

MEETING NOTES
CAPE COD WATER PROTECTION COLLABORATIVE
Governing Board
March 12, 2020

Summary of Discussion: Members received updates on the West Falmouth shoreline remediation project and the Cape Cod Water Quality Monitoring Program.

Members:

Barnstable	Paul Hebert	Absent
Bourne	Terri Guarino	Absent
Brewster	Ryan Bennett	Absent
Chatham	Bob Duncanson	Absent
Dennis	Wayne Bergeron	Absent
Eastham	Jane Crowley	Present (Left at 10:57 AM)
Falmouth	Vacant	Vacant
Harwich	Larry Ballantine	Present
Mashpee	Vacant	Vacant
Orleans	Sims McGrath	Present
Provincetown	Vacant	Vacant
Sandwich	Dave Mason	Absent
Truro	Emily Beebe	Absent
Wellfleet	Justina Carlson	Absent
Yarmouth	Jeffrey Colby	Present
County Appointee	Zenas Crocker	Present
County Appointee	Ron Beaty	Present (Left at 11:31 AM)

Others Present:

Kristy Senatori	Cape Cod Commission
Erin Perry	Cape Cod Commission
Sarah Colvin	Cape Cod Commission
Meghan Boudreau	Cape Cod Commission
Tara Lewis	Cape Cod Commission
Tim Pasakarnis	Cape Cod Commission
Jennie Rheuben	Woods Hole Oceanographic Institute

Sims McGrath, Chair, called the meeting to order at 10:06 AM. A quorum of members was not present; therefore, members did not consider approval of the December 12, 2019 meeting minutes.

West Falmouth Harbor Shoreline Septic Remediation Project

Maureen Thomas, Water Resources Specialist, from the Buzzard's Bay Coalition provided a presentation and update on the West Falmouth shoreline remediation project. West Falmouth Harbor is continues to exhibit elevated nitrogen levels.

Ms. Thomas noted that the project is two phases, with the first phase funded through an Environmental Protection Agency Southeast New England Program Watershed Grant and the second phase funded by the Cape Cod Water Protection Collaborative. Phase one allowed for 20 homeowners to upgrade their existing septic systems to nitrogen reducing septic systems utilizing \$10,000 subsidies. Phase two allowed

ten additional homeowners to upgrade their systems utilizing \$7,500 subsidies. They are now on year four of the project.

Ms. Thomas explained that their goal was to use the best off the shelf technologies to meet 12 milligrams per liter total nitrogen concentration in the septic effluent. With the Cape Cod Water Protection Collaborative grant, they provided a municipal management framework for implementing nitrogen reducing septic systems at the watershed level.

The project team prioritized 60 properties by looking at sub-watershed locations. The homes selected for upgrade were based on a 300-foot buffer from high water, as well as their location in relation to Inner Snug Harbor, which is considered a high priority zone. A total of 170 homes fell within the 300-foot buffer and they used criteria such as prioritizing homes that had cesspools over Title-5 systems, prioritizing homes closer to the water, and prioritizing year-round homes to narrow it to 60 properties.

The wastewater treatment facility in the vicinity of inner West Falmouth Harbor is required to meet a 3 milligram per liter total nitrogen standard, which is lower than historic loading from the facility. Once the nitrogen plume originally created by the treatment facility exits the watershed system, individual cesspools and septic systems will be the number one cause of nitrogen loading in the watershed. To date, 27 installations have been completed, 14 cesspools have been replaced, and 7 nitrogen reducing technologies have been installed (see implementation slide in presentation). Final installations are scheduled for spring 2020.

Cape Cod Water Quality Monitoring Program

Tim Pasakarnis, from the Cape Cod Commission and Jennie Rheuban, from Woods Hole Oceanographic Institution, provided an update on the Cape Cod Water Quality Monitoring database. Mr. Pasakarnis reminded members that data is being collected by many organizations in embayments along Cape Cod Bay, Buzzards Bay, and Nantucket Sound. He noted that each organization has their own way of managing and providing the data they collect and that this project is intended to standardize the data in a way that allows for analysis and comparison. The project has been funded by a Southeast New England Program Water Grant and the Commission has been partnering with Woods Hole Oceanographic Institution, Center for Coastal Studies, Association to Preserve Cape Cod, and Waquoit Bay National Estuarine Research Reserve.

To date, staff has been compiling all of the data, which is provided in various formats, into the database software, Water Information Systems (WISKI) by KISTERS. The database structure was loaded onto the Commission server in May 2019. Aside from a small number of historical datasets, all of the data staff has been able to acquire is now in the database, totaling more than 50,000 individual data points.

Staff has been working with an end user group made up of stakeholders that will be able to use the data in decision-making to inform the analyses to be completed and the user interface.

Ms. Rheuban talked about her work with the Buzzards Bay Coalition who was interested in the broader scale patterns in their water quality data, which has been collected for more than 25 years. Roughly 200 stations are monitored around Buzzards Bay. Temperature in general increased in Buzzards Bay over the 23 year time period analyzed. This is expected as the Northwest Atlantic Ocean is warming quicker than 99% of other oceans in the world. Total Nitrogen was inconsistent around Buzzards Bay - some places increased and some decreased. Chlorophyll increased across Buzzards Bay, with the exception of a few locations.

In analyzing the Buzzards Bay data, the hypothesis was that there might be some other regional forces leading to water quality changes aside from nitrogen loading. Some reasons for this could be that there is a shift in phytoplankton species distribution and the current species could be able to utilize nitrogen in a more efficient way. Whereas the water is warming, there is evidence of blooms of some subtropical species of phytoplankton in Buzzards Bay. Another study was done by a graduate student looking at nitrogen loading patterns across Buzzards Bay that showed contribution to nitrogen load from different sources (direct atmospheric deposition, indirect atmospheric deposition, wastewater loads, and fertilizer loads). Most locations showed either a flat trend or decreasing nitrogen loads. Some reasons for this could be that overall atmospheric deposition is declining as a result of the Clean Air Act and lower greenhouse gas emissions. On the western half of Buzzards Bay, they have been expanding sewers and this also is leading to a decrease in nitrogen levels. This work supported the hypothesis that there are other driving forces that are influencing water quality.

The regional water quality database allows us to see that there are some really big regional differences in the changes in chlorophyll and nitrogen on the Cape. What is driving the regional differences? Cape Cod Bay and Buzzards Bay show an increase in chlorophyll and decrease in nitrogen. The coastal waters of Cape Cod Bay have an increase in both chlorophyll and nitrogen. The outer cape is showing an increasing trend in nitrogen but a decreasing trend in chlorophyll. These regional patterns are very different and need to be considered when making management decisions.

Mr. Pasakarnis states that the analysis and ultimate interface for this is being developed with feedback from the end user group. The end user group is composed of representatives from the Cape Cod Water Protection Collaborative, non-profits, and the MA Department of Environmental Protection and the US Environmental Protection Agency.

He also noted that Commission staff has applied for a grant to build some of the framework to analyze the data for freshwater ponds on Cape. The database infrastructure is in place to analyze other streams of data and they are trying to identify where the needs for this data are, and how they can further develop and support collection of this data.

Report from the Cape Cod Commission Staff

Kristy Senatori, Executive Director, said the Commission continues to work with partners on the SNEP technical assistance network. The Commission hosted a quarterly meeting of the network last month and participates on the network's advisory committee. The Commission also hosted the SNEP steering committee on March 4th.

Commission staff attended the Social Cost forum with staff from the Consensus Building Institute and the US Environmental Protection Agency, presenting on the 208 Stakeholder Process.

The Commission has applied for a Massachusetts Environmental Trust grant to focus on pond impairment and long-term monitoring. This project would contribute to recommendations in Regional Policy Plan, which calls for an update to the Ponds and Lakes Atlas. Funding awards should be announced by June.

Commission staff has continued to support the Cape and Islands Water Protection Fund Management Board. A committee of that board is working to draft regulations for distribution of fund. Commission staff and the Management Board are working closely with MA Department of Environmental Protection and the Massachusetts Clean Water Trust on project eligibility.

Erin Perry, Deputy Director, noted that the SNEP technical assistance network issued a call for participants for communities who are interested in services the network can provide.

Member Reports

Zenas Crocker from the Barnstable Clean Water Coalition reported that they have drilled four sites to identify a discrete separated plume of effluent in the Shubael Pond subwatershed and believe this to be a good area for their septic system pilot project. He also pointed members attention to H.869 An act relative to failed septic systems.

Jeff Colby from the Town of Yarmouth reported that the town was holding weekly meetings on wastewater, including Dennis Harwich Yarmouth Community Partnership meetings and wastewater advisory committee meetings. The DHY agreement is on the warrant for annual town meeting and the recent DHY joint board of selectmen meeting held in February was successful.

Larry Ballantine from the Town of Harwich reported that there is an agreement between Chatham and Harwich for Harwich to use the Chatham treatment capacity. He explained that they are short in funding and currently discussion whether they want to take it to town meeting or not this spring. He also noted that his select board is split on whether to go ahead with the DHY agreement.

Sims McGrath from the Town of Orleans reported that construction of the treatment facility is underway and that the town has received permits from the Commonwealth for drilling under Route 6.

Mr. McGrath opened the floor for public comment.

Public Comment

Curtis Sears, Chair of the Water Resources Advisory Committee in Yarmouth asked how the chlorophyll numbers interact with nitrogen, specifically does chlorophyll show plant growth in the water? Ms. Rhueben answered that chlorophyll is an indicator of phytoplankton concentration in the water, which is single-celled algae growing in the water. Sometimes it can be seen with the naked eye, but chlorophyll can be detected at levels much lower than what is visible.

The meeting came to an end at 11:45AM.