Waquoit Bay National Estuarine Research Reserve

Pond Oxygenation Workshop: Learning Through Case Studies

Coonamessett Inn, Falmouth

November 8, 2023
9:00AM – 4:00PM

AGENDA

9:00-9:10 **Welcome and Opening Comments**
Tonna-Marie Surgeon Rogers, Director & Kristen DeMoranville, Coastal Training Program Coordinator Waquoit Bay National Estuarine Research Reserve (WBNERR)

9:10-9:15 **Citizens for the Protection of Waquoit Bay (CPWB) concerns about Bourne Pond, Falmouth**
Maggie Megaw, CPWB, Waquoit Ponds Association

9:15-9:35 **Using scientific and integrative approaches to manage Cape Cod ponds**
An overview of the range of restoration strategies the Cape Cod Commission identified through their Freshwater Initiative process.
Tara Nye Lewis, Water Resources Analyst, Cape Cod Commission

9:35-10:15 **A brief overview of circulation and oxygenation technologies**
A comparison of three forms of circulation and four forms of oxygenation technologies and an overview of their application in freshwater bodies**.**
Dr. Ken Wagner, Manager and President, Water Resource Service, Inc.

10:15-10:30 Coffee Break

10:30-11:05 **Lessons learned using oxygen saturation technology beyond Cape Cod**
A review of water quality data before and after OST implementation using a real-time data dashboard and discussion of the lessons learned in ponds and lakes across the Unites States.
Eli Kersh, President, LakeTech LLC, Dr. Paul Gantzer, President and Owner, Gantzer Water Resources Engineering, LLC

11:05-12:25 **Lessons learned using oxygen saturation technology in Sarah's Pond, Orleans**
The Orleans Pond Coalition sponsored a multiyear pond remediation research program in Sarah's Pond to specifically test the effectiveness of Oxygen Saturation Technology (OST). This discussion will review data after OST implementation and discuss lessons learned related to technology maintenance, cost, and water quality monitoring.

- 11:05-11:25 **Introduction and overview of Sarah's Pond demonstration project**
  An overview of Orleans Pond Coalition's goals for the Demonstration Project, why Sarah's Pond was chosen, the necessary pre-implementation steps (e.g., funding and permitting), and the monitoring and maintenance challenges the Orleans Pond Coalition experienced.
  Judith Bruce, Orleans Pond Coalition

- 11:25-11:45 **Sarah's Pond ecology before and after OST implementation**
  A review of the water quality monitoring data and ecological data before and after OST implementation.
  Dr. Ken Wagner, Manager and President, Water Resource Service, Inc.

11:45-12:25 **The technical aspects of the oxygen saturation technology implemented**
A technical review of the OST system implemented and later optimized in Sarah's Pond and a discussion of the second-generation design now implemented in ponds and lakes across the US.
Dr. Paul Gantzer, President and Owner, Gantzer Water Resources Engineering, LLC

12:25-1:10 Lunch provided.

1:10-1:35 **Lessons learned using circulation technology on Cape Cod**
A review of water quality data after implementation of SolarBee oxygen circulation/aeration technology in Santuit Pond, Mashpee and a discussion of the lessons learned.
Ashley Fisher, Director of Natural Resources, Mashpee Department of Natural Resources

1:35-2:50 **Bourne Pond case study: A candidate for OST?**
Bourne Pond (freshwater pond in Falmouth) has undergone periodic eutrophication events over the past couple of summers. Recent reports attribute these poor water quality events to low oxygen levels at the bottom of the pond. These series of presentations will provide an overview of historical water quality data, diadromous fish presence and stocking, and cyanobacteria in Bourne Pond. LakeTech Consulting will use the data collected to detail why OST is a potential candidate to address the poor water quality observed in this pond.

1:35-1:55 **Historical water quality data and diadromous fish presence & stocking**
Potential restoration actions must consider that the Bourne Pond system is an active migratory fish run that provides spawning habitat. This presentation will review historical water quality, fish population, and fish stocking data to inform the potential effects of OST implementation.
Brad Chase, Senior Marine Fisheries Biologist, Massachusetts Division of Marine Fisheries

1:55-2:10 **Cyanobacteria monitoring in Cape Cod Ponds & the status of cyanobacteria in Bourne Pond**
Association to Preserve Cape Cod (APCC) will discuss how their monitoring efforts in Bourne Pond show acceptable levels of toxin producing cyanobacteria since July 2022.
Dr. Julie Hambrook Berkman, Pond and Cyanobacteria Program Manager, APCC

2:10-2:50 **Overview of current water quality issues & OST as a potential solution**
LakeTech Consulting will discuss their water quality monitoring data and why they recommend OST over other restoration methods to address the poor water quality observed in Bourne Pond.
Eli Kersh, President, LakeTech LLC

2:50-3:05 Coffee Break

3:05-4:00 **Restoration application potential of OST in Bourne Pond and Beyond:**
Attendees can ask experts questions related to potential OST application in Bourne Pond and other freshwater ponds on Cape Cod. Panelists will address key factors (including permitting, resource and monitoring needs, etc.,) that stakeholders must consider as they contemplate next steps and whether OST could be an option for their pond restoration and management efforts. The discussion will wrap across the breadth of presentations covered in the morning and afternoon and serve as a bridge between learning about the potential of OST and identifying the type of scenarios in which applying this technology could be most impactful.
Panelists: *Eli Kersh (President, LakeTech), Paul Gantzer (President, Gantzer Water Resources Engineering, LLC), Brad Chase (Senior Marine Fisheries Biologist, Massachusetts Division of Marine Fisheries), Judith Bruce (Member, Orleans Pond Coalition), Ashley Fisher (Natural Resource Director, Mashpee)*

4:00 Wrap up & Evaluation