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## Restoring Bolsa Chica poses complex problems

Even if nature had left a blueprint, restoring the 1,105-acre Bolsa Chica wetlands would not be easy. As it is now, it is a formidable task indeed.

Re-creating the delicate balance of what the wetlands once were — with their complex interchange of ocean tides, fresh water, terrain and habitats — is the assignment for the Bolsa Chica Conservancy, a non-profit organization formed by the city of Huntington Beach late last year.

Two obstacles make a difficult job tougher.

One is the completion of development plans for 412 adjacent acres by Signal Landmark Co., which had agreed to allow the rest of its land to become wetlands in exchange for permission to build up to 5,700 homes. The planning process probably will take two to three years.

The second obstacle is the more than 100 oil wells scattered on the now-degraded wetlands, gradually drawing the small amount of available oil. As a result, it probably will be about 25 years before the restoration is complete.

Michael Josselyn, a rare expert in the art of restoring wetlands and a biology professor at San Francisco State University, is working on the restoration plan, which should be finished

later this year. In the meantime, conservancy members are working on programs to help people learn about the wetlands.

A five-week pilot program this spring will send 2,750 elementary school students into the wetlands, guided by naturalists with the county's environmental field studies program, said Pam Johnson, program assistant.

It is funded by a \$25,000 grant from Signal Landmark, with the curriculum overseen by the Amigos de Bolsa Chica, a citizens group that holds periodic tours of the wetlands and long had battled the company to have the wetlands restored.

The conservancy also is working to gather all available information on the wetlands for a library.

"This is really a remarkable area for master's degree or doctoral projects," said Peter Green, conservancy board member and Huntington Beach councilman. "No one has ever restored a wetlands this large, and it should be documented."

A computer data base will be compiled and continually updated. Carefully documenting the wetlands' biology also will help to judge the restoration's effectiveness, said Victor Leipzig, conservancy board member and Cypress College biology professor.

The most important area will



A tern flies over the Bolsa Chica wetlands, which probably will not be completely restored for 25 years. The Regi

be where ocean water will be allowed to flow in, probably at the wetlands' narrow south end at the dividing line between the state and city beaches, Leipzig said. The entry probably will be a surface connection rather than underwater culverts, which could pose problems for swimmers. A surface connection also ensures that the crucial top centimeter of the ocean water, with its own habitat of tiny creatures,

is not excluded.

From there, the restoration will be much more than simply letting nature take its course. Dikes will have to be used to control how much water goes where in the wetlands.

"Unfortunately, we have altered the landscape so much it's impossible to just turn back the clock a hundred years," Leipzig said. "We can hope to re-create the physical conditions needed to

allow the vegetation and animal life to thrive again."

The Feb. 7 oil spill created another consideration: how to keep oil from entering the wetlands through the new channel.

"That's something that will have to be looked at by engineers more sophisticated than myself," Leipzig said. "It's just another human-caused problem that has to be solved."

— John Westcott/The Register