

Quantifying Nitrogen Removal by Oysters

Workshop Highlights

The NOAA Chesapeake Bay Office sponsored a workshop with the goal of evaluating the current state of knowledge related to the capacity for oysters to remove nitrogen from coastal waters. The workshop, which was held at Virginia Institute of Marine Sciences Eastern Shore Lab in Wachapreague, VA, on January 10 – 11, brought together a total of 32 scientists, resource management agency personnel and restoration practitioners (see table below) with expertise in the field to (1) identify the best available values, or ranges of values, for nitrogen removal by oysters primarily focusing on denitrification and bioassimilation, (2) discuss the uncertainty associated with these estimates, (3) identify the research needed to fill data gaps and (4) discuss minimum requirements for studies to accurately measure nitrogen removal rates associated with oysters.

The workshop included five presentations by scientists detailing their field studies which have measured nitrogen dynamics associated with oyster reefs and oyster aquaculture in Chesapeake Bay and elsewhere. The range of observed values for nitrogen (1) sequestered in oyster soft tissue and shell and (2) removed from the system via coupled nitrification/denitrification processes were summarized. Workshop participants engaged in fruitful discussions about the sources of variation in the observed values, the generality of the findings, and the conditions under which it is appropriate to apply the few estimates that currently exist.

Commitments were made by workshop participants to add some recently available data to the database compiled at the workshop and to follow up with additional data summary and analysis. A workshop report which summarizes the current state of our knowledge on nitrogen removal by oysters, identifies priority research needs to improve those estimates, and makes recommendations for estimating the water quality benefits associated with oyster restoration and aquaculture activity will be prepared over the next few months and made available to all appropriate management agencies.

Workshop Participants and Affiliation

Name	Affiliation	Name	Affiliation
Steve Allen	Oyster Recovery Partnership	Doug Lipton	Univ. of MD & MD SG
Iris Anderson	VIMS	Mark Luckenbach	VIMS
Suzy Ayyazian	EPA – Narragansett	Fredrika Moser	MD Sea Grant
Peter Bergstrom	NCBO	Annie Murphy	VIMS
Bonnie Brown	VCU	Mike Owens	UMCES
Steven Brown	TNC	Ken Paynter	Univ. of Maryland
Mark Brush	VIMS	Mike Piehler	UNC
Ruth Carmichael	Univ. of South Alabama	Kevin Sellner	CRC
Susan Conner	US ACOE – Norfolk	B. K. Song	VIMS
Jeff Cornwell	UMCES	Angie Sowers*	US ACOE - Baltimore
Philine zu Ermgassen	Univ. of Cambridge	Howard Townsend*	NCBO
Robinson Fulweiler	Boston University	Bruce Vogt	NCBO
Boze Hancock	TNC	Jim Wesson	VMRC
Troy Hartley	VA Sea Grant	Stephanie Westby	NCBO
Lisa Kellogg	VIMS		

*Joined by phone