

Meeting Summary
Oyster Advisory Commission
Tawes State Office Building
Annapolis, MD
4:00 PM – 7:00 PM
23 October 2013

LIST OF ATTENDEES

Commissioners Present

Anthony Chatwin (Chair)	National Fish and Wildlife Foundation (NFWF)
Mark Bryer	The Nature Conservancy
Kelton Clark	Morgan State University
William Goldsborough	Chesapeake Bay Foundation
Douglas Legum	Douglas Legum Development
Kenneth Lewis	Coastal Conservation Association
Douglas Lipton	NOAA
Donald Meritt	University of Maryland Center for Environmental Science, Horn Point Lab (UMCES HPL)
Anthony O'Donnell	Maryland House of Delegates, Environmental Matters Committee
Claire O'Neill	U.S. Army Corps of Engineers – Baltimore District
William Richkus	Versar, Inc.
Peyton Robertson	NOAA Chesapeake Bay Office
Shane Robinson	Maryland House of Delegates, Environmental Matters Committee
Eric Schott	University of Maryland Center for Environmental Science
Evan Thalenberg	Chesapeake Bay Savers
Donald Webster	University of Maryland Extension
Robert Witt	Commercial Waterman
Leonard Zuza	Southern Maryland Oyster Cultivation Society

Commissioners Unable to Attend

Donald Boesch	University of Maryland Center for Environmental Science
Richard Colburn	Maryland Senator, Dorchester County
Kelley Cox	Phillips Wharf Environmental Center
Ben Parks	Maryland Watermen's Association, Dorchester County
William Windley	Maryland Saltwater Sportfishermen's Association

Other Meeting Attendees

Maryland Department of Natural Resources: Lynn Fegley, Frank Marengi, Mike Naylor, Steve Schneider, Eric Weissberger

Oyster Recovery Partnership: Stephan Abel, Steve Allen

Coastal Conservation Association: Larry Jennings

Phillips Wharf Environmental Center: Carol McCollough

Members of the Public: Rachel Dean, Terry Witt

MEETING SUMMARY**Opening Remarks (Dr. Anthony Chatwin, Oyster Advisory Commission Chairman)**

Dr. Chatwin opened the meeting at 4:05. He informed the commission of the conference call held by the subcommittee chairs to review progress toward achieving the charter goals. Commissioners may suggest topics for discussion to subcommittee chairs, who will then bring up these topics during the next conference call and decide whether and how to address the suggested topics at the next meeting.

Approval of Minutes from 12 June 2013 Meeting

A motion was made to approve the minutes from the 12 June 2013 meeting. Ms. Claire O'Neill pointed out a typographical error in the date of the federal fiscal year. The minutes were approved unanimously pending the correction of this error.

Public Comment

Dr. Chatwin opened the floor to comments from the public. No one from the public spoke.

Substrate Subcommittee Report (Ms. Claire O'Neill, Substrate Subcommittee Chairwoman)

Ms. O'Neill presented a spreadsheet identifying 16 potential substrates for oyster restoration. She stated that the subcommittee is gathering data, identifying data gaps, and determining the appropriate questions to ask about potential substrates. Ms. O'Neill then asked the commission if the substrate subcommittee had missed any potential substrates or pertinent questions.

Dr. Donald Meritt asked where the \$30-\$60 yd³ estimate for the cost of reclaimed shell came from. Ms. O'Neill replied that the figure came from DNR but that the price had to be verified. Dr. Meritt then stated that industrial-scale shell recovery could bring down the cost, especially if the work were put out for competitive bid.

Mr. Mark Bryer mentioned that oyster castles could be listed along with reef balls as a potential substrate. The Nature Conservancy is already using oyster castles in oyster restoration projects.

Dr. Meritt stated that reef balls and similar structures are not the panacea people think they are, are not appropriate for all situations, and must be considered in the context of oyster biology and regulatory permitting. Furthermore, he questioned the use of reef balls for restoration when people engaged in aquaculture are required to use only low-profile substrate. Mr. Leonard Zuza

stated that although reef balls may be problematic for large-scale restoration, they may be suitable for community restoration efforts.

Mr. Bryer asked if the intent of the substrate evaluation was to drive down the cost of restoration. Ms. O'Neill replied that the criteria for substrate selection have yet to be determined.

Mr. Zuza then asked if the issue of substrate availability is being considered. Ms. O'Neill replied that availability is one of the criteria being used to evaluate substrate, as well as how controversial the material is.

Dr. Chatwin asked when the substrate subcommittee would be ready to make recommendations to the department. Ms. O'Neill replied that more information must be gathered and discussed by the subcommittee before any recommendations could be made.

Dr. Meritt stated that he had contacted Harold Davis in an attempt to locate Mr. Davis's reports on large deposits of oyster shell in Chesapeake Bay. According to Dr. Meritt, Mr. Davis explored shell deposits in Tangier Sound and the Choptank River during the 1960s and 1970s, but was discouraged by watermen as the shell deposits were often on actively-harvested oyster bars. Dr. Meritt stated that it would be helpful to locate the reports detailing Mr. Davis's findings.

Delegate Tony O'Donnell asked why fossilized shell from Man o' War Shoals was listed separately from other Maryland source of fossilized shell. Ms. O'Neill replied that Man o' War Shoals was listed separately because of permitting issues. Delegate O'Donnell then asked about the difference between reclaimed, previously-deposited shell and naturally buried shell. Ms. O'Neill stated that the previously-deposited shell was placed during the repletion program, and that DNR had a permit to recover this shell; the naturally buried shell has never been moved, and DNR does not have a permit to recover this shell. Dr. Meritt stated that the previously-placed shell was from the upper bay and may be smaller and more brittle than the shell that has never been used for restoration.

Mr. Donald Webster inquired about a meeting between DNR and the Army Corps of Engineers that was to have taken place on September 13 to discuss retrieving shell from Man o' War Shoals. Ms. O'Neill replied that the meeting was postponed and will occur tomorrow.

Mr. Zuza inquired about the use of clam shell from out-of-state. Ms. O'Neill replied that this substrate is being considered and is listed in the table.

Dr. Bill Richkus asked if there were any way to consider competition for materials. Ms. O'Neill stated that this would be a useful item to add to the table. Dr. Richkus then stated that he has a friend in the construction business that could provide leftover cement for use in reef balls. Mr. Bill Goldsborough stated that local groups have used leftover concrete before, and that the people building reef balls must be in touch with the people who have leftover concrete.

Mr. Bryer noted that the location of the material greatly affects the cost, and that location should be indicated in the table. Mr. Bryer then asked about doing a survey of all fossil shell available.

Delegate O'Donnell asked about the implementation of the "No Shell Left Behind" program, the shell recovery program specified in House Bill 184. Mr. Mike Naylor stated that DNR intends to make shell from this program available for remote setting, but that there have been logistical issues in doing so. Mr. Stephan Abel noted that the volume of shell recovered by the program is too low to be useful for large-scale restoration. This year 15,000 bushels of shell were recovered through the program. Ms. O'Neill noted that large-scale restoration requires hundreds of thousands of bushels of shell. Dr. Kelton Clark stated that this program should be placed on the substrate spreadsheet to show that it has been considered, even if it has been deemed unsuitable for large-scale restoration based on low volume. Mr. Douglas Legum noted that although the No Shell Left Behind program produced small quantities of shell, this shell was relatively inexpensive.

Dr. Chatwin then asked what the commission's product would look like. Ms. O'Neill stated that she envisioned making a recommendation of the top five substrates, with an explanation of how that recommendation was made. Dr. Douglas Lipton suggested matching substrate sources with particular projects, and asked if there were any policy recommendations that would help meet demand. Dr. Meritt said the material we end up using will be based on volume of substrate available and the demand for that substrate. Mr. Peyton Robertson suggested that a recommendation to DNR may start with a statement about the lack of hard substrate, and the assumption that any hard substrate is better than none. From there the commission could identify the best substrates based on the criteria they deem important. Delegate O'Donnell noted that none of the substrates should do any harm, and that removing some substrates that didn't perform effectively might be difficult. Mr. Goldsborough said that any diseased oysters should be left in the system to allow selection for disease resistance. Mr. Robertson noted that any hard substrate placed in the Lafayette River would become covered with oysters, and suggested bringing in speakers who have used various substrates to discuss their effectiveness. Dr. Richkus concurred, saying that information from Delaware and Virginia could inform the discussion of substrate in Maryland. Dr. Chatwin said that we would need a standard set of questions to ask all speakers so that we could compare the various substrates. Ms. O'Neill asked if Dr. Richkus had any contacts who could provide information. Dr. Richkus replied that he may have a contact in Delaware. Dr. Clark asked if anyone had actual data on substrates, not just anecdotal case studies.

Dr. Meritt stated that the commission does not need case studies, and that the Chesapeake Bay has many organisms besides oysters. Any substrate used needs to be beneficial to both oysters and other organisms. Dr. Meritt also noted that different groups had different opinions on reef balls, with the Sport Fish Advisory Commission supporting them and the Tidal Fish Advisory Commission opposed. He then stated that if the hatchery-set spat initially present on reef balls die and there is no natural recruitment, the result is a fishing reef, not an oyster reef.

Dr. Chatwin then asked Ms. O'Neill if the input provided by the commission was useful. Ms. O'Neill replied that it had been a good discussion, and that the substrate committee will continue gathering information in order to produce a draft recommendation.

Florida Fossil Shell Report (Mr. Mike Naylor, Maryland DNR)

Mr. Naylor informed the commission that Mr. Abel had located a source of fossilized oyster (*Hyotissa haitensis*) shell in Florida three years ago. As the material is fossilized, it is technically stone in the shape of shells. The quarry where the shell is located sells three products: 1" pieces of shell, 1-6" pieces of shell, and marl aggregate. The cost for the 1-6" pieces is \$40 per cubic yard, with cost including delivery anticipated to be \$100-\$135 per cubic yard. A 50 car train can be filled with the material in one day, and the train takes 6 days to get to Baltimore. Another quarry with fossil shell is located in Virginia, but the shell is from non-oyster species, and the pieces are small and thin. Mr. Naylor said that the department needs to decide how much it is willing to pay for substrate, and noted that availability and performance of the material will factor into the decision.

Ms. O'Neill asked how the fossil shell from Florida compared to the shell on Man o' War Shoal. Mr. Naylor responded that the Man O' War Shoal shell was shell hash in a mud slurry, whereas the fossil shell consisted of much larger shells.

Dr. Kelton Clark asked if costs reflected transportation. Mr. Naylor replied that transportation was included in the cost estimate, and that transportation was based on weight. Dr. Clark replied that "a rock is a rock" regardless of shape.

Dr. Eric Schott inquired about the mineral composition of the fossil shell. Mr. Naylor replied that it was 95% limestone. Dr. Schott replied that the material looks like shell, but appears to be more similar to granite or limestone. Mr. Naylor replied that several different substrates are being used in Harris Creek to see which performs best.

Mr. Mark Bryer asked how many other quarries exist with products similar to the fossil shell from Florida. Mr. Naylor replied that representatives from the Florida shellfish program knew of no other sources of similar material. He stated that the dredged shell from Virginia was \$3.50 per bushel, but that the Virginia shell was mostly thin, small pieces.

Mr. Robertson asked if other people would be competing for the fossilized shell, which may drive up the price. Mr. Naylor replied that with oyster restoration as part of the BP oil spill settlement, it is likely that there will be competition for the fossil shell. Dr. Douglas Lipton mentioned that economy of scale may help with the price when the BP restoration takes place.

Mr. Zuza asked what quantity of material will be needed over what time frame. Mr. Naylor replied that the department is looking to purchase 115,000 cubic yards of material. The Department plans to make the most of the more expensive fossil shell by building granite reefs and capping them with the fossil shell.

Mr. Bryer said that the fossil shell from Florida can't be the only source of suitable material for reef construction, and asked if there are any closer sources of material. He stated that Alabama wants to restore 100 miles of oyster reefs, which would use a substantial amount of material. Mr. Naylor replied that any substrate must balance performance and cost.

Ms. O'Neill asked about the annual production of Florida fossil shell. Mr. Naylor replied that right now it is small-scale, and that we are making the quarry's first large-scale purchase. The quarry can supply 40,000 cubic yards of material per month.

Dr. Chatwin closed the discussion saying that it will be necessary to balance performance and price of material, and that we must rely on scientific measures of performance.

Land Use Subcommittee Report (Mr. Peyton Robertson, NOAA)

Mr. Robertson began by stating the charge to the Land Use Subcommittee, which is to work collaboratively with the Bay Program Sustainable Fisheries Goal Implementation Team and others to educate local land-use planners and decision makers about the importance of land use decisions to oysters. Mr. Robertson had his staff prepare a literature review on the relationship between oysters and land use. The key findings of the review were that high impervious surface values (over about 20%) and concentrated nutrient sources are harmful to oysters, and that it is difficult to directly link specific land use stressors to resulting impacts in oyster health, due to complex interactions. Mr. Robertson also noted that in some cases animals may be healthy but also contaminated. The next step is to investigate the relationship between specific oyster bars and land use. He then inquired if oyster sanctuaries had been selected based on land use.

Mr. Goldsborough noted the challenge of getting information on oysters and land use to local decision makers. Dr. Schott said that overlays of oyster locations and land use patterns will help prioritize efforts.

Delegate O'Donnell noted that Maryland has spent billions of dollars to remove nutrients from the bay, but that he has not seen evidence that nutrients harm oysters. Dr. Schott replied that excessive nutrients result in hypoxia, which is harmful to oysters. Mr. Zusa noted that Margaret McGinty spoke at a previous OAC meeting and showed the negative effects of development on finfish. Mr. Zusa asked if we could promote scientific studies to address the issues presented by Mr. Robertson, and then justify land use decisions with this science.

Mr. Robertson stated that first step was to educate people. People should be informed of restoration activities adjacent to their communities, and if it is a fishing community, address issues that will maintain the fishery resource.

Mr. Webster was glad to see aquaculture mentioned in the presentation. He mentioned a case where an oyster grower had problems with the critical area regulations. The grower wished to expand his land-based facilities, but regulations in his county required a 3:1 mitigation by area. The regulations do not consider the environmental benefits provided by the oysters on the lease.

Dr. Richkus asked how to relate land use specifically to oysters, rather than other resources. He also noted that land use is controlled at the local level, not the state level.

Ms. O'Neill inquired if land use was used to prioritize sanctuaries for restoration. Mr. Robertson replied that he did not know. He then noted that the subcommittee was small, and that the charge was to advise DNR, not conduct analyses.

Dr. Schott stated that more science is not needed as the same stressors affect all aspects of the environment. He noted that unlike other living things affected by land use issues, such as submerged aquatic vegetation, oyster growers and harvesters deal in a product that can be monetized.

Mr. Goldsborough noted that oysters are charismatic and that people respond to charismatic organisms.

Mr. Zuza noted that people respond to local oyster issues, rather than intangible large-scale issues. He cited examples of a community arranging dredging in order to avoid oyster reefs, and a builder using a high-performance silt fence when made aware of an oyster reef adjacent to the building site.

Delegate O'Donnell stated that nutrients are not directly related to the decline oysters, but that oysters are affected indirectly through hypoxia. He further stated that he has not seen evidence that hypoxia causes oyster decline, and that science is needed to back up this claim. Mr. Goldsborough replied that hypoxia is one part of the problem, and that Dr. Denise Breitburg has shown that hypoxia increases the incidence of dermo.

Dr. Lipton noted that the TMDL initiative was being driven by marine resource needs, and asked what the commission is adding to the discussion already taking place. He stated that the commission may be helpful in some localized instances, but as far as advising DNR, the commission is not adding a lot to the discussion that is not already covered by the TMDL. Dr. Chatwin responded that the ability of DNR to achieve restoration goals may not be covered by the TMDL.

Mr. Zuza stated that the commission is biased towards large-scale restoration, and that many small community groups can have the same impact as one large-scale restoration project.

Ms. Lynn Fegley noted that the charge to the commission was to focus on local education. Because local commissions do not like the state telling them what to do, DNR is convening a group of local stakeholders to deal with land use issues.

Enforcement Subcommittee Report (Mr. Evan Thalenberg)

Mr. Thalenberg began by reviewing the mandate to the Enforcement Subcommittee from the Charter of the OAC. The Enforcement Subcommittee is to evaluate the effectiveness of current oyster enforcement strategies and evaluate the potential for increasing Natural Resources Police patrols to facilitate aquaculture and restoration given the officers' current duties.

Mr. Thalenberg began by saying he had spoken with representatives from the Natural Resources Police, DNR and the Attorney General's Office and everyone he spoke to was helpful, cooperative and cared about their work. One of the problems is that the people involved in handling oyster violations have no integrated database with which to track defendant history or dispositions of citations. Without a database, it is not possible to gauge the effectiveness of the process. Mr. Thalenberg stressed that the problem in this regard is a system and resource problem, and not a problem with the people involved. He stated that NRP is stretched too thin

and personnel shortages will be compounded by the loss of 30 officers in 2017 taking their institutional memory along with them. He raised the possibility of using the E-Ticket system used by the state police.

Mr. Thalenberg then described the process following the issue of a citation. A person may pre-pay the fine, in effect pleading guilty. In this case, if it is an offense that can result in a suspension per the COMAR section, it then goes to the Assistant Attorney General for Fisheries. On referral it is dealt with through the Office of Administrative Hearings. Alternatively, the case can be heard in district court. Mr. Thalenberg stated that local State's Attorneys are not involved in prosecutions in Talbot, Dorchester and Queen Anne's County, but that Michelle Barnes, of the Attorney General's Environmental Crimes section up in Baltimore, attends when she is available. She advised that NRP officers often show up to court without legal counsel. To remedy this problem, Ms. Barnes proposed a dedicated attorney general to ride the circuit and deal with natural resource cases. Ms. Barnes said that judges take the cases more seriously when an attorney from the Attorney General's Office walks in to prosecute the case. She also suggested NRP officers get additional education in the requirements for making and presenting a case.

Mr. Thalenberg reported that Ms. Barnes stated that the lack of information on a defendant's history is an impediment to prosecution and sentencing. Mr. Thalenberg stated that it is necessary to track the ultimate disposition of a citation to make an assessment. This is particularly important in probation before judgment, as the defendant may plead guilty and the court may lack information on prior violations and probations before judgment.

In the event of a guilty finding in District Court, the case is referred to Assistant Attorney General Shara Alpert for a decision for referral for suspension under COMAR. The Attorney General does not automatically get notified of the outcome of citations issued, and must search it out. Ms. Alpert stated that a data dump from district court would be useful.

Mr. Thalenberg reported that Virginia takes away the fishing rights and privileges of poachers. Although Maryland has the same authority, it has not been exercised regularly. With the new MLEIN system, he suggested it may be helpful to require watermen to display their license numbers on their boat roofs. He also suggested the hail in/hail out system may improve enforcement efficiency. This system has already been approved by the General Assembly but we need to make sure it is fully implemented.

Mr. Legum noted that if you get a traffic ticket, the police can look up your record. He asked why this couldn't be done in the case of fisheries violations. Mr. Thalenberg replied that databases from different systems would have to be integrated for this to happen. It is not feasible to integrate through the COMPASS system. Mr. Legum then suggested integrating the natural resources database with the motor vehicle and driver's license registration system.

Delegate O'Donnell informed the commission that he spent ten years serving on the House Judiciary Committee, and noted that probations before judgment are entered into the court tracking system. Mr. Thalenberg replied that not all the information is making it to the judge. Delegate O'Donnell said that all probations before judgment should be tracked, and inquired if

the problem was system-wide or just related to oyster violations. Mr. Thalenberg replied that he was not sure if the problem was a database issue or an NRP issue.

Mr. Zuza asked about using a transponder or GPS to track boats. Mr. Thalenberg replied that transponders are one recommendation being considered, and that Louisiana is using some sort of transponder system to track boats.

Dr. Richkus asked what state agency provides IT support to both DNR and the judiciary, and would be able to integrate the necessary databases. Mr. Thalenberg replied that there was confusion regarding that issue. Dr. Richkus then asked if all COMAR violations are treated similarly. Mr. Thalenberg replied that the issue was complicated, and that there are many types of violations.

Mr. Webster noted that there are several aspects to dealing with violators. First, they must be caught in the act of actually committing a crime. This requires boots on the ground by the NRP. Furthermore, it is important to obtain the proper information needed to build a case, and then to have penalties high enough to deter criminal activity. He noted that illegal hand-scraping years previously had been deterred by the confiscation of boats and gear but that this ability had been lost. Mr. Webster also noted that one waterman recently had violations in several different counties, but that it was difficult to track the violations from county to county. He then suggested that if NRP officers lose a court case, the agency should find out why and use that information to educate other officers. Mr. Thalenberg noted that Virginia is reportedly expanding pre-payable fines, making the fines more prohibitively expensive.

Dr. Chatwin asked if Mr. Thalenberg had gotten enough feedback to direct the subcommittee's work between now and the next meeting. Mr. Thalenberg replied that he was still in the process of gathering information.

Dr. Meritt noted that counties differed in the outcomes of natural resource cases. He suggested a dedicated attorney general for natural resource cases, and trying all natural resource cases in the same place. Defendants would be forced to travel to the court, making it more expensive to violate the law. Dr. Ken Lewis said that the dedicated natural resources court days were supposed to take care of some of the problems being discussed by the commission. Mr. Thalenberg replied that without proper tracking, it is impossible to tell if the natural resources court days are working as intended. He also noted that a dedicated attorney general would correct a lot of the problems. Dr. Lewis mentioned that the penalty workgroup had increased penalties, but that loopholes still existed. Mr. Thalenberg noted that license transfers were now more limited than they were.

Mr. Naylor clarified the details of a case where a man lost his license for two years, got his license back, but was then apprehended for another violation. At the time the man was apprehended, he was working legally under his father's license. Mr. Goldsborough replied that oyster poachers in Virginia lose their license and the privileges to work in any aspect of the seafood industry.

Dr. Chatwin ended the discussion by asking the subcommittee to develop some draft recommendations for the next meeting.

Funding Subcommittee Report (Dr. Bill Richkus)

Dr. Richkus began by asking how to best use potential funding. He suggested establishing Dr. Richkus began by asking how to best use potential funding. He suggested establishing oysters as a best management practice (BMP) for nutrient removal. Dr. Lipton replied that the nitrogen workshop held at the VIMS Wachapreague lab found that although denitrification rates were high for some oyster reefs, there was large spatial and temporal variation. He also noted that the STAC recently made recommendations regarding the use of oysters as a BMP, that most of the current BMP efficiencies were developed by agricultural scientists, and that a different group of scientists involved with oyster BMP efficiencies are reluctant to assign values for oysters even though the amount of variation and scientific study is similar to that of some approved BMPs.

Mr. Robertson asked how much information would be necessary to make a decision regarding oysters as a BMP. He noted the ecological differences between nutrients in the water to be removed by animals and nutrients on land to be removed by plants. Oysters have promise for nutrient removal, but the variability in removal rates makes certification as a BMP difficult when regulators desire a single number. Dr. Lipton noted that an existing model could help with prediction of removal rates. Mr. Robertson said that the model could help generate revenue and achieve nutrient removal objectives, but that the model is not yet at that stage. Dr. Chatwin then asked what aspects of the model need to be developed further. Dr. Richkus commented that the best way to generate money is to have a regulation requiring people to spend money. Mr. Robertson replied that NOAA is funding work in Harris Creek to look at nutrient issues.

Mr. Richkus then asked the commissioners if they had identified any new potential sources of funding for oysters. Mr. Zuza noted that community groups would rather prevent pollution than pay polluters. Mr. Legum asked if federal farm credits could be used for oysters. Dr. Richkus asked if aquaculture is addressed in any federal program. Mr. Webster replied that NRCS addresses aquaculture.

Delegate O'Donnell said that the main question was whether or not oyster restoration was worth the investment, and asked why we are restoring oysters if the benefits cannot be quantified. He mentioned having seen anecdotal evidence of water quality improvement around aquaculture operations, and noted that free market forces may be more effective than government programs at improving water quality. Mr. Goldsborough noted that land use issues involve not just nutrients, but also sediment, which has a direct impact on oysters.

Dr. Schott asked if we are restoring oysters to clean the bay, or whether we are cleaning the bay for oysters to survive. He then asked how much water a restored oyster population could clean, and how much treatment must occur upstream before the water reaches the bay.

New Business

Dr. Chatwin informed the commission of a new committee being formed by DNR to address issues of land use effects on fisheries. The committee will have members from SFAC, TFAC,

and OAC. Ms. Fegley clarified the charge of the new committee, which is to effect land use change at the local level.

Public Comment

Ms. Rachel Dean addressed the commission. She noted that natural resource violations could be looked up online, and that the state attorneys should be able to look up the information as well. She encouraged the enforcement subcommittee to talk to watermen. Ms. Dean found it frustrating that the tiered penalty system was supposed to make things easier, and found it frustrating that it was not. Ms. Dean also said the state should find a way to retain shell that is leaving the state.

Delegate O'Donnell asked if DNR knew how much shell was leaving the state. Mr. Naylor replied that this quantity can be estimated, but that whoever buys oysters from Maryland owns the shell. Delegate O'Donnell suggested finding a way to keep the shell in state.

Restoration Update (Dr. Eric Weissberger, Maryland DNR)

Dr. Weissberger informed the commission about the restoration progress in Harris Creek. Since 2011, 59.5 acres of reef have been constructed and 237 acres seeded with spat on shell, including the newly-constructed reefs. The U.S. Army Corps of Engineers plans to construct 23 acres of reef in 2014, and DNR plans to construct 62 acres.

DNR will begin seeding and reef construction in the Little Choptank River in 2014. Because the Army Corps does not have National Environmental Policy Act clearance to work in the Little Choptank River, they will move to the Tred Avon River upon completion of their work in Harris Creek. The Corps may begin reef construction in the Tred Avon River as early as 2014.

Dr. Schott asked if hatchery spat could be distinguished from existing oysters. Dr. Weissberger replied that we could tell the difference between the two. Dr. Schott then said that he had concerns about placing substrate on top of thriving oysters. Ms. O'Neill replied that population surveys are conducted prior to reef construction, and areas with an oyster density $\geq 5 \text{ m}^{-2}$ do not receive substrate.

Closing

Dr. Chatwin thanked the commission for a productive and focused meeting. He asked if anyone had speakers to recommend. Dr. Chatwin adjourned the meeting at 7:05.