

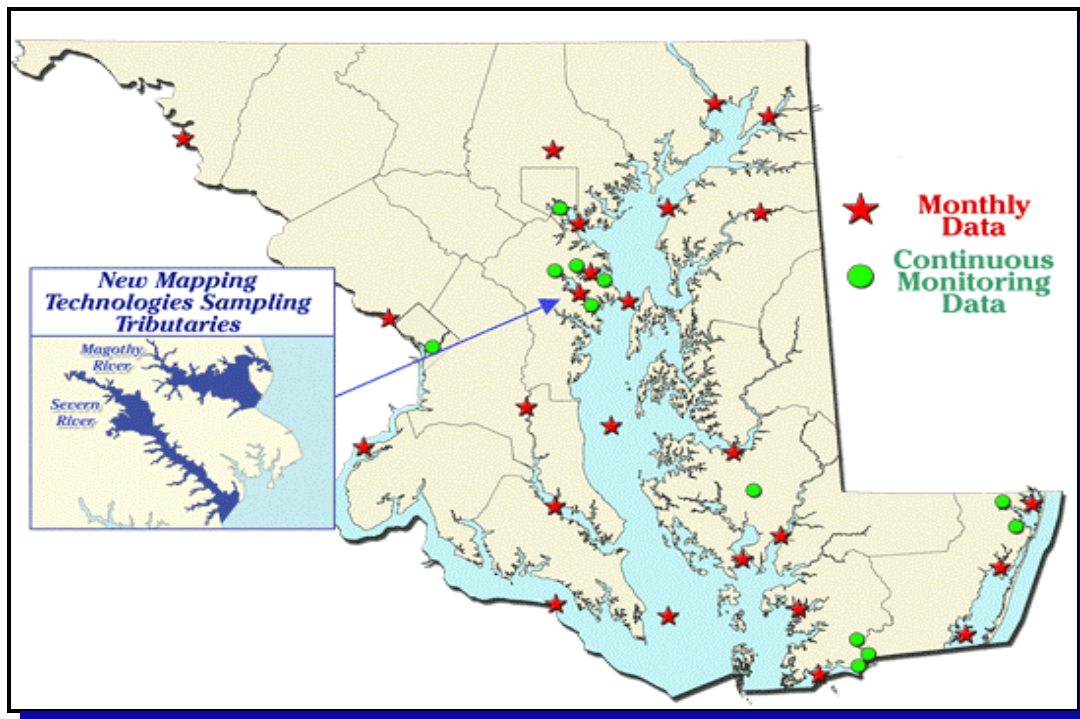
Meeting *Chesapeake 2000* Water Quality Commitments Through Innovative Technologies

New technologies for monitoring the Bay and its tributaries have been developed and tested over the past several years by the Maryland Department of Natural Resources (DNR), the University of Maryland, the Virginia Institute of Marine Sciences, the District of Columbia and other Chesapeake Bay Program partners. These technologies are critical for understanding and assessing living resource habitats in the Bay, especially shallow waters that are a key to restoring bay grasses, fish and shellfish.

Continuous monitors can provide “real-time” data collected every 15 minutes on a wide spectrum of water quality measurements including salinity, temperature, dissolved oxygen, pH, water clarity and algal levels (see map for monitoring site locations).

One reason that it is important to have continuous records is because of the dramatic daily fluctuations in dissolved oxygen that traditional monitoring misses. These large fluctuations often lead to fish kills in Bay tributaries affected by algal blooms due to excess nutrients.

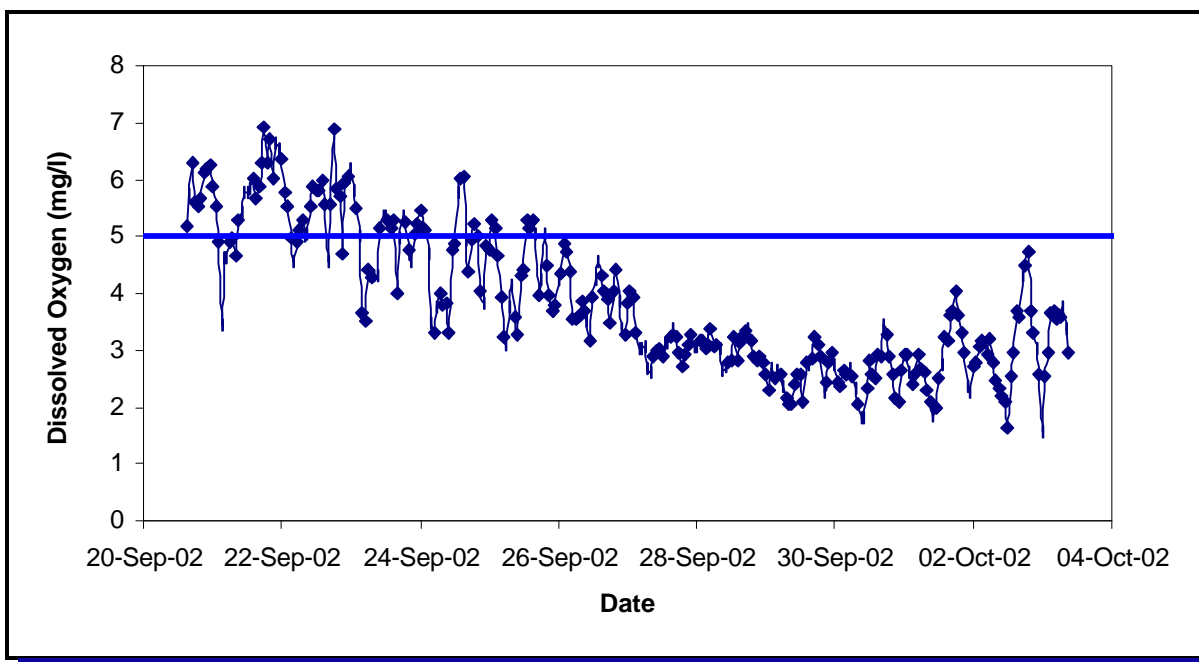
Another new monitoring technology is capable of mapping water quality throughout a tributary, including its shallow waters, in a matter of hours. This technology allows data to be collected every four seconds while the boat is traveling at speeds up to 25 knots. The water and habitat quality maps produced by this technology can then be used to comprehensively assess habitats throughout a tributary where conditions typically undergo large changes from headwaters areas to the mouth.



Maryland DNR's new web site – eyesonthebay.net – has a map of the Bay that allows users to click on any of the stations and call up the latest new technologies data as well as monthly data from the long-term Chesapeake Bay Monitoring Program.

These new innovations fill a large gap in our ability to assess the new water quality criteria being developed to protect living resources as required by the *Chesapeake 2000* agreement. The shallow water areas that will be assessed with these new technologies have largely been unmonitored by traditional programs due to the cost and time needed to take measurements across the Bay's vast areas and rapidly changing environments. *Chesapeake 2000* commits partners to meeting these criteria by 2010.

In addition to meeting *Chesapeake 2000* commitments, these new technologies allow the public, scientists and managers to view the latest data over the Internet. The Maryland Department of Natural Resources has developed a comprehensive web site that displays near real-time data from the new monitoring technologies as well as the most recent data from the broader long-term Chesapeake Bay Monitoring Program. For the Executive Council meeting, a continuous monitoring station has been established on the Anacostia River within 100 yards of the meeting location and is currently transmitting data to the web site. The web site, accessed at www.eyesonthebay.net, provides easy-to-understand background information to help interpret the importance of different data types; it also provides links to recent Chesapeake Bay data from other sources.



Continuously recorded dissolved oxygen measurements in the Anacostia River, near the Executive Council meeting site at Anacostia Park, show long periods this summer and early fall during which concentrations dropped below the healthy level for most living resources of 5 mg/l.

In summary, these new technologies allow the Bay Program partners to:

- C Better understand the link between, pollution, water and habitat conditions, and our primary restoration goal – the Bay's living resources;
- C Determine whether or not we are meeting the water quality criteria defining a restored Bay as called for in the *Chesapeake 2000* agreement;
- C Provide agencies with near real-time data to assess fish kills, harmful algal blooms, effects of storms and other short-term events; and
- C Provide citizens, students and researchers with an opportunity to explore the dynamic nature of the Bay and become more knowledgeable about its problems and their solutions.

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