

LGAC Quarterly Meeting Fish Passage & Invasive Species



**Fish Passage &
Invasive Species in Maryland
LGAC Quarterly Meeting 6.1.23
Jim Thompson**

LGAC Quarterly Meeting Fish Passage & Invasive Species



Wilson Mill Fish Ladder
Deer Creek
Susquehanna River



In 1987 the Chesapeake Bay Agreement established a fish passage commitment:
“To provide fish passage at dams, and remove stream blockages wherever necessary to restore passage for migratory fish.”

LGAC Quarterly Meeting
Fish Passage & Invasive Species



American shad, hickory shad, and herring are *anadromous fish*

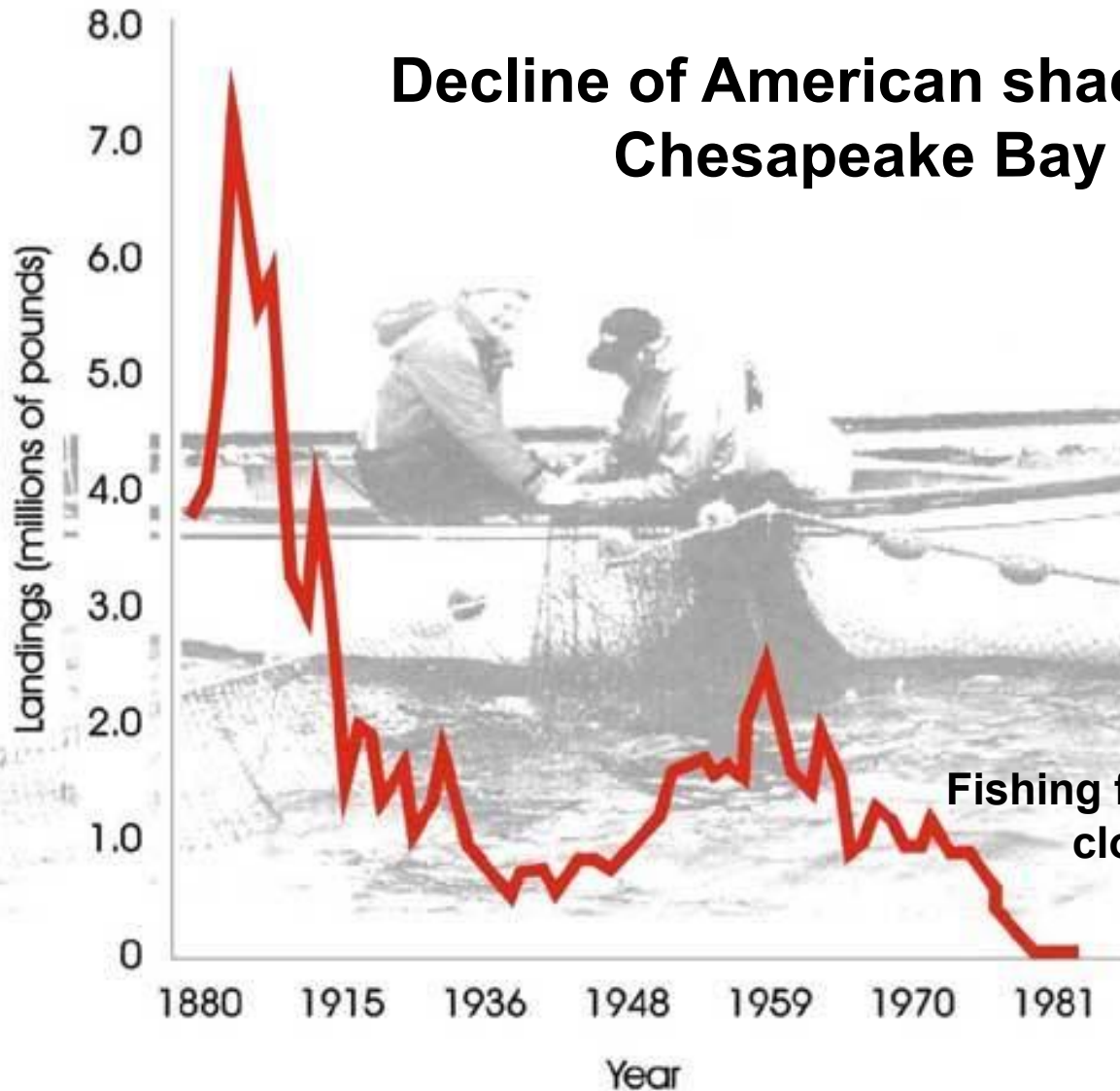
Anadromous fish live in the ocean and migrate into freshwater streams to spawn. From the Greek word Anadromos which means "running up" or "a running"

LGAC Quarterly Meeting Fish Passage & Invasive Species



The Fish Passage Program was originally formed because of the decline of the American shad.

Decline of American shad in the Chesapeake Bay



**Fishing for American shad
closed in 1981**

LGAC Quarterly Meeting Fish Passage & Invasive Species



Pollution



**Sedimentation
caused by deforestation**

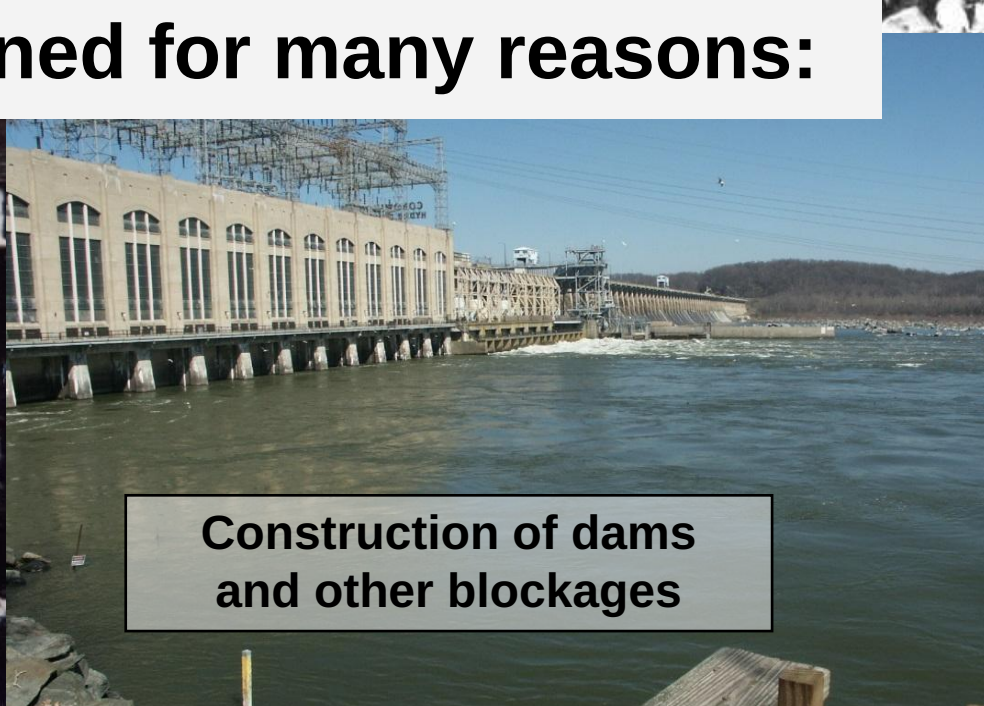


Migratory fish declined for many reasons:

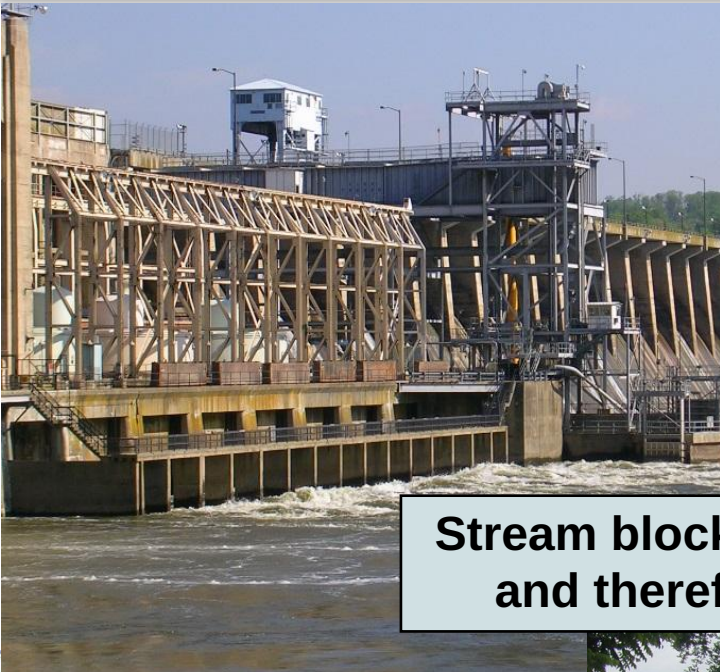
Overfishing



**Construction of dams
and other blockages**



LGAC Quarterly Meeting Fish Passage & Invasive Species



Stream blockages occur in many different forms and therefore can be mitigated many ways.



LGAC Quarterly Meeting Fish Passage & Invasive Species



The Forgotten Fish – American Eel



The American eel is a *catadromous* fish, meaning it spends most of its adult life in freshwater and migrates out to the ocean to spawn.

LGAC Quarterly Meeting Fish Passage & Invasive Species



LGAC Quarterly Meeting

Fish Passage & Invasive Species



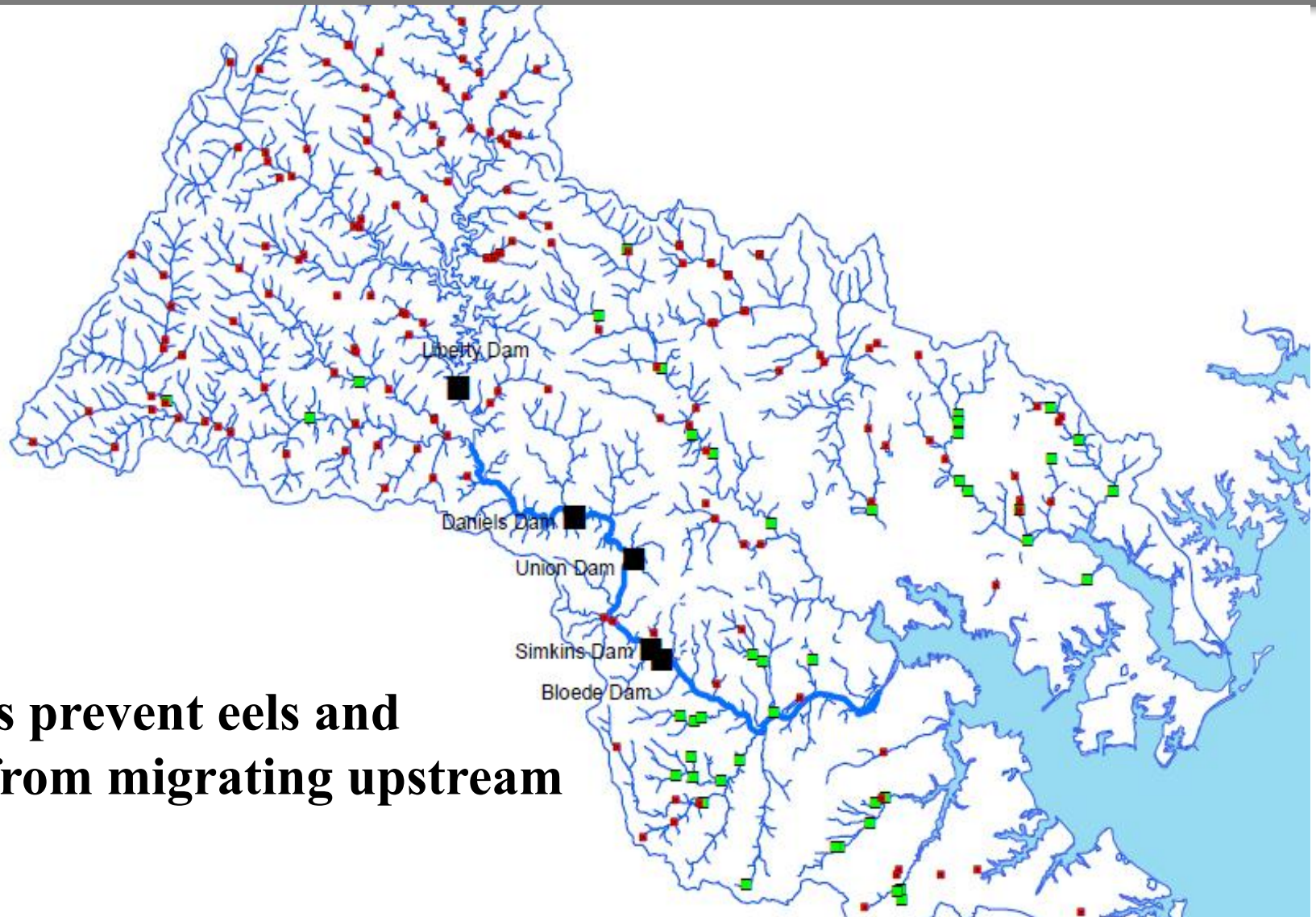
LGAC Quarterly Meeting Fish Passage & Invasive Species



Yellow Phase



LGAC Quarterly Meeting Fish Passage & Invasive Species



**Dams prevent eels and
fish from migrating upstream**

Mussel Survey in the Delaware River

Work by: William A. Lellis - USGS*

Mainstem River - Visual Survey Results

- Miles 123
- Hours 1830
- Mussels 307,378
- Species 9

*Presented by William A. Lellis in presentation
"Potential Link Between Freshwater Mussels & American Eels"
01/18/06 at the Fish Passage Taskforce Meeting, Annapolis, MD

Elliptio complanata in the Delaware River

- Make up over 98% of mussels in survey
 - Total Population over 280 million
 - 2.2 million mussels/mile
- **Can filter the Delaware River 6x/day!!!**
 - Primary host - American eel
(Lake trout only other known host)

LGAC Quarterly Meeting Fish Passage & Invasive Species



Chesapeake Fish Passage Prioritization Project

This on-line GIS based tool uses over 39 metrics to rank dams and culverts that impact anadromous fish brook trout, and "resident" fish.

https://maps.tnc.org/EROF_ChesapeakeFPP/

There are 120+ introduced and established aquatic species (mostly fishes) listed by the United States Geological Survey in the Chesapeake Bay. 18% of these are regarded as aquatic nuisance species and threaten business in the State.

Aquatic Invasive Species in Maryland include:

- Blue Catfish
- Flathead Catfish
- Northern Snakehead
- Chinese Mitten Crab
- Water Chestnut
- Virile Crayfish
- Rusty Crayfish
- Zebra Mussel
- Didymo: Invasive Algae

LGAC Quarterly Meeting

Fish Passage & Invasive Species

Northern Snakehead



Invasive Catfish



Flathead Catfish (*Pylodictis olivaris*)



Blue Catfish (*Ictalurus furcatus*)



LGAC Quarterly Meeting Fish Passage & Invasive Species



Governor Moore Requests Federal Fishery Disaster Declaration for Invasive Blue Catfish

March 16, 2023

Maryland Seeking Federal Assistance for Invasive Species that Threaten Chesapeake Bay's Commercial Fishing Industry

ANNAPOLIS, MD—Governor Wes Moore is today calling on the federal government to declare the expanding population of invasive fish species—including blue catfish, flathead catfish, and snakehead—to be an ongoing commercial fishery disaster in the Maryland waters of the Chesapeake Bay. The governor sent a [letter](#) to U.S. Commerce Secretary Gina Raimondo requesting the declaration under provisions of the Magnuson-Stevens Fishery Conservation and Management Act and the Interjurisdictional Fisheries Act.

***As of 2019**



Species found in major drainages identified from reports to department and USGS Nonindigenous Aquatic Species Database

Northern Snakehead increasing abundance in Maryland waterways



Data below are from Maryland Department of Natural Resources boat electrofishing surveys.

SUSQUEHANNA FLATS, NORTHEAST (tidal freshwater)

First caught in 2015

low: 5 snakeheads/hr (2015)

high: 9.5 snakeheads/hr. (2017)*

90%↑

PATUXENT RIVER (tidal freshwater)

First caught in 2012

low: 10 snakeheads/hr (2012)

high: 35 snakeheads/hr. (2018)*

250%↑

WICOMICO RIVER (tidal freshwater)

First caught in 2013

low: 7 snakeheads/hr (2013)

high: 28 snakeheads/hr. (2015)*

300%↑

POTOMAC RIVER (tidal freshwater)

First caught in 2007

low: 8 snakeheads/hr (2007)

high: 35 snakeheads/hr. (2018)*

337.5%↑

*Some years there was no survey of the areas above. The "high" ratios above represent the highest number in the overall survey timeline and not necessarily the most recent data. However, the overall trend in all of these areas is an upward population growth.

LGAC Quarterly Meeting Fish Passage & Invasive Species



Snakehead Captured at Conowingo Dam Fish Lifts

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023*
# of Lifts	54	65	66	59	63	66	4	59	144	
Snakehead	0	0	0	1	0	81	35	952	866	807
Flathead	60	124	92	376	559	190	0	1098	767	126

*As of May 24nd

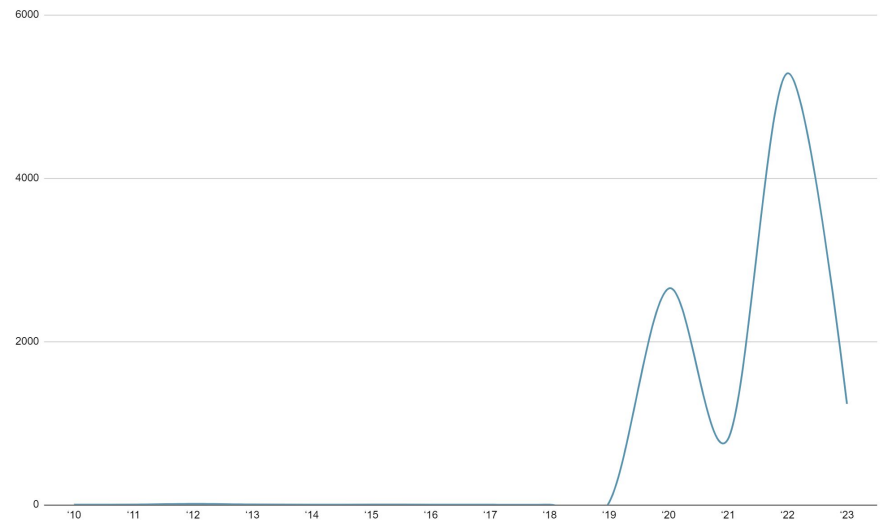


LGAC Quarterly Meeting Fish Passage & Invasive Species



Blue Catfish Captured in DNR Winter Trawls

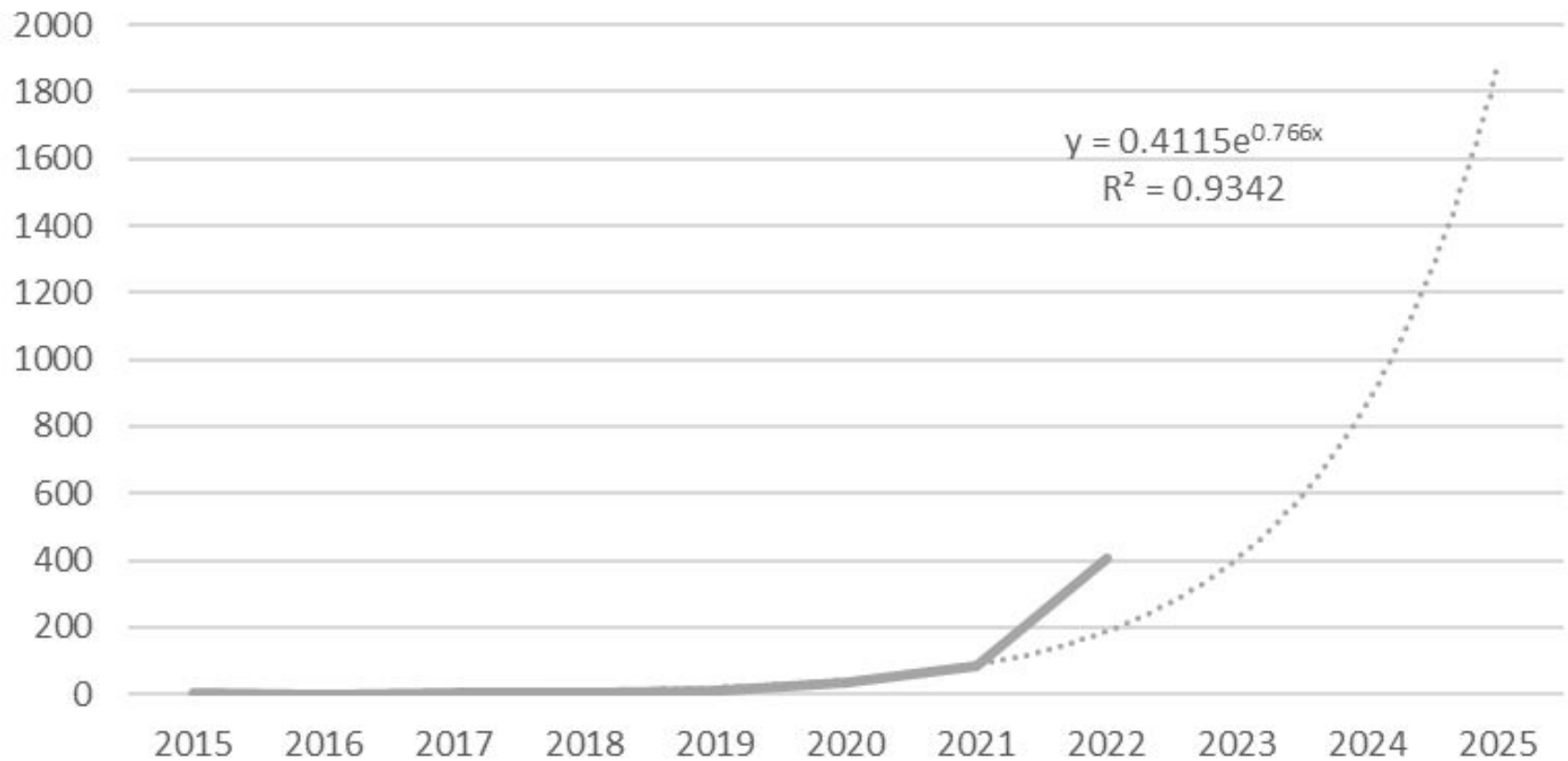
Year	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20	'21	'22	'23
# Trawls	56	78	143	116	72	108	112	137	129	62	134	138	100	131
Blue Cat	0	2	10	3	0	2	1	0	1	28	2647	803	5283	1235



LGAC Quarterly Meeting Fish Passage & Invasive Species



UB Blue Catfish - Spring 2015-2025



Blue Catfish in Striped Bass Spawning Stock Survey - Upper Bay

THANK YOU! QUESTIONS?

My contact information:

Jim Thompson

DNR Fisheries Service E-4

580 Taylor Ave

Annapolis, MD 21401

410-260-8269

jim.thompson@maryland.gov