


Septic Systems on Cape Cod: Challenges and Responses

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Cape Cod Commission

September 23, 2020
Title 5 and Onsite Wastewater Systems:
Science, Standards, and Practices



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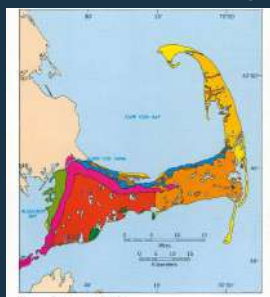
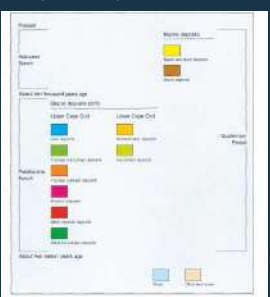
Cape Cod,
Massachusetts



MISSION
...To protect the unique values and quality of life on Cape Cod by coordinating a balanced relationship between environmental protection and economic progress.

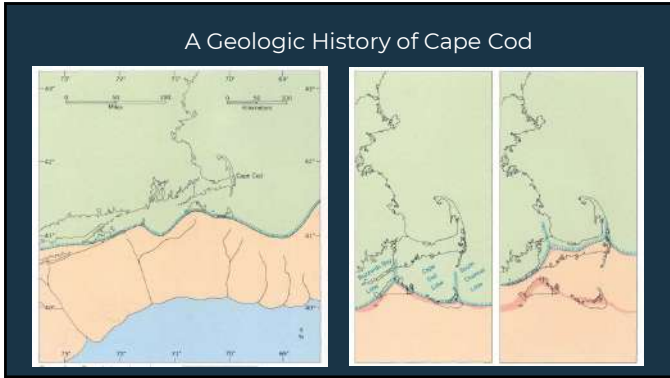
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A Geologic History of Cape Cod

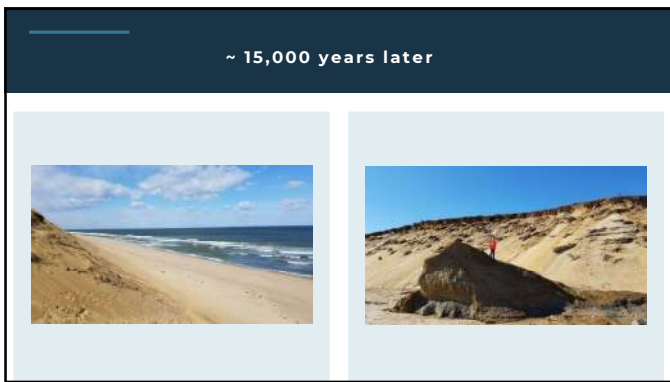



Oldale (1980)

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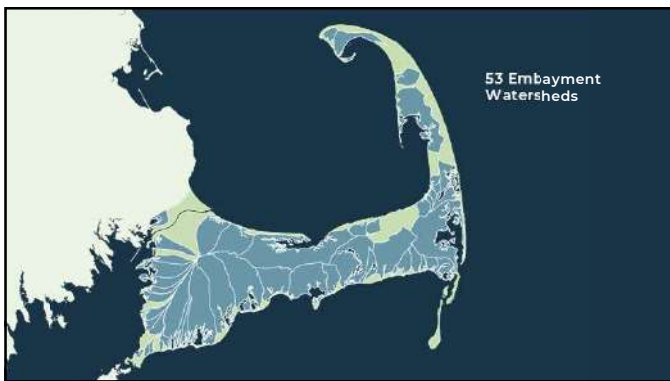
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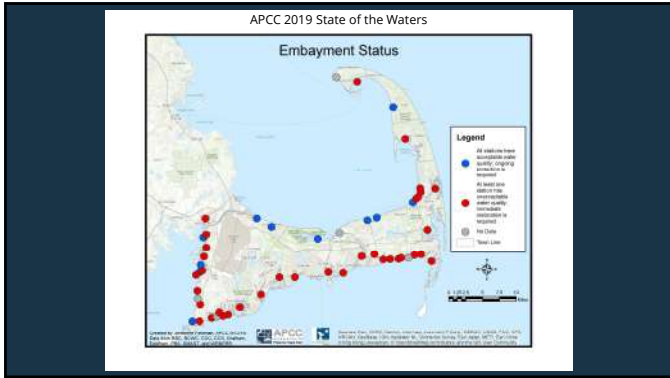
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208 Plan (1978)

Water Quality Management Plan/EIS For Cape Cod
Volume 1
Final Plan / Environmental Impact Statement
September 1978

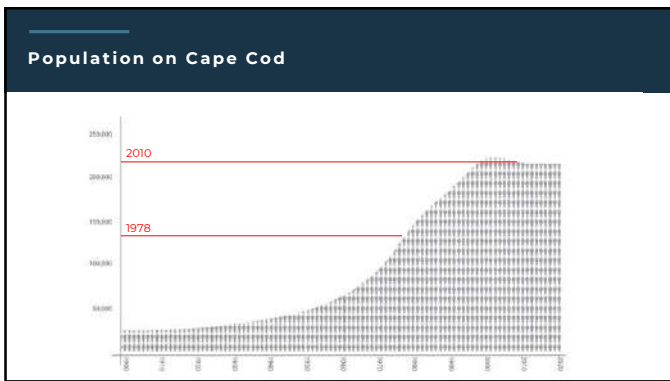
Focuses

- Identification and Management of Major Contamination Sources
 - Landfills
 - Septage lagoons
 - Road salt stock piles
 - Underground Storage Tanks
- Assessment and Management of Wastewater
 - Public health threats from septic systems
 - Drinking water as the primary focus

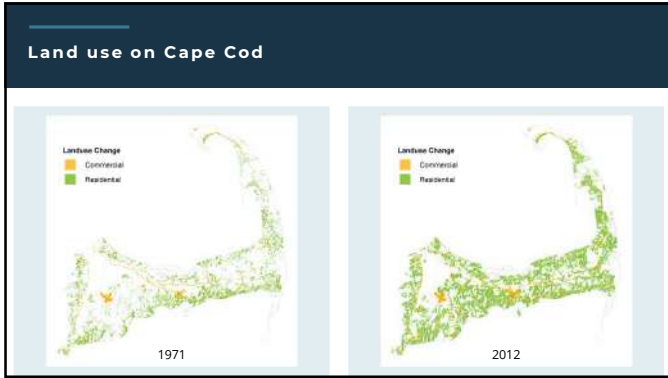
Recommendations

- Limited sewerage for high density failure areas
- Aggressive on-site management and land use controls

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Improving Water Quality UPDATING THE 208 PLAN

- Clean Water Act Section 208
- CCC directed to update the 1978 Plan
- \$3 million to complete the plan
- Focus on 21st century problems
- Committed to extensive and authentic stakeholder engagement

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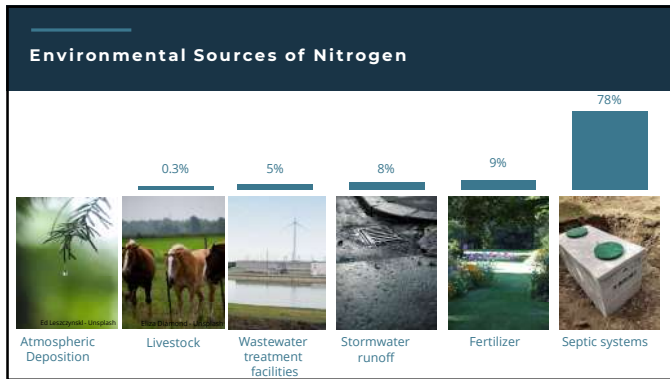
Cape Cod 208 Plan Update

- Focused on nitrogen
- Watershed scale solutions
- Increased regulatory flexibility
- Offered additional technical and planning assistance

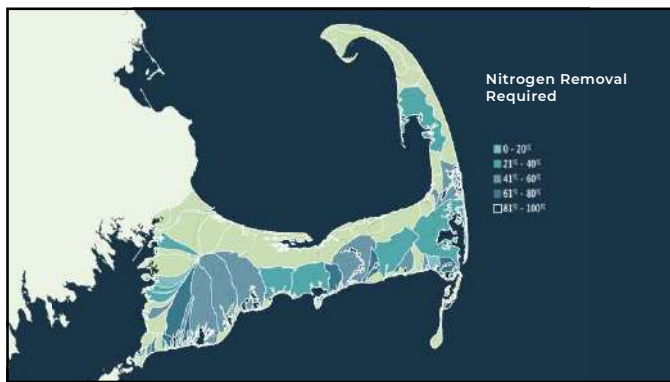
208 PLAN

Cape Cod Area Wide Water Quality Management Plan Update

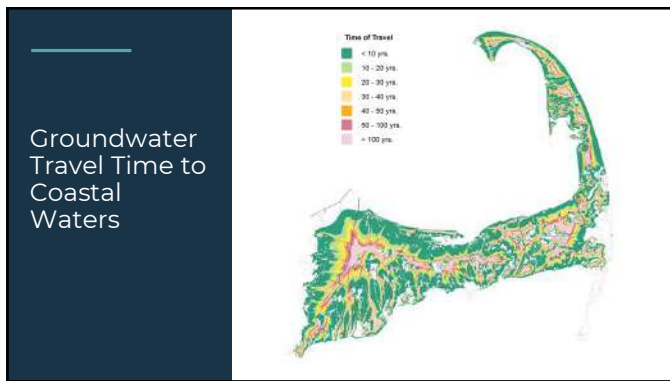
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OLD CHALLENGES

- Regulatory approaches emphasize centralized systems and permitting of dischargers
- Sewering on Cape Cod expensive due to:
 - Low density of development
 - High seasonal fluctuations in population
- Towns are responsible for meeting applicable nutrient goals – but individuals are responsible for on-site systems



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NEW SOLUTIONS



CONSIDERING COLLECTION AND TREATMENT IN AREAS WHERE IT'S MOST APPROPRIATE



BROADENING THE USE OF REMEDIATION AND RESTORATION TECHNOLOGIES



COST SHARING RESULTS IN A LOWER COST FOR RESIDENTS AND AFFORDABLE SCENARIOS

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Technologies Matrix

	Site Scale	Neighborhood	Watershed	Cape-Wide
Reduction in Sewer Discharge	<ul style="list-style-type: none"> Centralized TWT System Local TWT System Local TWT System Local TWT System Local TWT System 	<ul style="list-style-type: none"> Local TWT System Local TWT System Local TWT System Local TWT System Local TWT System 	<ul style="list-style-type: none"> Local TWT System Local TWT System Local TWT System Local TWT System Local TWT System 	<ul style="list-style-type: none"> Local TWT System Local TWT System Local TWT System Local TWT System Local TWT System
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Advantages of on-site systems on Cape Cod

- Low cost / low maintenance wastewater disposal method
- Wastewater generation, treatment, disposal all on-site
 - No "distance between connections" to consider
- Avoids potential water balance problems
- Public land / land acquisition not required

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Challenges for on-site systems on Cape Cod

- There is already too much nitrogen in majority of coastal embayments
- Title V systems do not remove enough nitrogen to be protective of marine water quality in most areas
- Areas still rely on private wells for drinking water
- On-site systems can limit development density
- Sea level rise poses additional threat to systems located near the coast
 - Inundation risk
 - Elevated groundwater levels

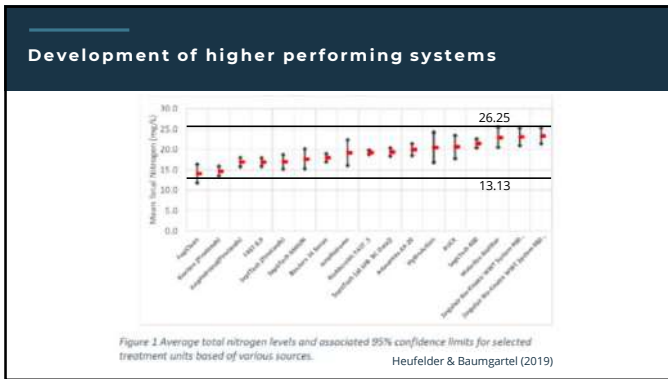
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Septic Systems on Cape Cod

Responses

- Support development of on-site systems with higher N-removal
- Identify areas where septic still makes sense
- Increase opportunities for remediation and restoration approaches
- Assist decision-making by providing a source for consistently updated information

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- ### Identifying Appropriate Areas for On-site Systems
- Areas with:
 - Significant natural attenuation of nitrogen
 - Long groundwater travel times
 - Sparse development
 - Downgradient restoration projects
 - Low nitrogen removal requirements (< 50%)

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Remaining Questions

- Permitting, public perception, and market considerations for new technologies
- Weighing cost vs. performance for N-removing I/A systems
- Phosphorus removal in on-site systems not well understood

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Contact

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