



2023 Upper Potomac River Smallmouth Bass Update

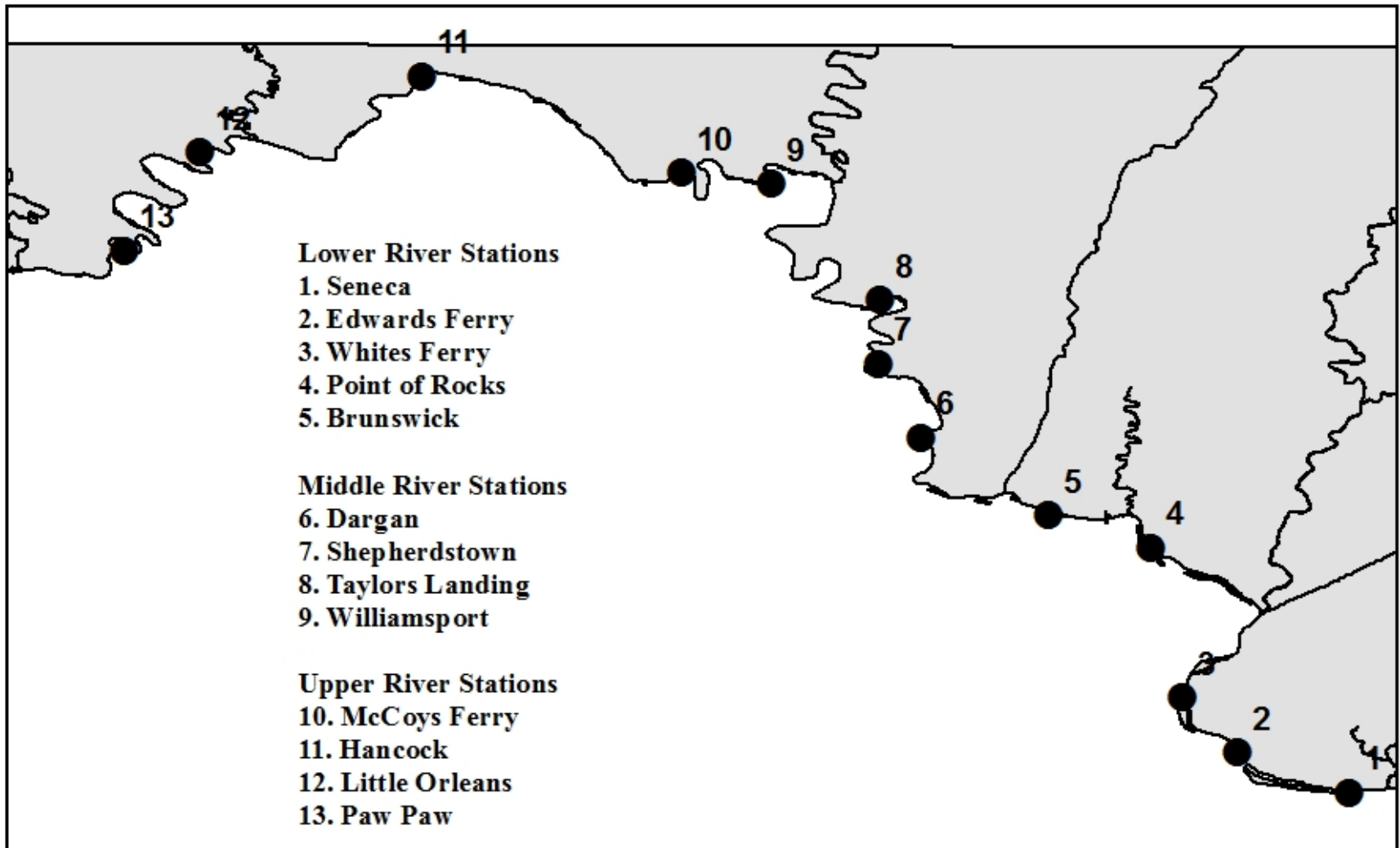
Michael Kashiwagi
MD DNR Freshwater Fisheries
Antietam Fly Anglers
May 18, 2023

Smallmouth Bass Monitoring

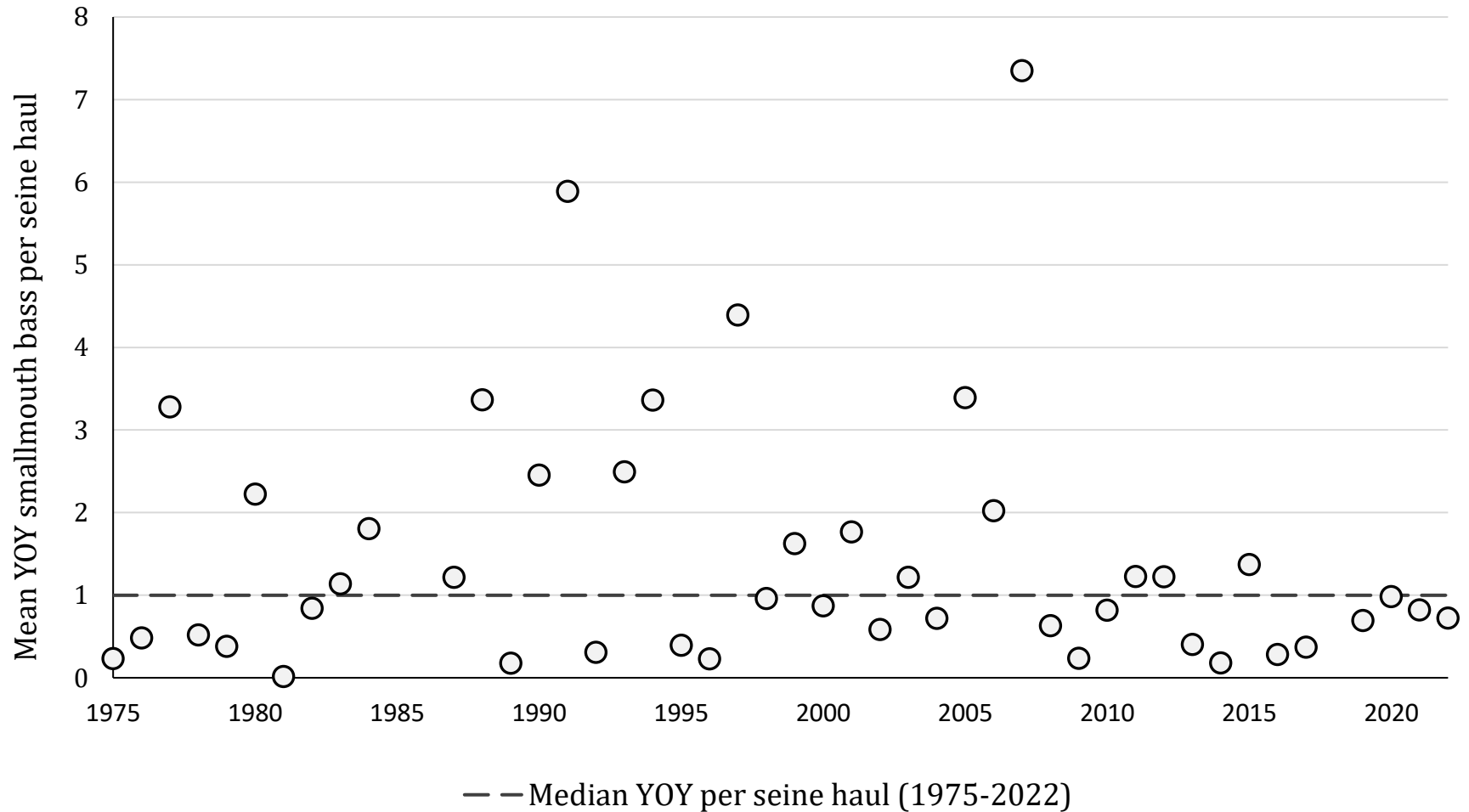
- Drop in smallmouth bass catch rates
 - DNR surveys
 - Angler reports
- Reduced juvenile recruitment
 - High spring flows vs spawning success
- Supplemental stocking to improve year-class strength



Upper Potomac River Survey Sites



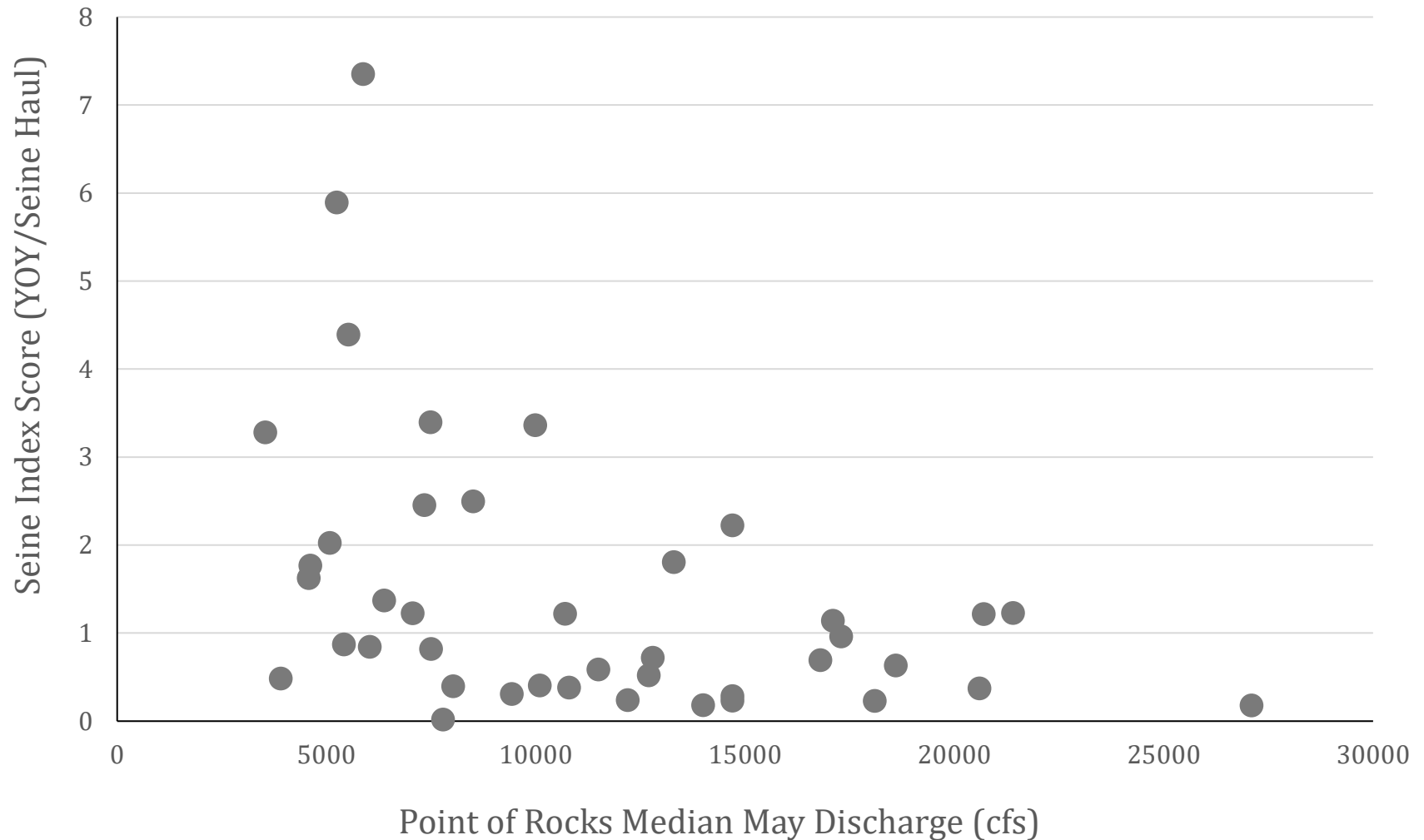
Smallmouth Bass Juvenile Recruitment



Smallmouth Bass Juvenile Recruitment



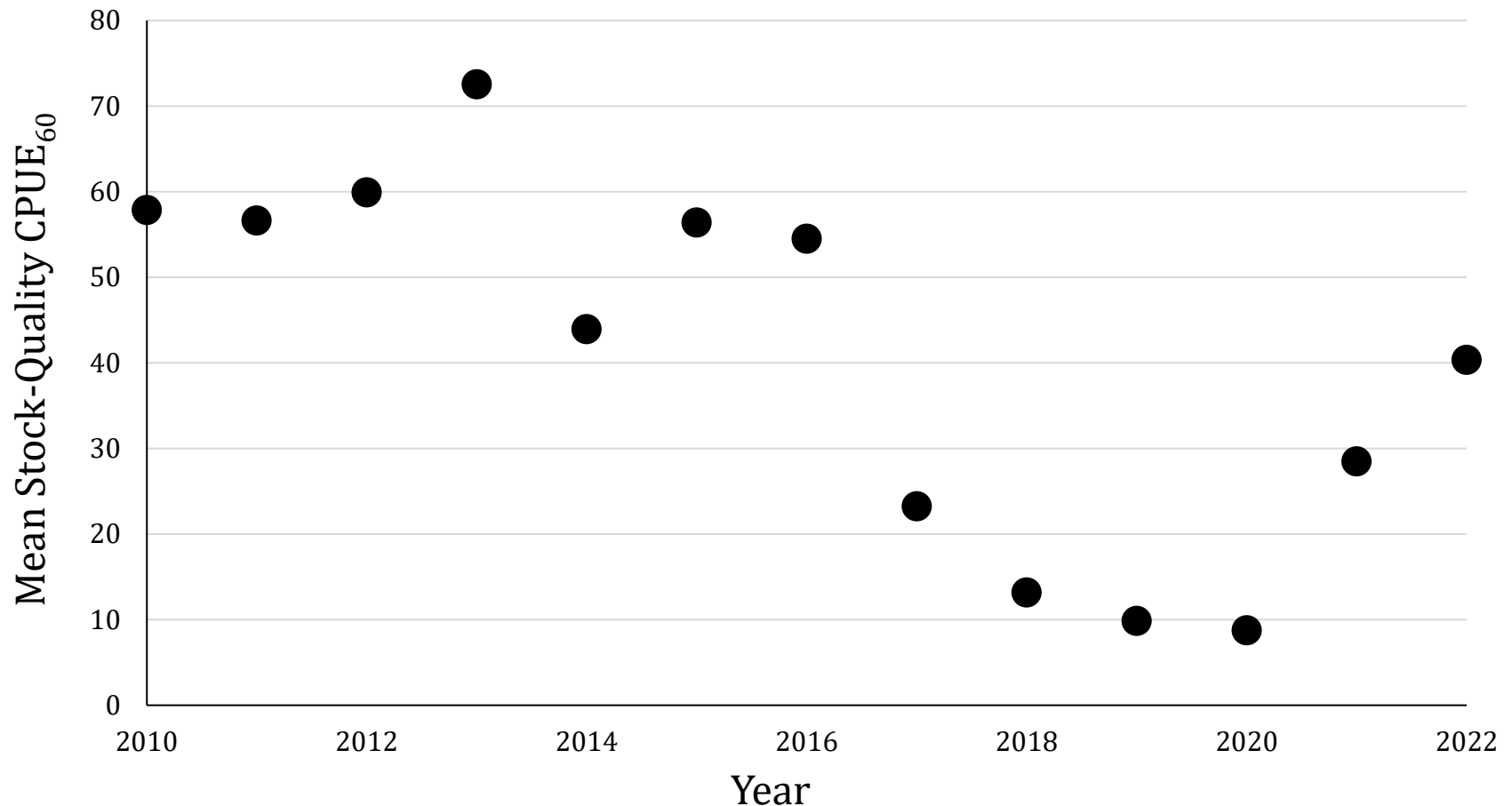
SMB juvenile recruitment versus May river flow levels



Smallmouth Bass Catch Rates



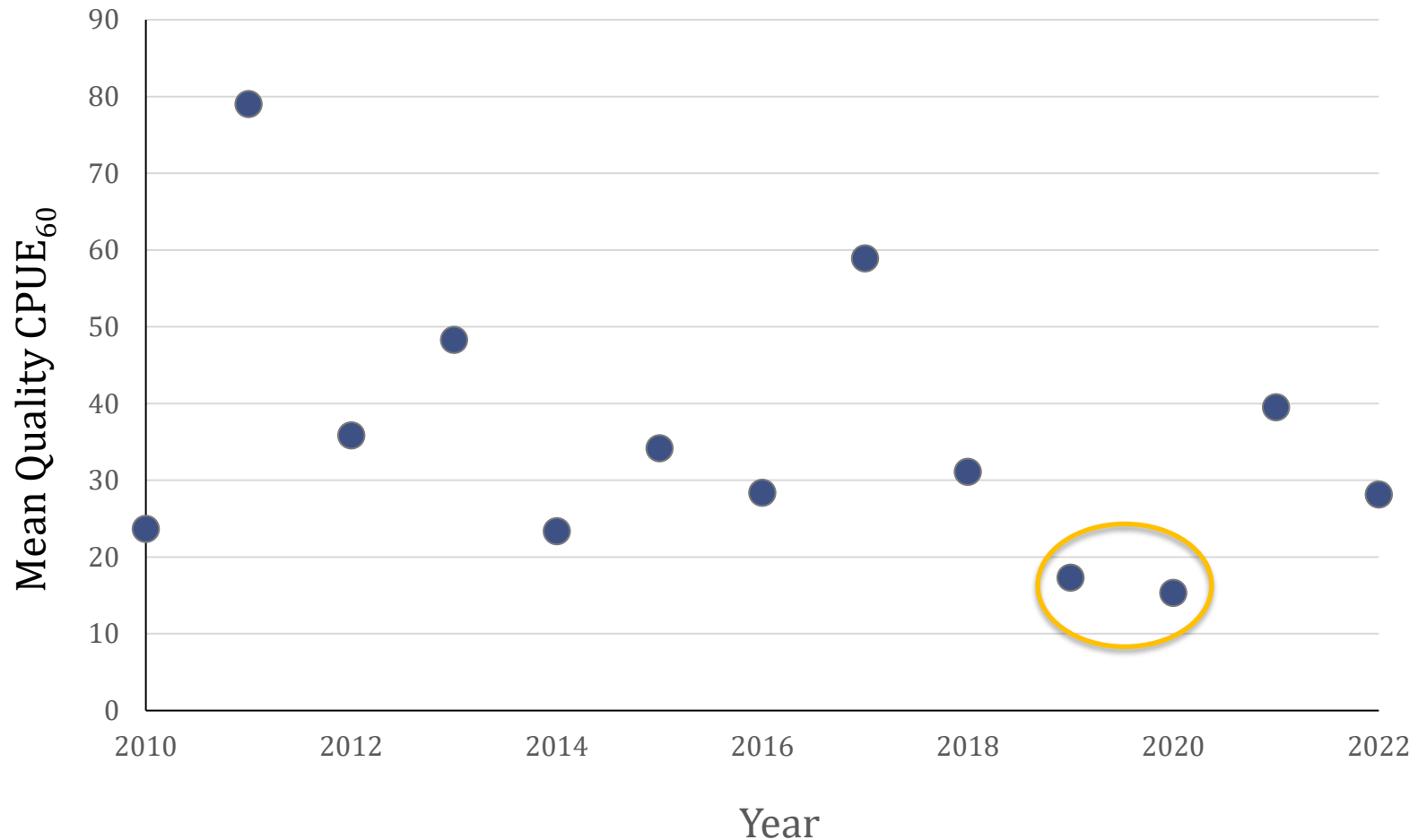
Middle River stations stock-quality size (180-280 mm TL)



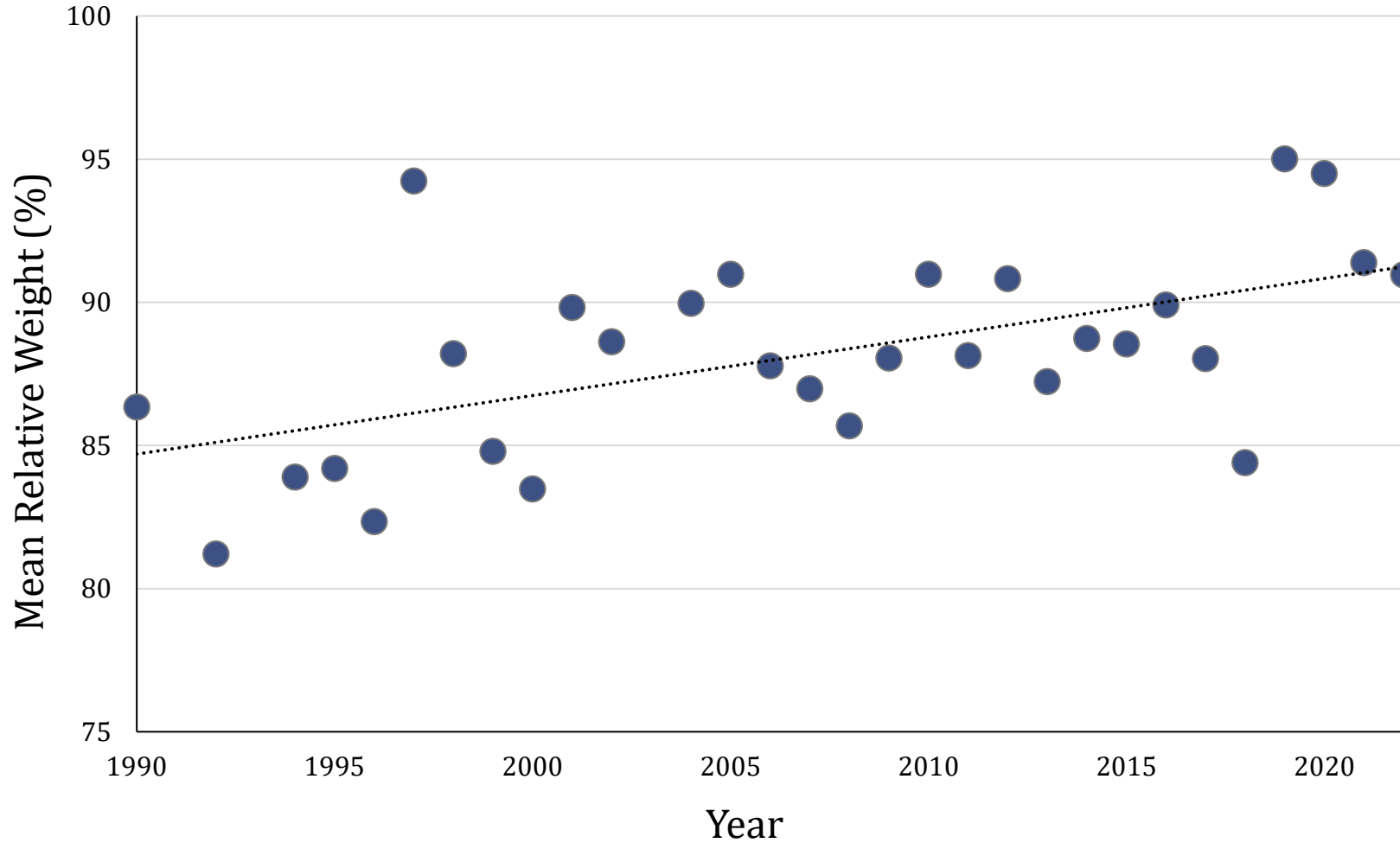
Smallmouth Bass Catch Rates



Middle River stations quality size (>280 mm TL)



Smallmouth Bass Relative Weights



Smallmouth Bass Brood Collection

Angler Tournament (April)

- 12-20 boats

DNR electrofishing

- Collect additional brood if necessary

DNR Manning Fish Hatchery

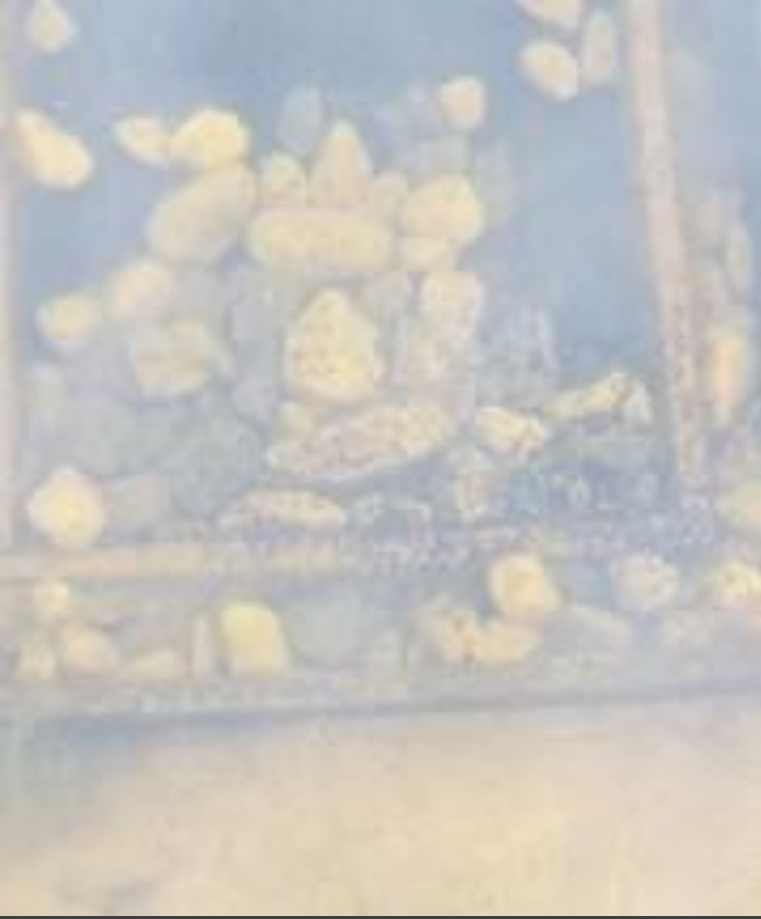
- 3 prepared ponds
- 20 bass/pond
 - 6-7 females per pond



Smallmouth Bass Hatchery Production

- Spawning boxes
 - 2 ft x 2 ft with 2-3" stone
 - 8 per pond
- Spawning mats
 - 3 per pond
 - covered with 2-3" stone
- Production methods
 - Ponds filled 3 weeks prior to receiving broodfish
 - Establish zooplankton
 - When fry swim off nest, pond is seined to remove adults
 - When zooplankton are gone, pond is drained, and fry moved to grow out pond
 - When food is gone from grow out pond, fry are moved to hatchery tanks for feed training





Smallmouth Bass Juvenile Production



Smallmouth Bass Stocking

Hatchery contribution to fishery

- Fry marked with OTC
- Attempted to mark fingerlings with coded wire tags
- Fingerlings (2-3 inches in size) were stocked out in late June/early July

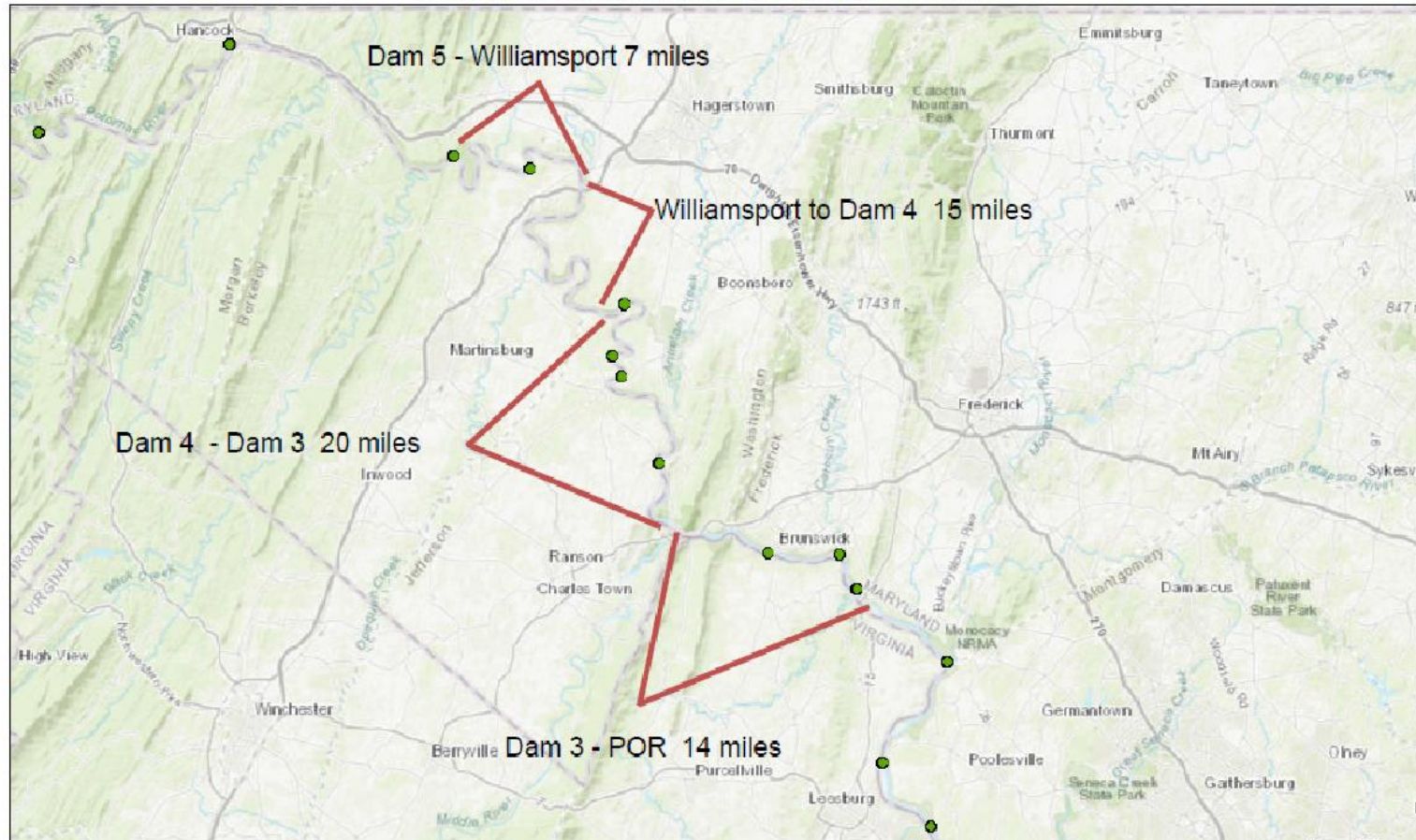
Stocked middle and lower sections

- Dam 5 downstream to Edwards Ferry

Smallmouth Bass Stocking

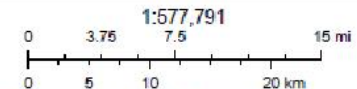


Potential Smallmouth Stocking Locations



11/9/2018, 11:15:32 AM

● Potomac_Surveys



MDDNR Fisheries Staff. Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), Swisstopo, © OpenStreetMap contributors, and the GIS User Community

Smallmouth Bass Stocking Summary

2019

- Spring tournament
- No success at the DNR Manning Hatchery
- Purchased and stocked 2000 advanced fingerlings in October

2020

- Spring tournament + DNR electrofishing
- USGS Leetown – no success
- DNR Manning – 30k juveniles produced
- Stocked in early July (+5k juveniles from WV)
- From fall electrofishing sample ~10% hatchery marked fish



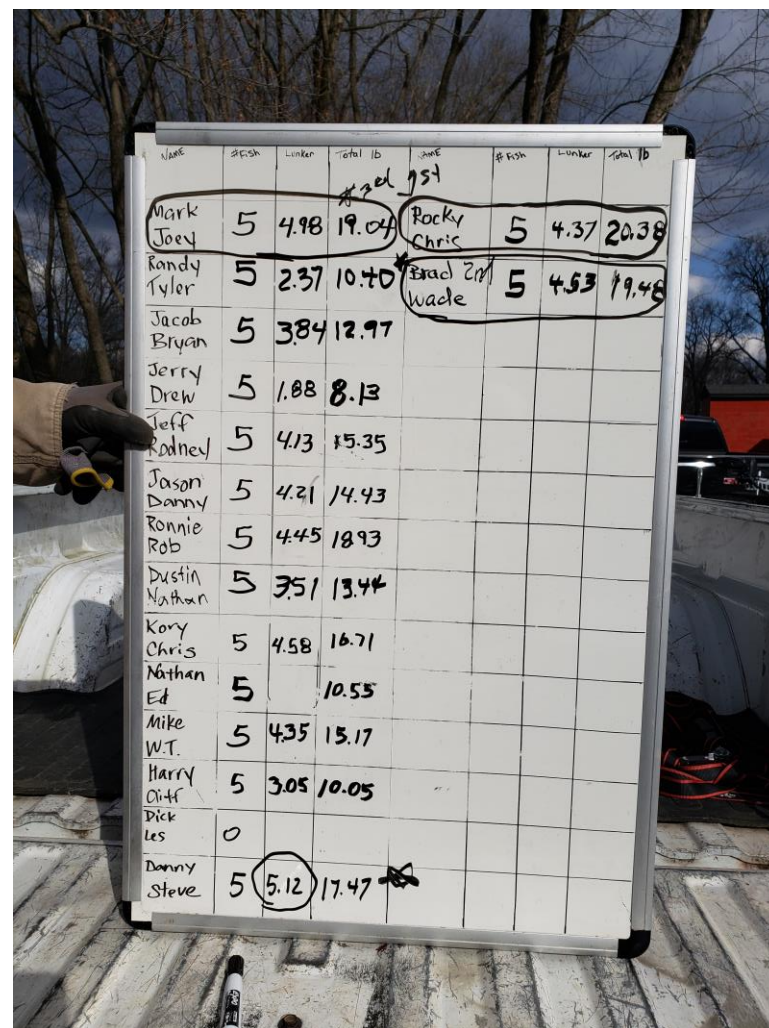
Smallmouth Bass Stocking Summary

2021

- Spring tournament + DNR electrofishing
- Success at the DNR Manning Hatchery
- Disaster – aerator failure during transfer
- 1k juveniles stocked in early July

2022

- Spring tournament + DNR electrofishing
- DNR Manning – 38k juveniles produced
- Stocked in late June
- No OTC marking
- Unable to determine hatchery contribution



Name	# Fish	Lunker	Total lb	Date	# Fish	Lunker	Total lb
Mark	5	4.98	19.04	June 22nd 2021	Rocky	5	4.37
Rocky	5	4.37	20.38		Chris	5	4.53
Randy	5	2.37	10.40		Brad Zyl	5	4.53
Tyler	5	2.37	10.40		Wade	5	19.48
Jacob	5	3.84	12.97				
Bryan	5	3.84	12.97				
Jerry	5	1.88	8.13				
Drew	5	1.88	8.13				
Jeff	5	4.13	15.35				
Rodney	5	4.13	15.35				
Jason	5	4.21	14.43				
Danny	5	4.45	18.93				
Ronnie	5	4.45	18.93				
Rob	5	4.45	18.93				
Dustin	5	3.51	13.44				
Nathan	5	3.51	13.44				
Kory	5	4.58	16.71				
Chris	5	4.58	16.71				
Nathan	5		10.55				
Ed	5		10.55				
Mike	5	4.35	15.17				
W.T.	5	4.35	15.17				
Harry	5	3.05	10.05				
Olt	5	3.05	10.05				
Dick	0						
Les	0						
Donny	5	5.12	17.47				
Steve	5	5.12	17.47				

Emerging Issues

Invasive Species

- Flathead catfish
 - 2012 collected in electrofishing surveys
 - Currently from Great Falls upstream to Dam 5
 - Increasing in distribution, abundance, and size
- Northern snakehead
 - C&O Canal
 - Reports for anglers in Whites Ferry and Dam 4
 - 2023 confirmed collection at Dam 4



Emerging Issues

Smallmouth bass fish health

- Summer juvenile seine surveys
 - YOY smallmouth bass with visible skin lesions, fin erosion, and lethargic behavior
 - No other species impacted
 - High water temperatures
 - Cyanobacteria blooms
 - 40% of YOY collected in some locations
 - Samples provided to USGS for additional fish health testing
- Adult smallmouth bass
 - PFAS testing



2023 Plans

In Situ Enclosure Study Objectives:

- To determine the percent of YOY smallmouth bass that develop disease issues when exposed to environmental conditions in the upper Potomac
- To identify potential environmental stressors that may be causing, contributing to, or exacerbating these conditions



2023 Plans

In Situ Enclosure Study Methods:

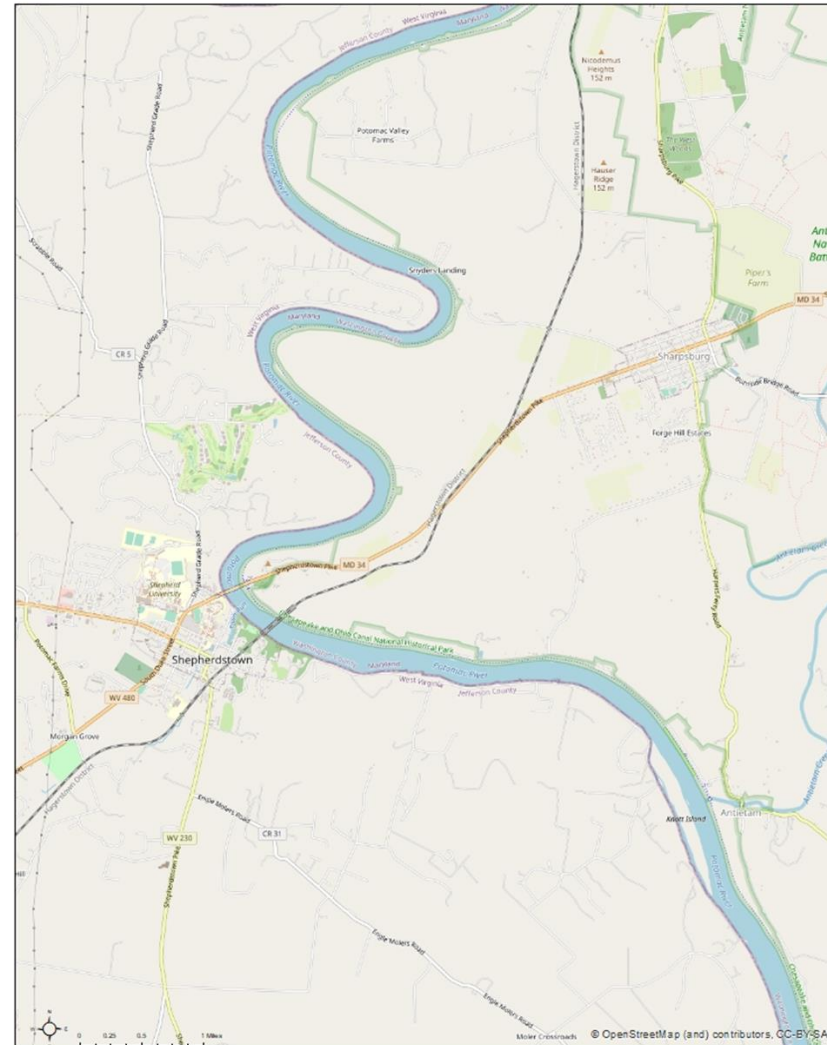
Control (MD DNR Hatchery)

- Thirty hatchery reared SMB will be placed in a cage for 28 days from mid June - mid July

Effect (Potomac River)

- Thirty hatchery reared SMB will be placed in a cage for 28 days from mid June - mid July

*HOB0 temp loggers will be attached to each cage to record instream temp measurements at 20 minute intervals





Smallmouth Bass Stocking Questions

- Michael Kashiwagi
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