Tackling Collaboration Challenges to Address Nitrogen Loading in Shared Watersheds

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Outline

• Current situation
• Existing framework
• Challenges to collaboration
• Benefits of collaboration
• Concepts to enhance collaboration
• Questions & discussion
Current Situation

- Cape-wide
  - 53 watersheds to embayments
  - 46 watersheds in MEP
  - 30 shared watersheds
  - 15 towns

- Problem (nitrogen) is watershed-based

- Mechanisms to solve problems are municipal-based

Existing Framework

- Towns working through CWMPs on their own

- 2008 DEP Pilot Study for Inter-Municipal Watershed Planning
  - Popponesset Bay
  - Three Bays
  - Pleasant Bay
Many good recommendations:
- Provide town-by-town breakdown of unattenuated and attenuated loads in MEP reports
- Complete town-wide CWMPs
- Complete watershed-based CWMPs
- Evaluate multi-town watershed permits
- Evaluate nitrogen trading
- Establish criteria for when enforcement action would occur.
- Accept innovative/demonstration projects
Challenges to Collaboration

- Lack of MEP reports and TMDLs
- Unclear allocation of responsibility
- No established timeline for progress
- Loss of independence and control
- Bad blood from past collaboration attempts
- Prioritizing local interests over watershed interests

Benefits of Collaboration

- Address problems on a watershed basis
- Needed to receive 0% interest loans
- Save money through:
  - Economies of scale
  - Proximity to treatment location
  - Proximity to coastal estuary
  - Putting sewers in most densely developed areas in watershed regardless of town
  - Access to more and better effluent disposal sites
1. Inter-Municipal Agreements

- Legal agreements which allow municipalities to share costs, savings, risks and benefits of a project
  - Schools
  - Solid waste transfer stations
  - Water supply interconnections
  - Sewage and septage treatment

- Defines purpose, term, funding, dispute resolution, termination and dissolution provisions.
1. IMAs for Shared Watersheds

- Participants need to:
  - Have shared interests
  - Understand their allocation of responsibility
  - Understand their needs, options and costs
  - Have an engaged and informed stakeholder group
  - Receive equitable benefits

1. Suggested Principles for IMAs

- DEP assigns responsibility through the TMDL based on pro-rata impacts to estuary (i.e., *Attenuated Load*).
- Each Town commits to:
  - address its share of the load.
  - explore joint projects.
  - implement joint projects where it is mutually beneficial and cost-effective.
  - bring articles to its Town Meetings.
- IMA allows for innovation/demonstration projects and phased implementation.
1. Phased Implementation

![Phased Implementation Scenario](image)

2. Wastewater Mgmt. Districts

- 2004 Barnstable County Tools Report
- One entity responsible for management in a watershed or collection of watersheds
- Represented by towns equally or in proportion to impact on watershed
2. Wastewater Mgmt. Districts

- Key issues
  - What will district be responsible for?
  - What will be the geographic area of the district?
  - How will the district funds its activities?
  - How will the district coordinate with town functions?
  - How will towns be represented in the district?

- Enactment by new special legislation or current provisions of MGL. Approval at town meetings. Process could take 1 year.

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2. Wastewater Mgmt. Districts

Illustrative Examples in Tools Report

<table>
<thead>
<tr>
<th>Function</th>
<th>Individual On-Site Systems</th>
<th>Cluster Systems</th>
<th>Centralized Systems</th>
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Note: Responsible party may hire one or more service providers to carry out given function (e.g., District could hire County to maintain performance of enhanced treatment systems).
3. Watershed Permitting

- Long Island Sound TMDL issued December 2000
  - Significant areas of hypoxia and anoxia in LI Sound
  - Required 58.5% TN removal
  - 7-phase implementation plan
  - 3 phases prior to TMDL

- Nitrogen General Permit issued to all POTWs
  - Annual load reductions
  - TMDL compliance by 2014

- Nitrogen Trading Program to incentivize upgrades

Why can’t this work on Cape Cod?
4. Nitrogen Trading

- Must have a supply and a demand

- What is the cost per pound of nitrogen removed?

- 2010 Barnstable Cost Report

- Would allow for communities to chose how to address their share of the nitrogen load.

5. Watershed-Specific Regionalization Studies

- Orleans-Brewster-Eastham Regionalization Study

- Alternatives
  - Each town acts alone
  - 2-town joint solution
  - 3-town joint solution

- Allocation of Costs
  - 7 methods to allocate costs and savings

- Conclusions
  - Save 6% to 9% on Capital Cost
  - Save 18% to 25% on O&M
  - $330 to $430/lbNrem acting alone
  - $300 to $320/lbNrem acting jointly
5. Watershed-Specific Regionalization Studies

- 208 Plan Update will address watershed-specific regionalization studies Cape-wide.

- Elements to further enhance collaboration and progress:
  - Reviewing affordability and developing a detailed financing/funding plan to include grant funding
  - Defining the need (water quality improvement) and the benefits (job creation, tax base increase) for the general public

Closing Remarks

- Collaboration has been constrained due lack of concurrent information. Collaboration will be enhanced by a regulatory framework and completion of all MEP reports.

- IMAs are used often on Cape Cod and could play a significant role in collaboration.

- Wastewater management districts and watershed permitting/nitrogen trading should be explored in detail by DEP and/or CCC.

- The 208 Plan Update should significantly improve the ability to “turn the corner”.