Fisheries Ecosystem Assessment Division

Last Month

Federal Aid Report - Staff have completed a second draft of the 2024 Federal Aid Report and it is undergoing division review.

Mattawoman Creek Monitoring in 2025 - Staff received the results of the second/final batch of eDNA from Mattawoman Creek. Staff will begin analyzing the eDNA results and compare these results to the stream ichthyoplankton samples from Mattawoman Creek.

Midwater Trawl (Larval Feeding) Sample Processing - Staff have completed the first round of picking midwater trawl samples for larval Striped Bass on the Choptank River; only one sample requiring an additional second pick remains. Staff have commenced identifying Striped Bass and White Perch larvae to species (tedious and not always easy) and processing larvae guts to see what zooplankton they have eaten (cladocerans, copepods, or other items). A sample processed from 4/24 had over 400 White Perch postlarvae and a handful of Striped Bass postlarvae. Another sample from 4/9 has Yellow Perch and Striped Bass larvae.

Summer Fieldwork – Staff are sampling nine systems for 2025; Tred Avon River, Magothy River, Mattawoman Creek, Piscataway Creek, West River, Rhode River, Severn River, St. Clements Bay, and Breton Bay. All systems are sampled with beach seines and bottom trawls, except Mattawoman Creek and Piscataway Creek where SAV precludes beach seining. Sampling data are preliminary and subject to change.

Round 1 of summer fieldwork sampling started on 7/7 and was completed on 7/17. A total of 10,221 fish and crabs were captured during this round of sampling, comprising 47 species. Tred Avon River had the greatest diversity of species (24). The top 5 species encountered in sampling were: Atlantic Silverside (1,719), YOY (<120mm) White Perch (1,247), Mummichog (1,171), Bay Anchovy (1,029), and Atlantic Menhaden (1,027). A total of 54 YOY Striped Bass were collected in 23 seine samples (overall arithmetic mean or AM = 2.35). Striped Bass arithmetic means for each individual system were: Tred Avon River = 8.5, West River = 2, Severn River = 1.5, Magothy River = 1.25, Breton Bay = 1.0, St. Clements Bay = 0.75, and Rhode River = 0. An additional 17 YOY Striped Bass were collected in trawl samples.

Surface water temperatures were high during the first round. Only 11 out of 54 samples had a surface water temperature below 30℃. Water temperatures ranged from 26.17℃ to 32.85℃ with an average of 30.48℃ for all systems. Three sites recorded water temperatures over 32℃, these included Magothy Seine 01 (uppermost), and Piscataway Trawl 01 and 03. Piscataway Trawl 02 was just below 32℃ as well. The highest average surface water temperature was on Piscataway Creek (32.42℃). The lowest average surface water temperature was on Severn River (29.74℃), likely due to heavy rains the night before sampling.

Bottom dissolved oxygen ranged widely across all sites in Round 1, from 0.12 mg/l to 11.02, with an average of 4.94 mg/l for all systems. The Magothy River had the lowest bottom DO (0.12 mg/l) and the lowest average bottom DO (3.34 mg/l). Mattawoman Creek had the highest

average bottom DO for the first round (6.94 mg/l). Several bottom DO samples were extremely poor, below 1.0 mg/l, including Magothy Trawl 01, 03, and 04, and Severn Trawl 02 and 04 (site numbers go from furthest upstream, 01, to furthest downstream, 04).

Left: Staff pulling the bottom trawl on the Rhode River. Right: Severn River looking south towards Annapolis and the US 50 bridge.

Surface dissolved oxygen was good at all sample sites in Round 1 (above 5 mg/l), with the exception of 6 sites: Severn River Trawl 01 and Seine 01, Tred Avon Trawl 01 and Seine 03, Breton Bay Seine 02, and West River Trawl 01. Surface DO ranged from 4.41 mg/l to 13.75 mg/l with an average of 6.97 mg/l for all systems. Tred Avon River had the lowest average surface DO (5.84 mg/l). Piscataway had the highest average surface DO for the first round (8.87 mg/l).

Round 2 of sampling started on 7/23 and was completed on 7/30. Data are currently being entered and checked.

On 7/7, a tropical rainstorm from the remnants of Tropical Storm Chantal moved across the Tred Avon River. The picture on the left is heading towards the storm to sample the last site. The picture on the right is preparing the bottom trawl during the rain.

Calvert County Town Center Master Plan – Calvert County submitted a draft Calvert County Town Center Master Plan to DNR, which is an update to its comprehensive plan adopted in 2019. The draft consolidates updates for individual town centers into one document, The Master Plan of Town Centers. Thus far, drafts of two chapters have been received by DNR for review: Chapter 1, an overarching summary that applies to all town centers, and Chapter 3, an update to the current Dunkirk Town Center Master Plan, which was adopted in 1987. The plan contained relevant sections for review on Land Use, Environment and Natural Resources, and Water Resources. Staff from FEAD reviewed the plan and submitted comments.

Access Databases – Staff compiled data sets into Access databases for each sampling project. These data sets will incorporate all historical data collected. Staff began digital collection of data with an iPad during their spring fieldwork and have continued to do so during summer fieldwork. Thus far, the process is going smoothly with summer data, though some modifications to entry forms have been made as issues arise. The process has also streamlined data sharing, checking data, and allows the easy addition of this data to the Access databases.

Critical Areas Commission – FEAD made a presentation to the Critical Area Commission Quarterly Planners Meeting, which included Commission members, as well as county and municipal planners, on July 17. The presentation covered relationships between land development (% impervious surface), fish habitat condition (dissolved oxygen and conductivity), and presence of anadromous fish (particularly egg and larval stages); land use planning recommendations that support fisheries resources; and ways that FEAD can support land use planning efforts.

Climate Planning Workshop - Staff attended the Fishing and Boating Services' Climate Planning Workshop on 7/28.

Potential Research Collaboration with Towson University - Staff met with Dr. Krista Kraskura, a new assistant professor, about potential research collaborations with FEAD for Striped Bass. Dr. Kraskura has extensive background in conducting lab experiments that could help explore mechanisms that influence temperature related mortality of early life stages of Striped Bass. We have found that spawning is occurring earlier and is of shorter duration than in the past and reflects earlier warming. Experiments could help verify the link between these changes and low year-class success. She has her own grant for this work. We also discussed the possibility of experiments that could help us understand the mechanisms linking increased conductivity (increased salinity) and low presence of herring larvae in spawning streams. We may be able to collaborate on a grant proposal for this work.

Looking Forward

Staff will finalize drafts of sections for the 2024 Federal Aid Report.

Staff will continue assembling master Access datasets and developing metadata summaries for each survey.

Staff will continue processing Midwater Trawl samples in the lab.

Staff will conduct Rounds 3 and 4 of summer fieldwork sampling in August, beginning on 8/4. Each system is sampled biweekly for a total of 12 weeks. Sampling will be carried out until the end of September.