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String of radar stations will track ocean's currents

Cal Poly will implement the Internet-accessible monitoring system, set for completion by 2009

By David Sneed

dsneed@thetribunenews.com

By 2009, university researchers plan to offer real-time information on the ocean's currents along the California coastline that fishermen, boaters, surfers, the Coast Guard and environmental regulators could access through the Internet.

A string of 57 radar stations -- four of them in San Luis Obispo County -- will track the movement of the ocean's currents along the state's 1,100-mile coastline.

Currents are the ocean's circulatory system. They carry nutrients up from the depths and spread fish larvae and plankton. They also transport pollution and toxic red tides.

Cal Poly is one of 13 universities in the state that will implement the monitoring system. A total of \$21 million has been allocated for the project, with Cal Poly receiving \$3.4 million.

"We are hoping to make a technology that applies to a whole host of interest groups and the public," said Mark Moline, a biology professor who will coordinate Cal Poly's effort.

A host of applications

Moline is interested in using the system to track the transport of harmful algal blooms and larval dispersal.

It also could be used by public safety agencies to accurately predict the spread of oil and sewage spills and prevent unnecessary beach closures. Similarly, search-and-rescue teams could use the information to better coordinate the hunt for boaters and others lost at sea.

"The whole program is aimed at trying to get a better understanding of where the ocean is moving, and a whole host of applications fall out from that," Moline said.

The system will be useful for fishermen, said Port San Luis Harbor Manager Jay Elder, because salmon, albacore and other open-ocean fishes often congregate along areas where warm and cold currents meet.

"Any data you can provide the fishermen, both commercial and recreational, in terms of ocean temperature and current is very useful," Elder said. "If it's real time and available to the public, it will help fishermen."

Leading the nation

Funding for the project comes from two statewide bond measures approved by voters in 2002 that will make California the nation's leader in coordinated coastal monitoring.

The National Oceanic and Atmospheric Administration as well as two recent national studies on the state of the nation's oceans have called for better technologies to help scientists understand the nation's coastline.

"California has a real opportunity to take a leadership role in how this project is applied in the rest of the country," Moline said.

The system will feature long-distance radar stations that can reach out nearly 100 miles and a shorter-range system that reaches up to 37 miles.

A short-range station has already been installed at Point Sal. Moline is negotiating to place three other short-range stations in San Luis Obispo County and northern Santa Barbara County -- Point San Luis, Point Buchon and Point Estero, at the Abalone Farm near Cayucos. Long-range stations will be at Point Buchon and Piedras Blancas.

Parts of the system are already up and running in San Diego and Monterey counties. It works by sending out radar signals that detect waves. Their movement is tracked using the Doppler effect, the same technology used by traffic police in their radar guns.

"Combining the data from one site with another site, you get surface direction and speed," Moline said.

The system also will incorporate information from the series of wave-monitoring buoys off the state's coastline. In addition to installing and operating the radar stations, the \$21 million will be used to develop computer software that will interpret the data and present it on the Internet in a user-friendly fashion.

Moline has hired two fulltime technicians to operate the system. Installation locally is expected to begin in the fall and should take a year and a half to complete.