



Larry Hogan, Governor
Boyd Rutherford, Lt. Governor
Mark Belton, Secretary
Joanne Throwe, Deputy Secretary

November 27, 2017

The Honorable Joan Carter Conway
Chair, Senate Education, Health and Environmental Affairs Committee
2 West Miller Senator Office Building
Annapolis, Maryland 21401

The Honorable Kumar P. Barve
Chair, House Environment and Transportation Committee
Room 251 House Office Building
Annapolis, Maryland 21401

Re: Submission of Report on Maryland Aquaculture Coordinating Council Annual Report

Agency: Maryland Department of Natural Resources

Report Authority: Natural Resources Article § 4-11A-3.2(c)(1)(i) (MSAR #9426)

Dear Chairwoman Conway and Chairman Barve:

In accordance with Section 4-11A-3.2(c)(1)(i) of the Natural Resources Article, the Department of Natural Resources hereby submits the annual summary of the Maryland Aquaculture Coordinating Council Annual Report. The document addresses the requirement to report yearly for advancing Maryland aquaculture, including recommendations for a fee structure on aquaculture operations in order to reduce State expenditures on aquaculture programs.

If you have any questions about this submission, please do not hesitate to contact Allison Cordell, Legislative Director, at 410-260-8112 or Allison.cordell@maryland.gov.

Sincerely,

Mark Belton
Secretary

enclosure

cc: Sarah Albert, Legislative Library (5 hard copies)



2
0
1
6

Maryland Aquaculture Coordinating Council

Annual Report 2016

Situation and outlook report on Council activities with recommendations for advancing Maryland aquaculture. Presented to the Governor of Maryland, Chair of the Senate Education, Health and Environment Committee and Chair of the House Environment and Transportation Committee.

Executive Summary

The Aquaculture Coordinating Council (ACC) is charged by the Maryland General Assembly with assisting development of commercial aquafarming by studying and making recommendations on changes to attract investment and promote economic and employment



The goal of commercial aquaculture is to produce high quality shellfish for human consumption

growth in the industry. The Council provides a forum for agencies, institutions, political leaders and businesses to discuss issues while providing strong and diverse expertise to meet its legislative mandate to “advance Maryland aquaculture”.

Revision of the state’s shellfish leasing program by unanimous action of the legislature in 2009 has resulted in more than 6,000 acres now in active production.

While watermen are part of over one-half of these leases, other business persons have entered the industry, bringing expertise in production and marketing that has led to the formation of new companies, new brands and expanded sales nationally.

In the past two years, as a result of our expansion, Maryland has been visited by delegations from other states and nations who have come to view our efforts to build this exciting and environmentally beneficial industry. Among these were a Mississippi Governor’s Oyster Initiative Task Force and a delegation from the Aquaculture Association of Nova Scotia. We look forward to continuing that tradition as we move forward in future years.

Issues and Recommendations

I. Water Quality Monitoring: Maryland operates one of the finest shellfish sanitation programs in the nation, with a series of testing points throughout the state where water and shellfish samples are regularly taken and analyzed. Many leases must also be certified before production for human consumption is allowed to begin. As the industry has expanded, increasing demand has been placed upon field crews and laboratory technicians to handle the burden. Increasing funds for the Department of the Environment to acquire samples and test state waters will allow new shellfish leases to be placed into service more rapidly, provide more areas to gain open status for direct harvest and assure the protection of public health for consumption of shellfish.

II. Risk Management: Aquaculture is an inherently risky business but one that provides societal benefits through economic and employment growth while aiding the environment. Programs exist that can help manage the risk in the business in the same manner that terrestrial agriculture is protected from catastrophic loss. The Department of Agriculture and University of Maryland should continue to work with federal partners to provide outreach and education to aquaculture growers, informing them of available risk management tools while communicating industry needs to the funding agencies. This will help producers make sound business and risk management decisions to protect their investments.

III. Disease Diagnostic Services: Shellfish disease is a principal cause in the decline of the oyster resource and industry. MSX and Dermo, as well as SSO in the coastal bays, continue to cause concern for aquaculture and restoration of the public resource. While new culture methods and genetic lines have led to advancements in being able to manage oysters in disease-prone waters, stocks must be regularly screened for growers to make proper management decisions. The Department of Natural Resources Cooperative Oxford Laboratory has aquaculture disease diagnostic services that would be enhanced by adding a diagnostic technician to handle the heavier workload required for growers to annually screen animals for disease. This is similar to services provided for agricultural animals and will encourage growers to regularly monitor crops for disease. It will also be able to provide health certification for seed moving in interstate commerce to make Maryland hatcheries and nurseries more competitive as the industry grows.

IV. Protection of Private Property: A basic responsibility of government is the protection of property. As grower inventories have expanded, theft of their shellfish has become a major issue in many areas. Theft of oysters has been seen in restoration sites as well as on private leases, with leaseholders experiencing losses that affect their profitability and long-term viability. The Natural Resources Police are the force charged with protecting both the state and private resource, however, increasing demands in their missions and declining numbers of officers to patrol has significantly affected their ability to maintain the needed presence on the water to assist in the protection of property. Added support for the Natural Resources Police has been a consistent recommendation by the Council and should be noted as a priority in order to deter theft of private shellfish by providing the force with expanded personnel and enhanced technology. Funds should be allocated to support the staffing recommendations that have been detailed in NRP's Strategic Plan, as well as officers with the most current equipment to enable them to provide protection to growers.



Maryland's Natural Resources Police patrol and protect our property and resources

V. Ecosystem Service Credit for Shellfish Aquaculture: The Chesapeake Bay Program and state agencies formed an expert panel to evaluate nutrient and sediment removal rates associated with oyster practices. The Council recommends support for efforts under the Chesapeake Bay Program's (CBP) Water Quality Goal Implementation Team to evaluate and report nutrient and sediment removal rates in oyster aquaculture practices and recommends that Bay Cabinet agencies apply the expert panel findings to Maryland's water quality trading program to establish trading credits generated from aquaculture activities.

VI. Availability of Affordable Substrate: Oyster shell is a basic building material for the development of profitable bottom leases. The shell is used to provide a base upon which to plant hatchery derived spat on shell in order to gain maximum productivity. Without a strong base, the valuable oyster seed sinks into sediment and is smothered. With the decline of the processing industry, oyster shell stocks have declined. Also, with the expansion of aquaculture for both

public and private use, the shells have become scarce and have greatly increased in price, sometimes by as much as five hundred percent. The Council urges the DNR to identify, survey and recover shell deposits within its Chesapeake Bay in order to provide affordable substrate for leaseholders. These investigations should include Man O'War Shoals in the upper Bay, efforts to locate and access reports on investigations known to have taken place in the lower Bay in prior decades and to undertake studies of potential areas of shell deposits, especially within the Tangier Sound area, which could be made available for the construction of productive leases.

The Council requests that state level departments consider the recommendations in this report when formulating budget requests for 2017 and urges the Governor and General Assembly to support them through the 2017 session. The Council will be pleased to provide testimony to support these recommendations and looks forward to continuing the development of Maryland aquaculture - for economic growth, for increased employment and for the environment benefits that derive from a healthy and thriving industry.



Working Together to Rebuild our Industry

Maryland Agencies

Department of Commerce
Department of Agriculture
Department of the Environment
Department of Natural Resources
Department of Health & Mental Hygiene
Natural Resources Police
Maryland Agriculture & Resource Based Industries Development Corporation

University System of Maryland

University of Maryland
University of Maryland Extension
University of Maryland Center for Environmental Science

Federal Agencies

USDA Natural Resources Conservation Service
US Army Corps of Engineers, Baltimore District
National Oceanic & Atmospheric Administration

Non-Governmental Organizations

The Radcliffe Foundation
Oyster Recovery Partnership

Maryland Aquaculture Coordinating Council

Annual Report 2016

The Council - A Legislative History

The Aquaculture Coordinating Council has a specified membership that includes the Secretaries of Maryland agencies involved in the permitting, regulation, policing or advancement of the industry. It includes three representatives of the University System of Maryland and appointed members of the aquaculture and commercial fishing industries. The Council is charged by the General Assembly with designated tasks. Among these were to:

- *Develop Best Management Practices on or before December 31, 2006;*
- *Investigate and, to extent feasible, enhance the area of State waters available to private lease for aquaculture and the seafood industries;*
- *Support the aquaculture industry in its efforts to implement innovative procedures and to comply with associated regulations;*
- *Provide for the establishment of Aquaculture Enterprise Zones in the Chesapeake and coastal bays;*
- *Formulate and make proposals to the Governor, and the Senate and House committees responsible for the Environment, for advancing Maryland aquaculture, including recommendations for a fee structure to reduce State expenditures on aquaculture programs;*
- *Establish and monitor a grant program for the implementation of appropriate projects that support the economic health of the State aquaculture industry;*
- *Conduct applied studies of projects and products that will expand the aquaculture industry in the State;*
- *Conduct market tests to determine acceptability and potential demand for new aquaculture products;*
- *Implement pilot projects and small commercial demonstrations to resolve outstanding quality of production issues and to educate industry representatives, regulators, and other partners;*
- *Enhance the awareness of innovative aquaculture products and programs among commercial buyers and the general public; and*
- *Regularly review State regulations impacting aquaculture and make recommendations to the Aquaculture Review Board regarding any necessary or advisable regulatory changes.*

The Coordinating Council is directed to provide policy recommendations to “advance Maryland aquaculture”

Engaging our Citizens

The Coordinating Council provides scheduled time for public input at its meetings and has developed procedures to assure non-Council expertise in workgroups and subcommittees. The Council has an e-mail list that is used to notify interested parties about general and special meetings and committee functions. Since initiating this e-mail service, meeting attendance has noticeably increased with broad representation from growers and other stakeholder groups.

The Council uses contact with citizens as an opportunity to identify potential new members who may be interested in serving on this organization. Maryland law requires three aquaculture industry representatives and three Tidal Fisheries License (TFL) holders be appointed to the Council. These members serve staggered three year terms and may be appointed for two consecutive terms before being required to take at least one year off before being eligible for appointment again. Since its formation, the Council has been fortunate to have had superior representation from those in appointed categories. Four (two in each category) will rotate from the Council each year. The building of a strong shellfish aquaculture community has provided an excellent opportunity to identify new growers for Council appointment.

Status of Maryland Shellfish Aquaculture

The following table illustrates the significant progress that has been made to increase shellfish aquaculture leasing from September, 2010, when a new leasing program was implemented, through August 2016:

<i>Lease Activity September 2010-August 2016</i>	<i>Total Lease Sites</i>	<i>Total Acreage</i>
All lease applications submitted	378	8216
Submerged Land Leases executed	123	4162
Water Column Leases executed	72	341
All executed	195	4503
<i>Applications currently in process:</i>		
Submerged Land & Water Column Leases	99	1718

Many of our traditional watermen have begun to engage in various forms of shellfish aquaculture. 269 Tidal Fisheries License (TFL) holders were named on applications that have been submitted to the Department since 2010 and 125 TFL holders are named on leases that have been issued.

Through August 2016, the Maryland shellfish aquaculture industry included a total of 386 shellfish leases covering 6,062 acres. Of these, 319 are Submerged Land Leases (SLL) or traditional spat on shell bottom leases and these currently encompass 5,759 acres. Water Column Leases (WC), which utilize innovative bottom cages or various forms of floats now cover 303 acres. In 2015, DNR permitted 585 distinct individuals to work on these leases.

Shellfish Aquaculture Lease Summary

Type	Acres	Count
SLL	5,759	319
WC	303	67

Note:
SLL = Submerged Land Lease
WC = Water Column Lease

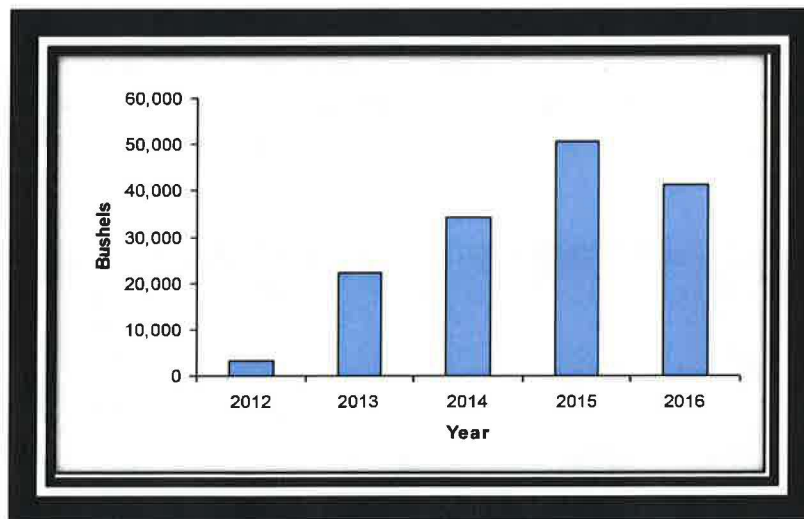
Lease Acreage by County

LeaseType	AA	CA	CH	DO	KE	QA	SM	SO	TA	WI	WO	Total
SLL	350.85	121.70	38.80	2341.10	44.80	25.20	673.13	444.00	596.29	980.70	142.70	5759.27
WC	9.00	15.00	0.00	84.01	8.80	5.00	108.98	24.70	9.60	0.00	38.08	303.17
Total	359.85	136.70	38.80	2425.11	53.60	30.20	782.11	468.70	605.89	980.70	180.78	6062.44

Lease Type by County

LeaseType	AA	CA	CH	DO	KE	QA	SM	SO	TA	WI	WO	Total
SLL	25	12	2	75	1	3	68	23	56	44	10	319
WC	3	1	0	18	2	1	25	6	2	0	9	67
Total	28	13	2	93	3	4	93	29	58	44	19	386

The total annual harvest from shellfish aquaculture leases has continued to increase over the past 4 years. In 2015, growers reported harvesting 50,636 bushels of oysters from their leases. In addition, the number of oysters harvested from leases so far in 2016 (January through July), has increased approximately 25% when compared to harvest that was reported over the same time period in 2015. The annual harvest is expected to continue to increase as more lease acreage is brought into production by growers and oysters that have been planted reach market size.



Developing New Sales Opportunities

The Department of Commerce will explore export opportunities for Maryland Shellfish Growers. A study will be undertaken to determine the documentation requirements, logistical options, associated costs as well as foreign market receptivity for Maryland shellfish products. The deliverable will be an export guide for use by any Maryland seafood producer whether selling direct or working through a third-party distributor. Developing new sales channels for Maryland seafood producers can contribute to improved pricing, price stability by virtue of diversification.

Education and Training

University of Maryland Extension (UME) has received support to conduct training programs to expand our shellfish aquaculture industry since 2010. This was initially provided by NOAA Crab Industry Disaster funds through the Department of Natural Resources. During 2015 and 2016, program support has been from the Philip E. and Carole R. Radcliffe Foundation and the Oyster Recovery Partnership. Program offerings include evening and day-long workshops, short courses and conferences on topics identified by growers through needs assessments. Notification is sent to all Maryland leaseholders and posted on web and Facebook pages. Supporting materials are provided in print and electronic format. A week-long Oyster Hatchery Short Course is held at the state-of-the-art UMCES Horn Point Lab (HPL) oyster hatchery and seasonal employment is offered through intern programs offering Hatchery Operations and Production Systems options to provide skills required in those segments. The HPL hatchery is the largest in the world for the eastern oyster and regularly produces around 1 billion seed oysters for restoration and industry development while conducting research into improved culture methods.

HPL, the Oyster Recovery Partnership (ORP) and UME began a joint educational Remote Setting Training (RST) program in 2011 which provides setting systems in the Bay area for growers to use to produce spat on shell seed oysters for planting their leases to comply with Maryland's "active use" mandate. Growers sign up for two-week periods to use the systems from June through August, with larvae, individual instruction and follow-up setting assessment provided by HPL hatchery technicians. In five years of operation, the program has had the following results:

	2011	2012	2013	2014	2015
Participants	12	18	27	31	40
Sites	5	6	9	9	9
Larvae used (millions)	226	567	706	325	453
Spat on shell produced (millions)	33	212	278	186	146
Shell used (bushels)	6,000	19,000	30,200	17,710	25,784

Remote Setting Training Program Statistics 2011-2016

Extension Workshops and Short Courses

From 2010 to 2012, UME organized an annual Shellfish Aquaculture Conference. Held in Annapolis, it attracted an audience of 125-150. Agenda topics included items of interest to growers with speakers from other states and nations invited to share their experiences with shellfish production. As the Maryland industry grew, other areas took an interest in learning from our experience. In 2014 a group from the Nova Scotia Aquaculture Association visited our state for a week of educational programs and industry field visits. This led to the Association inviting two members of the Aquaculture Coordinating Council to participate in their annual convention. Delegate Anthony O'Donnell was the keynote speaker at the meeting and UME's Don Webster was a member of a panel on aquaculture development. In 2015, a delegation from the Mississippi Governor's Oyster Council visited our state to learn how we had revised our laws and instituted support programs to rebuild our resource and industry. In addition to lectures and field visits, the group hosted two receptions for political leaders and representatives of the seafood industry.

A week-long Oyster Hatchery Short Course was organized in 2011-2013 and taught at the HPL hatchery with lectures in the morning and hands-on work in the afternoon. Classes had 12-15 students from Maryland and Virginia. Students handled oysters through spawning and larval care, while learning about disease management, phytoplankton production and the business of hatchery operation. In 2015, two Industry Intern positions were provided by the Radcliffe Foundation and the ORP. The two individuals chosen for this pilot program were highly enthusiastic about it. One grew up in a waterman's family and will return in 2016 while the other has been retained as a Faculty Research Associate to manage a new oyster demonstration farm. The Industry Intern program expanded to four positions in 2016 and the Hatchery Short Course will again be offered in response to demonstrated need for trained workers by existing and planned production facilities.

In 2015, faculty involved in the Oyster Aquaculture Education and Training Program provided invited talks at regional and national conferences. These included Aquaculture America and the Northeast Aquaculture Conference and Expo. In November, the UMD's Ag Law Initiative organized the first Agriculture and Environmental Law Conference and the initial presentation was on Conflict and Progress in Maryland's Aquaculture Leasing Program, which outlined the history of the Maryland leasing program since 1830 to present and the progress made since significantly revising the program in 2009.

Extension programs are planned using surveys and needs assessments that provide input from industry regarding education needed for successful business operations. The team planning the programs includes representatives from state agencies, University System of Maryland and non-governmental organizations. For 2016, a wide range of programs will be offered covering *Production Systems, Business Management and Seafood Technology*. These include:

Date(s)	Location	Title	Type
Jan 16	Ocean City Convention Center	<i>Aquaculture Seminars at East Coast Trade Expo</i>	Lectures
Jan 28 & 29	Calvert Extension Office & Horn Point Lab	<i>Remote Setting Training Program Winter Workshop</i>	Workshop
Apr 11-14	University of Maryland	<i>Analysis of Microbial Contaminants in Seafood</i>	Short Course
Apr 22	University of Maryland Eastern Shore	<i>Seafood HACCP Segment II</i>	One-day course
May 4	WREC	<i>HACCP for Shellfish Growers</i>	One-day course
May 25	Horn Point Lab	<i>Cultchless Seed Production</i>	Workshop
Jun 2	WREC	<i>Managing Risk in Shellfish Aquaculture</i>	Workshop
Jun 6	Horn Point Lab	<i>Statewide Remote Setting Demonstration</i>	Workshop
Jun 6-10	Horn Point Lab	<i>Oyster Hatchery Short Course</i>	Short Course
Jun-Aug	Statewide (9 locations)	<i>Remote Setting Training Program Operations</i>	Individual instruction
Jun 15	Horn Point Lab	<i>Oyster Grower Open House</i>	Demonstration and lectures
Jun 22	WREC	<i>Internet and Social Media for Marketing Your Business</i>	Workshop
Jul 14 & Aug 18	Horn Point Lab	<i>Water Column Production Equipment</i>	Demonstration and lecture
Jul 20	WREC	<i>Data for Decisions</i>	Workshop
Jul 27	WREC	<i>Tax Management for Aquaculture</i>	Workshop
Aug 10	Horn Point Lab	<i>Understanding Oyster Disease</i>	Workshop
Aug 17	WREC	<i>Marketing and Sales for Shellfish Growers</i>	Conference
Sep 14	WREC	<i>Understanding Sidescan Sonar Charts of Your Leases</i>	Workshop
Sep 20 & 22	WREC & Calvert Extension Office	<i>Business Planning for Shellfish Growers</i>	One-day course
Sep 20-22	UMES Seafood Technology Lab	<i>Seafood HACCP Segment II Course</i>	Three day course
Oct 6	Horn Point Lab	<i>Understanding Oyster Pests and Predators</i>	Workshop
Nov 9 & 10	Calvert Extension Office & Horn Point Lab	<i>Remote Setting Training Program Fall Workshop</i>	Workshop
Jan 14, 2017	Ocean City Convention Center	<i>Aquaculture Seminars at East Coast Trade Expo</i>	Seminars

Programs are evaluated using a standard UME survey form to ensure that the quality of the program is high and assessing the knowledge gained by those attending. Results are computer-scanned and provided as a summary to the instructors.

A new feature for 2016 is the development of a demonstration oyster farm at HPL. This will include examples of a variety of gear including bottom cages, midwater containment and surface culture systems and will be similar to an Agricultural Experiment Station for aquaculture. It will

allow UM faculty and staff to collect a great deal of data on farm operations, conduct applied research for dissemination to industry and conduct educational programs. Those attending workshops at the farm will be able to see many different systems and determine which will be best for their particular location and market strategy. Farm personnel will collect a range of data on cost and labor that will be used to more accurately populate spreadsheets that have been developed for growers and aid them in developing more accurate business plans for financing.

Issues and Recommendations

I. Water Quality Monitoring

Issue: The Maryland Department of Environment (MDE) is responsible for carrying out federal (Title 21 code of Federal Regulations part 123) and state (Natural Resources Article 4-742 Maryland Annotated Code) mandated bacteriological monitoring to ensure shellfish are harvested from unpolluted waters. The continued expansion of the oyster aquaculture industry is increasing the number of monitoring stations necessary to ensure adequate spatial coverage and protect public health. In addition, expansion of the aquaculture industry as resulted in year round oyster harvest, requiring additional resources to maintain sampling schedules.

Based on MDE data and industry projections, the number of new aquaculture sites that will require MDE monitoring by land and boat will continue to increase. In 2016 MDE will assure their strategic plan metrics for aquaculture include addressing that required staffing and equipment resources are in place to keep up with Maryland's growing aquaculture industry. The compliance Monitoring Division, in addition to tracking the expansion of stations necessary to characterize water quality at aquaculture sites, initiated a coding system to track staff hours dedicated to aquaculture sample collection and pollution source assessments. First quarter of 2016 logged 239.6 hours. Given the increasing demands on MDE's staff and equipment, resources to maintain and expand when necessary this important monitoring program is extremely important to Maryland's economy and the continued reputation for safe shellfish.

Recommendation: Support increased funding to MDE for monitoring shellfish waters to support the continuing expansion of Maryland's aquaculture industry. MDE requires adequate staffing and equipment to support additional monitoring stations for new lease activity and to improve the ability to upgrade classifications when warranted. This is anticipated to result in more areas in the open status for direct harvest. These funds are vital for supporting the industry and to maintain adequate monitoring and public health protections for both aquaculture and wild harvest of shellfish.

II. Risk Management

Issue: Oyster farming, similar to other agricultural activities, is a risky business and is subject to disasters that may have a significant impact on production. The USDA's Farm Service Agency (FSA) administers the Noninsured Disaster Assistance Program (NAP). NAP is a great tool for aquaculture farmers that can be used to provide risk coverage for their product. Aquaculture operations must meet several requirements to be eligible for coverage but both cage and on-

bottom productions qualify under different programs. While the Maryland aquaculture industry has continued to grow the number of producers with some level of risk management coverage remains extremely low. The lack of coverage by producers presents a major question mark in many business models and acts as another barrier to industry growth.

Recommendation: Maryland Department of Agriculture and University of Maryland should continue to work with our federal partners to provide outreach and education efforts to aquaculture growers informing them of available risk management tools such as NAP and their benefits. This will help producers in making sound business and risk management decisions which may assist in protecting their investments.

III. Disease Diagnostic Services

Issue: Shellfish diseases are a continuing critical problem for expanding aquaculture production. Diagnostic services are necessary for effective farm management but are constrained by lack of resources in the state laboratories that conduct the work. These laboratories need to expand to support industry growth and the increasing need for both routine and catastrophic diagnostic services. Without the ability to provide low cost service on a timely basis, Maryland will be unable to successfully compete with states that now regularly provide these services to their industry quickly and at a minimal cost.

Recommendation: Expand the Oxford Laboratory's aquaculture disease diagnostic services by providing additional resources to hire a shellfish disease diagnostic technician with the expertise to carry out this work. Services should be based at the lowest cost possible to: (a) encourage shellfish growers to continuously monitor their crops for disease prevalence and intensity on a regular schedule through properly developed biosecurity programs, and; (b) provide health certification for seed stocks sold and shipped in interstate commerce to make Maryland hatcheries and nurseries competitive with other states providing this service at low or no cost to their industries.

IV. Protection of Property

Issue: The Natural Resources Police (NRP) provides a strong presence to protect our marine resources. However, their ranks have been drastically reduced during the past two decades leading to concern for their ability to protect natural shellfish stocks and to assist private growers in keeping their crops safe and secure. Strong support for NRP will be required if Maryland is going to meet the challenge of attracting private capital to invest and expand production of aquaculture crops to meet the growing demand for quality seafood. The Council has annually urged political leaders to provide additional funds for law enforcement officers in order to keep this a strong and visible force on the waters of the State.

Recommendation: Increase support for Natural Resources Police in order to deter theft of public and private shellfish stocks by providing the force with expanded personnel as well as funds for enhanced technological equipment that can multiply the efforts of their duty personnel for enforcement activities. NRP has developed a Strategic Plan for FY2015-FY2019 that

specifically addresses staffing needs. Funding should be allocated to support of the staffing recommendations detailed in NRP's Strategic Plan.

V. Ecosystem Service Credit for Shellfish Aquaculture

Issue: Maryland is currently in a position to dramatically move forward with policies that can be put in place to implement nutrient trading. The Council fully supports these efforts. The Maryland Department of Environment is represented on the Council and is in a unique position to promote and understand how to include oyster aquaculture in a nutrient trading framework.

Recently the Chesapeake Bay Program, with support of state agencies, has formed an expert panel to evaluate the nutrient and sediment removal rates associated with oyster practices. The objectives of the panel are to establish a crediting framework that evaluates oyster practices and associated nutrient cycling processes on an individual basis, resolve outstanding policy questions, evaluate the suitability of modeling approaches to fill in current knowledge gaps, and to evaluate existing scientific information using the established crediting framework to determine nutrient reduction effectiveness of individual oyster practices. The Coordinating Council has been provided with a number of presentations on this issue and a great deal of scientific work has been accomplished providing evidence and quantifying the ecosystem services and nutrient removal provided by shellfish aquaculture. It is time for Maryland to move this issue forward.

Recommendation: Support Nutrient Trading. The Council recommends that the Bay Cabinet agencies support the efforts under the Chesapeake Bay Program's (CBP) Water Quality Goal Implementation Team, of which MDE is Maryland's member, to evaluate and report, with sound science, the nutrient and sediment removal rates associated with oyster aquaculture practices by April 2016. The Council also recommends that all Bay Cabinet agencies support the application of the expert panel information to Maryland's water quality trading program and use this to establish a policy for water quality trading credits generated from aquaculture activities.

VI. Availability of Affordable Substrate

Issue: A critical limiting factor in the development of submerged land leases is the lack of shell with which to create a cost effective base upon which to plant spat-on-shell hatchery seed. Shell is required for the development of new submerged land as well as the enhancement and renovation of existing bottom. With it taking over 2,200 bushels to cover one acre an inch thick, there is a significant cost associated with stabilizing bottom, which quickly makes the development of new areas unprofitable unless affordable substrate is available. Until the processing industry returns to a production level where new shell is in abundant supply, the most cost effective solution to this problem is the recovery and use of existing shell deposits contained within the Chesapeake Bay. Several areas of investigation should be pursued recognizing the importance of having shell sources close to the final area of deposition.

Recommendation: Identify, survey and recover existing shell deposits contained within the Chesapeake Bay in order to provide access to affordable substrate that can be used by Maryland leaseholders.

- a. Shell dredging in the area known as Man O'War Shoals in the upper Chesapeake Bay should continue to be pursued and evaluated based on the weight of scientific evidence and the potential benefits to the State that accessing these shells will provide. This area would provide growers with a timely and known source of shell that can be moved and emplaced to create habitat and gain productive growing areas for oysters throughout the Bay.
- b. The Department of Natural Resources should work to locate other historic deposits of oyster shell that are known or believed to exist throughout the bay region. Therefore, the Council urges the Department to:
 - i. Locate and access any reports on investigation known to have taken place in the lower Bay in prior decades to ascertain areas that have already been surveyed and identified as containing quantities of shell that could be recovered.
 - ii. Undertake additional studies of potential areas of shell deposits, especially within the area of Tangier Sound, which could be made available for the construction of productive leases.

Accomplishments

Last year changes to regulations within the Maryland Department of Environment (MDE) were made to support aquaculture. These changes came about due to the well regarded input from the Aquaculture Coordinating Council. A change to remove an unnecessary permit was prompted and supported by Delegate O'Donnell and Senator Klausmeier, Council members representing the Maryland House of Delegates and Senate.

Effective September 2015, the Maryland Department of the Environment changed water discharge regulations to remove an unnecessary requirement for businesses, including some aquaculture operations. Current regulations automatically require a water discharge permit for discharges greater than 10,000 gallons per day – regardless of whether there is a discharge of pollutants. The current requirement is more stringent than federal requirements. Under the amendment, the automatic requirement based on an arbitrary flow volume will be eliminated. Any facility that discharges pollutants to State waters will still be required to obtain a discharge permit and comply with that permit's terms.

The amendments remove a requirement to obtain a water discharge permit for businesses that discharge only water that is passed through without added pollutants. Facilities that raise oyster seed and spat-on-shell, operate flow-through systems that use estuarine water to promote the growth of the oysters and produce clean water discharges. The amendments would not reduce environmental protections but would remove an unnecessary burden to these businesses.

During the 2016 legislative session, Delegate O'Donnell submitted House Bill 1527. This legislation served to exempt oyster aquaculture operations from the requirement to obtain a water appropriation and use permit, for if the water is returned to the same body of water from which it is appropriated. The bill has a positive impact on oyster aquaculture operations that used to be required to obtain a water appropriation and use permit when they used more than an average of 10,000 gallons per day. The exemption allows such operations to adapt to changing markets and water quality conditions, to add new intake locations as needed, or to change water withdrawal rates without obtaining a permit to do so. Further, the bill's exemption removes the need for these aquaculture operations to track and report their water usage. The bill was signed into law in April 2016 and went into effect upon signing.

Nutrient Trading

Maryland continues to invest in rebuilding the Chesapeake Bay's oyster population for ecological benefits while concurrently rebuilding our once robust oyster industry by encouraging the development of commercial aquaculture. With scientific research demonstrating that oysters can effectively remove nutrients from the water column there has been growing interest in recognizing oyster culture as one of the best management practices (BMPs) that may assist in cleaning and renovating the Bay and crediting nutrient reduction effectiveness through the Chesapeake Bay Program Partnership's (CBPP) accounting framework that is being used to inform the Total Maximum Daily Load (TMDL; U.S. EPA 2010). MDE, a member of the Council, plays an important role in this issue.

Scientifically documenting nutrient reduction efficiency as a management practice is a necessary component of the Chesapeake Bay TMDL Accountability Framework and a necessary foundation for robust and transparent nutrient trading. It is through this collaborative effort using sound science that we will be able to document benefits of management practices and build trust that continued investments in these practices will provide positive returns in restoring Bay health. In 2015, an expert panel was established to develop a nutrient trading policy for oysters with the following objectives:

1. Establish a framework for developing credits.
2. Resolve outstanding policy issues.
3. Evaluate the suitability of modeling efforts to fill gaps in data.
4. Evaluate existing scientific information using the established crediting framework to determine nutrient reduction effectiveness of individual oyster growing practices.

MARBIDCO Aquaculture Funding Programs Update

The Council has worked with DNR and the Maryland Agriculture and Resource Based Industry Development Corporation (MARBIDCO) to secure an additional \$300,000 in funding from the General Assembly for the Shellfish Aquaculture Loan Program in fiscal year 2016. Since the inception of the Maryland Shellfish Aquaculture Financing Fund in 2011, MARBIDCO has approved 60 loans to 35 borrowers totaling \$3,621,972 for projects located in 10 counties in the Maryland portion of the Chesapeake Bay. Of these projects, 29 were for submerged land leases, 27 for water column (in cages or floats) leases, and four were a combination of both on-bottom and water column projects. Fifty-one loans were made to commercial watermen (also referred to as "TFL holders"). Fifty-two of these loans are fully drawn today.

In 2012, a specialized finance program was established to help commercial waterman develop remote setting systems to produce seed oysters in tanks. MARBIDCO has approved two loans in this program totaling \$60,000, with both of these loans being fully drawn. Growers who have taken advantage of this program have not only used the systems to produce seed oysters for their leased grounds but have also sold spat on shell to the State for placement on public harvest grounds to keep that important part of the oyster industry viable.

In fiscal 2016, MARBIDCO received five Maryland Shellfish Aquaculture Financing Fund applications for loans totaling \$289,928, with all being approved. No Remote Setting loans applications have been approved in this fiscal year thus far.



MARBIDCO
growing rural ventures™

For additional information, please contact:

***Maryland Department of Natural
Resources***

Aquaculture Division

Karl Roscher, Director

Tawes State Office Building

580 Taylor Avenue

Annapolis, Maryland 21401

Phone: 410-260-8313

