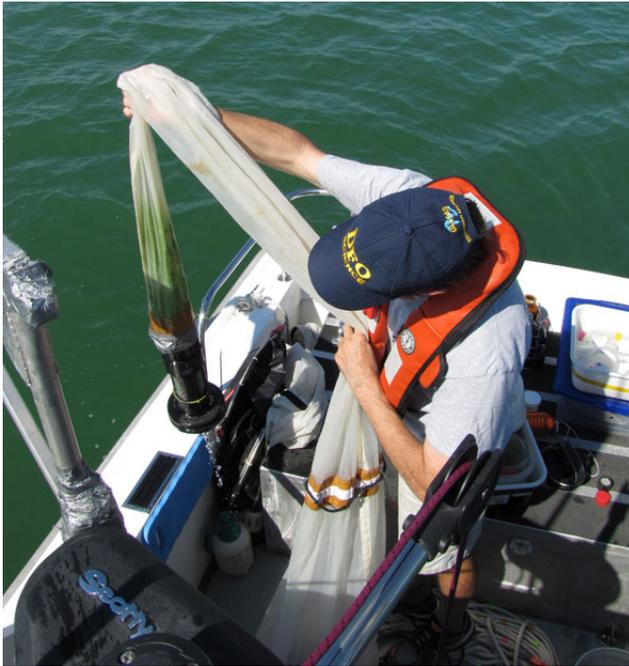




A summer of science on the Bay

From the Bottom Up - Fisheries and Oceans Canada



One of the main environmental challenges identified for the Bay of Quinte has always been the amount of phosphorus (nutrients) entering it from both urban and rural sources. For the general public this translates in to too much algae, which people notice most in areas close to shore as the summer progresses.

However, algae are an important component of a healthy ecosystem. They are a large group of diverse organisms that use photosynthesis to produce food and are at the base of the food web. Algae include phytoplankton, a mostly microscopic single-celled plant, which are eaten by small animals called zooplankton (microscopic animals) that drift in the water column. The zooplankton are in turn fed upon by larger zooplankton, and small fish. Then larger fish eat the smaller ones. At the top of the food web are fish-eating birds, large fish such as walleye, pike and bass and humans.

Every summer a long-term, multi-agency research and monitoring project called Project Quinte, which began in 1972, visits the Bay. The project monitors, compares and evaluates the Bay's response to implemented phosphorus control measures. As part of this project, Fisheries and Oceans Canada (DFO) monitors the phytoplankton communities in the Bay.

Every two weeks from May to the end of October, Fisheries and Oceans Canada visits the Bay. Currently, using several sites for monitoring and research, the shallow upper bay at Belleville, the middle part of the Bay at Napanee and Hay Bay, and the deeper lower Bay at Conway. Visiting different sites each trip, they take samples to measure the abundance and species of phytoplankton. As well as, other water quality parameters that influence the phytoplankton communities including: total phosphorus, soluble reactive phosphorus, light, clarity, temperature, turbidity, conductivity, wind speed and direction. Once the samples are collected, they are taken back to the laboratory and the work of identifying the population abundances and the species of phytoplankton begins. The research provides information on how the phytoplankton are responding to the ever changing conditions in the Bay like: invasive species, climate changes, fish population fluctuations, habitat alterations, and phosphorus (nutrients).

As with all things in life it's getting a balance, when there are excesses of anything problems arise. There has to be species abundance and diversity in the phytoplankton population to maintain a healthy food web. However, in the Bay of Quinte, the issue has always been the amount of excess algae produced by excess phosphorus. Phosphorus is a naturally occurring element essential for all life. But, excess amounts can cause problems with too much algae, causing negative impacts for recreational uses and threatening the health of the Bay.



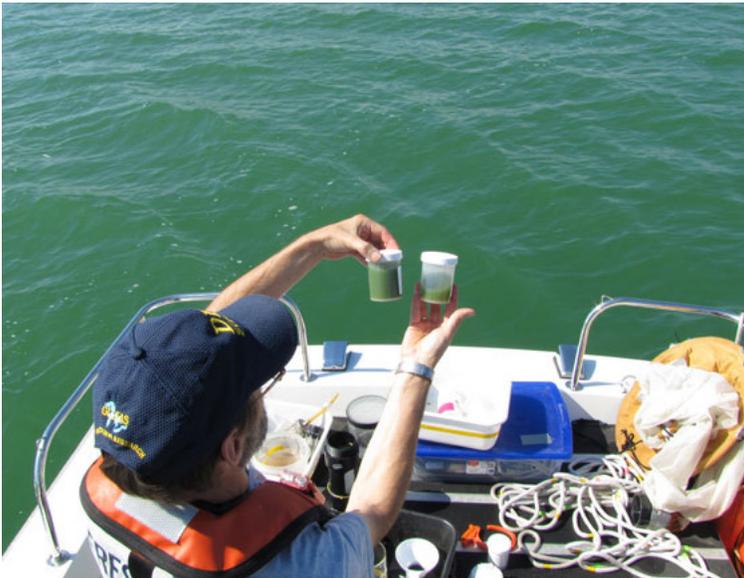
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Deploying the phytoplankton sampling net



Phytoplankton sample



Preparing samples to go back to the lab



Measuring water quality parameters