

**A TRIAL OF NEW AUTONOMOUS UNDERWATER VEHICLE IN A TIDALLY
RESTRICTED COASTAL LAGOON, CAPE COD.**

Kelly Chapman and Krista Lee, National Park Service
Cape Cod National Seashore
99 Marconi Site Road
Wellfleet, MA 02667

ABSTRACT

Cape Cod National Seashore has been monitoring water quality at East Harbor, a 350-acre back barrier coastal lagoon in Truro and Provincetown MA, following a summertime dissolved oxygen depletion and fish kill in 2001. Eutrophication in the lagoon is largely the result of poor flushing, in turn the result of artificial tidal restriction since 1868; the only connection between the lagoon and the Cape Cod Bay marine environment is a 4-ft diameter, 700-ft-long culvert. In 2005 and 2006, water quality and tidal data were continuously monitored by an YSI 6600EDS multi-parameter data logger at one station in the lagoon. Though continuous temporal monitoring has proven beneficial in our knowledge of the constant changes in this system, more can be done with newer technology. A new unique tool for wider spatial resolution, the YSI-AUV (Autonomous Underwater Vehicle) was used in this years study. The AUV is a mobile sensor platform that records GPS position, fixed water quality and bathymetric data while underway. This new tool provides us a more comprehensive data set allowing for a better understanding of the dynamics of the East Harbor system.

KEYWORDS

Water quality, spatial monitoring, technology, autonomous underwater vehicle, AUV, Cape Cod.