

## **Morro Bay mystery: sea otters' death rate**

SEWAGE PLANT A SUSPECT BUT EVIDENCE IS LACKING

By Paul Rogers

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MORRO BAY - Known for its fishing port, sandy beaches and hulking Morro Rock, a granite monolith that has guided sailors since the 1600s, Morro Bay has gained another distinction lately: It's a place where California sea otters appear to be dying in unusual numbers.

Two years ago, a toxic algae bloom off the quiet San Luis Obispo County town was to blame. Last year, dozens of otters there died of a brain parasite found in opossums. And in a 2002 study, otters in Morro Bay were found to suffer the highest rate of infection of *Toxoplasma gondii*, a potentially fatal parasite found in cat feces, of any coastal area in California.

Marine biologists -- who are working the mystery like sleuths in the TV series "CSI" -- say they don't know for sure what the culprit is. They offer a range of theories: polluted storm runoff, the geography of the area, even toxic chemicals used in boat paint that might weaken otter immunity or -- most likely -- a combination of things.

But as the detective work continues, one landmark is making environmentalists uneasy: the town's sewage plant.

Built in 1954, the oceanfront plant discharges 1 million gallons a day of partially treated sewage into the ocean, half a mile off the beach.

The facility, which treats the sewage of 14,000 residents, is one of only three wastewater plants on the California coast that still do not meet pollution standards set in 1972 under the federal Clean Water Act. The two others are in San Diego and Goleta, a town near Santa Barbara. California has 40 such coastal plants.

Thursday, the Morro Bay wastewater plant board is set to vote on a \$16 million upgrade.

The plant's managers note that they come close to meeting the standards, and that years of regular water testing and state oversight have never found their discharges to be making surfers, otters or any other species ill.

"There has been no adverse impact," said Bruce Keogh, Morro Bay's wastewater division manager. "Around the outfall pipe we have normal populations of fish, worms, clams and other species. They are the same as anywhere else in California."

### **Under pressure**

But for the past several years, environmentalists and state water regulators have been pressuring the town to modernize anyway.

Treating sewage more thoroughly before it is released into the ocean reduces the risk of parasites, viruses, bacteria, heavy metals and other pollutants getting into the ocean, they say. Harm may be occurring that can't yet be measured, they add.

"Morro Bay is the lone straggler," said Steve Shimek, executive director of the Otter Project, an environmental group in Monterey. "They are the most antiquated and polluting plant, in terms of the concentrations, on the Central Coast. They are primitive."

Last year, 78 of the 281 otters found dead or dying on California beaches were around Morro Bay -- more than any other area. Morro Bay also had the most in 2003, with 62 of 262. Although it is easier to find dead otters in places with wide sandy beaches, like Morro Bay, than in rocky remote areas, other areas with wide beaches don't register as many otter deaths.

### **High mortality**

"There is a hot spot for sea otter mortality right there," said Greg Sanders, coordinator for southern sea otter recovery with the U.S. Fish and Wildlife Service. "It is an open question. People want a clean black-and-white answer, but it's still a mystery."

If the Morro Bay board approves the upgrade, the plant will meet secondary treatment standards by 2015. Under those, all sewage is not only filtered and mixed with chlorine, but treated with bacteria to break it down more completely. Monthly sewage bills in Morro Bay could jump from \$15 to about \$50, said Keogh. Otters are considered an indicator of ocean health.

Hunted nearly to extinction in the 1800s for their pelts, which are denser and softer than mink fur, California sea otters were protected by the Endangered Species Act in 1977 and began a slow comeback. Last year, biologists counted 2,825 otters, but they remain threatened because they suffer from high mortality rates, with up to 40 percent of dead otters examined being killed by parasitic disease.

"Where those diseases in Morro Bay are coming from, whether it's the sewage plant or runoff, we can't say for sure," said Kim Delfino, California director of Defenders of Wildlife. "But the plant definitely should be modernized. Better safe than sorry."

The Morro Bay plant has operated without higher standards because in 1977 Congress allowed the U.S. Environmental Protection Agency to grant waivers to oceanfront plants to delay modernizing. The idea was that the ocean dilutes waste more quickly than bays or rivers.

Last year, Morro Bay's wastewater going into the ocean averaged 29 parts per million for total suspended solids, or sewage particles. By comparison, Santa Cruz's wastewater plant averaged 4 parts per million, Carmel's was 6 and San Jose's was 2.

### **Stable population**

Morro Bay has been able to delay because its population hasn't grown and its effluent has been close to meeting secondary treatment standards, said Matt Thompson, a water-quality engineer with the state Regional Water Quality Control Board in San Luis Obispo. But those days are numbered.

"By upgrading the plant you remove more pollutants from the wastewater and reduce the likelihood of impacts to people and wildlife," he said.

Scientists are careful to say they can't prove any connection between otter deaths and the plant. Over the past two years, researchers from the University of California-Davis and the California Department of Fish and Game have hung mussels off a buoy where the sewage plant's outfall pipe ends. Last December, Patricia Conrad, a UC-Davis professor of parasitology, reported that of 120 mussels studied, none showed traces of *Toxoplasma gondii*, the parasite found in cat feces that has infected otters in high numbers around Morro Bay, killing many.

Some observers had theorized that people flushing cat litter down the toilet might be sending the parasite into the ocean. That theory may now be defunct. Conrad noted, however, the tests have only recently been developed and may not detect low levels of the parasite. Melissa Miller, a Fish and Game pathologist who works with Conrad, said she believes runoff from land is more likely to be transporting diseases than the plant.

### **Otter ailments**

There are high rates of otter disease in some parts of Monterey Bay, but "Morro Bay stands out," said Dave Jessup, a senior Fish and Game wildlife veterinarian in Santa Cruz. He ticked off ailments, including the parasite *Sarcocystis neurona*, found in opossum feces, which contributed to the deaths of 34 otters off Morro Bay in April 2004, along with *Toxoplasma* and domoic acid, a natural poison found in algae blooms that can kill otters.

"There may be more disease, there may be more contaminants, there may be more parasites," he said. "It is not fair to say it is the Morro Bay sewage plant. But it certainly doesn't hurt to see it upgraded. That's certainly not going to hurt any otters."