



Blue Catfish

(Ictalurus furcatus)

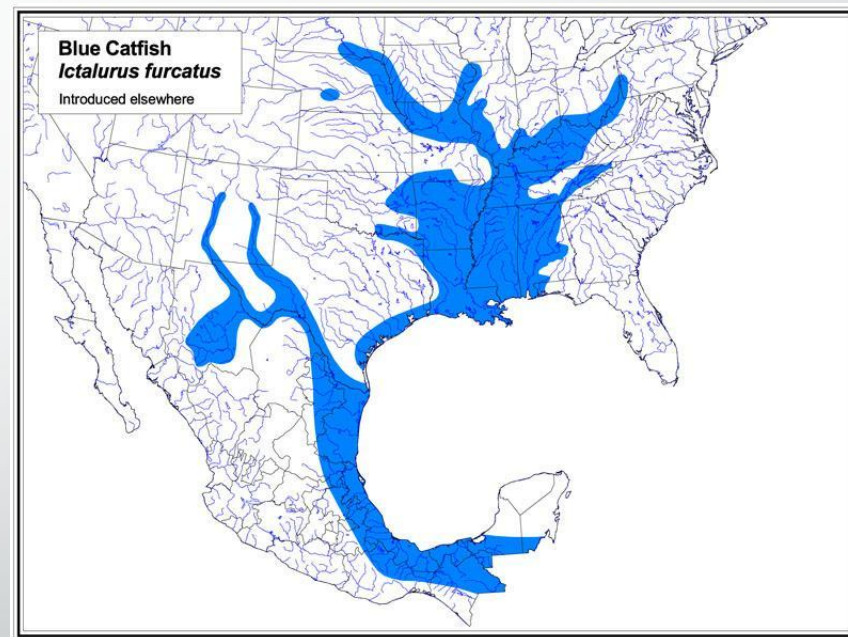
Samantha Schiano

October 15th, 2021

ISG: Invasive Species Case Study

Background

- Catfish species native to...
 - Mississippi
 - Missouri
 - Ohio
 - Rio Grande (Glodek 1980)
- Highly opportunistic and generalist feeders
 - Raises concern for their impact on local fish communities (Schloesser et al, 1999)
- Tolerant to a wide range of salinities



(Florida Museum 2021)

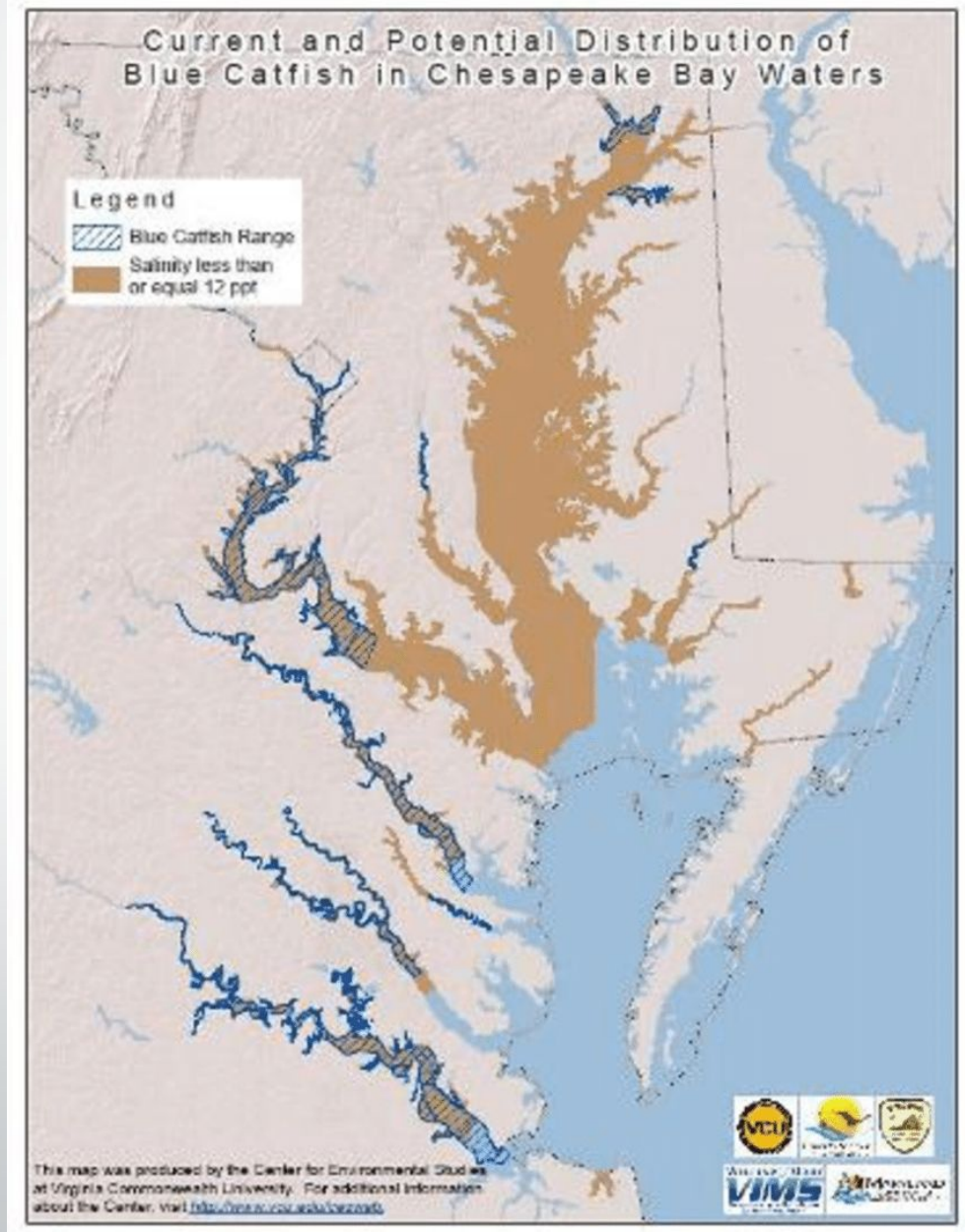
How were they introduced to the Chesapeake Bay?

- Stocked ~300,000 juveniles introduced into VA rivers in 1974-1985 to develop recreational fishery (Schloesser et al 1999)
 - Movement from rivers into increased brackish waters of the Chesapeake Bay
- First reported in MD in 1980s (Joseph Love; personal communication, Oct. 8, 2021)
- Commonly introduced species



Continual Spread

- Found throughout all major Chesapeake Bay tributaries (Chesapeake Bay Foundation 2020)
- Thrive in a wide range of salinities (Nepal and Fabrizio 2019)
 - Fresh
 - Brackish
 - Salinity up to 21.8 psu (Fabrizio et al 2020)
- Tracking program
 - Acoustic and radio technology
 - Aims to help determine the populations and environmental impact



(Orth et al 2017)

Predation Impact

- Wide range of prey:
 - Menhaden, shad, river herring, blue crab
 - Aquatic vegetation (juveniles)
- Can outcompete native white catfish (Chesapeake Bay Program 2020)
 - Large overlap of diet preference (specifically bivalves)
- Pose a threat to already threatened alosine species due to preferred prey type in tidal freshwater areas (Schmitt et al 2019)

Recreational and Commercial Fisheries

Recreational:

- Important recreational fishery since their introduction
- Potomac River
 - Runs guide services to catch trophy sized fish
- Estimated to be a part of the second most popular tidal freshwater fish group (catfish)

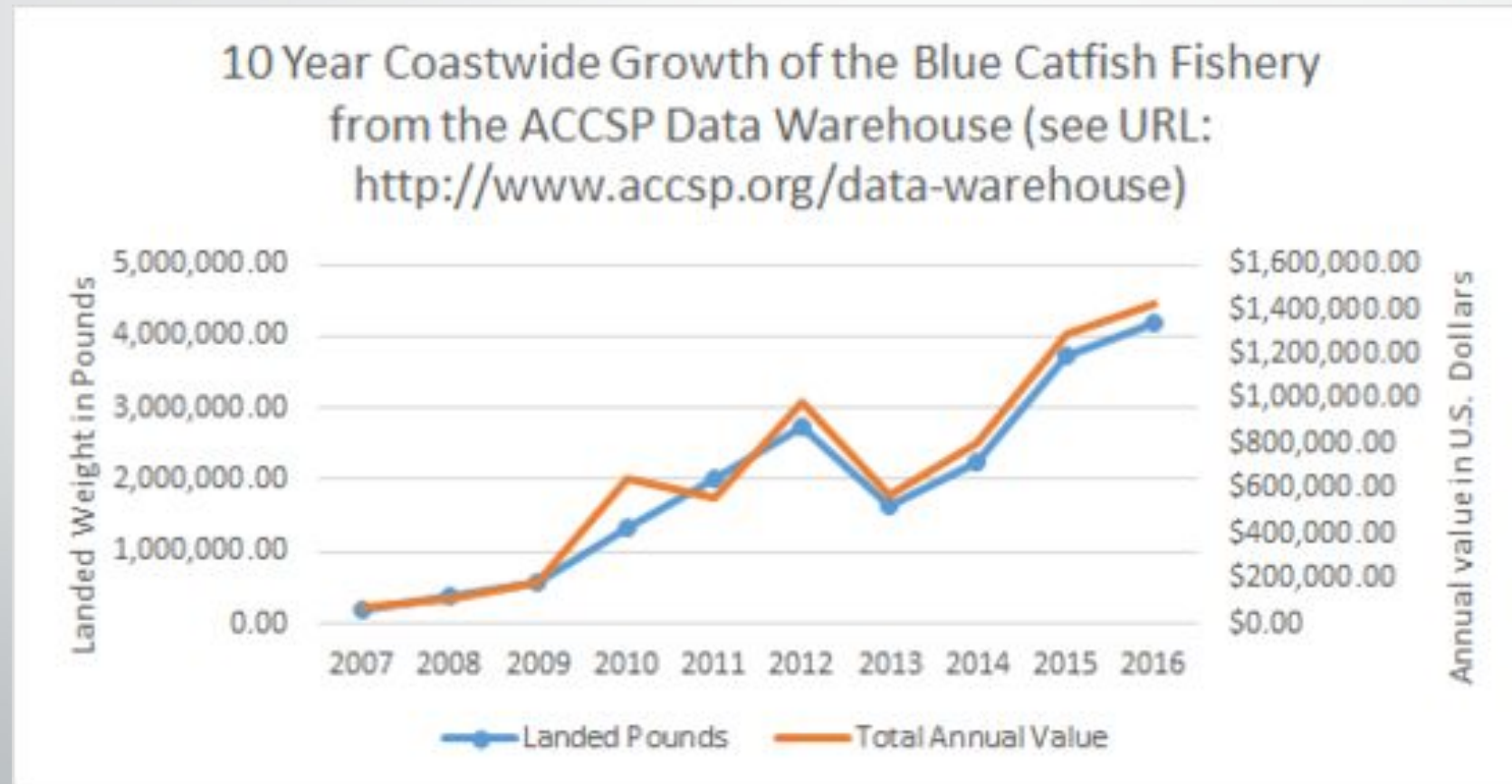


Commercial:

- Widely successful in the last 10 years
- Aggressive marketing campaign by MD – resulting in increased harvest since 2013
- Attractive to consumers for its sustainability

(Fabrizio et al 2019)

Recreational and Commercial Fisheries



(NOAA Fisheries)

Impact on Native Fisheries

- Often caught as bycatch (Fabrizio et al 2020)
 - Increasing handling time
 - Potentially damaging nets
 - Reduce the efficiency of these fisheries
- Blue crab found in ~30% of blue catfish (Schmitt et al 2019, Fabrizio et al 2020)
 - Potentially reducing availability for the fisheries and native predators



How are they managed in MD?

- Invasive catfish management strategy released in August 2020
- Managed the same as if they were a native species (Joseph Love; personal communication, Oct. 8, 2021)
- Anglers are directed to retain or kill caught blue catfish rather than release them back into the Bay
- Fishery is open year round
- Transport of live blue catfish is prohibited (Chesapeake Bay Program 2020)

Challenges for Management

- Multiple stakeholders concerned over blue catfish expansion and its consequences (Joseph Love; personal communication, Oct. 8, 2021)
- Two competing interests
 - 1) Maintaining and continuing a successful trophy fishery
 - 2) Reducing the ecological impacts of blue catfish on native fish and invertebrate species

Nutrition Facts

varied servings per container
Serving size 4 oz (112g)

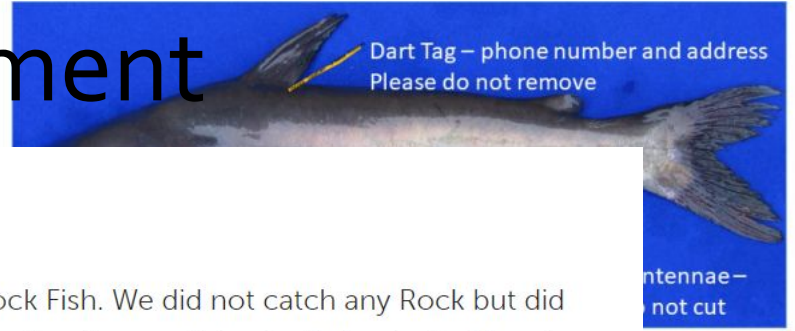
Amount per serving
Calories 90

	% Daily Value*
Total Fat 1.5g	2%
Saturated Fat 0g	0%
Trans Fat 0g	
Polyunsaturated Fat 0.5g	
Monounsaturated Fat 0g	
Cholesterol 60mg	20%
Sodium 55mg	2%
Total Carbohydrate 0g	0%
Dietary Fiber 0g	0%
Total Sugars 0g	
Includes 0g Added Sugars	0%
Protein 19g	
Vitamin D 1.7mcg	8%
Calcium 10mg	0%
Iron 0mg	0%
Potassium 460mg	10%

*The % Daily Value tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Public Engagement

Attention Anglers



TY
AN
IC



sa
bi

species
st and
st shee
s as a

catus
th Ar

Greg
 May 06, 2020

I was out fishing this past weekend near the Bay Bridge for Rock Fish. We did not catch any Rock but did catch 19 Blue Catfish. Most in the 24 to 30 inch variety. I am reading these articles to find out what is going on. Yes, they were fun to catch but a little creepy as well. First of all, it should be a red flag when any state or jurisdictional regulator decides to introduce anything that isn't native to the area and I would have hoped that regulators would have passed laws against this nonsense. We as a species do not have the intelligence to know when not to interfere with the natural course of life. We think we are clever to introduce something into the environment that will take care of another nuisance only to realize we have created a bigger problem. With that said, if these fish were introduced from the Mississippi River, why would we not know how they interact with other species found in that tributary and be able to determine what impact we can expect on the Chesapeake?

Jesse
 November 14, 2019

Blue and Flathead Catfish are the best thing to happen to our region and here we are decades later and the food chain hasn't collapsed, take your scare tactics to an uninformed populace.

The orange tag has a phone number and tag number on it. If you catch a tagged fish please call the number and let us know.



Conclusion

- Eradication?
 - Maybe in areas dedicated to species rehabilitation
 - Also not the goal (Joseph Love; personal communication, Oct. 6, 2021)
- Commercial and recreational fisheries may not be enough to control blue catfish populations
- Willingness to fund blue catfish research/management (Chesapeake Bay Program 2019)
 - Sea Grant
 - Nature Conservancy
 - USGS





Questions?

Special thanks to Dr. Joseph Love at MDNR for taking the time to answer my
many questions!

Literature Cited

Chesapeake Bay Foundation. (2020). Invasive Catfish Management Strategy August 2020.

Fabrizio, M. C., Nepal, V., & Tuckey, T. D. (2021). Invasive blue catfish in the Chesapeake Bay region: a case study of competing management objectives. *North American Journal of Fisheries Management*.

Glodek, G. S. (1980). *Ictalurus furcatus* (LeSueur) blue catfish. *DS Lee, et al. Atlas of North American freshwater fishes. North Carolina State Museum of Natural History, Raleigh*, 439.

Orth, D., Jiao, Y., Schmitt, J., & Schmitt, C. (2017). Dynamics and role of non-native blue catfish *ictalurus furcatus* in Virginia's tidal rivers final report.

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(11), e0224770.

Schloesser, R. W., 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.

Schmitt, J. D., Peoples, B. K., Castello, L., & Orth, D. J. (2019). Feeding ecology of generalist consumers: a case study of invasive blue catfish *Ictalurus furcatus* in Chesapeake Bay, Virginia, USA. *Environmental Biology of Fishes*, 102(3), 443-465.

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.

Photo Sources

<https://dnr.maryland.gov/fisheries/Pages/Fish-Facts.aspx?fishname=Blue%20Catfish>

<https://www.fisheries.noaa.gov/feature-story/bay-invaders-blue-catfish-fishery>

[https://dnr.maryland.gov/fisheries/Documents/Chesapeake Blue Catfish.pdf](https://dnr.maryland.gov/fisheries/Documents/Chesapeake%20Blue%20Catfish.pdf)

[https://www.chesapeakebay.net/news/blog/understanding the threat of invasive catfish](https://www.chesapeakebay.net/news/blog/understanding_the_threat_of_invasive_catfish)

[https://dnr.maryland.gov/fisheries/Documents/CatfishTagging Study Sign.pdf](https://dnr.maryland.gov/fisheries/Documents/CatfishTagging%20Study%20Sign.pdf)

<https://www.baltimoresun.com/news/environment/bs-md-blue-catfish-20190603-story.html>

<https://riverfriends.org/virginias-booming-wild-caught-blue-catfish-industry-may-weaken-under-federal-regulation/>

<https://www.google.com/url?sa=i&url=https%3A%2F%2Fbaltimore.cbslocal.com%2F2021%2F03%2F19%2Fchesapeake-blue-crab-spotted-on-shores-of-ireland%2F&psig=AOvVaw3y2Ci8FrQPMRnF-YlertIG&ust=1634329362522000&source=images&cd=vfe&ved=oCAwQjhXqFwoTCLi927vdyvMCFQAAAAAdAAAAABAG>