

Minutes of the Water Quality Management Committee, January 23, 2020

Members Present: Steve Leighton, Virginia Valiela, Eric Turkington, John Waterbury, Matt Charette, Tom Duncan, Ron Zweig. Also present: Gary Rubenstein, Lombardo Associates, Inc.; Selectman Doug Brown; Paul Dreyer, Planning Board; Wendi Buessler, OPET; Maureen Thomas, Buzzards Bay Coalition

1. Update on the Eel River pilot aquaculture project – Chuck Martinsen, Falmouth Marine and Environmental Services

Chuck Martinsen gave an update on the Eel River aquaculture grants. He informed the committee that all three grants have been awarded and that the build for the overwintering system has been completed. He indicated there is still grow-out gear that needs to be constructed but anticipates all portions should be complete by early April when the oysters will be deployed. Martinsen also reported that the project will have second year oysters available for growing which could be marketable as early as July. Having second year oysters available was not originally anticipated for this project which means the town will begin collecting funds from the harvest a year ahead of schedule. Chairman Turkington inquired whether there were any outstanding permits that needed to be completed. Martinsen reported that all permitting was complete.

Martinsen also provided an update and a projected timeline for the full implementation of the town-wide aquaculture plan. He described the next phases of the project and the level of effort that would be required for each phase. He anticipates the first phase of bottom surveys to be completed in Spring 2020. Martinsen stated that to proceed with the full implementation would require filing a Draft Environmental Impact Report (DEIR). Steve Leighton asked why there was additional permitting necessary. Martinsen said that the Eel River project is considered a demonstration project and was added as an addendum under the current water quality certificate. Full implementation for all 14 estuaries would require an additional permit. Virginia Valiela remarked that she hopes the targeted core samples for Phase 2 would be able to begin this summer and requested that the department begin its sampling efforts in Great Pond. Martinsen indicated they could certainly prioritize Great Pond when Phase 2 begins.

John Waterbury inquired whether Marine and Environmental Services actively monitors the oyster reef in West Falmouth Harbor. Martinsen indicated that the reef has ecologically done very well. He attributes some of that success to recent mild winters with low ice coverage over the reef. Martinsen did report that there has been issues with poaching from the reef and the concern that the area is contaminated. He remarked that this issue developed as a result of the resource being added and cautioned that all potential effects, including additional enforcement, need to be considered in planning future projects.

2. Innovative / Alternative Nitrogen Reducing Septic Systems: presentation by Gary Rubenstein, Lombardo Associates, Inc. on the Nitrex system

Gary Rubenstein spoke about the design and operation of the Nitrex innovative / alternative septic system. He described how the Nitrex system is coupled with a front-end nitrifying unit (e.g., recirculating media filter technology) prior to discharging into the drain field. He presented several case examples of where the Nitrex systems have been installed around the country, any challenges with the systems and installs and the average effluent measurements for each system. He discussed not having had any issues with freezing in the cold weather due to the design of the system. He indicated that they consider the reduced denitrification rates in cold temperatures and design the systems larger to increase the residence time to ensure adequate denitrification.

Rubenstein reported that the average total nitrogen effluent from all of the systems is ± 3 mg/L. He also indicated that the average capital cost for an individual onsite system is \$22,000 - \$25,000 and varies by site. The electrical cost for an individual onsite system is approximately \$50/yr. He indicated that they have had provisional approval from the MA DEP since 2006 but only 1 individual residential system has been installed in MA.

Chairman Turkington inquired about the remote system monitoring capabilities and the responsible entities for the systems. Rubenstein told the committee that the remote monitoring capabilities include pump run times, flow rates, and daily totals among other parameters but do not monitor nitrogen concentration. He indicated that Lombardo Associates monitors all of their systems across the country but subcontracts the maintenance.

Chairman Turkington remarked that he thought they only needed 10 more units in MA to apply for general use approval, but only 1 residential unit has been installed in MA. Rubenstein indicated that he thinks DEP will consider the history of the system, the length of time they have been installed, number of systems in other parts of the country and the performance rather than be strict with the number of systems requirement prior to general use approval. Turkington asked if they have general use approval elsewhere. Rubenstein said they do in OR, AK, AZ, FL and MD.

Chairman Turkington presented a scenario to Rubenstein about a condominium complex and asked whether and how a Nitrex system(s) could be implemented in a such a situation. A discussion continued about a clustered Nitrex system in the condominium complex and single-family home neighborhoods. John Waterbury indicated that the town bylaw states that a septic system has to be on the property that it serves and as stated would eliminate being able to do a clustered approach for single family homes on different properties.

A final discussion was raised as to whether the Nitrex system removes phosphorus or any other emerging contaminants of emerging concern (CEC). Rubenstein indicated that the Nitrex system does not remove phosphorus but there are front-end systems that can be used with the Nitrex system that will remove phosphorus. He also said there was a Nitrex case study that showed below detection limits for CECs, but this system had a UV lamp and other filters that are not part of the standard system. However, one advantage to the Nitrex system is that it can have these add on components to address other ecological concerns beyond nitrogen reduction.

3. Reports of members and staff

Virginia Valiela reported on the outcome of a recent meeting with the DEP. She indicated that the DEP is currently reviewing the submittal of the Comprehensive Wastewater Management Plan (CWMP) update and had some questions. Overall, she got the sense that the state is pleased with the document but has concerns on some regulatory aspects that the town hasn't covered mainly with seeking voluntary watershed permits. Valiela explained that to claim nitrogen removal credit for the aquaculture and other alternative technologies they would need a watershed permit for each watershed. She continued to say that they informed the state of the town's plan to do a targeted management plan for each embayment. The majority of the members were under the impression that a watershed permit was only necessary when there was a joint effort between towns. The members discussed what a watershed permit would mean and whether technologies can be retroactively applied for credit if they need to secure the permit. Valiela indicated that they could claim the retroactive credit. Valiela also indicated that by the end of the meeting with the DEP they had agreed that Falmouth would continue on the targeted management plan path as planned. She indicated that an additional concern from the state was that the CWMP was not

declarative enough about when the other watersheds would have their own plans and the timing for sewerage activities in those estuaries. She reported that they agreed to add a small chapter to the document to address these concerns.

Ron Zweig reported that he submitted an article for a third year of study on the Bourne's Pond oyster project for spring town meeting as a placeholder. He reported that he contacted Brian Dudley seeking clarity on how many years of data the state would like to see. Zweig stated that Dudley's response indicated that for sediment denitrification the state was not ready to grant credit for denitrification and would need to review and approve the experimental protocols. Virginia Valiela commented that the funding and scope for year 2 was done in a hasty and non-traditional manner and would like to see more planning put into the scope for year 3 if there is one and for that to be a fall town meeting article. Tom Duncan supported that there is a benefit to continuity of data for year three to be considered at the spring town meeting. The members agreed to continue the discussion with the presentation of the results of year 2 at the February 20th WQMC meeting.

Tom Duncan reported that over the holidays he was served oysters from Waquoit Bay while at a restaurant in St. Petersburg, Fl. He also said he has heard that West Falmouth oysters have been served in restaurants in Charlottesville, Va. He stated that there have local discussions over the concern that the increased aquaculture activities on Cape Cod would flood the market but indicated that currently the local oysters are still considered a special menu item.

Chairman Turkington reported that Yarmouth, Dennis and Harwich are proposing a joint sewerage project with a treatment plant to be located in Dennis. He said they are claiming that the project can be funded without raising property taxes. He also reported that there is a large Innovative/Alternative septic project moving forward in Barnstable that will be installing 20 - 30 systems. He indicated that the finer details of the project are still unknown.

4. Vote minutes of prior meeting (12.19.19)

Tom Duncan recommended several minor edits to the minutes and motioned to accept the minutes as edited. Virginia Valiela seconded. 6 votes in favor, one abstention. Motion passes.

Motion to Adjourn-5:17pm. Unanimous.

Minutes submitted by Kristen Rathjen.

List of Documents

- MES update on Eel River Grant / Town-wide timeline
- Nitrex system presentation
- Draft minutes of the 12-12-2019 WQMC meeting