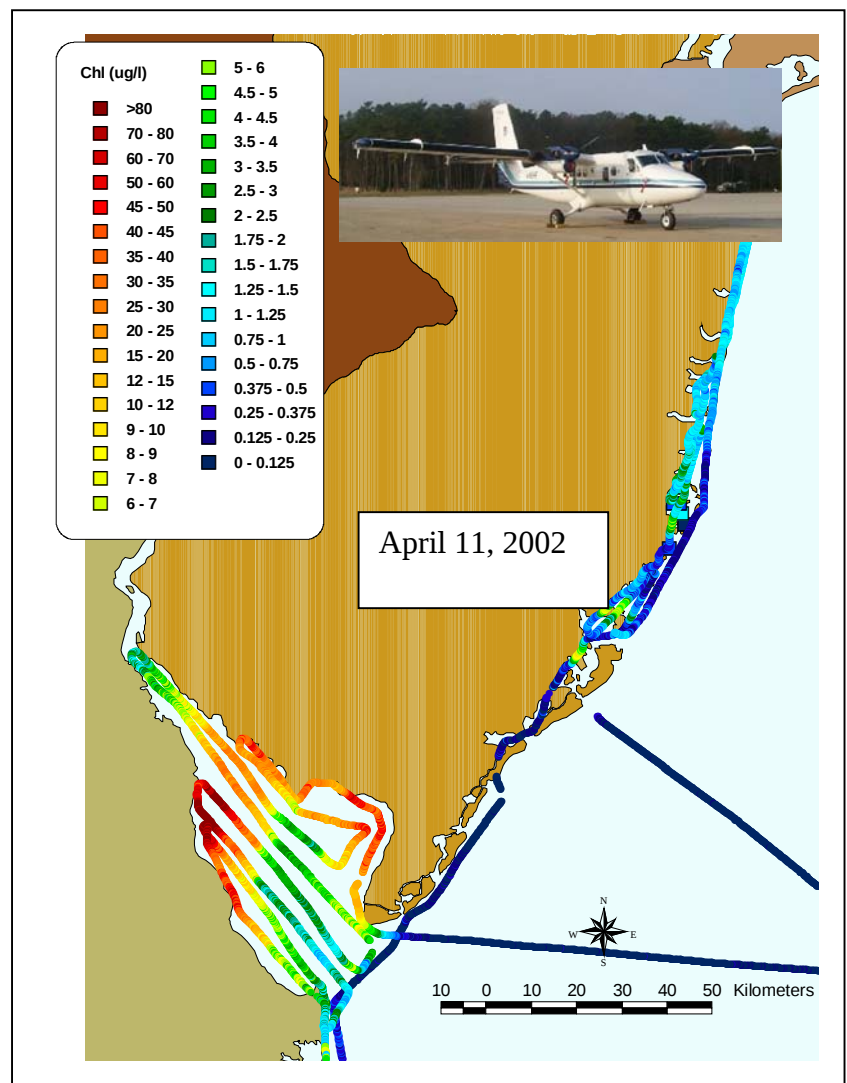


Coastal Phytoplankton Monitoring Network

Every summer, the Bureau of Marine Water Monitoring in collaboration with Region 2 of the U.S. Environmental Protection Agency (EPA) monitors phytoplankton populations in the waters along the 127 miles of New Jersey's coastline and major estuaries. Large-scale blooms of these organisms can produce unsightly and unhealthy water quality conditions, often referred to as red, green or brown tides, depending on the dominant varieties. When these algae die, the decay process uses significant amounts of dissolved oxygen in the water, sometimes reducing the bottom oxygen levels below tolerable levels to larger organisms, such as fish and shellfish. Some of the algal species that create red tides are known to have potentially harmful effects on human health, either through direct contact or through ingestion of shellfish that have become contaminated with the microorganisms. Fortunately, to date, New Jersey's red tides have not been of the acute toxic varieties. The results of the phytoplankton sampling also provide an estimation of the other algae present that might have effects on marine fauna and result in mild toxicity to bathers.

Under the guidelines of the National Shellfish Sanitation Program, the Bureau maintains a network of 16 stations as part of the state contingency plan to monitor for marine biotoxins. The stations are sampled biweekly from May through August each year. Samples are collected by EPA, via their helicopter, through a cooperative agreement with the NJ Department of Environmental Protection. The Bureau of Marine Water Monitoring analyzes the samples for the presence of potentially toxic forms of phytoplankton.

In 2006, chlorophyll a levels will be measured as shown in the figure to the right by a sensor attached to a plane. This remote sensing is being applied as a means to target traditional phytoplankton water sampling by boat to locations of elevated chlorophyll a concentrations as determined through remote sensing. High chlorophyll a concentrations are indicative of a possible phytoplankton bloom. Remote sensing



will compliment more traditional fixed-station monitoring performed by the Bureau (see map on next page).

In recent years, no blooms of toxin producing algae have been detected in New Jersey waters. A non-toxic bloom called “Brown Tide” has recurred in Barnegat Bay in recent years. Also, a non-toxic dinoflagellate bloom occurred off the coast of Ocean City, NJ in 2002. Neither of these resulted in the significant water quality and economic impacts to fisheries and tourism that occurred with blooms in the mid-1970’s and mid-1980’s along the New Jersey coast. Results from the annual phytoplankton sampling may be obtained from the Bureau’s webpage (www.state.nj.us/dep/wmm/bmw) or by calling the Bureau at (609) 748-2000.

