

**Meeting Summary**  
**Oyster Advisory Commission**  
Chesapeake Bay Program Fish Shack  
Annapolis, MD  
4:00 PM – 7:00 PM  
12 June 2013

**LIST OF ATTENDEES**

**Commissioners Present:**

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

**Commissioners Unable to Attend:**

Richard Colburn	Maryland Senator, Dorchester County
Kelley Cox	Phillips Wharf Environmental Center
Douglas Lipton	University of Maryland
Ben Parks	Maryland Watermen's Association, Dorchester County
Shane Robinson	Maryland Delegate, Environmental Matters Committee
William Windley	Maryland Saltwater Sportfishermen's Association
Robert Witt	Commercial Waterman

**Other Meeting Attendees:**

**Maryland Department of Natural Resources:** Jeff Halka, Lloyd Ingerson, Rich Norling, Tom O'Connell, Michael Naylor, Rebecca Thur, Eric Weissberger

**Oyster Recovery Partnership:** Stephan Abel, Steve Allen

**National Oceanic and Atmospheric Administration:** Bruce Vogt, Stephanie Westby

**Chesapeake Bay Commercial Fishermen's Association:** Gibby Dean

**Chesapeake Bay Seafood Industry Association:** Bill Seiling

**Coastal Conservation Association:** Larry Jennings

**Maryland Watermen's Association:** Robert T. Brown, Sr., Victoria Brown

**Virginia Institute of Marine Science:** Roger Mann

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

Dr. Chatwin opened the meeting at 4:05. He charged each of the four subcommittees to develop a work plan to meet the charges in the charter and to identify outside experts who may be able to help the subcommittees meet the charter goals. Dr. Chatwin advised the subcommittees that they were not to make any decisions; information gathered by the subcommittees is to be presented to the whole commission for review. The chairs of the subcommittees are Ms. Claire O'Neill (substrate), Mr. Peyton Robertson (land use), Mr. Evan Thalenberg (enforcement), and Dr. Bill Richkus (funding).

Dr. Richkus asked whether a conference call number was available for subcommittees to use. Dr. Eric Weissberger replied that he would set up the subcommittee conference calls through DNR's telephone line.

Ms. O'Neill noted that the Oyster Advisory Commission charter contains no specific charge related to substrate. Mr. Len Zuza replied that the substrate subcommittee is necessary for planning, and that Mr. Peyton Robertson suggested a substrate subcommittee at the previous meeting.

Dr. Mutt Meritt asked what specific questions have been posed that the subcommittees are to answer, and what decisions are to be made. Dr. Chatwin replied that the commission's function is to make recommendations to DNR on how best to address the issues specified in the charter. Dr. Meritt replied that the commission must develop a reasonable plan to provide advice in a reasonable timeframe, and that the commission must make specific recommendations to DNR to solve problems. Dr. Chatwin concurred.

Dr. Kelton Clark asked if the public could interact with the subcommittees. Dr. Richkus replied that according to the minutes of the previous meeting, individuals outside the commission could be consulted.

Ms. O'Neill inquired as to how the subcommittees should send the information they gather to the whole commission. Dr. Chatwin replied that information gathered by the subcommittees should be sent to Dr. Weissberger, who will forward the information to the entire commission. Ms. O'Neill said that she will develop a suite of alternatives to be considered, and not make any decisions. Dr. Chatwin reiterated that the subcommittees are only to gather information and not to make any decisions. Dr. Richkus noted that there are connections among all the topics to be considered by the subcommittees, therefore it is important for all the subcommittees to report back to the whole commission.

### **Approval of 13 February 2013 Meeting Minutes**

A motion was made to approve the minutes of the 13 February 2013 meeting. The minutes were approved unanimously.

### **Public Comment**

Dr. Chatwin opened the floor for public comment. No members of the public addressed the commission.

### **Oyster Restoration and Shell Budgets (Dr. Roger Mann, Virginia Institute of Marine Science)**

Dr. Chatwin noted that one of the sections of the charter focuses on the development of biological reference points for oyster management. Dr. Chatwin invited Dr. Roger Mann of the Virginia Institute of Marine Science to speak to the commission about shell budget, a concept that must be considered in the development of any biological reference points.

Dr. Mann began by noting that shell budgets are not usually considered in oyster management, and that when oysters are restored substrate must also be restored. Regular fisheries population dynamics models do not apply to oysters because habitat is not included in those models. With oysters, reference points are needed for both oysters and habitat, and habitat is usually limiting.

Dr. Mann then discussed the evolution of oysters. He noted that one theory for the development of shells by molluscs is that are the by-product of excretion in early oceans that were carbonate rich, and that most bivalves are clam-like in form. A few bivalves, including oysters, have diverged from the clam form by losing various body parts. Furthermore, oysters do not conform to bivalve allometry. They are plastic in form and can form reefs, helping them escape predation. Many oysters must reach a large size before death to maintain reef structure.

The taphonomically active zone is the area where exposed shell is attacked chemically and biologically. Loss of shell in this zone is continuous, irrespective of the addition of oysters. A positive feedback loop contributes to the loss of shell: as more shell is added to the system, more is exposed to the forces contributing to shell loss. The dynamics of the taphonomically active zone determine the success or failure of restoration projects.

Shell has several ecological functions, including providing a refuge from predation, a site for larval settlement, and neutralizing acids produced by organic matter settling from the water column. The lower pH of the sediment at the sediment/water interface interferes with enzyme function, especially in metamorphosing forms of a wide variety of invertebrate larvae that have

high surface:volume ratios and, therefore difficulty in osmoregulation. The neutralization of acids by the carbonate from the shells conditions the bottom for other organisms.

Dr. Mann introduced two biological reference points for oysters based on the model of recruitment→ growth→ mortality→ accretion of shell base. The first reference point specified that the rate of change of oyster population growth must be greater than or equal to zero, or that recruitment must be greater than or equal to total mortality. The second reference point specified that the rate of change of shell must be greater than or equal to zero.

Dr. Mann noted that oysters must die to contribute to the shell base, and that larger oysters contribute more to the shell base than small ones. Net accretion rate is set over evolutionary and geological time as the rate of sea level rise, approximately 3.5 mm/year. Accounting for dissolution, an accretion rate of 4.55 mm/year would be necessary for habitat stability. The density of oysters necessary to achieve stability depends on lifespan. If oysters die at a larger size, fewer are needed than if they die at a smaller size. Old reefs show a pattern of modest recruitment and extreme longevity. In areas where diseases truncate size structure, higher recruitment is necessary to provide a stable shell base.

Data from Virginia oyster surveys indicate that the James River has been consistently productive, with 16-30 liters of shell per m<sup>2</sup> in the taphonomically active zone. The state-wide average for Virginia is only 4.56 liters of shell per m<sup>2</sup>. Moon Rock bar in the James River has high recruitment even with high disease and mortality levels. No oyster bar in Maryland has this level of recruitment. Loss of shell to taphonomic processes exceeds loss to fishing. Therefore, reducing fishing pressure will not lead to reef accretion. Rotational harvest may help abate shell loss, however. Louisiana has managed to balance its harvest and shell budget.

Dr. Mann then reported on a study he conducted in the Netherlands on the invasion of the Oosterschelde by the oyster *Crassostrea gigas*. *C. gigas* invaded the Oosterschelde in 1964, and has no natural predators or diseases in that area. Oysters lived to a large size, therefore adding lots of shell to the reefs. Based on growth models, reef accretion was estimated to be 10-77 mm/year. The estimate fit well with observations from the field. Over time reefs lost height but got wider. Dr. Mann concluded his presentation by stressing the need for two reference points, one for oysters and one for shell.

Mr. Doug Legum asked Dr. Mann if Maryland oysters are 3-4 years old, if natural shell and granite differ in their effects on acidity, and if Louisiana had shell. Dr. Mann replied that there are some older oysters in Maryland, but not much recruitment. He noted that there was a 30% loss rate for shell in Virginia, but that Maryland loss rates were probably not as high. While natural shell disappears, granite aggregates. Dr. Mann stated he was not sure how quickly granite dissolves, and that there were no short-term differences between shell and granite on acidity. He suggested considering concrete as a reef material as it lasts a long time and fishing on concrete is difficult, thus interfering with illegal harvest. Dr. Mann noted that although Louisiana has shell, many people there are using granite as it is cheaper than shell.

Mr. Mark Bryer stated that local reefs are subtidal, and therefore they may not need to keep up with sea level rise as suggested by Dr. Mann. Dr. Mann replied that subtidal reefs are anomalies,

located in poor feeding areas. For subtidal reefs, accretion must keep pace with sedimentation rate. Mr. Bryer then asked if we have been “high-grading” reefs by removing larger oysters. Dr. Mann replied that we may be losing larger oysters due to an increase in virulence of *Perkinsus marinus* (Dermo), which may be competing with MSX.

Dr. Clark asked about fishing on concrete and the use of granite in Louisiana. Dr. Mann replied that very small granite pieces are used in Louisiana, enabling fishing.

### **Enforcement of Oyster Laws and Regulations (Captain Lloyd Ingerson, Maryland Natural Resources Police)**

To address enforcement issues identified in the charter, Captain Lloyd Ingerson, Eastern Region Commander of the Maryland Natural Resources Police (NRP), was invited to speak to the commission. Captain Ingerson informed the commission that NRP has an authorized staffing level of 248 people, with 136 at the sergeant level or below. There are currently 10 vacancies on the staff. Seventy-six officers are assigned to the Eastern and Southern Regions, the area from which 90% of Maryland’s oysters are harvested.

NRP has a broad mission, including enforcement of inland, marine, and terrestrial conservation laws and regulations, hunting safety, boating safety, and enforcement of laws on DNR-managed public lands. Public safety concerns are paramount in enforcement of the law.

Captain Ingerson mentioned that people are only allowed to fish for oysters eight hours a day, five days a week, and these are the times when the bulk of patrols occur. NRP is also responsible for inspecting seafood dealers. There was an increase in violations from the 2011-2012 season to the 2012-2013 season, attributed to new tagging and basket regulations. The proportion of marine conservation violations was similar in the two seasons, however: 24% in 2011-2012 and 23% in 2012-2013.

Captain Ingerson noted that it is easier to enforce laws in oyster sanctuaries that are closer to land than those that are further from land. This year there were fewer calls regarding violations of sanctuary laws and regulations. The most prevalent violation this year was for undersized oysters. Officers from the Western Shore were brought in to patrol sanctuaries while Eastern Shore officers focused on size violations.

There are many challenges to devoting additional time to enforcement of oyster laws and regulations given the small NRP workforce and other demands. It costs \$65/hour in salary and benefits for an NRP officer, plus boat, car, fuel, and maintenance costs. There is little money available for overtime or surveillance equipment. NRP vehicles are equipped with laptops, however, which can be used to access the Maritime Law Enforcement Information Network (MLEIN), a system of radars and cameras funded by homeland security money. The MLEIN system is also being used for conservation. The system can track a 21 foot boat in 2 foot seas. Boats with Automatic Identification System can be identified, and other boats appear as dots on the radar. Electronic fences can be drawn around areas of interest and alerts sent if a boat enters that area. MLEIN allows NRP to cover more area with fewer officers. Additionally, NRP has access to the cameras and radar operated by other law enforcement agencies.

Mr. Zuza asked if there has been an increase in convictions and fines. Captain Ingerson answered that there has been an increase, with some violators incarcerated. NRP worked with the courts to hear all natural resource cases together in a single session. This led to the natural resource cases receiving more attention from judges and higher fines. Furthermore, DNR has taken a stronger stance on administrative penalties, such as license revocation. Mr. Zuza then asked if Captain Ingerson could provide any data on convictions. Captain Ingerson replied that he could not as they are extremely shorthanded with civilian staff who track such things.

Dr. Clark asked that NRP consider aquaculture operations when allocating resources. Stealing from leases affects businesses, as well as the ability to repay MARBIDCO loans. Captain Ingerson replied that it will be challenging to protect aquaculture operations as the industry grows, and that the overall number of officers assigned to the bay is down. He also mentioned a recent case involving a person taking oysters from a sanctuary and placing them on a private lease. Mr. Mike Naylor noted that most aquaculture occurs in areas where NRP officers are already concentrated.

Mr. Webster asked why the NRP had experienced a reduction in force over time, and whether the NRP still had an aviation unit. Captain Ingerson replied that the force has shrunk due to decreasing funds, and that NRP had, over time, decided to leave vacancies unfilled rather than lay off employees. He also noted that the state police and DNR have also had to reduce their workforces as well. NRP no longer has an aviation unit, and aviation duties have been taken over by the Maryland State Police. Delegate O'Donnell asked if workforce size was NRP's biggest challenge. Captain Ingerson replied that it was. Delegate O'Donnell, noting that Maryland's budget is determined by the executive, not the legislative branch, said that the governor and DNR need to allocate more resources to NRP. Captain Ingerson said that he appreciated the support the NRP has received from watermen organizations and the Aquaculture Coordinating Council.

Captain Ingerson noted that a helpful program that consolidates natural resource violations on specific court days only occurs in some counties and that the program is not yet state-wide. Mr. Thalenberg asked if there is difficulty in bringing repeat offenders to judges' attention, and if information technology would help. Captain Ingerson replied that NRP needs more information technology support. He also noted that prosecutors and judges are not familiar with natural resource regulations, and that it would be useful to familiarize state attorneys with the types of cases they might see.

Dr. Meritt was disturbed by the lack of resources allocated to protecting aquaculture leases, and said that leases must be a priority for enforcement. Noting that a lot must happen between noticing something happening on a radar screen and a conviction, he asked how quickly NRP could respond to an MLEIN alert. Captain Ingerson replied that an officer could respond quickly if already on the water, but that response time would be longer if the officer was not on the water or off duty. He noted that MLEIN provides valuable intelligence that can be used to allocate patrols. Dr. Meritt replied that most illegal harvest occurs at night and this must be considered when allocating patrols. Captain Ingerson agreed that leases must be protected, noting that as the number of leases increases, NRP resources would be spread more thinly. Dr.

Meritt stated that leaseholders are extra sets of eyes and ears who can provide information on people breaking the law.

Mr. Webster noted the recent report from Virginia officials concerning oyster harvesters being required to have tracking devices on their boats, and asked if Maryland would consider requiring these devices. Captain Ingerson replied that there has been discussion about tracking devices, which provide real-time identification and not just a dot on a radar screen. Hail in/hail out systems are also being considered. DNR Fisheries Service Director Tom O'Connell suggested that the Oyster Advisory Commission examine issues of enforcement methods and resource allocation.

Delegate O'Donnell was disturbed that NRP was unsure what DNR's obligation was with respect to aquaculture enforcement, especially considering that both groups are represented on the Aquaculture Coordinating Council. Captain Ingerson replied that he understood the obligations, but that the challenges of limited resources need to be addressed. Mr. O'Connell stated that NRP has the full support of the Fisheries Service.

**Federal Budget Update (Mr. Peyton Robertson, NOAA; Ms. Claire O'Neill, U.S. Army Corps of Engineers)**

Mr. Robertson stated that the NOAA's budget has been declining. In 2006, \$4,000,000 was allocated for Maryland oyster restoration. This year, \$800,000 was allocated for Maryland oyster restoration. NOAA will continue to request \$1,000,000 annually for oyster restoration.

Ms. O'Neill noted that a federal budget was not passed, and that staff have been furloughed resulting in contract delays. The staff working directly on oyster restoration (Ms. O'Neill and Dr. Angie Sowers) have not been furloughed, however. The Army Corps of Engineers has received \$5,000,000 for fiscal year 2013, which will be used to restore 24-25 acres in Harris Creek.

**Oyster Decision Support Tool (Mr. Bruce Vogt, NOAA)**

Mr. Vogt demonstrated a web-based mapping tool incorporating data collected by NOAA, DNR, Dr. Ken Paynter of the University of Maryland, and Morgan State University. Data from these various sources are now located in one place to facilitate oyster restoration efforts. The tool uses a Google Maps base layer, but NOAA charts may also be displayed. Graphical reports can be generated and data printed. Layers include bathymetry, named oyster bars, benthic habitat type, acoustic seabed mapping, bottom salinity, management boundaries, locations of oyster plantings, disease and spat monitoring locations, disease prevalence, spat fall, and live oyster counts. Currently the tool contains only data for Maryland, but NOAA hopes to incorporate data from Virginia.

Dr. Clark noted that it might be useful to include flow rate, chlorophyll concentration, and sedimentation rate into the tool. He mentioned that it would be useful to set all the parameters at once. Dr. Clark asked if the NOAA tool differed from the DNR aquaculture siting tool. Mr. Vogt replied that the tools contained different parameters.

Dr. Eric Schott asked about plans to make the tool available. Mr. Vogt replied that the tool will be launched on Tuesday, June 18, targeting potential users. Current outreach has been to those who contributed data to the tool. Dr. Schott replied that non-governmental organizations, academics, and conference organizers may find the tool useful.

### **Public Comment**

Mr. Zuza asked to address the commission as a member of the public, rather than as a commissioner. Mr. Zuza informed the commission that the Southern Maryland Oyster Cultivation Society (SMOCS) was formed six years ago to restore oysters. SMOCS founders consulted with academics and DNR to achieve their goals. Since its inception, SMOCS has planted 11,000,000 oysters, with densities of 200 oysters/m<sup>2</sup>. Mr. Zuza stated that the current SMOCS planting areas are built-out, and there is uncertainty as to where SMOCS can plant in the future. Because of this uncertainty, SMOCS is disbanding effective 31 December 2013.

Delegate O'Donnell asked about the biggest frustration faced by SMOCS. Mr. Zuza replied that the lack of demonstration lease regulations meant that oysters planted in non-sanctuary areas cannot be protected from fishing. Furthermore, oysters from the Marylanders Grow Oysters program must now be planted on Yates bars. Mr. Zuza stated that these areas are no longer suitable, and that the requirement to plant on Yates bars means that the SMOCS program must move a significant distance from Solomons. Dr. Clark inquired if SMOCS was interested in planting only in the Solomons area. Mr. O'Connell stated that although DNR's policy is to restrict restoration plantings to Yates bars, he had met with Mr. Zuza on April 22 and offered to explore other areas. Mr. Zuza replied that he is tired of the uncertainty surrounding planting areas, that SMOCS had achieved its original goal, and that shell is not available to prepare new sites for planting. He also stated that community groups could have put pressure on DNR and the governor to budget more money for NRP, and that the Oyster Advisory Commission could focus more on the Marylanders Grow Oysters program and other community groups.

### **Harris Creek Permit Update (Mr. Mike Naylor, DNR)**

Mr. Naylor informed the commission that the Army Corps and Board of Public Works permits for shallow water restoration in Harris Creek had been granted, but not yet received. Delegate O'Donnell inquired as to the availability of shell for restoration. Given that the meeting was running late, Mr. Naylor offered to discuss the shell issue with Delegate O'Donnell after the meeting.

### **Closing**

Dr. Chatwin adjourned the meeting at 7:05.