

Haskin Shellfish Research Laboratory

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To: Delaware Bay Shellfisheries Council and NJ DEP Bureau of Shellfisheries
From: Iris Burt
Date: August 7, 2023
Re: Delaware Bay Seed Bed Monitoring

Oyster samples were collected on July 17 for our regular monthly monitoring. Average bottom water temperature increased to 27.5°C (81.4°F), exceeding the 23-yr seasonal average (26.6°C). Salinity ranged from 6.7 ppt at Hope Creek to 15.1 ppt at Bennies. The average salinity from Arnolds to New Beds decreased from 16 to 13.2, which is below the long-term mean of 14.7 ppt. This decline in salinity corresponds to an increase in discharge from the Delaware River.

Delaware Bay dermo levels increased across all beds in July following the typical seasonal cycle and spatial pattern with higher prevalence downbay on higher salinity beds. Weighted prevalence on Cohansey and all beds further downbay is near or exceeds the 1.5 WP threshold leading to increased mortality from disease. Dermo disease remains light on both Arnolds and Hope Creek.

Recent mortality increased on all beds where WP exceeded 1.5 and the average cumulative recent mortality surpassed the long-term mean. The average total box count mortality remained near the long-term average suggesting that the increase in new boxes was compensated by a disarticulation of old boxes.

All oysters sacrificed for disease testing were actively spawning. We are now examining samples from dockside monitoring to improve resolution on spawning activity so that the state and industry can use the information for timing shell planting as discussed at the previous council meeting.

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 95% (NEH = Rutgers line). WBD had a higher weighted prevalence than NEH (3.6 vs 2.5). The July 6-year mean for the Cape Shore samples is 91% prevalence and 2.96 weighted prevalence.

The 2021 and 2022 shellplant sites on Nantuxent and Shell Rock were sampled on July 27. Water temperature was 27.3°C (81 F), an increase of 4.5 C (8 F) since June 26<sup>th</sup>. In contrast, salinity decreased from 14.4 to 10.8 ppt after the recent rainfalls. The 2021 shellplant sites (Nantuxent and Shell Rock) averaged 49.2 mm (~1.9 in) in shell height while dermo prevalence was 70% and 65% respectively, with WPs of 2.2 and 1.3. The 2022 plant sites (also Nantuxent and Shell Rock) averaged 28.4 mm or 1.1 inches. Total box counts were less than 7% across all sites, with very few new boxes. Dermo disease information for the 2022 sites is not available for the July sampling.

The 2022 and the 2023 intermediate transplant sites were sampled on July 27. Box counts were 12% across all 2022 sites (Up. Arnolds, Shell Rock and Bennies Sand) with 3% or less new boxes. Highest box counts were on Shell Rock (21%). Total 2023 box counts increased to 12% across all beds (Up. Middle, Ship John, Shell Rock and Nantuxent), with no new boxes. Dermo disease on the 2022 sites of Bennies Sand and Shell Rock averaged 70 % prevalence with and 1.9 and 1.3 weighted prevalence respectively. 2023 sites of Nantuxent and Shell Rock averaged 68% prevalence with weighted prevalence at 2.2 and 1.3 respectively. Dermo disease was very light on all the other sites.



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