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Water Stewards Discuss Drought, Development And Falmouth's Water Supply

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Alan Robinson (center) moderates discussion and conversation between an audience of roughly 30 people and panelists (left to right) Mark Forest, Duane LeVangie, Robinson, Matthew Lanen and Heather McElroy
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The Falmouth Water Stewards met Wednesday, October 28, for their annual meeting and reached two important conclusions about the status of the town's water supply, drought and aquifer: The best time to prepare for and prevent a water crisis is before it happens, and the public must be educated about the issue so residents can help address water-use pressures.

Douglas C. Brown of the Select Board opened the meeting with a history of the group, formerly known as Falmouth Associations Concerned with Estuaries and Salt Ponds (FACES). He also introduced a panel of experts: Barnstable County Commissioner Mark R. Forest; Duane LeVangie of the Massachusetts Department of Environmental Protection (MassDEP); Falmouth Water Superintendent Matthew P. Lanen; and Heather McElroy, natural resources program manager with the Cape Cod Commission.

Each expert gave a brief presentation before opening the discussion to the audience.



The Hermann Meeting Room at the library was filled with familiar faces from town boards, committees, advisory groups and environmental advocacy organizations. State Representative Thomas W. Moakley sat quietly listening and drew the crowd's attention only after Brown acknowledged him and thanked him for attending. Those in the room had come to hear from qualified professionals about the realities of drought, water supply and the state of the Cape's aquifer.

Conflicts between state housing development statutes and environmental protection requirements have frustrated planning and zoning boards across Barnstable County, Forest said. He emphasized the importance of conservation, preserving suitable land for potential new wells, and collaboration between housing development and environmental protection. The Upper Cape is stronger when its communities work together, he said.

The panelists' presentations were intended to clear up confusion and provide answers. Lanen presented data about Falmouth's water situation. LeVangie focused on the state's perspective,

the "science and art" of water management and requirements under the Water Management Act. McElroy discussed regional approaches to "future-proofing," water supply analysis, and preservation and conservation planning.

The discussion was moderated by Alan M. Robinson, a resident and frequent town committee volunteer who serves on the Water Quality Management Committee.

Access Is the Issue, Not Supply

The panelists agreed that the aquifer contains plenty of water. The challenge is accessing that water, maintaining sufficient pressure for firefighting and ensuring an adequate supply for the future.

The Cape Cod Aquifer is made up of several lenses. These lenses are underground "mounds" of freshwater formed through groundwater recharge. The six lenses—Sagamore, Pilgrim, Pamet, Nauset, Chequesset and Monomoy—cover all of Cape Cod.

The Sagamore lens supplies Bourne, Mashpee, Sandwich and Falmouth. Lenses on the Outer Cape are changing shape because of sea level rise, McElroy said.

The Cape Cod Aquifer provides 100% of the Cape's drinking water and is designated a "sole-source" aquifer under the federal Safe Drinking Water Act by the Environmental Protection Agency.

"There are 11 billion gallons pumped on average per year [from Cape Cod Aquifer] and we are permitted to pump 13.6 billion gallons," McElroy said

Precipitation recharges the aquifer as water seeps into the ground. McElroy said roughly 69 percent of the water in the aquifer flows into the ocean, while about 24% discharges into streams and 7% is withdrawn by public water supply wells. The aquifer receives an average daily recharge of 450 million gallons.

Under the Water Management Act, each town that withdraws water from the aquifer must obtain a withdrawal permit from the state Department of Environmental Protection, LeVangie said.

The DEP needs to understand how much water is being used and replenished to plan for development, land use and environmental protection.

July, August and September account for approximately 45% of water demand, McElroy said.

During those peak months, sprinkler systems account for 30 to 40% of water use, Lanen said. However, determining exactly how water is being used can be difficult. He noted that water use increases between 3 and 7 AM, when irrigation systems tend to activate.

Why Not Dig New Wells?

Less than 11% of Cape Cod's land area is suitable for a new well location under the Water Management Act's requirements, McElroy said. Those requirements include a 400-foot radius of protected land around a well, amounting to about 11 acres. The town must also own or control the land, and incompatible uses, such as industrial activity, would disqualify a potential site.

Bringing a new well online requires five to eight years of analysis, design and permit applications. Lanen said the town is moving forward with plans to bring the previously contaminated Ashumet Well back online as a municipal water source.

LeVangie, a DEP water management specialist, explained the state's concept of "safe yield," which he defined as the maximum amount of water that can be withdrawn from an aquifer or watershed. The safe yield for Cape Cod is 266 million gallons per day, he said.

What About All the Rain in September?

The entire Cape Cod region remains in a Level 2 "significant drought," Lanen said. Residents have been confused about how drought conditions can persist after a September rainstorm dropped 11 inches of rain. In 2025, Falmouth spent the entire year under Level 1 and Level 2 drought conditions.

Lanen said water levels at Long Pond, which supplies about 60 percent of Falmouth's drinking water, tend to be low during the summer's peak demand. To illustrate the strain, he cited withdrawals on July 5, when the town pumped 9.617 million gallons, compared with an average daily withdrawal of about 3.82 million gallons.



Exceeding projected withdrawals affects water storage and the ability to replenish storage tanks, he said.

Rain and snow replenish the aquifer as water seeps into the ground, but rapid runoff may prevent some water from being absorbed. McElroy said only about 7 percent of precipitation goes to public water supply. Rather than focusing on individual heavy storms, she said, the cumulative amount of water absorbed into the aquifer is more relevant.

In July, Lanen sent a letter to the Planning Board advising against zoning changes that could remove restrictions and allow denser housing development. The letter drew the attention of the Barnstable County commissioners and other Upper Cape communities facing similar water pressures.

"Although the current year-round population does not appear to create a significant operational strain on the water system," Lanen wrote in that letter. "It is important to recognize that the system was designed to meet peak seasonal demand while also maintaining adequate fire suppression capacity."

At the end of his presentation, Lanen outlined recommendations for increasing water conservation. State drought recommendations can change monthly, he said. He suggested that Falmouth adopt year-round outdoor watering restrictions, potentially through a fixed watering schedule.

Other possible measures include incentives for conservation, such as a rain barrel program and

smart irrigation timers, as well as rebates for water-efficient fixtures and appliances.

Dedicated water department staff to enforce conservation measures would also help, Lanen said. The department has only 17 employees. He also suggested considering changes to the town's water-use fee structure.

How to Balance State Demands?

Affordable housing is necessary, but so are protecting water resources and ensuring access to a reliable water supply.

Forest said the competing priorities feel like a "constant battle" and that discussions about the environment and development can feel like "going to war with Beacon Hill," where elected officials spend "more time battling than working together."

Patricia H. Kerfoot of the Planning Board and William B. Kerfoot of the Freshwater Ponds Committee were among those in the audience. Patricia Kerfoot summed up the sentiment in the room following the presentations when she said, "We tend to react as human beings to crisis management."

William Kerfoot mentioned recent zoning changes proposed by the state through the Seasonal Communities designation, which would allow smaller, 5,000-square-foot lots and denser development that could strain water and wastewater infrastructure. Chapter 40B and other housing proposals are not the only forms of development that could affect water infrastructure.

At a Select Board meeting earlier this month, Town Manager Michael Renshaw briefly discussed state-designated "opportunity zones," created under the 2017 Tax Cuts and Jobs Act.

The proposed Falmouth Opportunity Zone is identified by the state as the Falmouth Teaticket Village tract. It includes the downtown core and surrounding areas with a mix of commercial and mixed-use buildings, parking lots, and vacant or underused properties.

Renshaw said the designation remains proposed but is expected to become official within the next few weeks. Town staff plans to gather more information about what the designation could mean for Falmouth, he added.

Forest said the issue has been raised at Cape and Islands Municipal Leaders meetings and that

he will continue discussing it with Brown at those meetings.

The Cape Cod Commission's next steps include developing the scope of work for a water analysis to guide future planning, McElroy said. Once the scope is determined, specialists will begin the research.

Comments From the Audience

Audience members asked about treating water and reinjecting it into the aquifer, as well as desalination plants. LeVangie said desalination has had mixed success in communities such as Dighton, Brockton and Swansea.

Other concerns centered on public outreach. Susan W. Baur, founder of Old Ladies Against Underwater Garbage (OLAUG), asked the panel what visuals or graphics could help explain drought and the aquifer to the public.

Short videos and graphics are available on the town's Water Department webpage, Lanen said.

Baur shook her head and placed her hands on her forehead in what appeared to be frustration.

"What we're asking people to do is understand groundwater," LeVangie said, which can be difficult because it isn't visible. "There's nothing easy about it," he added.

"We'll fix that," Baur said.



