REPORT OF THE
BLUE CATFISH WORK GROUP

Joseph W. Guthrie
Commissioner of Agriculture and Consumer Services

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Report of the Blue Catfish Work Group

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Legislative Mandate
Chapters 218 and 240 of the 2024 Acts of Assembly

Executive Summary

In response to the growing economic and ecological concerns presented by the continued spread of invasive blue catfish in the waters of the Commonwealth, Chapters 218 and 240 of the 2024 Acts of Assembly (Acts) required the Virginia Department of Agriculture and Consumer Services (VDACS) to convene a work group of stakeholders that have a vested interest in reducing the negative ecological effects of blue catfish and increasing the marketing, processing, and sale of blue catfish in the Commonwealth (Work Group). The Work Group convened four separate in-person meetings in 2025 (March 13, April 25, May 9, and June 12) to (i) review past and ongoing efforts to promote the creation of a market for blue catfish, (ii) identify and explore potential sectors for the blue catfish market, and (iii) identify any actions that the Commonwealth can take to promote and expand the market for blue catfish. Additionally, the Work Group held an all-virtual meeting on July 11, 2025, to discuss the draft version of this report to the General Assembly. The Acts require the Work Group to report its findings and recommendations to the Governor; the Secretary of Agriculture and Forestry; the Secretary of Natural and Historic Resources; and the Chairs of the Senate Committee on Agriculture, Conservation and Natural Resources, the Senate Committee on Finance and Appropriations, the House Committee on Agriculture, Chesapeake and Natural Resources, and the House Committee on Appropriations no later than September 1, 2025. This report documents the work of the Work Group and summarizes the Work Group's discussions and recommendations.

Recommendations of the Blue Catfish Work Group

The following Work Group recommendations address the three core charges outlined in Chapters 218 and 240 of the 2024 Virginia Acts of Assembly:

1. Review past and ongoing efforts to promote the creation of a market for blue catfish

The Work Group revealed that multiple groups were all promoting blue catfish independently of each other. The Work Group recommends that one group take the lead on marketing blue catfish to align domestic and international efforts. To do this effectively, additional authorization and funding for a full-time equivalent (FTE) to be housed under the Virginia Marine Products Board (VMPB) is needed. The primary function of this position is to consolidate and disburse grant and other funding opportunities to promote marketing and production efforts. This should

include a targeted media campaign with influencers such as celebrity chefs, chef competitions, and festivals revolving around the theme that the fish tastes good, is good for you, and eating it is good for the environment.

The Work Group recommends labeling blue catfish as "Chesapeake Wild Harvest" to differentiate it from farmed fish. The Work Group recommends one of the following organizations to certify the label: The Waterman's Association, Marine Resource Commission (MRC), or the Virginia Finest program.

2. Identify and explore potential sectors for the blue catfish market

Promotions:

- Sponsored events to promote catching and eating of blue catfish
- Social media marketing strategy
- Expand and enhance the use of the Department of Wildlife Resources "Go Outdoor Virginia" app for anglers to use to show where they are catching fish, with the data being used to understand where the fish are and encourage others to fish there

Education:

- Showcase the nutritional comparison of fish
- Program to enhance consumer education
- How to properly prepare the fish for both institutions and end user consumers

Immediate impact customer base:

- Corrections and schools
    - Easing restrictions on the cost per meal per person to allow for greater use of blue catfish within correctional facilities
    - Introduce incentives for a certain percentage of food (suggest 20 percent) to be sourced locally (state of Virginia) for all state funded institutions and federally funded child nutrition programs

3. Identify any actions that the Commonwealth can take to promote and expand the market for blue catfish

The Work Group discussed possible funding and budgetary actions that could be explored.

- Consolidation of information on potentially available funding sources:
    - Fisheries Innovation for Sustainable Harvest Fund
    - Marine Fisheries Improvement Grant Program
    - Agriculture and Forestry Industries Development Fund (AFID) Blue Catfish Processing, Flash Freezing, and Infrastructure Grant Program

- General Assembly budgetary actions:
    - Increase institutional funding for local purchases
    - Fund the Fisheries Innovation for Sustainable Harvest Fund

- Additional funding to increase support for MRC's Commissioners Waterman's Apprenticeship Program and add an additional FTE for outreach and resource connection.
- Maintain and increase funding for the AFID Blue Catfish Processing, Flash Freezing, and Infrastructure Grant Program
- Additional funding to DWR to revise the Go Virginia" app
- Authorize and fund an FTE for the VMPB grants manager
- EO 14276 "Restoring American Seafood Competitiveness" joint Commonwealth resolution to Congress encouraging moving Blue Catfish back to an FDA regulated item from the United States Department of Agriculture.

Introduction

In response to mounting ecological and economic challenges posed by the spread of invasive blue catfish in Virginia's waterways, Chapters 218 and 240 of the 2024 Acts of Assembly required VDACS to convene a work group of stakeholders that have a vested interest in reducing the negative ecological effects of blue catfish and increasing the marketing, processing, and sale of blue catfish in the Commonwealth (Work Group) (*Appendix A*). As stated in the Acts, the purpose of the Work Group is to (i) review past and ongoing efforts to promote the creation of a market for blue catfish, (ii) identify and explore potential sectors for the blue catfish market, and (iii) identify any actions that the Commonwealth can take to promote and expand the market for blue catfish. This report documents the work of the Work Group and summarizes the Work Groups discussions and recommendations.

The Acts require that the Work Group include representatives of the following: the Marine Resources Commission (VMRC); the Department of Corrections (VDOC); the Department of Education (VDOE); the James River Association; the Virginia Seafood Agricultural Research and Extension Center (VSAREC); the Virginia Marine Products Board (VMPB); the Virginia Institute of Marine Science (VIMS); the Virginia Waterman's Association; the Virginia Restaurant, Lodging & Travel Association (VRLTA); current and prospective blue catfish processors; Friends of the Rappahannock; the Chesapeake Bay Foundation; and other state agencies or stakeholders deemed necessary by VDACS. A full list of Work Group members can be found in *Appendix B.*

Background

Blue catfish (*Ictalurus furcatus*) are an invasive, non-native species that have rapidly proliferated in Virginia's tidal rivers and the Chesapeake Bay since their introduction in the 1970s. Initially stocked to enhance recreational fishing, blue catfish have since become one of the most abundant species in many of Virginia's aquatic ecosystems. As apex predators, blue catfish have become an existential threat to many native species, including but not limited to menhaden, blue crabs, clams, oysters, shad, and striped bass, due to their ability to consumer a wide variety of foods. Their ability to survive in a diverse range of environmental conditions and varying levels of salinity have enabled them to thrive, leading to significant ecological and economic concerns.

Their impact extends beyond ecological disruption. Blue catfish overpopulation has led to increased competition for resources, disrupted food chains, and altered aquatic habitats. In addition, their presence complicates fisheries management and puts significant pressure on

watermen and processors as species availability changes. However, because blue catfish are also a high-protein, low-fat fish with strong consumer appeal when properly marketed and prepared, their abundance also presents an economic opportunity.

To this end, the Acts direct the Work Group to recommend methods for supporting and encouraging the coordination of efforts to create a robust and resilient market for blue catfish. Specifically, the Acts charge the Work Group to review past and ongoing efforts to promote the creation of a market for blue catfish, identify and explore potential sectors for the blue catfish market, and identify any actions that the Commonwealth can take to promote and expand the market for blue catfish. As such, much of the Work Group's discussion revolved around the roles and responsibilities of existing institutional stakeholders in marine resource management, marketing, education, and economic development.

Multiple state and federal agencies play key roles in responding to the blue catfish issue. VMRC is charged with managing the Commonwealth's marine and aquatic resources, including implementation of fisheries regulations for commercial and recreational fishing and administering the Fisheries Innovation for Sustainable Harvest Fund to support infrastructure and market development. The Virginia Department of Wildlife Resources (DWR) manages inland fish populations and administers recreational fishing programs, including the "Go Outdoors Virginia" app that provides tools for tracking angler activity and fish distribution.

VDACS is responsible for promoting and regulating agricultural and seafood products, including managing grant programs that support blue catfish processing and marketing efforts. VDACS also oversees the VMPB, which plays a key role in developing marketing campaigns and identifying domestic and international trade opportunities for Virginia seafood. VDOC and VDOE are institutional food purchasers whose procurement decisions influence the feasibility of integrating blue catfish into public food service programs, such as school lunches and correctional meals. The VDOC is constrained by per-meal cost restrictions and VDOE by federal guidelines, but both represent critical early adopters for scaling blue catfish consumption.

At the federal level, the United States Department of Agriculture (USDA) influences institutional food purchases through reimbursement policies and the USDA Foods program. However, blue catfish is not currently included in the USDA foods commodities list, which limits its uptake in federally supported meal programs. The National Oceanic and Atmospheric Administration (NOAA) and its affiliated Sea Grant programs also support scientific research and outreach efforts related to seafood safety, sustainability, and market development.

Academic institutions such as VSAREC and VIMS are actively engaged in research on seafood processing, nutrition, market viability, and environmental impacts. These institutions provide critical data to inform public policy, institutional procurement, and private-sector decision-making.

Several members of the Work Group represent companies that are either current or prospective processors of blue catfish, bringing critical industry insight into the challenges and opportunities of increasing production and distribution. Meade Amory, CEO of L.D. Amory Seafood, leads a family-owned business with deep roots in Virginia's commercial seafood industry and significant experience in processing wild-caught species. Chris Sopko, Vice President of Operations at Sea

Farms Inc., offers a perspective from a company actively exploring expanded operations in the blue catfish market. Brian Peede, Plant Manager at Wanchese Fish Company, represents a major processor with existing infrastructure and capacity to handle large-scale seafood production. Collectively, these representatives help ground the Work Group's recommendations in the practical realities of seafood processing, including labor, regulatory compliance, infrastructure needs, and market viability.

Effectively addressing the blue catfish issue requires coordinated action among these agencies, institutions, and stakeholders to balance ecological stewardship with economic opportunity. The Work Group's charge builds on this interagency foundation, aiming to chart a path forward through integrated policy, market innovation, and strategic investment.

Work Group Meetings

The Work Group held its first three meetings on March 13, April 25, and May 9, 2025. Meetings were centered on each individual charge of the Acts, which were: (i) to review past and ongoing efforts to promote the creation of a market for blue catfish, (ii) to identify and explore potential sectors for the blue catfish market, and (iii) to identify any actions that the Commonwealth can take to promote and expand the market for blue catfish. Its fourth meeting was held on June 12, 2025, to review the proposed recommendations for the report. Its fifth meeting was held on July 11, 2025, to review the draft report. The Work Group opened the floor for in-person public comments at each in-person meeting. No public comments were provided to the Work Group.

This report documents the Work Group's activities and summarizes its key findings and recommendations to inform further legislative and administrative action.

March 13, 2025

The Work Group convened its first meeting on March 13, 2025, at the Oliver Hill Building in Richmond. At the beginning of the meeting, members were given copies of the enacting legislation, a draft electronic meeting policy, and an agenda. The electronic meeting policy is attached as *Appendix C*. The agenda is attached as *Appendix D.* All members of the Task Force then introduced themselves and explained their connection or experience with the topic. Before moving on to general discussion on the topic, Commissioner Guthrie presided over the election of Chair and called for nominations from the Work Group. The Work Group elected Dr. Michael Schwarz as Chair and Dan Knott as Vice Chair, both by a unanimous vote. The Work Group then unanimously voted to adopt an electronic meeting policy as presented by Commissioner Guthrie.

This initial session centered on reviewing past and current efforts to develop a market for blue catfish and identifying critical obstacles impeding progress. Members discussed the urgent ecological need to reduce blue catfish populations, citing the species' impact on native fish and aquatic ecosystems. A consensus emerged that a multi-pronged approach spanning market development, infrastructure, and public engagement would be essential to both manage the blue catfish population and realize its economic benefits.

Several challenges were highlighted. First, Virginia's current seafood processors lack the labor force and automation capacity required for consistent large-scale blue catfish processing. The

high cost of equipment, such as fillet or mincemeat machines, is not viable without reliable supply and demand. Members emphasized that economic viability for watermen hinges on increasing the yield and value of processed catfish. Second, the group identified a significant gap in public awareness and branding. To compete with lower-quality foreign imports, blue catfish must be clearly differentiated through a strategic, coordinated marketing campaign that emphasizes its local and wild-caught origin, environmental benefits, nutritional value, taste, and quality. Lastly, members explored opportunities to recoup value from waste coproducts, such as through nutraceuticals, pet food, or collagen extraction, which would increase profitability for processors and watermen alike.

The meeting also featured discussion of institutional purchasing and education. Members from the Department of Corrections highlighted barriers such as cost-per-meal restrictions, which could limit the adoption of blue catfish in state-funded meal programs. The Department of Education's federal funding cannot be used for blue catfish until the fish are listed in the approved USDA foods commodities list. Others suggested that local sourcing incentives or grant programs could help overcome these barriers. Additionally, outreach efforts to engage students and families, such as through K–12 experiential learning and school food programs, were discussed as a long-term strategy to build consumer demand.

Throughout the discussion, Work Group members stressed the importance of a centralized, sustained marketing and coordination effort, potentially led by a dedicated office or staff position, to unify disparate efforts and drive progress. Ideas included pursuing partnerships for shared processing equipment, modeling branding and certification efforts after existing programs like "Virginia's Finest," and leveraging successful examples of coproduct valorization from other states.

The meeting minutes for March 13 are attached as *Appendix E,* and the meeting summary is attached as *Appendix F*.

April 25, 2025

The Work Group held its second meeting on April 25, 2025, at VSAREC in Hampton. At the beginning of the meeting, members were given copies of the enacting legislation and an agenda (*Appendix G*.) Building on the foundation laid in the initial meeting, this session focused on identifying potential sectors for the blue catfish market, with a particular emphasis on institutional food service, branding and certification, and value-added product development.

Discussion opened with a renewed look at institutional markets, particularly Virginia correctional facilities and K–12 public schools, that were identified as promising sectors for sustainable market entry and expansion. However, members noted that cost-per-meal restrictions and fragmented procurement processes could hinder the adoption of blue catfish in these settings. Participants emphasized that legislative support or partnerships with USDA programs could help overcome these challenges. The nutritional benefits of blue catfish, including its high protein content and omega-3 fatty acids, were highlighted as a strong selling point, especially when paired with student-friendly products like blue catfish cakes. Bee Thorp from VDOE shared successful examples from pilot programs in Maryland and Virginia, where schools have served fish cakes under less intimidating names and paired them with cost-effective ingredients to keep meals within budget (*Appendix H)*.

Along with discussions of institutional adoption, the group explored opportunities for a formal certification system to distinguish Virginia blue catfish in the marketplace. Members considered creating a "Virginia Verified Wild Blue Catfish" label modeled after the existing Virginia Verified Beef program. The goal of this certification would be to reinforce the local, wild-caught identity of the product, which could enhance consumer trust and marketability. Members expressed optimism that existing data systems within the Watermen's Association could support traceability without the need for third-party certification.

Throughout the meeting, infrastructure and product development continued to emerge as key concerns. The need for mincing equipment to process blue catfish coproducts into usable forms, like fish cakes or nuggets, was seen as essential to expanding the market and increasing processor profitability. Members noted that, currently, much of the fish is discarded or sold at minimal value to pet food buyers. Redirecting this coproduct into human food products would increase its market value and open new revenue streams. However, concerns were raised about the cost of the equipment, demand uncertainty, and the need for more research on consumer preferences. Virginia Tech and VIMS were identified as critical partners in conducting product development, nutritional analysis, and consumer market testing.

The group also addressed broader questions about market dynamics and federal alignment. It discussed the possibility of aligning the blue catfish effort with USDA's commodity purchasing programs and existing federal initiatives aimed at bolstering the domestic seafood industry. Members also reflected on the potential of utilizing the newly established Fisheries Innovation for Sustainable Harvest Fund to support marketing, infrastructure, and research needs, noting that while the fund is not yet capitalized, it offers a promising long-term mechanism for investment.

As with the first meeting, the need for centralized coordination and consistent messaging remained a key theme. Members emphasized the importance of establishing a single entity or lead position responsible for organizing and implementing marketing and outreach strategies.

The meeting minutes for April 25 are attached as *Appendix I* and the meeting summary is attached as *Appendix J*.

May 9, 2025

The Work Group convened its third meeting on May 9, 2025, at the Virginia Institute of Marine Science in Gloucester Point. At the beginning of the meeting, members were given copies of the enacting legislation and an agenda (*Appendix K*.) With prior meetings dedicated to identifying market sectors and understanding infrastructure challenges, this session focused on actionable strategies the Commonwealth can pursue to promote and expand the blue catfish market. Members discussed how Virginia could drive demand, strengthen supply chain infrastructure, and establish cohesive branding for blue catfish as a local, sustainable seafood product.

A major topic of discussion centered on the potential to increase demand through institutional markets by developing value-added products using underutilized portions of the fish. Participants pointed to the success of Maryland's catfish cake program in schools as a promising model. Maryland Secretary of Agriculture Kevin Atticks joined the meeting virtually to share insights on

Maryland's approach, Secretary Atticks emphasized the importance of strong collaboration between state agencies, school nutrition professionals, and processors in developing USDA-compliant catfish cakes that are both appealing to students and economically viable for suppliers. Drawing from these examples, Work Group members discussed how Virginia could similarly develop products tailored for public schools, correctional facilities, and other institutions. These institutions represent reliable, large-scale buyers and offer an effective starting point for market growth. Members emphasized that even modest improvements in the value of blue catfish coproducts could make a significant difference for both watermen and processors, turning discarded or low-value waste into a viable revenue stream.

Processing capacity remained a recurring concern, with members stressing that the current infrastructure is insufficient to meet growing demand. Without increased in-state processing, Virginia risks losing out on both domestic and international market opportunities. To address this, members discussed Maryland's Agricultural and Resource-Based Industry Development Corporation as a potential model, particularly its use of grants and low-interest loans in partnership with private lenders to support seafood processors. This type of financial support has the potential to reduce investment barriers and enable Virginia processors to accelerate the expansion of their operations.

The group also returned to the topic of branding, acknowledging the need for a clear and coordinated campaign to distinguish Chesapeake Wild Caught Blue Catfish from farmed or imported alternatives. Members discussed the importance of consistent messaging that emphasizes the wild-harvested nature of the fish, its ecological benefits, and its local origins. Drawing inspiration from successful programs like Virginia Verified Beef, the group continued to discuss the creation of a similar identity for blue catfish that could be promoted through chef partnerships, restaurant menu promotions, and digital outreach. There was general agreement that branding should avoid negative comparisons to aquaculture and instead focus on the distinct strengths of wild-caught product.

The meeting minutes for May 9 are attached as *Appendix L* and the meeting summary is attached as *Appendix M*.

June 12, 2025

The Work Group held its fourth and final in-person meeting on June 12, 2025, at the Virginia Marine Resources Commission headquarters in Fort Monroe. At the beginning of the meeting, members were given copies of the enacting legislation and an agenda (*Appendix N*.) The meeting centered on refining and finalizing the Work Group's core recommendations to the General Assembly. Members reviewed draft recommendations for the final report organized around the three focus areas outlined in the Acts: (i) reviewing past efforts to promote a market for blue catfish, (ii) identifying potential sectors for expansion, and (iii) identifying specific actions the Commonwealth can take to support these efforts.

The group opened with discussion around the need to consolidate and coordinate the numerous ongoing efforts to promote blue catfish across Virginia. Members expressed support for establishing a full-time position to oversee this work, housed under the VMPB. There was broad agreement that the role should focus less on direct marketing and more on discovering and securing grant funding and managing outsourced marketing initiatives. This approach would

enable Virginia to tap into broader federal and private resources while maintaining a centralized strategy for advancing the blue catfish market.

Branding remained a key topic. While no single solution was adopted, members emphasized the importance of distinguishing Virginia blue catfish as a wild-caught, local product. The group discussed whether labels should highlight "Virginia" or "Chesapeake" identity and agreed to recommend both as viable branding strategies in the final report. There was also continued support for incorporating language such as "wild-harvested" to differentiate the product from farmed or imported catfish and align with consumer values around sustainability and quality. The group also revisited opportunities for public outreach and sector-specific promotion.

Members recommended that state efforts include support for social media campaigns, cook-offs, and recreational fishing events to generate awareness and encourage consumption. Delegate Simonds noted that public education efforts should be clearly framed as consumer-focused, rather than tied to K–12 curriculum, and recommended removing references to VDOE in this context. Others suggested that DWR could support outreach through instructional content on catching and cleaning blue catfish, making this information more accessible to the public.

In discussion of actions the Commonwealth could take, members emphasized workforce development as a crucial component of market expansion. Delegate Simonds asked for clarification regarding a proposed recommendation for state funding to support a blue catfish apprenticeship program. Members noted the importance of such programs for supporting skilled labor pipelines, especially for individuals transitioning out of incarceration or military service. Commissioner Green clarified that VMRC already operates an apprenticeship program and recommended that the final report suggest increasing funding for that existing initiative rather than creating a new one.

The June discussion helped solidify consensus around key themes: coordination, infrastructure, public outreach, workforce readiness, and branding, all aimed at positioning blue catfish as a sustainable, high-quality, and economically viable Virginia seafood product.

The meeting minutes for June 12 are attached as *Appendix O* and the meeting summary is attached as *Appendix P*.

July 11, 2025

The Work Group held a brief fifth meeting on July 11, 2025, virtually to review the draft report. Additionally, the Work Group heard briefs on three relevant developments surrounding the Blue Catfish market. First, Commissioner Guthrie briefed the Work Group on Virginia's involvement in a recent proposal from the Southern United States Trade Association (SUSTA) to promote Blue Catfish in Southeast Asia, with a focus on Singapore as a gateway to broader export opportunities (*Appendix Q*).

Next, Dr. White shared recent research from VIMS that revealed key barriers to increased harvester participation, including low ex-vessel prices, limited buyer access, and concerns about processing availability. However, the study found that even modest increases in price would result in significant increases in fishing effort (*Appendix R*).

Dr. Schwarz also provided a brief overview of the Mitigation Action and Watermen Support Act of 2025, which proposes a NOAA-administered pilot program to fund the purchase of Blue Catfish from both processors and watermen within the Chesapeake Bay watershed. This bill also aims to incentivize the development of pet food, animal feed, and aquaculture markets, and would authorize $2 million in funding annually through 2029 (*Appendix S*).

Following these briefs, the Work Group provided feedback and suggested revisions to the draft report. Additionally, Delegate Keith Hodges recommended convening a meeting of subject matter experts, legislators, and Governor's staff to explore budgetary options that could provide more immediate action than legislative proposals. Commissioner Guthrie agreed, suggesting VDACS could help facilitate that meeting.

The meeting minutes for July 11 are attached as *Appendix T*.

Summary and Recommendations

Over the course of four meetings between March and June 2025, the Blue Catfish Work Group convened to assess how the Commonwealth could support the development of a robust and resilient market for blue catfish. The group brought together representatives from state agencies, the seafood industry, academia, and advocacy organizations to examine ecological concerns, infrastructure gaps, and economic opportunities. From the outset, members identified the need to reduce the overpopulation of invasive blue catfish while simultaneously creating a market that benefits watermen, processors, and consumers alike.

The Work Group's discussions emphasized three primary areas: expanding institutional markets, increasing processing capacity, and developing a cohesive branding strategy. Institutional buyers, such as schools and correctional facilities, were highlighted as promising entry points for market development, particularly through value-added products like USDA-compliant fish cakes. Members also stressed the need for equipment investments, such as mincers, to better utilize coproducts and enhance processor profitability. Throughout the meetings, there was broad agreement on the importance of establishing a full-time position to coordinate funding and outsourced marketing efforts as well as developing a verified certification or similar branding to distinguish wild-caught blue catfish from farm raised or imports. These themes and others are reflected in the final recommendations that follow.

1. Review past and ongoing efforts to promote the creation of a market for blue catfish

The Work Group revealed that multiple groups were all promoting blue catfish independently of each other. The Work Group recommends that one group take the lead on marketing blue catfish to align domestic and international efforts. To do this effectively, additional authorization and funding for a full-time equivalent (FTE) to be housed under the VMPB is needed. The primary function of this position is to consolidate and disburse grant and other funding opportunities to promote marketing and production efforts. This should include a targeted media campaign with influencers such as celebrity chefs, chef competitions, and festivals revolving around the theme that the fish tastes good, is good for you, and eating it is good for the environment.
The Work Group recommends labeling blue catfish as "Chesapeake Wild Harvest" to differentiate it from farmed fish. The Work Group recommends one of the following

organizations to certify the label: The Waterman's Association, Marine Resource Commission (MRC), or the Virginia Finest program.

2. Identify and explore potential sectors for the blue catfish market

Promotions:

- Sponsored events to promote catching and eating of blue catfish
- Social media marketing strategy
- Expand and enhance the use of the Department of Wildlife Resources "Go Outdoor Virginia" app for anglers to use to show where they are catching fish, with the data being used to understand where the fish are and encourage others to fish there

Education:

- Showcase the nutritional comparison of fish
- Program to enhance consumer education
- How to properly prepare the fish for both institutions and end user consumers

Immediate impact customer base:

- Corrections and schools
    - Easing restrictions on the cost per meal per person to allow for greater use of blue catfish within correctional facilities
    - Introduce incentives for a certain percentage of food (suggest 20 percent) to be sourced locally (state of Virginia) for all state funded institutions and federally funded child nutrition programs

3. Identify any actions that the Commonwealth can take to promote and expand the market for blue catfish

The Work Group discussed possible funding and budgetary actions that could be explored.

- Consolidation of information on potentially available funding sources:
    - Fisheries Innovation for Sustainable Harvest Fund
    - Marine Fisheries Improvement Grant Program
    - Agriculture and Forestry Industries Development Fund (AFID) Blue Catfish Processing, Flash Freezing, and Infrastructure Grant Program

- General Assembly budgetary actions:
    - Increase institutional funding for local purchases
    - Fund the Fisheries Innovation for Sustainable Harvest Fund
    - Additional funding to increase support for MRC's Commissioners Waterman's Apprenticeship Program and add an additional FTE for outreach and resource connection.
    - Maintain and increase funding for the AFID Blue Catfish Processing, Flash Freezing, and Infrastructure Grant Program
    - Additional funding to DWR to revise the Go Virginia" app
    - Authorize and fund an FTE for the VMPB grants manager

- EO 14276 “Restoring American Seafood Competitiveness” joint Commonwealth resolution to Congress encouraging moving Blue Catfish back to an FDA regulated item from the USDA

APPENDIX A

CHAPTER 218

An Act to direct the Department of Agriculture and Consumer Services to convene a work group relating to blue catfish; report.

[H 1135]

Approved March 28, 2024

Be it enacted by the General Assembly of Virginia:

1. *§ 1. That the Department of Agriculture and Consumer Services (the Department) shall, in order to support and encourage coordination regarding efforts to create a robust and resilient market for blue catfish, convene a work group of stakeholders that have a vested interest in reducing the negative ecological effects of blue catfish and increasing the marketing, processing, and sale of blue catfish in the Commonwealth. The work group shall include representatives of the following: the Marine Resources Commission, the Department of Corrections, the Department of Education, the James River Association, the Virginia Seafood Agricultural Research and Extension Center, the Marine Products Board, the Virginia Institute of Marine Science, the Virginia Waterman's Association, the Virginia Restaurant, Lodging & Travel Association, current and prospective blue catfish processors, Friends of the Rappahannock, the Chesapeake Bay Foundation, and other state agencies or stakeholders deemed necessary by the Department. The work group shall (i) review past and ongoing efforts to promote the creation of a market for blue catfish, (ii) identify and explore potential sectors for the blue catfish market, and (iii) identify any actions that the Commonwealth can take to promote and expand the market for blue catfish. The Department shall submit a report of the findings and recommendations of the work group to the Governor, the Secretary of Agriculture and Forestry, the Secretary of Natural and Historic Resources, and the Chairs of the Senate Committee on Agriculture, Conservation and Natural Resources, the Senate Committee on Finance and Appropriations, the House Committee on Agriculture, Chesapeake and Natural Resources, and the House Committee on Appropriations no later than September 1, 2025.*

CHAPTER 240

An Act to direct the Department of Agriculture and Consumer Services to convene a work group relating to blue catfish; report.

[S 402]

Approved March 28, 2024

Be it enacted by the General Assembly of Virginia:

1. *§ 1. That the Department of Agriculture and Consumer Services (the Department) shall, in order to support and encourage coordination regarding efforts to create a robust and resilient market for blue catfish, convene a work group of stakeholders that have a vested interest in reducing the negative ecological effects of blue catfish and increasing the marketing, processing, and sale of blue catfish in the Commonwealth. The work group shall include representatives of the following: the Marine Resources Commission, the Department of Corrections, the Department of Education, the James River Association, the Virginia Seafood Agricultural Research and Extension Center, the Marine Products Board, the Virginia Institute of Marine Science, the Virginia Waterman's Association, the Virginia Restaurant, Lodging & Travel Association, current and prospective blue catfish processors, Friends of the Rappahannock, the Chesapeake Bay Foundation, and other state agencies or stakeholders deemed necessary by the Department. The work group shall (i) review past and ongoing efforts to promote the creation of a market for blue catfish, (ii) identify and explore potential sectors for the blue catfish market, and (iii) identify any actions that the Commonwealth can take to promote and expand the market for blue catfish. The Department shall submit a report of the findings and recommendations of the work group to the Governor, the Secretary of Agriculture and Forestry, the Secretary of Natural and Historic Resources, and the Chairs of the Senate Committee on Agriculture, Conservation and Natural Resources, the Senate Committee on Finance and Appropriations, the House Committee on Agriculture, Chesapeake and Natural Resources, and the House Committee on Appropriations no later than September 1, 2025.*

APPENDIX B

Blue Catfish Work Group

Chapter 218 [H 1135]

Chair: Dr. Michael Schwarz
Vice Chair: Dan Knott

Fulfilling the Representation of	Task Force Member
Marine Resources Commission	• Commissioner Jamie Green • Deputy Commissioner Joseph Grist
Department of Corrections	• Kenny Raiford, Agricultural Manager III
Department of Education	• Gregory MacDougall, Science Specialist • Bee Thorp, Lead Farm to School Specialist
James River Association	• Tom Dunlap, James RIVERKEEPER
Virginia Seafood Agricultural Research and Extension Center	• Dr. Michael Schwarz, Director • Jonathon van Senten, Associate Professor
Marine Products Board	• Mike Hutt, Executive Director
Virginia Institute of Marine Science	• Dr. Shelby White, Marine Business Specialist
Virginia Waterman's Association	• Dan Knott, Vice President
Virginia Restaurant, Lodging, & Travel Association	• Tommy Herbert, Director of Government Affairs
Current and prospective blue catfish processors	• Meade Amory, L.D. Amory Seafood • Chris Sopko, Sea Farms Inc. • Brian Peede, Wanchese Fish Company
Friends of the Rappahannock	• Brent Hunsinger, Advocacy and Coastal Programs Director
Chesapeake Bay Foundation	• Chris Moore, Virginia Executive Director
Other state agencies or stakeholders deemed necessary by the Virginia Department of Agriculture and Consumer Services (VDACS)	• Hon. Shelley Simonds, Virginia House of Delegates • Hon. Keith Hodges, Virginia House of Delegates • Joseph Guthrie, Commissioner, VDACS • Rachel Meyers, Manager, Office of Agriculture and Forestry Development, VDACS • Jesse Phillips, Director of International Marketing, VDACS • Mike Bednarski, Chief of Fisheries, Virginia Department of Wildlife Resources (VDWR) • Clinton Morgenson, Regional Fisheries Manager, VDWR • Christina Garvey, Environmental Management Staff, National Oceanic and Atmospheric Administration

APPENDIX C

POLICY ON PARTICIPATION IN BLUE CATFISH WORK GROUP BY ELECTRONIC COMMUNICATIONS PURSUANT TO VA. CODE § 2.2-3708.3

It is the policy of the Blue Catfish Work Group (Work Group) that individual members of the Work Group may participate in meetings of the Work Group by electronic communications as permitted by § 2.2-3708.3 of the Code of Virginia. This policy shall apply to the entire membership and without regard to the identity of the member requesting remote participation or the matters that will be considered or voted on at the meeting. This policy shall be adopted at least once annually.

Whenever an individual member wishes to participate from a remote location, the law requires a quorum of the Work Group to be physically assembled at the primary or central meeting location.

When such individual participation is due to a personal matter, such participation is limited by law to two meetings per calendar year or 25 percent of the meetings held per calendar year rounded up to the next whole number, whichever is greater.

Further, it is the policy of the Work Group that the Work Group may hold all-virtual public meetings pursuant to subsection C of § 2.2-3708.3. Such all-virtual public meetings are limited by law to two meetings per calendar year or 50 percent of the meetings held per calendar year rounded up to the next whole number, whichever is greater. Additionally, an all-virtual public meeting may not be held consecutively with another all-virtual public meeting.

Requests for remote participation or that the Work Group conduct an all-virtual public meeting shall be conveyed to the Program Manager for the Office of Agriculture and Forestry Development, who shall then relay such requests to the Chairman of the Work Group.

Individual participation from a remote location shall be approved unless such participation would violate this policy or the provisions of the Virginia Freedom of Information Act (§ 2.2-3700 et seq. of the Code of Virginia). If a member's participation from a remote location is challenged, then the Work Group shall vote whether to allow such participation.

The request for remote participation or that the Work Group conduct an all-virtual public meeting shall be recorded in the minutes of the meeting. If the Work Group votes to disapprove of the member's participation because such participation would violate this policy, such disapproval shall be recorded in the minutes with specificity. The minutes shall include other information as required by §§ 2.2-3707 and 2.2-3708.3 depending on the type of remote participation or all-virtual public meeting.

This policy applies to all committees and subcommittees of the Work Group.

Version History		
Version	Date	Change Summary
1	3/13/2025	Original

APPENDIX D

Blue Catfish Work Group
HB 135 Chapter 218
Agenda

March 13, 2025
Oliver Hill Building, 102 Governor Street, 2nd Floor Board Room
Richmond, VA 23219

I.	Call to Order	Commissioner Guthrie
II.	Introductions	Commissioner Guthrie
III.	Legislative Report	Sponsors
IV.	New Business	Commissioner Guthrie
V.	Remote Policy Review	Chairperson
VI.	Waterman's & Processor's Remarks	Chairperson
VII.	Review of Objective & Topic #1	Chairperson
	"Review past and ongoing efforts to promote the creation of a market for blue catfish."	
VIII.	Discussion	Chairperson
IX.	Public Comment Period	Chairperson
X.	Next Meetings:	Chairperson

Friday, April 25, 2025, 1 pm – 3 pm
Location: TBD
Topic: "Identify and explore potential sectors for the blue catfish market."

Friday, May 9, 2025, 10 am – 12 pm
Location: TBD
Topic: "Identify any actions that the Commonwealth can take to promote and expand the market for blue catfish."

Friday, July 11, 2025, 10 am – 11 am
Location: Virtual
Topic: Review of Report

XI. Adjournment

CHAPTER 218

An Act to direct the Department of Agriculture and Consumer Services to convene a work group relating to blue catfish; report.

[H 1135]

Approved March 28, 2024

Be it enacted by the General Assembly of Virginia:

1. *§ 1. That the Department of Agriculture and Consumer Services (the Department) shall, in order to support and encourage coordination regarding efforts to create a robust and resilient market for blue catfish, convene a work group of stakeholders that have a vested interest in reducing the negative ecological effects of blue catfish and increasing the marketing, processing, and sale of blue catfish in the Commonwealth. The work group shall include representatives of the following: the Marine Resources Commission, the Department of Corrections, the Department of Education, the James River Association, the Virginia Seafood Agricultural Research and Extension Center, the Marine Products Board, the Virginia Institute of Marine Science, the Virginia Waterman's Association, the Virginia Restaurant, Lodging & Travel Association, current and prospective blue catfish processors, Friends of the Rappahannock, the Chesapeake Bay Foundation, and other state agencies or stakeholders deemed necessary by the Department. The work group shall (i) review past and ongoing efforts to promote the creation of a market for blue catfish, (ii) identify and explore potential sectors for the blue catfish market, and (iii) identify any actions that the Commonwealth can take to promote and expand the market for blue catfish. The Department shall submit a report of the findings and recommendations of the work group to the Governor, the Secretary of Agriculture and Forestry, the Secretary of Natural and Historic Resources, and the Chairs of the Senate Committee on Agriculture, Conservation and Natural Resources, the Senate Committee on Finance and Appropriations, the House Committee on Agriculture, Chesapeake and Natural Resources, and the House Committee on Appropriations no later than September 1, 2025.*

POLICY ON PARTICIPATION IN BLUE CATFISH WORK GROUP BY ELECTRONIC COMMUNICATIONS PURSUANT TO VA. CODE § 2.2-3708.3

It is the policy of the Blue Catfish Work Group (Work Group) that individual members of the Work Group may participate in meetings of the Work Group by electronic communications as permitted by § 2.2-3708.3 of the Code of Virginia. This policy shall apply to the entire membership and without regard to the identity of the member requesting remote participation or the matters that will be considered or voted on at the meeting. This policy shall be adopted at least once annually.

Whenever an individual member wishes to participate from a remote location, the law requires a quorum of the Work Group to be physically assembled at the primary or central meeting location.

When such individual participation is due to a personal matter, such participation is limited by law to two meetings per calendar year or 25 percent of the meetings held per calendar year rounded up to the next whole number, whichever is greater.

Further, it is the policy of the Work Group that the Work Group may hold all-virtual public meetings pursuant to subsection C of § 2.2-3708.3. Such all-virtual public meetings are limited by law to two meetings per calendar year or 50 percent of the meetings held per calendar year rounded up to the next whole number, whichever is greater. Additionally, an all-virtual public meeting may not be held consecutively with another all-virtual public meeting.

Requests for remote participation or that the Work Group conduct an all-virtual public meeting shall be conveyed to the Program Manager for the Office of Agriculture and Forestry Development, who shall then relay such requests to the Chairman of the Work Group.

Individual participation from a remote location shall be approved unless such participation would violate this policy or the provisions of the Virginia Freedom of Information Act (§ 2.2-3700 et seq. of the Code of Virginia). If a member's participation from a remote location is challenged, then the Work Group shall vote whether to allow such participation.

The request for remote participation or that the Work Group conduct an all-virtual public meeting shall be recorded in the minutes of the meeting. If the Work Group votes to disapprove of the member's participation because such participation would violate this policy, such disapproval shall be recorded in the minutes with specificity. The minutes shall include other information as required by §§ 2.2-3707 and 2.2-3708.3 depending on the type of remote participation or all-virtual public meeting.

This policy applies to all committees and subcommittees of the Work Group.

Version History		
Version	Date	Change Summary
1	3/13/2025	Original

APPENDIX E

FINAL MINUTES

Blue Catfish Work Group
Oliver Hill Building
Board Room, 220
102 Governor Street
Richmond, Virginia

Thursday, March 13, 2025

The meeting of the Blue Catfish Work Group (Work Group) convened at approximately 1:08 p.m. on Thursday, March 13, 2025 at the Oliver Hill Building. Commissioner of Agriculture and Consumer Services Joseph Guthrie called the meeting to order.

PRESENT	**REPRESENTING**
Jamie Green	Commissioner, Virginia Marine Resources Commission
Joseph Grist	Deputy Commissioner, Virginia Marine Resources Commission
Kenny Raiford	Agricultural Manager III, Virginia Department of Corrections
Gregory MacDougall	Science Specialist, Virginia Department of Education
Dr. Michael Schwarz	Director, Virginia Seafood Agricultural Research and Extension Center
Mike Hutt	Executive Director, Virginia Marine Products Board, Virginia Department of Agriculture and Consumer Services (VDACS)
Dr. Shelby White	Marine Business Specialist, Virginia Institute of Marine Sciences
Dan Knott	Vice President, Virginia Waterman's Association
Meade Amory	Chief Executive Officer, L.D. Amory Seafood
Chris Sopko	Vice President of Operations, Sea Farms Inc.
Brian Peede	Plant Manager, Wanchese Fish Company
Hon. Shelly A. Simonds	Virginia House of Delegates
Joseph Guthrie	Commissioner, VDACS
Rachel Meyers	Manager, Office of Agriculture and Forestry Development, VDACS
Jesse Phillips	Director of International Marketing, VDACS
Mike Benarski	Chief of Fisheries, Virginia Department of Wildlife Resources

ABSENT	
Nathan Thomson	Policy and Legislative Analyst, James River Association
Tommy Herbert	Director of Government Affairs, Virginia Restaurant, Lodging & Travel Association
Carleigh Starkston	Communications Manager, Friends of the Rappahannock
Bailey Robertory	Restoration Coordinator, Chesapeake Bay Foundation

STAFF PRESENT
Stacy Metz, Administrative Coordinator, VDACS
Nicolas Robichaud, Policy Assistant, VDACS

INTRODUCTION
Commissioner Guthrie began the meeting by introducing himself and asked each member of the Work Group to do the same. He then provided an overview of the Work Group and the Work Group's mandate from the General Assembly pursuant to Chapter 218 of the 2024 Acts of Assembly. Commissioner Guthrie also asked Delegate Simonds to provide introductory comments.

ELECTION OF OFFICERS
Commissioner Guthrie presided over the election of the Chair and called for nomination from the Work Group. Mr. Raiford nominated Dr. Michael Schwarz. There being no other nominations, Mr. Knott moved that Dr. Schwarz be named Chair. Commissioner Green seconded the motion. The Work Group elected Dr. Schwarz as Chair by a unanimous vote.

Dr. Schwarz presided over the election of Vice Chair. Hearing no nominations, Dr. Schwarz moved that Dan Knott be named Vice Chair. Commissioner Green second the motion. The Work Group elected Mr. Knott as Vice Chair by a unanimous vote.

ELECTRONIC MEETING POLICY ADOPTION
Dr. Schwarz called on Commissioner Guthrie to present a draft revised electronic meeting policy for the Work Group's consideration.

Mike Hutt moved that the Blue Catfish Work Group adopt the electronic meeting policy as presented by staff. Commissioner Grist seconded the motion. The Work Group voted unanimously in favor of the motion.

DISCUSSION
Dr. Schwarz invited the Work Group members representing current blue catfish processors to begin discussion by sharing their thoughts. Following a robust conversation between all Work Group members, the following concepts emerged as points of consensus regarding the past and ongoing efforts to promote the creation of a market for blue catfish:

- There is a clear and immediate need to address blue catfish overpopulation to preserve the sustainability of Virginia's ecosystems and seafood industries.

- Processors do not currently have the labor or automation machinery capacity to maintain a consistent flow of processed blue catfish and investment in the necessary equipment is not viable without steady preexisting supply from watermen and demand from buyers and consumers.

- In order to differentiate blue catfish from other catfish on the market, there must be a sustained central and comprehensive strategic marketing initiative.

- There is opportunity to make blue catfish a more viable commodity for processors and watermen by exploring the utilization of waste coproduct.

PUBLIC COMMENT
The Work Group did not receive any public comment.

ADJOURNMENT
At approximately 3:10 p.m. the Task Force adjourned.

APPENDIX F

Blue Catfish Work Group
Oliver Hill Building
Board Room, 220
102 Governor Street
Richmond, Virginia

Thursday, March 13, 2025

MEETING SUMMARY

Executive Summary

The Work Group on Blue Catfish (Work Group) was created by Chapter 218 of the 2024 Virginia Acts of Assembly. The main purpose of the Work Group is to support and encourage coordination regarding efforts to create a robust and resilient market for blue catfish. In this first meeting of the Work Group, discussion focused on a review of past and ongoing efforts to promote the creation of a market for blue catfish, as well as identifying key obstacles. The following points emerged as areas of consensus:

- There is a clear and immediate need to address blue catfish overpopulation to preserve the sustainability of Virginia's ecosystems and seafood industries.

- Processors do not currently have the labor or automation machinery capacity to maintain a consistent flow of processed blue catfish and investment in the necessary equipment is not viable without steady preexisting supply from watermen and demand from buyers and consumers.

- In order to differentiate blue catfish from other catfish on the market, there must be a sustained central and comprehensive strategic marketing initiative.

- There is opportunity to make blue catfish a more viable commodity for processors and watermen by exploring the utilization of waste coproduct.

Welcome & Introduction

The first meeting of the Blue Catfish Work Group (Work Group) was held on March 13, 2025, at the Oliver Hill Building in Richmond, Virginia. The session was attended by 16 appointed members or their designees, with 4 members absent. The following members were present:

Jamie Green, Commissioner, Virginia Marine Resources Commission
Joseph Grist, Deputy Commissioner, Virginia Marine Resources Commission
Kenny Raiford, Agricultural Manager III, Virginia Department of Corrections
Gregory MacDougall, Science Specialist, Virginia Department of Education
Dr. Michael Schwarz, Director, Virginia Seafood Agricultural Research and Extension Center (AREC)
Mike Hutt, Executive Director, Virginia Marine Products Board (VMPB), VDACS

Dr. Shelby White, Marine Business Specialist, Virginia Institute of Marine Science (VIMS)
Dan Knott, Vice President, Virginia Waterman's Association
Meade Amory, Chief Executive Officer, L.D. Amory Seafood
Chris Sopko, Vice President of Operations, Sea Farms Inc.
Brian Peede, Plant Manager, Wanchese Fish Company
Hon. Shelley A. Simonds, Virginia House of Delegates
Joseph Guthrie, Commissioner, VDACS
Rachel Meyers, Manager, Office of Agriculture and Forestry Development, VDACS
Jesse Phillips, Director of International Marketing, VDACS
Mike Benarski, Chief of Fisheries, Virginia Department of Wildlife Resources

Commissioner Guthrie introduced himself to the Work Group and invited members to introduce themselves as well. Commissioner Guthrie then reminded the Work Group that the General Assembly convened them with a mandate to report their recommendations no later than September 1, 2025, and that each action area of the legislation would be explored over the course of the next 3 meetings. He then invited Delegate Shelly Simonds to speak on the topic from a legislative perspective.

Delegate Simonds shared the General Assembly's interest in addressing the problems posed by blue catfish and that the issue is personal for her in representing Newport News, noting the increasing pervasiveness of blue catfish in her local waterways. She provided a general overview on the evolution of legislative action on blue catfish management. She expressed Delegate Hillary Kent's concern that blue catfish appear to be present in all waterways of Virginia, regardless of water quality, and the impact that has on all other fish species in those waterways. She shared both her and Delegate Kent's support of pursuing solutions in the processing industry, but suggested there may be other effective approaches to consider, stating that educating and empowering the general public should be a part of any comprehensive solution. She mentioned the possibility of working with the Department of Wildlife Resources (DWR) to engage everyday anglers on the issue, noting a potential avenue in expanding their "Go Outdoors Virginia" app to "game-ify" blue catfish angling and fishing in Virginia. Using this tool to incentivize anglers to report their blue catfish catches could provide DWR with important data regarding the spread, location, and impact of blue catfish, particularly in areas where data is currently lacking.

Commissioner Guthrie thanked Delegate Simonds for her remarks, noting the bipartisan and bicameral effort behind addressing this issue. He also shared that Delegate Hodges was absent from the meeting today due to illness, though suggested outreach to the Mattaponi and Pamunkey Tribes as a part of a solution as well.

Election of Officers & Adoption of Electronic Meeting Policy

Commissioner Guthrie presided over the election of Chair and called for nominations from the Work Group. The Work Group elected Dr. Schwarz as Chair and Dan Knott as Vice Chair, both by a unanimous vote. The Work Group then unanimously voted to adopt an electronic meeting policy as presented by Commissioner Guthrie.

Group Discussion

Dr. Schwarz invited the Watermen and Processors of the Work Group to begin discussion on the issue, starting with Meade Amory. Mr. Amory thanked the State for awarding Amory Seafood a Blue Catfish Processing Grant which allowed the company to increase processing capacity in its Hampton facility. Mr. Amory stated in the previous year they processed 900,000 pounds of catfish. He shared that word seems to be getting out around the program, though there is a need for further communication work.

Brian Peede shared that his operation has begun cutting blue catfish instead of only selling them whole. He stressed that the fish sells very well due to its quality and taste but needs a hard marketing push to differentiate it from other catfish varieties. He noted a significant issue in the amount of waste in processing blue catfish, with approximately 70% of the fish being waste after processing. Recouping that value would make it much more profitable for fishermen to pursue as a commodity. A fillet machine, for example, cost $2 million.

After a question from Delegate Simonds, Mr. Hutt provided clarification on the process of creating a value product out of waste, and that while it does not result in a lower fillet price, it does create a higher net price for fishermen. Jesse Phillips highlighted that value product is not necessarily limited to food products, but also in high value medical products. Dr. Schwarz used salmon processing as an example of this practice, though noted that these avenues are available for salmon because there is a consistent supply of that coproduct, something that is not currently available for blue catfish. There is, however, opportunity in creating that consistent supply, as blue catfish provide high nutritional value due to their high-quality diet. Virginia Tech is currently looking at options in the nutraceutical and pharmaceutical industries. Dr. Schwarz highlighted the valorization of blue catfish waste coproduct as a significant means of moving the needle on the economic viability of blue catfish.

Chris Sopko shared the need for an estimated 9 million pounds of blue catfish to be removed from the James River annually to counteract its negative effects, with Dr. Schwarz clarifying the need for about 20-30 million pounds to be removed from the Chesapeake Bay maintain current biomass levels. Mr. Sopko emphasized that three of the four processors in Virginia were present in the room and that they are each processing by hand. He stated that the lack of processing capacity is the biggest obstacle to reducing blue catfish populations. Mr. Amory reiterated this point, noting that while there is not a large market for whole catfish, the lower yield on processing blue catfish makes it crucial for solutions to increase its value for watermen. Government needs to help supplement the cost of the equipment which is estimated to be over $1 million.

Several Work Group members engaged in discussion surrounding the presence of foreign competition in the catfish market. Mr. Sopko noted that foreign competitors are sold at lower price points with lower quality, with Dr. Schwarz noting restrictions on what can and cannot be sold as “catfish” as foreign imports. Mr. Sopko noted discrepancies in the practical application of these restrictions, which could present obstacles for blue catfish marketing strategies. Commissioner Guthrie, Mr. Hutt, and Commissioner Jamie Green highlighted the shrimp

markets as an example to learn from in managing underpriced imports overwhelming domestic markets.

Dr. Schwarz and Mr. Hutt discussed opportunities in utilizing the Virginia's Finest program and exploring marketing/labeling opportunities to differentiate blue catfish from others on the market, potentially also using "Chesapeake Wild" or "Virginia" in naming blue catfish. Ensuring a flow of knowledge from buyers to staff to consumers is crucial in creating a lasting market differentiation. Mr. Hutt stressed the quality in taste of blue catfish, sharing that once consumer tasted the fish, they would be much more likely to become dedicated customers, though creating consistent backstock to fill major grocery orders will be crucial in sustaining that demand. Findings ways to maintain consistent supply and to get processors the necessary startup funds that they need to create and sustain heightened capacity should be a part of the solution. If a large demand is created for blue catfish, it will not be sustained by 4 processors cutting the fish by hand.

Mr. Sopko asked Kenny Raiford if the Department of Corrections currently has a fish option that they consistently use for inmate meals. Mr. Raiford answered that they do not, though they sometimes purchase frozen fillets of pollock to process into patties. Cost-per-person restrictions limit what the Department of Corrections can purchase for meals. Jesse Phillips added that similar restrictions apply to the Department of Education for school lunches. Several Work Group members asked Mr. Raiford clarifying questions regarding the Department of Corrections' process for selecting meals and potential avenues to make blue catfish a viable option. Delegate Simonds added that legislative action could create incentives for these Departments to pursue blue catfish as a protein option, but those actions would likely include a budget item. In her previous experience on the Newport News School Board, a grant program incentivized the purchase of local produce for school lunches, which could be an avenue to explore for blue catfish. Mr. Amory highlighted the need for increased production capacity and how these solutions must be economically viable for processors to pursue. Mr. Hutt highlighted a program in Maryland that subsidized the difference between the price sellers were asking for and the price Food Banks were willing to pay for the first year they were purchased.

Dr. Schwarz invited Mr. Gregory MacDougall to share his thoughts from the Department of Education's perspective. Mr. MacDougall shared that his expertise is primarily scientific, though indicated that he would find answers from staff at the Department of Education for questions raised by the Work Group.

Dr. Schwarz shared that a new K-12 Outreach and Experiential Learning position at the Virginia Seafood AREC has already had 4,000 direct student interactions in the past year, with blue catfish being a main focus in those efforts. He noted that gaining the attention and interest of students and children in blue catfish has a strong effect on getting parents interested as well.

Dr. Schwarz also highlighted the difficulty that changes in international labor dynamics pose in conversations surrounding increasing production capacity. He discussed movement on several initiatives to both bring new and optimize existing processing technologies to Virginia. Trying to bring mince-meat processing equipment into Virginia should be a high priority to move the economic needle. Mr. Hutt reiterated this priority, though noted potential cost issues, as the

necessary equipment would need to be durable enough to manage blue catfish. New machinery would cost approximately $80,000.

Jesse Phillips asked the processors what would prevent the blue catfish market from growing even if production hurdles were addressed. Mr. Sopko noted that steadily increasing operational prices will make the fish inefficient for watermen to catch. Additionally, the increasing age of watermen poses a threat to the industry as a whole. An apprenticeship program at the Virginia Marine Resources Commission is a promising development on this front, but the price to enter the industry makes it difficult to attract younger fishermen. Dan Knott noted that the market for blue catfish is there, but there must be a consistent supply. Dr. Knott mentioned a potential mentoring program for veterans with potential grant funding to assist with startup cost. Overcoming the international pressure on the local seafood market is also a major issue. Mr. Hutt mentioned the effectiveness of in store demos as a method to engage customers directly by having them taste the fish for themselves. Delegate Simonds mentioned that festivals are also a great opportunity to reach families and to have them try blue catfish.

Mr. Amory noted the negative connotation of "cat" in the name "catfish", which Commissioner Guthrie agreed with. He stated that having folks try the fish for themselves is the only way to move past that connotation, which presents a marketing difficulty to account for. Mr. Sopko did note that foreign catfish does sell well, although at a lower price point. Finding a way to either match that price point or to make the fish itself more cost-effective for fishermen to catch is key.

Mr. Phillips asked if any market research or analysis was done on identifying a target market price for blue catfish. Dr. Shelby White indicated that a survey was conducted to watermen in the past couple years that indicated a willingness to add 12 more days of fishing with even a minor increase in price. Extrapolating those 12 additional days of fishing to watermen at a larger scale would mean the removal of millions of pounds of blue catfish. Dr. White also noted an online survey measuring influences on buying behavior that indicated positive movement when consumers were told that the species is invasive. Dr. Schwarz mentioned that multidimensional marketing materials differentiating this product will move the needle on demand.

Mr. Knott stated that the price fishermen yield from catching blue catfish must increase. If that increases, fishermen will catch it. Catching blue catfish won't necessarily be an issue, but it does need to be able to be processed to make a consistent workflow. On the watermen side of the issue, he noted the potential to attract veterans to the workforce by marketing the catching of blue catfish as an environmental service. He also highlighted the potential to pursue blue catfish as a non-mammal collagen product, adding that marketing blue catfish as wild-caught could also tap into specific markets. Dr. Schwarz noted the need for a consistent supply of coproduct as necessary to pursue those opportunities.

Dr. Schwarz asked Mr. Knott if there were any watermen that would catch more blue catfish if it were easier to offload, particularly if depots were available. Mr. Knott said that would be beneficial and should be explored.

Dr. Schwarz emphasized the importance of utilizing the Virginia Marine Products Board (VMPB) as an asset, given its deep connection to the industry in Virginia. Leveraging those

opportunities and integrating blue catfish efforts with the connections already cultivated by the VMPB will be key in creating a comprehensive strategy.

Mr. Raiford noted that beef producers have created niche markets that sell better than cheaper imported options. This is largely due to comprehensive marketing strategies that created market differentiation, which must be a key aspect of the Work Group's recommendations. Regarding potential workforce shortages, Mr. Raiford suggested that exploring a work release program could be an option worth exploring. Similar efforts exist successfully within the poultry industry.

Deputy Commissioner Joseph Grist reiterated the major issue that the lack of infrastructure presents. It must be made cost-effective not only to catch and process blue catfish, but for individuals to enter the industry.

Mr. Macdougle agreed with sentiments regarding the need for market differentiation, with a particular need to highlight blue catfish as a local product. Dr. Schwarz voiced his intention to connect the K-12 Outreach and Experiential Learning specialist from the Virginia Seafood AREC with Mr. Macdougle to explore potential collaborative opportunities, as capturing the attention of children on blue catfish could be vital in creating a sustained demand. Commissioner Guthrie reiterated this point.

Delegate Simonds shared her thoughts on model curriculum surrounding blue catfish to integrate in Virginia. She highlighted the importance of bringing machinery to Hampton Roads to support the blue catfish industry. She noted curiosity in what other states may be doing to boost their unique products and how the Virginia's Finest program may be strengthened for seafood in particular. Commissioner Guthrie noted the success of the Virginia Beef label, as instituted by General Assembly and implemented by VDACS as a potential model for not only blue catfish, but Virginia seafood to pursue.

Mike Benarski noted his appreciation for hearing more from the processor's side of the issue.

Dr. White shared her work collaborating with the VMPB on grants for marketing blue catfish. She also shared her experience in attending an event at an elementary school that incorporated blue catfish with the children.

Mr. Knott noted that Fort Gregg-Adams, formerly Fort Lee, Cooking School may be interested in partnering to acquire some of the more expensive processing equipment. If they could have the equipment set up, setting up a system for processors to use it rotationally could be a potential avenue.

Mr. Phillips suggested pursuing a Virginia Wild Caught Program as a potential avenue for achieving market differentiation. He highlighted the need for a central strategic initiative to effectively address this issue, noting that there must be a singularly responsible office for implementing that initiative for it to be successful. Pursuing festivals and cooking competitions could be an aspect of that initiative. Mr. Phillips also noted the potential for a public relations approach that could engage regional media outlets. Delegate Simonds expressed that she would exchange contacts with Mr. Phillips to engage visual storytelling surrounding the issue.

Mr. Sopko stressed the importance of addressing blue catfish and how quickly they are destroying multiple species in the Chesapeake Bay. Integrating the need for immediate action in a marketing strategy should be key.

Mr. Peede and Mr. Amory echoed Mr. Phillips' thoughts regarding the need for a central strategic initiative, reiterating the crucial component of educating consumers.

Mr. Hutt addressed an article circulated by VDACS staff regarding a $4.5 million grant awarded to the State of Maryland by the USDA, stating that in discussions with a Maryland processing company, it may have been implemented as more of a loan program with a low interest rate.

Future Meeting Dates

Dr. Schwarz shared that the Work Group would meet again on the following dates, with locations to be announced:

Friday, April 25, 2025
Friday, May 9, 2025
Friday, July 11, 2025 (Virtual)

APPENDIX G

COMMONWEALTH of VIRGINIA
Department of Agriculture and Consumer Services
PO Box 1163, Richmond, Virginia 23218
www.vdacs.virginia.gov

Joseph W. Guthrie
Commissioner

Blue Catfish Work Group
HB 135 Chapter 218
Agenda

April 25, 2025
Virginia Seafood Agricultural Research and Extension Center
3rd Floor Classroom, #305
15 Rudd Lane, Hampton, VA 23669

I. Call to Order
II. New members/attendees
III. Old Business
IV. Review of Objective & Topic #2 "Identify and explore potential sectors for the blue catfish market."
V. Discussion
VI. Public Comment Period
VII. Next Meetings:

Friday, May 9, 2025, 10 am – 12 pm
Location: Virginia Institute of Marine Science, Watermen's Hall, Dean & Director's Room
1375 Greate Road, Gloucester Point, VA 23062
Topic: "Identify any actions that the Commonwealth can take to promote and expand the market for blue catfish."

Friday, July 11, 2025, 10 am – 11 am
Location: Virtual
Topic: Review of Report

VIII. Adjournment

CHAPTER 218

An Act to direct the Department of Agriculture and Consumer Services to convene a work group relating to blue catfish; report.

[H 1135]

Approved March 28, 2024

Be it enacted by the General Assembly of Virginia:

1. *§ 1. That the Department of Agriculture and Consumer Services (the Department) shall, in order to support and encourage coordination regarding efforts to create a robust and resilient market for blue catfish, convene a work group of stakeholders that have a vested interest in reducing the negative ecological effects of blue catfish and increasing the marketing, processing, and sale of blue catfish in the Commonwealth. The work group shall include representatives of the following: the Marine Resources Commission, the Department of Corrections, the Department of Education, the James River Association, the Virginia Seafood Agricultural Research and Extension Center, the Marine Products Board, the Virginia Institute of Marine Science, the Virginia Waterman's Association, the Virginia Restaurant, Lodging & Travel Association, current and prospective blue catfish processors, Friends of the Rappahannock, the Chesapeake Bay Foundation, and other state agencies or stakeholders deemed necessary by the Department. The work group shall (i) review past and ongoing efforts to promote the creation of a market for blue catfish, (ii) identify and explore potential sectors for the blue catfish market, and (iii) identify any actions that the Commonwealth can take to promote and expand the market for blue catfish. The Department shall submit a report of the findings and recommendations of the work group to the Governor, the Secretary of Agriculture and Forestry, the Secretary of Natural and Historic Resources, and the Chairs of the Senate Committee on Agriculture, Conservation and Natural Resources, the Senate Committee on Finance and Appropriations, the House Committee on Agriculture, Chesapeake and Natural Resources, and the House Committee on Appropriations no later than September 1, 2025.*

APPENDIX H

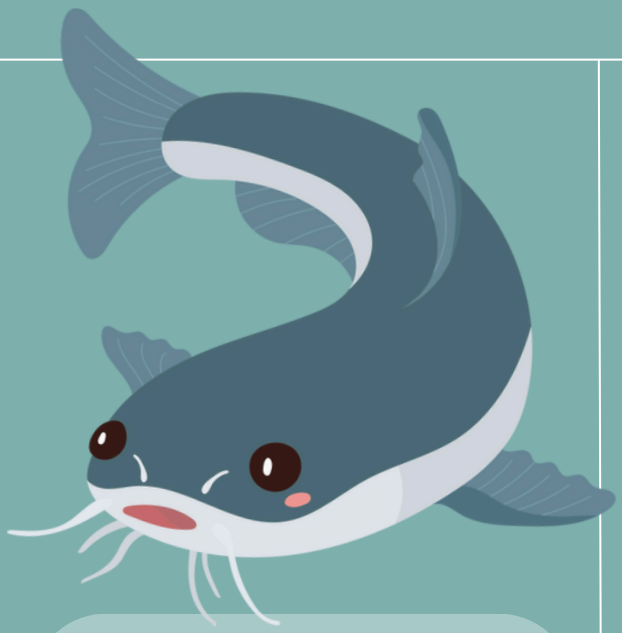
Blue Catfish Cake On A Bun

with a remoulade sauce

FULL INGREDIENT LIST:

WHOLE GRAIN BUN [WHOLE GRAIN WHITE WHOLE WHEAT FLOUR, WATER, SUGAR, WHEAT GLUTEN, YEAST, CONTAINS 2% OR LESS OF EACH OF THE FOLLOWING: SOYBEAN OIL, SALT, CULTURED WHEAT FLOUR, VINEGAR, WHEAT FLOUR, GUAR GUM, CALCIUM SULFATE, ENZYMES, ASCORBIC ACID (DOUGH CONDITIONER).], **TILGHMAN CHESAPEAKE INSPIRED CATFISH CAKE** [FRESH BLUE CATFISH, MAYONNAISE (SOY BEAN OIL, DISTILLED VINEGAR, EGG YOLK, CONTAINS LESS THAN 2% OF SALT, WATER, MUSTARD SEED, CALCIUM DISODIUM EDTA TO PROTECT FLAVOR, BREAD CRUMB WHEAT FLOUR, SUGAR, YEAST, SALT, SOY BEAN OIL) WHOLE LIQUID EGGS WHOLE EGG, CITRIC ACID, 0.15% WATER ADDED AS A CARRIER FOR CITRIC ACID. CITRIC ACID ADDED TO PRESERVE COLOR, LEMON JUICE (WATER, CONCENTRATED LEMON JUICE, SODIUM BENZOATE, AMD SODIUM METABISULFITE AS FOOD PRESERVATIVES, LEMON OIL), WORCESTERSHIRE SAUCE (DISTILLED VINEGAR, WATER, MOLASSES, SUGAR, SALT, SPICES, CITRIC AGID, AMCHOW, CELERY SEED, NATURAL FLAVOR, KANTHAN GUM (THICKENER GARLIC POWER AND TAMARIND EXTRACT), DUON MUSTARD (WATER, MUSTARD SEEDS, DIS TILLED VINEGAR, SALT, CONTAINS 7% OF LESS OF CITRIC ACID, POTASSIUM METABISULFITE (PRESERVATIVES), SPICE (INCLUDING RED AND BLACK PEPPER), PAPRIKA, SALT, PARSLEY.].

CONTAINS: FISH (CATFISH), SOY, WHEAT, EGG



CHILD NUTRITION
MEAL PATTERN REQUIREMENTS

2.00 MEAT/MEAT ALTERNATIVE
2.00 GRAIN EQUIVALENT

NUTRITION FACTS

Serving Size 1 Sandwich

CALORIES	**375**
TOTAL FAT 16 G	
SATURATED FAT 1.9 G	
TRANS FAT 0 G	
CHOLESTEROL 65 MG	
SODIUM 649 MG	
TOTAL CARBOHYDRATE 40 G	
DIETARY FIBER 4 G	
TOTAL SUGARS 3 G	
INCLUDED 0 ADDED SUGARS	
PROTEIN 19 G	
VITAMIN A	5.118 IU
VITAMIN C	0.102MG
VITAMIN D	0.800 MCG
CALCIUM	20.251 MG
IRON	1.810 MG
POTASSIUM	422.771 MG

Remoulade Sauce Recipe

COMBINE ALL INGREDIENTS

- 2 CUP LITE MAYONNAISE
- 2 TABLESPOON DILL PICKLE RELISH
- 2 TABLESPOON CAPERS, FINELY CHOPPED
- 1 TABLESPOON FRESHLY SQUEEZED LEMON JUICE
- 2 TEASPOONS CAJUN SEASONING
- 2 TEASPOONS PARSLEY FLAKES

NUTRITION FACTS

Serving Size 1 Tablespoon

CALORIES	**15**
TOTAL FAT 1.4 G	
SATURATED FAT 0.2 G	
TRANS FAT 0 G	
CHOLESTEROL 2 MG	
SODIUM 56 MG	
TOTAL CARBOHYDRATE 0.7 G	
DIETARY FIBER 0 G	
TOTAL SUGARS 0.2 G	
INCLUDED 0 ADDED SUGARS	
PROTEIN 0 G	
VITAMIN A	10.236 IU
VITAMIN C	0.205 MG
VITAMIN D	0.000 MCG
CALCIUM	0.502 MG
IRON	0.020 MG
POTASSIUM	1.423 MG

CN

100620

One 3.75oz Seafood Cake provides 2.00oz meat/meat alternate for Child Nutritional Meal Pattern Requirements. (Use of this logo and statement authorized by the Food and Nutrition Service, USDA 10/23)

CN CN CN

CRISPY OVEN FRIED VA BLUE CATFISH

STAUNTON CITY EATS
School Nutrition Program

STAUNTON STORM LIGHTENING CAFE LOCAL FOODS MENU SPECIAL TODAY!

Get it while it's HOT!

APPENDIX I

FINAL MINUTES

Blue Catfish Work Group
Virginia Seafood Agricultural Research and Extension Center (AREC)
Room 305
15 Rudd Lane
Hampton, Virginia 23669

April 25, 2025

The meeting of the Blue Catfish Work Group (Work Group) convened at approximately 1:05 p.m. on Friday, April 25, 2025, at the Virginia Seafood AREC. Dr. Michael Schwarz called the meeting to order.

PRESENT	**REPRESENTING**
Jamie Green	Commissioner, Virginia Marine Resources Commission
Kenny Raiford	Agricultural Manager III, Virginia Department of Corrections
Gregory MacDougall	Science Specialist, Virginia Department of Education
Bee Thorp	Lead Farm to School Specialist, Virginia Department of Education
Tom Dunlap	James RIVERKEEPER, James River Association
Dr. Michael Schwarz	Director, Virginia Seafood AREC
Jonathon van Senten	Associate Professor, Virginia Seafood AREC
Mike Hutt	Executive Director, Virginia Marine Products Board, Virginia Department of Agriculture and Consumer Services (VDACS)
Dr. Shelby White	Marine Business Specialist, Virginia Institute of Marine Sciences
Tommy Herbert	Director of Government Affairs, Virginia Restaurant, Lodging & Travel Association
Dan Knott	Vice President, Virginia Waterman's Association
Meade Amory	Chief Executive Officer, L.D. Amory Seafood
Chris Sopko	Vice President of Operations, Sea Farms Inc.
Brian Peede	Plant Manager, Wanchese Fish Company
Brent Hunsinger (virtual)	Advocacy and Coastal Programs Director, Friends of the Rappahannock
Chris Moore (virtual)	Virginia Executive Director, Chesapeake Bay Foundation
Joseph Guthrie	Commissioner, VDACS
Rachel Meyers	Manager, Office of Agriculture and Forestry Development, VDACS
Clinton Morgeson	Regional Fisheries Manager, Virginia Department of Wildlife Resources
Christina Garvey (virtual)	Environmental Management Staff, NOAA

STAFF PRESENT
Stacy Metz, Administrative Coordinator, VDACS
Nicolas Robichaud, Policy Assistant, VDACS

INTRODUCTION

Dr. Schwarz began the meeting by drawing attention to the public comment sheet and clarifying that public comment signup would end thirty minutes prior to the end of the meeting. He then asked any new members of the Work Group to introduce themselves. Bee Thorp, Lead Farm to School Specialist at the Virginia Department of Education, Tom Dunlap, James RIVERKEEPER at the James River Association, and Clinton Morgeson, Regional Fisheries Manager, Virginia Department of Wildlife Resources each introduced themselves. Brent Hunsinger, Advocacy and Coastal Programs Director at the Friends of the Rappahannock and Christina Garvey, Environmental Management Staffer at the Chesapeake Research Consortium both joined the meeting virtually.

APPROVAL OF MINUTES
Dr. Schwarz noted that Commissioner Jamie Green was incorrectly listed as “Deputy Commissioner” and “byproduct” should be referred to as “coproduct” in the meeting summary for the March 13, 2025, Work Group meeting. Gregory MacDougall noted a misspelling of his name in both the draft minutes and meeting summary.

With these issues addressed, Mr. Amory moved that the draft meeting minutes be approved. Mr. Knott seconded the motion. The Work Group voted unanimously to approve the minutes.

DISCUSSION
Dr. Schwarz revisited key points from the previous meeting before inviting Work Group members to engage in new discussion topics. Following a robust exchange, several points emerged regarding the identification and exploration of potential sectors for the blue catfish market:

Institutional Markets
Virginia correctional facilities and K–12 schools were identified as immediate sectors for expanding the blue catfish market. However, budget constraints present challenges. State budget appropriations or collaboration with USDA programs could help facilitate food procurement efforts. The strong nutritional profile of blue catfish offers a significant marketing advantage for these sectors, and the development of value-added products — such as blue catfish cakes — is key to increasing marketability.

Certification
Establishing a *Virginia Verified Wild Blue Catfish* certification, modeled after the *Virginia Verified Beef* program, was discussed as a promising opportunity to enhance marketing opportunities.

Infrastructure and Research Needs
Members emphasized the need to acquire mincing equipment in Virginia to process blue catfish coproduct into usable forms for value-added products, such as fish cake. Addressing this infrastructure gap is essential to supporting market growth. Additionally, Virginia Tech and other partners could play a key role in conducting market research to assess consumer demand for these products.

PUBLIC COMMENT
The Work Group did not receive any public comment.

ADJOURNMENT
At approximately 3:08 p.m. the Task Force adjourned.

APPENDIX J

Blue Catfish Work Group
Virginia Seafood Agricultural Research and Extension Center (AREC)
Room 305
15 Rudd Lane
Hampton, Virginia 23669

April 25, 2025

MEETING SUMMARY

Executive Summary

The Work Group on Blue Catfish (Work Group) was created by Chapter 218 of the 2024 Virginia Acts of Assembly. The main purpose of the Work Group is to support and encourage coordination regarding efforts to create a robust and resilient market for blue catfish. In this second meeting of the Work Group, discussion focused on identifying potential sectors for the blue catfish market. The following points emerged:

Institutional Markets

Virginia correctional facilities and K–12 schools were identified as immediate sectors for expanding the blue catfish market. However, budget constraints present challenges. State budget appropriations or collaboration with USDA programs could help facilitate food procurement efforts. The strong nutritional profile of blue catfish offers a significant marketing advantage for these sectors, and the development of value-added products — such as blue catfish cakes.

Certification

Establishing a *Virginia Verified Wild Blue Catfish* certification, modeled after the *Virginia Verified Beef* program, was discussed as a promising opportunity to enhance marketing opportunities. VMC currently does reporting that would eliminate the need for a third-party certification.

Infrastructure and Research Needs

Members emphasized the need to acquire mincing equipment in Virginia to process blue catfish coproduct into usable forms for value-added products, such as fish cake. Addressing this infrastructure gap is essential to supporting market growth. Additionally, Virginia Tech and other partners could play a key role in conducting market research to assess consumer demand for these products.

Welcome & Introduction

The second meeting of the Blue Catfish Work Group (Work Group) was held on April 25, 2025, at the Virginia Seafood AREC in Hampton, Virginia. The session was attended by 20 appointed members or their designees. The following members were present:

Jamie Green, Commissioner, Virginia Marine Resources Commission (VMRC)
Joseph Grist, Deputy Commissioner, VMRC

Kenny Raiford, Agricultural Manager III, Virginia Department of Corrections (VDOC)
Gregory MacDougall, Science Specialist, Virginia Department of Education (VDOE)
Bee Thorp, Lead Farm to School Specialist, VDOE
Tom Dunlap, James RIVERKEEPER, James River Association
Dr. Michael Schwarz, Director, Virginia Seafood AREC
Jonathon van Senten, Associate Professor, Virginia Seafood AREC
Mike Hutt, Executive Director, Virginia Marine Products Board (VMPB), VDACS
Dr. Shelby White, Marine Business Specialist, Virginia Institute of Marine Science (VIMS)
Tommy Herbert, Director of Government Affairs, Virginia Restaurant, Lodging & Travel Association
Dan Knott, Vice President, Virginia Waterman's Association
Meade Amory, Chief Executive Officer, L.D. Amory Seafood
Chris Sopko, Vice President of Operations, Sea Farms Inc.
Brian Peede, Plant Manager, Wanchese Fish Company
Brent Hunsinger, Advocacy and Coastal Programs Director, Friends of the Rappahannock
Chris Moore, Virginia Executive Director, Chesapeake Bay Foundation
Joseph Guthrie, Commissioner, VDACS
Rachel Meyers, Manager, Office of Agriculture and Forestry Development, VDACS
Clinton Morgeson, Regional Fisheries Manager, Virginia Department of Wildlife Resources
Christina Garvey, Environmental Management Staff, Chesapeake Research Consortium

Approval of Draft Minutes and Meeting Summary

Dr. Michael Schwarz noted that Commissioner Jamie Green was incorrectly listed as "Deputy Commissioner" and "byproduct" should be referred to as "coproduct" in the draft minutes and meeting summary for the March 13, 2025, Work Group meeting. Gregory MacDougall noted a misspelling of his name in both documents.

With these issues addressed, Mr. Amory moved that the draft meeting minutes be approved. Mr. Knott seconded the motion. The Work Group voted unanimously to approve the minutes.

Group Discussion

Dr. Schwarz began discussion by revisiting points of discussion from the previous meeting. First, he noted a question regarding whether VDOC could receive an allowance for Virginia products to be served as a meal option. Meade Amory recalled a speech from Governor Youngkin last year regarding introducing blue catfish in both schools and prisons and asked for clarification on where per person spending limits for both institutions are set. Kenny Raiford explained that per-person meal spending caps are determined by the General Assembly. Mr. Amory and Mr. Raiford discussed the dynamics of seafood protein procurement for VDOC, with Mr. Amory concluding that blue catfish could be viable if offered at a mutually affordable price. Mr. Amory

and Dr. Schwarz emphasized the importance of working with Delegate Simonds to pursue potential legislative solutions.

Commissioner Guthrie noted that although the state's next biennial budget process has not formally begun, agencies involved in the Work Group could advocate for blue catfish inclusion. While Governor Youngkin has expressed support, the next administration will oversee the final budget, making continuity of advocacy critical. He also mentioned that proposed federal funds to help local schools purchase Virginia proteins have been paused.

Dr. Schwarz requested that Mr. Raiford, Ms. Thorp, and Mr. MacDougall provide an estimate of current annual seafood volume at VDOC and VDOE for future planning. Commissioner Guthrie asked Dr. Schwarz to compile nutritional comparisons between blue catfish and other proteins to support budget realignment towards blue catfish. This information could help build a case for these institutions to shift expenditures towards a high-quality product. Dr. Schwarz voiced his intention to work with Dr. Jonathon van Senten to produce this data and referenced a forthcoming Virginia Cooperative Extension fact sheet summarizing the nutritional profile of blue catfish, including its omega-3s, fatty acids, and protein content. Presenting clear metrics – such as the percentage of United States Department of Agriculture (USDA) daily nutritional requirements per serving – could be a persuasive tool.

Addressing a question from Mr. Amory regarding whether salmon is on school lunch menus, Bee Thorp provided the Work Group with information regarding a prospective Bay to Tray program at VDOE. She clarified that each school division manages its own food budget and menu while receiving the same USDA reimbursement per meal. Schools may offset higher-priced items like blue catfish cakes with lower-cost components (e.g. buns), making financial feasibility different from VDOC's centralized system.

Ms. Thorp highlighted a successful blue catfish cake pilot in Caroline County, Maryland, noting its school-friendly nutritional profile and affordability. Similar pilots are underway or planned in Amherst and Staunton. Schools often market these as "fish cakes," as the term "blue catfish" can be off-putting to students. Staunton offers a crispy oven-fried version that has been well received, and Prince William County is also exploring options. Price remains a major barrier, especially since most schools favor heat-and-serve products. The inclusion of blue catfish in the USDA commodities catalog would be a key step.

Her office is also promoting scratch cooking with raw proteins in schools, but this requires standard operating procedures and training. For example, feedback from Staunton highlighted the need for culinary guidance to avoid texture issues like sogginess. Ms. Thorp emphasized the broad interest in Bay to Tray efforts and reiterated that success hinges on making blue catfish affordable. She also shared that, based on concerns in Maryland, only medium-sized fish are processed and served to students once a month to mitigate health concerns.

Mike Hutt asked whether blue catfish cakes have expanded beyond Caroline County, Maryland. Ms. Thorp was unsure, though Commissioner Guthrie offered to follow up with Maryland Secretary of Agriculture Kevin Atticks for more information. Mr. Hutt also inquired whether the initial launch of blue catfish cakes in Maryland was subsidized. Ms. Thorp explained that the

initial intent of the program was for the product to be provided through a USDA program that brings local food into schools, which was a temporary program that is no longer funded. Presently, school divisions purchase blue catfish cakes using their own budgets. USDA funds had been allocated primarily for raw or minimally processed items, which the fish cakes may not qualify for.

Mr. Hutt noted that Bath County had previously expressed interest in using raw blue catfish fillets, though the effort stalled. He emphasized the need to properly train cafeteria staff to cook the fish consistently. Ms. Thorp shared that her recipe development team collaborates annually with school divisions to create standardized, seasonal recipes and agreed to reconnect with Bath County on their interest.

Dan Knott asked about Maryland's health-related concerns regarding the regular inclusion of blue catfish in school meals. Dr. Schwarz turned to Dr. Van Senten to compare blue catfish and salmon nutritionally and in terms of safety. Dr. Van Senten reported that blue catfish is nutritionally similar to salmon, particularly in omega-3 content. Dr. Schwarz added that these findings are currently under review and will soon be publicly available.

Dr. Van Senten provided a breakdown of the nutritional profile: a 1–3 pound fillet contains approximately 16.63 grams of protein, 5.95 grams of fat, 74.32 grams of moisture, and 852 milligrams of omega-3 fatty acids per 100 grams—compared to 2,200 milligrams in salmon. This places blue catfish just below salmon and mackerel, and above other popular species such as trout and red snapper. He noted that schools source products through the Agricultural Marketing Service (AMS), and businesses can register as vendors with AMS to supply USDA commodities.

Tom Dunlap asked whether the nutritional study included contaminant analysis. Dr. Schwarz and Dr. Van Senten explained that their current efforts focus on nutritional labeling, and that contaminant testing would be a separate process. Mr. Knott emphasized the importance of addressing public perception concerns related to contaminants.

Dr. Schwarz noted that existing federal guidelines focus on bioaccumulation in larger fish, and blue catfish under 32 inches—which are most commonly harvested—do not generally pose this risk. Dr. Shelby White added that research is underway, and Dr. Schwarz asked her to coordinate with Virginia Tech on studies examining contaminant variation by river system.

Mr. Dunlap inquired about Virginia Department of Health (VDH) guidance. Dr. White responded that VDH data is organized by river system rather than species, which limits its usefulness for addressing bioaccumulation concerns. Mr. Dunlap mentioned that species-specific contaminant data is available through VDH. Dr. Schwarz stressed the importance of making such data accessible and understandable. Dr. White suggested connecting with Catherine Liu in Maryland, who has worked on this issue.

Commissioner Guthrie asked Ms. Thorp to clarify how "local" is defined in school food procurement. She explained that each division defines "local" based on its own goals and

priorities, meaning definitions vary. To create a statewide program, a standardized definition and traceability of fish origin would be essential.

Commissioner Guthrie pointed to the newly enacted *Virginia Verified Meat* program as a potential model for certifying and marketing local blue catfish. Dr. Schwarz asked what entity could oversee this certification. Commissioner Guthrie said the process would likely be simpler than with beef and suggested the Watermen's Association could serve as the certifying body. Mr. Knott proposed that VMRC might be better equipped to manage traceability. Mr. Hutt added that the necessary traceability data already exists and could be integrated easily.

Commissioner Guthrie emphasized that strong branding for local products would help consumers and boost in-state processing. Mr. Amory asked whether the "Virginia Verified Meat" logo is trademarked. Commissioner Guthrie said it is not but noted that only VDACS-verified products can legally carry the label. VDACS is in discussions with the Attorney General's office about trademarking the logo. Dr. Schwarz recommended that Mr. Knott, Commissioner Guthrie, and Commissioner Green further explore this opportunity.

Dr. Schwarz then asked Mr. Hutt, Mr. Sopko, Mr. Amory, and Mr. Peede for updates on acquiring mincing equipment for coproduct processing. He noted that equipment costs around $80,000 and would be essential to producing blue catfish cakes for institutional markets. Zachary Brown of Virginia Tech is working to support this effort, but momentum has been limited. Coproduct currently sold to a depot for pet food at $0.10 per pound could instead be used for value-added products and raise that price to $0.20, opening new markets.

Mr. Sopko shared concerns based on conversations with a North Carolina processor, who reported discarding more product than they sold. He also expressed hesitation about investing in processing equipment amid speculation about deregulating catfish. Mr. Hutt emphasized that demand for value-added products is critical before such investments make sense.

Dr. Schwarz observed that Virginia is trailing Maryland in value-added product development. He noted that Virginia Tech and VIMS already conduct relevant work on product development, food safety, economic feasibility, and market research. He argued that valorizing coproduct reduces the effective cost of fillets and benefits processors overall. Although progress is complex and there seems to be a circular challenge here, he underscored the need to reach a point where coproduct can be efficiently utilized.

Mr. Amory asked how Maryland acquired its mincing equipment and whether grant funding or subsidies played a role. Mr. Hutt responded that the machine was purchased used from California at a significantly reduced cost. Mr. Amory noted the difficulty of securing funding for such an expense and suggested reaching out to Maryland officials for more details on how they initiated their blue catfish cake program, including pricing and distribution channels. Dr. Schwarz supported the idea and encouraged Work Group members to pursue these contacts. However, Mr. Hutt cautioned that Maryland might be hesitant to share proprietary information. Ms. Thorp agreed to investigate what Maryland school divisions are paying for blue catfish products and Mr. Hutt added that some of these ready-made cakes are already available in some retail markets.

Mr. Sopko and Mr. Hutt then discussed the current market for mincemeat. Mr. Hutt noted that while some mincemeat is used, a significant portion remains unsold, indicating unmet demand. Dr. Van Senten suggested conducting market research—either through surveys or taste testing—to determine consumer preferences and evaluate the potential for mincemeat-based products. Virginia Tech's sensory lab could support such studies. Dr. Schwarz requested that Dr. White and Dr. Van Senten collaborate with Commissioner Guthrie's office to draft a formal recommendation on this research for the Work Group.

Mr. Amory raised the question of whether production data from Maryland's mincer is publicly available, especially if it was purchased with public funds. Several members discussed the yield rate for mincemeat and whether the product is being sold at a profit. Mr. Amory cautioned against assuming profitability without data. Commissioner Guthrie asked about rendering practices in the seafood industry. Dr. Schwarz responded that rendering could be highly valuable, estimating potential coproduct valorization of $2–3 per fish within the next five years. He cited salmon processing plants where nearly 100% of the fish is utilized. While industry research supports full utilization, profitability hinges on price points.

Mr. Sopko asked which company manages rendering in the salmon industry. Dr. Schwarz was unsure but speculated that Marine Farms, a large European conglomerate, may be involved through subsidiaries. Mr. Hutt asked if any local processors sell or freeze catfish heads. Mr. Sopko replied that he does, but primarily for use as bait.

Dr. Schwarz returned to a prior discussion about developing depots for small watermen to offload blue catfish. He asked whether there had been further progress. Mr. Sopko mentioned that a group on the Middle Peninsula had complete designs for offloading facilities. Mr. Knott shared that the project is on hold for at least a year due to delays at the federal level through the Department of Transportation. While preliminary surveys have been completed, securing grant funding remains a challenge. Mr. Sopko emphasized that current processing sites are far from the regions where blue catfish are most concentrated, driving up costs for smaller operators.

Commissioner Green added that there are few offloading sites upstream, particularly along the James River, which is a major source of blue catfish. West Point, used by the Mattaponi and Pamunkey tribes, is currently the only viable site on the river. He, Mr. Hutt, and Mr. Sopko discussed the historical underdevelopment of offloading infrastructure along Virginia's waterways and its impact on today's supply chain limitations.

Commissioner Green asked whether processors could handle increased volumes of blue catfish. Mr. Sopko responded that their capacity is currently at its limit. Commissioner Green noted that this may indicate a backward approach - expanding harvest before ensuring processing capacity. Mr. Amory agreed, warning that excess catch could end up being frozen, incurring storage costs that outweigh potential revenue.

Dr. Van Senten asked whether ethnic markets had been explored for blue catfish heads, which can be a premium product in some communities. Mr. Sopko responded that while salmon heads are commonly sold in ethnic food stores, catfish heads are not, and freight costs may make

distribution impractical. Dr. Van Senten suggested that further market research in this area could be valuable.

Dr. Schwarz revisited a previous commitment to engage Fort Gregg-Adams Culinary School on potential interest in blue catfish and mincing equipment. Tommy Herbert volunteered to reach out to the school and report back.

Dr. Schwarz also noted the group's intention to initiate outreach to the Mattaponi and Pamunkey tribes, with Delegate Keith Hodges potentially serving as a liaison. Additionally, he highlighted the group's prior agreement on the need for a central marketing lead to coordinate efforts around blue catfish promotion. The group plans to revisit this topic in the next meeting with Jesse Phillips.

Dr. Schwarz brought forward the stated topic for today's meeting as "identifying and exploring potential sectors for the blue catfish market" and invited Work Group members to frame the rest of the discussion around this point.

Mr. Hutt shared his recent experience at a Boston trade show, where he promoted blue catfish to potential international buyers. A representative from Blue Ocean Industry expressed enthusiasm about the product and noted strong interest from Chinese markets, where U.S.-sourced seafood is preferred due to the comparative cleanliness of United States waters. The effect of international trade dynamics are unpredictable, but there is interest that can be pursued. Mr. Hutt plans to reconnect with the contact at upcoming trade shows in Singapore and Barcelona, where he will showcase both whole and filleted blue catfish. Another Boston contact expressed interest in exporting blue catfish to South Africa however the price point was not feasible. While Mr. Hutt acknowledged that the financial model may not be viable, he felt the interest warranted discussion.

Dr. Schwarz asked whether blue catfish nuggets were being processed or sold in Virginia. Mr. Peede responded that while he explored the option, the process was too labor-intensive to be viable. His focus remains on improving the market for fillets and achieving sustainable pricing. He emphasized the need for strong marketing to build consumer demand.

Mr. Amory asked what a marketing budget for blue catfish might look like. He noted that smaller companies do not necessarily have the discretionary funds to dedicate to aggressively marketing a new product, but it is a key aspect of successful initiatives. Mr. Hutt voiced those leads exist, however they require persistent follow-up. Mr. Amory noted that some leads are not worth pursuing due to cost constraints. Dr. Van Senten reiterated the importance of a robust marketing approach to introduce blue catfish to a wider market. Mr. Amory noted that historically, the state has made funding available to address matters of public concern like this and, given the state's role in introducing blue catfish into the Chesapeake Bay, funding should again be allocated to support solutions.

Commissioner Guthrie described the structure of VDACS Commodity Boards, which are funded through a percentage of commodity sales to support statewide marketing and promotion. While these boards facilitate broad outreach, they can be controversial, as not all producers wish to

contribute financially. There is currently no Seafood Board in Virginia, which limits marketing capacity. Mr. Amory pointed out that while the Virginia Seafood Council performs some advocacy, it lacks the influence it once had due to the seafood industry's decline. He expressed willingness to contribute to a Commodity Board but noted that many businesses are financially constrained. Commissioner Guthrie agreed that it may not be feasible to collect contributions from struggling sectors and supported exploring alternative funding options. Dr. Schwarz confirmed that Jesse Phillips will rejoin the group to continue these marketing discussions.

Dr. Van Senten noted that a past national effort to establish a seafood marketing order failed due to the industry's inability to agree on a unified message. While such programs require broad support, the seafood sector's diversity makes consensus difficult. However, a recent federal Executive Order emphasized the need to improve the competitiveness of American seafood and reduce trade deficits. Dr. Van Senten suggested this could renew federal interest in national seafood marketing initiatives. Mr. Amory added that U.S. fisheries are highly respected internationally, but this value has not been effectively communicated to domestic consumers.

Commissioner Guthrie shared that the Southern Association of State Departments of Agriculture is backing an initiative led by Texas Agriculture Commissioner Sid Miller to address disparities in shrimp regulation. Currently, imported shrimp can enter the U.S. under lower standards than those required of domestic producers, undermining American markets. Commissioner Guthrie asked whether federal legislation mandating equivalent health and safety standards for imported products would benefit wild-caught Virginia blue catfish. Mr. Sopko noted that USDA legislation has raised import standards, but Mr. Amory cautioned that even with stricter regulations, labor cost disparities abroad makes imported seafood significantly cheaper. He emphasized the harm this has done to the U.S. shrimp industry, where imported products now dominate. Commissioner Guthrie acknowledged that while parallels exist, the blue catfish market faces distinct challenges.

Commissioner Green concluded by referencing **§ 28.2-208.3 of the Code of Virginia**, which created the **Fisheries Innovation for Sustainable Harvest Fund** in 2024. Administered by the Virginia Marine Resources Commission (VMRC), the fund supports economic growth in Virginia's seafood sector through grants, loans, and financial tools targeting:

1. Infrastructure development
2. Technological advancements
3. Market and value chain development
4. Training and capacity building
5. Entrepreneurship and business support

While the fund currently lacks available resources, VMRC is actively building out funding. Commissioner Guthrie noted that this fund could serve as an alternative to the check-off structure of VDACS' Commodity Boards for financing marketing and industry development he had mentioned earlier. The fund will be overseen by the Commercial Fisheries Advisory Board (CFAB), composed of seafood industry representatives. CFAB also manages the Marine Fisheries Improvement Fund, which has comparatively limited funds but can support marketing activities under existing statutory authority. Commissioner Green expressed hope that the Fisheries Innovation Fund will be capitalized within the next year.

Public Comment

Dr. Schwarz opened the floor to public comment, but did not receive any.

Future Meeting Dates

Dr. Schwarz shared that the Work Group would meet again on the following dates, with locations to be announced:

Friday, May 9, 2025 – Virginia Institute of Marine Sciences, 1370 Greate Rd, Gloucester Point, VA 23062
Friday, July 11, 2025 (Virtual)

APPENDIX K

COMMONWEALTH of VIRGINIA
Department of Agriculture and Consumer Services
PO Box 1163, Richmond, Virginia 23218
www.vdacs.virginia.gov

Joseph W. Guthrie
Commissioner

Blue Catfish Work Group
HB 135 Chapter 218
Agenda

May 9, 2025
Virginia Institute of Marine Science, Chesapeake Bay Hall
Room #236
1355 Greate Road, Gloucester Point, VA 23062

I. Call to Order
II. New members/attendees
III. Old Business
IV. Review of Objective & Topic #3: "Identify any actions that the Commonwealth can take to promote and expand the market for blue catfish."
   - VDACS International Marketing, Jesse Phillips
V. Discussion
VI. Public Comment Period
VII. Next Meetings:

Thursday, June 12, 2025, 10 am – 12 pm
Location: Virginia Marine Resources Commission, 380 Fenwick Road, Hampton, VA 23651
Topic: Identify points of consensus.

Friday, July 11, 2025, 10 am – 11 am
Location: Virtual
Topic: Review of Report

VIII. Adjournment

CHAPTER 218

An Act to direct the Department of Agriculture and Consumer Services to convene a work group relating to blue catfish; report.

[H 1135]

Approved March 28, 2024

Be it enacted by the General Assembly of Virginia:

1. *§ 1. That the Department of Agriculture and Consumer Services (the Department) shall, in order to support and encourage coordination regarding efforts to create a robust and resilient market for blue catfish, convene a work group of stakeholders that have a vested interest in reducing the negative ecological effects of blue catfish and increasing the marketing, processing, and sale of blue catfish in the Commonwealth. The work group shall include representatives of the following: the Marine Resources Commission, the Department of Corrections, the Department of Education, the James River Association, the Virginia Seafood Agricultural Research and Extension Center, the Marine Products Board, the Virginia Institute of Marine Science, the Virginia Waterman's Association, the Virginia Restaurant, Lodging & Travel Association, current and prospective blue catfish processors, Friends of the Rappahannock, the Chesapeake Bay Foundation, and other state agencies or stakeholders deemed necessary by the Department. The work group shall (i) review past and ongoing efforts to promote the creation of a market for blue catfish, (ii) identify and explore potential sectors for the blue catfish market, and (iii) identify any actions that the Commonwealth can take to promote and expand the market for blue catfish. The Department shall submit a report of the findings and recommendations of the work group to the Governor, the Secretary of Agriculture and Forestry, the Secretary of Natural and Historic Resources, and the Chairs of the Senate Committee on Agriculture, Conservation and Natural Resources, the Senate Committee on Finance and Appropriations, the House Committee on Agriculture, Chesapeake and Natural Resources, and the House Committee on Appropriations no later than September 1, 2025.*

APPENDIX L

FINAL MINUTES

Blue Catfish Work Group
Virginia Institute of Marine Science (VIMS)
Chesapeake Bay Hall, Room #236
1355 Greate Road
Gloucester Point, Virginia 23669

May 9, 2025

The meeting of the Blue Catfish Work Group (Work Group) convened at approximately 10:03 a.m. on Friday, May 9, 2025, at VIMS. Dr. Michael Schwarz called the meeting to order.

PRESENT	**REPRESENTING**
Jamie Green	Commissioner, Virginia Marine Resources Commission (VMRC)
Joseph Grist	Deputy Commissioner, VMRC
Kenny Raiford (virtual)	Agricultural Manager III, Virginia Department of Corrections
Gregory MacDougall (virtual)	Science Specialist, Virginia Department of Education
Bee Thorp (virtual)	Lead Farm to School Specialist, Virginia Department of Education
Tom Dunlap (virtual)	James RIVERKEEPER, James River Association
Dr. Michael Schwarz	Director, Virginia Seafood AREC
Dr. Shelby White	Marine Business Specialist, VIMS
Tommy Herbert (virtual)	Director of Government Affairs, Virginia Restaurant, Lodging & Travel Association
Dan Knott	Vice President, Virginia Waterman's Association
Brian Peede	Plant Manager, Wanchese Fish Company
Chris Moore	Virginia Executive Director, Chesapeake Bay Foundation
Rachel Meyers	Manager, Office of Agriculture and Forestry Development, Virginia Department of Agriculture and Consumer Services (VDACS)
Jesse Phillips	Director of International Marketing, VDACS
Mike Bednarski (virtual)	Chief of Fisheries, Virginia Department of Wildlife Resources (VDWR)
Clinton Morgenson (virtual)	Regional Fisheries Manager, VDWR

STAFF PRESENT
Stacy Metz, Administrative Coordinator, VDACS
Nicolas Robichaud, Policy Assistant, VDACS

GUEST PRESENT
Secretary Kevin Atticks, Secretary of Agriculture, State of Maryland
Beth Brewster, Food Service Manager, Caroline County, MD

INTRODUCTION
Dr. Schwarz began the meeting by drawing attention to the public comment sheet and clarifying that public comment signup would end thirty minutes prior to the end of the meeting.

DISCUSSION
Dr. Schwarz began the meeting by inviting Maryland's Secretary of Agriculture Kevin Atticks to share his perspective on the similar challenges Maryland faces in managing blue catfish.

Following his remarks, the Work Group engaged in several topics of discussion. From these exchanges, several points emerged regarding actions that the Commonwealth can take to promote and expand the market for blue catfish.

Institutional Pathways for Coproduct Valorization
Value-added products, such as fish cakes, represent a significant opportunity to boost profitability and create stable demand from schools and public institutions. Virginia can grow demand by promoting blue catfish as a viable protein source for schools and public institutions. Drawing on Maryland's successful integration of USDA-compliant catfish cakes into school meals, Virginia can collaborate with processors, nutrition professionals, and state agencies to develop appealing, affordable, and locally sourced options. This approach not only helps valorize underutilized portions of the fish but also supports market entry through reliable institutional channels, driving consumer awareness and eventual retail growth. Discussions noted that even modest increases in coproduct value could make harvesting blue catfish significantly more profitable for watermen and more viable for processors.

Expand Processing Capacity
Expanding in-state processing capacity is a key step toward scaling the blue catfish market in Virginia. While port infrastructure is strong, limited processing infrastructure presents a major bottleneck. Without reliable capacity, large domestic and international buyers are hesitant to commit. Maryland Agricultural and Resource-Based Industry Development Corporation introduced a grant and low interest loan program, in partnership with private banks to assist processors in getting their funding needs met

Develop Unified Branding
A coordinated branding campaign is essential to distinguish Virginia Wild Blue Catfish as a high-quality, sustainable product. Proposed strategies include chef partnerships, digital outreach, limited-time menu promotions, and a new Virginia seafood website. Messaging should emphasize "wild-caught" and avoid alienating aquaculture producers. Modeled on programs like Virginia Verified Beef, this branding can help build consumer trust and market identity.

PRESENTATIONS
Beth Brewster - Maryland's efforts to get blue catfish into schools and raise awareness
Jesse Phillips - International marketing presentation covering another workgroup's efforts to market blue catfish as an export item

APPROVAL OF MINUTES
Staff noted that Deputy Commissioner Joseph Grist was incorrectly listed as present for the previous meeting.

With this issue addressed, Mr. Grist moved that the draft meeting minutes be approved. Mr. Knott seconded the motion. The Work Group voted unanimously to approve the minutes.

PUBLIC COMMENT
The Work Group did not receive any public comment.

ADJOURNMENT
At approximately 12:16 p.m. the Task Force adjourned.

APPENDIX M

FINAL MINUTES

Blue Catfish Work Group
Virginia Institute of Marine Science (VIMS)
Chesapeake Bay Hall, Room #236
1355 Greate Road
Gloucester Point, Virginia 23669

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Gregory MacDougall (virtual)	Science Specialist, Virginia Department of Education
Bee Thorp (virtual)	Lead Farm to School Specialist, Virginia Department of Education
Tom Dunlap (virtual)	James RIVERKEEPER, James River Association
Dr. Michael Schwarz	Director, Virginia Seafood AREC
Dr. Shelby White	Marine Business Specialist, VIMS
Tommy Herbert (virtual)	Director of Government Affairs, Virginia Restaurant, Lodging & Travel Association
Dan Knott	Vice President, Virginia Waterman's Association
Brian Peede	Plant Manager, Wanchese Fish Company
Chris Moore	Virginia Executive Director, Chesapeake Bay Foundation
Rachel Meyers	Manager, Office of Agriculture and Forestry Development, Virginia Department of Agriculture and Consumer Services (VDACS)
Jesse Phillips	Director of International Marketing, VDACS
Mike Bednarski (virtual)	Chief of Fisheries, Virginia Department of Wildlife Resources (VDWR)
Clinton Morgenson (virtual)	Regional Fisheries Manager, VDWR

STAFF PRESENT
Stacy Metz, Administrative Coordinator, VDACS
Nicolas Robichaud, Policy Assistant, VDACS

GUEST PRESENT
Secretary Kevin Atticks, Secretary of Agriculture, State of Maryland
Beth Brewster, Food Service Manager, Caroline County, MD

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Jesse Phillips - International marketing presentation covering another workgroup's efforts to market blue catfish as an export item

APPROVAL OF MINUTES
Staff noted that Deputy Commissioner Joseph Grist was incorrectly listed as present for the previous meeting.

With this issue addressed, Mr. Grist moved that the draft meeting minutes be approved. Mr. Knott seconded the motion. The Work Group voted unanimously to approve the minutes.

PUBLIC COMMENT
The Work Group did not receive any public comment.

ADJOURNMENT
At approximately 12:16 p.m. the Task Force adjourned.

APPENDIX N

COMMONWEALTH of VIRGINIA
Department of Agriculture and Consumer Services
PO Box 1163, Richmond, Virginia 23218
www.vdacs.virginia.gov

Joseph W. Guthrie
Commissioner

Blue Catfish Work Group
HB 135 Chapter 218
Agenda

June 12, 2025
Virginia Marine Resources Commission
Commissioner's Board Room
380 Fenwick Road
Fort Monroe, VA 23651

I. Call to Order
II. Old Business
III. Review of Recommendations for Final Report
IV. Discussion
V. Public Comment Period
VI. Next Meetings:

Friday, July 11, 2025, 10 am – 11 am
Location: Virtual
Topic: Review of Report

VII. Adjournment

-Equal Opportunity Employer-

CHAPTER 218

An Act to direct the Department of Agriculture and Consumer Services to convene a work group relating to blue catfish; report.

[H 1135]

Approved March 28, 2024

Be it enacted by the General Assembly of Virginia:

1. *§ 1. That the Department of Agriculture and Consumer Services (the Department) shall, in order to support and encourage coordination regarding efforts to create a robust and resilient market for blue catfish, convene a work group of stakeholders that have a vested interest in reducing the negative ecological effects of blue catfish and increasing the marketing, processing, and sale of blue catfish in the Commonwealth. The work group shall include representatives of the following: the Marine Resources Commission, the Department of Corrections, the Department of Education, the James River Association, the Virginia Seafood Agricultural Research and Extension Center, the Marine Products Board, the Virginia Institute of Marine Science, the Virginia Waterman's Association, the Virginia Restaurant, Lodging & Travel Association, current and prospective blue catfish processors, Friends of the Rappahannock, the Chesapeake Bay Foundation, and other state agencies or stakeholders deemed necessary by the Department. The work group shall (i) review past and ongoing efforts to promote the creation of a market for blue catfish, (ii) identify and explore potential sectors for the blue catfish market, and (iii) identify any actions that the Commonwealth can take to promote and expand the market for blue catfish. The Department shall submit a report of the findings and recommendations of the work group to the Governor, the Secretary of Agriculture and Forestry, the Secretary of Natural and Historic Resources, and the Chairs of the Senate Committee on Agriculture, Conservation and Natural Resources, the Senate Committee on Finance and Appropriations, the House Committee on Agriculture, Chesapeake and Natural Resources, and the House Committee on Appropriations no later than September 1, 2025.*

APPENDIX O

FINAL MINUTES

Blue Catfish Work Group
Virginia Marine Resources Commission
380 Fenwick Road
Fort Monroe, Virginia 23651

June 12, 2025

The meeting of the Blue Catfish Work Group (Work Group) convened at approximately 10:09 a.m. on Thursday, June 12, 2025, at the Virginia Marine Resources Commission in Fort Monroe. Dr. Michael Schwarz called the meeting to order.

PRESENT	REPRESENTING
Jamie Green	Commissioner, Virginia Marine Resources Commission (VMRC)
Joseph Grist	Deputy Commissioner, VMRC
Kenny Raiford	Agricultural Manager III, Virginia Department of Corrections
Gregory MacDougall (virtual)	Science Specialist, Virginia Department of Education
Dr. Michael Schwarz	Director, Virginia Seafood AREC
Dr. Shelby White	Marine Business Specialist, VIMS
Tommy Herbert (virtual)	Director of Government Affairs, Virginia Restaurant, Lodging & Travel Association
Dan Knott	Vice President, Virginia Waterman's Association
Meade Amory	Chief Executive Officer, L.D. Amory Seafood
Brian Peede	Plant Manager, Wanchese Fish Company
Chris Moore	Virginia Executive Director, Chesapeake Bay Foundation
Rachel Meyers	Manager, Office of Agriculture and Forestry Development, Virginia Department of Agriculture and Consumer Services (VDACS)
Mike Hutt	Executive Director, Virginia Marine Products Board, VDACS Director of International Marketing, VDACS
Mike Bednarski	Chief of Fisheries, Virginia Department of Wildlife Resources (VDWR)
Hon. Shelly A. Simonds	Virginia House of Delegates Environmental Management Staff, NOAA
Brent Hunsinger	Advocacy and Coastal Programs Director, Friends of the Rappahannock

STAFF PRESENT
Stacy Metz, Administrative Coordinator, VDACS
Nicolas Robichaud, Policy Assistant, VDACS

INTRODUCTION
Dr. Schwarz called the meeting to order and introduced the draft minutes of the previous meeting for approval by the Work Group. Commissioner Grist moved to approve the minutes and Mr. Knott seconded. The Work Group voted unanimously approved the draft minutes.

DISCUSSION
The Work Group began its discussion by considering a draft set of the recommendations that the Work Group will present in its final report to the General Assembly.

Efforts to promote the creation of a market for blue catfish
The Work Group recognized that there are, or may be, multiple different efforts, groups, and

sources of funding to promote a blue catfish market. The Work Group discussed recommendations to consolidate these efforts by establishing a full-time employee (FTE) position within Virginia to help discover and coordinate these efforts. Although the Work Group had considered housing the FTE position in different agencies, Commissioner Guthrie suggested that the FTE should be housed within the Virginia Marine Products Board. The Work Group also discussed whether a single FTE would be sufficient to handle the level of marketing necessary to promote blue catfish or whether some of the marketing should be outsourced. Some Work Group members suggested that the FTE position should be focused less on managing marketing efforts and more on managing grants and federal funding to support outsourced marketing efforts.

The Work Group also discussed the labeling or branding of potential blue catfish products from Virginia in order to promote its sale and consumption. The Work Group considered whether products should be labeled as "wild harvest" as well as whether they should be labeled as "Virginia" or "Chesapeake." The Work Group settled on leaving the issue open and recommending these alternative options in the final report.

Potential sectors for blue catfish market
The Work Group discussed specific options for promoting and spreading the word about blue catfish, such as social media campaigns, sponsored events such as cookoffs, and recreational activities.

The Work Group also considered options for educating the public about blue catfish. Delegate Simonds suggested removing the reference to the Department of Education in this recommendation from the final report to avoid any confusion because this recommendation is focused on consumer education and public awareness, not school curriculum. Other members of the Work Group suggested that the Department of Wildlife Resources could have instructional videos and diagrams on their website about how to catch and clean blue catfish.

Actions the Commonwealth can take to promote a market for blue catfish
The Work Group discussed potential funding options from the General Assembly that would help achieve the goals of promoting a blue catfish market. Delegate Simonds drew attention to a recommendation that the General Assembly fund an apprenticeship program. Other members of the Work Group explained that an apprenticeship program is helpful for providing the labor for the production of potential blue catfish food products. Especially for individuals coming out of incarceration or military service, apprenticeships can help train them and put them in skilled labor jobs needed for the industry. Commissioner Green pointed out that VMRC already has an apprenticeship program, and the Work Group suggested that the recommendation should be that the General Assembly increase funding for this program.

PUBLIC COMMENT
The Work Group did not receive any public comment.

ADJOURNMENT
Before adjourning the meeting, Dr. Schwartz requested that the members provide any additional comments or feedback that had not yet been addressed by the meeting's discussion.

At approximately 11:45 a.m. the Work Group adjourned.

APPENDIX P

Blue Catfish Work Group
Virginia Marine Resources Commission
380 Fenwick Road
Fort Monroe, Virginia 23651

Thursday, June 12, 2025

MEETING SUMMARY

Executive Summary

The Work Group on Blue Catfish (Work Group) was created by Chapter 218 of the 2024 Virginia Acts of Assembly (Acts) to coordinate and support the development of a resilient market for blue catfish. At its June 12, 2025, meeting, the Work Group discussed a set of proposals and recommendations to put forward in its final report to the General Assembly:

Efforts to promote the creation of a market for blue catfish

The Work Group reaffirmed that multiple ongoing initiatives, organizations, and funding sources are working, often independently, to promote a blue catfish market. To better coordinate these efforts, the group discussed recommending the establishment of a full-time employee (FTE) position within Virginia to help identify, align, and manage related activities. While several agencies were considered as potential homes for the position, Commissioner Guthrie recommended housing the FTE within the Virginia Marine Products Board (VMPB).

The Work Group also discussed whether a single FTE would be sufficient to manage the level of marketing needed to effectively promote blue catfish, or if some of the marketing should be outsourced. Several members suggested that the FTE's primary focus should be on managing grants and securing federal funding to support outsourced marketing efforts, rather than directly overseeing marketing campaigns.

The Work Group also discussed labeling and branding strategies for potential blue catfish products from Virginia in order to support their sale and consumption. Members considered whether products should be labeled as "wild caught" and whether they should be labeled as "Virginia" or "Chesapeake." The group chose not to endorse a specific label, instead recommending that these alternatives be presented as options in the final report.

Potential sectors for blue catfish market

The Work Group discussed specific strategies for promoting blue catfish, including social media campaigns, sponsored events like cookoffs, and recreational activities. In addition to promotion, the group considered approaches to public education. Delegate Simonds recommended removing references to the Department of Education from the final report to avoid confusion, clarifying that the recommendation is intended to support consumer outreach and public awareness, not influence school curricula. Other members suggested that the Department of Wildlife Resources could support these efforts by highlighting

instructional videos and diagrams on its website demonstrating how to catch and clean blue catfish.

Actions the Commonwealth can take to promote a market for blue catfish
The Work Group discussed potential General Assembly funding strategies to support the development of a blue catfish market. Delegate Simonds highlighted a recommendation to fund an apprenticeship program. Other members noted that such a program would help provide the skilled labor needed for blue catfish production, particularly by training individuals transitioning from incarceration or military service. Commissioner Green pointed out that the VMRC already operates an apprenticeship program, and the Work Group agreed that the recommendation should focus on maintaining and increasing funding for that existing program.

Welcome & Introductions

The fourth meeting of the Work Group convened at 10:09 a.m. The session was attended by 17 appointed members or their designees. The following members were present:

Jamie Green, Virginia Marine Resources Commission (VMRC)
Joseph Grist, Deputy Commissioner, VMRC
Kenny Raiford, Agricultural Manager III, Virginia Department of Corrections (VDOC)
Gregory MacDougall, Science Specialist, Virginia Department of Education (VDOE)
Dr. Michael Schwarz, Director, Virginia Seafood Agriculture Research and Extension Center (AREC)
Mike Hutt, Executive Director, Virginia Marine Products Board (VMPB), VDACS
Dr. Shelby White, Associate Professor, Virginia Seafood AREC
Tommy Herbert, Director of Government Affairs, Virginia Restaurant, Lodging & Travel Association
Dan Knott, Vice President, Virginia Waterman's Association
Meade Amory, Chief Executive Officer, L.D. Amory Seafood
Brian Peede, Plant Manager, Wanchese Fish Company
Chris Moore, Virginia Executive Director, Chesapeake Bay Foundation
Rachel Meyers, Manager, Office of Agriculture and Forestry Development, VDACS
Mike Bednarski, Chief of Fisheries, Virginia Department of Wildlife Resources
Hon. Shelly A. Simonds, Virginia House of Delegates
Brent Hunsinger, Advocacy and Coastal Programs Director, Friends of the Rappahannock

Dr. Schwarz called the meeting to order and introduced the draft minutes of the previous meeting for approval by the Work Group. Commissioner Grist moved to approve the minutes and Mr. Knott seconded. The Work Group voted unanimously to approve the draft minutes.

Group Discussion

The Work Group considered draft recommendations around the three charges of the Acts for inclusion in its final report, and discussed each of them in turn:

Review past and ongoing efforts to promote the creation of a market for blue catfish.
Through the course of its previous meetings, the Work Group revealed that multiple entities and interest groups are attempting to promote blue catfish independently of each other. The Work Group's first draft recommendation proposed the need for one group or agency to take the lead on marketing blue catfish in Virginia to align domestic and international efforts. To do this effectively may require additional funding and a Full Time Employee (FTE), which could be housed in the VMPB or VDACS. At the meeting, Commissioner Guthrie suggested that the final report should recommend that the FTE be housed in VMPB rather than VDACS.

During the discussion on this recommendation, members of the Work Group considered the primary role and focus of the FTE. While the position was initially envisioned to lead marketing efforts for blue catfish, some members questioned whether a single FTE could manage a campaign of the scale needed to effectively build a market. The group discussed whether outsourcing the marketing might be more effective and whether any Virginia products had successfully outsourced marketing campaigns in the past.

Another potential role discussed for the FTE was a grant manager or resource coordinator. In this capacity, the FTE identify and serve as the primary point of contact for various funding sources and other resources related to blue catfish. Mr. Knott suggested broadening the scope of the position to support the seafood industry more generally, rather than limiting it solely to blue catfish, which could help attract additional funding and resources.

During the discussion, Mr. Amory also brought to the attention of the Work Group that Congressman Wittman (VA-1st) was developing a bill to subsidize the use of blue catfish in pet food. The Work Group agreed to not include efforts at the federal level, noting the federal landscape could change by the time the Work Group makes its final report.

The Work Group then discussed labeling and branding strategies for blue catfish to help guide the General Assembly. Members generally agreed emphasizing "wild-caught" over farm-raised would be important for marketing. The group also debated whether labelling the product as "Virginia" or "Chesapeake" would be more effective. Delegate Simonds suggested that "Virginia" might be more well-known internationally. Mr. Amory noted that "Chesapeake" carries a strong positive association with seafood. He also pointed out that "Chesapeake" avoids distinguishing between Maryland and Virginia sources and highlights the product's environmental significance. The Work Group ultimately agreed to include these perspectives in the final report without endorsing a specific label.

Recommendation #2 – Identify and explore potential sectors for the blue catfish market: promotions, education, immediate impact customer base.
The Work Group discussed potential sponsored or promotional events to help raise awareness of blue catfish. Mr. Hunsinger noted that the Patawomeck Tribe is hosting a catfish cookoff, as well as Virginia Delegate Hillary Kent. Dr. Schwartz suggested that identifying and coordinating such opportunities could fall within the responsibilities of the proposed FTE. Other ideas included

launching social media campaigns and using VDWR's GO Outdoors Virginia app to highlight blue catfish fishing locations.

The Work Group then discussed potential recommendations for educating the public about blue catfish. Delegate Simonds emphasized the importance to clarify that these recommendations are focused on consumer education and outreach, not school curricula or Department of Education involvement. Mr. Benarski suggested that consumer outreach could include online educational videos or diagrams, such as those already available on the VDWR website, demonstrating how to catch and fillet blue catfish.

Bee Thorp, who was not present at the meeting, submitted written comments regarding recommendations for reaching immediate-impact consumer bases. She suggested easing cost-per-meal restrictions in correctional institutions to allow blue catfish to be introduced as a meal option. She also recommended that the General Assembly mandate a locally sourced requirement, such as 20%, as part of the effort to introduce blue catfish in state-funded institutions like correctional facilities and schools, as well as in federally funded nutrition programs.

Recommendation #3 – Identify any actions that the Commonwealth can take to promote and expand the market for blue catfish.

Under this set of recommendations, Delegate Simonds raised a question about the recommendation to fund an apprenticeship program and what its implementation would look like. Commissioner Green noted that the VMRC already operates the Commissioners Watermen's Apprenticeship Program, which provides skilled trade training for individuals transitioning from the military or corrections. He recommended that the final report include a call to maintain and increase funding for this program to support training in catching and preparing blue catfish products. This would help expand the labor force needed to frow the blue catfish processing industry. Mr. Grist and Mr. Knott added that the greatest current barrier to the program's success is a shortage of staff.

Public Comment & Final Remarks

In the closing portion of the meeting, Dr. Schwarz opened the floor to final remarks and suggestions about the draft set of recommendations. The Work Group adjourned at approximately 11:46 a.m.

APPENDIX Q

2024 – 2028
UNIFIED EXPORT STRATEGY
Regional Agriculture Promotion Program
(RAPP)

Country or region:	**Singapore**	
Product:	**Seafood (Blue Catfish)**	
Activity name:	**Blue Catfish Promotions**	
Activity manager (1):	**Stone Slade**	**State: MD**
Activity manager (2):	**Mike Hutt**	**State: VA**
Activity manager (3):	**Palmer Linscott**	**State: FL**
Activity manager (4):	**Tom Gray**	**State: FL**

Why RAPP Funds are Needed

SUSTA and the Southern State Departments of Agriculture work in a collaborative way to support exports from the region. Hence, SUSTA's strategies support broad producers and industry partners from our region. Our goal with RAPP funding is to ensure that southern U.S. exporters can develop and sustain relationships in new markets.

Due to the sheer number of products that are represented by SUSTA's region and the shift in seafood activities away from China for seafood, Singapore presents the best opportunity to support small to medium sized exporters (SME) in Southeast Asia. The funds are necessary to do the work required to examine the market, continue to educate exporters on the market, and to create marketing and promotional strategies to allow southern SMEs to sell their unique products in Singapore. These RAPP funds will help SUSTA, and its members, achieve the goal of creating more market share for southern exporters and help to focus funds on a geographically diverse Southeast Asia market.

SUSTA has done limited activities in Singapore. In the past, the activities consist of exhibiting at Food and Hotel Asia Trade Show every other year and the Asia Seafood Show when it moved away from Hong Kong to Singapore. Market Access Program funds have been limited to only allowing for the two strategies mentioned. Therefore, this is not a new

market for SUSTA but it does consist of new strategies, with new products and more emphasis on enhancing what the association does in Southeast Asia.

RAPP funds are needed to help market a new fish species to the market, wild-caught Chesapeake Blue Catfish. Funding will be used to support the education of consumers and buyers in the Singapore market which is new for Blue Catfish. In addition, this funding is needed to develop sales channels with Key importers, retailers, restaurants, casinos, hotels, and wholesalers.

Market Assessment

Country market overview

The city-state Singapore, with a population of 5.6 million, is a wealthy, developed, and highly urbanized country. The city-state is heavily reliant on imports of food and energy for its daily needs. Despite this, it regularly holds top slots in business rankings, positions itself as an economic global hub, and was the fourth largest recipient of foreign direct investment (FDI) in 2021.[1]

In 2021, Singapore gained a real GDP of $578.254 billion[2] and a per capita GDP of $72,794 which was a 7.8% increase from the previous year. Singapore's total agricultural and related product imports in the same year reached $17.2 billion USD with the U.S. receiving a market share of 9%. Regarding consumer-oriented products, Singapore imported a total of $10.6 billion. The United States was Singapore's 6th largest supplier of consumer-oriented products with total sales of $673 million USD.[3]

The market size for seafood in Singapore is $1.44 billion dollars.[4] Singapore imports a total of $1.3 billion in seafood each year. The U.S. has 1.5% of this market share. [5]

Due to a total area of 719 sq km[6], the city-state of Singapore does not have much arable land. As a result, the Singaporean food processing industry is small. In addition, all raw materials or ingredients used in the processing industry are imported. The total industry output value in 2021 reached almost $8 billion USD.[7]

[1] Alice Kwek and Karen Richards, FAS Staff Exporter Guide: Singapore. FAS GAIN Report. 10 Jan. 2023
[2] CIA World Factbook
[3] Alice Kwek and Karen Richards, FAS Staff Exporter Guide: Singapore. FAS GAIN Report. 10 Jan. 2023
[4] Kwek, Alice. FAS Gain. Exporter Guide: Singapore. 2 April 2024.
[5] Kwek, Alice. FAS Gain. Exporter Guide: Singapore. 2 April 2024.
[6] CIA World Factbook
[7] Alice Kwek and Karen Richards, FAS Staff Exporter Guide: Singapore. FAS GAIN Report. 10 Jan. 2023

The value of US frozen fish filets is only $130,000 out of a total market (frozen fish fillets) of $90,000,000. [8] With this project for Blue Catfish, we are targeting wholesale, retail, hotel, and restaurant industry buyers.

For Seafood in Singapore, Malaysia has a 15% market share, China has a 14% market share, Vietnam has a 10% market share, Japan has a 9% market share, and Norway has an 8% market share. [2]

Due to a total area of 719 sq km[9], the city-state of Singapore does not have much arable land. As a result, the Singaporean food processing industry is small. In addition, all raw materials or ingredients used in the processing industry are imported. The total industry output value in 2021 reached almost $8 billion USD.[10]

Singapore has an advanced and competitive hotel, restaurant, and institutional (HRI) sector. Total sales in 2021 totaled $7.7 billion USD. However, the HRI sector was the least profitable sector in 2021, and tourism receipts totaled only $1.5 billion USD versus $21 billion pre-COVID-19 pandemic. [11]

Specific Southern U.S. Product Information

Top SUSTA products exported to Singapore include fats, animal, vegetable ($324,015,936); beverages, vinegar ($128,620,936); meat, edible offal ($34,828,896); misc. edible preps ($13,086,975); and cereal, four, starch ($6,884,528).[12]

Top prospective growth products in Singapore include – from most potential to least potential – dairy products, food preparations, processed vegetables, beef & beef products, fresh fruit, bakery goods, chocolate & cocoa products, non-alcoholic beverages, tree nuts, and poultry meat products.[13]

Market Benefits and Drawbacks

Benefits

There are benefits for U.S. exporters in the Singapore market. To begin, Singapore, due to it being a city-state, is highly dependent on imports for all its food requirements. The city-state also has a large, wealthy, and affluent population with higher disposable incomes, and a well-traveled and educated population which drives demand for premium products.

[8] Singapore Fish; fillets, frozen imports by country. World Integrated Trade Solution. 2019.
[9] CIA World Factbook
[10] Alice Kwek and Karen Richards, FAS Staff Exporter Guide: Singapore. FAS GAIN Report. 10 Jan. 2023
[11] Alice Kwek and Karen Richards, FAS Staff Exporter Guide: Singapore. FAS GAIN Report. 10 Jan. 2023
[12] Euromonitor International
[13] Alice Kwek and Karen Richards, FAS Staff Exporter Guide: Singapore. FAS GAIN Report. 10 Jan. 2023

In addition to this, there is also a preference for high quality premium, wholesome, and natural products (although the market is niche). A large resident expatriate community helps increase the influence of western trends and eating habits and the proliferation of western-style restaurants and fast-food chains. Consumers perceive “Made in USA,” “Imported from USA,” and U.S. brands as signs of high-quality food and drink products.

Only a few trial shipments of Blue Catfish have made it to restaurants in Singapore and small wholesalers have shared those consumers responded favorably to this species from the southern region. No one is currently exporting blue catfish from Virginia or Maryland to this market.

Singapore is highly affluent, English-speaking, and is highly influential across other Asia markets. It is also centrally located as Southeast Asia's business and tourism hub, with quick and direct access to Malaysia, Indonesia, Thailand, Vietnam, and the Philippines.

Consumers in Singapore have a high disposable income and a preference for premium products. They trust U.S. products and view them as top-quality offerings. In addition, consumers are seeking out healthy products, and blue catfish, like other fish, is high in protein and low in fat and cholesterol. According to a recent study, Chesapeake Bay Blue Catfish fillets contain 19g of high-quality protein per serving (4 oz) with only 1.5g of fat. The fillets have more healthy fats (unsaturated 75%) than unhealthy ones (saturated 25%). Most importantly, Blue Catfish fillets provide an abundance of healthy Omega-3 fatty acids (270 mg per serving), especially eicosatetraenoic acid (EPA) and docosahexaenoic acid (DHA) which are not found in land-based plants and animal products. The fillets also contain vitamin D and potassium but provide negligible amounts of trans fat. [14]

Advantages compared to other comparable fish types:

1) It is already well regarded. Catfish is a sought-after/respected fish, and within the catfish world, blue catfish from the US is highly regarded (this is vastly different than in the US, where there is a stigma about catfish, generally).

2) Blue catfish is versatile and works well for various cooking methods that are popular in Asia: direct grilling over open fire/charcoal / wok-fried / pan-fried / steamed/baked/used in ceviche style applications / deep fried (extremely popular for fish n chips) / minced (used to make fish cakes and fish balls).

3) The basic texture and inherent mild flavor of the fish also lends itself very well to diverse types of cuisines/flavors that are quite common in Singapore's highly multicultural society: Cantonese, Teochew, Malay, Indian, Peranakan, Western / European, Japanese, Indonesian, and more). This makes it appealing to all ethnic groups.

[14] Fisher, R.A. Virginia Wild-Caught Blue Catfish: Nutrition and Contaminant Analysis. VIMS Marine Resource Report No. 2020-8.

With only 1.5% of the current seafood market share, U.S. products have the potential to gain market share from other countries.

Why is it of interest to producers from our region to export this species?

Blue catfish are an invasive species in Chesapeake Bay and have a voracious appetite, negatively impacting the iconic Chesapeake Blue Crab and Maryland's top finfish, Striped Bass. It is estimated that more than one hundred million blue catfish are in the bay. [15]

Seafood processors are working to find markets for this fish. State initiatives have targeted sales to schools, universities, food banks and other institutions. U.S. Department of Agriculture Agricultural Marketing Service is supporting sales of Chesapeake Blue Catfish with more than $1.1 million in Maryland now. Opening new markets for this fish will help increase income for watermen who have lost money due to decreased native species populations. In addition, the volume of domestic and regional sales of blue catfish in the US is insufficient to manage the species.

Developing markets for this species is a top priority in SUSTA region member states in Maryland and Virginia.

Drawbacks

Competition from Vietnam is significant, as Vietnam exports a considerable amount of pangasius to Singapore and other Asian markets. This freshwater catfish is already well-established and popular in Singapore and the region. However, it is still regarded as a poor substitute for blue catfish, which has a superior texture, appearance, and taste.

The most significant challenge will be to ensure the fillets can be landed at a competitive price.
It should be noted though that there are also quite a few challenges when exporting to the Singaporean market. To start off, the competition in the market is more intense with countries such as France picking up significant market share in the wines & spirits category, and Malaysia and China in the other categories. There are also extremely high rental and operating costs in Singapore making promotional marketing activities more challenging. U.S. exporters also have an inability to service Singapore importers, retailers, and end users i.e., meeting smaller packaging and reduced pricing that fits the market and providing marketing support.

Other barriers or drawbacks

[15] McGrath, Megan. Blue catfish threaten Chesapeake Bay seafood. NBC Washington. 16, June 2023.

Logistics. Blue catfish processors in Maryland and Virginia are used to selling 100% of their products domestically. They will need assistance and guidance with export-related efforts (how to cut, pack, and ship for export markets) and identify potential customers in the market.

SUSTA will increase the opportunities for southern exporters in Singapore each year and increase the promotion of seafood species to the market at the Seafood Expo Asia show each year.

The strategy for Blue Catfish will be conducted over two years and will aim to build on successes from year one. Support for producers will include:

1. Distribution and export assistance in the United States.
2. Public relations and media campaigns to educate consumers and buyers in the market.
3. Representation at strategic tradeshows to include sampling, targeted sampling events, and consultants with in-country knowledge and proven connections to key companies and buyers in both the retail and hotel, restaurant, and institutional sectors.

This strategy will build on the previous year by leveraging key contacts in the target sectors and increasing the focus of the educational campaign to drive the message to consumers and buyers. Since this is a new product in the market, it will be necessary to continue this education along with product samplings and the development of recipes that appeal to the different ethnic groups present in Singapore.

Producers in Maryland and Virginia support the strategies for this market. This project aims to assist both the watermen in these states and the blue catfish processors. These operations are too small to export the products themselves, but with the assistance of this project, they will be able to harvest this invasive species and attain much-needed income. This strategy supports performance outcome. A baseline for sales will be determined and each year this sales number is anticipated to increase as the market is further developed.

Moving forward, what can we do to ensure we achieve our goals? SUSTA's long term goal is to help companies build relationships, increase the opportunities in the market by adding other events in addition to trade shows to include in-bound, out-bound trade missions, and in-store promotions in this market.

SUSTA will work closely with the ATO office in Singapore, the U.S. Pavilion organizer Oak Overseas, and an in-country consultant. SUSTA will offer GAIN reports, generated by FAS, to our interested companies, as well as help organize ATO market briefings prior to the trade shows. These resources will help educate SUSTA companies on the Singapore market and its trends and opportunities.

Past performance and evaluation results

Seafood Expo Asia

SUSTA has participated in the Seafood Expo Asia show for several years when it was previously held in Hong Kong.

2025 – 2028 Strategy for Blue Catfish

1. Project Name: Introduction of Blue Catfish Direct Outreach Campaign
2. $ Request for this project only**: $133,282**
3. Required Project Dates: June 2025 – December 2028
4. Full Project Description

Phase 1:

1. Hire contractors. Contract consultant with established/proven connections and sales channels in Singapore with restaurants, retailers, and wholesale channels. Direct outreach will begin to establish contacts. This is to ensure that the product is available from the start of the project. The consultant will be responsible for organizing and executing promotional events. In addition, this consultant will assist the blue catfish processors in coordinating shipments, preparing the product for export, and ensuring product specs are met and documentation is in order. The consultant will also ensure that the ATO office is aware of activities and able to give feedback. ATO will also be invited to join any promotional events.

2. Contract Food and Beverage Marketing/PR firm to develop communications and develop and execute event plan targeting both wholesale and consumers. Communications will include press releases, marketing/sale materials, and other necessary materials. In addition, this firm will develop a Chesapeake Bay Blue Catfish microsite in English and Mandarin to explain this new product.

Phase 2:

1. Roll-out of the public relations campaign and communications activities in full.
2. Increase direct outreach to larger wholesalers and retailers.
3. Contractor to deliver first in-person tasting event, small scale, to introduce Blue Catfish to restaurant owners/chefs at Greenwood Fish Market https://www.greenwoodfishmarket.com.
4. Continue adding content, photos, information, and recipes to the microsite - where to find, etc.

Phase 3:

1. Increase PR activities, leverage success of Month Two in-person event, work with MD marketing assets, seek chef testimonials for use in social media.
2. Continue direct outreach and onboard institutional clients.

3. Deliver second in-person event, small scale, oriented towards commercial/retail purchasers and customers. Potentially, Greenwood again at a different venue or another well-known F&B venue.
4. Continue adding content, photos, information, and recipes to the microsite - where to find blue catfish.

Phase 4:

1. Begin retail promotion support. Ideally, Sheng Siong, https://shengsiong.com.sg/), or Cold Storage (https://coldstorage.com.sg/) or NTUC FairPrice (https://www.fairprice.com.sg/)
2. Continue with wholesale/customer outreach.
3. Public relations activities to build on the momentum, leverage recent tasting events, plus the introduction of new channels.
4. Continue adding content, photos, information, and recipes to the microsite.

Phase 5:

1. Continuation of public relations efforts.
2. Continued support for retail rollout.

Phase 6:

1. Host third in-person tasting event based on new interest from partners generated through the tradeshow.
2. Evaluate success / impacts / contracts; sales generated and anticipated.
3. Evaluate need for any type of light-touch ongoing extensions or support to key commercial partners.

Budget

	A	B	C	D	E	F	G	H	I	J
1	**Project Name: Introduction of Blue Catfish**							**Total Project Budget**	**$ 133,282.00**	
2	**Total project budget**	**$ 133,282.00**								
3			**Amount**					**# of People**	**Total**	
4	**Airfare**									
5	http://www.gsa.gov/portal/category/21287	Domestic Federal Per diem Rates								
6	U.S. Department of State	Home Page	International Federal Per Diem Rates							
7		**Total cost of tickets**	$ 2,000.00	for	4	tickets(s)			**$ 8,000.00**	
8										
9	**Hotel**	Cost per night	$ 284.00	for	5	night(s)	4	people	$ 5,680.00	
10		"		for	3	night(s)	2	people	$ -	
11		"		for	2	night(s)	2	people	$ -	
12		**Total Cost of Hotel**							**$ 5,680.00**	
13	**Meals and Incidentals**	Cost per day	$ 137.00	for	1	day(s)	0.75	4	$ 411.00	
14			$ 137.00	for	10	day(s)	people	4	$ 5,480.00	
15				for	2	day(s)	people	4	$ -	
16			$ 137.00	for	1	day(s)	0.75	4	$ 411.00	
17		**Total Cost of M&IE**							**$ 6,302.00**	
18	**Booth Space**	Amount							$ -	
19	**Booth Construction (if needed)**	Amount							$ -	
20	**Consultant Service Fee - Industry**	Amount	$ 30,000.00						$ 30,000.00	
21	**Consultant Service Fee - Marketing**	Amount	$ 30,000.00						$ 30,000.00	
22	**Chef Service Fee (if applicable)**	Amount	$ 1,000.00	for	2	day(s) prep work	0.75		$ 2,000.00	
23		Amount	$ 1,000.00	for	3	day(s) at event			$ 3,000.00	
24	**Van rental for Market Tour**	Cost per day		for	2	day(s)			$ -	
25	**Event space for Sampling Promo**	Amount	$ 10,000.00	for	3	events			$ 30,000.00	
26	**One-On-One Service Cost**	Amount		for	5	companies			$ -	
27	**Shipping**	Amount	$ 8,000.00						$ 8,000.00	
28	**Translators**	Cost per day		for	3	day(s)	people	5	$ -	
29	**STRE Reception (Food & Beverages**	Amount							$ -	
30	**Marketing Brochures**	Amount	$ 5,000.00						$ 5,000.00	
31	**Web site design and hosting**		$ 5,000.00						$ 5,000.00	
32	**Miscellaneous**	Taxi, ride shares	$ 300.00						$ 300.00	
33				**Total Project Cost**					**$ 133,282.00**	
34										
35										

Trade Show Promotions

1. Project Name: Seafood Expo Asia
2. $ Request for **this project only: $98,408.50**
3. Required Project Dates: September 3-5, 2025
4. Full Project Description

Event – Trade Show
Project Date – September 3-5, 2025
Project Location – Singapore
Activity Managers – Palmer Linscott and Mike Hutt

Seafood Expo Asia brings in buyers from around Asia and the world looking for various fresh, frozen, and value-added seafood products. The show features over 300 exhibitors from 31 countries. The show brings in over 3,100 seafood professionals from 69 countries.

Budget

Project Name: Seafood Expo Asia									Total Project Budget	$ 98,408.50
Total project budget	**$ 98,408.50**	**Amount**					**# of People**			**Total**
Airfare										
http://www.gsa.gov/portal/category/21287	Domestic Federal Per diem Rates									
U.S. Department of State | Home Page	International Federal Per Diem Rates									
	Total cost of tickets	$ 2,000.00	for	3	tickets(s)				$	**6,000.00**
Hotel	Cost per night	$ 284.00	for	6	night(s)	3	people		$	5,112.00
	"		for	3	night(s)	2	people		$	-
	"		for	2	night(s)	2	people		$	-
	Total Cost of Hotel								$	**5,112.00**
Meals and Incidentals	Cost per day	$ 137.00	for	1	day(s)	0.75	3		$	308.25
		$ 137.00	for	5	day(s)	people	3		$	2,055.00
			for	2	day(s)	people	2		$	-
		$ 137.00	for	1	day(s)	0.75	3		$	308.25
	Total Cost of M&IE								$	**2,671.50**
Booth Space	Amount	$ 50,000.00							$	50,000.00
Booth Construction (if needed)	Amount	$ 20,000.00							$	20,000.00
Consultant Service Fee	Amount								$	-
Chef Service Fee (if applicable)	Amount	$ 1,125.00	for	2	day(s) prep work	0.75			$	2,250.00
	Amount	$ 1,125.00	for	3	day(s) at event				$	3,375.00
Van rental for Market Tour	Cost per day		for	2	day(s)				$	-
Meeting Room for One-on-One's	Amount								$	-
One-On-One Service Cost	Amount		for	5	companies				$	-
Shipping	Amount	$ 7,000.00							$	7,000.00
Translators	Cost per day		for	3	day(s)	people	5		$	-
STRE Reception (Food & Beverages	Amount								$	-
Marketing Brochures	Amount								$	-
Miscellaneous	Description Needed	$ 2,000.00							$	2,000.00
			Total Project Cost						$	**98,408.50**

2026

1. Project Name: Seafood Expo Asia
2. $ Request for **this project only:** $102,408.50
3. Required Project Dates: September 2-4, 2026
4. Full Project Description

Event – Trade Show
Project Date – September 2-4, 2026
Project Location – Singapore
Activity Managers – Palmer Linscott and Mike Hutt

Seafood Expo Asia brings in buyers from around Asia and the world looking for various fresh, frozen, and value-added seafood products. The show features over three hundred exhibitors from thirty-one countries. The show brings in over 3,100 seafood professionals from sixty-nine countries.

Budget

Project Name: Seafood Expo Asia								Total Project Budget	$	102,408.50
Total project budget	**$ 102,408.50**	**Amount**					**# of People**			**Total**
Airfare										
http://www.gsa.gov/portal/category/21287	Domestic Federal Per diem Rates									
U.S. Department of State | Home Page	International Federal Per Diem Rates									
	Total cost of tickets	$ 2,000.00	for	3	tickets(s)				**$**	**6,000.00**
Hotel	Cost per night	$ 284.00	for	6	night(s)	3	people		$	5,112.00
	"		for	3	night(s)	2	people		$	-
	"		for	2	night(s)	2	people		$	-
	Total Cost of Hotel								**$**	**5,112.00**
Meals and Incidentals	Cost per day	$ 137.00	for	1	day(s)	0.75	3		$	308.25
		$ 137.00	for	5	day(s)	people	3		$	2,055.00
			for	2	day(s)	people	2		$	-
		$ 137.00	for	1	day(s)	0.75	3		$	308.25
	Total Cost of M&IE								**$**	**2,671.50**
Booth Space	Amount	$ 52,000.00							$	52,000.00
Booth Construction (if needed)	Amount	$ 22,000.00							$	22,000.00
Consultant Service Fee	Amount								$	-
Chef Service Fee (if applicable)	Amount	$ 1,125.00	for	2	day(s) prep work	0.75			$	2,250.00
	Amount	$ 1,125.00	for	3	day(s) at event				$	3,375.00
Van rental for Market Tour	Cost per day		for	2	day(s)				$	-
Meeting Room for One-on-One's	Amount								$	-
One-On-One Service Cost	Amount		for	5	companies				$	-
Shipping	Amount	$ 7,000.00							$	7,000.00
Translators	Cost per day		for	3	day(s)	people	5		$	-
STRE Reception (Food & Beverages	Amount								$	-
Marketing Brochures	Amount								$	-
Miscellaneous	Description Needed	$ 2,000.00							$	2,000.00
			Total Project Cost						**$**	**102,408.50**

2027

1. Project Name: Seafood Expo Asia
2. $ Request for **this project only:** $106,408.50
3. Required Project Dates: September 1-3, 2027
4. Full Project Description

Event – Trade Show
Project Date – September 1-3, 2027
Project Location – Singapore
Activity Managers – Palmer Linscott and Mike Hutt

Seafood Expo Asia brings in buyers from around Asia and the world looking for various fresh, frozen, and value-added seafood products. The show features over three hundred exhibitors from thirty-one countries. The show brings in over 3,100 seafood professionals from sixty-nine countries.

Budget

Project Name: Seafood Expo Asia									Total Project Budget	$	106,408.50
Total project budget	**$ 106,408.50**	**Amount**					**# of People**				**Total**
Airfare											
http://www.gsa.gov/portal/category/21287	Domestic Federal Per diem Rates										
U.S. Department of State | Home Page	International Federal Per Diem Rates										
	Total cost of tickets	$ 2,000.00	for	3	tickets(s)				$	**6,000.00**
Hotel	Cost per night	$ 284.00	for	6	night(s)	3	people		$	5,112.00
	"		for	3	night(s)	2	people		$	-
	"		for	2	night(s)	2	people		$	-
	Total Cost of Hotel								$	**5,112.00**
Meals and Incidentals	Cost per day	$ 137.00	for	1	day(s)	0.75	3		$	308.25
		$ 137.00	for	5	day(s)	people	3		$	2,055.00
			for	2	day(s)	people	2		$	-
		$ 137.00	for	1	day(s)	0.75	3		$	308.25
	Total Cost of M&IE								$	**2,671.50**
Booth Space	Amount	$ 54,000.00							$	54,000.00
Booth Construction (if needed)	Amount	$ 24,000.00							$	24,000.00
Consultant Service Fee	Amount								$	-
Chef Service Fee (if applicable)	Amount	$ 1,125.00	for	2	day(s) prep work	0.75			$	2,250.00
	Amount	$ 1,125.00	for	3	day(s) at event				$	3,375.00
Van rental for Market Tour	Cost per day		for	2	day(s)				$	-
Meeting Room for One-on-One's	Amount								$	-
One-On-One Service Cost	Amount		for	5	companies				$	-
Shipping	Amount	$ 7,000.00							$	7,000.00
Translators	Cost per day		for	3	day(s)	people	5		$	-
STRE Reception (Food & Beverages	Amount								$	-
Marketing Brochures	Amount								$	-
Miscellaneous	Description Needed	$ 2,000.00							$	2,000.00
			Total Project Cost						$	**106,408.50**

2028

1. Project Name: Seafood Expo Asia
2. $ Request for **this project only:** $110,408.50
3. Required Project Dates: September 6-8, 2028
4. Full Project Description

Event – Trade Show
Project Date – September 6-8, 2028
Project Location – Singapore
Activity Managers – Palmer Linscott and Mike Hutt

Seafood Expo Asia brings in buyers from around Asia and the world looking for various fresh, frozen, and value-added seafood products. The show features over three hundred exhibitors from thirty-one countries. The show brings in over 3,100 seafood professionals from sixty-nine countries.

Budget

Project Name: Seafood Expo Asia									Total Project Budget	$ 110,408.50
Total project budget	**$ 110,408.50**	**Amount**					**# of People**			**Total**
Airfare										
http://www.gsa.gov/portal/category/21287	Domestic Federal Per diem Rates									
U.S. Department of State | Home Page	International Federal Per Diem Rates									
	Total cost of tickets	$ 2,000.00	for	3	tickets(s)				**$**	**6,000.00**
Hotel	Cost per night	$ 284.00	for	6	night(s)	3	people		$	5,112.00
	"		for	3	night(s)	2	people		$	-
	"		for	2	night(s)	2	people		$	-
	Total Cost of Hotel								**$**	**5,112.00**
Meals and Incidentals	Cost per day	$ 137.00	for	1	day(s)	0.75	3		$	308.25
		$ 137.00	for	5	day(s)	people	3		$	2,055.00
			for	2	day(s)	people	2		$	-
		$ 137.00	for	1	day(s)	0.75	3		$	308.25
	Total Cost of M&IE								**$**	**2,671.50**
Booth Space	Amount	$ 56,000.00							$	56,000.00
Booth Construction (if needed)	Amount	$ 26,000.00							$	26,000.00
Consultant Service Fee	Amount								$	-
Chef Service Fee (if applicable)	Amount	$ 1,125.00	for	2	day(s) prep work	0.75			$	2,250.00
	Amount	$ 1,125.00	for	3	day(s) at event				$	3,375.00
Van rental for Market Tour	Cost per day		for	2	day(s)				$	-
Meeting Room for One-on-One's	Amount								$	-
One-On-One Service Cost	Amount		for	5	companies				$	-
Shipping	Amount	$ 7,000.00							$	7,000.00
Translators	Cost per day		for	3	day(s)	people	5		$	-
STRE Reception (Food & Beverages	Amount								$	-
Marketing Brochures	Amount								$	-
Miscellaneous	Description Needed	$ 2,000.00							$	2,000.00
			Total Project Cost						**$**	**110,408.50**

APPENDIX R

North American Journal of Fisheries Management, 2025, **00**, 1–13
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Advance access publication: July 2, 2025
Article

Expanding participation in Virginia's emerging commercial fishery for Blue Catfish

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ABSTRACT

Objective: There are efforts to expand exploitation of Blue Catfish *Ictalurus furcatus* in the Chesapeake Bay to reduce the population of this harmful invasive species. However, recent growth in the commercial fishery has been limited, with low exvessel prices thought to be a key constraint. The objective of this research is to evaluate the impact of exvessel prices on fishing days for Blue Catfish and to understand participation and perceptions regarding the fishery.

Methods: A survey instrument was used to collect information on participation in the fishery and perceptions of Blue Catfish in terms of environmental impacts and fishery expansion. The survey also included a series of contingent behavior questions wherein targeting of Blue Catfish was explored under different hypothetical price regimes. Robust regression models and a two-step hurdle model were used to assess contingent behavior responses.

Results: Results indicate that fishing effort responds strongly to increases in the exvessel price of Blue Catfish, regardless of price variability. Aligned with this finding, respondents indicated that the most concerning aspects of expanding the commercial fishery for Blue Catfish were the availability of buyers and the exvessel price. Respondents noted, however, that the Blue Catfish fishery offers opportunities for diversification and may provide ecological benefits.

Conclusions: Increased development of the Blue Catfish fishery may yield ecological and economic benefits, although concerns regarding buyer availability and harmful environmental impacts remain.

KEYWORDS: Blue Catfish, Chesapeake Bay, contingent behavior, exvessel price, invasivorism, small-scale fisheries

LAY SUMMARY

Exvessel price has a positive impact on fishing effort for Blue Catfish in Virginia's small-scale commercial fishing industry, although concerns regarding seafood processing remain.

INTRODUCTION

The human consumption of nonnative invasive species to control abundance or inhibit expansion, also known as invasivorism, has been offered as a potential management strategy to curtail the ecological and socioeconomic impacts of invasions (Mooney & Cleland, 2001). In the marine environment, commercial and recreational fishing harvest is considered a potentially viable mechanism to control invasive populations. One such example is the National Oceanic and Atmospheric Administration's (NOAA) "Eat Lionfish" campaign, with targeted fishing removals of invasive lionfish *Pterois* spp. for human consumption (de León et al., 2013; Ferguson & Akins, 2010). The associated ecological (i.e., reduced predation on other valuable species) and economic incentives for fishers and consumers alike have made this a widely recognized and effective campaign.

In Virginia, there are ongoing efforts to evaluate the potential for increased exploitation of emerging species, including the Blue Catfish *Ictalurus furcatus*, an invasive species in the Chesapeake Bay. Blue Catfish were introduced to enhance recreational fishing in the freshwater tributaries of Virginia during the 1970s, and the population has since flourished, with dense concentrations in freshwater and estuarine waters. In a portion of the James River, a tributary of the Chesapeake Bay, abundances of Blue Catfish are estimated to be upwards of 1,344 individuals/acre (Fabrizio et al., 2018). Blue Catfish are omnivorous, with ontogenetic dietary shifts thought to negatively impact other valuable and ecologically significant

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fishery resources, such as shad and herring *Alosa* spp., Atlantic Menhaden *Brevoortia tyrannus*, and blue crab *Callinectes sapidus* (Schloesser et al., 2011; Schmitt et al., 2018, 2019). Blue Catfish have become a growing management concern due to their large size, longevity, and capability of expanding to nonfreshwater habitats (Nepal & Fabrizio, 2019). Thus, the exploitation of Blue Catfish may provide both ecological and economic benefits to the Chesapeake Bay and its fishing communities.

A moderately sized commercial fishery for Blue Catfish currently exists in Virginia, with landings increasing from about 100,000 lb in 2006 to over 3.1 million lb valued at more than US$1.8 million in 2021 (NOAA, 2023). Although the Blue Catfish fishery has grown within the past few decades, landings have remained relatively stable since 2017 and the resource is comparatively underexploited. In 2021, the revenue from the Blue Catfish fishery equated to only 5% of the annual revenue for the prominent blue crab fishery ($33.5 million). Common gears for catfish harvest include gill nets, fish pots (e.g., hoop nets), trot lines, and pound nets. The Virginia Marine Resources Commission (VMRC) also established the use of low-frequency electrofishing (LFE) to target removals of Blue Catfish for commercial harvest, the first application of its kind in the United States. In 2020, three licensed commercial fishers were permitted through a lottery system to use LFE gear solely for harvest of Blue Catfish and another invasive species, Flathead Catfish *Pylodictis olivaris*, in three tributaries of the Chesapeake Bay. The LFE permits allow one vessel to shock the catfish to the surface while another vessel ("chase boat") retrieves the fish with dip nets. However, spatial and temporal restrictions of the LFE gear limit its utilization, and the gear is only effective under certain environmental conditions (Montague & Shoup, 2022). Additionally, with only a small number of permits allowed, the gear type is inaccessible to most of the commercial fishing population. It is likely appropriate to consider the expansion of the commercial fishery for Blue Catfish by using traditional gears in conjunction with LFE.

Commercialization of nonnative invasive species can provide additional fishing opportunities to commercial fishers and can support the diversification of fishing portfolios. Diversifying across species, gears, and locations within the commercial fishing industry may serve as an important livelihood strategy, with the potential benefits of revenue stabilization and decreased vulnerability in fishery-dependent communities (Abbott et al., 2022; Allison & Ellis, 2001; Cline et al., 2017; Holland et al., 2017; Kasperski & Holland, 2013; Sethi et al., 2014). Commercial fishing communities will likely face new diversification opportunities and challenges in response to ongoing environmental changes that are associated with shifts in endemic species distributions northward or to deeper waters and the emergence of nonnative invasive species (Finch et al., 2021; Lucey & Nye, 2010; Nye et al., 2009). Constraints to diversification, such as the cost of purchasing licenses or permits and difficulty in entering limited or quota-based fisheries, might be less prevalent or nonexistent in emerging fisheries and might provide more accessible opportunities to diversify (Holland & Kasperski, 2016; Stoll et al., 2016). Currently, there are few regulations for the Blue Catfish fishery aside from those pertaining to size limits that serve as a safeguard against contaminant concentrations (creel limits: Creel and Length Limits, 2003/2025; LFE regulations: VMRC, 2020). However, despite increased accessibility, exploitation may be limited by other factors, such as a lack of familiarity, lack of personal interest, lack of a market, insufficient financial and social capital, or unavailability of the species in preferred fishing locations (Bucaram & Hearn, 2014; Pradhan & Leung, 2004). Barriers to expansion of the Blue Catfish fishery in Virginia are not well understood but could be tied to regulations, including gear restrictions that limit harvest (e.g., restricting gill-net seasons to avoid interactions with nontarget species); low exvessel prices; and limited consumer demand stemming from unfamiliarity or contaminant concerns (Luellen et al., 2018).

This research aims to evaluate factors influencing the sustainable development of an emerging small-scale commercial fishery for Blue Catfish by using a survey instrument distributed to licensed commercial fishers in Virginia. Participation and diversification decisions in small-scale commercial fisheries are not well understood, especially in the context of emerging fisheries. A better understanding can help to characterize intra-industry dynamics and predict how fishers will respond to management or exogenous factors (e.g., markets and environment). Understanding the willingness of commercial fishers to participate in emerging fisheries is timely, as environmentally driven shifts in species distributions will likely alter fishing behavior to some extent in the future. This research will help to provide an understanding of the opportunities for diversification under conditions in which shifts occur and will help managers to better understand how fishers will adapt to ongoing environmental changes (Allison et al., 2009; Bennett & Dearden, 2014; Chambers & Carothers, 2017; Degnbol & McCay, 2007; Jurjonas & Seekamp, 2018; Stoll et al., 2016). Furthermore, evaluating barriers to participation in emerging fisheries can encourage managers and commercial fishing-related sectors to seek innovative solutions that encourage participation and promote sustainable harvest.

METHODS

Survey development

A stated preference survey was developed in collaboration with commercial fishers, state fishery managers at the VMRC, extension and outreach agents at the Virginia Institute of Marine Science, the Virginia Marine Products Board, and researchers working closely with the Blue Catfish industry. The survey instrument contained questions regarding fishing costs and revenues, perspectives on and concerns about the expansion of the Blue Catfish fishery and the commercial fishing industry, willingness to participate in the Blue Catfish fishery, past participation in the Blue Catfish fishery, changes in fishing behavior over time, participation in various other fisheries, and sociodemographics (e.g., age, education, and family ties to fishing). In lieu of holding focus groups during the COVID-19 pandemic, a subset of 10 individuals, including participants and nonparticipants in the Blue Catfish fishery, received an emailed copy of the draft survey to address any concerns with wording, structure, and comprehension. Where applicable, these individuals were removed from the final survey sample. Following reviewer feedback, the survey was further refined and distributed via postal mail in the spring and summer of 2022.

The final survey included 36–40 questions, depending on responses to questions within the survey. In addition, respondents were offered two opportunities to provide additional comments on the Blue Catfish fishery and their individual participation in the commercial fishing industry. Three questions of particular interest to this research were based on hypothetical contingent behavior scenarios (Englin & Cameron, 1996) whereby an individual was presented a particular range for exvessel Blue Catfish price and was asked how many days they would target the species under those market conditions. In 2021, the average exvessel price of Blue Catfish was $0.58 per pound (NOAA, 2023), although input during survey development noted a range of $0.25–0.85 per pound. Anecdotal evidence suggests that low exvessel prices serve as an important barrier to participation; thus, hypothetical contingent behavior questions were used to test that hypothesis. The experimental design included three exvessel mean price levels (low = $0.50; medium = $1.00; high = $2.00) with two levels of variability (low: ±$0.05; high: ±$0.20). Respondents were presented hypothetical prices as a range; for example, a range of $0.30–0.70 corresponded to a low mean price and high variability. Each individual was asked three hypothetical contingent behavior questions, producing 20 possible price range combinations. From this set, combinations that presented the same hypothetical price ranges in different order were removed, as were any combinations that did not include both a low and high average price level and low and high price variability. These restrictions produced an experimental design of 10 combinations, from which five were randomly selected and associated with a unique survey version (versions A–E).

Survey implementation

Mailing addresses obtained from the VMRC were requested based on three groups of fishing participation. The first group included individuals that had participated in the Blue Catfish fishery (≥100 lb of landings in a given year) between 2017 and 2021 ($n = 224$). The second group included individuals that did not participate in the Blue Catfish fishery (<100 lb of noncumulative Blue Catfish landings across years) but had at least 1,000 lb of other species landings *and* had licenses or permits for gears that could be used to harvest Blue Catfish (i.e., fyke net, gill net, hook and line, hoop net or fish pot, LFE, pound net, and trot line) for any year between 2017 and 2021 ($n = 806$). The third group included individuals that did not participate in the Blue Catfish fishery (<100 lb of noncumulative Blue Catfish landings across years) *and* did not have licenses or permits for gears that could be used to target Blue Catfish but had at least 1,000 lb of other species landings for any year between 2017 and 2021 ($n = 680$). The survey frame included a total of 1,710 active (i.e., at least 1 d of recorded participation in a given year) Virginia-licensed commercial fishers with permanent in-state residences from 2017 to 2021.

Using the stratified survey frame, a total of 800 fishers were sampled across the three groups (Cochran, 1977). Based on the research objective (i.e., to understand the potential for expanding the Blue Catfish fishery in Virginia) and the small sample size, all individuals that had landed Blue Catfish in any of the previous 5 years (≥100 lb) were sampled ($n = 224$). The remaining individuals were divided equally using a random selection of 288 individuals that did not participate in the Blue Catfish fishery but had licenses or permits for gears to do so and 288 individuals that did not participate in the Blue Catfish fishery and did not have the licenses or permits for gears to do so. Individuals within each of the three groups were randomly assigned a version of the survey so that there was equal representation of survey versions within and across groups. The occurrence of survey versions across ZIP codes was also evaluated to ensure representation across areas. Blue Catfish are not locally available in all areas, and it is therefore important to understand how this might affect participation in the fishery. All survey materials were approved by William & Mary's Protection of Human Subjects Committee (Protocol PHSC-2022-02-03-15429-amscheld; see the online Supplementary Material for an example of the survey).

Survey distribution followed the Dillman et al. (2009) approach in which individuals received up to four mailings between April and July 2022. Individuals in the sample received an initial invitation postcard to highlight the purpose of the survey and to indicate that a survey packet would arrive in the next 2 weeks; a survey packet, including a cover letter that indicated conditions for consent, the survey, and a return envelope with postage; a follow-up postcard thanking individuals for their participation and asking that they return the survey if they had not done so; and a second survey packet for those who had not responded. To raise awareness of the survey within the commercial fishing industry, the Virginia Waterman's Association, the predominant industry group in the state, highlighted the research on social media following the initial postcard mailing but prior to the survey mailing.

Survey analyses

Descriptive statistics and models

All surveys were coded, entered into an Excel spreadsheet, and checked for accuracy prior to analysis. Most questions were analyzed as the average or mode of responses, which helped to characterize patterns across respondents and the broader small-scale commercial fishing industry in Virginia. Individuals who did not respond to certain questions were removed from the calculation of averages, modes, and proportions. Differences across response groups to key questions were used to assess potential response bias. Comparisons between fishers who had landed Blue Catfish and those who had not (regardless of holding licenses or permits for certain gear) were evaluated using a chi-square test.

Statistical models were developed to assess responses to the three hypothetical contingent behavior questions included in each survey. Based on feedback received during survey development, it was hypothesized that a fisher's willingness to increase fishing effort (or number of fishing days) for Blue Catfish might be influenced by exvessel price, availability of buyers, presence of Blue Catfish in fishing areas, current fishing behavior, and sociodemographic characteristics. Diversification decisions have been previously found to be associated with a suite of factors, including the total years during which an individual has participated in the commercial fishing industry, regulation, resource dependence, and revenues (Abbott et al., 2022; Bucaram & Hearn, 2014; Hentati-Sundberg et al., 2015; Stoll et al., 2017; White & Scheld, 2024). It is possible that similar

factors also influence an individual's decision to participate in emerging fisheries; thus, model development considered the willingness to participate as a function of exvessel price and price variability as well as other potentially relevant factors. The hypothetical number of fishing days was presented as bins in the survey (e.g., 11–25 d). The mean of each bin was used as a continuous response variable in the model to allow for predictions across a continuous range. Model covariates that were tested included exvessel price, treated as a continuous variable equal to the mean of the price range; the level of price variability, considered as a binary factor equal to 1 in high-variability scenarios; and whether an individual had landed Blue Catfish in the past 5 years. Variables created from responses to survey questions were also tested, including age; annual revenues; total number of years fished; generations of fishers in the respondent's family; changes in species targeted or gears used by the respondent during their fishing career; whether the individual obtained income from employment outside of commercial fisheries; anticipated fishing behavior in the next 10 years; and the total number of species targeted, gears used, and areas fished in 2021. We ran additional models that included individual license numbers (i.e., individual fishers) as either fixed or random effects to control for unobserved heterogeneity and to provide comparisons with models including individual explanatory covariates. Variance inflation factors (VIFs) were used to assess multicollinearity between covariates, and VIF values of 5 or greater were avoided in model development (O'Brien, 2007).

In total, three models were developed, including two linear models and a single, two-step hurdle model. Both linear models were run as robust regressions using the estimatr package in RStudio (R Core Team, 2024). The first linear model was used to assess the impact of individual factors on willingness to participate in the Blue Catfish fishery. Different model covariates were tested following VIF calculation, and model selection was based on Akaike's information criterion. Exvessel price was included as an interaction term on whether individuals had landed Blue Catfish to evaluate the differences in market price needed to alter fishing behavior across groups. The second linear model included individual fixed effects to control for individual heterogeneity in assessing the effect of exvessel price and price variability on willingness to participate. To test the validity of both linear models, Pearson's correlation test was used to compare the reported number of days that a fisher targeted Blue Catfish and the predicted number of days that a fisher would target Blue Catfish based on reported exvessel prices. The hurdle model was composed of two parts: (1) a generalized linear mixed model (GLMM) binomial regression with a logit link to evaluate differences between zero and nonzero hypothetical fishing effort responses and (2) a GLMM with a gamma regression and log link to assess factors influencing nonzero effort responses. In the first step, a "0" represented individuals who responded with "None/I would not target" to the contingent behavior scenarios, and a "1" represented individuals who indicated that they would target Blue Catfish on at least 1 d. Coefficients in the first step of the hurdle model were the log odds of the predictor variables and were a function of the intercept and coefficient estimate, interpreted as predicted probabilities. The second part of the two-step GLMM hurdle model used a gamma regression with a log link to evaluate the effect of covariates on individuals who indicated that they would target Blue Catfish on at least 1 d in the contingent behavior scenarios. Coefficients in the second part of the hurdle model were interpreted as the impact on the number of fishing days given a change in the covariate obtained by multiplying the exponentiated intercept and coefficient. Covariates included exvessel price, the exvessel price variability, and individual identification numbers as a random effect. The GLMMs were fitted in the glmmTMB package for RStudio (Brooks et al., 2017). Residual plots were used as robustness checks for each of the models.

An additional data set was requested from VMRC to estimate the impact of expanding Virginia's commercial Blue Catfish fishery on potential removals. The data set included average harvest per trip by gear for fishers that had harvested Blue Catfish (≥100 lb of landings in a given year) between 2017 and 2022 and the number of fishers utilizing a particular gear type. With the exclusion of LFE, a weighted average harvest per trip was constructed by considering the most commonly used gears (fish pots, haul seines, pound nets, trot lines, and gill nets), where weights used in constructing the average reflected the level of participation for each gear type. This average was then the level of harvest that would be expected if fishing effort were to increase uniformly across gear types. Predicted removals were calculated by multiplying the weighted average by the number of fishers and the increase in fishing days for Blue Catfish expected under a potential price increase, as estimated by regression models.

Qualitative analysis of open-ended responses

Each survey offered two opportunities for open-ended responses related to the Blue Catfish commercial fishery and individual participation in Virginia's commercial fishing industry. Survey responses were coded in NVivo (QSR International, 2020) using a modified grounded theory approach (Glaser & Strauss, 1967). There was extensive overlap between the topics mentioned; therefore, responses were combined for coding. Responses were coded based on positive or negative sentiment, and multiple iterations of coding were then conducted to detect emergent themes or concepts.

RESULTS

Survey responses

Data cleaning procedures

Due to a printing malfunction in the second survey mailing, a subset of the return envelopes did not have an assigned identification number ($n = 39$, or 22.5% of respondents) and were subsequently recategorized based on responses to various questions. Individuals that self-reported targeting Blue Catfish in 2021 were assigned to the group with Blue Catfish landings. Individuals who stated that they did not target Blue Catfish in 2021 were assigned either to the group that had no Blue Catfish landings but had licenses or permits for gears that could be used for harvest or to the group that had no Blue Catfish landings and no licenses or permits for gears to do so based on responses to questions regarding species targeted and gears used. Responses to five survey questions had similar issues wherein individuals exceeded the suggested number of choices and, in some

cases, forced rankings could not be assumed. These issues were addressed appropriately through recategorization (i.e., one answer choice better described the multiple selections) or exclusion, except for one instance in which fishers were asked to select three choices that best described the reason for ending participation in any fishery and challenges to the success of an individual's commercial fishing business. Respondents often selected more than three options, and all responses were coded. Despite exceeding the suggested number of options, responses provide useful insight into barriers or challenges that exist within Virginia's small-scale commercial fishing industry. Survey results are presented as mean ± SD.

Virginia's small-scale commercial fisheries

A total of 173 surveys were returned (22.4% return rate, excluding individuals with undeliverable addresses [$n = 26$]). Return rates were highest among fishers that had landed Blue Catfish within the past 5 years (34%) and lowest for individuals that had not targeted Blue Catfish and did not hold licenses or permits for gears that could be used for harvest (15.2%). Fishers who did not have landings of Blue Catfish but had licenses or permits for gears that could be used for harvest had an intermediate response rate (19.9%). The average age of respondents was 60.9 ± 14.6 years, with an age range of 23–93 years. Most individuals indicated a high school diploma as their highest degree of education, and most had been commercial fishers for 20 years or more ($n = 107$). More than 70% of respondents had immediate or extended family members that currently or previously worked in commercial fishing or seafood industries. Likewise, a majority of individuals were second-generation watermen ($n = 64$), although a number of fishers reported having five or more generations of watermen in their family ($n = 18$). There was considerable variability in the number of days fished and revenues in 2021. However, on average, fishers reported fishing between 101 and 150 d, with average incomes from fishing between $15,001 and $30,000. Fishers reported having an average of 1.1 ± 1.5 crew members on their vessel, not including themselves. Differences in these factors across sample groups were not significant.

To evaluate levels of diversification within and outside of Virginia's small-scale fisheries, fishers were asked to indicate which species were targeted, what gears were used, and what areas were fished in 2021. More than half of respondents targeted more than one species (67.6%) and used more than one gear type (57.2%). Individuals that landed Blue Catfish were more diversified across gears and species than individuals without Blue Catfish landings, regardless of holding licenses or permits for gears that could be used for harvest ($P < 0.001$). Fishing locations were based on VMRC's water body codes used for self-reporting harvest, with some locations combined for a total of 16 options. Less than half of fishers indicated fishing in more than one location (48.6%). A majority of fishers (59.5%) reported targeting blue crab and using pots or traps (58.4%) in 2021. Gill nets were the second most mentioned gear type (51.4%). Despite evidence of diversification between species and gears, only 31% of fishers reported holding a license or permit for commercial harvest outside of Virginia state waters, including jurisdictions of the Potomac River Fisheries Commission. Fishers most commonly sold their catch to a processor (i.e., fish house) or to seafood markets and wholesalers, and half of individuals sold to more than one buyer type (50.4%). The number of ways in which fishers sold their catch differed significantly between groups ($P < 0.01$), with individuals who had landed Blue Catfish utilizing more methods of selling catch than individuals who did not land Blue Catfish. When respondents were asked to compare their current fishing behavior (in terms of species targeted and gears used) to their fishing behavior when they began fishing, the most common response indicated no change across years. Interestingly, when comparing whether there was an increase or decrease in species targeted or gears used, more respondents had decreased participation in both capacities. At the group level, individuals who had landed Blue Catfish noted using more gear types rather than decreasing the number of gears used. On average, fishers derived approximately 47.4% of their household income from fishing, and 45.1% of respondents indicated having at least one additional source of household income outside of commercial fishing. Fishers were asked to list their other income sources; of these responses, approximately 26% of individuals noted retirement, pension, or Social Security. Other responses were predominately non-marine related, although some individuals identified additional marine-related income through employment hanging net for other fishers; working at marinas, seafood processing facilities, or aquaculture facilities; or marine construction.

Fishers were asked to indicate whether they had ever stopped targeting a particular species and what drove this change. The top responses were related to the availability of species ($n = 56$) and the price received for species ($n = 52$); however, the third highest response was that the fisher had not stopped targeting any species ($n = 48$). To better understand challenges to participation in Virginia's small-scale commercial fishing industry, we asked fishers to indicate which factors presented the greatest challenges to success. The top three responses included the availability of species in fishing areas or seasons ($n = 72$), the price received for landings ($n = 71$), and management or regulation ($n = 69$).

Responses to Blue Catfish questions

Individuals who landed Blue Catfish in the previous 5 years (≥100 lb of landings in a single year between 2017 and 2021) targeted Blue Catfish an average of 55.4 ± 66.5 d and received an average exvessel price of $0.53 per pound in 2021. The most common gear type used by fishers targeting Blue Catfish were gill nets (52 of 74 individuals, or 70%), although respondents often indicated using multiple gears in addition to gill nets, such as hoop nets (fish pots) and trot lines. More than half (61.8%) of all respondents indicated that they had caught Blue Catfish as bycatch while targeting other species within the past 5 years; of those individuals, 70.1% reported selling Blue Catfish caught as bycatch. The majority of individuals who did not actively target Blue Catfish indicated a lack of interest ($n = 40$), followed by a lack of appropriate gear ($n = 29$) or availability of Blue Catfish in fishing areas ($n = 21$).

Average responses to Likert scale questions were evaluated across all respondents (excluding the "not sure" responses), and responses were compared between groups to evaluate differences between fishers that landed Blue Catfish and those that did not (Figures 1–3). Concerns regarding the ecological and

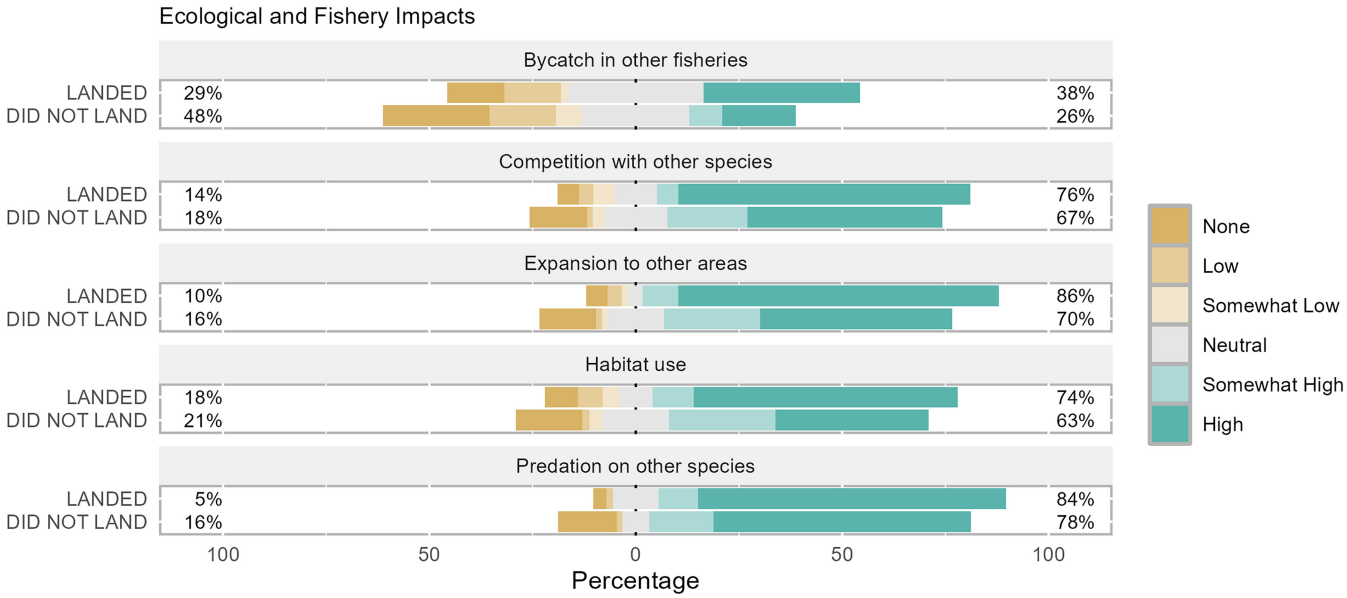

Figure 1. Survey respondents were asked to rate concerns regarding the ecological and fishery impacts of Blue Catfish in the Chesapeake Bay (LANDED = individuals that landed Blue Catfish; DID NOT LAND = individuals that did not land Blue Catfish). Percentages represent responses that were below and above neutral.

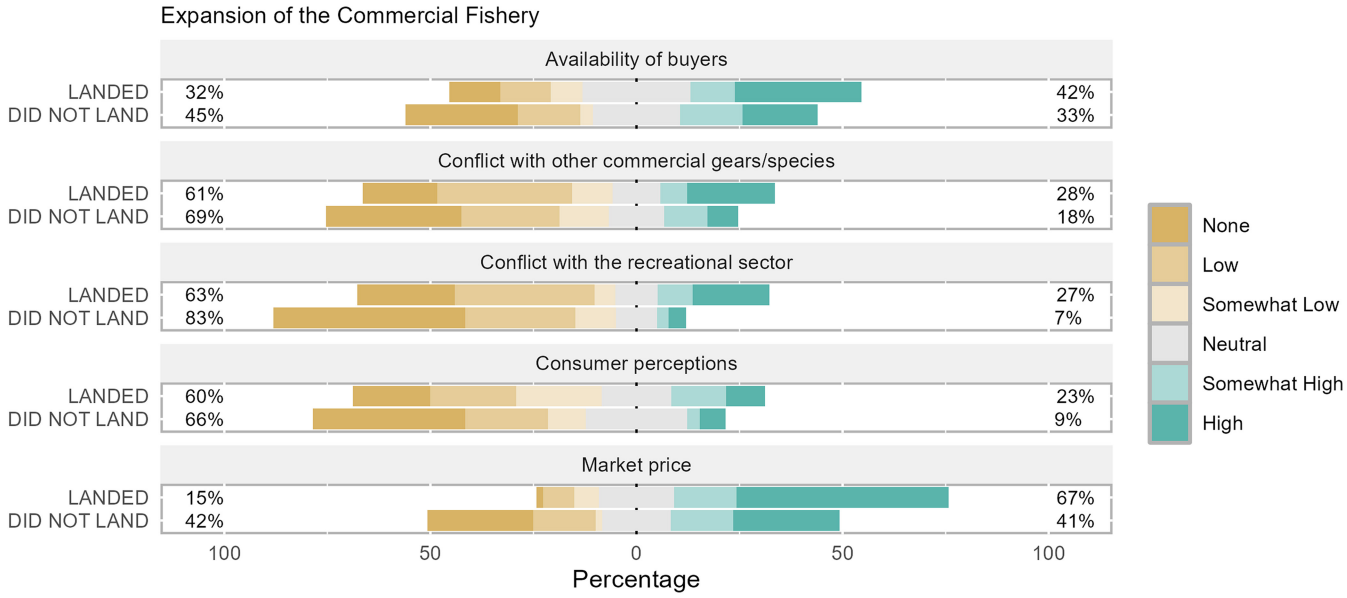

Figure 2. Survey respondents were asked to rate concerns regarding expansion of the commercial fishery for Blue Catfish in the Chesapeake Bay (LANDED = individuals that landed Blue Catfish; DID NOT LAND = individuals that did not land Blue Catfish). Percentages represent responses that were below and above neutral.

fishery impacts associated with expansion of the Blue Catfish in Virginia ranged from "no concern" to "high concern" (coded on a scale of 0–5; Figure 1); on average, individuals were less concerned about the impact of Blue Catfish occurring as bycatch in other fisheries (2.7 ± 1.9) and more concerned with other ecological impacts, such as predation on other species (4.2 ± 1.5) or expansion of Blue Catfish to other areas (4.0 ± 1.6). Ecological impacts of habitat use and competition with other species had average responses of 3.7 ± 1.7 and 3.9 ± 1.6, respectively. A higher proportion of individuals across both groups (individuals that landed Blue Catfish and individuals that did not) indicated concerns greater than the midpoint (>3) regarding ecological and fishery impacts of Blue Catfish in Virginia except for bycatch in other fisheries. Individuals that did not land Blue Catfish were less concerned about bycatch (48%) compared to individuals that did land Blue Catfish (29%), with significant differences between groups ($P < 0.001$). Significant differences existed between groups for habitat use ($P < 0.10$), competition with other species ($P < 0.05$), and expansion of Blue Catfish to other areas ($P < 0.01$), with fishers who had landed Blue Catfish having higher concerns. Concerns related to predation on other species by Blue Catfish were also significantly different between groups ($P < 0.01$). Fishers who had landed Blue Catfish had higher concerns regarding predation on other species.

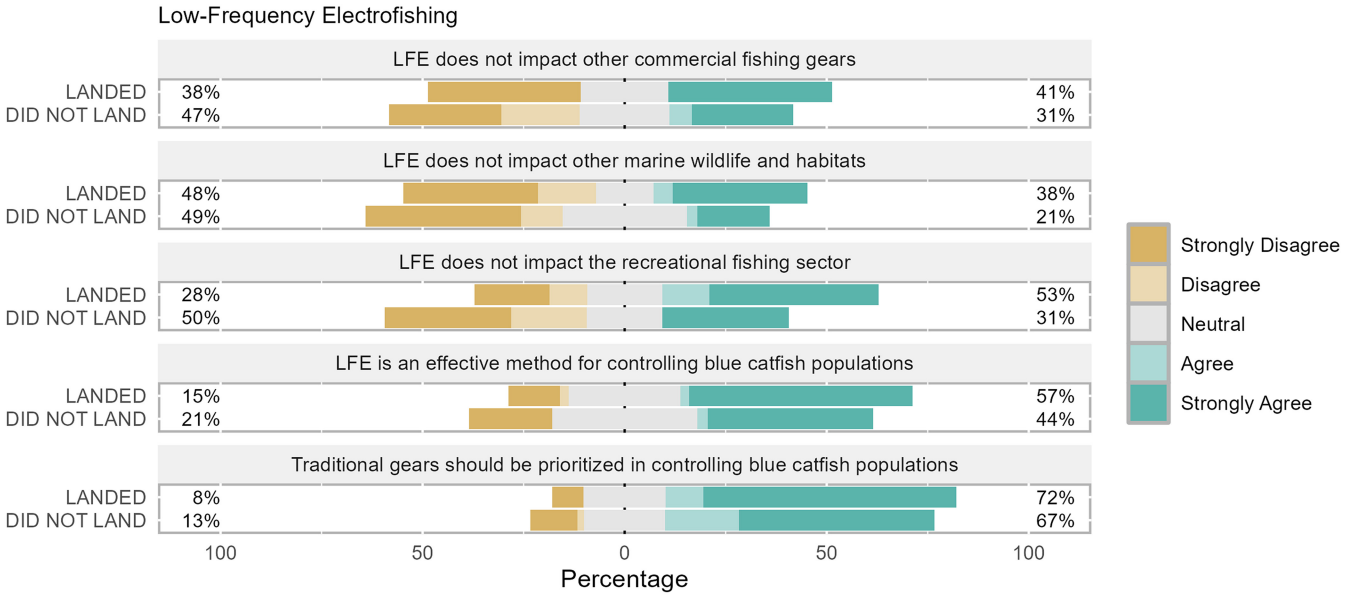

Figure 3. Survey respondents were asked to indicate the level of agreement with statements about using low-frequency electrofishing (LFE) for commercial Blue Catfish harvest in Virginia's tidal waters (LANDED = individuals that landed Blue Catfish; DID NOT LAND = individuals that did not land Blue Catfish). Percentages represent responses that were below and above neutral.

Respondents rated concerns on different factors related to expansion of the Blue Catfish commercial fishery in Virginia on a scale of "no concern" to "high concern" (coded on a scale of 0–5; Figure 2). Average concerns regarding the expansion of the Blue Catfish commercial fishery in terms of the availability of buyers (2.7 ± 1.9), conflicts with other commercial gears or species (1.9 ± 1.8) or the recreational fishing sector (1.5 ± 1.7), and consumer perceptions of Blue Catfish (1.8 ± 1.6) were considered low (<2.9). On average, the exvessel price of Blue Catfish was more of a concern with regard to expanding the commercial fishery for Blue Catfish in Virginia (3.3 ± 1.8). Individuals who landed Blue Catfish were more concerned with exvessel price than individuals who had not ($P < 0.001$). In addition to exvessel price, significant differences existed between groups regarding concerns about the availability of buyers ($P < 0.001$), conflicts with the recreational fishing sector ($P < 0.01$), consumer perceptions ($P < 0.05$), and conflicts with other commercial gears or species ($P < 0.01$). In all instances, fishers who had landed Blue Catfish in the previous 5 years had higher rated concerns than those who had not.

Fishers were asked to rate their level of agreement with statements regarding the use of LFE for Blue Catfish harvest (Figure 3). Responses ranged from "strongly disagree" to "strongly agree" (coded on a scale of 1–5); on average, individuals considered LFE to be an effective method for controlling the Blue Catfish population (3.4 ± 1.8). Individuals disagreed slightly that LFE gears did not impact other marine wildlife and habitats (2.5 ± 1.7), other commercial fishing gears (2.7 ± 1.8), or the recreational fishing sector (2.8 ± 1.8). On average, fishers agreed that expanding the Blue Catfish commercial fishery using traditional gears (e.g., gill net, hoop net, or trot line) should be prioritized (3.7 ± 1.6). A higher proportion of individuals that had landed Blue Catfish agreed with statements regarding the use of LFE compared to individuals who did not land Blue Catfish. There was a significant difference between groups related to the impact of LFE on other commercial gears ($P < 0.05$) and the impact of LFE on the recreational fishing sector ($P < 0.01$). A higher proportion of fishers who had landed Blue Catfish strongly agreed that LFE does not impact the recreational fishing sector compared to fishers who had not landed Blue Catfish.

Models

A robust linear regression was constructed to determine the willingness of fishers to target Blue Catfish. The final model, determined by model selection based on Akaike's information criterion, was used to predict the number of fishing days as a function of exvessel price, the variability in exvessel price, previous landings of Blue Catfish, total number of years for which an individual had been a commercial fisher, total number of gears used in a given year, total revenue in a given year, having an additional source of income outside of commercial fishing, and whether an individual had more than one generation of commercial fishers in their family (Table 1; Table A1). The effect of an individual landing Blue Catfish in the previous 5 years was not significant as an intercept shifter, while the exvessel price received for Blue Catfish was significant and positive ($P < 0.001$). This indicates that the average fisher who had previously targeted Blue Catfish would increase their fishing days by 71.6 d with a $1.00 increase in exvessel price (Figure 4). However, when price was included as an interaction term with whether individuals had landed Blue Catfish or not, the interaction was negative and significant ($P < 0.001$). Individuals that had not previously landed Blue Catfish were likely to increase fishing days with an increase in exvessel price, although to a lesser extent (an increase of 35.9 fishing days for a $1.00 increase in price; Figure 4). The variability in exvessel price, however, was not significant, suggesting that fishers are more responsive to increases in price regardless of how variable the price is. The total number of gears used was also significant and positive ($P < 0.01$), indicating that fishers using more gear types tended to target Blue Catfish more (19.6 additional days for each additional gear type used). Similarly, whether an individual had more than one generation of commercial fishers in

Table 1. Linear model for Blue Catfish targeting days as a function of exvessel price, variability in exvessel price, and individual covariates (model 1) and linear model for Blue Catfish targeting days as a function of exvessel price, variability in exvessel price, and individual fishers as a fixed effect (excluded from table) (model 2). Significance is indicated with asterisks (***$P < 0.001$, **$P < 0.01$, *$P < 0.05$). Abbreviation: na = not applicable.

Covariate	Estimate	SE	*t*-value	*P*
Model 1 (number of observations = 354; multiple $R^2 = 0.2903$; adjusted $R^2 = 0.2717$; $F = 21.29$; df = 9, 118; $P < 2.2 \times 10^{-16}$)				
Intercept	-5.162×10^{1}	2.454×10^{1}	−2.104	0.040*
Exvessel price	7.163×10^{1}	1.015×10^{1}	8.384	<0.001***
High variability	9.738×10^{0}	6.133×10^{0}	1.588	0.115
Total gears used	1.959×10^{1}	6.482×10^{0}	3.023	<0.01**
More than one generation	2.018×10^{1}	1.361×10^{1}	1.483	0.142
No Blue Catfish landings	7.108×10^{0}	1.412×10^{1}	0.503	0.616
No Blue Catfish landings × exvessel price	-3.587×10^{1}	1.00×10^{1}	−3.485	0.001***
Annual revenue	-9.917×10^{-5}	2.791×10^{-4}	−0.355	0.724
Years fished	1.417×10^{0}	1.232×10^{1}	1.150	0.255
Additional income	-1.123×10^{-0}	1.00×10^{1}	−0.112	0.911
Model 2 (number of observations = 475; multiple $R^2 = 0.9043$; adjusted $R^2 = 0.8548$; F = na; df = 162, 159; P = na)				
Survey ID (fixed effect)	–	–	–	–
Exvessel price	4.940×10^{1}	4.474×10^{0}	10.875	$<2 \times 10^{-16}$***
High variability	1.599×10^{0}	4.542×10^{0}	0.358	0.721

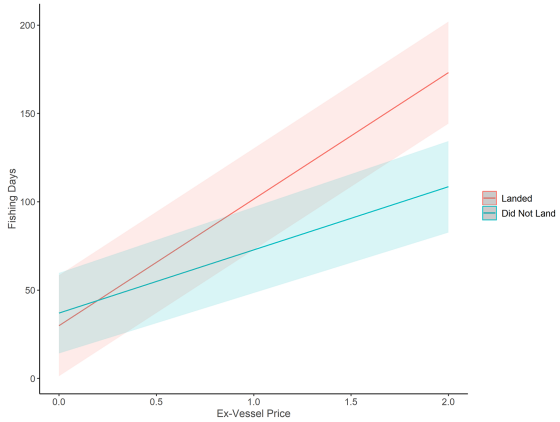

Figure 4. Predictions for increasing the number of fishing days for fishers that had landed Blue Catfish in the past 5 years (red) and fishers who had not landed Blue Catfish, regardless of holding licenses or permits for gears that could be used for harvest (blue).

their family had a positive impact on the willingness to target Blue Catfish ($P < 0.10$), with an increase of 20.2 d for each additional generation. The adjusted R^2 for the linear model including individual covariates was 0.271, suggesting a high level of variance that was not accounted for in the model. Although there was a strong positive correlation between the reported number of days that a fisher targeted Blue Catfish and the predicted number of days that a fisher would target Blue Catfish based on reported exvessel price ($r = 0.61$, $P < 0.001$), the model tended to overpredict fishing days, likely due to hypothetical bias in responses.

A second robust linear model was constructed to determine the effects of exvessel price and the variability in exvessel price on the willingness to increase fishing days, controlling for individual factors (Table 1). Exvessel price had a significant and positive impact on the number of hypothetical fishing days for Blue Catfish ($P < 0.001$), with an increase of 49.4 fishing days per $1.00 increase in exvessel price. The variability in exvessel price was not significant in the model. The adjusted R^2 for the fixed-effect linear model was 0.855, indicating that individual fixed effects explained considerably more variation compared to the prior model, which included individual covariates but did not control for all sources of individual heterogeneity. There was a positive correlation between the reported number of days that a fisher targeted Blue Catfish and the predicted number of days that a fisher would target Blue Catfish based on reported exvessel price ($r = 0.63$, $P < 0.001$), although, again, the model overpredicted effort.

A two-step GLMM hurdle model was constructed to evaluate the robustness of findings from the linear models (Table A2). Covariates included in the hurdle model were exvessel price, the variability in exvessel price, and individual license numbers as a random effect. In the binomial model (first step), there was a significant and positive effect of exvessel price on the willingness to target at least one fishing day for Blue Catfish ($P < 0.001$), and the effect of exvessel price variability was also significant ($P < 0.001$). In the gamma regression (second step), the model indicated that the effect of exvessel price on the willingness to increase fishing days was positive and significant ($P < 0.001$), whereas the variability in exvessel price was no longer significant. Based on the two-step model, fishers that target Blue Catfish will increase fishing effort by 82 d with a $1.00 increase in exvessel price.

The potential impact of expanding Virginia's commercial Blue Catfish fishery on removals was calculated as a function of the weighted average catch across gears (~1,594 lb/d) and the model predictions of effort response from the individual fixed-effects model. If exvessel price increases by $0.25 (12.4 more fishing days), it is predicted that removals of Blue Catfish, on average, could increase by approximately 4.2 million lb annually—more than doubling current removals.

Qualitative responses

A total of 33 individuals provided additional comments related to individual participation in commercial fishing, and

58 individuals provided comments regarding the commercial fishery for Blue Catfish. There were more instances of negative sentiment than positive sentiment.

Iterations of coding revealed high levels of concern regarding the presence of Blue Catfish and declining populations of other species, especially blue crab. The impact of Blue Catfish on other species was mentioned more than 75% of the time by individuals who harvested Blue Catfish within the previous years. The impacts of Blue Catfish were noted as "severe," with the ability to outcompete or "take the place of native species." Other negative statements were focused on broader concerns within the commercial fishing industry, including the decline in participation and limited ability of younger individuals to enter the industry. Positive sentiments were related to encouraging participation and removals of Blue Catfish, the effectiveness of electrofishing, and opportunities for diversification (42.8% of individuals who had harvested Blue Catfish). One individual noted that Blue Catfish were bad for the rivers, but "it has given us valuable income in the months we don't crab," suggesting that Blue Catfish served as a diversification opportunity, while others expressed interest in obtaining LFE permits in the future for harvest. There were multiple instances of fishers noting the need to adapt and diversify between species and gears, with evidence that some individuals considered themselves diversified into Blue Catfish. Individuals who provided statements that were considered neither positive nor negative sentiments were often those who were not interested in participating in the Blue Catfish commercial fishery or were not aware of Blue Catfish in their area. Fishers commonly cited the eastern shore of Virginia as an area where Blue Catfish have not yet expanded.

DISCUSSION

The motivation of this research was to assess the willingness of Virginia's small-scale commercial fishers to participate in the existing—but relatively small—Blue Catfish fishery and to identify potential barriers to expansion. In response to the growing management concern regarding Blue Catfish, the Chesapeake Bay Program established the Invasive Catfish Workgroup, which is comprised of various industry members, state and federal management agencies, and researchers. As part of the Invasive Catfish Workgroup's strategic plan to curtail population growth and inhibit expansion of Blue Catfish in Virginia, commercialization of the species is thought to provide ecological and socioeconomic benefits to fishers and fishing communities (Chesapeake Bay Program, 2020). Based on the findings of this study, it is evident that commercial fishers are aware of the ecological impacts of Blue Catfish in the Chesapeake Bay regardless of whether those individuals have landed Blue Catfish or not. One such impact is the effect of Blue Catfish predation on other ecologically or economically valuable species, such shad, herring, and blue crab, as described by Hilling et al. (2023). Most survey respondents indicated participation in the blue crab pot fishery; thus, it is unsurprising that predation on other species was of higher concern both for fishers that had landed Blue Catfish and for individuals who had not. Although the impacts (e.g., predation, competition, and habitat use) of Blue Catfish on other species in the Chesapeake Bay have been investigated by Hilling et al. (2023), there are likely widespread ecological and economic implications for other commercially (and recreationally) valuable species that warrant further investigation.

There was less concern about various aspects of expanding the commercial fishery for Blue Catfish compared to the ecological impacts, and managers could leverage ecological concerns to encourage participation and removals in the fishery. Leveraging ecological concerns is essential in raising awareness; however, managers should be transparent regarding the long-term goals of removals. Quintana et al. (2023) reported that fishers were disillusioned with the government and its lionfish removal program once the population was reduced, exvessel prices declined, and some markets collapsed. Based on the perceptions of fishers in Virginia, the most concerning aspects of expanding the commercial fishery for Blue Catfish were the availability of buyers and, more notably, exvessel price. The present research found exvessel price to be a prominent factor influencing the intensive margin of Blue Catfish fishing for Virginia's small-scale commercial fishing industry (i.e., how much fishing occurs once a fisher has entered the Blue Catfish fishery). However, on the extensive margin (i.e., whether to enter the Blue Catfish fishery or not), variability may also influence participation decisions to some extent. Fishers that have not previously targeted Blue Catfish may be less willing to start targeting the species if exvessel prices fluctuate widely or often. As a result, fishers may opt to target species that provide more revenue stability at the cost of enhancing their fishing portfolio. In 2021, fishers reported an average exvessel price of $0.53 per pound for Blue Catfish, which was slightly above the lowest average value included in contingent behavior questions ($0.50 per pound) and was less than the average value of $0.58 per pound indicated by NOAA (2023). In comparison, the average value for the established commercial fishery for Atlantic Croaker *Micropogonias undulatus* in Virginia was approximately $1.52 per pound in 2021 (NOAA, 2023). An increase in exvessel price for Blue Catfish might result in increased fishing effort by individuals who actively target Blue Catfish and might incentivize those who do not target Blue Catfish to enter the fishery, although price variability might also influence the decisions of the latter group. This has been the case in Belize, where fishers continue to participate in traditional fisheries rather than the fishery for lionfish due to dissatisfaction with exvessel prices and market reliability (Chapman et al., 2016). Interestingly, when fishers were asked why they did not target Blue Catfish, more individuals noted a lack of interest, lack of appropriate gear, or unavailability of Blue Catfish in fishing areas rather than exvessel price. For individuals who did not harvest Blue Catfish in the previous 5 years, regardless of license or permit holdings for gear, exvessel price was still a significant predictor of potential fishing effort. It is likely that fishers without the appropriate gears to harvest Blue Catfish would require higher exvessel prices to compensate for investment in gear, time spent to outfit their vessel, and opportunity cost of participating in other fisheries or employment outside of commercial fishing. Likewise, higher exvessel prices may be needed to compensate for traveling further distances to fishing areas where Blue Catfish are present. Nonetheless, estimates from harvest rates in recent years suggest that a $0.25 increase in exvessel price for Blue Catfish could more than double the current annual removals and potentially reduce ecological impacts at a faster rate. However, it is important to consider biological impacts of emerging species, particularly the removal of

invasives, as reduced density-dependent effects could result in higher productivity and may have the unintended consequence of increasing the population through enhanced reproductive effort (Conover & Baumann, 2009).

Responses to Likert-scale questions suggested that the availability of processors to buy Blue Catfish was also a concern in regard to expansion, although the extent of this issue is not well documented and should be further explored. It has been suggested that the processing requirements for Blue Catfish contribute to low harvest and inhibit expansion due to a lack of exvessel buyers that stabilize market prices at lower levels. Per the Food, Conservation, and Energy Act (2008) and Agricultural Act (2014) (commonly known as the 2008 and 2014 U.S. Farm Bills), inspections by the Food Safety and Inspection Service through the U.S. Department of Agriculture (USDA) were mandated for processing of Siluriformes, including Blue Catfish and all other catfish species (USDA, 2017). The USDA requires that in-person inspectors examine Blue Catfish before reaching the market, which creates constraints for processors on when and how Blue Catfish can be processed. Low and inconsistent harvest levels of Blue Catfish in Virginia have deterred some processors from investing in and outfitting facilities to meet these USDA requirements, thus constraining the market for Blue Catfish. Future research could explore the impacts of recent legislation to further develop processing (Blue Catfish Processing, 2023) through a grant program. Evaluating barriers and bottlenecks within the seafood sales and processing sector could be used to better understand the feasibility of expanding the commercial fishery for Blue Catfish and to seek solutions that promote invasivorism and enhance market demand to encourage higher exvessel prices and thus increased fishing effort. This includes the development of value-added products that can generate additional economic benefits and utilize the whole fish for both consumptive and nonconsumptive uses. For the emerging fishery targeting invasive lionfish in the Caribbean, value-added products (i.e., jewelry) have provided additional sources of income for women in small-scale fishing communities (Chapman et al., 2016).

Marketing strategies are already underway to alleviate public concerns and promote consumption of Blue Catfish in Virginia, with branding that includes "Virginia wild caught" and NOAA's slogan, "invasive and delicious" (Fisher, 2020; NOAA, 2020). Although there are underlying apprehensions regarding consumption, public acceptance of Blue Catfish will likely rely on continued exposure, association of positive attributes (in the case of Blue Catfish, ecological or health benefits), and sufficient advertisement (Scheld et al., 2024; Shepherd & Raats, 2006). In the Maryland portion of the Chesapeake Bay, two seafood processors were contracted to provide Blue Catfish products to state institutions, such as prisons, public schools, hospitals, and universities, as a means of reducing population size and strengthening local economies (Bay Bulletin, 2018). Virginia could implement similar programs that encourage removals and provide the commercial fishing industry with access to additional markets. There is also a unique opportunity to explore alternative processing options that utilize Blue Catfish for livestock feed or other products, similar to removals of invasive bigheaded carp *Hypophthalmichthys* spp. in the Mississippi River basin, which are used for livestock and aquaculture feed, fish meal and oil, and exports to international markets (Bouska et al., 2020; Bowzer et al., 2013).

In addition to exvessel price, there are other notable barriers to participation or diversification in fisheries for emerging species. In Virginia's small-scale commercial fishing industry, levels of diversification are somewhat limited despite the widely suggested benefits of revenue stabilization and increased resilience (Abbott et al., 2022; Kasperski & Holland, 2013; Sethi et al., 2014). White and Scheld (2024) found a positive correlation between diversification and higher annual revenues in Virginia, but since the mid-1990s, less than half of licensed commercial fishers have diversified across fisheries (White & Scheld, 2021). The present study indicates that survey respondents were more diversified on average, with over half of fishers indicating that they targeted more than one species or used more than one gear type. This could be due in part to the substantial portion of respondents who had targeted Blue Catfish and are more diversified in general. There is limited diversification between fishing locations within the Chesapeake Bay (less than half of fishers indicated that they fished in more than one location) and even less outside of Virginia state waters (69% of fishers only held a Virginia commercial license). Multiple factors might influence diversification decisions, including age, years of participation, license and permit holdings, and resource dependence (White & Scheld, 2024). Fishers with higher resource dependence on commercial fishing may be more likely to diversify between species, gears, or seasons as a means of fishing year-round, while fishers who are less resource dependent may have other sources of income with which to supplement commercial fishing. On average, respondents derived less than half of their income from commercial fishing, and several fishers reported having another occupation in addition to fishing. Diversification into emerging fisheries may be constrained if individuals hold outside employment (in addition to commercial fishing) and can only participate during certain times of the day or during particular seasons. It could be that emerging fisheries, such as the Blue Catfish fishery, provide additional fishing opportunities that allow fishers with additional employment to increase participation in commercial fishing rather than derive income from other sources. Aside from exvessel price, it is also important to recognize that a lack of personal interest or knowledge, age, and residency (i.e., the species does not exist in the preferred fishing area) can be constraining factors to diversification (Naranjo-Madrigal & van Putten, 2019; Pradhan & Leung, 2004; Ward & Sutinen, 1994). Some fishers noted that retirement or age-related benefits (e.g., Social Security) accounted for a substantial portion of their income; hence, those fishers were less resource dependent on fishing. Such individuals might have limited interest in participating in the Blue Catfish fishery regardless of increases in exvessel price.

Despite the barriers to diversification, expanding the commercial fishery for Blue Catfish offers additional economic and sociocultural benefits to fishers and fishing communities. Again, it is worth noting that managers should be transparent regarding the long-term goals of removals so that fishers are not reliant on a fishery for which the goal is to actively reduce the population (Malpica-Cruz et al., 2021; Quintana et al., 2023). In Virginia, the majority of fisheries are regulated as limited entry and/or quota based and require substantial financial capital for entry. Fishing for Blue Catfish offers a more flexible opportunity for entry into the commercial fishing industry,

as conservation is not a management concern. Furthermore, diversification into the Blue Catfish fishery can serve to increase the resiliency and adaptive capacity of fishers and fishing communities. There also appears to be an interest in diversification into emerging fisheries in Virginia, including the LFE fishery for Blue Catfish and the experimental trawl fishery for harvest of white shrimp *Litopenaeus setiferus* (White et al., 2025). Although both of those fisheries are currently limited in participation, an understanding of interest and participation effort can help managers to predict future behavior and harvest levels in conjunction with resource and market conditions.

As environmental conditions continue to change, the prevalence of emerging species is likely to increase. Nonnative species may utilize different habitats and negatively impact ecosystems, while native species might shift their geographic range northward or to deeper waters (Dubik et al., 2018; Finch et al., 2021; Lucey & Nye, 2010; Pinsky & Fogarty, 2012). The commercialization of emerging species and invasivorism presents challenges that should be considered early in the process. These challenges include the potential to produce unintended consequences, such as user group conflicts, protection of invasive populations in established areas, integration of invasive species into local culture or economies, and promotion of invasives into new areas to mimic opportunities in other localities (Dubik et al., 2018; Nuñez et al., 2012). Contemporaneous with management to control invasives, fishing harvest could provide novel fishing opportunities to target emerging species. Managers should understand potential shifts in diversification and resource dependence associated with exploitation. Understanding human responses to changing conditions is essential, and fisheries management should be adaptable in responses to environmental changes that will undoubtedly cause the managed resources to become increasingly dynamic. Nonetheless, it is unlikely that Blue Catfish populations will be reduced significantly in the near future; thus, they present available diversification opportunities that can help Virginia's commercial fishing industry to become more resilient to potential stressors.

SUPPLEMENTARY MATERIAL

An example of the final survey sent to commercial fishers is included as Supplementary Material.

DATA AVAILABILITY

To protect the privacy of individual identification, the data underlying this article cannot be shared publicly. Data were retrieved from the VMRC in Fort Monroe, Virginia.

ETHICS STATEMENT

All survey materials were approved by William & Mary's Protection of Human Subjects Committee (Protocol PHSC-2022-02-03-15429-amscheld).

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CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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REFERENCES

Abbott, J., Sakai, Y., & Holland, D. S. (2022). Species, space, and time: A quarter century of fishers' diversification strategies on the US West Coast. *Fish and Fisheries*, *24*, 93–110. https://doi.org/10.1111/faf.12712

Agricultural Act of 2014. (2014). Pub. L. No. 113-79, 128 Stat. 649.

Allison, E. H., & Ellis, F. (2001). The livelihoods approach and management of small-scale fisheries. *Marine Policy*, *25*, 377–388. https://doi.org/10.1016/S0308-597X(01)00023-9

Allison, E. H., Perry, A. L., Badjeck, M.-C., Adger, W. N., Brown, K., Conway, D., Halls, A. S., Pilling, G. M., Reynolds, J. D., Andrew, N. L., & Dulvy, N. K. (2009). Vulnerability of national economics to the impacts of climate change on fisheries. *Fish and Fisheries*, *10*, 173–196. https://doi.org/10.1111/j.1467-2979.2008.00310.x

Bay Bulletin. (2018, September 20). Invasive Blue Catfish to be served up at Md. state institutions. *Chesapeake Bay Magazine*. https://www.chesapeakebaymagazine.com/invasive-blue-catfish-to-be-served-up-at-md-state-institutions/

Bennett, N. J., & Dearden, P. (2014). Why local people do not support conservation: Community perceptions of marine protected area livelihood impacts, governance and management in Thailand. *Marine Policy*, *44*, 107–116. https://doi.org/10.1016/j.marpol.2013.08.017

Blue Catfish Processing, Flash Freezing, and Infrastructure Grant Program, Va. Code Ann. § 3.2-312 (2023). https://law.lis.virginia.gov/vacode/3.2-312/

Bouska, W. W., Glover, D. C., Trushenski, J. T., Secchi, S., Garvey, J. E., MacNamara, R., Coulter, D. P., Coulter, A. A., Irons, K., & Wieland, A. (2020). Geographic-scale harvest program to promote invasivorism of bigheaded carps. *Fishes*, *5*, Article 14. https://doi.org/10.3390/fishes5030029

Bowzer, J., Trushenski, J., & Glover, D. C. (2013). Potential of Asian carp from the Illinois River as a source of raw materials for fish meal production. *North American Journal of Aquaculture*, *75*, 404–415. https://doi.org/10.1080/15222055.2013.793634

Brooks, M. E., Kristensen, K., Van Benthem, K. J., Magnusson, A., Berg, C. W., Nielsen, A., Skaug, H. J., Mächler, M., & Bolker, B. M. (2017). glmmTMB balances speed and flexibility among packages for zero-inflated generalized linear mixed modeling. *The R Journal*, *9*, 378–400.

Bucaram, S. J., & Hearn, A. (2014). Factors that influence the entry–exit decision and intensity of participation of fishing fleet for the Galapagos lobster fishery. *Marine Policy*, *43*, 80–88. https://doi.org/10.1016/j.marpol.2013.05.005

Chambers, C., & Carothers, C. (2017). Thirty years after privatization: A survey of Icelandic small-boat fishers. *Marine Policy*, *80*, 69–80. https://doi.org/10.1016/j.marpol.2016.02.026

Chapman, J. K., Anderson, L. G., Gough, C. L. A., & Harris, A. R. (2016). Working up an appetite for lionfish: A market-based approach to manage the invasion of *Pterois volitans* in Belize. *Marine Policy*, *73*, 256–262. https://doi.org/10.1016/j.marpol.2016.07.023

Chesapeake Bay Program. (2020). *Invasive catfish management strategy, August 2020*. https://www.chesapeakebay.net/files/documents/Invasive_Catfish_Management_Strategy_Aug_2020_final.pdf

Cline, T. J., Schindler, D. E., & Hilborn, R. (2017). Fisheries portfolio diversification and turnover buffer Alaskan fishing communities from abrupt resource and market changes. *Nature Communications*, *8*, Article 14042. https://doi.org/10.1038/ncomms14042

Cochran, W. G. (1977). *Sampling techniques* (3rd ed.). John Wiley & Sons.

Conover, D. O., & Baumann, H. (2009). The role of experiments in understanding fishery-induced evolution. *Evolutionary Applications*, *2*, 276–290. https://doi.org/10.1111/j.1752-4571.2009.00079.x

Creel and Length Limits, 4VAC15-320-25 (2003 & rev. 2025). https://law.lis.virginia.gov/admincode/title4/agency15/chapter320/section25

Degnbol, P., & McCay, B. J. (2007). Unintended and perverse consequences of ignoring linkages in fisheries systems. *ICES Journal of Marine Science*, *64*, 793–797. https://doi.org/10.1093/icesjms/fsm040.

de León, R., Vane, K., Bertuol, P., Chamberland, V. C., Simal, F., Imms, E., & Vermeij, M. J. A. (2013). Effectiveness of lionfish removal efforts in the southern Caribbean. *Endangered Species Research*, *22*, 175–182. https://doi.org/10.3354/esr00542

Dillman, D. A., Phelps, G., Tortora, R., Swift, K., Kohrell, J., Berck, J., & Messer, B. L. (2009). Response rate and measurement differences in mixed-mode surveys using mail, telephone, interactive voice response (IVR) and the Internet. *Social Science Research*, *38*, 1–18. https://doi.org/10.1016/j.ssresearch.2008.03.007.

Dubik, B. A., Clark, E. C., Young, T., Zigler, S. B. J., Provost, M. M., Pinsky, M. L., & St. Martin, K. (2018). Governing fisheries in the face of change: Social responses to long-term geographic shifts in a U.S. fishery. *Marine Policy*, *99*, 243–251. https://doi.org/10.1016/j.marpol.2018.10.032

Englin, J., & Cameron, T. A. (1996). Augmenting travel cost models with contingent behavior data: Poisson regression analyses with individual panel data. *Environmental & Resource Economics*, *7*, 133–147. https://doi.org/10.1007/BF00699288

Fabrizio, M. C., Tuckey, T. D., Latour, R. J., White, G. C., & Norris, A. J. (2018). Tidal habitats support large numbers of invasive Blue Catfish in a Chesapeake Bay subestuary. *Estuaries and Coasts*, *41*, 827–840. https://doi.org/10.1007/s12237-017-0307-1

Ferguson, T., & Akins, L. (2010). *The lionfish cookbook: The Caribbean's new delicacy*. REEF Environmental Education Foundation.

Finch, D. M., Butler, J. L., Runyon, J. B., Fettig, C. J., Kilkenny, F. F., Jose, S., Frankel, S. J., Cushman, S. A., Cobb, R. C., Dukes, J. S., Hicke, J. A., & Amelon, S. K. (2021). Effects of climate change on invasive species. In T. M. Poland, T. Patel-Weynand, D. M. Finch, C. F. Miniat, D. C. Hayes, & V. M. Lopez (Eds.), *Invasive species in forests and rangelands of the United States* (pp. 57–83). Springer.

Fisher, R. A. (2020). *Virginia wild-caught Blue Catfish: Nutrition and contaminant analysis* (Marine Resource Report 2020-08; VSG 2020-30). Virginia Institute of Marine Science, William & Mary.

Food, Conservation, and Energy Act of 2008. (2008). Pub. L. No. 110-246, 122 Stat. 1651.

Glaser, B, & Strauss, A. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Sociology Press.

Hentati-Sundberg, J., Hjelm, J., Boonstra, W. J., & Österblom, H. (2015). Management forcing increased specialization in a fishery system. *Ecosystems*, *18*, 45–61. https://doi.org/10.1007/s10021-014-9811-3

Hilling, C. D., Schmitt, J. D., Jiao, Y., & Orth, D. J. (2023). Predatory impacts of invasive Blue Catfish in an Atlantic coast estuary. *Marine and Coastal Fisheries: Dynamics, Management, and Ecosystem Science*, *15*, Article e10261. https://doi.org/10.1002/mcf2.10261

Holland, D. S., & Kasperski, S. (2016). The impact of access restrictions on fishery income diversification of US West Coast fishermen. *Coastal Management*, *44*, 452–463. https://doi.org/10.1080/08920753.2016.1208883

Holland, D. S., Speir, C., Agar, J., Crosson, S., DePiper, G., Kasperski, S., Kitts, A. W., & Perruso, L. (2017). Impact of catch shares on diversification of fishers' income and risk. *Proceedings of the National Academy of Sciences of the United States of America*, *114*, 9302–9307. https://doi.org/10.1073/pnas.1702382114

Jurjonas, M., & Seekamp, E. (2018). Rural coastal community resilience: Assessing a framework in eastern North Carolina. *Ocean & Coastal Management*, *162*, 137–150. https://doi.org/10.1016/j.ocecoaman.2017.10.010

Kasperski, S., & Holland, D. S. (2013). Income diversification and risk for fishers. *Proceedings of the National Academy of Sciences of the United States of America*, *110*, 2076–2081. https://doi.org/10.1073/pnas.1212278110

Lucey, S. M., & Nye, J. A. (2010). Shifting species assemblages in the Northeast US Continental Shelf Large Marine Ecosystem. *Marine Ecology Progress Series*, *415*, 23–33. https://doi.org/10.3354/meps08743

Luellen, D. R., LaGuardia, M. J., Tuckey, T. D., Fabrizio, M. C., Rice, G. W., & Hale, R. C. (2018). Assessment of legacy and emerging contaminants in an introduced catfish and implications for the fishery. *Environmental Science and Pollution Research*, *25*, 28355–28366. https://doi.org/10.1007/s11356-018-2801-9

Malpica-Cruz, L., Fulton, S., Quintana, A., Zepeda-Domínguez, J. A., Quiroga-García, B., Tamayo, L., Canto Noh, J. A., & Côté, I. M. (2021). Trying to collapse a population for conservation: Commercial trade of a marine invasive species by artisanal fishers. *Reviews in Fish Biology and Fisheries*, *31*, 667–683. https://doi.org/10.1007/s11160-021-09660-0

Montague, G. F., & Shoup, D. E. (2022). Accuracy, precision, and optimal sampling duration of low-frequency electrofishing for sampling reservoir Flathead Catfish populations. *North American Journal of Fisheries Management*, *42*, 1269–1284. https://doi.org/10.1002/nafm.10819

Mooney, H. A., & Cleland, E. E. (2001). The evolutionary impact of invasive species. *Proceedings of the National Academy of Sciences of the United States of America*, *98*, 5446–5451. https://doi.org/10.1073/pnas.091093398

Naranjo-Madrigal, H., & van Putten, I. (2019). The link between risk taking, fish catches, and social standing: Untangling a complex cultural landscape. *Marine Policy*, *100*, 173–182. https://doi.org/10.1016/j.marpol.2018.11.029

National Oceanic and Atmospheric Administration. (2020). *Blue Catfish: Invasive and delicious*. https://www.fisheries.noaa.gov/feature-story/blue-catfish-invasive-and-delicious

National Oceanic and Atmospheric Administration. (2023). *Commercial landings*.

Nepal, V., & Fabrizio, M. C. (2019). High salinity tolerance of invasive Blue Catfish suggests potential for further range expansion in the Chesapeake Bay region. *PLoS One*, *14*, Article e0224770. https://doi.org/10.1371/journal.pone.0224770

Nuñez, M. A., Kuebbing, S., Dimarco, R. D., & Simberloff, D. (2012). Invasive species: To eat or not to eat, that is the question. *Conservation Letters*, *5*, 334–341. https://doi.org/10.1111/j.1755-263X.2012.00250.x

Nye, J. A., Link, J. S., Hare, J. A., & Overholtz, W. J. (2009). Changing spatial distribution of fish stocks in relation to climate and population size on the northeast United States continental shelf. *Marine Ecology Progress Series*, *393*, 111–129. https://doi.org/10.3354/meps08220

O'Brien, R. M. (2007). A caution regarding rules of thumb for variance inflation factors. *Quality & Quantity*, *41*, 673–690. https://doi.org/10.1007/s11135-006-9018-6.

Pinsky, M. L., & Fogarty, M. (2012). Lagged socio-ecological responses to climate and range shifts in fisheries. *Climatic Change*, *115*, 883–891. https://doi.org/10.1007/s10584-012-0599-x

Pradhan, N. C., & Leung, P. (2004). Modeling entry, stay, and exit decisions of the longline fishers in Hawaii. *Marine Policy*, *28*, 311–324. https://doi.org/10.1016/j.marpol.2003.09.005

QSR International. (2020). *NVivo 13*.

Quintana, A., Marcos, S., Malpica-Cruz, L., Tamayo, L., Canto Noh, J. A., Fernández-Rivera Melo, F., & Fulton, S. (2023). Socioeconomic dilemmas of commercial markets for invasive species: Lessons from lionfish in Mexico. *ICES Journal of Marine Science*, *80*, 31–39. https://doi.org/10.1093/icesjms/fsac205

R Core Team. (2024). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing.

Scheld, A. M., Calhoun, W. R., Gilsinan, C. B., & White, S. B. (2024). Market development for an invasive fish species: Blue Catfish in the Chesapeake Bay, US. *Fisheries Research*, *278*, Article 107009. https://doi.org/10.1016/j.fishres.2024.107099

Schloesser, R., Fabrizio, M. C., Latour, R. J., Garman, G. C., Greenlee, B., Groves, M., & Gartland, J. (2011). Ecological role of Blue Catfish in Chesapeake Bay communities and implications for management. In P. H. Michaletz, & V. H. Travnichek (Eds.), *Conservation, ecology, and management of catfish: The second international symposium* (Symposium 77, pp. 369–382). American Fisheries Society. https://doi.org/10.47886/9781934874257.ch31

Schmitt, J. D., Peoples, B. K., Bunch, A. J., Castello, L., & Orth, D. J. (2019). Modeling the predation dynamics of invasive Blue Catfish (*Ictalurus furcatus*) in Chesapeake Bay. *U.S. National Marine Fisheries Service Fishery Bulletin*, *117*, 277–290. https://doi.org/10.7755/FB.117.4.1

Schmitt, J. D., Peoples, B. K., Castello, L., & Orth, D. J. (2018). Feeding ecology of generalist consumers: A case study of invasive Blue Catfish (*Ictalurus furcatus*) in Chesapeake Bay, Virginia, USA. *Environmental Biology of Fishes*, *102*, 443–446. https://doi.org/10.1007/s10641-018-0783-6

Sethi, S. A., Reimer, M., & Knapp, G. (2014). Alaskan fishing community revenues and the stabilizing role of fishing portfolios. *Marine Policy*, *48*, 134–141. https://doi.org/10.1016/j.marpol.2014.03.027

Shepherd, R., & Raats, M. M. (2006). *The psychology of food choice*. CABI Publishing.

Stoll, J. S., Beitl, C. M., & Wilson, J. A. (2016). How access to Maine's fisheries has changed over a quarter century: The cumulative effects of licensing on resilience. *Global Environmental Change: Human and Policy Dimensions*, *37*, 79–91. https://doi.org/10.1016/j.gloenvcha.2016.01.005

Stoll, J. S., Fuller, E., & Crona, B. I. (2017). Uneven adaptive capacity among fishers in a sea of change. *PLoS One*, *12*, Article e0178266. https://doi.org/10.1371/journal.pone.0178266

U.S. Department of Agriculture. (2017). *FSIS compliance guideline for establishments that slaughter or further process Siluriformes fish and fish products*. U.S. Department of Agriculture, Food Safety and Inspection Service.

Virginia Marine Resources Commission. (2020). *Pertaining to commercial electrofishing. 4 VAC-20-1360-10 et seq*.

Ward, J. M., & Sutinen, J. G. (1994). Vessel entry–exit behavior in the Gulf of Mexico shrimp fishery. *American Journal of Agricultural Economics*, *76*, 916–923. https://doi.org/10.2307/1243751

White, S. B., Garrity-Blake, B., & Scheld, A. M. (2025). What they live for: Adaptive strategies of Virginia's small-scale commercial fishermen in a changing industry. *Marine Policy*, *171*, Article 106451. https://doi.org/10.1016/j.marpol.2024.106451

White, S. B., & Scheld, A. M. (2021). Characterizing changes in participation and diversification in small-scale fisheries of Virginia, USA. *Coastal Management*, *50*, 3–28. https://doi.org/10.1080/08920753.2022.2006874

White, S. B., & Scheld, A. M. (2024). Assessing diversification behavior of small-scale commercial fishers. *ICES Journal of Marine Science*, *81*, 480–490. https://doi.org/10.1093/icesjms/fsae010

APPENDIX: Descriptive statistics and model outcomes

Appendix Table 1. Descriptive statistics (mean, SD, median, minimum [Min], and maximum [Max]) for covariates in the full model. Continuous covariates include the annual revenue, exvessel price received for Blue Catfish, total number of gears used (gear count), total number of years for which an individual held a commercial fishing license (years fished), and total number of income sources in addition to commercial fishing (additional employment). Discrete covariates include whether the hypothetical price range represented high variability, whether an individual did not land Blue Catfish regardless of gear type, and whether an individual had more than one generation of commercial fishers in their family. An asterisk (*) indicates binary variables.

Covariate	Mean	SD	Median	Min	Max
Annual revenue ($)	29,206.86	34,027.95	10,000.50	0.00	>100,000
Exvessel price ($)	1.14	0.64	1.00	0.50	2.00
Gear count	1.96	1.41	2.00	0	8
Years fished	17.89	4.87	>21	8	>21
Additional employment	0.61	0.77	0	0	3
High variability*	0.54	0.50	1	0	1
Did not land Blue Catfish*	0.57	0.49	1	0	1
More than one generation*	0.60	0.49	1	0	1

Appendix Table 2. Two-step hurdle model to evaluate the willingness of an individual to increase fishing days for Blue Catfish as a function of exvessel price and relevant covariates. Significance is indicated with asterisks (***$P < 0.001$).

Covariate	Estimate	SE	*Z*-value	*P*
Step 1: Binomial regression with logit link (number of observations = 475; survey ID = 160; 1|survey ID variance = 17,754; SD = 133.2)				
Intercept	−0.284	2.821	−0.101	0.920
Exvessel price	29.439	5.076	5.800	<0.001***
High variability	−0.2801	1.499	−0.187	0.852
Step 2: Gamma regression with log link (number of observations = 346; survey ID = 128; 1|survey ID variance = 0.5435; SD = 0.7372; dispersion estimate for gamma family [σ^2] = 0.447)				
Intercept	3.656	0.149	24.476	$<2\times10^{16}$***
Exvessel price	0.665	0.063	10.562	$<2\times10^{-16}$***
High variability	0.042	0.079	0.537	0.591

APPENDIX S

I

119TH CONGRESS
1ST SESSION

H. R. 4294

To direct the Secretary of Commerce to establish a pilot program with respect to the sale of blue catfish caught within the Chesapeake Bay Watershed.

IN THE HOUSE OF REPRESENTATIVES

JULY 7, 2025

Ms. ELFRETH (for herself, Mr. WITTMAN, Mrs. KIGGANS of Virginia, and Mr. HOYER) introduced the following bill; which was referred to the Committee on Natural Resources

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A BILL

To direct the Secretary of Commerce to establish a pilot program with respect to the sale of blue catfish caught within the Chesapeake Bay Watershed.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the ''Mitigation Action and Watermen Support Act of 2025'' or the ''MAWS Act of 2025''.

SEC. 2. BLUE CATFISH PILOT PROGRAM.

Section 307 of the National Oceanic and Atmospheric Administration Authorization Act of 1992 (15 U.S.C. 1511d) is amended—

(1) by redesignating subsection (e) as subsection (f); and

(2) by inserting after subsection (d) the following:

''(e) BLUE CATFISH PILOT PROGRAM.—

''(1) IN GENERAL.—The Secretary shall establish a pilot program to award amounts to covered entities to purchase, in accordance with paragraph (3)—

''(A) from watermen, blue catfish caught within the Chesapeake Bay Watershed by such watermen; and

''(B) from seafood processors, such blue catfish purchased by seafood processors from such watermen.

''(2) APPLICATIONS.—To be eligible to be awarded amounts under the pilot program, a covered entity shall submit to the Secretary an application in such form, at such time, and containing such information as the Secretary determines appropriate.

''(3) USE OF AMOUNTS.—A covered entity that is awarded amounts under the pilot program—

''(A) shall use such amounts to purchase blue catfish from watermen or seafood processors for at least the amount determined by the Secretary under paragraph (5); and

''(B) may use not more than 15 percent of such amounts to offset the cost to transport such blue catfish to manufacturing or processing facilities.

''(4) WATERMAN AND SEAFOOD PROCESSOR ELIGIBILITY.—To be eligible to sell a blue catfish under the pilot program to a covered entity that is awarded amounts under the pilot program—

''(A) a waterman shall certify to such a covered entity that the waterman caught the blue catfish within the Chesapeake Bay Watershed; and

''(B) a seafood processor shall certify to such a covered entity that the seafood processor purchased the blue catfish from a waterman who caught the blue catfish within the Chesapeake Bay Watershed.

''(5) DETERMINATION OF MINIMUM PURCHASE AMOUNT.—With respect to blue catfish sold by watermen or seafood processors under the pilot pro-

gram, the Secretary shall determine the minimum price per pound, taking into consideration—

"(A) market factors;

"(B) feedback from watermen, seafood processors, and covered entities who participate in the pilot program, if available; and

"(C) differentiation of price points for fillet and byproduct.

"(6) REPORT.—Not later than 180 days after the date on which the pilot program terminates in accordance with paragraph (7), the Secretary shall submit to Congress a report regarding the pilot program, including the following information:

"(A) An estimate of the size and spawning stock biomass of the blue catfish population in the Chesapeake Bay Watershed prior to and at the conclusion of the pilot program, using the most recent data available.

"(B) The size distribution and diet of the blue catfish population in the Chesapeake Bay Watershed during and at the conclusion of the pilot program.

"(C) The number of blue catfish and the amount of blue catfish (measured in pounds)

caught by watermen who participate in the pilot program during the pilot program.

''(D) The effect of the pilot program on species other than the blue catfish in and the environment of the Chesapeake Bay Watershed.

''(E) The economic effect of the pilot program on watermen who participate in the pilot program, including—

''(i) the revenue generated by each such waterman by selling blue catfish under the pilot program; and

''(ii) catch data with respect to and revenue generated from other species fished by such watermen during the pilot program.

''(F) The market response to the pilot program, including—

''(i) the total amount awarded to covered entities under the pilot program; and

''(ii) trends in the types of covered entities awarded amounts under the pilot program.

''(G) With respect to the manufacturing or processing practices of each covered entity that is awarded amounts under the pilot program,

information regarding whether each such covered entity—

''(i) uses internal or third-party manufacturers or processors;

''(ii) uses, for each type of food product produced by the covered entity, whole fish, fillet, or byproduct; and

''(iii) if the covered entity uses only part of the fish, sells the remainder to third parties.

''(H) How each covered entity that is awarded amounts under the pilot program transports blue catfish purchased by the covered entity, including—

''(i) whether the covered entity freezes such blue catfish;

''(ii) how often the covered entity picks up such blue catfish; and

''(iii) whether the covered entity uses a seafood transport company that is local to the Chesapeake Bay Watershed.

''(I) Policy recommendations regarding—

''(i) the continuation of the pilot program in the Chesapeake Bay Watershed; and

"(ii) the expansion of the pilot program to other watersheds, including—

"(I) best practices;

"(II) specific recommendations regarding invasive species of carp in the Mississippi rivershed;

"(III) with respect to other invasive aquatic species and watersheds that may benefit from the pilot program; and

"(IV) other strategies with respect to the mitigation of aquatic invasive species for Congress to consider piloting.

"(7) DURATION.—The Secretary shall carry out the pilot program from January 1, 2027 through December 31, 2029.

"(8) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Secretary to carry out the pilot program $2,000,000 for each fiscal year for the duration of the pilot program in accordance with paragraph (7).

"(9) DEFINITIONS.—In this subsection:

"(A) ANIMAL FEED.—The term 'animal feed'—

''(i) means an article that is intended for use—

''(I) for food for an animal other than man; and

''(II) as a substantial source of nutrients in the diet of such an animal; and

''(ii) is not limited to a mixture intended to be the sole ration of such an animal.

''(B) AQUACULTURE FEED.—The term 'aquaculture feed'—

''(i) means an article that is intended for use—

''(I) for food for an aquacultural species, including any species of finfish, mollusk, crustacean (or other aquatic invertebrate), amphibian, reptile, ornamental fish, or aquatic plant that is propagated and reared in a controlled or selected environment; and

''(II) as a substantial source of nutrients in the diet of such an aquacultural species; and

"(ii) is not limited to a mixture intended to be the sole ration of such an aquacultural species.

"(C) BLUE CATFISH.—The term 'blue catfish' means the species Ictalurus furcatus.

"(D) CHESAPEAKE BAY WATERSHED.—The term 'Chesapeake Bay Watershed' means the region that covers—

"(i) the Chesapeake Bay;

"(ii) the portions of the States of Delaware, Maryland, New York, Pennsylvania, Virginia, and West Virginia that drain into the Chesapeake Bay; and

"(iii) the District of Columbia.

"(E) COVERED ENTITY.—The term 'covered entity' means a person engaged in the business of manufacturing or processing—

"(i) pet food;

"(ii) animal feed; or

"(iii) aquaculture feed.

"(F) PILOT PROGRAM.—The term 'pilot program' means the pilot program established under paragraph (1).

"(G) SEAFOOD PROCESSOR.—The term 'seafood processor' means a person engaged in

the business of preparing or packaging fish or fish products (including fish harvested by the processor) for sale.

''(H) SECRETARY.—The term 'Secretary' means the Secretary of Commerce, acting through the Administrator of the National Oceans and Atmospheric Administration.''.

○

APPENDIX T

DRAFT MINUTES
Blue Catfish Work Group
Virtual

July 11, 2025

The meeting of the Blue Catfish Work Group (Work Group) convened virtually at approximately 10:00 a.m. on Friday, July 11, 2025. Dr. Michael Schwarz called the meeting to order.

PRESENT	REPRESENTING
Jamie Green	Commissioner, Virginia Marine Resources Commission (VMRC)
Joseph Grist	Deputy Commissioner, VMRC
Kenny Raiford	Agricultural Manager III, Virginia Department of Corrections
Gregory MacDougall	Science Specialist, Virginia Department of Education
Bee Thorp	Lead Farm to School Specialist, Virginia Department of Education
Tom Dunlap	James RIVERKEEPER, James River Association
Dr. Michael Schwarz	Director, Virginia Seafood AREC
Dr. Shelby White	Marine Business Specialist, VIMS
Mike Hutt	Executive Director, Virginia Marine Products Board, Virginia Department of Agriculture and Consumer Services (VDACS)
Dan Knott	Vice President, Virginia Waterman's Association
Tommy Herbert	Director of Government Affairs, Virginia Restaurant, Lodging, & Travel Association
Meade Amory	Chief Executive Officer, L.D. Amory Seafood
Joseph Guthrie	Commissioner, VDACS
Rachel Meyers	Manager, Office of Agriculture and Forestry Development, VDACS
Jesse Phillips	Director of International Marketing, VDACS
Chris Moore	Virginia Executive Director, Chesapeake Bay Foundation
Hon. Shelley Simonds	Virginia House of Delegates
Hon. Keith Hodges	Virginia House of Delegates
Mike Bednarski	Chief of Fisheries, Virginia Department of Wildlife Resources (VDWR)
Christina Garvey	Environmental Management Staff, National Oceanic and Atmospheric Administration

STAFF PRESENT
Stacy Metz, Administrative Coordinator, VDACS
Nicolas Robichaud, Policy Assistant, VDACS

INTRODUCTION
Dr. Schwarz opened the meeting by noting that no virtual public comment would be taken during the session, but written public comments could be emailed to vdacs.commissioner@vdacs.virginia.gov.

APPROVAL OF MINUTES
Deputy Commissioner Grist moved that the draft meeting minutes be approved. Commissioner Guthrie seconded the motion. Bee Thorp abstained from the vote due to her absence from the previous meeting. The Work Group voted unanimously to approve the minutes.

BRIEF - SUSTA INTERNATIONAL MARKETING STRATEGY
Commissioner Guthrie briefed the Work Group on SUSTA's efforts to expand international markets for Blue Catfish, highlighting a $133,000 proposal focused on Singapore as a key entry point into Southeast Asia. The Work Group agreed this initiative aligns with its goals and should be included in the final report.

BRIEF – "*Expanding participation in Virginia's emerging commercial fishery for Blue Catfish"*
Dr. White shared survey findings from over 800 watermen, highlighting economic barriers to Blue Catfish participation and support for expanding the fishery with traditional gear. Modeling showed that modest price increases could significantly boost fishing effort. The Work Group agreed the study offered valuable insights into market and supply dynamics and should be included in the final report.

BRIEF – MITIGATION ACTION AND WATERMEN SUPPORT ACT OF 2025
Dr. Schwarz provided an overview of the bipartisan Mitigation Action and Watermen Support Act of 2025, which would fund Blue Catfish purchases through a NOAA pilot program. After revisions to address industry concerns, the bill now includes both processors and watermen and allocates $2 million annually through 2029. The Work Group had a lively discussion, though did not reach a consensus towards recommending support as an official recommendation.

DISCUSSION OF DRAFT REPORT
Dr. Schwarz noted that the draft report had been circulated to the Work Group in advance and that members had the opportunity to review and provide comments. After brief discussion, Commissioner Guthrie proposed that, in the interest of time, remaining edits could be made based on meeting recordings and staff notes. Dr. Schwarz confirmed that the draft would be updated accordingly. Additionally, Ms. Thorp announced that the USDA Scalable Innovation Grant, submitted in partnership with Real Good Fish, had been awarded to support Blue Catfish procurement in Virginia and Maryland schools over a three-year period.

Delegate Hodges recommended convening a meeting of subject matter experts, legislators, and Governor's staff to explore budgetary solutions, alongside legislative options discussed by the Work Group. Commissioner Guthrie agreed, suggesting VDACS could help facilitate that meeting.

Dr. Schwarz closed the discussion by thanking participants for their insights and contributions and noted that planning was underway for a public rollout of the final report, which is due by September 1.

PUBLIC COMMENT
The Work Group did not receive any public comment.

ADJOURNMENT
At approximately 11:07 a.m. the Task Force adjourned.