Volume 7, Number 4

Fall 1991

California

# Coast & Ocean

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# Coast & Ocean

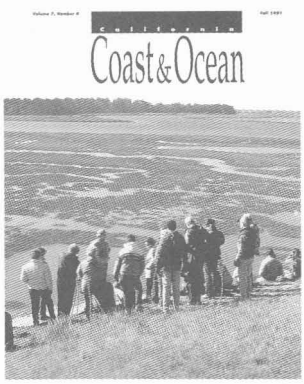
## Departments



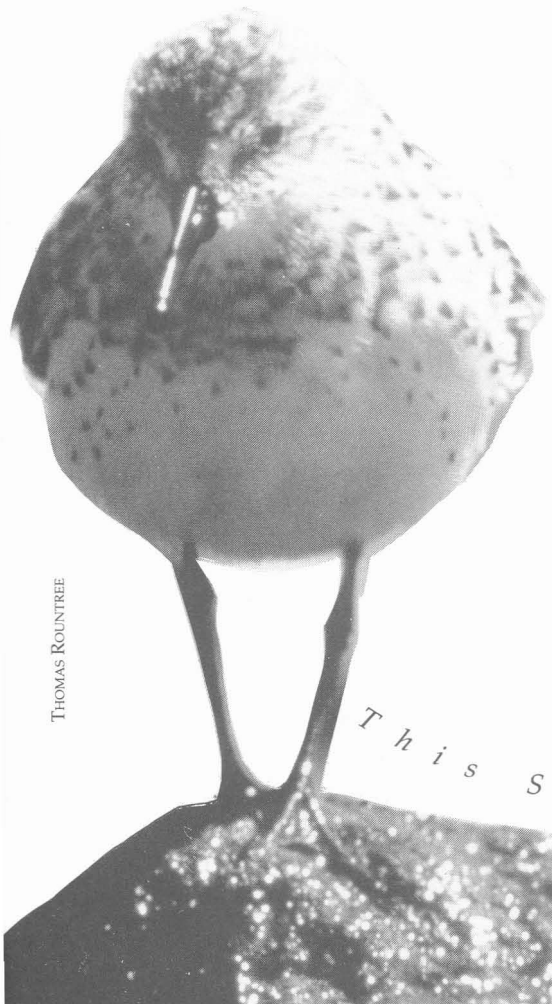
**The Life and Times of a Coastal Watershed**
see page 8

## Features





Cover: Tour of Elkhorn Slough
Photo by Ken Moore.



Thomas Rountree

This Slough's for you

Janet Deltaven

Trail Mix: see page 37

Printed on recycled paper.

# From the Executive Office

**by Peter Grenell**

In the corridors of Sacramento, the sense of foreboding is palpable as California's many problems deepen with the downward slide of the national economy. If, in our anxiety to turn things around, we now act out of fear—rather than imagination grounded in reason—we may give up our future well-being for transient short-term gains. We may lose the natural and human resources that our society and economy will need to prosper in decades to come.

Reducing government spending and regulation, without sensible new public initiatives, will just worsen the situation. A refusal to spend on schools and family support services, for instance, has a corollary: the inescapable need to spend more on police, courts, and prisons. Ignoring toxic waste dumps now may mean polluted groundwater and costlier cleanup later.

Public sector initiative and leadership are needed now as never before. There are, fortunately, many examples to learn from, especially in California, demonstrating that creative public leadership pays off. One is described in this issue of *Coast & Ocean*: In saving Elkhorn Slough, state government (through the Coastal Conservancy) supported and collaborated with local, nonprofit, and other private efforts to protect a rare natural resource, assure the continuance of productive agriculture, and solve complex land use problems. The slough is proving to be an economic benefit for the community, for it attracts many visitors. Its value will continue to increase.

Resource restoration and stewardship can provide jobs and income. Government's role in achieving these goals is essential, though not always visible. The existing system of tax and other incentives, however, both at the state and the federal level, often encourages antisocial actions that squander our natural resources and lead to the export of jobs and income for the sake of narrow self-interest. These incentives make it profitable to sell junk bonds, like those that led to the buyout of an environmentally acceptable timber company and then resulted in destruction of the resource through clear-cutting to pay off the debt.

**One can make money in ways other than those that waste resources and destroy our social fabric. California must encourage the shift to resource-friendly practices.**

One can make money in ways other than those that waste resources and destroy our social fabric. California must encourage the shift to resource-friendly practices by overhauling our framework of tax and other incentives, while vigorously working to change federal policies.

Government can often give a jump start to private enterprise in the necessary shift toward resource-friendly practices. A case in point is an interstate controversy that recently came to a head on the shores of Lake Champlain, shared by New York and Vermont. Distressed by waste discharges into the lake from a pulp mill on the New York shore, Vermonters wanted the mill to shift from the traditional bleaching process, which relies on chlorine, to one that uses oxygen. Chlorine mixes with organic matter to form harmful compounds, including dioxin. The mill owners, however, responded that without an assured market for oxygen-bleached paper—which might not be quite as white and could cost more—they could not afford to risk the change. Governor Howard Dean of Vermont then offered to buy such paper. "We intend to put our money where our mouth is," he said.

Might not the state of California adopt a policy favoring the purchase of oxygen-bleached paper, or favoring recycled paper, thus encouraging the production of such paper?

The biggest opportunity of all to seize the initiative toward a sounder, resource-conserving economy has emerged with the end of the Cold War. The tremendous investment in nonproductive defense materiel is no longer necessary. If private industry retools and retrains as quickly as possible to peacetime production, Californians and their economy will benefit. Incentives and support are needed to speed up that transition.

In addition to revising its financial incentive system, the public sector also needs to find new sources of revenues, and to distribute existing ones more equitably. The inequities established by Proposition 13 must be faced. We have continued to cut budgets for schools and libraries, despite the ever-growing population and the economy's increasing need for an educated work force. Texas is reported to have drawn job-creating business and industry that might have come to California, were it not for the fact that this state, the wealthiest in the nation, has been ranking 33rd in per pupil expenditures. California also is the state with the highest juvenile incarceration rate (though definitions of "juvenile" and "custodial facility"are not uniform).

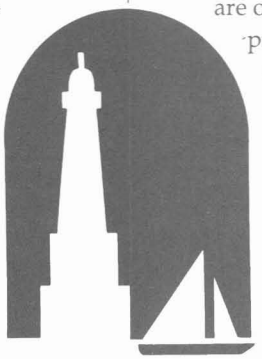
To pull California out of the current gloom, the public sector also must spend judiciously to "pump-prime" the economy in priority areas, including education, resource restoration, research, and development. This will stimulate the improvements we need, and tap into our hidden treasure: our ingenuity and resourcefulness. ❐

# Ebb and Flow

## Recent Conservancy Actions

• Acting to protect one of the most ecologically significant areas in the Santa Monica Mountains and simultaneously safeguard a major recreational resource, the Coastal Conservancy approved the restoration plan for the 66-acre **Fisher/Youngblood property** in **Los Angeles County**, and authorized $1 million to the Mountains Restoration Trust toward the $2.3-million acquisition of 56 acres for resource protection and public access. This action, in August, completes the first phase of a broader planning effort for the Cold Creek Watershed, to be carried out by the trust with Conservancy funding.

The property to be acquired lies in the heart of the Cold Creek Watershed, between Malibu and Topanga canyons. Crossed by both Cold Creek and Dry Creek, it supports a surprising variety of habitats: oak woodland, chaparral, coastal sage scrub, and a healthy riparian area. Two major hiking and equestrian trails wind through the property, connecting with the Santa Monica Mountains Backbone Trail. Other features include shell middens, a prehistoric Chumash burial site, and possibly remnants of a Chumash village.



At the intersection of Stunt Road and Mulholland Highway, near the rapidly growing communities of Agoura and Calabasas, the Fisher/Youngblood property has recently attracted several development proposals. Subdivision as permitted by the Malibu/Santa Monica Mountains Local Coastal Plan would have severe impacts on the site's natural resources, particularly the Cold Creek riparian corridor, which has been designated as an environmentally sensitive habitat area in the Malibu/Santa Monica Mountains Land Use Plan. Public access to the trails would be compromised as well.

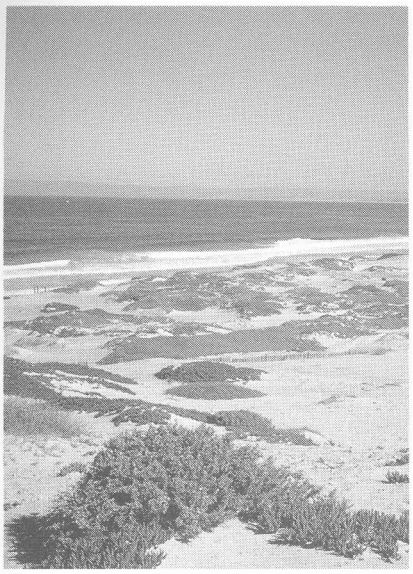
The restoration plan for the Fisher/Youngblood property provides for resource protection, acquisition of sensitive resource areas through the joint efforts of several public and private entities, and for the creation of two five-acre residential sites on the least sensitive areas, which are not being acquired.

• **Mugu Lagoon** in **Ventura County** is one of southern California's largest remaining wetlands. The 1,130-acre saltwater lagoon, marsh, and intertidal mud flats lie almost entirely within the U.S. Navy Pacific Missile Test Center. Some 900 acres of adjoining freshwater marsh are owned and maintained by two private duck clubs. Wildlife abounds. In recent years, however, sediment brought by floods has been rapidly filling the lagoon—already reduced to half its historic size. Until the 1970s, most of the 207,800-acre Mugu Lagoon watershed was wild or in agricultural use. Since then, urbanization of the valleys upstream has pushed farming and orchards onto highly erosive hills. Without substantial sedimentation controls, the entire lagoon is likely to be filled within 50 years, with catastrophic losses to birds, fish, and other wildlife.

To avert such catastrophe, the Coastal Conservancy in August authorized up to $100,000 to the Ventura County Resource Conservation District to prepare an enhancement plan for the Mugu Lagoon watershed. The planning process will bring together the Conservancy, with its expertise in watershed planning, agricultural conservation, and wetland restoration, and the Ventura County Resource Conservation District, whose board consists of local farmers and ranchers who work with local landowners to prevent erosion and improve agricultural water use. Development of the plan will be guided by the Mugu Lagoon Task Force which includes all pertinent federal, state, and county regulatory and implementing agencies, and by a citizens' advisory committee.

• The city of **Oxnard**, in **Ventura County**, will prepare a restoration plan for the 125-acre **South Ormond Beach** wetlands area with $65,000 authorized by the Coastal Conservancy in August. This project presents an opportunity to convert a severely degraded and relatively barren historic wetland site, to which public access is currently restricted, into a place of multiple beneficial uses. The city will provide 50 percent of the funds for consultant services to evaluate existing and historic biological conditions and develop a plan to expand the wetland habitat and protect it against off-road vehicle activity or other disturbance. The restoration plan will also recommend ways to provide public access, recreation, and community education opportunities.

• In keeping with the Monterey County Agricultural Preservation Program it approved in 1984, the Coastal Conservancy in October authorized the Monterey County Agricultural and Historic Land Conservancy to acquire interest in the 192-acre **West Armstrong Ranch**, in **Monterey County**, next to Highway 1 and less than a mile south of the Salinas River, to secure its continuance in productive agriculture. The land conservancy will acquire an undivided interest of about one-third, and an option to acquire the remainder, with $1 million in Coastal Conservancy funds. Retention of the artichoke ranch provides a buffer to the productive Salinas Valley to the north and will protect other important



## Conservancy Makes Monterey Purchase

**Using almost all $1.5 million it was allotted by Proposition 70 for acquiring lands in the Monterey Bay area, the Conservancy has purchased 33.8 acres at the northerly end of the city of Monterey. The Del Monte Dunes (or "Ponderosa") property includes a quarter mile of private beach next to Monterey State Beach and dunes that provide habitat for the Smith's blue butterfly and five other rare species. Other agencies are contributing to the $4.2-million purchase: California Department of Parks and Recreation, $1,895,000; Wildlife Conservation Board, $705,000; and Monterey Peninsula Regional Park District, $200,000. About two acres have been separated from the original 36-acre property, and the Conservancy has an option to buy them once certain conditions have been met.**

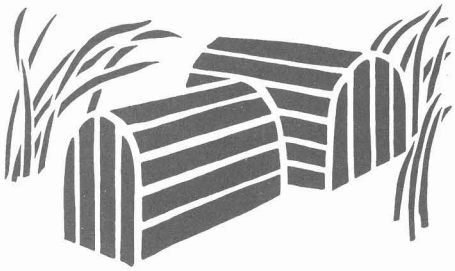

coastal resources, including the viewshed along the designated scenic corridor of Highway 1. It will also maintain an open space buffer between the sensitive habitat area within the Martin Dunes northwest of the site and any development that will occur to the south or east.

•The **Los Angeles River floodway**, extending 58 miles from Chatsworth Reservoir and the Hansen Dam (Tujunga Wash) to the Pacific Ocean at Long Beach, is managed almost entirely for a single purpose—flood control. The recognition has been growing, however, that substantial public benefits may be achieved with a broader, multipurpose management strategy. So in September, the Coastal Conservancy authorized up to $125,000 for project feasibility analyses for public recreation, wildlife habitat, and waterfront restoration improvements along the river. Included are $90,000 to the Architectural Foundation of Los Angeles. The Conservancy and the foundation will develop an analysis of broad issues both promoting and limiting river restoration, and will identify potential improvement projects. Cooperation will be sought from all of the responsible local, state, and federal agencies as well as from interested community groups and individuals. A summary of results will be distributed to local officials, community organizations, and interested individuals.

•The **Land Conservancy of San Luis Obispo County** will build improvements for public access and natural resource protection on a 24-acre site acquired by the Coastal Conservancy in 1990 at **Gorda**, in **Big Sur**, with up to $260,000 authorized by the Coastal Conservancy in October. Two beaches on this site support a herd of elephant seals. Peregrine falcons nest on the bluffs. There is also a significant expanse of a rare plant community endemic to Big Sur. A small portion of the site will be developed for public day use, with an overlook for seal watching.

•To enable the city of **Encinitas** to demolish and rebuild the **Grandview Stairs** to **Leucadia Beach**, between South Carlsbad State Beach and Moonlight State Beach, the Coastal Conservancy in August authorized up to $100,000. The stairway was destroyed by bluff failures in the early 1980s, and a locked gate was installed at its top. Nevertheless, people have been scrambling down the bluff, contributing to erosion and safety problems. This project will once more provide safe, controlled public access to a very busy beach in **San Diego County**.

•The Marin Conservation Corps is building one mile of trail with $75,000



authorized by the Conservancy in August. The trail segment, including six drainage and erosion control structures, extends from the Miwok Trail to the Back Ranch Meadow Trail at **China Camp State Park** in **Marin County**. It will connect Marin County and San Rafael City Open Space trails, thus linking almost ten miles of continuous recreational trail along San Francisco Bay. The new segment will roughly parallel North San Pedro Road, the only vehicular access to the park, and will provide the same kind of safe, scenic hiking opportunities provided by the project's first phase, which was also funded by the Conservancy. This project is a coopera-


RICHARD RETECKI

## New La Jolla Accessway

**Wheelchair riders will be able to roll into the waves at La Jolla Shores State Beach next spring along a portable accessway dedicated October 5. Two other accessways of the same design will be installed at Mission Beach and Ocean Beach next year.**

**The pathway consists of sections, varying in length and wide enough for two wheelchairs side-by-side, made of rubber lattice material. It is laid across soft sand to connect the paved area behind the beach with the packed sand at the water's edge. Sections may be removed to allow for big tides and surf. The entire accessway will be rolled out after the winter storm season and put away before the next winter. This access project was a cooperative venture between the San Diego City Parks and Recreation Department and the Coastal Conservancy. Local whole access groups provided technical and advisory aid.**

tive funding venture of the Department of Parks and Recreation, the Marin Community Foundation, and the Coastal Conservancy.

• The Coastal Conservancy in September authorized disbursement of up to $1.45 million to the Coastal San Luis Restoration District for the acquisition of the 129-acre **Domenghini Brothers Partnership property** in the lower Morro Bay watershed in **San Luis Opisbo County** and the preparation of a management plan designed to address the problem of rapid sedimentation and loss of volume in Morro Bay. The Conservancy also authorized acceptance of $835,000 from the California Transportation Commission for the project.

The property, about one-half mile upstream from the entrance of Chorro Creek into Morro Bay, was selected by hydrological consultants and the Soil Conservation Service as the most appropriate site to implement Phase II of the Morro Bay Watershed Plan. The management plan will provide detailed plans for enhancement of the site to trap sediment and provide riparian habitat, public access development, and some continued agricultural use.

• The Coastal Conservancy approved the **Antioch Urban Waterfront Restoration Plan** in September and authorized up to $400,000 to the city of **Antioch**, in **Contra Costa County**, to construct a linear shoreline park in the area of the G Street Wharf between G Street and I Street for Phase I of the city's proposed implementation program. The Antioch program is one of several small community waterfront projects in the San Francisco and Suisun bay areas now receiving Conservancy assistance.

Implementation of the entire plan is proposed to take ten years in four phases, with estimated project costs totaling over $21 million. It will create about 18 acres of usable public open space, 42,000 square feet of new commercial space and other improvements including: enhanced shoreline wetlands between I and L streets and at Cannery Cove; a continuous shoreline boardwalk/trail from I Street to Rodger's Point; three boardwalk overlook platforms; a new commercial wharf and marina at G Street, including a Delta Maritime Museum; a wheelchair-accessible pedestrian bridge at G Street; a public park at Rodger's Point; and a riverfront promenade walkway system south of the railroad from I to L streets.

• Up to $50,000 was approved to the city of **Laguna Beach** for repair of the **Rock Pile Beach stairway** at Heisler Park, one of the few large waterfront parks in **Orange County**. The stairway, which leads to the beach and shoreline ecological reserve, has been closed since last year because of bluff erosion. The city proposed repairing the stairway by planting concrete caissons into the bluff to support the staircase and anchor it into the bluff. While reconstructing the stairway, the city also plans to repair landslide damage just north of it.

• Up to $200,000 was authorized in September to the Monterey Peninsula Regional Park District to acquire two undeveloped oceanfront lots, known as **Rocky Shores**, in **Pacific Grove**. This is part of a multi-agency effort to acquire the only private shoreline on the **Monterey Peninsula** between Cannery Row and Spanish Bay, a distance of almost four miles. The district already has paid $1.3 million to buy two other undeveloped lots on this shoreline. With the Rocky Shores acquisition (at a total purchase price of $800,000), and the anticipated acquisition of an easement over the two remaining coastal lots in this area, the district plans to build a new section of the Coastal Trail that will link Asilomar State Beach to Cannery Row in Monterey. Other contributors to the $2.1-

million purchase of these four lots are the city of Pacific Grove ($50,000) and the nonprofit Asilomar Operating Corp. ($400,000 pledged over six years). The California Department of Parks and Recreation also plans to contribute.

• Up to $3,450 was authorized in September to the Ballona Lagoon Marine Preserve for preparation of a **Ballona Lagoon Teacher's Guide**. The funds will come from an Environmental Protection Agency grant awarded to the Conservancy in June 1990. The interpretive brochure is a guide to the lagoon and its resources, designed to be a teaching aid for local schools in introducing students to the ecology of wetlands and specifically to the Ballona Lagoon, one of the last remaining coastal wetlands in **Los Angeles County**.

• In 1986, at the request of the Santa Cruz Port District, the Coastal Conservancy entered into a memorandum of understanding (MOU) with the port, Coastal Commission, and Department of Fish and Game to establish a mitigation project fund, now consisting of about $130,000, to mitigate damage caused by the port's 1973 upper harbor expansion. After an unsuccessful 13-year search for a site, the district approached the Conservancy for help. The agreement between the agencies established a process for selecting a project. Conservancy staff undertook an exhaustive search, finally identifying the **Azevedo pocket marshes** in Elkhorn Slough, **Monterey County** as a project acceptable to the MOU signatories and the U.S. Fish and Wildlife Service. In October, the Coastal Conservancy authorized up to $20,000 from port mitigation funds to The Nature Conservancy for preparation of an enhancement plan and engineering designs for the Azevedo Marshes, which are part of a larger property recently acquired with Conservancy funds by The Nature Conservancy and the Monterey County Agricultural and Historic Land Conservancy.

• The Coastal Conservancy in August authorized $50,000 to **The Trust for Public Land**, a national nonprofit conservation organization, to provide technical assistance to nonprofit groups working on coastal land protection projects in this state. The Conservancy has funded $40 million worth of nonprofit projects during the past dozen years, enabling 78 organizations to restore wetlands, buy dunes, build stairways, and accomplish other projects in their communities. Since 1981, the Conservancy has collaborated with TPL in helping nonprofits to increase their effectiveness in carrying out projects it supports.

• In October, the Conservancy authorized acceptance of about $25,000 from the State Resources Agency, and disbursement of these funds to the nonprofit **California Wetlands Foundation** to aid the California Wetlands Consensus (CWC) in developing a state wetlands strategy. The CWC represents environmental, business, and agricultural organizations, water agencies, development interests, and others concerned with wetlands and has met periodically since January 1991. The California Wetlands Foundation, a member of the CWC, is dedicated to preserving and acquiring state wetlands. It is coordinating funding efforts to support the work of the CWC, seeking grants from business, environmental, and public sources. The Resources Agency contributed funds received recently from the Environmental Protection Agency to develop a statewide comprehensive wetlands program. The Resources Agency will enter into an interagency agreement with the Conservancy, which will then disburse the funds to the Wetlands Foundation.

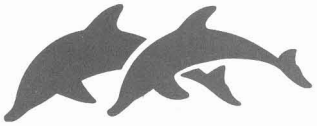
## Applause

• The **Recreation Trail** through the city of **Monterey**, funded in part by the Coastal Conservancy, received an Honor Award for excellence in urban waterfront design from the Waterfront Center, a national nonprofit organization. It was one of 16 award-winning projects selected from 90 entries.

• The Coastal Conservancy received a Merit Award from the Metropolitan Transportation Commission of the San Francisco Bay Area for its ***The Wheelchair Rider's Guide to San Francisco Bay and Nearby Shorelines.***

• The Coastal Commission's **Adopt-A-Beach** program won first place in the Keep America Beautiful Inc.'s national awards program. It was chosen from some 300 entries in the federal and state government category by an independent panel of judges representing business, civic organizations, government, and the media. More than 300 groups "adopt" individual beaches in the state annually, committing themselves to at least three cleanups. Some also do restoration work.

The Adopt-A-Beach program also sponsors the annual California Coastal Cleanup, which this year surpassed all previous records with the participation of 30,000 volunteers. They removed 300,000 pounds of trash from the state's beaches and recycled 34,000 pounds.



Questions about federal wetlands policy? Call the Environmental Protection Agency's **National Wetlands Hotline** at 1-800-832-7828. The hotline will answer questions about policy, regulations, and permits under Section 404 of the Clean Water Act and other federal wetlands programs.

# Conference Log

## California and the World

Growth management, oil spills, the rising sea level, and California were among major themes discussed at the five-day Coastal Zone Management '91 conference, which brought almost 1,500 people from 51 countries to Long Beach July 8 to 12. A record number of people from abroad took part in the biennial gathering, indicating a growing appreciation of coastal resources since the first such conference was held, in 1978.

"Developing nations are grasping the issue of the coastline's value," observed conference co-chairman Orville Magoon of the American Shore and Beach Preservation Society. Listening to participants from developed countries grapple with such problems as loss of fish spawning grounds and sand, he said, "their representatives realize that the coastline is more than just a place to build factories, and that there are ways to manage it according to their wishes."

Numerous sessions produced evidence that people elsewhere in the world, as well as in this nation, are learning from California's experiences and adapting them to their own needs, according to Magoon. Presentations and discussions also produced growing evidence that Californians, and others, have to think of their problems in terms of entire coastlines—the Pacific Rim and the Pacific Basin, for instance—instead of just the "beach outside the front door," Magoon observed. The use of gill nets on the high seas by fishermen from some Asian nations, for example, may be depleting fish stocks along the California coast. And global warming is affecting coastlines everywhere.

International collaboration efforts include one in which the University of Rhode Island, through the U.S. Agency for International Development, is helping the government of Thailand to develop a national coastal protection program. Part of that program is an effort to protect the coral reefs around the island of Phuket from destruction caused by a burgeoning tourist industry. A team of Thai and U.S. planners recruited local volunteers to call attention to the problem. The citizens distributed brochures, built interpretive displays and signs, organized events, and installed boat moorings. The program has already curbed some of the destruction while adding to a growing constituency in Thailand willing to support establishment of a national coastal program.

The conference's information exchange flowed in many directions. The use of waste from fish processing plants in China, for instance, sparked the interest of a participant from Bellingham, Washington, who thought it might have local application.

Many speakers made the point that bad environmental practices can lead to international conflict. For example, because they overfished their own nearshore waters to keep up with the demand for fish from animal feed plants, Thai fishermen have strayed into Vietnamese waters, causing conflict between Thailand and Vietnam.

Conversely, international conflict can lead to environmental disaster, as speeches on the 3- to 4-million-barrel oil spill in the Persian Gulf showed. Closer to home, Texas Land Commissioner Garry Mauro said that about 20 spills a year occur in the Gulf of Mexico. He said that new federal and state laws should help prepare for a catastrophic oil spill.

The California coastline was singled out for special attention in a series of special sessions, as other world coastlines had been in prior CZM conferences. In one of these special sessions, Coastal Commission chairman Thomas W. Gwyn pointed to the need to expand the constituency for environmental programs among people of color, who represent an increasing proportion of the state's and country's citizenry. In another, Michael Josselyn of the Romberg Tiburon Centers, San Francisco State University, and Melanie Denninger of the Coastal Conservancy discussed restoration alternatives for the Bolsa Chica wetlands in Huntington Beach. The 1,300-acre area considered includes a state beach, an ecological reserve, and an active oil field. The Coastal Conservancy was asked by the Bolsa Chica Coalition, a group of interested citizens, local officials, landowners, and state officials, to develop plans to restore 1,000 acres of wetland and estuarine habitat. The three alternatives presented take into account an array of possible funding levels, restoration goals, environmental benefits and impacts, and phasing plans.

Still other sessions on California focused on public education programs, saving California's beaches from erosion, coastal earthquake hazards, offshore oil drilling, oil spill cleanup, visual quality of the coastline, permit enforcement, growth management, and ocean outfall water quality studies. This year's U.S. Coastal Zone Management Award, presented biennially, went to Rep. Leon Panetta of Monterey for his work in enacting the 1990 amendments to the Coastal Zone Management Act.

Some participants felt not enough time was allotted for discussion. They said that now most attendants are familiar with coastal zone management theories and are more interested in learning to apply theories to solve actual problems. Some people, frustrated with lack of discussion time, conversed in the halls, depriving others of the benefit of their experience.

Participants at this year's conference received *The California Coastal Experience*, which details some of the state's coastal

*Continued on page 48*

# Elkho Slough

reaches inl
Cruz and Monterey.
At a time when wetlands are
tidal channels exists as a rare haven for n
people who visit each year.
Viewed from Kirby Park on its eastern shoreline, the sloug
bands of marsh and grassy slopes. Softened by th
signs of human intrusion are sparse. There's
occasional train along the levee. Far more sta
before your eyes. Before you can recognize them
distant towers of the Pacific Gas & Electric Co.'s p
how uncommonly peaceful this backwater is in the mode

At a time when three-fourths of the state's coastal wetlands have to be almost completely protected by federal, state, and private cor happen?

On the surface, location would appear to be a key. The slough stret and small towns. Some of its marshes were lost decades ago by dikir Landing Harbor, but large-scale development is absent. Its isolation fr for development here has lagged behind that of wetlands to the sou

**Citizens of northern Monterey County worked successfully together to save a major coastal estuary from destruction. The next challenge: how to help farms and wetlands thrive as neighbors.**

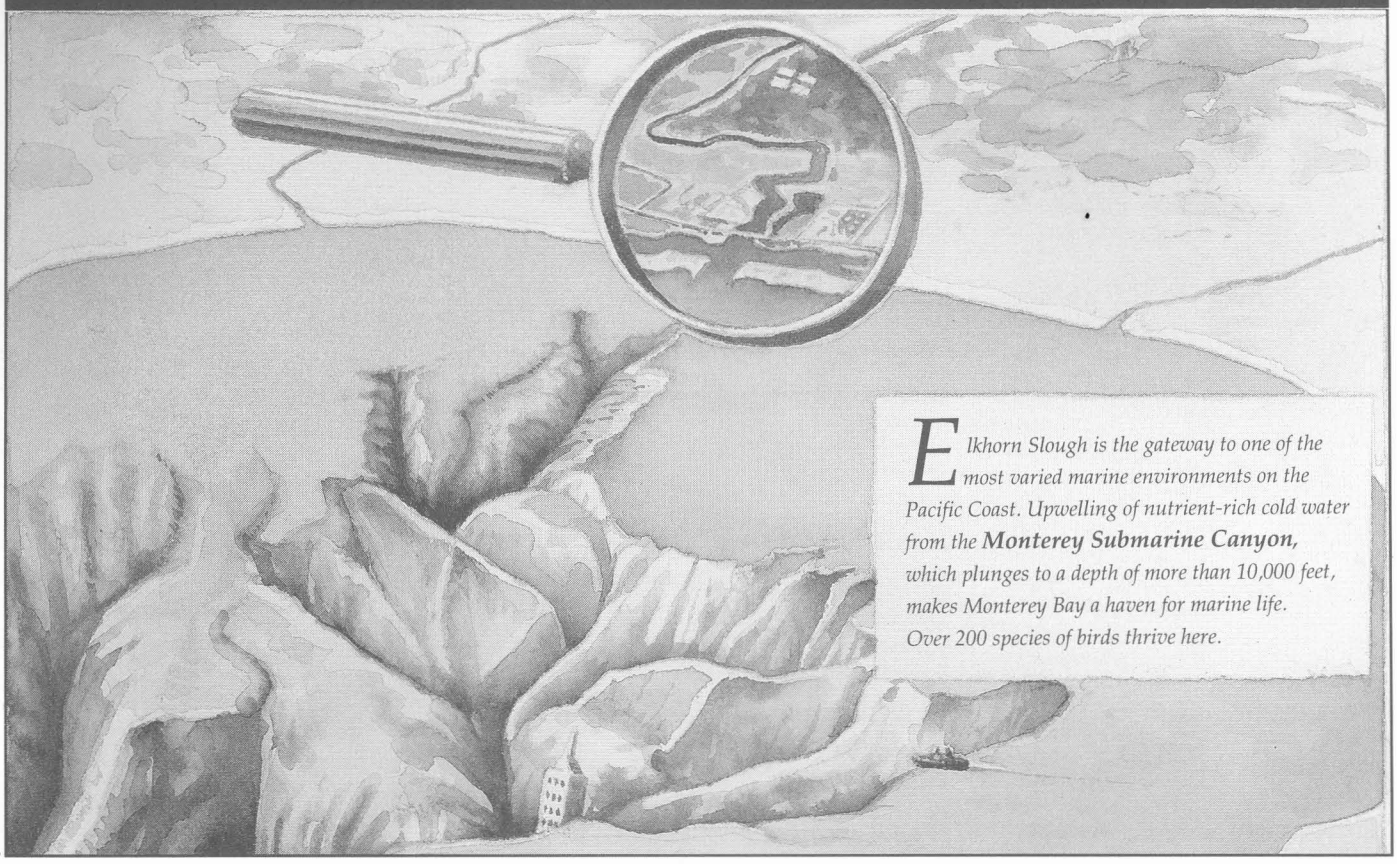
FEW CALIFORNIA WETLANDS are as well
otected and cared for as Elkhorn Slough, a winding waterway that
l nearly seven miles from Moss Landing, about midway between Santa
s the largest wetland in central California, and perhaps the least developed.
ler attack nationwide, this 2,500-acre expanse of salt marsh, mud flat, and
ad birds and other life forms of many species, and for the thousands of

ppears as a sheet of water stretched tightly between bright green
er present fog, the landscape conveys a wide open feeling, and
glimpse of a barn through a grove of trees, the roar of the
g is the dip and dash of a thousand shorebirds flashing
ey are gone, and the stillness has returned. Only the
r plant at the mouth of the slough remind you
orld.
n permanently lost, Elkhorn Slough has come
vation groups and individuals. How did this

s through a sparsely populated landscape of farms
r pasture and salt ponds, and by the creation of Moss
major cities and industrial centers has meant that demand
ut this did not protect the slough from developers' dreams.

PHOTO: LAUREL MARCUS

# Elkhorn Slough: At the Head of the Canyon



*Elkhorn Slough is the gateway to one of the most varied marine environments on the Pacific Coast. Upwelling of nutrient-rich cold water from the* ***Monterey Submarine Canyon,*** *which plunges to a depth of more than 10,000 feet, makes Monterey Bay a haven for marine life. Over 200 species of birds thrive here.*

JOHN WEHRLE

In the late 1950s, the Monterey County Board of Supervisors approved a plan for a major deep water port, with an oil tanker terminal, oil processing facilities, a nuclear power plant, several pleasure boat harbors, a freeway across the slough, and masses of condominiums and houses. Nearly all of the lower slough's waterfront would have been built over, the marshes cleared out and filled. Most marshes of comparable size in coastal Los Angeles, Orange, and San Diego counties have been lost in this way.

This plan was the operable blueprint for the slough for many years. Jetties built in 1946 held open the slough's mouth permanently at the landward head of the Monterey submarine canyon, a deep chasm in the sea floor that was seen as ideal for deep draft tankers. An oil-burning electrical power plant was constructed. A yacht club was built in the lower slough. So how did we get from a supertanker port to the slough's present status as a National Estuarine Research Reserve?

Several events in the 1970s changed the future of Elkhorn Slough. Interwoven into this story of land use planning, congressional acts, and land acquisitions are individuals and organizations who created a new vision for this place.

In 1971, The Nature Conservancy (TNC),an international nonprofit organization, purchased the first wetland parcel on the slough, thus recognizing its value as wildlife habitat and challenging the century-old assumption that the proper use of marshlands was to dike, drain, and otherwise use them for agricultural and other types of development.

"Because of the focus on the coast at that time in the scientific and conservation community, salt marshes, in particular, were recognized as threatened," explained Steve McCormick, current director of TNC. "The local Audubon Society brought Elkhorn Slough to our attention . . . and to some degree we got lucky and the land came up for sale."

At nearly the same time, the California Department of Fish and Game began to inventory major coastal wetlands and publish reports on their natural resources. Elkhorn Slough was the subject of one of these reports, and once again its value as wildlife habitat was recognized.

While these early land acquisitions were proceeding, the supporters of Proposition 20, the coastal initiative, were collecting signatures. This sweeping ballot measure envisioned a coastline on which environmental protection and public access were balanced with limited planned development. Perhaps more than any other event, the passage of the coastal initiative in 1972, followed by the Coastal Act in 1976, transformed the future of Elkhorn Slough. It crystalized a protectionist vision and turned it into law.

The Coastal Act established a coastal zone and required communities to formulate and adopt local coastal plans (LCPs). This was not easy. One of northern Monterey County LCP's principal authors, Michael Hitchcock, describes the process as "a complex jigsaw puzzle with many players moving the pieces." County staff, many of whom had previously worked for the Coastal Commission, structured the plan to provide resource protection for the slough, restrict land uses that

threatened it, and protect prime farmland on the terraces to the north and south.

This plan not only preserved the wetlands directly by restricting development, it focused protection efforts for the slough onto the surrounding watershed lands, of which two-thirds were included in the coastal zone. For example, soil erosion from steep-sloped strawberry fields was studied, and the effect of sedimentation on the slough quantified. These studies were then used to change the designation of these lands to rural residential, a use that has a lower erosion potential. Maximizing development and minimizing resource protection—a policy fought over in many coastal land use plans—was never even proposed. A citizens' advisory committee of more than 20 local people worked on the plan for many years.

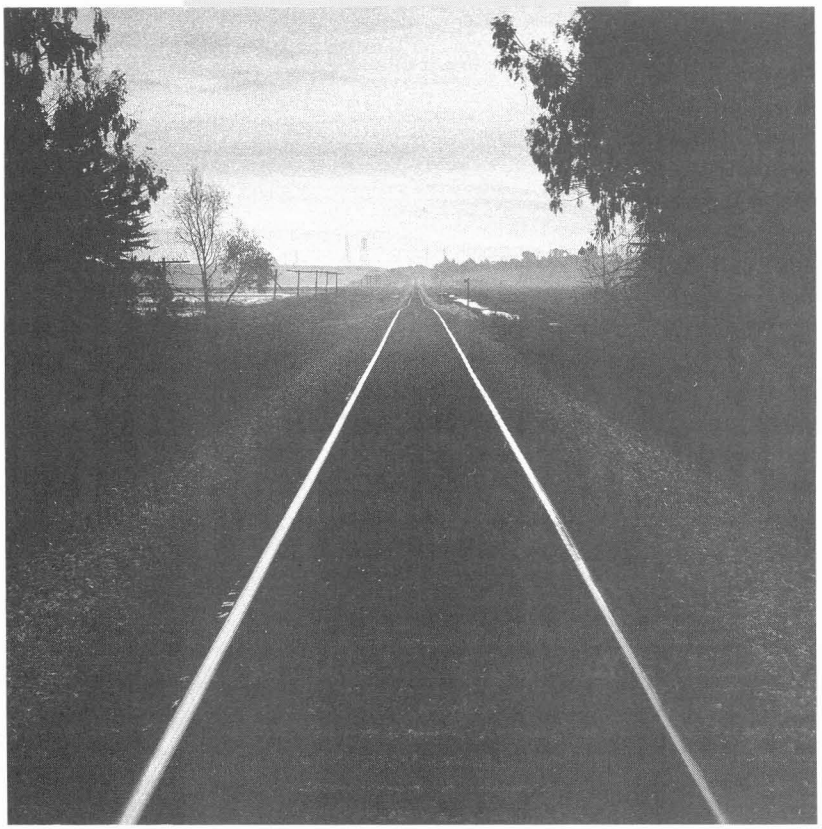
For many residents, preserving the slough was a way to preserve the area's rural nature. Artichoke growers in particular, noted Hitchcock, were vocal supporters of the local coastal plan as a way of preserving their way of life.

In contrast, strawberry growers were generally uninterested and uninvolved with the plan: it changed almost all their lands from an agricultural to a housing designation. Support for the slough also was a way to stop the proposed highway development and supertanker port. The Coastal Act, with its provisions for protecting wetlands, became a tool for stopping industrial development.

Hitchcock said that Monterey County Supervisor Marc Del Piero deserves much credit for the protectionist vision of the plan. While working with all the interested groups—agriculture, fishermen, the California Transportation Department, the Pacific Gas & Electric Co., and others—to gain plan approval, he maintained the core plan policies with few political compromises. The Monterey County Board of Supervisors adopted the coastal plan in 1978.

In 1979, after persistent lobbying by scientists at Moss Landing Marine Laboratories and by the county, the National Oceanic and Atmospheric Administration (NOAA) designated Elkhorn Slough a National Estuarine Sanctuary, to be acquired and operated jointly by NOAA and the state, with the Department of Fish and Game as the management agency. Elkhorn Slough was selected largely because of the county's protectionist planning, the previous purchases by The Nature Conservancy, and the history of scientific research.

**The plan not only preserved the slough's wetlands directly by restricting development, it focused protection efforts onto the surrounding watershed lands, of which two-thirds were in the coastal zone.**



By 1985, the 1,400-acre core of the sanctuary was purchased with state and federal funds. The state and The Nature Conservancy also purchased a string of other marshes and salt ponds. Many of these purchases were cooperative efforts between private groups, local donors, and government. As McCormick noted: "Maybe our [TNC] presence helped to focus interest at Elkhorn Slough and to reinforce participation by the state and the feds. In turn, we were encouraged by their participation to continue our involvement." Also by 1985, about 450 acres of diked wetland within the reserve were restored to tidal flow, an interpretive center was built, and a program of public education as well as scientific research was established. By November 1991, more than 3,600 acres of the slough and its uplands had been acquired for protection. The slough is a featured exhibit at the Monterey Bay Aquarium. Visitor interest and use of the area has skyrocketed.

So why Elkhorn Slough? More than luck and good timing were at work here: The many individuals who contributed to the slough's protection learned to recognize the value of the resource and the value of each other. Farmers, environmentalists, fishermen, politicians, and government officials compromised to bring forth a shared vision for this resource, and they worked for nearly 20 years to realize this vision. So often, in conservation efforts, divisions prevail and battle lines are drawn. Elkhorn Slough is a success story for people and the environment. ❐

—*Laurel Marcus*

*Laurel Marcus is project manager at the Coastal Conservancy. She has been involved in wetland enhancement, mitigation, regulation, and biology for the past 12 years.*

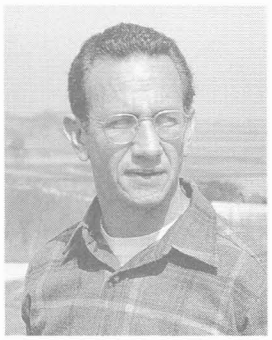
# Slough Confess

**Those who led the struggle to protect Elkhorn Slough share a vision—each from his own perspective.**

## Mark Silberstein
**Elkhorn Slough Foundation**

*From Highway 1 at the Moss Landing Pacific Gas & Electric power plant, Dolan Road leads inland into a pleasant rural landscape. Take it for about three and a half miles, turn left, and you will eventually arrive at the Elkhorn Slough National Estuarine Research Reserve visitor center. Walk to the overlook, and the slough lies before you, silvery in the sun or coastal mist.*

*Mark Silberstein, zoologist and executive director of the Elkhorn Slough Foundation, led some visitors to this overlook one morning, as he had done uncounted times before. He knows this landscape intimately, having studied it as a graduate student at Moss Landing Marine Laboratories, in the course of the public education program he launched in 1983, and while he worked for the establishment of the reserve. He had organized the foundation he now directs to carry forward education and research projects. Now he pauses to let his visitors take in the view, then begins to point out features that might not be obvious to the casual eye.*


Mark Silberstein

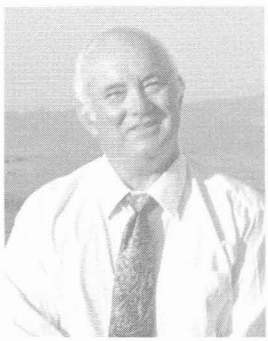
*To the south is the power plant, linked to substations beyond view by cables borne on towers marching east toward Salinas, and north across the slough toward Watsonville and Santa Cruz. The hills to the north are dark green with strawberry fields and, in one place, covered with plastic to be chemically prepared for planting. But the landscape at our feet is home to species other than our's.*

**Mark Silberstein:** This is Elkhorn Slough. From what we know of recent geological studies, it's been here since the last rise in

*Continued on page 16*

## Louis Calcagno
**Dairy Rancher**

*The road to Louis and Carol Calcagno's Moon Glow Dairy starts east of the power plant, in front of the fuel oil tanks. You cross the pipeline, pass some Holstein cows peering over a fence, pull up in front of the single-story brick house, which is only a few steps away from the two-story frame house where Louis was born in 1936. Then you enter the living room—and catch your breath.*


Louis Calcagno

*Through the picture window you see a lush and tranquil world. A patch of bright green pickleweed stands in shining water. Birds abound—egrets, brown pelicans, ruddy ducks, other species. Your eye moves on, beyond the water, to dry golden upland meadows and, further north, dark green rows of strawberries slicing down the hills.*

*You can see why Louis Calcagno supports protection for the Elkhorn Slough. He is a founding member of the Elkhorn Slough Foundation and of the Monterey County Agricultural and Historic Land Conservancy, a member of the county planning commission, a former chairman of the National Dairy Promotion Board.*

**Louis Calcagno:** It's birders' paradise here.

**C&O:** *Was it like this when you were a child?*

**LC:** The slough changed at the time the Army Corps of Engineers opened the harbor, created a new channel, and tidal action came in. In the time I was a child, it was more of a pleasant type of slough, there wasn't as much movement. It was more of a brackish sweet/salty water and there were more waterfowl than there are now. For the birders there are probably more species of birds now.

**C&O:** *Wasn't a big hunting club here then?*

**LC:** In my childhood this was a hunting paradise. There was the Elkhorn Hunting

*Continued on page 17*

## Marc Del Piero
**County Supervisor**

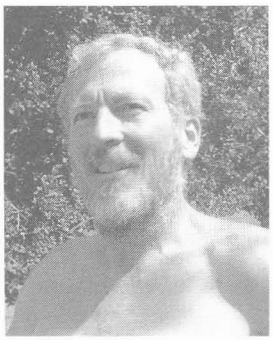
*County Supervisor Marc Del Piero deserves major credit for the Elkhorn Slough success story. We found him in his office in Castroville, across the street from Our Lady of Refuge Church, one block from La Scuola restaurant.*

**C&O:** *So is the slough protected now?*

**Marc Del Piero:** Not entirely. There are two primary threats: sedimentation (the lesser of the two) and scouring. The ecosystem of the slough changed substantially when the harbor was opened in 1946. It changed from a brackish marsh to a saltwater marsh,

ions

## John Oliver
### Ecologist


John Oliver

*The first day we dropped in on marine ecologist John Oliver, known to some of his allies as the visionary of Elkhorn Slough, he was pouring the foundation of a house. Sweat dripping down his face into his strawberry blond beard, stripped down to the waist, he was smoothing the wet cement with the help of a few neighbors and friends. This was not the ideal time to talk. Sixteen days later we returned to find the house framed in, Oliver and some younger colleagues from the Moss Landing Marine Laboratories nailing down the last rafters. We sat down in the shade of a manzanita, with native bunch grass at our feet, to hear Oliver's perspective on the Elkhorn Slough story. Immediately it was clear that the house under construction was part of a larger dream. It*

*Continued on page 23*

## Bruce Elliott
### Wildlife Manager, State Fish and Game

*Bruce Elliott agreed to talk with us at 7:30 P.M. in his Monterey office on a day that had begun for him at 5:30 A.M. and taken him across two counties in pursuit of duties for the California Department of Fish and Game. Like other stewards of Elkhorn Slough, he is endowed with both dedication and plenty of energy.*

*Elliott was in charge of the sanctuary proposal for his department from its inception in 1978 to its realization. He declined an invitation to become the reserve's first manager because he enjoyed what he was already doing as associate wildlife manager-biologist. Recently, he was promoted to wildlife management supervisor. In the story of Elkhorn Slough's protection, Elliott played a major role not only during the process that led to the creation of the reserve but also in related efforts. He led in the establishment of the Department of Fish and Game's Moss Landing State Wildlife Area on the north bank of the slough, beside Highway 1, on property acquired from the Monterey Bay Salt Co. This acquisition, in turn, became a catalyst to a private land purchase that now provides more habitat protection, and more public access to the wildlife area.*

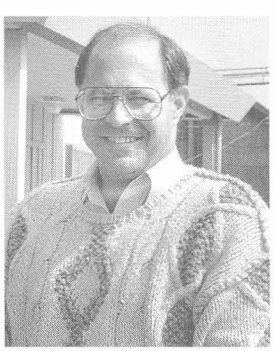
**Bruce Elliott:** We had had our eye on this property for a long time because those salt

*Continued on page 21*

with tidal influence and scouring. We are now working with the [U.S. Army] Corps of Engineers to do something about it.

**C&O:** *What about the sedimentation?*

**MDP:** You have to protect the uplands. In the early 1980s we got a grant from the [U.S.] Soil Conservation Service for a four-year pilot project that provided funds for educational and financial assistance to strawberry growers immediately adjacent to the slough, enabling them to institute erosion control projects. We showed them how to do drip irrigation, how to cultivate


Marc Del Piero

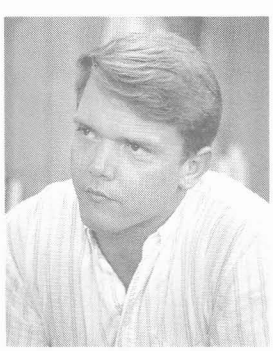
on steeper slopes, showed them inexpensive things they could do to ensure that the soil did not end up at the bottom of the hill or in the slough. This project was tremendously successful—there was a tremendous amount of participation—and it reduced sedimentation substantially below what it had been in the 1970s.

In addition, as part of the program with

*Continued on page 19*

## Craig Pritchard
### Monterey County Agricultural and Historic Land Conservancy

*The absence of a common language often creates suspicion between farmers and conservationists when there is no real disagreement on goals. Land trust leaders without an agricultural background often speak in a manner alien to farmers and also sometimes fail to understand farmers' needs. The Monterey County Agricultural and Historic Land Conservancy has been successful in part because all its nine board members are involved in productive agriculture either as farmers or as members of farm families, and its executive director, Craig Pritchard, is proud to be a cowboy as well as a man experienced in real estate appraisal. We found him in the small office next-door to that of County Supervisor Marc Del Piero, one of the land trust's founders.*


Craig Pritchard

**C&O:** *Farming is the number one industry in Monterey County, right?*

*Continued on page 26*

*Farming the Wetlands' Edge:*

# Cultivating Good Neighbors

*So the slough had been "saved." But was it really? To protect the ecosystem from ongoing damage, some imaginative new projects were launched.*

*by Laurel Marcus*

The local coastal plan was complete, the sanctuary set up—what more could Elkhorn Slough need? The State Coastal Conservancy answered that question by preparing a wetland enhancement plan with Monterey County, which looked at several slough-wide issues and several specific marsh restoration and public access projects. Two findings were startling.

First, the plan documented massive tidal scouring of the slough's marshes since 1946, when the harbor was developed and jetties were constructed. These created a permanently open mouth at the head of one of the deepest offshore canyons in the world and caused an enormous tidal scour. Before the jetties were built, the location of the mouth moved about, and it closed seasonally. The marshes that had been "preserved" for their habitat values were eroding into the ocean.

Second, the plan reviewed the levels of persistent pesticides in slough sediments and their uptake by benthic animals and found that DDT, banned in 1972, remained in significant amounts in mussels, and that toxaphene and eldosulfan had been recorded at high levels. In sum, the wetlands bought and "preserved" for their habitat values were threatened by processes that were unaffected by ownership boundaries.

To address the problem of scouring, the U.S. Army Corps of Engineers will begin in 1992 to look at possible solutions or mitigation methods. Construction of a channel-wide shelf of huge boulders placed across the slough bottom may reduce scouring currents. Several other ideas will be evaluated with computer models. To mitigate pesticide runoff, the enhancement plan suggested that some type of balance be sought between the area's agricultural practices and natural resource values. How to achieve such a balance became a challenge for a broad coalition of scientists, farmers, environmentalists, and the State Coastal Conservancy.

### Repairing The Watershed

The Coastal Conservancy responded to this challenge by looking at the broad range of problems affecting the slough and addressing the upland causes. Conservancy leadership was central to bringing together several partners to demonstrate, cooperatively, how to solve these problems.

LAUREL MARCUS

A new approach emerged. Instead of protecting habitat as before, simply by buying land and setting it aside, the Conservancy funded the purchase of some 500 acres of uplands and wetlands on Elkhorn Slough and launched projects to study ways to make agriculture and natural resources more compatible.

On the 343-acre Blohm Ranch, acquired in 1990 by The Nature Conservancy with $2.2 million in Coastal Conservancy funds, strawberry farming is to be removed from steep eroding slopes in favor of native vegetation. On the 150-acre Azevedo Ranch, downhill from the Blohm Ranch, the Coastal Conservancy devised an innovative project to maintain strawberry farming on flat productive land and to seek methods to make it less dependent on chemical pest controls. If this project achieves its goals, it could become a model for many other areas where cultivated fields adjoin wetlands or rivers.

The Blohm Ranch, at the inland head of the slough, stretches from sea level salt marshes to a 340-foot elevation with a sweeping view of Monterey Bay. A mosaic of rare native vegetation (maritime chaparral) and intensively farmed strawberry fields covers the steep slopes. The erosion of sandy soil from these fields has long been recognized as a problem by Monterey County and the local farming community. Both have supported taking properties such as the Blohm Ranch out of agricultural uses.

When the proposal to acquire this ranch came before the Coastal Conservancy for approval on December 7, 1990, one board member spoke in opposition on the ground that the Coastal Act was designed to protect agriculture. In response, Monterey County Supervisor Marc Del Piero rose to an eloquent defense. "Every farmer I know who has seen the agricultural activity on the Blohm Ranch is convinced that it needs to be taken out of agriculture because of the damage it's doing to other farming operations in the area," he said, because "there is simply no way, given the steep slope—much of it over 30 percent—and the Aromas sands, to keep that soil on the hillside." He pointed out that "strawberries are the single largest crop in dollars, even more than artichokes," in the county, but that "unfortunately, profit margins for strawberries went so high in the early 1980s that lands that were previously never considered were put into production and the consequences were short-term profits and significant erosion problems." As a result, not only wetlands have been compromised but also freshwater wells on other farms, he said.

"Down at the bottom of the hill from Estelle Blohm is a piece of ground known as the Azevedo Ranch," Del Piero continued. "When it rains, the hill [on the Blohm Ranch] runs down, with all its incumbent soil, across Elkhorn Road and lands dead-square in the middle of the Azevedo farm. It compromises the agricultural viability of that farm." Restoring the steep slope to native vegetation, he argued "is going to guarantee the long-term viability of farming on the Azevedo Ranch," where sound agricultural practices are possible.

Efforts by local government so far had failed to resolve the problem of this inappropriately farmed land, Del Piero said, though it has tried. In 1982, when northern Monterey County adopted its first erosion control ordinance, "it was costing Monterey County in excess of $100,000 a year to clean up soil running off people's property because they were not practicing prudent and appropriate erosion control technologies." Effective methods to control erosion had been made available through the five-year Strawberry Hills Erosion Control Project funded by the U.S. Soil Conservation Service. However, they were not always applied. In this case, the elderly Estelle Blohm was renting out her land, year to year, to "sharecroppers farming on a thin margin," according to Del Piero. "Next time there's a big rain," Del Piero concluded, "Mrs. Azevedo's property will end up under a foot and a half of mud, just like it did six years ago [last year before the drought]." He appealed for the Coastal Conservancy's help as "the deliverer of last resort" because "this is a problem local government is simply not capable of addressing financially, even though we tried."

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# *Mark Silberstein*

CONTINUED FROM PAGE 12.

sea level, maybe 15,000 years. Basically, it was an ancient river bed that drained into Monterey Bay. As the sea level rose, it flooded, the marshes started growing, it became a tidal estuary. Prior to 1908 [when it was diverted] the Salinas River meandered to the north and emptied through the slough about a mile and a half north of Moss Landing. Earlier, it appears that the Pajaro River also drained out through the common mouth. It broke out a new mouth to the north some time later. In 1946, Moss Landing Harbor was created, and it modified the slough's hydrography dramatically and set in motion some events we're still dealing with today: the increased tidal action started scouring out the salt marsh of the slough. If we don't take action to diminish tidal currents, this scour will lead to a dramatic loss of salt marsh and tidal flat habitat. The salt marsh here is the second largest in the state, after Suisun Marsh in San Francisco Bay.

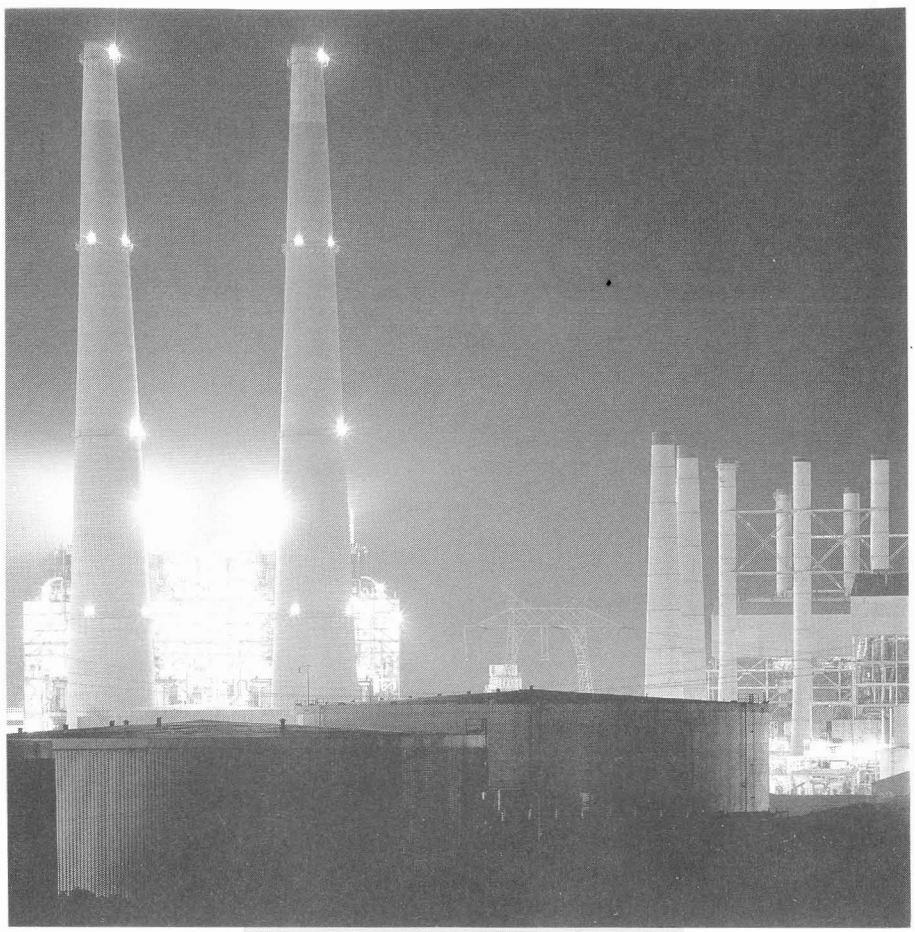
The surrounding land has essentially retained its rural character. Though it's obviously not a pristine environment, you get tremendous abundance of wildlife, fish, and, in the uplands, all sorts of mammals. This remains an incredibly vital habitat. It's on the Pacific Flyway, and this time of year we see tens of thousands of shorebirds and other species migrating through. I'm always fascinated by the crazy juxtapositions: a flock of 10,000 sandpipers flashing in front of the power plant; great blue herons feeding on fish as the Southern Pacific train goes by behind them; peregrine falcons roosting on top of these power stanchions. Maybe it's a lesson. There's some robustness to the environment that it's our responsibility to sustain.

**C&O:** *The lesson is "Don't give up?"*

**MS:** Not until the last egret sings . . . or something like that.

**C&O:** *What hit me first was that power plant.*

**MS:** It's interesting that almost every major estuary in California has one of these: Humboldt Bay, Morro Bay, San Francisco Bay. There are certain things that estuaries provide to these operations: protected embayments where cold water can be drawn, a port where fuel can be offloaded. But the power plant has been a pretty good neighbor.



**This is a great interpretive opportunity, for most people don't know where their power comes from. The contrast of this industrial presence next to a beautiful estuary reminds us that our life style has its costs.**

**C&O:** *In what ways?*

**MS:** The effects on the watershed have not been dramatic. The plant was built in two stages: the short stacks in the 1950s, the two tall stacks in 1967. The short stacks empty cooling water into the slough, the tall stacks empty offshore. So most of the water goes offshore where it's quickly mixed, so increased temperature effects are minimal. One effect, clearly, is that in the intake a lot of fish larvae get cooked. The air has been relatively clean when they're burning natural gas, and they have been recently.

Most people comment on the visual impact. But all of us love drinking cold beer, and cranking up the stereo. This is a great interpretive opportunity, for most people don't know where their power comes from. We have to think about it. The contrast of this industrial presence next to a beautiful estuary reminds us that our life style has its costs.

**C&O:** *How did this reserve come about?*

**MS:** Elkhorn Slough was the first estuary in the state to be scientifically studied. In

the 1920s, George and Nettie MacGinitie—they're kind of legendary zoologists now, but at that time they were graduate students—studied the tide flats at the mouth of the slough, and in 1935 published a landmark paper in the *American Midland Naturalist*. In 1966 the California State University system's Moss Landing Marine Laboratories were created, bringing generations of graduate students.

Perhaps as a result of the scientific work, and because this area had been used by sportsmen for some time, Fish and Game did a report on the slough when it was surveying California estuaries in the 1970s. The Nature Conservancy purchased the first conservation parcel in 1971, and that made a lot of the local folks think, "Hmm, we've got something here."

When the National Estuarine Sanctuary Program [later renamed the National Estuarine Research Reserve Program] was looking for sites in the late 1970s, Elkhorn Slough was nominated. And again, because there was this background of research and The Nature Conservancy had holdings here, and the community was aware of how important it was, it was designated.

The program of acquisitions began within the designated boundary of 1,400 acres. The old Elkhorn Dairy (about 1,000 acres) was first. It had been deeded to Stanford University by the Meyer and Buck families. That land was being used for grazing; the dairy had been abandoned. It took several years to clean it up, get rid of all the old barbed wire and some broken-down buildings. Then, in 1983, The Nature Conservancy funded the development of the volunteer program, and that's when I got involved. We started with 16 stalwart people, doing tours on the other side of the slough. Public response was just phenomenal. People were really keen to learn about this place. We put little notices in the newspaper, and a hundred people would show up on a weekend to take a walk. So when the reserve started coming on line, we were already doing walks here.

**C&O:** *NOAA could have chosen another estuary, right?*

**MS:** Tomales Bay was a hot contender. We had this tremendous public support, though, when NOAA came for the public scoping, hearings and such. There was also vocal opposition. A lot of neighbors feared that with the state and feds meddling around, their land use would be restricted. A lot of trepidation and misunderstanding had to be overcome.

**C&O:** *How did you do that?*

**MS:** The volunteers were real ambassadors to the community. We also invited all the neighbors. Basically, we tried to get the word out about the reserve program.

**C&O:** *This was already protected as a wetland area under the Coastal Act in 1976, so you could not build on it, right?*

**MS:** Actually, as late as 1977 the supervisors considered a developer's plan to turn the grasslands above the salt marsh into a condominium complex and to dredge out the salt marsh as a harbor.

**C&O:** *Now you have farmers, hunters, and environmentalists working together. How did you manage that?*

**MS:** There are struggles and differences of opinion, but part of the strategy—and this was conscious when we were developing the volunteer program—was to get community support early on and build on that. We've worked incredibly hard over the last eight plus years to spread the word that Elkhorn Slough is an important, neat place—in the school programs and teacher training programs we developed, in the volunteer program, in the newsletter we put out quarterly, in the book we did with the Monterey Bay Aquarium. Developing a positive image of the slough affects everybody. The farmer's kid goes to school with the supervisor's kid, and they come home excited about what they saw at the slough, and that percolates. Rather than taking a confrontational approach, we use the slow perk approach. We also work with the Coastal Commission, the Coastal Conservancy, and the board of supervisors. But the community support has been crucial. The focus of our program is research and education to protect these coastal habitats—to learn how these systems operate, and how to manage them better. It is the eleventh hour for coastal marshes. ❐

# *Louis Calcagno*

CONTINUED FROM PAGE 12.

Club where the sanctuary is now, and a lot of private ponds were on the slough. And going up and down the slough there were blinds, and wherever there was a pothole, people would put up decoys and blinds. There were a lot of oyster beds in the slough; it wasn't polluted.

**C&O:** *How was it up on the hills?*

**LC:** There were more oak trees, and manzanita. For the strawberries, the trees were removed from the side hills. It wasn't for the betterment of the slough. These hills are highly erodible. I can tell you how that land got converted to strawberries. This is my own opinion. When the Coastal Act was implemented, a lot of people had bought property along the slough for development. All of a sudden they found they couldn't develop. So they cleared the area—we weren't prepared at that time to stop them—and grew strawberries and got three or four hundred bucks an acre. Suddenly they were making money off their property. We lost one of the prettiest solid oak properties in this county. In defiance of the Coastal Act, the owner cut every damn oak tree down and planted strawberries. He did it because we wouldn't let him build some houses. In the end we both lost—we lost the oaks, the beautiful scenery, the habitat. We could have said, "You dedicate that to scenic easement," and he could have had his houses, and we would have had our oaks. Every time I can make that kind of a trade, or if they're willing to take land out of cultivation, on slopes over 30 percent in particular, I'm more than willing, if I can within the law, to let them have more development.

**C&O:** *Were your parents ranchers?*

**LC:** They were truck crop farmers. They migrated from Italy to San Francisco, from San Francisco to here. Truck crop farming along here was developed mainly by Italians from the provinces of the Italian French Riviera. They all got together where

Stonestown is on 19th Avenue now, that was all farming. And as more people came over from Italy, they migrated down the coast and stayed around the Castroville area because the climate was right, and the ground was right. So they brought in the artichokes, the [brussel] sprouts, the cabbage. On this side of the road you see the Capurros, and they go back to Genova and probably the same province as my folks. This was Calcagno, Delfino, and Rossi. My dad built a dairy because he needed manure for the truck crops. I sort of like cows, so I went with the cows.

**C&O:** *And your children?*

**LC:** They're with me here, both my son and my son-in-law and my daughter are here, and we have grandchildren. So with my dad, there are four generations on the ranch. We like it. We think it's the prettiest place in the world. I've traveled around the country, I've seen a lot of small towns and big cities, but I never found any place prettier than here. If we want to see the ocean, we can look out our window. But if we want to go to fine restaurants, it's 15 minutes to Santa Cruz, 15 to Monterey.

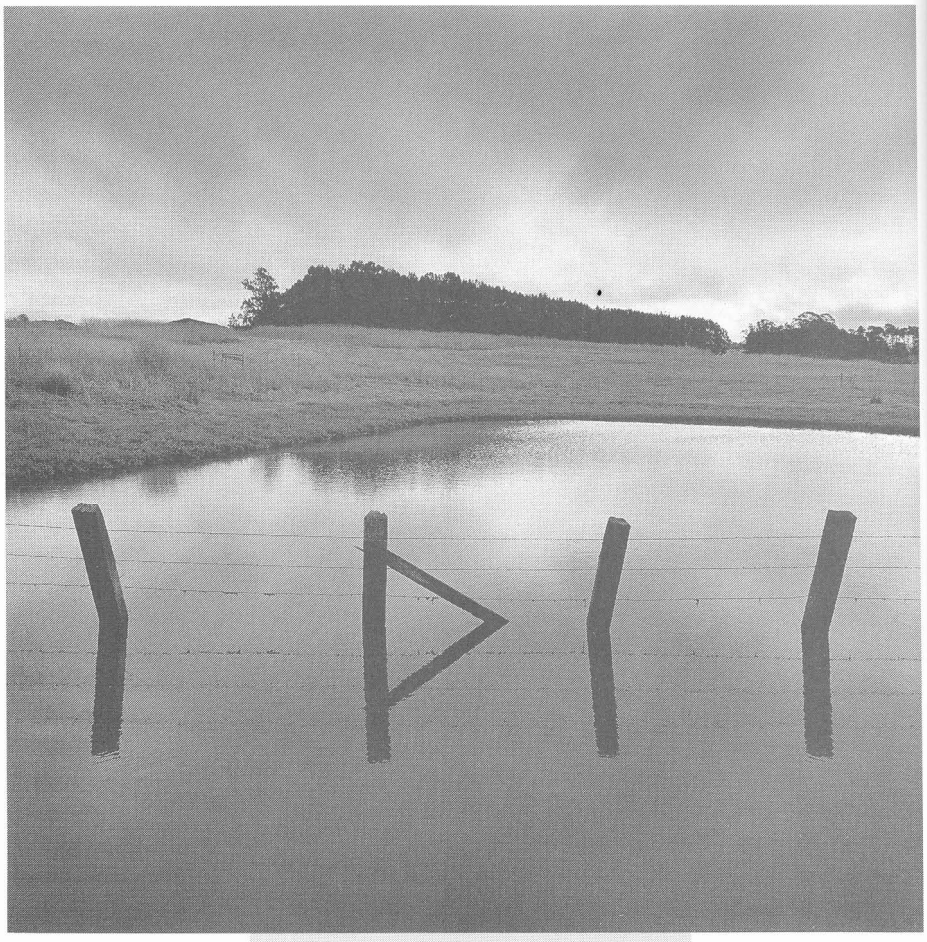
**C&O:** *When the sanctuary was proposed, property owners were concerned that this would interfere with their control over their own land. Were you worried about that?*

**LC:** In the beginning, I was. As I attended meetings, I became less concerned. When I became fully aware how everything was going to happen, I thought it was the best thing for the area. And I still do. Nobody likes government constraints. When you think of more controls over your land, you become defensive.

**C&O:** *What were people afraid of?*

**LC:** Some people were concerned about pesticides. In the Upper Salinas Valley, the artichoke and strawberry farmers were concerned that their pesticides would wash down, and they would be confined to not using some pesticides. But it hasn't been an issue. I can say that the controls and constraints have not been that frustrating.

**C&O:** *What kind of constraints and controls?*



**We need some sacred areas to stand aside and be here for future generations. And I think this is the greatest thing the sanctuary has done. With all the free enterprise in the world, if there's no enjoyment, what is there left? So we have to sacrifice a little.**

**LC:** At first we were told waste could not be dumped into the sanctuary. But as you can see, our [settling] pond has been a benefit to the area, particularly to the birding community. Cow manure goes into the pond [a 22-acre pond on the edge of the salt marsh]. We sell the solids. In summer we pump the water out and grow cow feed with it. But it has contributed a great environment for birders. It's not unusual for us to get maybe three, maybe even five thousand visitors in a year.

**C&O:** *And that's not a problem?*

**LC:** Never has been. I told the birders at their annual meeting at Pacific Grove the other night that they were welcome anytime. You can't believe the type of people who are birders. Because who would let 5,000 people on 100 acres in a year, to come and go whenever they want? And yet they will not leave a piece of paper, they are very concerned where they park, and to stay out of the way. I can be here feeding my cows, a tour bus will come in, they all get out single file, and nobody will even know they're here.

**C&O:** *How about hunters?*

**LC:** Hunters . . . they're the worst. As a whole, hunters are good people. But some have a sickness, and if they see something they want to kill, they have no respect for anything. You can chase them, and they'll

just defy you. And I was, at one time, a hunter. They have tried to come in with boats, get in close and shoot inside [the sanctuary]. We go after them; we don't allow it.

**C&O:** *Has the issue between hunters and anti-hunters been resolved?*

**LC:** No, and I've never gotten involved in it, but it's not resolved. There are some areas you should not hunt in. The few acres we have left where we can shelter this wildlife, we've to try to shelter. My son-in-law's a hunter, and I know his feelings are no different from mine.

**C&O:** *What kind of benefits do you see for yourself in the slough's protection?*

**LC:** I don't see a direct benefit, other than we all want to leave a little bit for future generations and we don't want to see everything destroyed by buildings. We need some sacred areas such as the Elkhorn Slough to stand aside and be here for future generations. And I think this is the greatest thing the sanctuary has done. With all the free enterprise in the world, if there's no enjoyment, what is there left? So we have to sacrifice a little.

**C&O:** *What is the sacrifice?*

**LC:** It's probably down the line. You're probably looking at land values that my children could have reaped $50,000, $60,000, or $70,000 an acre. Who knows? This was going to be a freeway coming across here, big boats coming in, cement plant up at the other end. And nobody who enjoys the sanctuary is going to pay me for what I'm never going to get. But all the money in the world wouldn't replace this view. I wouldn't want to see a bridge out there. I wouldn't like to see boats coming in bringing limestone, with a cement plant sitting right next to me. I have no intentions of doing anything but what I'm doing, because there's more to life than having more money than you know what to do with.

**C&O:** *You could use it, maybe, to get a place like this somewhere else?*

**LC:** That's right. ❐

# *Marc Del Piero*

CONTINUED FROM PAGE 13.

the Coastal Conservancy, strategically located parcels on the slough have been acquired, the most significant among them being the Blohm Ranch and the Azevedo property. [See story on page 14.] The Azevedo property will generate revenues through which we can acquire additional lands around the slough, and it will enable us to develop baseline information on strawberry cultivation with reduced levels of both pesticides and commmercial fertilizer. At this point we have about 90 percent of the uplands around the slough protected either through approved agricultural practices or through acquisition.

**C&O:** *What about the remaining uplands, the ten percent?*

**MDP:** Ultimately, most of property, with the possible exception of the agricultural lands, will be acquired. A very small portion of the ag properties drain into the slough, and they provide a buffer, so the immediate necessity of acquiring them is minimal.

**C&O:** *So this is a tremendous success story.*

**MDP:** It is. The Elkhorn Slough is a significant feature on the coast of California. With the exception of the Tijuana Estuary, it is the largest, and it's a much healthier saltwater estuary than anything else on the coast. In addition, when Monterey Bay is designated as a national marine sanctuary—we expect that within six months—you will have, for the first time through the sanctuary program, complete protection for an entire ecosystem, all the way from the ridgeline into the ocean. It's the first time that's happened anywhere in the United States.

It's a success story founded on a whole lot of cooperation from a lot of different folks because there was a general willingness in the community to preserve it as a resource. It's a success story because the people who enjoy fishing in the slough were not perpetually at odds with people who treat the slough as an environmental resource; because groups that are perceived at times as having different interests all recognized the slough as being worth preserving and were willing to agree to modify their respective positions to guarantee the support of all of the groups that were interested in preserving the slough.

The local coastal plan provided for relocation of residential density on properties to minimize the impact on the slough and yet maintain the value of the real estate asset of the property owner. This allayed fears that the establishment of the sanctuary would have an adverse impact on property values.

**C&O:** *You describe a community that is unusually well informed about the natural values of the slough.*

**MDP:** When I was a kid, when you mentioned Elkhorn Slough in Monterey, everybody'd say, "Oh yeah, that's that place that stinks when you drive by Moss Landing." Now it's a featured display in Monterey Bay Aquarium and people pay money to kayak up a place that used to be perceived as nothing more than a swamp. There's a long history of individuals who have lived in northern Monterey County because they liked it here and appreciated the resources here before it was fashionable to do so.

We have also been lucky. When substantial growth began, the general consciousness had already been raised, not just among the locals but among people outside the county, that this was a resource that needed to be preserved. That understanding came just at that turning point.

**C&O:** *You played an important role in advancing this understanding.*

**MDP:** My family has been in the county since 1917. When you grow up in an area, you develop an affinity for it. Both my parents still live on a farm just outside the community of Pajaro. My two brothers are farmers. You know, it's funny what impresses kids. I remember in 1966 Lady Bird Johnson came. I was in sixth grade. We lived on Lewis Road, just across the tracks from Pajaro. Off Lewis Road is Vega Road, up in the canyon. When I was a kid it was

the pits. It's not much better now, but at least they aren't drinking their sewage because of stuff that I required. Lady Bird Johnson characterized that area as the most impoverished outside of Appalachia, and I really took offense at that. I really did: that she would characterize my neighborhood like that. I knew what Appalachia was. I had seen pictures of people sitting around looking hungry and poor. In fact, I later learned, it was actually that bad in this community.

I went to Pajaro School, and to Watsonville High School, and to the University of Santa Clara, and got my bachelor degree in history and went to law school there. Before I graduated from law school, I was one of 35 applicants for a vacant position as county planning commissioner. I got appointed, at age 24, in 1978. And then I got elected to the board of supervisors at the ripe old age of 27. And the reason I ran was that even in the late 1970s and early 1980s northern Monterey County wasn't getting its fair share of what government ought to be providing. We didn't have subdivision standards that were comparable to other areas of the county, or comparable septic tank standards, or drainage standards, or well construction standards; and the most rudimentary standards of health and safety hadn't been adhered to. Since I've been on the board of supervisors we've built five public sanitation systems, six water systems, five community sewer systems, we must have spent a total of nearly $100 million on infrastructure. We also cut the density, reduced the development potential by a factor of about four.

**C&O:** *Did this meet with objections?*

**MDP:** You bet. I'm the only supervisor who has had a challenger in every election.

**C&O:** *Is the future of the county agricultural?*

**MDP:** As I see it, it's a combination of agriculture and tourism. Ecotourism has tremendous potential in this county, and, interestingly enough, it is being encouraged by organizations that are generally perceived as being traditional. Part of the agenda for the 1990s of the Monterey Peninsula Chamber of Commerce and Visitors and Convention Bureau focuses on ecotourism. Scott Hennessy, who is chairman of the executive committee of the Ventana chapter of the Sierra Club, sits on the bureau's board. Ten years ago, you would never have seen the Sierra Club chapter chairman sitting shoulder to shoulder with the owners of the Hyatt Regency in Monterey or the person who represents the wine grape growers marketing board. A fine balance is required, and it can be achieved only through the cooperation of the tourism industry and environmental organizations.

**When I was a kid, when you mentioned Elkhorn Slough in Monterey, everybody'd say, "Oh yeah, that's that place that stinks when you drive by Moss Landing." There's a long history of individuals who have lived in northern Monterey County because they liked it here and appreciated the resources here before it was fashionable to do so.**

Elkhorn Slough provides a remarkable opportunity to experience a native coastal environment. One thing that clearly has generated a tremendous amount of public knowledge about the slough is the presentation at the Monterey Bay Aquarium. Monterey Bay has the single greatest concentration of academic institutions focused on the study of the marine environment on the West Coast of North America. We have the Postgraduate Naval Academy, with an oceanographic center and a metereological center; Moss Landing Marine Laboratories of the California State University system, Long Marine Laboratory [the lab for the University of Califor-

nia, Santa Cruz], the new NOAA headquarters that will be located here, as well as the headquarters for the Monterey Bay Marine Sanctuary—all these, along with the Monterey Bay Aquarium Research Institute. Monterey Bay itself has become a focus for marine research and study. And that is causing more exposure for the area in the press, thereby increasing the general public's awareness of what's here to come and visit.

**C&O:** *What in your experience with the slough would you pass on to others working on similar resource protection projects?*

**MDP:** Three things. First, you must have a community that is willing to work cooperatively together. Environmentalists have to understand that agriculture and the fishing industry have important things to say and important values to preserve; the agricultural industry and the fishing industry have to understand that environmentalists are not necessarily interested in putting them out of business.

Second, elected officials have to be willing to suffer a certain amount of criticism, particularly from development interests; you might characterize that as intestinal fortitude. Without intestinal fortitude you cannot get the momentum to push the project forward.

And third, you have to have follow-through. You can't just be the headline of the week or the month. There has to be an ongoing commitment from both the community and local elected officials to work with state and federal agencies to complete a plan that may start small but may ultimately become a major success story, which I think Elkhorn Slough has become. We didn't save it all at once, we saved it over 13 or 14 years, and we saved it by never forgetting it was worth saving. I think that people, when confronted with the potential of losing something they greatly value, will go to great lengths and will become extremely innovative, and I think that's what happened here. ❐

Photos on pages 11, 16-27 are by Michael Kenna, from his book, *The Elkhorn Slough and Moss Landing* (Elkhorn Slough Foundation, 1991)

# *Bruce Elliott*

CONTINUED FROM PAGE 13.

evaporation ponds—with their brine shrimp and the brine flies and the nesting opportunities of the interior levies—were extraordinary wildlife habitat. We were able to acquire all the ponds and marshlands extending along the northern bank of Elkhorn Slough, which complemented the sanctuary very nicely.

There are now six of these ponds. The two closest to the highway we modified in a very special way to provide habitat for two completely different bird species, the California brown pelican and the snowy plover. Pelicans breed in Mexico and southern California and are with us in large numbers in autumn, sometimes until January 1. So those two ponds will be flooded from about August 15 to January 1, the main period of occupancy. Only the loafing island in the middle will stand above the surface, and it will give the pelicans protection from the invading red fox and other predatory mammals. Then, around January 1, taking advantage of the very low P.M. tides and very high 11 A.M. tides that occur in that month, we will pull the plug on the gate and let all the water run out at low tide. Then we'll close it back up, and let it completely dry out and form one of these typical flat crystal salt structures. We're going to have to build a fox-proof fence around it, too. And then, about March 15, when the snowy plovers come in, they lay their eggs right on that crystalline structure.

**C&O:** *Was there any wish to add this area to the reserve?*

**BE:** No, because the functions of the two areas are not the same. The basic functions of the national estuarine reserve are education and research, and in the wildlife area it's wildlife and wildlife habitat preservation and sport hunting. The bottom line is that when the wildlife area was put in place, it was specifically indicated that there must be waterfowl hunting. In fact, the feds insisted on it since there was money from federal duck stamps going toward part of the acquisition.

There's an interesting background here. The year we acquired the salt ponds, I was chatting at the campfire with David Packard [cofounder of Hewlett-Packard and philanthropist] and explaining that we had this wonderful property but no way to get people into it. We had no access. And then I began to talk about the Rubis Ranch, which is adjacent, and in the 1960s had been the site of a very ambitious plan by the city of Salinas. The plan was to dredge Moss Landing Harbor, remove the Highway 1 bridge, have the freeway from Castroville to Watsonville run on top of the Rubis Ranch at the end of the slough, dredge that out into a huge turning basin, and make Moss Landing the equivalent of the Port of Oakland and move all kinds of industry out where the salt ponds are today; fill that all in; build a housing development of 1,000 homes backing on the Rubis Ranch; build a boat harbor like Newport Bay back in there. The county turned it down flat. So Rubis had this ranch he didn't quite know what to do with.

About three or four weeks later, Dave called me up and said: "I've bought the Rubis Ranch and I'd like to operate both these areas like one big wildlife area." And he has built an access road off Highway 1 for us, and a parking lot, and rebuilt a dike we can use as part of a trail system to get to the edge of our property. And then he gave us access all along the fringe of his property to build our trail. We have five and a half miles of access trail along the edge of the marsh now, and we're building another mile and a half, with a picnic area, restrooms, and tables. And we are in the process of putting in a very low-level observation tower so that people on our property can look over into Dave's freshwater marshland ponds.

There are vast numbers of waterfowl on those ponds in the winter—spectacular. We manage that area now for both public nongame use and for recreational sport hunting. Hunters can only hunt on Saturdays, Sundays, and Wednesdays, and the normal waterfowl season usually starts about the third week in October. When pelicans are in the area, we don't permit hunting any earlier than December 1. And if we determine on a hunt day that there are 100 or more pelicans in the area, it is closed.

It is also closed to hunting on New Year's Day because that's the day that the Audubon Society does its annual bird count.

When the hunters are on the area, there is no other public use. And that's only from December 1 to about January 6. That's the only hunting. The other times it's open on a no-fee, first-come-first-served basis to those that want to use it for hiking, nature study, photography. We don't permit dog trials or horseback riding. Dogs that come have to be on leash, and hunters' dogs, when they're waterfowl hunting, have to be on what's known as "tight control," that is, at the hunter's side except when they're retrieving a bird.

**C&O**: *That must have been hard to work out.*

**We had had our eye on this property for a long time because those salt evaporation ponds—with their brine shrimp and the brine flies and the nesting opportunities of the interior levies—were extraordinary wildlife habitat.**

**BE:** It was. Some people want no hunting at all. Some waterfowl people say there are so few places to hunt in Monterey County that when the season is on they want all seven days of the week. This is the compromise.

**C&O**: *How did you get them all to agree?*

**BE:** I just sat them down and said, "This is the way we're going to do it." We essentially said, "Look, we gotta live together, folks." Part of the carrot and lever is that the funding for that area came from two different sources: from land and water conservation money, which is revenue from offshore oil drilling, and that's essentially private money that has no specific designation. And about one-third came from sportsmen's fees for licensed duck stamps. So we said, they will hunt 21 days for 30 percent of the money, that's pretty good odds for the nonhunter.

**C&O:** *And they probably won't shoot any brown pelicans?*

**BE:** Pelicans won't be anywhere near the waterfowl. We have that portion of the zone closed even during hunting season. Hunters can't go back behind that levee. The area enjoys a great deal of use. I had a class of 15 from Cabrillo College last Saturday. We had quite a problem getting parking space because Monterey Peninsula Audubon was there, about 20 people, the Monterey Bay Aquarium with a class of about 15, and a class from Hartnell College with about 12 people. And then there were individuals.

I'm experimenting with a kind of blind I saw in the United Kingdom about ten years ago. England is a crowded country, and the reserves are very small. It became apparent that there's one overriding concern, which we also have in Moss Landing: you must not go into the area, you only go on the periphery. But to make the experience satisfactory, you have to have a way for people to observe closely from outside the boundary line.

So they have these blinds. You go in from the back, look out through narrow slotted windows, and you can watch and photograph the birds but they can't see you. Then recently, in Australia, I found another design that may be even more effective, with one-way glass and ports for cameras to stick out. I intend to have one of those built too, because I want the public to be able to use that resource. If they use it, they'll support it.

**C&O**: *Would hunters also be interested in observing in those blinds?*

**BE:** Yes, many of them. Waterfowlers are avid bird watchers during the nonhunting period of the year.

**C&O:** *What has David Packard done with his land?*

**BE:** David has made it his goal to restore portions of Elkhorn Ranch [formerly Rubis Ranch], as much as possible to the original

pristine habitat. He uses part of it as a pheasant hunting club. He has removed row crop agriculture and has it back in native grasses. That's an improvement. He hunts waterfowl on the three freshwater ponds he developed. But he's the only one that hunts.

So we're talking about one person, maybe three days a year: no significant impact whatsoever. And in the meantime there's this wonderful wetland habitat that wouldn't have been there otherwise. Also he has under drip irrigation several thousand trees and shrubs to restore the original oak woodland that used to ring the south-facing slopes of that reserve. Dave will never live long enough to see that, but that doesn't matter to him at all.

**C&O:** *So there are a lot of pieces here, coming together with a lot of work.*

**BE:** And a lot of luck too. What helps is the local environment. Monterey County, for the most part, is probably one of the most environmentally conscious counties in the state, along with Santa Cruz and the Bay Area counties. There is an active chapter of the Audubon Society here, and of the California Native Plant Society. The Sierra Club is almost hyperactive and is able, through numerous people and the political influence, to attain some pretty admirable things. Local environmental groups are very active. When there is a multiplicity of organizations, your aggregate power is enhanced. It almost works exponentially because a lot of people know a lot of people, write a lot of letters, and raise a lot of dust, and we need that.

**C&O:** *How do you feel about the slough and the reserve now?*

**BE:** The use level is beyond anything we could have imagined. Quite frankly, when we were going through the initial acquisition process, my main hope was to get the land, and lock it up for habitat improvement. And true, you'll have the public eye. But I never had any idea that there would be a response from the public in the form of docents, and volunteers, and all these unpaid teachers and guides who spend so much time out there, and the public response to all this—it's just remarkable. ❐

# *John Oliver*

CONTINUED FROM PAGE 13.

*would stand within a restored native habitat, demonstrating that humans and other creatures can live comfortably as neighbors, and, hopefully, inspiring other landholders to try what Oliver calls "sustainable development."*

**John Oliver:** There are very few of these riparian corridors left. We've taken all the big trees, channelized all the habitat. Alders and cottonwoods are very rare. Willow trees—you just don't have them anymore. But willows are wonderful volunteers, I'll put them in last, after I get sedges and rushes going. And in back of the house there, we'll have bunch grass. All this will take a few years, and it's not very dramatic, but if things continue the way they're going in this neighborhood, there will be even bigger pieces of land you can walk people through to show them what's going on. David Packard's oak trees are up three feet, some of them, and he's got cottonwood, alders that are 15, maybe 20 feet tall. It's really pretty, and that was land that was denuded, grazed by cattle right down to a few inches. I saw a clapper rail there, the first I'd ever seen.

**C&O:** *You grew up around here?*

**JO:** I've been here about 20 years. Came down from Hayward State [University] because I couldn't stand hallways and campuses.

**C&O:** *And how did you get involved in restoration work?*

**JO:** Roy [Burton L.] Gordon. Mark Silberstein, myself, that vintage of people were all baptized by Gordon in the 1970s. He was a geographer at San Francisco State [University], who developed a book by walking around the bay called *Monterey Bay Area Natural History and Cultural Imprints.* He taught a course by the same name at Moss Landing. When I was there, other faculty were not sure they were going to give it credit for the master's program—and it was the best course I ever took.

Gordon took you out and gave you a perspective on what we've done as people. He would have story after story, and he would walk through all the cultural imprints. He started maybe a dozen people around here who now have a very strong influence on things. Jim Oakden, biologist at the marine lab, and Pete Slattery, at the lab, who together run ABA Consultants (Asociación de Biologos Ambulantes). We had to start a consulting firm because other consulting firms don't work from an ecological stake in a neighborhood, they come to do a job. We needed neighborhood ecologists. ABA did the Elkhorn Slough Management Plan, interpreting the natural history. Before that, planning had assumed that the slough was filling with sediment—when our major problem is that it's eroding away faster than any other system on the entire West Coast.

But Gordon started us all in the 1970s. I moved here and couldn't find any more fun place in the world to play science, though I've been all over North America and the South Pacific. It's a unique neighborhood on our coast. And it doesn't have a lot of cement yet. Fortunately, because of the Coastal Act, the planning makes it very difficult to build. But if you go in with an admirable plan, if you cluster the houses right, if you go with three-quarters of the area preserved and one-quarter you are going to build, you can get that through, in this county, I'd say. When a developer is in trouble, that's when he comes to Jim [Oakden]. And he will say, "We'll help you, but that's a beautiful piece of land there, that's got to be preserved." And the ones who take the wise course will say, "Sure."

**C&O:** *What role did you play in the creation of the sanctuary?*

**JO:** I had very little do with the sanctuary process. A lot of people were players in that. When the sanctuary was here, I went out and tested it. I gave them a restoration plan that a bunch of us had made, for science and education. And that brought out Fish and Game's true colors. They turned it down. So it was clear they weren't going to do programs, and that's when we brought in the foundation. Because the feds said you have to run programs in the re-

serve. The foundation had them open the gates, started programs with Fish and Game, and then Fish and Game recognized they were great, took credit, and started programs all over the state. So they learned. Much to the neighbors' credit, they turned Fish and Game completely around.

**C&O:** *Bruce Elliott, at Fish and Game, told me he never expected the degree of public involvement that materialized.*

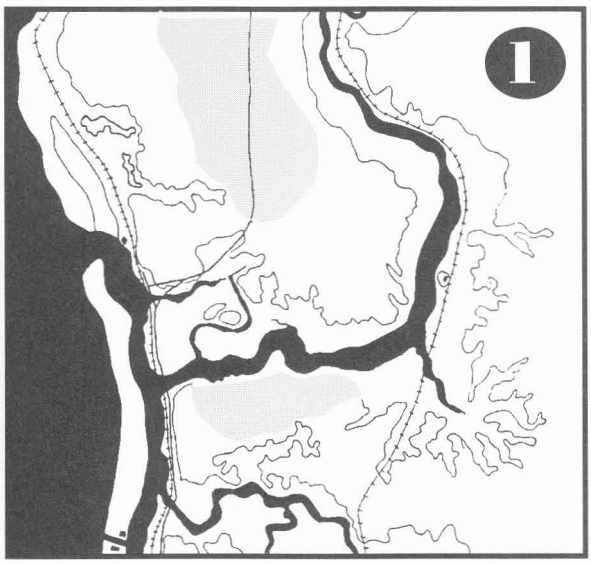
**JO:** That was incredibly predictable.

**C&O:** *Was there provision for hunting in the original plan for the reserve?*

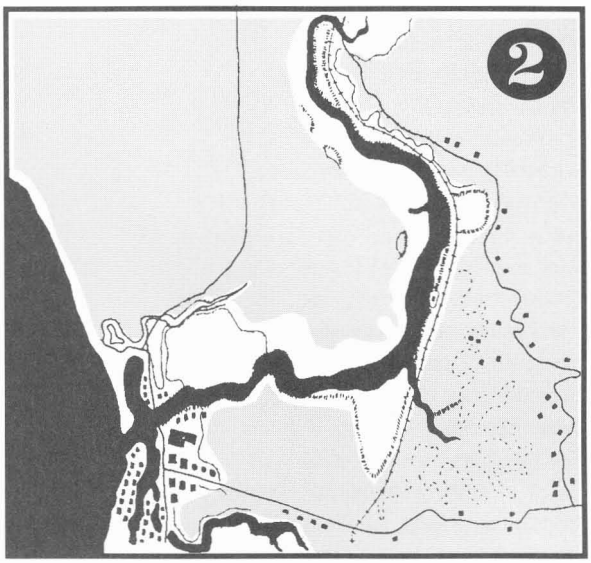
**JO:** No, there wasn't. Ninety percent of the time they never discussed hunting. In the salt ponds [the Fish and Game Wildlife Area] they negotiated it down to two days, 16 hunters. And some hunters started poaching on the Packards! David Packard is the biggest supporter of hunting who has the biggest influence around here, and these guys were poaching on his place, and finally one guy was caught. Packard was originally worried about having birders walk on his place. He hasn't had a single complaint, though hundreds of people use the trails.

**C&O:** *Why did Fish and Game get to manage the sanctuary?*

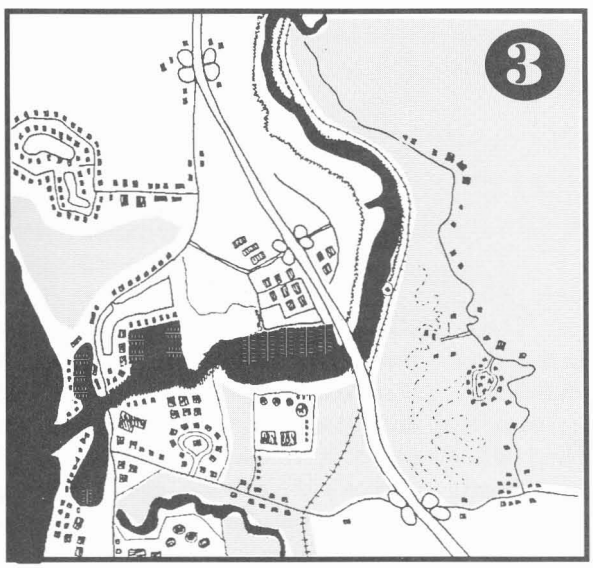
## A History of Elkhorn Slough



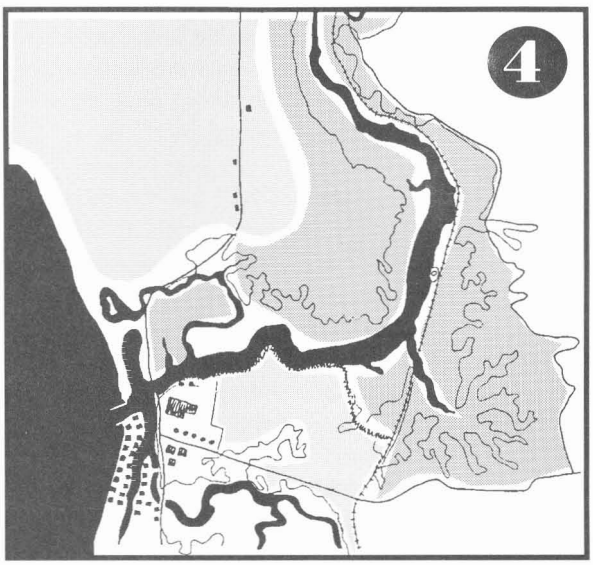

**1854-1910:** In 1854, the U.S. Coast and Geodetic Survey's first map shows several farms and a small pier at Moss Landing. By 1880, two railroad lines are seen. The Salinas River has been diverted to the south.




**1946**: Moss Landing Harbor sets the stage for more development. New harbor channel creates tidal currents that begin to erode the slough's banks and marshes.




**What might have happened:** Development proposals might well have destroyed this wetland forever.




**1980-2000**: Some 4,000 acres are now managed for natural resource protection. With continued hard work, the slough will live for all to enjoy.

Water

Cultivated Land

Restored Wetland

Maps Courtesy of Mark Silberstein

**JO:** Because they are the only agency in the state that would take the sanctuary.

**C&O:** *Are you doing research there now?*

**JO:** Not in the sanctuary. The biggest potential at the marsh is education, it's 90 to 95 percent education, the rest science. What we're working on now around here is mostly sustainable development—ecologically and economically sustainable.

**C&O:** *When you talk of "we," whom do you mean?*

**JO:** A whole bunch of people I work with. In my lab alone [the benthic lab] there are seven or eight of us oldsters, who are not technically students any more—though we all are students—and ten graduate students; 100 grad students at Moss Landing.

**C&O:** *So you have your fingers in all kinds of things.*

**JO:** Sure, it's conservation networking. See this guy just shutting the car door down there? That's Bruce Stewart. He was director of education at the Texas State Aquarium in Corpus Christi. Before that he was at the Monterey Bay Aquarium. Now he's back, this weekend he's on his way to Taiwan, he'll build a new aquarium there. He'll be the director of the first restoration education program for the Elkhorn Slough to be operated through the marine lab. Bruce will start a program at a private school on 100 denuded acres of restorable land. Then it will be exported to public schools. That's how you network. He's the best.

**C&O:** *You're all marine scientists, aren't you? Yet here you are, quite a ways up the watershed, talking of grasslands, forests, hillsides.*

**JO:** We drive between here and the ocean and see. In the process of doing science you have to think about restoring wetlands, and pretty soon you have to think about restoring uplands, and nobody was doing it. So it was the obvious place to go—meanwhile, we're also going to the ocean and scheming on how to go down to the bottom somewhere.

I dove under 20 icebergs in Antarctica this year. Science doesn't have any boundaries, it's just a way of exploring nature. There are just transient interfaces between things—ecotones. So it's easy to slip between. The guy who really tripped me in this direction was Roy Gordon.

**Science doesn't have any boundaries, it's just a way of exploring nature. There are just transient interfaces between things—ecotones. So it's easy to slip between.**

**C&O:** *What's he doing now?*

**JO:** He's retired, writing books about Europe. We can walk him through here and he's blown away. We don't involve him anymore because we're ahead of him, which is wonderful to know.

**C&O:** *So you foresee people coexisting with the natural environment here.*

**JO:** Only in the main part of this watershed. As soon as you dip down in the hills, it's almost impossible. As you go up the slough and dip back a few ridges, that's where you can have the biggest effect. If you just go to Watsonville, they've got a beautiful slough and they're pushing for 400 units built right up to it, and low-density housing in the buffer zone. There's none of this vision.

**C&O:** *You scientists should move there, maybe.*

**JO:** It's all I can do here, right here. It will take four, five years for this place to be a garden of native vegetation, where I almost never have to do much—nothing like mow the lawn. And this will be the kind of example you can walk people through.

**C&O:** *To let other people see this watershed the way Gordon showed it to you?*

**JO:** Yeah. ❐

# *Craig Pritchard*

CONTINUED FROM PAGE 13.

**Craig Pritchard:** Right. It represents almost $2 billion annually.

**C&O:** *You're a farmer yourself?*

**CP:** Well, my family has a couple of ranches in San Luis Obispo County, in the Carrizo Plain. We own and operate about 13,000 acres. We dryland farm and run cows. I'm a general partner in one of the ranches and a farm management graduate from Cal Poly [California Polytechnic State University]. I got here in kind of a roundabout way. I worked with the county assessor for three and a half years and the State Board of Equalization for two and a half years, as an appraiser. Then I took this job, trying to get closer to home and back in touch with my agricultural interests.

**C&O:** *I see by your belt buckle that you've received the "All Around Cowboy 1981 Memorial Award." For what?*

**CP:** I won calf roping, placed in team roping, and won the wild cow milking contest.

**C&O:** *Wild cow milking?*

**CP:** Some genius dreamed up this event where you let a rather large cow through the shute and there's a guy on a horse and a guy on the ground. The guy on the horse ropes the cow and the guy on the ground grabs the cow around the neck. The guy on the horse drops the rope on the ground, so that all that's holding the cow is the guy at her neck. The guy on the horse jumps down, and he usually has a beer bottle in his hand. He has to put milk in his beer bottle. Well, by this time the cow is a little upset, so usually both of them get beat up pretty good.

**C&O:** *Amazing. Where was this?*

**CP:** Down in Ventura.

**C&O:** *Your land trust is unusual in being run by farmers.*

**CP:** The founders recognized a need to provide the agricultural community with an alternative to nonagricultural development. They were looking north to Santa Clara County and, quite frankly, did not foresee that type of development as a positive thing for Monterey County. They learned of the American Farmlands Trust and thought that concept had an application here. We have managed, in the last two years, to solicit a lot of support in the community and have actually completed a couple of major deals. We've also managed to put together a successful land use conference last spring and expanded a little.

We got $4 million from Proposition 70, to acquire agricultural easements within a half-mile radius of the developed areas in the Solano and Pajaro valleys. The first $2 million went toward the purchase of a 120-acre easement on the Violini property that had been in farming for several generations. It's in row crops, immediately adjacent to the city of Gonzalez's northerly boundary. This, in itself, is a pretty amazing feat. What we were trying to do—and, in effect, have done—is to direct the city's growth in an easterly direction, toward the foothills, away from prime lands. This purchase required the approval of the county board of supervisors, because the Prop. 70 funds were to the county, and we were the administrators. The city of Gonzalez came out against the acquisition, but all the neighbors to the north of the Violinis, who would be affected by this easement, came out in support of it: that this land should always stay in agricultural production and that this buffer was needed. That was rather unusual, that they would forego any potential financial gain.

**C&O:** *Farmers on the edge of urban development stand to get a good price for their land.*

**CP:** That's not necessarily why they stop farming. When you're adjacent to an urbanized area, there is generally such discontent with your operation that farmers generally just say the hell with it. It will be somewhat of a problem for the Violinis, possibly, but they have existed next to the city for a long time. But the easement has eliminated the potential for this problem for the adjacent farmers. And it has given the city a clear message as to what lands it can develop and which it cannot. In the long run, this will be somewhat beneficial to the city as well, because it will be able to focus its development of the infrastructure in one direction and will come up with a better plan.

**C&O:** *So you focus on farms along urban edges.*

**CP:** Yes, we are trying to make the most cost-effective use of these funds, and by acquiring easements on property as close to city limits—or spheres of influence—as we can, we feel we can have the greatest net effect. We're trying to preserve the largest amount of prime farmland that we can and, from an economic standpoint, an appraisal standpoint, the real benefit to be gained would be from those landowners who are adjacent to urbanized areas. The further out you move, the greater the length of time before those lands will experience any urban pressures.

**C&O:** *You had to persuade the Violinis of this?*

**CP:** They were interested. They wanted their land to remain in productive agriculture. Their kids wanted it too. Over a year's period of time, negotiation, and contact, they saw the benefit both for themselves and for the industry. And since that time I have been inundated by phone calls from both attorneys and landowners who are interested in similar acquisitions. So the only thing that will limit our effectiveness now is money. And again, the fact that the board has agricultural representation, the fact that I'm an aggie, I think, adds credibility to what we are doing. We speak the language. An environmentalist would have a huge wall to hurdle.

**C&O:** *What was your second big deal?*

**CP:** Azevedo. As far as I know, there is not another project like this in California, taking these almost competing uses—environment and agriculture—combining them into one project and showing them both to be viable.

**C&O:** *Why are farmers interested?*

**CP:** This county, particularly the Castroville

area, has a great number of acres in agricultural production, and quite an historic wetland system still intermixes with this productive land. And everyone recognizes, I think, that there is a need to manage this property in a way that is compatible with what's trying to be accomplished in the Monterey area as relates to restoration and maintenance of historic wetlands.

**C&O:** *Everybody recognizes that?*

**CP:** A lot of work has been done here for quite a while. The county developed a rather comprehensive management plan in its general plan for the Elkhorn Slough area, and it is putting together a restoration plan for the Morro Cojo area. This process has sensitized agriculture to environmental concerns and, I hope, sensitized the environmental community to agricultural interests.

Both camps have never been that far apart as to what they would like to see for maintaining the resource. They just spoke different languages.

A lot of people, particularly in the agricultural community, find additional public ownership of private lands very distasteful. It takes it off the tax rolls, and they see it as a not very effective use of money, particularly with the problems the federal government finds itself in now.

**C&O:** *That attitude did not prevent land purchases on the slough with public funds?*

**CP:** In the Azevedo project we're keeping land in production, and we're attempting to compile data that we can pass on to agriculturalists. They want a productive resource—that's their livelihood. Having to build up toxics on land or having it all wash away is not really in their best interests. A lot of local farmers, particularly in the Castroville area, have been trying to limit water and pesticide use, trying to apply fertilizers at the optimum level and keeping that within the root zone of the plant, not have the nitrates end up in the water source. Several people around here would probably qualify as state-of-the-art operators.

**C&O:** *You said projects here have kept land in production, but one of the first things done on the reserve was the purchase of a dairy farm, so diked lands that had been pastures for 30 years could be put back under water.*

**Monterey County is unique. With its soil, available water, and microclimate, this is one of the most productive areas in the entire world. To forego that in favor of residential development that could be placed anywhere makes absolutely no sense.**

**CP:** Yes, but dairy farming is a dying industry in this area. One of my board members [Louis Calcagno] is a dairy farmer, and he supports the restoration efforts on the slough. He sees that the grasslands in the area are marginal at best because of the soil salinity.

**C&O:** *Do you think that your efforts, combined with others, will enable agriculture to stay vital in this county?*

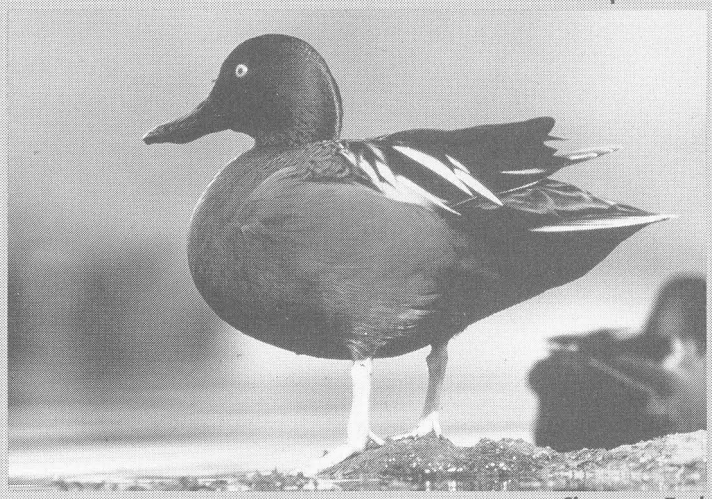
**CP:** Yes. Monterey County is unique. With its soil, available water, and microclimate, this is one of the most productive areas in the entire world. That is not an overstatement. To forego that in favor of residential development that could be placed anywhere makes absolutely no sense. The agricultural landowners around here realize the quality of the resource they farm, and they would like to maintain it.

If we use this land trust concept to offer an economic alternative to an individual who is experiencing urban pressure to develop, nine times out of ten he will take that. I very much believe in that concept. We live in a capitalistic society, and I really don't think that is something that is going to be either legislated away or regulated away.

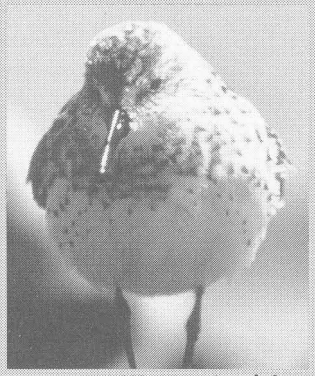
**C&O:** *Does the farmer get as much money from*

# The Birds of Elkhorn Slough

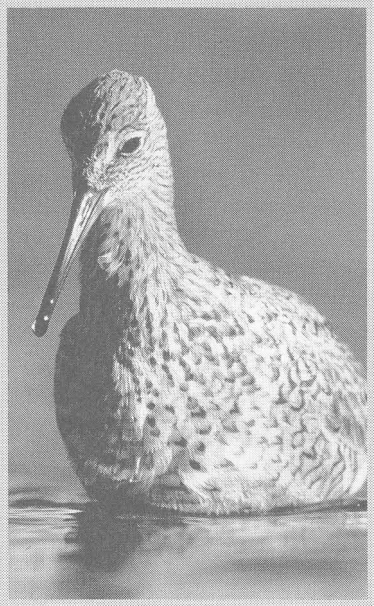
Caspian Tern



Cinnamon Teal



Western Sandpiper



Willet

PHOTOS BY THOMAS ROUNTREE

**MORE THAN 200 SPECIES OF BIRDS INHABIT THE SLOUGH AND ITS IMMEDIATE SURROUNDINGS FOR AT LEAST PART OF THE YEAR.**

*selling an easement to the land trust as he would for development?*

**CP:** No, but he's getting something. The other benefit he gets is that he continues to operate the land, which is the business he's in. And his business, in most cases, is his love. So it turns out to be a really good deal.

**C&O:** *Where does your money come from?*

**CP:** We had the $4 million from Prop. 70, and an initial $1 million from the Coastal Conservancy.

**C&O:** *All state money?*

**CP:** So far. I've been in contact with private foundations. Most are not interested in agricultural projects. They don't understand them and don't see the need. But I'm quite confident that in the next three or four years we will have gained enough recognition to have changed that. All indications are that we are going to be very successful. With that success, people will start looking at what we're doing and will start using this approach in other areas of the state.

**C&O:** *Some key elements in your success would be: a productive agricultural community interested in maintaining agriculture, an environmental community that can talk with agricultural interests, and an organization that speaks the language, right?*

**CP:** Yes. Initially, this concept of the land conservancy met with a lot of skepticism in the agricultural community. It has taken some work to sell the idea. Just the concept itself, of a land trust, a private nonprofit corporation—we don't really answer to anybody. We can indiscriminately acquire these easements and hold them. That's scary. Any property owner, agricultural or residential, will be somewhat skeptical of giving someone else some right to his property. They need someone to sit down and explain to them—someone whom they can trust—and myself and my board of directors have been able to do that. It has taken a lot of work. This isn't a cure-all, it's an option. A landowner can only enter into one of these types of transactions if he's motivated to do so. We make these options available. ❐

LAUREL MARCUS

**On the 150-acre Azevedo Ranch the Coastal Conservancy seeks to maintain strawberry farming with minimal pesticide use while protecting wetlands.**

# Good Neighbors

CONTINUED FROM PAGE 15.

The Coastal Conservancy approved the project. The Nature Conservancy agreed to provide $200,000 toward the acquisition, and, during the next five to six years, to plant and nurture native manzanita species needed to restore the slopes to the natural hillside vegetation. The strawberry fields will be slowly transformed to a natural patchwork of chaparral, oak woodland, and native grassland. The adjacent marshland, (referred to as the Blohm-Porter Marsh) now nearly secured through acquisitions, will be transformed to fresh and brackish water marsh by some new tide gates funded by the Coastal Conservancy. This transformation will restore the marsh to its historic pre-harbor condition and create greater habitat diversity.

The Azevedo Ranch's flat terraces slope down to a series of pocket salt marshes. Most of the property's 150 acres are productive strawberry fields but there is also some marshland, separated from the slough by a railroad embankment. Because these wetlands are drier than others nearby, strawberry growers plowed and planted their edges. The local coastal plan and the Elkhorn Slough Enhancement Plan, as well many growers in the area, recognize both the agricultural and natural values of this land and the need to balance the two uses.

The Coastal Conservancy provided $900,000 toward acquisition of the Azevedo Ranch and brought together two nonprofit organizations for an experiment that will test economically viable techniques to allow intensive agriculture with minimal pesticide use, as well as protecting endangered marshlands. The property will be split into a 67-acre natural preserve held by The Nature Conservancy, and an 83-acre agricultural preserve held by the Monterey County Agricultural and Historic Land Conservancy. The agricultural portion will be used to perfect steps necessary to reduce pesticide use while testing the long-term effectiveness and economic viability of each technique. Agricultural fields abut sloughs and rivers in many areas of this county, but agricultural practices do not normally incorporate natural resource concerns. Under pressure from consumers and rising production costs, however, many growers are interested in reducing pesticide use.

A group of conservationists, scientists, and growers plans to test various biological pest control techniques on the property. As part of the experiment, the 100-foot wetland buffer on the natural preserve will be planted with native vegetation that attracts insects that prey on strawberry pests. Once again, the coalition of farmers, scientists, and conservationists that formed through the years of struggle to protect the slough will apply diverse talents toward solving a problem of concern countywide and statewide. The Azevedo project will not only protect marshes directly, it will also, by example, benefit farmers and a much greater resource area than Elkhorn Slough.

What does the future hold for Elkhorn Slough? Despite years of effort at preservation, we have a beautiful but imperiled system that is highly affected by human development. It is unlikely that Elkhorn Slough will retain its natural resource values much into the future without further human intervention and attempts to fix problems such as tidal scour and pesticide runoff. Elkhorn Slough may provide an example of the future of many of California's natural areas where continued vigilant management of human actions is the key preservation tool and long-term cooperation between many varied interest groups is essential. ❐

# Hanging Ten and Hangi

**A new generation of surfers is making political waves by working to keep the water clean, the breaks awesome, and the coast accessible.**

**by John Grissim**

GARY LYNCH

**Greg Noll, famous big wave surfer, at Crescent City.**

For decades the small band of hard core surfers who rode the legendary big waves near the north jetty of Humboldt Bay spoke guardedly of this daunting and dangerous break, fearing publicity would bring unwanted crowds. But in the early 1980s they became aware of an undue number of chronic sinus infections, skin rashes, headaches, and sore throats and began to suspect the cause of their ailments was the untreated toxic water spewing from two nearby pulp mills. So they decided to go public with their plight, thereby starting a chain of events destined to become an historic chapter in the annals of surfing.

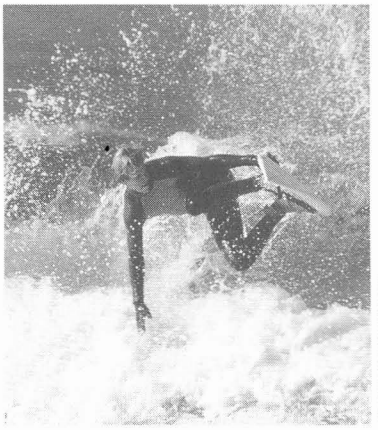
Looking for someone to do their talking, they approached the Surfrider Foundation, a four-year-old nonprofit group based in Huntington Beach, whose members are mostly surfers committed to protecting beaches, waves, and marine water quality. The foundation in turn called on Mark Massara, an attorney and himself a surfer, whose *pro bono* services were offered by the prominent San Francisco law firm of McCarthy, Flowers & Roberts. Massara's investigations revealed that the large pulp mills owned by Louisiana-Pacific Corp. and Simpson Paper Co. had for years been pouring toxic soup into the ocean in violation of the Clean Water Act, and they had successfully defended against all efforts by the U.S. Environmental Protection Agency to enforce compliance.

# g Tough

In May 1989, the Surfrider Foundation filed a citizen's law suit against the pulp producers in the U.S. District Court for Northern California, charging them with over 40,000 violations of the Clean Water Act since 1984. The EPA and the Department of Justice subsequently joined the suit, and the two companies realized they were not dealing with a bunch of sleep-on-the-beach, beer-for-breakfast surf rats.

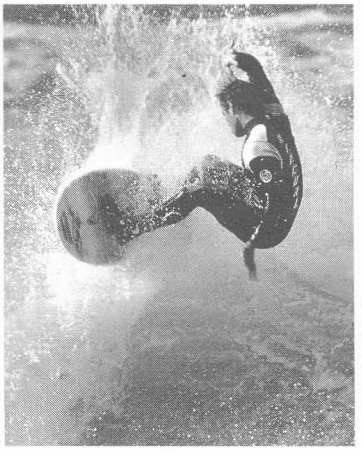
With the EPA and Justice involved, attorney Massara's firm directed him to urge the Surfrider Foundation to settle, accepting the defendants' offer to pay legal fees. "They, in effect, patted us on the head and said 'Nice going, guys. You won. You shamed the EPA into getting involved. Now let them take it from here,'" said Rob "Bird Legs" Caughlan, president of the Surfrider board of directors and longtime surfer, who runs a small advertising agency in Menlo Park specializing in public interest campaigns. "I said to Mark: 'Tell your bosses I'm the client and I don't want to settle; and, by the way, how would you like to come work full time for the Surfrider Foundation as our chief legal counsel?'"

Massara quickly agreed and soon was working out of his home near San Francisco's Ocean Beach, where he regularly surfs the challenging double overhead waves. Several weeks later, an attorney from Beverage & Diamond, a Washington, D.C., firm representing the defendants, met with Caughlan and Massara in the latter's living room. As Caughlan tells it, "He was smooth and friendly and in so many words explained: 'We're big and tough and well connected, and we help write the laws, and we can be nice, but we will kick your butts.'" In responding, Caughlan mentioned that during the Carter administration he had worked on special projects at the White House as a special assistant to the EPA's administrator, and that he had a few connections of his own. "The point was, we wanted him to know that he was not talking to the Pedro Point Surf Club," Caughlan explained.



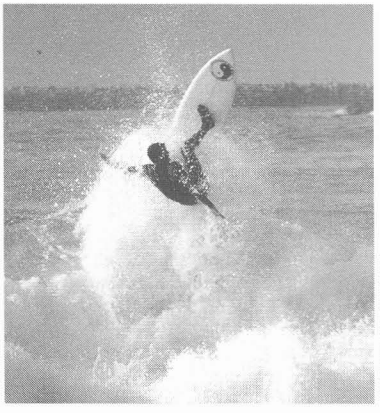
DON MONTGOMERY

Surfrider enlisted the aid of former Congressman Pete McClosky, one of the authors of the Clean Water Act, who was in private law practice. On September 9, 1991, following many months of unsuccessful legal maneuvering, the case was settled. Louisiana-Pacific and Simpson Paper agreed to pay a total of $5.8 million in fines and up to $4 million per year each for the next two years while they build treatment plants to meet the EPA's stringent toxicity limits for their mill effluents and install varied processing and pollution control improvements at a total cost of up to $100 million. According to Massara, the penalty is the third largest ever assessed under the Clean Water Act and the largest on the West Coast.



DON MONTGOMERY

The two firms also agreed to allow the use of whole effluent bioassay chronic toxicity tests of marine organisms to determine the effluent's toxicity level. "This is the first step toward measuring the effluent's effects on human health," explains Massara. Both firms already use an oxygen delignification pulping process to reduce chlorine use, but Simpson will attempt within a year to eliminate completely its use of elemental chlorine. For its part, L-P agreed to design and construct an extension to its outfall pipeline and diffuser system, which currently extend half a mile off shore. In addition, L-P and Simpson agreed to donate $350,000 to the Surfrider Foundation to construct camping facilities and an environmental conference center on the north jetty on land owned by the Bureau of Land Management, and pay Surfrider $500,000 in legal fees. They also promised to use recycled paper for the thousands of pages of data to be filed under the settlement agreement.



DON MONTGOMERY

"We're glad to have this behind us," said

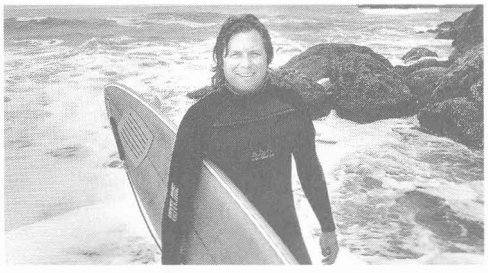

ERIC SCUDDER

**In August 1990, a coastal survey of northern San Diego County found 31 possible nonpoint source pollution sites in the 5.2-mile area from San Elijo Lagoon to Batiquitos Lagoon.**

Louisiana-Pacific spokesman Barry Lacter, commenting on the settlement from the corporation's Portland, Oregon, headquarters. "We want to get back to the business of manufacturing pulp."

Speaking for Simpson, Aaron Gettel, who manages operations at the Humboldt pulp mill, explained that his company settled not because it felt it was polluting ("our effluent is the color of ginger ale, not black as some have said"), but because it felt its money was better spent on research and the installation of improvements. "We'll use both existing pollution control technology and technology from other industries to do it," he said, "and I'm confident we'll end up with one of the cleanest mills in the country."


DON MONTGOMERY



CHRISTINA TACCONE

**Surfrider president Rob Caughlan (left) and attorney Mark Massara (right).**

"This victory has really put us on the map," remarked Surfrider board member Reeve Woolpert, who works with the nonprofit Environmental Defense Center in Santa Barbara. "The irony is that the traditional image of the apolitical dumb blond surfer taking on the big boys of industry and winning has gotten us an enormous amount of ink—and amazing credibility. As important, surfers no longer have to live with the stigma that we're all a bunch of lone wolves who can't get organized."

### *The Changing Surfer*

From its earliest days in California, notably the years soon after World War II, surfing has been as much a life style as a sport. Thanks in part to Hollywood and Bruce Brown's classic 1960s documentary *Endless Summer*, the image of the surfer has been that of a young, lone adventurer, footloose and free spirited, happily chasing waves and good times, ever the existential romantic hedonist. Today, however, while the word "surfer" still evokes these characterizations (which, together, constitute the core image of the surfing life style industry) actual surfers have grown in diversity as well as in number. Tens of thousands are in their thirties, forties, and fifties, and have families and careers in business and the professions. They continue to surf by juggling work schedules to get to the water when the surf is up. Mark Massara is a case in point. Another is computer consultant Glenn Hening, who incorporated the Surfrider Foundation in 1984 as a nonprofit organization, with the help of the Public Justice Foundation in Santa Monica.

Hening promptly enlisted Tom Pratte, then environmental director of the Western Surfing Association, and together they recruited an 11-member board of directors, all surfers, including Steve Merrill, a carpenter, and Dan Young, an expert surfboard repairer in Santa Cruz, graphic artist David Moeller, Los Angeles film maker Chris Blakely, and Jim Knox, a teacher in Imperial Beach. Pratte assumed duties as the fledgling organization's executive director, and would serve in that capacity for the next five years, working first out of Hening's office in Pasadena, then from Pratte's home in Huntington Beach. In 1986, the foundation acquired its own small office in Huntington Beach.

Aided by appeals published in the sport's two bibles, (*Surfer* and *Surfing* magazines) and membership brochures placed in surf shops, the Surfrider garnered some 250 members in its first year, doubled its total in each of the ensuing four years, and in the fifth year reached about 5,000. Financial support came from surfing-related industries such as Clark Foam, of South Laguna—owned by Gordon Clark, who helped develop the use of foam (replacing wood) for surfboards, it now supplies foam for

all the surfboards made in the United States; Patagonia, the outdoor clothing manufacturer; and, later, Body Glove, maker of wet suits.

In its first legal battle, the foundation challenged a U.S. Army Corps of Engineers' proposal for a mile-long experimental detached breakwater off San Diego's Imperial Beach. "The purpose of the breakwater was to solve a perceived beach erosion problem, but it would have ruined over a mile of surfing beach," explained Pratte. The suit, filed together with two private citizens, successfully argued that the project's environmental impact statement failed to consider alternative solutions, such as sand replenishment. The project was later scrapped.

"So that's an original thing this organization set out to do, protecting surf breaks," said Pratte. "And now, if surfers stay on their toes, they can do it."

"A lot of people think that 'surfer organization' is an oxymoron, but we were also tapping into the grass roots energy of a committed surfing population who realized they may lose their waves if they didn't work together as a political force," remarked Caughlan, who joined the board in 1986.

Indeed, with nearly 400 surf shops nationally serving as the informal town halls of surfdom, Surfrider members gathered forces to address local issues. Near Crescent City, they succeeded in removing (with explosives) a dangerous rock from the lineup at Whaler's Island. In Montecito, Santa Barbara County, they fought a successful two-year battle to maintain public access through Hammond's Meadow to Hammond's Reef. A developer had obtained permits from the Coastal Commission and the county to close a long-used pathway across the meadow, the only access to the surfing beach at high tide. Surfrider sued, contending that because the trail had been used by the public for a long time, it had, by implication, been dedicated to public access. Some 700 affidavits submitted in support of that argument won the case.

More recently, Surfrider filed a complaint against the Coastal Commission and the State Department of Parks and Recreation challenging State Parks' plan to impose an average $6 access fee at many state beaches from the Oregon border to Baja. In the case, which is still moving through the court, the foundation argued that such fees are an unfair restriction to people of limited economic means.

Despite its recent high profile from success-

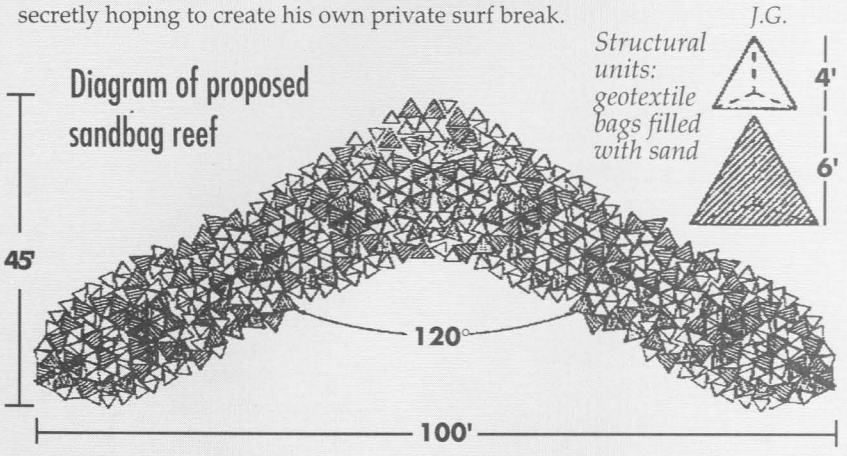
# Artificial Reefs for Better Surf Breaks?

Scott Jenkins and David Skelly of the Scripps Institution in La Jolla are experts on coastal oceanography, structures, and water quality. As Surfrider's environmental program directors, says Skelly, "we try to assist local efforts with our past experience so they don't have to reinvent the wheel every time they deal with a polluted creek or a planned shoreline structure that will interrupt the flow of sand."

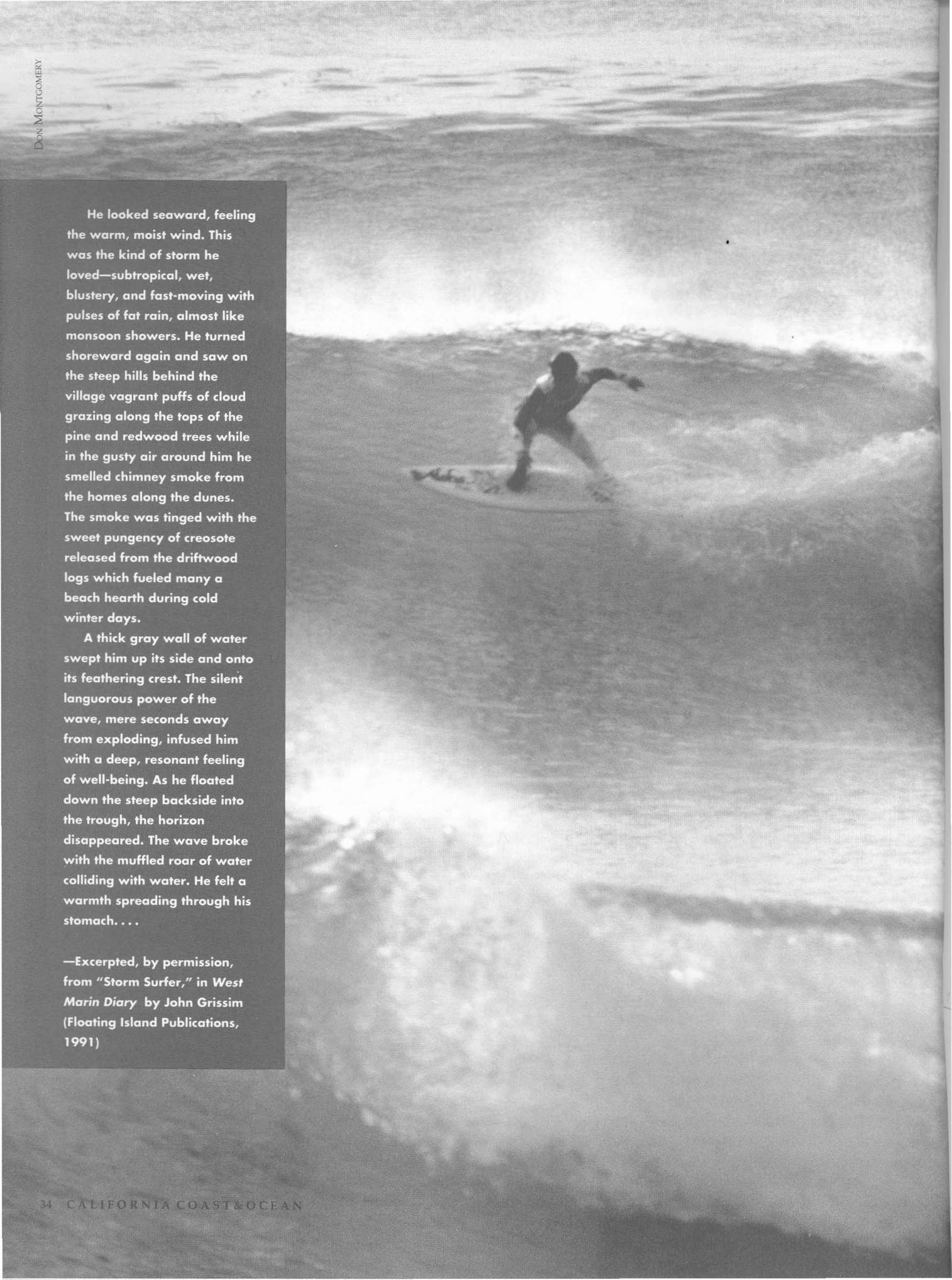
But for most young surfers, water quality testing is for people with ties. What really interests them is that the two engineers are experimenting with developing artificial reefs off sandy beaches that will, among other things, create surfable waves. Skelly: "There's an underlying philosophical tension in this effort because the Surfrider Foundation has to a great extent fought the construction of new structures along our coastline. But if we can create a submerged reef using sand-filled bags made of some fiber that will decay in ten to 15 years and leave nothing out there but sand, we will have solved our dilemma." The engineers also say an artificial reef can be expected to create an inshore habitat for sea life and increase erosion protection of the shoreline.

Whether it would do so is by no means clear. Lesley Ewing, a coastal engineer with the Coastal Commission, says that whether an artificial reef protects against erosion depends on its site: currents, topography, and other site-specific factors. As for providing fish habitat, Ewing says that no long-term study has been done showing how artifical reefs affect fish populations. An artifical reef might attract fish but may not increase fish populations because the reef may make them more accessible to fishing.

Skelly and Jenkins envision tetrahedron-shaped bags roughly six feet high and holding two to three cubic yards of sand. Because the bags land right-side-up no matter how they're dropped, they can be dumped at a site and easily built up to the desired form in interlocking layers. "We tried the idea in our hydraulic lab and the small-scale bags interlocked beautifully," Skelly reports. "We may end up using a biodegradable geotextile like a filter cloth for road beds." They plan to testing a prototype reef structure off the Scripps pier. Skelly, who like Jenkins is an avid surfer, denies he is secretly hoping to create his own private surf break.




COURTESY OF SCOTT JENKINS



DON MONTGOMERY

He looked seaward, feeling the warm, moist wind. This was the kind of storm he loved—subtropical, wet, blustery, and fast-moving with pulses of fat rain, almost like monsoon showers. He turned shoreward again and saw on the steep hills behind the village vagrant puffs of cloud grazing along the tops of the pine and redwood trees while in the gusty air around him he smelled chimney smoke from the homes along the dunes. The smoke was tinged with the sweet pungency of creosote released from the driftwood logs which fueled many a beach hearth during cold winter days.

A thick gray wall of water swept him up its side and onto its feathering crest. The silent languorous power of the wave, mere seconds away from exploding, infused him with a deep, resonant feeling of well-being. As he floated down the steep backside into the trough, the horizon disappeared. The wave broke with the muffled roar of water colliding with water. He felt a warmth spreading through his stomach. . . .

—Excerpted, by permission, from "Storm Surfer," in *West Marin Diary* by John Grissim (Floating Island Publications, 1991)

ful litigation, however, the Surfrider Foundation, whose membership now tops 20,000, remains predominantly focused on grass roots conservation projects. It is managing a public accessway at Mendocino's Moat Creek beach under contract with the Coastal Conservancy and has contracted to manage a second in Malibu (see sidebar). It supports the Coastal Commission's Adopt-A-Beach program, a classroom audio-visual slide presentation called Respect-A-Beach, and is organizing a program to monitor beach water quality with the help of the 700-member Surfer's Medical Association. This latter program involves mobilizing beach-goers, surfers, and local volunteers to gather coastal water samples for rigorous testing (already begun at ten sites). The aim is to provide needed evidence of pollution—especially involving non-point source pollution such as urban runoff and toxic dumping into storm drain systems—that will increase public awareness and help influence legislation and enforcement.

All Surfrider projects have grown directly from the members' experiences while indulging in their favorite activity. Steve Merrill, for instance, explained why he founded the Baja Assistance Program, in which a caravan of cars and vans delivers donated food, goods, clothing, and medical supplies to a number of needy Mexican fishing villages along the coast: "You can't help but notice the poverty all around you when visiting Baja." Surfrider pays for postage and printing of fliers to the surfer community, but the rest of the travel costs are covered by the volunteers who make the trip.

Among the young membership recently, however, the keenest interest has focused in another direction, one that may be surprising to outsiders for whom the word "surfer" still evokes the mythic *Endless Summer*: At the Scripps Institution of Oceanography in La Jolla, two coastal engineers who are also foundation staff members are experimenting with designs for artificial reefs that might create perfect surf breaks off otherwise unsurfable beaches (see sidebar). With so many surfers competing for position in the lineup in overcrowded surf spots, the empty waves of *Endless Summer* are a thing of the past.

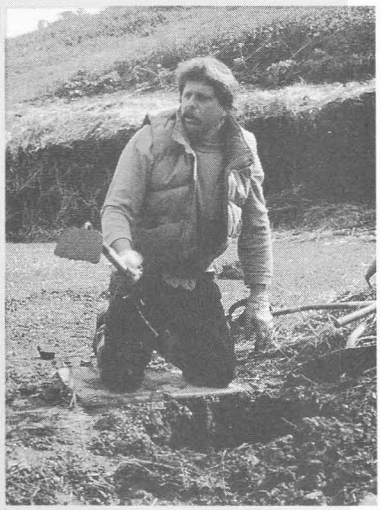
### Growing Pains

Surfrider's ambitious program agenda and impressive achievements during its short history have not been without growing pains. As

# Surfers Managing Accessways

Under a unique arrangement—and one the State Coastal Conservancy hopes to see emulated—the Surfrider Foundation has assumed responsibility for managing two public accessways, one in Mendocino County, the other in Malibu. Under contract to the Conservancy, the foundation has since summer 1989 been managing access to one of the few beaches along the southern Mendocino County coast, at Moat Creek. Using volunteers, Surfrider has maintained the parking area, gates, signs, and a trail to the beach. The Department of Fish and Game and the Department of Parks and Recreation expressed reluctance to undertake management in light of shrinking staffs and budgets.

A core group of about a dozen surfers and about 25 students from a private elementary school are the primary caretakers, according to the Surfrider's Bryan Thurmond. He says the project is going well. The children keep the parking lot and trail free of trash as part of the Coastal Commission's Adopt-A-Beach program. His group is now planning to revegetate an area that was denuded by cars driven too close to the beach before the gate was constructed. A local surf shop, Surf Therapy, organizes the volunteers. The minimal expenses come out of the surfers' pockets or are donated in kind, as in the case of trash bags. "We want to avoid asking for [money] donations," Thurmond says.



TERRI NEVINS

**Bryan Thurmond and other Surfrider volunteers helped to build and are maintaining a gate and trail at Moat Creek, Mendocino County.**

Building on the success at Moat Creek, the Conservancy has contracted with Surfrider to manage a second accessway, in Malibu: a 100-foot walkway and a stairway leading to Escondido Beach. Both the Los Angeles County Department of Beaches and Harbors and the Department of Parks and Recreation were unwilling to operate this accessway, which does not generate revenue. Because of the much higher use and maintenance expenses expected in Malibu than at Moat Creek, the Conservancy has authorized the use of $50,000 from the Coastal Commission's In Lieu Fee Account (a fund developers pay into when they build on the coast) to Surfrider to manage the accessway for ten years. However, the project has been stalled because homeowners who dedicated an easement as part of a Coastal Commission permit condition later blocked the stairway. They are now being sued by the state.

*C&O*

GARY LYNCH

**Riding a right break off Humboldt's north jetty, in the shadow of the pulp mills.**

membership and activities grew, so did costs. Surfrider leaders early on courted the surfing industry for corporate contributions, pointing out that the foundation's good works directly affect the industry's bottom line. Some within the leadership maintain, however, that corporate donations compromise the integrity of what should be a grass roots environmental group supported only by its members, and that fund raising has been misdirected and overly aggressive.

Nearly 50 surfing industry companies currently contribute to the foundation. Most give $1,000 annually, 11 chip in $5,000 each, and seven donate $10,000. But direct financial support began tailing off recently, capped by a decision of the Surf Industry Manufacturers Association (SIMA) to favor the American Oceans Campaign with a $20,000 gift, twice the amount given to Surfrider. With several sizable corporate donations cancelled because of the recession, the foundation has been looking outside the surf industry for sponsorship from the likes of Taco Bell, DuPont (makers of the nylon used in wet suits) and Beach Beer. While some members are bothered by this new tack (and one critic points out that the majority of surfers are below drinking age), others, including Rob Caughlan, claim that with the foundation's operating budget climbing to $500,000 a year, "corporate sponsorship is the only way we will be able to bark with the big dogs."

"It's a two-edged sword," said Reeve Woolpert. "We should be a membership-based organization because that makes for more power and flexibility. You can take stands without worrying about industry ties. But I understand the need for money. So we look at a corporation's green index. Does it subscribe to the Valdez Principles? We look at those things. . . ."

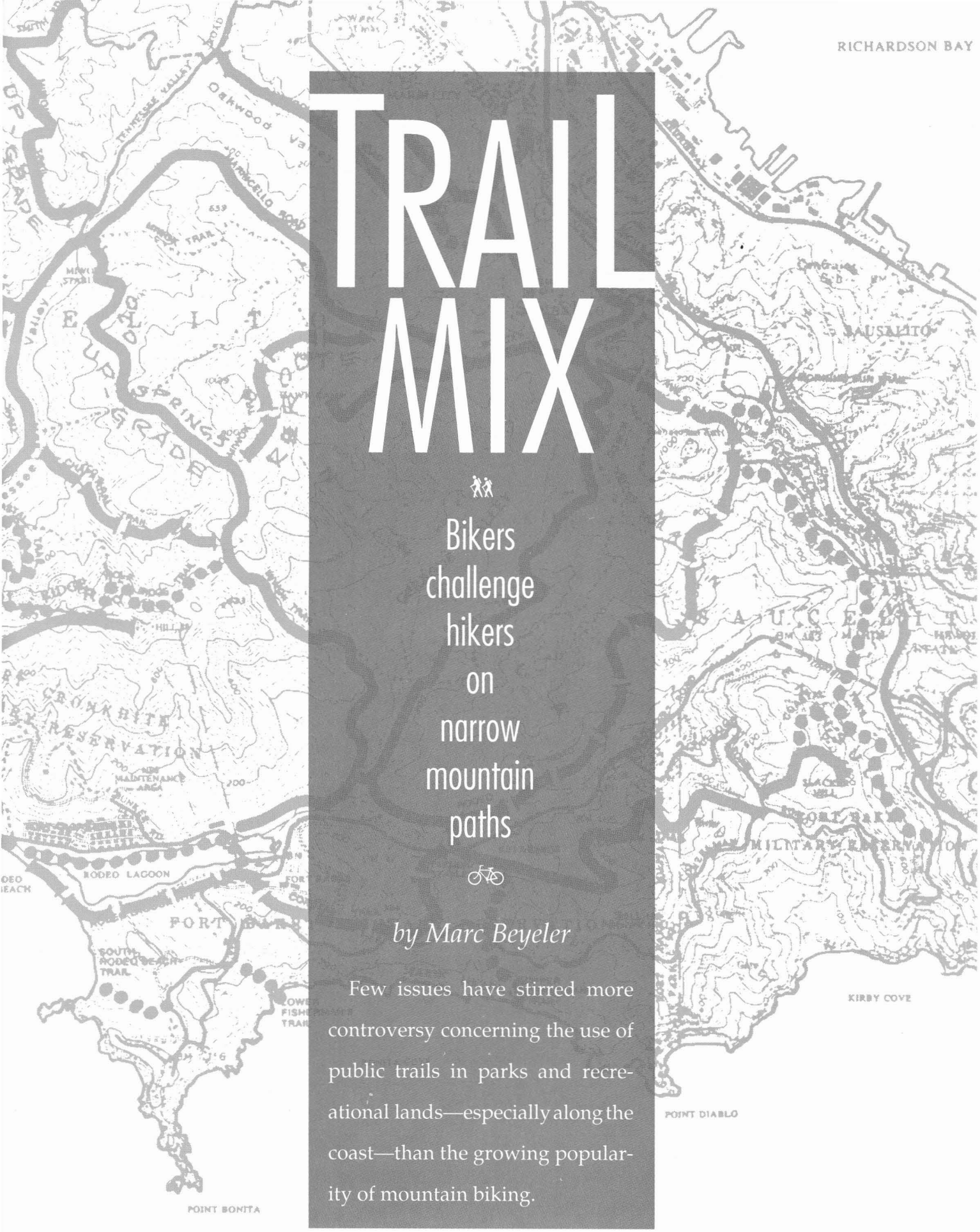
Alston James of *Surfer* magazine, who has chronicled Surfrider's skirmishes with the surf industry, adds that the simultaneous shift toward grass roots chapters on the one end and beer-and-fast-food sponsorship on the other has created a kind of organizational schizophrenia, but he believes the future is clearly in the hands of the local chapters. Steve Merrill, meanwhile, predicts that growth will be in both directions: "The local future will be in the hands of local chapters, while the foundation will also be thinking and acting globally." The new executive director, Jake Grubb, tries to juggle the concerns of a growing membership base (with chapters springing up in Hawaii, the East Coast, and France) with the board's priorities, helping weld them into a smoothly functioning whole. Among his tasks, he said, will be convincing the board to relinquish some of its power and money to the local chapters.

"My vision is the linking of this organization with others like it, such as the Sierra Club and the Natural Resources Defense Fund, so we can together address environmental problems throughout the country," Grubb said. "One thing we've already seen is that we now command a serious ear from government." Mark Massara shares the vision: "Ten years down the road, I want the Surfrider Foundation to be a very visible national environmental organization concentrating on good environmental litigation on water quality and access issues."

Looking back recently, Tom Pratte reflected on the organization's formative years: "I feel my greatest accomplishment was seeing that the ocean's waves were finally recognized by the government's bureaucrats and decision makers as recreational resources that require protection. Before Surfrider was established, no environmental organization on the coast was interested in wave quality."

If past experience is an indication, it's a good bet that Surfrider will be making waves, and protecting them, for some time to come. ❐

*John Grissim is a writer living in Inverness. His work has appeared in* Rolling Stone, Sports Illustrated, *and many other publications. He writes a column for the weekly* Point Reyes Light.

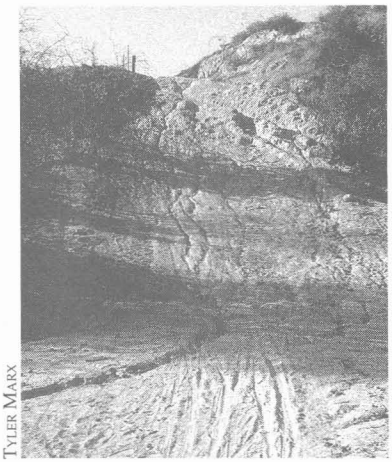



# TRAIL MIX

## Bikers challenge hikers on narrow mountain paths

*by Marc Beyeler*

Few issues have stirred more controversy concerning the use of public trails in parks and recreational lands—especially along the coast—than the growing popularity of mountain biking.



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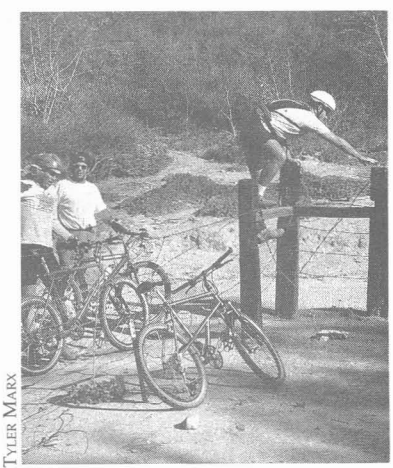

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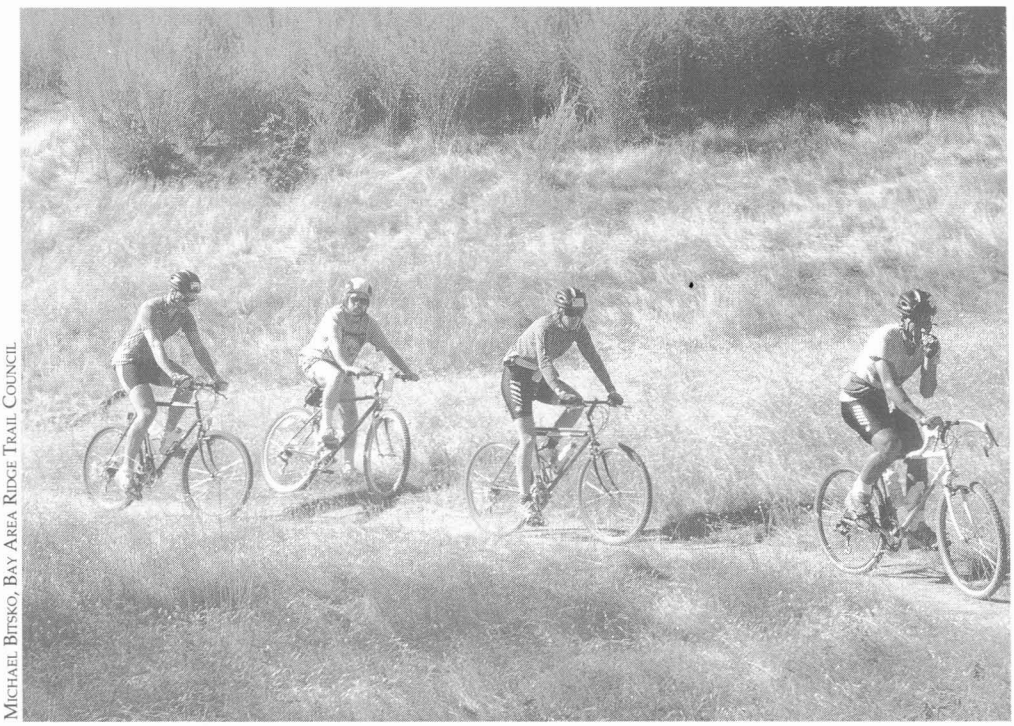


MICHAEL BITSKO, BAY AREA RIDGE TRAIL COUNCIL

**Narrow trails, like this one in Sanborn County Park, Santa Clara County (right), are scenes of conflict between mountain bikers and other trail users. (Upper left) Mountain bike tracks. (Lower left) Fence is no barrier to bikers who seek the thrill of riding down a steep hill on private land in Orange County.**

More and more bikers seek access to single-track trails that until now have been available only to hikers and, in some cases, to horseback riders. They are meeting with angry resistance from these traditional trail users, who complain that the bikes endanger and disturb them. Throughout coastal California, and elsewhere in the state and the nation, agencies responsible for trail management are struggling to develop policies to reduce conflicts and to avert potential negative impacts on natural resources and habitat.

Many trail users, organized local and national environmental organizations, and public land managers have expressed severe reservations regarding the use of mountain bikes on hiking and riding trails and oppose unrestricted entry of mountain bikes to trail systems.

Ten years ago, mountain bikers were not even identified as a trail user group. Now, some 15 million of these all-terrain bikes are in use throughout the nation. Active riders total perhaps 2 million nationwide, and "my guess is that about 330,000 live in California," according to Tim Blumenthal, editor of *Mountain Bike* magazine and member of the International Mountain Bicycling Association board of directors. "California is by far the most popular place to ride."

It is not surprising, therefore, that some of the most acute trail user conflicts are taking place on coastal and bay wildlands in this state. Among the most serious disputes is under way in Marin County, where the original mountain bikes were constructed and tested in the 1970s by some creative young people who were experimenting with ways to strengthen their ten-speeds to endure a fast ride down steep dirt trails, like those on Mount Tamalpais.

### Emotions Run High

Bicyclists argue they have as much right to single-track trails as do hikers or horseback riders. But some pedestrians and equestrians contend that bikes are a safety hazard, that they disturb others' peace of mind, and that they should therefore stay on wider trails or fire roads.

"We're more like hikers or horseback riders than motorcyclists," argues Michael Kelley, president of the Bicycle Trails Council of the [San Francisco] East Bay. "We want loop trails, we want to see the wildlife, get out in the woods, have a picnic." A fact sheet on the Golden Gate National Recreation Area, prepared by the Bicycle Trails Council of Marin, states: "The quiet solitude of a single-track trail allows a natural experience that is particularly satisfying."

A longtime Marin Country resident and hiker thinks differently: "The bikers are the most arrogant single-minded people I've seen. There's an outlaw mentality. Going off the road is part of the thrill, and so is speed." Jim Zimmerman of the Tamalpais Conservation

Club contends that bicyclists speed down narrow trails, causing walkers to leap for safety. During one hike, he said, some bikers "only managed to avoid hitting us by throwing themselves in the bushes." Meanwhile, Linda Rubio, owner of Miwok Livery in the GGNRA, complains that bikers startle horses. She fell and was knocked unconscious, she says, when a horse she had been training for six months was spooked by a biker's approach on a fire road. Now, she says, when she takes a group of riders on a trail, she hires an extra person to ride behind the others, keeping a lookout over his shoulder to scream out "Bike!" as warning. "I have my group pull over and always give the bikes the cliff side," she says, laughing.

To Rubio, the very sight of the bikers is offensive: "The last thing I want to see when I'm hiking and [horseback] riding are flashing metal and latex suits. I might as well be on [Highway] 101." Sierra Club hike leader Richard Watson says the bikes are too fast for their setting: "You lose the mood the country inspires when a bike comes up on you at 25 to 35 miles an hour."

To such complaints, Blumenthal responds that "some hikers and equestrians can't get used to a new trail user group. Bikes go faster and are more colorful, so it's easy to see how they can be unsettling. But no one has shown evidence that having hikers, horses, and bikes on the same trails leads to a significant increase in accidents." Jim Hasenauer, president of IMBA, says that complaints about aesthetics are the "most frustrating to deal with. Some people think bikes don't belong in the back country because the Indians didn't have them, they are machines, they are the wrong color, etc. The people who hold these philosophical opinions have a disproportionate amount of clout."

### Lines Are Drawn

Marin County bikers are now challenging policies that exclude them. They are pressing public agencies for more access, and have announced their readiness to take their case to court. "We are willing to tolerate a ban on designated wilderness areas, but that's based on the assumption that other areas, including single-track trails in those areas, would be open to mountain bikes," said editor Blumenthal, who is on the board of the International Mountain Bicycling Association.

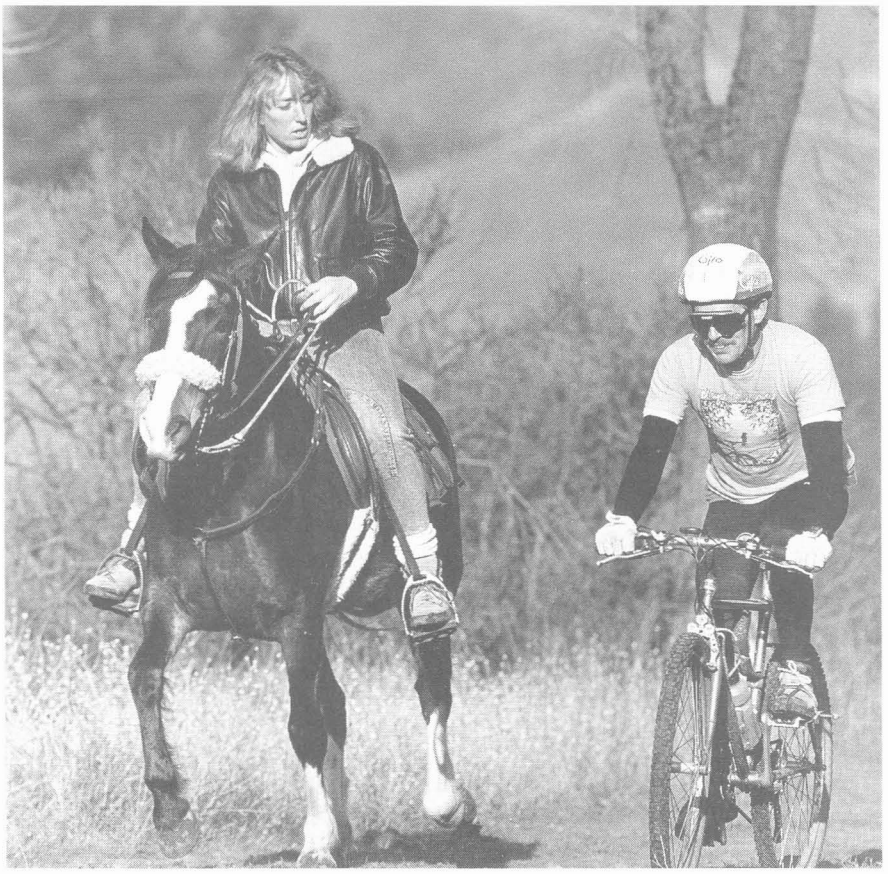
The Bicycle Trails Council of Marin has petitioned the Marin Municipal Water District to open some single-track trails to bikes and allow the council to build and maintain 15 miles of new trails on Pine Mountain, considered to be the most pristine area of the watershed. On adjoining land owned by Marin County Open Space District, the bicyclists have requested that 10 to 20 percent of all single-track trails be open to them and one bike demonstration trail be established.

In another move, the Bicycle Trails Council has announced it will challenge in court a Golden Gate National Recreation Area plan to exclude bikers from single-track trails in the Marin headlands. Unlike most national parks, the GGNRA has until now allowed bikers unlimited access to such trails.

To hold their ground and in counterattack, hikers and equestrians in June founded the Trails Preservation Council. Martin Friedman, who represents the Tamalpais Conservation Club to the council, describes the bicyclists' proposal as "outrageous, and very, very alarming." The council has proposed its own agenda, which includes keeping bikes off hiking trails, increasing the number of rangers, improving enforcement of bicycle speed limits, licensing bicycles, and requiring them to carry a warning device, like a bell.

***"The last thing I want to see when I'm hiking and [horseback] riding are flashing metal and latex suits. I might as well be on [Highway] 101."***

**In Tilden Park, (Alameda County), Michael Kelley of the Bicycle Trails Council of the East Bay rides with Debbie Young, of Grizzly Peak Stables.**



MARK KOEHLER

### Searching For Answers

*"Some people think bikes don't belong in the back country because the Indians didn't have them, they are machines, they are the wrong color, etc. The people who hold these philosophical opinions have a disproportionate amount of clout."*

At this point, no one can say whether the trail use conflict in Marin County is a harbinger of what is to come in other areas, or whether compromises can evolve. In the Santa Monica Mountains and the East Bay Regional Park District, for instance, bikers have taken creative initiatives toward coexistence with other users and the habitat, as will be described later. Throughout California, and elsewhere in the nation, agencies responsible for trail management are grappling with where to allow mountain bikes, and under what circumstances. Hammering out a policy requires a continuing process of discussion and policy implementation among affected trail users and public land management agencies. There is no standard answer.

In national parks, bikes are usually permitted only on roads and paved trails. In national forests they are allowed on roads and most trails. The U.S. Bureau of Land Management, which controls about 1.8 billion acres of public land in California and ten other western states (including Alaska), has opened its trails to bikes. Designated federal wilderness areas are off limits.

PAUL MCKENZIE

**Work day in Briones Park (Contra Costa County), organized by the Bicycle Trails Council of the East Bay.**

In California state parks, bikes are prohibited on most trails and permitted on paved and unpaved roads. In significant natural areas in this state and wildlands managed by county or special district jurisdictions, such as the East Bay Regional Park District and the Mid-Penisula Regional Open Space District, regulations vary, and these agencies have developed successful systems of multi-use operations along with trail restrictions that offer suggestive lessons for long-term management. Even so, continuing disputes threaten to polarize opposing parties and create adversarial proceedings, such as in Marin County.

Policies vary widely among states. Washington permits bikes on most state park trails, including most single-track trails, a total of almost 600 miles. In contrast, Washington allows horses on less than 10 percent of its trails, according to Don Powell, operations program manager. He said that the level of conflict between bicyclists and hikers is "fairly low."

Oregon excludes bikes from state parks altogether, though the State Department of Parks and Recreation is now considering whether to open fire and service roads to them. Bicyclists are directed to the 10,000 miles of trails in the national forest in this state.

In Colorado, bikes are welcome almost everywhere in state parks: They may use 220 miles of a total 250 miles of trails. "It's great to see people using the trails—that's what they're there for," said State Trails Coordinator Stuart Macdonald. They may also use about 11,000 miles of trails in the national forest in Colorado.

### Safety, Resource Impacts

The issues of safety, and of adverse environmental impact from mountain bikes, remain emotional. To date, few studies exist. While accidents in which hikers or horseback riders are injured by bikes appear to be rare, no one keeps track of near misses and confrontations on the trails. Most bike accidents involve only one biker, according to statistics reported by three San Francisco Bay Area park districts.

Mountain biking has, however, increased the number of accidents that demand staff time, according to Chief Ranger Casey May of the Marin Municipal Water District, which allows bikers only on its fire roads on Mount Tamalpais. Of 30 accidents in 1991 as of August, 19 were bike related. And in 1990, he said, "We responded to 35 accidents that required medical aid. If we didn't have to deal with bikes, we would only have had to respond to seven."

As to resource damage, "Half a dozen horses can make a trail look like a Panzer division went through," in wet weather, but "for every horse there are 100 bikes," commented Richard Watson, of the Sierra Club's Marin County chapter. "Everyone contributes to erosion—hikers, bikers, equestrians," pointed out Felix

Arteaga, state park district superintendent with jurisdiction over Mount Diablo State Park. "One cannot say that a horse does less damage to a trail than a bike does."

An environmental impact report by the Santa Clara County Park District for Ranch County Park found than bikes did not have a negative impact on the resource and recommended closing trails to both horses and bikes after rain.

Mountain biking advocates cite a study by Joseph Seney at Montana State University, completed for a master's thesis in earth sciences, which concluded that trail design and construction are the key factors affecting erosion. Seney compared erosion caused by horses, hikers, and bicyclists on different kinds of trails and concluded that bicycles cause about as much damage to trails as hikers, using such measures as water runoff, sediment runoff, and soil compaction. Land managers in Colorado and Oregon concur that the main factor in erosion is the design of the trail itself.

### Role Models

In spite of continuing disputes, mountain bikers are gaining acceptance in certain locations, largely as a result of innovative multi-use trail management initiatives and educational efforts launched by bicycling organizations. Bike clubs have agreed to strict enforcement of speed limits and other trail behavior rules. Bikers are teaching their own how to be polite and considerate. The Bicycle Trails Council of Marin and the Concerned Off-Road Bicycling Association (CORBA) in Santa Monica offer classes to new bicyclists in safe, low-impact riding techniques. The Marin group has also organized educational trail barricades: stopping all trail users to hand out information on trail etiquette and safety.

The International Mountain Bicycling Association's Rules of the Trail (see sidebar) are widely available and are even printed on some bicycling equipment. The association, based in Bishop, was formed in 1988 to promote responsible biking and maintain access to trails and now has about a thousand members, including bicycle clubs, manufacturers, retailers, and individuals. Some bike manufacturers buy a membership for every bike buyer.

In addition to such educational work, bicyclists are also policing themselves in some areas by means of volunteer bicycle patrols. In the Santa Monica Mountains National Recre-

## IMBA's Rules of the Trail

**1. Ride on open trails only.** Respect trail and road closures (ask if not sure), avoid possible trespass on private land, obtain permits and authorization as may be required. Federal and state wilderness areas are closed to cycling.

**2. Leave no trace.** Be sensitive to the dirt beneath you. Even on open trails, you should not ride under conditions where you will leave evidence of your passing, such as on certain soils shortly after a rain. Observe the different types of soils and trail construction; practice low-impact cycling. This also means staying on the trail and not creating any new ones. Be sure to pack out at least as much as you pack in.

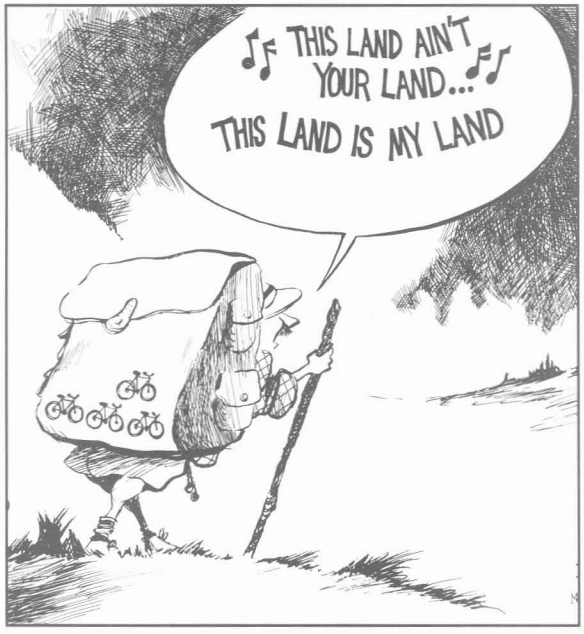
**3. Control your bicycle!** Inattention for even a second can cause disaster. Excessive speed maims and threatens people. There is no excuse for it!

**4. Always yield the trail.** Make your approach known well in advance. A friendly greeting (or a bell) is considerate and works well; startling someone may cause lack of trail access. Show your respect when passing others by slowing to a walk or even stopping. Anticipate that other trail users may be around corners or in blind spots.

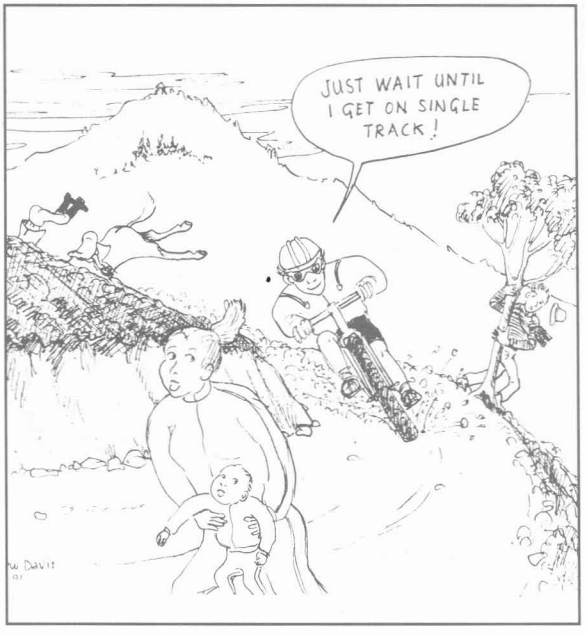
**5. Never spook animals.** Give animals extra room and time to adjust to you. In passing, use special care and follow the directions of horseback riders (ask if uncertain). Running cattle and disturbing wild animals are serious offenses.

**6. Plan ahead.** Know your equipment, ability, and the area in which you are riding and prepare accordingly. Be self-sufficient at all times. Wear a helmet, keep your machine in good condition, and carry necessary supplies for changes in weather or other conditions. A well-executed trip is a satisfaction to you and not a burden or offense to others.

(For more information, write IMBA, Route 2, Box 303, Bishop, CA 93514.)




GEORGE RUSSELL/MARIN INDEPENDENT JOURNAL




MATTHEW DAVIS

**In Marin County, mountain bike access to the Golden Gate National Recreation Area has ignited public debate, as evidenced by these two partisan cartoons.**

ation Area, Concerned Off-Road Bicycling has organized 75 riders into patrols of three or four people each, to range over some national park land (where rangers also ride mountain bikes) and three state parks units: Point Mugu (14,000 acres), Malibu Creek (7,000 acres), and Topanga State Park, (10,000 acres). The volunteers wear yellow jerseys and helmets with the insignia of CORBA, the National Park Service, and the California Department of Parks and Recreation. They are trained in CPR, first aid, and park history. They have radios, and they hand out maps and water to those in need. Jim Hasenauer, a member of the steering committee of CORBA, says the organization has contributed over 10,000 volunteer hours to the recreation area since 1988.

There are also volunteer bicycle patrols in the East Bay Regional Park District in the Oakland hills. "They are working fantastically," said Jon King, a police officer with the district. "They are an extra set of eyes and ears for us, and they are educating their own user group."

In other volunteer efforts that cultivate good relations, bikers have helped to build or repair trails, recently in Los Padres National Forest and the East Bay Regional Park District. They have also joined with other users in joint rides—bikers, hikers, and horseback riders on the same trail at the same time—to try to work out their conflicts on the trail. The Bay Area Ridge Trail Council, which is overseeing the establishment of a 400-mile multi-use trail around San Francisco Bay, sponsors such rides to raise funds and "give people a chance to let their problems air so they don't go home and stew," says Matt Wadlund, outreach coordinator for the council. Each group is also invited to contribute to the planning of the trail in its area.

That conflicts can be resolved is apparent in a recent recommendation by the Santa Monica Mountains Trail Council, a hiking group that has two board members from biker groups, that three single-track trails in the Santa Monica Mountains National Recreation Area be opened to bikes. "I personally feel bikes are okay on single-track trails as long as they are going slowly," said council president Linda Palmer.

Some bike club leaders point out that they can help shape the future of parks: "We provide a large constituency for land managers when they need funding for new parks," points out Kelley, president of the Bicycle Trails Council of the East Bay. That constituency is mainly young people with many years ahead of them to devote to environmental causes.

William Turnage, who is both a hiker and a biker, as well as former president of the Wilderness Society, has an optimistic view of the future: "Bicyclists realize they'll be banned from parks if they ride like banshees. Education takes a few years, but by the end of the decade hikers, bicyclists, and horses will be sharing trails and think nothing of it."

Only with hard work, ongoing discussion, and compromises by all interested parties will the successful management of natural resources and the multi-use of trails be accomplished. ❐

*Marc Beyeler manages the Coastal Conservancy's urban waterfronts program. Richard Retecki and Regina McGrath also contributed to this article.*

***Editor's note: Those interested in reviewing the issues involved in managing mountain bikes can order Mountain Bikes on Public Lands: A Manager's Guide to the State of the Practice. Published in September 1990 by the Bicycle Federation of America, it is available for $20 postage paid. Write to BFA at 1818 R Street NW, Washington, D.C. 2000, or phone (202) 332-6986. Also, the Bureau of Land Management and the U.S. Forest Service have available a 17-minute video entitled Managing Mountain Bikes: Public Land Mangers Get in Gear. For a copy, write to Sally Wisely at the BLM, Federal Building, 701 Camino Del Rio, Durango, Colorado 81301 or phone (303) 247-4082.***

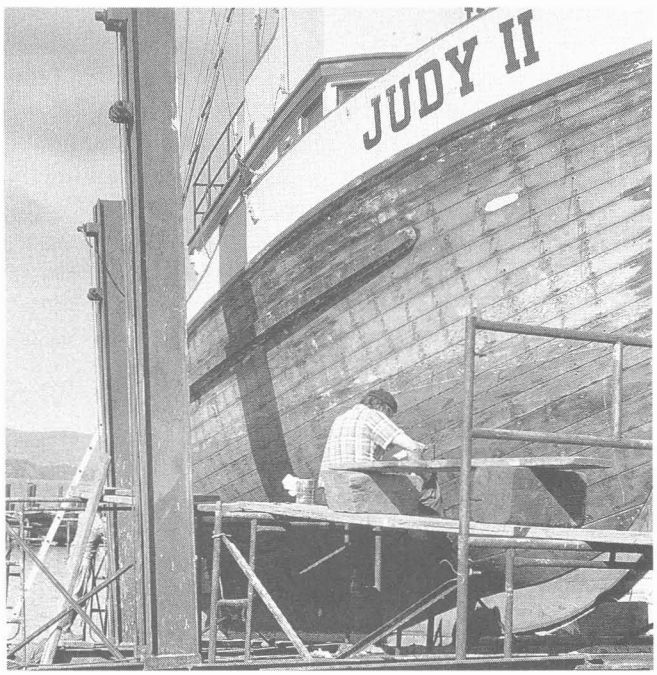
# TBT UPDATE

Since early 1986, when alarm over the effects of tributyltin (TBT) on marine organisms brought scientists, commercial fishermen, and regulators in the United States together to seek legislative controls, significant progress has been made at state and federal levels to reduce the volume of this compound entering coastal waters.

TBT is the most lethal of the organotins, a class of chemicals used as fungicides, preservatives, and antifouling agents. It has been highly popular in marine paints because nothing can match its effectiveness against fouling, the attachment of barnacles, algae, and other marine organisms that hasten decay of wood and cause drag on boats. However, it leaches into the water where it has been shown to have severe effects on aquatic organisms in concentrations as low as five parts per trillion. (This publication reported on the problem in its Spring, 1987 issue.)

In 1988, legislation restricting the use of TBT antifouling paints was enacted in California and concurrently in other West Coast states. The California Department of Food and Agriculture adopted regulations prohibiting the use of TBT-based paints on boats of less than 65 feet, except for aluminum hulled vessels, as well as on fish culture pens, or on any vessel or equipment designed to be submerged. Aluminum hulled vessels (and aluminum outboard motors) are exempt because the only good alternative to TBT paint is copper-based paint, which causes a corrosive reaction on aluminum. The primary reason given for exempting vessels over 65 feet is that high TBT concentrations are usually found in shallow boat-filled harbors and marinas. Longer ships generally spend less time in port, and move in deeper, faster-flowing waters, so that TBT leaching from their hulls does not tend to concentrate in the surrounding water. It is also true, however, that the use of the highly effective TBT on large commercial ships saves shipping companies millions of dollars yearly.

At the federal level, the Organotin Antifouling Paint Control Act was passed in 1988, leading to federal restrictions, including Environmental Protection Agency regulations, that prohibit the use of TBT on vessels less than 80 feet long.




Much of the initial concern about TBT in this country had been prompted by the U.S. Navy's announcement in 1984 that it intended to use TBT-based paints throughout the entire fleet. The 1988 federal legislation included a mandate to the Navy to study the presence and impact of TBT in selected high-use harbors before taking such action. The studies are continuing, but for the present the Navy has decided not to use TBT-based paints. This is difficult for the Navy as it means foregoing savings of millions of dollars annually in fuel, cleaning, and repainting costs, while TBT continues to be used on similarly sized commercial vessels.

In California, concern about TBT discharge into waters continues. A recent State Water Resources Control Board publication identified TBT from in-water paint stripping operations as one of the pollutants with the greatest potential biological significance in the San Francisco Bay-Delta area. Accordingly, the Regional Water Quality Control Board for the San Francisco Bay Area has developed a plan for regulating all discharge from small boatworks and marinas, including not only TBT but all water and solids. The board noted that it is also concerned about abrasives, other paints, solvents, and copper.

Dale Bowyer, associate water resource control engineer for the Regional Water Quality Control Board, says that as of February 1, 1992, all boatyards (about 45) in the nine San Francisco Bay Area counties will be prohibited from discharging wastewater into San Francisco Bay. Instead, they will be required to recycle the water they use to clean boat hulls and let any solids settle out so they can be put into landfills. The yards already are prohibited from discharging any solids stripped off boats during cleaning with pressurized water. Bowyer says that copper, not TBT, is a major problem at small boatyards that service pleasure craft because most hulls are protected with a vinyl antifouling paint containing cuprous oxide. This sloughs off boat hulls much more readily than the more toxic TBT, particularly if a diver scrubs the hull while the boat is in the water. Bowyer points out it is virtually impossible to catch a diver *en flagrante*. Therefore, the regional control board is considering turning down requests for dredging if sediments near a boatyard contain high levels of copper.

As for TBT, Bowyer notes that it is found in bay water mainly because large container ships still use it. "The cost of dry docking and repainting one of those ships in the United States is prohibitive. All the dry dock work is done in places like Mexico and Singapore, and you can be damn sure that they'll put on whatever paint they want." ❐

*Lorena Barck is a lawyer and environmental consultant in Honolulu, Hawaii.*

# Book Reviews

## Insatiable Thirst

**Thirst for Growth: Water Agencies as Hidden Government in California,** *by Robert Gottlieb and Margaret FitzSimmons. The University of Arizona Press, Tucson: 1991. $35.00, 286 pp*

The history of water development in California is fascinating, and several good books have been written about it. *Thirst for Growth* focuses on the water agencies—those semi-invisible and sometimes extremely powerful bureaus that keep the water flowing—and in so doing carves out a place for itself alongside such classics as Remi Nadeau's *The Water Seekers* and Marc Reisner's

RON KUKULKA

*Cadillac Desert.*

The first thing that hits you when you begin to learn about California water is that enormous amounts of it are moved from where nature put it to where people want it. The next is that the whole business is incredibly complicated—so many dams and reservoirs and canal systems, public agencies, laws and regulations, machines, so many players in the Byzantine games of water politics. Faced with this complexity, the average citizen is likely to say the hell with it and let the bureaucrats make all decisions.

And that, as Robert Gottlieb and Margaret FitzSimmons show us, is much the way the water agencies have liked it. They were cozy fraternities of men united in a fundamental sense of purpose. They understood they were not simply in the business of providing water, but rather in the business of growth. Their job was to find public financing for huge systems of dams and canals to bring water from distant valleys and watersheds and supply the residential developments for California's ever-increasing population and agribusiness.

The authors (both associated with the Urban Planning Program at the University of California, Los Angeles) make this point in a rather subtle and effective way by beginning the book with a description of predevelopment Los Angeles—a pueblo beside a freely flowing river. Large areas of the adjoining valleys were covered by marshes and wetlands, and the melting snows from the (then-forested) San Gabriel Mountains fed many small streams and filled the huge underground aquifers. The area, in short, did not need more water to sustain life; it needed more water to sustain growth.

The central themes of the book are, first, how this growth ethic was institutionalized in the water agencies. Second, how this gradually became controversial rather than an unquestioned article of faith. The third and final section begins: "In the last decade, water agencies have been forced to reconsider their traditional strategies and agendas in response to public discovery of complex new problems and of the inadequacy of old solutions." Among the problems are water contamination—particularly groundwater—by agricultural chemicals. The book describes the unraveling of consensus as managers try to deal with this and other problems and learn to live in a new world of health and environmental concerns, conservation strategies, and limited funds.

Among agencies described are the mammoth Metropolitan Water District of Southern California, smaller urban agencies, and those that serve agriculture, such as the Imperial Irrigation District and the Kern County Water Agency. Large and small, the water agencies have been important forces in California's history. They are still powerful, and they still govern, but they are no longer well hidden.

*Reviewed by Walter Truett Anderson, political scientist, social commentator and author of numerous books.*

## Getting to the Beach

**California Coastal Access Guide, Fourth Edition,** *California Coastal Commission: 1991. $13.95, 304 pp*

This indispensible guide to public access on California's coast has undergone a welcome revision, the first since 1983. It reflects significant changes in coastal access, mostly improvements, since the previous edition. The new book has 16 more pages than its predecessor and documents about five percent more access points. It has an expanded bibliography; a few new photographs and drawings; and new articles on protecting marine mammals, the Adopt-A-Beach Program, and marine sanctuaries. Unfortunately, the latter article has no mention of the effort to establish a statewide ocean sanctuary.

The most important facet of the revised work is not so much the quantity of information as the accuracy and timeliness of the access listings. The 1983

edition was outdated to the extent that some crucial telephone numbers and addresses were erroneous; facilities at some access points had evolved to the degree that planning a visit involved a guessing game that the original work strove to abolish. Is there a fee? A restroom? Is it wheelchair accessible? It was coming to the point that coast lovers could no longer rely on one of the most reliable access guides ever written.

Now the fourth edition has reinstated the reliability of the *California Coastal Access Guide.* All the essential information on facilities, fees, and habitats at each access point has been checked and updated. A wise decision was made not to state what fees are charged, but only where they are charged. In these times of changing budgets and services, that alone should help keep this edition timely for as long as possible.

Some important and welcome changes (beyond the addition of some 50 new access points) are reflected in this edition. Most encouraging are the considerable expansions and improvements of facilities for persons with disabilities. The list of coastal hostels has grown by three to 18, covering 11 of the 15 coastal counties.

Still, the most valuable thing about the new guide is that it offers an affordable, highly readable catalog of our state's diverse 850 coastal access points—everything from city parks, museums, and baseball fields to wilderness areas and unpopulated islands. No coast lover can afford to be without it!

*Reviewed by Bob Lorentzen, the author of:* The Hiker's Hip Pocket Guide to the Mendocino Coast; The Hiker's Hip Pocket Guide to the Humboldt Coast, *and most recently,* The Hiker's Hip Pocket Guide to Sonoma County. *For information, write: Bored Feet, P.O. Box 1832, Mendocino, CA 95460.*

## Guides to Otters and Sharks

**Sea Otters** *by Marianne Riedman. Monterey Bay Aquarium: 1990. $8.95, 80 pp*
**Sharks and Rays of the Pacific Coast,** *by Ava Ferguson and Gregor Cailliet. Monterey Bay Aquarium: 1990. $8.95, 64 pp*

*Sea Otters i*s a complete and up-to-date examination of the history, ecology, and behavior of these playful creatures living along the California coast. The nine chapters of this small, engaging, and well-illustrated book cover everything from habitat needs to feeding of the young. They include technical facts such as the high density of hair (between 170,000 and 1 million per square inch) in the otters' fur, the tremendous strength of their forelegs, and how their eyes focus and see well under water. More popular information is also presented.

The book would be enjoyable to anyone curious about otters. It could be used as a middle or high school text as well as by teachers researching the topic for lecture, discussion, and activities. Because the information is straightforward and appropriate, *Sea Otters* is a great tool in preparing an outdoor educational experience. Including topics such as kelp bondage, the behavior of a male named Nosebuster, otter rafts, and "yo-yo bumping," the text is lively and easily accessible. The method of explaining unusual and curious aspects of otter behavior goes far in helping teachers choose stories to share, as well as stimulating reader interest.

In addition to chapters on otter lifestyle, mating habits, and feeding methods, the author describes aspects of otter care. Since the Monterey Bay Aquarium keeps otters, numerous facets of their lives with people are examined. There is information on the indoor otter habitat, picking up and nursing orphaned pups, feeding in captivity, and general care. These parts of the book illustrate the aquarium's commitment to the care of marine life. They also help readers to understand the essential role that humanity must play in the nurturing and preservation of all marine life.

By concentrating on otters alone, but analyzing how they interact with many organisms in and around Monterey Bay, the book keeps the reader focused and interested.

In *Sharks and Rays,* the authors approach their mythic subject with frankness and scientific accuracy. Through the four chapters, one learns about the close relationship between these diverse groups of sea creatures, the history of sharks and people, and the many rays and sharks on exhibit at the Monterey Bay Aquarium.

Fascinating information peppers this book as it covers topics such as staying afloat with a balloon-like swimbladder, tooth replacement, deep sea adaptations, and predation. We learn that an overwhelming majority of sharks, skates, and rays is harmless to people. All species of this large family share the characteristic of boneless skeletons. The bites of some sharks are 300 times more powerful than that of the human jaw. Their keen sense of smell allows sharks to detect blood in concentrations as low as one part per 100 million.

Clearly, the latter two tidbits are at the core of shark mythology and are part of the reason why many humans fear them. The book gives so much data on peaceful sharks, however, that a reader would certainly finish with a more endearing view of this much maligned animal group. For instance, bat rays feed mainly on clams and worms in estuaries, kelp forest sharks are slow-moving fish eaters, and horn sharks are timid bottom dwellers who spend much of their day hiding in crevices.

As with *Sea Otters*, a teacher could easily cull a group of stories to stimulate student interest. Highlighting rays as well as sharks is an inevitable challenge for teachers, and this book provides plenty of good information to build upon. Since the text is only 64 pages and the subject vast, however, the challenge of addressing the complex life cycles of the many sharks and rays of Monterey Bay is too great for one short volume. *Sea Otters* works better simply because it focuses on one species.

*Reviewed by David Ellenberg, former director and life science teacher at Athenian Middle School in Danville, who is now teaching sixth grade in Portland, Oregon.*

*Also part of this series, with lively, fascinating text and beautiful illustrations:* **Elkhorn Slough** (1989), **Kelp Forests** (1990), *and* **Gray Whales** (1991).

## Briefly Noted

**Seabirds: An Identification Guide,** *by Peter Harrison. Houghton Mifflin Co., Boston: 1991. Paperback: $24.95, 448 pp; (cloth, $35.00, 1983)*
**Shorebirds: An Identification Guide to the Waders of the World,** *by Peter Hayman, John Marchant, Tony Prater. Houghton Mifflin Co., Boston: 1991. Paperback: $24.95, 412 pp; (cloth, $40.00, 1986)*

In their new paperback form, these comprehensive volumes should be more widely affordable than were the original hard-cover editions, published in 1983 and 1986, respectively. Both are richly illustrated with bird paintings and distribution maps, and heartily endorsed in forewards by that ultimate birding authority, Roger Tory Peterson. *Seabirds* "should accompany every transoceanic traveler and every intrepid birder who ventures offshore in small fishing boats," Peterson writes. ". . . The illustrations usually show several plumages or several views of a species, often giving us visual information hitherto unavailable in other reference works." It contains 1,600 bird paintings, 324 distribution maps.

*Shorebirds* will serve the two kinds of sophisticated birders: those who can identify a bird at a distance by shape alone, or by a combination of intangible impressions, and those who use not only binoculars but also telescopic equipment designed for astronomers, which allows them to see minutia, such as parasites in a tattler's nasal grooves. According to Peterson, this meticulously researched guide "embraces both extremes [of birding], the art and the science, a service that no general field guide designed to fit the jacket-pocket can fully accomplish." This book features 1,700 bird paintings, 213 distribution maps.

**Wetland Creation and Restoration: The Status of the Science,** *edited by John A. Kusler and Mary E. Kentula. Island Press, Washington, D.C.: 1990. Cloth: $60.00; paperback, $39.95, 594 pp*

The contributors to this hefty volume represent much of the current expertise in the creation and restoration of wetlands. Authors who were commissioned to prepare papers are primarily scientists with expertise in particular areas pertaining to wetlands or are actively involved in a specific aspect of wetland creation and restoration. Most are not associated with a government agency. They were asked to avoid policy judgments on issues ridden with policy implications, such as onsite/offsite mitigation and mitigation banks. In the executive summary, the editors offer conclusions regarding the adequacy of scientific understanding of wetland creation and restoration and of the success of projects in meeting particular goals.

The **National Wetlands Newsletter,** published bimonthly by The Environmental Law Institute, is useful to planners, developers, biologists, and others wishing to keep current with laws and regulations, issues and perspectives, books, and journal articles on wetlands. A year's subscription costs $48.00. For information, write the Environmental Law Institute at 1616 P Street NW, Suite 200, Washington, D.C. 20036, or phone (202) 328-5150.

**The Xeriscape Flower Gardener, A Waterwise Guide for the Rocky Mountain Region,** *by Jim Knopf. Johnson Books, Boulder, Colorado: 1991. $14.95, 182 pp*

In 1981, Nancy Leavitt, an environmental planner for the Denver Water Department, coined the term "xeriscape" from xeri (dry) and scape (vista). It has since become the common identity for landscape water conservation programs across the country. The nonprofit National Xeriscape Council Inc. was established in 1986 to encourage international support for such conservation.

Although **The Xeriscape Flower Gardener** discusses xeriscape horticulture and design for the Rocky Mountain region, it contains many chapters useful to Californians, including sample worksheets on how to estimate landscape water use and water bills, sample designs, soil preparation hints, suggestions for deer-proofing your garden, a list of plants and their water requirements, blooming sequence charts, seed sources, and an excellent bibliography. The author is a landscape architect specializing in Rocky Mountain xeriscape design and a consultant to several water boards. ❐

# Letters to the Editor

## Seeing Red

Editor:

The article "Red Fox: Urban Charmer, Alien Menace" in your summer issue proves once again that Fish and Game's propaganda machine is well oiled and running at top speed. The speculation, half truths, blatant deception, distortions and/or omission of facts rampant throughout the article boggle the mind, insult the intellect, and make the *National Enquirer* read like the Gospel of John. To respond to just a few is almost impossible, however, I will try. [*Editor's note: we could only include part of the six-page letter.*]

Fish and Game's claims that the foxes being killed are "alien" or "nonnative" are completely unsubstantiated! There is no proof that these animals are not native. There is no proof that they are not, or could not also be descendants, or a rare hybrid species, of the Sierra Nevada red fox since there is also no proof that the Sierra red has not migrated below 3,000 feet or that the so-called nonnative fox has not migrated upward. These defenseless and voiceless animals have been brutally tortured, tried, convicted, and executed, all without proof and without trial for the capital crime of being "nonnative." No conclusive taxonomic studies have been done on either the Sierra red or the so-called "Sacramento or Valley red fox," nor have any been done on the southern California population! Further, no genetic or DNA studies have been done on any of these foxes. In the absence of such studies, it is impossible to conclusively determine heritage.

According to Fish and Game, the foxes are trapped with padded leg traps and are killed with sodium phenobarbital. This is only half true. They are in fact trapped wtih steel leg hold traps, with only minimal padding, which horribly mangle and/or break their little legs like match sticks. They are then "stunned" (hit over the head with an iron bar) and, finally, their chests are crushed by the trappers using the heels of their boots! This is verified by court documents and documents obtained under the Freedom of Information Act in my possession. Further, babies are killed by "denning," (the use of burning gas cartridges or long wires with barbs that mutilate and stab the pups to death in their dens.)

The article claims that the fox is a threat because it easily adapts to densely populated areas, "will eat from pet dishes and may take a pet too." This is outrageous. I defy anyone to cite even one instance of a fox attacking a domestic pet or human being. In fact, it was legal to own a red fox as a pet until at least 1973, and to date, no one at Fish and Game has given me a reason why it is now illegal to do so.

Peggy Randall Burgess

*Peggy R. Burgess is a member of Animal Lovers Volunteer Association.*

***Fish and Game replies:***

Several points in the letter by Ms. Burgess must be corrected for your readers. First, paleontological and historical records and all scientifically based sources of information relating to the history of the red fox in southern California and other low lands of the state support the conclusion that these foxes originated from stock imported from other states. DNA studies are not necessary to prove that the red foxes in southern California and other low land areas of the state are not native. Such studies could not provide the proof that the Animal Lovers Volunteer Association (Alva) wants.

Second, steel-jawed traps and traps with "minimal padding" are not being used for fox control efforts in California. In fact, traps that are being used are well padded. Improvements in recent years to the "Soft-Catch" leg-hold trap have made trapping both effective and nondamaging to the foxes.

Third, since 1988, all red foxes trapped in agency control efforts in California have been killed quickly and humanely either by chemical injection or shooting. Ms. Burgess gave an embellished description of another euthanasia method, which she falsely implied is also being used. What she referred to is a method that is quick and humane (but is less preferred for agency control work) that was used in 1987 and 1988 at Bolsa Chica Ecological Reserve only because other alternatives were not practical. At that time, when foxes were causing extreme damage to Least terns, a private trapper was hired until funding and contract arrangements could be made with the federal Animal Damage Control. ADC employees are allowed to use euthanasia drugs, but private trappers are not. Also, use of firearms in this area is restricted.

Fourth, the "denning" practices Ms. Burgess mentioned have never been used in red fox control in California, and it would be illegal to do so.

Fifth, red foxes in urban areas do kill domestic animals. When the Costa Mesa freeway fox family was under close observation before the capture attempt, the male was observed bringing a domestic rabbit to the den from the surrounding densely urbanized area. Red fox food habits are being investigated as part of a fox study in urban Orange County contracted for by Fish and Game; carcasses found at den and cache sites have included numerous domestic chickens and pond ducks, two domestic rabbits, and two cats, in addition to many wild animals. Researchers and the public in that study area have reported seeing domestic animals being killed by red foxes.

Sixth, the red fox was added to the Fish and Game and Department of Food

and Agriculture list of prohibited species in 1973. Importation, transportation, possession, or release of any red fox is prohibited, unless specifically authorized by Fish and Game. Anyone who has a pet red fox in California is violating the law. When cute red fox pups taken from the wild mature, they become troublesome to their owner, usually ending up being permanently caged, offered to a zoo, released to the wild, or escaping, thus adding to the problem. One of the first red foxes recorded in Los Angeles County (in 1968) was a road-killed fox wearing a dog collar.

A great deal of time and funding are expended annually by Fish and Game, the U.S. Fish and Wildlife Service, and other agencies in responding to false claims, demands, and court actions leveled by Alva over the years. Alva's recent intensive public attacks on red fox research and control efforts follow its failure to halt state and federal fox control through court actions. The attempt by this small group and its supporters to protect all red foxes is interfering with important conservation efforts to protect California wildlife, including many endangered species.

The U.S. Fish and Wildlife Service's environmental impact statement is an important source document on the subject of nonnative red fox control. It is available from Fish and Wildlife, Pacific Regional Office, Eastside Federal Complex, 911 Northeast 11th Ave., Portland, Oregon, 97232-4181.

Eldridge G. Hunt
Chief, Wildlife Management Division
State Department of Fish and Game

## Malthus Was Right?

Editor:

I'm astonished that policy makers continue to fight the consequences of a problem rather than its cause. Practically each problem raised in *Coast & Ocean* can be solved if attacked at its prime cause: overpopulation and a high birthrate worldwide. Progress in genetics and science, and better sanitation lead to both a longer life and lower infant mortality. We have to face the fact that we are now too numerous for the Earth to feed us and eliminate our waste in natural ways.

The realistic dictatorial Chinese government, by means of draconian laws, has succeeded in lowering the birthrate to 1.1 child per couple in the cities and 1.6 in the country, according to *Trade East* of Hong Kong. I'm stupefied to learn that some fishermen in the Philippines have families of seven to ten children. The same occurs in Africa. How will the parents provide food and a good way of life for everyone?

Consequences of overpopulation include malnutrition, deforestation, overfishing, crime, revolutions, the disappearance of wildlife and the ozone layer, and global warming. Historically, "good" wars controlled populations and starvation took care of the rest! Happily, all those calamities are now disappearing, except in parts of the Third World. However, we continue to follow the tradition of procreating to ensure an heir. We haven't evolved mentally beyond the days of my ancestor, who in the 1800s proudly recorded the birth of his numerous children in papers identifying him as a lancer.

Is there a policy maker courageous enough to dare stand against public opinion and so preserve our future well-being before it is too late? We must make and keep firm, ecologically minded, realistic decisions or bring on our own destruction because we were unable to read the signs in time.

R. Michaely

*Dr. Michaely is curator of the Marinarium du Haut Lavedan, in Pierrefitte, France.*

## Conference Log

*Continued from page 7*

protection projects. This book can be ordered for $31.00 from the American Society of Civil Engineers, by calling 1-800-548-ASCE, or writing ASCE, Publications Fulfillment (Dept. CZ), 345 East 47th Street, New York, NY 10017-2398. The book on California as well as *Coastlines of Japan, Coastlines of the Caribbean, Coastal Wetlands,* and *Biological and Physical Aspects of Dredging* are included in a complete set of conference proceedings (3,800 pages in four volumes), which sells for $325.00.

The next Coastal Zone Management conference will be held July 18-24, 1993, in New Orleans. For information on presenting a paper there, contact Orville Magoon, P.O. Box 279, Middletown, CA 95461, or fax (707) 987-9351.

### Wetland Management Course

The preservation and restoration of coastal and estuarine wetlands are inherently interdisciplinary efforts, yet much of the research to date has been by biologists. A four-day residential course presented by University Extension, University of California, Berkeley, June 9-13, 1992, will recognize the role of physical processes such as tides, waves and mixing processes in determining habitat distribution and the overall health of the wetland.

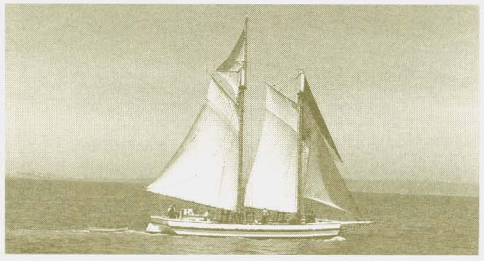
Cosponsors of the course, "Physical Processes in Estuarine and Coastal Wetland Management" are the State Coastal Conservancy, the San Francisco Estuary Project, the San Francisco Bay Conservation and Development Commission, the American Shore and Beach Preservation Association, and the United Kingdom's Institution of Water and Environmental Management. Internationally recognized speakers from the United States and Europe will present the technical program.

For details, available in early January, call (510) 642-4151, fax (510) 643-8683, or write to Continuing Education in Engineering, University Extension, University of California, Berkeley, CA 94720.

## Mystery Photo

***It's elementary:***

Send us a mysterious photo, and you'll receive a free subscription to your favorite magazine, *Coast & Ocean*. The photo (preferably black and white) should relate to some aspect of the California coast. Please include a full description of the photo, including location, with your name and phone number. If we run your mystery photo, you'll not only receive a free subscription to *Coast & Ocean*, but we'll send you a guide to the state's piers, soon to be published by the Coastal Conservancy's Urban Waterfronts Program. So start sleuthing!



RICHARD FREAR

***Last issue's mystery solved:***

Congratulations to Tom Hall, Merrill Newman, Michael Crabtree, Nancy and Patrick Broderick, and Andreas Godfrey, all of whom correctly identified our photo as a scow schooner. (Did you see the schooner, identified, on page 36 of the last issue?) The *Alma* is part of the National Park Service's historic fleet preserved at the San Francisco Maritime National Historical Park.

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