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UNH's Great Bay Coast Watch Helps Area Residents Monitor Their Estuary

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DURHAM, N.H. - On a damp and chilly January afternoon, Ann Reid is standing on a dock in Eliot, Maine, and taking a secchi disk reading to determine the water clarity in the Piscataqua River. The cold doesn't seem to bother her or the mallards nearby. When she is finished recording the data, Reid takes a few photos of the shoreline to document its condition.

Water quality data isn't usually collected by the Great Bay Coast Watch in the winter, but Reid, who is the coordinator for the Watch, was asked to take some additional measurements for the town of Dover as part of an upcoming river dredging project.

"I enjoy this sampling because it gives me the opportunity to see the communities surrounding Great Bay Estuary from a different angle than just driving by on the highway," Reid says as she scribbles the water clarity information on her data sheet. "It's about being out in the rain and the sun and having fun and learning."

Volunteers of all ages, including high school students and retired locals, are part of what makes the Watch a unique organization. With operating costs partially funded by NH Sea Grant, UNH Cooperative Extension and various other grants, the Watch is dependent on motivated individuals who are interested in learning about their environment and protecting their local waterways.


"People want to make a difference and protect their local environment and this is a great way to get involved," Reid says.

Approximately 80 volunteers visit 21 sites around the estuary once each month from April to October to collect water quality information, including pH, dissolved oxygen, salinity, water temperature and clarity, and fecal coliform levels, as well as information on the shoreline condition and nearby wildlife.

The Watch has been collecting this information since 1990 and has built a long-term data set to identify trends in the health of the local waterways. The data collected is used by organizations such as the N.H. Department of Environmental Services, Reid explains.

Although the Watch was formed to collect rather than analyze water quality data, Karen Diamond, who volunteers to coordinate the Watch's bacterial processing lab, notes that she can see changes in bacterial levels depending on weather conditions and facility improvements.

"Each year, something fascinating shows up in the data," Diamond says.
The evening after the monthly water sampling occurs, Diamond and a few other volunteers help at the lab to filter the water samples, incubate the filters and then count the bacterial colonies.

"It takes a unique, detail-oriented person to conduct lab work," Diamond says. Many volunteers are retired nurses or physicians who are comfortable with laboratory procedures, although there are some who simply enjoy learning new techniques.

Nate Hazen of Greenland, a volunteer for the Watch since 1999, cites the importance of learning about the estuary as a reason for people to become involved with volunteering for the Watch. He also notes the sampling requires a regular but relatively modest time commitment.

"It's important for people who live near the estuary system to understand the geographic, hydrographic and natural resource aspects of the waterways," Hazen says. "Is the nearby river dirty? If so, why? Locals need to advocate for the health of the estuary system."

Hazen also notes the recreational benefit involved in the volunteer efforts.

"This area is rich in maritime history and that's what I'm interested in," Hazen explains. "I enjoy going to a site and finding archeological artifacts, like an old bridge pier or the remains of a dock. It reinforces the economic importance of this estuary in historical times."

Volunteers for the Watch are not limited to water sampling. In 1999, the Phytoplankton Monitoring Program was developed to help detect harmful algal blooms (HABs, also known as "red tide"), which could potentially impact shellfish beds. Candace Dolan, coordinator of this program's volunteers, explains that sampling for toxic phytoplankton began so that local citizens could be trained to act as an early warning system for HABs that might cause paralytic shellfish poisoning.

"The volunteers get excited about finding 'the bad guys,'" Dolan laughs. "That's what they call the toxic phytoplankton cells. But it's good to have local residents involved in the sampling and identification of these toxic cells because it helps them to understand why shellfish bed closures occur."

Armed with microscopes and identification keys, the volunteers are able to spot these cells and alert the state's shellfish manager who can use the information to determine the need for additional testing.

"We are part of something bigger that's becoming an increasing concern," Dolan explains. "The scope and intensity of HABs are increasing; it is believed that they may be supported by the increase in coastal pollution. The information we are collecting is interesting, timely and very useful."

"Even on a lousy weather day, we sample in beautiful places," she adds. "There's a camaraderie involved with the group. Plus, you never know what you're going to see under the microscope!"

After 19 years as the coordinator for the Watch, Reid will be retiring in December. The Watch will also be undergoing a review by a panel of experts later this year to determine the most suitable structure and governance for its future.

For more information about volunteering for the Watch or about the annual meeting, please contact Ann Reid at 603.749.1565 or ann.reid@unh.edu.
Photographs available to download:
http://www.unh.edu/news/img/sea_grant/DSC_0028.JPG
http://www.unh.edu/news/img/sea_grant/DSC_0042.JPG

Caption: Ann Reid, coordinator for the Great Bay Coast Watch, holds a secchi disk used to measure water clarity. Credit: Rebecca Zeiber.