

Friends of Casco Bay / Casco Baykeeper
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For 15 years, Citizen Scientists Have Helped Protect Casco Bay

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A passion for Casco Bay is what impelled a crowd of committed volunteers to abandon their television sets on October 21st. That afternoon, sandwiched between a Patriots rout and the Red Sox American League Championship game # 7, Friends of Casco Bay recognized the work of 224 volunteers who donated over 3,000 hours of service in 2007. Most are water quality volunteers who keep watch on the environmental health of Casco Bay, monitoring vital signs such as dissolved oxygen, water temperature, and nutrient levels.

Citizen Stewards Coordinator Peter Milholland presented awards for five years of service to Portland resident Dick Stevens. Fifteen-year Awards were given to Pam Galvin of Brunswick, Walter (Doc) Phillips of Harpswell, and Erno Bonebakker of Portland. Asked to comment on what has kept them involved since 1992, Pam Galvin noted that she started sampling Quahog Bay after fish kills in the early 1990s left eastern Casco Bay reeking of rotting fish. Walter (Doc) Phillips of Harpswell samples at Jordan Point, Harpswell. From his sampling site in Middle Bay, he looks across to huge mudflats where clammers frequently dig. He has seen a loon, eagles, and kingfisher circling over Casco Bay. Erno Bonebakker of Portland samples on Chebeague Island. He says, "I live here because of the access it gives me to Casco Bay for boating, walking the shore, enjoying the 'place.'"

As the volunteer coordinator for Friends of Casco Bay, Peter Milholland trains new volunteers in EPA-certified sampling methods, keeps tabs on each volunteer over the course of the sampling season, and logs the information they collect into a massive database used by researchers and policy makers. He asks his citizen scientists to sample

at 7 a.m. and at 3 p.m. on designated Saturdays from April through October. “By sampling in the early morning and mid-afternoon,” explains Peter, “we try to capture the best case scenarios and the worst case scenarios for water quality. Dissolved oxygen varies with the time of day, salinity, and water temperature.”

Says Peter, “In most places, dissolved oxygen levels are at their worst in early morning, after plants and animals have been removing oxygen all night long. By mid-afternoon, the plants have been producing oxygen as a by-product of photosynthesis, so oxygen levels tend to be higher. But other factors beside the time of day affect oxygen. Cold water holds more oxygen than warm water, and fresh water can hold more oxygen than salt water, so places that are impacted by freshwater rivers or shallow areas that warm up rapidly can have quite different readings than what you might expect.”

It is a big commitment for the water quality monitors. Doc Phillips admits, “It’s hard to be fooling around with those test tubes when there is a good sailing breeze.” Despite its rigor, Peter says, “I’ve seen more interest in our program because it has been running so long. After 15 years, we are at a point where we can really start to see the variability in different parts of the Bay over time. With all the talk about global warming, people want to do their part to gather long-term data that may reveal trends. This year we added 34 new water quality monitors, triple the usual number of new recruits.”

Peter adds, “In recent years we have focused a lot of work in Quahog Bay in eastern Casco Bay because it has consistently low water quality. The wind direction tends to trap surface water in the upper reaches of the Bay, limiting circulation, and a lot of decaying material on the bottom of the bay uses up dissolved oxygen as it decomposes,”

In the New Meadows River estuary, a causeway blocks water exchange between the upper and lower river. Videotaping of the bottom of the New Meadows estuary by Friends of Casco Bay volunteers revealed two dramatically different ecosystems. Eelgrass and lobsters in the unrestricted lower section of the New Meadows indicate a

healthy ecosystem, while the partially dammed lake created by the causeway is populated by green algae, jellyfish, and sponges indicating poor water quality.

Erno Bonebakker says, “Being a Citizen Steward is an opportunity to care for an incomparable resource through stewardship. It gives one a sense of ownership and connection far deeper than observation, giving political support, or donating money. You are literally getting into it.” Doc Phillips shares some advice for someone considering becoming a water quality monitor: “Do it and feel good about it!”

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