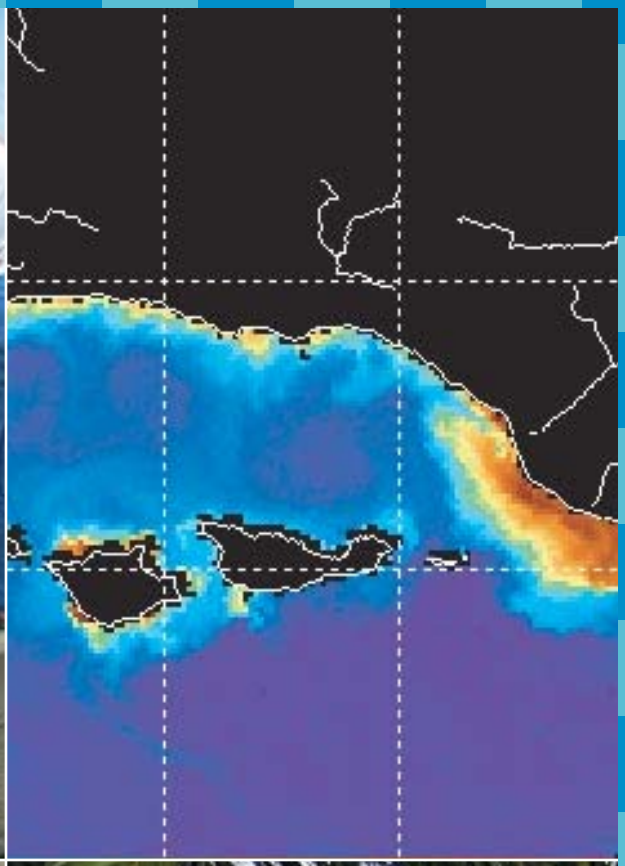
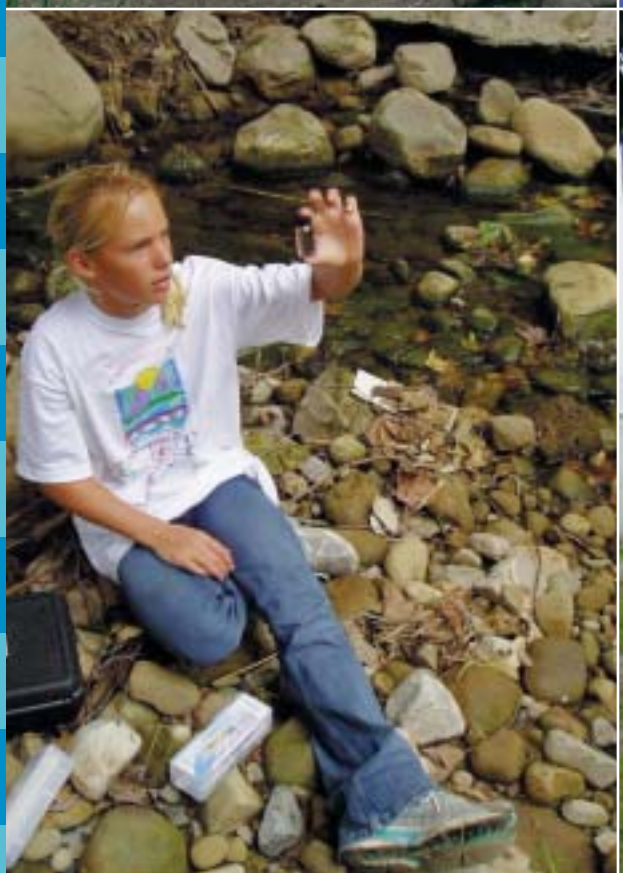
ALOLKOY

News from the Channel Islands National Marine Sanctuary





NOAA

National Marine Sanctuaries
Channel Islands

WATER QUALITY

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"Alolkoy" is a Chumash word meaning dolphin. This newsletter is published semi-annually by the Channel Islands National Marine Sanctuary. Guest opinions expressed in *Alolkoy* do not necessarily reflect the official position of the Sanctuary.

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Editor: Cynthia Anderson
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Front cover photos:

Top left: Measuring water quality at the Goleta Slough on Snapshot Day, May 17. © Jessie Altstatt.

Top right: Satellite view of sediment plume in the Santa Barbara Channel. © SeaWiFS Project, NASA Goddard Space Flight Center and Orbimage.

Bottom left: Creek testing during Snapshot Day. Photo by Claire Johnson.

Bottom right: Water quality advisories are posted at Santa Barbara beaches. © Project Clean Water

Back cover photos:

Top: Channel Islands aerial view. © Wm. B. Dewey

Bottom: Flowers at Anacapa Island and shells at San Miguel Island. © Kathy deWet-Oleson

NATIONAL MARINE SANCTUARIES ™
CHANNEL ISLANDS

From the Bridge

Water Quality: It's Up to All of Us

By Chris Mobley, Sanctuary Manager

As the Sanctuary's new manager, I look forward to working with our many federal, state, and local partners on issues of mutual concern. One of the most urgent issues we face is water quality in the Santa Barbara Channel—an issue that affects everyone, from local residents and tourists visiting our beaches to commercial and recreational fishermen. Threats include polluted stormwater, urban runoff, point source discharges such as sewage treatment plants, and potential oil spills or other disasters.

The Sanctuary has taken a number of steps in response to growing public concern over water quality, including:

- ***Research and Monitoring.*** The Sanctuary supports water quality research such as Plumes and Blooms and the Bight 03 Regional Monitoring Survey.
- ***Education and Outreach.*** The Sanctuary participates in the Coastal Watersheds Education Program and produces water quality educational materials.
- ***Emergency Response.*** Staff are trained in emergency oil spill response and work with state and federal agencies to ensure readiness in the event of a spill.
- ***Partnerships.*** The Sanctuary partners with key government and community agencies such as the Regional Water Quality Control Board, California Coastal Commission Water Quality Unit, Southern California Coastal Water Research Project, Project Clean Water, and the South Coast Watershed Alliance. The Sanctuary is helping to develop exhibits at the South Coast Watershed Resource Center and the Channel Islands Harbor Boating Instruction and Safety Center.

© Amy Cale

From left: National Ocean Service Deputy Assistant Administrator Ted Lillestolen, Sanctuary Manager Chris Mobley, and National Marine Sanctuary Program Director Daniel Basta celebrated the christening of the Sanctuary's new vessel, the R/V *Shearwater,* on May 12.

The Sanctuary's water quality efforts for 2003-2007 are outlined in our Draft Management Plan and Draft Environmental Impact Statement, available to the public this fall. Please visit our web site for updates, www.channelislands.noaa.gov. CINMS will continue to increase its efforts to compile information on pollution sources and identify water quality issues that affect the Sanctuary.

This issue of the *Alolkoy* provides a wealth of resources and information about what we can all do to improve water quality. Many of the programs you will read about here receive Sanctuary support. Working together, we can maintain the health of Channel and Sanctuary waters.

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Pollution Sources and Solutions

By Linda Krop

The Santa Barbara Channel and the surrounding region support some of the highest levels of biodiversity in the continental United States. This phenomenon results from our location in a unique ecological transition zone. The geologic, climatic, and ecosystem conditions of the northern and southern Pacific Ocean mix at Point Conception, producing extraordinary terrestrial and marine biodiversity. For this reason, the Channel Islands National Marine Sanctuary was established in 1980 to protect the area's significant natural resources.

Yet one of the most obvious indicators of ecosystem health is water quality, and a close look reveals that all is not well. In 2001, Santa Barbara experienced one of California's highest frequencies of beach closures due to unsafe water quality—creating a public outcry and focusing the efforts of government and nonprofit agencies on this vitally important issue.

© Jessie Altstatt

Members of Santa Barbara Channelkeeper take water samples regularly in the Santa Barbara Channel.

From Watersheds to the Sea

Unacceptable levels of pollution have been traced to over 60 watersheds (creek and river drainage basins) in Santa Barbara and Ventura counties that empty into the ocean. After heavy winter rains, pollution and sedimentation from these watersheds extend far into the Santa Barbara Channel, sometimes reaching the Channel Islands and surrounding Sanctuary waters.

Potential pollution sources include urban runoff, marinas and boating activities, and agricultural runoff. Urban runoff is caused when rainwater transports oil, grease, pesticides, herbicides, soil, and pet droppings into storm drains and then directly into creeks and the ocean. Discharges from "point sources"—such as sewage treatment facilities, industrial operations, and coastal energy facilities—contribute to marine pollution.

Marinas and boating activities can adversely affect water quality in the Sanctuary—including toxic and heavy metals from anti-fouling paints, solid waste and debris, oil and gasoline from motor operation and maintenance, ballast discharges from large vessels, and boat sewage.

Agricultural and rural operations may contribute to decreased water quality when pesticides, fertilizers, and herbicides travel from creeks into the ocean. In addition, agricultural operations may increase erosion, transmitting contaminated soils to the ocean.

The Search for Solutions

The entire ocean ecosystem, including the Sanctuary, depends on a healthy, clean environment. Critical species that migrate through the Sanctuary are affected by polluted waters. Contaminants become embedded in the food chain, where they bioaccumulate and affect human food supplies as well as wildlife.

Many government and nonprofit agencies are engaged in efforts to protect and restore watersheds from the ridgelines to the ocean, since naturally functioning wetlands, creek beds, and river bottoms filter out contaminants before they reach the ocean. Public education efforts are under way about the causes and impacts of polluted runoff. Other topics currently being addressed include creekside development standards, proper sewage treatment, cleanup of abandoned oil rigs, and potential oil and gas spills.

By building partnerships with other government agencies, community-based organizations, and the private sector, the Sanctuary is taking a significant role in efforts to reverse the trends of ocean pollution.

Linda Krop is Executive Director and Chief Counsel for the Environmental Defense Center in Santa Barbara, California.

Clean Creeks
HEALTHY BEACHES
CITY OF SANTA BARBARA

Creeks Restoration and Water Quality Improvement Program

The City of Santa Barbara sponsors a Creeks Program that is funded through state grants and a voter-approved 2 percent tax on visitor stays in local hotels (Measure B). Total revenue in 2002 exceeded $2.4 million. These funds are being used for cleaning up creeks, sweeping streets, installing storm drain filters, and enforcing regulations on polluted runoff. The program also implements creek restoration projects and community education programs. For more information, visit www.sbcreeks.com. To report dumping or pollution, call 1-877-OUR OCEAN.

Plumes and Blooms: Space-Based Ocean Science

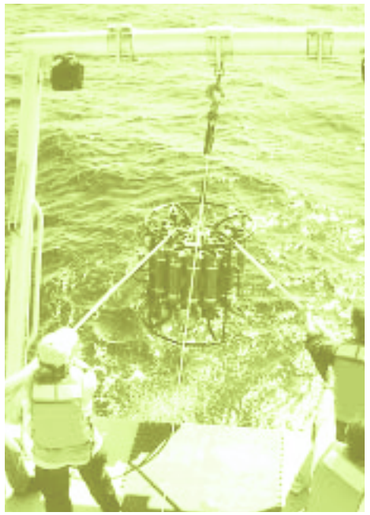
By David A. Siegel

In the Santa Barbara Channel, the cool, nutrient-rich waters of the California Current mix with warm, saline waters from the Santa Monica Basin and episodic bursts of stormwater discharged through rivers and creeks. Each water mass brings with it a unique chemical, biological, and geological signal—making their confluence in the Channel an amazing way to study the rapidly evolving oceanographic processes that govern the dynamics of the sea.

Geochronology at Work

Marine and terrestrial processes struggle for dominance of the Channel's water mass. In late winter-early spring, river and creek runoff after extreme rains provides a source of freshwater, sediments, and nutrients to the Channel. Phytoplankton blooms typically appear in late spring-early summer, associated with cool water temperature distributions and northerly winds.

This interaction between seasonal inputs of land-based sediment plumes and the remains of marine phytoplankton blooms is demonstrated by the sediments deposited in the Santa Barbara Basin. This layered sediment sequence gives researchers one of the most excellent geochronologies known for looking at climate variability over the past several thousand years.



CINMS

Plumes and Blooms scientists use an instrument called a CTD to measure conductivity, temperature, and depth at various points in the water column.

Research Updates

SANTA BARBARA COASTAL – LONG TERM ECOLOGICAL RESEARCH (SBC-LTER)
The goal of SBC-LTER is to understand how kelp reef ecosystems are affected by the linkages among terrestrial, estuary, nearshore, and ocean habitats. SBC-LTER is one of 24 sites supported by the National Science Foundation to allow the long-term investigation of whole ecosystems. The interdisciplinary research project is currently measuring ecological impacts to kelp reefs from upslope watersheds and the ocean. (http://sbc.lternet.edu/)

BIGHT 03 REGIONAL MONITORING SURVEY
A continuation of Bight 98, Bight 03 will bring together researchers from over 50 organizations in the Southern California Bight to document benthic fish and invertebrate populations, pollution, and sediment toxicity. The Sanctuary will provide equipment and staff support via its new vessel, the R/V *Shearwater*, for five weeks in July and August at the Channel Islands in conjunction with the new NOAA ship *McArthur 2*. To view the extensive findings of the Bight 98 Executive Summary Report, visit http://www.sccwrp.org

PnB and Satellite Technology

Since August 1996, Plumes and Blooms (PnB), based at UC Santa Barbara, has conducted a field program in collaboration with the Sanctuary to evaluate water characteristics in the Santa Barbara Channel. This program correlates satellite ocean-color data with data on quantities of suspended sediments, phytoplankton pigments, and dissolved organic matter in the water column.

The Sanctuary provides vessel, equipment, and staff support for the twice-monthly cruises. These repeat observations are referred to as a "time series" and provide the equivalent of a slow-motion movie of the changing ocean color conditions in the Santa Barbara Channel.

Recent advances in Earth-viewing satellite sensors allow PnB researchers to assess the color of the ocean and its properties over large regions. The basic principles of ocean color remote sensing are relatively simple: blue waters are clear with little sediment or phytoplankton abundances, green waters indicate highly productive environments, and brown waters have large concentrations of suspended sediments. Quantifying this data is the primary goal of Plumes and Blooms (www.icess.ucsb.edu/PnB/PnB.html).

As part of its mission, the PnB project acquires and analyzes satellite imagery using a ground station at UC Santa Barbara (http://seawifs.gsfc.nasa.gov/SEAWIFS.html).

Stormwater Runoff Impacts

After heavy rains, extremely high values of sediment are typically seen near the mouths of the Santa Ynez, Santa Clara, and Ventura rivers as well as along the Santa Barbara mainland coast and around Santa Rosa Island. PnB data are used to show where watershed discharges go once they reach the ocean and how watershed processes influence ocean ecosystems.

Following the El Niño event of 1998, PnB measurements, coupled with satellite imagery analysis, suggested that 19 million metric tons of sediment were discharged into the Santa Barbara Channel.

Images for Santa Barbara Channel sea surface temperature are available at http://www.icess.ucsb.edu/avhrr and chlorophyll and suspended sediment at http://www.icess.ucsb.edu/~fields/wifsTest.

Knowledge of the composition, concentration, and origin of suspended and dissolved materials in coastal waters is critical for properly monitoring marine resources and evaluating the impact of human activities. PnB data is used by resource managers to better understand and administer the resources under their stewardship.

David A. Siegel is a professor of oceanography at UC Santa Barbara and the lead investigator on Plumes and Blooms.

A Fisher's Perspective on Water Quality

By Merit McCrea

It is an exciting challenge to have one's livelihood linked to the natural environment. A professional fisher's success or failure is determined by the health of the marine environment and by the ability to see—or often, merely sense—the relationships between environmental conditions and the behavior of the quarry.

Water quality is an issue of vital importance to the fishers around the Channel Islands. At issue are both the availability and the quality of the catch, as well as the quality of the experience for the recreational angler.

Red Flags to Clean Water

In decades past, one of the greatest benefits to fishing the Channel, and especially the Channel Islands, was their remoteness from large urban areas. When Santa Monica Bay fishes were discovered to contain high levels of contaminants, or when giant sewage treatment facilities in Los Angeles County released untreated sewage to the ocean, it devastated the value of the catch. Yet in the Santa Barbara Channel, the waters remained consistently clean and catch values were high.

In contrast, the 1969 oil spill that emanated from Platform A devastated the local fishing community. According to fisher Richard Martin, boats were tied to the dock for over a month after the spill. He noted that when the fleet finally put back to sea, fishing was good and catches were clean. As he recalls, the slick did not foul waters at the islands.

Martin brought up another sensitive issue. For many years, drums of mystery waste chemicals (chemical munitions) were dumped into the Santa Cruz Basin from barges. The dumping grounds are some 15 miles south of Santa Cruz Island in just over 1,000 fathoms (approximately 6,000 feet) of water. Commercial fishers are concerned over what was dumped and whether it might be escaping into the ecosystem.

There is also the issue of copper concentrate from the wrecked ore carrier *PacBaroness*, which lies submerged at the Santa Barbara Channel's western entrance. The vessel sank on September 21, 1987 after colliding with the car carrier *Atlantic Wing* in dense fog. Questions remain on the effects of this wreck.

Runoff and Harmful Algal Bloom

In recent years the plume of silt-laden runoff issuing from the mouths of the Santa Clara and Ventura rivers has sometimes extended far out into the channel. After the massive runoff from the 1983-84 El Niño event, some recreational divers—including Glen Fritzler, owner of Truth Aquatics—noticed an apparently dramatic change in benthic flora and fauna along the north face of Santa Cruz Island. The change was observed where the plume contacted the island coastline.

In spring 2002, a Harmful Algal Bloom (HAB) of the diatom *Pseudonitschia* caused concern because of the many marine mammals and seabirds that died and washed ashore in public view. Fortunately, the nature of the die-off was determined fairly quickly and understood to be a temporary, naturally occurring event—one that unfortunately began anew in spring 2003.

© Merit McCrea

Recreational fishermen pose with a newly caught yellowtail at Santa Barbara Island.

© Merit McCrea

A young angler proudly displays her catch of the day, a fat greenie (Pacific mackeral, *Scomber japonicus*).

While both silt-laden runoff and HAB events are naturally occurring, how extensive is their "manmade" component? As we cultivate the land more intensively, does the presence of chemical fertilizers affect the runoff? Although one of the most beneficial natural phenomena that occurs locally is the upwelling of cool, nutrient-rich waters, could nutrients from agricultural runoff overfuel phytoplankton growth, or change the balance of phytoplankton that grow? These questions—and many others—have yet to be answered.

From a fisher's perspective, minimizing negative impacts on water quality by handling human activities and waste conscientiously, as well as discovering and addressing water quality problems before they affect the catch, are clearly very important. This fisher's view is that healthy waters produce abundant and healthy fish while providing a healthy work and recreational environment for fishers.

Merit McCrea, a sportfishing operator and commercial fisherman for nearly 30 years, is currently studying fisheries research and management at UC Santa Barbara.

Healthy Creeks, Rivers, and Watersheds

By Bob Thiel

Whether they flow year-round or seasonally, the coastal rivers, creeks, and watersheds of Santa Barbara and Ventura counties convey important benefits. They provide a home for endangered steelhead trout and other wildlife; recharge groundwater; carry floodwaters during heavy rains; and transport sediment to nourish beaches and coastlines. Beyond that, our local waters also provide a host of recreational and aesthetic values that contribute to our sense of place.

Healthy creeks and rivers have natural meandering channels and stable, well-vegetated banks and riparian areas that filter out sediment, nutrients, and other pollutants. They have riffles and pools for fish and other aquatic life. Canopies of native vegetation along their banks provide habitat for birds and small mammals, keep water temperatures cool for fish, and help check soil erosion.

However, the health of our creeks and rivers depends on the health of their watersheds. The term "watershed" means drainage basin: all of the land that drains into a particular river or creek. Everything that goes on within the boundaries of a watershed—including the ways in which land is managed—can affect water quality.

Watersheds in Santa Barbara/ Ventura Counties

The watersheds that drain into the Santa Barbara Channel are critical components of our regional ecosystem. In Santa Barbara County, the south slope of the Santa Ynez Mountains from Point Conception to Rincon Creek contains nearly 50 small watersheds. During winter storms, steep creek gradients and heavy rainfall combine to create intense flows of water and debris.

Along the Ventura County coast, watersheds tend to be larger, longer, and wider. The Ventura County landscape is dominated by the watersheds of the Ventura River, Santa Clara River, and Calleguas Creek. The coastal streams of eastern Ventura County more closely resemble the smaller watersheds of Santa Barbara County.

The Coastal Conservancy's Wetlands Recovery Project has an online Information Station with a variety of watershed maps for the South Coast, http://eureka.regis.berkeley.edu/wrpinfo/

The Steelhead Saga

Fifty years ago, most of the rivers and creeks that drain into the Santa Barbara Channel hosted large populations of Southern steelhead trout *(Oncorhynchus mykiss)*. Like salmon, steelhead are anadromous fish: they are born and reared in freshwater, grow and mature in the ocean, and return to freshwater to reproduce. Because of their life cycle, steelhead are more sensitive to river and creek conditions than other aquatic life.

© Community Environmental Council

Above: Paved walkways and parking lots at the Santa Barbara Museum of Natural History will be replaced with porous paving materials as a project of the Mission Creek Restoration Partnership. Partnership members include the Community Environmental Council, the City and County of Santa Barbara, and numerous other public and private groups. Below: Mission Creek.

Steelhead populations declined precipitously as impacts from human activities altered their freshwater habitat. Culverts, concrete channels, low-flow crossings, and several dams have created difficult or impassable barriers to migration. Today steelhead are a federally listed endangered species, and efforts are under way to remove these barriers and restore their habitat.

Runaway Runoff

Local watersheds have been severely affected by development, agriculture, and other land uses. Urban development has paved over large areas, increasing the severity and frequency of flooding and soil erosion. Stormwater runs off roofs and pavement into storm drains and ditches, carrying pollutants directly into rivers, creeks, and the ocean.

The potential for runoff lurks everywhere that water falls into the landscape, and pollutants exist throughout urban areas: oil and grease dripped onto city streets, fertilizers used on landscaping and yards, pesticides sprayed onto farm fields.

In Ventura and Santa Barbara counties, public agencies and community-based organizations are promoting the use of vegetated bioswales and porous pavement. These cost-effective techniques return runoff to the soil where pollutants are naturally mitigated. By reducing the quantity and severity of pollutants reaching local streams and beaches, we can create measurable improvements in coastal water quality.

Bob Thiel is Manager of the Watershed Restoration Program for the Community Environmental Council.

Watershed Resource Center: Learning By Doing

By Karen Feeney

Spring rains call attention to South Coast creeks and beaches—unfortunately, because weekly beach testing often indicates high levels of bacterial pollution from urban runoff. For South Coast residents eager to protect our creeks and ocean, the Community Environmental Council's South Coast Watershed Resource Center is a great place to learn more about local watersheds and how to keep them clean and healthy.

A Resource for Everyone

Located at Arroyo Burro Beach in Santa Barbara, the Watershed Resource Center occupies a former park ranger's residence that now demonstrates green building principles. The center makes the connection between improving water quality and our own personal habits—such as cleaning up after pets, landscaping with native plants, reducing fertilizer and pesticide use, and properly disposing of everyday chemicals such as paint and pesticides.

Visitors will find informative exhibits and activities, a native plant area, an ocean view deck, and a wetlab. The center's research area, open to the public, has two online computers and a small library. There is also a special area for building tomols, the redwood plank canoes used by the Chumash people.

The center was built at the request of Santa Barbara County in response to growing concerns about water quality on the South Coast. An advisory committee helped develop the center's vision and provided input on the exhibits. Committee members include the Audubon Society, CURE (Clean Up Rincon Effluent), Chumash Maritime Association, City of Santa Barbara, Santa Barbara County, Surfrider Foundation, Urban Creeks Council, and UC Cooperative Extension–4-H.

At the center's entrance, a new exhibit will soon share information about the resources and boundaries of the Sanctuary—alongside a colorful tile mosaic of the Santa Barbara Channel and islands. Both the exhibit and the tile mosaic are products of an ongoing partnership between the Community Environmental Council and the Sanctuary.

Educational Programs

The Watershed Resource Center provides educational field trips for students and teachers, as well as public programs year round. Education programs for Grades 1-8 are referenced to California State Science Content Standards and include Watershed Watchers, Aquatic Ecosystems, Weathering Watersheds, and What's in the Water. Students test water samples and study them in the center's wetlab, use an interactive watershed model to understand sources of pollution, and take guided interpretive walks at the adjacent creek and beach.

Spring and summer activities include Chumash storytelling, beach cleanups, geology walks, Water Bugs Summer Camp, Windows-On-Our-Waters TidePool Cruiser, and Santa Barbara Audubon's Eyes in the Sky program.

Find out more by visiting the South Coast Watershed Resource Center at Arroyo Burro County Beach Park, 2981 Cliff Drive, (805) 682-6113. Hours are Tuesday-Friday 12-5 and Saturday-Sunday 10-2.

Karen Feeney is Community Programs Director for the Community Environmental Council.

Help Restore Creek and Ocean Resources!

For more information about these programs, call (805) 682-6113 or visit www.communityenvironmentalcouncil.org

BECOME A CREEK WATCHER
Volunteers for the Creek Watchers program conduct simple monthly tests at local creeks–such as pH balance, turbidity, water temperature, nitrates, phosphates, and bacteria–and report their findings. CEC provides the training and the testing kits.

JOIN A CREEK COMMITTEE
If you live or work on the Arroyo Burro, Carpinteria, Mission, or San Jose Creek watersheds, join one of the CEC-led community partnerships to improve the health of these creeks.

GET INVOLVED WITH WATERSHED STEWARDSHIP
A new project based at the Watershed Resource Center helps local residents participate in watershed cleanup, restoration, and monitoring projects throughout Santa Barbara County.

The South Coast Watershed Resource Center at Arroyo Burro Beach is a key community educational resource regarding water quality issues.

Santa Barbara Channelkeeper

By Jessie Altstatt

Santa Barbara Channelkeeper's mission is to protect and restore the Channel and its watersheds through enforcement, citizen action, and education. Our primary goal is to ensure that local waters remain as clean and healthy as possible.

Channelkeeper is part of the Waterkeeper Alliance (www.waterkeeper.org), an international group of organizations dedicated to protecting water quality. To date, 110 Waterkeeper groups exist in North and Central America, Australia, and Europe. The common belief that unites Waterkeepers is that clean water and a healthy environment are basic rights, and that it is our responsibility to fight for and protect those rights.

Current Initiatives

Channelkeeper's current initiatives include strengthening Santa Barbara County's general storm water permit, persuading greenhouse operators in Carpinteria to eliminate illegal wastewater discharges to the salt marsh, and examining the area's aging sewage system as a source of creek and ocean contamination.

Channelkeeper does what every citizen has a right to do: speak out for clean water and a healthy environment. The complexity of local, state, and federal regulations can be intimidating, but Channelkeeper has the expertise to understand this regulatory framework and ensure that it is enforced properly.

Volunteer Programs

Channelkeeper has many programs open to public volunteers, including water quality monitoring and marine habitat restoration programs. Underwater marine monitoring programs currently involve kelp beds and eelgrass meadows. Both habitats depend upon clear and productive water and are critical for the survival of many other species.

Stream Team

This water quality monitoring program focuses on the Ventura River and Goleta Slough watersheds. Volunteers collect in-stream data (dissolved oxygen, temperature, turbidity, conductivity, pH, and flow) at each site and bring water samples back to the lab for bacteria and nutrient analysis. These basic parameters track the health of the watershed, and the results go into a long-term database that is available upon request. Stream Team has been running in Ventura since January 2001 and in the Goleta Slough since May 2002. Over 200 volunteers collect data at 26 sites, and more volunteers are always welcome.

© Jessie Altstatt

Santa Barbara Channelkeeper's Stream Team conducts regular water quality testing in the Goleta Slough and Ventura River watersheds.

Kelp Forest Monitoring and Restoration Project

This project is a collaboration with other Waterkeeper programs in Southern California. Volunteer divers are trained to monitor and restore a kelp bed on the Carpinteria Reef. In addition, schoolchildren learn about education and mariculture by growing kelp in their classrooms using Channelkeeper's mobile Eco-carts.

Eelgrass Restoration Project

Volunteers are rehabilitating a small-scale eelgrass bed at Frenchy's Cove, Anacapa Island. The cove once supported a healthy bed that was decimated by the sea urchin population boom in the late 1980s. Funded by a grant from NOAA's Community-Based Restoration Program, Channelkeeper began to replant the bed in 2002 with eelgrass collected at Santa Cruz Island. Project partners include the Sanctuary, the Channel Islands Research Program, the Department of Fish and Game, and the National Park Service.

Although challenges have included massive recruitment of brittlestars to the site, young eelgrass seedlings started to appear in March 2003. We plan to continue trips to support this project aboard our vessel *Magic*, and volunteers of all abilities are welcome.

To find out more about Santa Barbara Channelkeeper, call (805) 563-3377 or visit our web site at www.sbck.org. The Ventura chapter is Ventura Coastkeeper, (805) 382-4540, www.wishtoyo.org.

Jessie Altstatt is Program Director and Biologist for Santa Barbara Channelkeeper.

© SB Channelkeeper

During a spring storm, Jessie Altstatt, Program Director and Biologist for Santa Barbara Channelkeeper, collects a sample of urban runoff from Ventura Avenue in Ventura, California.

Agua Pura: Pure Water for All

By Michael Marzolla

Like everyone else, members of the local Latino community go to the beach and their kids play in the creeks. It has been demonstrated that Latinos are generally interested in environmental issues, and that they are particularly concerned about the health impacts of a polluted environment. However, because of language and cultural issues, they often have not been engaged in water protection activities.

Help from Agua Pura

Agua Pura (Pure Water) began in 1999 as a partnership between the University of Wisconsin Cooperative Extension's Give Water A Hand, Santa Barbara County UCCE (University of California Cooperative Extension) 4-H Youth Development Program, and Santa Barbara City College. Its goal is to better understand how community educators and youth leaders can involve the Latino community in watershed protection and adapt resources to meet their needs and interests.

Agua Pura assists the county in meeting best practices under NPDES (National Pollution Discharge Elimination System) guidelines. Agua Pura also participates in the Santa Barbara County Water Agency's Project Clean Water initiative.

Developing Latino Leadership

Agua Pura has significantly engaged the Latino community in watershed resource issues:

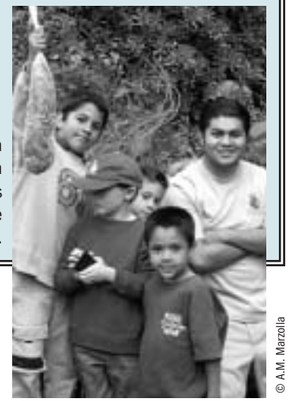
- *A six-week, hands-on after-school watershed education program has graduated over 560 Latino children.*
- *Watershed education has been incorporated into a nine-week summer day camp for over 1,200 Latino children from low-income families.*
- *The local Housing Authority, whose leadership is primarily Latino, has led development and delivery of the ongoing "Splash to Trash" watershed education program. Sixty-two Latino youth from public housing have graduated from the program.*
- *Agua Pura has published a Leadership Institute Planning Manual, available online at http://www.uwex.edu/erc/apsummary.html*

© A.M. Marzolla

Agua Pura Intern Angelica Dominguez (right) reviews instructions at an intern training workshop.

Making a "Green Difference"

GreenDifference.org helps people make a "green difference" at work and at home with tips for saving energy, water use, pest control, hazardous waste disposal, and more. Visit www.greendifference.org/. The web site available in Spanish.



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Under the guidance of Agua Pura Intern Andy Pineda (right), Santa Barbara Community School students prepare to set a leaf pack to sample invertebrates in Mission Creek.

Agua Pura has served as a model for Latino leadership development involving watershed resource issues at national conferences (Coastal Zone '99, North American Association for Environmental Education '01 and '02) and in professional journal articles. Samples of the curriculum used by Agua Pura are available at the California Aquatic Science Education Consortium (CASEC) web site, http://rain.org/casec.

Currently, Agua Pura is working with the County Water Agency and University of California Spanish Broadcast and Media Services on a media campaign to educate Latino communities about watershed conditions and what can be done to improve them.

About 4-H and UC Cooperative Extension

The 4-H Youth Development Program of University of California Cooperative Extension helps school-age youth reach their fullest potential. This exciting, learn-by-doing program is designed to help youth develop into responsible, self-directed, productive citizens, and to improve their well-being through research-based educational experiences.

Santa Barbara County's 4-H serves over 4,500 youth annually and involves over 300 adult volunteers. 4-H has developed successful, innovative, and collaborative programs such as Agua Pura and Neighborhood GreenNet and is a principal partner in the Fun In The Sun summer day camp for children from needy families.

University of California Cooperative Extension (UCCE) has advisors based in over 50 county offices. As a land-grant institution, the Cooperative Extension mandate is tied to the welfare, development, and protection of California agriculture, natural resources, and people—a mission ideally expressed by programs such as Agua Pura.

For more information about Agua Pura, contact Michael Marzolla at ammarzolla@ucdavis.edu.

Michael Marzolla is the 4-H Youth Advisor in Santa Barbara County and Director of Agua Pura.

Clean Boating Practices

Channel Islands Harbor

By Lyn Krieger, Harbor Department Director

Boaters enjoy the pleasure of being surrounded by clean waters and abundant wildlife off the California's coast and in the state's scenic harbors. Channel Islands Harbor is designated as a "Shallow Draft No Discharge Harbor," and harbor management addresses the three main ways that boating activities contribute contaminants to harbor waters: dumping head waste, exchanging bilge waste, and on-water vessel maintenance.

- ***Dumping Head Waste***. To make it easy for boaters to avoid discharging waste, the harbor has three easily accessible, free pumpout locations. For those who do not wish to move their boats, there is a service to pump out the tank in place.
- ***Exchanging Bilge Waste.*** Bilge water can contain small amounts of fuel and oil from leaks in the engine system. Free oil-absorbent bilge pads are available at the fuel dock. Channel Islands Harbor was one of the first in Southern California to install a free bilge pumpout system for oily water. Located at the Harbor Patrol dock, the system works for boats up to 80 feet.
- ***On-Water Boat Maintenance.*** The harbor offers a fuel recycling facility where waste oil and related products can be dropped off. Two boatyards, Anacapa Marine Services and Channel Islands Boat Yard, offer locations for self-service maintenance so that work can be done off the water.
- ***Other Actions.*** In 2000, Ventura County installed oil-absorbent and debris collection pads in harbor storm drains. The county's Solid Waste Department provides brochures and mailings on clean water issues to 22,000 registered boaters. A new Boating Instruction and Safety Center is in the planning stages on the west side of the harbor.

With cooperation from marina operators, boaters, and County and State agencies, Channel Islands Harbor intends to maintain its well-known clean waters far into the future. Visit our web site at www.channelislandsharbor.org/

Boating Clean and Green

Visit the California Coastal Commission's Boating Clean and Green web site, www.coastal.ca.gov/ccbn/ccbndx.html, for lists of Top Ten Boating Tips, statewide oil and sewage services, information on the statewide Dockwalkers educational program, and more.

Santa Barbara Harbor

By Mick Kronman, Harbor Operations Manager

The idea that the ocean is a resilient reservoir that absorbs, dilutes, or otherwise "handles" pollution is long gone, and attention has shifted to protecting our local waters. In 2002, the Santa Barbara Waterfront Department created a Clean Water Program "to achieve and maintain, via feasible means and alternatives, a clean harbor environment for people, aquatic life, and birds." The program includes:

- ***Facilities for Boaters.*** Used-oil disposal tanks, sewage pump-outs, a bilge pump-out, and a porta-potty dump station help boaters keep the harbor clean.
- ***Water Quality Monitoring.*** Monthly bacteria testing and dissolved-oxygen testing take place in the harbor.
- ***Best Management Practices (BMPs).*** The Waterfront Department implements a Storm Water Pollution Prevention Plan overseen by the Regional Water Quality Control Board. Staff participate on the Coastal Commission's Clean Marina Advisory Board and are drafting a Clean Marina Guidebook due in 2004.
- ***Pollution Prevention and Abatement.*** Every week, a small boat ("salad boat") scoops up floating debris. Free oil-absorbent bilge pads are available thanks to the Community Environmental Council. A $103,000 state grant will help remove seafloor debris (and abandoned moorings) from the East Beach anchorage. A harbor seafloor cleanup day is planned for 2004.
- ***Education.*** The Community Environmental Council sponsors Dockwalkers, a program that educates boaters about "clean and green" boating practices. The Waterfront Department offers clean boating literature, participates in the Central Coast Chapter of the California Clean Boating Network, and runs clean boating articles in its newsletter, *Docklines*. Launch ramp signage reminds boaters about eco-friendly practices.
- ***Compliance and Enforcement.*** To prevent sewage discharges, the Harbor Patrol inspects plumbing and places iridescent dye tablets in sewage holding tanks of visiting boats and new vessels assigned to slips.

The Waterfront Department remains committed to a clean harbor environment. If you have suggestions, please email them to mkronman@ci.santa-barbara.ca.us

Channel Islands Harbor

How You Can Protect Water Quality

By Darcy Aston

It's a beautiful day on the South Coast, so you take your family or friends to the beach. But a glaring yellow sign says that swimming is unsafe due to bacterial contamination. Or maybe you go to a park, but you tell the kids not to play in the creek because the water looks murky and there's a lot of trash.

Most of us wonder, why don't ***they*** do something about this? In fact, local government agencies are required by the Clean Water Act to address these problems. The challenge is that the pollution comes mostly from "nonpoint sources"—that is, from many small sources, not from the outfall of a factory or sewage treatment plant.

Nonpoint source pollution comes from all of us. In our neighborhoods, anything that goes down a storm drain flows directly into a creek and the ocean without being treated. So it's up to all of us, in our everyday activities, to prevent pollution.

Below are some ideas for things you can do to improve creek and ocean water quality. Working together, we can make a difference!

Automotive

- ***Recycle used motor oil*** by taking it to an authorized auto parts store, gas station, or hazardous waste collection center.
- ***Wash cars at a commercial car wash*** where water is collected and treated. If you wash your car at home, park on an unpaved surface such as a lawn or use a sponge and bucket. Don't let the wash water reach the street.
- ***Inspect and maintain your car regularly*** to prevent leaking oil, antifreeze, and other toxic fluids. Use a drip tray to catch leaks when your car is parked.
- ***Use alternative transportation*** such as carpooling, walking, bicycling, or public transportation. Roadways are a source of invisible but toxic pollutants from dripping fluids, brake pads, and wear from tires.

Household & Home Maintenance

- ***Landscape*** as much of your property as possible. Unpaved areas absorb more water and help it percolate into the ground. Instead of concrete driveways, use porus paving that helps reduce runoff.
- ***Take unwanted chemicals*** like paint and pesticides to a household hazardous waste collection center. Never leave chemicals outside or dump them down storm drains, ditches, gutters, or waterways.
- ***Rinse paintbrushes*** in the sink when using water-based latex paint. Avoid using oil-based paint. Dispose of unused paint, varnishes, and solvents at a household hazardous waste collection center.

Top: "No dumping" signs are posted on drains that lead to the ocean. Above: Water quality advisories are posted twice a week at Santa Barbara beaches.

Household Hazardous Waste Collection Centers

Community Hazardous Waste Collection Center
930 Miramonte Dr., Santa Barbara
(805) 963-0583, ext. 104 or 105

Gold Coast Hazardous Materials Recycling Facility
5275 Colt Street, Ventura
(805) 642-9236

Del Norte Hazardous Materials Recycling Facility
111 S. Del Norte Blvd., Oxnard
(805) 278-8200

Recycling Centers

SANTA BARBARA COUNTY
www.lessismore.org/htdocs/text_only/programs/county_programs.html

VENTURA COUNTY
http://web.insidevc.com/livinghere/017_trash_and_recycling.shtml

Lawn & Garden

- ***Use nontoxic alternatives to pesticides*** and organic gardening techniques. If you must use herbicides and pesticides, do so sparingly and never when rain is forecast. Take unused garden chemicals to a household hazardous waste collection center.
- ***Sweep*** driveways, patios, and sidewalks rather than hosing them down. Place grass clippings and leaves in a compost pile or greenwaste recycling can.
- ***Pick up animal waste*** and dispose of it in the toilet or trashcan. Animal waste contains bacteria that can cause illnesses in aquatic life, wildlife, and humans.
- ***Maintain your garden*** to prevent topsoil and plant matter from being washed away when it rains. Cover trashcans and keep your yard free of litter.

Darcy Aston is Program Specialist with Project Clean Water, a coalition that investigates and implements solutions to creek contamination. Visit www.countyofsb.org/ project_cleanwater/

Water Quality Resource Directory

Santa Barbara/Ventura Region

Note: Listing of non-government information in this directory does not imply endorsement by the Channel Islands National Marine Sanctuary or the National Oceanic and Atmospheric Administration of any particular product, service, organization, company, information provider, or content.

SANTA BARBARA COMMUNITY RESOURCES

AGUA PURA
University of California Cooperative Extension
305 Camino del Remedio
Santa Barbara, CA 93110
Phone: (805) 692-1730
Fax: (805) 692-1731
www.uwex.edu/erc/apsummary.html
Agua Pura involves the Latino community in local water quality issues and water protection.

CITY OF SANTA BARBARA
www.ci.santa-barbara.ca.us/
The City posts updates on its Creeks Restoration and Water Quality Improvement Program as well as minutes and agendas for the Creeks Advisory Committee.

COMMUNITY ENVIRONMENTAL COUNCIL (CEC)
www.communityenvironmentalcouncil.org

- **Gildea Resource Center**
  930 Miramonte Drive
  Santa Barbara, CA 93109
  (805) 963-0583
  This center is the headquarters of the CEC.

- **South Coast Watershed Resource Center**
  2981 Cliff Drive (Arroyo Burro County Beach Park)
  Santa Barbara, 93109
  Phone: (805) 682-6113
  Fax: (805) 682-8113
  This center educates the public about water quality issues and provides volunteer opportunities through its Creek Watchers and Watershed Restoration programs.

CONCEPTION COAST PROJECT
3887 State Street Suite 24
Santa Barbara, CA 93105
Phone: (805) 687-2073
Fax: (805) 687-5103
http://conceptioncoast.org/
Conception Coast Project protects our natural heritage through long-term planning and community involvement, including evaluation of steelhead recovery opportunities in Southern Santa Barbara County.

GROWING SOLUTIONS
P.O. Box 30081
Santa Barbara, CA 93130
(805) 452-7561
www.growingsolutions.org
Growing Solutions works with elementary and secondary schools, community members, and government agencies to improve water quality in urban neighborhoods.

HEAL THE OCEAN
P.O. Box 90106
Santa Barbara, California 93190
Phone: (805) 965-7570
Fax: (805) 962-0651
Beach Advisory Hotline: (805) 681-4949
www.healtheocean.org
This public action group funds extensive reports, tests, and studies with the goal of eliminating ocean pollution in the Santa Barbara region.

SANTA BARBARA AUDUBON SOCIETY
5679 Hollister Ave., Suite 5B
Goleta, CA 93017
(805) 964-1468
www.rain.org/~audubon/index.html
The Audubon Society educates the community about birds and their habitats, and administers science-based projects using birds as indicators of environmental health.

SANTA BARBARA CHANNELKEEPER
714 Bond Ave.
Santa Barbara, CA 93103
(805) 563-3377
Pollution Hotline: 1-877-4CACOAST
www.sbck.org
Channelkeeper, a member of the international Waterkeeper Alliance, protects the Santa Barbara Channel and its watersheds. Call the Pollution Hotline to report debris or suspicious materials in the Channel.

SANTA BARBARA COUNTY RESOURCES

GREENDIFFERENCE.ORG
www.greendifference.org/
This coalition helps people make a "green difference" at work and at home with tips for saving energy, water use, pest control, hazardous waste disposal, and more. Web site available in Spanish.

GREEN GARDENER CERTIFICATION PROGRAM
www.greengardener.org
The English/Spanish Green Gardener Certification Program trains gardeners and landscaping contractors in reducing pollution. Program cosponsors include city, county, and nonprofit agencies.

PROJECT CLEAN WATER
Hotline: 1-877-687-6232
www.countyofsb.org/project_cleanwater/
This coalition of government agencies, community groups, and individuals investigates and implements solutions to creek contamination. Call the hotline to report water quality problems. A Creek Care Guide is available; call (805) 568-3546.

WATER RESOURCES DIVISION PUBLIC WORKS DEPARTMENT
www.countyofsb.org/pwd/water/
The Water Resources Division of the Public Works Department posts information about creek clearing activities, rainfall, reservoir storage, flood prevention, water conservation, and more.

PUBLIC HEALTH DEPARTMENT
www.sbcphd.org/
Updates on beach closures are posted every Wednesday and Friday.

VENTURA RESOURCES

VENTURA COASTKEEPER/ WISHTOYO FOUNDATION
3600 South Harbor Blvd, Suite 222
Oxnard, California 93035
Phone: (805) 382-4540
Fax: (805) 382-4541
www.wishtoyo.org
Ventura Coastkeeper, a member of the international Waterkeeper Alliance, is a nonprofit, membership organization dedicated to protecting, preserving, and restoring Ventura County's marine habitat, coastal waters, and watersheds.

VENTURA COUNTY OCEAN WATER QUALITY MONITORING PROGRAM
www.ventura.org/envhealth/programs/ocean/
Beach Postings Hotline: (805) 662-6555
Updates on beach closures are posted weekly.

VENTURA COUNTY STORMWATER MANAGEMENT PROGRAM
www.vcstormwater.org/
This program enhances, protects, and preserves water quality in Ventura County using ideas that promote biodiversity, ecological viability, and human health.

VENTURA RIVER WATERSHED MONITORING PROGRAM
www.sbck.org/issues/vrwmp.htm
This joint project between Santa Barbara Channelkeeper and Surfrider's Ventura Chapter conducts regular water testing at 15 sites in the Ventura River watershed.

REGIONAL RESOURCES

CENTRAL COAST REGIONAL WATER QUALITY CONTROL BOARD
895 Aerovista Place, Suite 101
San Luis Obispo, CA 93401
Phone: (805) 549-3147
www.swrcb.ca.gov/rwqcb3/
The State of California's Regional Water Quality Control Boards protect all state waters, including groundwater, surface waters, and marine waters.

COASTAL CONSERVANCY/SOUTHERN CALIFORNIA WETLANDS RECOVERY PROJECT
http://eureka.regis.berkeley.edu/wrpinfo/index.html
This partnership works to acquire, restore, and enhance coastal wetlands and watersheds between Point Conception and the Mexican border.

SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT
7171 Fenwick Lane
Westminster, CA 92683
Phone: (714) 894–2222
Fax: (714) 894–9699
www.sccwrp.org
SCCWRP focuses on research to protect the Southern California marine environment. The agency's nine members include sanitation districts, regional water quality control boards, and state and federal agencies.

SOUTHERN CALIFORNIA STEELHEAD RECOVERY COALITION
5436 Westview Court
Westlake Village, CA 91362
Phone: (818) 865-2888
Fax: (818) 707-2459
www.socalsteelhead.org
This coalition works to restore free-flowing rivers and streams, riparian habitat, and watersheds to foster the recovery of Southern Steelhead and other native species.

STATE RESOURCES

CALIFORNIA COASTAL COMMISSION WATER QUALITY PROGRAM
www.coastal.ca.gov/nps/npsndx.html
View updates on nonpoint source pollution control, urban runoff, and the Boating Clean & Green Campaign.

CALIFORNIA COASTAL CONSERVANCY
www.coastalconservancy.ca.gov/
This agency acts with others to preserve, protect, and restore the resources of the California coast. Its initiatives include the Southern California Wetlands Recovery Project.

CALIFORNIA DEPARTMENT OF WATER RESOURCES
www.water.ca.gov/
This site has links to news and information about the California Water Plan, the State Water Project, state and municipal water conditions, water use and planning, public safety, and local assistance.

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
State Water Resources Control Board
www.swrcb.ca.gov/
The mission of the State Board is to preserve, enhance, and restore the quality of California's water resources, as well as ensure their proper allocation and efficient use.

CALIFORNIA STORMWATER QUALITY ASSOCIATION
www.stormwatertaskforce.org/
This 501(c)(3) nonprofit assists in developing and implementing stormwater management programs throughout California.

DOCKWALKERS PROGRAM
www.coastal.ca.gov/ccbn/ccbndx.html
This program trains boaters in environmentally sound practices. Dockwalkers go to marinas, launch ramps, boat shows, and special events statewide to distribute educational materials and discuss clean boating practices.

NATIONAL RESOURCES

NATIONAL CLEAN BOATING CAMPAIGN
http://cleanboating.org
This nationwide program is sponsored by the Marine Environment Education Foundation.

SURFRIDER FOUNDATION
www.surfrider.org
Surfrider Foundation USA is a grassroots organization that works to protect oceans, waves, and beaches through 60 local chapters on the East, West, Gulf, Puerto Rican, and Hawaiian coasts.

U.S. ENVIRONMENTAL PROTECTION AGENCY
http://epa.gov/
View updates from the Office of Water, EPA's "Surf Your Watershed," and 2002-2003: The Year of Clean Water.

U.S. GEOLOGICAL SURVEY
http://water.usgs.gov/
View updates on drought, flood conditions, and watersheds nationwide.

WATERKEEPER ALLIANCE
828 South Broadway, Suite 100
Tarrytown, New York 10591
Phone: (914) 674-0622
www.waterkeeper.org
Waterkeeper Alliance is an international grassroots organization that supports local programs dedicated to preserving and protecting water from pollution.

Management and Research

State Marine Protected Areas in Effect

State Marine Protected Areas (MPAs) in the Sanctuary went into effect on April 9. For a complete history of the MPA process, visit the Sanctuary's web site, http://www.channelislands.noaa.gov/marineres/main.html.

The Sanctuary continues to work with California Dept. of Fish and Game (CDFG), California Sea Grant, and Channel Islands National Park (CINP) to educate the public about the new regulations for these areas. Representatives from CDFG, CINP, and the Sanctuary met with scientists and constituents on May 4 to begin identifying monitoring locations inside and outside of the MPAs.

Management Plan Revision Process

Work has continued on finalizing the Draft Management Plan (DMP) and Draft Environmental Impact Statement (DEIS). Updated non-regulatory action plans (research, education, resource protection, cultural resources, and evaluation) were completed by Sanctuary staff and incorporated into the DMP. Federal, state, and local agencies received formal consultation letters in April to provide official notice of the coming release of the DEIS. Updates on this process and how the public can participate are available at www.channelislands.noaa.gov/marineres/manplan.html.

The revised CINMS Draft Management Plan and Draft Environmental Impact Statement will be available this fall in three formats: web site download, CD-ROM, and paper copy. To receive a CD-ROM or paper copy, please send us your name, address, and format preference by email at: CINMS.mgt-plan@noaa.gov; by mail at CINMS Management Plan, 113 Harbor Way, Suite 150, Santa Barbara, CA 93109; or by phone at: (805) 884-1464.

Resource Protection

Marine Protected Areas Monitoring Workshop

The California Department of Fish and Game (CDFG), CINMS, and Channel Islands National Park hosted a Marine Protected Areas Monitoring Workshop on March 14-16 at UCSB's Bren School of Environmental Science and Management.

© Wade VanBuskirk

The Marine Protected Areas Monitoring Workshop, held March 14-16 at UCSB's Bren School, brought together over 100 participants to assess the socioeconomic effects of marine reserves on recreational activities.

The monitoring workshop brought together over 100 participants, including biologists, social scientists, fishermen, business representatives, and conservationists. Discussions focused on the development of preliminary biological and socioeconomic monitoring plans, including: what to monitor, how to conduct monitoring, when to complete various portions of monitoring, how to compile data into an easily accessible source, what funding and personnel needs exist, and what type of oversight is appropriate. For more information, go to http://www.channelislands.noaa.gov/marineres/mpa_workshop.html.

Federal Marine Reserves Environmental Review Process

CINMS is considering the establishment of a network of marine reserves to complement the new state marine protected areas (MPAs). An environmental impact statement (EIS) will be prepared to examine management and regulatory alternatives. Public scoping meetings took place in June. Public comments are invited at the July 18 Sanctuary Advisory Council meeting and in writing before July 23. For a timeline, please see www.channelislands.noaa.gov/marineres/enviro_review.html

NCCOS Biogeographic Study

The Biogeography Team from NOAA's National Centers for Coastal Ocean Science (NCCOS) is producing a new study, "A Biogeographic Assessment of the Channel Islands National Marine Sanctuary and Surrounding Areas: A Review of Boundary Expansion Alternatives for NOAA's National Marine Sanctuary Program." The intent of this study is to analyze spatial data and evaluate potential implications of Sanctuary boundary change options. The final work plan and other study information may be viewed at http://biogeo.nos.noaa.gov/projects/assess/ca_nms/cinms/.

SAC Annual Meeting

The Sanctuary hosted the third annual Sanctuary Advisory Council (SAC) Chairs and Coordinators Meeting in Santa Barbara, California on February 18-20. The 32 participants included chairs or other representatives from the National Marine Sanctuary Program's (NMSP) 11 Sanctuary Advisory Councils, SAC coordinators, and several representatives from NMSP headquarters. For the first time, observers from Canada attended as well.

The NMSP asked the chairs for input on policy topics related to sanctuary resource issues. They indicated that fishing impacts, discharges, exotic species, marine debris, acoustic impacts, oil, gas, and mineral activities, and vessel traffic are issues that need to be addressed on a priority basis by the national program.

Vessel and Aircraft Operations

Delivery and Christening of R/V Shearwater

The Sanctuary's new vessel, the R/V *Shearwater*, completed its inaugural journey from Seattle, Washington to Santa Barbara on March 25. Between March 27-May 16, the *Shearwater* spent 21 days at sea conducting Xantus's murrelet studies at Anacapa Island and Plumes and Blooms water quality research.

Robert Schwemmer

Representative Lois Capps gave the keynote speech and broke a bottle of Champagne across the bow to christen the Sanctuary's new vessel, the R/V *Shearwater.*

On May 12, the Sanctuary hosted an official boat christening at Sea Landing in Santa Barbara Harbor, followed by an open house at the Santa Barbara Maritime Museum that highlighted the Channel Islands Argonauts and the museum's new exhibits. Special guests included Representative Lois Capps, National Marine Sanctuary Program Director Daniel Basta, National Ocean Service Deputy Assistant Administrator Ted Lillestolen, and Santa Barbara Mayor Marty Blum.

Sanctuary Aerial Monitoring and Spatial Analysis Program (SAMSAP)

During the first 11 days of Marine Protected Area implementation (April 9-19), Captain Dave Tennesen of NOAA's Aircraft Operations Center flew survey flights with Sanctuary Physical Scientist Ben Waltenburger. Data of note included an influx of recreational fishing vessels to the south side of Anacapa Island, all of whom respected the MPA boundaries. More flights are planned to utilize the SAMSAP monitoring tool to gauge the effects of MPA implementation.

LCDR Andrea Hrusovsky captained the Sanctuary's *Sea Wolf* aircraft on five flights in January and four flights in February as part of SAMSAP. Gray whales *(Eschrichtius robustus)* were once again sighted in a five square kilometer area off the northeast side of Santa Barbara Island, where they have congregated for the last three years.

LCDR Hrusovsky and Physical Scientist Ben Waltenberger are working with Research Coordinator Sarah Fangman to revise flyover restrictions for research flights within the Sanctuary.

Research and Monitoring

New Report on Research Programs

Sanctuary Scientific Advisor Satie Airame and Research Coordinator Sarah Fangman worked with several contributing partners to produce a new report, *Summary of Research Programs in the Channel Islands National Marine Sanctuary.* Partners included a team of UCSB's Bren School graduate students, plus representatives from California Department of Fish and Game, Channel Islands National Park, and NOAA Fisheries' Southwest Fisheries Science Center.

The 150-page report summarizes over 50 monitoring programs in the Channel Islands region, including project listings by species and researcher, extensive maps, research questions, and contact information. The report is available at: http://www.dfg.ca.gov/mrd/channel_islands/monitoring.html.

Snapshot Day

On May 17, Snapshot Day 2003 was California's first coast-wide water quality monitoring event and the state's largest single monitoring event to date. Citizen volunteers measured basic water quality parameters at virtually every coastal stream and waterway statewide. The regional coordinating agency for Santa Barbara and Ventura counties was Santa Barbara Channelkeeper, and approximately 58 sites were tested in the region. Sanctuary staff participated in the event.

Intertidal Monitoring

In April and May, the Sanctuary vessel *Xantu* supported the Channel Islands National Park's intertidal monitoring program.

Emergency Response

This spring Sanctuary staff and several Naturalist Corps volunteers attended Hazardous Waste Operations and Emergency Response (HAZWOPER) training. HAZWOPER certificates allow Sanctuary employees to participate in emergency oil spill response.

Delta Deepwater Research

Researchers from the Sanctuary, in partnership with the California Department of Fish and Game and UCSB's Love Lab, conducted a Delta deepwater research mission from November 14-17, 2002. This mission conducted a baseline characterization of recently designated marine reserve areas within Channel Islands National Park and CINMS.

Scientists used a manned submersible from Delta Oceanographics to collect video and photographic images both within and outside the marine reserves. Twenty dives gathered information on fish, invertebrates, and habitats. The videos will be analyzed to create maps depicting the numbers and sizes of organisms found within and outside the reserves. These data will be used to track changes over time.

Robert Schwemmer

In November 2002, a Delta deepwater research mission conducted a baseline characterization of recently designated marine reserves.

Education and Outreach

Workshops

Marine Wildlife Viewing Workshop

On February 27, Volunteer and Outreach Coordinator Shauna Bingham organized a Marine Wildlife Workshop to discuss watchable wildlife protocols and marine protected species of California. A draft copy of "Responsibly Watching California's Marine Wildlife – A Handbook for Ocean Users" was distributed to over 80 participants for review. The handbook is available online at www.sanctuaries.noaa.gov/library/library.html, and future workshops will continue public discussion of wildlife interactions along the coast.

LiMPETS Teacher Workshop

LiMPETS (Long-term Monitoring Program and Experiential Training for Students), a program sponsored by the West Coast national marine sanctuaries, trains teachers in sanctuary monitoring efforts so that they can involve students in meaningful long-term monitoring programs.

CINMS education staff helped plan and coordinate the LiMPETS teacher workshop held at the Headlands Institute in Marin, California from March 13-16. Four teachers from Lompoc, Carpinteria, Santa Monica, and Los Angeles attended the workshop and have since begun to set up sand beach monitoring sites. More information is available at http://limpets.noaa.gov.

SEAS Workshops

Sanctuary Education Coordinator Julie Bursek worked with science coordinators in the Los Angeles Unified School District, UCLA, USC, and COSEE-West (Centers for Ocean Science Education Excellence) to host Sea Education Awareness Series (SEAS) workshops for K-12 teachers. Ten workshops were held during the 2002-2003 school year, each focusing on a different marine science topic. The final workshop was held aboard the R/V *Shearwater*.

Oceans to Classrooms Teacher Workshop

The Sanctuary, UCSB's Marine Science Institute, and area teachers partnered to sponsor a teacher workshop on April 26 at Channel Islands Marine Resource Institute, Port Hueneme Harbor. This workshop introduced the West Coast sanctuaries' LiMPETS program and showcased "The Secrets of Sand" classroom kit, one of six ocean-themed science classroom kits that contain lesson plans and hands-on student activities. Special Projects Coordinator Kathy deWet-Oleson organized the workshop.

Gold Coast Science Network Conference

On May 3, Education Coordinator Julie Bursek coordinated hosting "Soaring High with Science: Celebrating 100 Years of Flight," an annual conference at Oxnard Community College sponsored by the Gold Coast Science Network and the California Science Teachers Association. Over 55 teachers and 25 presenters attended, discussing topics in earth, physical, and life sciences for elementary, middle, and high school students.

© Kathy deWet-Oleson

Teachers learn how a quadrat is used in rocky intertidal monitoring during the LiMPETS teacher workshop held at the Headlands Institute in Marin, California on March 13-16.

Mapping an Ocean Sanctuary

Education Coordinators Laura Francis and Julie Bursek are working with the Center for Image Processing in Education (CIPE) to sponsor the Mapping an Ocean Sanctuary/GIS Teacher Workshop on August 1-4 at Santa Cruz Island. Teachers will explore resource management issues, collect data, and enter it into laptop computers. More information is available at www.channelislands.noaa.gov/edu/edu_teacher.html

National Marine Educators Conference

Education Coordinators Laura Francis and Julie Bursek will attend and present at the National Marine Educators Conference on July 20-24 in Wilmington, North Carolina. Their topics will include: Exploring the CINMS CD-ROM in the Classroom, Developing Ocean Literacy in Schools, and Using the Mapping an Ocean Sanctuary GIS Materials.

Adult Education

On January 11, students from the spring and fall 2002 Ventura College adult education courses about the Sanctuary participated in a field trip to CINMS and Anacapa Island aboard the Island Packers vessel *Vanguard*.

This spring, Santa Barbara City College Adult Education, CINMS, and the Santa Barbara Maritime Museum cosponsored a course titled "Discovering the Channel Islands National Marine Sanctuary." Organized by Education Coordinator Laura Francis, the course included three evening sessions plus two optional field trips to the islands on June 14 and June 26.

Channel Islands Naturalist Corps (CINC)

The Sanctuary Naturalist Corps has evolved into the Channel Islands Naturalist Corps (CINC), a partnership between the Sanctuary and Channel Islands National Park with CINMS as the lead agency.

Currently 95 volunteers accompany passengers seven days a week on whale watching boats from Santa Barbara Harbor (Captain Don's Whale Watching, Condor Cruises, and Santa Barbara Sailing Center), Channel Islands Harbor (CISCO's Whale Watching, Channel Islands Floating Lab), and Ventura Harbor (Island Packers). CINC volunteers also represent the Sanctuary and the Park at community outreach events.

This spring volunteers who have been in the program for at least one year will be eligible to complete additional training to become island interpreters with Channel Islands National Park.

On the Web

The research area of the Sanctuary's web site is in development to host information about the R/V *Shearwater*, cruise plans, and video footage from the Delta Dive expeditions. The SAC and Management Plan areas recently underwent design modifications. Other new features include a new home page, www.channelislands.noaa.gov; and the Seasons in the Sanctuary Calendar, www.channelislands.noaa.gov/focus/calendar.html.

Education Products

Seabird Calendar

The Sanctuary produced a 2003 wall calendar highlighting seabirds in CINMS. Database Coordinator Rebecca Young led this effort.

Marine Reserves Insert

The Sanctuary funded the printing of a marine reserves insert to appear in a California Marine Protected Areas publication developed by Sea Grant. The insert provides information on newly designated marine reserve and marine conservation areas within the state waters of the Sanctuary.

Cabrillo High School Aquarium Weather Kiosk

In January, CINMS completed installation of weather kiosk at the Cabrillo High School Aquarium. This new kiosk is the first designed specifically for a museum/aquarium environment. The exhibit includes information on the Beaufort Scale, the effects of water temperature on fish populations, and a 3D image of the Santa Barbara Channel and Channel Islands. Information about tours is available at http://site.yahoo.net/cabrillo/

Educational CD-ROM

An educational CD-ROM, *Exploring the Channel Islands National Marine Sanctuary*, is complete and now being distributed. For more information contact Laura Francis at laura.francis@noaa.gov.

Events

Oceans Week

Oceans Week is a new national program that promotes ocean-oriented educational activities for schools and communities. This year the Sanctuary developed a web-based resource with activities and field experiences to help teachers incorporate ocean themes across all disciplines. An Oceans Week culmination event was held on June 8, World Oceans Day, at Channel Islands Harbor featuring family activities and a student exhibit. Special Projects Coordinator Kathy deWet-Oleson organized this event.

REEF Field Survey

CINMS is planning a field survey with Reef Environmental Education Foundation (REEF) to be held September 17-20. Last year's trip had 28 participants who documented 68 species of fish and completed 245 surveys, adding significant data to the REEF database for Santa Barbara and Santa Rosa islands. The field report can be viewed at http://www.reef.org/member/forum/fslog.htm#CINMS. For more information about the September trip, please contact Laura Francis, laura.francis@noaa.gov

Participants in the adult education course "Discovering the Channel Islands National Marine Sanctuary" enjoyed a field trip to Anacapa Island in January.

Julie Bursek

Great Annual Fish Count

The Sanctuary sponsored a fish identification seminar at the Paradise Dive Club meeting on June 24 to prepare divers for the Great Annual Fish Count. Truth Aquatics will provide discounted day cruises to divers who complete fish surveys in July. For more information, visit www.channelislands.noaa.gov.

Education Awards

National Marine Sanctuary Foundation Education Excellence Award

On behalf of the National Marine Sanctuary Foundation (NMSF), National Marine Sanctuary Program Director Daniel Basta presented the first annual NMSF Education Excellence Award to Claire Johnson on February 18. Claire is the NMSP West Coast Education Liaison based out of Santa Barbara. She received the award in recognition of her efforts on JASON XIV: *From Shore to Sea.*

CINMS Award of Recognition

On March 4, Sanctuary Manager Chris Mobley presented Education Coordinator Laura Francis with an award to recognize her dedication in producing the educational CD-ROM *Exploring the Channel Islands National Marine Sanctuary.* This CD-ROM is the first of its kind in the National Marine Sanctuary Program.

JASON XIV: *From Shore to Sea*

It's 6:45 a.m. on February 5, 2003. The sun is rising over the Santa Ynez Mountains, and Santa Barbara Harbor is crowded. There's a CBS van with more than 70 television screens and a Media Arts production team prepared to run live broadcasts; an EDS satellite truck ready to send images to locations around the world; and a NASA Remote Sensing vehicle that is consolidating satellite readings of chlorophyll, water temperature, and thermal imaging for future processing.

Student Argonauts outfitted in fleece pullovers and headsets review reports from the National Weather Service and share current conditions from their remote location on Anacapa Island. At 7 a.m. exactly, the cameras start to roll as the Argonauts conduct research with scientists in the field.

Robert Schwemmer

Dr. Robert Ballard works with students in Santa Barbara Harbor during JASON XIV.

This exciting scene took place every day for two weeks during JASON XIV: *From Shore to Sea.* From January 27-February 7, 2003, JASON XIV explored Channel Islands National Marine Sanctuary, Channel Islands National Park, and the Santa Barbara Maritime Museum. These three locations served as "living laboratories" for studying earth, ocean, atmospheric, and space science while highlighting the ecology and maritime history of the Channel Islands.

JASON XIV conducted five one-hour live broadcasts a day from Anacapa Island and the Santa Barbara Maritime Museum, bringing the story of the Sanctuary and Park to over 1 million schoolchildren and 25,000 teachers in the United States and abroad. MSNBC.com followed the expedition online, and the National Geographic Channel broadcast a series of hour-long JASON programs.

Locally, over 8,000 schoolchildren and 300 teachers participated in expedition and live broadcasts. These students and teachers experienced hands-on activities at broadcast viewing sites in Santa Barbara and Ventura counties: Channel Islands National Park, Carpinteria Middle School, Santa Barbara Maritime Museum, and Cabrillo High School Aquarium.

Robert Schwemmer

Sanctuary Management Plan Specialist Sarah MacWilliams highlights a navigational chart of the Channel Islands as part of JASON XIV's educational outreach.

Origins of JASON

When Dr. Robert Ballard discovered the *RMS Titanic* wreck, he received 16,000 letters from schoolchildren asking to go with him on his expeditions. This experience inspired him to create the JASON Project, named after the mythical Greek explorer who was joined by fellow Argonauts in search of the Golden Fleece.

The JASON Project selects teacher and student Argonauts from around the world to participate in Ballard-led adventures. These Argonauts work directly with scientists in some of the most biologically rich ecosystems on Earth and share their first-hand experiences via live expedition broadcasts.

Dr. Robert Ballard presented two sold-out lectures to the community-at-large during JASON XIV, one on January 31 at the Arlington Theatre in Santa Barbara and one on February 5 at the McConnell Auditorium in Ventura.

The JASON Curriculum

Throughout 2003, students around the world will continue to learn about the Channel Islands region using a yearlong multidisciplinary curriculum. Topics included Chumash culture, marine and island ecosystems, geology, watershed studies, tools and methods of scientific research, and management and monitoring of natural resources. The curriculum uses a variety of formats, among them online chats, hands-on activities, and digital labs.

Sanctuary education staff spent two years assisting with project planning and curriculum development for JASON XIV. During the *From Shore to Sea* event, staff members served as on-camera underwater divers, emcees at viewing sites, and on-camera dive technology experts. Others engaged thousands of schoolchildren in auditoriums and on PIN (Primary Interactive Network) sites, where they could ask questions and receive answers in real time from underwater divers and scientists in the field.

Channel Islands Argonauts

During JASON XIV: From Shore to Sea, the Sanctuary worked in partnership with the Channel Islands National Park, the Santa Barbara Maritime Museum, Santa Barbara Museum of Natural History, and the Offices of Education in Santa Barbara and Ventura counties to create the Channel Islands Argonaut Program. Twenty elite students in Grades 5-8 were selected through an essay contest and teacher nominations to participate behind the scenes in the expeditions and live broadcasts.

The Channel Islands Argonauts put together poster projects that were presented at both of Dr. Ballard's public lectures. They also visited Anacapa Island for field experience during the expedition, participated in community events, and enjoyed a behind-the-scenes tour of the JASON production site.

Project Partners

The JASON Project is a cooperative effort between Dr. Robert Ballard's JASON Foundation for Education and a number of federal, institutional, and corporate partners. Federal partners include NOAA's National Marine Sanctuary Program, NASA, and the U.S. Department of Education. Other partners include the National Geographic Society, Honeywell, and Oracle. In addition, the Sanctuary is grateful to the many local partners who played a vital role during JASON XIV: *From Shore to Sea*—among them, Channel Islands National Park, Santa Barbara Maritime Museum, and Santa Barbara and Ventura County schools.

Looking ahead, interactive technology will continue to bring NOAA's National Marine Sanctuaries to the public in new and exciting ways, including remotely operated camera systems, robots, and underwater vehicles. NOAA and Ballard's JASON Foundation for Education plan to bring many more marine treasures to the public through learning centers and aquariums.

The Channel Islands Argonauts Program and the *From Shore to Sea* curriculum will be continued in this region in future years through professional teacher development and access to the curriculum, digital labs, and hands-on activities focusing on the California Channel Islands. For more information, contact NMSP West Coast Education Liaison Claire Johnson at (805) 963-3341.

JASON ARGONAUTS

For JASON XIV, two local students were selected as national JASON Argonauts who participated directly with researchers on studies pertaining to California's Channel Islands. Tano Cabugos, a seventh grader at Santa Barbara Junior High School, dove with scientists to study the kelp beds near Anacapa Island. Georgia Broughton, a tenth grader at the Excellence in Education Academy in Monrovia, was based at the Santa Barbara Maritime Museum broadcasting live with Dr. Ballard.

My Ride Through JASON XIV

By Tano Cabugos

As JASON Argos, our first meeting included proper hellos and handshakes. But the minute we stepped onto Anacapa Island, our personalities were more realistic and I made many new friends. It was a lot of fun working the special equipment. The biggest rush was being underwater with cameras rolling and talking to a lens reaching thousands of people around the world with a message of how important it is to take care of our ocean. It was an unforgettable experience!

A Life-Changing Experience

By Georgia Broughton

I am surprised by how much I learned about my capabilities, and also about teamwork, during the JASON expedition. Because of the time I spent as an Argonaut, I am a more whole person than I was before. The experience truly changed me, and it will stay with me forever!

CHANNEL ISLANDS ARGONAUTS

"I have always loved science, ever since I was a little girl. I used to dream about becoming a famous explorer or undersea diver. Now I know these dreams could become a reality, and I can become a marine biologist or a science teacher."

Courtney Jones, 8th Grade, Carpinteria Middle School

"The Earth's ocean is full of creatures that we still know almost nothing about. The ocean represents all life to me, it represents history. If we pay attention, then we can see that the ocean is not just our past, but our future too."

Morgana Hoch, 5th Grade, Open Alternative School

Robert Schwemmer

Channel Islands Argonauts helped prepare UAVs (uninhabited aerial vehicles) for flyovers of Anacapa Island to photograph kelp beds.

Cultural Resources

Research

In January, heavy surf removed sand from the beach at Cuyler Harbor, San Miguel Island, exposing the wooden remains of a shipwreck. Henry Silka, maritime historian and member of Coastal Maritime Archaeology Resources (CMAR), recalls the events of recording the site:

CINP

In January, severe weather exposed the remains of a shipwreck on the beach at Cuyler Harbor, San Miguel Island. Investigators determined that it may be the remains of the schooner *Kate and Anna*.

The call went out on Monday, January 6 to Mark Norder of CMAR, an organization of avocational nautical archaeologists and maritime historians. Chief of Cultural Resources Ann Huston, Channel Islands National Park (CINP), needed a team to immediately go to San Miguel Island to excavate and survey ship wreckage discovered protruding from the beach sand by CINP Ranger Ian Williams.

A quick response was critical. At 9 a.m. on January 8, Don Morris, Patrick Smith, and I were on the tarmac at Camarillo Airport, ready to load our gear into a Channel Islands Aviation plane. Don had been the CINP's archaeologist prior to his retirement, and he continues to work with CMAR. Pat is a maritime historian, author, and long-time scuba diver with extensive experience on many archaeological projects. That afternoon, we were in Cuyler Harbor, probing the sand and trenching around the exposed wreckage for the remainder of the day.

For the next three days we enjoyed ideal conditions, the sea never rising high enough to wash away our work. Our excavation revealed 20-plus feet of bow detached from an unknown vessel. It was lying on its starboard side, the stem (bow) buried deep with about four feet of keelson trailing upward. The hull planking, frame, ceiling planks, and a section of the starboard bulwark, along with various fittings, were wonderfully preserved. Uppermost in our minds was the question of the vessel's identity.

Don, who had published a CINP and CINMS shipwreck assessment, surmised that the bow could have been detached from the small schooner Kate and Anna, built in 1879. In 1902, she stranded on the beach below the bluffs on the west side of Cuyler Harbor. Some time later, the vessel was buried beneath tons of falling rock and earth that had slipped from the bluffs. Such an event could have broken off the bow, which then could have been washed ashore at the site of our excavation.

By email, Ian contacted Sanctuary Cultural Resources Coordinator Robert Schwemmer requesting historic photographs of the Kate and Anna stranded on the beach. We compared her fittings visible in the pictures with those on the wreck itself. While the evidence is very strong that this could be the schooner, a final determination of the wreck's identity will not be made until other known shipwrecks in Cuyler Harbor have been found and studied.

After three days of ideal weather conditions, we did not feel assured that the same would continue. So on January 11, we concentrated on recording data and spent the day photographing, measuring, and sketching. We finished taking samples of frame, hull and ceiling planking, treenails, metal, and copper sheathing. Late that afternoon, the sea started kicking up. On returning to the site the next morning, we saw that the sea had inundated the excavation, and the mysterious wreck was well on the way to being buried in the sand once more.

© California State Library

The schooner *Kate and Anna*, wrecked at Cuyler Harbor in 1902, could be the mystery ship excavated above.

Education

Shipwrecks as environmental threats to marine resources are an emerging issue for the National Marine Sanctuary Program. Sanctuary Cultural Resources Coordinator Robert Schwemmer presented two papers on reconnaissance expeditions to the shipwrecks *Montebello, Jacob Luckenbach*, and *Pacbaroness* for the California and World Ocean Conference at Santa Barbara, California and the Society for Historical Archaeology at Providence, Rhode Island. These shipwrecks all contained hazardous cargos when they sank.

The online shipwreck database now has its first living journal entry: the diary of Asa Cyrus Call, a survivor of *Winfield Scott*, as transcribed by his great-great grandson John Call. The *Winfield Scott*, a California Gold Rush side-wheel passenger steamer, was stranded at Anacapa Island in 1853 with over 400 passengers onboard. View the living journal at www.channelislands.noaa.gov/cr/journal.html

Resource Protection

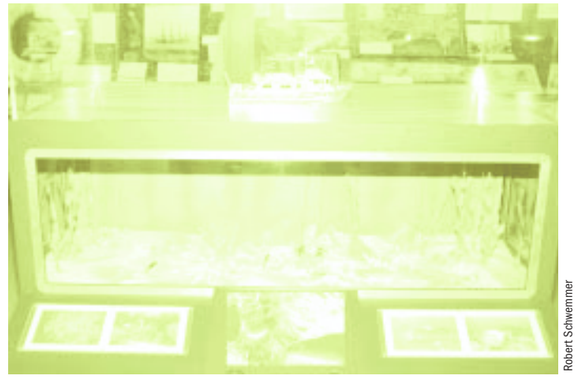
From October 7– 11, 2002, the Sanctuary's annual shipwreck reconnaissance expedition was conducted aboard the R/V *Pacific Ranger*. The five-day expedition involved Sanctuary and CINP staff as well as members of Coastal Maritime Archaeology Resources (CMAR). The main goal was to survey seven major shipwrecks and one aircraft, and to recommend sites for installing permanent data monitoring stations. When installed, these stations will provide archaeologists with a permanent reference point for the annual recording of measurements and photographs. The installation is planned for the October 2003 shipwreck reconnaissance expedition aboard the R/V *Shearwater*.

Outreach

The CINMS Underwater Archaeology Program shipwreck exhibit was installed at the Santa Barbara Maritime Museum in November 2002—a story featured in that month's *Sunset* magazine. In the exhibit, simulated divers tethered to the R/V *Shearwater* tour the shipwreck site, stopping at various nineteenth-century artifacts. Actual videotaped footage and narration run concurrently on a monitor. The exhibit also features actual artifacts from the site and examples of the tools used by underwater archaeologists to record shipwrecks.

Robert Schwemmer

The Santa Barbara Maritime Museum's underwater archaeology exhibit includes a display of artifacts and archaeologists' tools.



Robert Schwemmer

The Santa Barbara Maritime Museum installed an underwater archaeology exhibit in November 2002 that was featured in *Sunset* magazine.

NMSP Submerged Cultural Resources Programs

In January, Robert Schwemmer represented the West Coast sanctuaries at the NMSP National Submerged Cultural Resources Program meeting in Providence, Rhode Island. He is also serving in a lead role for the Monterey Bay and Gulf of the Farallones Maritime Heritage Crosscutting Working Group for the Joint Management Plan Review.

The review process's first two-day workshop was held at Half Moon Bay in April, where Schwemmer presented a two-hour lecture to the public and working group on behalf of the Farallones Marine Foundation. The lecture focused on historic shipwrecks beyond the Golden Gate and the shipwreck *Jacob Luckenbach*, source of the San Mateo mystery oil spills.

Shipwreck Web Sites

NOAA's national marine sanctuaries have begun to develop a national shipwreck database. The database will eventually be expanded to include the Gulf, Great Lakes, and Atlantic regions. Current shipwreck web sites include:

WINFIELD SCOTT
http://www.channelislands.noaa.gov/shipwreck/dbase/cinms/winfieldscott.html

KATE AND ANNA
http://www.channelislands.noaa.gov/shipwreck/dbase/cinms/kateandanna.html

JACOB LUCKENBACH
http://www.channelislands.noaa.gov/shipwreck/dbase/gfmns/jacobluckenbach.html

PACBARONESS
http://www.channelislands.noaa.gov/shipwreck/dbase/pacbaroness.html

USS MONITOR
http://www.channelislands.noaa.gov/explorations/02monitor/monitor.html

PORTLAND
http://stellwagen.noaa.gov/

Sanctuary Advisory Council Update

The Sanctuary Advisory Council (SAC) has set goals for 2003 related to marine reserves, the Sanctuary Management Plan, and water quality. The public is invited and encouraged to participate by attending meetings of the SAC or its working groups. SAC meetings are scheduled for July 18, September 19, and November 14. Details are available at www.channelislands.noaa.gov/sac/main.html.

SAC Goals for 2003

Marine Reserves

- ***Education:*** recommend long-term strategies, specific actions, and draft products for marine reserves education
- ***Monitoring:*** help raise constituent awareness, participation, and cooperation regarding monitoring programs for marine reserves; advise Sanctuary management on implementation; serve as a public forum to present monitoring program results
- ***Enforcement:*** provide advice on actions for developing the Sanctuary Marine Watch program, a volunteer-based, peer education program to achieve voluntary compliance with Sanctuary regulations
- ***Federal Regulatory Process:*** assist and advise the Sanctuary

Management Plan Revision

- Review and comment on performance indicators for Sanctuary action plans
- Assist in review of draft products from the biogeographic study; participate in biogeography workshops
- Assist in raising public awareness and understanding of the Draft Environmental Impact Statement/Draft Management Plan (DEIS/DMP)
- Comment to the Sanctuary on the DEIS/DMP

Water Quality

- ***Clean Boating:*** advise the Sanctuary on management programs to ensure that boating practices comply with resource protection laws
- ***Emergency Spill Response:*** assist in plan review; offer advice on plan improvement, including involvement of volunteers
- ***Water Quality Protection Recommendations:*** develop short and long-term water quality recommendations; form a Water Quality Working Group

Matthew Cahn Elected SAC Chair

Michael Murray

In January, Dr. Matthew Cahn became Chair of the Sanctuary Advisory Council. First appointed to the SAC in 1998, Cahn played a pivotal role in 1999 and 2000 as chair of the Science Advisory Panel. He is professor of public policy at Cal State Northridge, visiting professor at UCSB's Bren School, and adjunct associate professor at USC. He is the author of *Linking Science to Decision-Making in Environmental Policy: Bridging the Disciplinary Gap* (MIT Press, forthcoming).

Farewell to Nancy Berenson

© Kathy deWet-Oleson

CINMS Community Outreach Project Coordinator Nancy Berenson recently left the Sanctuary to get married and sail across the South Pacific. Berenson's many duties included taking care of administrative and logistical details for the SAC. She was a charter member of the Channel Islands Naturalist Corps, a volunteer with Channel Islands National Park, and an interpretive kayak guide for Monterey Bay National Marine Sanctuary. CINMS staff thank Nancy for over three years of passionate, dedicated service.

Help Keep Our Sanctuary Healthy!

The Channel Islands Marine Sanctuary Foundation is a 501(c)(3) nonprofit organization that supports the management, research, and educational goals of the Channel Islands National Marine Sanctuary. The Foundation and the Sanctuary work together to ensure that this unique area is preserved for future generations.

BOARD OF DIRECTORS:
Fred Benko, Mike deGruy, Donna Schroeder, Jim Sloan.

THE FOUNDATION SUPPORTS THE FOLLOWING SANCTUARY PROGRAMS:
Collaborative Marine Research Program, UCSB Shoreline Preservation Course, Channel Islands Naturalist Corps (CINC)

HOW YOU CAN HELP
To learn more about how you can support the work of the Foundation and the Sanctuary, please go to www.cisanctuary.org or contact Kelly Darnell, Executive Director, (805) 687-0324.

Robert Schwemmer

At the christening of the R/V *Shearwater* on May 12, Foundation board members Fred Benko (left) and Mike deGruy presented Sanctuary Manager Chris Mobley (center) with a check for $9,300 towards outfitting the new vessel.

CALENDAR OF EVENTS

JULY

Jul 1–31	Great Annual Fish Count, www.fishcount.org, www.reef.org
July 6	Beach Cleanup at Arroyo Burro, Watershed Resource Center www.communityenvironmentalcouncil.org
Jul 8	Channel Islands Naturalist Corps Monthly Volunteer Meeting Chase Palm Park Center, Santa Barbara
Jul 18	Sanctuary Advisory Council Meeting and Federal Reserves Public Hearing, Sheraton Four Points, Ventura
Jul 20-24	National Marine Educators Association Conference Wilmington, North Carolina, www.marine-ed.org/index.html
Jul 24-27	8th Annual Ventura County Boat Show Channel Islands Harbor, (805) 389-3339

AUGUST

Aug 1–4	Santa Cruz Island Mapping an Ocean Sanctuary GIS Workshop www.cinms.nos.noaa.gov/edu/edu_teacher.html
Aug 9	Beach Cleanup at Arroyo Burro, Watershed Resource Center www.communityenvironmentalcouncil.org
Aug 12	Channel Islands Naturalist Corps Monthly Volunteer Meeting, Channel Islands National Park Visitor Center, Ventura
Aug 16-17	Hueneme Beach Festival Hueneme Beach Park, Port Hueneme, (805) 986-6542
Aug 23	Public Works by the Sea, Ventura Harbor, Ventura (805) 642-8538
Aug 25–27	Los Angeles Unified School District Teacher Workshop Truth Aquatics Vessel CONCEPTION to Channel Islands

SEPTEMBER

Sept 16	Channel Islands Naturalist Corps Monthly Volunteer Meeting, Chase Palm Park Center, Santa Barbara
Sept 17-20	CINMS REEF Field Survey aboard Truth Aquatic's CONCEPTION For more information: laura.francis@noaa.gov, (805) 884-1463
Sept 20	California Coastal Cleanup Day www.coastal.ca.gov/publiced/ccd/ccd.html

OCTOBER

Oct 1, 4	Project Clean Water Workshop
Oct 5	Kids Ocean Fest, Ventura Harbor, Ventura
Oct 9-12	California Science Teachers Association Meeting Long Beach, California, www.cascience.org/conf.html
Oct 11	Santa Barbara Harbor & Seafood Festival Santa Barbara Harbor
Oct 22-25	National Geographic Trip to Santa Cruz Island

NOVEMBER

Nov 17-20	Joint Ventures Partnership Conference Los Angeles, California www.partnerships2003.org/session_info.htm

DECEMBER

Gray Whale Watching Trips Begin (December - May)	
Dec 1-3	Channel Islands Symposium, Ventura Beach Marriott www.cnpsci.org

For more information on the events listed here, please contact the Channel Islands National Marine Sanctuary at (805) 966-7107 or visit www.channelislands.noaa.gov

Natural Sightings

- **Xantus's Murrelets** *(Synthiboramphus hypoleucus)* breed and nest on the Channel Islands, March-July.

CINMS

- **California Sea Lion** *(Zalophus californianus)* pupping and breeding season runs from May-July.
- **Humpback Whales** *(Megaptera novaengliae)* feed in Sanctuary waters, May-August.

© Amy Cale

- **Endangered Least Terns** *(Sterna antillarum browni)* visit the Channel Islands region, May-August.
- **Blue Whales** *(Balaenoptera musculus)*, **Fin Whales** *(Balaenoptera physalus)*, and **Sei Whales** *(Balaenoptera borealis)* feed in Sanctuary waters, late May-September.
- **Pink-Footed Shearwaters** *(Puffinus creatopus)* and **Sooty Shearwaters** *(Puffinus griseus)* visit the Channel from the Southern Hemisphere, May-October.
- **Ashy Storm-Petrels** *(Oceanodroma homochroa)* and **Black Storm-Petrels** *(Oceanodroma melania)* visit the Channel, mid-May to mid-October.

CINP

- **Red-Necked Phalaropes** *(Phalaropus lobatus)* can be seen in the fall, August-October.
- **Jellies** of all kinds are abundant in California coastal waters, August-November.
- **Tidepooling** is excellent when low afternoon tides expose marine algae and invertebrates, November-February.
- **Gray Whales** *(Eschrichtius robustus)* travel through the Sanctuary on their annual southern migration from Alaska to Baja California, Mexico, December-February.

CINMS STAFF

Christopher Mobley – Sanctuary Manager
Satie Airame – Scientific Advisor
Shauna Bingham – Volunteer and Outreach Coordinator
Julie Bursek – Education Coordinator, Southern Office
Amy Cale – Web Developer
Kathy deWet-Oleson – Special Projects Coordinator
Sarah Fangman – Research Coordinator
Laura Francis – Education Coordinator, Santa Barbara Office
Sean Hastings – Resource Protection Coordinator
Lorri Herr – Program Support Specialist
LCDR Andrea Hrusovsky – Executive Officer
Matt Kelly – Vessel Technician
Sarah MacWilliams – Management Plan Specialist
Mike Murray – Advisory Council and Management Plan Coordinator
Bob Schwemmer – Cultural Resources Coodinator
Tina Reed – Volunteer and Outreach Administrator
Ben Waltenberger – Physical Scientist
Rebecca Young – Database Coordinator

U.S. Department of Commerce
National Oceanic and
Atmospheric Administration
Channel Islands National Marine Sanctuary
113 Harbor Way, Suite 150
Santa Barbara, CA 93109

ADDRESS CORRECTION REQUESTED

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Email: channelislands@noaa.gov

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(805) 966-7107

Channel Islands Harbor Office
3600 South Harbor Blvd.,
Suite 217
Oxnard, CA 93035
(805) 382-6141
(805) 382-6151

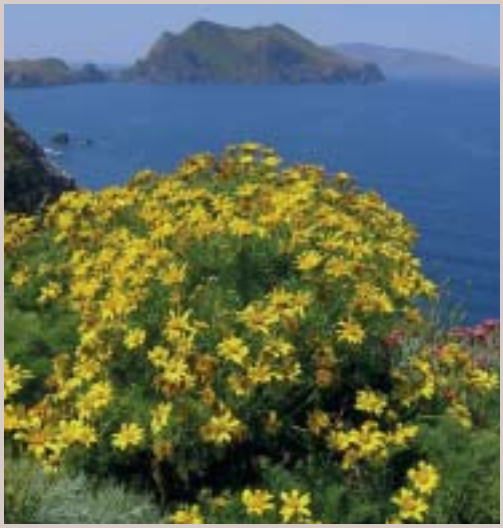
OUTDOORS SANTA BARBARA VISITOR CENTER
113 Harbor Way, 4th Floor
Santa Barbara, CA 93109
(805) 884-1475

CHANNEL ISLANDS NATIONAL PARK VISITOR CENTER
1901 Spinnaker Drive
Ventura, CA 93001
(805) 658-5700

CHANNEL ISLANDS MARINE SANCTUARY FOUNDATION
Kelly Darnell
134 East Alamar
Santa Barbara, CA 93105
(805) 687-0324

SIXTH CALIFORNIA ISLANDS SYMPOSIUM

A multidisciplinary conference focusing on the California Islands and their marine environments.



DECEMBER 1-3, 2003

Ventura Beach Marriott in Ventura, California

The Sixth California Islands Symposium will provide a forum for original research and resource management efforts on the California islands and their surrounding marine environments.

Presentation topics will include human history and land use, population biology, ecological processes and systems, physical science, systematics, restoration, and social science and education.

Keynote speaker Dr. James Estes will provide insights on the restoration of island and marine ecosystems. A marine ecologist with the U. S. Geological Survey and the University of California, Santa Cruz, Estes conducts research on sea otters in the northeastern Pacific Ocean.

Conference sponsors include Channel Islands National Marine Sanctuary, Channel Islands National Park, Institute for Wildlife Studies, UC Santa Barbara, UC Santa Cruz, and California State University Channel Islands.

For more information and registration, visit
www.cnpsci.org/cis/cis2003.htm