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Study examines S. County watershed contamination

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New research is giving farmers and environmentalists a clearer view of contaminants in local waterways.

In the past year, scientists with the UC Santa Cruz Center for Agroecology and Sustainable Food Systems collaborated with farmers to collect data on land use and its impact on nutrient contamination in the Pajaro River, Watsonville and Elkhorn sloughs.

The scientists tested nitrogen and phosphorous levels in the waterways every other week between Oct. 1, 2000, and Sept. 30, 2001. The testing was designed to get a spatial analysis of when and where these nutrients, which can be associated with agricultural runoff, enter the watershed.

They found that the Pajaro River is relatively contaminated before it reaches the Pajaro Valley, and that the nitrogen levels decrease some in Watsonville, most likely because the Pajaro River is diluted by cleaner water from Corralitos Creek.

Lead researcher Marc Los Huertos said that doesn't mean excess nitrogen isn't a problem, however.

"In Pajaro Valley, it's probably leaching into groundwater," he said.

That would explain why it's not as visible in the surface water. However, groundwater contamination could pose its own problems.

Jonathan Lear, a hydrologist with the Pajaro Valley Water Management Agency, noted that some wells in the Pajaro Valley have problems with nitrate contamination, including in the Springfield Terrace area north of Elkhorn Slough. And the study still showed nitrogen runoff in the Pajaro Valley, in addition to the high levels coming into the system from upstream sources.

The researchers emphasize these results must be viewed as the beginning of a long-term project to fully understand how land use, from agriculture to urban areas, affects local water.

Another study in the much wetter 1998 season, for example, found much higher nutrient flow into the streams.

Results from Elkhorn Slough showed a different problem. While Elkhorn Slough had lower levels of nitrogen, the waters were high in phosphorous. If the elevated phosphorus is related to farming, it could mean sandy soils in the slough don't absorb phosphorous as well as their inland counterparts. Another possibility is that something else is bringing in phosphorous.

"Phosphorous loading may not be a farming-driven problem," said Los Huertos, explaining that factors such as horse droppings may play a role.

Area growers collaborated closely with the UCSC team during the data collection and several invited Los Huertos to monitor their fields throughout the year. Tom AmRhein and Mario Aguas of A&A Farms/Your Flower Garden have invited Los Huertos to their farm for several studies.

"If you want to control for nutrients, you've got to measure them," AmRhein said.

Traci Roberts, county coordinator for the Santa Cruz County Farm Bureau Agricultural Water Quality Program, hopes the new research will spark more interest in watershed management.

"We need to know what happens in our watershed," she said. "It makes it a lot more practical."

She hopes the dissemination of research results will recruit farmers to the process.

Daniel Mountjoy, a Salinas-based resource conservationist with the Natural Resources Conservation Service, thinks the research may have immediate practical benefits, too. By knowing how and when fields are leaching nitrates, he hopes to better understand when growers may be over-fertilizing.

"We can probably save them money if they know that they're losing nutrients out of their system," he said.

Mountjoy thinks area residents could benefit from understanding what happens when they apply extra fertilizer to their home lawns and gardens. He notes that in areas on the East Coast where detailed studies have been done, it's been shown that home gardens lose much more nitrogen per unit area than farms because home gardeners are less aware of the needs of their plants and less concerned with the cost of a little extra fertilizer.

Rep. Sam Farr, D-Carmel, who helped the UC researchers secure the USDA Special Programs grant that supports this study, is enthusiastic about the project.

"These funds go directly to local people who are solving local problems," Farr said.

"Environmental monitoring and sustainable farming will help us preserve the delicate balance between keeping our agriculture productive and making sure that our cherished natural treasures are protected."

Water-friendly practices can be seen on A&A Farms off Elkhorn Slough Road: wide buffers between crops and the slough, vegetative cover on slopes and irrigation drainage designed to minimize erosion. In addition to AmRhein, many area growers have a history of managing their fields to protect local water quality. Ten such farmers have banded together to develop a certification program, working with researchers and the Monterey County agricultural commissioner.

Under the program, certified farmers will be able to use an eco-label on their products with the phrase "Fields to Oceans: Coastal Farmers Conserving Monterey Bay." AmRhein said that label is designed to identify responsible farmers, "so that when you buy product you're getting something that's done right."

The Central Coast Regional Water Quality Board is responsible for developing total maximum daily load guidelines for the Pajaro River, Watsonville and Elkhorn sloughs, among others. Those load guidelines quantify contamination problems in polluted waters and establish mitigation plans. They are required under the Clean Water Act and approved by the EPA. California contains 472 water bodies slated for load guideline development within the next 13 years; 46 are in the Central Coast region, which spans from San Luis Obispo to Santa Clara County.

The Pajaro River is listed as high priority for load guidelines development because of nutrient and sediment levels. The Central Coast Regional Water Quality Control Board is preparing to submit its updated plan to the state. Under the new plan, the Pajaro River guidelines will be completed by 2005, including a plan to mitigate problems and monitor progress. Watsonville and Elkhorn Sloughs have medium and low priority rankings, respectively.

The scientists presented their findings at the Second International Nitrogen Conference on

Science and Policy last October and will summarize them in upcoming issues of the Santa Cruz County Farm Bureau bulletin.

Lead researcher Marc Los Huertos will present the research at the Monterey Bay Regional Ag Expo & Agricultural Seminar at 1 p.m. Tuesday. The Ag Expo, which includes sessions today and Tuesday, is being held at the Kennedy Youth Center, 2401 E. Lake Ave. in Watsonville.

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