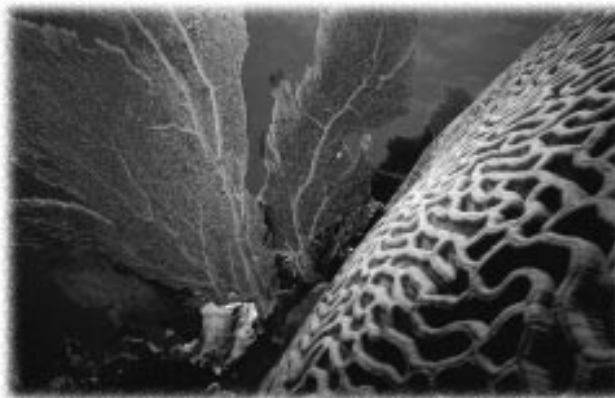


Alolkooy

25th Anniversary, National Marine Sanctuaries Act



The
Publication
of the
Channel
Islands
National
Marine
Sanctuary

Spring
1997

Volume 10
Number 1



Inside

*Celebrating 25 Years
of Ocean Care*

*NOAA's Sanctuaries
and Reserves Program*

*Saving the Southern
California Bight*

*Santa Barbara
Sanctuaries:
A Turbulent History*

*Research
Great American
Fish Count*

*Sanctuary News
Joint Patrol Aircraft*

*Channel Islands
National Marine
Sanctuary Foundation*

Alolkoy is published quarterly through a cooperative agreement between the Santa Barbara Museum of Natural History and the Channel Islands National Marine Sanctuary, pursuant to National Oceanic and Atmospheric Administration (NOAA) Financial Award No. NA77OM0090. Opinions expressed in Alolkoy do not necessarily reflect the official position of the Sanctuary or the museum.

The Channel Islands National Marine Sanctuary is part of the National Marine Sanctuary Program, established under Title III of the Marine Protection, Research, and Sanctuaries Act, as amended. For more information, contact: Sanctuaries and Reserves Division, Office of Ocean and Coastal Resource Management, National Oceanic and Atmospheric Administration, U.S. Department of Commerce, 1305 East-West Highway, SSMC4, 12th Floor, Silver Spring, MD 20910.

Direct correspondence, submissions, and address changes to Editor, Alolkoy, CINMS, 113 Harbor Way, Santa Barbara, CA 93109, 805/966-7107.

Editor: Cynthia Anderson
Production: Rebecca Ditmore

"Alolkoy" is a Chumash word meaning dolphin.
Printed with soy-based ink on recycled paper.



SANTA BARBARA MUSEUM
OF NATURAL HISTORY

CHANNEL Islands



National MARINE
SANCTUARY

From the Bridge

25 Years of National Marine Sanctuaries

By Ed Cassano, Sanctuary Manager

1997 marks an important milestone in the history of national marine sanctuaries: our 25th anniversary. This event has attracted nationwide attention. *National Geographic* will publish a feature article on national marine sanctuaries this year, and National Public Radio will air an hour-long "Radio Expedition."



©Clenn Allen

Los Marineros students explore tidepools at Coal Oil Point.

Marine sanctuaries provide a safe haven for the ocean's diverse marine life. Everyone can enjoy the benefits of a marine sanctuary—fishermen and divers, boaters and surfers, swimmers and people just walking on the beach. Sanctuaries promote healthy coastal economies, preserve a connection to our cultural and marine heritage, and give us a place to enjoy, explore, learn, work, relax, and play.

Right at our doorstep, the Channel Islands National Marine Sanctuary is a source of community pride and a legacy for our children. I encourage you to enjoy the Sanctuary first-hand—whether through a whale-watching expedition, a day trip to the Channel Islands, or a visit to the Sea Center at Stearns Wharf. Take your children to the tidepools or to the new blufftop whale watching area at Shoreline Park.

The possibilities are endless. However you choose to enjoy the Sanctuary, you'll find yourself and your children enriched beyond measure.

Editor's Watch

Sanctuary Sightings

By Cynthia Anderson, Alolkoy editor

In this issue of *Alolkoy*, renowned marine biologist Dr. Sylvia Earle provides a historical perspective on protecting the ocean, while Stephanie Thornton, Chief of the National Sanctuaries and Reserves Division (SRD), promotes a vision for the sanctuaries' next 25 years. This issue also contains a map of the national marine sanctuary system, as well as a brief description of the 12 sanctuaries found in coastal zones "from sea to shining sea."

The challenge of keeping marine sanctuaries vibrant and vital for future generations is one that never goes away. Jean-Michel Cousteau reminds us of this fact in his article, "At the Edge of a Human Tide: Working to Save the Southern California Bight."

Here in Santa Barbara, we can be especially proud that our community has worked hard to preserve the great beauty and diversity of our local marine environment. Robert Sollen recaps this struggle in his article, "Santa Barbara Sanctuaries: A Turbulent History." Finally, be sure to check out our new Kids Page, "Pod Press," full of activities, facts, and fun for kids of all ages!

Cover: Images representing the National Marine Sanctuary Program. Clockwise, from top: gray whale, Channel Islands, ©Jeff Foott; strawberry anemone, Cordell Bank, ©Cordell Bank Expeditions; coral reef, Florida Keys, ©Stephen Cook; ctenophore, Stellwagen Bank, ©Richard Harbison; coral reef, Fagatele Bay, ©National Marine Sanctuaries.

Celebrating 25 Years of Ocean Care

by Dr. Sylvia Earle

Twenty-five years ago, astronauts spent many days on the moon, a stone age tribe was discovered living in the Philippines, Richard Nixon was elected to a second term as President, Hurricane Agnes caused unprecedented damage to the eastern U.S., swimmer Mark Spitz captured seven Olympic gold medals...and something wonderful happened in the U.S. Congress that set the stage for a sweeping change of attitude concerning the ocean.

During all preceding history, most of humankind viewed the sea as a vast realm of infinite resilience where resources could be extracted and wastes deposited without much thought about the consequences. The 1972 National Marine Sanctuaries Act established forever a new perception: that is, the sea—like the land—is vulnerable to human actions, and that measures can and should be taken deliberately to protect what the Act referred to as “areas of special national significance due to their resource or human use values with reference to conservation, recreation, ecological, historical, educational, or aesthetic qualities.”

What a concept!

One hundred years earlier, the United States created its first National Park, Yellowstone, and thereby sparked what has often been called “the best idea America ever had.” By the end of the 1800s, measures were clearly needed to maintain some semblance of the natural systems that explorers Lewis and Clarke first witnessed early in that century. The once-enormous flocks of birds and herds of buffalo, deer, and elk had been swiftly diminished for food and sport, while beavers, bears, foxes, wolves, and other wildlife valued for their fur or feared as competitors became increasingly scarce. Since 1872, various



Dr. Sylvia Earle.

strategies have been implemented to protect special places and manage the nation’s living wealth on the land—to use, but not use up, the timber, wildlife, and other natural assets. For its part, the National Park Service now embraces many terrestrial areas of “special national significance.”

For the past quarter century, such areas have been complemented by a growing number of sanctuaries in the sea. But overall, measures to protect ocean ecosystems and wildlife have lagged far behind—perhaps because the sea is mysterious to most, and the action hidden within an aquatic atmosphere is alien to humankind. Coincidentally, the same year the first U.S. National Park was established marked the beginning of ocean exploration on a global scale. The unknowns facing scientists aboard the HMS *Challenger* who set out to explore the world’s oceans in 1872 were significantly greater than those awaiting generations of terrestrial explorers before them. Even now, despite more than a century of unprecedented technological advances and discoveries about the nature of the land, air, and sea, we still know more about the surface of the



A diver explores the Flower Garden Banks National Marine Sanctuary in the Gulf of Mexico, off Texas and Louisiana.

Continued on page 4

Ocean Care

Continued from page 3

moon and Mars than we do about the bottom of the sea—or the liquid, life-filled realm that fills the space from the top of the highest ocean waves to the greatest depths.

However, we do know that the sea shapes the character of this planet, governs our weather and climate, stabilizes temperature, and yields freshwater to clouds that falls back on the land as life-giving rain. We know that every breath we take is possible because of the living sea, that oxygen is generated there and carbon dioxide absorbed. Most of Earth's living space, the biosphere, is ocean—about 97%. Nearly all of the major divisions of life have at least some representation in the sea, and many are uniquely marine. While most of us take for granted the benefits and services provided by ancient ocean ecosystems and tend to value the sea only for goods we can extract—or as a place to dispose of unwanted wastes—we really *do* know enough to see that the ocean is vital for human survival. The sea essentially is Earth's life support system.

We also know enough to see that the oceans are in trouble. We know that we have the power to eliminate the great whales—and might have done so, had we not deliberately taken action to change our ways. In the past century, humankind has removed billions of tons of living creatures from the sea and added to it billions of tons of harmful substances. As a consequence, populations of tuna, swordfish, cod, herring, flounder, squid, oysters, and others are in sharp decline. Coral reefs, kelp forests, and other coastal ecosystems are showing signs of severe stress, while blooms of toxic microorganisms are prospering with alarming frequency and increasing scope.

Have we learned enough, soon enough, to take the actions needed to reverse these destructive trends? Can we take measures now to protect the health of an ocean legacy hundreds of millions of years in the making while accommodating new and growing pressures to exploit it? We are presently enjoying the priceless benefits of actions taken a century ago to care for the land; our future as a species may depend on how swiftly and effectively we respond to the need to care for the sea.

Perhaps the most promising sign that we recognize the need for care is the growing number of marine sanctuaries, now 12 in the United States, complemented by more than 1,200 protected areas in the oceans worldwide and a growing number of overarching policies and programs that reflect a new ethic. In fact, while some protected areas in the sea—such



Aerial view of Fagatele Bay National Marine Sanctuary, American Samoa.

© Charles Birkeland

as the Great Barrier Reef Marine Park Authority, the Florida Keys National Marine Sanctuary, and the Monterey Bay National Marine Sanctuary—encompass thousands of square miles, the total area included within all the world's marine sanctuaries, parks, and other protected areas amounts to less than one tenth of one percent of the ocean. Moreover, few of these areas restrict commercial fishing or otherwise constrain “business as usual.” Many might argue that this is hardly enough to make a difference in the greater scheme of things.

The real hope—and the real power—of marine sanctuaries lies in their ability to change attitudes, and in the ethic of caring they reflect and inspire. Dignifying even a small place in the sea such as the Flower Garden Banks in the Gulf of Mexico or Fagatele Bay in American Samoa sends a clear signal that such places matter. If they do, logic suggests, so does the surrounding sea that makes their survival possible. If we fail to maintain the health of such places, it follows that something is wrong with their life support system—and thus with *our* life support system.

The 25th anniversary of the National Marine Sanctuaries Act should be a time of celebration—but also of reflection. It's a time to look ahead 25 years, 100 years, or more, and imagine the consequences of the actions we are now taking, or *not* taking. We have the opportunity as never before, and perhaps as never again, to take care of the ocean systems that are taking care of us.

Dr. Sylvia Earle is a marine biologist, explorer, author, lecturer, and spokesperson for ocean conservation. She is the founder of Deep Ocean Engineering, Inc., president of Deep Ocean Exploration and Research, Inc., chairman of the Sea Change Foundation, and formerly the Chief Scientist of the National Oceanic and Atmospheric Administration (NOAA).

NOAA's Sanctuaries and Reserves Program: A Vision for the Next 25 Years

By Stephanie Thornton

In 1972, with passage of the landmark National Marine Sanctuaries Act and the Coastal Zone Management Act, the nation's ocean and coastal protection program was established. Through these two Acts, the U.S. government exercises the authority to set aside areas of national significance for protection of both biological and cultural resources, as well as restoration, research, and education.

The Acts are not only explicit in their goals for biological and cultural resources protection, but also for appropriate human use of those valuable resources. The primary challenge faced by the National Marine Sanctuaries and Estuarine Reserves Division (commonly known as the Sanctuaries and Reserves Division, or SRD) in managing unique protected areas is how to balance resource protection with multiple uses. We may not have all the answers to these rigorous questions, but now—after 25 years—a sleepy government program is about to awaken to a new chapter in its life, a vision for the next 25 years.

What is *vision*? Webster's defines it, in part, as (A) "the ability to perceive something not actually visible, as through mental acuteness or keen foresight; (B) the force or power of imagination." Vision describes not only what is, but also what is yet to be. A vision literally alters reality, changing the way people think about their problems and the way they approach them.

The challenge before us is to see SRD in a new way. Any program can be carried out by mandates and proclamations, but it is our vision that sets the challenge and the foundation for how we intend to meet that challenge. The vision for SRD is articulated by a statement of core purpose, a description of core values, and a declaration of our envisioned future for the next 25 years.

Core Purpose

SRD's core purpose reflects the intent and premise of its founding legislation. This statement of purpose describes the motivating force and ideology within our program: to protect and rebuild marine and coastal resources (both biological and cultural) by creating a network of unique protected areas.

Core Values

SRD's core values frame the culture of the organization and form a source of guidance and inspiration:

- **Leading by example.** Rather than talking about resource protection, we demonstrate how it can be done and motivate others (individuals, organizations, and nations) to do the same. Essentially, we serve as a catalyst for action.
- **Challenging conventional thinking.** We encourage and support an entrepreneurial spirit, look to new concepts and theories for new ways of achieving resource protection, and apply creative problem-solving to complex issues.
- **Building strength in diversity.** The strength of SRD lies in the diversity represented by the National Marine Sanctuaries Program and the Estuarine Reserves Division Program. The common thread of resource protection brings these two programs together to address complex coastal and ocean management questions.
- **Learning from others.** While we acknowledge that leadership is a primary tenet of SRD, we must be realistic in assessing our own competencies. We must remain open to new ideas and learn from others around the globe in order to enrich our own capabilities.

The Next 25 Years

The final component of our vision is what will take SRD the next 25 years to achieve: the envisioned future. This goal

requires thinking beyond the current capabilities of the organization and the current environment. It requires everyone to be visionary, rather than just tactical (or worse, reactive). Our vision is created out of questions to which we must supply the answers. For example, what if:

- All coastal planners, decision-makers, and politicians shared the same goal of protecting the coastal environment and its resources?
- The multi-ethnic general public understood the relationship of the ocean and coasts to their personal well-being?
- People who impacted the coastal and marine environment "gave back" by engaging in activities and programs that rebuild or restore damaged environments and resources?
- Science and research provided direct answers to complex marine and coastal management questions?
- SRD were internationally respected and sought after for our success in effectively managing marine and coastal protected areas, and rebuilding damaged coastal and marine environments?

SRD's challenge in the future is to get others to embrace this vision and weave it into the fabric of our program. Finding committed listeners can be difficult, especially if the community at large believes government is suspect and that SRD is trying to impose restrictions. Occasionally, however, a vision is so compelling that people set aside their suspicions to respond to the challenge, propelling them from wishful thinking to committed action.

In the best vision of the future, SRD and the general public will work together to protect our marine and coastal resources for generations to come.

Stephanie Thornton is Chief of the National Marine Sanctuaries and Estuarine Reserves Division (SRD).

At The Edge of a Human Tide: Working to Save the Southern California Bight

By Jean-Michel Cousteau

The Southern California Bight is very unique. Located on a broad expanse of continental borderlands, the Bight extends from Point Conception in the north to Cabo Colnette, Baja California in the south—covering approximately 25,000 square nautical miles. The region is dominated by the eight Channel Islands: five in the Channel Islands National Marine Sanctuary (Anacapa, Santa Rosa, Santa Cruz, San Miguel, Santa Barbara) plus San Nicolas, Santa Catalina, and San Clemente.

Perhaps nowhere else in the world can one find such a spectacular ecosystem located so close to so many people who don't even know it is there. Imagine the citizens of Miami being unaware of the Everglades or Florida Keys, or the inhabitants of Brisbane forgetting about the Great Barrier Reef. Impossible! And yet, something similar has happened here in our own backyard.

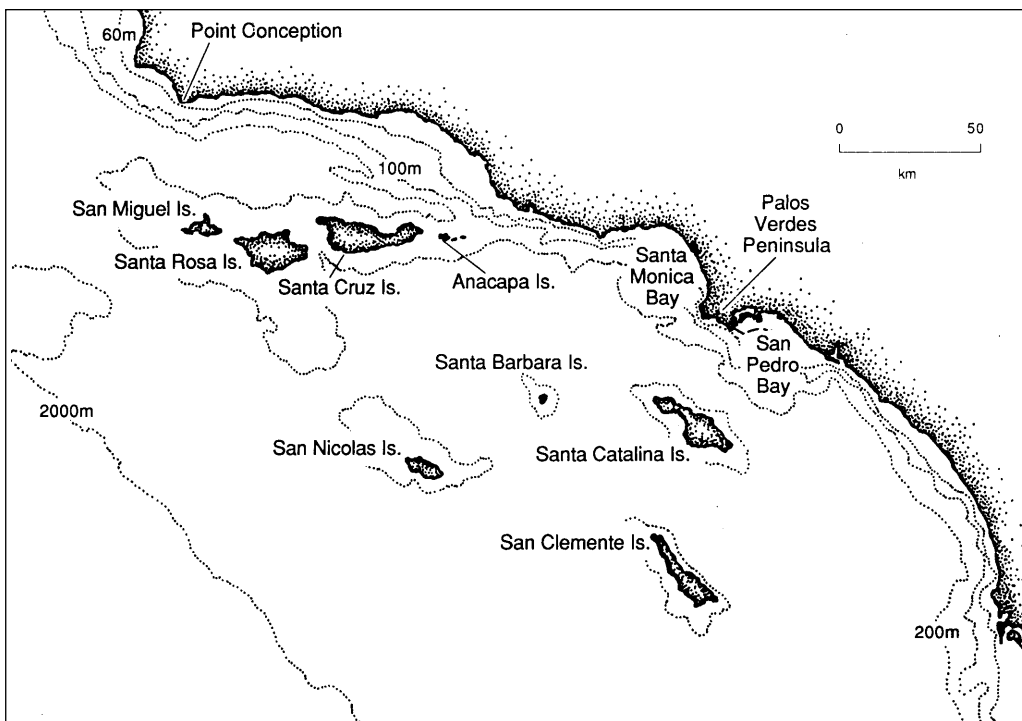
Los Angeles is the second-largest city in the United States, and it is located right next door to a fascinating world of kelp forests, submarine canyons, fault-block islands and the like. For the most part, these wonders are ignored. We in the business of ecological education understand that this situation is a very mixed blessing. In the short term, the Channel Islands and the undersea ecosystems of the Bight are relatively untrammled, compared to the



Jean-Michel Cousteau speaks with Santa Barbara youth on a recent diving trip to the Channel Islands.

Yosemites and Yellowstones of the world. And yet, in the long term, we know that ignorance will inevitably entail destruction. Only by educating people in the proper stewardship of the Bight can we assure its protection. And the most effective education is active participation in programs that put people in direct contact with the many treasures of the area.

Of course, many well-intentioned people are doing many productive things in this vein. Unfortunately, with so many people involved, and so much at stake, such programs can end up being redundant or even damaging to the natural ecosystem we wish to protect. Instead, we must as ecologists, educators, and policy makers sit down and devise a comprehensive approach to stimulating public awareness of and support for the ecologically sustainable use and enjoyment of the area. It is a mammoth undertaking, for there are so



The Southern California Bight stretches from Point Conception to Cabo Colnette, Baja California.

many of us, and our talents are so diverse. But it is not impossible, if we follow a few simple rules.

When confronting a large task, I always fall back on the metaphor of the film team for guidance. It never fails.

Even in a simple underwater film, the audience sees only the star. In fact, there are many people involved. Someone must hold the lights, someone else must operate the camera. Even before the dive, someone must fill the dive tanks, and after the dive, someone must reload the camera.

The implications are the same for any cooperative venture. Like camera operators or lighting experts, each group has special talents. The more diverse we are, the more strongly we can articulate our message. In cosmopolitan Southern California, this means giving each and every one of our more than 150 cultures a reason and an opportunity to participate.

Secondly, we must establish long-term objectives for how we want to live in our region of the world. In film terms: what is the movie really about? In environmental terms: How do we define quality of life?

Thirdly, we must build consensus and make sure that everyone on the team understands the overall goals. We might have the best camera person in the business, but if she or he has loaded a daytime film and we are shooting a night scene, all that talent will be wasted. In the same way, if some value the environment as a natural resource to be exploited for profit, that will conflict with those who view it purely as something to be admired for its beauty.

Once the “game plan” has been established, and we have a broad coalition of groups who have managed to subsume their various agenda into one coherent set of goals and priorities, we are ready to break the task down into units and to delegate responsibilities. I have always found, in film work, that this is one of the most exciting parts of the process: watching accomplished professionals find a way to channel their expertise toward the common goal. This is true teamwork, and the result can be a deeply satisfying work of art. The same can be true of a project involving the environment. In fact, it has to

be true, or the project will be a disaster. Restoring a damaged ecosystem, for instance, requires the input of botanists, biologists, soil conservationists, hydrologists, and probably many more besides, working individually in their areas of expertise toward a common goal. If any of these people lose sight of the goal, the ecosystem will be out of balance, and the failure will be readily apparent in the most obvious way: eutrophication, erosion, etc.

So communication is essential. We need to be talking to one another constantly to avoid dissolution. I have heard of film productions in which the camera person filmed one scene while the sound engineer was off taping something else. Back in the studio, editors confronted a picture with no sound, and a recording with no image. Both were wonderful, but totally useless. Consummate artists had forgotten to communicate. The same can happen among the experts involved in environmental work.

Trust is a vital part of the equation. We trust that other members of the team know what they are doing, in a technical way. In the movies, much money rides on this kind of trust. In environmental science, time is a more precious commodity. In the movies, a scene can always be reshot, but an ecological mistake can mean the extinction of a species forever.

We also trust that our colleagues are truly committed to the goals we have established. This is more tricky, for goals reached by compromise are never wholly satisfying to anyone, and it is often difficult to generate and sustain enthusiasm—much less passion—for such ends. Especially in an area as complex ecologically and demographically as Southern California, setting priorities will involve enor-

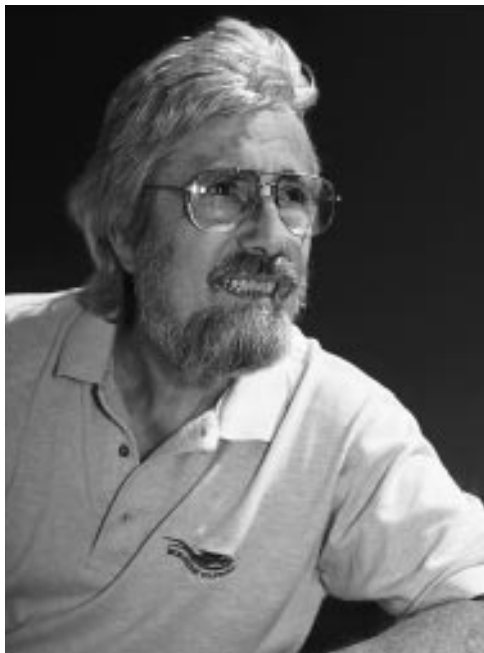
mous compromises. So it is even more important that all parties put everything “on the table,” that we are all absolutely candid with one another. In the end, we are all on the same side.

Perhaps the most important lesson I have learned in the movies is to have fun. There is a certain amount of tedium associated with any endeavor, but it need not dominate the entire process. “Reaching consensus” sounds dull, and it can be dull, if all it means is sitting around a big table taking notes and making points. But it can also mean meeting new people, learning about other points of view, eating foreign cuisine, traveling to new parts of the region—in short: discovery. Let us remember that, like the camera person on an undersea adventure, we are the “eyes” of people who have never before seen what we are about to show them. Let us transmit some of our passion for the Bight not only through WHAT we say, but through HOW we say it. And let us allow some of that zest of discovery to filter back from them to us.

Ecology, like making films, is not about stars, be they divers or garibaldi or gnatcatchers. It is about teamwork. The way species share services should be our model, building bonds between disparate parts of our communities, until the work of living itself becomes a dynamic contribution to the well-being of the whole.

Ecology, like making films, is not about stars, be they divers or garibaldi or gnatcatchers. It is about teamwork. The way species share services should be our model, building bonds between disparate parts of our communities, until the work of living itself becomes a dynamic contribution to the well-being of the whole.

Renowned undersea explorer and environmentalist Jean-Michel Cousteau is founder of the Jean-Michel Cousteau Institute, based in Santa Barbara, California.



Jean-Michel Cousteau.

© 1996 Tom Ordway/Jean-Michel Cousteau Productions

National Marine Sanctuaries: A Celebration of Diversity

In 1972, Congress passed the National Marine Sanctuaries Act, which authorized the Secretary of Commerce to set aside selected coastal areas as national marine sanctuaries. Since then, 12 sanctuaries have been established, ranging in size from less than one mile to over 5,300 square miles. Their protected waters shelter both endangered species and historic artifacts, providing recreation areas as well as support for valuable commercial industries.

These 12 marine sanctuaries are national treasures that belong to all Americans. They are ours to enjoy and protect for the benefit of future generations. At this writing, two more national marine sanctuaries are in the designation process: Northwest Straits in Washington State, and Thunder Bay in the Great Lakes region of Michigan. For more information on Northwest Straits, call 206/526-4293; for Thunder Bay, call 517/432-3142.

Channel Islands, California
Designation: September 1980
Protected area: 1,658 square mi.
This sanctuary encompasses the waters surrounding five of the Channel Islands. Warm and cool ocean currents combine to attract flourishing fish and invertebrate populations, giant kelp forests, and abundant whales, seals, and marine birds.



Garibaldi.

©Mark Conlin

Florida Keys, Florida
Designation: November 1990
Protected area: 3,674 square mi.
This marine ecosystem is one of the most diverse in North America. Its habitats include coral reefs, fringing mangroves, seagrass meadows, hardbottom regions, patch reefs, and bank reefs. Historic shipwrecks and lighthouses are also found here.



Angel fish.

©National Marine Sanctuaries



Diver at Cordell Bank.

©Cordell Bank Expeditions

Cordell Bank, California
Designation: May 1989
Protected area: 526 square mi.
This offshore seamount rises to within 115 feet of the sea surface in the open ocean, creating a highly productive marine environment. Cordell Bank is a destination feeding ground for many marine mammals and seabirds.



Tessellated blenny.

©Jackie Reid

Flower Garden Banks, Texas/Louisiana
Designation: January 1992
Protected area: 56 square mi.
Located 100 miles off the coast, these underwater gardens rise out of the Gulf of Mexico on the surface of salt domes that originate beneath the sea floor. This popular diving spot features the northernmost coral reefs in the U.S.

Fagatele Bay, American Samoa
Designation: April 1986
Protected area: 0.25 square mi.
Fagatele Bay, an eroded volcanic crater, now contains a fringing coral reef ecosystem. Nearly 200 species of coral are found here, along with crown-of-thorns sea stars, blacktip reef sharks, surgeon fish, and hawksbill turtles.



Coral reef detail.

©Linda Wade

Gray's Reef, Georgia
Designation: January 1981
Protected area: 23 square miles
This large sandstone reef consists of outcroppings and ledges up to three meters high, with flat-bottomed troughs between. Recognized as a Biosphere Reserve by UNESCO in 1986, Gray's Reef is a popular spot with sport fishermen and divers.



Sea stars.

©Henry Anusley



Harbor seal.

©W.E. Townsend

Gulf of the Farallones, California
 Designation: January 1981
 Protected area: 1,255 square mi.
 The Farallon Islands provide nurseries and spawning grounds for 26 species of marine mammals and 15 species of seabirds. One quarter of California's harbor seals breed here. The sanctuary

also protects numerous bays, lagoons, and beaches.



Tidepool life.

©National Marine Sanctuaries

Monterey Bay, California
 Designation: September 1992
 Protected area: 5,328 square mi.
 The nation's largest marine sanctuary, Monterey Bay protects the rich coastal waters off central California. Its habitats include rocky shorelines, lush kelp forests, and one of the West Coast's deepest underwater canyons.

Hawaiian Islands Humpback Whale, Hawaii
 Designation: November 1992
 Protected area: 1,300 square mi.
 One of the world's most important habitats for the humpback whale is located around the Hawaiian Islands. Each year two-thirds of the North Pacific humpback population travel here to breed, calve, and nurse their young.



Humpback whale.

©Stan Butler

Olympic Coast, Washington
 Designation: July 1994
 Protected area: 3,310 square mi.
 This sanctuary encompasses an area approximately 35 miles seaward from the rugged Olympic Peninsula. It covers much of the continental shelf, protecting habitats for one of North America's most diverse marine mammal populations.



Sea lions.

©National Marine Sanctuaries



Monitor anchor.

©Monitor Collection, NOAA

Monitor, North Carolina
 Designation: January 1975
 Protected area: 1 square mile
 The first designated national marine sanctuary was the wreck of the *USS Monitor*, a Civil War ironclad vessel that lies off the North Carolina coast.



Humpback whale.

©Center for Coastal Studies

Stellwagen Bank, Massachusetts
 Designation: November 1992
 Protected area: 842 square miles
 A habitat of coarse sand and gravel, Stellwagen Bank was formed by retreating glaciers in the last Ice Age. Nutrient-rich water from the Gulf of Maine flows over the bank, supporting species from single-celled phytoplankton to whales.

Santa Barbara Sanctuaries: A Turbulent History

By Robert Sollen

Marine sanctuaries off the Santa Barbara coast emerged piece by piece over 40 years of public persistence, culminating in the creation of the Channel Islands National Marine Sanctuary in 1980. To protect its coastal splendor, a united community kept pressure on the state Legislature and Congress, several state and federal agencies, and the White House.

In 1954 the California state Legislature alarmed Santa Barbarans by debating the Shell-Cunningham offshore oil leasing act. A state senate committee visited Santa Barbara and heard protests by everyone from the League of Women Voters to the American Legion demanding protection from oil drilling off the coast.

The result was the creation of a three-mile-wide, oil-free state sanctuary, stretching 13 miles from Summerland to Coal Oil Point. That preserved Santa Barbara's ocean view—or did it? Three miles seaward is the limit of state authority, and the federal government had oil leasing plans just 3.5 miles offshore.

In the 1960s, the City and County of Santa Barbara made several unsuccessful attempts to have Congress declare the Channel an oil-free zone. The federal government concluded a major offshore lease sale in 1968. That year, Santa Barbara finally extracted from President Johnson a two-mile-wide, oil-free preserve in addition to the three-mile state sanctuary.

But even five miles of protection wasn't enough. The historic 1969 blowout occurred on an oil platform just seaward of the federal preserve. After the fact, Interior Secretary Walter Hickel added additional 34,000-acre buffer zone.

A month and a half after the blowout, more than 40 pollution bills, concerned mostly with offshore oil, came before Congress. None were enacted that would specifically protect the Santa Barbara Channel. In January 1970 Secretary

Hickel spoke out in favor of an oil-free sanctuary extending clear across the channel—a stand that became Administration policy during congressional hearings in 1970. But still Congress took no action.

Meanwhile, in Sacramento, the state Legislature passed Senator Robert Lagomarsino's bill creating an oil-free zone three miles seaward around the four northern Channel Islands. That bill was signed by Governor Reagan in 1971.



The 1969 Santa Barbara oil spill focused national attention on the environment.

The next year Congress passed the National Marine Sanctuaries Act, authorizing the Commerce Department and the President to set aside marine sanctuaries in federal waters and in state waters with state government approval. The Santa Barbara Channel came under consideration in the late 1970s.

Turf wars erupted. The National Oceanic and Atmospheric Administration (NOAA), supporting Santa Barbarans, favored embracing the entire channel. So did the State Coastal Commission. The Interior Department and the Coast Guard fought the plan, as did the oil industry. The NOAA hearings in Santa Barbara were turbulent.

Eventually NOAA scaled the sanctuary down to six miles around the four northern islands and Santa Barbara Island to the south, an area of 1,658 square miles—still the largest marine sanctuary at that time.

“The area clearly deserves marine sanctuary status,” President Carter said as he approved the sanctuary on September 21, 1980. “The islands and surrounding waters are an exceptionally productive ecosystem.”

Protecting a little more ocean, the state Legislature in 1994 passed Assemblyman Jack O'Connell's bill placing all nonleased state waters off limits for oil drilling.

Robert Sollen, a former environmental writer for the Santa Barbara News-Press, has served as a county planning commissioner, UCSB lecturer, independent writer, and environmental advocate.

Santa Barbara Oil Spill: Conservation Landmark

by Sean Hastings
CINMS Research Assistant

On January 28, 1969, Union Oil Company Platform A blew out, releasing 3.2 million gallons of oil into the ocean (79,000 barrels). Within a matter of days oil had spread from the northern Channel Islands to the Mexican border—roughly 800 square miles. The spill commanded the attention of the federal government, private oil interests, and the general public. Newspaper headlines across the country referenced the spill as the inspiration for a growing environmental movement.

Today we are fortunate to be able to explore the Channel Islands National Marine Sanctuary and observe this amazing ecosystem in a relatively pristine state.

Joint Patrol Aircraft Acquired by CINMS and MBNMS

Channel Islands National Marine Sanctuary and Monterey Bay National Marine Sanctuary now share a joint patrol aircraft. The former Air Force plane is scheduled to make weekly trips around each sanctuary.

The aircraft will enable personnel to monitor activity and resources, survey sanctuary users, conduct vessel traffic studies, observe the effects of shore runoff, perform aerial surveys during oil spill emergencies, and collect data on both marine mammals and the kelp forest. Photography and video will be used to record sightings.

Special onboard equipment includes a Global Positioning System and laptop computer. Position information can be downloaded instantly to register the loca-



The new joint patrol aircraft and its pilot, Lt. Commander David Kruth.

tion of objects in sanctuary waters.

The four-passenger sea plane is unique in that its engine is mounted above the pilot and passengers, enabling the vessel to land on its “hull” if required. Cruising speed is 115 knots. Special long-range fuel tanks permit a maximum endurance of 10-12 hours in the air.

The plane—a Lake amphibian model

called the Sea Wolf—was flown out to California in January from MacDill Airforce Base in Tampa, Florida.

“The aircraft gives us the ability to reach nearly any site in the sanctuaries quickly,” says Lt. Commander David Kruth, the plane’s pilot.

Research Vessel Activities

The R/V *Ballena* spent December 1996 through February 1997 continuing support for UCSB’s Institute for Computational Earth System Science “Plumes and Blooms” research project, and providing ABC/Kane contract cinematographer Tom Fitz a platform from which to document dolphins in the Sanctuary. The vessel also received some important maintenance in preparation for another busy spring/summer field season.

The Channel Islands Marine Sanctuary Foundation

A new advocate for CINMS is now in the making: a 501(c)3 nonprofit to be known as the Channel Islands Marine Sanctuary Foundation (CIMS F).

“The purpose of CIMS F will be twofold,” explains Sanctuary Manager Ed Cassano. “First, the organization will support the mission of the Sanctuary through public awareness and education efforts. Second, it will conduct fundraising efforts to support the Sanctuary’s goals.”

Federal regulations prohibit national marine sanctuaries from soliciting funds on their own. However, NOAA allows and encourages the creation of separate nonprofit foundations to fill that role.

CIMS F will work collaboratively with Sanctuary staff to promote long-term conservation of marine and cultural resources. Its goals will be:

- To increase visibility of CINMS and its programs.
- To communicate the Sanctuary’s significance and sensitivity.

- To foster partnerships between CINMS and local citizens, organizations, and businesses.
- To develop and sustain a funding base of citizens, businesses, and foundations.
- To publish and distribute publications, hold seminars, develop curricula, and conduct workshops.
- To support scientific research and educational programs within CINMS.

CIMS F Project Director Kelly Darnell brings years of experience in volunteering for nonprofits to her role in creating CIMS F. She has a degree in psychology from Western Washington University and a background in social work.

To date three board members of the seven-member board have been selected: Fred Benko, owner of the *Condor*; Rob Wilder, professor of environmental studies at UCSB; and David Brown, owner of Passage Productions.

Channel Tidings

CINMS Sponsors Workshop for Charter Boat Captains

The Channel Islands National Marine Sanctuary recently sponsored a workshop for charter companies on responsible whale-watching activities. The workshop was attended by captains from most of the areas whale-watching operations.

Sanctuary Manager Ed Cassano served as facilitator for the workshop. Other participants included Joe Cordaro, marine mammal stranding network coordinator for the National Marine Fisheries Service; and representatives from the Santa Barbara Museum of Natural History.

Because whale watching is growing in popularity, more charter boats than ever are plying the waters of the Channel. At the workshop, the captains of these boats agreed to communicate with each other to prevent problems and ensure that the whales are protected.

CINMS Staff Speaks at CWO 97 Meeting

Sanctuary Manager Ed Cassano and Education Coordinator Laura Gorodezky traveled to San Diego in March to speak at a conference titled "California and the World Ocean 97."

Ed Cassano's topic was "International Recognition and Protection for United States National Marine Sanctuaries." Laura Gorodezky gave a joint presentation with Liz Love of the Monterey Bay National Marine Sanctuary titled "Enhancing Education: Partnerships That Work!"

Tidings continues on page 13

The Tomol Project: A Dream Becomes Reality

By Roberta Cordero

July 1993—"Qatuwas," Gathering of the People, at the village of Waglisla, ancestral homeland of the Heiltsuk Nation of British Columbia. My companion and I disembark from our five-hour-long ferry journey, the only opportunity for a week to reach the island of Bella Bella save by air or private boat. We move down the ramp and our hearts soar in response to the greeting prepared for us. The hereditary chiefs of this ancient people are here in full regalia, drumming, singing, dancing, and blessing us with the eagle down which floats from their headpieces.

For a week of time out of time, we share this tiny island with hundreds of other first nations' people and, seemingly, with at least as many ravens and bald eagles. We are here to greet the great canoes crafted and crewed by the canoe nations of Alaska, British Columbia, and Washington—the Heiltsuk, Kwak'-kwaka'wak and Nuuchanulth, the Tsimshian and Tlingit, the Makah, Quileute, S'Kllalam, S'qua-mish, Puyallup and Lummi, and many others.

We witness the arrival of canoes paddled hundreds of miles from their homes and greeted with the ancient protocols. Paddling to shore stern end first to show peaceful intent, the visitors identify themselves and ask permission to land. The hosts respond with full and proper ceremony and the promise to feed and house the visitors, to share stories, gifts, friendship. And what a sharing it is—every day eating together foods traditional and contemporary, participating in both ceremonial and social traditional dancing, telling each other our stories, and exchanging gifts in the ancient and profligate manner, the "potlatch."

Through this exchange, we rediscover the connections of the Northern peoples to our own ancestors, the Chumash. They tell us stories of their great-great-grandfathers trading for red abal-

one shells at the Great River (the Columbia), and they show us hereditary regalia embellished with hundreds of red abalone buttons and exquisite abalone inlay. They tell us stories of people from the far south married into their bands and stories of their own people living far to the south.

Most compelling for me is that I see my own relatives in the faces of these people, in the shapes of their bodies, heavy in the shoulders and chest, narrow in the hips—Canoe People par excellence. I even see two dancers who could be twins to my oldest son.

The dream is born of joining the Chumash people and our traditional canoe, the tomol, to these Northern cousins.

It often happens that a dream has a life of its own and visits many people, even if in different forms. So it is with the dream of restoring the tomol to an active role. My own daughter, Julie Cordero, found a piece of this dream through her deeply felt connection with Chumash culture and our hereditary homeland, and through her personal connection with the Pacific Northwest tribal nations. And so she and I brought the invitation not only to the Chumash people, but also to the Tongva/Gabrielino people to the south who already have a traditional plank canoe (ti'at).

Many Chumash descendants have been visited by this dream and long to see, once again, a beach lined with tomols and young Chumash training to crew them. To support the realization of this dream, we have formed a nonprofit corporation, the Chumash Maritime Association.

The Channel Islands National Marine Sanctuary has contributed to this dream by generously granting funds for the building of not one, but three vessels: a traditional redwood plank tomol, a "cold-molded" tomol for practice and training, and a "cold molded" ti'at for the Tongva people's



©Michael Marzolla
A redwood tomol in the final stages of construction.

use. The cold-molded vessels are made from strips of wood formed over a mold, then covered with fiberglass. Using these strong canoes for practice will reduce wear and tear on the delicate redwood vessel.

The plank canoe is perhaps the most advanced technological achievement of North America's indigenous peoples. Our Chumash ancestors carefully collected suitable driftwood logs (preferably redwood), then cured, split, and adzed them into planks. Short planks were fitted together into long planks using overlapping joints. After each row of planks was butted together, a mile or more of cordage handmade from red milkweed, dogbane (aka "Indian hemp"), or other fibers was used to lash the planks through holes drilled with stone bits.

The next step was to caulk the seams with the pithy cores of tule stalks, then to seal the seams and lashings with "yop"—a mixture of asphaltum and pine pitch which dried almost to the hardness of modern-day epoxy. Red ochre was used to stain and seal the wood, and red abalone inlay completed the embellishment—not only of the tomol or ti'at, but also of the double-ended paddles used to propel the canoes.

Using modern boat-building techniques, Peter Howorth is our teacher/builder for this project, as he was for two recently completed tomols commissioned by Santa Barbara County



Peter Howorth has instructed a team of apprentices in the current tomol-building project. Left to right: Marcus Lopez, Roberta Cordero, Peter Howorth, Reggie Pagaling. Not pictured: Alan Salazar, Julie Cordero, Jose Castillo.



Cresencio Lopez works on the abalone inlay that decorates the tomol's "ears."

Schools. He has taught a faithful group of Chumash/Native American apprentices how to cut and spline together the planks, using epoxy and clamps to fasten them. Someday we would like to use fiber cordage and "yop," but for now we use nylon cordage and black-dyed, thickened epoxy. We hope to relearn the use of the ancient tools, but we are happy to practice the important principles with modern tools and techniques. And we are most happy with the result we see materializing before our eyes: a tomol of exquisite beauty.

Our next task will be the recruitment and development of a Chumash and Native American crew. The Chumash Maritime Association is seeking resources to support this effort, and also to support our short-term goal of participating in the great canoe gatherings this summer in Washington and British Columbia.

Our long-term goal is the restoration of our ancient intimacy with the sea. Through this we join other coastal indigenous nations who are reconnecting with the sea for the purpose of protecting her. Through this we will rediscover the fullness of our dignity and identity as people sprung from this land and nurtured by the sea.

Roberta Cordero is a Santa Barbara native and a member of the local Chumash community. She is once again a resident of Santa Barbara after living many years in the Pacific Northwest.

Tidings, continued

Los Marineros Program Honored

Renew America announced recently that the Los Marineros Program, which is administered jointly by the Channel Islands National Marine Sanctuary and the Santa Barbara Museum of Natural History, will be listed in the Environmental Success Index—a one-of-a-kind database of successful environmental programs.

Each year Renew America, a nonprofit organization, identifies programs throughout the nation that provide innovative solutions to tough environmental challenges. To qualify for inclusion in the index, programs are evaluated on the basis of four criteria: program effectiveness, natural resource conservation, economic progress, and human development.

Now in its eleventh year, Los Marineros is a marine education program that reaches every fifth grade student in the Santa Barbara School District. More than 850 children learn about natural history and the marine environment through marine science classes, beach clean-ups, trips to local tidepools, and whale watching excursions. Los Marineros also provides education for elementary teachers through a series of marine education workshops.

Renew America recognized the excellence of the Los Marineros Program in 1992 and 1995 as well.

Research

The Great American Fish Count: We Came, We Dove, We Counted

by Sarah Tamblyn

“Did you see that sheephead? It was enormous! And what about that school of señorita?” Excited and smiling divers exited the water at a popular dive site in the Channel Islands National Marine Sanctuary, sharing their observations and discoveries. What were they doing? Counting fish as part of an annual survey called the Great American Fish Count.

The Great American Fish Count (GAFC), an annual fish census conducted by volunteer divers, is rapidly becoming a mainstream event nationwide. The program was started in 1992 by the Channel Islands National Park as a way to encourage sport divers to report fish sightings. Modeled after the Audubon Christmas Bird Count, the GAFC has expanded to include sites around the coastal United States. The program is a way to document fish diversity and long-term trends in fish populations. It also has tremendous potential to increase public awareness and concern over the condition of our fisheries and marine environment.

How the GAFC Began

Gary Davis, a marine biologist in Channel Islands National Park, developed the GAFC as a way to mobilize and educate the recreational diving community. The goals of the GAFC are: to raise public awareness about trends in fish populations; to obtain data on fish populations; to provide a sustainable, non-extractive diving activity; and to improve techniques for fish population assessment.

The Channel Islands National Marine Sanctuary has been one of the lead agencies for the GAFC, working closely with the Channel Islands National Park to conduct training seminars and public outreach. In 1994, the Monterey Bay National Marine Sanctuary teamed with a nonprofit organization, the Marine Conservation Network, to organize and train divers in the Monterey region. Training sessions are now held throughout the state to provide instruction on fish identification and survey techniques.

What We Saw

During the first two weeks in July each year, volunteer divers conduct GAFC surveys. In 1996 approximately 200 divers participated at 58 sites along the California coast, stretching

from Orange County to Sonoma. The top three fish counted from Orange County to the Channel Islands were señorita, garibaldi, and blacksmith; in Monterey and vicinity, the top-ranked fish were blue rockfish, blackeye goby, and pile surfperch.

Is This Information Useful?

Some scientists question the validity of data collected by volunteers without formal research training, and with good reason. Scientific analysis—and, ultimately, conservation policies—rely upon the accuracy and accountability of these data. But volunteer monitoring is not a new concept. The sheer quantity of data collected by volunteers can fill a pressing need when research funds are depleted.

As the Great American Fish Count expands, an advisory committee of scientists, researchers, and educators will evaluate data collection, train-

ing methods, and analysis, placing a strong emphasis on improving the quality and consistency of the data.

Fish Monitoring Summit

Several nonprofit organizations and government agencies and have joined forces to aid the GAFC. In November 1996, a “Fish Monitoring Summit,” hosted by the Channel Islands National Marine Sanctuary, was held in Santa Barbara. Attendees included staff from the Channel Islands, Monterey Bay and Flower Gardens National Marine Sanctuaries; scientists and research divers from the Channel Islands National Park and Catalina Conservancy; and representatives from the National Ocean Data Center, National Ocean Service, Reef Environmental Education Foundation (REEF), American Oceans Campaign (AOC) and Marine Conservation Network (MCN).

As a result of this collaboration, participation in the GAFC will increase exponentially, with unlimited potential for public outreach and awareness.

Sarah Tamblyn is director of the Marine Conservation Network.



©1996 David Tamblyn

Sarah Tamblyn tallies a garibaldi as part of the Great American Fish Count.



The Pod Press



Vol. 1 No. 1

Kid Mapping

By Celeste Vargas & Luis Gantes

In this activity, you will create a map of the Channel Islands National Marine Sanctuary on your driveway. You're doing this so you can have fun and learn more about the Sanctuary.

Supplies

Map from the back page of *Alolkoy* • pencil • ruler • chalk

Steps

1. Using a pencil, mark off every centimeter across the top and one side of the map on the back page.
2. Draw a line from every mark across and down the map.
3. On your driveway, draw a rectangle in chalk that is 9 feet by 6 feet, marking off every foot.
4. Draw a line from every mark across and down the rectangle.
5. Using a different color chalk, work square by square and trace the outline of the coast and the islands.
6. Use another color chalk to trace the Sanctuary boundary.
7. Draw creative animals that you might find in the Sanctuary.

Dear Crabby



Dear Crabby,

What kinds of animals are protected in the Channel Islands National Marine Sanctuary?
—A Curious Kid

How we got the answer: We tried to go on the Internet, but the system at our school was down, so we called the Channel Islands National Marine Sanctuary and talked to Colleen Angeles, Education Program Assistant. She told us some of the animals that are protected: whales, dolphins, fish, pinnipeds, sea birds, sharks, sea anemones, and sea urchins.

But these are just a few of the animals that are protected. There are lots more!

Research done by Peter Ty and Janai Adan

If you have a question about the islands within the sanctuary, please write to Dear Crabby at Santa Barbara Museum of Natural History, 2559 Puesta del Sol Rd., Santa Barbara, CA, 93105, or e-mail to: losmar@sbnature.org.

About the Channel Islands

By Jessica Mendoza and Victor Gonzalez

The Channel Islands National Marine Sanctuary is 20 miles away from Santa Barbara. The Sanctuary is a specially protected area in the Pacific Ocean. The Channel Islands National Marine Sanctuary was created in 1980. It takes up more than 1,658 square miles. The boundary is 6 miles away from the islands of San Miguel, Santa Rosa, Santa Cruz, Anacapa and Santa Barbara. There are 25 species of sharks and 27 species of cetaceans that visit the Sanctuary certain times of the year. Did you know that there are more than 100 shipwrecks in the Sanctuary? Every day divers explore to discover new things in the Sanctuary.

Sanctuary Scramble

By Karina Martinez and Mario Lazzcand

B	O	G	A	S	A	N	M	I	G	U	E	L	I	P	K	A	T
D	E	A	G	B	A	L	E	E	N	C	K	Q	O	L	S	Q	O
K	S	G	N	L	J	K	F	D	W	H	A	L	E	O	J	A	M
N	B	A	L	E	L	I	E	G	O	A	C	O	R	H	H	N	O
P	N	A	N	A	M	T	N	O	H	P	A	A	B	S	O	A	L
I	O	M	I	T	C	O	A	B	O	G	T	J	A	E	Q	C	P
B	H	P	C	E	A	O	N	M	Q	N	G	M	F	A	K	A	H
E	J	J	T	C	E	B	J	E	A	G	U	K	I	W	H	P	N
D	F	O	M	F	L	J	A	S	P	H	B	E	P	E	Q	A	I
D	R	M	H	K	A	C	C	R	C	Q	D	L	H	E	M	B	Q
P	P	G	M	L	O	I	B	I	B	I	E	P	U	D	M	D	D
A	K	H	G	D	F	K	O	D	K	A	I	M	N	B	E	F	E
Q	J	M	A	I	A	N	N	M	K	H	R	P	U	M	B	E	H
P	N	E	C	K	B	N	C	E	B	Q	H	A	N	S	B	E	E
E	C	A	S	A	N	T	A	C	R	U	Z	K	Q	H	S	G	R
E	P	C	N	H	J	Q	D	O	L	P	H	I	N	M	J	E	K
E	C	N	L	E	H	N	J	M	H	N	O	O	M	K	Q	H	L
H	D	E	G	Q	J	B	A	E	F	P	L	A	N	K	T	O	N

- | | | |
|---------|------------|---------------|
| ANACAPA | KELP | SANTA BARBARA |
| ANEMONE | MUSSEL | SANTA CRUZ |
| BALEEN | PACIFIC | SANTA ROSA |
| BLUBBER | PLANKTON | SEAWEED |
| CHUMASH | PROTECTED | TOMOL |
| DOLPHIN | SAN MIGUEL | WHALE |

This page was written by fifth grade students in the Los Marineros program at Franklin School, Santa Barbara, California. This is the first issue of Pod Press. All kids are welcome to contribute to this page.

If you have comments, suggestions, or submissions for this page, please send them to the *Alolkoy* office, Channel Islands National Marine Sanctuary, 113 Harbor Way, Santa Barbara, CA 93109.



U. S. Department of Commerce
National Oceanic and Atmospheric Administration
Channel Islands National Marine Sanctuary
113 Harbor Way
Santa Barbara, CA 93109

Address Correction Requested

Aloikoy

Need more information?
Contact:

Channel Islands
National Marine
Sanctuary
113 Harbor Way
Santa Barbara, CA 93109
805/966-7107
Email: cinms@rain.org
Web Page: www.cinms.rain.org

Channel Islands
National Park
1901 Spinnaker Drive
Ventura, CA 93001
805/658-5700
Web Page: <http://www.nps.gov/chis/>

Santa Barbara Museum
of Natural History
2559 Puesta del Sol Road
Santa Barbara, CA 93105
805/682-4711
Web Page: <http://www.rain.org/~invert/>

Sea Center
211 Stearns Wharf
Santa Barbara, CA 93101
805/962-0885

Things to Do, Places to Go

Whale Watch Update

The northward migration of gray whale cow/calf pairs through the Santa Barbara Channel will continue through the end of April. Beginning in May, humpback whales and blue whales move into the area. For information on whale watching trips, call the following excursion companies:

In Santa Barbara: The Condor, 882-0088 or 1-888-77WHALE; Double Dolphin Cruises, 962-2826; Captain Don's Sportfishing, 969-5217; Sea Landing, 963-3564; Ocean Adventures, 682-7501. In Ventura: Island Packers, 642-1393 or 642-7688.

Underwater Film Festival

On Friday, April 25 at UCSB's Campbell Hall, the Santa Barbara Underwater Film Festival will showcase the work of underwater photographers to benefit the nonprofit diving programs of Santa Barbara. The program will include Hans Hass's first underwater documentary (1939), plus presentations by Tom Campbell, Doug Cummings, Brad Doane, James Forte, Jim Knowlton, and the Brooks Institute. Tickets are \$10 and are available at all Santa Barbara dive shops. For more information, call 893-8739.

Touch Tank Grand Opening

On May 10, during the Santa Barbara Harbor Festival, the Sea Center will host a Grand Opening Celebration for its new touch tank area, which features an all-weather canopy. Visitors will notice changes inside the Sea Center as well. The opening ceremony

will be held at 11 a.m. For more information, call the Sea Center at 962-0885.

Great American Fish Count Seminars

Divers and snorkelers who would like to participate in the upcoming Great American Fish Count are encouraged to attend training sessions in fish identification. Four seminars will be held at UCSB during June; the dates are June 4, 11, 18, and 20. Call Dennis Divens for more information at 893-4559.

A Shellabration of Summer

From June 13-September 1, the Santa Barbara Museum of Natural History will host a "Shellabration of Summer," featuring beautiful shells from the world's oceans. Activities will include a museum-wide treasure hunt, weekly puppet show and storytelling, shell identification workshops, and more. For details call 682-4711.

