



2021 Upper Potomac River Smallmouth Bass Update

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MD DNR Freshwater Fisheries
Antietam Fly Anglers
November 18, 2021

Freshwater Fisheries Program



- 25 classified positions
- Funding - federal, special, general
- Statewide Operations
 - Tidal Bass
 - Coldwater Fisheries
- 5 Regional Offices

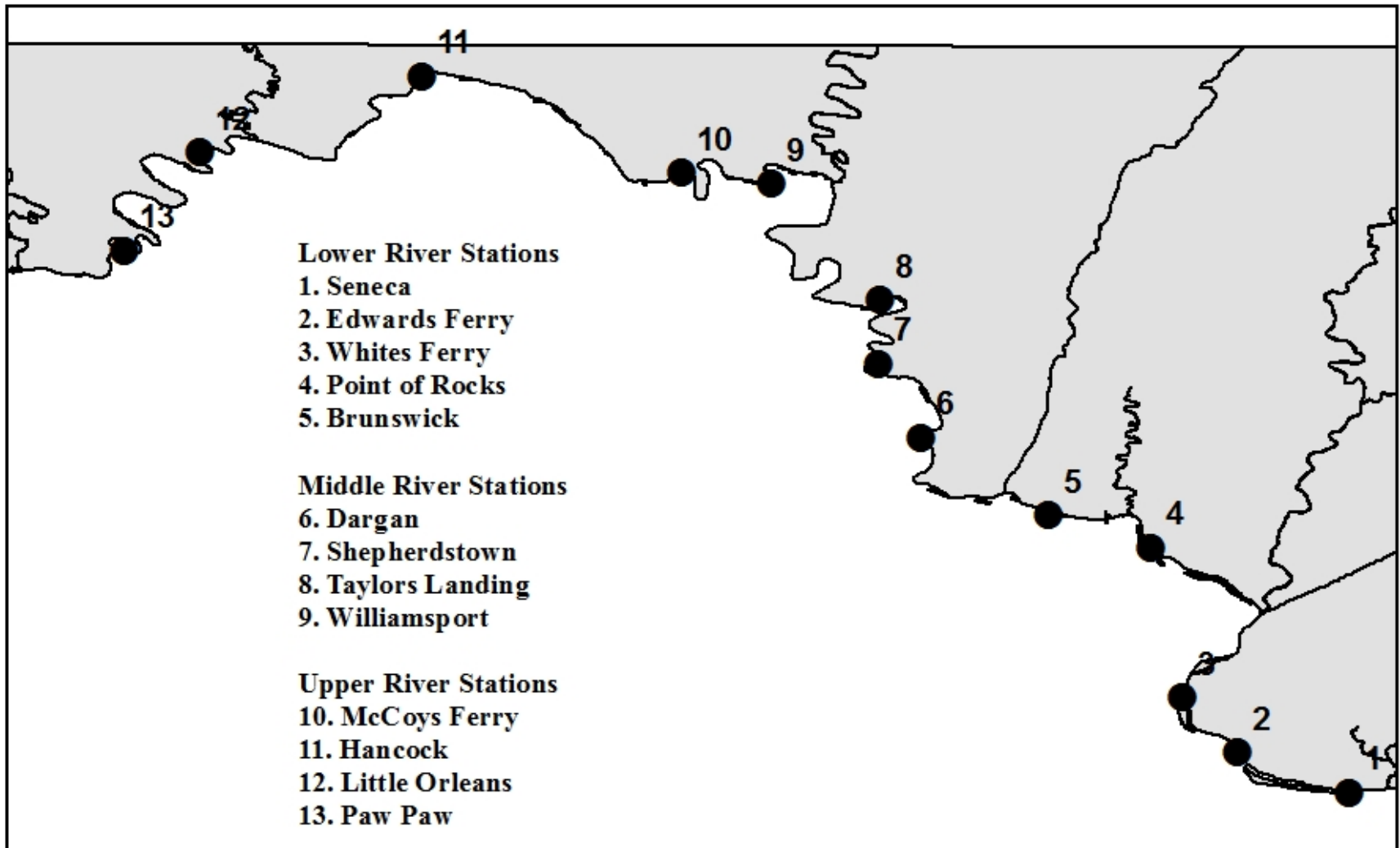


Smallmouth Bass Monitoring

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



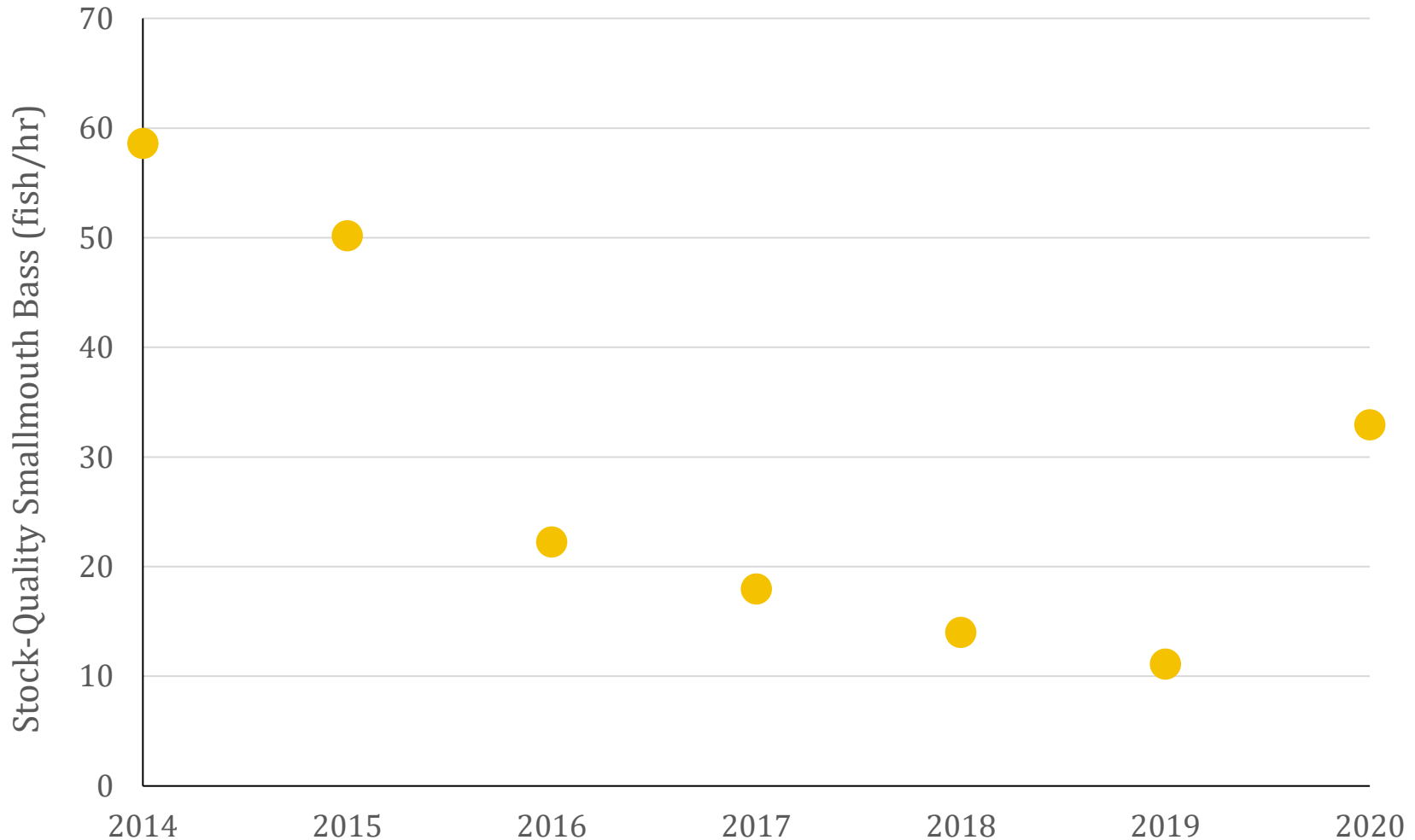
Upper Potomac River Survey Sites



Smallmouth Bass Monitoring



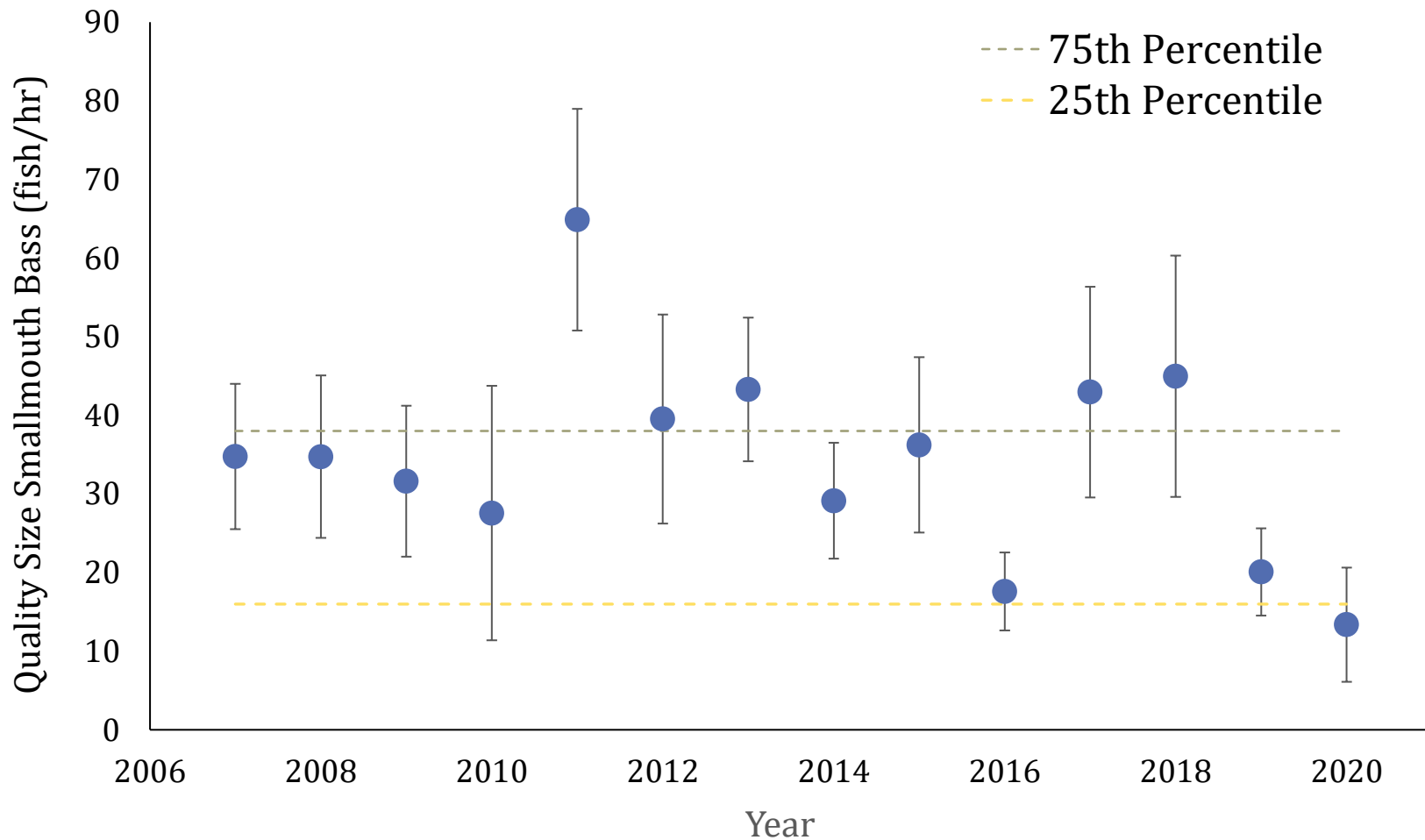
Stock – Quality (8-11 inches) smallmouth bass CPUE



Smallmouth Bass Monitoring



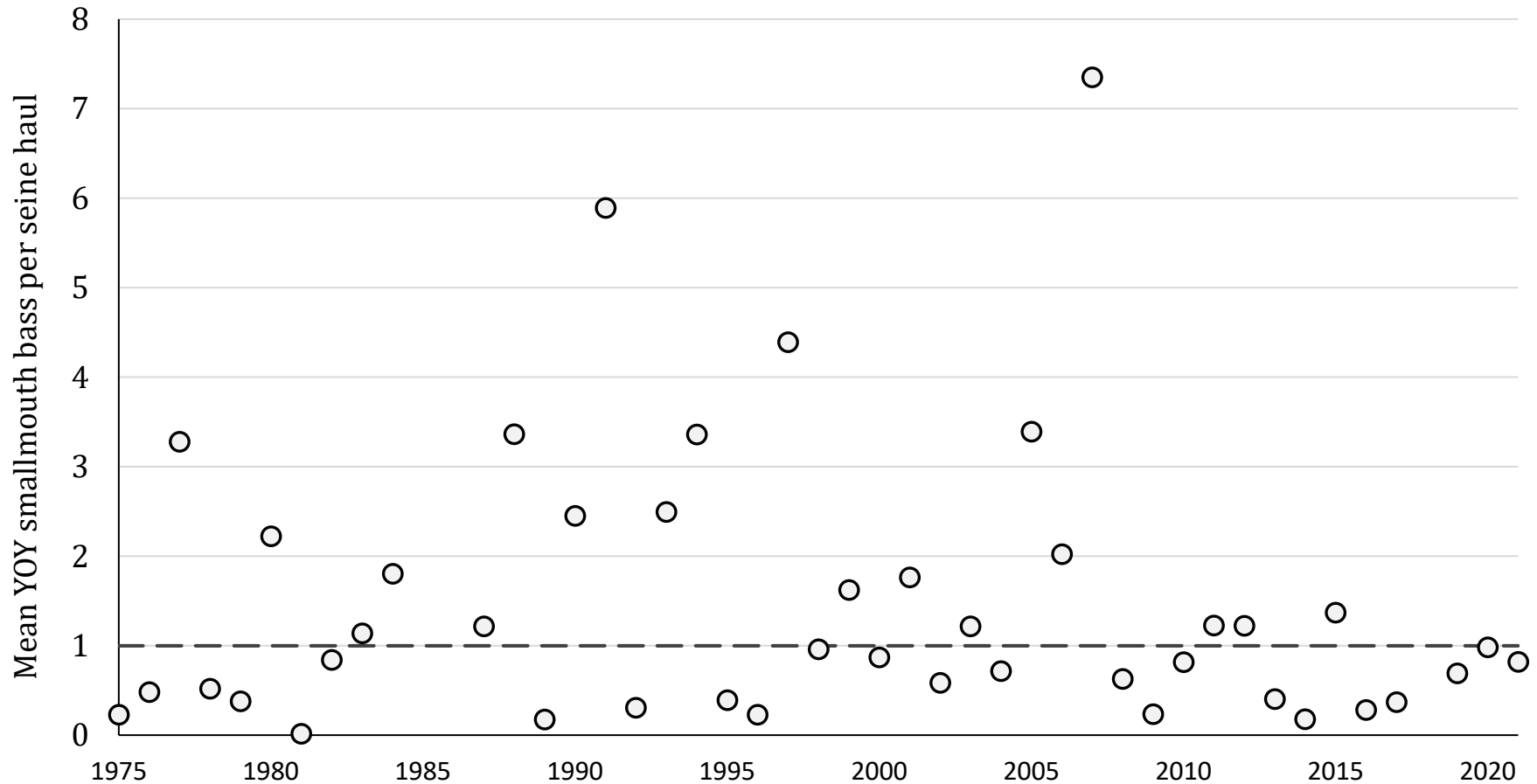
Quality size (>11 inches) smallmouth bass CPUE



Smallmouth Bass Monitoring



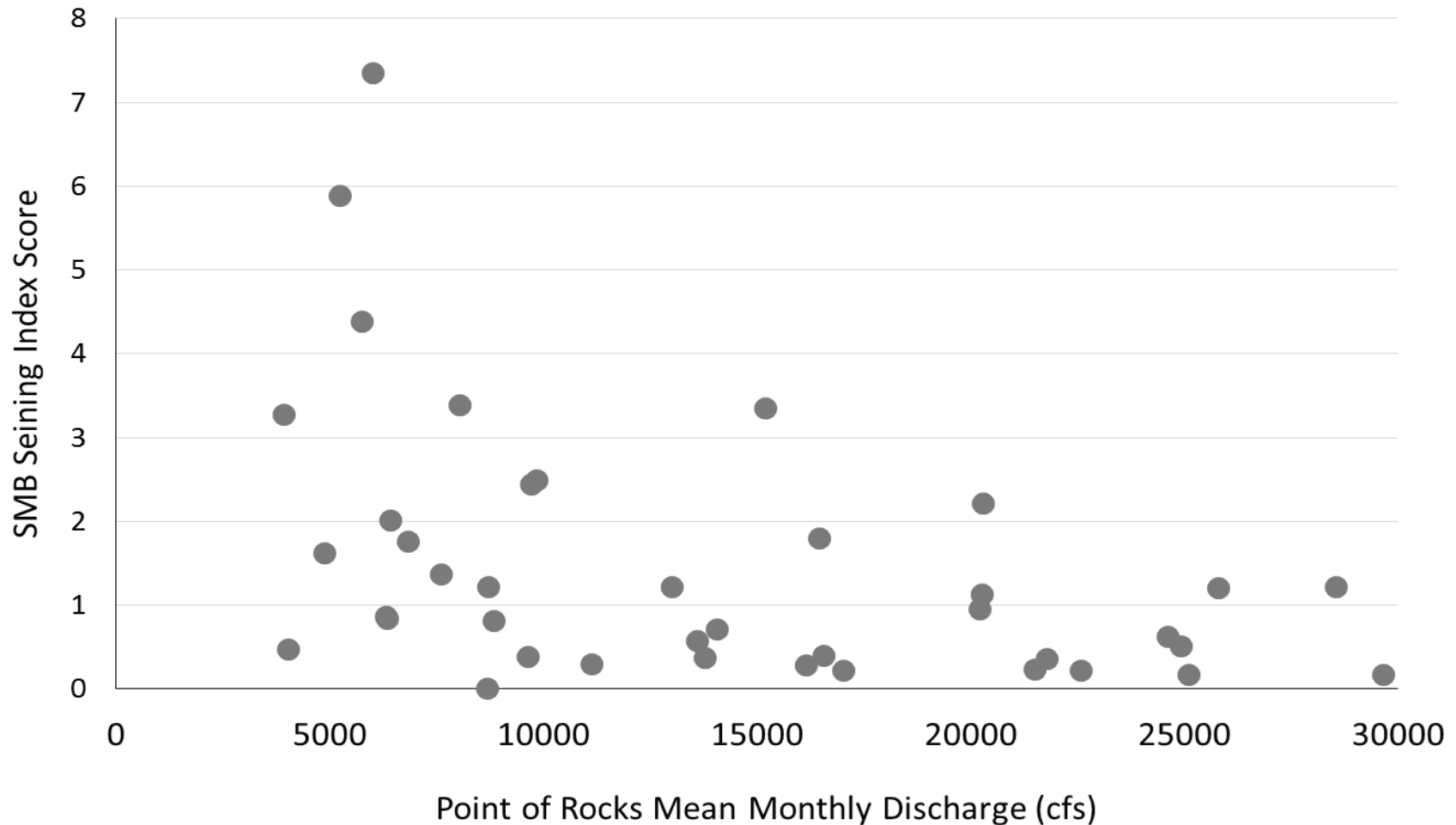
Smallmouth Bass Recruitment Index – average number of YOY per seine haul



Smallmouth Bass Monitoring



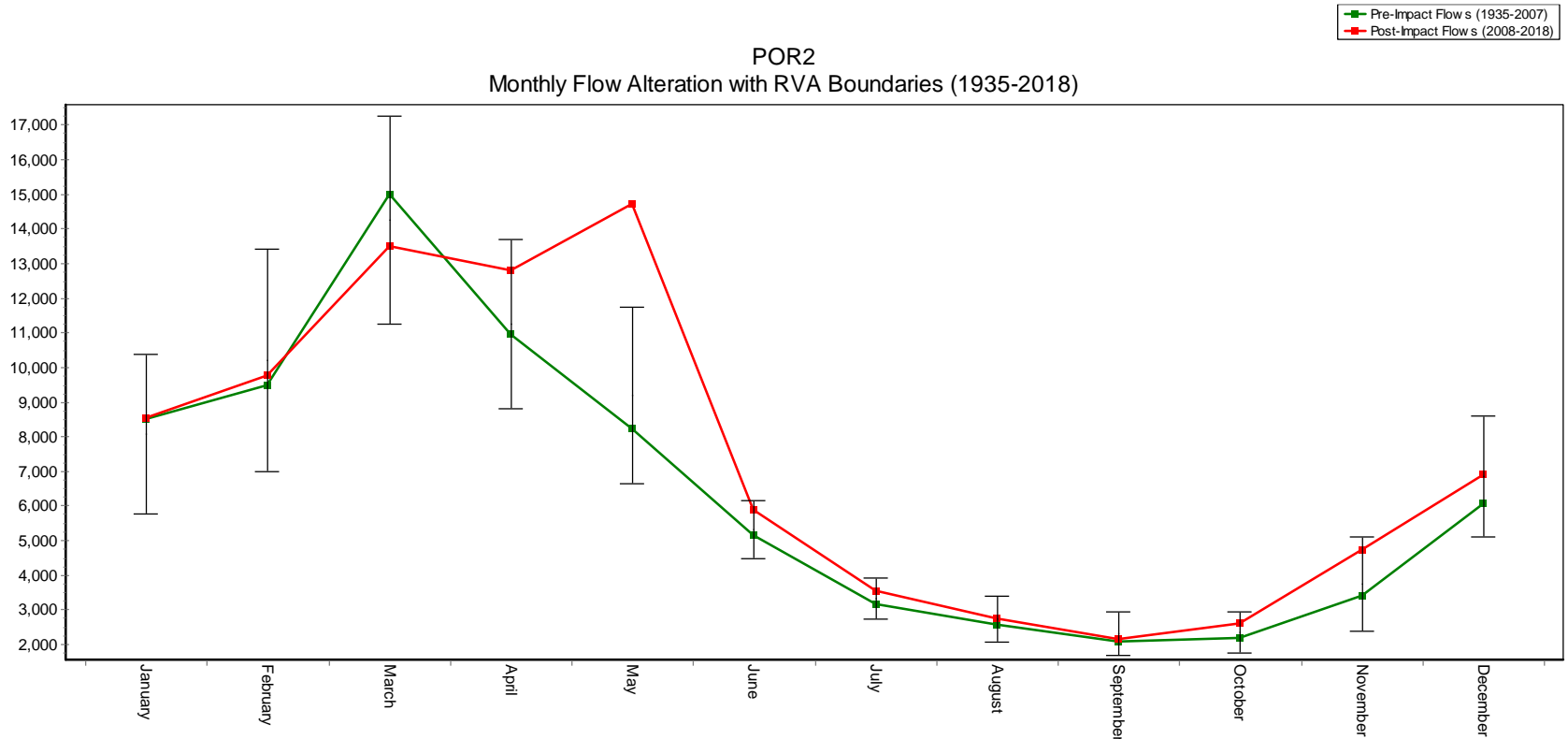
SMB juvenile recruitment versus May river flow levels



Smallmouth Bass Monitoring



Flow alteration curve for USGS Point of Rocks gage (1935-2018)



Statistically significant higher recent May river flows

Impact of flow spikes to smallmouth bass recruitment (Bestgen 2018)

Smallmouth Bass Monitoring



- Problems with juvenile recruitment
 - Poor year-classes (2013, 2014, 2016, 2017, 2018)
 - 2008-2021 = 0.7 fish/haul
 - 1975-2007 = 1.8 fish/haul
 - No dominant year-class
 - High spring flows (May-June)



Smallmouth Bass Monitoring

Additional Issues

- Smallmouth bass fish health
 - Intersex
 - High parasite loads
 - Disease/skin lesions observed on YOY during summer



Smallmouth Bass Monitoring



Disease Issues

- 2020/2021
 - YOY showing external skin lesions/sores
 - Increase juvenile mortality
 - Reduce year-class strength
- Causes
 - USGS Leetown Science Center
 - Higher water temperature?
 - Algae blooms?
 - Water quality?



Smallmouth Bass Monitoring

Additional Issues

- Flathead catfish
 - Introduced species
 - Top predator
 - Increasing abundance and distribution in the river
- Tagging study
 - Population estimate



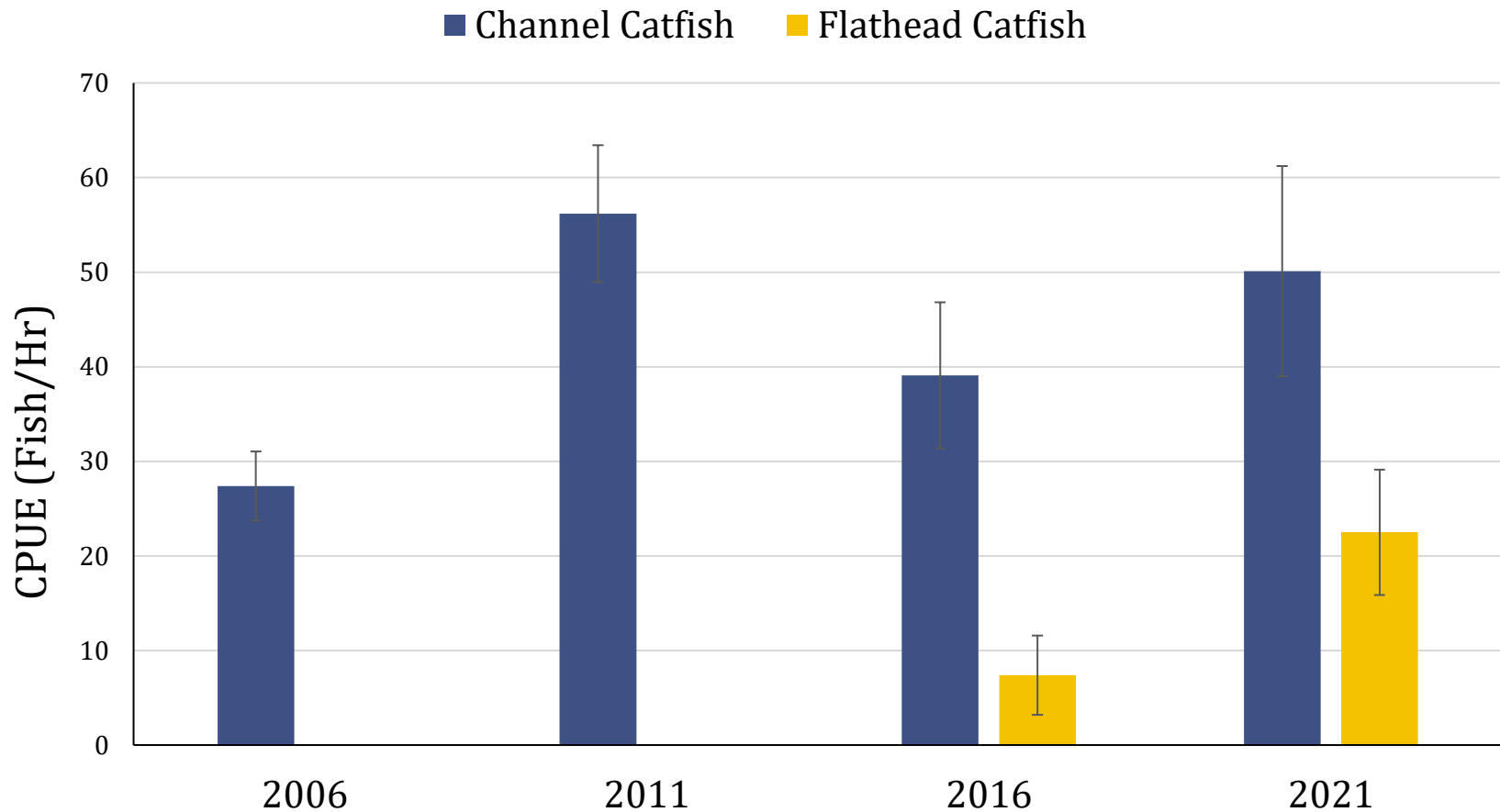
Smallmouth Bass Monitoring



Smallmouth Bass Monitoring



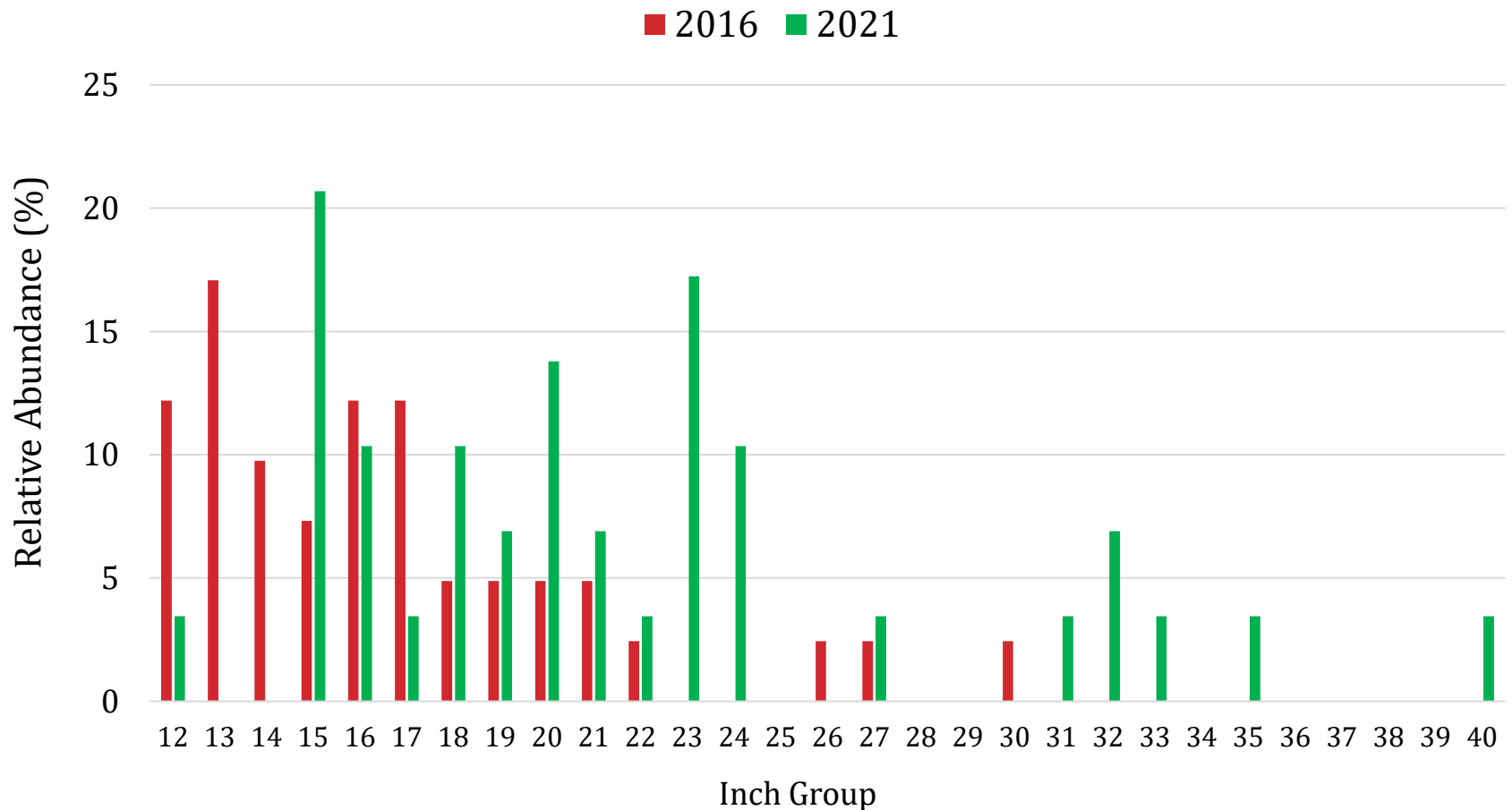
Upper Potomac River catfish catch rates (2006-2021)



Smallmouth Bass Monitoring



Flathead catfish size distribution (2016 vs 2021)



Smallmouth Bass Stocking

2019 Supplemental Stocking

- Tournament collected broodfish
 - 40 adults to DNR Manning Hatchery
 - No success
- Purchased 2000 advanced fingerlings
 - Kansas hatchery
 - Stocked in October



Smallmouth Bass Stocking

2020 Supplemental Stocking

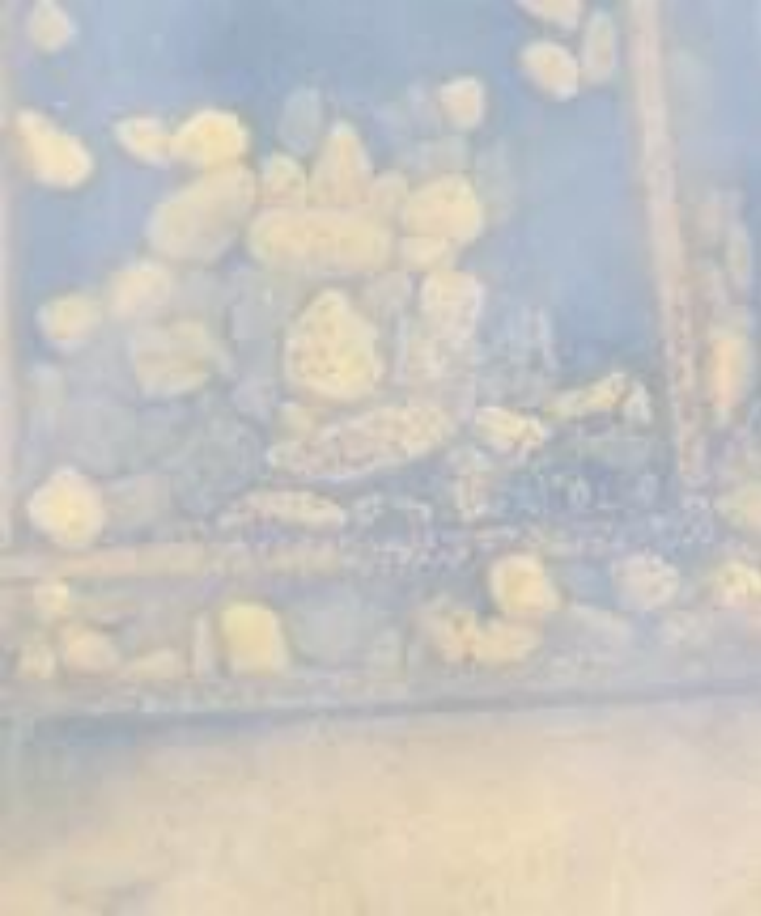
- USGS Leetown Science Center
 - One ½ acre lined pond
 - Tournament collection (January)
 - 15 adults
 - Spawning boxes
 - Not successful (limited care)
- DNR Manning Hatchery
 - Electrofishing collection (April)
 - Two ¼ acre earthen ponds
 - Spawning boxes and mats
 - 19 adults per pond (12 males, 7 females)
 - Successful production (~30k fingerlings)



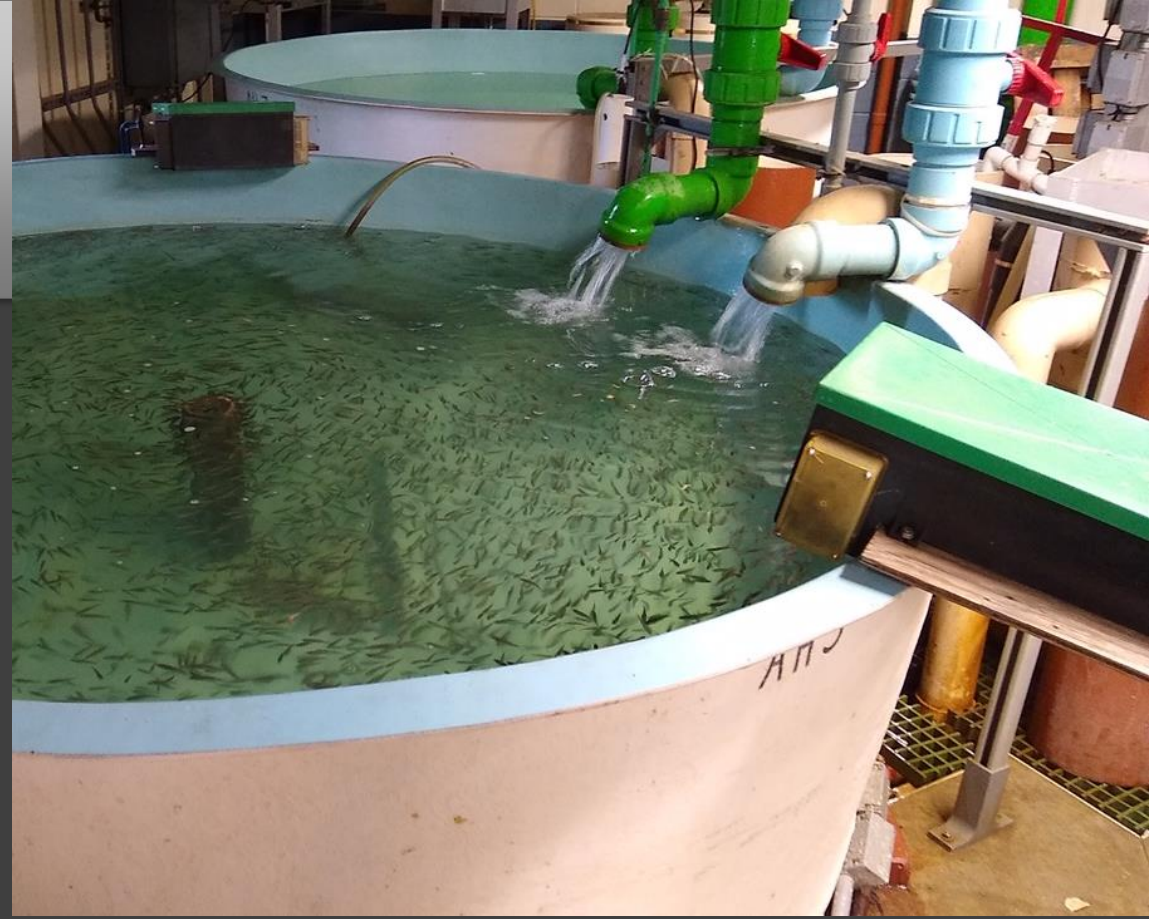
Smallmouth Bass Stocking

- 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 is 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 Stocking



Smallmouth Bass Stocking



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 July

Stocked middle and lower sections

- Dam 4 downstream to Edwards Ferry
- 30k produced by MD DNR hatchery
- 5k provided by WV DNR

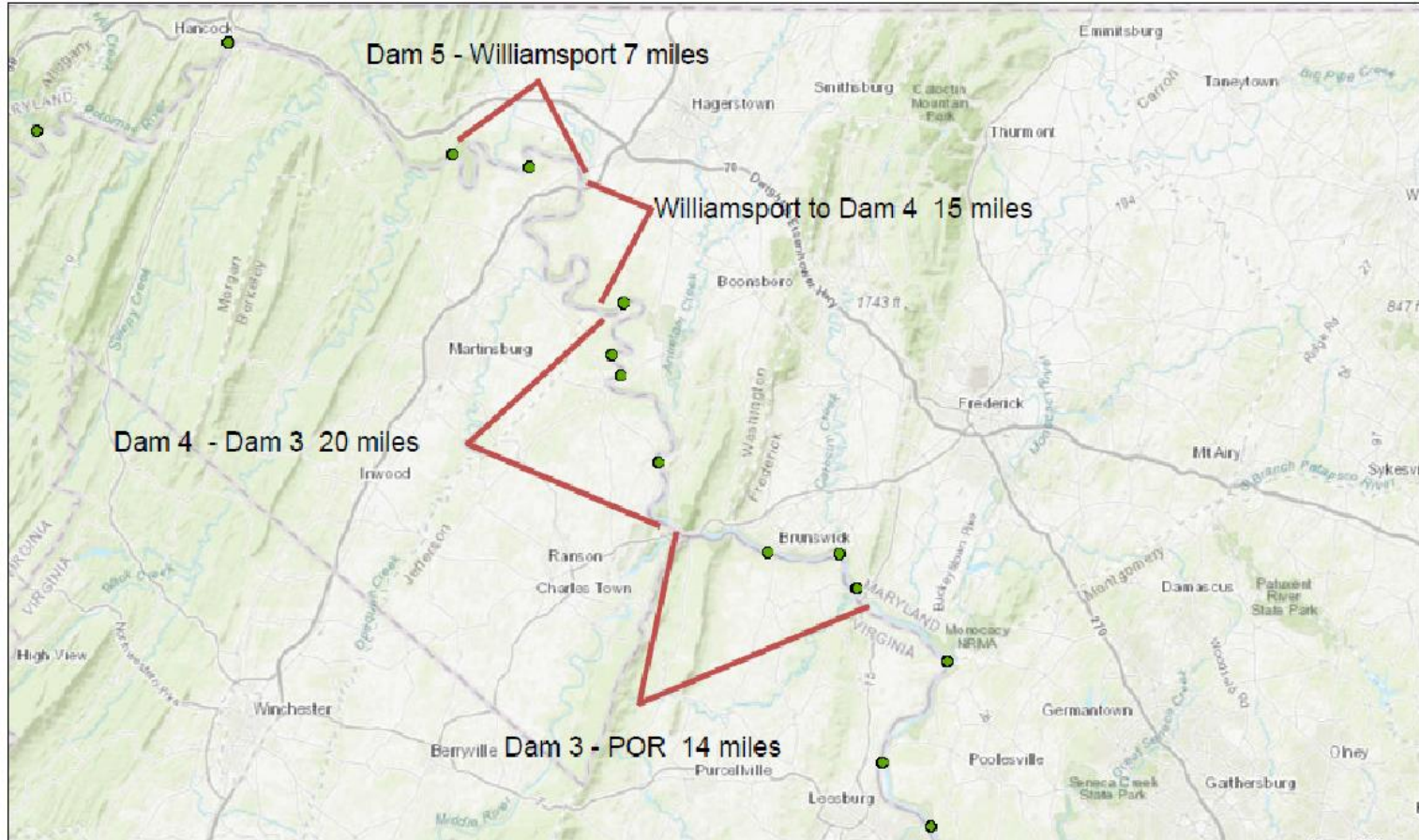


Smallmouth Bass Stocking

Smallmouth Bass Stocking

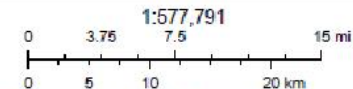


Potential Smallmouth Stocking Locations



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

- 2021 Stocking Plan
 - Angler Tournament (April)
 - DNR electrofishing collection (April)
 - Three $\frac{1}{4}$ acre ponds were prepared
 - 20 adults per pond
 - Stock fingerlings at 2-3 inches
 - Mark with OTC to determine hatchery contribution



Smallmouth Bass Stocking

- June - hatchery disaster
 - Aerator failed during transfer of fish
- 900 juveniles stocked at Seneca
- November – start adult surveys
 - Collect age-1 fish to check for OTC marks
 - Look at adult catch rates
- Assess stocking plans for 2022





Smallmouth Bass Stocking Questions

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