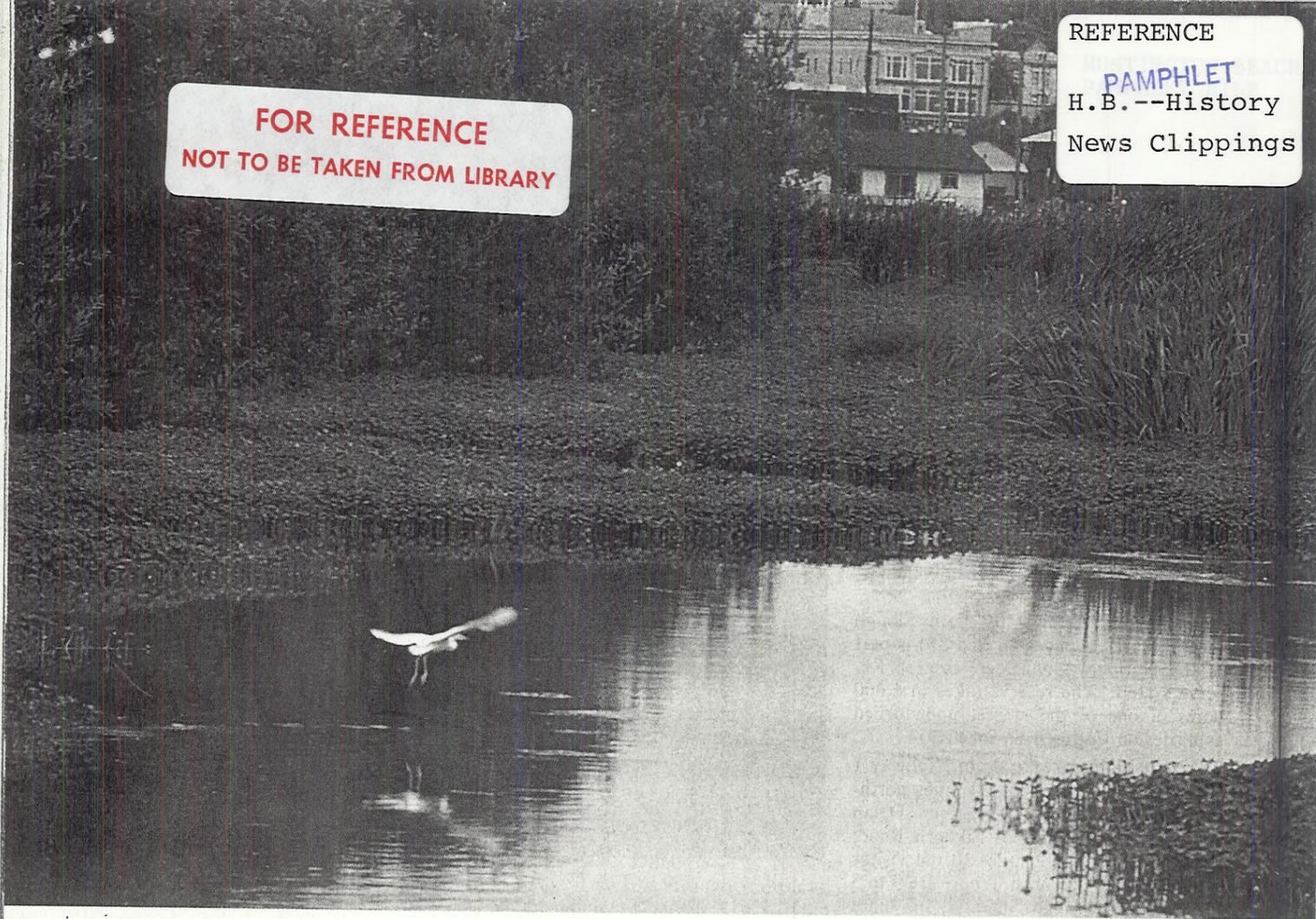


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Humboldt Bay *Beautiful and hardworking, Arcata fresh- and salt-water marshes were created to serve as natural sewage treatment plant.*



What's ahead? Arcata and Huntington Beach show the way

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Wetland loss in the West has been near-catastrophic. From Puget Sound to San Diego Bay statistics are the same: only 10 to 20 percent of coastal wetlands remain. But the tides may have turned in wetlands' favor. On the federal level, George Bush vowed there would be "no net loss" of wetlands during his administration. Says David Davis, director of EPA's office of Wetland Protection, "Wetlands have jumped an order of magnitude as an issue. They're now a national concern." Joseph Uravitch, chief of the National Oceanic and Atmospheric Administration's National Estuarine Research Reserve program, says that preserving coastal wetlands makes simple economic sense—even when it comes to grocery bills. Upwards of 50 percent of commercial fish caught in the United States depend on estuaries for their existence, he points out. "If you want to get into the reality of fish as a food source, you kill the

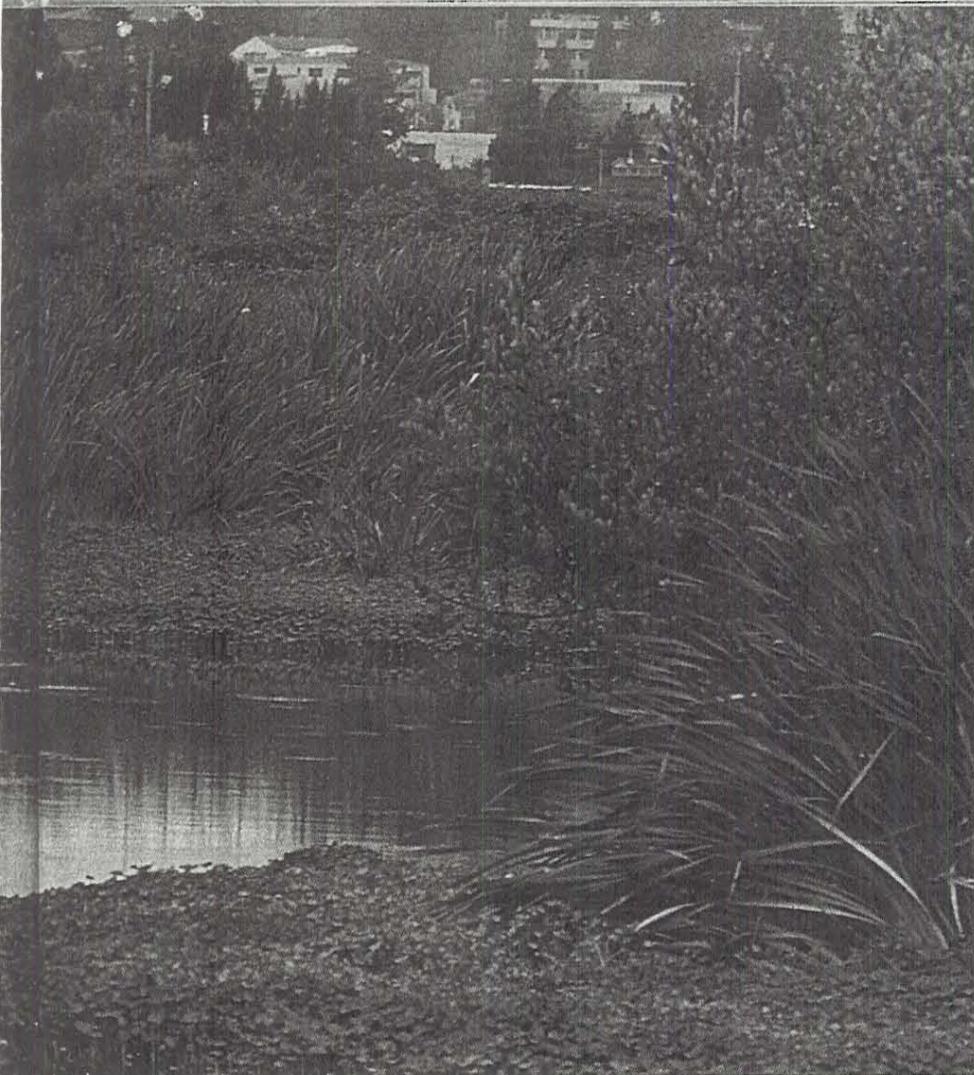
estuaries, you kill the fish." Charged with protecting wetlands are NOAA's Marine Fisheries Service, the U.S. Fish and Wildlife Service, Environmental Protection Agency, and U.S. Army Corps of Engineers. Environmentalists applaud the fact that these agencies have turned their attention to the problem. But they worry the government lacks money and manpower to watchdog the resource. "It's easy to say, save the wetlands," says Daryl Scheibel, former coordinator of the Seattle-based group, Wetlands Watch. "But the trouble is that while bureaucrats argue about how to save them, wetlands are still being lost one by one." On the state level, news is mixed, but encouraging. Last year the Washington State Legislature failed to approve governor Booth Gardner's tough Wetland Protection Act—but many of its provisions have been enacted in an executive order.

Oregon's State Lands Division is conducting its first wetland inventory. In California, the state Coastal Conservancy has spent \$40 million to acquire and restore wetlands. After years of struggle, citizens' groups have won a compromise preserving most of Ballona Lagoon, Los Angeles County's last undisturbed wetland. And the city of San Diego is establishing its first wetland advisory committee.

Mitigation: could you replace one original Van Gogh with two prints?

One of the hot issues of wetland protection is mitigation: the policy that allows developers to fill in wetlands provided they create new wetlands nearby. That can be easier said than done. With their complicated hydrology, geology, and biology, wetlands are difficult to duplicate.

Dr. Joy Zedler of San Diego State University estimates a manmade wetland can, at most, provide 60 percent of the biologi-



RENEE LYNN

They've now become a haven for shorebirds and hikers

cal wealth of a natural wetland. "It isn't enough," she says, "that it looks green. It has to be a functional ecosystem. Two mediocre manmade acres don't make up for one natural. Wetlands are like priceless masterpieces. Could you replace one original Van Gogh with two prints?"

How to save a wetland? Huntington Beach says, "You don't give up"

Meanwhile, some of the most encouraging wetland news is the result of hard work by local citizens' groups. Two inspirational stories come from opposite ends of California: Huntington Beach and Arcata.

In Huntington Beach, on the Orange County coast 35 miles south of Los Angeles, wetland lovers faced special pressures: no part of the West has lost more of its wetlands than Southern California.

Yet a group called Amigos de Bolsa Chica has beaten the odds. The wetland it has focused its energies on takes in 1,100 acres. Bolsa Chica estuary is anything but wilderness. The busy Pacific Coast Highway slices to the west of the marsh, and oil derricks dot its other borders.

But for a number of species of birds, Bolsa Chica is a vital stop on the Pacific Coast. One of the most prominent residents is the endangered California least tern. So when the oil company that owned

much of the estuary announced plans to turn it into a marina and housing development, many neighbors were alarmed. Six of them came together to form Amigos and began a campaign to halt—or at least drastically alter—the development plans.

The proposed development had to be approved by both the California Coastal Commission and the Army Corps of Engineers. Amigos members attended meeting upon meeting in Sacramento and Washington, gave estuary tours, sold bumper stickers, and grew—to 2,000 members.

Last year the land developer and the Amigos came to an agreement. Houses will rise along the fringe. But the wetland itself will be preserved—and, with funding from the developer, restored.

Any advice for other would-be wetland savers? Says Amigos Executive Director Adrienne Morrison, "Too often, volunteer groups get a head of steam up and then just dissipate. Amigos hasn't. You go through proper channels and just keep grinding. You don't give up."

To visit Bolsa Chica, take Pacific Coast Highway (State 1) to Warner Avenue; a parking area is just south of the intersection. From here, a 1½-mile trail winds through the lagoon. For guided walks, call (714) 897-7003.

Wetland alchemy in Arcata

This 14,000-person university town on Humboldt Bay, in northern California, had a serious ailment: waste-water spewing directly into the Pacific. The remedy was not a high-priced treatment plant, but bulrushes and cattails of a wetland.

Wetlands can be highly efficient as waste-treatment facilities. Microorganisms that grow on the roots of some wetland plants feed on the nutrients in effluent—and thereby help clean the water.

By recognizing the potential for this natural alchemy, Arcata became a pioneer. In the late 1970s, a massive new sewage plant was proposed. Then city engineer Frank Klopp and Humboldt State professors George Allen and Robert Gearheart said why not create a wetland instead?

The results are 76-acre fresh-water and 17-acre salt-water marshes on the shores of Arcata Bay. An existing plant handles primary sewage treatment. From it, waste-water is pumped into oxidation ponds, then the marshes. Here, over two months, bacteria turn nitrogen- and phosphorus-laden water into clean water. Water returns to the primary facility, where it's chlorinated and dechlorinated, then released into Humboldt Bay.

The system handles 2.5 million gallons of effluent a day. And it handles 200 species of birds—for the marshes also serve as Arcata Marsh and Wildlife Sanctuary, enjoyed by nearly 100,000 visitors a year.

Arcata Marsh is open dawn to dusk; from U.S. 101, take Samoa Boulevard west to South I Street and turn south to the sanctuary. The Arcata Audubon Society leads guided walks Saturdays at 8:30; call (707) 822-6918. At 736 F Street, Arcata City Hall, open weekdays from 9 to 5, has interesting exhibits on the project. □

MARTHA WOODWARD



Orange County Amigos de Bolsa Chica fought for 14 years to preserve the county's last undeveloped wetland