide vital services, including fisheries, raw water uses, and even safe and sufficient drinking water.

2. Recommendations

A strong federal program that effectively eliminates the risk of new introduction and spread of invasive species in U.S. waters is urgently needed, especially in light of the documented high rate of extinction plaguing these systems.³² Finding new invaders quickly, and responding rapidly to address them, is essential to limiting impacts and costs when prevention fails. Moreover, funding for early detection and response measures is a critical component of each of the efforts described below.

Ballast water from ocean-going vessels transiting to the United States is a main vector for introduction and spread of new, damaging invasive species. What is first needed is for the Coast Guard and EPA to work closely together to create a coherent federal program to require that ballast water be treated before it is discharged to a standard that protects the environment and thus stops future invasions. NOAA, FWS, and other agencies have relevant expertise and authority as well, including the responsibility to ensure that any program that is established will not adversely affect endangered species. The NOC should play a role, along with the Aquatic Nuisance Species Task Force, in ensuring that these federal actions are closely coordinated.

Any federal program to control ballast water discharges from ships must engage both the Coast Guard's expertise in vessels and EPA's expertise in protecting water quality, and it must fully comply both with the National Invasive Species Act ("NISA"), and the CWA. NISA establishes a zero discharge goal for the introduction and spread of non-indigenous species.³³ The CWA requires EPA to ensure that ballast water discharges meet both technology-based effluent limitations meeting a best available technology standard³⁴ and water quality based effluent limitations that are sufficient to protect existing and designated uses and otherwise do not cause or contribute to violations of water quality standards.^{35,36} The water quality-based effluent limitations must be sufficient to protect water quality, without regard to technological feasibility or cost.³⁷

³² Anthony Ricciardi & Joseph B. Rasmussen, *Extinction Rates of North American Freshwater Fauna*, 13 Conservation Biol. 1220, 1220-22 (1999).

³³ See 16 U.S.C. § 4711(c)(1) (the Coast Guard "shall . . . prevent the introduction and spread of nonindigenous species in waters of the United States by ballast water operations and other operations of vessels equipped with ballast water tanks"); 16 U.S.C. § 4711(c)(2) (the Coast Guard "shall . . . ensure to the maximum extent practicable that aquatic nuisance species are *not* discharged into waters of the United States from vessels") (emphasis added).

³⁴ 33 U.S.C. § 1311(b)(1)(A); 40 C.F.R. § 122.44(a)(1)

³⁵ 33 U.S.C. § 1311(b)(1)(A); 40 C.F.R. § 122.44(d)

³⁶ EPA's current CWA Vessel General Permit does not live up to the CWA's requirements. NRDC, along with other environmental groups, is currently challenging the permit in the U.S. Court of Appeals for the District of Columbia Circuit. The cases have been consolidated under the name *Lake Carriers Ass'n v. EPA*, Case No. 09-1001 (D.C. Cir.).

³⁷ 33 U.S.C. §§ 1341(a)(1), 1341(d); see also *Defenders of Wildlife v. Browner*, 191 F.3d 1159, 1163 (9th Cir. 1999) (noting that, under CWA, permitting authority "is under specific obligation to require that level of effluent control which is needed to implement existing water quality standards *without regard to the limits of practicability*") (emphasis added) (internal citations omitted); *In re City of Moscow, Idaho*, 10 E.A.D. 135, NPDES Appeal 00-10, 2001 WL 988721, at *24 (E.A.B. July 27, 2001) ("[S]ection 301(b)(1)(C) of the CWA requires unequivocal compliance with applicable water quality standards, and does not recognize an exception for cost or technological infeasibility.").

NISA also requires that the Coast Guard address introduction of invasive species from not only ballast water, but also from “ship operations *other than ballast water discharge . . .*”³⁸ The Coast Guard should study the impacts of invasive species introduced and spread by ships in ways other than ballast water, such as anchors, anchor chains, and hulls, as well as effective methods to reduce or eliminate the introduction of invasive species through these vectors. After such study is completed, the Coast Guard should move promptly to amend its regulations to achieve full protection from invasive species from the whole-ship vector.

Another major vector for introduction and spread of invasive species is shipping locks and canals that have pierced the natural barriers between previously separate, disconnected ecosystems. The sea lamprey entered the Upper Great Lakes through the Welland Canal that connects Lake Ontario to Lake Erie at Port Colborne in Ontario, Canada.³⁹ After first being introduced and spread throughout the Great Lakes through ballast water in the 1980s, invasive zebra and quagga mussels spread south through the Chicago Area Waterway System (CAWS) all the way to New Orleans, Louisiana, and are now moving across the western United States and colonizing the West Coast.⁴⁰ Another pair of invasive species, the bighead and silver Asian carp, are now threatening to move through the CAWS in the opposite direction.⁴¹ These artificial connections of hydrologically distinct water bodies must be addressed if the harms caused by invasive species are to be permanently and reliably prevented. All major inter-basin and intra-basin connections through which invasive species move should be addressed with a “zero tolerance” policy with permanent, hydrological separation as the long-term goal. The most urgent need for hydrological separation is the CAWS, which has served as a two-way pathway for invasive species moving between the Great Lakes and Mississippi River for decades. The imminent invasion of Lake Michigan by bighead and silver Asian carp should serve as the alarm bell that compels action to address this costly inter-basin connection. The Army Corps and other agencies should move as quickly as possible to complete the congressionally-directed Great Lakes Mississippi River Inter-basin Study and to implement a separation solution that will permanently prevent invasive species transfers. NRDC recently completed a study of the hydrological and water quality implications of permanently separating the Great Lakes from the Mississippi River Basin. Our analysis found that existing technology (such as green infrastructure, further discussed below) could be used to reduce flooding in and pollutant loading to the CAWS and stop the transfer of invasive species from the Mississippi River to the Great Lakes.⁴²

Invasive species are also introduced and spread throughout the United States through commercial trade in live organisms. All species intentionally imported into the United States must be evaluated for invasiveness prior to import, and those known to be invasive or those likely to harm native ecosystems and other important resources should be kept out – without imposing unnecessary trade barriers or protectionism. Screening programs can be designed to exempt clearly safe species from review, and many widely used species, such as livestock, crop plants, and clearly non-invasive organisms could be cleared after a simplified review. These approaches work elsewhere, for example in western Australia,

³⁸ 16 U.S.C. § 4711(c)(2)(E)(i)(emphasis added).

³⁹ Great Lakes Fishery Commission, *Sea Lamprey: A Great Lakes Invader* (2000), http://www.glfsc.org/pubs/FACT_3.pdf.

⁴⁰ Reuben P. Keller, et al., eds., *Bioeconomics of Invasive Species: Integrating Ecology, Economics, Policy, and Management*, at 6-8 (Oxford Univ. Press 2009).

⁴¹ Asian Carp Regional Coordinating Committee, *Asian Carp Control Strategy Framework* (May 2010), *available at* <http://www.asiancarp.org/Documents/AsianCarpControlStrategyFrameworkMay2010.pdf>.

⁴² “Re-Envisioning the Chicago River: Adopting Comprehensive Regional Solutions to the Invasive Species Crisis,” Natural Resources Defense Council, October, 2010; <http://www.nrdc.org/media/2010/101021.asp>. The full technical report is available here: http://docs.nrdc.org/water/wat_10102001.asp.

and they have been successfully tested in Hawaii. Such a screening system could be implemented by FWS and the Animal and Plant Health Inspection Service under existing authorities such as the Lacey Act⁴³ and the Plant Protection Act⁴⁴ and/or through new legislation.

Recreational boating is also a major pathway for introduction and spread of invasive species. Boaters and anglers can inadvertently transport invasive species from an infested water body to an un-infested water body. Long-term commitment to educational and outreach programs is necessary to address this threat.

F. Carbon Dioxide

1. Problem

Although not mentioned as part of the NOC's Recommendations for Water Quality and Sustainable Practices on Land,⁴⁵ any serious attempt to address land-based sources of pollution that impact ocean waters must include discussion of the impacts of carbon dioxide emissions. Since the age of industrialization, the oceans have absorbed approximately one quarter of all the carbon dioxide emitted from fossil fuel combustion – about 500 billion tons. This has caused a downward shift in the average global surface water pH by .11 pH units, representing a 30% increase in ocean acidity.⁴⁶ If CO₂ emissions continue on a 'business as usual' course, researchers project that the pH of average ocean surface waters will decline another 0.3-0.4 units by 2100.^{47,48} This degree of change has not occurred in the oceans for at least the past 20 million years.⁴⁹ Moreover, it is happening at an unprecedented rate, presenting a significant risk to many marine organisms.

Of primary concern is the impact that declining pH has on the carbonate chemistry of the ocean. As acidity rises, the availability of carbonate, a building block for the shells of many marine species, declines. Laboratory investigations demonstrate that increased CO₂ and decreased pH results in reduced calcification rates in many calcifying organisms tested, thus showing a similar stress response across a wide range of biological diversity.⁵⁰ This stress is expected to impact reproduction and/or survival of affected species. If acidity gets high enough, waters become corrosive and shelled organisms literally dissolve. In addition, increased acidity can affect general physiological functions (e.g., behavior, respiration) of some marine organisms.^{51,52}

⁴³ 16 U.S.C. §§ 3371-3378

⁴⁴ 7 U.S.C. § 7701 *et seq.*

⁴⁵ Separate comments will be provide to the NOC regarding Resiliency and Adaptation to Climate Change and Ocean Acidification. See Final Recommendations at 36-37.

⁴⁶ K. Caldeira & M.E. Wickett, *Anthropogenic carbon and ocean pH*, 425 *Nature* 365 (2003).

⁴⁷ K. Caldeira & M.E. Wickett, *Ocean model predictions of chemistry changes from carbon dioxide emissions to the atmosphere and ocean*, 110 *J. Geophysical Res. Oceans*, at C09S04 (2005) (doi:10.1029/2004JC002671).

⁴⁸ J.C. Orr, et al., *Anthropogenic ocean acidification over the twenty-first century and its impact on calcifying organisms*, 437 *Nature* 681, 681-86 (2005).

⁴⁹ R.A. Feely, et al., *Impact of anthropogenic CO₂ on the CaCO₃ system in the oceans*, 305 *Sci.* 362, 362-66 (2004).

⁵⁰ V.J. Fabry, *Ocean science - Marine calcifiers in a high-CO₂ ocean*, 320 *Sci.* 1020, 1020-22 (2008).

⁵¹ H.O. Portner, M. Langenbuch, & A. Reipschlager, *Biological impact of elevated ocean CO₂ concentrations: Lessons from animal physiology and earth history*, 60 *J. Oceanography* 705, 705-18 (2004).

⁵² P.G. Brewer and E.T. Peltzer, *Limits to Marine Life*, 324 *Sci.* 347, 347-48 (2009).

Evidence is accumulating from around the world that acidification may already be affecting a range of marine organisms. Measures of coral calcification rates in some reef building corals on the Great Barrier Reef show a 14% decline since 1990;⁵³ body weights of a species of foraminifer (a phytoplankton) in Antarctica are 30-35% lower now than historic times.⁵⁴ In the past few years, scientists have observed water, corrosive enough to dissolve shells, upwelling onto the continental shelf off the west coast of the United States.⁵⁵ Others have noted a gradual shift in the composition of an intertidal community off of Washington State – from a mussel-dominated community to an algae-dominated one – that is best explained by the regional declines in ocean pH.⁵⁶

2. Recommendations

The Action Plan should help ensure that monitoring is sufficient to determine impairments and threats of impairment at the earliest possible time and do so on a geospatial scale sufficient to address localized pollution sources and localized sensitive resources. It is important to recognize that the biological impacts of ocean acidification (such as impairment of shell formation) are actually a function of the calcium carbonate saturation state of the ocean water, which is influenced by, but not identical to, pH. This will require measurement of at least two of three interdependent parameters in the carbonate system: pH, total alkalinity, and dissolved inorganic carbon.⁵⁷ Monitoring must also account for biological sensitivities of keystone species, such as reef-building corals, which may be susceptible to very small changes in pH. Finally, monitoring should account for the relevant differences between coastal and open ocean environments. Baseline information in the coastal zone, particularly with regard to seasonal variability, must be compiled and analyzed.

The Action Plan also should help ensure that guidance and technical assistance is provided with respect to developing TMDL targets used to calculate local and wasteload allocations sufficient to achieve the applicable water quality standards, including those relating to biological impacts, calculating the necessary loading capacity and reductions, and ensuring local sources and localized impacts, including localized water quality standards exceedances, are adequately addressed. EPA should develop modeling tools, including data inputs, for use by the states as part of this effort.

Finally, ocean acidification also may exacerbate violations of water quality standards for other parameters; for example, ocean acidification can make marine waters more susceptible to hypoxia, amplifying the effect of excessive nutrient discharges that already cause low dissolved oxygen levels in many areas.⁵⁸ The Action Plan should emphasize the need to reduce such other pollutant discharges, in light of interactions with ocean acidification, for example, by providing guidance on how these interactions affect sources' legal obligations not to cause or contribute to violations of applicable water quality standards.

⁵³ G. De'ath, J.M. Lough, & K.E. Fabricius, *Declining Coral Calcification on the Great Barrier Reef*, 323 Sci. 116, 116-19 (2009).

⁵⁴ A.D. Moy, et al., *Reduced calcification in modern Southern Ocean planktonic foraminifera*, 2 Nature Geoscience 276, 276-80 (2009).

⁵⁵ R.A. Feely, et al., *Evidence for upwelling of corrosive "acidified" water onto the continental shelf*, 320 Sci. 1490, 1490-92 (2008).

⁵⁶ J.T. Wootton, C.A. Pfister, & J.D. Forester, *Dynamic patterns and ecological impacts of declining ocean pH in a high-resolution multi-year dataset*, 105 Proc. Nat'l Acad. Sci. 18,848, 18,848-53 (2008).

⁵⁷ A.G. Dickson, C.L. Sabine & J.R. Christian, eds., *Guide to best practices for ocean CO₂ measurements*, PICES Special Publication, at 3 (2007), available at http://cdiac.ornl.gov/oceans/Handbook_2007.html.

⁵⁸ P.G. Brewer & E.T. Peltzer, *Limits to Marine Life*, 324 Sci. 347, 347-48 (2009).

II. TARGET SPECIFIC SOURCES

The Final Recommendations also recognize various sources of pollutants that impact the oceans, our coasts and the Great Lakes, such as urban runoff and agriculture. Each of the following sources should be addressed as part of the Action Plan.

A. Urban Runoff

1. Problem

EPA estimates that more than 10 trillion gallons of untreated urban stormwater runoff makes its way into our surface waters each year.⁵⁹ In many coastal communities, polluted urban runoff is the major source of water quality impairment. Similarly, urban and agricultural runoff are the most significant forms of pollution in the Great Lakes; indeed, EPA considers it “the most important remaining source of water pollution” in the Great Lakes Basin.⁶⁰

2. Recommendations

The Final Recommendations acknowledge that the Action Plan should address “the major impacts of urban and suburban development.”⁶¹ We agree, and the Action Plan should target and seek to reduce the impact of urban runoff as a significant source of coastal and Great Lakes pollution.

Adequate legal authority exists to provide significant improvement in water quality from the urban environment. For dry weather urban runoff, the Clean Water Act requires municipalities to “effectively prohibit non-stormwater discharges.”⁶² Thus, there is no reason that polluted dry weather urban runoff should be reaching our waterways, much less causing water quality impairment. The Action Plan needs to recognize this prohibition and encourage strong enforcement where it is violated.

In addition, the Action Plan should establish an objective to meaningfully improve wet weather controls using existing legal authority. First, the Action Plan should recognize the need for TMDLs to include useful and categorical WLAs for stormwater discharges regulated under NPDES permits. Second, the Plan should help ensure that TMDLs, existing or drafted in the future, are properly implemented through NPDES permits.⁶³ In our experience, too often permitting authorities do not provide for effective enforcement or actual incorporation of the TMDL as a component of the permittee’s obligation, with the end result that even if a TMDL is adopted with appropriate limits, it may not get fully put into effect in actual practice. Third, the Plan should help ensure that even in the absence of a TMDL, stormwater

⁵⁹ U.S. EPA, Report to Congress: Impacts and Control of CSOs and SSOs, Rep. No. EPA 833-R-04-001, at 4-29 (Apr. 26, 2004), available at http://cfpub.epa.gov/npdes/cso/cpolicy_report2004.cfm.

⁶⁰ Bradley C. Karkkainen, “New Governance” in the Great Lakes Basin: Has its time arrived?, 2006 Mich. St. L. Rev. 1249, 1252 n.14 (2006).

⁶¹ Final Recommendations, *supra* note 1, at 39.

⁶² 33 U.S.C. 1342(p)(3)(B)(ii); see also 40 C.F.R. 122.26(d)(2)(iv)(b)(1)(disallowing exceptions to the prohibition when the sources contribute pollutants to waters of the United States).

⁶³ 40 C.F.R. § 122.44(d)(1)(vii)(B)(effluent limits must be “consistent with the assumptions and requirements of any available wasteload allocation for the discharge); see also EPA Memorandum from James Hanlon to Water Management Division Directors, “Revisions to the November 22, 2002 Memorandum ‘Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs.’” (November 12, 2010).

NPDES Permits contain numeric effluent limits, known as Water Quality Based Effluent Limits (WQBELs) to meaningfully assure compliance with water quality standards.⁶⁴ Fourth, the Action Plan should acknowledge that pollution from existing, but currently unpermitted, stormwater point sources make a significant contribution to the nation's water woes and adequate yet underexercised authority exists at EPA to rein this in. Clean Water Act § 402(p)(2)(E) and the implementing regulations at 40 CFR 122.26(a)(9)(i)(C) and (D) provide EPA and the states Residual Designation Authority to bring those existing sources under NPDES permits. The plan should encourage EPA and the States to exercise this authority more broadly.

Finally, as mentioned repeatedly herein, the Action Plan should promote green infrastructure and Low Impact Development (LID) techniques. LID was developed to ameliorate—and where possible, eliminate—the pollution and erosion problems generated by runoff from urban and suburban development at the source, where rain falls on paved surfaces, by maximizing the natural onsite infiltration and treatment abilities of soils and vegetation or by capturing water for later use. It provides important environmental benefits by reducing pollution of downstream rivers, lakes, and coastal waters. By preventing site runoff altogether in many situations, LID is substantially more effective at protecting water quality than many types of conventional water management practices that rely on structural treatment devices to remove a percentage of pollution after it has already entered stormwater runoff. In addition to serving as a superior method of stormwater pollution control, LID can increase water supply reliability in a region prone to natural disasters, serve to reduce flooding and erosion associated with urban runoff, reduce the “heat island” effect from solar radiation in urban settings, and provide green space and open land, enhancing property values. The use of LID can also reduce the costs of municipal stormwater infrastructure and decrease the frequency and severity of combined sewer overflow events.⁶⁵

B. Agriculture

1. Problem

A significant amount of the pollution in many watersheds is attributable to agricultural runoff, which is poorly controlled under the Clean Water Act, as it currently exists. According to EPA's 2000 National Water Quality Inventory, agricultural nonpoint source pollution is the leading source of water quality impacts on surveyed rivers and lakes, the second largest source of impairments to wetlands, and a major contributor to contamination of surveyed estuaries and ground water.⁶⁶ Sediment in runoff from fields can, among other things, choke wildlife, impair the respiratory function of aquatic organisms and hinder reproduction. Sediment pollution also destroys spawning habitat and recreational and commercial fisheries, and blocks navigable passages. Pesticides in runoff from fields can be toxic to both aquatic vegetation and fish. Nutrients associated with fertilizers and animal waste can cause algal blooms and eutrophication.

⁶⁴ See 40 CFR 122.44(d)

⁶⁵ NRDC, *A Clear Blue Future: How Greening California Cities Can Address Water Resources and Climate Challenges in the 21st Century* (2009), available at <http://www.nrdc.org/water/lid/default.asp>.

⁶⁶ U.S. EPA, *Protecting Water Quality from Agricultural Runoff*, at 1 (March 2005) (available at http://water.epa.gov/polwaste/nps/upload/2005_4_29_nps_Ag_Runoff_Fact_Sheet.pdf); see also U.S. EPA, *National Water Quality Inventory 2000 Report* (Aug. 2002) (available at http://water.epa.gov/lawsregs/guidance/cwa/305b/2000report_index.cfm).

2. Recommendations

In those watersheds (like the Mississippi) where agricultural runoff constitutes the vast majority of the nutrient pollution, we believe that actually achieving water quality goals will require an enhanced regulatory approach. In the meantime – and in addition to tackling each of the pollutants associated with agriculture⁶⁷ – EPA should step up its efforts to catalog and measure the effectiveness of management practices that can reduce the pollution from lands in agricultural production. The Action Plan should recognize this need.

Moreover, under section 319 of the Clean Water Act and under various Farm Bill conservation programs (especially as some of those programs support the Mississippi River Basin Initiative), federal funds are available for the implementation of projects that are designed to reduce agricultural water pollution. To ensure that these projects provide the most benefit, and to identify those kinds of projects that can be replicated to good effect in other places, we believe that critical information about individual projects should be tracked, and the water quality impacts of them should be monitored. EPA can implement this approach directly under the section 319 program, and it should work closely with USDA to make it an essential piece of conservation program projects aimed at reducing nutrient pollution. Such a recommendation by the NOC would help address a concern identified by the National Research Council, which found: “A stronger commitment to performance-based, farm-level conservation actions and water quality monitoring will be necessary to reduce the extent of northern Gulf of Mexico hypoxia. Most current nutrient control efforts, which are made possible by USDA land and water conservation programs that promote use of best management practices . . . , are not closely monitored, if at all.”⁶⁸

Finally, pursuant to Coastal Zone Management Act § 6217, 16 U.S.C. 1455b(b)(3), it is essential for NOAA and EPA to ensure that state Coastal Nonpoint Pollution Control Programs include management measures sufficient to achieve and maintain applicable water quality standards. Clean coastal waters are fundamental to healthy coastal economies. Funding has been reduced, and last year, eliminated⁶⁹ for the coastal nonpoint pollution control program which is contrary to the interests of communities that depend on clean coastal waters for their livelihood and for all Americans who recognize that these fragile environments greatly contribute to quality of life. Nonpoint source pollution in coastal watersheds carries bacteria and viruses, oils, chemicals, excess fertilizers, and pollutants from human activities. Of the nation’s 34 states and territories with approved coastal programs, 12 have “conditionally approved” Coastal Nonpoint Pollution Control Programs. Reduced capacity at the federal and state level to review and implement measures for a full program has left coastal watersheds particularly vulnerable. Approval of state programs that fully meet the requirements of section 6217 is

⁶⁷ See Section I, *supra*.

⁶⁸ National Research Council, *Nutrient Control Actions for Improving Water Quality in the Mississippi River Basin and Northern Gulf of Mexico*, at 23 (Dec. 11, 2008) (prepublication copy).

⁶⁹ Annual funding provided under NOAA’s appropriations line for Coastal Zone Management Non-point

Implementation Grants:

FY06: \$3 million

FY07: ≈\$3 million

FY08: \$3.9 million

FY09: \$3.9 million

FY10: \$0

FY11: Under continuing resolution until March 2011: \$0

vital to reducing nonpoint source pollution, which is considered a primary cause of coastal water pollution in the US.

C. CAFOs

1. Problem

Livestock and poultry generate approximately 500 million tons of manure annually in the U.S.⁷⁰ According to EPA, “all confined animals [in the U.S.] generate 3 times more raw waste than is generated by humans in the U.S.”⁷¹ This waste, which largely goes untreated, often causes surface and groundwater contamination and adverse effects on estuarine water quality and coastal resources, “including red tides, fish kills, outbreaks of shellfish poisonings, loss of habitat, coral reef destruction, and hypoxia.”⁷²

2. Recommendations

Pollution from animal feeding operations can be far better controlled via regulatory changes, and we respectfully request that EPA take steps to revisit its rule concerning the Clean Water Act permitting requirements and effluent limitation guidelines for these animal factories, which the Bush administration adopted in its waning months.^{73,74}

The Bush administration rule primarily relies on CAFO operators making their own judgments about whether facilities will discharge. If a CAFO operator concludes that the facility will not discharge, then s/he can elect not to seek a pollution control permit under the National Pollutant Discharge Elimination System (NPDES) program, subject to little or no oversight by permitting authorities. This approach is a dramatic reversal of the policy embodied in the 2003 CAFO rule, in which the agency required all large CAFOs with the “potential to discharge” to apply for a NPDES permit. EPA believed such a strategy was necessary because of inadequate Clean Water Act compliance by the industry and because of the intermittent nature of CAFO discharges.

Although a court invalidated the “potential to discharge” approach, it made clear that EPA’s conclusion that large CAFOs should be subject to enhanced oversight was well-founded. In particular, the court said, “EPA has marshaled evidence suggesting that such a prophylactic measure may be necessary to effectively regulate water pollution from Large CAFOs, given that Large CAFOs are important contributors to water pollution and that they have, historically at least, improperly tried to circumvent

⁷⁰ National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitation Guidelines and Standards for Concentrated Animal Feeding Operations, 68 Fed. Reg. 7176, 7179 (Feb. 12, 2003).

⁷¹ *Id.* at 7180.

⁷² *Id.* at 7238. See *Waterkeeper Alliance, Inc. v. U.S. EPA*, 399 F.3d 486, 494 (2d Cir. 2005)

⁷³ Revised National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines for Concentrated Animal Feeding Operations in Response to the Waterkeeper Decision, 73 Fed. Reg. 70,418 (Nov. 20, 2008).

⁷⁴ Please note that this rule is presently in litigation, that NRDC is one of the parties that petitioned for review of the rule, and that NRDC and the other environmental petitioners reached a settlement agreement with EPA in that litigation. See *Nat’l Pork Producers Council v. U.S. EPA*, No. 08-61093 (5th Cir.) and consolidated cases. However, these regulatory improvements are separate from that litigation and need not await the resolution of that case, nor implementation of the settlement.

the permitting process.”⁷⁵ Crucially, the court’s decision left EPA with many legal tools to require CAFOs to obtain pollution control permits or demonstrate that they will not discharge. We strongly urge you to exercise that authority in an improved rule, as the history of this issue makes it unreasonable to rely on CAFO operators to properly determine whether facilities require permits, and we seriously question whether agency enforcement resources are adequate to ensure full compliance with the permitting requirement.

A second way to improve this rule is to amend its overbroad interpretation of an exemption in the Clean Water Act for “agricultural stormwater.” This decision denies permitting authorities the ability to meaningfully control significant pollution from a CAFO’s land application area under the Act, and is more pernicious today in light of the permitting approach reflected in the final rule. The land application area is an integral part of a CAFO, which is a statutorily-defined point source; accordingly, any discharges from this area should be considered regulated point source releases. Moreover, exempting a significant part of a facility’s discharge from the Clean Water Act makes it easier for an operator to evade the permitting requirement which, as discussed above, EPA previously tried to make it harder to do. Finally, EPA has the discretion under the Act to identify which facilities constitute “CAFOs,” and therefore are “point sources” under the law.⁷⁶ The agency can bring more facilities into the permitting system by adopting lower animal number thresholds to trigger treatment as a CAFO and it also can tighten the requirements for on-site nutrient management. We strongly urge EPA to do so. The agency is considering doing this very thing in the Chesapeake Bay watershed.⁷⁷ Moreover, EPA has already considered employing a variant of this strategy in the Chesapeake region, as one of the potential consequences for states’ failure to develop required plans or make satisfactory progress toward needed reductions of nutrients and sediment.⁷⁸

D. Publicly Owned Treatment Works (POTWs)

1. Problem

The Action Plan should address, at a minimum, two significant issues: nutrient and bacteria pollution in municipal sewage and the continued problem of sewage overflows from aging municipal systems. In some watersheds, POTWs are important contributors to the nutrient load. For example, according to EPA, municipal wastewater sources discharge 21% and 25% of the phosphorus and nitrogen, respectively, to the Chesapeake Bay.⁷⁹ In large part, however, these facilities have not been called upon to reduce their nutrient pollution; according to a recent in-depth analysis of the nutrient problem

⁷⁵ *Waterkeeper Alliance*, 399 F.3d at 506 n.22.

⁷⁶ See 33 U.S.C. § 1362(14).

⁷⁷ See U.S. EPA, Rulemaking Gateway, Revised Regulations for Concentrated Animal Feeding Operations (CAFOs) in the Chesapeake Bay Watershed (action not yet proposed), *available at* <http://yosemite.epa.gov/oepi/rulegate.nsf/byRIN/2040-AF20>.

⁷⁸ See Letter from Shawn M. Garvin, Regional Administrator, EPA Region III, to L. Preston Bryant, Virginia Secretary of Natural Resources, at 8, encl. B (Dec. 29, 2009) (“The NPDES permitting regulations . . . authorize the Regional Administrator to designate any Animal Feeding Operation (AFO) as a CAFO upon determining that it is a significant contributor of pollutants to waters of the United States.”), *available at* http://www.epa.gov/region3/chesapeake/bay_letter_1209.pdf.

⁷⁹ U.S. EPA, Discussion Document: Coming Together for Clean Water (Apr. 15, 2010), *available at* <http://blog.epa.gov/waterforum/discussion-document/>.

and potential solutions, “[o]f more than 16,500 municipal POTWs nationwide, approximately 4 percent have numeric limits for nitrogen and 9.9 percent for phosphorus.”⁸⁰

Sewage overflows from aging sanitary and combined sewer systems, leaking sewage pipes, and malfunctioning sewage treatment plants and pump stations have always been a major cause of pollution at ocean, bay, and Great Lakes beaches. As demonstrated at Rancho Santa Margarita, California in March of 2010, a single ruptured sewer line can quickly spill hundreds of thousands of gallons of untreated sewage into coastal waters and result in contaminated beachwater along miles of beaches.⁸¹ Combined sewer overflows, or CSOs, are a major cause of pathogen contamination in marine and Great Lakes waters near urban areas. As of 2002, CSOs discharged 850 billion gallons of raw sewage and stormwater annually, and 43,000 CSO events occurred per year nationwide.⁸² Although they are most prevalent in urban areas, CSOs affect 46 million people in 746 communities throughout 32 Northeast and Great Lakes states.⁸³ CSOs contaminate shellfish waters as well as recreational beaches. Shellfish harvesting has been restricted in the majority of the 659 shellfish beds located close to a CSO outfall.⁸⁴

2. Recommendations

EPA has authority under the Clean Water Act to require POTWs to treat their effluent to remove nutrients. In particular, such facilities must achieve pollution control achievable by “secondary treatment,” as defined by EPA, and the agency is required to update the information available about the pollution control capabilities of “secondary treatment” periodically.⁸⁵ EPA is long overdue in its obligation to update this information, and should do so promptly and include nutrient control in its assessment of the capability of plants. Indeed, when a task force of key state and EPA water pollution control officials recently issued a report on tools to combat nutrient pollution, they identified five tools having “the most promise to reduce nutrient loadings and therefore judged to have the highest overall effectiveness,” and the list included establishing “technology treatment requirements for nutrients and thereby establish[ing] technology based limits for NPDES point sources that discharge nutrients to water -- update secondary treatment requirements.”⁸⁶

EPA has a pending petition from NRDC, the Environmental Law and Policy Center of the Midwest, the Sierra Club, Waterkeeper Alliance, the Missouri Coalition for the Environment, Midwest Environmental Advocates, the Prairie Rivers Network, the Iowa Environmental Council, the Minnesota Center for Environmental Advocacy, American Rivers, and the Gulf Restoration Network, on this very topic. The petition demands that EPA update its published information about the capabilities of “secondary treatment” and specifically urges the agency to consider the inclusion of nutrient controls in the generally-applicable requirements for publicly owned treatment works.⁸⁷ That petition, filed in November 2007, should be promptly granted and the standards should be revised in short order. The Action Plan should support such efforts to address nutrient pollution.

⁸⁰ Urgent Call, *supra* note 10, at 14 (citations omitted).

⁸¹ Testing the Waters, *supra* note 20, at 15 (citing Tony Barboza, *Major sewage spill could keep O.C. beaches closed through the weekend*, L.A. Times, Mar. 26, 2010, at AA.3).

⁸² U.S. EPA, *supra* note 59, at 4-17.

⁸³ *Id.*

⁸⁴ *Id.*

⁸⁵ See 33 U.S.C. §§ 1311(b)(1)(B) & 1314(d)(1).

⁸⁶ See Urgent Call, *supra* note 10, at C-6 (emphasis added).

⁸⁷ NRDC et al., Petition for Rulemaking Under the Clean Water Act: Secondary Treatment Standards for Nutrient Removal (Nov. 27, 2007).

EPA has had a policy that aims to reduce sewage overflows since 1994, yet virtually all combined sewer systems continue to overflow when it rains. A significant number of communities with CSOs still have not submitted plans for controlling them.⁸⁸ And, without meaningful action, these problems may only get worse. Global climate change is predicted to increase the intensity of rain events in the Great Lakes region⁸⁹ and the Northeastern United States. Since these are the regions where the majority of combined sewer systems are concentrated, an increase in CSOs can be expected.⁹⁰ Indeed, in the Great Lakes region, climate modeling predicts that the regional average annual CSO frequency between 2060 and 2099 will increase between 13% and 70%.⁹¹ The Action Plan needs to address these ongoing CSO and SSO issues and support strong action to control these harmful discharges.

III. ENHANCE AND SUPPORT IMPROVED DATA COLLECTION AND COORDINATED USE

We agree with the NOC's recommendation to address "[t]he establishment of a comprehensive monitoring framework and integration with State monitoring programs." Many of the above issues would be better addressed if the NOC focused on consistent and coordinated monitoring efforts of our ocean, coasts and the Great Lakes not only with the states but among federal agencies. In order to achieve this goal, the NOC first must identify existing statutory and regulatory programs and authority to collect monitoring data, and identify remaining gaps to be filled for data collection for all pollutants of concern.

For example, for both pH and carbonate saturation levels in our ocean waters, there is currently very little monitoring, and very little long-term time-series data from which to establish baselines and observe trends. Yet myriad NOC agencies alone have ample authority to conduct or require monitoring of coastal and ocean waterways for acidification-related parameters. Indeed, **Table 2** attached hereto highlights some of the existing federal authority over monitoring for ocean acidification.

The NOC also should ensure that water quality assessment programs, at both the state and federal levels, institutionalize monitoring for pH, dissolved inorganic carbon, and alkalinity, as well as any relevant biological criteria that have been developed. Baseline data for what we already know to be critical biological indicators (*e.g.*, coral reefs and shellfish resources) should also be collected. In this same vein, monitoring programs should immediately be established in key areas along the U.S. coasts, such as regions in the Arctic (and nearby subarctic) that are expected to become undersaturated in aragonite, year-round, within decades;⁹² upwelling zones off the west coast that are already

⁸⁸ *Id.* at ES-5; U.S. EPA Office of Water, National Water Program Mid-Year Report: Fiscal Year 2009, Appendix B, at 4 (July 2009).

⁸⁹ Kathryn Hayhoe and Donald Wuebbles "Climate Change and Chicago: Projections and Potential Impacts – Water," November 17, 2007; http://www.chicagoclimataction.org/filebin/pdf/report/Chicago_climate_impacts_report_Chapter_Three_Water.pdf

⁹⁰ U.S. EPA, "A screening assessment of the potential impacts of climate change on combined sewer overflow (CSO) mitigation in the Great Lakes and New England regions," Rep. No. EPA/600/R-07/033F (2008), *available at* [http://cfpub.epa.gov/ncea/global/recordisplay.cfm?deid=188306.](http://cfpub.epa.gov/ncea/global/recordisplay.cfm?deid=188306)]

⁹¹ *Id.* at 19.

⁹² M. Steinacher, et al., *Imminent ocean acidification in the Arctic projected with the NCAR global coupled carbon cycle-climate model*, 6 *Biogeosci.* 515, 515-33 (2009).

experiencing seasonal exposure to undersaturated waters;⁹³ regions adjacent to large rivers that are influenced by regular pulses of acidic river water;⁹⁴ and estuaries with significant shell fish beds and coral reefs, which are particularly sensitive to ocean acidification.⁹⁵

Once existing authority and gaps are identified, the NOC must coordinate existing and planned monitoring efforts so as to ensure that adequate data is available to policymakers and the public. For ocean acidification, again as an example, EPA should coordinate the development and implementation of monitoring protocols with NOAA, in connection with NOAA's authority under the Federal Ocean Acidification Research And Monitoring Act of 2009 (Pub. L. 111-11, §§ 12401-12409), the Coastal Zone Management Act (16 U.S.C. §§ 1451, *et seq.*), and other relevant authorities. Once this data is collected and compiled, EPA must include this data in its monitoring reports, including reports under Clean Water Act sections 303(d) and 305(b).

The Action Plan should address each pollutant of concern in the same fashion as set forth above⁹⁶ – for both federal and state monitoring efforts.

Of course, assessing the condition of the waters themselves is not necessarily going to be enough to inform good policy choices. Part of any systematic assessment ought to be identifying the sources of water pollution, like many of those highlighted above. Because many kinds of pollutants come from multiple sources, designing the proper regulatory response to the presence of such pollutants in a water body will require an understanding of what the major sources are. The Action Plan should anticipate these needs in discussion of a comprehensive monitoring framework. NOC agencies should identify and prioritize monitoring in areas where point source or non-point source water pollution discharges, like those identified above, may contribute to the impairment of the ocean, coastal waters and the Great Lakes.

IV. IDENTIFY, COORDINATE AND PROMOTE FUNDING

Finally, it will be important for the Action Plan to identify, coordinate and promote available and potential state and federal funding to help address the pollution issues identified above. A better understanding of the comprehensive resources available to – and provided by – local, state and federal entities to protect our ocean, coasts and the Great Lakes will allow the NOC and all those involved maximize their efforts and our chances for success.

Thank you for your consideration of these comments.

⁹³ R.A. Feely, et al., *Evidence for upwelling of corrosive "acidified" water onto the continental shelf*, 320 Sci. 1490, 1490-92 (2008).

⁹⁴ J. Salisbury, et al., *Coastal Acidification by Rivers: A Threat to Shellfish?*, 89 Eos Trans. AGU 513, 513-28 (2008).

⁹⁵ J. Kleyvas, et al., eds., *Impacts of increasing ocean acidification on coral reefs and other marine calcifiers: A guide for future research*, rep. of workshop held Apr. 18-20, 2005, sponsored by NSF, NOAA, & the U.S. Geological Survey (2006); S.C. Doney, et al., *Ocean Acidification: The Other CO₂ Problem*, 1 Ann. Rev. Marine Sci. 169, 169-92 (2009); V.J. Fabry, *Ocean science - Marine calcifiers in a high-CO₂ ocean*, 320 Sci. 1020, 1020-22 (2008).

⁹⁶ Although not explicitly discussed in detail above, analysis of toxic metals and endocrine disruptors also should be included in any comprehensive monitoring program.

Sincerely,

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Chris Lyons
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Marine Spatial Planning Senior Manager
Ocean Conservancy

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Marine Campaign Director
Conservation Law Foundation

Table 1. Summary of Major Recommendations

Issue	Agency(ies) Involved	Recommendation
Trash	EPA EPA/NOAA	<p>Ensure § 303(d) lists accurately reflect existing waterway impairments due to trash.</p> <p>Ensure TMDLs for trash are developed and incorporated as enforceable limits.</p> <p>Explore creative opportunities to use the existing authority of its Water, Waste, and Superfund programs to address trash, particularly plastic pollution.</p> <p>identify and support opportunities to advance the approach of extended producer responsibility (“EPR”), or product stewardship, including commissioning a study of how best to structure EPR in the U.S.</p>
Nutrients	EPA/NOAA	<p>Ensure EPA and the states adopt comprehensive numeric nutrient criteria and nutrient TMDLs;</p> <p>Support the development of rapid detection methods for harmful algal blooms in both fresh and marine waters</p>
Bacteria	EPA	<p>Strengthen requirements for green infrastructure in coastal communities.</p> <p>Support SRF and annual budget funding to support green infrastructure improvement projects.</p>
Sediments	EPA/FWS	<p>Ensure adequate visual inspection and monitoring to identify sources of land-based sediment pollution, including construction sites;</p> <p>Include both technology based and water quality based numeric effluent limits (including TMDLs WLAs) for construction permits;</p> <p>Require post-construction controls to match preconstruction runoff volume; and</p> <p>LID and green infrastructure techniques to maximize onsite retention.</p> <p>Ensure logging roads with systems of ditches, culverts and channels that collect and convey stormwater runoff are regulated as point sources under the Clean Water Act</p>

Issue	Agency(ies) Involved	Recommendation
Invasive Species	USCG/EPA/USFWS/ NOAA/APHIS	<p>Create a coherent federal program to require that ballast water be treated before it is discharged;</p> <p>Ensure vessels fully comply with the National Invasive Species Act (“NISA”), and the CWA;</p> <p>Study the impacts of invasive species introduced and spread by ships in ways other than ballast water;</p> <p>Major inter-basin and intra-basin connections through which invasive species move should be addressed with a “zero tolerance” policy with permanent, hydrological separation as the long-term goal;</p> <p>Evaluate species intentionally imported into the United States for invasiveness prior to import, and those known to be invasive or those likely to harm native ecosystems and other important resources should be kept out;</p> <p>Long-term commitment to educational and outreach programs for recreational boaters and anglers.</p>
Carbon Dioxide	NOC/EPA/NOAA	<p>Ensure monitoring is sufficient to determine impairments and to do so on a geospatial scale sufficient to address localized pollution sources and localized sensitive resources.</p> <p>Target the interaction of acidification and other pollutants in relation to achieving water quality standards.</p>
Urban Runoff	EPA NOC/ALL	<p>Recognize the CWA prohibition on non-stormwater discharges and support strong enforcement where it is violated;</p> <p>TMDLs must include useful and enforceable WLAs for stormwater discharges regulated under NPDES permits;</p> <p>Ensure NPDES Permits contain numeric effluent limits, know as Water Quality Based Effluent Limits (WQBELs) to meaningfully assure compliance with water quality standards;</p> <p>Promote green infrastructure and Low Impact Development (LID) techniques</p>

Issue	Agency(ies) Involved	Recommendation
Agriculture	EPA/USDA NOAA/EPA	Catalog and measure the effectiveness of management practices that can reduce the pollution from lands in agricultural production; Track individual 319 projects and monitor water quality impacts; Ensure state Coastal Nonpoint Pollution Control Programs include management measures sufficient to achieve and maintain applicable water quality standards.
CAFOs	EPA/USDA	Revisit rule concerning CWA permitting requirements and effluent limitation guidelines for animal factories; Amend EPA’s overbroad interpretation of an CWA exemption for “agricultural stormwater.”
POTWs	EPA	Target nutrient and bacteria pollution; Update the requirements of “secondary treatment”; Target CSOs for reduction and/or enforcement.
Data Collection and Coordinated Use	NOC/ALL	Identify existing statutory and regulatory programs and authority to collect monitoring data; Identify remaining gaps to be filled for data collection for all pollutants of concern; institutionalize monitoring for pH, dissolved inorganic carbon, and alkalinity, as well as any relevant biological criteria that have been developed Coordinate existing and planned monitoring efforts so as to ensure that adequate data is available to policymakers and the public; Prioritize monitoring in areas where point source or non-point source discharges may contribute to the water quality impairment
Funding	NOC/ALL	Identify, coordinate and promote available and potential state and federal funding to help address land-based pollution issues

Table 2. Statutory Authorities Authorizing or Requiring Monitoring or Assessment of Ocean Acidification

Statute	Agency(ies) Involved	Relevant Provisions
Clean Air Act, 42 U.S.C. §§ 7401-7700	EPA	§§ 7403(c)(2), (e)(4): EPA shall monitor and research the effects of air pollutants on ecosystems and surface water quality
Clean Water Act, 33 U.S.C. §§ 1251-1387	EPA	<p>§§ 1362(6), (19); 1314(a)(4): Ocean acidification fits definition of “pollution” under the CWA and pH is a “pollutant”;</p> <p>§ 1252(a): Authorizes “joint investigations . . . of the condition of any waters in any State”;</p> <p>§ 1254(a), (b): Authorizes research and “public investigation” on pollution; requires establishment of a “water quality surveillance system” that includes “the oceans”; authorizes collection of “basic data on chemical, physical, and biological effects of varying water quality”;</p> <p>§ 1313(d): Requires states to identify threatened and impaired waters;</p> <p>§ 1314(a): Requires EPA to develop water quality criteria, which include criteria for pH in open ocean waters;</p> <p>§ 1315(b): Requires states to report on water quality</p> <p>§ 1375a(a): Requires EPA to report to Congress on “recommendations” to “improve the quality of coastal recreation waters”</p>
Coral Reef Conservation Act of 2000, 16 U.S.C. §§ 6401-6409	NOAA	§§ 6402(a)-(b), 6406(a)-(b): Authorizes monitoring and assessment of coral reef ecosystems to promote long-term conservation
Endangered Species Act, 16 U.S.C. §§ 1531-1599	Sec’y of the Interior (FWS)	§§ 1533(b)(3)(C)(iii), (g)(1); 1535(d)(1): For species impacted by ocean acidification, monitoring of listing-deferred species or to fund state-level monitoring of candidate species
Federal Ocean Acidification Research and Monitoring Act of 2009 (FOARAM Act), 33 U.S.C. §§ 3701-3709	NOAA NASA Nat’l Science Found. Joint Subcomm. on Ocean Sci. and Tech. of the Nat’l Sci. and Tech. Council	§ 3705(a): Creates Ocean Acidification Program within NOAA that shall include “long-term monitoring program of ocean acidification”

Statute	Agency(ies) Involved	Relevant Provisions
Global Change Research Act of 1990, 15 U.S.C. §§ 2921-2961	US Global Change Research Program	§ 2934(c): Calls for a research plan including “observations necessary to understand the physical, chemical, and biological processes responsible for changes in the Earth system on all relevant spatial and time scales”
Integrated Coastal and Ocean Observation System Act of 2009, 33 U.S.C. §§ 3601-3610	NOAA Nat’l Ocean Research Leadership Council	§ 3601(1)-(2): Intended to create “a national integrated System of ocean, coastal, and Great Lakes observing systems” including measurements of climate change and of “interactions between the oceanic and atmospheric environments”
Magnuson-Stevens Reauthorization Act § 701, Pub. L. 109-479 (2007)	Sec’y of Commerce; Nat’l Research Council	Directed Nat’l Research Council to study “acidification of the oceans”
Marine Mammal Protection Act, 16 U.S.C. §§ 1361-1423h	Sec’y of Commerce (NOAA NMFS)	§ 1380(d)(1): Requires monitoring of “health and stability of the Bering Sea marine ecosystem”
National Climate Program Act of 1978, 15 U.S.C. §§ 2901-2908	NOAA	§§ 2904(c)-(d): Creates National Climate Program in NOAA that includes “assessments of the effect of climate on the natural environments” and ongoing monitoring activities
National Coastal Monitoring Act, 33 U.S.C. §§ 2801-2805	NOAA; EPA	§§ 2803(a)(1), (b)(1): Requires EPA and NOAA to implement long-term program of measuring quality of coastal ecosystems including assessments of water quality and health of living resources
Ocean Dumping Provisions, 33 U.S.C. §§ 1401-1445	Sec’y of Commerce	§ 1442(a): Requires research program including continuing monitoring to assess “health of the marine environment”

University of Hawaii Sea Grant College Program
Center for Sustainable Coastal Tourism
National Ocean Council recommendation

As many of the United States' coastal communities have transitioned from traditional maritime activities such as fishing and boating to a more service-oriented and tourism-dependent economy, coastal tourism and recreation has become the largest and fastest - growing sector of the U.S. service industry, accounting for 85% of all tourism - related revenues (U.S. Department of Commerce, NOAA, 1999). However, the U.S. is void of a national policy to plan for and achieve sustainable coastal tourism. Noted reasons are that travel and tourism are viewed as a private sector endeavor and aspects of coastal travel and tourism that need managing are done so by one governmental level or another (U.S. Department of Commerce, NOAA, 1999). Still, these management efforts are done in a hodgepodge of programs and agencies with a lack of coordination or overarching framework, as there is no federal agency with a mandate to manage coastal travel and tourism.

In the *Year of the Ocean (YOTO) Discussion Papers* (1998), that was prepared by the U.S. Federal Agencies with ocean - related programs, it is offered that sustainable development of coastal tourism depends on a number of factors that include:

- Good coastal management practices, especially related to location of infrastructure and provision of public access;
- Clean air and water, and healthy ecosystems;
- Maintenance of a safe and secure recreational environment, specifically relating to management of hazards, and provision of adequate levels of safety for boaters, swimmers and other recreational users;
- Beach restoration, including beach nourishment and other efforts that maintain and enhance the recreational and amenity values of beaches;
- Sound policies for coastal wildlife and habitat protection.

In this manner, acknowledging the importance of sustainable coastal tourism has been discussed amongst U.S. Federal Agencies that deal with the ocean. Therefore, as the National Ocean Council moves forward, greater attention should be placed on the maintenance of oceans, coastlines and the great lakes for the benefit of the tourism economy as well as to minimize the impacts of the tourism economy on these valuable finite resources. Success will take interagency collaboration and the promotion of research and outreach of sustainable coastal tourism.

Our center supports and highly values the following recommendations as presented by NOAA (1999):

- Collect and provide access to information on the magnitude, value, and impacts of ocean and coastal recreation and tourism, including information on a coastal-county basis and studies on the dynamics of tourism in coastal and marine areas.

- Build on existing groups to coordinate relevant federal, tribal, state, and other programs dealing with ocean and coastal resource management to foster a sustainable tourism industry.
- Mobilize public/private partnerships to develop coordinated and effective policies and public outreach programs related to coastal recreation and tourism.
- Provide guidance and technical assistance to tribal, state, community, and private-sector partners to help them sustainably manage coastal recreation and tourism.
- Evaluate current federal, tribal, state, and local programs related to recreation and tourism, and develop best management practices as part of general guidelines for managing sustainable recreation and tourism industries in the nation's coastal zones.
- Working with tribal, state, and local governments, create new areas for sustainable marine tourism, and provide access to these areas.

References

U.S. DEPARTMENT OF COMMERCE, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, 1998. Coastal Tourism and Recreation, 1998 Year of the Ocean Discussion Paper, Washington, D.C.:

U.S. Department of Commerce, National Oceanic and Atmospheric Administration. (<http://www.yoto98.noaa.gov/yoto/meeting/doc/tourrec316.doc>).

U.S. DEPARTMENT OF COMMERCE, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, 1999. Coastal Tourism, in Turning To the Sea: America's Ocean Future. Washington, D.C.: U.S. Department of Commerce, National Oceanic and Atmospheric Administration. (<http://www.publicaffairs.noaa.gov/oceanreport/>).

Comment on Water Quality and Sustainable Practices on Land

By Mick Seemann

What near-term, mid-term, and long-term actions would most effectively help the Nation achieve this policy objective?

I think there are many opportunities in how our Nation can achieve this policy objective. A near-term action that we must pursue is proper waste management. I see this as a sustainability issue on land because we are not discarding and disposing waste equal to the rate of consumption (Addicted to Plastic). A strong national effort needs to take place in order to address the public with this issue. Perhaps make it a requirement for high schools all over the country to include the benefits of proper trash disposal within their curriculum so that we can implement these practices within young minds. The fact that 7 billion tons of litter that enters the world's oceans each year (60 percent being a type of plastic), is disgraceful (The End of the Line). This causes many marine animals to mistakenly swallow these hazardous materials or get caught in it and eventually die. Decomposition of these materials can last for 10-20 years which is why it is imperative that proper disposal is implemented everywhere (Plastic Free Ocean). Sadly, most individuals do not begin to practice recycling and other proper ways to dispose of waste until they become aware of it at older ages. Which is why we need to focus on set curriculums in our youth. This education should include facts such as, how trash can be transported through rivers and various water sources leading to oceans, the present effects waste has on our wildlife and ecosystem, and the beneficial outcomes we will see in our future from properly discarded waste.

As a long-term action toward producing better water quality and sustainable practices on land, I believe that the use of nuclear fusion would be purely beneficial to

this policy objective. It is a mistake that so many individuals see the word “nuclear” and immediately reject the thought of there being any positive outcomes. Yet nuclear fusion is much different than nuclear fission, which we see so many problems with currently in Japan and throughout history. It is imperative that we address the public with the difference between the two and the cleanliness, a sustainable fuel supply, safety, and reduction of waste that electricity generated from nuclear fusion has in store for our future environment. Nuclear fusion uses energy, released from the creation of an isotope, to be turned into steam to power electrical generators. First, fusion reactors would provide better safety for its surrounding population and workers in the plant because the amount of fuel needed to initially begin a sustainable fusion reaction is very small. This is so uncontrolled releases of energy do not occur. This is exemplified by the fact that most fusion reactors make less radiation than the natural radiation we are surrounded with in our daily lives. Second, fusion reactions are clean because no combustion occurs (like fission). Without combustion there is no air pollution. Third, this method of energy production will produce less nuclear waste than fission reactors, which will allow for controlled and proper disposal methods. This can be included in the above statements on the education of proper waste disposal methods but would focus on an industrial sized scale. Additionally, the waste that is generated will not be that of weapons-grade nuclear materials produced by current fission reactors. Lastly, the ocean itself provides the fuel needed to maintain a fusion reaction. Deuterium is a hydrogen isotope with one proton and one neutron, which fuses to another deuterium isotope to form hydrogen-3 and provides the energy release as previously stated. Deuterium can be readily extracted from seawater and studies are being conducted on the abundance of helium-3 on the moon.

The sea alone can provide enough deuterium to last trillions of years through the use of a fusion reaction energy source (howthingswork.com/nuclearfusion). Although it is estimated fusion reactors will not be put into use until 2040, it is crucial that the public understands the difference between the two and fusion makes “nuclear” not such a bad word.

What are some of the major obstacles to achieving this objective; are there opportunities this objective can further, including transformative changes in how we address the stewardship of the oceans, coasts and Great Lakes?

There are many obstacles to overcome in order to achieve sustainable practices on land. The greatest difficulty has been occurring for many years. This is to properly inform the public and effectively change the way societies produce waste. The fact that carbon dioxide has been negatively affecting the acidity of the ocean is directly linked to people not changing their annual carbon footprint. The public has known about the problem of carbon dioxide within our atmosphere for many years now, yet the biggest obstacle is to actually get the people to change their habits instead of wait the change to come upon them.

The opportunities to change the water conditions and sustainable practices on land are plentiful. I think that as our technology progress, particularly in the field of energy, there can be a great future trend toward reducing the global CO₂ emitted annually and eventually leading to a cleaner, healthier ocean.

What milestones and performance measures would be most useful for measuring progress toward achieving this priority objective?

The most useful method to measure the progress of sustainable practices on land and overall water quality would be through the annual overall CO2 emissions data. As we see constantly, policies for companies that reduce high amounts of carbon dioxide are becoming stricter due to the fact that the public is beginning to realize the problems that we are having in our atmosphere and oceans. In terms of water quality, as practices on land continue to change we need to continue to measure and analyze positive or negative trends occurring within our oceans' acidity levels. As long as people continue to raise awareness among friends and colleagues, companies will be forced to think green to appeal to their consumer's beliefs and therefore positively affect the wellbeing of our oceans.

Index:

Attachments to Comments

And Letters Received

**Pertaining to Water Quality and Sustainable
Practices on Land Other Strategic Action
Plans**



April 29, 2011

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

Dear National Ocean Council Members:

On behalf of Food & Water Watch (FWW),ⁱ please accept this letter as formal comments on the Strategic Action Plans (SAPs) of the National Priority Objectives (Objectives) for implementing the Final Recommendations of the Interagency Ocean Policy Task Force. We appreciate the National Ocean Council's efforts in overcoming ad-hoc, fragmented oceans management and planning for long-term, holistic approach to oceans policy.

As a consumer organization, FWW is very interested in U.S. ocean policy as it relates to the product consumers ultimately receive. People tell us regularly that they are paying more attention to the fish they eat, how it is produced or caught, and whether it is well managed. We appreciate the opportunity to comment on these matters, and will address four of the nine objectives, reminding the Council that we have also previously submitted comments on the Policy as a whole.

Objective One: Ecosystem-Based Management

When considering fisheries, ecosystem-based management often refers to the consideration of all wild stocks and how they interact with each other and the marine environment. FWW supports the Council's efforts to break free of the narrow focus of single-species management, as successful fisheries management can only arise from consideration of big picture, ecosystem-level relationships. We seek to expand the Council's understanding on how failure to consider other industrial activities that impact fisheries, such as offshore aquaculture, can prevent successful management of a marine ecosystem's wild fish stocks.

The Dangers of Offshore Aquaculture

Ocean finfish farming can be problematic for both the environment and the economy. The waste – fecal matter, uneaten food, and any chemicals or drugs used in the operation – flows directly into the ocean, and the ecological equilibrium of the seafloor or surrounding area could be permanently damaged.ⁱⁱ Fish often escape from ocean cages, and once in the wild, they can interbreed with or outcompete wild fish, leading to decreased genetic viability and potential population collapses. Even before fish escape, they can spread diseases and

parasites to nearby wild fish. For example, sea lice have been well documented to be problematic around salmon farms.ⁱⁱⁱ

Ocean fish farming could actually increase pressure on wild fish, because the most commonly farmed fish are carnivorous – they often need to eat other fish. Thus, the feed given to captive fish often uses large quantities of fishmeal and fish oil.^{iv} Already, fish farms use a significant portion of the world supply of fishmeal and fish oil from our oceans, such as sardines, herring, and menhaden.^v Removing these fish from the ocean to feed farmed fish reduces the availability of food for whales and other ocean mammals, and for larger predatory fish and sea birds. Notably, these smaller fish are also food for many low-income coastal communities worldwide. Reducing stock availability may deprive already food insecure people of a primary protein source.

Using soy to replace fishmeal has been suggested as a more sustainable option, but this alternative is not without concerns. The implications of adding a terrestrial plant – high in estrogen-mimicking compounds, which has been known to harm the reproductive capabilities of fresh water fish^{vi} – to the oceans over the long term have not been fully researched. Moreover, fish fed diets high in soy produce more excrement,^{vii} thus adding extra waste to the marine environment.

Ecosystem based management requires taking into account impacts on human communities as well as the health of ocean resources. Unfortunately, fish farming can also harm commercial and recreational fishermen, as well as the coastal communities where they live. Worse than failing to fulfill the promise to provide new jobs, U.S. ocean fish farms are likely to outcompete and ultimately replace traditional fishing occupations, causing widespread job losses. This happens due to simple market forces: industrial farming can regularly produce tons of fish. Flooding the market with these fish can cause prices to drop. Also, companies can usually charge less for farmed fish, because artificially subsidized mass production is less costly and less time intensive

Environmental concerns with ocean fish farming:

- The only published study of offshore aquaculture in the United States found that aquaculture cages, even in deep ocean waters (35 meters deep, with bottom currents estimated to be no stronger than 50 cm/s), had “grossly polluted” the sea floor and “severely depressed” marine life at some sampling sites very close to the fish cages and that, over the course of 23 months, these effects had spread to sites up to 80 meters away.¹

- Extensive research shows that the escape of farmed fish into the wild can result in competition for food and space, and cause predation on native species.²

- A study in 2007 of sea bass and gilthead sea bream operations in the Mediterranean Sea found significant sedimentation of feces and uneaten feed underneath fish farms placed at depths of about 50 to 90 feet with swift currents.³

¹ Lee, Han W. et al., Temporal Changes in the Polychaete Infaunal Community Surrounding a Hawaiian Mariculture Operation.” *Marine Ecology Progress Series*, Vol. 307, 175–185 (January 2006).

² Marine Aquaculture Task Force, “Sustainable Marine Aquaculture: Fulfilling the Promise; Managing the Risks.” January 2007. One species with two biologies: Atlantic salmon (*Salmo salar*) in the wild and in aquaculture. *Canadian Journal of Fisheries and Aquatic Sciences* 55(Suppl. 1):131–144).

³ Holmer, M. et al. “Sedimentation of organic matter from fish farms in oligotrophic Mediterranean assessed through bulk and stable isotope ($\delta^{13}C$ and $\delta^{15}N$) analyses.” *Aquaculture*, 262: 268–280, 2007.



than traditional fishing. Usually, fishermen cannot compete with lower fish prices, especially now with sky-high rates for the fuel necessary to run fishing boats.

As the number of fishermen dwindles, other local businesses will also suffer, risking more job loss and hurting economies of coastal communities. Even industrial enthusiasts have openly stated that offshore aquaculture will neither lead to a net increase in employment, nor domestically available seafood. (Current trade patterns and international imbalances in seafood import standards mean that 70% of U.S. seafood is exported to countries that are willing to pay for higher health, safety, environmental and labor standards.)

Incorporating the Council's Call for Ecosystem Based Management Offers a Solution

A holistic, more eco-system based approach to fisheries management requires revisiting the Administration's current emphasis on ocean fish farming as the main way to increase US finfish production. Ocean fish farming – potentially injurious on so many levels - should not be allowed to expand in U.S. waters, especially after so much time has been put into developing a sustainable long-term approach to oceans management. Rather than creating a federal policy to regulate offshore aquaculture or to permit or “zone” its development, this Task Force should direct the NOC *not* to pursue ocean aquaculture in U.S. waters, and instead develop a strategic action plan to prevent such harm.

While there is a need to supplement wild-caught domestic fish to meet consumer demand for seafood, there are many forms of aquaculture that could fill this niche, and some are better than others for producing a cleaner, greener, and safer product. Rope-grown farmed shellfish, like mussels, is a good example.^{viii} Another form of more sustainable aquaculture is land-based Recirculating Aquaculture Systems (RAS), closed-loop facilities that retain and treat the water within the system.

Objective Two: Coastal and Marine Spatial Planning (CMSP)

If done well, CMSP can offer beneficial, common-sense results, such as the example of the Stellwagen Bank National Marine Sanctuary, on p. 45 of the National Ocean Policy document. However, there is great concern that CMSP will be used to zone exclusive access to benefit a lucky few businesses, to the detriment of our natural resources and the public.

Exercise Caution in Protecting “New Investments”

FWW is concerned that the goal to protect “new investments” could dominate the others. This goal (p. 48) reads: “Increase certainty and predictability in planning for and implementing new investments for ocean, coastal, and Great Lakes uses.” On the very same page, offshore aquaculture is referred to as an “emerging use.” We are concerned that shortcuts might be taken to streamline zoning of certain areas of



the ocean for offshore aquaculture – and that because they have been zoned as such, that environmental impact assessment requirements might be reduced or expedited, and public input therefore inappropriately limited or eliminated.

While it is true that CMS Plans do not substitute for “existing legal obligations,” it would be problematic if a fast-tracked permitting process for offshore aquaculture, for example, were to be interpreted as having met such obligations.

Stakeholders and Opting Out

FWW applauds the Task Force for recognizing the importance of public and stakeholder engagement, even in the early stages of a CMS Plan (phase I). Part of ensuring “substantial opportunity for public participation” means that the opinions and experience of people from the region will be seriously considered in addition to local agencies. On p. 63 it appears that regional fishery management councils (RFMCs) will be consulted as part of the CMSP process. While this makes sense, it is imperative that agency officials do not equate consultation with RFMCs as having sufficient regional public input. RFMCs are composed of members who have been chosen in part based on their profession and have an incentive to protect their industries. Oftentimes, the concerns of fishermen, coastal businesses, waterfront communities, consumers and conservationists from their region are not given full consideration. Additional stakeholder processes should be put in place during CMS program development.

Because there is no ability to opt-out of a CMS Plan, FWW is very concerned that local groups, regions, or states might potentially become subject to CMS Plans that they do not support. On p. 60, the Task Force states: “In the event that a particular State or tribe opts not to participate in the development or implementation of a CMS Plan, the development or implementation of the CMS Plan would continue.” This seems very problematic. For example, if the question for the numerous agencies is where to site sea cages for use in offshore aquaculture in order to best avoid shipping lanes and essential fish habitat, it is inappropriate to only ask the public where to locate the cages when the public opposes the operation altogether. Rather, the question should be whether or not to move forward with ocean aquaculture before asking where to site it.

FWW believes that an opt-out provision would be beneficial. If a proposed CMS Plan is not in the public interest, it should not go forward. The Task Force must consider what criteria should be used to determine whether a CMS Plan is in the public interest for a given region, and how that region can opt-out of a plan.

Objective Four: Coordinate and Support

The following suggestions in this section will focus primarily on the regional management of the ocean, particularly ensuring that the voices of those in coastal



communities are given equal or greater weight than economically driven industry voices.

Council Reform and Comprehensive Management

Interagency coordination has often been a disjointed and closed-door process in the past due to lack of coordination between agencies and the council decision-making process. The second issue is the closed-door nature of fisheries management decision-making, which should be more transparent.

In order to address the lack of agency coordination, the new ocean governance agency should be separate from the Department of Commerce. As long as fisheries management remains under Commerce, it will remain difficult to manage fish in a manner that does not place too large of an emphasis on economic gain, rather than sustainable use of shared public trust resources. Language in the Magnuson-Stevens Act suggesting decision-makers should consider all factors is currently insufficient to address this issue.

The new agency should focus on the bigger picture, and allocate its resources to dealing with problem areas instead of continuing with a reactive approach that responds to a particular fish stock on the verge of collapse. The agency must work on a holistic, ecosystem-based approach to marine resources management.

In 2002, a Stanford University study found four reasons why the councils are not able to effectively regulate coastal fisheries:

- 1. The councils decide both how many fish can be caught and who can catch them. Because larger catches are easier to divide up among competing fishery interests, the councils' responsibility to allocate catches encourages them to set lax fishery limits undermining conservation.*
- 2. More than 80 percent of the citizens who are appointed to the councils by the Secretary of Commerce represent the fishing industry. Homogeneous groups are less likely to produce well-considered decisions than groups with diverse membership.*
- 3. The large number of council members drawn from industry results in ubiquitous conflicts of interest. Yet the conflict of interest rules that apply to the councils are very weak compared to those that apply to other government decision-makers.*
- 4. Despite its legal responsibility to carefully oversee the councils, NMFS gives the councils significant leeway in decision-making.^{ix}*



To these, we add that council appointees are finalized by the very entities they advise (NMFS, NOAA, and the Department of Commerce). This means that “loading” the councils – to ensure recommendations in line with administration priorities, whether the public supports these priorities or not – is happening more and more. This is very troubling. Administration appointees should not interfere with the appointment of council members without a publicly stated and justifiable cause. For example, last year, Rita Merritt was removed from the South Atlantic Fishery Management Council, against the will of Governor Perdue of North Carolina and that of many fishermen in the region. While there was no stated reason for this change on the Council, many have speculated it was due to Merritt’s resistance to the Administration’s interest in pushing for catch shares.

The intent behind the Council system is to have people most familiar with the regional fisheries participate in management and to represent those in the region. Unfortunately, this system is broken. The council appointment process should be revised to both expand participation (with various interests represented), and to promote a more public approach to appointments.

The new agency should also address issues that have arisen with Interdisciplinary Planning Teams (IPTs), which have functioned in a way that avoids regional public input. Formed several years ago by the RFMCs and NMFS, these advisory bodies are composed of council members, NMFS and other agency personnel, and occasionally experts called in for consultation. The IPTs meet regularly to discuss developing council plans, outside of public venues and without public notice (meaning that there has been no publication in the Federal Register of these meetings). The IPTs have made changes to plans without public input and present these changes at council meetings for approval.

This is not how the council process was intended to function - nor is it in keeping with the key principle that oceans resources are public assets. While we appreciate the greater interest and coordination on council plans, IPTs hinder the transparency of the process. In the interest of a more collaborative and public approach to fisheries management, we urge that IPTs either be discontinued *or* that they be fully open to the public and announced in the Federal Register like council meetings.

Stakeholder input through public comment sessions should be given more weight in the decision making process. As it currently stands, councils do a poor job of advertising public comment periods. As mentioned above, they are not even a part of IPT meetings. This discourages public participation in fisheries management. In our own experience with public comment sessions at council meetings, oftentimes certain groups are given more time than others to comment, and those left to comment last receive the least amount of time and attention. This is inappropriate. Equal time should be allotted to all participants.



In addition to clear notice of *when* the public may comment at meetings, councils should consider the comments made in a more meaningful way. For instance, councils often listen to hours of public comments, and then fail to address any of the issues raised during the subsequent discussion. In sum, public participation should be more than just a requisite farce – and in addition to allowing more opportunities for public comment and giving widespread notice of when public comment periods are scheduled, public input should be considered carefully in decision-making.

The Governance Coordinating Committee

In addition to issues with RFMC reform, we desire to highlight the role of the Governance Coordinating Committee. It is critical that the “eighteen members from States, federally-recognized tribes, and local governments” truly represent the interests of the people from those areas. To that end, we are concerned that these “members would be chosen by the NOC.” Giving the federal officials the power to choose who they want to work with at the state, local, and tribal level might lead to the selection of those who already share a similar interest in a given management plan or CMSP, rather than necessarily representing the interests of the people. This might inadvertently leave out important concerns of the people from that region and inappropriately limit the amount of information and experience in designing the program.

The Ocean Research and Resources Advisory Panel (ORRAP)

In a similar vein, the role of ORRAP is highly problematic. The Secretary of Defense chooses ORRAP members, and it is unclear why the Department of Defense should exclusively determine who makes up this advisory panel intended for more holistic ocean management. The public should have a more active role in nominating and confirming the members of this group, to avoid security and industry interests dominating the thinking and outcomes. It is furthermore difficult to see how ORRAP “would provide independent advice and guidance to the NOC,” particularly when some members are explicitly from “ocean industries” (p. 27).

The expansion of ORRAP is also perplexing – “membership would be reviewed to determine whether to include additional representatives to broaden the level of expertise in support of the goals of the National Policy.” Members from a wide array of interests must be included for this body to be valuable, and the NOC should reconsider and redesign this body so that the public has a prominent role in the representation. It remains unclear which goals would require “additional representatives.” The NOC should furthermore disallow the Secretary of Defense to serve as the controlling entity.

Objective Seven: Water Quality and Sustainable Practices on Land

Adoption of Recirculating Aquaculture Systems to Curb Pollution



There are many forms of aquaculture, including open-water and recirculating aquaculture. Open-water aquaculture, as discussed above, allows fecal waste, chemicals, antibiotics and excess feed to flow freely into rivers, bays and oceans. This unfiltered discharge does not occur in land-based recirculating aquaculture systems (RAS). The NOC should emphasize RAS to increase aquaculture production in the US over environmentally harmful forms of aquaculture, such as open-water.

Smart and Responsible Land Use to Protect the Marine Environment

While addressing the issue of water quality and sustainable practices on land will be a multi-faceted approach, FWW believes that any meaningful approach to both fish farming and production of vegetables, one that fully internalizes the true costs of production, will involve land-based aquaponics. We can spare the ocean the pollution from unsustainable ocean fish farming and chemically-intensive agricultural operations and Concentrated Animal Feeding Operations by adopting a safer alternative to aquaculture and agriculture on land.

A national policy supporting RAS would enable this industry to grow faster than it has on its own. Since the policy of NOAA has been to support ocean fish farming, the industry has received millions of dollars in grant money, but existing ocean fish farms at academic institutions and state waters have yet to prove that they can be ecologically sustainable or economically feasible. If these grants could be directed toward RAS, such as in S. 3417, The Research in Aquaculture Opportunity and Responsibility Act (2010), they would fund development of a more feasible and environmentally friendly industry, which could provide fresh local seafood across the country. NOAA and the U.S. Department of Agriculture should manage RAS under a coordinated program.

Thank you for considering our comments, and please feel free to contact any of us who are part of the Fish Program at Food & Water Watch.

Sincerely,

Food & Water Watch Fish Program

Marianne Cufone, Director
James Mitchell, Policy and Legislative Coordinator
Christina Lizzi, Policy Analyst
Eileen Flynn, Writer & Researcher
Meredith McCarthy, Researcher

¹ Food & Water Watch (FWW) is a nonprofit consumer advocacy organization headquartered in Washington, DC that runs cutting-edge campaigns to help ensure clean water and safe food. We work



with various community outreach groups around the world to create an economically and environmentally viable future. We advocate for safe, wholesome food produced in a humane and sustainable manner, and public rather than private control of water resources, including oceans, rivers and groundwater. The FWW Fish Program promotes clean, green, safe seafood for consumers, while helping to protect the environment and support the long term well-being of coastal communities.

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- iv Naylor, Rosamond L. et al. "Effect of aquaculture on world fish supplies," *Nature* Vol. 405, 2007 at 1017- 1024.
- v Tacon, Albert et al. "Use of Fishery Resources as Feed Inputs to Aquaculture Development: Trends and Policy Implications." FAO Fisheries Circular No. 1018, Food and Agriculture Organization of the United Nations, Rome, 2006.
- vi Kidd, Karen. "Effects of Synthetic Estrogen on Aquatic Population: A Whole Ecosystem Study," Freshwater Institute, Fisheries and Oceans Canada.
- vii Naylor, Rosamond L. et al. "Feeding aquaculture in an era of finite resources." *Proceedings of the National Academy of Sciences*, vol. 106, iss. 36, September 8, 2009 at 15106.
- viii "FAQs." American Mussel Harvesters, Inc. North Kingston, RI available at: www.americanismussel.com/faqs.html.
- ix Eagle, Josh et al. *Taking Stock of the Regional Fishery Management Councils*. Pew Science Series on Conservation and the Environment. Island Press. 2003, at 5.

April 29, 2011

Ms. Nancy Sutley, Council Chair
National Ocean Council
White House Council on Environmental Quality

Dear Chair Sutley,

On behalf of the Northeast Regional Ocean Council (NROC), the Northeast Regional Association of Coastal and Ocean Observation Systems (NERACOOS), and the Gulf of Maine Council on the Marine Environment (GOMC), we are pleased to provide comments on the National Ocean Council Strategic Action Plans. We applaud the Council for their work to forward the development of Strategic Action Plans for the nine priority objectives, following the guidance provided by the Interagency Ocean Policy Task Force in the July 2010 document *Final Recommendations of the Interagency Ocean Policy Task Force*.

Woven through our comments on the priorities and actions is a need to address clarity and understanding of issues. This includes support for the collection of data for scientists, development of tools for decision makers, and the need to engage stakeholders. An improved understanding of our appropriate management, science or engagement roles in advancing these priorities and actions will greatly enhance our ability to succeed.

NROC, NERACOOS, and GOMC members are available to provide additional information based on our state and regional experiences and expertise.

Respectfully,



Ted Diers, State Chair
Northeast Regional Ocean Council



J. Ru. Morrison, Ph.D., Executive Director
Northeast Regional Association of Coastal & Ocean Observing Systems



Kathleen Leyden, Chair
Gulf of Maine Council of the Marine Environment

The following are combined comments from the Northeast Regional Council on the Ocean (NROC), Northeast Regional Association of Coastal and Ocean Observation Systems (NERACOOS), and Gulf of Maine Council (GOMC) on the National Ocean Council's Strategic Action Plans.

Issue Area - Ecosystem-Based Management

Objective: Adopt ecosystem-based management as a foundational principle for the comprehensive management of the ocean, our coasts, and the Great Lakes.

Actions that would most effectively help the Nation achieve this national priority objectives associated with this issue area:

- Near-term:
 - Identify and engage the right social and natural scientists to uncover the most relevant data and latest thinking about ecosystem services science and resilience science
 - Develop an assessment of social science data gaps and needs – in addition to economics
- Mid-term:
 - Create a suite of decision-support tools for State managers to assess trade-offs and cumulative impacts
 - Provide tools to visualize user conflict scenarios – such as, tools with a gaming interface
 - Develop a suite of ecosystem indicators that can be used in a variety of planning contexts (current work of NCEAS working group, OHI, CI and others)
- Long-term:
 - Use resilience science as a conceptual framework for management and governance approaches
 - Develop evaluative tools to improve messaging of policy and management goals (i.e. how does audience hear the information given and what do they do with it once they hear it, etc)
 - Improve connection between regional partnerships and indicator and monitoring programs, to enable indicator measurement of ecosystem health (social and natural) at various scales

Major obstacles to achieving this objective **and opportunities** this objective can further, including transformative changes in how we address the stewardship of the oceans, coasts, and Great Lakes:

- Obstacles:
 - Complexity of EBM will hamper stakeholders' capabilities to understand approach in concept and apply the approach to their management strategies
 - Lack of social science on stakeholder perceptions, attitudes and behavior – beyond economics (e.g. psychology, sociology, communication, etc).
- Opportunities:

- Jane Lubchenco’s recent lecture at Clark University and small-group discussions centered around the dire need to engage social scientists, perhaps starting with a relationship between NOAA and Clark
- Marine InVest as a tool to analyze trade-offs
- The extent to which regional governance partnerships can engage fisheries managers in discussions could lead to more integration and perhaps in the long-term additional policy measures toward resilient fisheries.

Milestones and performance measures that would be useful for measuring progress toward achieving this priority objective:

Milestones	Performance measures
All New England States are integrating EBM components into their management strategies and policy directives	This could include many different aspects of EBM or a select few – perhaps the region needs to decide whether there are particular aspects about the EBM approach that are of higher priority than others for States to embrace
The Regional partnership has strong relationships with key social scientists that cover a variety of disciplines	# of social scientists engaged in regional meetings
Regional CMSP plans are adaptive	Performance indicators written into the Plan and discussed in the planning process

Issue Area - Inform Decisions and Improve Understanding

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.

Actions that would most effectively help the Nation achieve this national priority objectives associated with this issue area:

- Near-term:
 - Develop a nationally consistent framework to capture regional priority issues and information needs through engaging with the Regional Ocean Partnerships such as NROC.
 - Use the annual regional gap analysis that each IOOS region is required to perform as part of the ICOOS Act (2009) as a basis for identifying additional information capacity needed. This regional process, based on the input from the variety of regional

scientific and technical experts, managers, and other users would provide the detail needed to ensure that the national plan(s) addresses the scale and diversity of the nation’s ecosystems.

- Continue the development of a National Information Management System that ensures that diverse types and sources of information can be effectively and efficiently brought together. This needs to include geospatial, historical and real-time information and build on national efforts to develop standards. Regional scale implementation of information systems is the appropriate scale for connection to a number of management needs.
- Mid-term:
 - Empower regional educational collaboration through such organizations as the Northeast Ocean Sciences Education Collaborative (www.neosec.org).
 - Adopt the Ocean Literacy Principles to provide a consistent framework for engaging the public in the importance of the oceans.
 - Use distance learning techniques to bring the oceans to the country’s interior and underserved populations.
- Long-term:
 - Provide sufficient funds to allow collection and delivery of regional scale ocean information to address priority needs.

Major obstacles to achieving this objective **and opportunities** this objective can further, including transformative changes in how we address the stewardship of the oceans, coasts, and Great Lakes:

- Obstacles:
 - Lack of communication and cooperation between and within agencies.
 - Lack of sufficient investment at appropriate scale to identify and fill information gaps.
 - Fragmentation of efforts to provide ocean and coastal information and inform the public on the importance of the oceans
- Opportunities:
 - Regional Ocean Partnerships provide a unique opportunity to identify information needs and the necessary communication between interested parties to fulfill these needs.

Milestones and performance measures that would be useful for measuring progress toward achieving this priority objective:

Milestones	Performance measures
Nationally consistent synthesis of regional scale information needs assessments	Gaps analysis by IOOS regional associations
Regional Observing Systems operating a specified base capacity	50% of regional information needs delivered

Issue Area - Resiliency and Adaptation to Climate Change and Ocean Acidification

Objective: Strengthen resiliency of coastal communities and marine and Great Lakes environments and their abilities to adapt to climate change impacts and ocean acidification.

Actions that would most effectively help the Nation achieve this national priority objectives associated with this issue area:

- Near-term:
 - Follow the recommendations of the Ocean Acidification Strategy of the National Research Council and the ORRAP Ocean Acidification Task Force regarding research and monitoring needs. The council should develop a schedule for implementation of their recommendations.
 - Where possible existing observing assets operated by the IOOS Regional Associations should be used to deploy additional pH/pCO₂ sensors across a representative diversity of coastal and estuarine locations, especially in areas of marine resource vulnerability (e.g., coral reefs, shellfish beds, etc.). This should build upon efforts such as those of NOAA's Pacific Marine Environmental Laboratory and regional ocean acidification plans.
 - Compile information at the scale not larger than a state to identify the known changes resulting from climate changes as a means to educate the public and decrease the number of skeptics.
- Mid-term:
 - Refine regional and subregional forecasts for key climate change parameters such as precipitation, sea level rise, and temperature for the use of use of different forecasts by states creates confusion for planners at all levels of government. Develop a standardized methodology for surge forecasting. In the Northeast, the U.S. Army Corps of Engineers should update the tidal flood profiles.
 - NOAA/USGS should continue to provide states with data and products to hindcast and forecast rates of shoreline change (e.g., 5-year interval for generation of new mean high water shorelines).
 - Develop more accurate models for flooding from storm surge.
 - Continue to develop federal assessments of coastal vulnerabilities for all regions of the nation (e.g., the U.S. DOT transportation assessments) to identify storm and inundation vulnerabilities that are critical to regional economies.
 - Conduct of investigations to identify offshore sand reservoirs that can be used for beach nourishment.
 - Provide technical and data support for each state to identify priorities that are vulnerable sea level rise/coastal storms and identify those that are regional priorities.
 - Provide adequate funding to the U.S. Army Corps of Engineers to support the survey of coastal erosion and flood control structures. NOAA/US Corps of Engineers/USGS develop models to identify how the level of protection changes with sea level rise.
- Long-term:

- Provide adequate levels of funding to allow the IOOS regional associations to implement coastal hazard observing priorities.
- Support each state in the formulation of a state adaptation plan.

Major obstacles to achieving this objective:

- Obstacles:
 - Federal and state governments support post disaster response and planning but not pre-disaster planning that is need for adaptation planning.
 - New England is a home rule region but adaptation planning requires all levels of government to work together.
 - Adaptation planning requires the conduct of expensive coastal process studies to evaluate the potential impact of potential flood and erosion control solutions.

Milestones and performance measures that would be useful for measuring progress toward achieving this priority objective:

Milestones	Performance measures
Data, tools and observations	# of data, tools and observations developed/implemented
	# of state fact sheets about climate changes
	# of ocean acidification recommendations implemented
Vulnerability Assessments	# of state assessments
Adaptation Plans	# of state plans
	# of regional plans
	# FEMA certified communities

Issue Area: Water Quality and Sustainable Practices on Land

Objective: Enhance water quality in the ocean, along our coasts, and in the Great Lakes by promoting and implementing sustainable practices on land.

Actions that would most effectively help the Nation achieve this national priority objectives associated with this issue area:

- Near-term:
 - Reduce of NOx gases in the atmosphere which contribute to eutrophication of estuaries, embayments and near shore waters.
 - Fund stormwater retrofits of outdated systems in coastal areas. Increase funding for CWA Section 319 and CZARA 6217 funding for state programs.
 - Develop and provide consistent funding for integrated coastal monitoring networks in near shore waters under the frameworks of the National Water Quality

Monitoring Council and the Integrated Ocean Observing System that focus on locally important issues.

- Mid-term:
 - Improve outreach and education about sustainable land use practices via national campaigns.
 - Strengthen state Coastal Zone Management Act programs’ ability to work on watershed-wide water quality issues.
- Long-term:
 - Align federal policy and funding to focus on sustainable development practices, limiting sprawl and decreasing the impacts of transportation-related pollution.
 - Develop more cost effective water quality treatment processes, especially focused on distributed, low-maintenance systems

Major obstacles to achieving this objective **and opportunities** this objective can further, including transformative changes in how we address the stewardship of the oceans, coasts, and Great Lakes:

- Obstacles:
 - Decreased funding for addressing non-point source related pollution, both CZMA Section 6217 and CWA Section 319 have been reduced.
 - Public perceptions about the importance of water quality given competing social and economic problems.
- Opportunities:
 - Ability to build on existing programs such as EPA’s work on nutrient pollution, MS4 permits and other NPDES activities
 - Trend towards increased coordination on data sharing and management at all levels of government and academia.

Milestones and performance measures that would be useful for measuring progress toward achieving this priority objective:

Milestones	Performance measures
Decreased eutrophication in estuaries, embayments and near shore waters.	Impaired waters
	BMPs installed
Public is aware of importance of water quality	Increased incorporation of BMPs in local and state regulations; increased use of BMPs by homeowners and developers
	Public perception surveys
	Academic research on social and economic costs of impaired water quality.
Decreased trend in the amount of imperviousness in coastal	Mapping of impervious surfaces by coastal watershed

watersheds.	Increased use of infiltration and treatment technologies
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Issue Area: Ocean, Coastal, and Great Lakes Observations, Mapping and Infrastructure

Objective: Strengthen and integrate Federal and non-Federal ocean observing systems, sensors, data collection platforms, data management, and mapping capabilities into a national system and integrate that system into international observation efforts.

General comment: The goal of this issue area to “*Strengthen and integrate Federal and non-Federal ocean observing systems, sensors, data collection platforms, data management, and mapping capabilities into a national system and integrate that system into international observation effort*” is essentially a reiteration of the purposes and intent of the Integrated Coastal Ocean Observing System Act (ICOOS) of 2009. The ICOOS act codified the United States Integrated Ocean Observing System (IOOS) as a partnership of Federal agencies (with a lead at the National Oceanic and Atmospheric Administration) and Regional Associations (RAs) to integrate Federal and non-Federal systems. IOOS provides a stakeholder driven end-to-end mechanism to supply key ocean, coastal, and Great Lakes information to meet regional and national needs including the areas of special interest. NROC, NERACOOS and GOMC have Memoranda Of Understanding to work collaboratively to address regional needs.

Actions that would most effectively help the Nation achieve this national priority objectives associated with this issue area:

- Near-term:
 - Endorse the full implementation of IOOS as the mechanism for achieving this goal. The NOC should work closely with the Integrated Ocean Observing Committee (IOOC), established as part of the ICOOS Act, to ensure that the IOOS program priorities align with the NOC priorities and that the limited resources are allocated in the most productive and effective manner.
 - Develop a National and Regional Observation Plans. The need for observations has long been recognized; but the nation still lacks a cohesive plan that describes what observations are needed. The NOC should engage the IOOC, the IOOS Program Office, and the IOOS RAs to develop a national plan from individual regional plans for observations, modeling, mapping, and data management to fulfill user needs. This effort is already underway as part of the implementation of the ICOOS Act.
 - Build off the IOOS Data Management and Communication (DMAC) and modeling systems “*for the timely integration and dissemination of data and information products*”.
- Mid-term:
 - Commitment to achieve necessary capacity to inform areas of special interest.
 - Alignment of federal activities into a single coordinated integrated ocean observing system, one federated system to inform multiple needs and mandates.
- Long-term:

- Continual evaluation of system capacity and functionality to allow adaptation to novel issues, concerns and technologies.

Major obstacles to achieving this objective **and opportunities** this objective can further, including transformative changes in how we address the stewardship of the oceans, coasts, and Great Lakes:

- **Obstacles:**
 - A lack of understanding of and engagement with the IOOS program at the national level.
 - Lack of resources for implementation of a truly effective system.
- **Opportunities:**
 - A national stakeholder and issue driven program with both regional and national level implementation (IOOS) exists to achieve this goal.

Milestones and performance measures that would be useful for measuring progress toward achieving this priority objective:

Milestones	Performance measures
National and Regional Observations Plans	National and Regional Capacity Assessments (Gaps Analysis)
Data Management Integration	Efficiency of integrating disparate data sets.

Participating Organizations

Alliance for a Living Ocean
American Littoral Society
Arthur Kill Coalition
Asbury Park Fishing Club
Bayberry Garden Club
Bayshore Regional Watershed Council
Bayshore Saltwater Flyrodders
Bellarm Seafood Co-op
Belmar Fishing Club
Beneath The Sea
Bergen Save the Watershed Action Network
Berkeley Shores Homeowners Civic Association
Cape May Environmental Commission
Central Jersey Anglers
Citizens Conservation Council of Ocean County
Clean Air Campaign, NY
Coalition Against Toxics
Coalition for Peace & Justice/Unplug Salem
Coast Alliance
Coastal Jersey Parrot Head Club
Communication Workers of America, Local 1034
Concerned Businesses of COA
Concerned Citizens of Bensonhurst
Concerned Citizens of COA
Concerned Citizens of Montauk
Concerned Students and Educators of COA
Eastern Monmouth Chamber of Commerce
Fisherman's Island Conservancy
Fishermen's Conservation Association, NJ Chapter
Fishermen's Conservation Association, NY Chapter
Fishermen's Dock Cooperative, Pt. Pleasant
Friends of Island Beach State Park
Friends of Liberty State Park, NJ
Friends of the Boardwalk, NY
Garden Club of Englewood
Garden Club of Fair Haven
Garden Club of Long Beach Island
Garden Club of RFD Middletown
Garden Club of Morristown
Garden Club of Navesink
Garden Club of New Jersey
Garden Club of New Vernon
Garden Club of Oceanport
Garden Club of Princeton
Garden Club of Rumson
Garden Club of Short Hills
Garden Club of Shrewsbury
Garden Club of Spring Lake
Garden Club of Washington Valley
Great Egg Harbor Watershed Association
Green Party of Monmouth County
Green Party of New Jersey
Highlands Business Partnership
Holly Club of Sea Girt
Hudson River Fishermen's Association
Jersey Shore Captains Association
Jersey Shore Parrot Head Club
Jersey Shore Running Club
Junior League of Monmouth County
Keypoint Environmental Commission
Kiwans Club of Manasquan
Kiwans Club of Shadow Lake Village
Leonardo Party & Pleasure Boat Association
Leonardo Tax Payers Association
Main Street Wildwood
Mantoloking Environmental Commission
Marine Trades Association of NJ
Monmouth Conservation Foundation
Monmouth County Association of Realtors
Monmouth County Audubon Society
Monmouth County Friends of Clearwater
National Coalition for Marine Conservation
Natural Resources Protective Association, NY
NJ Beach Buggy Association
NJ Commercial Fishermen's Association
NJ Environmental Federation
NJ Environmental Lobby
NJ Main Ship Owners Group
NJ Marine Education Association
NJ PIRG Citizen Lobby
Nottingham Hunting & Fishing Club, NJ
NYC Sea Gypsies
NY State Marine Education Association
NY/NJ Baykeeper
Ocean Wreck Divers, NJ
PaddleOut.org
Piscataway Saltwater Sportsmen Club
Raritan Riverkeeper
Religious on Water
Riverside Drive Association
Rotary Club of Long Branch
Rotary District #7510—Interact
Saltwater Anglers of Bergen County
Sandy Hook Bay Anglers
Save Barnegat Bay
Save the Bay, NJ
SEAS Monmouth
Seaweeders Garden Club
Shark Research Institute
Shark River Cleanup Coalition
Shark River Surf Anglers
Shore Adventure Club
Sierra Club, NJ Shore Chapter
Sisters of Charity, Maris Stella
Sons of Ireland of Monmouth County
Sorporntist Club of Cape May County
South Jersey Dive Club
South Monmouth Board of Realtors
Staten Island Tuna Club
Strathmere Fishing & Environmental Club
Surfers' Environmental Alliance
Surfrider Foundation, Jersey Shore Chapter
TACK, MA
Terra Nova Garden Club
Three Harbors Garden Club
Unitarian Universalist Congregation/Monm. Cnty.
United Boatmen of NY/NJ
Village Garden Club
Volunteer Friends of Boaters, NJ
WATERSPIRIT
Women's Club of Brick Township
Women's Club of Keypoint
Women's Club of Long Branch
Women's Club of Merchantville
Women's Club of Spring Lake
Women Gardeners of Ridgewood
Zen Society



Ocean Advocacy
Since 1984

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April 29, 2011

Chairwoman Nancy Sutley
Council on Environmental Quality
Executive Office of the President

Director John Holdren
Office of Science and Technology Policy
Executive Office of the President

Re: Comments on Strategic Action Plans for the Priority Objectives for the National Ocean Council

Dear Chairwoman Sutley and Director Holdren;

The National Ocean Council (NOC) announced its intent to prepare strategic action plans for nine priority objectives for National Ocean Policy goal implementation and solicited comments from the public on January 24, 2011. See 76 F.R. 4139. These public comments should, according to the announcement, inform the preparation of the strategic action plans. Clean Ocean Action has prepared the following comments in response to that request.

Clean Ocean Action (COA) is a regional, broad-based coalition of 125 conservation, environmental, fishing, boating, diving, student, surfing, women's, business, service, and community groups with a mission to improve the degraded water quality of the marine waters of the New Jersey/New York coast. For over 25 years, COA has been actively engaged in ocean management to ensure a vibrant, diverse, economically robust ecosystem. From successfully closing eight ocean dumpsites and thwarting offshore drilling and exploration to promoting clean beaches, citizens have worked hard to ensure a clean ocean economy. Clean Ocean Action has, in addition to this letter, signed onto two other comments for this notice, one general comment and one comment on strategy item five.

Framework

In the announcement requesting comments for the strategic action plan development phase of the National Ocean Policy Framework, the NOC requested that for each of nine priority areas, we (broadly) answer these questions:

- What near-term, mid-term, and long-term actions would most effectively help the Nation achieve this policy objective?
- What are some of the major obstacles to achieving this objective; are there opportunities this objective can further, including transformative changes in how we address the stewardship of the oceans, coasts, and Great Lakes?
- What milestones and performance measures would be most useful for measuring progress toward achieving this priority objective?

Data and Mapping

Priority areas:

(3) Inform Decisions and Improve Understanding

(9) Ocean, Coastal, and Great Lakes Observations, Mapping, and Infrastructure

One Action that needs to be taken immediately is an across-the-board expansion of data collection—we simply do not know enough about many parts and aspects of the ocean environment, and we don't know enough about the industries that are operating within this environment. This broad data collection initiative should be done in an environmentally-unobtrusive manner. Furthermore, ecosystem and socioeconomic data should not be used to inform only a select few researchers or institutions, but should be available to all agencies and institutions and should be publically accessible.

The NOC should undertake an assessment of the state of the science in each “area” of the ocean and attempt to coordinate research to systematically fill gaps in knowledge, eliminate redundant research projects, and encourage more ecosystem-wide studies. Part of this initiative should be to develop, again for each marine area, one clearinghouse of coastal and ocean knowledge where methodologies, research projects, and data can all be accessed by any interested individual. Regional monitoring programs that have long-term funding are needed – especially for areas such as the Mid-Atlantic Bight which currently lacks a comprehensive regional program.

Obstacles to sharing data and informing decisions are plentiful, but not unresolvable. First, data collected by one agency or institution (the EPA, for example), may be in a form that doesn't comport with the needs of local decision-makers or state agencies. Second, collection methods that one agency uses may not be, by regulation, guidance, or policy, “admitted” by other agencies. Third, priorities in data collection vary by program and geographic location. Fourth, different research methods and tools may be used by different researchers. Fifth, technological and methodological innovation can result in differences within the same type of data collected over time – in other words, trends and time series might not mean that situations are changing, just that we've learned how to better measure a variable.

These challenges, and more, can be addressed through data collection standardization. If all agencies at all levels of government are working from the same methods documents and datasheets, we will improve our collective understanding of the state of our marine ecosystems. However, the process of data standardization needs to integrate some flexibility in order to avoid stifling innovation in scientific research.

Another impediment to informing decisions and improving mapping, infrastructure, and ecosystem understanding is the disconnect between the lay-public and expert scientists. Politics and communication play an important role in the implementation of the National Ocean Policy; if the public cannot understand why they need to protect these ecosystems, regional ocean managers will face an uphill battle in trying to convince people otherwise.

Many aspects of the National Ocean Policy itself (including associated frameworks, regulations, and policies) are not written in an easily-understandable form for public education. The NOC should try to distill and re-frame its mission and the steps it will be taking into a message easily transmitted to the public. Regulations and policies developed as a result of this process should also be communicated in “plain” English.

Coordination and the Decision-Making Processes

Priority areas:

- (1) Ecosystem-Based Management (EBM)
- (2) Coastal and Marine Spatial Planning (CMSP)

Actions that immediately need to be taken include data collection and information dissemination. EBM and CMSP implementation will (and should) rely heavily on baseline studies, pilot programs, and cumulative impact analyses. No decisions should be made to approve new uses of the coastal and ocean zone (including Outer Continental Shelf energy production, exploration, or siting), or to affect existing uses, without these pre-planning studies and research projects. The NOC should also advocate for legislation and regulations to prohibit programs from allowing ecological harm to the ocean – all too often discretion is given, under the guise of flexibility, to damage resources.

Aside from data collection and research studies, the NOC should also take immediate steps to require that EBM principles and policies are implemented across the nation in land use, environmental, and energy decisions. Decisions are now being made, daily, which should take EBM and scientific knowledge into account but do not. From stormwater permits to development plans and mitigation banks, incorporating understanding of ecosystems is critical to prevent and minimize impacts from actions taken.

While a top-down approach to managing the ocean and coastal zone (which is much of what the NOC will be doing) is needed, so too is a bottom-up approach. Requiring regular, sustained inclusion of the interested public at all stages of the process leads to stronger, more resilient plans and policies by identifying conflicts, providing knowledge about issues/problems present at all scales (national, regional and local) and allowing for the development of common solutions that lead to public support and ownership of policies, programs and activities. Getting the public to “*buy in*” to a policy developed from the top down is often not successful. Instead, the best public policies start from the grass-roots up. The interested public must “*be in*” on policy development early at the most local level, often and sustained, including regular and continuous communication and dialogue. Ultimately, determinations regarding appropriate ocean uses, allocation of space and resources, and protection of those resources will be based on societal choice. Public support for the preservation and protection of environmental resources is based on their understanding of environmental issues and their active role in developing management solutions. Therefore, the development and implementation of a National Policy must continue to include an explicit requirement for robust and ongoing public participation.

Obstacles may arise in implementing EBM and CMSP where the NOC tries to make ocean maps and use-plans without a truly comprehensive understanding of the ecosystem, where local managers make decisions that do not comport with the needs of the ecosystem, where state-by-state goals and uses are not aligned, and where there is not public support for the “hard” decisions that will need to be made. To overcome these obstacles, science and communication are key – especially where there are social and economic pressures that conflict with ecosystem needs or where there are overlapping and contradictory governance systems.

Implementing a National Ocean Policy

Priority areas:

- (5) Resiliency and Adaptation to Climate Change and Ocean Acidification
- (6) Regional Ecosystem Protection and Restoration
- (7) Water Quality and Sustainable Practices on Land

Action that needs to be taken by the NOC include empowering localities to make politically challenging decisions on coastal watershed uses and plans and developing toolkits and funding sources to enable coastal managers to encourage that these tough decisions are environmentally protective. Adaptation, resiliency, and sustainable practices, for ocean and coastal ecosystem management, tend to require local efforts more than national efforts. One major problem that towns and counties run into when, for example, they try to preserve wetlands, limit development in flood zones, de-harden coastlines, track pollution and sewage sources, or fix and upgrade water and wastewater infrastructure, is a lack of financial and technical support. Citizens need to be informed that adaption will mean accepting the loss of land due to sea level in certain areas. Data standardization, public disclosure, and inter-agency collaboration and coordination can all be conditions to financial and technical NOC support for these local programs – doing so would tie local actions to the NOC’s national strategy and allow all stakeholders to play a part in protecting, restoring, and adapting coastal ecosystems.

Obstacles for each of these priority areas (resilient coasts, ecosystems, and water quality) arise because most of these require local and state-level agencies expand their permitting, enforcing, monitoring, and regulating departments and may also require regulatory changes. The NOC can (and should) develop model programs and guidance for local and regional regulators, but many of the changes needed under these program areas can only be accomplished by local action. Local action, in turn, requires a renewed nation-wide investment in environmental programs – something the NOC must make a priority.

Conclusions

In general, regarding the NOC strategy for implementing the National Ocean Policy, Clean Ocean Action opposes regional governance systems that lack a public connection, accountability, and meaningful involvement in decision-making. Most of the decisions that will be required by the NOC’s plans depend on public support, so the NOC needs to ensure there is public accountability and involvement in actual, implementation and regulatory decisions – not just for purposes like this comment solicitation (public comment on strategy development). Along this vein, citizens, states, and regions have already begun ocean policy changes – and the NOC should inventory, analyze, and work within the goals these planners and managers have set for their own ecosystems.

As the NOC moves to develop strategies for National Ocean Policy implementation, priority should be given to (1) building a robust system of data standardization and dissemination, and (2) funding regional clearinghouses of information and policy discussion. The NOC should refrain from making conclusions as to coast-wide “use” maps or CMSP systems until baseline studies and ecological performance indices can be developed. Finally, because most of the changes called for in the National Ocean Policy will rely on local support and local change, the NOC should work, at state and federal levels, to secure more funding and support for local environmental programs – from enforcement to planning and research.

Sincerely,



Cindy Zipf
Executive Director



Sean Dixon
Coastal Policy Attorney



Heather Saffert, Ph.D.
Staff Scientist