

Study helps reduce length of beach closures due to contamination

A new program on the southern Oregon coast to examine beach contamination by disease-causing micro-organisms has reduced the beach closure times by 43 percent.

Frank Burris, an Oregon State University Extension faculty member based in Gold Beach, has teamed with state and federal researchers and south coast citizens to document the timing and extent of bacterial contamination on beaches and to trace the sources of that contamination.

Federal law mandates that coastal states sample beach waters four times a year to protect public health against fecal bacteria that can cause illnesses ranging from gastrointestinal disorders to liver disease. When monitoring reveals fecal bacteria levels above the federal standard, Burris says, the beach is closed to the public and posted with warnings that contact with the ocean water may cause sickness or possibly death.

In 2005, beaches in Oregon were closed for a total of 117 days; in 2004 total beach closure days were 432, according to Burris. Three beaches on the southern Oregon coast—Sunset, Mill, and Harris—accounted for about 55



Oregon State University Extension Service

Regular ocean sampling on the southern Oregon coast led by Oregon State University Extension Service has reduced contaminant-related beach closures by 43 percent.

percent of the state’s total beach closures. Those three beaches are now the focus of a study led by Burris, who works 25 percent of his Extension time for Sea Grant.

Contaminated beaches are re-sampled after 30 days and remain closed until follow-up samples determine that fecal bacteria in the ocean water have fallen below the federally set limit. If the bacteria levels are

again found to be high after the 30-day closure, the beach remains closed for an additional 60 days.

“However, by sampling the beaches every day instead of every three months, we’ve seen that the high bacteria counts generally last for just a day or two,” Burris said. “So instead of closing the beach for a month, we can re-open it in a few days.”

On the flip side, daily beach sampling has recorded more events of elevated bacteria counts than previously documented.

“You may not realize that you have a problem until you have data,” Burris said. “But having data helps you solve the problem.”

Beach closures can discourage tourism and depress real estate values, so closely monitoring the condition of beach

waters can protect the coastal economy as well as public health. Since November, vigilant sampling has reduced the number of beach closure days by 43 percent.

Such intense sampling requires a corps of technicians and volunteers, trained by Burris and the research team to collect data following strict guidelines. Beach sampling



began last November with Harris and Mill beaches near Brookings and will expand to include Sunset Beach near Coos Bay this fall. Sampling continues year round.

Every few weeks and during each significant storm, the researchers sample the ocean water at waist height at several points north and south of incoming creeks. Every few months, they sample the same area each hour for 24 hours, wading into the surf throughout the night with headlamps.

"It gets pretty exciting when it's dark and all you can hear are waves crashing around you and all you can see are whitecaps lit by your headlamp," Burris said.

"We get higher bacteria counts on the rising tide, when the water is warmer and more stagnant," Burris said. They have found that fecal bacteria levels tend to be lower, or not present at all, at low tide.

In addition, the researchers sample along the full length of five

freshwater streams that flow from forested headwaters into the ocean at Harris and Mill beaches. Because the study is new, their data are just beginning to reveal patterns that will be tested with future sampling. They have found that the streams can carry elevated levels of fecal bacteria even in the highest elevations flowing through undeveloped

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forested land. However, as streams flow through areas of moderate- to high-density housing or commercial development, bacteria levels tend to further increase 10 to 30 percent in most series of samples.

They also have found that bacteria levels in streams are highest during rainy times, and that in winter, freshwater streams have much higher bacteria levels than the ocean. Potential sources of bacte-

ria include leaking septic systems, overflowing lift stations, pets, and natural sources within forests.

As coastal development expands to accommodate new residents and increasing numbers of vacationers, beaches in Oregon may experience more fecal bacteria contamination. Through OSU Extension and the South Coast Watershed Council,

Burris is developing an educational program to help coastal residents reduce bacteria upstream from the beaches.

Burris and his research partners, the

Oregon Institute for Marine Biology and the South Slough National Estuarine Research Reserve, in collaboration with the Oregon Department of Environmental Quality, have extended sampling for another winter to get more data that will help determine what sources may be making the largest contributions to bacteria levels in the streams.

September 2006

Oregon Sea Grant ■ <http://seagrants.oregonstate.edu> ■ 541-737-2716

The projects mentioned in this report were funded by the NOAA Office of Sea Grant and Extramural Programs, U.S. Department of Commerce, under grant number NAO6OAR4170010 (project numbers A/ESG-5 and M/A-20) and by appropriations made by the Oregon State legislature.

Reprinted courtesy of Peg Herring, Oregon State University Extension and Experiment Station Communications.