

Freshwater Initiative

Stakeholder Meeting 3 – Sagamore Lens

OLD SANDWICH TOWN HALL | JUNE 4, 2024

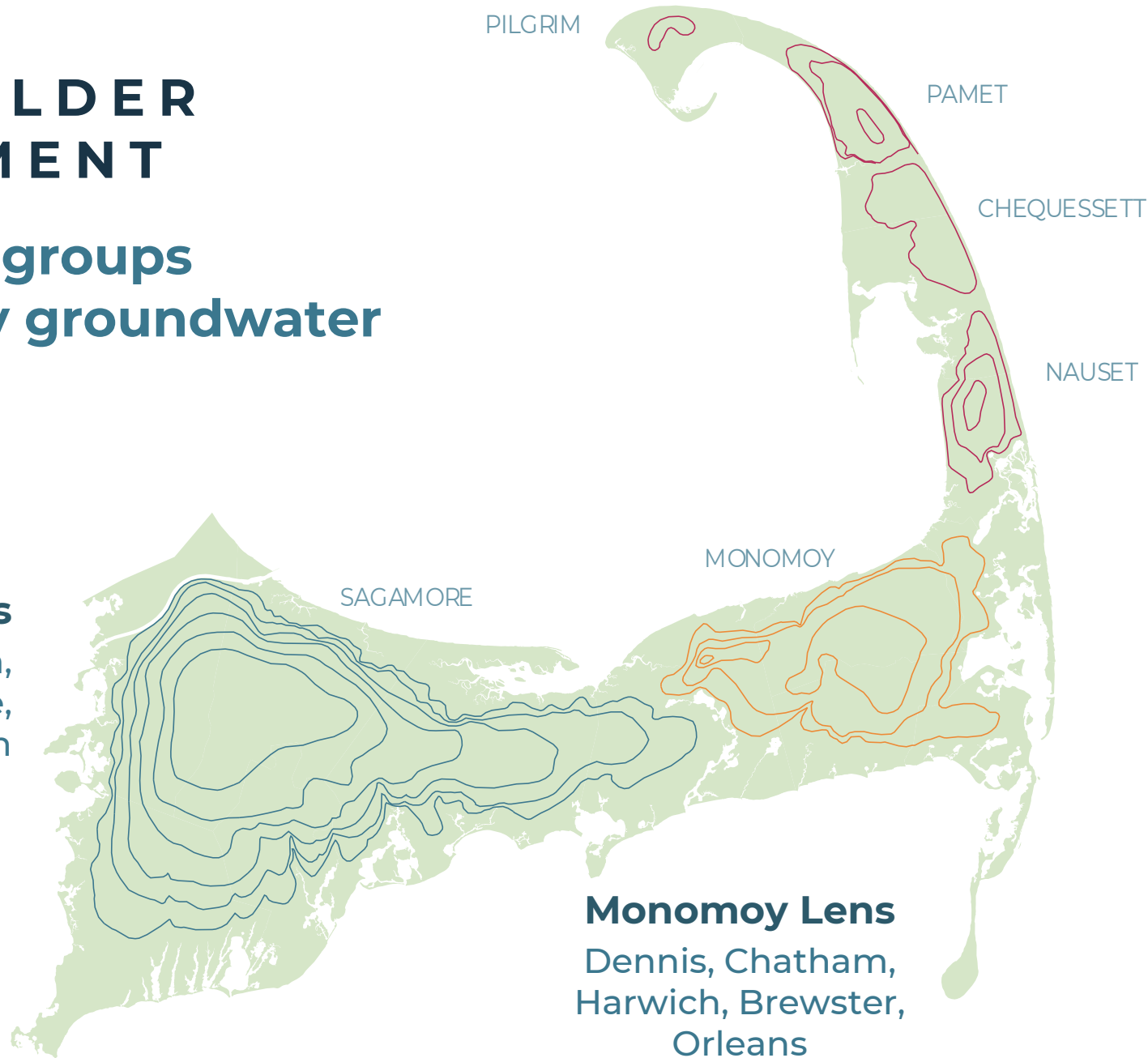


CAPE COD
COMMISSION

STAKEHOLDER ENGAGEMENT

Stakeholder groups
organized by groundwater
lenses

Sagamore Lens
Bourne, Falmouth,
Sandwich, Mashpee,
Barnstable, Yarmouth



**Outer Cape
Lenses**
Eastham,
Wellfleet, Truro,
Provincetown

Monomoy Lens
Dennis, Chatham,
Harwich, Brewster,
Orleans

Stakeholder Meetings

MARCH 19 AND 20

Meeting 1
**Defining the
Problem**

Establish a shared understanding of freshwater systems, the Freshwater Initiative, and stakeholder perspectives

APRIL 22 AND 23

Meeting 2
**Exploring Strategies
and Priorities**

Highlight existing pond management strategies, review breadth of potential strategies and identify priorities, discuss future pond management prioritization

JUNE 3 AND 4

Meeting 3
**Recommendations
and Implementation**

Discuss recommendations and resources for implementation; solicit stakeholder feedback

FRESHWATER INITIATIVE

Agenda

Meeting 3

- Welcome
- Freshwater Initiative Update
- Tools & Resources
- Draft Recommendations
- Next Steps



PLEASE BRIEFLY SHARE THE FOLLOWING:

Name

Organizational Affiliation (if any)

One point you want to be sure we hear
about Cape Cod's ponds

Cape Cod Freshwater Initiative

A science-based, information-driven planning process that will engage stakeholders and enable action to protect and restore Cape Cod's freshwater ponds

.....

ESTABLISHING THE BASELINE



Ponds And Lakes
Atlas Update



Physical
Characteristics



Data Management
And Analysis



Remote Sensing

STRATEGY DEVELOPMENT



Engagement
and Outreach



Strategies
Database



Economic
Analysis



Legal Analysis

ONGOING MONITORING AND ANALYSIS

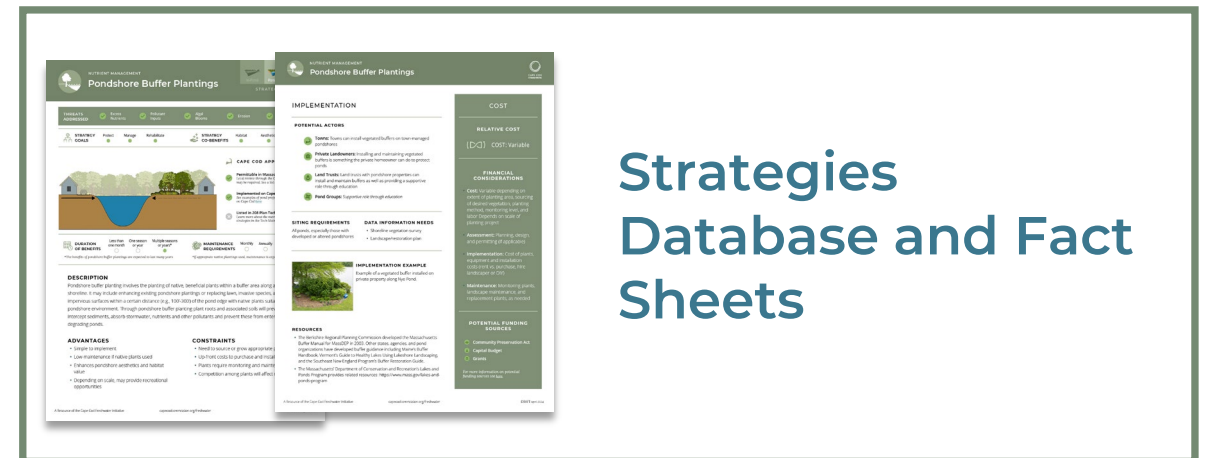
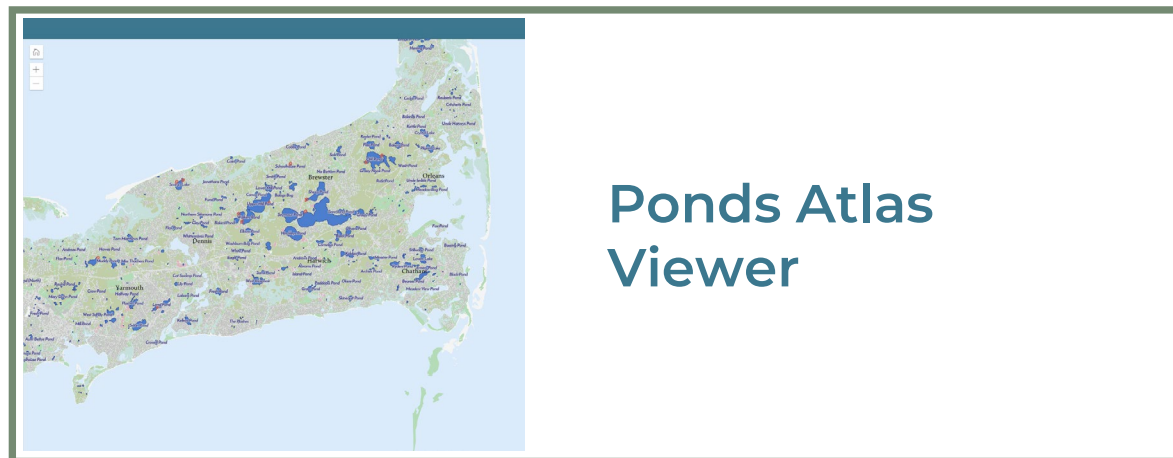
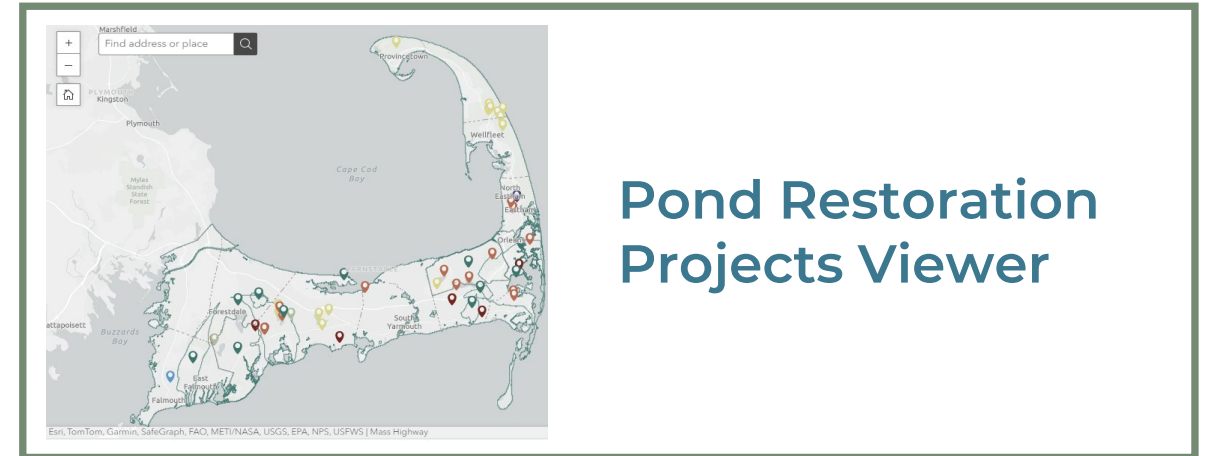
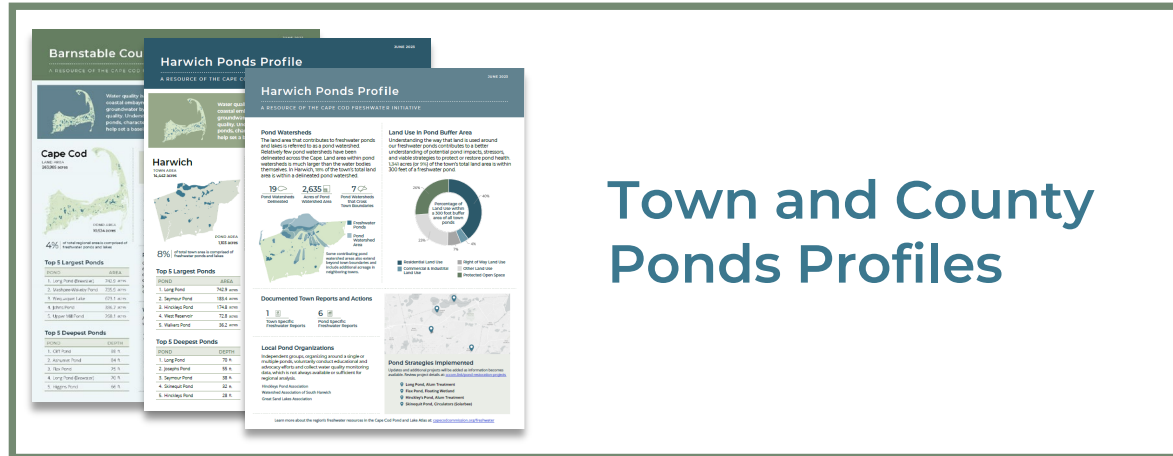


Monitoring
Program



Ongoing Data
Management
and Analysis

Current Tools and Resources



40 DRAFT STRATEGY FACT SHEETS

FRESHWATER POND AREA PLANNING / REGULATION

Land Protection

THREATS ADDRESSED

Excess Nutrients

STRATEGY GOALS

Protect

Manage

DURATION OF BENEFITS

Less than one month

One season or year

DESCRIPTION

Land protection involves a Town, land to limit or prevent development at that site. Along with land protection, stewardship functions. Land protection protects pond along the pondshore or within the pond practices detrimental to pond health.

ADVANTAGES

- Land protection provides multiple benefits: wildlife and plant habitat protection, management, water filtration, nutrient recreational benefits
- Land donation can provide a tax benefit for property owner
- Land protection prevents development in sensitive pond resource areas
- Benefits town-wide and regional land efforts

A Resource of the Cape Cod Freshwater Initiative

VEGETATION MANAGEMENT

Benthic Barriers

THREATS ADDRESSED

Excess Nutrients

Pollutant Inputs

STRATEGY GOALS

Protect

Manage

Rehabilitate

DURATION OF BENEFITS

Less than one month

One season or year

Multiple seasons or years

DESCRIPTION

A benthic barrier is of variable composition (e.g., porous reverse-sediment layering) placed on top of plants or light.

ADVANTAGES

- Useful on localized basis, limit to <10% of littoral zone
- Good for small areas near docks or beaches without affecting the rest of the waterbody
- Can be an effective management strategy, particularly when plant densities are low
- Non-toxic, and can be flexible and selective
- Can improve fish habitat by creating edge effects

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NUTRIENT MANAGEMENT

Permeable Reactive Barrier

THREATS ADDRESSED

Excess Nutrients

STRATEGY GOALS

Protect

Manage

DURATION OF BENEFITS

Less than one month

DESCRIPTION

A permeable reactive barrier (PRB) can be used to prevent nutrients (mainly phosphorus) from entering a pond. PRBs are permeable, allowing groundwater contaminants through different processes to be biodegraded by microbes in the contaminated groundwater flow. Installing a series of injection wells and also be used in combination.

ADVANTAGES

- Relatively low capital and operating costs
- No above ground structures
- Potential for high nutrient (or other) removal rates
- Improves energy savings / nutrient management
- Improves management of floodwaters

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NUTRIENT MANAGEMENT

Pondshore Buffer Plantings

THREATS ADDRESSED

Excess Nutrients

Pollutant Inputs

Algal Blooms

Erosion

Invasive/Nuisance Species

STRATEGY GOALS

Protect

Manage

Rehabilitate

STRATEGY CO-BENEFITS

Habitat

Aesthetics

Recreation

DURATION OF BENEFITS

Less than one month

One season or year

Multiple seasons or years

DESCRIPTION

Pondshore buffer planting involves the planting of native, beneficial plants within a buffer area along a pond shoreline. It may include enhancing existing pondshore plantings or replacing lawn, invasive species, and impervious surfaces within a certain distance (e.g., 100-300') of the pond edge with native plants suitable for the pondshore environment. Through pondshore buffer planting, plant roots and associated soils prevent erosion, intercept sediments, absorb stormwater, nutrients and other pollutants and prevent these from entering and degrading ponds.

ADVANTAGES

- Simple to implement
- Low-maintenance if native plants used, "right plant, right place" principle followed, and once plants are established
- Enhances pondshore aesthetics and habitat value
- Depending on scale, may provide recreational opportunities, such as walking trails through restored areas

CONSTRAINTS

- Need to source or grow appropriate plants
- Up-front costs to purchase and install plants
- Plants require monitoring and maintenance
- Competition among plants will affect results, so expectations need to be managed and the choice of appropriate plants is important
- Invasive or aggressive species may need to be monitored and controlled to ensure success of desirable native species

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DRAFT May 2024

MANAGEMENT APPROACHES

- Planning & Regulations
- Nutrient Management
- Sediment Management
- Algae Management
- Vegetation Management
- Fisheries Management

| Monitoring and Data Project Team and Roles



Association to Preserve Cape Cod

Collect field monitoring data under Regional Pond Monitoring Program



Cape Cod Commission

Manage freshwater data and database
Host and maintain data portal



Woods Hole Oceanographic Institution

Develop code for data formatting, analysis, and visualization



End-user group

Provide input and feedback on interface design, features, and capabilities



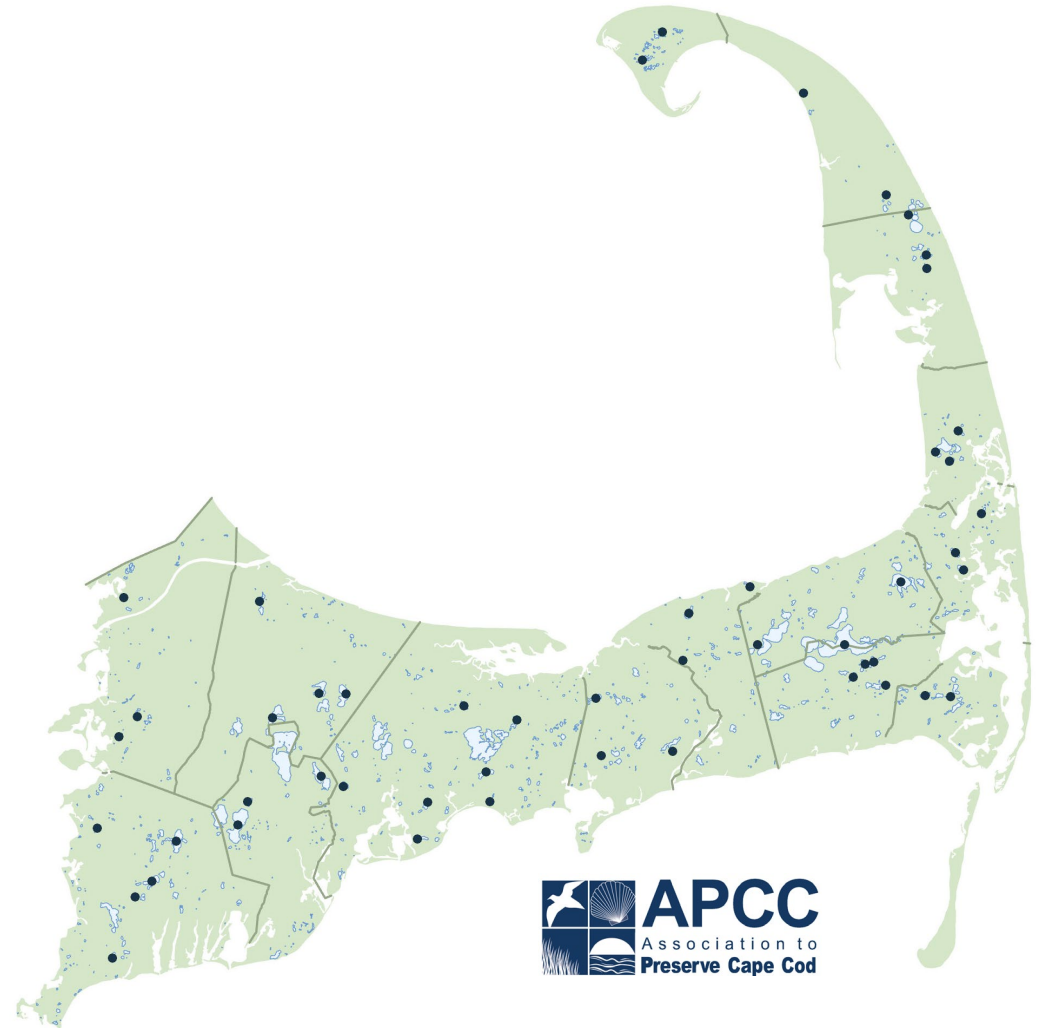
Web Developer

Translate data analyses and visualizations into public web application

POND MONITORING PROGRAM

2024 Regional Pond Monitoring

- **346 pond visits** by staff and volunteers in 2023
- **118 pond visits** through May 2024
- Regional database includes **data through March 2024**



| Monitoring and Data Project Team and Roles



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WATER QUALITY DATA PORTAL

Goals:



Interactive tool
for data access
and exploration

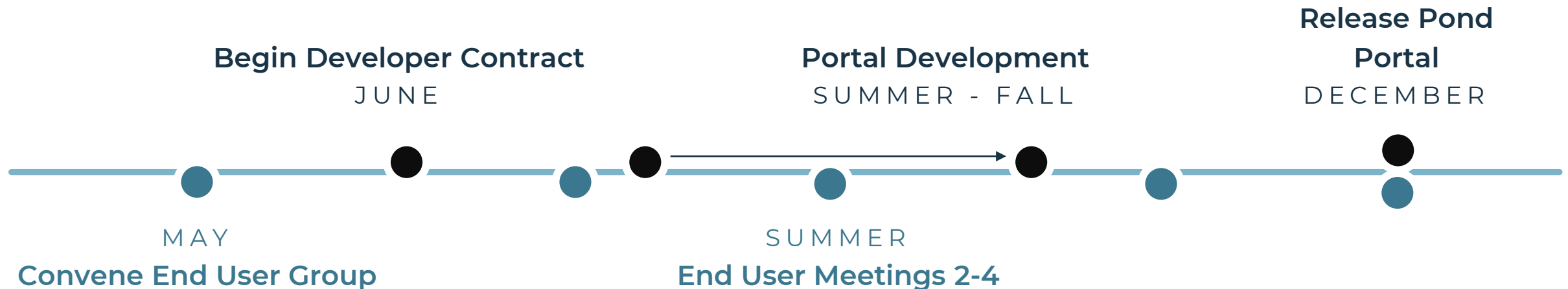


Allow users to select
pond(s) / parameters /
analyses



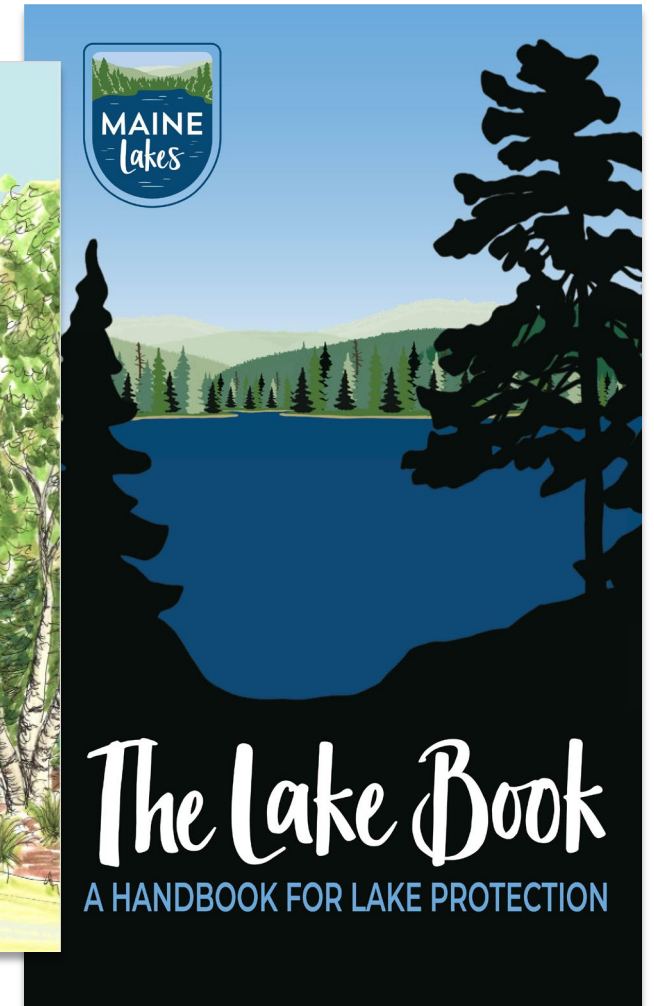
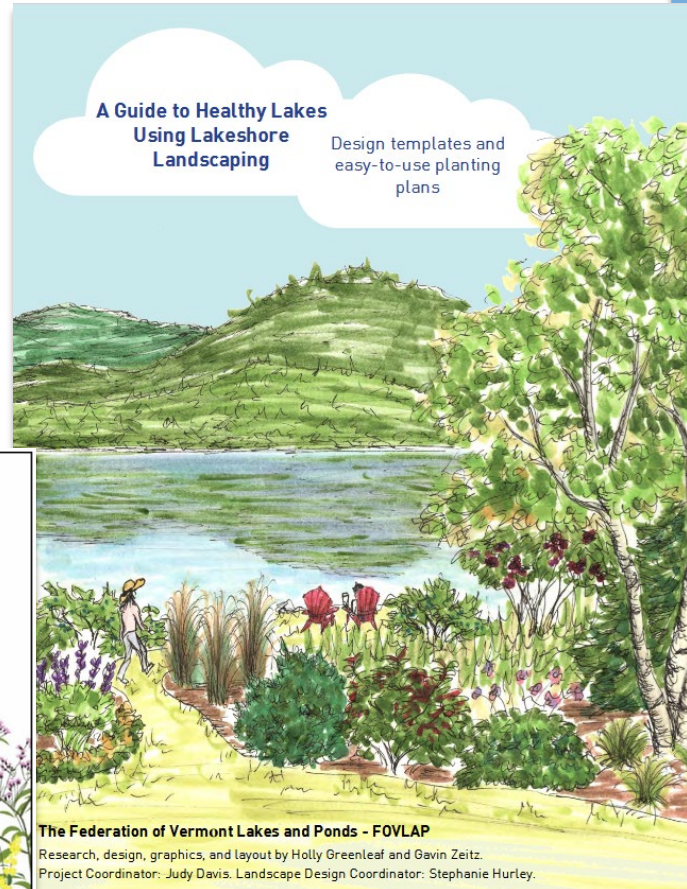
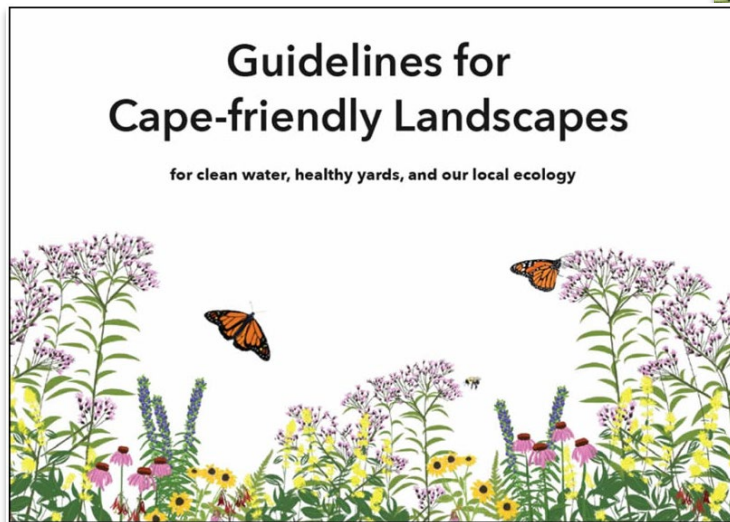
Designed for regularly
updated data and
flexible analysis

Timeline:



POND SHORE BUFFER GUIDELINES

- Drafting a Scope of Work for consultant
- Will follow existing guidance
- Design specific to Cape Cod's freshwater ponds environment



COMMUNICATIONS FRAMEWORK

To Include:

Key Term Definitions

Information and Resources

Communications Best Practices

Talking Points

Social Media / Website content

Stakeholder lists



POND PRIORITIZATION FRAMEWORK

Potential Criteria for Prioritizing Ponds

- **Pond physical characteristics**
- **Pond water quality**
(such as 303(d) list, trophic status, DO, bacterial closures)
- **Watershed metrics / CWMP**
- **Prior management actions**
- **Pond ownership and access**
(such as public/private, public access, amenities e.g., bathrooms or parking)
- **Sensitive resource areas, habitat**
- **Community involvement**
- **Environmental Justice**



PARTNERS IN POND PROTECTION

Cape Cod residents and visitors all have a stake in pond protection

REGIONAL ENTITIES ♦♦ MUNICIPALITIES
BUSINESSES ♦♦ POND AND CIVIC ASSOCIATIONS
PRIVATE LANDOWNERS ♦♦ LAND TRUSTS

Freshwater Initiative

CATEGORIES OF DRAFT RECOMMENDATIONS

Funding Sources and Mechanisms

Municipal Recommendations

Support / Technical Assistance

Regulatory Reform

Information (Monitoring, Data)

Education and Communications

Funding Sources & Mechanisms

DRAFT RECOMMENDATIONS



SECURE DEDICATED AND CONSISTENT FUNDING FOR THE REGIONAL POND MONITORING PROGRAM

- Continue generating highly valuable data to inform local and regional decision-making and provide an understanding of changing conditions
- Ensure continued implementation of the program beyond 2025
- Prioritize the use of existing water quality funding mechanisms and/or pursue funds to support continued and expanded monitoring

RESOURCES

- Regional Pond Monitoring Program
- Water Quality Data Portal

Funding Sources & Mechanisms

DRAFT RECOMMENDATIONS



DEVELOP A REGIONAL FUNDING PROGRAM FOR TOWN PROJECTS

- Limited staff resources make identifying grant opportunities and preparing proposals challenging
- Considerable need for project funding
- Dedicated regional funding program could facilitate access to funds

RESOURCES

- Regional Pond Monitoring Program
- Water Quality Data Portal
- Town Pond Profiles
- Strategies Database and Fact Sheets

Funding Sources & Mechanisms

DRAFT RECOMMENDATIONS



COLLABORATE TO ACCESS STATE AND FEDERAL GRANT FUNDS

- Evaluate and consider establishing a role to assist Cape Cod towns with accessing 604b and 319 grant funds
- Take advantage of DEP administered grants to advance planning and implementation of projects to support freshwater resources
- Align grant applications with priorities of federal and state water quality programs

RESOURCES

- HRU Hotspots Maps
- Pond Atlas Viewer
- Legal Guidance

Municipal

DRAFT RECOMMENDATIONS



PRIORITIZE PONDS FOR ACTION

- Strategic selection of ponds for management actions
- Use criteria to prioritize ponds for action
- Provide support and justification for town budget expenditures and grant applications for management projects

RESOURCES

- Model Pond Prioritization Framework
- Town Pond Reports/Action Plans
- Pond Atlas Viewer
- Water Quality Data Portal
- Strategies Database and Fact Sheets

Municipal

DRAFT RECOMMENDATIONS



PROMOTE EASY-TO-IMPLEMENT STRATEGIES

- Some strategies will improve pond water quality and can be implemented even in instances where limited data or information is available
- Incorporate strategies to improve pond water quality, such as stormwater management systems or stormwater control measures, into related planning and construction activities
- Prioritize nature-based solutions

RESOURCES

- HRU Hotspots Maps
- Strategies Database and Fact Sheets
- 208 Technologies Matrix
- Pond Atlas Viewer

Municipal

DRAFT RECOMMENDATIONS



INTEGRATE FRESHWATER PONDS INTO MUNICIPAL WATER RESOURCE PLANNING DOCUMENTS

- Consider pond water quality with other water resource discussions, including nutrient management for coastal waters and drinking water supplies
- Capture co-benefits of strategies for other water resources
- Include freshwater planning in source water protection plans, CWMPs and TWMPs

RESOURCES

- Regional Pond Monitoring Program
- Water Quality Data Portal
- Pond Atlas Viewer

Support / Technical Assistance

DRAFT RECOMMENDATIONS



UTILIZE POND BUFFER GUIDELINES

- Maintain and improve pond water quality through vegetated buffers
- Support community acceptance and implementation of buffers
- Promote native plants and healthy aquatic and pond shore ecosystems

RESOURCE

- Strategies Database And Fact Sheets
- Pond Buffer Guidelines
- Pond Atlas Viewer

Regulatory Reform

DRAFT RECOMMENDATIONS



DEVELOP MODEL WETLAND BYLAWS AND ORDERS OF CONDITIONS

- Help manage development impacts to ensure pond buffers are preserved and restored
- Review existing bylaws and regulations governing pond shore activities
- Develop model wetlands bylaw, regulations, and orders of conditions

RESOURCES

- Legal Guidance
- Pond Buffer Guidelines
- Strategies Database And Fact Sheets

Regulatory Reform

DRAFT RECOMMENDATIONS



STREAMLINE WETLAND PERMITTING TO FACILITATE RESTORATION OF POND SHORE BUFFERS

- Incentivize improvements to revegetate pond shore buffers
- Reduce permitting requirements, timeframes, costs
- Explore the possibility of a general permit for administrative approval of plans that propose the use of native plant species, meet design parameters, or are small in scale

RESOURCES

- Pond Buffer Guidelines
- Model Wetland Bylaws And Orders Of Conditions

Information

DRAFT RECOMMENDATIONS



EXPAND REGIONAL MONITORING AND LABORATORY CAPACITY

- Expand the regional pond monitoring program
- Expand laboratory capacity to support pond monitoring
- Explore establishing a sentinel pond monitoring program

RESOURCES

- Regional Pond Monitoring Program
- Pond Atlas Viewer
- Water Quality Data Portal

Information

DRAFT RECOMMENDATIONS



ADDRESS DATA GAPS

- Fill gaps in existing data to promote better understanding of pond dynamics and facilitate identification of appropriate strategies
- Priority data gaps include:
 - Maximum pond depth
 - Pond volumes
 - Pond water retention time
 - Pond watershed delineations

RESOURCES

- Regional Pond Monitoring Program
- Ponds Network
- Pond Atlas Viewer

Education and Communications

DRAFT RECOMMENDATIONS



DEVELOP AND COMMIT TO CONSISTENT COMMUNICATION AND OUTREACH, TARGETED FOR DIFFERENT POND USERS

- Educate pond users about the natural variation in Cape Cod's ponds, how activities impact pond health, and best practices for preserving ponds
- Employ a communications framework and toolkit that includes consistent messaging, themes, and other content
- Provide a guide for using these resources to deliver consistent and effective messaging

RESOURCES

- Pond Atlas
- Strategies Database and Fact Sheets
- MA Practical Guide to Pond and Lake Management
- Communications Framework
- Ponds Network

Draft Recommendations



Secure dedicated and consistent funding for the regional pond monitoring program



Develop a regional funding program for town projects



Collaborate to access state and federal grant funds



Prioritize ponds for action



Promote easy-to-implement strategies



Integrate freshwater ponds into municipal water resources planning documents



Utilize pond buffer guidelines



Develop model wetland bylaws and orders of conditions



Streamline wetland permitting to facilitate restoration of pond shore buffers



Expand regional monitoring and laboratory capacity



Address data gaps



Develop and commit to consistent communication and outreach, targeted for different pond users

DRAFT RECOMMENDATIONS

Is there anything missing? Are there other key recommendations that you think need to be included?

Which do you think will be most impactful from your perspective?

Draft Recommendations



Secure dedicated and consistent funding for the regional pond monitoring program



Develop a regional funding program for town projects



Collaborate to access state and federal grant funds



Prioritize ponds for action



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Expand regional monitoring and laboratory capacity



Address data gaps



Develop and commit to consistent communication and outreach, targeted for different pond users

DRAFT RECOMMENDATIONS

Who needs to be engaged?

*Are there ongoing efforts that could be expanded upon to
achieve any of these recommendations?*

DRAFT RECOMMENDATIONS

Are there barriers to implementation of any of these recommendations? How can they be overcome?

A scenic view of a lake with a forested hill in the background. A semi-transparent dark blue rectangular box is centered over the lake, containing white text. The background shows a calm body of water reflecting the sky, with a dense line of green trees and some buildings visible on the far shore under a clear blue sky.

Other questions or feedback?

www.capecodcommission.org/freshwater

Thank you!

www.capecodcommission.org/freshwater

STAKEHOLDER MEETING 3 | JUNE 2024



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COMMISSION