

Elkhorn Slough marshes threatened from both ends

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FEB 7 1994

"The marshes at Elkhorn Slough are getting it at both ends," Mark Silberstein, the director of the Elkhorn Slough Foundation, said in a talk in Monterey Saturday.

At the mouth of the slough, tides and waves are scouring out the marshes, and upstream, soil from the surrounding hills where strawberries are grown is rapidly wash-

ing into the water. The erosion problem is due, at least in part, to an Army Corps of Engineers Project that cut a channel in the sand to create Moss Landing Harbor, exposing the slough directly to the bay.

Silberstein was one of a number of scientists who spoke at a marine sciences conference at the Navy Postgraduate School Saturday. Several of them talked about the slough and its problems.

"Seventeen percent of the strawberries grown in the U.S. are raised in Monterey County. Three-quarters of that production is in the Elkhorn Slough watershed," said James Rote, of Moss Landing Marine Laboratories.

Rote said about 60 percent of the erosion in Elkhorn Slough comes from land that is used to grow strawberries.

As a result, the slough is filling not only with topsoil, but with pes-

ticides used on strawberries and other agricultural products.

Rote said about 70 square miles drain immediately into the slough, and the larger watershed comprises 220 square miles. During periods of heavy rain, the Salinas River meanders up its old river bed into the slough, so the slough becomes the ultimate recipient of everything that drains from the Salinas Valley.

The state water board has de-

clared the slough "an impaired water body," Roté said. Oyster operations have been closed there since the 1960s because of high coliform counts. The county issued a warning against eating clams from the area, and a pollution detection program that looks at what chemicals mussels have absorbed has found extremely high levels of pesticides in the slough for years.

These problems have led a number of local marine biologists to

begin work on a proposal for a federally funded study into the issues at the slough, Rote said. Rote said he expects several workshops will be held this year to help flesh out the proposal.

The study, tentatively named FACES, or fate of agricultural chemicals in Elkhorn Slough, would use an interdisciplinary team to track chemicals as they move from the farm to the bay.

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Silberstein began his talk with a slide that showed a bird feeding in the salt marshes, to remind the crowd that there are "precious resources at stake here."

A Soil Conservation Service report has listed the Elkhorn Slough area as having the highest erosion west of the Rockies, he said. Silberstein said he hoped the study would come up with practical ways to halt or slow the erosion.

The erosion at the slough is not just the concern of preservationists. Silberstein showed slides of broken dikes, flooded farmland and roads, and strawberry field literally being washed into the water.

Dealing with these things costs hundreds of thousands of dollars in public and private funds, he said.

Silberstein also talked about some of the erosion-related projects under way at the slough.

Two ranches adjacent to the slough have been purchased by preservation groups. Ideally, all the adjacent land would be purchased and converted to its original state, but, Silberstein said, "we're never going to have the resources to take all this land out

of production."

In fact, to help pay for more land, conventional farming on one of the ranches will continue for up to three more years. Then, Silberstein said, the plan is to experiment with more "sustainable" practices to see if erosion could be limited or eliminated. Researchers will use the intervening years to measure and compare the difference between the two types of farming.

That work will lead to concrete practices local farmers may want to adopt, he said, acknowledging that such a cooperative effort will happen slowly.

"This is a conservative community," he said. "When biologists and conservationists come knocking on their door, they often don't want to talk with you."

But the community has gotten involved in a number of slough uplands restoration projects, including plantings of native trees and grasses, he said.

Silberstein said researchers are also looking at two fields that have been abandoned — one six years ago and one three years ago — to see whether the slough uplands regenerate themselves, or whether restoration efforts are needed.

Rikk Kvitek, of Moss Landing Marine Laboratories, talked about a study he has done at Elkhorn Slough, comparing a recent survey of the slough system to one done

17 years ago.

Besides the obvious changes due to erosion, Kvitek said he found some changes in the organisms in the slough. Although not much has changed in species diversity or abundance, one critter, the phoronopsis viridis, a worm, has disappeared, and the population of Gaper clams has declined dramatically.

Kvitek said many people want to blame sea otters for the decline in crustaceans. But, he said, the Gaper clams were still rather plentiful in the deeper waters. They were nearly gone in the mud flats.

"I think another predator is involved," he said, showing a slide of a man digging for clams in the mud.

Going on that assumption, the slough is planning a "human exclusion project," which will close a portion of two mud flats to humans to see if the populations will replenish themselves.

Kvitek said the projects, which should begin in the spring with signs and educational materials, will be the first of their kind in the United States.

He said he was encouraged however, by findings from Bodega Bay that showed the Washington clam, also in population decline, had come back in greater numbers and in greater size once the bay became a sanctuary.