

**Section 208 Area Wide Water Quality Management Plan Update
Monitoring Subcommittee**

July 17, 2014

1 p.m.

Cape Cod Commission Conference Room

- 1) **Attendance:** Tom Cambareri, CCC
Danielle Donahue, CCC
George Heufelder, BCDHE
Brian Dudley, DEP
JoAnne Muramoto, APCC
Chris Wideman
Scott Horsley, Consultant to CCC
Mark Owen, AECOM
Amy Costa
Judith Underwood, CCCC
Matt Reardon, DEP
Marcel Belaval, EPA
Tim Gleason, EPA

- 2) **Document Sharing Update**
 - a) Michael Bottomley provided an overview of the SharePoint site, explained how to login, and introduced how to share documents, upload documents, and work on documents using the check-out function. Internet Explorer is optimal but not necessary. The group agreed that using tracked changes would be best. Additional users can be added by speaking with either Tom or Dani. Dani will load the existing documents to the site.

- 3) **Updates from Teams**
 - a) JoAnne provided background information, not recommendations for shellfish aquaculture.
 - b) Bob stated that he didn't realize that he was team lead on Inlet Widening.
 - c) Tom confirmed that the group will review the recommendations as submitted by team leads

 - d) IA systems and Eco Toilets
 - i) George – part of the monitoring considerations of these systems has to be monitoring of the O&M plan/contracts and the residuals. Presently working with EPA to develop statistical procedure to determine percentage to be

- required for monitoring monthly. Ideally monitoring each system monthly would be the ideal. The sampling would be randomized and reiterative.
- ii) Bob – Why not use a monthly basis for all? People would be more inclined to turn off the systems.
 - iii) George – Cost would be one of the factors, as well as efficiency. If the data can use used to identify where and how to spend our monitoring money then that would be ideal.
 - iv) Brian – there are economies of scale involved, with treatment plants the scale of the cost is spread over a large base, but with these technologies the costs wouldn't be spread (unless under a contract). The expected cost is about \$2,220 yearly. So there is a need to factor this into the discussion. With regards to eco-toilets we would still be doing house by house inspections, but the IA systems are the ones that we would look to monitor on a statistical basis.
 - v) George – the data is there to show how these systems that are being monitored are performing. About 2 weeks away from interactive visualization.
 - vi) JoAnne – Tom will this monitoring plan make use of an adaptive management plan?
 - (1) Tom – Yes adaptive management, we would look to optimize that monitoring approach over time.
 - (2) Brian – I don't see monitoring as part of the adaptive management plan so much as the revision of the technologies themselves as they either perform better or worse than anticipated. There needs to be a baseline of monitoring established with the same parameters as part of the plan.
 - vii) George – Monitored prior to the leaching field. Credit not given to through and below the leach field. Location chosen based on the permit. It's difficult to get a reliable sample below the leach field.
 - viii) Marcel – need to factor attenuation for the leach field
 - (1) George – removal above and below the black box... We focused on “what the black box” can do
 - ix) Use, number of occupants, demographics all impact the effect of the system. We see more convincingly that there is “no typical household.” When the data is available you can see the use on a weekly basis. We have the most comprehensive database of IA use of anywhere in the country. Maybe the towns could spec the type of system and require the same one.
 - x) The format of the write-up stands as a good model for the other write-ups.
- e) Permeable reactive Barrier
- i) Tom – the group met yesterday to review and here is an outline of our discussion from yesterday.

- ii) Marcel – we identified that there are multiple monitoring sites for PRBs. We would break down the monitoring needs for each phase of implementation.
 - (1) Site selection process: GIS/Desk, site reconnaissance, and design.
 - (2) Pilots: define pilots, monitoring/data needs of pilots
 - (3) Initial phase of PRB start-up (1-2 yrs)
 - (a) Discussion of greater than quarterly monitoring.
 - (b) Mark – consistent carbon source, fairly stable. 20 years of data reflect this. The existing sites are performing monthly monitoring. In early stages this monthly monitoring may be the way to go.
 - (4) Compliance phase
 - (a) Marcel – biannual may be enough for the remaining life of the system once it's been established that the PRB is performing.
 - (b) Bob - Once the material has been rejuvenated there should be a time where more intense monitoring takes place.
 - (c) Tom – indicated that information from the DM project in Falmouth estimated that rejuvenation may be required every three years. It's a critical piece of information that piloting will assist with.

f) Shellfish Aquaculture / Bed Restoration

- i) Tom pulled up the document sent by Ann for review of the information outlined.
- ii) The group feedback was that you shouldn't treat shellfish aquaculture the same way as you would shellfish bed restoration.
- iii) The document represents additional solid site specific research.
- iv) George – for TMDL compliance it would be useful to have the basic monitoring (number of animals, growth of the animal, etc.). In other areas there could be sites with this additional research. Clearly separate the types of monitoring.
- v) Scott – it's important to see what the effect is on the benthic levels.
- vi) Mark – we anticipate a slow removal of the flux so maybe core samples are done every few years.
- vii) Bob – they are talking a 5 year cycle for that type of testing.
- viii) Mark said that it would make most sense to conduct this monitoring in a small embayment where the results could be measurable.
- ix) Joanne – site selection criteria for in embayment options like shellfish would be beneficial.

g) Inlet Widening / Salt Marsh Restoration

- i) Chris will upload previous document that has been updated.

- ii) Brian said that we aren't looking to expand something beyond its natural state but to bring it back out to its initial width. There is an atlas of pre-existing states that would be good to compare as a baseline.
- iii) Judith asked about dredging as a method of increasing tidal flushing.
Dredging can reduce the effectiveness of tidal flushing in certain areas. Bob provided an example of where it was of no use, but there is another example in Chatham where dredging does increase flushing. So it is site by site specific.
- iv) Chris stated that when conducting inlet widening you would be effecting the flood maps, because the best flushing occurs when there is a storm.
- v) APCC has been monitoring restored wetlands for many years and there are some definitive changes that have been well documented with regards to monitoring the health of the system. The length to nitrogen removal is still being established however. There are no existing parameters for establishing credit for nitrogen removal through salt marsh restoration.
- vi) George recommended that part of the recommendations should be to categorize the technologies with well-established monitoring plans and methods for establishing credits, technologies with less established methods but our recommendations, and those technologies where there is no basis to obtain credit for the efforts.

h) TMDL Compliance Monitoring

- i) Brian presented a document outlining guidance with regards towards their leanings on monitoring expectations. Over the long term we would be looking at carrying on the water quality sampling efforts that have been ongoing.

Meeting ended 3:11pm without review of last two technologies on the agenda. Tom will send around potential meeting times for the week of August 25th.