

Bay to Table: Expanding the Commercial Fishery for Invasive Blue Catfish (*Ictalurus furcatus*) in the Chesapeake Bay, USA

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Emerging Species = Emerging Opportunities?

- Provide additional fishing opportunities to support diversification
- Economic benefits to fishermen and coastal communities
- Reduce vulnerability and *increase resilience* to ongoing environmental changes
- Unintended consequences

Noun. **invasivorism** (plural **invasivorisms**) the act of eating invasive species as a method of population control.

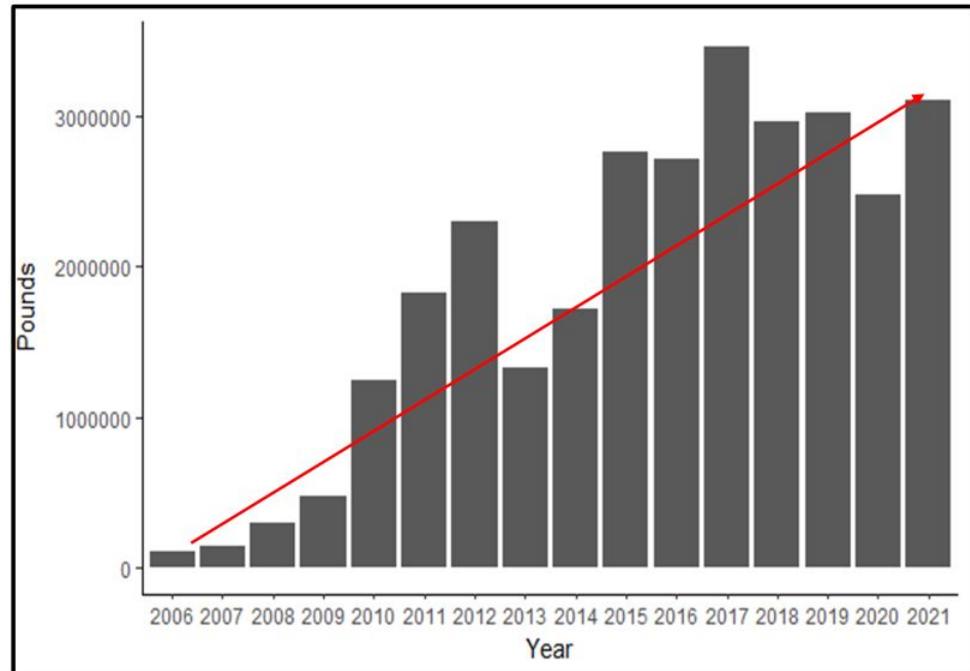
BLUE CATFISH



Ictalurus furcatus

Potential for a Commercial Fishery?

- Small, but growing fishery (100,000 lbs in 2006 to >3.1 million pounds in 2021)
- Barriers to expansion
 - Low market values
 - Processing constraints – USDA inspections
 - Limited consumer demand
 - Regulations
 - Diversification



Objectives

1) Ex-vessel price

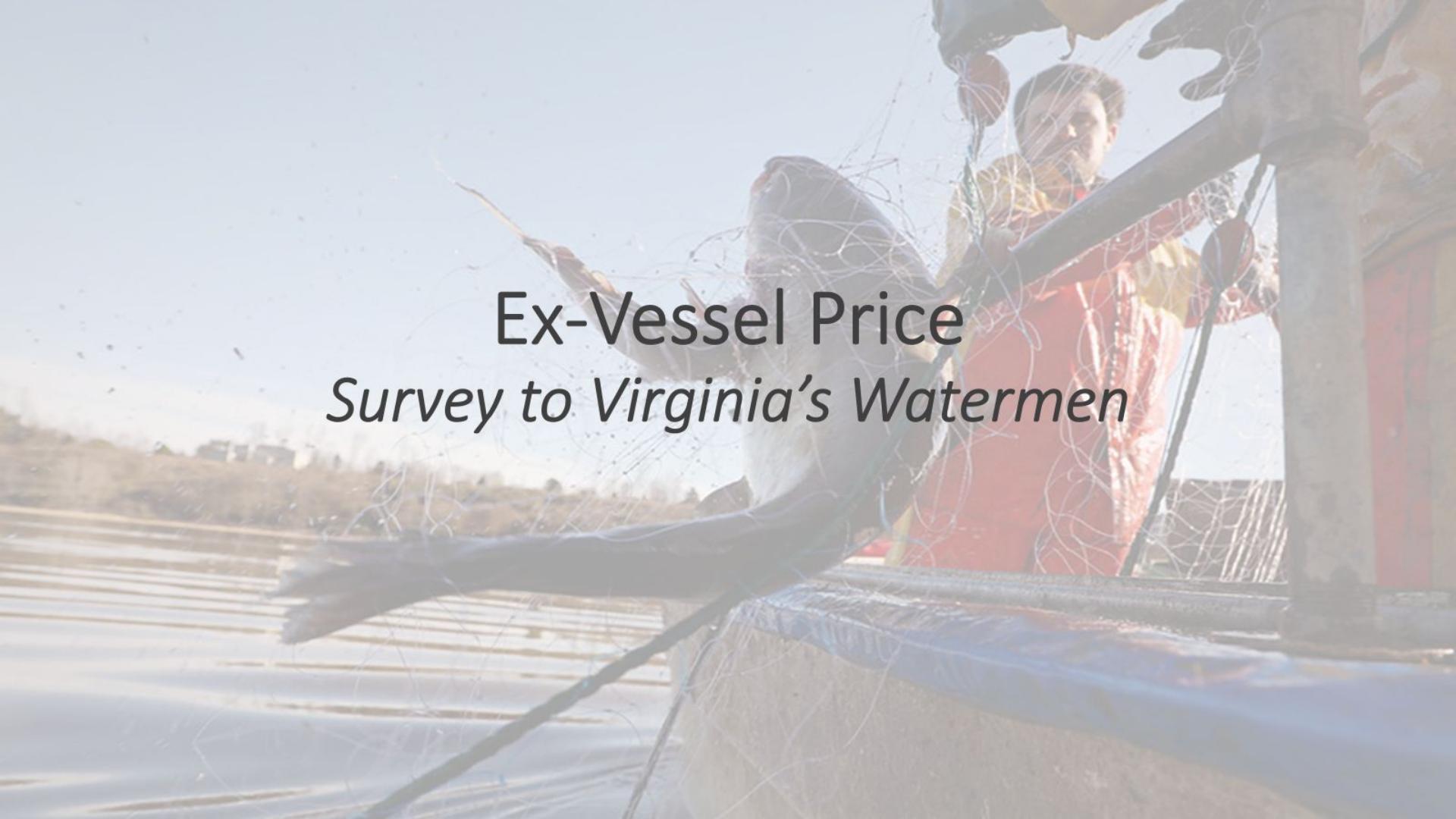
Evaluate changes in fishing behavior in response to market price through a paper-based survey to Virginia's small-scale fishermen

2) Processing constraints

Evaluate barriers and bottlenecks to expansion through semi-structured interviews with seafood processors

3) Consumer demand

Evaluate consumer seafood preferences through an online survey in the Mid-Atlantic and Southeast US

A photograph of a fisherman in a small boat, surrounded by fishing nets. The fisherman is wearing a yellow vest and a red shirt, and is looking towards the camera. The boat is filled with fishing equipment, including a large net and a red container. The background shows a body of water and some distant buildings.

Ex-Vessel Price *Survey to Virginia's Watermen*

Survey Development for Waterman Survey

- 36-40 questions, depending on responses
- Past and current participation and diversification in commercial fisheries, sociodemographic information, perceptions, barriers for participation, and hypothetical contingent behavior scenarios

PRICE
Low = \$0.50
Medium = \$1.00
High = \$2.00



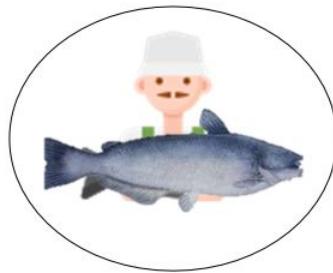
VARIANCE
Low = $\pm \$0.10$
High = $\pm \$0.40$



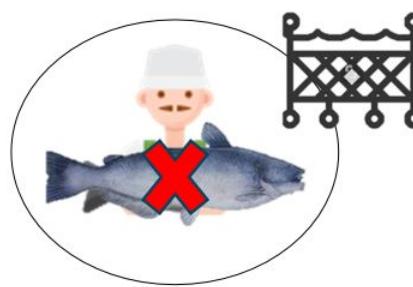
How many days would you target blue catfish if the price you received were between \$0.30-\$0.70/lb?

Survey Implementation

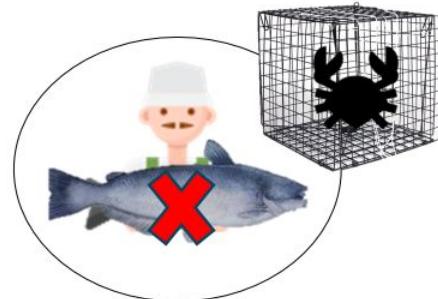
- 800 surveys distributed using Dillman et al. (2009) approach



Landings ≥ 100 lbs
between 2017-2021
(n=224)



Licenses/permits for
gears that could be used
for harvest (n=288)



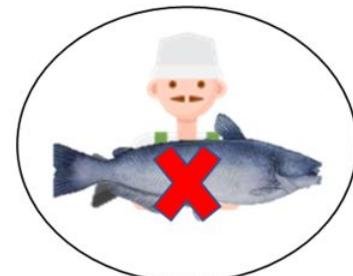
No licenses/permits
for gears that could be
used for harvest
(n=288)

Survey Responses

- Diversification across species, gears, and income sources → blue catfish fishermen are more diversified
- Targeted blue catfish an average of 55.4 ± 66.5 days
- Bycatch also an important aspect of fishery
- Ecological concerns regarding blue catfish expansion
- Average ex-vessel price received in 2021 → \$0.53

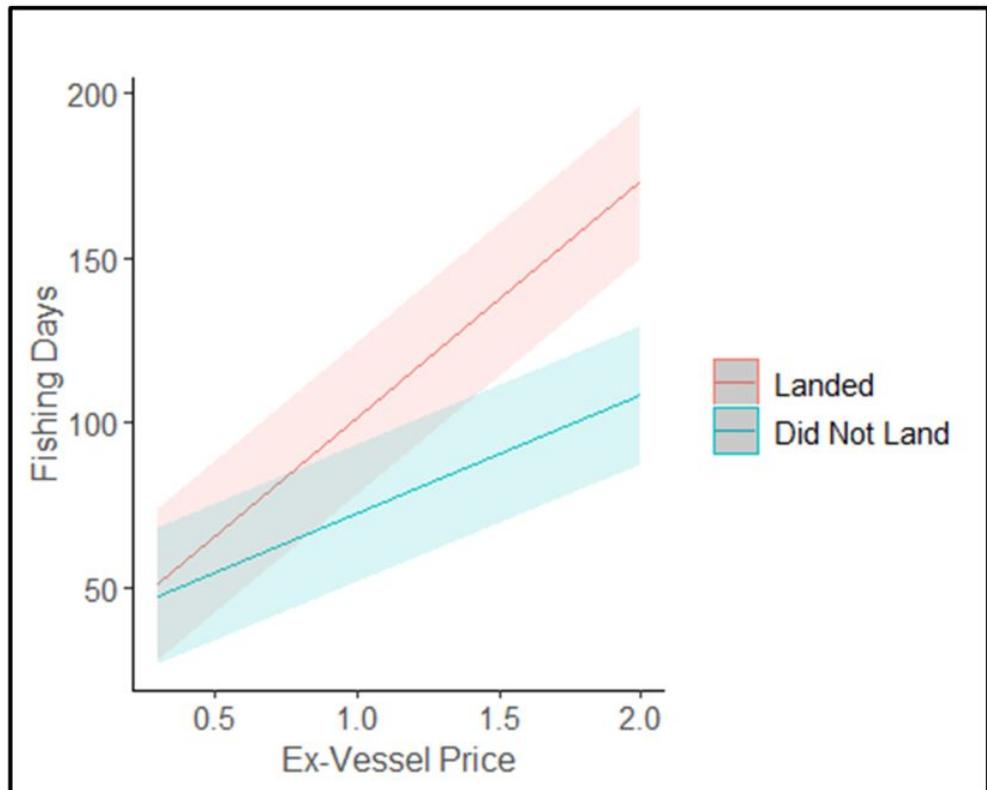
TOP THREE REASONS FOR NOT TARGETING BLUE CATFISH?

- 1) Lack of interest
- 2) Lack of gear
- 3) Lack of availability in fishing area



Models

- Ex-vessel price highly significant in models – 49.4 more fishing days with a \$1 increase
- Variability of ex-vessel prices is not significant
- More factors may drive participation than ex-vessel price





Processing Constraints

Interviews with Seafood Processors

Semi-Structured Interviews with Seafood Processors

- Phone interviews with processors who had purchased blue catfish between 2017-2021 (n=6)
- Sentiment analysis
- Labor shortages, rising input costs, graying of the fleet, price discrepancies
- Product marketing and consumer education – blue catfish fishery outlook is generally positive



Scheld, A., W.R. Calhoun, C.B. Gilsinan, and S.B. White. 2024. Market development for an invasive species. *Fisheries Research* 278, 107099.

A photograph of a meal served in a rectangular glass dish with a decorative starburst pattern. The dish contains a variety of seafood, including a large fish fillet, several scallops, and a whole scallop shell filled with a mixture of vegetables like cherry tomatoes and green beans. The dish is garnished with lemon slices and a sprig of rosemary.

Limited Consumer Demand

Online Seafood Consumer Survey

Online Seafood Consumer Survey

- Discrete choice experiment with six treatment groups receiving various information
- 1,010 respondents from Mid-Atlantic and Southeast US
- 1/3 of respondents had tried blue catfish and another 1/3 would be willing to try it
- More information tends to increase likelihood of choosing blue catfish

CHOICE SCENARIO

	Option A	Option B	Option C
			Do not purchase
Species Name	Blue Catfish	Channel Catfish	
Production Method	Wild-Caught	Farm-Raised	
Origin	United States	Mississippi	
Price per Pound (\$)	\$14.11	\$14.11	

Summary

- Higher ex-vessel price has the potential to increase fishing days for blue catfish
- Processors generally have a positive outlook on the future of the blue catfish fishery
- Increasing familiarity with seafood products, including blue catfish, increases consumer demand

