INVASIVE CATFISH IN THE CHESAPEAKE BAY

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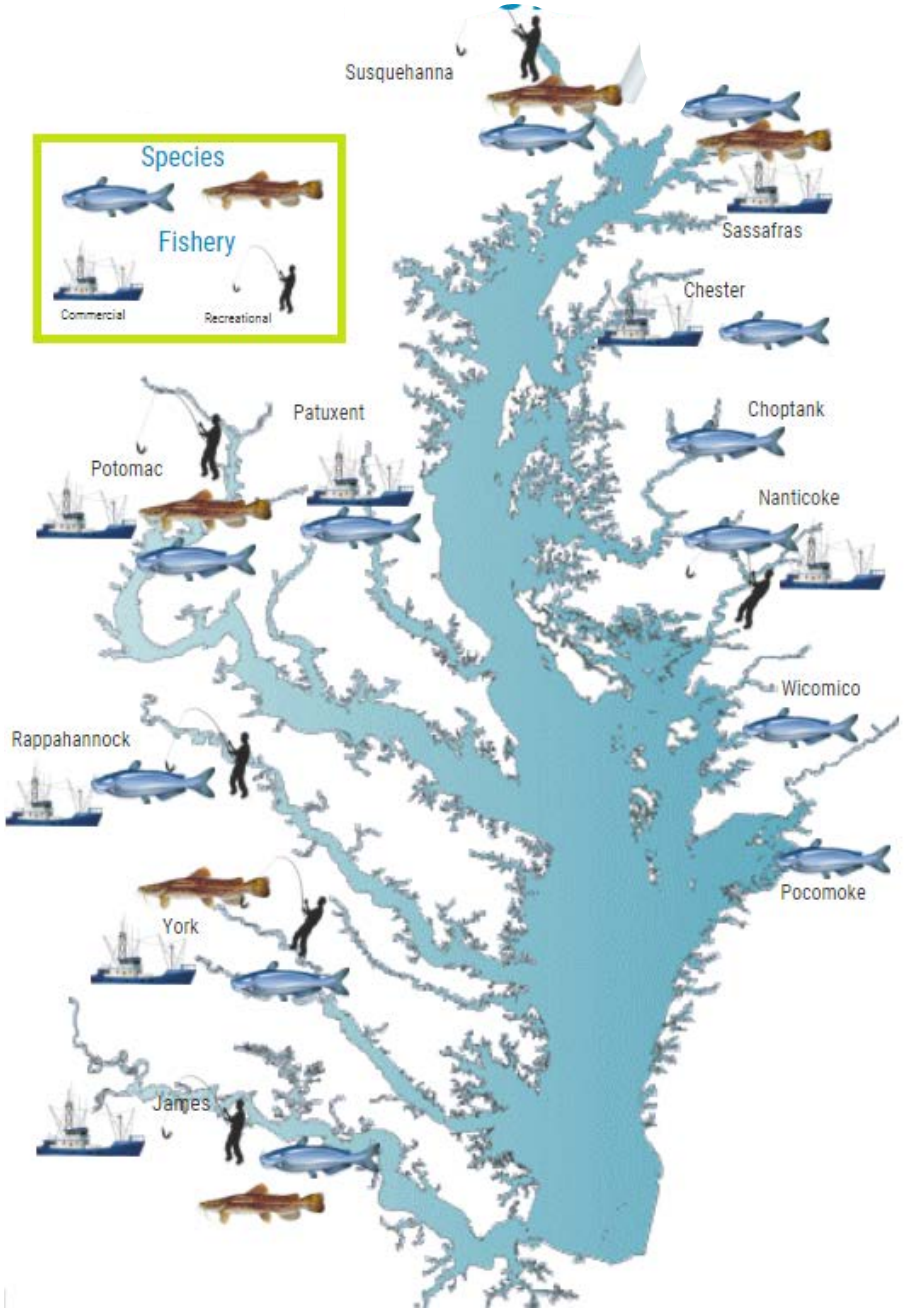
	Flathead catfish *Pylodictis olivaris*	Blue catfish *Ictalurus furcatus*
Introduced	1965-1970	1970s and 1980s
Large native range	✔	✔
Long life span	✔	✔
Environmental tolerance	✔	✔
Broad diet		✔
Fast growth	✔	
High fecundity		✔
Large body size	✔	✔

Image credit: CBP

Invasive Catfish Task Force

- Established in 2012 by the Sustainable Fisheries Goal Implementation Team (Fisheries GIT) of the Chesapeake Bay Program
- Tasked to recommend management strategies and actions that could be applied Bay-wide to respond to the spread of invasive Blue and Flathead catfish populations in the Chesapeake Bay
- Report produced in 2014 with specific recommendations



Task Force Objectives

1. To slow and reduce the spread of invasive catfish populations into currently uninhabited waters;
2. To minimize the ecological impacts of invasive catfishes on native species;
3. To promote a large-scale fishery to significantly reduce abundance of invasive catfish populations and provide economic benefits to the region;
4. To increase outreach and education to improve public awareness that Blue and Flathead catfishes are not native and pose a risk to native species and to continue to lessen the probability of unauthorized introductions into other water bodies in the Bay watershed.

Recommendations

1. Targeted, fishery-independent removals of invasive catfish in places of significant ecological value
2. Efforts and incentives to develop a large scale commercial fishery be accelerated and coordinated across jurisdictions
3. Jurisdictions to consider options to incentivize increased harvests by small boat operations and explore the use of electrofishing for commercial harvest purposes
4. Jurisdictions establish monitoring programs to identify and track catfish distributions and population status, develop early detection and response programs
5. Careful consideration of the effectiveness of existing barriers to invasive catfish spread, weigh benefits of barrier removal against risk of damage by catfish expansion
6. Cross-jurisdictional review of current fishing policies and regulations, evaluate efficacy of communications and enforcement of current regulations regarding illegal transport
7. Make information on invasive catfishes more accessible and consistent

Invasive Catfish Symposium

- November 6-7, 2017
- Goal was to bring together fishery managers, scientists, and interested stakeholders to review latest science and discuss ongoing management strategies
- Presentations on annual monitoring, population dynamics, movement and environmental drivers, diet, fishery statistics, contaminants, and case studies of other invasive species
- Stakeholder panel

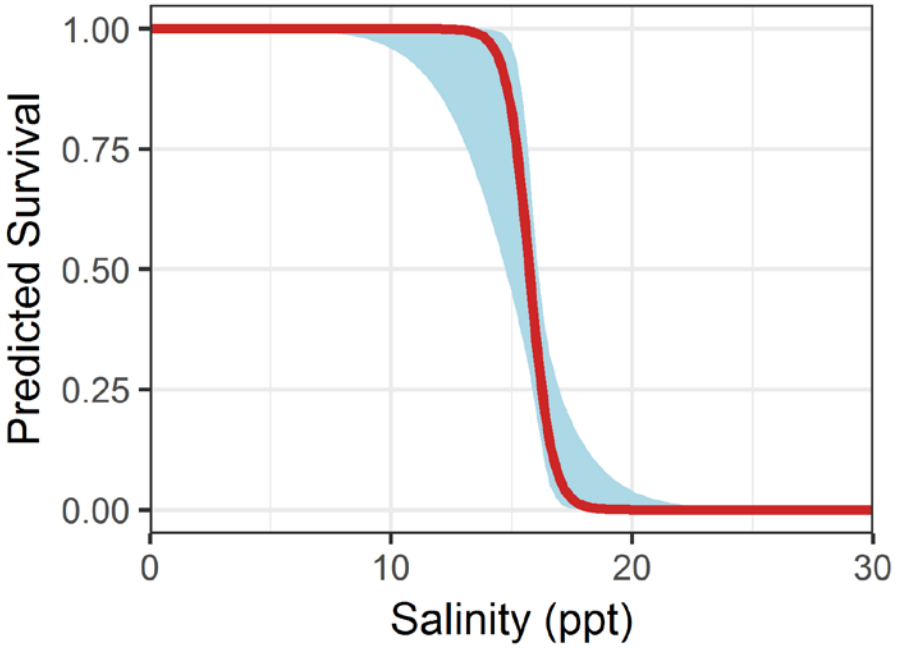
Annual Monitoring

- Not all jurisdictions have a dedicated monitoring program
- Some methods are salinity dependent

Population Estimates

- Each tributary is in a different invasion stage
- Well established in James, Rappahannock, York, and Potomac
- VIMS blue catfish mark-recapture study: in a subsection of the James, estimate of 544 fish/ha
- Range Expansion: LC50 72hr Salinity experiments
  - Salinity in Bay varies between wet and dry months
  - Lower salinity means blue catfish can survive in more of the Bay (for 72hrs)
  - Implications: blue catfish can expand into more tributaries

CBP



Vaskar Nepal, VIMS

Diet

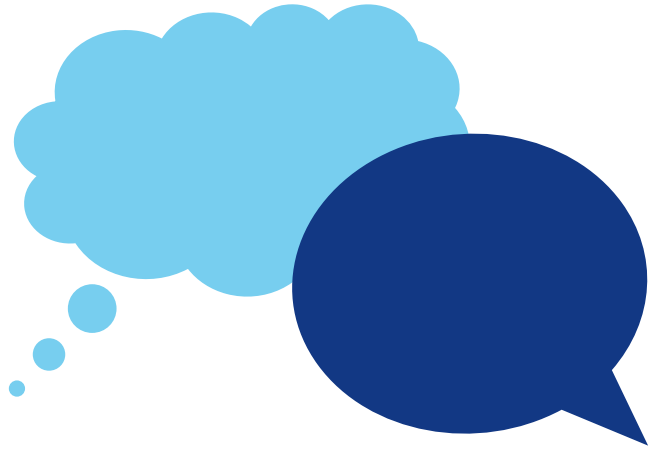
- Studies by SERC, Virginia Tech, and MD DNR
- Blue catfish are generalists, feeding heavily on vegetation and invertebrates, including blue crabs
  - Experience ontogenetic shift to piscivory at larger sizes
- Cannot ignore predation on *Alosa* species by flathead catfish

Joe Schmitt, VT

Fishery Stats

- **Potomac River Fisheries Commission**: began to separate blue catfish catch from other species in 2003
  - From 2015-2017, over 1 million lbs harvested per year
- **Virginia Marine Resource Commission**: Prior to 2010, all catfish were reported as 'unclassified catfish'
- **Virginia Department of Game and Inland Fisheries**: in tidal James River System, recreational fishing effort over last several years is less than half that of 2002
- **Maryland Department of Natural Resources**: increasing harvest since 2000
  - By 2015, over 2 million lbs harvested

Stakeholder Perspectives



- Main concerns:
  - In 2008, congress included language in farm bill to transfer catfish inspection authority from FDA to USDA (responsible for meat, poultry, eggs)
    - Received broad support from US catfish farming community, may weaken growing wild caught fishery as inspections can be costly (especially for small processors)
  - Challenges in establishing a market (need a constant supply, convincing people wild caught catfish is different than farm-raised, marketing efforts)
  - Gear conflicts
  - Decline of trophy fish
  - No harvest targets

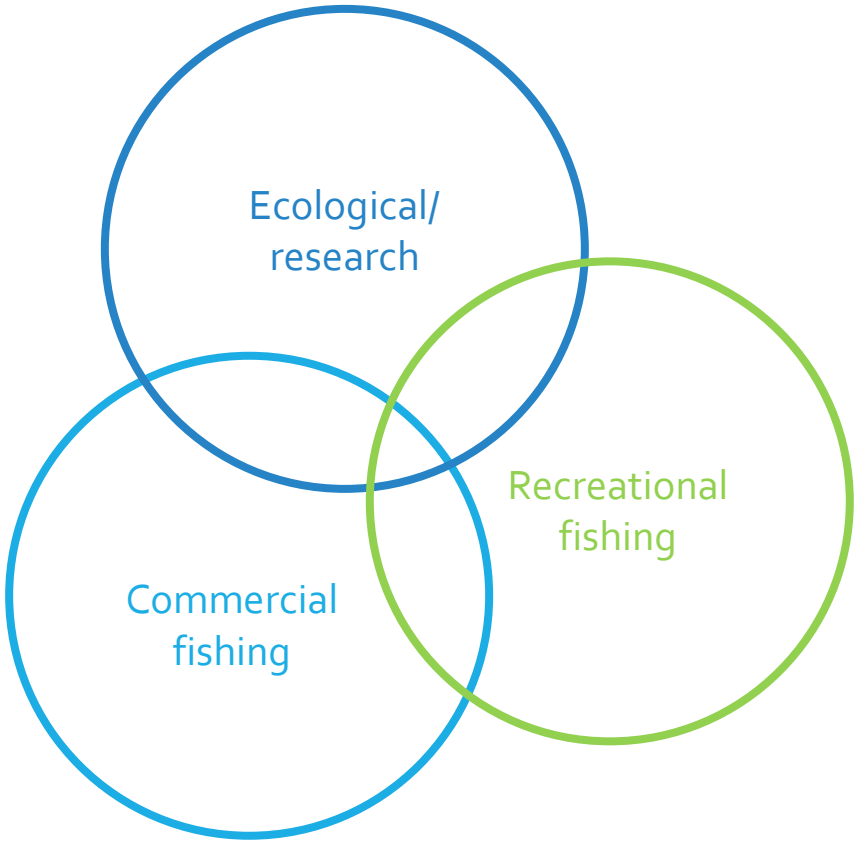
Symposium Review

- Annual monitoring
  - Dedicated monitoring programs exist in Virginia, Maryland, and Pennsylvania (flatheads only)
- Population Estimates
  - Invasion stages vary from river to river; high density of fish found in subsection of James
  - Blue catfish salinity tolerance and natural variations in salinity may allow further expansion
- Diet
  - Blue catfish are not strictly piscivorous, but flatheads are
  - Consumption of invertebrates, like blue crabs, may present management concerns

Symposium Review cont.

- Fishery Stats
  - PRFC: trotlines are preferred gear type
    Over 1 million pounds harvested from 2015-2017, half coming from 6 commercial harvesters
  - VMRC: from 2010 to 2016, highest commercial catch in 2016
    Fish pot is the predominant gear
  - VDGIF: creel surveys in James River in 2002 and 2015-2016 show major decline in angler participation
    Recreational harvest has minimal potential to contribute to total blue catfish harvest
  - MD DNR: commercial catch has increased since 2000, over 2 million lbs by 2015
    More blue catfish harvested than flathead or channel catfish
- Stakeholder Perspectives
  - Conflicting interests among recreational and commercial fishermen
  - Collaborative marketing effort across states could grow commercial fishery

Next Steps?



- We need more specific objectives and coordinated regulations
  - Still differences among jurisdictions
- How do we address competing interests?
- Given this new information, how do we develop more effective management strategies?
- Products: summary report, tributary scores, marketing materials

Invasive Catfish Task Force

Update on 2014 Recommendations

Recommendation 1
Pilot fishery-independent removals

Update

No fishery-independent removal programs

Some funding of gear efficiency - see Recommendation 3

Recommendation 2

Develop large-scale fishery

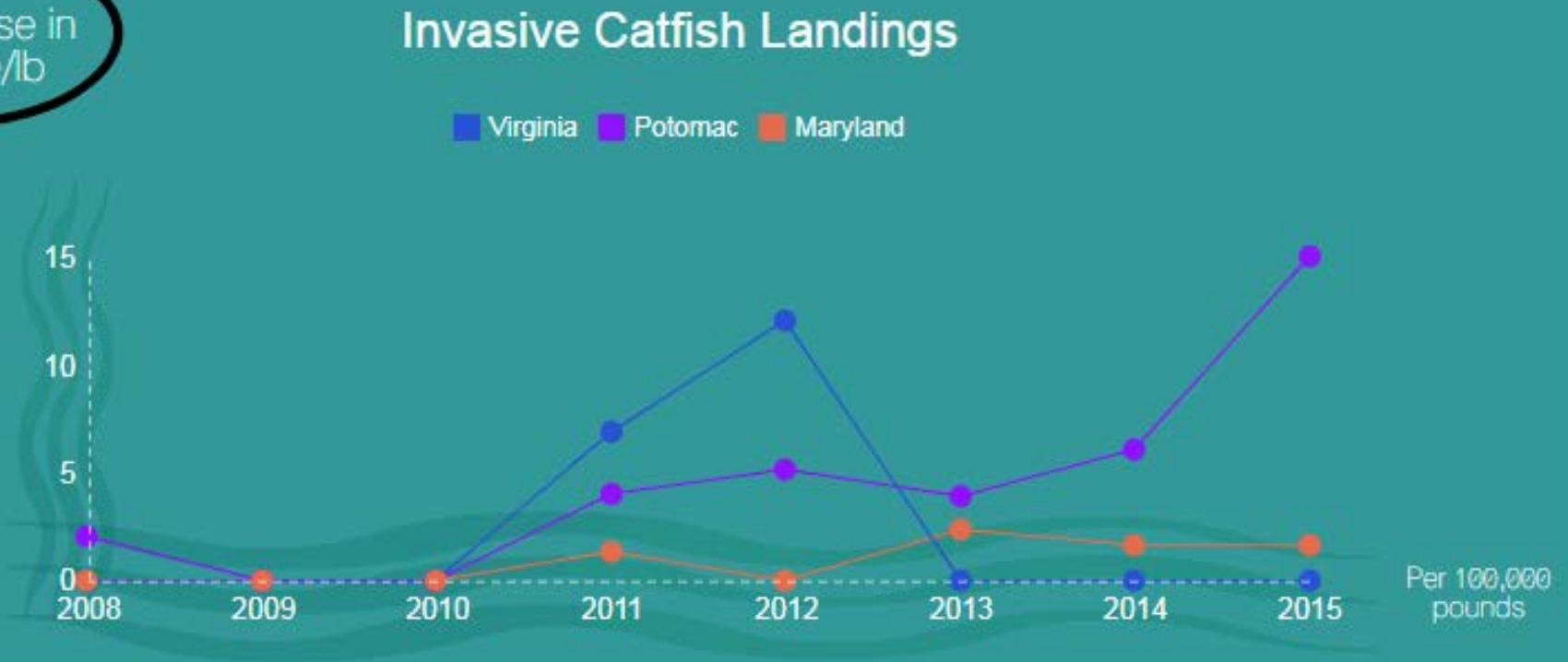
Update

- Increase in processors
- Public/Private market development
- MD heavily marketing to chefs

Increase in price/lb

First rating for invasive species

- Rated "green" by Monterrey Aquarium Seafood Watch Program
- Area of doubt USDA inspection rules



Recommendation 3

Incentivize harvest + explore electrofishing/other gear

Funding still available via Fishery Resource Grant Program at VIMS

Only gear efficiency study conducted

Low-frequency electrofishing trial completed in Pamunkey + James Rivers

RESULTS

- Method highly selective for catfish - no bycatch
- All sizes caught
- Issues - fishery conflicts, limits in water temperature and salinity, limit trophy catch

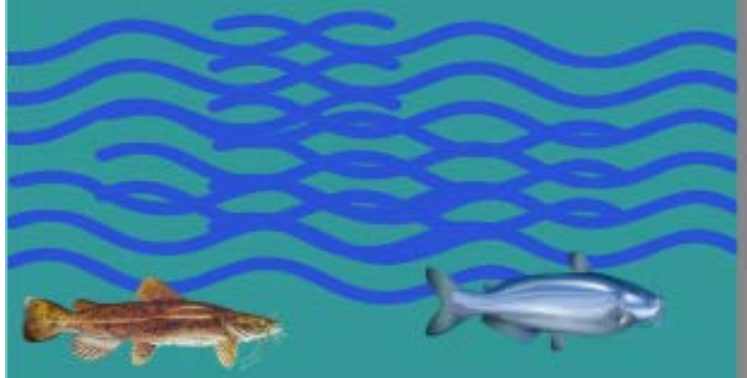
Recommendation 4

Establish monitoring programs and synthesize research for management use

- VA DGIF monitors catfish with electrofishing every year
- Maryland began monitoring of blue + flathead in the Patuxent River in 2016
- Acoustic monitoring of Atlantic sturgeon in MD effectively monitors tagged blue catfish

- Funding of research (i.e. VIMS, VA Tech, VCU, SERC) to determine population status, distribution, diet
- Symposium for research updates + synthesis

Recommendation 5 - Coordination between Fish Passage and Invasive Catfish Workgroups



- No mention of catfish in Fish Passage Workgroup Meetings since the ICFT recommendations released
- Fish Passage workgroup keeps invasive species issues in mind when making dam removal recommendations

Recommendation 6
Cross-jurisdictional review of fishing policies + regulations

Maryland

MD DNR launched state-wide campaign in 2014 on blue and flatheads

HB 63

2016 MD legislation expanding gear types legal for harvesting catfish

HB 318

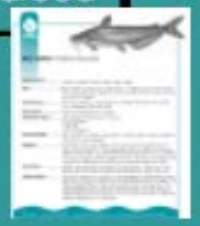
2016 MD legislation expanding haul seine usage for weekend catfish harvest

2016 Developed an Aquatic Nuisance Species Management Plan

2015 MC Fishing Challenge Contest for sports fishermen who "catch and keep" catfish

Virginia

Increased advertising by Virginia Seafood



VA DGIF

2017 Modified reg limiting harvest of blue cats over 32 in to 1/day - now only in some areas

HB 2240

2015 VA legislation making it illegal to introduce/stock/ release catfish into VA waters

Pennslyvania

PA FBC

Regulation change for use of additional gear types to target flatheads

PA FBC

Developed strategic plan for management of flatheads 2013 -2017

Recommendation 7

Communicate and Coordinate Catfish Information Across Jurisdictions

Maryland

Maryland DNR has large web presence on invasive catfish

ID stations at piers

Virginia

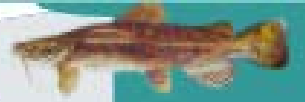
Limited VA Public Information

Tidal Blue Catfish Report

Pennslyvania

Mgmt. plan discusses plan for education campaign for anglers on catching invasives

Recommended Next Steps



- Joint meeting/coordination between Invasive Catfish Task Force and Fish Passage Workgroup
- Coordination between jurisdictions

gear, season length, creel and catch limits, trophy fisheries

Marketing | Communication | Research | Enforcement | Targeted removals | Legislation + Policies

- Coordination between stakeholder groups
- Develop management plan for fishery - establish goals for the fishery