



2013

Maryland Aquaculture Coordinating Council

Annual Report 2013

Situation and Outlook reporting Council activities and recommendations for advancing Maryland aquaculture; presented to the Governor of Maryland, the Chair of the Senate Education, Health and Environment Committee and the Chair of the House Environmental Matters Committee

Cover: Tumbling unit in use at Hollywood Oyster Company, Hollywood MD, manipulates oyster size and shape to create high quality oysters destined for half-shell markets throughout the region



Maryland
Aquaculture Coordinating Council

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TO: The Honorable Martin O'Malley, Governor
The Honorable Joan Carter Conway, Chairman, Senate Education, Health and Environmental Affairs Committee
The Honorable Maggie McIntosh, Chairman, House Environmental Matters Committee

FROM: Donald Webster, Chairman
Maryland Aquaculture Coordinating Council

DATE: December 31, 2013

SUBJECT: ANNUAL REPORT OF THE AQUACULTURE COORDINATING COUNCIL

I am pleased to present the annual report of the Maryland Aquaculture Coordinating Council for 2013. The Council has provided leadership in developing an aquaculture industry that has brought Maryland national recognition. The dedication of our Council members to growth in this sustainable industry has continued throughout our history and we believe that aquaculture provides significant benefits to our **Economy** and **Employment** while aiding the **Environment**.

The Coordinating Council has fulfilled many of the tasks assigned to it by the General Assembly since it was created in 2005. We recommended changes leading to new shellfish leasing laws and regulations that are helping to rebuild our depleted shellfish resources while creating the opportunity for an increasing number of shellfish aquaculture businesses to become established in our State. The Council has a designated broad-based membership that includes representatives of State agencies, the General Assembly, the University of Maryland, and industry and has provided a model for progress.

The continued challenge for Maryland is to continue to foster a climate that attracts private capital to this exciting industry. We see opportunity to grow new businesses while encouraging traditional watermen to transition to aquaculture to assure their future. Their abilities are suited to aquaculture and we have documented the large percentage of them who have entered this industry. We look forward to their contributions in expanding production so Maryland again becomes a leader in the production of high quality and nutritious seafood.

Aquaculture can play a significant role in producing food and non-food aquatic products. We have seen companies formed to service the equipment and supply segments as well. Aquaculture can help expand employment in our rural areas while improving water quality through the production of filter feeders like oysters and clams. But there are still challenges to overcome for aquaculture to reach its full potential in our State. Therefore, we submit our annual recommendations for your consideration and look forward to continuing the strong collaboration with our elected leaders that has helped us forge ahead to new horizons in recent years.

I will be pleased to provide briefings if additional information is needed as we work towards developing the recommendations presented in this report. I wish to thank you for the strong support you have provided to the aquaculture industry, as well your foresight and confidence in creating the Maryland Aquaculture Coordinating Council.

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Executive Summary

The Maryland Aquaculture Coordinating Council assists in developing this “Green and Growing” industry by highlighting issues and recommending change based on our meetings. The Council provides a forum for issues arising from the industry and agencies while members provide strong and diverse expertise and opinions leading to recommendations based on stakeholder input. For our report, we respectfully submit the following for consideration:



Dick Balling, owner of Stump Cove Oyster Company in Woolford, MD hosts a class of potential growers to discuss issues in permitting and production

Issues

- **Disease Diagnostic Services:** 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 reasonable cost.
- **Protection of Property:** 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 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.

- Financial Support Programs:** Aquaculture is an inherently risky business and owners often have difficulty obtaining start-up capital through traditional lending institutions without having an historic record of production. This could prevent smaller operators, such as watermen from being able to secure the funds required to purchase equipment, seed and other resources needed for their aquaculture businesses. A continued commitment of providing State capital funding to MARBIDCO for use in the Shellfish Aquaculture Loan Program will be a key component in the future development and expansion of this industry.
- Water Quality Monitoring:** The Maryland Department of the Environment (MDE) is responsible for carrying out federal and state-mandated bacteriological monitoring of shellfish waters. This includes shellfish aquaculture sites with the goal of protecting human health. Expansion of the industry exceeds the current capacity of MDE's existing monitoring program, with its long and admirable record of service to the Maryland's shellfish industry. Based on industry projections, the number of new aquaculture sites that will require MDE monitoring by land (for remote upstream regions) and boat (water-accessible areas) will dramatically increase in the immediate future and beyond. Given the increased demand this will place on MDE's staff and equipment, support to expand this important monitoring program is requested.



Waterman Rob Witt of Shady Side MD checks a lease that he and his wife Terry have planted with hatchery seed through state support programs

Recommendations

- Expand aquaculture disease diagnostic services** by providing additional resources for the State laboratories 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.
- 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.

3. **Continue to provide state capital funds** for financial assistance programs that have been established to aid development of the shellfish aquaculture industry through loan programs administered through the Maryland Agriculture and Resource Based Industries Development Corporation (MARBIDCO).
4. **Provide funding to MDE for monitoring shellfish waters to support the continuing expansion of Maryland's aquaculture industry.** These funds are vital for shellfish aquaculture to: 1) meet the increased monitoring demands as the aquaculture industry grows; 2) Maintain adequate monitoring and public health protections for both aquaculture and wild harvest of shellfish; 3) simplify and consolidate administration of the program for greatest efficiency.



Working Together to Rebuild our Industry

Maryland agencies

Department of Natural Resources

Department of Agriculture

Department of the Environment

Department of Health & Mental Hygiene

Department of Business & Economic Development

Natural Resources Police

Maryland Agriculture & Resource Based Industries Development Corporation

University System of Maryland

University of Maryland Extension

University of Maryland College Park

University of Maryland Center for Environmental Science

Federal agencies

US Army Corps of Engineers, Baltimore District

National Oceanic & Atmospheric Administration

USDA Natural Resources Conservation Service

Non-governmental organizations

Oyster Recovery Partnership

MARYLAND AQUACULTURE COORDINATING COUNCIL

2013 Legislative Report

Background and Legislative History

The Aquaculture Coordinating Council is composed of a specified membership including representatives of Maryland agencies involved in the permitting, regulation, policing and advancement of the industry. It includes representatives of the University of Maryland as well as appointed members of the aquaculture and commercial fishing industries. The Council was 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 recommendations to “advance Maryland aquaculture”

The Council has worked to accomplish these tasks wherever possible. While the Council has not been provided with grant funds to date, it has provided guidance for implementing aquaculture loan programs through the Maryland Agriculture and Resource-Based Industries Development Corporation (MARBIDCO). Resources provided through NOAA's Blue Crab Disaster Grant Program and capital funds have allowed watermen and others to borrow money to build oyster aquaculture businesses. Loans are repaid to a revolving fund which providing future businesses seeking to enter this industry with access to capital at attractive rates.

Best Management Practices are based on being a "good neighbor" with other bay area stakeholders

The Council developed Best Management Practices (BMP) by the legislatively mandated date, which served for many years. However, the revision of state leasing laws and new regulations to implement the program made the BMP shellfish section outdated. During the past year a Council workgroup investigated several new pathways for BMPs and recommended adopting those developed by the East Coast Shellfish Growers Association through USDA funding. These included meetings with Maryland producers and were deemed to be targeted at the proper issues. While current BMPs are voluntary, they can become the basis for permitted activities in the future. All are based on sound science and on the principal that producers should act as "good neighbors" to other stakeholders in their area.

State of the Maryland Aquaculture Industry

The Aquaculture Coordinating Council (ACC) has worked with our elected officials, State agencies and stakeholder groups to create an infrastructure for industry support that has led to growth and opportunity for future development. Legislation developed from ACC recommendations has been bipartisan and it should be noted that the 2009 shellfish lease laws were passed unanimously by the General Assembly. This highlights the strong support that exists for aquaculture within the political structure of the State.

Maryland has a diverse and expanding aquaculture industry with strong potential in the state for further production in several areas:

Finfish are produced in state-of-the-art recirculating systems that reuse and purify the culture water while concentrating waste which allows it to be aggregated and disposed of in an environmentally benign manner. Waterland Fisheries, located near Hurlock on the Eastern Shore, raises tilapia and barramundi, while Marvesta, another innovative business nearby, produces high value shrimp for sale to white table cloth restaurants. Others provide products to the aquarium trade by raising tropical fish and corals. The development of high technology systems for breeding sea bass and our famous blue crabs has been a focus of the Institute of Marine and Environmental Technology.

Aquatic plant production has been a staple of Maryland aquaculture with several businesses producing for the water garden trade. That market declined in recent years, causing Maryland Aquatic Nurseries (MAN) to partner with the University of Maryland and two Eastern Shore developments to create innovative projects using aquatic plants in stormwater ponds to remove nutrients and prevent them from entering the Bay. This



"Floating Wetlands" produced by Maryland Aquatic Nurseries help take up nutrients and prolong the life of stormwater ponds in a Talbot County subdivision

led to "aquascaping" stormwater ponds to become attractive and add to property values rather than detracting from them when developing nuisance weed problems. MAN increased their profitability at a time when other companies lost business. Other Maryland enterprises such as Environmental Concern, Inc. have been leaders in the use of aquatic plants for shoreline stabilization. Using plants, rather than hard armoring with bulkheads or riprap, is environmentally beneficial while offering protection to valuable shoreline real estate.

Shellfish aquaculture is by far the most valuable sector of the Maryland industry. Advances in breeding genetically superior, disease tolerant oyster lines led to an initiative by Governor O'Malley to modify the leasing laws in 2009 and begin implementation of his Oyster Restoration and Aquaculture Development Plan. Since September 2010, when the state began accepting shellfish lease applications under the guidance provided by the new leasing program, nearly 1650 acres of new leases have been issued with many more in process awaiting finalization. Interest in the containerized production of oysters is growing. In 2013, 27 new companies entered this sector of aquaculture production and established businesses with the intent of consistently producing quality oysters on a year-round basis for the high value raw bar trade.

The 2009 revision of lease laws was the first major change in 103 years

Support industries provide an important adjunct to aquaculture development. Maryland companies, including the LaMotte Company in Chestertown, which manufactures water quality testing equipment, have been at the forefront of aquaculture supply for decades. The Power House, Inc. produces efficient aeration units that are seen throughout the fish culture industry while many of our existing marine supply companies now provide materials to operators of aquaculture businesses. The Hooper's Island Oyster Company was started in 2011 by watermen in Dorchester County. The owners are not only raising oysters in innovative bottom cages for added protection but also fabricating aquaculture equipment that ranges from setting equipment and floating nursery units to grow-out

cages and innovative vessels to tend their crop. They have established a strong reputation within the industry. A main benefit of further developing aquaculture operations in Maryland will be the creation of additional businesses required for their support. Producers will need containers, shipping, processing and marketing as well as products used in culture. All of these add to the economic and employment benefits of the industry.

Review of 2013 Aquaculture Activities

The Council provided input on several pieces of legislation and worked with DNR to help draft House Bill 306/ Senate Bill 464. These bills were introduced during the 2013 General Assembly session to streamline the approval process for shellfish nursery production facilities by providing authorization to DNR to issue shellfish nursery permits for in-water structures, up to a maximum of 200 square feet in size, used for nursery production. Nursery operators using small in-water structures would no longer be required to obtain a state lease for these activities. This legislation was approved and signed into law in April.



Equipment manufacture provides economic benefits from aquaculture development

The Council also worked with DNR to revise aquaculture size limit regulations pertaining to the harvest and sale of farm-raised oysters. ACC assisted DNR in drafting a regulatory proposal to expand the ability to sell oysters harvested from a water column lease that are a minimum of 2" by allowing year round sale of these oysters. Leaseholders with submerged land leases would only be authorized to sell 2" oysters while the public oyster fishery is closed

"Maryland has provided a strong support system to develop its shellfish aquaculture industry"

from April 1-September 30. This change was requested by members of the industry so that they could remain competitive in the marketplace and meet the demand from buyers seeking to purchase smaller aquacultured oysters. These regulations became effective in July.

The Council also worked with the Maryland Agriculture and Resource-Based Industries Development Corporation (MARBIDCO) as well as DNR, to secure an additional \$500,000 in funding for the Shellfish Aquaculture Loan Program. This Program utilizes a combination of funding from State capital funds and NOAA Federal Blue Crab Fishery Disaster Funds to provide low interest loans to new and existing shellfish aquaculture businesses. This Program provides a means of helping to encourage industry development by providing assistance with start-up business financing. Applicants are required to submit business plans with their requests and the University of Maryland Extension (UME) has provided specialists in the Bay area to work on an individual basis with applicants in developing these plans. As of the end of 2013, almost \$2.7 million has been committed to a variety of shellfish growers for 50 projects in 10 Maryland counties through this Program. The program has assisted 39 Tidal Fisheries License Holders (Watermen) with obtaining funding for their shellfish aquaculture projects.



MeTompkin Oyster Company in Crisfield has invested in a large four-tank setting system to supply seed oysters to its almost 300 acres of bottom leases in Somerset County



University of Maryland Extension (UME) conducted regional workshops with notification to all Maryland leaseholders. These provided educational programs and materials to growers on issues such as seed production, financial assistance and new summer harvest regulations ensuring that high-quality and safe seafood products were being produced. UME conducted a week-long Oyster Hatchery Short Course for participants at the state-of-the-art Horn Point Hatchery and conducted other educational programs as well as developing publications to support these activities.

The Oyster Recovery Partnership (ORP) began operating its Remote Setting Training (RST) program in 2011 in cooperation with UME and DNR. A series of five two-tank setting systems were placed in locations around the Bay. Growers signed up for two-week blocks to use them to produce seed oysters for planting their leases. Both group and individual demonstrations were provided to the growers, with return visits by hatchery personnel to teach trainees how to evaluate success. Growers were given their larvae free of charge as part of the contract. Growers ended the season by producing an estimate 32 million young spat for outplanting.

Current Status of Shellfish Aquaculture

The following table illustrates the significant progress that has been made in increasing shellfish aquaculture leasing from September, 2010, when the new leasing program opened, through December 2013:

<i>Lease Activity September 2010-December 2013</i>	<i>Total Lease Sites</i>	<i>Total Acreage</i>
All lease applications submitted	200	4393
Applications terminated or withdrawn	51	1387
Submerged Land Leases executed	45	1472
Water Column Leases executed	46	175
All executed	91	1647
Applications currently in process:		
Submerged Land & Water Column Leases Incomplete	56	1406
	4	98

138 applications have been received since August 2011, when the Department began accepting applications for water column leases and leases within sanctuaries. Of these applications, **62 have been filed for submerged land leases** and **76 are requesting water column leases**.

Our **traditional watermen** have moved to engage in various forms of shellfish aquaculture. **114 Tidal Fisheries License (TFL) holders were named on applications** that have been submitted since 2010. **48 TFL holders were named on leases that have been issued**.

Through December 2013, the Maryland shellfish aquaculture industry included a **total of 328 shellfish leases covering 3674 acres**. Of these, **277 are Submerged Land Leases (SLL)** or traditional spat on shell bottom leases and these currently encompass **3,483 acres**. **Water Column Leases (WCL)**, which utilize innovative bottom cages or various forms of floats now cover **190 acres**.

Total Shellfish Leases by County

Type	AA	CA	CH	DO	KE	QA	SM	SO	TA	WI	WO	Total
SLL	23	17	1	48	1	5	61	29	53	29	10	277
WC	0	2	0	17	0	2	16	8	2	0	4	51
Total	23	19	1	65	1	7	77	37	55	29	14	328

Shellfish Lease Acreage by County

Type	AA	CA	CH	DO	KE	QA	SM	SO	TA	WI	WO
SLL	305.95	112.8	25	761.2	44.8	31.3	597.35	582	519.69	360.8	142.7
WC	0	15.06	0	85.11	0	9.8	36.19	27.49	5.51	0	11.58
Total	305.95	127.86	25	846.31	44.8	41.1	633.54	609.49	525.2	360.8	154.28

Interacting with the Aquaculture Review Board

The Aquaculture Review Board (ARB) evaluates aquaculture applications. This process includes input provided by Board members representing the state agencies. With the reorganization of Maryland government in 2011, additional representation on the ARB has been provided by the Baltimore District of the US Army Corps of Engineers, the National Oceanic and Atmospheric Administration (NOAA) and the Maryland Historical Trust (MHT).

The Board meets monthly to review new, revised and renewal applications. The ARB provides permit processing updates at each Aquaculture Coordinating Council meeting to keep members apprised of ongoing permitting activities and issues that arise through the process. When necessary, the ARB will brief the Council on issues affecting reviews and request recommendations to resolve impediments. This interactive relationship has benefitted industry development and has served as a model to other states wishing to improve their permitting procedures.

Engaging Our Citizens

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

The Council also uses contact with citizens as an opportunity to identify potential new members that may be interested in serving on this organization. Maryland law requires that three aquaculture industry representatives and three Tidal Fisheries License (TFL) holders are appointed to serve on the Council. These individuals serve staggered three year terms and may be appointed for two consecutive terms before being required to take at least one year off prior to reappointment. Since its formation, the Council has been very fortunate to have had superior representation in all those appointed categories. Four (two in each category) will have to rotate off the Council in 2012. The building of shellfish culture has provided an excellent opportunity to identify and include new growers on the Council.

Future Council Action

The Council monitors industry growth and develops recommendations for positive change. This includes an objective to make it easier for businesses to become established and operate more efficiently while adhering to laws and regulations designed to protect the environment. Topics the Council is currently investigating include:

- *Active use requirements* - the 2009 law was designed to promote “use or lose” requirements for leaseholders since they are utilizing resources that are the common property of all our state’s citizens. However, some initial assumptions regarding lease management need to be modified to reflect standard industry practices in management techniques and equipment that were not in commonly utilized when the legislation was enacted. A workgroup has been formed to investigate these by

holding meetings with leaseholders to generate ideas that can promote active shellfish culture without restricting industry development.

- *Industry needs survey* - the best method for determining the actual needs of an industry is by surveying those involved and identifying areas that should be addressed by legislation, research or education. A workgroup has been pursuing a general survey of the entire state aquaculture industry with the objective of finding areas where the various segments of the industry could be better supported and expanded.
- *Oversight of existing laws with recommended changes* - as the aquaculture industry has expanded, several conflicting areas have been identified as possessing the need for change. Among these are clearance zones around pound nets. Currently, there are over 1,200 registered pound net sites within Maryland with only a few being actively used. This has caused difficulty in locating leases in some areas. This is one of several issues being identified as impediments to growth of the industry and will likely be recommended for change by the Council.

2013 Recommendations

1. **Expand aquaculture disease diagnostic services** by providing resources for State laboratories with relevant expertise to carry out this work. Services should be based at the lowest cost possible to: (a) encourage shellfish growers to continuously monitor 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 cost to their industries.

Discussion: A basic requirement for successful aquaculture is the identification and management of diseases. This is extremely important for growers to be able to plan production and for hatcheries and nurseries to be able to ship products to other states. Currently there are few sources for this service in Maryland. With additional resources, the DNR Cooperative Oxford Lab or the UM Paynter Lab could handle larger volumes of testing required to support industry demand. Additional technicians would allow for more timely and regular assessments of disease for shellfish producers. This service would assist producers in making the important decision of whether to let product continue to grow or harvest it early in the event of a disease epizootic. In addition, DNR staff would be able to more quickly determine the acceptability of Shellfish Import Permit requests.

2. **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.

Discussion: Theft of private property has been an ongoing problem in the shellfish aquaculture industry for decades. While the Natural Resources Police have continued to upgrade their ability to enforce laws on the water through resources such as the new Maryland Law Enforcement Information Network (MLEIN), their physical resources are at



Maryland's Natural Resources Police provides a critical presence on the water to protect wild and cultured shellfish stocks

an all-time low. The Aquaculture Coordinating Council has long supported additional resources for the NRP to aid in protecting the private property of growers. We urge consideration of:

- Continued expansion of personnel resources taking special note of the large number of officers who may be retiring in the year 2017
- Providing additional resources for electronic observation and enforcement on private shellfish grounds
- Enacting significant increases in

penalties through fines and other sanctions for those found to be engaged in theft of private shellfish

Growers have a significant investment in the shellfish on their grounds and should be as well protected in this activity as other citizens are in their homes and businesses.

3. **Continue to provide capital funds** to financial assistance programs that have been established to aid development of the shellfish aquaculture industry through a continued commitment to loan programs administered through the Maryland Agriculture and Resource Based Industries Development Corporation (MARBIDCO).

Discussion: Aquaculture is an inherently risky business but with significant rewards for economic growth and employment while aiding the environment. Traditional providers of capital, however, are often reluctant to provide funds to this business until there is a greater financial history of production on record. In this regard, Maryland has already invested funds in MARBIDCO to develop shellfish aquaculture. These funds are meant to become revolving but will have little income generated for several years as the initial shellfish growers approved for funding bring their crops to market. To bridge this gap in available funding, there is a need to invest further in these established finance programs. A team that includes MARBIDCO employees, University of Maryland Extension faculty, and DNR officials has developed a process for evaluating loan packages and business plans submitted under this program. This could be expanded further if funds were provided on a continuing basis to MARBIDCO and dedicated to aquaculture loans.

4. **Establish funds to MDE for monitoring shellfish waters in order to support the continuing expansion of Maryland's aquaculture industry.** These funds are vital for shellfish aquaculture to: 1) meet the increased monitoring demands as the aquaculture industry grows; 2) Maintain adequate monitoring and public health protections for both aquaculture and wild harvest of shellfish; 3) simplify and consolidate administration of the program for greatest efficiency.

Discussion: Shellfish sanitation is a growing national issue receiving greater interest due to the expanding aquaculture industry. Shellfish are now more likely to be sold throughout the entire year. New regulations require quick cooling during warmer months to ensure that bacterial growth is minimized. Maryland has long been recognized as having one of the best shellfish sanitation programs in the nation. Providing additional resources to the MDE to expand its water quality monitoring with allow better and quicker decisions to be made with regard to granting of leases, better monitoring of water quality conditions after weather events to ensure the best closing and opening procedures as well as providing quick and professional service to growers to ensure the highest quality shellfish reach the market.



Cage grown triploid oysters provide high quality meats for the half-shell markets throughout the year. Photo courtesy 38° North LLC.



MACC Membership

Aquaculture Coordinating Council membership is specified by law and represents agencies regulating and promoting the industry, research and extension units of the University of Maryland, both houses of the General Assembly, and members of the aquaculture and seafood industries. Appointed members are eligible to serve two consecutive three-year terms. The Council meets bi-monthly in odd numbered months and elects a Vice Chairman who rotates to Chair the Council the following year. The Council traditionally has one officer from agency/institution category while the other represents industry.

Members of the Maryland Aquaculture Coordinating Council

Mr. Karl Roscher, Aquaculture Division Director, Department of Natural Resources

Mr. Don Webster, Chairman, University of Maryland Extension

Mr. Andrew Buck, Vice Chairman, Patuxent Seafood, TFL

Senator Katherine Klausmeier, Maryland Senate

Delegate Anthony O'Donnell, Maryland House of Delegates

Mr. Don Flax, Byrd's Inc., Aquaculture Industry

Mr. John Farrington, Johnny Oysterseed LLC, Aquaculture Industry

Mr. Johnny Shockley, Hooper's Island Oyster Company, Aquaculture Industry

Ms. Terry Witt, Witt Seafood, TFL

Mr. Craig Mask, Calvert County Watermen's Association, TFL

Dr. Reginal Harrell, Northeastern Regional Aquaculture Center, University of Maryland

Dr. Andrew Lazur, University of Maryland Center for Environmental Science

Ms. Erin Butler, Department of Health and Mental Hygiene

Lt. Charles Vernon, Natural Resources Police

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