

MARYLAND AQUACULTURE COORDINATING COUNCIL

FY 22

Natural Resources Article § 4-11 A-03.2(c)(1)(i)

Prepared by the Maryland Aquaculture Coordinating Council

November 2025

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2022

Maryland Aquaculture Coordinating Council

Annual Report 2022

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

Cover: Restored oyster grounds use modern hatchery production of larvae with remote setting systems and techniques to produce spat on shell that is planted and monitored during growth. New research is being conducted that will increased the acreage in production and provide benefits to the Economy, Employment and Environment



Tawes State Office Building
580 Taylor Avenue, B-2
Annapolis, Maryland 21401

TO: The Honorable Lawrence Hogan, Governor
The Honorable Paul Pinsky, Chair, Senate Education, Health and Environmental Affairs
Committee
The Honorable Kumar Barve, Chair, House Environment and Transportation Committee

FROM: William Cox, Chair, Maryland Aquaculture Coordinating Council

DATE: June 1, 2022

SUBJECT: ANNUAL REPORT OF THE AQUACULTURE COORDINATING COUNCIL

I am pleased to present the 2022 report of the Maryland Aquaculture Coordinating Council. The Council provides leadership to develop an aquaculture industry that has brought Maryland national attention and recognition. The dedication of our Council members to this industry continues to identify issues and provide solutions for expansion. We believe aquaculture provides strong benefits for economic growth and expanded employment of our residents, while aiding the environment and providing our state and nation with quality seafood.

The Coordinating Council has carried out many of the tasks assigned to it by the General Assembly when it was created in 2005. We constantly recommend changes to regulations to help the industry rebuild our depleted shellfish resources while creating opportunity for increasing the number of aquaculture businesses to become established and expand. The Council's defined and broad-based membership includes representatives of industry, state agencies, General Assembly, University of Maryland and support organizations that provides a model for progress by working together.

We see opportunities to grow new businesses while encouraging watermen to transition to aquaculture to assure their future. Their abilities are suited to aquaculture production and many have already entered the industry. We look forward to their contributions in expanding production to provide economic opportunities for rural communities and to help improve water quality by creating habitat for healthy Chesapeake and coastal bays.

Challenges remain for aquaculture to reach full potential in Maryland. Therefore, we submit our recommendations for your consideration and look forward to continuing the strong collaboration with our elected leaders that has helped us forge ahead.

The Council will be pleased to provide briefings to you or your members if additional information is needed to develop the recommendations presented in this report. On behalf of the Council, I thank you for the support you have provided to the aquaculture industry, as well your foresight and confidence in creating the Maryland Aquaculture Coordinating Council.

Executive Summary

The Aquaculture Coordinating Council (ACC) was created by the Maryland General Assembly in 2005 and charged with assisting the development of all types of commercial aquafarming by studying and making recommendations for changes required to attract investment and promote economic and employment growth in the industry. The Council provides a forum for state agencies, institutions, non-governmental organizations, political leaders and business leaders to discuss issues while providing strong and diverse expertise through its designated categories of membership to meet its legislative mandate to “advance Maryland aquaculture”.

Support for the development of aquaculture as an economically and environmentally beneficial industry has resulted in over 7,500 acres being placed in active shellfish production. Watermen and other entrepreneurs have entered this industry, bringing advances in production methods and equipment, business development, and marketing to create new companies and brands, expand sales and generate support industries. These auxiliary businesses include equipment fabrication, shellfish hatcheries, vessel construction and provision of supplies. Aquafarming businesses have expanded and invested in planting, raising and harvesting millions of shellfish annually.

While shellfish aquaculture remains a principal area of growth for the state, recent interest has been shown by international companies to invest in recirculating production systems for salmon. This will increase the availability of this popular seafood while minimizing the carbon footprint that is currently created when air shipping fish internationally. One production facility is in the design phase for the Eastern Shore and others may be forthcoming as research on production techniques further advances potential for profitable output.

Maryland also has aquaculture businesses producing aquatic plants for water garden, pond management and shoreline stabilization uses and some finfish production operations.

Council members have broad and diverse experience in aquaculture that aids in creating solutions for identified needs. The following issues have been identified as current impediments and must be addressed for continued growth and opportunity for aquaculture in our state. We respectfully submit the following for consideration:

Summary of 2022 Recommendations

I. Water Quality Monitoring: The Maryland Department of Environment (MDE) is responsible for carrying out federal (Title 21 CFR Part 123) and state (Natural Resources Article 4-742 Maryland Annotated Code) laws mandating bacteriological monitoring and investigation into pollution sources to ensure that shellfish are harvested from unpolluted waters. MDE conducts intensive shoreline surveys to identify and mitigate pollution sources that may affect shellfish harvesting waters. Historic expansion of shellfish aquaculture has led to year-round harvest that increased the number of monitoring stations needed to ensure adequate spatial

coverage to protect public health. This has significantly increased personnel hours required for surveys. The Department requests additional human and operational resources to effectively carry out timely support for its monitoring and data collection mandates.

II. Protection of Property: The Natural Resources Police (NRP) provides a strong presence to protect our marine resources. However, their ranks have been reduced and their responsibilities have increased during the past two decades, leading to concern for their ability to protect natural shellfish stocks and assist private growers in keeping crops secure. When NRP was merged with the Park Rangers in 2005, a total of 353 NRP and law enforcement park rangers were in the unit. Immediately after the merger, 35 PINS were abolished or transferred to other agencies leaving the NRP with more statewide responsibility and even fewer officers. Currently, NRP has an authorized strength of 275 with 9 vacancies. Only 192 positions are sergeants and below assigned to uniformed, field patrol. These are the officers that are actually seen out in the field on a daily basis. NRP must be able to respond quickly and effectively to problems and theft has repeatedly been identified as a principal one in surveys. Support for NRP assets is required for Maryland to meet the challenge of attracting private capital to invest and expand aquaculture crops to meet the growing demand for seafood. The Council has urged political leaders to provide enhanced funds for law enforcement for a strong and visible force and urges that new assets be provided to this vital force.

III. Aquaculture and Commercial Fishery Development Grants: Legislation creating the Aquaculture Coordinating Council provided designated tasks for it. Item ii directed the Council to *“Establish and monitor a grant program for the implementation of appropriate projects that support the economic health of the State aquaculture industry”*. To date, funds have not been provided for this purpose. With industry growth, new equipment and methods have been used to

produce quality products with strong growth in recent years. However, those in business are often unable to allocate funds to develop ideas they have developed for applied research that could result in more efficient gear, higher output, lower input costs and identification and development of new markets. Providing funds for this purpose can keep Maryland producers at the forefront of the industry nationally. Additionally, watermen often have ideas for innovations that could



Innovation in material handling is key to success

be used to aid them in their seafood businesses. We request funds that be provided for the Council to develop an Aquaculture and Commercial Fisheries Development Grant Program. This would be organized and operated similar to one that has been effectively used in Virginia for several decades for aquaculture and fisheries projects. These are overseen by a committee of institutional and industry representatives. Project grant funds would not be allowed for salaries, or purchases of vehicles or vessels and the project and its results would be required to be documented and made publicly available.

Members of the Maryland Aquaculture Coordinating Council

Mr. William Cox, Honga Oyster Company, Industry, Chairman

Mr. Donald Webster, University of Maryland Extension, Vice Chairman

Senator Katherine Klausmeier, Maryland Senate

Delegate Johnny Mautz, Maryland House of Delegates

Mr. Robert Witt, Tidal Fish License

Mr. James Mullin, Tidal Fish License

Mr. William Kilinski, Tidal Fish License

Mr. John Barnette, Industry

Ms. Victoria Brown, Stump Cove Oyster Company, Industry

Mr. Stone Slade, Maryland Department of Agriculture

Mr. Ewing McDowell, Maryland Department of Commerce

Ms. Kathy Brohawn, Maryland Department of the Environment

Ms. Kim Coulbourne, Maryland Department of Health

Vacant, Maryland Department of Natural Resources

Capt. Catherine Medellin, Maryland Natural Resources Police

Dr. Jeffrey Cornwell, Vice-chairman, UMD Center for Environmental Science

Dr. Reginal Harrell, University of Maryland

Mr. Colby Ferguson, Maryland Farm Bureau

Mr. Ward Slacum, Oyster Recovery Partnership



Maryland Aquaculture Coordinating Council

2022 Annual Report

Aquaculture Coordinating Council - Legislative Background

The Aquaculture Coordinating Council was created in 2005, the result of a recommendation by a legislatively mandated Task Force on Seafood and Aquaculture. It has a designated membership that includes Maryland agencies involved in permitting, regulating, policing and advancing the industry. It includes representatives of the University System of Maryland, appointed members of aquaculture and commercial fishing industries and non-governmental organizations. The Council is charged by the General Assembly with designated tasks to develop all segments of the industry including finfish, shellfish and aquatic plants. Tasks assigned to the Council included:

- *Develop Best Management Practices for aquaculture 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 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.*

(Ref: Annotated Code of Maryland 4-11A-03.2)

Engaging our Citizens

The Aquaculture Coordinating Council meets bi-monthly with workgroups on specific topics that meet in the interim. All meetings open to the public through broadly advertised notice. Time is provided for public input at regular and workgroup meetings with procedures that assure non-Council member input. This outreach has aided attendance, which has increased with regular and broad representation from growers and other stakeholders.

The Council uses its contact with citizens to identify potential new members who may be interested in serving. Maryland law requires three Aquaculture Industry representatives and three Tidal Fish License (TFL) holders to be appointed to the Council. These members serve staggered terms and may be appointed for two consecutive ones before being required to take at least one year off before becoming eligible for appointment again. Since its formation, the Council has been fortunate to have had superior representation from those in appointed categories, with many being elected to leadership roles. Two members (one in each category) rotate from the Council annually. Building a strong aquaculture community created opportunity to identify new growers for Council appointments. Members help identify problems and areas of concern and work to strengthen Maryland aquaculture to create economic growth and employment for our citizens while aiding the environment.

Government Support

Many state and federal agencies support the development and advancement of Maryland aquaculture through programs and activities. Non-governmental organizations are also heavily engaged in supporting shellfish aquaculture activities due to the strong environmental benefits that accrue to our waters from biofiltration the animals provide.

Department of Natural Resources

Aquaculture permit consolidation was moved to DNR in 2012 by creating the Aquaculture and Industry Enhancement unit. Unit staff provide a range of services including: coordinating with the Baltimore District of the US Army Corps of Engineers for required federal permits; verifying lease operation to the ensure the ‘active use’ required for this public resource; field visits and surveys to assure compliance with environmental regulations; annual billing for lease rental; lease transfers; permits for importation of shell, larvae and seed from out of state sources; and coordinating legal issues for lease protests with the Office of the Attorney General.



Development of aquaculture to rebuild the critically depleted oyster resource and industry has been aided in recent years by the construction of two privately operated oyster hatcheries in Maryland. These will complement other private hatcheries within the Chesapeake Bay region and strengthen the output of the UMCES Horn Point hatchery, which has aided in rebuilding

the industry through annual production of seed and larvae as well as research and extension education programs that are provided to those engaged in this industry.

Two types of leases are offered in Maryland waters. Submerged Land Leases (SLL) use traditional spat on shell bottom culture methods although most now use hatchery larvae and remote setting systems to produce seed for planting. Water Column Leases (WC) use a range of containment gear including cages, floats and other equipment to raise single oysters that are principally marketed to restaurants and raw bars. A total of 714 persons are listed as Permittees who are in charge of lease operations, while 1,606 are registered as employees for these leases. Therefore, the industry provides significant employment benefits to the state.

This table shows progress made to increase shellfish aquaculture leasing from September, 2010, when a new leasing program was implemented, to June 2022:

Lease Activity September 2010 - June 2022	Total Lease Sites	Total Acreage
All lease applications submitted	594	11,553
Submerged Land Leases executed	209	5,950
Water Column Leases executed	125	680
All leases executed	334	6,631
Applications currently in process:		
Submerged Land & Water Column Leases	96	2,079

Shellfish Aquaculture Lease Summary

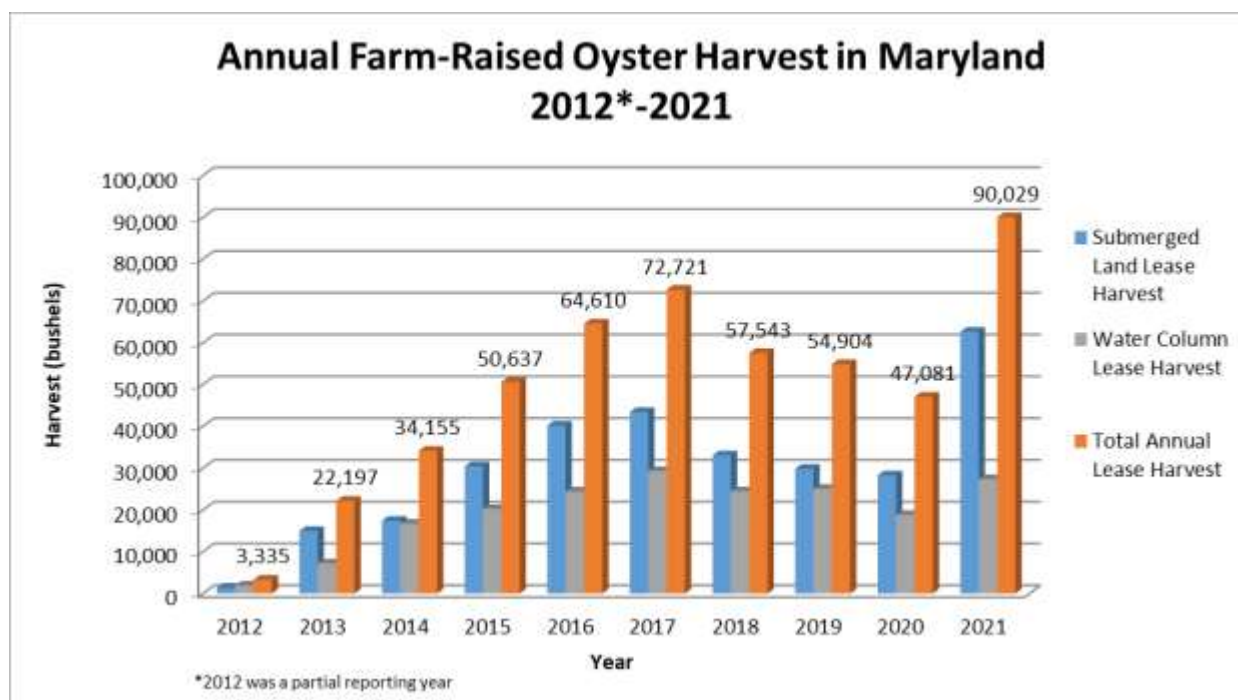
Lease Acreage By Type and County												
Lease Type	AA	CA	CH	DO	KE	QA	SM	SO	TA	WI	WO	Total
Bottom	370.05	132.4	88.6	2,642.6	44.8	20.4	809.63	1,005.8	720.09	1,157.5	15.2	7,007.07
WC	7.5	37.5	7.9	182.85	4.9	3.71	206.31	19.7	40.3	0	52.9	563.57
Total	377.55	169.9	96.5	2,825.5	49.7	24.11	1,025.94	1,025.5	760.39	1,157.5	68.1	7,570.64

Lease Number By Type and County												
Lease Type	AA	CA	CH	DO	KE	QA	SM	SO	TA	WI	WO	Total
Bottom	24	11	5	86	1	2	82	36	67	48	2	364
WC	2	7	1	26	1	4	33	5	10	0	13	102
Total	26	18	6	112	2	6	115	41	77	48	15	466

Harvest from Leases: Annual harvest from shellfish leases increased significantly following the lease program revision when the first products began to be harvested in 2012. Annual increases of thirty to fifty percent were seen, with an average during the period of approximately thirty-five percent. Severe freshets in 2018 and 2019 caused totals to decline. In 2020, the Covid epidemic caused widespread shutdowns of restaurants with effects

throughout the food chain. Harvests in that period dropped due to low consumer demand and processing. Many growers showed innovation by developing sales to consumers through direct shipment or local farmers markets. While overall harvests were constricted, growers continued to plant leases and demand for additional acreage was noted. The 2021 harvest was the highest yet with over 90,000 bushels reported to DNR from leased grounds, with the expectation that this will continue to increase as more acreage is developed. In addition to oysters, a lease in the coastal bays produces scallops in the higher salinity found in that region. However, there are currently no hard clam lease operators working in the coastal bays.

Year	Species	B	WC	Total
2012	Oysters	1,417	1,917	3,335
2013	Oysters	14,965	7,232	22,197
2014	Oysters	17,431	16,724	34,155
2015	Oysters	30,408	20,229	50,637
2016	Oysters	40,195	24,414	64,610
2017	Oysters	43,425	29,296	72,721
2018	Oysters	33,067	24,476	57,543
2019	Oysters	29,850	25,054	54,904
2020	Oysters	28,277	18,804	47,081
2021	Oysters	62,656	27,373	90,029



DNR also issued permits to several finfish producers, who raise fish in ponds and recirculating aquaculture (RAS) systems. There is interest from foreign salmon producers in building RAS units in Maryland to produce that species. This would cut the carbon footprint of those companies which currently ship their products to market by air across the Atlantic.

There are several producers of aquatic plants in state. Two raise and sell plants for aquatic gardens. One has developed a unique method of using them in floating ‘wetlands’ to control nutrient buildup in the many stormwater retention ponds within the state. Another has been a pioneer in using salt-tolerant plants for stabilizing Bay shorelines to counter erosion.

Department of Agriculture

The Maryland Department of Agriculture operates the Seafood Marketing unit that creates demand for our quality products. One of their programs is the “Oyster Pledge” that includes an innovative



Find a restaurant that serves authentic Maryland oysters!

logo to help boost sales. Restauranters sign the pledge to become listed on the MDA website as a participant and the website notes the significant environmental benefits that come from consuming oysters. An innovative Maryland map can be accessed by the public that shows restaurants and growers with their location, owner and contact information.

Department of the Environment

The Maryland Department of the Environment is charged with regulating shellfish harvesting water by identifying and eliminating pollution sources, collecting water samples across wide geographic areas for bacteriological examination by the Maryland Department of Health Laboratory Administration and collecting shellstock samples for analysis for potential bacteriological contamination and chemical toxicants. Sanitary surveys ensure waters used to raise shellfish are properly classified and regulated and their field crews maintain constant vigilance through monitoring water quality and observations to assure all waters are properly classified. These are posted on the Shellfish Harvesting and Closure Area Maps on their website for access by the public. Field crews also monitor specific waters when shellfish lease applications are filed for locations near to shorelines. MDE employees are engaged with counterparts through the nation in the National Shellfish Sanitation Program which develops regulations to ensure that only safe products reach consumers.



Department of Health

The Maryland Department of Health, Office of Food Protection (MDH OFP), is engaged in inspecting food handling and processing facilities. They are an integral part of the National Shellfish Sanitation Program that is recognized by the US Food and Drug Administration and the Interstate Shellfish Sanitation Conference for the sanitary control of shellfish produced and sold



for human consumption and to improve sanitation of shellfish moved in interstate commerce. Primary shellfish dealers must be trained in proper safe food handling procedures to include Hazard Analysis Critical Control Point (HACCP) methods as well as recordkeeping requirements, to receive a Shellfish Shipper certification. Training for this is usually offered at least annually in partnership with University of Maryland Extension specialists. MDH

DOH staff also provide one-on-one education to dealers while conducting pre-operational inspections of processing facilities to assure that only safe shellfish are distributed from Maryland shellfish dealers.

Department of Health – Laboratories Administration

The Division of Environmental Sciences of the Maryland Department of Health Laboratories Administration supports the National Shellfish Sanitation Program (NSSP) by testing shellfish waters and shellstock samples for microbial pathogens. This long-standing program has been continuously active for at least 39 years (longest tenure of a current scientist). Maryland's NSSP testing is performed at the Eastern Shore Regional Laboratory, which is strategically located in the coastal community it serves, and the Central Laboratory, which tests >10,000 shellfish water samples each year. Both laboratories rigorously maintain certification under the NSSP program, and are supported, in part, by annual equipment grants competitively secured from the Association of Food and Drug Officials with funds provided by FDA.

Maryland Agricultural and Resource-Based Industry Development Corporation

Since the creation of the Maryland Shellfish Aquaculture Financing Fund in 2011, MARBIDCO has approved 84 loans to 51 borrowers totaling \$5,211,628 for projects located in 10 tidewater counties. 31 were for Submerged Land Leases, 45 for Water Column (cage or float) Leases, and eight were a combination of both bottom and water column projects. Sixty-eight (68) loans were made to commercial watermen (TFL holders) and 80 loans are fully drawn. Borrowers in good standing have an opportunity for forgiveness of 40% (up to a maximum of \$100,000) or 25% (\$100,000 to \$300,000) of the loan principal balance amount.



In 2012, a special finance program was established for commercial watermen to develop remote setting systems for the production of seed oysters. MARBIDCO has approved three loans in this program totaling \$89,983, with all 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 sold spat on shell to the state for placement on public harvest grounds to keep that important part of the oyster industry viable.

USDA, Natural Resources Conservation Service

The Environmental Quality Incentives Program (EQIP) provides financial and technical assistance to agricultural producers to address natural resource concerns and deliver environmental benefits such as improved water and air quality, conserved ground and surface water, increased soil health, reduced soil erosion and sedimentation, improved or new wildlife habitat, mitigation against drought and increasing weather volatility. In Maryland, this program has been applied to shellfish farms to provide financial and technical assistance to aquafarmers to implement structural and management practices to optimize the environmental benefits of aquaculture production. The program has operated for many years to provide grants to oyster growers using bottom culture

methods to develop beneficial underwater habitat. Program grant funds are used to renovate substrate or emplace new material that is planted with hatchery produced spat on shell to emulate a natural oyster reef. This provides benefits from biofiltering while the habitat attracts many other beneficial species. The program has been highly effective in Maryland and has resulted in significant acres of submerged land leases being developed with approved beneficial practices leading to important environmental improvement of our waters.

The Nature Conservancy – Shellfish Oyster Aquaculture Recovery (SOAR)

During the past two years, the Covid pandemic caused significant problems throughout the United States and world. With human contact restricted, restaurants and other businesses closed and markets for food products were greatly affected. The aquaculture industry and Maryland shellfish farmers were part of this problem. During the fall of 2020, The Nature Conservancy and Pew Charitable Trusts offered funds to purchase oysters from shellfish growers for placement in sanctuaries. This provided cash flow to growers and the animals were used for their environmental benefits of nutrient cycling and providing habitat for other species. The Maryland program was developed with TNC in cooperation with DNR and UMD Extension to engage growers. The program had two rounds with Maryland one of seven states included in the program. In Round One, 857,851 oysters were purchased while Round Two purchased 399,993 oysters, for a total of 1,257,844 oysters. These were placed on 17 acres of sanctuaries in St. Mary's, Eastern Bay and the Nanticoke. Several growers stated that these funds allowed them to keep their employees paid during that time, while traditional markets were depressed.

University of Maryland

University of Maryland Extension (UME) in the College of Agriculture and Natural Resources is a key component of the state Land Grant System and provides continuing education for



UM faculty work with leaseholder to assess oyster growth Profitable success in aquaculture requires development of skills in production methods as well as business management. UME has decades of experience training industry through educational programs that include workshops, demonstrations, short courses and conferences. Mailed notification is provided to all leaseholders and through web and Facebook pages. Support material for training includes technical manuals, fact sheets, videos and spreadsheets in print and electronic form.

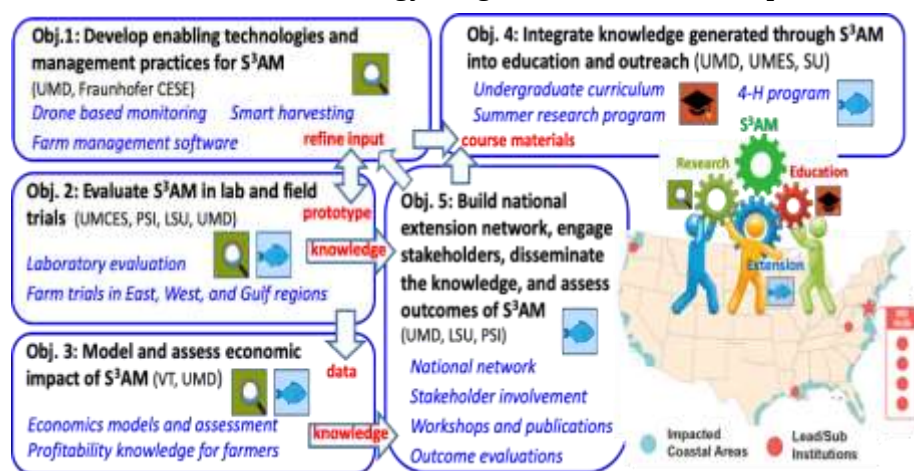
The UMCES Horn Point oyster hatchery participates by producing larvae and seed to support industry expansion and their facilities are used to conduct training programs. This allows students to understand hatchery operations as well as setting and nursery units. Single seed oysters are produced in downwellers and raised to planting size in small and large upwellers. HPL has fifty

setting tanks used for production of spat on shell seed for planting bottom leases and produces large quantities for development of sanctuaries and public oyster areas. Tanks are available for growers to use to produce seed for leases. A demonstration oyster farm has been operated at HPL for a decade with a variety of gear used on water column leases. The farm has been used for extension educational programs and research with publication in extension bulletins.

A Remote Setting Training program has been operated in the Extension project since 2011 with equipment including tanks, pumps and aerators in over 30 locations around the Bay. These are available for growers to use for two-week periods to learn to produce spat on shell seed to plant bottom leases and comply with the “active use” requirement for lease retention. The program normally services over 40 growers annually who produce spat in about 200 sets. Once trained, participants construct their own systems based on their lease size and planting requirements.

Research for Future Development

The University Of Maryland College Of Engineering obtained funding for a five year, \$10 million project from the US Department of Agriculture in 2020 for research in advanced technology and robotics applied to bottom cultivation of oysters. The initial project will develop better methods to assess potential lease sites and underwater drone technology for growers to monitor crops to assess size, condition and health of populations. Other research will develop a water quality monitor network to assess conditions for efficient operation and another will create more efficient harvest gear to remove oysters from grounds while avoiding the negative effects that



occur to the environment by currently used towed dredges. It includes undergraduate education at the University of Maryland Eastern Shore and Salisbury University and a 4-H component to complement current award winning robotics work of the Extension program. This USDA project is national in scope with an Advisory Board of researchers, extension faculty and growers in all US coastal areas to guide research to advance production. Faculty will conduct implementation studies in a range of coastal environments. The vision is to create technology to move the oyster aquaculture industry to the twenty-first century with parallels to modern land-based agriculture. The goal is to develop better planting methods, implement mechanized processing and create added-value products to expand production for national marketing through large-scale distribution while making Maryland known as a center for applied, high caliber aquaculture research.

Issues and Recommendations

The Aquaculture Coordinating Council has identified key issues affecting the advancement of Maryland aquaculture and provides recommendations developed through their meetings. For 2021, the Council respectfully submits the following for consideration:

I. Water Quality Monitoring

Issue: The Maryland Department of Environment (MDE) is responsible for carrying out federal (Title 21 CFR Part 123) and state (Natural Resources Article 4-742 Maryland Annotated Code) mandating bacteriological monitoring and investigation into pollution sources to ensure that shellfish are harvested from unpolluted waters. In addition, MDE conducts intensive shoreline surveys to identify and mitigate pollution sources that may impact shellfish harvesting waters. Continued expansion of the oyster aquaculture industry has resulted in year-round oyster harvest that can increase the number of monitoring stations needed to ensure adequate spatial coverage to protect public health. This has also increased personnel hours for shoreline surveys, and equipment and operational resource needs to support their monitoring and data collection.

MDE's Compliance Division tracks the hours devoted to aquaculture. These have risen in recent years due to the addition of thirteen new monitoring stations specifically for aquaculture, which is an increase of six stations from those that previously existed. Many of the recent aquaculture sites have been bottom leases further offshore and in deeper waters already covered by existing shellfish monitoring stations. As a result and at this time, staff have not had to establish as many of the near shore monitoring stations we had to in the past, which has eased some increased staffing needs. The critical need at this time is replacement of an aging vessel that is at the end of its serviceable life where making needed repairs is no longer cost-effective relative to replacement.

Federal funds may materialize in upcoming Congressional budget deliberations, but it is too early to say at this time. While oversight is from the US Food and Drug Administration (FDA), no funding has been provided for meeting these requirements. Over time, limited EPA funding has supported field monitoring programs because of water quality and public health obligations required under the federal Clean Water Act.

Recommendation: Secure \$125,000 in additional state funds for MDE shellfish programs, particularly for a replacement vessel in this fiscal year, and continue to track federal funding to ensure fiscal gaps are addressed. These programs have been effective in assuring that Maryland's shellfish industry remains competitive nationally while maintaining its excellent reputation for safe and wholesome products. It is critical for Maryland's economic and public health needs to support MDE shellfish monitoring programs.

II. Protection of Property

Issue: The Natural Resources Police (NRP) provides a strong presence to protect our marine resources. However, their ranks have been reduced during the past two decades, leading to concern for their ability to protect natural shellfish stocks and assist private growers in keeping crops secure. When NRP was merged with the Park Rangers in 2005, a total of 353 NRP and law enforcement park rangers were in the unit. Immediately after the merger, 35 PINS were abolished or transferred to other agencies. Currently, NRP has an authorized strength of 260 with 26 vacancies and more to come. Only 188 positions are sergeants and below assigned to uniformed field patrol. These are the officers that are actually in the field on a daily basis. NRP must be able to respond quickly and effectively to problems and theft has repeatedly been identified as a principal one in aquaculture industry surveys. Support for NRP assets is required for Maryland to meet the challenge of attracting private capital to invest and expand aquaculture crops to meet the growing demand for seafood. The Council has urged political leaders to provide enhanced funds for law enforcement for a strong and visible force and urges that new assets be provided to this vital unit.



Natural Resources Police presence has long been demonstrated as a high priority need to protect the private property of shellfish growers

Recommendation: Increase support for Natural Resources Police to deter theft of public and private shellfish by providing the force with expanded personnel and funds to enhance technological equipment that can multiply efforts of duty personnel for enforcement activities. NRP developed a Strategic Plan for FY2015-FY2019 that specifically addresses staffing needs. Funds should be allocated to support staffing recommendations as detailed in that document.

III. Aquaculture and Fisheries Resource Grant Program

Issue: Legislation creating the Aquaculture Coordinating Council provided a series of charges for it. Item ii directed the Council to “Establish and monitor a grant program for the implementation of appropriate projects that support the economic health of the State aquaculture industry”. To date, this important charge has not been implemented because funds have not been provided. With the growth of shellfish aquaculture, new equipment and methods must be introduced to produce quality products. However, those in business are often unable to allocate funds to develop innovative ideas for applied research that could result in more efficient gear, higher production, lower input costs and identification of new markets. Providing funds for this purpose will keep Maryland producers at the forefront of the industry nationally. Virginia

operates a program that provides a strong model for Maryland, with grants to both commercial fisheries and aquaculture to develop new and innovative ideas. Results must be made available to the public for others to utilize them.

Recommendation: The Council's vision is for an Aquaculture and Fisheries Innovation Fund to be established at \$100,000 annually and overseen by an Advisory Board comprised of seven individuals representing state agencies, University of Maryland and industry. Applicants would be required to be actively engaged in Maryland wild harvest or aquaculture industries. Proposals would be submitted to the Board at specified times during the year. Funds would not be allowed for the purchase of vessels, vehicles or payment of salaries. The intent of the program is for those in production to create improvements for operations without incurring cost and risk during development. The program would fund supplies or improve equipment and provide support for innovative products or methods used for aquaculture and commercial fishing products.

Proposals would be reviewed by the Advisory Board with external reviews requested, if required, for additional input. At the conclusion of a project, a report would be required from the recipient which would be in the public domain for information transfer to other users. Participants would be encouraged to provide information on their projects through UMD Extension programs.

To create this important program, the Governor and legislature are requested to provide \$100,000 for initiating this program. The Council envisions being able to form the Advisory Committee and have the program active within six months of the allocation.

The Council requests that the respective state agencies consider the recommendations in this report when formulating budget requests and it urges the Governor and General Assembly to support them. The Council looks forward to continuing the development of Maryland aquaculture for the **ECONOMIC GROWTH, INCREASED EMPLOYMENT** and **ENVIRONMENTAL BENEFITS** that derive from a healthy and thriving aquaculture industry.



Partners for Aquaculture Development

Maryland Agencies

Department of Health

Department of Commerce

Department of Agriculture

Department of the Environment

Department of Natural Resources

Natural Resources Police

MD 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 Resource Conservation Service

US Army Corps of Engineers, Baltimore District

National Oceanic & Atmospheric Administration

Non-Governmental Organizations

Maryland Farm Bureau

Oyster Recovery Partnership

Chesapeake Bay Foundation

Coastal Conservation Association, Maryland



For additional information, contact:

Maryland Department of Natural Resources

Aquaculture and Industry Enhancement Division

Tawes State Office Building

580 Taylor Avenue

Annapolis, Maryland 21401

Phone: 410-260-8313