Alolkoy

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Inside

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SANTA BARBARA MUSEUM OF NATURAL HISTORY

CHANNEL ISLANDS NATIONAL MARINE SANCTUARY

From the Bridge

Life-saving Education

By Ed Cassano, Sanctuary Manager

Education is an essential function of all of our programs at Channel Islands National Marine Sanctuary. There is a strong relationship between education and the other cornerstones of the sanctuary program: resource protection, wise use of resources and research. During a recent Sanctuary research trip I saw how these elements can address a problem.

The CINMS supports the work of the National Biological Service in conducting seabird research (see page 12). These research trips discovered breeding pairs of Ashy Storm-petrels in some of the sea caves found within the Sanctuary. These small seabirds make nests, lay their eggs and raise their young inside selected sea caves.

These caves are also desirable destinations for kayakers and boaters exploring the coastline. Several publications even detail the structure of the caves and encourage exploration of their interiors. (Note: Under existing Channel Islands National Park and The Nature Conservancy regulations it is illegal to land in these caves without a permit.)

The presence of sea birds nesting on the floor of these caves was only recently documented. Most people visiting the Sanctuary and the national park are not aware these birds nest in the rubble on the cave's floor. The uninformed explorer, trekking through these caves may disturb nesting pairs, step on birds or eggs in the dark interiors, or cause movement of material that can damage or destroy nest sites or breeding birds.

It is through research that we have discovered these rare birds' vulnerability to intrusions by people. It is through education that we can start to protect the birds' sensitive habitat. By informing kayakers, guide services and recreational boaters about these birds' breeding habits, we will increase their protection and promote wise use of our resources.

Editor's Watch

A Wealth of Programs

So many marine education programs are centered in the tri-county region of San Luis Obispo, Santa Barbara and Ventura that we have an inspiring embarrassment of riches. Some of the initiative, dedication and goodwill of such efforts are displayed in this issue of *Alolkoy*. A comprehensive listing can be found in the 1995 *Marine & Coastal Educational Resources Directory* co-sponsored by the Sanctuary and the California Coastal Commission.

The reflective cover shot is by photographer Steve Wrubel of Santa Barbara. He is a student at Brooks Institute of Photography in Santa Barbara, California, and intends a career in advertising. Thanks go to Steve's models, Rachel Kaufman and Chelsea Murray, for their volunteer assistance. The symbolically anonymous instructor is Sanctuary Education Coordinator Laura Gorodezky.

Shipwrecks and rescues are subjects of ongoing interest to seafarers everywhere, and to our next *Alolkoy*.

Cover: Stretching to touch a giant sea star are (left to right) Chelsea Murray and Rachel Kaufman of Santa Barbara. (Photo © 1996, Steve Wrubel)

Contributing artist: Allan Parker, p. 13

Ocean Is a Salt Air Classroom

By Laura Gorodezky

The Channel Islands National Marine Sanctuary provides a living classroom for discovering, exploring and enjoying a microcosm of marine wonders. The reefs, shipwrecks and kelp forests within the Sanctuary offer special opportunities to learn about life in the sea. The puzzle is how to best take advantage of such opportunities, considering the Sanctuary's isolation from the mainland. One well-tested way is to join forces with other educators to provide a variety of field and classroom programs that stimulate a desire to learn more about the Santa Barbara Channel's special marine environment.

For more than 10 years the Sanctuary has been a partner with the Santa Barbara Museum of Natural History on a wide variety of educational programs that embrace different age groups. The museum's Sea Center on Stearns Wharf is a marine aquarium and educational facility that annually attracts more than 75,000 visitors. It provides a window onto the natural wonders of the Santa Barbara Channel and serves as the Sanctuary visitor center.

The Los Marineros Marine Education Program, now in its tenth year, offers field trips and hands-on experiences for Santa Barbara fifth graders. This year more than 850 students studied local ocean life and physical processes.

A recent Los Marineros graduation ceremony reminded me of how I first became interested in learning more about the ocean. The same wonder and curiosity that I saw in the eyes of these youngsters as they described the year's highlights surely was in my eyes 17 years ago, when I made my first trip to Santa Cruz island as a sixth grader.

It was my first time on a boat, and I vaguely remember a queasy stomach, but mostly I remember learning about wonderful ocean creatures I saw that day, especially a swell shark wriggling inside its leathery egg case. This experience has stayed with me and has been key to my understanding of the value of a healthy ocean, and the necessity of protecting its future.

CINMS-sponsored cruises of Sanctuary waters expand this type of experience to families. The cruises from Santa Barbara provide views of marine mammals and seabirds on the sea surface and introduce the underwater realm through live video. Passengers can ask questions over the two-way interactive system as a diver shows them rocky reefs and kelp forests. Live ocean critters are brought up for closer viewing and then returned unharmed. These trips are conducted in cooperation with Passage Productions and the charter boat *Condor*, in addition to the museum.

Another avenue for learning more about the Channel region is the new Whale Corps program. Whale Corps guides interpreted nature to 15,000 passengers aboard the *Condor* during the recently concluded gray whale migration season. The arrival of blue and humpback whales this summer only refocuses the Corps' outreach efforts. By combining the thrill of seeing the barnacle-encrusted head of a gray whale with educational tidbits on how long they travel and the significance of the recovery of their populations, passengers enjoy a richer experience. At the same time, the important role of whales in the marine environment is underlined.

Steve Book

A class from the University of California, Santa Barbara, offloads for a field trip on Santa Cruz Island.

Special learning opportunities also exist for the adventurous at heart who want to get wet. Divers can participate in The Great American Fish count during the first two weeks of July or a special underwater photography workshop with professional photographer Tom Campbell this September. Both of these activities are fun, educational and do not consume fragile Sanctuary resources.

Middle school students will soon learn more about local ocean processes through new curriculum entitled "34 degrees North: Sanctuary Interaction" that is currently being developed in cooperation with the museum and the Santa Barbara school district.

Continued on page 4

More Information?

For more information about the Sanctuary, Sea Center, Channel Islands National Park and Santa Barbara Museum of Natural History programs, see the back page. Other programs in this issue include:

Whale Corps opportunities, Coordinator Shauna Fry: (805) 682-4711, ext. 288;

Santa Barbara City College Marine Technology Department: (805) 965-0581, ext. 2426;

Ventura's Island Packers and their Floating Classroom: (805) 642-1393;

Catalina Island Marine Institute's Claremont, California, headquarters: (909) 625-6194.

Sanctuary Helps in Classroom

Continued from page 3

A guide will be available to teachers this fall, along with workshops and activity kits. The guide will focus on important topics, such as geology of the Channel, marine biodiversity and ecosystem management. It is expected to reinforce and build upon the Los Marineros experience when disseminated through science classes.

Counting intertidal animals requires the uniform measurements provided by a quadrat.

A variety of publications aimed at enhancing public awareness about the sea are also available through the Sanctuary. These include a marine educational resource directory for the tri-counties, brochures (covering diving, shipwrecks, things to do, and a synopsis of regulations), books and posters, as well as the quarterly *Alolkoy*.

Currently, the Sanctuary is charting a new course to more closely integrate education and management. By coordinating community groups in a coherent approach to marine education, protecting fragile resources inside and outside of Sanctuary boundaries stands a better chance. With this purpose, the Sanctuary and the museum hosted a Marine Education Workshop this spring that was attended by 40 participants from 20 different organizations. Participants expressed an interest in working together to enhance the quality and accessibility of marine education.

The Sanctuary agreed to take the lead in coordinating a marine education panel which will meet on a regular basis to address community needs. R.A.I.N. (Regional Alliance for Information Networking) has generously offered to develop an e-mail distribution system for the panel.

We look forward to working with the community on new ways to introduce people to the ocean's multiple uses and the value of protecting it. Not every graduate of the Los Marineros program will grow up to be a marine biologist, or even live or work near the ocean. However, if our education efforts are successful, they will carry with them a new respect and sense of responsibility for caring for their ocean neighbors.

Laura Gorodezky is education coordinator for the CINMS in Santa Barbara, California.

SBCC Marine Tech Widens Horizons

By Don Barthelmess

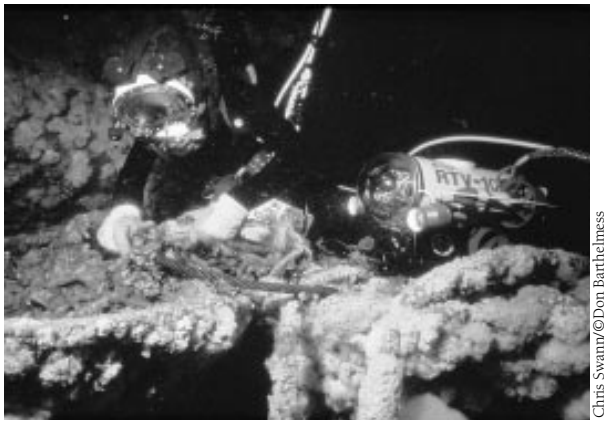
The last 25 years have seen many changes in diver training. This has included the way the Santa Barbara City College's Marine Diving Technology (MDT) program is offered to the diving and research communities.

Semester length classes have now been broken down into some 45 dynamic and specialized modules which are performance-based. Telecommunications will be used for many of the lecture sessions.

These changes open the program to all people with career paths outside of traditional commercial and recreational diving. For example, they may need specialized diver and technician training to supplement existing jobs or education. Advanced placement is available for those who qualify with prior training and experience.

SBCC offers A.S. degree and certificate programs in both commercial and recreational diving. These programs are fully accredited by the Association of Commercial Diving Educators and the National Association of Underwater Instructors. The NAUI curriculum, for example, offers all levels of recreational training from basic SCUBA through instructor trainer. Commercial training modules include remote-operated vehicles (ROVs), hyperbaric chamber operations, surface supplied air, mixed gas and bell saturation diving, among others.

The MDT department has outside collaborations with the research and educational communities. The department is currently providing ROV support to UC Santa Barbara on their platform and deepwater reef fisheries study in the Channel. Plans are being discussed to have the diving facility on Loma Alta Street become a national testing center for diving equipment and procedures.



A SBCC-trained commercial diver works on a seabed cable while a Remote Operated Vehicle sends video images to the surface.

Graduates are sought for the recently formed Marine Technology Alumni Association. Information sessions and tours are held on the third Monday and Thursday of each month at the MDT facility.

Don Barthelmess is director of the Marine Diving Technology department at Santa Barbara City College.

Sea Center Plunges into Summer

By Sarah Ettman-Sterner

Where can you touch a live seastar, see live plankton, hatch grunion fish eggs, create your own sea art and learn about field trips to see whales, all in one day? This summer you can do this and more at the Sea Center, which serves as the Channel Islands National Marine Sanctuary visitor's center on Stearns Wharf.

Also known as the "Window on the Channel," the center is a cooperative project of the Sanctuary and the Santa Barbara Museum of Natural History. Its daily summer programs complement the "Museum Comes Alive" programming.

The museum's Mission Canyon campus features a new Channel Islands Pygmy Mammoth exhibit, "Lizard Lounge" reptile and amphibian hands-on laboratory, and the InsectArena, featuring live regional arthropod specimens.

Touch tank crabs and other animals are favorites among the Sea Center's visitors.

Sea Center attractions are designed to kindle a desire in visitors to go into the real world of the Santa Barbara Channel, and specifically the waters of the Sanctuary. There they may experience the blow of a blue whale, see the beauty of the kelp forest and touch the spines of a sea urchin. Through live interaction, participants can see they are connected to a wonderful system that depends on mutual support to persist.

In addition to receiving casual traffic, the Sea Center has a full slate of presentations, seven days a week, given by staff marine biologists, museum docents, Whale Corps guides and select college and high school interns working as interpreters. Shows are object-based, include live specimens when possible, and are supported by props and graphics to illustrate concepts.

Throughout the day, visitors are exposed to information that illustrates the enormous biodiversity that characterizes the Channel and the Sanctuary. Sea Center programs run daily between 11 a.m. and 5 p.m., through September 2. They cater to the whole family; here are the major ones.

Walk the Planks: Join a museum docent for an hour-long natural history stroll on Stearns Wharf where you can learn about Chumash Indians who once lived along this coast and view seabirds and other marine life. Hear about the wharf's history and how it was the gateway to Santa Barbara in the 1870s and '80s. Discover the importance of the Channel Islands and the role of the Sanctuary.

Whale Tales: Against the backdrop of the Sea Center's gray whale models, preserved specimens and real skeletons, Whale Corps guides provide visitors with an overview of whale biology and ecology. They also offer information about upcoming field trips to view the whales of summer, blue and humpback whales that feed in the Santa Barbara Channel and Sanctuary.

PTV: Plankton Television: Ever wonder how seastars, crabs, barnacles and other touch tank inhabitants began their lives in the ocean? Learn how by participating in this hands-on live laboratory. Staff instruct participants on what plankton is and how to collect it in a plankton tow. Live microscopic creatures will be displayed on a big screen overhead.

Featured Creature: Each week, touch tank interpretive staff select one sea creature or plant for a special, in-depth exploration. The presentation illustrates what makes our marine region so unusual, and it allows people to become in touch with nature on a more personal level.

Daily Special: Our programming changes daily, bringing visitors unusual and exciting topics that illustrate some of nature's more interesting marine life, like the decorator crab fashion parade we call "In Crab Neato." Find out who dines at the Grunion Cafe. Discover our local Stellar Fellars. Learn how touch tank animals are collected from beneath Stearns Wharf in a presentation called "Diver Demos."

Sea Craft Activity: Young children will love the Sea Center's craft station, where they can create their own sea creature marine art to take home and enjoy. This activity is co-sponsored by the Santa Barbara Community Environmental Council's "Art From Scrap" project.

Education Coordinator Sarah Ettman-Sterner runs the Sea Center's public outreach programs.

Summer's Daily Schedule

11 a.m.—Walk the Planks
12 p.m.—Touch tank exhibit opens, Whale Tales begins
1 p.m.—PTV
2 p.m.—Daily Special
3 p.m.—Featured Creature
4 p.m.—Touch tank exhibit closes, sea art craft activity begins

Island Packers Deliver Channel's 'Labs'

By Holly Snyder

For the past 28 years Island Packers, boat transportation concessionaire for Channel Islands National Park (CINP), has placed education as one of its main goals. Emphasizing the preservation and protection of these biologically and culturally unique marine and island ecosystems, Island Packers' Floating Classroom programs introduce these environments to more than10,000 students a year.

The Floating Classroom, which began before Congress established the national park or the Sanctuary, accommodates various classes, from second grade to college students. Teachers choose among five different programs ranging from half-day Whale Watching or Mini Marine Labs to all-day Tide Pool Exploring and Island Ecology tours on Santa Cruz or Anacapa islands.

The typical Floating Classroom day begins by greeting students as they wander through the park's visitor center at Ventura Harbor. Before going to the nearby boat, the class hears a formal safety talk, including the rules for the day. For many of the students this will be their first time traveling on the ocean. Excitement is already starting to build.

Within minutes of leaving the harbor, the class sees their first marine mammals. The boat passes the mile marker buoy draped with California sea lions. A naturalist informs the students that the abundance of sea lions in the Santa Barbara Channel and around the islands is proof of a very productive environment.

After a short time to establish their sea legs, the students are taught some navigation principles, their first study session of the day. With the help of basic navigational equipment—a chart, hand-held compass, parallel ruler and dividers—students learn how to plot a course and can answer a fundamental question: "How long will it take the boat to get to where we are going?"

Venturing into the deeper part of the Channel, the students are introduced to wildlife identification. They gather on the bow

Holly Snyder

The **Sunfish** *pulls out of Ventura Harbor with a naturalist already at work.*

of the boat and are shown color pictures of the more common marine mammals in the Channel. By learning how to scan the horizon for consolidated splashes, or a puff of steam, the students help the crew find dolphins and whales.

This lesson usually coincides with crossing over the six-mile boundary line of the Channel Islands National Marine Sanctuary. Students learn of the importance of habitat preservation and what the Sanctuary is doing through research and education to ensure continual enjoyment of this region's productive yet fragile marine ecosystems.

Although the sessions mentioned are included in all Floating Classroom programs, each program has its specialized theme. All trips to Anacapa, for example, could include a dose of oceanography. As the boat approaches Anacapa the crew prepares a plankton net. With the students gathered on the stern, they help fish for plankton. This acquaints them with the importance of primary production in the marine environment.

The oceanography lesson looks at the physical influences as well. Temperature and visibility influence where species are found in the water column. To demonstrate this overlap, students use a thermometer, bucket, Van Dorn bottle, and Secchi disk, to measure the water temperature and visibility where they are. These experiments, and the plankton tow, give a better understanding of the dynamics of this complex marine environment.

The three landing options are Frenchy's Cove at West Anacapa, East Anacapa or Scorpion Ranch on Santa Cruz Island. The tide pools at Frenchy's Cove are Island Packers' original Floating Classroom trip. The volcanic nature of Anacapa offer the perfect habitat for some of the most abundant and pristine tide pools in southern California.

East Anacapa and Santa Cruz islands provide natural laboratories for learning about island isolation and adaptation.

Continued on page 7

Derek Lohuis

Island Packers' Holly Snyder shows students a sea cucumber during one of the Floating Classroom excursions.

Los Marineros Spark Some Careers

By Sheila Cushman

Los Marineros draws different reactions from its participants. "I knew nothing. I had never even been on a boat before," recalled Martha Elena Gil about her experience at Santa Barbara's Cleveland School four years ago.

Gil admitted to being "kind of afraid" at first. "But it definitely got me excited." That excitement has carried her into the role of student interpreter at the Sea Center.

Veronica Cervantes, on the other hand, learned to love the ocean at a young age. She was delighted that her fifth-grade class at Franklin School was participating in Los Marineros marine education program. The unusual in-class presentations and exciting field trips captivate youngsters with varying levels of knowledge, abilities and language skills. First-hand experiences allow these 10-year-olds to see, smell, and even touch the animals that call the ocean home. Now she, too, is a Sea Center educator.

Martha and Veronica remembered their Los Marineros visit to the Sea Center in fifth grade. Years later, when they found they could actually work there, they jumped at the chance. Both were accepted into the Santa Barbara Museum of Natural History's Quasars to Sea Stars program, which trains high school students to be interpreters at the museum and the Sea Center.

The girls have learned to clean and maintain the aquariums, feed the various animals, and communicate their knowledge to the Sea Center's many visitors. They plan to continue in the teen program next year, with the added responsibility of training new recruits.

Interviewed on the job at the Sea Center touch tank, the girls credit Los Marineros with inspiring their continued interest in the ocean. They bubble with enthusiasm reminiscing about each field trip. High on the list for both girls was the daylong voyage to visit Sanctuary waters and Santa Cruz Island. The initiation ceremony, held at the beginning of the school year, was another vivid memory. "It was really fun, but I was scared, too," Martha recalled.

CINMS file photo

Some Los Marineros students will go on to careers in marine-related fields.

After she graduates from Santa Barbara High, Martha plans to enroll in Santa Barbara City College (SBCC), and then study psychology at a four-year college. When asked why a program like Los Marineros is important, she offered: "Because the animals are so wonderful. It's important that you don't get so caught up in everyday life that you lose touch with what has been created."

Veronica shares her interest in the sea with her little sister, Deyanira, who visits the Sea Center often to see her favorites, the sea stars. Veronica hopes Deyanira will be in Los Marineros, too, when she reaches fifth grade.

Currently enrolled in Junior ROTC at San Marcos High School, Veronica also plans to attend SBCC after she graduates. She will continue her involvement with the sea by serving in the Navy. Asked why it's important to teach kids about the sea, Veronica answered, "So they can see the beauty of the ocean, and then they would preserve it and not pollute it. It's a good thing."

Los Marineros currently is offered to every fifth-grade class in the Santa Barbara School District. Administered by the museum through a cooperative agreement with the Sanctuary, the award-winning program has reached more than 4,000 children since it was started by the Sanctuary in 1987.

Los Marineros Coordinator Sheila Cushman has run the hands-on marine education program since 1990.

Continued from page 6

By looking at examples of endemic species, such as the island fox on Santa Cruz, evolutionary history on the Channel Islands takes specific form. Isolation has also shaped human activities here, and there are an estimated 10,000 years of human habitation to explore. With an emphasis on Chumash Indian history, the Island Ecology trip to Santa Cruz Island has proved a popular new option to the Floating Classroom. The program is still evolving but its quality has won it a commendation from the National Park Service for the development of special interpretive programs.

The boat ride home gives the students an opportunity to reflect on the memories of the day. We hope that the knowledge they have gained leads to appreciation of how lucky we are to have a national marine sanctuary and a national park in our own backyard. Then the importance of protecting these resources for future generations becomes clear.

Holly Snyder is education director for Island Packers of Ventura, California.

Uplink to the Future Found Under Channel

By David O. Brown

A trim blue-and-white boat rides gently at anchor off Santa Cruz Island. She carries a full compliment of 100 passengers, out for a day's exploration of the Channel Islands National Marine Sanctuary. While crossing the Santa Barbara Channel, the humans have thrilled to the sight of sleek dolphins carousing off the bow, 40-ton humpback whales spouting, and blue whales as large as their boat majestically surging through red clouds of krill.

Now the passengers are viewing the underwater side of the Sanctuary without getting off the 88-foot *Condor.* Inside the boat's lounge, all eyes are on three television monitors as the image of a diver moves slowly through a submarine forest of giant kelp.

His voice comes clearly across the shipboard sound system, describing the incredible diversity of strange and beautiful life forms revealed to the video camera carried by another diver. The narrator speaks from behind a full-face dive mask, called an AGA, a tiny, water-proof microphone within the mouthpiece picks up his words:

"Giant kelp is one of the fastest-growing plants on Earth, and provides habitat for an incredible array of marine organisms. We never know what might show up on a given dive."

On cue, the camera pans to reveal a bizarre, four-foot ray cruising about four feet above the bottom, and headed straight for the camera. The diver's voice betrays excitement.

"Now here is something one doesn't see every day—an electric ray."

A collective gasp rises from the audience on the *Condor*. A hand shoots up, and a mobile radio is quickly provided. The passenger asks, "What happens if you touch it?"

The on-screen diver replies, "Not a good idea, and I'll show you why." He ever-so-gently touches the ray's tail, and the animal whirls around. The diver quickly swims out of the way. The camera zeroes in on the ray's electric organs as the narrator explains how the animal uses electricity for hunting and defense.

This kind of program is real-time and the ultimate in interactivity. It is transmitted in color to shipboard audiences that enjoy two-way audio communication with the dive team.

I first conceived of using live underwater broadcasts, or "uplinks," to educate and entertain cruise passengers in the late 1980s. I had been working for The Cousteau Society, splitting time between lecture circuits and expeditions, and had given a lot of thought to innovative ways to excite people about the marine environment.

On one occasion, I left a Cousteau filming project in British Columbia to join a cruise vessel bound for Alaska via the Inside Passage. I found myself watching from the rail as the ship sailed within several hundred yards of a dive site where a giant Pacific octopus had been filmed just days before. I knew that with the right technical package I could serve as underwater eyes for the passengers, showing them the magnificent undersea world in a direct and dramatic way.

A year after leaving The Cousteau Society in 1991 to begin Passage Productions, an uplink company dedicated to natural history documentation and interpretive programming, I produced the first live broadcast ever made from underwater onto a cruise

Island Park is a Treasure at Sea

By Lisa Evans

Preserving special areas as national parks is only part of the purpose of the National Park Service; providing for human use now and in the future is the other part. A key link to doing both are the interpreters assigned to each park.

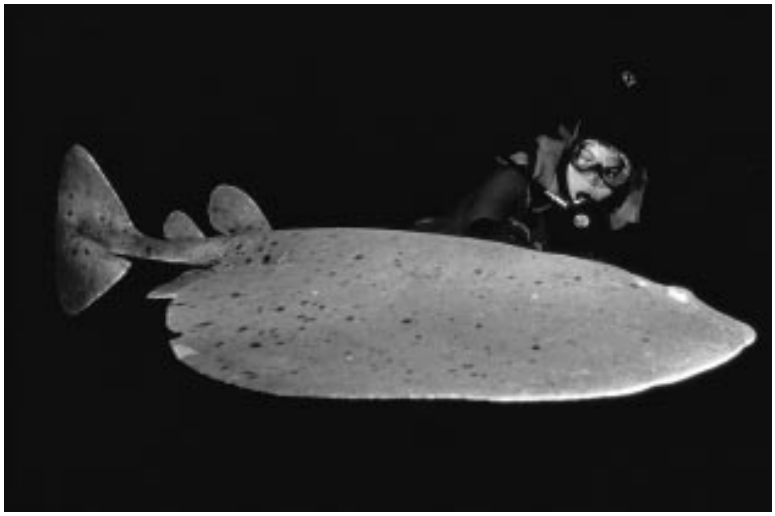
Interpreters, who work in the division of interpretation and education, foster public awareness and appreciation by providing visitors information and first-hand experiences. At Channel Islands National Park, interpreters take visitors to places they have not been before, like a thriving kelp forest. Using an underwater video camera and audio equipment, a park diver can lead summer visitors on a visual dive off Anacapa Island without getting them wet.

On the surface, another interpreter helps visitors identify the many kelp forest residents that appear on the television monitors. If a visitor has a question or a request of the diver, the communications system

Glenn Allen

Visitors to Anacapa and other islands in the Channel Islands National Park often sense how coastal California was before European settlers arrived.

Islands Sanctuary Waters



Jim Perry

A diver demonstrates the size of an electric ray known as a torpedo ray.

ship. It was on Australia's Great Barrier Reef.

Passage Productions has since produced uplinks in Indonesia, Papua New Guinea, Antarctica, Alaska, Thailand and in the Sanctuary off of our home-base in Santa Barbara, California. In fact, we are going into our fourth season of uplinks in the Sanctuary, produced aboard the *Condor* in conjunction with the CINMS and the Sea Center. We are expanding operations under the auspices of a new uplink firm called Passage International, in partnership with Jean-Michael Cousteau. Working with the National Park Service and the CINMS, we will uplink all the research and conservation efforts going on in the Channel Islands to shore, as a powerful educational tool to create interest in the islands and marine environment.

Passage teams have exposed many people to countless marine creatures in a way that is safe for both viewers and animals. The viewers see the animal in its own environment and come to better understand and value that environment. Moreover, this type of system expands the classroom to anywhere in the world.

Creating these projects is extremely challenging from a logistics and technical standpoint. We have developed the uplink hardware currently used by Passage teams around the world. Imaging technology is improving so rapidly that last year's miracle product rapidly becomes obsolete, and we are now moving to digital cameras to serve as the eyes for our audiences.

Our audio is brought to surface via Ocean Technology Systems equipment. We custom-build the cabling that connects the dive team to a chase boat on surface, as well as the conduit to bring the signal to the mother ship.

More important than the latest hardware, however, is the capable, dedicated and multi-skilled Passage staff of professional divers, videographers and naturalists who bring all of their knowledge and enthusiasm about the marine world to audiences of all kinds via the uplink program.

Photojournalist David O. Brown is owner of California-based Passage Productions and co-founder of Passage International with Jean-Michel Cousteau and Charles Vinick.

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allows the diver to respond immediately (see story above). This special Anacapa experience is now transmitted to the park's visitor center at Ventura Harbor where many more people can share it.

While the underwater video tour is a new twist, park rangers constantly reinvent the island walks that are the backbone of any visit to the Channel Islands. Each ranger develops his or her guided walks, and the results are quite diverse. On Anacapa, for example, a visitor may learn about island history, resource management or endangered species.

Public transportation to and from Anacapa and other park islands can be arranged through Island Packers, the park concessionaire in Ventura Harbor. Due to restricted access to the park, and the logistics of getting there, interpretation starts on the boat ride out. Illustrated talks on marine mammals and seabirds are standard.

Overnight trips to San Miguel and Santa Rosa islands keep visitors and interpreters together day and night. Interpreters lead 14-mile, roundtrip hikes to Point Bennett on San Miguel where, depending on the season, several species of marine mammals may be observed.

In addition to interpretation at sea, visitors can arrange to see the park by air through Channel Islands Aviation. Airplanes can land on Santa Rosa Island, and the ranger will help with various explorations. A guided hike to Lobo Canyon allows inspection of archaeological sites where Chumash Indians lived several hundred years ago.

Another guided hike helps visitors understand the Chumash use of oak trees and other plant life in Cherry Canyon. Shipwrecks, tide pools and geology are among the topics a ranger will cover on a four-wheel drive of Santa Rosa. Within the park it is possible for visitors to camp, hike, watch wildlife, fish, snorkel, dive, kayak, boat and even surf, if they make advance arrangements.

At the mainland visitor center, free public programs highlight the park's multiple resources. Many are hosted by park rangers, who welcome the chance to tell about the fascinating animals and plants in the standing marine life exhibits. Interpreters also visit schools and other public forums to share the wonder of life on the islands.

Lisa Evans is education specialist for the Channel Islands National Park, based in Ventura, California.

Catalina Island Marine Institute:

By Chris Bartel

During the next year more than 21,000 students will be fooled into thinking they have skipped school to hike and snorkel at Santa Catalina Island. For three to five days students feel like modern Huckleberry Finns as they learn marine and terrestrial biology by visiting places on the third-largest of California's Channel Islands. These students will be among the 350 public and private schools that annually attend camp at Catalina Island Marine Institute (CIMI).

CIMI is the brainchild of Ross and Kristi Turner. The Turners began the program with day-long snorkeling trips to Anacapa Island. Ross taught high school marine biology and a field trip to experience the marine environment seemed logical and easy. The logistics of transportation, rental of camping and snorkeling gear, and cooking meals for even such a small group proved horrific. However, the enthusiastic response was rewarding, and Ross knew that this was the way to excite students about science.

David Work

CIMI students get used to wet suits (above) in a protected bay near Cherry Cove. Kayaking is another skill taught at the science camp.

In 1976, Ross left his teaching position, mortgaged his house for start-up money, and based his now-commercial operation on Catalina Island, which offered scheduled boat transportation from the mainland, roads, water and electrical service. The first CIMI program began by using the tent camping facilities of the Boy Scout Camp at Cherry Cove.

During the early years the Turners were the administrators, instructors, cooks, maintenance crew, and just about everything else. By 1978, CIMI hired several instructors to help with a program that had grown to 2,000 participants, and moved to Two Harbors on the isthmus. The next year, CIMI leased a former private school in Toyon Bay.

Toyon Bay is a private cove complete with pier, moorings, dining facilities, dormitories, staff housing, power, water, sewage system and an access road to Avalon, the island's only town. It was an ideal location with clean, quiet waters on the leeward side of Catalina Island.

Students were brought directly to Avalon and then transported 20 minutes by boat to Toyon. Classrooms were quickly converted into marine laboratories and the program began to grow. In the first year at Toyon Bay, about 5,600 students attended the program. Currently, this location draws more than 16,000 students each year. CIMI now has two other sites on Catalina: Cherry Cove, with 5,000 students annually, and the Fourth of July Yacht Club, where up to 2,000 students are taught each year.

David Work

The location and waters of Santa Catalina Island are an instant attraction, yet the logistics of operating a marine science program are staggering. Because students range from fourth grade through college, the programs must maintain 700 complete wet suits, hundreds of masks, fins and snorkels. Each site has several 19-passenger power boats, and more than 100 kayaks are available for day trips.

Seventy full-time staff are now employed. The staff work seven days a week teaching the students, maintaining the facilities and cooking more than 250,000 meals each year.

CIMI assigns one instructor to every 15 students. The small

Wrapping Learning in Excitement

groups make for a very personal learning experience; it's almost like having a personal trainer. CIMI starts by hiring the best people and training and supporting them in every way possible. The focus of the training is to ensure the learning is fun, challenging and motivating. The secret of CIMI's success has been an enthusiastic staff that assists students in successfully exploring nature.

Logistical challenges do not end with the students and staff. Teachers and parents chaperon the classes. They are also asked to snorkel; explore tide pools; investigate invertebrates, sharks, and algae in laboratories; hike the trails, day or evening; share dorms with the students, and perhaps sleep in bunkbeds.

Could a CIMI-type program be successful on any of the other Channel Islands? The daily logistics are enormous but absolutely necessary for the program to succeed. Prospective sites should be assessed for transportation, food, housing, conveniences, and emergency support services. Safety should always be the highest priority. Parents send their children to camp expecting them to return safe, healthy and excited about their field trip.

CIMI's programs succeed because of lots of hard, diligent work, an incredibly enthusiastic staff, and a program so fun and exciting, that Huckleberry Finn would be first in line for the boat headed to Catalina.

Chris Bartel is the former program director for CIMI at Toyon Bay on Catalina.

Deidre Sullivan

A Catalina underwater preserve nurtures campers' smiles as well as sea life

By Sabrina Cox

"A garibaldi!" The words flashed through my mind as I noticed the fish on my T-shirt from Catalina Island Marine Institute (CIMI). As I put away my laundry, I remembered the fun and excitement I had earlier this year at the CIMI campus on Toyon Bay.

There were many exciting things that the counselors and staff had planned for me and my fellow sixth grade classmates from El Rancho school in Goleta, California. What I remember most were the snorkeling and kayaking. It was my first time doing them. The first day we arrived we went snorkeling.

At first, it was not that great because water kept getting in my mouth and nose. I just couldn't breathe properly under water through my snorkel. So finally I held my breath and went under with my face mask on. It was fascinating!

There were so many fish down there that I never knew existed. Like the California state fish, the garibaldi. There were also senoritas, little fish that pick dead scales off other fish, and blacksmiths, kelp bass, other kelp fish and tons of seaweed.

A lot of other El Rancho students agree that snorkeling was one of the main things they wanted to learn at CIMI. Here is what some of them had to say about their four days on Catalina Island:

Leann Klock: "The best thing to do is kayaking, and the worst is putting on a wet suit. I would tell my friends not to miss out on CIMI."

Matt King: "I wanted to learn how to snorkel, and I did. Kayaking was the best thing, and cleaning (the dormitory) was the worst. I would tell my fifth grade friends, 'It's fun! Go there!'"

Jordan Kittle: "I wanted to learn about underwater animals, and you bet I did. Snorkeling and playing with my friends were the best things at CIMI; cleaning up after meals was the worst. CIMI was cool."

All the students interviewed said they would go back to CIMI if they could.

Sabrina Cox is 12 and plans to start Goleta Valley Junior High School in the fall (if she cannot arrange a job at CIMI first).

Research

Rare Seabird's Secrets Unveiled

By Harry R. Carter, Darrell L. Whitworth and Thomas W. Keeney

Xantus' Murrelets (*Synthliboramphus hypoleucus*) are small diving seabirds related to the better-known puffins. They nest secretively in rock crevices or under bushes on islands, and feed on the ocean, often far from shore, during the day. They come and go from nests only under cover of darkness. This rare species has a small world population size (<10,000) and breeds only in the Channel Islands and northwestern Baja California.

Such behavior and ecology make it difficult to judge just how rare are the birds. In 1991, the U.S. Fish and Wildlife Service (USFWS) made the Xantus' Murrelet a candidate for protection under the Endangered Species Act (ESA). Since 1994, the Pacific Seabird Group has urged the formal listing of Xantus' Murrelet as a threatened or endangered species.

More extensive surveys to find nesting areas of the Xantus' Murrelet were carried out by the National Biological Service (NBS) from 1994 through this year. These were part of a larger seabird research program in the Channel Islands developed with significant funding from the U.S. Navy's Legacy Resources Management Program.

CINMS file photo

A Xantus' Murrelet blends into its surroundings as it nests.

This program focused on: 1) the status of rare species such as the Xantus' Murrelet and Ashy Storm-petrel (*Oceanodroma homochroa*); 2) the breeding biology of cormorant species on San Nicolas Island, 3) and annual monitoring of cormorant populations throughout the islands. Additional assistance from the California Department of Fish and Game, USFWS, and the Sanctuary over the past two years extended study of Xantus' Murrelets throughout the Channel Islands and at the Islas Los Coronados in Baja California.

To better assess Xantus' Murrelets, NBS developed a new technique for finding nests in rough terrain that had not previously been surveyed. Each year we spent several weeks in April and May counting nighttime calls off of the eight Channel Islands. Murrelets vocalize on the water beside colonies only at night. Sitting in inflatable zodiac boats off inaccessible cliffs, or stationed on accessible points of land, we counted the number of calls that occurred in 15-minute periods.

Then we moved to the next survey station, at times in total darkness or aided by moonlight and the shimmer from nearby light sources. On calm nights we covered many miles of coastline. By surveying locations around all islands, we were able to evaluate the overall distribution of nesting areas and relative activity levels of these secretive birds.

To our amazement, we found murrelets vocalizing off six of the eight Channel Islands (all except Santa Rosa and San Nicolas islands). Nesting areas are much more widely distributed than previously believed. Our surveys have determined that Xantus' Murrelets in the Channel Islands are not as close to extinction as we once thought. However, the species still has a relatively tiny world population size and a very restricted distribution compared to most other seabirds. It faces many human-related threats on land and at sea (for example, high nest predation; mortality and/or reduced breeding success from oil spills and other marine pollutants; human disturbance of nesting birds and destruction of nesting habitats).

Xantus' Murrelets remain in a precarious position and extensive protective efforts are necessary to keep population size and breeding success as high as possible, whether or not the species is listed under the ESA. Human activities that destroy nesting habitats, reduce breeding success and kill birds must be prevented. Active restoration efforts should be initiated to remove introduced predators and to otherwise improve breeding success. Detailed surveys for Xantus' Murrelets should be incorporated into future research and conservation efforts at each nesting island to develop better baselines for measuring population changes.

Harry R. Carter and Darrell L. Whitworth are contract seabird biologists for the National Biological Service (California Science Center) in Dixon, California, while Thomas W. Keeney is senior ecologist with the Naval Air Weapons Station at Point Mugu.

Research Vessel Activities

A busy *R/V Ballena* and the Hurricane filled April and May with:

- Seabird studies with National Biological Service off all five islands in the Sanctuary;
- Dive operations and assistance of British Broadcasting Corp. camera crew;
- Support for UC Santa Barbara rockfish research.

Whale Corps' Break Is Ocean-scent

By Shauna Fry

When two dead gray whales recently washed ashore near Santa Barbara the rotting carcasses may not have appealed to most people. To Whale Corps naturalists, they were ocean-sent learning opportunities.

The grays' anatomy could be studied as the animals were dissected and the Santa Barbara Museum of Natural History salvage team prepared the skeletons for museum collections. The museum will use the bone specimens for DNA testing, and the National Marine Fisheries Service will sample muscle tissue for radio-carbon age testing.

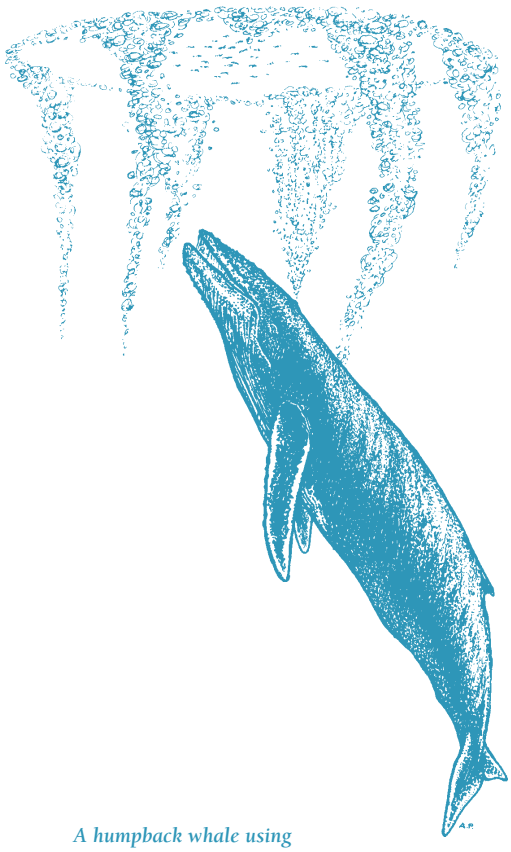
When not dissecting dead whales, Whale Corps members educate the public on living whales. The corps is a new, volunteer naturalist program, a joint project of the museum and the Channel Islands National Marine Sanctuary. In their first season, these naturalists touched the lives of more than 15,000 school children, tourists and local residents through whale-watch trips aboard the vessel *Condor*.

During whalewatching, the guides offer commentary, answer passengers' questions and display museum specimens like whale barnacles and lice, baleen and gray whale bones. They also report marine mammal sightings. The museum and Sanctuary will use this data to compile population and geographic range statistics. The data will eventually be available on the Internet for other researchers, school children and the public.

The program's 70 volunteers are a diverse group, ranging from college interns to nurses, teachers, biologists and professional photographers. Volunteers participate in an intensive initial six-week training course on the biology and ecology of gray whales, other marine animals found in the Santa Barbara Channel, marine birds, and an overview of the unique oceanographic and geographic context of the region.

Members then attend monthly training meetings to improve their skills as naturalists. The need for these skills is now nearly year-round. After the gray whale migration ended in early May, the summer sessions focused on blue and humpback whale biology, range, behavior, feeding strategies, and island geology. Whale Corps naturalists started staffing the *Condor* in July to help search for these magnificant creatures.

Shauna Fry is coordinator of the Whale Corps, and helped salvage the gray whale skeletons.



A humpback whale using bubbles to concentrate fish.

NOAA Salutes Environmental Heroes

Two Santa Barbarans were among 11 individuals and one group honored on Earth Day for their efforts to protect the nation's marine environment. Calling them local heroes, Fred Benko and Peter Howorth were chosen by the National Oceanic and Atmospheric Administration (NOAA) for special recognition because they "worked tirelessly to preserve and protect the nation's environment," a NOAA spokesman said.

The only Californians on this list of honorees, Benko and Howorth are boat captains who consistently support the Sanctuary and its activities. Benko owns and often skippers the *Condor* for Los Marineros students, is a key figure in the new Whale Corps, and has supported other groups' marine preservation and education efforts. He also is a founding member of the Santa Barbara Civic Light Opera.

Best known for his marine mammal rescue and rehabilitation work, Howorth is also a book author and accomplished professional photographer. Twenty years ago Howorth founded the Marine Mammal Center of Santa Barbara and still serves as its volunteer director. Thousands of ill and injured animals have been returned to the wild from the center, which claims the highest success rate of any such clinic in the world.

This was the first year NOAA has saluted local environmental heroes. —*V.C.*

Laura Gorodezky

Environmental champions (left to right) Peter Howorth and Fred Benko of Santa Barbara were recognized on Earth Day by NOAA Director of Public Affairs Lori Arguelles. Pictured far right is CINMS manager Ed Cassano.

Channel Tidings

Spend Your Vacation Counting Fish Noses

During the first two weeks in July the Great American Fish Count (GAFC) returns to California waters between Monterey and San Diego. Volunteers dive on new sites and those visited in previous years to census any fish they find.

Modeled after the annual Audubon Christmas Bird Count, the GAFC started in 1992 to create a standardized fish census. More divers have joined the effort each year since.

A protocol handbook, with data sheets and standard procedures, is available to participants. Contacts this year in Santa Barbara and Ventura counties are Laura Gorodezky (805) 966-7107 and Gary Davis (805) 658-5707, respectively.

Touring the Sanctuaries Easy with Brochure

Having all 12 national marine sanctuaries in one brochure provides a handy guide for the ocean-loving traveler. Now the 1993 NOAA booklet "A Tour of the Sanctuaries" has been updated and redesigned to ease assimilation of more information. Explorer and scientist Sylvia Earle contributed an introduction to the booklet.

"It is a good overview of the national program as well as description of each site," said Sanctuary Education Coordinator Laura Gorodezky. For copy requests, contact her at the Sanctuary (see back page).

Hurricane Meets Ballena

Joining the R/V Ballena *in the Sanctuary's modest fleet of water craft is a 24-foot-long, rigid hull inflatable. Known by*

Continued on page 15

Marine Mammal Center Rescue Crew Frees Entangled Gray Whale

By Vic Cox

April 5 was liberation day for a young gray whale entangled in fish net and trailing a grapnel-style anchor. The 30-foot long marine mammal was towing several floats when spotted that morning off Santa Barbara by the pleasure craft *R Toy*.

Santa Barbara Harbor Patrol contacted Peter Howorth, director of the local Marine Mammal Center. Meanwhile, Captain Laura Tritch of the *Condor* shadowed the young whale and, following Howorth's directions, warned away other boaters. Howorth, who operates under National Marine Fisheries Service permits, intended to use divers to cut away the netting and did not want anyone to frighten the animal.

Once Marine Mammal Center volunteers took command of the rescue a line was secured to the gill netting balled around the whale's flukes. Large rubber floats were fastened to the line to slow the whale, limit its ability to maneuver and to retrieve the net later. Additional drag was needed so Howorth attached large floats near the flukes. That irritated the whale. It "became very upset," Howorth later reported, "dashing around in various directions and attempting to submerge."

By then a Sanctuary inflatable craft, known as a Hurricane, had arrived with reinforcements, air tanks, and as luck would have it a camera crew. The Hurricane joined Howorth's inflatable craft to immobilize the young whale. Divers Ed Stetson and Dean De Phillipo slipped into the water and began sawing on strategic parts of the netting with special knives. Other divers stood by as safety backups should the rescuers become entangled or injured.

From his perch aboard the Hurricane Sanctuary Manager Ed Cassano came to respect the strength of the two- or three-year-old whale, and the skill of the divers. "The cutting went remarkably quickly," said Cassano.

In less than an hour the divers had freed

Sanctuary Waves

A roundup of selected activities—from December 1995 through April 1996— relating to the Channel Islands National Marine Sanctuary (CINMS) off Santa Barbara, California.

Sanctuary Manager Ed Cassano presented CINMS support for a proposed beachside aquarium to Santa Barbara City Council members. He was appointed to area Congresswoman Andrea Seastrand's Environmental Task Force, and to the board of directors of the new Maritime Museum in Santa Barbara, with responsibilities for NOAA exhibits.

Sanctuary personnel:

- Grew with the addition of Assistant Sanctuary Manager Stephen Beckwith and freelance education contractor Coleen Angeles;
- Helped the Santa Barbara Museum of Natural History train 80 Whale Corps naturalists;
- Sponsored construction of two replicas of Chumash vessels, called *tomols*;
- Attended a marine mammal research workshop in Orlando, Florida;
- Organized a marine educators workshop that brought together 40 representatives of 20 regional groups;
- Established a Research Activity Panel to help coordinate regional research and act as a clearinghouse for proposed research beneficial to the Sanctuary;
- Developed, with Internet provider R.A.I.N., e-mail distribution systems for the panels on research and education, and for the public;
- Gave slide talks to Los Marineros and Santa Barbara middle school students.

Laura Gorodezky

Divers saw desperately on netting wrapped around the flukes of a young gray whale, who is understandably uncooperative. They freed the whale without injury to either humans or marine mammal.

the animal and renewed its lease on life. All the netting was retrieved. It proved to have no identifying numbers or letters, which is a violation of federal fishing regulations, according to the National Marine Fisheries Service.

Two other gray whales were not so fortunate. Both grays floated ashore at Santa Barbara on May 1 with buoy rope burns around their flukes. A whale salvage team from the local Museum of Natural History dissected the suspected mother and calf.

Vic Cox is editor of Alolkoy.

Message Bottle

Giving Credit Where It's Due

Editor:

We were delighted with the article... "Private Homes Link Wildlife Network," (winter 1996 issue) but would appreciate your correcting a (photo) credit... The photographs you used were taken by Brenda Bazhaw...

Maureen Lance
Santa Barbara Wildlife Care Network

(*Ed. note:* Thanks for helping to keep *Alolkoy* accurate.)

Passing Along the *Alolkoy*

Editor:

I want to commend the staff for a most informative and very interesting (winter 1996) issue of *Alolkoy*...I share issues with many at Primary Children's Medical Center Pediatric Intensive Care unit, where I...volunteer three days a week...

James C. Weeks
Salt Lake City, UT

Fishing for Information

Editor:

I am a professor of sociology at Cal State Long Beach, doing research for a book about ecological conflicts along the southern California coast. Your comment (in the spring 1995 issue) that fishermen are "among the last of urban society's hunter-gathers" was astute.

William Gibson
Los Angeles, CA

(*Ed. note:* We welcome readers' letters, but please include a phone and return address so that all letters can be checked for authenticity.)

Channel Tidings

Continued from page 14

its brand name of Hurricane, the vessel's 165 hp inboard engine can propel it up to 30 knots an hour.

It carries up to six passengers and was acquired in April from the Pacific Marine Center in Seattle, Washington.

Sanctuary Manager Ed Cassano says the zodiac-style craft "gives CINMS a quick-response capability," one that was demonstrated on a recent gray whale rescue operation (see story, page 14).

New Web Page Address

A new, simpler electronic address now allows Internet users to find the Sanctuary's home page more quickly than before. Browsers will find detailed information on Sanctuary wildlife, regulations, scheduled educational cruises and other useful material on the home page.

The new address is: http://www.nos.noaa.gov/nmsp/cinms/welcome.html

An Atlas to Stand on

Describing a new species of organism adds to the sum of knowledge about life on Earth. When the number exceeds 140, such as in a recently completed Santa Barbara Channel survey, "it's a big deal," explains zoologist Paul Scott.

Scott is editor of the Taxonomic Atlas of the Benthic Fauna of the Santa Maria Basin and the Santa Barbara Channel, *a 14-volume series. With a price tag ranging from $15 to $34, each monograph focuses on a group of marine animals, such as mollusks.*

For more details, contact Scott at the Santa Barbara Museum of Natural History (see back cover).

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

Alolkoy

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: http://www.nos.noaa.gov/nmsp/cinms/welcome.html

Channel Islands National Park
1901 Spinnaker Drive
Ventura, CA 93001
805/658-5700

Santa Barbara Museum of Natural History
2559 Puesta del Sol Road
Santa Barbara, CA 93105
805/682-4711

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

Things to Do, Places to Go

All Aboard for Sanctuary Cruises

Last call is being sounded for special above and below-water views of Sanctuary animals and seabed. The remaining all-day cruises aboard the *Condor* into the Sanctuary are set for **July 21, August 18, September 15** and **October 6**. Passage Productions' pioneering communications system allows passengers to watch and to question a diver as he or she explores the kelp forests, reefs and seabed. Cost is $65 for adults and $35 for children. Call Sea Landing for more details and reservations: (805) 963-3564.

Marine Mammal Center Offers Whale Watch and Photo Workshop

A weekend of marine photography instruction and practice at sea is offered on **July 27-28** by photographer Peter Howorth to benefit the Marine Mammal Center of Santa Barbara. The all-day workshop at the local Museum of Natural History prepares participants for the following day's outing aboard the *Spirit*. Any seats unfilled by workshop attendees will go to the public.

Howorth is volunteer director of the Marine Mammal Center as well as an award-winning professional photographer. For more details call (805) 687-3255.

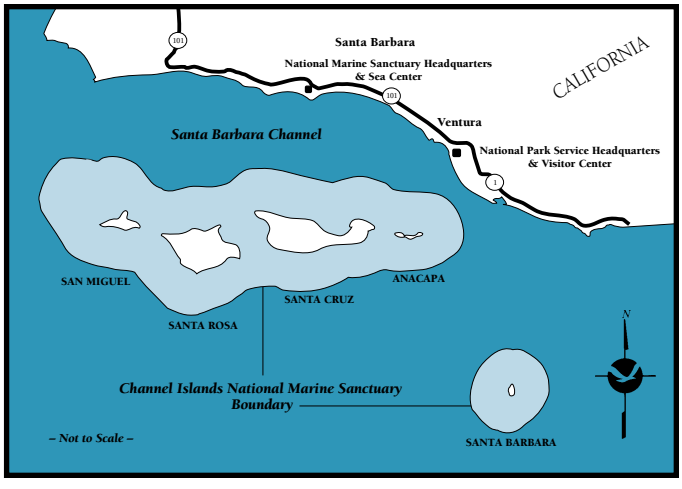
Floating Photography Workshop Sets Sail for Sanctuary Waters

The Sanctuary and Sea Center again unite forces to sponsor professional photographer Tom Campbell in a workshop scheduled for **September 19-21**. Set aboard the dive boat *Vision*, the three-day, hands-on seminar explores the tools and techniques of underwater still and video photography.

On-board film processing and expert analysis assist participants in getting the most out of the next dive. Cost of developing is $8 a roll. Prizes are offered for the best shots of the day. For a brochure with application form, call either the Sanctuary or the Sea Center at the numbers listed in the side panel.

Kayak Exploration Aims for Santa Rosa, San Miguel Islands

A two-day kayaking expedition to Santa Rosa and San Miguel islands has been set for **October 12-13** by Sanctuary and Sea Center planners. There will be opportunities to see elephant seal and sea lion rookeries. Cost is $350 a person. Contact the Sea Center for more information (see side panel for address).



Page 2, (Plus, no room for photo)

A young passenger on the* Ballena *searches for sea life.

Laura Gorodezky

Page 5
©1996, Vic Cox
but special items, like the above young gray whale skull, also fascinate.

Page 15 Channel TIdings