

SANCTUARY WATCH

Featured:
SANCTUARIES
in your **COMMUNITY**

Sneak Preview:
Astonishing Tales from
the Sanctuaries



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SANCTUARY WATCH is a publication of the Education and Outreach Division of the National Oceanic and Atmospheric Administration's (NOAA) Office of National Marine Sanctuaries. NOAA is an agency of the U.S. Department of Commerce.

Many polls indicate that jobs and the economy top the concerns of most Americans. No real surprise there, but you may be unaware of the extent to which NOAA is relevant to helping communities fight through these tough economic times.

In this issue of Sanctuary Watch, we highlight NOAA's reach and influence across National Marine Sanctuary System communities. Talk to recreational fishing guides in the Florida Keys or whale watch tour operators at Stellwagen Bank National Marine Sanctuary, and they will tell you that the sanctuaries protect fish and animals that are a major source of revenue, critical to sustaining families and communities.

In Alpena, Mich., residents speak of how Thunder Bay National Marine Sanctuary has transformed an abandoned industrial waterfront site and become a source of community pride, identity and income.

Through creation of the National Marine Sanctuary System, Congress has provided the nation a valuable backbone of science, management, policy and education that supports a healthy environment, expanding economy and sustainable communities. While it is easy to get lost in the bureaucratic details of sanctuary management plans, budget reviews and other competing demands for our attention, it's important to take stock in how jobs are sustained through NOAA's work in protecting critical ecosystems.

Managing special places like national marine sanctuaries offers us the ability to maintain recreational growth, create jobs and build stronger coastal communities. In these tough times, that's a mission we all can support.

Sincerely,

Daniel J. Basta, Director
 Office of National Marine Sanctuaries

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Airship Added to National Register of Historic Places



Wiley Collection, Monterey Maritime and History Museum

WRECK LIES WITHIN MONTEREY BAY SANCTUARY

Commemorating the 75th anniversary of the loss of the U.S. Navy airship USS *Macon*, NOAA announced in February that the wreck site on the seafloor within Monterey Bay National Marine Sanctuary had been added to the National Register of Historic Places. One of the largest flying machines in history, the *Macon* was a massive 785-foot dirigible with the ability to launch and recover small scout planes in midair. On Feb. 12, 1935, after less than two years of service, the airship was damaged in a storm and sank off Point Sur, Calif. Sanctuary staff and the U.S. Navy conducted a sonar survey of the wreck in 2005, followed by the first archaeological expedition to document the *Macon's* remains in 2006.

FLORIDA KEYS ECO-DISCOVERY CENTER GOES SOLAR

On March 26, Florida Keys National Marine Sanctuary unveiled a new exhibit dedicated to climate change and renewable energy in its Florida Keys Eco-Discovery Center. The exhibit kiosk includes a feed from the website www.keysecosolar.com, displaying real-time energy generated by more than 200 photovoltaic panels recently installed on the center's roof, as well as the carbon offsets of the energy generated. The solar panels are able to provide up to 30 percent of the visitor center's power and are the first of their kind employed at a NOAA facility. The new solar panels, made possible through a partnership with the Florida Municipal Power Agency and Keys Energy Services, are just the latest element in the sanctuary's commitment to resource conservation and going "green."

LEADERS BREAK GROUND ON NEW OCEAN CENTER NOAA, UCSB TEAM UP TO PROMOTE OCEAN SCIENCE EDUCATION

In January, NOAA Administrator Jane Lubchenco, Ph.D., and University of California-Santa Barbara Chancellor Henry T. Yang broke ground on the new Ocean Science Education Building on the east side of the UCSB campus. The project brings together the university's Marine Science Institute and NOAA's Channel Islands National Marine Sanctuary. "This new building underscores our 30-year partnership with the University of California-Santa Barbara and our mutual commitment to marine education and community outreach," Lubchenco said. The Ocean Science Education Building will house the new Channel Islands sanctuary headquarters offices and the Outreach Center for Teaching Ocean Science, a state-of-the-art facility that will help expand science and education opportunities for thousands of students.



Photo: Wes Martin/NOAA



Photo: NOAA

Exploring Deep-Sea Coral off the Georgia Coast RESEARCHERS PROBE DEPTHS FROM 650 TO 2000 FEET

From April 8 through 14, scientists aboard the NOAA ship *Pisces* explored deep-sea coral habitats at depths from 650 to 2000 feet on the continental slope off Georgia, east of Gray's Reef National Marine Sanctuary. During the cruise, researchers sought to pinpoint the locations of coral formations using the ship's sonar, determine the age and growth

rate of the coral to help predict recovery time for damaged corals, and map fish populations in relation to the seafloor. The results of the research cruise, in combination with similar past and future efforts, will help produce maps of high-density coral areas and allowable fishing zones that minimize impacts on the habitat in which the fish live.

SANCTUARIES *Mean* BUSINESS

When Bob Holston looks out across the expanse of crystal blue waters surrounding the Florida Keys, he sees two things: a place of extraordinary natural beauty and wonder, and the source of his very livelihood.

Holston, co-owner of Dive Key West, a dive charter company that operates in Florida Keys National Marine Sanctuary, has been taking visitors out to explore the region's world-famous coral reefs and shipwrecks for nearly four decades. As one of the thousands of people across the nation who make their living in and around national marine sanctuaries, he knows how important a healthy ocean is to local businesses.

"The jobs are there," said Holston, a member of the Florida Keys Sanctuary Advisory Council. "The Florida Keys are the number one destination in the world for diving and snorkeling — more people come here every year than the entire Caribbean."

Over 80 percent of Keys residents rely on the ocean for their income, a total user value of more than \$1 billion annually. Andy Newman, spokesman for the Florida Keys Tourism Development Council, said industries like tourism, recreation and fishing all benefit from the sanctuary's mission to protect marine ecosystems.

"The Keys are all about the environment, whether it's fishing, diving or snorkeling," Newman said. "That's what makes them a destination. You have to be able to preserve the environment for this to be a place that tourists want to visit."

Off Cape Cod in Massachusetts, another industry is thriving. More than a million visitors travel there from around the globe every year to see the whales that feed in Stellwagen Bank National Marine Sanctuary.

Steve Milliken owns Dolphin Fleet, a whale watching tour company that has plied these waters since 1975. Milliken, a Stellwagen Bank Sanctuary Advisory Council member, said he



Photo: Ivy Kelley/NOAA



Photo: NOAA

National marine sanctuaries work to protect health of the underwater ecosystems that draw millions of tourists from around the world to dive, boat, snorkel and fish in places like the Florida Keys.

and others lobbied for the creation of the sanctuary in 1992 to protect Stellwagen Bank from gravel mining that would have destroyed habitat the whales depend on for food.

"It probably would have ended our whale watching industry in Massachusetts," Milliken said. "The protection of a habitat like that is worth its weight in gold, really."

Ecotourism Means Jobs

Both Holston and Milliken are at the forefront of the ecotourism movement, which they say has gained widespread popularity in recent years. Holston, in particular, said he has seen increasing interest among his customers in businesses that are environmentally conscious.

"The tourism market has changed dramatically in that people want to be involved in the environment they're visiting," Holston said. "They want to learn something, to become more aware of what's going on around them."

Dive Key West and Dolphin Fleet both highlight the National Marine Sanctuary System in their promotional materials and on-the-water education efforts. Additionally, both businesses are active participants in voluntary certification programs — known as Blue Star and Whale SENSE, respectively — established by the sanctuaries to encourage responsible use of the environment.

“Being a part of the National Marine Sanctuary System puts a special allure to a place.”

“I think it’s important the industry does their part to not just reap the benefits but also help protect the habitats,” Milliken said.

Special Ocean Places Draw Tourists

Beyond their resource protection role, Holston said, the national marine sanctuaries have provided businesses with a valuable marketing tool. Like national parks, they signify places of great natural beauty and historical significance that make them attractive destinations for tourists.

“I think the biggest growth of our business has really come about with the creation of the Florida Keys sanctuary, and bringing a national focus to the area,” Holston said. “Being a part of the National Marine Sanctuary System, it puts a special allure to the place.”

Michael Bekker, vice president of property management for the Cannery Row Company, oversees a bustling stretch of waterfront real estate in Monterey, Calif., including the Monterey Bay Aquarium and numerous restaurants and hotels. Bekker, whose properties saw an estimated 4.3 million visitors last year, said the tourists that travel there to kayak, dive, fish, sail and surf in Monterey Bay National Marine Sanctuary have an economic impact that reaches far beyond the water.

“Guests come here, they fill beds, they eat in restaurants, they shop in stores — that’s a huge amount of money!” said Bekker, also a member of the Monterey Bay Sanctuary Advisory Council.

Partnering for Economy and Environment

The relationship between business and the sanctuaries isn’t always perfect. Eric Kett, a former charter boat captain and recreational spear fisherman in Santa Barbara, Calif., said

he was initially wary of Channel Islands National Marine Sanctuary and its intentions.

“I would say that I was one of those people that was afraid of the sanctuary and what their motives were,” Kett said. “I don’t have that fear now that I’ve seen how it works.”

Today, Kett is the chair of the Channel Islands Sanctuary Advisory Council, a group that represents the interests of businesses and other stakeholders in the management of the sanctuary. Kett said the advisory councils — which Holston, Milliken, and Bekker also belong to — are a forum where community members can work with sanctuary staff toward common goals through open, honest discussion.

“I’m very proud of my association with this council,” Kett said. “They are here to further all of the sanctuary’s goals—not just resource protection and conservation, but also the users’ enjoyment.”



Photo: Jeremy Winn/WHOI; NOAA Fisheries Permit #605-1904z

Whale watching is a major industry in sanctuaries like Stellwagen Bank off Cape Cod. Across the nation, advisory councils provide communities with a voice in sanctuary management.



With its office located on the former site of an abandoned paper mill (below), the Thunder Bay sanctuary has helped revitalize Alpena's historic waterfront (above).



From *Despair* To *Hope*

A Letter from the Mayor
of Alpena, Michigan

— by Carol Shafto

As the mayor of Alpena, Michigan, home of Thunder Bay National Marine Sanctuary, I am a firm believer in the significant impact the national marine sanctuaries have on local communities.



PHOTOS: NOAA

Alpena, a very rural area 100 miles from the nearest freeway, is today a different, better place since Congress designated the sanctuary 10 years ago. Through research, education and outreach, NOAA has worked to protect Thunder Bay's nationally significant collection of shipwrecks and to spread awareness of Great Lakes resources. In so doing, they have also helped protect our local heritage, our tourism and our economy. The sanctuary has brought enhanced recreational opportunities, educational programs, research capabilities and economic development to all of Northeast Michigan.

Just three months after the Thunder Bay sanctuary was created, the local Fletcher Paper Mill closed after 100 years of operation. Jobs were lost and hopes were dashed. Now that piece of property holds a different hope for Alpena. The sanctuary renovated one of the

mill buildings and moved its offices to the property, creating a public visitor center and a pedestrian trail along the Thunder Bay River.

Today, the sanctuary facility is an anchor for downtown Alpena that attracts tens of thousands of visitors, in addition to bringing our hidden underwater heritage to the attention of local residents. The transformation of this former industrial property has helped begin a shift from an industrial community — reliant on our deepwater port and the industry that surrounds it — to a more stable, diversified economy, bringing a sense of optimism for the future.

Here along the shores of Lake Huron, known locally as our “sweetwater sea,” looking out at the only freshwater sanctuary, our community has a new appreciation and affinity for the marine environment. We are connected to efforts to save things we have never seen, in places we may never visit. We are a part of a national system that is bigger than any one sanctuary or community, and we share a common responsibility for protecting the nation's precious underwater resources.

Ten years ago at the Thunder Bay sanctuary designation ceremony, I outlined my hopes for this new endeavor, stating: “For the people of Alpena, the waters of Lake Huron are more than a sanctuary. They are our home, our recreation, our livelihood, our quality of life. In entering into partnership with state and federal governments for the management of the shipwrecks in the bay, we shake hands with strangers who hold our future in their hands. We do this with welcome, with friendship, and with trust that you will continue to safeguard not only the shipwrecks but the well-being of those for whom Thunder Bay is a way of life.”

Ten years later, this trust has been honored. Our partnership is not only intact, but has been strengthened for the future of Alpena and the Office of National Marine Sanctuaries. Once fearful of the unknown and change, we now ask, “Where would we be today without Thunder Bay National Marine Sanctuary?” 🦋



CRITTERFILES: HUMBOLDT SQUID

Far below the surface of the water in the frigid, pitch-black depths of the Eastern Pacific Ocean, monsters lurk. At dusk, ghostly creatures with huge, unblinking eyes rise from the deep by the hundreds, entering an eerie twilight zone in search of prey to satisfy their huge appetites.

This murky, oxygen-starved world is the realm of the Humboldt squid.

Named for the Humboldt Current along the western coast of South America, Humboldt squid are some of the most mysterious residents of our national marine sanctuaries. Big, fast and notoriously aggressive, these fearsome predators are also known as jumbo squid — they can grow up to seven feet long — and have been nicknamed “diablos rojos,” or red devils, by Mexican fishermen that catch them in the Sea of Cortez.

But their ferocious reputations may not be entirely deserved. Evidence suggests that Humboldt squid are highly intelligent and curious animals, and may be able to communicate with

one another using muscle-controlled cells called “chromatophores” that let them flash a range of colors from a deep purplish-red to white.

The squid are believed to live for about 1-2 years on average, but little is known about how or where they reproduce, and they are extremely difficult for scientists to study because they live most of their lives at depths that aren’t accessible to divers. They spend 95 percent of their time at depths from 660 to 2,300 feet, ranging from Tierra del Fuego to California.

Recently, Humboldt squid have been appearing as far north as Sitka, Alaska.

They can now be found up and down the West Coast in Channel Islands, Monterey Bay, Gulf of the Farallones,

Cordell Bank and Olympic Coast national marine sanctuaries.

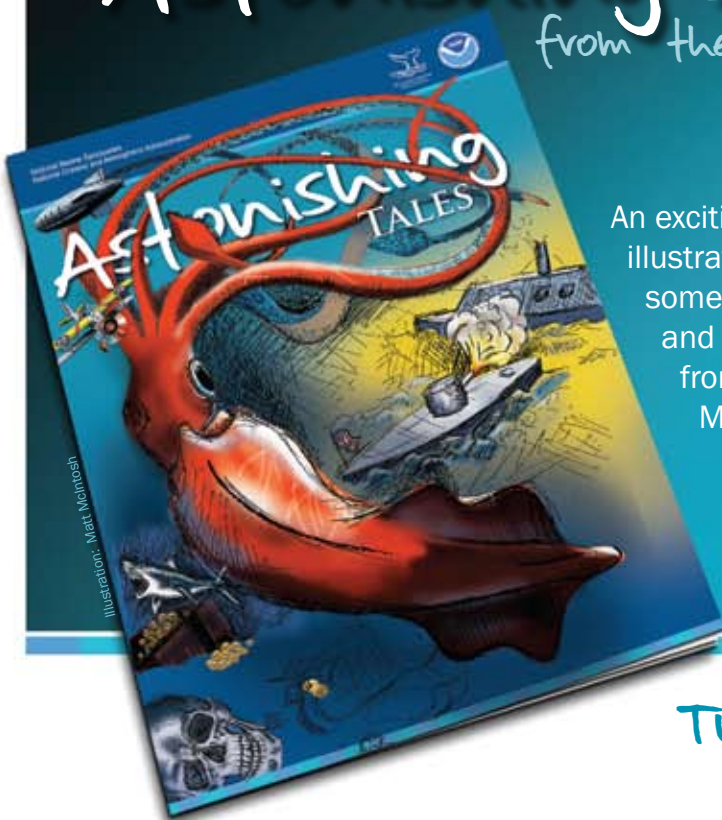
Their northward migration has marine resource managers worried. Humboldts are voracious predators, and they have the potential to wreak havoc on the food web in new areas. With recent research indicating that their expanding range is linked to increasing ocean acidification, these fascinating creatures are an important target for future study.

COMMON NAME: Humboldt Squid
SCIENTIFIC NAME: <i>Dosidicus gigas</i>
DISTRIBUTION: Along the Pacific coast of South and North America from Tierra del Fuego to Sitka, Alaska
MAX. LENGTH: 7 feet
MAX. WEIGHT: 100 lbs.
DIET: Krill and small fish
STATUS: Unknown; may be threatened by climate change



COMING SOON:

Astonishing TALES from the Sanctuaries



An exciting, fully illustrated guide to some of the most amazing and mind-boggling stories from around the National Marine Sanctuary System!

Turn the page for a sneak preview!



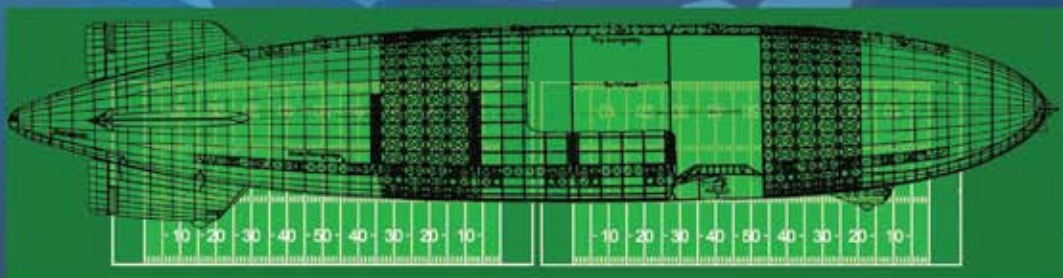


USS MACON: AIRCRAFT CARRIER OF THE SKY

The Last **Great Air**

Launched by the U.S. Navy in 1933, the airship *USS Macon* was one of the largest flying machines in history. This massive, helium-filled behemoth measured more than 2 1/2 football fields in length, but after just two years of service, disaster struck.

The Macon would be the nation's last great airship.



The *Macon* was one of the Navy's two state-of-the-art "flying aircraft carriers," with a squadron of five Sparrowhawk scout planes that could be launched and retrieved in midair!



Aircraft were lowered through a door underneath the dirigible and released at full speed, earning pilots the nickname "Men on the Flying Trapeze." Returning to the *Macon* required pilots to "catch" the trapeze with a hook on top of the plane.



Ship



In February 1935, the *Macon* was damaged in a storm off Point Sur, Calif. With the airship losing altitude, the captain ordered crew to dump ballast. It rose to a height of 5000 feet before slowly falling tail-first into the ocean. All but two of the 83 crew members survived.



The final resting place of the *Macon* stayed hidden for more than 55 years, until researchers discovered its remains nearly 1,500 feet below the surface of Monterey Bay National Marine Sanctuary in 1990. National marine sanctuary scientists and partners used an underwater robot to document the wreck in 2005 and 2006, shedding new light on the fate of the last great airship.



DR. BRIAN KELLER | Science Coordinator, National Marine Sanctuary System Southeast Region

Remembering a Friend and Colleague

It is with heavy hearts that we mourn the passing of Dr. Brian Keller, a longtime member of the sanctuary science team whose life and career were tragically cut short on March 10, 2010. Brian was a sage scientist, patient mentor and committed conservationist, a caring friend and beloved husband who touched countless lives with his science and his humanity over the course of an outstanding 40-year career in the Florida Keys and Caribbean.

If anyone deserves recognition as a Star of the Sea, it's Brian. In the 10 years he worked for NOAA, he was a true leader in the study, management and conservation of the marine ecosystems of the Florida Keys, Gulf of Mexico and Caribbean.

"Those of us who knew and worked with Brian realize the huge void his loss will present in our daily lives, and what his loss means to ocean conservation and management," said Dr. Billy Causey, southeast regional director for the Office of National Marine Sanctuaries.

In his role as science coordinator with the National Marine Sanctuary System, Brian dedicated himself to finding innovative ways to understand marine ecology and to creating new tools for conserving the ocean world he loved.

"There was no greater advocate for sound science-based management than Brian," Causey said. "Most importantly, he knew how science could be applied to make the wisest and best-informed decisions

for the conservation of the resources he so treasured."

Brian was born in Boston, Mass., on April 26, 1948. He received a B.S. in Biochemistry from Michigan State University in 1970, and went on to earn his M.A. and Ph.D. in Ecology and Evolution from Johns Hopkins University in 1973 and 1976, respectively. In 1985, he met Fiona Wilmot while living and working in Jamaica, and the two married soon after.

Brian came to NOAA in 2000, joining the staff of Florida Keys National Marine Sanctuary as science coordinator after more than two decades of distinguished work in Florida and the Caribbean. During his time with the sanctuary system, he helped lay the foundation for

management zones in the Florida Keys and led efforts to measure their effectiveness. He was the architect of the sanctuary's research and monitoring plans, and a soon-to-be-published report he authored highlights a decade of success

for sanctuary management of the Keys.

Not only was Brian an accomplished scientist and fervent ocean advocate, he was a close friend to many throughout the international science community. The overwhelming outpouring of condolences following the news of his passing depicts a man who was knowledgeable and passionate about his work, as well as deeply warm in his personal relationships.

Brian will be greatly missed, and his memory will live on in the hearts and scientific work of his friends and colleagues in the national marine sanctuaries and beyond.

“There was no greater advocate for sound science-based management.”



Brian Keller, a treasured friend and irreplaceable member of the sanctuary science team, passed away March 10, 2010.

How's the Water?

Sanctuary Volunteers Join the Effort in California Watershed Monitoring

Twice a year, hundreds of volunteers armed with water sampling kits descend on the creeks, rivers and streams of central California that flow into Monterey Bay National Marine Sanctuary. Their mission: conduct long-term monitoring of the region's water quality.

As participants in two community-connected programs called Snapshot Day and First Flush, these volunteers are on the leading edge of water quality monitoring. Both efforts have been organized by sanctuary staff for more than a decade, providing local residents with the opportunity to pitch in and help monitor the health of their streams, rivers, and storm drains. Neither program would exist today without the commitment and hard work of these dedicated, passionate groups of ocean-aware citizens.

Taking a Yearly Snapshot

Year after year, on the first Saturday in May, volunteers fan out across a 300-mile stretch of central California coastline to take field measurements and water samples that will form a "snapshot" of the region's water quality. Participants in Snapshot Day are assigned up to six sites — some as far as 100 miles upstream of the ocean — where they take a suite of measurements and collect samples to be lab-tested for common contaminants. Over time, all of the information collected will help determine whether the quality of the water flowing into the sanctuary is improving or declining.

This isn't your ordinary group of casual volunteers — many have participated in Snapshot Day since the event began in 2000, and continue to make the annual trek to streamside sites year after year.



Photo: Feyruz Rubeyi

"It really is nice to get together with people who do more than give lip service to helping the environment," said Fran Horvath, a longtime sanctuary water quality volunteer. "The results really do matter."

Every year, more people get the volunteering "bug." In 2009, Snapshot Day's 10th anniversary year, 224 volunteers signed up — the most in the program's history.



Photo: Andrew DeVogelaere/NOAA

Volunteers of all ages test water quality in the Monterey Bay National Marine Sanctuary watershed yearly, contributing to a long-term picture of the region's environmental health.

According to Horvath, "I saw it as a chance to reconnect with my environmental roots, doing something good for the environment and meeting people who had a similar love of the ocean to my own."

Flush with Anticipation

You won't find any fair-weather volunteers in the First Flush program, which sends participants out — day or night — to collect samples of storm water flowing into the sanctuary during the first major rainstorm of the winter. Mixed with the runoff is a summer's worth of pollutants that have settled onto streets, sidewalks, roofs, playgrounds, and parking lots, which get washed into storm drains, creeks and rivers and eventually the ocean.

"You never know when it's going to happen, so there's a lot of anticipation — watching the weather, hearing the forecasts," says Horvath, "But it's exciting to see the event, the water rushing out the drains and know that this monitoring really needs to be done."

First Flush water quality sampling takes place over 115 miles of central California coastline. Like many sanctuary programs, without volunteers, First Flush could not come close to its current reach — 96 participants monitored 40 sites in 2009.

Volunteers come from all walks of life, and many have little to no prior scientific field experience. "Volunteering for the sanctuary allows me to contribute to preserving the magnificence I see all around me," says volunteer Rebecca Cenicerros, a lawyer by profession. "I like that I can help to sustain it as well as enjoy it." 🌿

Ocean for Life gave students like 17-year-old Aya from Egypt the opportunity to learn about the ocean through diverse, hands-on field activities.

Ripple EFFECT

Students take OCEAN FOR LIFE lessons home

In the year since she participated in Ocean for Life, Emily, 19, has been busy giving talks about plastic pollution in the ocean, creating handouts about trash biodegradability, and working with a student environmental organization at the University of Louisville. “I plan to continue teaching people how important the ocean is,” said Emily of Louisville, Ky. “The ocean will always be an important part of my life.”

Emily is one of 60 students from 14 Western and Middle Eastern countries who came together in 2009 for field studies in national marine sanctuaries as part of the first Ocean for Life program. The initiative was created to educate participants about the importance of ocean resources and increase cultural understanding among youth from diverse backgrounds through ocean science.

But Ocean for Life also started a ripple effect that has spread beyond the scope of the program, back to the home communities of those who participated. Using what they learned during the program, several of the students have begun ocean conservation activities like beach cleanups, presentations, habitat restoration projects and recycling efforts. Others have talked to their families and friends, secured grants for school conservation projects, and even joined sustainable seafood programs.

In Morocco, Wiame, 17, launched a petition to create a recycling program in her neighborhood. She also started the first environmental club at her school.

“I have always talked about ecology and ocean stewardship, but I think that I did it just because it was kind of fashionable,” Wiame said. “Ocean for Life made it a way of life. I now care for the planet more than I ever did before.”

Tala from Jordan said her participation in Ocean for Life “opened her eyes” to the negative impacts humans can have on the planet. She said she and her friends are also starting a recycling program at their school.

“It will be our aim to practice this trend [of recycling] and make it part of the school’s policy,” said Tala, age 17.

Jonathan Shannon, education liaison for the Office of National Marine Sanctuaries and one of the organizers of Ocean for Life, said sanctuary messages about personal impact and ocean stewardship, as well as important messages on cultural tolerance and understanding, are being spread around the world.

“Clearly, the students have been inspired to put into practice the lessons they learned during their Ocean for Life field experience,” Shannon said. “These students represent the future in global leadership and ocean conservation, so it’s great to see they aren’t wasting any time getting started.”

After completing his field experience at Florida Keys National Marine Sanctuary, 16-year-old Jacob from California returned home and started a hands-on program called Blue Planet Outreach that visits after-school programs with live specimens in mobile touch tanks.

“The main idea behind the class is to get kids interested in marine science, or science in general, and to make them more aware of our ties with the ocean,” Jacob said. 🌊



Photo: Lindsay Greer/OFL

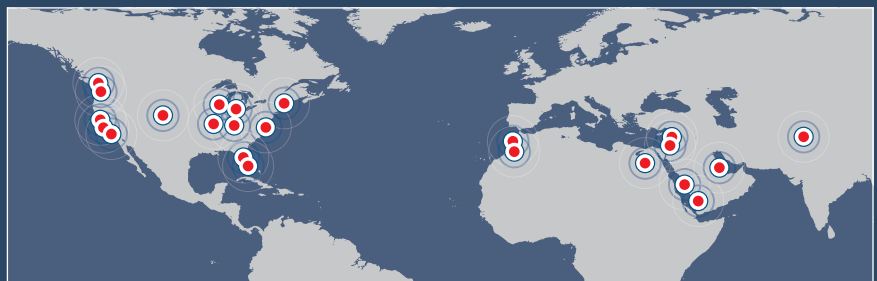


Photo: Natviadao Chen/OFL



Photo: Humaira Gul Saeed/OFL

Students explore the marine environment during Ocean for Life 2009.



Map: Matt McIntosh

Today, Ocean for Life participants from 14 countries around the world are using the knowledge they gained to promote ocean conservation and educate others in their communities.



Dr. LINWOOD PENDLETON

Director of Ocean and Coastal Policy, Duke University's Nicholas Institute

Sanctuary Voices is a guest column featuring views and opinions from the national marine sanctuary community.

When most people think of the economic value of the ocean, two things immediately come to mind: fishing and offshore energy. But while these two uses are undoubtedly important, there's more

to our ocean economy than simply harvesting its resources.

For example, clean coastal waters contribute directly to the market value of homes near bays and seas. The ocean generates more than \$70 billion annually in tourism and recreation spending, and coasts and oceans add to the quality of life for nearly half of all Americans who visit the seashore each year for play, peace and a mental recharge. In a recent book, I estimated that coastal recreation contributes more than \$30 billion annually to the economic well-being of coastal visitors and communities. Much of this value depends directly and indirectly upon marine sanctuaries.

There is no doubt that our national marine sanctuaries belong to the people and are among the most spectacular places in the ocean. Sanctuaries are part of the ecological foundation of America's ocean economy, with waters and habitats that are home to some of the world's greatest marine diversity and productivity. Without them, much of our ocean economy would falter. Fortunately, our national marine sanctuaries also are the places where rational, thoughtful environmental management has the greatest chance of success.

My work in California shows that more than 95 percent of coastal visitors in Southern California come to the coast not to remove resources, but to enjoy without taking — to splash in clean water, to see birds and dolphins and sea stars, and to enjoy the cool sea breeze.

In marine sanctuaries, we have the opportunity to expand our stewardship to include all the economic aspects of America's oceans, including "non-extractive" values — uses that don't involve removing resources. We can carefully weigh

conflicting economic uses of ocean habitats, and take a holistic approach to balancing activities like maritime transportation and mineral extraction with equally important ecosystem uses like whale watching, tide pooling, birding and scuba diving.

As we do a better job of monitoring the entire range of uses in our sanctuaries, we can use this knowledge to adapt our management of these special places. Through strategies like resolving user conflicts and working to ensure sustainable resources, sanctuaries increase the total economic value of our ocean — improving the economic well-being of Americans from all states and all walks of life.

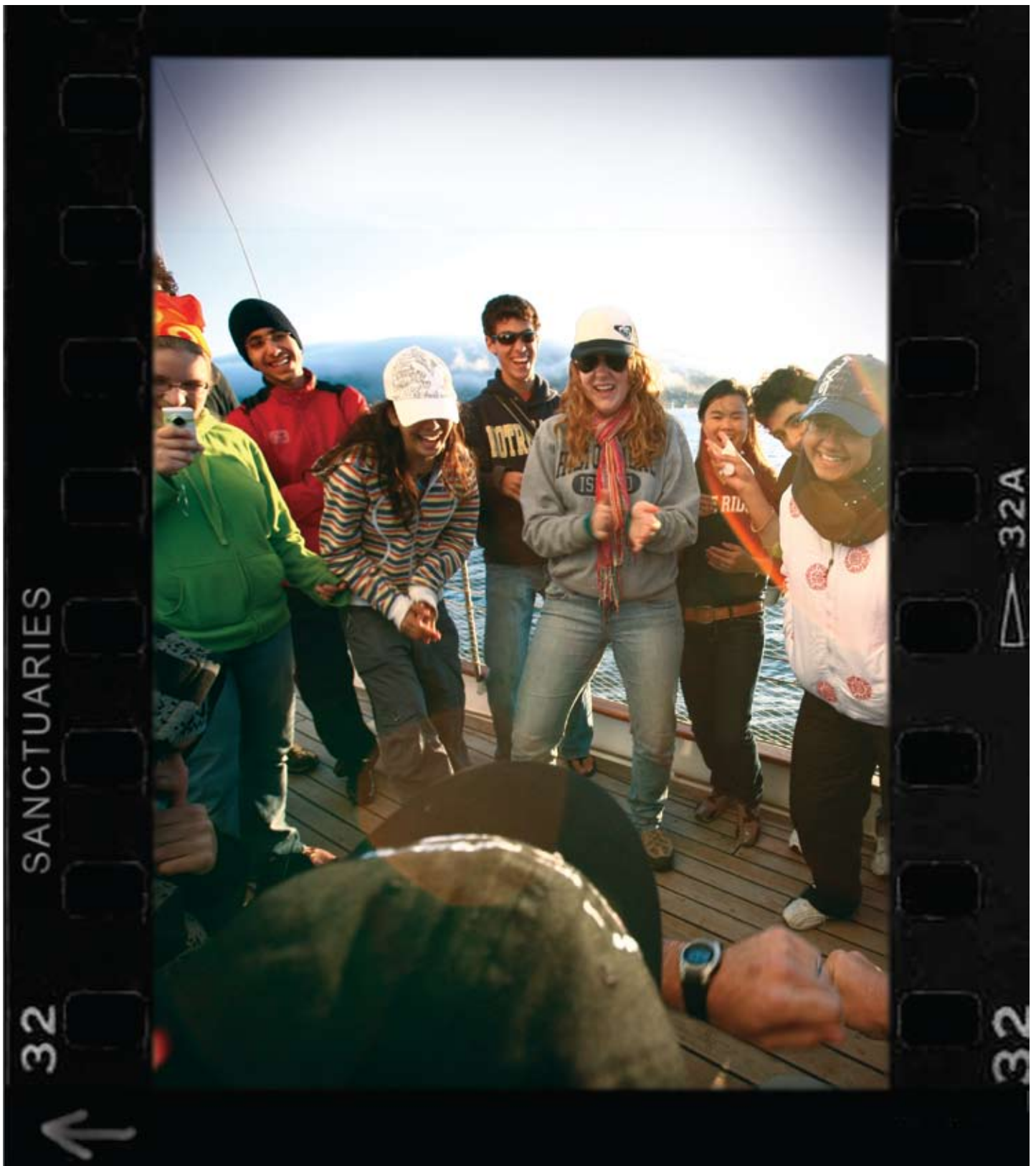
The authority that makes marine sanctuaries possible allows us to provide sweeping protection to large areas of ocean wealth — areas that are not only valuable in their own right, but also essential to maintaining the greater ocean economy.

At the federal and state levels, we need to manage the ocean as infrastructure and make substantial and sustained investments in the health of our ocean and coastal ecosystems. We need to think of the ocean less as a luxury and more as an essential part of our economy. And we need to realize that damaging our ocean and coasts causes ripples that extend far beyond the water.

I believe national marine sanctuaries are an essential part of the ocean infrastructure, and one of our best hopes of making sure the ocean economy we have grown to depend on is sustainable and productive for generations to come.



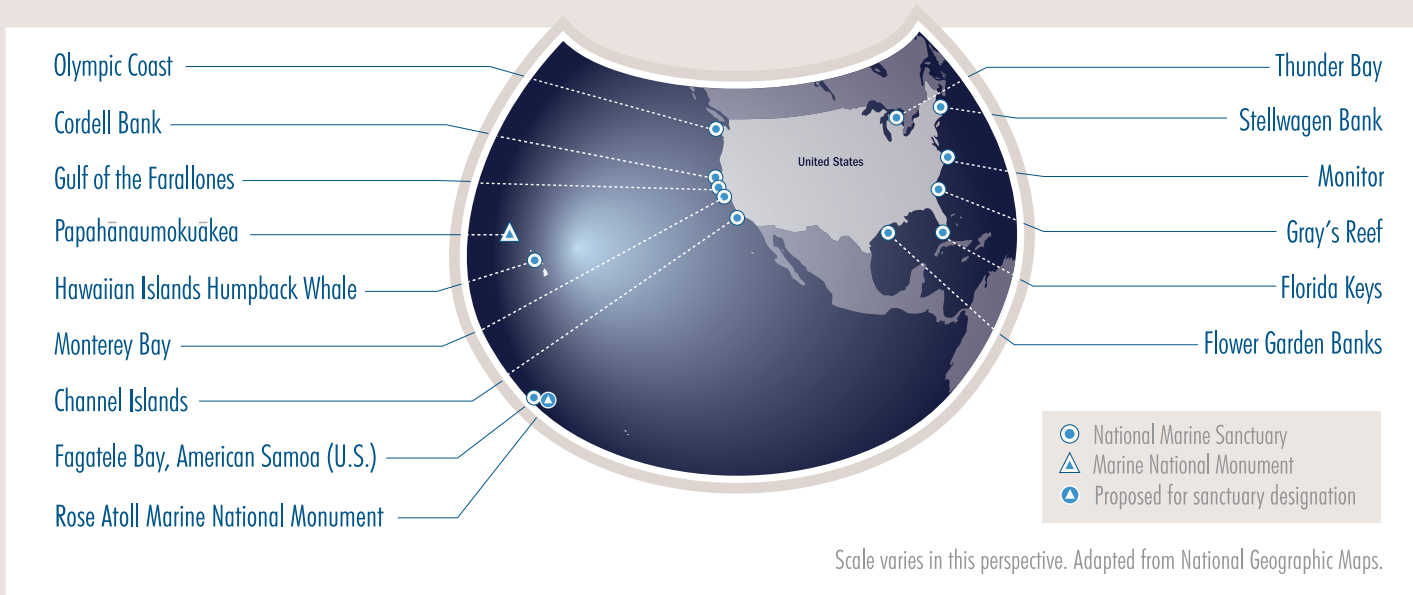
National marine sanctuaries and the resources they protect are a key part of the foundation for a thriving "ocean economy."



SANCTUARY SNAPSHOT Snapped by Lindsey Greer shortly before sunset, this photo shows students at sail on San Francisco Bay as part of Ocean for Life, a cross-cultural education program organized by sanctuary staff. The program brought together 60 high school students from 14 countries, using marine science to foster cultural understanding and an appreciation for how the ocean links us all.

SANCTUARY SYSTEM

The Office of National Marine Sanctuaries serves as the trustee for a system of 14 marine protected areas, encompassing more than 150,000 square miles of ocean and Great Lakes waters. The system includes 13 national marine sanctuaries and the Papahānaumokuākea Marine National Monument. The sanctuary system is part of the National Oceanic and Atmospheric Administration (NOAA), which manages sanctuaries by working cooperatively with the public to protect sanctuaries while maintaining compatible recreational and commercial activities. Sanctuary staff work to enhance public awareness of our nation's marine resources and maritime heritage through scientific research, monitoring, exploration, educational programs and outreach.



The Office of National Marine Sanctuaries is part of NOAA's National Ocean Service.

VISION - People value marine sanctuaries as treasured places protected for future generations.

MISSION - To serve as the trustee for the nation's system of marine protected areas to conserve, protect and enhance their biodiversity, ecological integrity and cultural legacy.



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