



CAPE COD
COMMISSION

Cape Cod 208 Plan Implementation

2021 REPORT TO THE UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY

JUNE 2021

Prepared by the Cape Cod Commission

Cape Cod 208 Plan Implementation

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AGENCY

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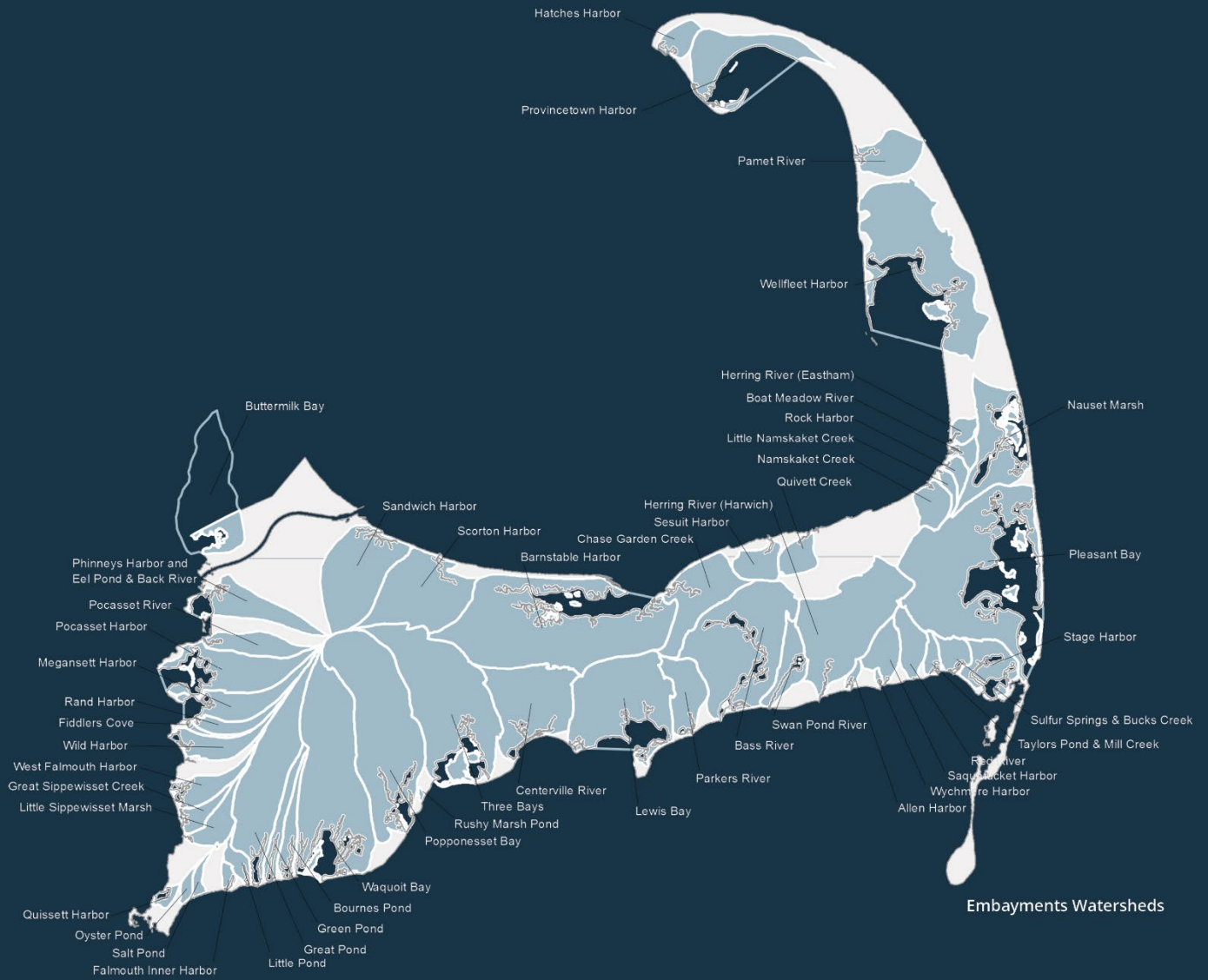
CAPE COD COMMISSION

3225 Main Street • P.O. Box 226 • Barnstable, MA 02630

508-362-3828 • Fax: 508-362-3136 • Email: frontdesk@capecodcommission.org

www.capecodcommission.org

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Introduction

Since submission of the July 2020 progress report and town compliance reports to the United States Environmental Protection Agency (US EPA) Cape Cod communities, the Cape Cod Commission (Commission), Barnstable County (County), and other regional partners have continued to engage in individual and collaborative actions to better address nitrogen pollution in coastal waters.

The COVID-19 pandemic presented a variety of local and regional challenges, but the towns and region largely adapted to the new reality of doing business through late 2020 and into early 2021. Many communities transitioned actions that were originally intended for spring 2020 town meetings to fall town meetings, and the impacts of changing behavior on the use of second homes and seasonal residences, revenues generated by short-term rentals for the Cape Cod and Islands Water Protection Fund (CCIWPF), and local businesses and industries are still being evaluated.

Fundamental issues related to monitoring and financing of implementation projects remain of highest priority within the region. The Commission and project partners have made significant progress to improve access to, and the utility of water quality monitoring data through the Cape Cod Water Quality Portal (<https://waterquality.capecodcommission.org>). The Commission and other project team members are currently working with stakeholders in Waquoit Bay to pilot the effectiveness of the Water Quality Portal to inform local planning, infrastructure implementation, and adaptive management. Cape Cod communities continue to seek State Revolving Fund (SRF) loans and the first awards were made from the CCIWPF to SRF-financed projects. In April 2021, the CCIWPF Management Board voted to approve over \$71 million in subsidies from the fund to support water quality improvement projects in eight communities across the region.

This progress report serves as an update on both local and regional progress to implement 208 Plan Update recommendations since the July 2020 progress report. This report was requested by the US EPA in their December 14, 2020 letter to the Massachusetts Department of Environmental Protection (MassDEP) in response to MassDEP's 2020 implementation update for the Cape Cod Area Wide Water Quality Management Plan Update. It provides information by which US EPA may assess actions taken to implement the 208 Plan Update.

The Path Defined through the Cape Cod 208 Plan

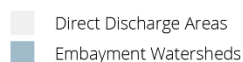
The Cape Cod 208 Plan Update, certified and approved by the Governor of the Commonwealth of Massachusetts and US EPA in 2015, provides a path forward and an opportunity to implement watershed management plans for the restoration of the coastal waters that define Cape Cod, many of which are severely impacted by excess nitrogen from on-site septic systems.

Development of the 208 Plan Update followed a decades-long process to define the coastal water quality problems on a water body by water body basis (through the Massachusetts Estuaries Project, or MEP). Of the 53 Cape Cod embayments with physical characteristics that make them susceptible to nitrogen impacts, 34 require nitrogen reduction to achieve healthy ecosystem function, and 30 have established Total Maximum Daily Loads (TMDLs) for nitrogen (see Figures 1 through 4 and Table 1). Since the 2020 progress report no new MEP technical reports have been issued, and no additional TMDLs have been established.



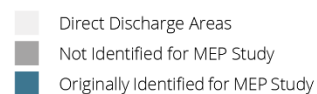
53 Embayments Watersheds

Figure 1



46 Embayments Watersheds Originally Identified by MEP for Study

Figure 2





Status of MEP Technical Reports by Watershed (April 2019)

Figure 3



Status of TMDLs by Watershed (April 2019)

Figure 4

■ Not Studied ■ Draft Technical Report
■ Data Collection Phase ■ Final Technical Report

■ TMDL Not Required
■ Draft TMDL Established
■ Final TMDL Established

Table 1: Status of MEP Technical Reports and TMDLs (as of June 2021)

Watershed	Status of MEP Report	Status of TMDL
Allen Harbor	Final Technical Report	Final TMDL Established
Barnstable Harbor	Draft Technical Report	
Bass River	Final Technical Report	Final TMDL Established
Boat Meadow River	Not Studied	
Bournes Pond	Final Technical Report	Final TMDL Established
Buttermilk Bay	Not Studied	
Centerville River	Final Technical Report	Final TMDL Established
Chase Garden Creek	Draft Technical Report	
Falmouth Inner Harbor	Final Technical Report	Final TMDL Established
Fiddlers Cove	Final Technical Report	Final TMDL Established
Great Pond	Final Technical Report	Final TMDL Established
Great Sippewissett Creek	Not Studied	
Green Pond	Final Technical Report	Final TMDL Established

Hatches Harbor	Not Studied	
Herring River (Eastham)	Not Studied	
Herring River (Harwich)	Final Technical Report	Final TMDL Established
Lewis Bay	Final Technical Report	Final TMDL Established
Little Namskaket Creek	Final Technical Report	TMDL Not Required
Little Pond	Final Technical Report	Final TMDL Established
Little Sippewissett Marsh	Not Studied	
Megansett Harbor	Final Technical Report	Final TMDL Established
Namskaket Creek	Final Technical Report	TMDL Not Required
Nauset Marsh	Final Technical Report	
Oyster Pond	Final Technical Report	Final TMDL Established
Pamet River	Not Studied	
Parkers River	Final Technical Report	Final TMDL established
Phinney's Harbor	Final Technical Report	Final TMDL Established
Pleasant Bay	Final Technical Report	Final TMDL Established
Pocasset Harbor	Not Studied	
Pocasset River	Not Studied	
Popponesset Bay	Final Technical Report	Final TMDL Established
Provincetown Harbor	Not Studied	
Quissett Harbor	Final Technical Report	Final TMDL Established
Quivett Creek	Not Studied	
Rands Canal	Final Technical Report	Final TMDL Established
Red River	Not Studied	
Rock Harbor	Final Technical Report	
Rushy Marsh Pond	Final Technical Report	Final TMDL Established
Salt Pond	Final Technical Report	TMDL Not Required
Sandwich Harbor	Final Technical Report	TMDL Not Required
Saquatucket Harbor	Final Technical Report	Final TMDL Established
Scorton Harbor	Final Technical Report	TMDL Not Required
Sesuit Harbor	Data Collection Phase	
Stage Harbor	Final Technical Report	Final TMDL Established
Sulfur Springs/Bucks Creek	Final Technical Report	Final TMDL Established
Swan Pond River	Final Technical Report	Final TMDL Established
Taylors Pond/Mill Creek	Final Technical Report	Final TMDL Established
Three Bays	Final Technical Report	Final TMDL Established
Waquoit Bay	Final Technical Report	Final TMDL established for the Eel Pond, Quashnet River, Hamblin Pond, Jehu River
Wellfleet Harbor	Final Technical Report	

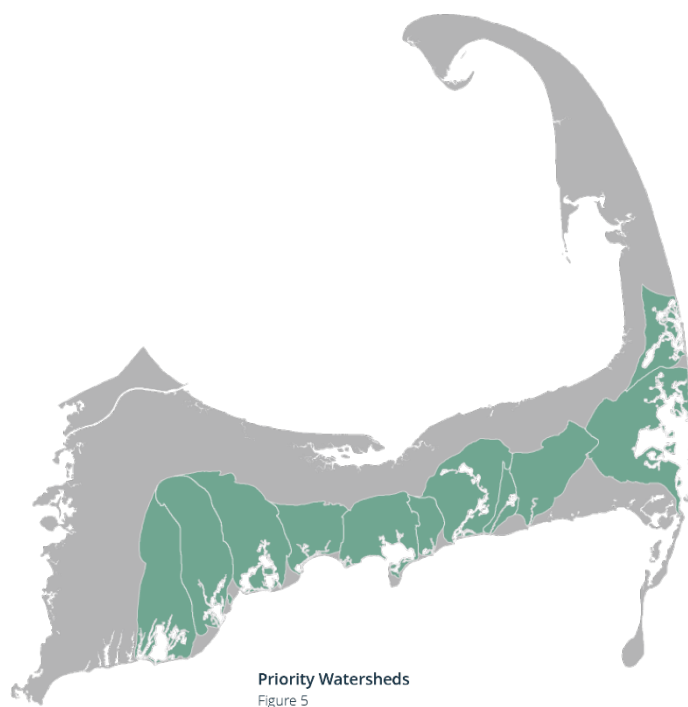
West Falmouth Harbor	Final Technical Report	Final TMDL Established
Wild Harbor	Final Technical Report	Final TMDL Established
Wychmere Harbor	Final Technical Report	Final TMDL Established

Consistent with the requirements of Section 208 of the Clean Water Act and with the historical approach to wastewater and water quality planning and implementation, Governor Charlie Baker and the US EPA, in conjunction with certification and approval of the 208 Plan Update in 2015, designated the 15 Cape Cod towns as Waste Treatment Management Agencies (WMAs), responsible for development and implementation of water quality management plans.

As recommended in the 208 Plan, WMAs developed watershed reports that outline potential watershed-based scenarios to meet water quality goals in each of the 53 embayments. The watershed reports take advantage of the framework established in the 208 Plan and incorporate a range of traditional and non-traditional technologies that reduce nitrogen at the source, intercept it in groundwater, and address it in the embayments. The final watershed reports were included as an appendix to the 2017 Implementation Report.

The 2017 Implementation Report also identified 11 priority watersheds (Figure 5), a two-year schedule for development of intermunicipal agreements and more detailed watershed plans in priority watersheds, and recommendations to increase capacity at the regional level to support local plan development and implementation. The following are the priority watersheds:

- Popponesset Bay
- Parkers River
- Three Bays
- Bass River
- Lewis Bay
- Centerville River
- Swan Pond River
- Pleasant Bay
- Nauset Marsh
- Waquoit Bay
- Herring River



Details about local and regional implementation efforts for the period of July 2020 through June 2021 are described in the following sections.

Local Progress

PRIORITY WATERSHEDS

The 2017 Implementation Report specifically recommended that, within one year of adoption of the Implementation Report by MassDEP and US EPA, communities contributing to priority watersheds develop agreed upon nitrogen allocations and adopt an intermunicipal agreement that, at a minimum, establishes nitrogen load responsibility (**S2017.1**). Within two years of adoption of the Implementation Report, it was recommended that contributing communities in priority watersheds outline a plan and schedule for hybrid watershed scenario development and develop hybrid watershed scenarios consistent with the 208 Plan Update (**S2017.2**).

Of the 11 priority watersheds, three are located within a single town (Centerville River, Parkers River and Swan Pond River) and, therefore, do not require intermunicipal agreements. The remaining eight watersheds are shared. Since submission of the Implementation Report, two intermunicipal agreements have been executed relative to priority watersheds and other collaborative efforts are underway. These agreements were executed during the last reporting period. No new agreements have been executed during the July 2020 through June 2021 reporting period.

Since the identification of priority watersheds in 2017, the following actions have been documented in previous progress reports:

- execution of the Popponesset Bay intermunicipal agreement by the towns of Barnstable, Mashpee, and Sandwich;
- initiation of a discussion on a Waquoit Bay intermunicipal agreement between the towns of Mashpee, Sandwich, and Barnstable;
- coordination between the towns of Bourne, Mashpee, Sandwich, Falmouth, and Barnstable and military leadership at Joint Base Cape Cod (JBCC) around the use of the JBCC wastewater treatment facility and disposal areas;
- execution of the Pleasant Bay intermunicipal agreement by the towns of Brewster, Chatham, Harwich, and Orleans and issuance of the Pleasant Bay watershed permit by MassDEP; and
- passage of legislation to establish the Dennis, Harwich, Yarmouth Community Partnership.
- release of the Barnstable Comprehensive Wastewater Management Plan, which included plans to meet nitrogen reduction requirements in Popponesset Bay, Three Bays, Centerville River, and Lewis Bay

The following provides details on progress in priority watersheds from July 2020 through June 2021.

Discussions among the towns of Bourne, Mashpee, Sandwich, Falmouth, and Barnstable, and military leadership at JBCC largely paused to await a response from the Department of Defense to the joint proposal submitted by Converge LLC and the Town of Barnstable to assume control and operation of the Base wastewater facilities. As of June 2021, that proposal appears to be moving forward and towns have begun meeting with Converge LLC to discuss potential arrangements for provision of wastewater treatment and disposal at JBCC. Further discussions are expected to continue throughout 2021.

While discussions regarding the disposition of the JBCC wastewater facilities and the Town of Barnstable / Converge LLC joint proposal to take over operations are ongoing, the towns of Barnstable, Mashpee, and Sandwich are also collaboratively investigating options for shared wastewater treatment and disposal that would meet the needs of the three towns without involving the land or facilities at JBCC.

The towns of Brewster, Chatham, Harwich, and Orleans have continued to advance their respective nutrient reduction plans as laid out in the Pleasant Bay Watershed Permit, most recently detailed in the second year Watershed Permit Annual Report (October 2020). Under a grant received from the US EPA Southeast New England Program (SNEP), the Pleasant Bay Alliance has completed several pilot studies, including a feasibility study for the use of on-site denitrifying septic systems in Brewster, a demonstration of shellfish harvesting for nitrogen removal at Lonnie's Pond in Orleans, and a demonstration project for nitrogen trading among the four towns. In addition, the towns are continuing to proceed with their respective plans outlined in the Targeted Watershed Management Plan for Pleasant Bay. Progress has continued on permeable reactive barrier (PRB) pilot project installation and screening of additional PRB locations (Orleans), downtown sewer treatment and collection system construction (Orleans), and sewer collection system expansion (Chatham, Harwich). The SNEP Network has provided the Pleasant Bay Alliance with Technical Assistance to review local bylaws and ordinances, explore regional stormwater financing options, and evaluate the potential for obtaining nitrogen removal credits for stormwater management. The towns continue to coordinate their activities through monthly meetings of the Pleasant Bay Alliance watershed workgroup. It is anticipated that the Alliance will submit its third annual report documenting progress and ongoing consistency with the 208 Plan Update in August of 2021.

The towns of Dennis, Harwich, and Yarmouth have been working, through a working group of town administrators, selectmen, and staff created in March 2017, to establish the DHY Community Partnership with the purpose of implementing a regional wastewater treatment system to serve all three communities. A new treatment plant would be constructed in the town of Dennis to serve the partnership, with portions of the treated effluent pumped back to sending communities for disposal. Special legislation creating the partnership was signed by the Governor in October 2019. In 2020, a DHY working group developed a draft agreement for town meeting consideration in each town. As a result of the COVID-19 pandemic, all three towns deferred action until 2021. Select

boards in the towns of Dennis and Harwich further deferred action on the draft agreement, voting not to put it before voters at their respective 2021 spring town meetings. At Yarmouth's 2021 Annual Town Meeting, the town postponed its participation vote until its Fall 2021 meeting. Upon formation of the Community Partnership, the three towns will work together to implement the previously developed DHY Community Partnership Plan, which is estimated to save over \$100 million in capital costs and \$6.5 million in annual operations and maintenance costs compared to the individual town plans. The plan addresses the portions of five priority watersheds (Parkers River, Bass River, Swan Pond, Herring River, and Pleasant Bay) that fall within the three participating towns.

Within Three Bays watershed, an ongoing collaboration between the Town of Barnstable, Barnstable Clean Water Coalition, US EPA Office of Research and Development, United States Geological Survey, and other partners is exploring the application of a variety of nitrogen reducing technologies throughout the watershed at different points in the hydrologic cycle. The approaches currently under investigation include Innovative/Alternative septic systems around Shubael Pond and denitrifying bioreactors in cranberry bog channels. Future work may include the use of permeable reactive barriers near horse farms and dredging to restore the historical hydrodynamics (and potential nitrogen removal capabilities) of Mill Pond. Together all of these installations have the potential to reduce the scale of sewerage ultimately required as part of Barnstable's CWMP in order to meet nutrient reduction goals.

The above describes some of the major ongoing efforts in priority watersheds. Additional details on progress in each community and throughout the region are included in subsequent sections.

COMPLIANCE REPORTS

The Commission tracks implementation of the 208 Plan Update and issues compliance reports to document progress by each WMA. The first compliance reports were issued in September 2019. Compliance reports provide details on town planning and permitting, project implementation, funding, collection of data and information, regional data sharing, and compliance with the Municipal Separate Storm Sewer (MS4) permit.

An updated draft compliance report for each WMA is included in **Appendix A**. The draft compliance reports will be shared with each community in August 2021 with a request for review. The Commission will accept feedback and edits on the draft compliance reports through September 2021, following which the Commission will make necessary amendments, with the intent of issuing final updated reports in November 2021. As with the 2020 reports, this schedule will allow actions from Fall 2021 town meetings to be captured on the 2021 Compliance Reports.

Regional Progress

Both the 208 Plan Update and the 2017 Implementation Report grouped recommendations into four categories:

- Information (I)
- Support (S)
- Regulatory Reform (R)
- Cost (C)

These four categories encompass the efforts necessary to support local implementation of the 208 Plan Update and achievement of water quality goals. Since December 2020, progress has been made by WMAs, the Cape Cod Commission, Barnstable County, MassDEP and other state agencies, and US EPA in implementing each category of recommendations from both the 208 Plan Update and Implementation Report.

INFORMATION

Access to information remains an important issue, as communities identify and implement responsible watershed plans that impact residents, businesses, and visitors. The collection of data, the development of decision-support tools that make data easier to use, and the analysis of water quality and wastewater technologies and policies remain central to the Cape Cod Commission's role in supporting 208 Plan implementation. Since 2017, the Commission has focused on information related to embayment water quality monitoring and maintaining the Technologies Matrix. As communities move from planning to implementation, baseline water quality and trends in water quality improvement and/or degradation will provide the basis for evaluating investments in infrastructure. As those investments are made, performance monitoring will allow communities to understand their effectiveness. Both water quality monitoring and technology performance information can and should be accessible and shared amongst Cape Cod communities and others so that the region can collectively make more effective and efficient decisions moving forward. Additional progress made since July 2020 to provide end users with improved access to data, data analysis, and information for decision-making is detailed below.

Water Quality Monitoring

The 208 Plan Update and Implementation Report call for a regional water quality monitoring database and program to ensure the public is afforded the highest level of transparency regarding the information used as a basis for water quality policy and associated capital planning (**WQ Data Center I4.10; I2017.6**).

Under its 2018 SNEP Watershed Grant, the Cape Cod Commission with its project partners - the Center for Coastal Studies, the Waquoit Bay National Estuarine Research Reserve, the Association to Preserve Cape Cod, and the Woods Hole Oceanographic Institution – is concluding build out of the regional water quality database. Since July 2020, the project team facilitated two additional meetings with the end-user group to introduce the Water Quality Data Portal (WQDP) that allows users to interact with the database, and to select a pilot watershed in which to explore the potential of the WQDP. Following the selection of Waquoit Bay as the pilot watershed, an additional meeting with a group of stakeholders working within the watershed was held to identify specific management questions that the database and WQDP could help to answer. This stakeholder group included representatives from wastewater / water quality committees, select boards, and natural resource departments from the towns of Falmouth and Mashpee, consultants to both towns, and representatives from the Waquoit Bay National Estuarine Research Reserve. Based on input from that stakeholder group, the project team is using the Water Quality Data Portal to examine whether changes in water quality trends can be observed in the vicinity of town managed oyster and quahog propagation activities based on existing data in the Portal. With a fully functioning database and user interface completed as part of the SNEP Watershed Grant, future effort will shift to filling gaps in the existing data set (which spans from 1993 to 2018) and adding new data as it becomes available. Continuation of the regional water quality monitoring program is critical to provide current data through the WQDP to support local planning, implementation, and adaptive management.

Several early discussions with the end user group centered around data quality and how the status of a monitoring program's QAPP impacts the use of that data for local and state regulatory decision making. Commission staff convened two further meetings with US EPA and MassDEP to determine how to handle data not collected under a US EPA-approved QAPP in the Water Quality Data Portal. Those discussions concluded that the only data in the portal currently considered non-QAPP is pre-2019 data from WBNERR, data which were collected as part of the National Estuarine Research Reserve System Wide Monitoring Program (SWMP) using SWMP protocols. These data are largely expected to be considered QAPP equivalent once a formal process for that determination is established. As additional sources of data are incorporated into the Commission's Water Quality Data Portal, having a process in place for determining QAPP status will become more critical. Establishment of a data use framework should be included as a priority as part of future expansions made to the data portal and/or underlying database. **Commission staff recommend that the Commission, US EPA, and MassDEP continue to coordinate the establishment of a process and criteria for classifying "QAPP equivalent" data and a data use framework to accompany the updated classification system (Recommendation I2021.1).**

Technology Performance Monitoring

Equally important to local decision-making is performance monitoring. The 2017 Implementation Report included guidance for piloting, monitoring and evaluating eight non-traditional technologies. **(Monitoring Protocols I4.8)**. The technologies included in this guidance were those that held the most promise for addressing nitrogen in coastal waters on Cape Cod and continue to be the approaches that are being considered in various communities. The Implementation Report recommended reconvening the Monitoring Committee **(Monitoring Committee I4.9)** and adopting protocols for other non-traditional technologies **(I2017.5)**. Efforts are currently underway to establish protocols for monitoring nitrogen removal through stormwater controls, to continue development of the monitoring protocols for innovative/alternative (I/A) septic systems based on their permitting status with MassDEP, and to further refine the management requirements for widespread deployment of these systems as part of town-wide or watershed based nutrient plans.

The SNEP Technical Assistance Network (SNEP Network), of which the Cape Cod Commission is a partner, has worked with the Pleasant Bay Alliance, MassDEP, and US EPA on efforts to align the stormwater monitoring requirements between EPA's Massachusetts Small Municipal MS4 Permit and MassDEP's Watershed Permit program. The goal of this effort is to clarify what additional data, beyond what must be collected from structural and non-structural stormwater controls to meet MS4 permit requirements, would be necessary to gain nitrogen removal credits under a watershed permit. This should eventually allow towns to streamline stormwater monitoring and better incorporate nutrient reductions associated with MS4 activities into their more comprehensive nutrient management strategies and permits.

Cape Cod Commission staff convened a working group on Responsible Management Entities (RMEs) in March 2021 that has continued to meet on a monthly basis. Two sub-groups have been organized to more closely examine regulatory, policy, and funding considerations for RME establishment; and opportunities to reduce operating costs through automation and remote system monitoring. The outputs of this group are expected to provide towns with greater certainty regarding the RME structures available when using I/A systems for TMDL compliance as part of a town or watershed plan, management requirements for I/A systems not used for TMDL compliance, and the range of administrative and monitoring costs associated with town management of decentralized wastewater treatment infrastructure.

As additional local projects are developed where monitoring protocols do not exist, such as those being considered by the Pleasant Bay Alliance or activities in the Three Bays watershed, additions to the existing protocols may be appropriate. Amendments to the guidance document and monitoring protocols should be considered as warranted in the future, and as time and resources allow.

Commission staff recommends updating monitoring protocols for I/A septic systems as warranted by the activities of the RME working group, and evaluating the need for

amendments to the monitoring guidance in conjunction with future updates to the Technologies Matrix (Recommendation I2021.2).

Technologies Matrix

It is critical to gather performance monitoring data and make it publicly accessible, so as to inform efforts of other Cape Cod communities. Through the annual OneCape Summit, the Commission seeks to make the latest information more widely available (**Annual Technologies Symposium I4.2**). Presentations and information at the Summit typically include new research on nutrient management technologies and approaches and local experiences piloting non-traditional technologies. The information presented coincides with the regular updates to the Technologies Matrix.

Due to the COVID-19 pandemic, the Commission was unable to host its annual OneCape Summit in 2020. Planning is underway for OneCape to resume in August 2021. More information on the topics covered at the Summit along with presentation materials will be available as the conference approaches via <http://onecape.capecodcommission.org/>.

Commission staff continue to monitor the implementation of local projects on an annual basis, and when sufficient new information is available to warrant convening the Technologies Matrix committee subsequent formal updates will be completed.

The Technologies Matrix (which was updated in 2020) can be found at <https://capecodcommission.org/our-work/technologies-matrix/>. Updates and improvements to the Technologies Matrix viewer (<http://www.cch2o.org/Matrix/>) are ongoing.

Data and Decision-Support Tools

The decision-support tools created by the Commission to make data and information more accessible and aid local planning rely on the monitoring data and research described above, in addition to other underlying regional data layers that require regular maintenance and updates. The 2017 Implementation Report recommended the Commission pursue an update to the parcel and water use data used in WatershedMVP (www.watershedmvp.org) and other decision support tools (**I2017.19**), update WatershedMVP and other decision support tools based on newly acquired data (**I2017.20**), and revisit functionality available in these tools regularly to ensure they remain effective for planning purposes (**I2017.21**).

Commission staff continues to update and maintain WatershedMVP. The regional planimetrics data, which was created in 2016 from a 2014 aerial flyover, allowed staff to develop more accurate lawn, impervious surface, structure, and canopy layers. As a result, WatershedMVP can provide more accurate wastewater, fertilizer, stormwater, and atmospheric nitrogen loads on a parcel-specific

basis than previously available. The Commission is still working to incorporate updated planimetric data from the March and April 2020 aerial flyover into the source data for WatershedMVP and other applications.

Since July 2020, several enhancements and expansions to watershedMVP have been completed. Working with the Martha's Vineyard Commission, the geographic range of the tool has now been extended to include twenty-two new embayments and over twenty thousand new parcel loads on Martha's Vineyard. The application and database housing have been transitioned to the cloud for increased reliability, performance, and manageability. New stakeholders were engaged to participate in the testing and validating of the nitrogen loading calculator, along with additional graphic and functional enhancements that were made throughout the interface to provide a consistent and improved user experience.

SUPPORT

Direct support of local water quality planning efforts, including the provision of expertise and technical assistance, access to decision-support tools, and development of guidance, was a key recommendation in the 208 Plan Update and remains a priority.

Since the April 2019 progress report, the Commission has provided the following support to communities, either through technical assistance or by directing discretionary funds, such as District Local Technical Assistance (DLTA), to 208-related work.

The following provides a summary of the assistance provided since the July 2020 progress report.

Barnstable

Commission staff previously assisted town staff with the Hyannis Design and Infrastructure Plan, completed in February 2020. Priority wastewater and stormwater infrastructure issues identified in the village of Hyannis by this plan helped to inform the Town's Comprehensive Waste Management Plan (CWMP). The Barnstable CWMP was designed to address nitrogen removal requirements for each watershed partially or wholly within the town, which includes the priority watersheds of Centerville River, Lewis Bay, Three Bays, and Popponesset Bay. Commission staff provided comment during review of the Barnstable CWMP by the Massachusetts Environmental Policy Act (MEPA) Office. Following completion of MEPA review, Commission staff reviewed the Barnstable CWMP for consistency with the 208 Plan Update. The 208 consistency determination is in **Appendix B**.

Bourne

The Commission participated as a network partner in the SNEP Network Technical Assistance award to the Town of Bourne, to develop a Coastal Resilience Action Strategy for the entire town. Through

a series of meetings between town staff and Network representatives, the existing but disconnected town planning documents were incorporated along with the overall priorities of the town and its residents into a single cohesive strategy that direct the town's future wastewater, stormwater, land use, and resiliency planning. Commission staff also provided assistance to the town during the process of soliciting and hiring a consultant to prepare the town's Comprehensive Wastewater Management Plan. Both plans will allow the Town of Bourne to more efficiently allocate and leverage its staff resources and budget to address short-, medium-, and long-term priorities.

Brewster, Chatham, Harwich, Orleans (Pleasant Bay)

Commission staff continue to attend monthly meetings of the Pleasant Bay Alliance Watershed Working Group; and helped to facilitate the Alliance's engagement with the SNEP Technical Assistance Network. Funding provided through a 2020 SNEP Technical Assistance Network subaward supported Commission staff review of the stormwater management bylaws in each town, with analysis and recommendations to promote the institutionalization of low impact development (LID) and nature-based solutions (NBS) in future development and redevelopment provided for individual towns and regionally for the collective Pleasant Bay Alliance.

Falmouth

Woods Hole Oceanographic Institution (WHOI) partnered with the Town of Falmouth to obtain a SNEP Watershed Grant in 2019 for pilot installation of a permeable reactive barrier. The pilot installation builds upon previous PRB siting work done by US EPA, US Geological Survey, and the Cape Cod Commission; and consists of further site evaluation, bench scale testing, and installation of a 120-foot long PRB. The site is located within the impaired Great Pond watershed, in an area with high measured nitrate flux, and is expected to provide critical information regarding the dosing and lifespan of the injected carbon source, while also removing upwards of 530 kilograms of nitrogen per year from the Great Pond watershed. Design, bench scale testing, baseline monitoring and PRB installation (injection of emulsified vegetable oil) have been completed. Quarterly groundwater monitoring and data analysis are ongoing to assess PRB performance. Commission staff continue to work with WHOI, the town, and project partners throughout the project.

Truro

Cape Cod Commission staff have provided technical assistance to the Town of Truro to conduct a watershed assessment and localized study of stormwater issues within the area that contributes to Pilgrim Pond. The study centered around water quality impacts to a freshwater pond, and assessed sources of nutrients to the pond and surrounding groundwater, impacts to nearby private wells, and specific stormwater contributions from Route 6 and associated infrastructure. The results of these

analyses are expected to inform future comprehensive planning efforts by the town to manage its wastewater and drinking water supplies.

Wellfleet

Commission staff continued to work with town staff and their consultants (Scott Horsley, GHD Inc.) to further refine options for wastewater management in the Wellfleet Harbor watershed and potential locations for a wastewater treatment facility and disposal site. The Town worked with GHD to conduct a hydrogeologic investigation of the wastewater disposal capacity at the existing transfer station parcel, and discussion with MassDEP is ongoing regarding further development of a sewer-based conventional backup plan.

The Commission directed DLTA funds to the Town of Wellfleet, and staff also provided direct technical assistance for analysis of potential larger scale options for wastewater management to address new wastewater from a proposed affordable housing development while also providing wastewater treatment capacity for several existing municipal buildings and the neighboring residential properties. This plan was broadly supported by the Town and could achieve a significant portion of the Town's required nitrogen removal in the Duck Creek subwatershed while supporting new affordable housing units. The Commission anticipates continuing coordination, technical assistance, and planning with the town and others as the Wellfleet Harbor Targeted Watershed Management Plan continues to take shape.

Region-wide

Commission staff are working to incorporate updated planimetric data collected from the 2020 DLTA funded high resolution orthoimagery project into geospatial data layers and decision support tools. The updated data will enable municipal leaders to make better informed decisions about major infrastructure projects and planning efforts including small- and large-scale stormwater design and modeling, engineering studies, and pervious and impervious estimations.

REGION-WIDE STORMWATER MANAGEMENT

Under funding provided by the SNEP Network, Commission staff are developing a regional mapping tool based on the concept of hydrologic response units (HRUs), which can provide estimates of runoff and various pollutant loads based on the combination of land use, land cover, and underlying soil type. This mapping tool will cover all of Barnstable County and allow town staff to quickly examine and visualize where hotspots for stormwater-based runoff, nitrogen, or phosphorus exist at a variety of scales. The underlying data used for the HRU mapping tool will also help facilitate more detailed smaller scale analyses as they become necessary.

The Commission will continue to support communities as they develop and implement water quality improvement plans and projects, through direct technical assistance and by providing funding, as available.

REGULATORY REFORM

The process to update the 208 Plan clearly identified that the state and regional regulatory framework for wastewater and water quality plans and projects was inadequate to address the challenges of diffuse, non-point sources of pollution. Per the 2018 revisions to the Cape Cod Commission's regulations, the Commission continues to review municipal water quality plans and projects for consistency with the 208 Plan, rather than through Development of Regional Impact review. 208 consistency determinations are made upon request from a town or MassDEP for the purposes of obtaining a watershed permit and/or SRF funds, as well as upon completion of Massachusetts Environmental Policy Act (MEPA) review, which triggers Cape Cod Commission review.

Title 5 – Nitrogen Sensitive Areas

As part of the Executive Order 562 regulatory review process, MassDEP convened a subcommittee to examine the Nitrogen Sensitive Area (NSA) provision within Title 5 (310 CMR 15.215). Commission staff have participated on this subcommittee by attending meetings and providing written comments during the development of draft changes to the NSA provision. Specifically, verbal and written comments were submitted to identify Cape Cod-specific concerns regarding the current language surrounding NSA designations, and challenges to providing enhanced protection of coastal waters through Title 5 without creating a conflict between Title 5 and town- or watershed-based nutrient management plans deemed consistent with the 208 Plan.

Regional Regulatory Review

Since July 2020, the Commission issued consistency determinations for projects in Barnstable, Chatham, Falmouth, and Mashpee listed on the 2021 Intended Use Plan for Clean Water State Revolving Loan Funds. **Appendix B** includes the consistency determinations issued to date.

COST

This issue of cost continues to be one of the primary considerations when developing water quality plans and projects. A principle of the 208 Plan Update is that the burden of cost should not fall solely on year-round residents, but should be distributed among all who benefit from the resources of this iconic region. State, Federal, and regional initiatives that lessen the burden on towns and year-round residents continue to be necessary to move the region forward. At the same time, the passage of the

short-term rental legislation provided an opportunity for towns to dedicate the additional local option tax revenue to wastewater and water quality improvement efforts.

While significant progress has been made in implementing 208 Plan recommendations in this category, work remains at all scales to ensure funds are available and utilized appropriately for wastewater and water quality projects.

Federal Support

The Commission remains active with SNEP, participating on the Steering Committee and the Monitoring Expert Panel, as well as the Policy, Monitoring, and Ecosystem Services Subcommittees. Since July 2020, SNEP funds and technical assistance have continued to support the regional water quality monitoring program, implementation of the Pleasant Bay Watershed Permit, and development of the State of the Waters: Cape Cod report, among others. The Southeast New England Network (SNEP Network) continues to work on stormwater management, financing, green infrastructure, and low impact development projects throughout southeastern New England, including several on Cape Cod. The Commission is a Network partner and details on our participation are included below (see Partnerships). The Commission will continue to encourage the expansion of SNEP and its associated resources to better address Cape-wide water quality and wastewater issues (**SNECWRP C7.4**).

State Support

The 208 Plan recommended that local targeted watershed management plans consistent with the Section 208 Plan Update qualify for existing and potential revenue sources (**Access to Funds C5.4**). As defined by State Revolving Fund (SRF) Loan Regulations (310 CMR 44.00), all nutrient removal projects deemed consistent with any regional water resources management plan, including but not limited to a 208 Plan, are eligible for SRF loans and other forms of financial assistance at the financial equivalent of a loan made at a 0% interest rate. Efforts to increase access to potential revenue sources are ongoing and must continue.

Creation of the Cape Cod and Islands Water Protection Fund (CCIWPF) provided a dedicated revenue source to subsidize SRF funded projects in member communities (**Cape Cod Capital Trust Fund C6.5**). Since collection of revenue began in July 2019, the Fund has generated \$22,901,011.41 (through May 2021). The impacts of the COVID-19 pandemic on the short-term rental market were difficult to predict, and ultimately resulted in lower than anticipated revenues to the Fund. In October 2020, the CCIWPF Management Board (the Board) adopted regulations governing distribution of funds in conjunction with the Clean Water SRF Program established by M.G.L. c. 29C and 310 CMR 44.00 (DEP Selection, Approval and Regulation of Water Pollution Abatement Projects

Receiving Financing Assistance from the State Revolving Fund), including qualifications to receive a subsidy, the determination of subsidy allocation, and a commitment and approval process.

In February 2021, the Board contracted with PFM Financial Advisors LLC (PFM) to assist the Board in establishing a recommendation for an annual subsidy level of funds from the CCIWPF. Working with the Board and Commission staff, PFM reviewed fund revenues and eligible projects, developed a financial model, and estimated future fund revenues. Through several model iterations with the CCIWPF Executive Committee and Commission staff, PFM established a model that reflects funds on hand, projected revenues, and project levels over 40 years. It includes a 25% subsidy level for projects over \$1 million, a 50% subsidy level for projects up to and including \$1 million, assumes that subsidy is provided annually in equal installments over four years for MA Clean Water Trust (MCWT) loans, and over 10 years for pre-existing debt outside of MCWT loans. The Board voted to approve this model of subsidy allocation in April 2021.

Subsequently, the Board voted to issue subsidy awards to towns for qualified projects and pre-existing debt totaling over \$71 million. Of that, almost \$55 million was awarded to seven towns in the region for 15 projects appearing on the Intended Use Plan from 2018-2021. Approximately \$16.5 million was awarded to four towns for pre-existing debt. A full list of subsidies awarded can be found at <https://www.capecodcommission.org/our-work/cape-cod-and-islands-water-protection-fund>.

The CCIWPF is a critical funding source for local implementation of water quality projects, as well as for the monitoring and modeling that support communities as they evaluate and adapt their plans to ensure success. **Recognizing the critical need to continue to support a robust monitoring program that broadly considers the connected water resources of Cape Cod, Commission staff recommends consideration be given to allocation of CCIWPF funds to support monitoring, modeling, and other work in the coming year (Recommendation C2021.1).**

In addition to the 2.75% dedicated to the CCIWPF, the short-term rental legislation provided for a local option of up to 6% and a community impact fee of up to 3%, also assessed locally, on professionally managed properties. Consistent with the 2017 Implementation Report recommendation, communities have an opportunity to earmark this new revenue source for wastewater and water quality projects (**C2017.12**). As of the 2020 Implementation Progress Report, the only towns to dedicate a portion of this revenue to water quality related infrastructure were Dennis and Mashpee, in addition to Barnstable, which had elected to dedicate local option meals and rooms tax revenue to wastewater infrastructure prior to completion of the 208 Plan Update. The town of Yarmouth voted to support creation of a Water Infrastructure Investment Fund (WIIF) at its spring 2021 town meeting, the fourth town (along with Mashpee, Dennis, and Sandwich) to have established such a fund in the last three years. The WIIF will be used for municipal drinking water, wastewater and storm water infrastructure assets. Other Cape Cod communities should consider

the benefits and increasing public support for the WIIF approach when looking to fund future water quality infrastructure.

Regional Initiatives

In response to Cape-wide interest in freshwater water quality planning and management, which resulted in an identified future action in the 208 Plan, Commission staff have been working to identify and pursue funding sources to bolster existing pond and lake water quality monitoring efforts, update the Cape Cod Pond and Lakes Atlas, and undertake a comprehensive freshwater planning process. Region-wide pond monitoring has an episodic history, with many different efforts and agents, and varying and inconsistent monitoring criteria and protocols. Over the past year, Commission staff has worked with partners to locate funding to establish a centralized, region-wide program to ensure consistent training of volunteers, sampling protocols, and collection of data. This effort is intended to build on the SNEP Watershed Grant which has supported development of a database for monitoring data, automated analysis capabilities, and a user interface framework to allow public access to the database. It has also supported development of a ponds monitoring QAPP, which is awaiting final signature from US EPA. Commission staff have sought support and/or funding for components of this freshwater initiative from the SNEP Watershed Grant Program, the Massachusetts Environmental Trust, and AmeriCorps Cape Cod. Commission staff will continue to pursue appropriate funding sources and will work to identify a longer-term sustainable funding source for pond monitoring.

Partnerships

Cooperation between local, regional, state and federal agencies, among other partners, remains important to improving the flow of information and the consistent feedback loops necessary to create informed and successful implementation plans.

The 208 Plan Update suggests continued cooperation and coordination with both the MassDOT and JBCC, as key partners in alleviating the impacts of nitrogen on coastal waters.

Since 2019, the Cape Cod Commission has worked as part of a thirteen-partner collaboration led by the New England Environmental Finance Center at University of Southern Maine, to provide technical assistance to communities, tribes, and organizations throughout the SNEP Region of Southeastern Massachusetts and Rhode Island. The Technical Assistance Network released its first Call for Participants in March 2020, and made Technical Assistance awards to the Town of Bourne and the Pleasant Bay Alliance which have been previously described.

Towns have continued to engage with one another and with JBCC leadership regarding wastewater treatment capacity and the potential for a regional treatment and disposal solution at the base (**JBCC S7.1**). Commission staff in concert with MassDEP have continued to monitor the status of the Converge LLC / Town of Barnstable joint proposal, along with other planning efforts conducted by the Upper Cape towns that could influence the likelihood of their participation in regional wastewater treatment at JBCC. Commission staff continue to attend meetings of the Military Civilian Community Council and other meetings regarding the facility, as requested and appropriate. Upon the transfer of ownership of the treatment facility, Commission staff can, as appropriate, work with interested towns and the new ownership to determine a reasonable allocation policy that ensures local wastewater needs can be met (**S2017.16**).

The 208 Plan Update suggests continued cooperation and coordination with MassDOT in part to develop methodologies to assess stormwater contributions from state roadways, identify opportunities to improve tidal flushing in coastal areas and use rights-of-way for water quality improvement projects (**MassDOT I7.3**). It is anticipated that US EPA Region 1 will release a draft MassDOT Municipal Separate Storm Sewer (MS4) permit for public review and comment. As recommended by US EPA staff in May 2016, the Commission will provide input on assessment methodologies during the public comment process. The Commission urges US EPA to prioritize issuance of this permit, with special consideration for discharges in watersheds to nitrogen sensitive coastal embayments.

Conclusion

Despite the challenges presented by the COVID-19 pandemic, existing partnerships between WMAs in priority watersheds continue to foster collaborative approaches to improve water quality; including discussions surrounding regional treatment facilities, frameworks for nitrogen trading, and general integration among individual town plans. Support from the federal, state, and regional governments continues to help towns identify and address barriers to action where they exist, and to keep moving forward with plans that have already been approved. Individual communities and the entire region now have opportunities to utilize new funding sources, both to reduce the cost burden on residents and accelerate action. Improved access to regional water quality monitoring data will inform decision-making, and further enable these communities to effectively and efficiently prioritize their future funding and planning.

As technology and data resources evolve, the tools and resources needed to plan, collaborate on, and implement wastewater and water quality plans and projects are becoming both easier to access and more technically capable. Cape Cod communities should take advantage of the increasing array of resources now available to help determine a cost-effective approach to solve the problem of

deteriorating water quality that still allows each town to maintain its unique character and way of life.

Commission staff acknowledge US EPA's concerns that progress continues to move at an uneven pace across the region and that, in some cases, communities are failing to keep pace with the Commission's 2017 Implementation Report timelines for intermunicipal agreements and watershed plans. Commission staff are available to continue facilitating collaborative efforts between the towns and US EPA Region 1 staff as outlined in US EPA's December 14, 2020 letter to MassDEP. Despite the challenges recently presented by the COVID-19 pandemic, momentum for water quality planning is building at a regional level through existing and newly formed municipal partnerships. Commission staff look forward to continued collaboration with MassDEP and US EPA Region 1 as we support Cape Cod communities planning for and implementing water quality and wastewater projects.

CAPE COD COMMISSION

3225 MAIN STREET • P.O. BOX 226 • BARNSTABLE, MASSACHUSETTS 02630
(508) 362-3828 • Fax (508) 362-3136 • www.capecodcommission.org

