

Task Force to Study the Impact of Ocean Acidification on State Waters November 17, 2014 Meeting Minutes

Task Force Members

Present:

Eric Schwaab, National Aquarium in Baltimore
Bruce Michael, MD Dept. Natural Resources
Matt Stover, MD Dept. of the Environment
Tom Miller, UMCES Chesapeake Biological Laboratory
Doug Myers, Chesapeake Bay Foundation
Tal Petty, Hollywood Oyster Co. – via phone

Staff:

Mark Trice, MD Dept. Natural Resources
Marek Topolski, MD Dept. Natural Resources

Guest Speaker

Denise Breitburg, Smithsonian Environmental Research Center – see Appendix A

Audience

Ryan Ono, Ocean Conservancy
Eric Weissberger, MD Dept. Natural Resources
Catherine McCall, MD Dept. Natural Resources
April Morton, MD Department of Legislative Services
Erica Ombres, NOAA Ocean Acidification Program
Kathy Brohawn, MD Dept. of the Environment
Molly McKee, Office of MD Senator Bill Ferguson
Noel Isama, Office of MD Delegate Eric Luedke

Logistics

- Meeting 5: December 15, 2014 from 9 am – 12 pm
- OA Task Force information is available at <http://mddnr.chesapeakebay.net/mdoatf/index.cfm>
- Authors submit rough drafts to Bruce for compilation by December 3, 2014
- Distribution of draft report to authors on December 5, 2014
- Revisions due to Bruce by December 15th, 2014

Discussion

- Main industry concern is if appropriate water quality/chemistry data is being collected
 - Salinity, DO, pH, temperature, nutrients, bacteria, and other relevant parameters
 - At what sites are these parameters being collected?
 - What is the frequency of data collection?
 - MDE samples a full suite of parameters at 387 stations
 - A lot of data is at least monthly
 - Several data sets are multi-decadal time series
 - Are there areas where collection of certain parameters is more important than other areas = targeting

- What monitoring programs should be leveraged to ensure a full suite of parameters are being collected at areas of particular interest to shellfish aquaculture industry and restoration?
- Task Force is not expected to identify the optimal/particular sites, but can recommend an expert panel familiar with monitoring to determine where more comprehensive monitoring and additional monitoring sites should occur.
 - Include a diverse array of stakeholders
 - Consider options at different cost estimates
- Have shallow water monitoring data been examined to see if they contain any alkalinity and pCO₂ data to see how far off estimates of pCO₂ would be using alkalinity or pH relative to the reverse calculation of starting with CO₂ concentration data to calculate pH?
 - This could be useful to identification of where alkalinity measurements would be useful
 - SERC water intake is sometimes ~7.1 pH and has a good correlation between salinity and alkalinity
 - This is driving the relationship between pH and CO₂ concentration
 - They have been successful at creating a conversion to go from CO₂ to pH and from pH to CO₂
 - Developing an algorithm for this conversion was a Washington State recommendation
 - Ocean pH is not measured because of the small variability, but pH variability is orders of magnitude higher in estuaries
- Is there sufficient bottom water data collection to serve the needs of on-bottom aquaculture and restoration?
 - Not many data stations are located in “shallow” water (shallow not defined)
 - Significant differences between surface and bottom water conditions can occur in waters 1.5 m in depth
- Sufficient evidence exists that identifies Chesapeake Bay as an OA hot spot
 - Begin collection of data with existing resources
 - Then it becomes easier to leverage federal monitoring and research resources
 - Defining the processes here in Bay will provide beneficial information for the larger community (industry, managers, academia, etc.)
- Has inclusion of monitoring sites that target areas of the wild fisheries been considered?
 - Probabilistic monitoring design may be preferential to a targeted monitoring design
 - MDE sampling sites selection was based on where the wild fishery was located
- SERC research on pH, calcite, and DO has been conducted on spat
 - Hematocyte disease research has been on adults
- Oyster spat production bottle neck – there is only one larval/spat hatchery - adequate availability is a secondary issue
 - Is the larval/spat life history stage most impacted by OA
 - How much resilience is there in the larval/spat production capacity
 - The bigger issue is that when you do have larvae/spat, where do you place them
 - Where are the greatest prospects for success, regardless of purpose
 - Oyster larvae settlement research
 - Cecily Steppe: United States Naval Academy, Oceanography Department – natunewi@usna.edu
http://www.researchgate.net/profile/Cecily_Steppe

- St. Mary's College –
 - <http://www.smcm.edu/news/pressrelease/2012/12/12-161.html>
 - This is an issue for further inquiry, but not by the Task Force
 - Is risk factored into where a person decides to site an aquaculture operation?
 - Is there or should there be information and guidance available to aid in the siting decision?
 - Risk is not typically a factor currently considered
 - Siting is a very important consideration, but information is lacking to guide site evaluation
 - Most siting decisions are based on operational issues such as logistics and practicality
 - More OA data would be good to inform risk of siting in different locations
 - Small scale operations may want to consider using a technique of remote setting of larval oyster which are more sensitive to carbonate chemistry than juveniles
 - Long term (50+ years), water temperature may be the greatest stress for organisms
 - Particularly since temperature affects growth dynamics and respiration rates
 - What is not stressful now may become stressful when the water is five degrees warmer
 - Communication with Mike Roman about establishing a workgroup to evaluate the 2014 oyster larvae failure (mortality rate) has not been successful
 - Task Force members were unsure why a workgroup had not already been formed
 - Question if sufficient routine data was being collected at the time of larval failure
 - Task Force has sent a letter to Mike requesting formation of a workgroup, Mike has not responded
 - There does not appear to have been an organized structure for scientists to examine conditions ahead of time and during the larval failure
 - Identify and network with other research labs to increase workgroups awareness of additional findings
 - West coast growers have begun to collect water quality data which do not require expensive equipment
 - Appropriate inexpensive parameters for Bay growers to collect should be identified
 - Routine parameters that are cheap and easy to measure
 - Growers should be involved in/part of the water chemistry workgroup – Industry/growers provide their input
 - Along with scientists
- Bruce showed a map of current active shellfish aquaculture leases (water column, bottom, restoration, and terminated) in MD
 - 318 active leases as of November 25, 2014
 - Does not include previously terminated leases
 - Effort to ramp up the shellfish lease (aquaculture and restoration) program
 - Karl Roscher (MD DNR Director Aquaculture Division) will prepare a report to examine where leases are and lease trends over time
 - Identify hot spot areas of leases
 - How are the leases being used?
 - Are some areas more important to aquaculture interests?
 - If there is a recommendation to increase monitoring, there is very little carbonate monitoring in the Bay at this time
 - SERC on Rhode River
 - CBL on Patuxent River

- It would facilitate targeting of carbonate monitoring
 - Targeting can also accommodate industry needs
- Report structure
 - Who is the report audience?
 - Legislature
 - Administration
 - Industry
 - State Agencies
 - Scientific Community
 - Other stakeholders not identified
 - Report style
 - Understandable
 - Recommendations need to be impactful from policy maker perspective
 - Important to meet the January 1, 2015 deadline so as to get the report to the incoming Governor's transition team.

Review of the draft report outline