Chesapeake Bay Program
Science. Restoration. Partnership.

# Invasive Catfish Workgroup Meeting: Spring 2025

## Tuesday, May 27 | 10:00am - 4:00pm

## Meeting Minutes

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**Attendees:**
Bruce Vogt (NOAA), Kevin Schabow (NOAA), Christina Garvey (CRC), Julia Fucci (CRC), Tom O'Connell (USGS), Branson Williams (MDNR), Matthew Scales (MDA), Tom Ihde (MSU), Noah Bressman (SU), Danny Ryan (DOEE), Luke Lyons (DOEE), Veronica Malabanan Lucchese (NERTO), Allie Cavanagh (Congresswoman Elfreth), Joe Myers (SeaWatch International, Ltd.), Ben Simon (GWU), Adrienne Kotula (CBC), Alexa Galvan (VMRC), Allison Colden (CBF), Bailey Robertory (UMCES/MDNR), Brenda Stahl (ProFish), Chris Jones (MDNR), Chris Moore (CBF), Christine Densmore (FWS), Clint Morgeson (VDWR), Connor Bevan (ASA), Corbin Hilling (VT), Dave Secor (UMCES), Doug Austin (EPA), Doug Pirhalla (NOAA), Dr. Michael Schwarz (Seafood AREC/VDACS), Ellen Robertson (USGS/EESC), Geoff Smith (PFBC), George O'Donnell (MDNR), Heather Walsh (USGS), Ingrid Braun-Ricks (PRFC), Jaclyn Higgins (TRCP), Joe Love (DNR), John Page Williams (CBF), Kehinde Ojo (MSU), Mike Hutt (VDACS), Margi Whitmore (VDWR), Mike O'Brien (NOAA), Ronald Owens (PRFC), Scott Knoche (MSU PEARL), Shelby B. White (VIMS), Stephanie Pazzaglia (J.J. McDonnell), Steven Pearson (DEC), TD VanMiddlesworth (NCWRC), Yan Jiao (VT), Pat Hudson (Tilghman Island Seafood)

**10:00 am** **Welcome and Introductions**

*It has been more than a year since we have all gotten together in a large group. Thank you all for coming. Today's purpose is to reconvene and share information. Need to take bay-wide approach to tackle invasive catfish issue - information sharing and working collectively is key.*

*ICW group was formed around 2012 after signed policy statement identifying the expansion/impact of invasive catfish in the Bay. Broad interest groups represented on the team (state managers, scientists, commercial fishermen, recreational fishermen, NGOs). Accomplishments: 2020 Management Strategy, creation of small groups (Policy, Charter/Recreational Fishing, Commercial Fishing/Marketing/Processing, Science & Management). Difficult to balance all stakeholder interests - still trying to navigate competing interests*

*Invasive Catfish Workgroup Goal: "By 2029, develop management strategies to minimize the spread and ecological impacts of invasive catfish in the Chesapeake Bay. The*

*management strategies will use the best available science and consider the diverse interests of stakeholders, support ecosystem health, and increase public awareness"*

*Successes: Many successes that everyone in the ICW has contributed to. Catfish cookoffs - increase public engagement. The completion of science publications within the last year - communication and outreach efforts. Public awareness of the issue is much better due to all of this work.*

## ***Session 1: Policy Small Group***

**10:15 am** **Policy Small Group Introduction (*Allison Colden, CBF)***
Summary: *Allison Colden shares some recent policy updates as they relate to blue catfish. The new executive order "Restoring American Seafood Competitiveness" may have some positive impacts on blue catfish efforts. Allison also provided some background on two MD blue catfish bills that were combined into the Invasive Blue Catfish Pilot Program (which Allie Cavanagh discusses in more detail in the next session). Two catfish bills were also introduced in VA; however, both did not move forward.*

**10:20 am** **Blue Catfish Bill Update *(Allie Cavanagh, Congresswoman Sarah Elfreth (MD-03))***
Summary: *Draft Blue Catfish Bill will be a 2-year pilot program, to facilitate the use of blue catfish by participating pet food manufacturers (pet food, agricultural food, aquaculture). There is bi-partisan support for this bill.*

**10:45 am** **Discussion**

- *Has the science we helped support influenced any of these bills?*
    - *Defer to Brent Hensinger (VA) to expand further on motivations for the bills. Push back on the bill was related to recreational fisheries and preserving some trophy fish. Removing the size limit was of concern to this group.*

- *Metrics recommended to include on the report back to congress (blue catfish or for other species impacted by blue catfish)?*
    - *Metrics that can be definitively assessed that could inform the success or lack of success of this program*
    - *Questions on the size of fish and possible concerns of contamination.*
        - *Safe to be included in a pet food formula?*
        - *Preliminary data shows that large catfish (20 + lbs) are relatively low on PFAS*
        - *Would be good to understand contaminant threshold in the pet food industry*
        - *Additional sampling of contaminants and protein levels - interest from pet food industry to include zoos and aquariums*
        - *Recent study in Patuxent Rivers showed that contaminant levels were low - can look at thresholds with size*
        - *Pet food industry understood that blue catfish have higher omega-3 proteins and lower allergen risk - would you recommend we be prescriptive in this bill to keep fish size in the mid-range? What would be the best way to put some guard rails*

            - *Monitoring contaminant levels and include large ones - these will have the most ecological benefit*
        - *Inclusion of flathead catfish - could expand opportunities & markets*
        - *Network analysis to understand the social, ecological connections*
        - *Economic analysis*
- *Way to collaborate with industry to get some of the fish they are getting? Good to know what the fish getting caught are preying on and gathering more information on how to reduce their numbers.*
    - *Depends on the transportation/what is done with those fish/where the fish come from for fish to be viable for diet studies/analyses*
    - *Data on size and sex of fish as well as the scraps of the fish (stomachs and ovaries)*
    - *Need to know the location of where fish came from*
    - *Fish would need to be on ice*
- *Watermen selling directly to pet food manufacturer?*
    - *Correct*
- *Who would be in charge of transportation?*
    - *Pet food manufacturer would coordinate the transportation*
- *Discussion on price point*
    - *Allie is asking for feedback on whether this price point is appropriate.*
- *Policy Small Group meeting on May 30th - continue discussion during this meeting*
    - ***Action Item:** Christina Garvey to send interested folks policy small group meeting information as well as Allie Cavanagh's contact*
- *Allison Colden (in the chat): Related to our previous discussion on aquariums using catfish for animal diets, most require "human grade" fish quality, so the smaller fish might be able to be utilized with little/no additional testing or if there are excess fish from food fish market, it could be a ready-made outlet*

- *Dr. Michael Schwarz (in the chat): VA Watermen struggling at dockside 60 cents/pound to buyers, say need 70 to 75 cents/pound.*

- *Tom O'Connell (in the chat): Sounds like a great opportunity. Some questions: 1) Any size of invasive catfish being targetted? 2) Open to blue or flathead catfish, or just blue catfish; 3) What is the plan to ensure safe product for pet / agricultural animals; 4) What is plan to assess impact for report back to congress?*

- *Dr. Michael Schwarz (in the chat): Whole fish Larger than slot for foodfish viable option, with eye on contaminants.*

- *Tom O'Connell (in the chat): Would this funding be allowed to support required science to report back on, or limited to paying industry for harvest/transportation?*

- *Brenda Stahl (in the chat): If the waterman gets $0.40/lb, I am misunderstanding how this would be beneficial for the processor. It sounds like we would be paying more to transport, and for the fish, to go to pet food.... Or, maybe I am misunderstanding?*

- *Stephanie Pazzaglia (in the chat): Allie and Allison, I have some feedback and some questions for you. We are currently working with some pet food companies.*

- *Tom O'Connell (in the chat): Perhaps a small group of the S&M can put some time on this to make the most of this opportunity and provide some suggestions to the policy team. Let me know if there is interest.*

## ***Session 2: Commercial Fishing/Processing/Marketing Small Group***

**11:00 am** **Commercial Fishing/Processing/Marketing Small Group Updates (*Matthew Scales, MDA)***

Summary: *Matthew Scales provides an update of recent work conducted by the Commercial fishing/processing/marketing small group. Efforts have been focused on getting blue catfish within larger institutions (public schools) and tackling their three action items. ICW can help advance the goals and objectives of the commercial fishing/processing/marketing small group by helping the group create a non-profit for marketing blue catfish, supply chain, support for studies on biomass, and highlight international marketing efforts.*

**11:15am** **VA Blue Catfish Group updates (*Mike Schwarz, VT)***

Summary: *Dr. Mike Schwarz provides a brief update on the VA Department of Agriculture Consumer Services Blue Catfish Marketing Workgroup. The group will meet once more in June and then develop a final report of recommendations to the governor. Market for blue catfish is largely local. Some challenges include multi-user conflicts, price issues for harvesters, size variability, equipment issues etc. Final report is due September 1st 2025. The goal is to fish back the blue catfish population to a sustainable level and valorize it as we see their populations expand down the coast to North Carolina and South Carolina.*

**11:20am** **"Bay to Table: Expanding the commercial fishery for blue catfish in the Chesapeake Bay" (*Shelby White, VIMS)***

Summary: *Shelby White shares research that investigates the potential for a blue catfish commercial fishery. The study investigated ex-vessel price, processing constraints, and consumer demand by conducting interviews/surveys with fishermen, processors, and consumers. Results showed that higher ex-vessel price has the potential to increase fishing days for blue catfish, processors generally have a positive outlook on the future of this fishery, and that there is increasing familiarity with seafood products (including blue catfish).*

**11:25 am** **Discussion**

- *Regarding small group update: Action Item #1: Are there surveys being conducted/planned to understand biomass?*
    - *There are various degrees of efforts to understand population levels and changes over time - MD, VA, USGS are working on projects. Awareness of these approaches is needed and to work towards a more consistent approach to identifying population levels. Lack of resources - agencies are already very stretched.*
    - *Baywide, trib specific data - MDNR partnering on projects*
    - *Timeline of 2026 attainable?*
        - *May need to be pushed back to 2027 to be more attainable*
        - ***Action Item:** Matthew Scales to revise commercial fishing/processing/marketing small group action item deadlines to 2027*
    - *A lot of questions regarding biomass of blue catfish*
        - *Important to get these studies done, will be expensive and time consuming but it needs to be done*

        - *Progress on biomass - need to be careful not to spread out efforts all over the place due to scarce resources - need to be targeting tributaries. Target system approach (case study VA) would be more efficient to look at biomass.*
    - *Diet Studies - opportunity to work with processors to see what is in the belly content of the fish*
        - *Diet contents really need to be looked at*
- *Regarding small group update: Action Item #2: Explore the utility of all gear types to increase annual harvest*
    - *There may be other gear that can be utilized to increase efficiency*
    - *A lot of effort on both action item 1 and 2 but a lot still needs to be done and understood.*
    - *Electrofishing is being tested out - may get more information on that soon*
        - *Electronic shocking in VA - water temp needs to get to 71 degrees (this won't help harvesting in the winter time)*
    - *Winter season - challenges in fishing during this season and limited supply for processes - how do we navigate those challenging months?*
        - *Look into winter bottom trawling fishery for blue catfish - no crossover with blue crabs or striped bass.*
        - *Snake head are also in the same areas as blue catfish during winter months - bottom trawling would pick up both species - potential to kill two birds with one stone*
        - *There will be up and down times throughout the seasons*
- *SeaWatch International: involved in some projects with blue catfish, can process about 5k pounds of product per day. Has a line of bites/breaded fillets. Barrier to entry was having enough blue catfish supply at one time. Processing and IQF capabilities. Excess capacity available. Feel free to reach out to SeaWatch if you have any questions.*
- *Updates on efforts looking at flathead catfish? Fishery developing? Interest from marketing?*
    - *Experience from JJ McDonald: Flathead have a 15-16% yield because of taking out the lateral line - not a great option. Increases the price point and not as marketable.*
    - *Still important to keep an eye on flatheads.*
- *Regarding new legislation: Price point - hear from watermen that average is 70 - 80 cents, 40 cents seems too low*
- *Regarding new legislation: Regional economic development proposal - is something like that already happening?*
    - *Private entity putting in money to help these efforts - nonprofit could be an opportunity*
    - *Norman from Tilgham Island Seafood*
    - *Need to make sure logistics are worked out - need someone there to figure out logistics and payment to watermen*
    - *Feedback from processor standpoint: JJ McDonald work with 40-50 watermen and they coordinate the majority of logistics. Provide pick ups daily and provide vats of ice. Drives 1-2 hours depending on where the fish are. Keep in mind that these logistics generally come from the processors most of the time.*
        - *Processors in VA: difficult to get a tractor trailer load if they don't have their own freezing capabilities*

**Chat Discussion:**

- *Tom O'Connell (in the chat): The idea that Noah B suggests is a good one that will face opposition and for which science can inform if this type of gear in the winter time, in some areas can be a viable option. Such a study could potentially be incorporated into the pet food grant program that was discussed earlier. For example, perhaps a portion of that funding could be used to hire watermen to participate in such a study to evaluate alternative gear types while also supporting the objective of that draft legislation.*

- *Stephanie Pazzaglia (in the chat): Who is selling catfish for $14.11/lb?*

- *Scott Knoche (in the chat): For Michael Schwarz (or Shelby): How and why does the ex-vessel price for wild blue catfish vary from prices received from producers of farm-raised catfish in the U.S. South? In my quick web research, Ive seen prices received by farmers around $1.10 - $1.15 out of Mississippi, which seems like quite the premium relative to wild blue catfish.*

    - *Dr. Michael Schwarz (in the chat): Supply/demand across entire value chain. We are not truly commercial yet... large scale that is*

    - *Dr. Michael Schwarz (in the chat): No efficiencies of scale across chain*

- *Stephanie Pazzaglia (in the chat): Farmed Channel Catfish and Wild Blue Catfish are very different markets. apples and oranges.*

- *Allison Colden (in the chat): Shelby or others - can someone drop a link to the referenced paper in the chat?*

    - *Shelby B. White (in the chat): https://www.sciencedirect.com/science/article/pii/S0165783624001632*

- *Brenda Stahl (in the chat): $14.11 is about 5x higher (depending on farm or fresh or frozen) - so whomever is doing that, and people are buying....*

    - *Shelby B. White (in the chat): The prices were based on what consumers were buying it for. These numbers were based on markets in VA, including Richmond where prices are substantially higher.*

- *Scott Knoche (in the chat): Thanks Michael, for your response*

- *Tom O'Connell (in the chat): Is the harvesting of flathead catfishing increasing at all? Is there any efforts to market flatheads? From personal experience, they taste as good as blue catfish! I'm hearing fishermen are reporting increased numbers, and also hearing that their diets are broader than first imagined.*

- *Dr. Michael Schwarz (in the chat): VA processors concerned about potential harvest regulatory changes. Why invest millions into processing equipment if harvest regulations can easily change. Follow's Mike H.s comments now, we need better biomass estimates, gut contents, potential contaminants... etc...*

- *Dr. Michael Schwarz (in the chat): A lot of isolated scientific studies/initiatives NC - VA - MD. How can we coordinate/standardize efforts…*

    - *Tom O'Connell (in the chat): Excellent point, and something I hope we can tackle on the science and mgt group. Data and knowledge sharing to leverage our collective efforts.*

- *Dr. Michael Schwarz (in the chat): We now have large blue cats all the way to the VA oceanfront/full salinity. Winter striper fishing bay/oceanfront now catching Blue catfish alongside stripers... The larger fish visit the full marine to feed, then return to lower salinity.*

- *Dr. Michael Schwarz (in the chat): I am unable to join the afternoon session. I appreciated the invitation. Anyone please feel free to reach out anytime I can support any initiatives. mschwarz@vt.edu. We have a lot to do, and little time to do it. A rising tide lifts all boats :)*

- *Brenda Stahl (in the chat): Ditto on providing transport to processing. We either transport or coordinate DQ transport 100% of all bluecat into the facility.*

- *Allison Colden (in the chat): @Christina - I'm having trouble keeping up with everyone who wants to join Friday's discussion. Can we send the link to the agenda and call-in to everyone on this call?*

    - *Christina Garvey (in the chat): Yes I can share a link to the meeting as well as Allie's contact info with a follow up email after this meeting!*

**11:45am** **Lunch**

## ***Session 3: Science & Management Small Group***

**12:45pm** **VA updates (*Alexa Galvan, VMRC & Margi Whitmore,* )**

Summary: *Blue catfish commercial fishery management updates from VMRC and information on DWR fishery independent surveys.*

**Discussion**

- *Does VA have any harvest goals/objectives you are trying to meet?*

    - *No - we would like to see more harvest but when we bring this up to advisory committees, they say that the amount of harvest is limited by the processing sector and the market. Alexa reminds them of the ICW and that this is an invasive species affecting the resource*

    - *Engaging recreational anglers - encourage harvest*

- *Tom O'Connell (in the chat): Alexa and Margi - Does VA have monitoring data on other species in those same rivers that could be used to assess changes over time with blue catfish increases and now decreases?*

    - *Alexa Galvan (in the chat): All fish (and shellfish) harvested commercially are reported to the VMRC, so we will have landings and CPUE by area. Feel free to get in touch if you have specific questions.*

    - *Margi Whitmore (in the chat): We have annual fish community sampling data going back to the early 90's and we have a paper in progress on*

*community changes over time that explores blue cat abundance as a driver of change*

- *Tom O'Connell (in the chat): Excellent. Please share when available.*
- *Margi Whitmore (in the chat): Will do- we have a few papers in the lineup to explore the idea in depth*

**12:55pm** **MD updates (*Branson Williams, MDNR*)**

Summary: *Blue catfish management updates from MDNR.*

**Discussion**

- *Where are you monitoring- in which tributaries/river systems?*
  - *Some tributaries where we have a lot of data for. Specifically the Nanticoke and the Patuxent - diet work, tracking- density estimates*
  - *This year we are still working with managers on which rivers we will work on.*

**1:05pm** **PA updates *(Geoff Smith, PFBC)***

Summary: *Current status update of flathead catfish abundance and range in the Susquehanna River and tributaries in PA.*

**Discussion**

- *Information on how the fish are moving? Do you have issues with people moving the fish into those new systems?*
  - *With the disjunct population - we believe that is an angler introduction. The genetic analysis supports this theory. Still evidence of movement by anglers.*
- *Steven Pearson (in the chat): I noticed some of the sampling sites were near New York. Do you suspect that these catfish are in New York?*
  - *They are right up to the border so we presume they extend past the border up until the dam in Binghamton.*
- *Are you getting white cats in that region or are they mostly flatheads?*
  - *We still occasionally see a remnant white catfish in that portion of the river but now it is mostly channel catfish and the flatheads are starting to increase in abundance.*

**1:15pm** **DC updates *(Danny Ryan, DOEE)***

Summary: *Jurisdictional update on blue catfish fishery from DC. Continuation of 15 year survey. Biological monitoring includes telemetry and diet study. This winter MD captains were invited to fish blue catfish using hook in line; however, with warmer weather there were conflicts between commercial and charter captains/harbor patrol. Commercial fishers ended up leaving the area due to these conflicts. Focus will most likely become recreational. Invitation for feedback on how to navigate this conflict.*

**Discussion**

- *Colleagues at Howard University - could they come to your tournament to see how it works?*
  - *Of course*

- ***Action Item:*** *Danny Ryan to share with Noah Bressman the flyer for the tournament and his number*

- *The monitoring that has been done - is that all filed in one place?*
  - *Yes - trying to come up with a usable biomass number. Wealth of data but we do not have a modeler on staff/expertise that could use this data. If someone has an interest in taking a look at that data reach out (to Danny Ryam) to let him know.*

- *Shad or herring within diet study?*
  - *Much more pronounced in flatheads than in blue cats*

**1:25pm** **PRFC updates *(Ingrid Braun-Ricks, PRFC)***
Summary: *Potomac River Fisheries Commission blue catfish management updates.*

**Discussion**

- *Are the stats you have - commercial, recreational, a combination?*
  - *Commercial. Any recreational estimates would be reported through MD and VA*

- *Graph with different species of catfish - showed that white, channel, and bullhead catfish were fished on earlier but haven't been reported much recently. Is that because of competition or because fishermen are not targeting that as much?*
  - *From (a few) watermen, report that they have not been encountering them as much. Unsure of the reason. Probably because there are so many blue catfish in the area they are fishing in. Most of the harvest occurring at the 301 bridge in the Potomac and up.*

- *People that are targeting blue catfish - switching from crabs to blue catfish - are those fishermen happy? Are they getting the price they need?*
  - *Potomac harvesters have chiseled out their market and their system and it works well for them. There are a lot of people that switched from crabbing to just focusing on blue catfish. There are about 150 people that are licensed for this specific targeting (fish pot, fish trotline).*

## ***Session 3.1: Science & Management Lightning Talks***

*Slides will be made available on our calendar webpage*

**1:30 pm** **"Design of population monitoring and modeling to evaluate potential management actions for invasive blue catfish in Maryland" (*Ellen Robertson, USGS EESC)***
Summary: *This study is a collaborative effort between USGS and MDNR and was focused on evaluating potential management actions for invasive blue catfish through the design of population monitoring and removal modeling.*

**1:35pm** **"Now Underway: Co-produced Research to Control Invasive Blue Catfish in Chesapeake Bay" *(Tom Ihde, Morgan State University)***

Summary: *This presentation reviews the goals and objectives of the 2 year structure-decision analysis approach project, "Co-produced Research to Control Invasive Blue Catfish in Chesapeake Bay".*

**1:40pm** **"Management strategy evaluation to assess trade-offs associated with invasive Blue Catfish fisheries and predation impacts"** ***(Corbin Hilling, USGS)***

Summary: *This study focuses on three different stakeholder groups within the James River (native conservation, recreational fishermen, and commercial fishermen) and investigated trade-offs associated with different management alternatives and predation impacts.*

**1:45pm** **"Project update: Blue catfish movement in the tidal James River"** ***(Margi Whitmore, VA DWR)***

Summary: *This project investigates research gaps related to blue catfish, ways to increase efficiency of recreational and commercial fishing harvest by predicting behavior under different environmental conditions, and explores blue catfish movement tactics.*

**1:50 pm** **Discussion**

- *Ensuring coordination and collaboration so that managers do not end up with too many modeling products is important*
- *Allison Colden (in the chat): Is this information being considered in the current benchmark assessment for crabs?*
    - *Margi Whitmore: We do not know. New batch of analysis - will be sharing it out soon. There is a lag between when we get the data and can analyze it. Will share it out and up to other folks how it will be used.*
    - *Management strategy evaluation that Corbin put together is a critical piece of information that will hopefully help managers explore these difficult tradeoffs.*
- *Question for Corbin: Concern over striped bass recruitment - hypothesis that blue catfish predation is a smoking gun. Can you comment on the certainty of that 5 metric ton (population consumption) number of striped bass?*
    - *That work was predation estimates for whatever fish we found in the diets in the James River - they were estimated as the product of the consumption biomass ratio and the proportion of the diet. There are uncertainties in all of that. Can we use the Monte Carlo approach to simulate the generation of those estimates? For striped bass the confidence interval was 0-18 metric tons, so fair bit of uncertainty there. The work in the James River - striped bass were not very common within the diets. This will be a transient prey source.*
    - *In the Nanticoke we see that blue catfish target striped bass eggs - stomachs are full of them. Question for Margi - as blue catfish shift their distribution, any indication that they might be tracking anadromous fish juvenile prey?*
        - *We have fish passage monitoring in the James and Chicohotemy. There are also other folks tracking in other areas in these two rivers- priority to collaborate with these folks and see how closely we can track those fish together. Expanded distributions are in the spring and fall. Late winter,*

*spring it is more spread out - more likely they are further up river. Would like to get more into the social-network cohort situation to get at that more. Large fish - doesn't seem like they are moving much at all. They do not need to chase them in order to take advantage of the resource. We will get into this next, as well as modeling environmental variables and seasonal prey availability and how that is changing their distributions.*

- *Margi Whitmore (in the chat): Corbin- great presentation! Did crab predation take size-based consumption rate differences into account?*
    - *Corbin Hilling (in the chat): It did not. Consumption rates (i.e., metabolic demands) were modeled as constant across size groupings, but diet composition across size classes was based on observed data and did vary across size classes.*
- *Alexa Galvan (in the chat): I was just going to address the stock assessment question. I know we'd like to include blue catfish data and one question is how far the blue cats and crabs overlap. I think Margi's data will be a big help for that.*

**2:00pm** **15 minute break**

***Session 3.1: Science & Management Lightning Talks (continued)***

*Slides will be made available on our calendar webpage*

**2:15 pm** **"Trophic ecology and diet of Blue Catfish in the Nanticoke River" *(Noah Bressman, Salisbury University)***

Summary: *This study investigates the trophic ecology and diet of blue catfish in the Nanticoke River.*

**2:20pm** **"Recreational Angler Spending Related to the Blue Catfish Harvest Fishery" *(Scott Knoche, Morgan State University)***

Summary: *This project, funded by MDNR Fishing Boating Service, will conduct and analyze surveys to better understand recreational angler spending as it relates to the blue catfish harvest industry.*

**2:25pm** **"Unlocking Connections: Using Social Science to Meet Fishing Community Needs" *(Veronica Malabanan Lucchese, NERTO)***

Summary: *This study uses surveys and a social-ecological network analysis approach to understand solutions that will help meet the needs of fishing communities impacted by invasive species, specifically blue catfish.*

**2:40pm** **"Updates on Blue Catfish Health Assessments from the Patuxent River"*(Heather Walsh, USGS EESC)***

Summary: *This presentation provides updates from USGS research that investigates contaminant levels within blue catfish in the Patuxent River.*

**2:45pm** **"Global approach to blue catfish data"** ***(Pat Hudson, Tilghman Island Seafood)***

Summary: *This presentation provided an update on a collaboration between Tilgham Island Seafood and the World Wildlife Fund (WWF). The WWF's edible invasion initiative's current efforts are focusing on blue catfish and the introduction of this protein source to zoos and aquariums.*

**2:50pm** **"Multidisciplinary research update for Flathead Catfish in the Susquehanna River Basin"** ***(Geoff Smith, PFBC)***

Summary: *This presentation summarizes two research projects focused on understanding Flathead Catfish population distribution and diet in the Susquehanna River Basin.*

**2:55pm** **"Dietary preferences of invasive flathead catfish in the District of Columbia"** ***(Luke Lyon, DOEE)***

Summary: *This study investigates the diet contents of flathead catfish in DC and found that herring and white perch made up the majority of stomach contents by weight.*

**3:00pm** **Discussion**

- *Question for Noah Bressman - Hypothesis that blue catfish are negatively affecting striped bass - and your future work building on top of DNR study looking at striped bass eggs in blue catfish stomachs. Typically there is tremendous mortality rates of striped bass eggs (99.9%) - is there a way to back-calculate what level of consumption of eggs by blue catfish would be needed to see a negative effect on striped bass to get a sense of potential for blue catfish to really drive striped bass recruitment?*
    - *Potentially could do some math to model that - issue with striped bass is that there are other factors that influence the variability of reproduction (spring water temperatures, precipitation). You need a very long term data set. Easier to look at eggs within a catfish stomach and determine how many are in there.*
- *Question for Geoff Smith - Mention on telemetry work with flathead and small mouth bass. From what you have seen so far, how much of an impact have you seen flathead have on small mouth bass>*
    - *The telemetry work are two independent studies but in the same geographic grid. Impacts from flathead - it is hard to say. They make up a considerable portion for the largest individuals but small mouths are also one of the most abundant species in that river. Hard to say they could but potential is there. May have other issues with rock bass and red wrasse fish which also make up a large part of the blue catfish diet . American eels were not found in their diet - even though they live in close proximity - this was strange.*
- *Areas where flatheads are moving in - is there a difference in the health of the watershed/surrounding area that is decreasing the diversity of species in that area?*
    - *Potential exists for the west branch drainage - still recovering from a legacy of abandoned mine drainage pollution. As you move upstream the status in recovery is delayed - doesn't have as much productivity. This is a potential threat to offset the success of fisheries. Some threat from recovery standpoint but no difference in types of species - just a lower biomass in the west branch due to that period of recovery.*

- *Tom O'Connell (in the chat): Nice map of invasion on this fact sheet. https://pubs.usgs.gov/fs/2024/3033/fs20243033.pdf*

## ***Session 4: ICW Discussion***

**3:30pm** **Discussion: the future of the ICW (Bruce Vogt, NOAA)**

- *What information do we have on the ecological impacts of blue catfish? What information do we need?*
    - *Understanding the ecological impacts begins with understanding the population levels and change over time. Maintaining & increasing the level of effort and investment to understand the population status of blue and flathead catfish is the first step.*
    - *Diet studies (for the past 15 years) - but there are some gaps that we need to identify and focus on.*
        - *Next level is to evaluate what we know about diets and where are there spatial/temporal gaps and then fill that.*
        - *Managers need to understand more of the specifics of population and diet to help make decisions*
            - *Difference size classes - to target biomass*
    - *Eastern shore information*
        - *Still do not know impact level on striped bass (rec and commercial fishing interest)*
            - *Missing piece of the puzzle?*
    - *Map of the bay of invasion status (and level of ecol impact) - do we have information to put something like this together as a communication piece?*
        - *Depends on populations (e.g. river shad) within tributaries*
        - *Gut content analysis from fishermen - Blackwater refuge*
    - *MDNR map survey data (presence/absence of blue cat) -driving people to hotspots*
        - *Geographic map showing time frame of invasions would be helpful*
            - *Veronica Lucchese (in the chat): usgs timeline of tributary specific invasion*
        - *Data portal to help leverage information - improve sharing*
            - *Acknowledgement of sensitivity of information for publishing; however, there is a necessity for information sharing given the limited timeframe we have to solve this issue*
            - *Tom O'Connell is researching options*
                - *Case study of invasive carp data portal - help feds, state, academia share information with one another*
    - *Mentimeter Comments:*
        - *Information we need: Tributary specific gut content analysis and consumption guidelines*
        - *Understanding of population level and changes over time. Recognize that this will likely need to be a tributary specific strategy, we need a cost effective method*
        - *Need to understand how changes in other species natural mortality and recruitment from invasive catfish predation affect these species. For example, how sensitive M in blue crab stock assessment*
        - *Data trends for other species that blue catfish consume - can a significant effect be determined?*

        - *USGS EESC is evaluating diet studies to determine where there may be spatial and temporal gaps. We need to fill those gaps and utilize along with population estimates to determine ecological impacts.*
        - *Let's not forget about flathead catfish.*
        - *Needed: impacts of removals, such as increased reproduction rates*
        - *We need tributary specific reproduction strategies for more robust population modeling*
- *How can we measure baywide invasive catfish populations and what % population reduction is necessary for mediation of ecological impacts?*
    - *Tom Ihde's project - uncertainty around interests and tradeoffs - contingent on voices in the room*
    - *Modeling on Patuxent work - expansion to other areas*
        - *Additional survey data*
    - *Focus on specific tributaries and apply to others for rough approximations*
        - *Upper bay and middle bay (connectivity/salinity shifts)*
    - *Dependant on the goal threshold*
        - *Influence on striped bass population - how much to reduce catfish population?*
    - *Dave Secor's recommendation - resources not available yet*
        - *Focus on specific tributaries - look at time frames*
        - *Improve insights on ecological impacts and inform management*
    - *Time dimension & goals*
        - *All systems are changing - this is a snapshot - is that what we want? Or focus on longer time horizon of probable impacts?*
        - *Model a range of possibilities - tool to look at where systems are heading - cannot assume systems will go in the same direction*
    - *Availability of biomass to fisheries? (address ecological impacts while also maintaining fishery)*
    - *Veronica has some fishermen contacts on Patapsco with bow fishing - willing to work with scientists*
        - *Contact Veronica if you want more information*
    - 
    - *Margi Whitmore (in the chat): Climate change, urban development, water quality, primary production, and harvest are not negligible factors.*
    - *Mentimeter Comments:*
        - *Recommend a meeting of those investing efforts into this question about population monitoring and modeling to share what each are working on as we work to a common approach that is most cost effective*
        - *There is also a need for management agencies to more clearly describe what their objectives are to know what reduction level is warranted. This will likely need to be an adaptive mgt framework.*
        - *survey and/or incentivize rec, commercial, and other stakeholders on the water to report location specific sightings*
        - *A tributary by tributary approach may be needed, at least a regional approach due to differing population dynamics.*
        - *Building off of Dave Secor, I recommend selecting a few tributaries across the Bay which represent different regions and invasion periods of time, and build off of what we learn here.*

**4:00 pm** **Adjourn**

*We will be sending some additional discussion questions that we didn't get to yet in our follow up email. These important discussions will continue within the small group meetings as well. New science will be coming out in the near future. Let's continue to decrease invasive catfish biomass where we can - and work together to make those things happen. Thank you to our presenters and to everyone who participated in today's meeting.*