

THE NAVY'S ENVIRONMENTAL MAGAZINE

# Currents

summer 2010

Navy & Park Service Test

## SONIC BOOM

Effects on Fort Jefferson

Study Finds Limited Danger from Key West  
& Recommends Expanding Buffer Zone

NESDI Program Demos Technologies & Collects Data to Enhance Readiness  
CNO Environmental Awards Recognize Exceptional Stewardship  
Spotlight on the Coastal States Organization



# THE NAVY'S ENVIRONMENTAL MAGAZINE **Currents**

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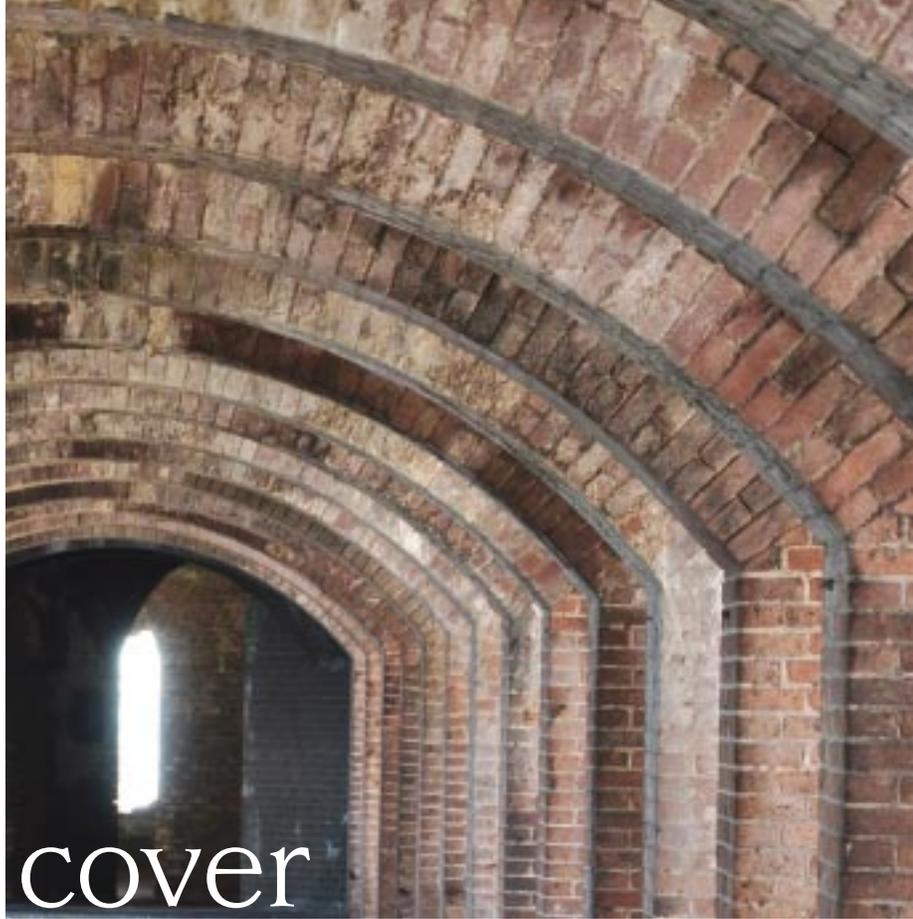
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## cover

The Navy worked with the National Park Service to test the potential effects of sonic booms on historic Fort Jefferson in the Dry Tortugas.

*Photo courtesy of Parsons*

### Navy, Park Service Test Sonic Boom Effects on Fort Jefferson

Study Finds Limited Danger from NAS Key West

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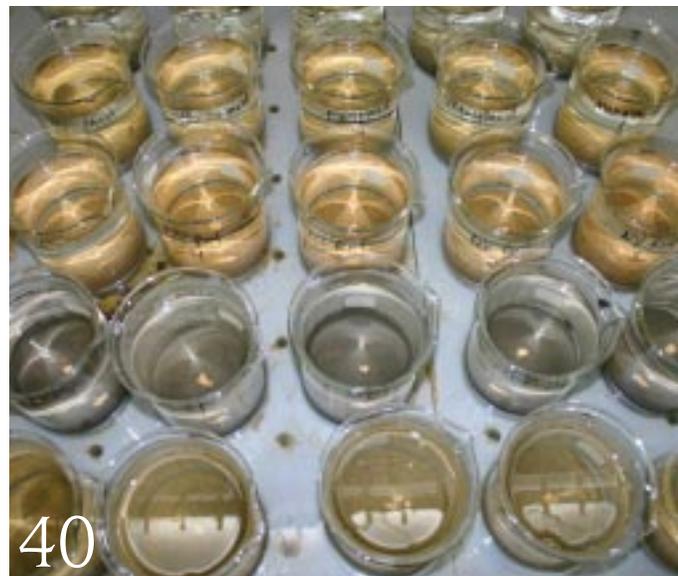
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## New Director of the Navy's Energy and Environmental Readiness Division Outlines His Priorities

*Editor's note: On 18 May 2010, the Chief of Naval Operations (CNO) announced new flag leadership for CNO's Environmental Readiness Division. Rear Admiral Philip Cullom was assigned as Director, relieving Rear Admiral Herman Shelanski. At the same time, this division was assigned responsibility to lead the Navy's energy program, both operational and ashore.*

It is with great pleasure that I assume leadership of the Navy's Energy and Environmental Readiness Division. In both areas, the challenges and opportunities have never been greater or potentially more impactful for the long term. I look forward to working with Navy professionals, regulators, and non-governmental organization representatives to achieve the Navy's and the nation's important objectives.

I salute Rear Admiral Shelanski and thank him for his leadership since July 2009. In March 2010, the CNO tapped him to lead Navy's participation in the Secretary of Defense's study on the Don't Ask Don't Tell policy. The importance of this issue to military readiness caused Rear Admiral Shelanski's short-term assignment to be substantially extended, requiring assignment of new leadership for the division.

mental and energy program objectives under the reorganized division will allow the Navy to meet all program objectives (i.e., energy goals and carbon footprint reduction) in a holistic and effective manner.

As a Surface Warfare Officer and former Carrier Strike Group Commander, I am acutely aware of the importance of Navy's ongoing program for environmental planning, permitting, and consultations associated with Navy training areas at sea. Ensuring timely annual renewals of range and operating area permits require us to keep our environmental planning efforts on track and will necessarily be among my highest priorities.

I will also be focused on the emergent national Coastal and Marine Spatial Planning effort and immediate issues of encroachment on Navy training areas at sea. As our country identifies alternative energy opportunities, such as wind farms at sea, the Navy will need to carefully consider



### Achieving Navy's energy goals is also the key to achieving existing and future carbon footprint reduction mandates.

For the past twenty months I had the distinct honor to serve as Director, Fleet Readiness Division. A significant part of my responsibilities there included establishing Navy's Task Force Energy and institutionalizing Navy efforts to achieve Secretary Mabus' and the CNO's ambitious energy goals. Achievement of Navy energy goals is critically important to the Navy's combat capability. These efforts will reduce our total cost to operate and maintain our military platforms at sea as well as ashore.

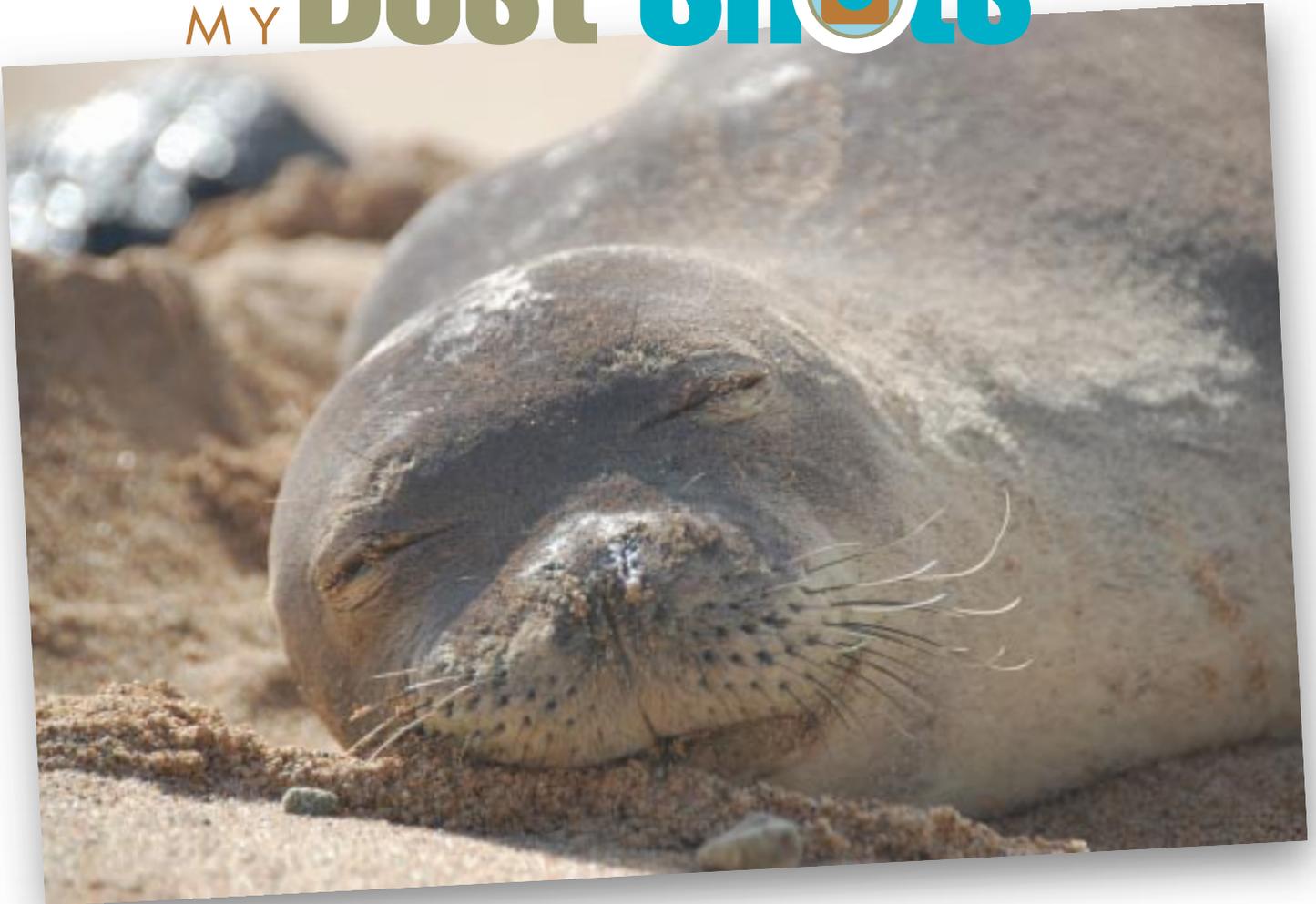
Environmental professionals know that achieving Navy's energy goals is also the key to achieving existing and future carbon footprint reduction mandates. I am very excited to lead the integration of Navy environmental and energy programs. I firmly believe combining environ-

the pros and cons in terms of both the energy and national defense implications. The Navy will need to play actively in the Regional Planning Bodies that will soon be established to implement Coastal and Marine Spatial Planning, and we intend to provide cogent and well-reasoned input into this national effort.

I look forward to working with the professional environmental staff of the division, the Navy Secretariat, other agencies, departments, and non-governmental organizations to achieve our goals of environmental stewardship and energy responsibility. ⚓

All the best,  
Rear Admiral Philip Cullom  
Director, Energy and Environmental Readiness Division

# ONE OF MY Best Shots



**A**fter conducting a field survey for a biological assessment in the mountains of Kauai, I decided to go to the beach to relax. To my great surprise, I saw two adult Hawaiian Monk Seals (*Monachus schauinslandi*), comfortably basking in the sun. One seal was on Poipu beach. The second, pictured here, was about a mile-and-half west on Lawai Beach. When the high tide came, and after resting on the shore for a few hours, the seals woke up and swam back to the ocean.

Hawaiian Monk Seal or 'Ilio-holo-i-ka-uaua, which in the Hawaiian language means "dog that runs in rough water," is an endangered marine mammal. The population is estimated at 1,100 to 1,200 individuals, occurring only in the Hawaiian Islands. A similar monk seal species became extinct in the Caribbean during the first half of the 20th century; a related endangered monk seal species occurs in the Mediterranean Sea. During the 19th century, Hawaiian Monk Seal and other marine

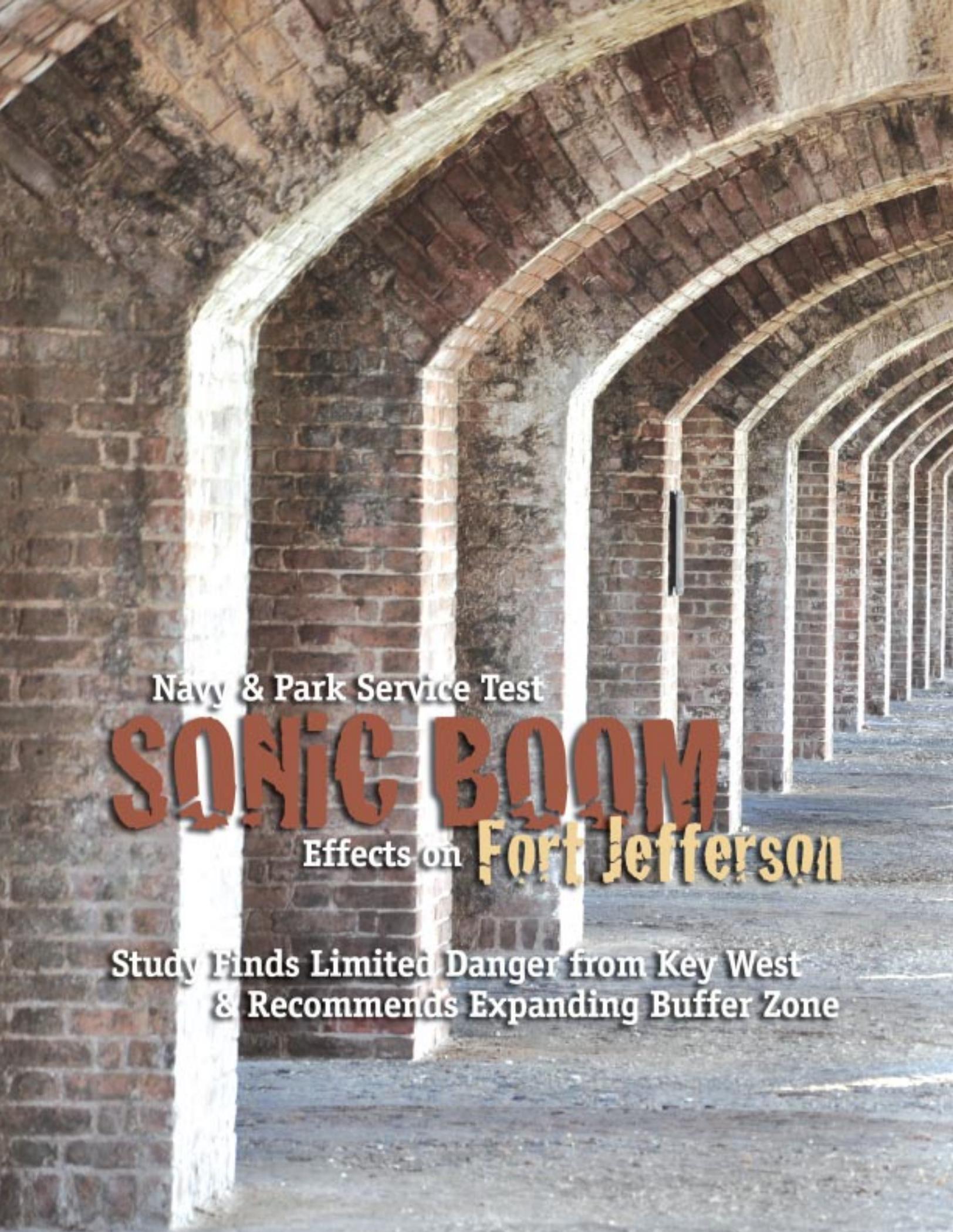
mammals were heavily hunted for oil and pelts. Today, threats including lack of food, infection diseases, entanglements with fishing gear and marine debris, habitat disturbances, and shark attacks contribute to an annual population decline of 4.1 percent.

The Navy is a member and has an active role on the Hawaiian Monk Seal Recovery Team. The Recovery Team was responsible for writing the original draft of the Hawaiian Monk Seal Recovery Plan Recovery.

These pictures were taken with a Nikon D40, Lens Nikon 18-200 AF-S DX VR.

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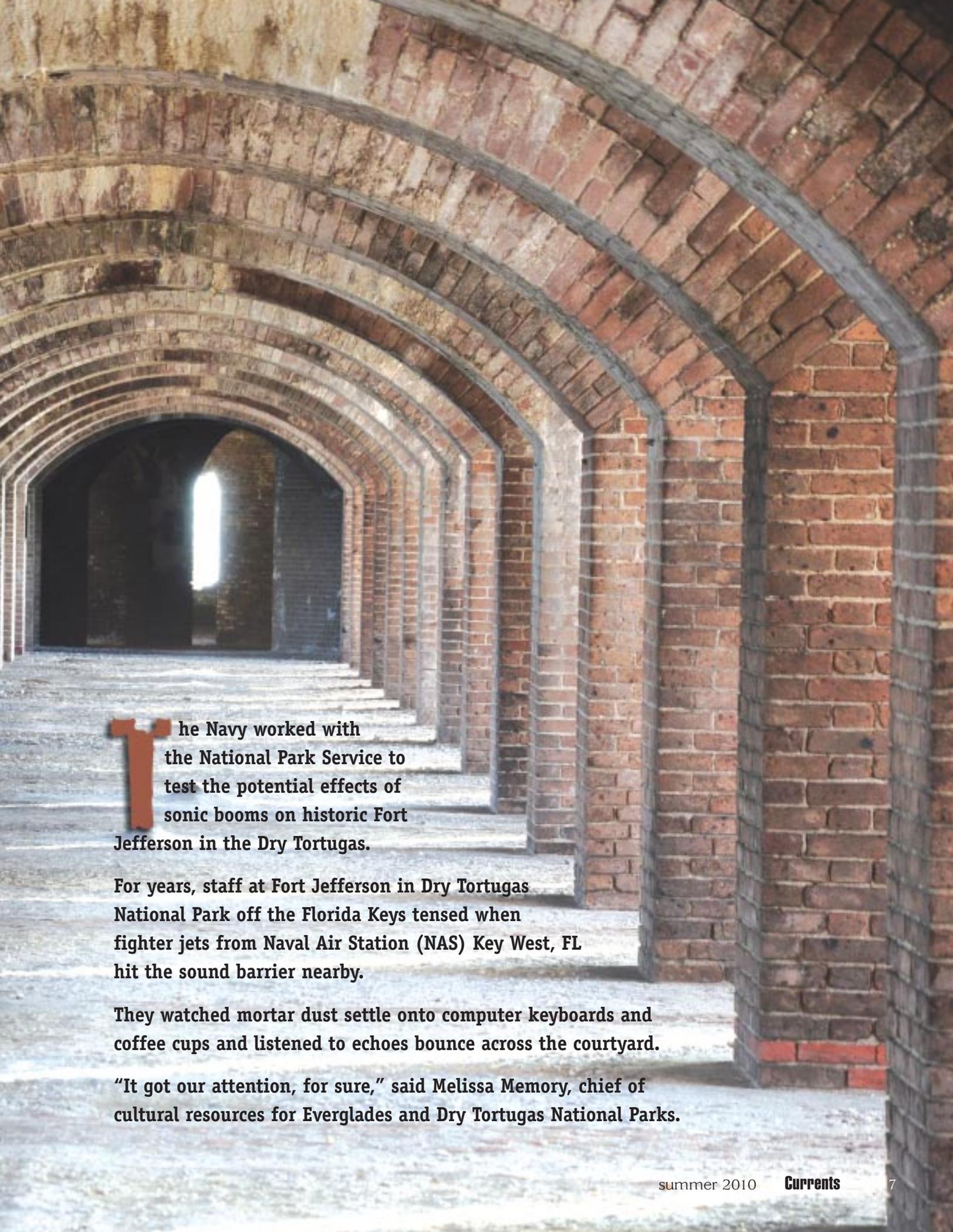


Navy & Park Service Test

# SONIC BOOM

Effects on **Fort Jefferson**

Study Finds Limited Danger from Key West  
& Recommends Expanding Buffer Zone



**T**he Navy worked with the National Park Service to test the potential effects of sonic booms on historic Fort Jefferson in the Dry Tortugas.

For years, staff at Fort Jefferson in Dry Tortugas National Park off the Florida Keys tensed when fighter jets from Naval Air Station (NAS) Key West, FL hit the sound barrier nearby.

They watched mortar dust settle onto computer keyboards and coffee cups and listened to echoes bounce across the courtyard.

“It got our attention, for sure,” said Melissa Memory, chief of cultural resources for Everglades and Dry Tortugas National Parks.

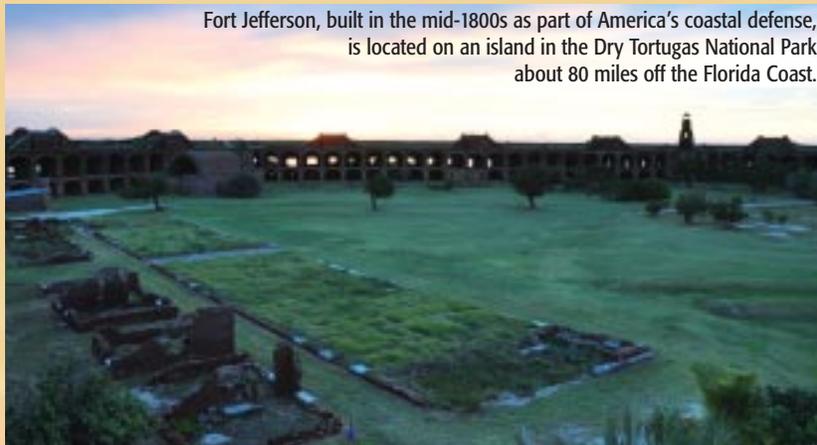
Concerns about the potential effects of sonic booms prompted a collaborative effort between the Park Service and the Navy to find out if sound waves were damaging

the historic structure. So in 2009, the Navy's U.S. Fleet Forces Command, eager to head off any potential issues or training impact, conducted a sonic boom study at Fort Jefferson.

## **CONCERNS** about the potential effects of sonic booms prompted a collaborative effort between the Park Service and the Navy to find out if sound waves were damaging the historic structure.

It's always better to identify up front any issues or problem areas. Any impact on natural resources may lead to training restrictions and that's what we try to avoid."

Mudd, convicted in 1865 of conspiring with John Wilkes Booth in the assassination of President Abraham Lincoln. More than a century of weather and use have deteriorated the fort despite ongoing restoration efforts. (For more about the history of Fort Jefferson, read our sidebar entitled "The Basics About Fort Jefferson.")



Fort Jefferson, built in the mid-1800s as part of America's coastal defense, is located on an island in the Dry Tortugas National Park about 80 miles off the Florida Coast.

"The Park Service had been concerned about sonic booms near the fort for years," Memory said. The Navy used the study's findings as part of an Environmental Assessment for Atlantic Fleet training in the Key West Range Complex.

"Our overall objective is to continue training," said Sean Heath, a biologist with Naval Facilities Engineering Command Southeast. "We don't want anything to impact training.

The U.S. government built Fort Jefferson in the mid-1800s as part of America's coastal defenses, and later housed Civil War prisoners there. The most famous prisoner was Samuel

"The concerns reached us fairly late in the environmental assessment process, about two years in," said Heath, project manager for the assessment. "Luckily we had a contractor with a whole lot of experience with sonic booms."

Robert Kull fit the bill perfectly.

Kull is a former Air Force officer and currently senior project manager at Parsons, one of the companies the Navy hired to conduct the study. In his former job as head of the Environmental Effects Branch at the Air Force Research Laboratory at Wright-Patterson Air Force Base, he studied and monitored the effects of sonic booms on the environment.

“A sonic boom,” he explained, “is caused by colliding waves of pressure created as an object moves through the air.” He compared the pressure to a wave in the water created by a boat—it spreads away from the object then either dissipates or hits something. In the case of a sonic boom the sound is created when the pressure wave moving at the speed of sound hits the ground, like a wave breaking on the shore.

“You can feel it and hear it, that vibration,” Kull said. “A sonic boom can be powerful enough to crack windows or knock things off shelves.”

*Continued on page 12*



Equipment used during the sonic boom study at Fort Jefferson included accelerometers to measure shock and vibration on the walls and yachting cannons, normally used to signal the start of boat races, to produce sound waves.

In the early 1990s, Kull worked with a team that came up with a way to perform non-destructive tests of the effects of sonic booms on “unconventional” buildings, including old or weakened structures.

Kull is familiar with environmental issues around Fort Jefferson as well. He headed the conduct of laboratory research in the late 1980s that he said debunked an earlier study suggesting that sonic booms had a negative effect on bird hatching in the Dry Tortugas.

“We were unable to show any link between sonic booms and the birds’ eggs,” he said.

For an expert on loud things Kull is rather soft-spoken. But he knows his noise.



# The Basics About Fort Jefferson

**F**ort Jefferson is situated in the Dry Tortugas, a group of seven islands (known as keys) and coral reefs about 70 miles from Key West. Poised on the edge of the main shipping channel between the Gulf of Mexico, the western Caribbean, and the Atlantic Ocean, the area has been heavily traversed for hundreds of years—first by Spanish explorers, then by merchant ships.

Soon after the United States acquired Florida in 1822, they began planning construction of a fort in this important strategic location. The fear was that should enemy forces gain control of the Tortugas, they could stop the flow of goods that passed between the Gulf Coast (including New Orleans, Mobile and Pensacola) and the eastern seaboard of the United States. Enemy forces would also be well-positioned to launch an attack on either the eastern seaboard or the Gulf Coast.

In 1847, the U.S. government began construction of Fort Jefferson on Garden Key. Construction was hampered by the remote location of the fort, harsh weather conditions, and a scarcity of workers, particularly during the Civil War. The fort was operational throughout the war, however—the Union army used the harbor during their campaign to block the supply line to the confederacy; and the fort became a prison for deserters (as well as for Dr. Samuel Mudd). After the war, the invention of the rifled cannon made the fort obsolete, as its thick walls could now be penetrated. The Army abandoned Fort Jefferson in 1874.

Although the fort was never completely finished, it stood as one of the largest fortresses ever built—a key link in the chain of coastal forts that stretched from Maine to California. Perhaps because of its impressive size and scope, Fort Jefferson was never attacked, but its harbors offered passing ships the chance to resupply, refit, or seek refuge from storms. In the late 1800s, it also served as a quarantine hospital.

At its peak, Fort Jefferson's military population was 1,729. In addition, a number of officers and enlisted personnel brought their wives and families. There were also lighthouse keepers and their families, cooks, a civilian doctor and his family, civilian

machinists, carpenters, blacksmiths, masons, general laborers, the resident prisoner population, and slaves to help construct the fort. In all, there were close to 2,000 people at Fort Jefferson during its peak years.

The three-tiered, six-sided fort is composed of 16 million bricks, covering 11 of Garden Key's 16 acres. It contained living quarters for soldiers and officers, gunpowder magazines, storehouses, and other buildings. The fort featured some of the largest and most advanced weapons of its age, including 15-inch Rodman smoothbores, which weighed 25 tons apiece.



With a crew of seven men, they could fire a 432-pound projectile a distance of three miles. These heavy guns were mounted inside the walls in a string of open casemates, or gunrooms, facing outward toward the sea through large openings called embrasures. Technologically advanced iron shutters were used to protect the cannon openings. These hinged, wrought-iron shutters, known as Totten shutters, were placed between the mortar core of the fort and the brick façade. During use, the shutters were unlocked from the bronze strike plate below. As the fuse was lit, gases escaping from the muzzle seconds before the cannonball launched would

momentarily throw the shutters open. The shutters were carefully balanced so that they would swing freely and ‘rebound’ into the closed position.

Unfortunately, the very metal that provided valuable protection to soldiers under fire proved devastating to the fort itself. In a saltwater environment, the wrought iron quickly began to rust and expand. As the iron rusted, it pushed the brick apart, causing serious structural damage to Fort Jefferson’s walls. A multi-stage preservation project is underway to remove all original iron elements from the shutters and stabilize the exterior walls by replacing all of the crumbling bricks. Concrete made of local sand and coral—just as was used in the original construction—and historic bricks salvaged during demolition are being used to preserve the historic appearance of the walls. Finally, replicas of the original Totten shutters will be installed.

The Dry Tortugas were first discovered by Ponce De Leon in 1513. First named Las Tortugas (The Turtles) due to the abundance of sea turtles, the word “Dry” was soon added to mariners’ charts to warn of the lack of fresh water. The islands were designated as a bird refuge in 1908. In 1935, President Roosevelt designated Fort Jefferson as a national monument, and the entire area received National Park status in 1992.

The natural geography of the area and the presence of tropical storms have combined to produce hundreds of shipwrecks in the area over the years. Remnants of many of these wrecks still lie submerged just offshore.

For more information about the Dry Tortugas and Fort Jefferson including a variety of fact sheets available for downloading, visit the National Park Service’s web site at [www.nps.gov/drto/index.htm](http://www.nps.gov/drto/index.htm) then select “Brochures” from the “Plan Your Visit” menu.



*Continued from page 9*

When he heard about the Fort Jefferson study, Kull called on his former colleagues who came up with the technique for testing unconventional structures. They jumped at the chance to go to Key West and revisit their theory.

“Spending a week in the Dry Tortugas was definitely part of the interest,” Kull said.

## **THE TESTS** predicted how the walls would respond to 90 different supersonic operations by three types of aircraft.

During the study, he and his crew stayed at Fort Jefferson, located about 80 miles off the Florida coast and reachable only by plane or boat. The scientists placed sound and motion

sensors at six points around the structure, on restored and original walls.

Then they generated a loud, focused sound wave to test how the vibration affected the walls. The tests predicted

how the walls would respond to 90 different supersonic operations by three types of aircraft.

“We used accelerometers to test the movement of the walls and extrapolate what a sonic boom would do,” he said.

shift, but again there is no structural damage.”

Only a “focused” sonic boom, as opposed to a more diffused “carpet” boom, generated at altitudes below 20,000 feet with the aircraft accelerating supersonically toward the fort from four to 12 miles out have any potential to do damage, and then only to the most susceptible parts of the fort, according to the study.

“That set of circumstances is unlikely to occur,” Kull said, “given the small size of the island versus the vast scope of the Key West Range Complex.” The Key West operating area covers over 8,000 nautical miles.



A scientist fires off a yachting cannon to test the effects of sonic boom on the walls of historic Fort Jefferson.

The Park Service did not want them to use jets to create an actual sonic boom, so they came up with an interesting solution—yachting cannons.

The small cannons are used to signal the start of boat races and reenact pirate battles. In a video taken during the study, Kull tapped on the back of the cannon with a hammer, setting off the blank shotgun shell with a loud “boom” and a puff of smoke.

Results indicated that only in a rare set of circumstances could the fort’s walls be affected by sonic booms. In most instances, the booms did not have any potential negative effects.

“I can understand why they were concerned, but the booms were not causing structural damage,” Kull said. “The walls are thick but they are not in good condition. Over time, with weather and other factors, the mortar has degraded and a sonic boom might cause loose mortar to



# The Basics About NAS Key West

Located at the southernmost point of the continental U.S., Key West has long been recognized as a strategic location. The first military base was established at Key West in 1823. In the early years, naval vessels out of Key West fought pirates in the Caribbean and intercepted illegal slave traders. During the Civil War, a blockade was organized at the base to prevent the Confederates from receiving supplies from overseas.

In 1898, the battleship Maine sailed from Key West to Havana, Cuba, where it was sunk, contributing to the United States' declaration of war on Spain. Subsequently, the entire U.S. Atlantic Fleet moved to Key West for the duration.

During World War I, Key West was chosen as an ideal site for the nation's fledgling aviation force to train, and in 1917, NAS Key West was commissioned. More than 500 aviation officers were trained at NAS Key West during World War I. After the war, the station lay dormant until 1940, when the growing threat of German submarine warfare led to its reopening. After World War II, NAS Key West was retained as a training facility.



Offering perfect year-round flying weather and ideal tactical aviation ranges, NAS Key West is the U.S. Navy's premier training station for tactical aviation squadrons. Local aerial ranges enable aviators to engage in training maneuvers within minutes of takeoff. This saves fuel, time and tax dollars. The station is equipped with a sophisticated tactical combat training system, similar to the one depicted in the popular movie "Top Gun," which tracks and records combat aerial maneuvers. As a host station, NAS Key West provides and maintains facilities and services for tenants such as the Joint Inter-agency Task Force South, the U.S. Coast Guard and others. The station is located within a national marine sanctuary, and NAS Key West's mission is carefully integrated with the environment and in concert with the community.

For more information about the base, visit [www.cnic.navy.mil/keywest/index.htm](http://www.cnic.navy.mil/keywest/index.htm).



An F/A-18 C "Hornet" strike fighter flies over the Fort Jefferson National Monument.  
*Lieutenant Commander Creighton Holt*

Still, the findings of the resulting Environmental Assessment recommends stipulating the expansion of an existing buffer zone around the Dry Tortugas by 2,000 feet, from 18,000 to 20,000 feet, to ensure natural and historic resources would not be impacted.

“From the Navy perspective, it’s good to keep this standoff distance at the forefront,” said Sean Heath. “We’re just reminding everyone that there is a historic fort in a national park right in the middle of the Navy’s operating area.”

Memory said the Park Service will continue to monitor the overall sound situation at the fort and evaluate the sonic boom study as part of a look at how sounds affect the structure and the visitor experience. She praised the Navy’s efforts and said a continuing relationship with the Navy is important.

## **RESULTS** indicated that only in a rare set of circumstances could the fort’s walls be affected by sonic booms.

“Part of our mission is to preserve the historic structure for future generations, and the Navy is a part of that,” she said. “The history of the Army and the Navy is a big part of the history of Fort Jefferson. This was a great collaboration and we want to keep the lines of communication open.”

For his part, Kull said he was happy to have participated in the study.

“There are very few studies of this sort, so it provided a valuable set of data and procedures for testing sonic booms on unconventional structures,” he said.

“For the Navy the impact on training was minimal,” Heath said. And the upshot of the study was positive.

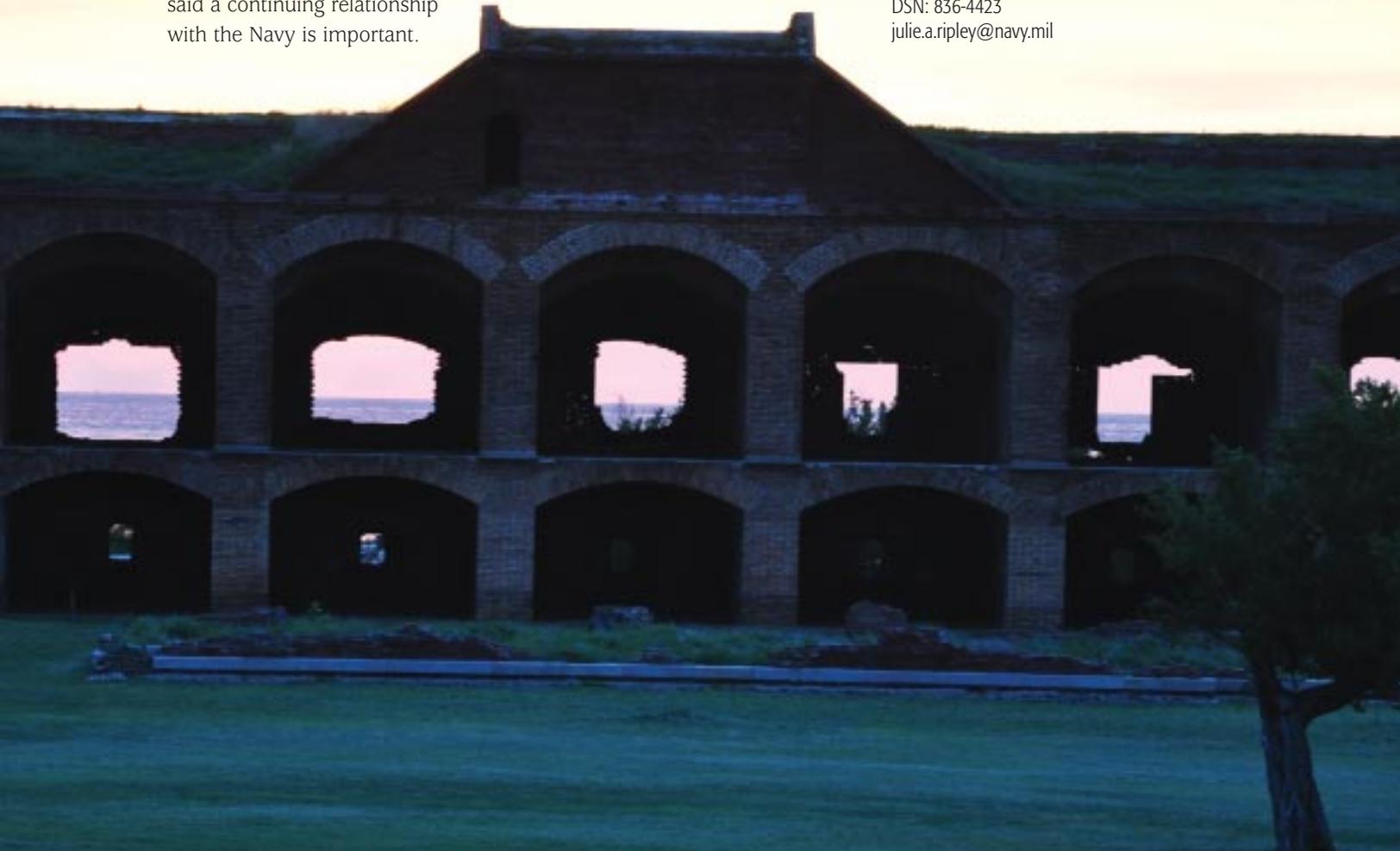
“The Navy benefitted because the training impact was minor, and we maintained a good neighbor relationship with the Park Service,” he continued. “We worked together on this.” ⚓

*Fort Jefferson photos courtesy of Parsons*

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A delegate walking toward the Atlantic during the CSO's annual meeting last October in Charleston, SC.

## Kristen Fletcher, Executive Director, Suggests Better Ways for the Navy to Collaborate With Coastal States



i

**IN THE SPOTLIGHT** for this issue of *Currents* is Kristen Fletcher, Executive Director of the Coastal States Organization (CSO). CSO was established in 1970 to represent the governors of the nation's 35 coastal states, commonwealths and territories on legislative and policy issues relating to the sound management of coastal, Great Lakes and ocean resources.

This is the sixth in a series of interviews with representatives of environmental non-governmental organizations (NGO) intended to broaden our understanding of the NGO community and to enhance Navy-NGO environmental cooperation and partnerships.

This interview was conducted on 2 April 2010 in CSO's Washington, D.C. offices by Tracey Moriarty, Director of Environmental Outreach for the Chief of Naval Operations Energy and Environmental Readiness Division, and Bruce McCaffrey, Managing Editor, *Currents*.

### Coastal management is our focus.

**CURRENTS:** Thanks for taking the time to speak with us today. Can we start with a little bit about your own background?



**KRISTEN FLETCHER:** Sure. As Executive Director, I'm responsible for advancing CSO's mission by advocating for the shared state interests. We represent the interests of the governors of coastal states and territories before federal agencies and Congress, to support federal policy goals and objectives of CSO. Right now I'm working toward reauthorization of the Coastal Zone Management Act (CZMA), representing state interests in the development of a National Ocean Policy and Coastal and Marine Spatial Planning Framework, and developing legislative efforts toward adapting to climate change.



Before joining CSO, I directed the Marine Affairs Institute and Rhode Island Sea Grant Legal Program at Roger Williams University where I advised university researchers, government agencies, and other constituents on ocean and coastal law issues as well as directing research and outreach projects.

**CURRENTS:** Great. Can you give us an overview of CSO as you see it and what your objectives are as an organization?

**FLETCHER:** Sure, it's a great organization. We were a spinoff of the National Governors Association (NGA). NGA represents the governors of the entire country, inland states included. In 1970, it was decided that it would be helpful to have a separate organization to focus on ocean and coastal issues. So CSO was formed. We're celebrating 40 years of service this year. Coastal management is our focus—the overarching context in which we work. The governors name delegates to CSO and we work directly with those delegates. These tend to be the directors of the coastal management programs in their respective states or secretaries of state resource agencies.

Our priorities are set by our executive committee. Right now, reauthorization of the CZMA is a primary one. Another priority that we've identified for 2010—which I'm sure will be continuing into the future—is climate change adaptation. We're focused on how coastal communities can adapt through engineered solutions as well as natural solutions. That was talked about yesterday at the Navy Environmental Forum. (For more insights into the environmental forum

sponsored by the Chief of Naval Operations Environmental Readiness Division, see our sidebar entitled, "Partners for the Planet" Brings Key Stakeholders Together for Environmental Forum). Climate change adaptation is an important focus for us in terms of legislation. Also the CZMA is flexible enough so the coastal programs in the states can do climate change adaptation through the current statute, which is really helpful.

The third priority for us right now is renewable energy, and it's a huge push throughout the country, whether it's wave, wind or tidal. When some of these initial applications and ideas were being brought forward, they represented new uses and new technologies and the states weren't really prepared. They didn't have the regulatory structure. They didn't have the siting processes set up. So we've been working with them to develop those.

We also work with groups called Regional Ocean Partnerships. Although the Great Lakes have been doing it for decades, in the last eight years or so, governors in other

## The Basics About Regional Ocean Partnerships

**POLLUTION, CLIMATE CHANGE** adaptation, resource depletion and conflicts between new and traditional uses are some of the challenges facing coastal states. Tackling these issues alone is clearly beyond the reach of any individual state. Multi-state, regional partnerships provide an efficient way for states to develop shared priorities and to take critical action on a broad variety of issues. Governors in six different regions have formed Regional Ocean Partnerships to address these issues on a regional level.

While the coastal and ocean challenges that face the nation are common to all regions, each partnership addresses them from different perspectives under diverse jurisdictional arrangements that reflect the unique character of the region. Their efforts involve non-governmental stakeholders, multiple agencies within each state, and multiple federal programs.



Although their methods and approaches may differ, Regional Ocean Partnerships have similar priorities, including habitat conservation and restoration, disaster planning and recovery, water quality improvement, support of critical research programs, and the need for MSP, which allows all of these issues to be dealt with comprehensively.

There are currently six Regional Ocean Partnerships. The president's framework for MSP includes the formation of three more partnerships, in the Caribbean, the Pacific, and Alaska.

regions have come together and said, “We want to focus regionally on some of these issues.” For example, a lot of the water quality issues are very similar so the question is, “How can we work as a region to address water quality?” Now there are six Regional Ocean Partnerships across the country. (For more insights, see our sidebar entitled “The Basics About Regional Ocean Partnerships”).

**CURRENTS:** And they primarily focus on water quality?

**FLETCHER:** That’s one of the issues. Habitat protection and restoration is important as is climate change. They’ve all identified their own priorities. In New England, for example, energy is a priority which is primarily a result of the push for wind farms.

Some people fear the phrase “adaptation” because they see the whole country being sea-walled.

**CURRENTS:** CZMA reauthorization, climate change, regional ocean partnerships and alternative energy. When you talk climate change adaptation, what kinds of things are you talking about?

**FLETCHER:** Coastal states and communities are experiencing climate change now so we’re going to have to learn how to adapt to it. There was a decision made by the delegates in the last couple of years to focus on adaptation instead of mitigation. That’s where we felt we could make the biggest impact.

A really good example of adaptation is San Francisco Bay. It’s unlikely that the San Francisco airport will be moved and it’s right on the water. So how are we going to protect that airport along with the natural systems there? I loved The Nature Conservancy presentation during the Environmental Forum because Bob Barnes covered this issue so well. How can we enhance those natural systems to help that area, to help the bay adapt while also understanding that we’ve got to use some engineered solutions around the airport? Some people fear the phrase “adaptation” because they see the whole country being sea-walled. That’s not our perspective. Adaptation involves pulling together a lot of information and understanding how this place can adapt both through infrastructure and natural habitat.

**CURRENTS:** So you talked about engineered solutions and enhancing natural systems. Would your organization

try to provide your member states with some options on how to do that?

**FLETCHER:** We’ve found from a two-year survey of the states that one of their biggest needs is for information and data. And a more coordinated effort for getting that information. So one of our main functions is to provide information and access to what other states are doing



Cape Cod.

regarding adaptation. That’s one of the easiest and most useful things we can do—provide insights into what’s going on in other states to the states themselves and the other NGOs or federal agencies who might request that information. We can help put our member states in touch with others who are either facing the same challenges or have come up with a solution.

The other role that we play is coordination here in D.C. If there’s a federal agency or another NGO that needs information, we can connect them with the right people or create some kind of a forum where information, solutions and options can be exchanged. We try to provide them with on-the-ground solutions that are progressive and innovative and helpful.

**CURRENTS:** On-the-ground solutions.

**FLETCHER:** Yes. We tend to be very practical in our focus. The CSO staff is small—there are only four of us. So we want to provide our member states with the solutions

themselves or connect them with someone who has the solutions. Things are coming at them very fast, especially with renewable energy. So the quicker we can make these connections for them and provide solutions that they can use in their daily work, the better off they're going to be.

And then there's Capitol Hill where we do a number of briefings throughout the year to a variety of constituencies. We did a briefing last year on our proposed revisions to the CZMA—something we were able to get the CSO membership to agree to. We also provided some background briefs on climate change and renewable energy. About two weeks ago, we worked with the NGA to prepare and deliver a briefing here in the Hall of States. We focused on our members, the NGA members and the other associations in the building. We brought somebody over from the Council on Environmental Quality (CEQ) to talk about the Obama Administration's priority of a national ocean policy and a Coastal and Marine Spatial Planning (CMSP) framework. (Note: CMSP is also known by some as



## These states know specifically what information they're missing and how the Navy might be able to fill those gaps.

Marine Spatial Planning (MSP).) We wanted to share detailed information with the other associations in this building. So once there's legislation proposed, we can enlist their help to push forward the national policy and planning framework.

**CURRENTS:** As you know there are a lot of Navy training ranges off the coasts of your member states. Would there be a benefit to having some of our folks speak at any of your forums?

**FLETCHER:** That would be great—especially if we could identify a specific issue for them to address. I think one of the priority issues is access to information. I know that a lot of information is classified but I suspect there is some

way we can increase our access to some of the information that the Navy is collecting.

At yesterday's Environmental Forum, I asked Mr. Schregardus (Deputy Assistant Secretary of the Navy for the Environment Donald Schregardus) about the effort within the federal government to do a better job of coordinating the collection of information. That effort is just getting started. I think the states would like to be involved in that effort from the beginning. Our member states have a lot of good ideas on how that could go forward and what type of models they're already using and finding useful.

I loved the alternative energy discussions yesterday too. To have someone in the opening remarks discuss CMSP was

fantastic. Everybody in the room seemed aware of this effort. I think CMSP is being framed now like ecosystem-based management was ten years ago. People describe it differently, name it differently, and are not really sure what to do with it. But the states are already doing it. Rhode Island and Massachusetts have had this effort going for the past couple of years. Oregon has its territorial sea plan and of course, California is doing it as well. These four states are leading the way on CMSP/MSP. (For more on CMSP/MSP, see our sidebar entitled “The Basics About Coastal and Marine Spatial Planning.”) These states know specifically what information they’re missing and how the Navy might be able to fill those gaps. That would be very useful.

Our states are fellow stakeholders with the Navy—we’re fellow landowners. The state is a stakeholder to the Navy in terms of the Navy protecting them, but then the Navy is going to rely on the state as a stakeholder in terms of protecting that area and making sure that we’re ready for sea level rise and how we’re going to handle other changes.

**CURRENTS:** In discussions we’ve had, everyone says they want “data” but we have yet to be provided with a specific list of requirements.

**FLETCHER:** Each state has its own coastal management program which makes it difficult to develop a standard requirements list. Some states are going to have a much greater interest in some data (data about marine mammals, for example) than others. I think the Regional Ocean Partnerships might be the best way to develop a list that everyone could work with. You’ll probably get a better sense of what’s going on around the country from the regional ocean partnerships and how to prioritize data availability according to what will benefit the most states.

**CURRENTS:** Would you like to talk a little bit about CSO’s perspective on CMSP/MSP and what you folks are doing to promote that approach?

**FLETCHER:** CSO member states have developed a draft policy. We have not adopted it yet—there are still some question marks about what CMSP/MSP is and how it is defined. There are certain states that are very interested in it and consider what they’re doing already to be a form of marine spatial planning. Other states haven’t embraced it in the same way. I think that President Obama’s Ocean Policy Task Force has pushed along some states. Now they’re looking at CMSP/MSP and saying, “What does this mean

## The Basics about CSO

**CSO’S MISSION IS** to support the shared vision of the coastal states, commonwealths and territories for the protection, conservation, responsible use and sustainable economic development of the nation’s coastal, ocean and Great Lakes resources. The CSO’s strategic goals include the following:

1. **Governance & Management.** Re-evaluate the ocean and coastal management needs for this nation and seek to address them through the re-authorization of an improved and strengthened CZMA, and launch an effort to support new and existing ocean, Great Lakes, and local community management initiatives, including regional governance efforts.
2. **Funding & Economics.** Secure long-term fiscal support of the state and federal programs that restore, manage and protect the nation’s coastal, ocean and Great Lakes resources.
3. **Support the Decisions of Coastal & Ocean Resource Managers with the Best Science.** Use the best available science and assure that the public understands the basis of the management decisions. The federal agencies recognize that complex coastal and ocean issues can be managed most effectively and efficiently when supported by the best science and information, shared experiences and technical assistance.
4. **Science to Management.** Incorporate the needs and opportunities of state ocean and coastal management programs into the development and implementation of federal scientific research and monitoring programs to support coastal and ocean management.



and how are we going to manage the jurisdictional issues between federal waters and state waters? How far inland does CMSP/MSP go?" In some states, coastal management authority reaches inland, and in some states it ends closer to the coastline. So there are still some question marks in the states in terms of how is CMSP/MSP going to work when you start to combine federal and state waters.

**CURRENTS:** Why is it important to know how CMSP/MSP will work?

**FLETCHER:** How it plays out is such a key part of writing the policy. Right now, we can go into meetings here in Washington and say, "These are the priorities of the states," and "These are the things that the states have agreed on," or "These are things the states would not agree on." So we wouldn't include those items in the draft policy. Before we adopt a policy, we're trying to work through how CMSP/MSP would work at the state and regional levels. If the federal government is going to embrace CMSP/MSP in federal waters, that means everything from three out to 200 miles, what does that mean for the shoreline up to three miles out? And how do we make sure that the progress already made by many of our states—Rhode Island and Massachusetts in particular—doesn't get lost? We need to make sure those decisions continue to be made from the ground up.

One of the key parts of CMSP/MSP is the process. Bringing the stakeholders in and saying, "We have these 30 different uses for our coastal resources. How are we going to manage these resources in the future? And, by the way, there are going to be five more uses that we haven't even thought of that are going to be coming online in five to ten years." So I think it's that process of getting people to understand that resources are limited is key. They're going to have to compromise and trust that they're not going to lose access to those resources.

I think the attention that the recreational fishing industry has given to CMSP/MSP is a good example of why the process is so important. There has been a lot of misinformation about CMSP/MSP limiting the access of the recreational fishing industry—that anglers will not have access to waterways anymore, that there will be tons of no-take zones. If you look at the draft CMSP/MSP framework—it's nowhere to be found; rather, the framework addresses all uses. I think that highlights the idea that the process of stakeholder involvement, understanding, and developing trust in CMSP/MSP is key.

**CURRENTS:** Okay. So let's assume that the CZMA gets re-authorized with a very strong CMSP/MSP component. Your member states would want to make sure that their coastal management programs fit in appropriately within that federal program. Right?



**FLETCHER:** Yes. You know the other thing is the re-authorization for the CZMA—the one that we put together was really before CMSP/MSP hit the streets. You won't see it in our draft bill. If spatial planning is happening in the states, it's happening under the authority of the CZMA so there really is a unique tie-in to the CZMA. Though my sense is if CMSP does advance in federal legislation, CZMA will be a big piece of that framework.



Delegates assembled on the beach during the CSO 2009 annual meeting held in Charleston, SC. Kristen Fletcher is kneeling in the front row, second from the right.

**CURRENTS:** What's the argument against doing CMSP/MSP?

**FLETCHER:** Well, I think the argument is about how to do it, not whether to do it. When the idea of Marine Protected Areas (MPA) came out several years ago, they very quickly became a bad word. It is very similar to the reaction the recreational fishing industry had to CMSP/MSP. There were going to be no-take zones, the "feds" were going to come in and say what you couldn't do. Yet, for example, there were already protected areas in the Gulf of Mexico region. The states were very active in establishing protected areas especially Louisiana, even though they didn't call them MPAs.

CMSP/MSP, the planning process itself, is happening in some of the states and at the regional level but they're not necessarily calling it that. There is some fear about CMSP/MSP. It's a new phrase for a planning idea but users are fearful that someone is going to lose out. The renewable energy industry is an example. You see in a lot of their communications that they don't want to be penalized because they're a new industry. They have to go through a lot in order to gain access to the resource. From

their perspective, they go through more than industries that have been around much longer. There are more requirements and regulations than many years ago and they don't have the cemented relationships with state and federal agencies that the more established industries do.

You can identify some key elements of CMSP/MSP and different models of how it can move forward. But, the idea behind CMSP/MSP is that we need to be making some decisions and they need to be coordinated decisions. Not the sector-by-sector approach that we've taken in the past. So from that perspective, there's not an argument against it.

**CURRENTS:** The renewable energy groups are having trouble getting access to the coastal zones that they want?

**FLETCHER:** Yes. Initially, the industry was waiting for Congress to grant the federal authority needed to lease lands for renewable energy and for federal agencies to remedy confusion about jurisdiction; that has happened now.

The interesting thing about the President's framework is the interim framework. This lays out the guidelines for CMSP/MSP for the regions to assist in implementing

CMSP/MSP. The CZMA model is useful—it is a good mechanism that provides flexibility from state to state and region to region. What would work in the Gulf of Mexico may not work in New England. Our framework takes into consideration the culture, the political environment, the resources themselves, how different they are, the different industries and the different authorities.



The interim framework has laid out nine regions for CMSP/MSP. The Regional Ocean Partnerships cover six of those. So CEQ and the Ocean Policy Task Force worked with the Regional Ocean Partnerships to understand how they were set up. The interim framework is modeled after those six that are in the continental U.S. The other three regions are the Caribbean, the Pacific islands (including Hawaii), and Alaska. They have yet to establish regional ocean partnerships.

**CURRENTS:** Let's talk about some opportunities for collaborations among CSO member states and the Navy. Are there experiences you've had with the Navy either good or bad, or opportunities for collaboration that you could pinpoint?

**FLETCHER:** One of the most important mechanisms for coordination with the Navy is the state's authority to review the use of coastal ranges for Navy exercises under the CZMA.

Under the CZMA, a state creates a Coastal Zone Management Program. Once the state's program is approved by the Secretary of Commerce, the state receives federal grant money to implement the program and also receives "consistency review authority." If there is a federal action—

it could be an action by the Navy or something permitted by the Army Corps of Engineers—that might affect the coastal zone of that state, then the state reviews that proposed action for "consistency" with its coastal program.

There have been some discussions in California and Hawaii regarding some proposed Navy actions and consistency with those states' coastal programs. In California, I believe the Navy was able to go forward with its planned exercises.

Let the state know what you're doing so it can work with the Navy on issues that are key to the state's role as a sovereign and as a coastal resource manager.

**CURRENTS:** Correct. The Navy has several exercises planned for 2010.

**FLETCHER:** Right. The state of Hawaii sought to review Navy exercises under its consistency authority but the Navy claimed it was exempt from such a review. It's difficult for a state which has a responsibility to its citizens to protect and manage the coastal resources to not be able to undertake a consistency review. My primary contact in Hawaii during that time explained that "It's unfortunate because we have a really great working relationship with the Navy." Based on this and other experiences, one of the key pieces is early communication. It makes a difference to have open communication as a project is being developed. Let the state know what you're doing so it can work with the Navy on issues that are key to the state's role as a sovereign and as a coastal resource manager. Is there a different area where the training could be conducted that wouldn't have as great an impact on the coast? Is there a different time of year when the training might be conducted?

**CURRENTS:** Of course, the National Environmental Policy Act (NEPA) requires us (and the states) to hold stakeholder hearings to collect comments from concerned parties. In these cases, it sounds like that compliance piece isn't enough.

**FLETCHER:** In many cases, we need to move beyond compliance. Early communication is one way to do that. Also, CSO posits that the states shouldn't be viewed as a

typical stakeholder. The states are sovereign entities—they have ownership and regulatory authority within three nautical miles of their coastlines and consistency review authority outside those three miles.

One solution may reside with federal-state environmental coordination groups which include people from a variety of state agencies, the federal government and the Navy. One of our delegates in Hawaii said that this coordination group is often where he gets much of his information early on in the process—it could be a useful way to identify and work through potential issues. A good question would be, “How can these coordination groups support your NEPA requirements?”

**CURRENTS:** So you would suggest that we examine the timeline of NEPA milestones and consider where stakeholders need to be more involved?

**FLETCHER:** Yes and because of the national security issue, it’s more complicated with the Department of Defense than it is with other federal agencies.

Another idea is the collaborative establishment of and Hawaii coastal zone program approval of a Navy and Marine Corps *de minimus* activities list. This list can be used by the Navy and Marine Corps to help them determine if their proposed actions will be consistent with the state’s coastal management program. This particular list in Hawaii has worked so well that it has generated interest by the U.S. Coast Guard and the Air Force to work with Hawaii’s coastal zone management team to develop a similar list.

**CURRENTS:** But they still had some issues with things that were not on that list?

**FLETCHER:** Yes, training exercises in particular. In California, one of the issues was working with the Navy to place beneficial dredge material in San Diego Bay to create suitable habitat. This material was going to be taken offshore and dumped into the deep ocean although it purportedly contained unexploded munitions. So the state of California worked with the Navy and found they were able to use the dredge material in San Diego Bay. This resulted in a beneficial reuse of the material, plus it retained the sand within the near-shore ecosystem, instead of placing it in the ocean, which would have had

## “Partners for the Planet” Brings Key Stakeholders Together for Environmental Forum

**THE CHIEF OF** Naval Operations Environmental Readiness Division hosted “Partners for the Planet,” 31 March 2010 in Alexandria, VA. The event brought together the U.S. Navy, environmental NGOs, and other key stakeholders to discuss environmental topics of shared concern.

Short-term objectives of the forum were to increase NGO and other key stakeholder awareness of the Navy’s current and future environmental stewardship efforts, increase Navy leadership awareness of programs and initiatives led by the environmental community, and identify future partnering opportunities.

NGO participants included the Endangered Species Coalition, The Nature Conservancy, Oceana, and the Ocean Conservancy, among others. These organizations have had ongoing dialogues with the Navy on a number of environmental topics. Representatives from the National Oceanic and Atmospheric Administration, the U.S. Environmental Protection Agency, and the Marine Mammal Commission also attended.





no beneficial impacts. That is an example of a very successful collaboration where the Navy presented a plan, the state countered with an entirely different idea and both benefited from the ultimate solution.

Another successful collaboration between the Navy and the State of California involved water quality issues associated with the construction of a new pier at which nuclear aircraft carriers could be ported. The Navy was so pleased with the state's stormwater pollution prevention program that they applied it to subsequent pier rehabilitation projects elsewhere.

**CURRENTS:** Any other comments you'd like to make regarding collaborations between your member states and the Navy?

**FLETCHER:** Yes. You first asked me how we might better work together. Again, early communication is key. Working with existing groups to coordinate our activities is another. The regular dissemination of information by both groups is a third. But one question I have is, "Does the Navy need more follow-up from the states?" Information should be flowing in both directions. If one of our member states is making a significant change to its

coastal management program, how can we best provide that information to the Navy as one of the state's partners and stakeholders? If a particular state happens to be embracing CMSP/MSP, does the Navy know who to contact in the state organization for more insights? I know that in Rhode Island, the Navy is one of the stakeholders for the Ocean Special Area Management Plan and participates in the state's efforts toward CMSP/MSP.

**CURRENTS:** What other feedback could you give us from your member states about what the Navy could be doing better?

**FLETCHER:** We should talk a little bit about data sharing and coordination—gathering the information as well as using it. One example of good coordination is the Gulf of Mexico Alliance. This alliance has engaged folks from the U.S. Environmental Protection Agency (EPA), the Department of the Interior, the U.S. Geological Survey and the National Oceanographic and Atmospheric Administration (NOAA) to identify their program priorities. In turn, the U.S. Army Corps of Engineers and EPA have designed their funding programs around the Gulf's priorities. All of a sudden you have the federal funding (and request for

proposals (RFP) aligned with what the states collectively have said is important. In terms of the research RFPs, that could be a real opportunity for the states and the Navy to do some work on what is needed by the Navy and the states. There's got to be some overlap there. So the resultant research will benefit both organizations. There's an additional layer of what's classified and what the Navy needs to keep private. I think the researchers have understood and respected that for years. So there would be some hurdles. But we need to better coordinate from the outset.

**CURRENTS:** So align the Navy's research priorities with the states' priorities.

**FLETCHER:** Yes. And I think that works in both directions. The states can do a better job of understanding what the Navy needs. But most of the research funding comes from

the Navy. The states are going to be working on CMSP/MSP so we need to design that process so that we're meeting the needs of the Navy as well.

It might be useful for the Navy (along with NOAA and the U.S. Geological Survey) to sponsor a research study on the information needs associated with mapping of the coasts. The focus could be on climate change and sea level rise to provide it with some necessary context. We'd first need to determine specific needs for mapping then sponsor targeted research.

**CURRENTS:** Finally, I think our readers would be interested in what CSO is doing in the renewable energy arena.

**FLETCHER:** Some governors of our member states have come out very much in favor of renewable energy. The Northeast has formed a regional greenhouse gas initiative.

## The Basics About Coastal and Marine Spatial Planning

**COASTAL AND MARINE** Spatial Planning, also known as Marine Spatial Planning, is a planning and decision-making process that brings together multiple users of the ocean, including business, industry, government and conservation. Essentially, CMSP is similar to land-use planning.

As more and more people compete for the same resources, the need for CMSP is growing. Many world governments and some U.S. states have adopted some form of CMSP. However, U.S. coastlines and the Great Lakes are still governed by more than 140 laws and 20 federal agencies; each with different goals and missions.

In December 2009, the Interagency Ocean Policy Task Force released an interim framework for CMSP in the United States. Under this framework:

- CMSP would be regional in scope, instead of sector-by-sector or statute-by-statute;
- CMSP would be developed cooperatively among federal, state, tribal, local authorities and regional governance structures;
- All decisions would be science-based; and
- Stakeholder and public input would be ongoing.

The full report may be accessed at [www.whitehouse.gov/administration/eop/ceq/initiatives/oceans/interim-framework](http://www.whitehouse.gov/administration/eop/ceq/initiatives/oceans/interim-framework).

For more insights into CSO's perspective on CMSP, you can download their report "Priorities for a Coastal and Marine Spatial Planning Framework" from [www.coastalstates.org](http://www.coastalstates.org).



At the highest levels of the states, there's a strong recognition that renewable energy is coming. In fact, Texas is promoting renewable energy in recognition that oil and gas are limited resources. What are they going to replace it with? Texas was the first state to offer state leases for offshore wind.

We've been representing the interests of the governors on the Hill. If you're considering renewable energy, we believe that some of the funds that you receive from sponsoring those types of projects (leasing fees, etc.) should be dedicated to the state's marine coastal management program. So let's link any renewable energy projects with the management of the coastal resources that those projects could potentially (adversely) impact.

## Information should be flowing in both directions.

**CURRENTS:** So the funds that come from the private sector for the use of the coastal zone—wind or other renewable energy—a portion of those funds would go back to the states to help them manage the coastal zone?

**FLETCHER:** Right. Louisiana is a very good example of that. Studies indicate that oil and gas operations off of the Louisiana coast have contributed significantly to the erosion of their wetlands. So we need to be able to connect that use with reinvestment into the resource that's being impacted.

We also need to get the states the information they need to effectively manage renewable energy. Especially in some New England and Mid-Atlantic states—they're not just in the "idea" phase anymore. They're making agreements with renewable energy companies and making siting decisions. So we need to make sure that they have the information and the tools they need.

One of the workshops that we did last year was on adaptive management and renewable energy, bringing together states, federal agencies, NGOs and industry. Because this is a new industry, we don't know very much about the impacts. We need to create models of adaptive management for renewable energy in the coastal zone.



We had a state-to-state conversation at the CSO annual meeting in Charleston, SC in 2009 which provided the states with an opportunity to share information with one another about renewables. So a state like Texas, that has a real strength in leasing its land, could talk about how it's done it, the framework that it used and some of the challenges to avoid. A state like Ohio that has been doing mapping for a number of years can share its knowledge with other states.

**CURRENTS:** Thanks for your insights, Kristen.

**FLETCHER:** You're welcome. Thank you. 📍

# Navy SUPSALV Participates in the Coast Guard's "Spill of National Significance" Exercise

## Simulated Disaster Brings Together Nearly 600 Personnel

A "SPILL OF national significance" (SONS) is defined in the U.S. Code of Federal Regulations (40 CFR 300.5) as a rare, catastrophic oil spill event that captures the nation's attention due to its actual damage or significant potential for adverse impacts and requires extraordinary coordination of agencies to contain and clean up. Since 1994, the U.S. Coast Guard has been initi-

ating SONS drills every three years as part of the U.S. Environmental Protection Agency's National Contingency Plan that seeks to make sure various agencies can work together in the event of a major spill disaster.

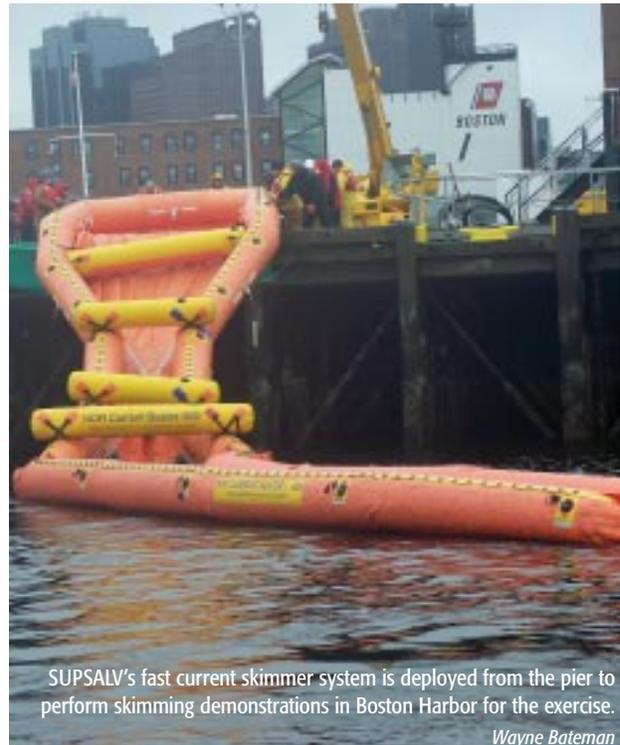
The U.S. Navy's Office of the Supervisor of Salvage (SUPSALV) and Diving participated in this year's SONS exer-



cise, which was held 24–25 March 2010, in the Northeast region off the coast of Maine. The simulated disaster involved more than 600 personnel from various other federal, state, and commercial organizations.

Overcoming heavy weather, SUPSALV personnel successfully deploy an oil boom over the pier and into the harbor.

*Wayne Bateman*



SUPSALV's fast current skimmer system is deployed from the pier to perform skimming demonstrations in Boston Harbor for the exercise.

*Wayne Bateman*

SONS 2010 was an exercise designed to implement oil spill response plans that would require coordinated command response organization in accordance with the Department of Homeland Security's National Response Framework. It was coordinated under the National Exercise Program within the National Preparedness Directorate of the Federal Emergency Management Agency.

4. Provide an opportunity to improve response plans and procedures.

A scenario was selected that involved a collision between a freight vessel and a crude oil tanker about 15 miles east of the Portland Head Lighthouse, Maine. This location was selected because Portland is the second largest oil port on

## The demonstration consisted of deploying boom and skimmer systems for simulated clean-up in the vicinity of the Boston Coast Guard base and near the USS Constitution.

The SONS Exercise Program has four main goals:

1. Increase preparedness from the field level all the way to agency leadership in Washington, DC;
2. Exercise the National Response Framework at the local, regional, and national levels using high probability oil and hazardous material incidents;
3. Provide an opportunity for the necessary level of cooperation throughout all levels of government, private sector, and non-governmental organizations; and

the east coast. Six different equipment deployment locations were planned as a representative sample of the coordinated effort that would be brought to bear in a real response to a spill disaster. Some of the deployment sites were chosen because they were areas that would be impacted by the simulated spill trajectories; other sites were selected to broaden involvement throughout the region and to test backup strategies should an area's main response assets be needed at the site of the main spill.

On 24 March 2010, the Incident Command System center in Portland received a phone call reporting the "spill."

SUPSALV gives a tour of their command van, rigging van and shop van to the Coast Guard's District 1 spill response representatives at the SONS 2010 exercise.

*Allen Gardner*





SUPSALV's MARCO Class V Skimmer system simulating oil skimming in Boston Harbor during SONS 2010.  
*Allen Gardner*

## Participating in drills such as SONS 2010 gives SUPSALV the opportunity to test new deployment techniques and skimming plans that could be used in an actual incident.

Officials went through the motions of making phone calls to the equipment deployers. Meanwhile, SUPSALV and their co-participants from government and private sectors demonstrated the clean-up equipment.

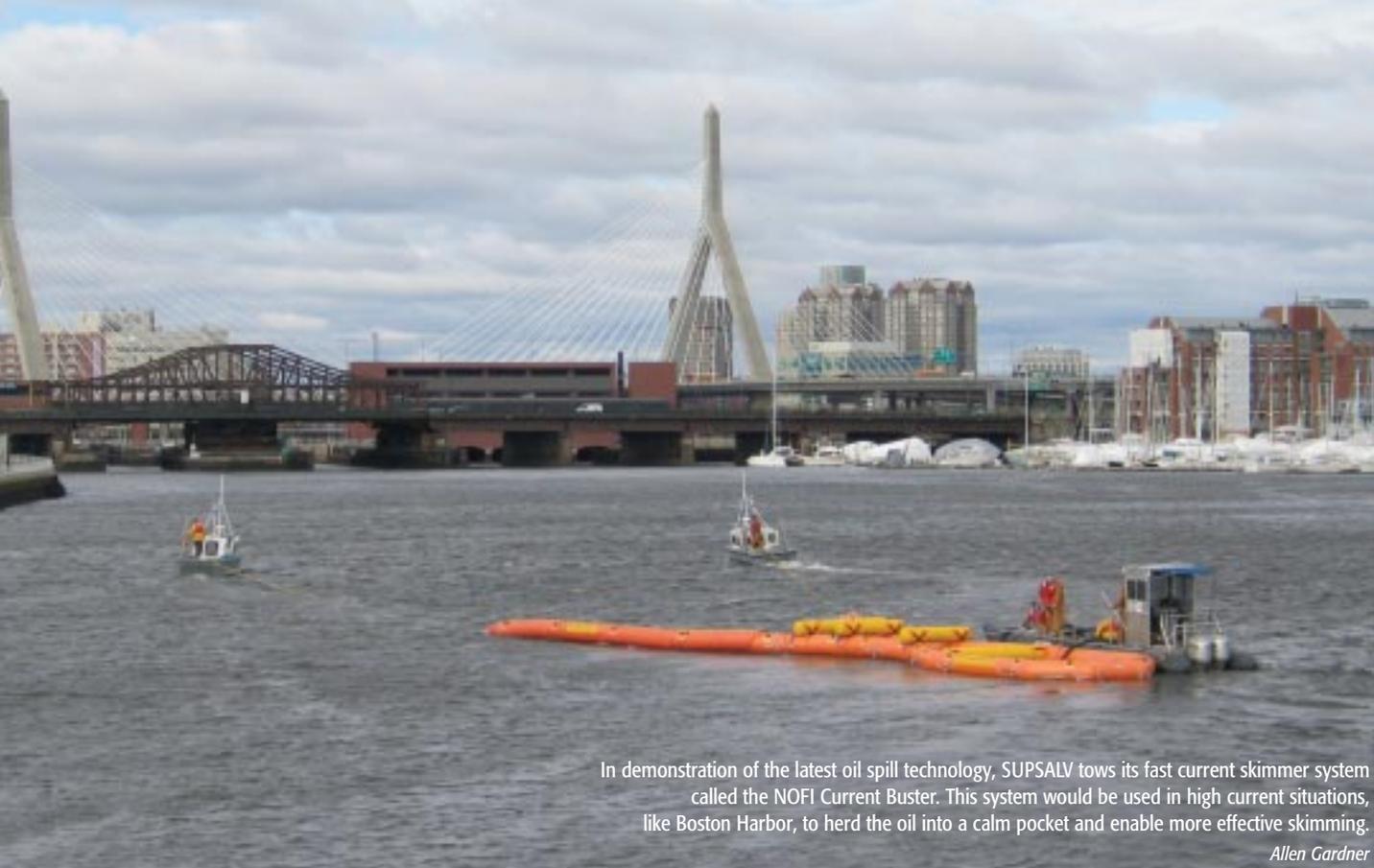
SUPSALV's multi-level involvement in this exercise included a Salvage Officer at the unified command post in Portland, and a Department of Defense National Response Team representative—who is also the SUPSALV admiralty lawyer—at the agency leadership command post in Washington DC. SUPSALV also

deployed oil spill response equipment to Boston Harbor from its Emergency Ship Salvage Material (ESSM) base at Cheatham Annex, VA.

The demonstration consisted of deploying boom and skimmer systems for simulated clean-up in the vicinity of the Boston Coast Guard base and near the USS Constitution. In the event of an actual spill, booms—which are floating barriers with skirts that hang below the water's surface—are used for containment of the oil. Once the spill is contained, skimming systems are

then employed to remove oil and other hydrocarbons from the water.

The skimming capability demonstrated during the exercise included the self-propelled MARCO Class V belt skimmer system, which skimmed in a "V" configuration while towing a 23,000-gallon oil storage bladder behind it. Also exercised was the "high-speed" Vessel of Opportunity Skimmer System (VOSS), which is a portable side-skimming oil-recovery system utilizing the NOFI Current Buster, a Norwegian-made product that is



In demonstration of the latest oil spill technology, SUPSALV tows its fast current skimmer system called the NOFI Current Buster. This system would be used in high current situations, like Boston Harbor, to herd the oil into a calm pocket and enable more effective skimming.

*Allen Gardner*

able to effectively contain oil at higher towing speeds than previous equipment. All of the SUPSALV equipment is packaged as complete systems with any compressors, hydraulic power units, generators, reels, rigging or spare parts needed. These systems are stored in ISO containers, also known as “vans” for rapid mobilization.



SUPSALV’s MARCO Class V Skimmer System herds the oil with its 300-foot boom legs and picks up the oil via a belt system seen here. The oil is then pumped into the oil storage bladder shown in tow behind the vessel.

*Allen Gardner*

A full response was mobilized for this event with seven vans, including:

1. A command/office van used for planning and management of the operation;
2. A rigging van containing line, multiple rigging components and safety gear;
3. A shop van which carried every anticipated tool or repair part that could be needed;
4. A boom van which contained 2000 feet of 42-inch inflatable boom; and
5. Another van containing the VOSS system.

Along with these vans came four boom handling boats, the MARCO Class V Skimmer system and one equipment transfer boat, used for removing oil-covered debris from the operational area.

Participating in drills such as SONS 2010 gives SUPSALV the opportunity to test new deployment techniques and skimming plans that could be used in an actual incident, as well as simply providing a hands-on exercise of all the equipment. With this type of collaboration and involvement in other agencies’ drills, SUPSALV is able to meet the voluntary guidelines of the Preparedness for Response Program; fulfilling its role as the nation’s federal oil spill responder. The exercises also promote awareness of

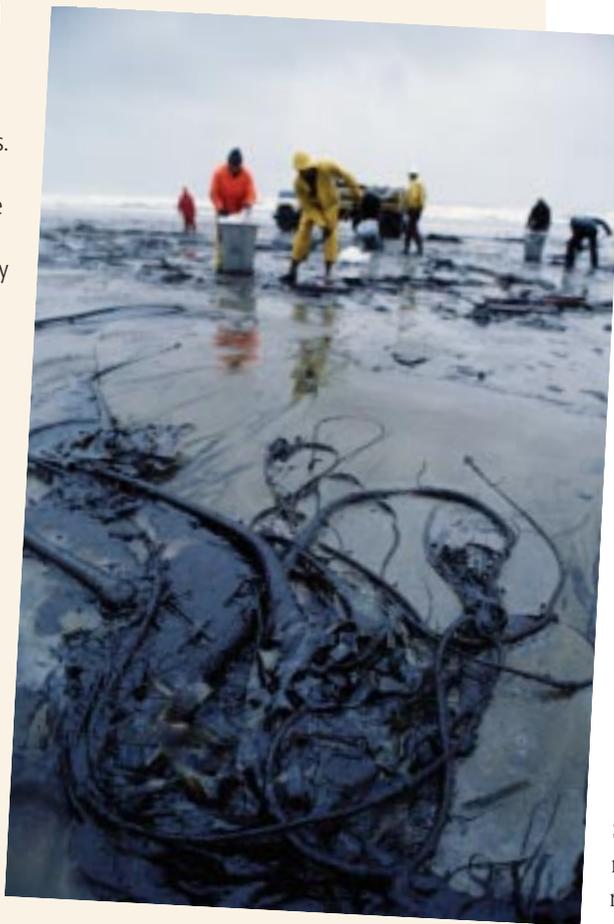
## Putting SONS Exercise Experience to Use in the Gulf

ON 20 APRIL 2010, less than one month after the SONS exercise, British Petroleum's (BP) Deepwater Horizon mobile offshore drilling unit exploded and caught fire in the Gulf of Mexico. Five days later, it was discovered that the well continued to leak significant amounts of oil. As efforts to repair the leak failed, the spill was designated as a SONS, activating the U.S. Coast Guard's oil spill response plan.

The U.S. Coast Guard formally requested support from SUPSALV and within four hours of receiving authorization, trucks loaded with SUPSALV's pollution response equipment were in route to the spill. Coincidentally, as practiced in the SONS 2010 Exercise in Maine, this response required coordination among multiple states and Coast Guard sectors. With the recent operational experience gained through the exercise, SUPSALV's response teams were prepped and ready for an event such as this.

SUPSALV's resources were strategically divided among different equipment deployment locations to provide assistance to the affected areas. These federal resources were primarily staged at the Mississippi State Dock in Gulfport, MS, where they were deployed as necessary by the federal on-scene coordinator in support of the Department of Homeland Security and U.S. Coast Guard oil spill response efforts.

As of early June 2010, SUPSALV had sent over 85 truckloads of equipment including 96,000 feet of inflatable oil boom with mooring systems, 18 rapid deployment skimmer systems, related support gear, and approximately 130 Navy personnel (military, civilian and contractor) to support oil spill response efforts in Gulfport, MS, Venice, LA, and Mobile, AL. The Navy also agreed, via the U.S. Coast Guard, to allow BP contractors to use Naval Air Station Pensacola, FL as a staging area, and some SUPSALV resources were sent to augment the response there as well. Navy installations that may be impacted by the oil spill have facility oil spill response equipment ready to protect the shoreline as necessary. NAVSEA provided and coordinated the Navy's response effort for this particular spill.



SUPSALV's mission and educates participants about their extensive equipment inventory.

SUPSALV received some local media interest in Boston on the day of the exercise and provided an excellent cross-training opportunity for Coast Guard oil spill response personnel to see SUPSALV's equipment operating in full-force and demonstrating their deployment footprint and logistic support requirements.

Despite inclement weather, with up to six-knot currents in the harbor and 17 to 20 miles per hour sustained winds with 40 mile per hour gusts, SUPSALV's ESSM operators took full advantage of the opportunity to gain useful boat handling experience in adverse conditions and executed the skimming demonstrations flawlessly. Other equipment deployers included Marine Spill Response Corporation, working on behalf of Shell Oil Company, the State of Maine's Department of Environmental Protection, and contractors from the State of New Hampshire's Department of Environmental Services.

SONS 2010 was a great opportunity for a successful display of SUPSALV's emergency spill response capability and commitment to help the Coast Guard, state, and local governments in planning and preparing for a worst case scenario maritime event. ⚓

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### CONTACT

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## Developments of Interest: January 2010–April 2010

**THIS ARTICLE HIGHLIGHTS** significant environmental regulatory changes and indicators suggesting future changes to the regulatory landscape.

The Council on Environmental Quality (CEQ) has released draft guidance for comment that suggests how federal agencies should consider the effects of greenhouse gas (GHG) emissions and climate change in their National Environmental Policy Act (NEPA) evaluations of proposed federal actions.

The guidance recommends that quantitative and qualitative assessments of GHG emissions of projects be included in the NEPA analysis whenever a proposed action would reasonably be anticipated to cause direct emissions of 25,000 metric tons carbon dioxide-equivalent or more. CEQ does not propose to make this guidance applicable to federal land and resource management decisions. The guidance also addresses the issue of considering impacts of climate change on long term infrastructure projects in areas subject to climate change impact.

The guidance states that when a federal agency proposes mitigation of GHG emissions, the mitigation must exceed what would otherwise be required and must be permanent, verifiable, and enforceable.

Separately CEQ issued draft guidance for mitigation and monitoring. GHG reduction goals for the federal sector and for the Department of Defense (DoD) have also been announced. This represents the first guidance specifically considering GHG emissions and climate change in the context of NEPA analyses.

Additional regulatory and environmental news items of interest (January 2010 to 8 April 2010) include:

### NEPA

CEQ Guidance on NEPA—Mitigation and Monitoring (23-February-10)

<http://edocket.access.gpo.gov/2010/2010-3535.htm>

CEQ Guidance on NEPA—Consideration of the Effects of Climate Change and Greenhouse Gas Emissions (23-February-10)

<http://edocket.access.gpo.gov/2010/2010-3532.htm>

CEQ Guidance—Establishing, Applying, and Revising NEPA Categorical Exclusions (23-February-10)

<http://edocket.access.gpo.gov/2010/2010-3531.htm>

### Greenhouse Gases

U.S. Environmental Protection Agency's Timeline for Greenhouse Gas Regulation (23-February-10)

<http://edocket.access.gpo.gov/2010/2010-7536.htm>

<http://industry.bnet.com/energy/10003147/a-well-regulated-future-epa-publishes-its-greenhouse-gas-timeline/>

Greenhouse Gas Emissions Reduction Target for Federal Operations Announced (29-January-10)

<http://www.whitehouse.gov/the-press-office/president-obama-sets-greenhouse-gas-emissions-reduction-target-federal-operations>

DoD Greenhouse Gas Reduction Targets for the Year 2020 (29-January-10)

<http://www.defense.gov/releases/release.aspx?releaseid=13276>

### Easy Access

**FOR EASY AND** direct access to many of the web addresses included in this regulatory summary, select the "Digital Currents" button from the *Currents* page on the Naval Air Systems Command's environmental web site at [www.enviro-navair.navy.mil/currents](http://www.enviro-navair.navy.mil/currents).



Tire Fuel Efficiency Consumer Information Program;  
Final Rule (30-March-10)

<http://edocket.access.gpo.gov/2010/2010-6907.htm>

U.S. Department of Agriculture/Navy Memorandum of  
Understanding on BioFuel Development Signed  
(21-January-10)

[http://www.news.navy.mil/search/display.asp?story\\_id=50710](http://www.news.navy.mil/search/display.asp?story_id=50710)

## Air

Revisions to the Clean Air Act General Conformity  
Regulations (05-April-10)

<http://edocket.access.gpo.gov/2010/2010-7047.htm>

Review of the Secondary National Ambient Air Quality  
Standards (NAAQS) for Oxides of Nitrogen and Oxides  
of Sulfur (12-March-10)

<http://edocket.access.gpo.gov/2010/2010-5576.htm>

Primary NAAQS for Nitrogen Dioxide; Final Rule  
(09-February-10)

<http://edocket.access.gpo.gov/2010/2010-1990.htm>

NAAQS for Ozone—Revision (06-January-10)

<http://www.epa.gov/groundlevelozone/actions.html>

Reciprocating Internal Combustion Engines (Stationary  
Diesel Engines) National Emissions Standard for  
Hazardous Air Pollutants (03-March-10)

<http://edocket.access.gpo.gov/2010/2010-3508.htm>

Supreme Court Lets Stand a Ruling Vacating the  
Startup/Shutdown/Malfunction Exemption (08-March-10)

<http://www.commondreams.org/newswire/2010/03/08-3>

## Water

DoD Implementation of Storm Water Requirements  
under the Energy Independence and Security Act of 2007  
Section (19-January-10)

[http://www.p2sustainabilitylibrary.mil/p2\\_documents/dusd\\_ie.pdf](http://www.p2sustainabilitylibrary.mil/p2_documents/dusd_ie.pdf)

Ocean Acidification and Listing of Impaired Waters  
(22-March-10)

<http://edocket.access.gpo.gov/2010/2010-6239.htm>

## Materials

Designation of Biobased Items for Federal Procurement—  
Round 6 (10-February-10)

<http://edocket.access.gpo.gov/2010/2010-2651.htm>

BioPreferred Complex Products and Assemblies  
(01-February-10)

<http://edocket.access.gpo.gov/2010/2010-2039.htm>

## Health & Safety

Transportation of Lithium Batteries (11-January-10)

<http://edocket.access.gpo.gov/2010/2010-281.htm>

Occupational Injury and Illness Recording and Reporting  
Requirements—Addition of Musculoskeletal Disorders  
(29-January-10)

<http://edocket.access.gpo.gov/2010/2010-2010.htm>

Revising the Notification Requirements in the Exposure  
Determination; Provisions of the Hexavalent Chromium  
Standards (16-March-10)

<http://edocket.access.gpo.gov/2010/2010-5731.htm>

Interim Preliminary Remediation Goals for Dioxin in Soil  
at Comprehensive Environmental Response, Compensa-  
tion, and Liability Act (CERCLA) and Resource Conserva-  
tion and Recovery Act (RCRA) Sites (07-January-10)

<http://edocket.access.gpo.gov/2010/2010-16.htm>

## Other

Finding on a Petition to List 83 Species of Corals as  
Threatened or Endangered (10-February-10)

<http://edocket.access.gpo.gov/2010/2010-2939.htm>

Department of Navy Disposition of Historic Vessels;  
Program Comment (15-March-10)

<http://edocket.access.gpo.gov/2010/2010-5373.htm>

<http://edocket.access.gpo.gov/2010/2010-1023.htm>

Polychlorinated Biphenyls; Reassessment of Use  
Authorizations (Advance Notice of Proposed Rulemaking)  
(07-April-10)

<http://edocket.access.gpo.gov/2010/2010-7751.htm>

The Naval Facilities Engineering Service Center provides  
a free Weekly Federal Regulatory Summary that DoD  
personnel or contractors supporting DoD may receive  
by e-mail. To subscribe or unsubscribe, contact  
NFESRegulatorySupportDesk@navy.mil or 805-982-2640. [📍](#)

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# Celebrate Ocean Conservancy's 25th International Coastal Cleanup

Volunteer for a Sea Change on 25 September 2010



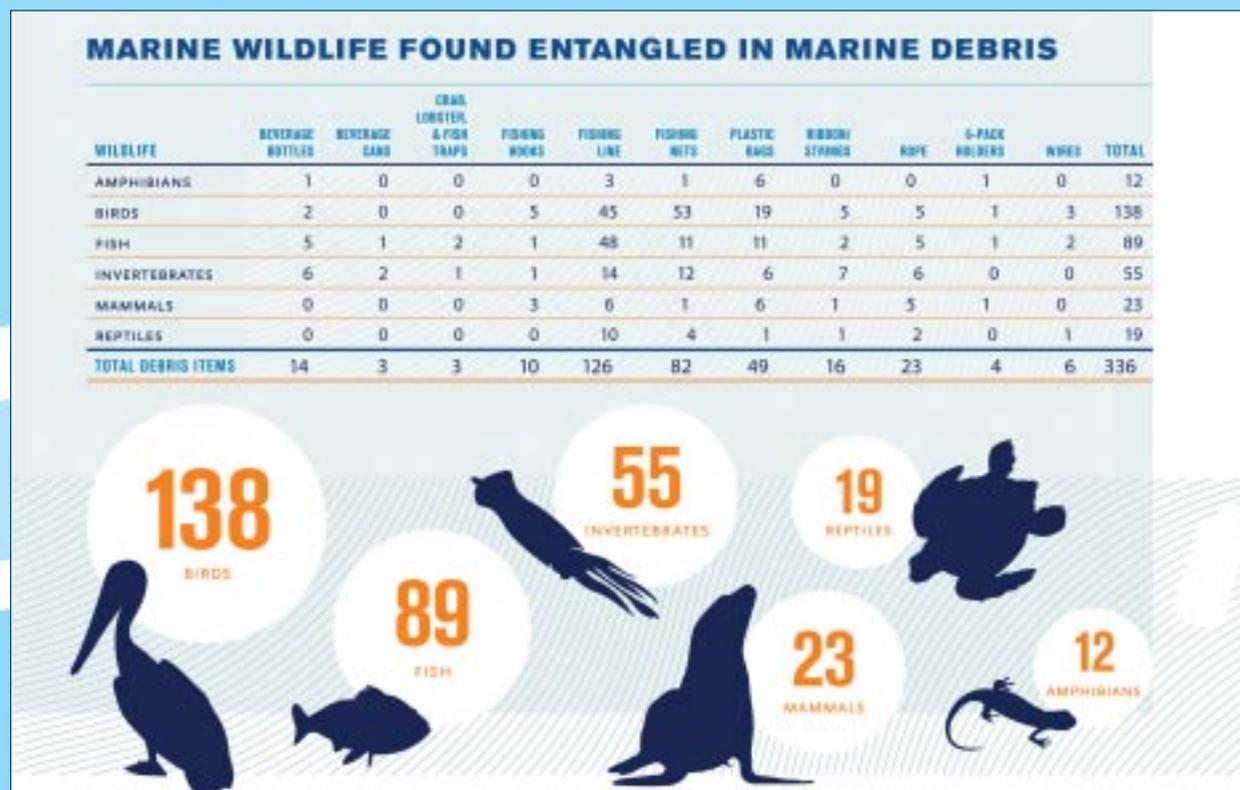
**IN MARCH 2010**, Ocean Conservancy delivered an important message at the U.S. Navy Environmental Forum, “Partners for the Planet,” in Alexandria, VA—trash in the ocean and waterways is more than an eyesore. One of the greatest pollution problems of our time, trash impacts the health of humans,

wildlife, ecosystems, and coastal economies. Sharp items injure beachgoers, and accident-causing debris snarls boat propellers. Packing straps, lost fishing nets, or cast-off fishing line can kill wildlife that becomes entangled. And when animals eat things they shouldn't, they can sicken and die. Unfortu-

nately, much of the trash in our ocean will last for years.

## Local Action, Global Change

But there's good news—anyone, anywhere can readily address this envi-



People of all ages—including these kids in Texas—enjoy the hands-on experience of the International Coastal Cleanup.



## Marine debris is one environmental challenge anyone, anywhere can readily address.

environmental challenge through Ocean Conservancy's International Coastal Cleanup, a year-round movement to clean shorelines and waterways, collect data, and raise awareness.

It all began twenty-five years ago, when one woman took local action that became a global movement. Dismayed by the huge amount of trash she saw on a Texas beach, Linda Maraniss enlisted like-minded partners to help organize a beach cleanup. In just two hours, Texans picked up 124 tons of trash along 122 miles of coastline. That effort has grown into the world's largest volunteer effort on behalf of ocean health.

The International Coastal Cleanup's signature annual event traditionally takes place on the third Saturday in September (though official cleanups can be held throughout September and October to accommodate religious or government holidays or bad weather). This year, the event will be held on

Saturday, 25 September. Last year alone, a million helping hands got to work in 108 countries and locations. Working shoulder-to-shoulder with friends, family, and co-workers—and in spirit with people across many time zones—this extensive network of volunteers picked up an astounding 7.4 million pounds of trash on just one day.

Because trash travels down storm drains and waterways to the ocean, the International Coastal Cleanup takes place along rivers, lakes, and streams as well as ocean beaches. People with boats clean beaches that walkers can't easily reach, and thousands of scuba divers collect trash below the surface.

### Delivering Data for Better Decisions

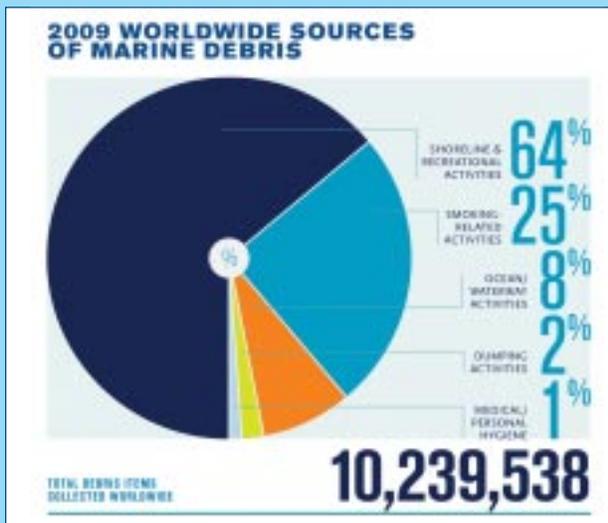
These dedicated volunteers don't just pick up trash; they record what they find—10.2 million individual items in



keeping trash out of the ocean in the first place.

### Talking Trash

From decision makers to individuals, everyone can help stop trash at the source. For example, the top three items found in 2009 were cigarette butts (2.2 million), plastic bags (1.1 million), and food wrappers/containers (943,233). Sixty-four percent of the debris



year came from shoreline and recreational activities. The data also show that sixty percent of items collected in 2009 consisted of disposable, single-use items, including 512,517 cups, plates, forks, knives, and spoons—enough for a picnic for over 100,000 people. Changing behavior to keep those items out of the water can make a tremendous difference for ocean health.

Joining forces with the International Coastal Cleanup and filling out data cards provides an opportunity to go beyond cleaning up what's out there.

2009 alone. They tally items ranging from drinking straws and bottle caps to major appliances and lost fishing gear on standardized data cards. Ocean Conservancy compiles and analyzes the data; the resulting Marine Debris Index is the only global accounting of trash in the ocean. Collected since the very first International Coastal Cleanup in 1986, the item-by-item, location-by-location data have a long history of raising awareness about this world-wide problem and informing policies and programs to address it.

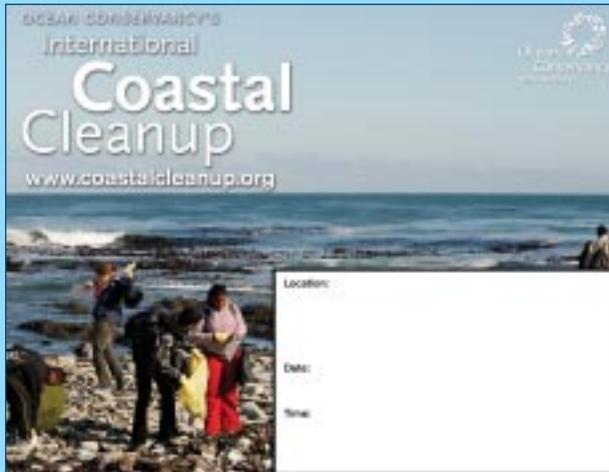
“Momentum is building. There is a growing understanding of the significant impact trash has on wildlife, the economy, and the productivity and resiliency of our ocean,” said Vikki Spruill, President and Chief Executive Officer of Ocean Conservancy. “The data generated by

The Navy currently conducts cleanups from its bases around the world, and many Navy personnel participate enthusiastically in community cleanup programs as well. Joining forces with the International Coastal Cleanup and filling out data cards provides an opportunity to go beyond cleaning up what's out there. Building on the marine debris data base will support future decisions about

### To Learn More

LEARN MORE IN the report entitled, “Trash Travels: From Our Hands to the Sea, Around the Globe, and Through Time,” posted on Ocean Conservancy’s web site in an easy-to-page-though version.





Volunteers pull together to clean up Santo Domingo's El Gringo Beach in the Dominican Republic.

Juan Fach/Aurora Photos



hundreds of thousands of dedicated volunteers around the world provide us with a global snapshot of the trash in our ocean, but cleanups alone cannot solve the problem—it's time to stop marine debris at the source. From design to disposal, we all have a role to play: corporations can reduce packaging, governments can enact strong marine debris policies, and each of us can choose re-usable items, recycle when possible and put trash in its place.”

Ocean Conservancy is inviting U.S. Navy personnel around the world to be part of the solution.

- Help stop huge amounts of trash from reaching the ocean in the first place; small everyday actions can have a big impact.
- Choose products with less packaging.
- Make a modest investment in reusable items, from shopping bags and carryout containers to picnic utensils.
- Recycle everything you can.
- Be part of the 25th anniversary of the International Coastal Cleanup on 25 September.

To find out how to sign up with friends, family, and coworkers for an existing event (or organize one of your own), visit [www.oceanconservancy.org/cleanup](http://www.oceanconservancy.org/cleanup) then select “Organize Your Own Cleanup.” Once there, you can:

- Propose your own cleanup event!
- Download a poster that you can personalize to promote your event!
- Invite your friends!
- Find out Which Ocean is Your Ocean!
- Download a contact sheet so your attendees can stay updated about ocean trash and other easy things they can do to help protect the ocean! 

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# NESDI Program Demos Technologies & Collects Knowledge to Enhance Readiness

## Recent Successes Include Better Water Quality Management Tools & Enhanced Anodizing Process

**THE MISSION OF** the Navy Environmental Sustainability Development to Integration (NESDI) program is to provide solutions by demonstrating, validating and integrating innovative technologies, processes, and materials; and filling knowledge gaps to minimize operational environmental risks, constraints and costs while ensuring Fleet readiness. The program seeks to accomplish this mission through the evaluation of cost-effective technologies, processes, materials and knowledge that enhance environmental readiness of naval shore activities and ensure they can be integrated into weapons system acquisition programs.

Each year, the NESDI program has published a “Year in Review” report which profiles some of the program’s ongoing and recently completed projects including the following projects undertaken in Fiscal Year (FY) 2009.

### Toward Safer Water, Fewer Violations: Projects Aim to Improve Drinking Water Quality

The NESDI program has funded two important projects dealing with water safety over the last three years—Potable Water Quality Management and Demonstration of Real-time Drinking Water Quality Monitoring Technologies.

#### Potable Water Quality Management

Water quality management is all about creating the right balance. Disinfecting drinking water is necessary to remove potential contaminants—but the same chemicals that remove contaminants in drinking water can produce carcinogenic by-products. In 2004, the Safe Drinking Water Act (SDWA) was amended to require new standards to balance these risks.

In FY 2004, to combat a growing number of SDWA Notices of Violation, the Naval Facilities Engineering Command (NAVFAC) Water Media Field team identified the need for a guidance document.

The NESDI program responded by sponsoring the development of a document that addresses topics such as:

- Unidirectional flushing—the process of flushing out sediment that accumulates in the pipes
- Disinfection strategies
- System monitoring practices
- Potential upgrades to drinking water treatment and distribution systems.

The Potable Water Quality Management Guidance Document (UG-2077-ENV) was distributed Navy-wide for use by drinking water program managers in the fall of 2007. It is available in hardcopy and CD form from the NAVFAC Engineering Service Center (ESC).

#### Demonstration of Real-time Drinking Water Quality Monitoring Technologies

Contamination of water systems may be caused by natural events, accidents, or intentional acts, all of which threaten mission readiness and the well-being of Navy personnel. The single most effective way to mitigate water contamination issues is to detect contamination early enough to allow for a timely response.



The current practice for water quality compliance is to manually collect samples for laboratory analysis on a weekly or quarterly basis. This practice does not allow staff adequate time to respond to changes in water quality and may also miss many poor water quality events occurring outside “normal” sampling events. For overseas bases, the analysis turnaround time is even longer.

Real-time water monitoring along with an automated notification system could rectify this situation. However, most Navy water utilities have not implemented a real-time monitoring strategy due to a lack of proven technologies as well as the associated high costs.

The NESDI program is currently sponsoring a demonstration project of

continuous and real-time water quality monitoring technologies at the NAVFAC ESC at Naval Base Ventura County in Port Hueneme, CA. The demonstration project aims to provide managers with a cost-effective version of this technology.

The one-year demonstration was started in June 2009. An interim report will be issued in 2010 and will provide the performance data necessary to help Naval field activities with their system procurement decisions.

### Advanced Anodizing Technology Brings Multiple Benefits

For years, the Navy’s Fleet Readiness Centers (FRC) have been anodizing aluminum aircraft parts to increase corrosion resistance and durability. Anodizing is an electrochemical

oxidation treatment used to form a protective coating on aluminum. The traditional method of anodization, which relies on manual adjustments, has several disadvantages:

- Inconsistent results
- Higher risk of defects and rejects
- Toxic materials added to waste stream.

A NESDI-sponsored project at the FRC Southeast (FRCSE) in Jacksonville, FL demonstrated an improved methodology that takes advantage of commercial off-the-shelf solutions such as Metalast™ technology. This technology automates the process through the use of an Integrated Process Controller (IPC) and an Interface Controller and introduces a chemical additive for the bath chemistry.



Water quality monitoring equipment panel installed at Bolles Field site, Naval Base Ventura County.

The advantages to this method are expected to include:

- Reduced contaminant build-up
- Improved uniformity
- Lower labor costs
- Reduced worker exposure to hexavalent chromium.

Also as part of this project, FRCSE has demonstrated the use of Trivalent Chrome Post-treatment (TCP) as a seal on anodized aluminum alloys.

The specification that governs the aluminum alloy anodizing is military specification MIL-A-8625F. This specification identifies the different types of anodizing. The target types for this project are the following:

- Type II. Sulfuric acid anodizing, conventional coatings produced from sulfuric acid bath
- Type IIB. Thin sulfuric acid anodizing, for use as a non-chromate alternative
- Type III. Hard anodic coatings.

The Metalast™ anodizing process has been successfully demonstrated at

FRCSE for Types II, IIB and III anodizing under this project. Based on preliminary data from this study, authorization for producing Type IIB oxides using the Metalast™ process will be pursued and implemented across all Navy sites. Additionally, based on the performance of the TCP process as a sealer, the Naval Air Systems Command (NAVAIR) enterprise is pursuing the authorization and implementation of TCP in 2010 via maintenance manual changes and NAVAIR approval letter.

With a payback period of less than two years, the Metalast™ system will provide a total cost avoidance of around \$56,000 per year.

### Global Climate Change & the Navy: A First Step for What's Next

Beginning in 2008, the NESDI program sponsored a research initiative that, in addition to summarizing the climate change effects that are expected to occur in the next century, also provides an assessment of the likely impacts on naval infrastructure and operations. The Climate Change Initiation Decision Report (CC IDR) identifies gaps in the knowledge base specific to the influence of climate change on Navy shore operations, facili-

ties and infrastructure, and also provides descriptions of evolving technologies designed to help limit and/or adapt to climate change.

Completed in 2009, the CC IDR identified the following technology and management strategies as high-priority solutions for sustaining mission readiness:

- Regulatory compliance strategy
- Facilities impact strategies to preserve resources and minimize risk
- Mitigation strategies to sustain air quality standards, natural resources management, and energy efficiency
- Adaptation strategies to minimize the severity of climate change to natural resources and infrastructure
- Intervention strategies—long-term strategies for reducing carbon dioxide levels.

The goal of the CC IDR is to provide knowledge about climate change, make recommendations, and improve Command compliance as regulatory strategies and responding technologies continue to evolve. Inserting new processes and technologies as early as possible in the Department of Defense's (DoD) acquisition process will improve success in meeting the Navy's climate change goals.

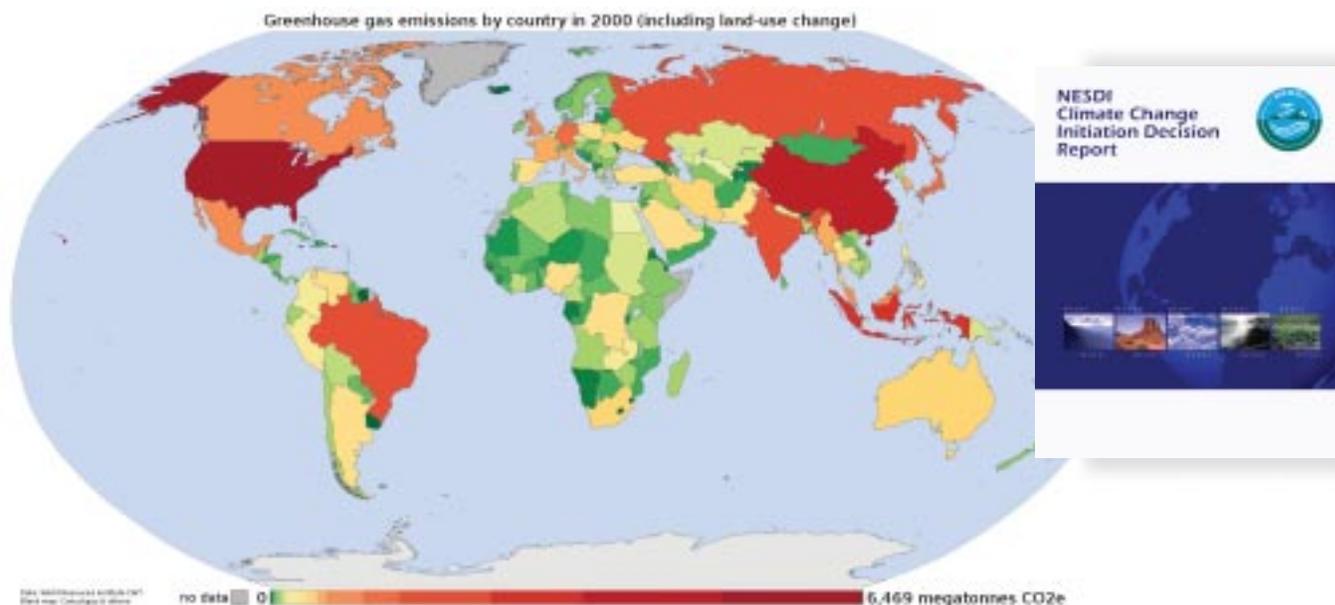
### Chemicals on the Hit List: Hazardous Chemical Lists a Major Step Toward DoD-wide Elimination

Reducing or eliminating prohibited and controlled chemicals is an ongoing effort in all branches of the military. Because of the large number



**Optimizing the Anodizing Process.** This project successfully demonstrated and integrated technologies to optimize the application of anodized coatings to aircraft components and parts at FRCs in Jacksonville, FL and Cherry Point, NC with potential integration at the FRC in San Diego, CA.





of hazardous chemicals required in maintenance operations, acquisition program offices are often unsure of which chemicals to focus on first. In an effort to provide guidance on this issue, the Naval Sea Systems Command (NAVSEA) turned to the NESDI program for financial support and guidance, and the Naval Surface Warfare Center (NSWC) Carderock for technical assistance in creating a standard chemical avoidance list for new

acquisition programs—the Prohibited and Controlled Chemical List (PCCL). Through the use of one standardized, comprehensive list, the Navy will be better able to achieve its goal of 50 percent hazardous material usage reduction as specified in Executive Orders (EO) 13148 and 13423.

The PCCL is generated through a computer algorithm using specific health, safety and environmental regu-

latory impact factors weighted by hazard severity. The most recent environmental regulations, safety and occupational health standards, as well as anticipated legislation are considered.

NAVSEA stakeholders, industrial hygiene professionals and technical warrant holders provided input on selection criteria, prioritization methodology and implementation of the PCCL. Completed in 2006, the PCCL is being

## Learn More

**TO LEARN MORE** about the NESDI program, read the brochure entitled “All About the NESDI Program.” For even more insights about the program—its mission, objectives, investment areas—read the program’s FY09 annual Year in Review report, entitled “Accomplishments of the Navy Environmental Sustainability Development to Integration Program in Fiscal Year 2009: A Year in Transition.” The report highlights the program’s accomplishments in FY09 and shares its strategic objectives for FY10.

The NESDI brochure and annual report are both available for downloading via the NESDI web site at [www.nesdi.navy.mil](http://www.nesdi.navy.mil). For a hard copy of both reports, contact Lorraine Wass at [ljwass@surfbest.net](mailto:ljwass@surfbest.net) or 207-384-5249.



## EVALUATING FLEET NEEDS

**THE NESDI PROGRAM** selects projects to invest in based on an annual evaluation of Fleet needs. In FY 2010, the NESDI program collected and ranked 58 needs and received 20 pre-proposals on the following 13 highly ranked needs:

Reference	Command	Need	Description
N-0688-10	NAVSEA	Water Jet Waste Waste Water Treatment	Ultra high-pressure water cleaning and stripping operations currently performed at Navy ports during contractor maintenance activities produce a large volume of contaminated water. This water must be properly disposed of at ever-increasing rates. A need exists to control/reduce these emissions while negating the rising costs.
N-0686-10	NAVFAC	Mitigation of Sound During Pile Driving Activities	Pile driving activities are often associated with military construction projects occurring around waterfront areas. Sound propagation during pile driving is a major environmental issue for a variety of organisms through direct exposure and indirect interactions. Marine mammals, sea turtles and fish may be negatively affected through direct sound propagation during pile driving. A need exists to mitigate sound during pile driving activities.
N-0676-10	NAVSEA	Reduction & Control of Emissions During Metal Cutting Operations	There is a need to develop alternative, environmentally friendly metal cutting methods for use when refurbishing or dismantling naval vessels to reduce emissions in order to comply with air operating and water discharge permit requirements.
N-0677-10	NAVFAC	In Port Hull Maintenance	There is a need to demonstrate and validate corrosion and pollution control equipment to prevent unauthorized discharges to navigable waters during in port surface coatings touch up/hull maintenance operations.
N-0680-10	NAVFAC	Effectiveness Of Modulated Ultra-Violet Light To Clean Optical Windows	There are several different uses of light to measure characteristics of a water column including turbidity sensors, chlorophyll fluorometers, oxygen sensors and photosynthetically active radiation sensors. Within minutes of immersing a clean surface in water, molecules of dissolved organic matter will adhere to it, and within hours, bacteria will colonize and form a biofilm. Degradation of data through the natural process of biofouling is a major concern. There is a need to demonstrate and validate the most effective method to prevent optic windows from biofouling.
N-0703-10	SPAWAR	Implementation Of Passive Sampling Devices For Risk Assessment & Long Term Monitoring at Navy Contaminated Sediment Sites	Simple and effective assessment and monitoring tools that account for contaminant bioavailability are needed to reduce unnecessary cleanup actions and burdensome long term monitoring requirements at Navy contaminated sediment sites.

utilized by several current NAVSEA acquisition programs. The list is also being integrated into the 2010 Naval Vessel Rules, and is being shared with other DoD services and contractors.

NAVSEA has also created a focused subset of chemicals specific to future research and development—the NAVSEA Target Chemical List (NAVSEA TCL).

It is expected that both the PCCL and NAVSEA TCL will drive future research and development efforts in reducing and eliminating hazardous materials.

### Assessing the Effects of Unexploded Ordnance on the Marine Environment

Warfare and training exercises over the past few decades have left unexploded munitions in the world's oceans and waterways. In 2002, the NESDI program initiated a series of studies of the potential toxicity, degradation and bioaccumulation of these materials in the marine environment.

The project team posed the following four questions:

1. What is the fate of explosives leaking from unexploded ordnance on marine food chains? They have a low propensity to bioaccumulate in invertebrates, the lowest rung of the food chain.
2. What is the fate of explosives when associated with different types of sediments? The explosives studied undergo extensive degradation upon contact with water and marine sediment.
3. What concentrations of explosives in the water cause toxic effects in

## EVALUATING FLEET NEEDS (CONT.)

Reference	Command	Need	Description
N-0704-10	NAVFAC	Safe, Sustainable & Regulatory Compliant Potable Water Systems for Navy Shore Facilities	Navy drinking water systems are becoming out of compliance with increasingly stringent environmental drinking water regulations. Water system operators are also challenged with implementing high priority water conservation mandates. There is a need to identify the most vulnerable water systems for analysis, assess the problems therein and provide recommendations for achieving compliance.
N-0705-10	NAVFAC	In-Situ Sediment Toxicity Testing for Use in Clean-Up & Compliance	Realistic toxicity information is important for risk assessment and clean-up goals, as well as for compliance programs. Site-specific risk assessment and development of risk-based clean-up goals during a Baseline Ecological Risk Assessment is a requirement of both Navy policy and guidance. This requires knowledge of the actual bioavailability and site-specific characteristics that the contaminants of concern possess in-situ. Specific techniques for performing scientifically-defensible in-situ testing are needed.
N-0712-10	NAVFAC	Demonstration/Validation of Delivery/Placement of In-Situ Amendments for Contaminated Sediments at Active, Deep Water Navy Sites & Structural Areas	While contaminated Navy sediment sites continue to progress from risk assessment towards remedy, the development of active amendment material that can be used to sequester and/or degrade contaminants is ongoing. The demonstration of amendments that address a range of organic and inorganic contaminants simultaneously could provide an effective solution where either cost or other issues might prevent implementation of a more traditional remedy.
N-0713-10	NAVFAC	Copper & Zinc Source Identification, Quantification & Reduction in Stormwater Discharges	There is a need to develop Best Management Practices to reduce and/or eliminate the sources of copper and zinc in stormwater drainage areas.
N-0715-10	NAVSEA	Applicability of Multi-Incremental Sampling (MIS) for Ecological Toxicity Testing Restoration Sites	There is a need to determine if MIS protocols, a form of compositing and sample manipulation resulting in one sample being provided to the chemical laboratory, are applicable to contaminants other than explosive residues and/or sampling objectives as part of an Ecological Risk Assessment.
N-0718-10	NAVAIR	Non-Chrome Primer Evaluations for Aircraft Coatings	There is a need to determine the true relative performance rankings of the non-chrome primers for naval aircraft.
N-0719-10	NAVAIR	Electrical Connectors Without Cadmium and/or Hexavalent Chromium	There is a need to perform a Navy/Marine Corp internal evaluation of cadmium plating alternatives for electrical connectors in many DoD applications.

marine invertebrates and fish? The concentrations found were too low to produce toxic effects.

- Are explosive compounds accumulated in invertebrates transferred to fish and therefore potentially available to human consumers? The chemicals have virtually no potential for transfer from invertebrates to fish so very little likelihood of transfer to the human food chain.

These studies were used as a resource by the Agency for Toxic Substances and Disease Registry in a response to

a request by the Northern Marianas Commonwealth to determine the effect of underwater ordnance on pelagic fish. The Agency cited the data to conclude that “Pelagic fish caught in open waters are not likely to contain high levels of explosive residues and will not pose an imminent public health hazard to people who eat them.” Citing existing research instead of conducting a new study saved the Navy \$300,000 to \$400,000.

The results of these studies may assist in addressing regulatory concerns in

other underwater munitions sites as well, such as the island of Vieques (a former Navy firing and bombing range in Puerto Rico). By demonstrating that there are few if any associated ecological risks, the Navy may be able to leave in place unexploded ordnance if they do not pose an explosive safety risk. Priorities can then be focused on potential explosive safety and minimizing associated risks. In the interim, the Navy will continue to support investigation of scientific efforts relating to munitions contaminants in the marine environment.



Tank containing mussels exposed to TNT in seawater.

*Gunther Rosen*

Those needs, if still valid, are resubmitted for consideration to the NESDI program the following fiscal year as funding allows.

### Help NESDI Help You

The NESDI program relies on all Navy personnel to help identify environmental concerns and support the implementation of resultant solutions. In addition to familiarizing yourself with and using NESDI products, you can help NESDI help you by:

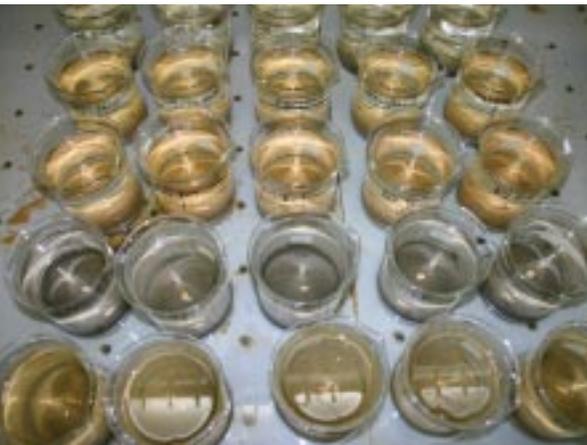
- Submitting and validating environmental needs,
- Reviewing technologies already in development,
- Supporting transition efforts in your organization or at your installation,
- Acting as a Principal Investigator on one of its projects,
- Providing demonstration sites for various program projects.

Stay up-to-date on program activities and learn more about the program by visiting [www.nesdi.navy.mil](http://www.nesdi.navy.mil).

The NESDI program is the Navy's environmental shoreside technology demonstration and validation (6.4) program, sponsored by the Chief of Naval Operations Energy and Environmental Readiness Division, and managed by NAVFAC. [⤵](#)

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Toxicity testing chambers containing benthic invertebrates, seawater and munitions constituents mixed in sediment.

*Gunther Rosen*

Significant progress was also made on several other key projects in FY 2009 including:

1. Environmental Effects of Lasers on Biota in the Marine Environment
2. Web-based Joint Interagency Environmental Model Server
3. Direct-push and Point-and-detect In Situ Sensors for Perchlorate in Ground or Surface Water
4. Containment and Long-term Monitoring Strategies for Contaminated Sediment Management
5. Underwater Ordnance Corrosion Prediction Model

It should be noted that the FY 2010 process generated 58 needs in all—far more than the program can financially support. The NESDI program increasingly relies on the leveraging of efforts to meet the needs of its community. The preceding 13 high-priority needs were validated by members of the program's Technology Development Working Group and resource sponsor.

In addition, technically proficient solutions may not be proposed or feasible within the current year.



Researchers studied the effects of explosive chemicals on juvenile fish, mussels and benthic invertebrates.

*Gunther Rosen*

# Latest Behavioral Response Study Builds Upon Years of Marine Mammal Research

## Mediterranean Whale Behavior Studies Provide Foundation for Today's Efforts

**IN 1996,** A mass stranding of Cuvier's beaked whales in Greece occurred in close proximity to a North Atlantic Treaty Organization (NATO)-sponsored research cruise using low- and mid-frequency active sonar. A subsequent investigation into the incident concluded that "an acoustic link can neither be clearly established nor eliminated as a direct or indirect cause for the May 1996 strandings." (For more information, see D'Amico, A., & Verboom, W. C.: Summary Record and Report, SACLANTCEN Bio-

(NURC) created one of the first research programs in the world to address this topic—the Sound Ocean Living Marine Resources program, now known as the Marine Mammal Risk Mitigation (MMRM) program.

The program is a multinational, multidisciplinary research project with the objective of learning more about whale behavior, and developing tools and technology with which an experimenter can determine the presence of marine mammals using both visual and passive acoustic methods.

anean. Scientists were able to survey locations of various cetaceans during these trials, and behavioral data collected during the trials advanced knowledge of normal beaked whale behavior in the Ligurian Sea so that behavioral responses to human activities could be better understood. The Sirena 08 trial was conducted in the Alboran Sea. The identification of high-density beaked whale regions within the Alboran Sea enabled researchers to return to a known beaked whale habitat during the trials held in the

We are pushing the boundaries of what is possible in studying some of the most reclusive animals on earth.

—Brandon Southall

coustics Panel, La Spezia, Italy, 15-17 June 1998 and Summary Record, Marine Mammal Environmental Policy and Mitigation Procedures Panel; La Spezia, Italy 17-19 June 1998.) The investigative panel recommended that additional research was needed to determine the effect of active sonar on marine mammals.

Based on this recommendation, the NATO Undersea Research Centre

To help determine the location and density of whales in the Mediterranean Sea, and to evaluate the effectiveness of different passive acoustic monitoring methods, a series of sea trials was instituted. These trials, collectively known as "Sirena," were conducted between 1999 and 2010 in the Mediterranean Sea. The early trials were conducted in the Ligurian Sea, a deep basin in the northwest Mediter-

Mediterranean Sea in 2009, commonly referred to as "MED 09."

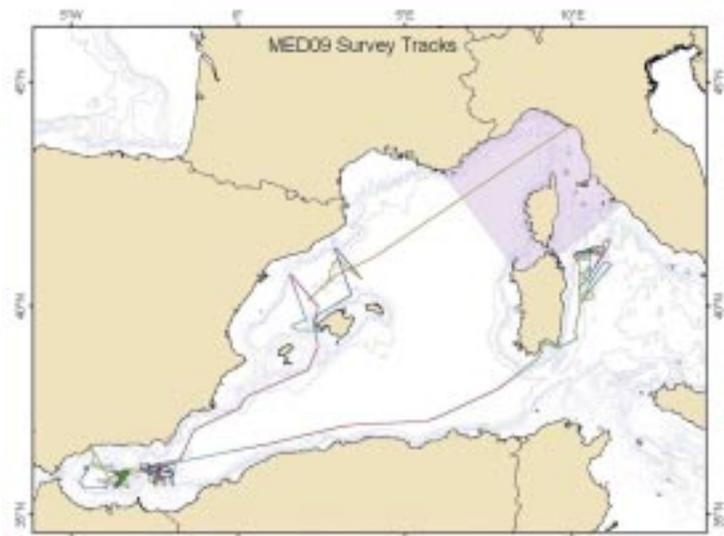
The Sirena trials provided researchers and military commanders with aids to assess the potential for a given area of the sea to contain whales and other marine mammals that may be impacted by the use of active sonar. The trials also assisted in the development of mitigation protocols for use during training exercises, and other

educational tools. These included passive acoustic monitoring, predictive habitat and sound propagation models, a web site and a guiding policy. Since the initial policy was developed in 1999, no known marine mammal strandings have occurred in spatial or temporal proximity to NURC experiments.

The approach adopted by NURC includes engaging academia, government, private sector scientists, and environmental organizations into its MMRM program. Over 20 participants from nine countries have contributed resources including software, technologies, data, and personnel to the planning, execution, and analyses of sea trials. In 2005, 2007 and 2009, NURC organized three intergovernmental conferences entitled “The Effects of Sound in the Ocean on Marine Mammals.” Over 175 individuals from 11 countries participated in these events, which provided a forum for military personnel and government-funded scientists to discuss the status of current research regarding the potential impacts of sonar on marine mammals. In addition, current mitigation methods employed by national navies were shared. These conferences provided opportunities for discussion of coordinated efforts and future collaborations to make the most of limited research funding and to eliminate duplicative efforts.

## Marine Mammal Research & the Navy

In the U.S., the Navy is a participant in multiple research efforts regarding whale behavior and active sonar use. In 2007 and 2008, Behavioral Response Studies were conducted at the Atlantic Undersea Test and Evaluation Center (AUTEC) in the Bahamas. In these studies, whale movement and behavior was studied with and without the presence of active sonar signals similar to those used in operational training exercises, as well as other sounds.



The route of the MED 09 study.



The Alliance was the research vessel used for MED 09.



Large groups of pilot whales were encountered during MED 09. Hundreds of high quality identification photographs were made on multiple days at close range. U.S. National Marine Fisheries Service permit number 14241 issued to Peter Tyack

(To read more about these projects, see our stories entitled “Navy Leads the Way in Marine Mammal Science” in the winter 2009 issue of *Currents*, and “Spotlight on Dave Moretti, Principal Investigator for the Navy’s Marine Mammal Monitoring Program Outlines Priorities and Projects” in our winter 2010 issue. Both are available for viewing and downloading online at [www.enviro-navair.navy.mil/currents](http://www.enviro-navair.navy.mil/currents).)

### The 2009 Mediterranean Trials

The summer of 2009 saw new accomplishments in the study of marine mammal behavioral patterns and habitats. The multinational MED 09 study was conducted in the Mediterranean Sea between late July and early September 2009. Despite its cultural and historical significance, the deep water, off shore regions of this area have remained relatively uncharted by the world’s marine mammal researchers. “Many of the areas we are studying in the Mediterranean have not been systematically surveyed,” said Angela D’Amico of the Navy’s Space and Naval Warfare Systems Command (SPAWAR) Systems Center Pacific, and co-principal investigator on the MED 09 project.

### International Participants in MED 09

THE PASSIVE ACOUSTIC package for MED 09 was provided by The Centro Interdisciplinare di Bioacustica e Ricerche Ambientali (CIBRA). Based out of the University of Pavia, Italy, the CIBRA system was developed under the lead of Gianni Pavan, who pioneered the digital recording of sea-mammal sounds in the early 1980s, and was one of the first to recognize patterns of clicks in observed recordings of whales. To read more about CIBRA and their work, visit [www.unipv.it/cibra](http://www.unipv.it/cibra).

Leaders of the two visual observer groups (one from each phase of the sea test), were Dr. Ana Canadas, of the Alnitak Marine Research Center of Spain, and Michela Podesta, Curator of the Vertebrate Department of the Museo di Storia Naturale di Milano (Natural History Museum in Milan, Italy). The Alnitak Marine Research Center focuses on collecting baseline scientific data for a variety of uses. During the last several years, the organization has been involved in the development of conservation plans and the design of Marine Protected Areas, based on robust scientific data.

The Museo di Storia Naturale di Milano houses Italy’s most comprehensive overview of the history of life on planet Earth.



Researchers in small, inflatable boats attempted to affix tags to the whales. U.S. National Marine Fisheries Service permit number 14241 issued to Peter Tyack

The area was chosen because the AUTECH range in the Bahamas, despite its advantages, features considerable levels of sonar sound, meaning that whales in the area may not respond to sonar in the same way as naive animals. A new site was needed where such sounds are less prevalent. The Alboran Sea was selected as the primary MED 09 test area as it provided an area where

sonar use was expected to be infrequent and there was a high density of Cuvier's beaked whales, based on the Sirena observations made in 2008. The association of mass strandings of Cuvier's beaked whales and offshore naval maneuvers was first noted in 1991. (For more information, see Simmonds, M. P., & Lopez-Jurado, L. F. (1991). Whales and the military. *Nature*, pages 351, 448.) Subsequently, there had been other stranding events involving this species associated with naval maneuvers in the Mediterranean Sea and other areas. (For more information, see Cox, T. M. et al (2006): Understanding the Impacts of Anthropogenic Sound on Beaked Whales. *Journal of Cetacean Research and Management*, 7(3), pages 177-187.) These factors all contributed to the selection of the Mediterranean Sea for the 2009 trial. Researchers believe a better understanding of the basic biology, normal uses of sound communication and the effects of human sounds on beaked whales will allow for improved protection of the species.

Among the primary objectives of the study were tracking and tagging of several cetacean species, controlled exposure experiments using different sounds, monitoring of ambient noise in areas of variable human interaction, and environmental measurements to support habitat modeling.



Visual observers use the WILD system on the ship's deck.



Visual observers spent a total of 172 hours actively scanning for marine mammals.

According to D'Amico, MED 09 demonstrated the effectiveness of a highly integrated research team to track beaked whales passive acoustic monitoring tools with listening equipment located on a research vessel rather than attached to the ocean floor, as is the case on Navy ranges. Researchers say their ability to listen for the sounds of marine mammals and integrate these measurements with specialized visual monitoring outside of Navy ranges will enhance future studies in areas not equipped with bottom-mounted listening devices.

To collect the data, researchers integrate observations made by highly trained visual observers who observe the animals at the surface, and advanced listening technologies such as towed hydrophones (waterproof microphones) and buoys with deep water hydrophones to track animals when they are vocalizing underwater.

To visualize the locations of the focal animals, a geo-spatial logging and mapping tool, known as Whale Identification Logging and Display (WILD) was used for the first time during the MED 09 trials. Over the course of the sea trial, the WILD system proved its value by becoming a crucial tactical decision aid for the researchers. The WILD Mapper was running in three locations on the ship, providing ship's navigation, observations, both visual and acoustic, and the different teams with their own custom view of the events as they unfold. The team was able to use this capability to help them predict where the beaked whales would resurface after foraging dives and position the vessels accordingly. MED 09 marked the first fully integrated use of the WILD system, integrating data from many different sources. (See our

sidebar for more information about the WILD system and passive acoustic monitoring tools.)

Once a desirable group of animals was identified, researchers maneuvered their primary ship, the NATO research vessel Alliance, toward the focal animals. The WILD system was then used to estimate the location of the next surfacing of the whale so that the Alliance could deploy a small, quiet tagging boat, allowing researchers to get close enough to attempt to affix monitoring tags to the animals.

Beaked whales are notoriously difficult to observe, track, and tag. They can dive up to two kilometers and stay underwater for over an hour. When they do momentarily surface, usually for just a few minutes at a time, their low profile makes them nearly invisible in anything but the calmest ocean conditions.

## The WILD System

**THE WILD SYSTEM** was developed by the Space and Naval Warfare Systems Center Pacific, to support marine mammal research. The system was based on the concept, developed by the NATO Undersea Research Centre, of using Geographic Information System (GIS) for real time data logging of marine mammal sightings. The WILD system has expanded the concept with the integration of sightings of marine mammals by trained visual observers, detections by passive acoustic arrays and other hydrophone systems and the positions of research vessels on a graphical display in real time.

Each data source broadcasts its observations through the ship's network in data sentences. These sentences are integrated into a

single feed which is rendered by the WILD Mapper application anywhere on the ship. The WILD Mapper utilizes the ArcGIS® desktop GIS to display the marine mammal observations and vessels along with any necessary background information such as bathymetry, nautical charts and other contextual information. The WILD system can also be deployed as a standalone system with its own network and Global Positioning System for smaller research vessels.

Future upgrades to the WILD system include predictive models of whale surfacings, three-dimensional displays, and integration of other sensor systems used in marine mammal research. In addition, the WILD system has the potential for use in similar applications, such as avian and terrestrial animal research.

The elusive nature of beaked whales combined with unfavorable weather made it impossible to attach monitoring tags to the animals during MED 09. Though researchers were disappointed to leave without tagging a beaked whale, they say that the cruise did succeed in its goal of repeated

detection and extended focal follows of Cuvier's beaked whales. This was critical for current ongoing experimental procedures, which require the ability to hear when whales stop vocalizing, an indication of when to cease transmissions during controlled exposure experiments.

"We have made major strides in refining the tools and technologies for conducting vessel-based controlled exposure studies of beaked whales, as well as significant contributions in terms of basic biology and behavior," said Brandon Southall, senior scientist at Southall Environmental Associates



Bioacousticians monitoring the sounds received on the hydrophones which have been translated into spectrograms.



Rough weather conditions on many occasions made the whale tagging process impossible.

and co-principal investigator on the MED 09 project. “These advances and... complementary approaches will be useful not only with regard to future naval operations in the Mediter-

ranean Sea, but also in constructing sound exposure models for military exercises in other areas and informing mitigation methods. This is cutting edge science, and we are pushing the

boundaries of what is possible in studying some of the most reclusive animals on earth.”

D’Amico agrees. “Collectively, we are contributing to the understanding of

### For More Information

FOR MORE ABOUT the benefits of training with active sonar, see our story entitled “Training With Active Sonar While Protecting Marine Life” in the spring 2008 issue of *Currents*.

For more information about the complex topic of sound in the sea, visit the Discovery of Sound in the Sea web site at [www.dosits.org](http://www.dosits.org).



key species that live in the Mediterranean Sea such as Cuvier's beaked whales. With the supporting environmental data we collected in different areas, we are beginning to develop an understanding of the habitat in which they live," she said.

Peter Tyack, Director of Woods Hole Oceanographic Institution's Marine Mammal Center for Research and Conservation was the third co-principal investigator on the MED 09 project. The remaining critical piece of research is to determine the exposures that change normal behavior of the Cuvier's beaked whale in areas where they are at risk of stranding, and to define what kinds of exposure are safe for them.

Primary sponsors of the MED 09 project included the Office of Naval Research, the Chief of Naval Operations Environmental Readiness Division, the Strategic Environmental Research and Development Program, and the National Oceanographic and Atmospheric Administration (NOAA). For a full list of organizations and to read the MED 09 blog, visit <http://med09-expedition.blogspot.com>.

### What's Next in Behavioral Research

In the Navy's ongoing attempts to understand marine mammals' behavioral responses to sound, including military sonar transmissions, the next Behavioral Response Study is planned to start in late summer 2010 in the waters off of Southern California. Known as SOCAL 10, this project is attempting to expand on the successes from the Bahamas and Mediterranean projects in studying marine mammals, with some focus on beaked whales and other deep-

diving marine mammals. It is being carefully integrated with other Navy-funded research in southern California, including opportunistic monitoring of marine mammals using listening sensors during active sonar training exercises, and will expand to include some other marine mammal species (like large whales and seals/sea lions) that have not previously been used, but that are important to understand in terms of potential impacts from military training operations. It is intended to include real operational sources during the five-year period in which it will occur. SOCAL-10, like the behavioral response study efforts in the Bahamas, represents a partnership between Navy, NOAA, and researchers from both the private and academic sectors. The experiment will be done with careful precautions to ensure safe and ethical completion of studies while obtaining much-needed data to inform conservation management and the planning of military training operations involving sound. Extensive outreach efforts with local educational, environmental and conservation management

groups are planned in an effort to ensure transparency in both the processes and the findings of SOCAL-10.

The ultimate goal of the behavioral response studies, which are being

## The Basics About Passive & Active Sonar

**A KEY PART** of keeping our nation safe relies on the ability to detect the presence of submarines off our coasts. To this end, the Navy relies on the regular use of passive and active acoustics.

Passive acoustics, as the name implies, relies on a system of underwater microphones known as hydrophones that record underwater sounds, including those made by traditional submarines. The Navy has placed hydrophones on the seafloor in strategic areas of the continental shelf in the North Pacific Ocean and North Atlantic Ocean. These fixed hydrophones are capable of locating a submarine within a radius of 50 nautical miles or less. Hydrophones may also be placed on buoys known as sonobuoys. These have the advantage of being able to be dropped from an airplane, and can be placed relatively anywhere in the ocean. An array of hydrophones may also be towed behind a moving ship. Because they are not in a fixed position, the towed system greatly increases the area where submarines can be found. In addition, U.S. submarines themselves are equipped with passive sonar systems that are used to detect and determine the relative position of enemy submarines.

The Navy can also use active acoustics to find submarines. By actively transmitting a sound pulse, an operator can then analyze the echoes that return from objects hit by the sound. They can also measure the time it takes for echoes to return and calculate the distance to the object causing the echo. Much research has been done on classifying the kinds of echoes that different objects make.

The use of active sonar has grown in recent years as enemy submarines have become quieter and more difficult to detect with passive sonar. By using specialized sound transmissions and echo location, active sonar increases the distance at which submarines can be detected and tracked.



The Navy's research is contributing to the understanding of key species such as Cuvier's beaked whales.

© Greg Schorr / Cascadia Research

## In the Navy's ongoing attempts to understand marine mammals' behavioral responses to sound, the next Behavioral Response Study is planned to start in late summer 2010 in the waters off of Southern California.

integrated with opportunistic measurements around sonar training exercises, is to understand the initial steps in the chain of events that lead from sound exposure to atypical mass strandings of beaked whales; and to use that understanding to identify a safe response that can be used to indicate risk. The exposures are and will be carefully controlled and measured on the subjects using sophisticated acoustic tags to make it possible to titrate what acoustic exposure leads to an indicator response. The movements and acoustic behavior of the subjects are monitored in real-time with a passive hydrophone array.

In addition to expanding the research to more and different types of marine mammals, the goals of these studies going forward will be to tag more whales in order to obtain a higher statistical sample.

According to Dave Moretti, Principal Investigator for the Navy's Marine Mammal program in the Bahamas, the ultimate goal of the Behavioral Response Studies is to produce a model of animal behavior relative to active sonar. "If this effort is successful," he says, "perhaps it will lay the groundwork for a tool that planners could use in advance of exercises to predict if there's going to

be a problem and to take appropriate steps or choose different sites to avoid such a problem."

Discovering the truth about sonar/marine mammal interaction, and learning how to avoid potential interactions with marine mammals will allow the Navy to continue crucial training exercises with active sonar for years to come. 

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### CONTACT

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## Wrapping Up EPCRA Reporting Year 2009 Efforts

Take the Right Steps Now to Prepare for 2010

**COMPLYING WITH THE** Emergency Planning and Community Right-to-Know Act (EPCRA) is a challenge at the start of every calendar year. Because the major reporting requirements (i.e., the Section 312 Tier II and Section 313 Form R) are annual requirements, the best place to start for the current year's efforts is a review of documentation from the prior reporting year. Therefore, keeping informed of recent and upcoming EPCRA news and conducting simple efforts to wrap up the current reporting year (RY) can make the next reporting year even easier than the last.

The best place to start for the current year's efforts is a review of documentation from the prior reporting year.

- **Compile Your Documentation of Efforts, Data Collected, & Calculations Performed**

Make sure your documentation is compiled and filed in a place where you (or your successor) can find them, if needed. Your documentation may include all of the key steps in a compliance effort, such as how data were collected, where exemptions were applied, calculation approaches and tools used, release estimates with data used, any assumptions made, reporting forms and notes on how the forms were completed, proofs of delivery, Section 313 Facility Data Profile (FDP), and any communications with EPCRA authorities. These should be informative enough so that you (or your successor) can understand them in the years to come.

- **Report Section 313 Information up Your Chain-of-command to the Chief of Naval Operations Energy and Environmental Readiness Division (N45)**

Be sure you have supplied Toxic Release Inventory—Made Easy (TRI-ME) web access codes and other requested data up your chain-of-command to N45 for

### Help is Available to Prepare for RY 2010

- **Attend Training or a Refresher Course**

The Naval Civil Engineer Corps Officer School (CECOS) will be offering EPCRA training again in FY 2011. Attend the full EPCRA course covering all requirements if you are new or would like a complete review. Attend a refresher, offered before each reporting deadline, to refresh your EPCRA knowledge. The new format for the refreshers allows for students to submit topics for discussion.

- **Obtain New EPCRA Guidance**

Make sure you have 'Getting Started with the Emergency Planning and Community Right-to-Know Act (EPCRA): A Primer for Navy Facilities,' (May 2009) and all available Calculation Manual appendices—How to Consider Batteries Under EPCRA (February 2010), and How to Consider Fuel Thresholds Under EPCRA Section 313 (currently under development). All newly developed Calculation Manual appendices will be announced via the Navy EPCRA e-mail group. (To become a member of this group, send an email to NavyEPCRA@urscorp.com if you are responsible for EPCRA compliance.) You may also request copies from Lisa Lambrecht at Lisa\_Lambrecht@urscorp.com or download an electronic version from the sites below:

- The Naval Facilities Engineering Command's (NAVFAC) Enterprise Document Library at [https://portal.navy.mil/portal/page/portal/NAVFAC/NAVFAC\\_DOCS\\_PP](https://portal.navy.mil/portal/page/portal/NAVFAC/NAVFAC_DOCS_PP)
- The CECOS web site at <http://www.cecosweb.com/handouts/EPCRA>
- TRI-DDS web page at <https://dod-tridds.org/tri-web/> (login required)

- **Conduct Close-out and Wrap-up Efforts for Prior Reporting Year**

If your documentation is complete and issues and changes have been identified already, you will start the current reporting year ahead of your last effort.

use in review of Navy TRI data and development of the Navy section of the Defense Environmental Programs Annual Report to Congress (DEPARC).

- **Respond to Questions from N45 and the U.S. Environmental Protection Agency (EPA)**

N45 representatives may contact Navy bases to examine changes from the past reporting year to the current reporting year in an effort to catch errors



before the data is compiled for the DEPARC. In addition, EPA may e-mail the Technical Contact given on the Form R to clarify information such as why a toxic chemical reported last year was not reported in a subsequent year. Be sure to document all contact with N45 or EPA representatives.

#### How You Wrap Up RY 2009 Can Save Time & Effort for RY 2010

Keep in mind the following important information and lessons learned that could help you in future reporting efforts.

##### 1. Review Your Documentation

Go through each separate EPCRA reporting effort. Read the information, look at the spreadsheets and formulas, and make notes of what to do differently and what to improve upon for RY 2010.

#### Do You Have an Idea for a Calculation Manual appendix?

- Is there something at your base that remains a challenge every reporting year?
- Do you have a scenario that you are not sure how to handle for EPCRA?
- Does your issue impact other Navy bases?

If you have an idea for other EPCRA compliance guidance that you and other Navy bases could use, send your ideas to the Navy EPCRA e-mail helpline at [NavyEPCRA@urscorp.com](mailto:NavyEPCRA@urscorp.com).

##### 2. Find the Time Sinks

What took more time than expected to complete? What was the core issue? How do you get around it or minimize it?

##### 3. Find the Challenges

What effort was more difficult than you expected? Can you enlist help from another media manager to assist with calculations? Is there a better way to get the data or perform the calculations?

##### 4. Find the Simple Changes that Lead to Big Improvements

Have you implemented a hazardous material tracking program? Can you review the system reports and output to design them for your facility's EPCRA needs? Do you have sampling results on the way for an air release or for a hazardous waste that you can use for TRI? If you provide a spreadsheet to Range Control, could they use it for tracking so you can upload it directly into the Toxic Release Inventory—Data Delivery System (TRI-DDS) instead of entering records by hand?

##### 5. Find the Items that Are Coming in the Near Future at Your Facility that Will Impact EPCRA

Do you have major construction or demolition at your facility? Is there a storage tank that will impact Sections 311/312 and Section 313 (as process equipment)? Is it a new runway that is a structural element? ⚓

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## SERDP & ESTCP Announce Technical Program & Training Opportunities for Annual Symposium

Program to Focus on Meeting DoD's Environmental Challenges

**THE PARTNERS IN** Environmental Technology Technical Symposium and Workshop, sponsored by the Strategic Environmental Research and Development Program (SERDP) and the Environmental Security Technology Certification Program (ESTCP), will be held 30 November to 2 December 2010, at the Marriott Wardman Park Hotel in Washington, D.C.

The event will offer a dynamic opening plenary session, 14 technical sessions, three short courses, approximately 400 poster presentations, and a variety of networking opportunities for attendees from the government, academic, and private sectors.



SERDP



The event will be held  
30 November to 2 December 2010  
in Washington, D.C.

### The Program

The opening plenary session will feature keynote speakers including Rear Admiral David W. Tittley who will address emerging environmental challenges facing the Department of Defense (DoD). SERDP and ESTCP Principal Investigators who have helped DoD achieve its mission while improving its environmental performance will be honored as the annual Project-of-the-Year Awards are announced.

The plenary session will pave the way for the start of the comprehensive technical program. Technical sessions will highlight research and innovative technologies that are assisting DoD to address increasingly complex environmental challenges. Throughout the event, short courses will offer training opportunities on select technologies and methods in environmental restoration and munitions response. Following are the topics to be covered during the technical sessions and short courses.

### Technical Session Topics

- Assessing Vulnerability to and Impacts of Sea Level Rise
- Opening the Arctic: Science Challenges Under Climate Change
- National Environmental Monitoring and Indicator Systems: Implications for DoD
- Energy Efficiency for DoD Installations
- Minimizing Hexavalent Chromium Use in DoD Operations
- Aviation and the Environment: Deicing and Noise
- Lead-Free Electronics in Military Systems
- Passive Sampling Approaches for Contaminated Sediment Management
- Remediation and Management of Persistent Chlorinated Solvent-Contamination
- Monitoring and Mitigation of Vapor Intrusion from Contaminated Groundwater Sites
- Evaluating the Environmental Impacts from Use of Energetic Materials
- Environmental Concerns and Energy Demands for Forward Operating Bases
- Classification Methods for Military Munitions Response
- Military Munitions in the Underwater Environment

### Short Courses

- Principles and Practices of In Situ Chemical Oxidation
- Measurement and Use of Mass Discharge and Mass Flux at Contaminated Sites
- Classification Methods Applied to Military Munitions Response

The Sponsors

SERDP is DoD's environmental science and technology program, planned and executed in partnership with the Department of Energy and the U.S. Environmental Protection Agency, with participation by numerous other federal and non-federal organizations. The program invests across the broad spectrum of basic and applied research, as well as exploratory development. SERDP focuses on cross-service requirements and pursues solutions to the Department's most intractable environmental problems. Advances in the understanding and management of DoD's resources support the long-term sustainability of training and testing ranges and facilities. Innovative environmental technologies significantly reduce current and future environmental liabilities. Advances in science and technology improve both the environment and the military performance of DoD systems.

ESTCP is DoD's environmental technology demonstration and validation program. The program's goal is to identify and demonstrate cost-effective technologies that address DoD's highest priority environmental requirements. Demonstrations are carried out at DoD facilities and sites to document improved efficiency, reduced liability, and direct cost savings. Innovative technologies are reducing the cost of environmental remediation and compliance, lowering lifecycle costs of weapons systems, and

managing the impact of DoD's operations on the environment, while enhancing military readiness.

For additional information, visit [www.serdp-estcp.org/symposium](http://www.serdp-estcp.org/symposium), send an e-mail to [partners@hgl.com](mailto:partners@hgl.com), or call the symposium contact line at 703-736-4548.

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BE PART OF OUR WINTER ISSUE

Submissions Are Due by 22 October

We're already planning our Winter 2011 issue and you can be a part of it! If you have a story that you want us to consider, you need to submit your final text and images by 22 October 2010.

We look forward to reading your stories about all the great work you're doing as the Navy's stewards of the environment.

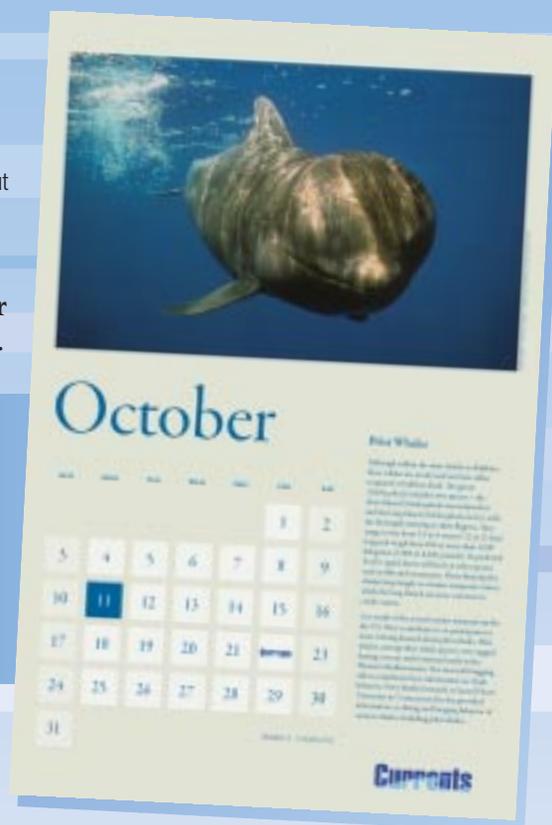
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Currents Deadlines

- Winter 2011 Issue: Friday, 22 October 2010
- Spring 2011 Issue: Friday, 21 January 2011
- Summer 2011 Issue: Friday, 22 April 2011
- Fall 2011 Issue: Friday, 22 July 2011

You can also refer to your *Currents* calendar for reminders about these deadlines.



# CNO Environmental Awards Recognize Exceptional Stewardship

## Efforts of Fiscal Year 2009 Winners Highlight the Range of the Navy's Commitment

**WINNERS OF THE** annual Chief of Naval Operations (CNO) Environmental Awards program have been announced for Fiscal Year (FY) 2009. The awards recognize people, ships, and installations for their exceptional environmental stewardship.

This awards program is closely aligned with the Secretary of the Navy (SECNAV) and Secretary of Defense (SECDEF) programs. Winners at the CNO level become nominees at the SECNAV level of competition. Winners at the SECNAV level become nominees at the SECDEF level of competition.

The competition categories for FY 2009 included natural resources conservation (small installation and individual/team), cultural resources management (installation), environmental quality (non-industrial installation, individual/team, and large ship), sustainability (industrial installation), environmental restoration (installation and individual/team), and environmental excellence in weapon system acquisition (team).

Nominations were judged on accomplishments during the timeframe 1

October 2007 through 30 September 2009. Accomplishments of the FY 2009 CNO environmental award winners are highlighted below.

### Natural Resources Conservation Award

The purpose of this award is to recognize efforts to promote the conservation of natural resources, including the identification, protection, and restoration of biological

resources and habitats; the effective management and use of the land and its resources; and the promotion of the conservation ethic.

#### Small Installation

Commander Fleet Activities  
Yokosuka, Japan

Commander Fleet Activities, Yokosuka (CFAY), located on 1,700 acres of land just inside Tokyo Bay on the Pacific Ocean side of Honshu Island, is the



The CFAY Public Works Department Environmental Division routinely receives work request forms. As a result of a submitted work request form regarding a proposed construction site near more than 50 cherry blossom trees, the trees were relocated away from the construction site and thereby protected from the impacts of construction. Cherry blossom trees are a national icon in Japan.

largest overseas U.S. Navy base in the world. CFAY works closely with U.S. and Japanese officials, ensuring fleet, family, community, and mission readiness as they relate to the participation and fulfillment of environmental objectives. CFAY partners with local governments to meet or exceed stringent U.S. and Japanese government environmental protection standards. Such standards are supported in CFAY's Integrated Natural Resources Management Plan (INRMP), which includes updated facility inventory lists. CFAY's INRMP was most recently updated in July 2009 to include a new Threatened Species List. CFAY continues to meet and/or exceed all strategically planned natural resource conservation management objectives.

#### Naval Air Station Pensacola, Florida

Naval Air Station (NAS) Pensacola took direct hits from Hurricanes Ivan and Dennis in 2004 and 2005, and damage to its natural resources was nearly catastrophic. Its INRMP played a major role in base recovery. Training areas where tree and site damage posed safety problems were restored by removing 7,000 hazard trees and pruning 4,000 trees around mission areas. Native vegetation, including planting 2,000 new trees and new dune establishments along shorelines, improved the quality of life and provided a buffer for newly constructed training and housing facilities. At Forrest Sherman Field and the Bruce L. Tanner Forest, 80 acres of aviation clear zones were cleared and prescribed burning was conducted on 550 acres, improving flight safety and reducing the Bird/Aircraft Strike Hazard (BASH). The base also restored seven interpretive nature trails, two youth camping areas, a freshwater fishery, and reopened natural resources facilities to the public.

Naval Weapons Station Seal Beach Detachment Fallbrook, California Commissioned in 1942, Naval Weapons Station Seal Beach Detachment Fallbrook was able to focus on proactive solutions to mission challenges. Accomplishments included:

- Comprehensive annual surveys for federally listed species yielding valuable distribution



NAS Pensacola has 10 miles of hiking trails. The Bayou Grande Nature Trail and Family Picnic Center offers the nature enthusiast "the Real Florida" experience. This nature trail was completely restored following destructive damage caused by hurricanes.

and trend data to track the status of populations and provide presence/absence data for mission support project assessments.

- Habitat treatments involving removal of dense vegetation and the drilling of artificial burrows to stimulate the recolonization of the endangered Stephens' kangaroo rat into formerly occupied habitat.



Naval Weapons Station Seal Beach Detachment Fallbrook is home to numerous sensitive species, including migratory birds (such as the red-shouldered hawk; top left) and five federally listed species, including (clockwise from center top): the coastal California gnatcatcher, Stephens' kangaroo rat, least Bell's vireo, and arroyo toad.

### Individual/Team

Mr. John R. Burger of Pacific Missile Range Facility, Hawaii

John Burger has on-site responsibility for the oversight and implementation of both the INRMP and Integrated Cultural Resources Management Plan of the Pacific Missile Range Facility (PMRF), the world's largest instrumented multi-environment Navy training range. As PMRF's Environmental Coordinator, Mr. Burger has developed unmatched communication channels and positive working relationships with the local community, governmental agency peers, and private organizations committed to the protection of natural resources. Accomplishments included:

- Continuous refinement of the Laysan Albatross Surrogate Parenting program to minimize BASH potential while increasing egg hatching success at Kilauea Point National Wildlife Refuge.
- Leveraging available assets to develop long-term monitoring of threatened and endangered species, especially the Hawaiian Monk Seal and Green Sea Turtle.

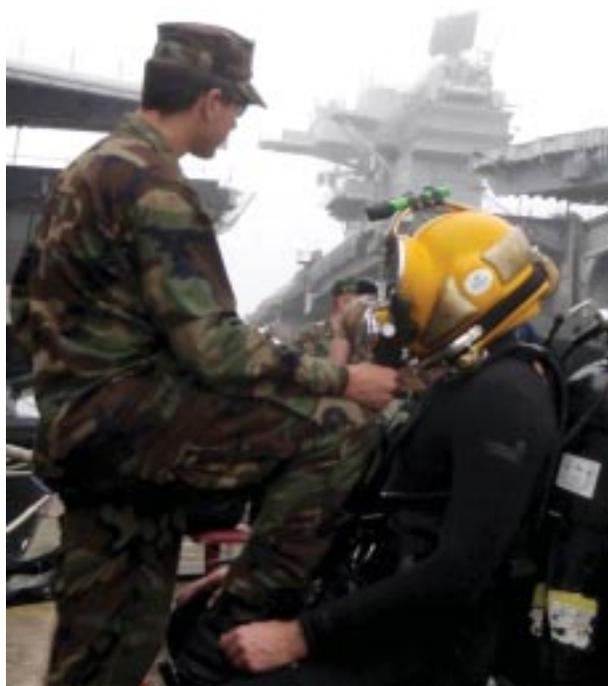
Environmental Team of Naval Undersea Warfare Center Division Newport, Rhode Island

For the past decade, Naval Undersea Warfare Center (NUWC) Division Newport's Environmental Team has provided the Navy and non-Department of Defense customers with a broad spectrum of environmental and natural resource management services. The team's accomplishments included:

- Completing the first known quantitative biofouling survey of an aircraft carrier. These data will be useful when decommissioning Navy vessels.



Inquisitive Hawaiian Green Sea Turtle on PMRF's Underwater Range. The Hawaiian Green Sea Turtle is protected under the Endangered Species Act as a threatened species. A Navy diver in the background is inspecting cable.



A diver prepares to enter the water at NUWC Division Newport to start the underwater biofouling video survey of the Ex-USS FORRESTALL (CV 59).

- Developing a series of real-time algorithms to detect, classify, localize, and estimate the density of marine animals using passive acoustics.

Ms. Michael F. Wright of Naval Air Station Oceana, Virginia

Michael Wright is a Natural Resources Specialist who has made impressive accomplishments in updating, managing and implementing the natural resources program for her immediate area of responsibility and for the Naval Facilities Engineering Command Mid-Atlantic Region (NAVFAC MIDLANT) as a whole. Some of her accomplishments included:

- Organizing more than 150 volunteers to assist with habitat restoration activities. During three events these volunteers planted more than 160,000 plants.
- Becoming the first NAVFAC MIDLANT installation manager to receive certification as an Airport Biologist from the U.S. Department of Agriculture in support of mission BASH management.

### Environmental Quality Award

The purpose of this award is to recognize efforts to ensure mission accomplishment and protection of human health through implementation of environmental management



Ms. Wright helps a Dam Neck Annex Child Development student with planting the ceremonial Arbor Day tree.

systems in the areas of environmental planning, waste management, and safe drinking water.

### Non-Industrial Installation

#### Naval Base Coronado, California

Naval Base Coronado's (NBC) environmental program manages some of the most diverse and regulated facilities in the continental United States. NBC's environmental program is comprehensive and multifaceted; focused on compliance, conservation and recycling, with minimal impact on training operations. A testament to the success of NBC environmental program is minimal enforcement actions, in spite of increased training on some of the most active Navy ranges. Of special significance has been:

- Approximately 32 percent reduction in water consumption and 25 percent reduction in energy consumption.
- Over \$21 million in energy projects awarded or executed in FY 2009.

#### Naval Base San Diego, California

In the spirit of community partnership, Naval Base San Diego (NBSD) is a vigilant caretaker of its property, steadfast in compliance with environmental laws and regulations. The introduction of new ideas and equipment which reduce waste, capture pollutants, and otherwise mitigate environmental impacts at NBSD has led to regulatory compliance in all areas of NBSD activities. Achievements included:

- Over 10,000 man-hours contributed annually to base environmental activities.

- Initiated an electronic waste turn-in event that resulted in the recycling/reuse of \$430,000 in electronic items and a potential savings of \$10,000 in disposal costs.

### U.S. Naval Support Activity Bahrain

Naval Support Activity (NSA) Bahrain is committed to maintaining a comprehensive environmental program that minimizes environmental processes to cost effectively meet customer's needs. By specifically targeting source reduction and recycling, NSA Bahrain reduced costs by more than \$1.5 million and reduced hazardous waste disposal quantities by more than 55 percent. Some other outstanding achievements included:

- Diverting more than 2,000 tons of aluminum cans, scrap metals, tires, wood, plastic bottles, paper, cardboard and others from the solid waste stream achieving a cost avoidance of more than \$150,000 and generating over \$40,000 of sale proceeds to support base environmental activities, such as Earth Day.
- Establishing cradle-to-grave procedures to locally recycle shipboard bilge water and oily waste, reducing disposal costs by millions of dollars and disposal quantities by millions of gallons.

### Individual/Team

#### Mr. Awni M. Almasri of U.S. Naval Facilities Engineering Command Europe, Africa, Southwest Asia

Compliance with regulations related to hazardous waste (HW) generated at NSA Bahrain and the Fleet is challenging and costly due to a lack of the proper disposal facilities in the Arabian Gulf Region. All HW has to be shipped to proper disposal facilities in Europe and Canada. Mr. Almasri developed and engaged in an aggressive recycling and in-country HW disposal program to reduce the volume of waste being disposed of outside the Southwest Asia Area of Operations. Mr. Almasri successfully reduced NSA Bahrain and shipboard HW

disposal quantities by more than 50 percent. His efforts reduced the annual HW management cost from approximately \$3 million to less than \$1 million per year.



Mr. Almasri talking to school children during NSA Bahrain earth week.



NRCS Environmental co-sponsored a Special Cleanup Day at Changi Beach Walk to support the FY 2009 Earth Day theme, "Partnering for the Planet."

**Environmental Program Management Team, U.S. Navy Region Center, Singapore**

The U.S. Navy Region Center, Singapore (NRCS) Environmental Team has an important role in maintaining compliance with U.S. environmental guidance and applicable local laws and regulations as well as enhancing the quality of life of the facility population. In FY 2008/2009, the team became the first in the Navy to achieve Environmental Management System (EMS) conformity with zero deficiencies. Other significant accomplishments included:

- Effective implementation of environmental compliance programs which received no Notices of Violation from local regulators.
- Supported over 123 U.S. Navy ships and processed over 380,000 pounds of shipboard hazardous waste and biomedical waste for local disposal at no cost to the ships.

**Environmental Quality Team of Naval Air Weapons Station China Lake, California**

Naval Air Weapons Station (NAWS) China Lake is the Navy's largest Research, Development, Acquisition, Test, and Evaluation facility for weapons development and testing. Activities associated with this mission generate a

large and diverse energetic wastestream that must be treated on-site because government regulations prohibit the transport of most of it on public roadways. Major accomplishments of the team included:

- Development of an innovative, science-based approach, designed to withstand public scrutiny, respond to public misconceptions, and quantify potential impacts on human health from Open Burn/Open Detonation operations.
- Increasing by up to four orders of magnitude the amount of propellants and explosives that can be treated per year.

**Large Ship**

**USS DWIGHT D. EISENHOWER (CVN 69)**

USS DWIGHT D. EISENHOWER (IKE) has created an environmentally conscious culture onboard. By taking advantage of fleet wide and locally prepared training opportunities, the ship has maintained the highest levels of material readiness to ensure day-to-day operations are environmentally safe. The end result is an environmentally friendly and safe culture which is incorporated into the ship's daily routine. During IKE's three-month deployment



An F/A-18 Hornet flies over the NAWS China Lake and the surrounding community.

into the Fifth Fleet area of responsibility in support of Operation Enduring Freedom beginning in February 2009, IKE conducted over 4,000 launches and recoveries of fixed- and rotary-winged aircraft without a single reportable environmental incident.

**USS FRANK CABLE (AS 40)**  
 USS FRANK CABLE (AS 40) is the largest single Naval command and the largest afloat platform on Guam. Sailors understand that this vessel is the pride of the local community and that this respect can only be maintained by

dedicated commitment to protecting Guam's pristine and natural beauty. Ever mindful of this responsibility, FRANK CABLE was able to meet and/or exceed all mission requirements and enjoy routine operational success, all the while serving as the guardian of the environment. FRANK CABLE demonstrated significant commitment to the Navy's Environmental and Natural Resources Program during fiscal years 2008 and 2009. Specific achievements during this award period included substantial improvements in hazardous material reuse and just-in-time ordering. As a result, FRANK CABLE had dramatically reduced the amount of new orders for hazardous materials, the total amount of hazardous materials stored on board, and the amount of hazardous waste generated.



The aircraft carrier USS DWIGHT D. EISENHOWER transits past the mountains of Morocco on her way through the Strait of Gibraltar to the Mediterranean Sea.



USS FRANK CABLE.

### Sustainability Award

The purpose of this award is to recognize efforts to prevent or eliminate pollution at the source, including practices that increase efficiency and sustainability in the use of raw materials, energy, water, or other resources.

#### Sustainability Industrial Installation Award

Fleet Readiness Center East, North Carolina

Senior management at the Fleet Readiness Center East (FRC East) recognizes the environmental impacts of FRC East's activities and embraces the role of an environmental steward. FRC East was the first Department of Defense (DoD) facility to implement a comprehensive ISO 14001 EMS incorporating the entire facility. FRC East's program has been continuously registered through third party surveillance and re-registration audits, exceeding Executive Order, DoD, and Department of Navy requirements. Some highlights of the achievements accomplished during the award period were:

- Diversion of 5.7 million pounds (60 percent) of recyclable material from the landfill.
- Reduction of paint usage by 120,000 pounds (30 percent), and varsol usage by 10,000 gallons (50 percent).
- Implementation of a transportation incentive program that reduced green house gas emissions by 20 million pounds, completely offsetting that produced from the manufacturing processes.

Fleet Readiness Center Southwest, California

Fleet Readiness Center Southwest (FRCSW) provides aviation maintenance, repair and overhaul support to U.S. and allied warfighters. FRCSW operates a multitude of industrial processes including electroporting, painting, chemical cleaning and stripping and jet engine testing which utilize hazardous materials and generate hazardous wastes and emis-

sions. During the period of performance, the organization did not receive any regulatory agency Notices of Violation, no EMS non-conformances from the third party registrar and was a member of the U.S. Environmental Protection Agency's elite Performance Track program. Examples of completed projects during the performance period included:

- Contract award totaling almost \$7.7 million to address Executive Order 13429 requirements.
- Demonstration of hexavalent chromium-free primer for aircraft.

### Environmental Restoration Award

The purpose of this award is to recognize efforts to protect human health and the environment by cleaning up identified DoD sites in a timely, cost-efficient and responsive manner.

#### Installation

Former Naval Air Facility Adak, Alaska  
Naval Air Facility Adak operated from 1950 until the base closed in March

1997 as part of the 1995 Base Realignment and Closure (BRAC). Adak has the most cleanup sites of all Navy BRAC installations and has the seventh most amongst all Navy installations. Since Adak is a BRAC base, the program mission is to expeditiously and cost-effectively complete all environmental response actions necessary to dispose of the installation. The Adak environmental team has deployed an aggressive approach to meeting the BRAC goal of ultimately transferring the property. Despite logistical constraints, the team made significant advancements toward defining and meeting the Navy's environmental responsibilities at Adak.

**Naval Air Facility El Centro, California**  
Naval Air Facility El Centro (NAFEC) provides facilities, services, and

materials for training fleet air squadrons. Flight squadrons conduct more than 78,000 missions annually at NAFEC, making it the most active training facility west of the Mississippi. Accomplishments of the NAFEC Installation Restoration (IR) team included:

- Site closure with unrestricted land use at multiple sites. The NAFEC IR team accelerated cleanup at two Underground Storage Tank sites, which resulted in clean closure and unrestricted land use with no delay to Military Construction projects.
- Update of an IR site remediation system, which has resulted in the EMS's target to reduce energy consumption. The new system, utilizing a variable speed drive and

other system optimization upgrades, has resulted in 50 percent less electricity and 26 percent less propane on an average hourly basis.

**Naval Air Station Brunswick, Maine**  
Naval Air Station Brunswick (NASB) is a maritime aviation patrol installation that has been challenged to accelerate the IR program since the station went on the DoD's BRAC list in 2005. Expediting cleanup actions under the NASB IR program promotes property transfer and civilian redevelopment efforts as the base transitions through closure in May 2011. The accelerated pace and expanded scope of cleanup efforts have been possible only through cooperation and collaboration of the NASB team with its regulatory and community stakeholders,



In Fiscal Years 2008 and 2009, over 78,000 flight operations were carried out at NAFEC without disruption or incident from environmental investigation or cleanup activities.

including the federal and state regulatory agencies, the local citizen's group, and the local redevelopment authority.

**Individual/Team**

**Alameda Point Environmental Restoration Team, Base Realignment and Closure Program Management Office West**

The former NAS Alameda was identified for closure in September 1993 and operations ceased in April 1997. The environmentally charged climate has made community acceptance very difficult to achieve on the IR Site 1, a landfill used as the principal disposal area for all waste generated at the former NAS Alameda. The Alameda Point environmental restoration team had many significant achievements in the field of environmental restoration during fiscal years 2008 and 2009, particularly for IR Site 1. Accomplishments included:

- Partnering with federal, state, and local agencies in selecting the first containment remedy for a radiological contaminated landfill to be transferred out of federal ownership within the State of California.
- Gaining greater Restoration Advisory Board (RAB) members acceptance after many years of opposition.
- Realizing cost savings of over \$80 million as a result of garnered community support for the selected remedy, and utilization of a competitive fixed price contract.

**Environmental Restoration Team, Naval Base Ventura County, California**

The Naval Base Ventura County (NBVC) and Naval Facilities Engineering Command Southwest (NFECSSW) Remedial Project Manager Team members provide all aspects of

Installation Restoration Program (IRP) oversight at NBVC. NBVC is composed of three operating facilities: Point Mugu, Port Hueneme and San Nicholas Island. The NBVC IRP Team expanded during fiscal years 2008 and 2009 to support a particularly complex project—the dredging of the NBVC Port Hueneme harbor using a Confined Aquatic Disposal cell for placement of contaminated sediment. The Port Hueneme Dredging Project moved at a rate unheard of for a project of its complexity, finishing ahead of schedule and approximately \$1M under budget.

**Vieques Naval Installation Project Management Team, Puerto Rico, of Naval Facilities Engineering Command Atlantic**

To accelerate the development of a wildlife refuge and provide public access to areas that contain dangerous muni-

IR Site 1 consists of 36.8 acres located on the northwestern tip of Alameda Point where the Oakland Inner Harbor joins the San Francisco Bay.





Unexploded ordnance that is unsafe to move is detonated in place using explosives. As part of the public outreach program, members of the Vieques RAB have been allowed to observe the detonations from a safe distance to better understand the cleanup process.

tions, the Vieques Naval Installation Project Management Team initiated three fast-tracked munitions removal projects. During the last two years these projects have cleared the surface of over 1,000 acres containing munitions. In addition, over 20,300 munitions items have been destroyed and over nine million pounds of munitions-related scrap metal has been processed.

### Environmental Excellence in Weapon System Acquisition Award

The purpose of this award is to recognize efforts to incorporate environmental, safety and occupational health requirements into the weapon system acquisition program's decision-making process.

### Team

F/A-18E/F & EA-18G Program Office, PMA265 Green Hornet Team of Program Executive Officer, Tactical Aircraft Programs

The F/A-18E/F and EA-18G Program Office, PMA265 consistently maintains a high level of environment, safety, and occupational health (ESOH) compliance demonstrated by having won five consecutive CNO Environmental Excellence in Weapon System (Team) Awards. The F/A-18E/F is the first Navy aircraft to demonstrate the use of a biofuel derived from Camelina in a 50/50 blend with JP-5. Camelina-derived biofuel offers the potential for significant carbon emissions reductions (up to 80 percent) and the F/A-18

accounts for one-fourth of the Navy's aircraft fuel consumption.

F-35 Lightning II Environmental, Safety and Occupational Health Team of Program Executive Officer, Joint Strike Fighter Program

The F-35 Lightning II Acquisition Program's ESOH Team incorporates a cross functional, multidisciplinary membership which applies a systems engineering approach to program-wide ESOH management. At the heart of a strong environmental management approach is prevention of pollution at the source. The team executed the most extensive three-dimensional flyover noise measurement program ever conducted for a military aircraft which resulted in a comprehensive noise footprint and



The F/A-18E/F was the first U.S. Navy aircraft to demonstrate alternative fuel compatibility.

validated a new and more accurate three-dimensional noise model.

PMA-264 Marine Species Mitigation Research Team of Program Executive Officer, Air ASW, Assault and Special Mission Programs

The Marine Species Mitigation Research Team is working toward the creation of a new set of sensors, systems, and processes optimized for the protection of marine species and increased opportunities to perform Navy operations. During the perfor-

mance period the team accomplished the development of several products and processes including development of whale search radar using low cost commercial maritime search radar for all-weather, day/night collection capability, and detection beyond the range of human observers plus Auto Adaptive Whale Search Radar algorithms for enhanced marine mammal signal and reduced clutter. 



The first Navy variant, F-35C, undergoes final assembly at Lockheed Martin in Fort Worth, Texas. The bright green surface is the new chrome-free corrosion inhibiting primer material.

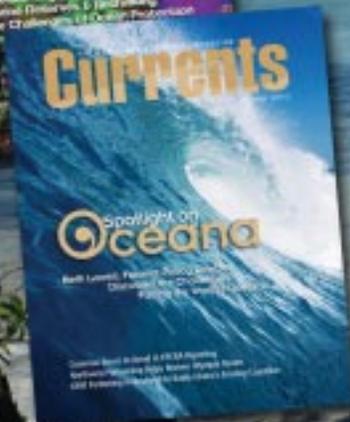
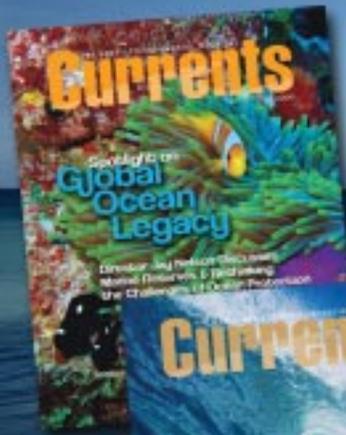
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THE NAVY'S ENVIRONMENTAL MAGAZINE

# Currents



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