RUTGERS
New Jersey Agricultural Experiment Station
HASKIN SHELLFISH RESEARCH LABORATORY

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To: Delaware Bay Shellfisheries Council and NJ DEP Bureau of Shellfisheries
From: Iris Burt
Date: November 2, 2023
Re: Delaware Bay Seed Bed Monitoring

Oyster samples were collected on October 17 for our regular monthly monitoring program. Average bottom water temperature decreased to 16.8°C (62°F), equivalent to the 23-yr seasonal average (16.9°C). Salinity ranged from 12.4 ppt at Hope Creek to 19.1 ppt at Bennies. The average salinity from Arnolds to New Beds increased to 17.3 which is above the long-term mean of 16.3 ppt. This salinity corresponds to a decrease in discharge from the Delaware River.

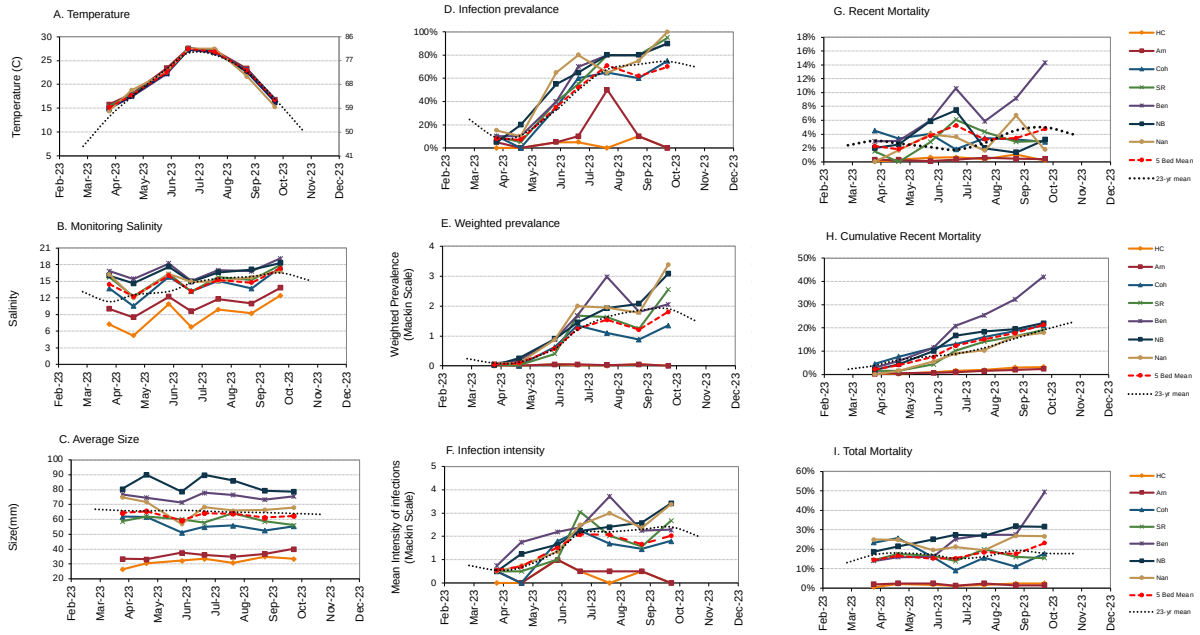
Delaware Bay dermo disease levels increased across all beds in September with higher prevalence downbay on higher salinity beds. Weighted prevalence on Shell Rock and all beds further downbay exceeds the 1.5 weighted prevalence threshold, with some beds going above a 3.0 weighted prevalence leading to increased mortality from disease. Dermo disease was not detected on Arnolds and Hope Creek.

Recent mortality remained steady on most beds where weighted prevalence exceeded 1.5 but an increase in box counts was noted on Bennies. Both the average total box count mortality and the average cumulative recent mortality surpassed the long-term mean for the October samples.

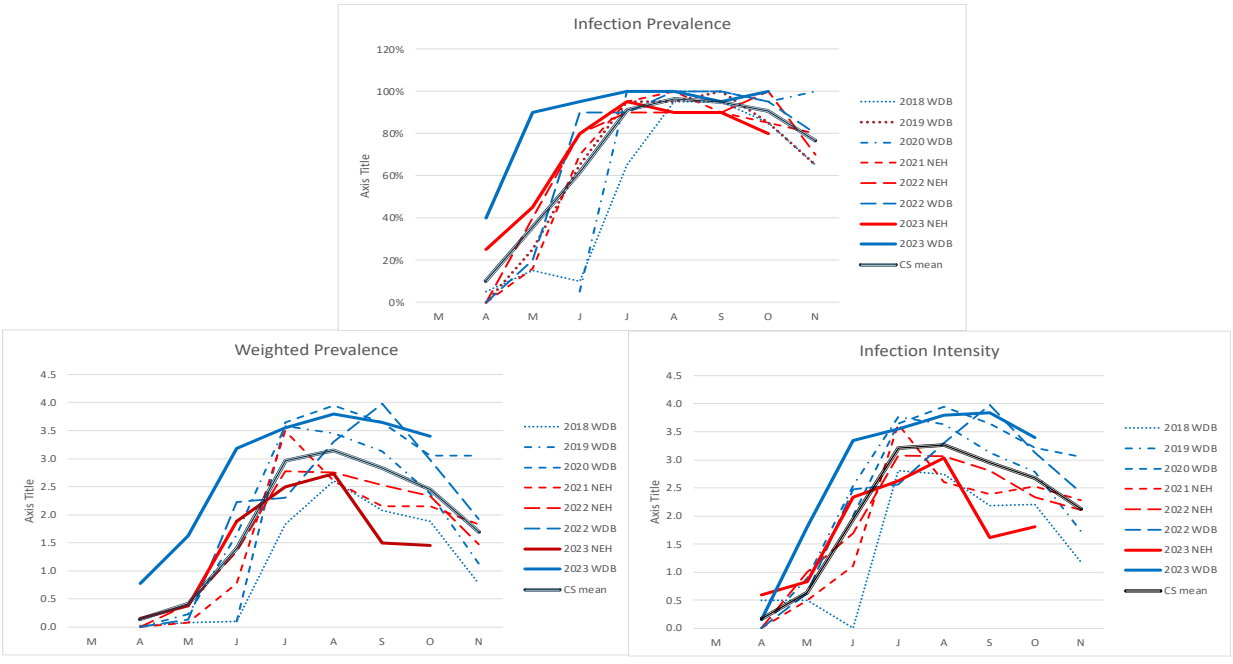
Cape Shore dermo disease in the two groups of 2-year-old cultured oysters sampled from the Cape Shore this season were 100% (WDB = wild line) and 80% (NEH = Rutgers line). WBD had a higher weighted prevalence than NEH (3.4 vs 1.5). The October 6-year mean for the Cape Shore samples is 91% prevalence and 2.45 weighted prevalence.

The 2021, 2022 and 2023 shellplant sites were sampled on October 18. The 2021 shell plant sites (Nantuxent and Shell Rock) averaged 53.7 mm (~2 in) in shell height while average dermo prevalence was 65%, with a weighted prevalence of 1.9. The 2022 plant sites (also Nantuxent and Shell Rock) averaged 35 mm or 1.4 inches. Limited data is available on the Nantuxent site this month from sampling difficulties. Total box counts were less than 14% across all sites, with very few new boxes. Dermo disease prevalence on the Shell Rock site was 45% with weighted prevalence less than 1.2. Spat on planted shell was easily found on two 2023 shellplant sites with an average size of 17 mm. There is limited data from the Ship John site due to sampling difficulties. Some drill damage was noted on Bennies, but otherwise there was very light mortality.

The 2022 and the 2023 intermediate transplant sites were sampled on October 18. Box counts remained steady at 11% across all 2022 sites (Up. Arnolds, Shell Rock and Bennies Sand) with 4% or less new boxes. Highest box counts were on Shell Rock (18%). Total 2023 box counts remained steady at 12% across all beds (Up. Middle, Ship John, Shell Rock and Nantuxent), with no new boxes noted. Highest total box counts were on Shell Rock (21%). Dermo disease on Bennies Sand, Nantuxent and Shell Rock averaged 90% prevalence with a 2.1 weighted prevalence, across both years of transplants. Dermo disease was light on Upper Middle and not detected on Upper Arnolds.



Composite summary of 2023 oyster bed monitoring data. Bed abbreviations: HC = Hope Creek, Arn = Arnolds, Coh = Cohansey, SR = Shell Rock, Ben = Bennies, NB = New Beds, Nan = Nantuxent. The "5 bed mean" is the 2023 average of Arn, Coh, SR, Ben and NB. The "23-yr mean" is the 5 bed mean averaged across 1999 through 2023.



Summary of 6 years of Cape Shore Dermo disease data in 2-year-old cultured oysters. WDB = wild Delaware Bay. NEH = Rutgers selected northeast high survival line.

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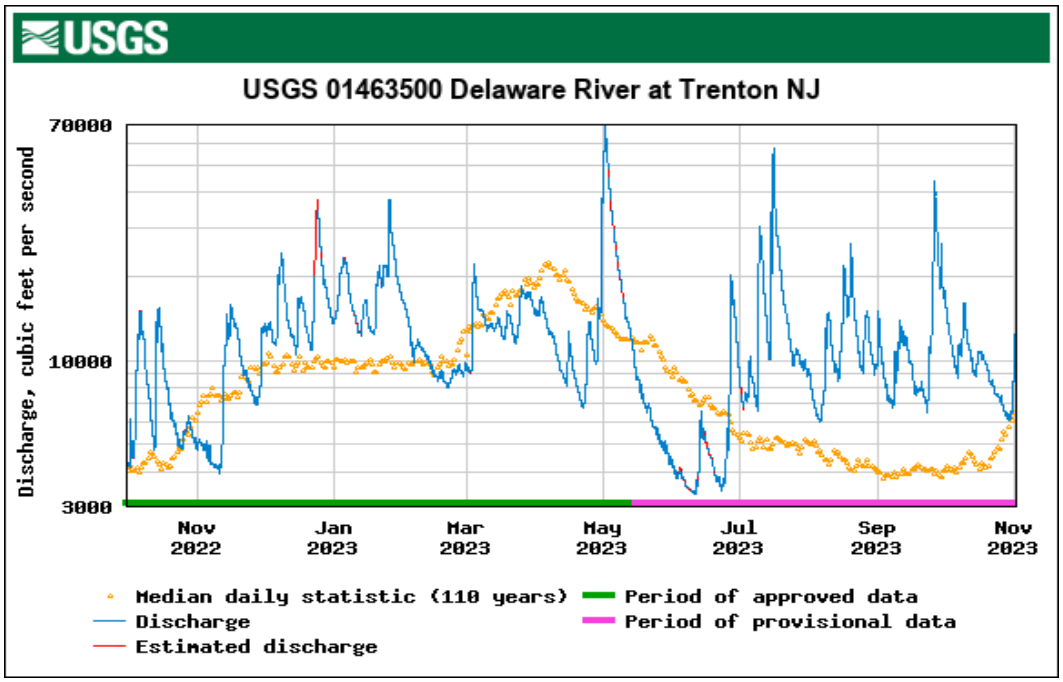

Delaware River discharge measured at Trenton, NJ USGS monitoring station 01463500. Blue line represents daily discharge for the past year relative to the 1913-2022 median values shown as a dotted yellow line.

Data source: https://waterdata.usgs.gov/monitoring-location/01463500/#parameterCode=00060&period=P365D&compare=true