

**To:** Delaware Bay Shellfisheries Council and NJ DEP Bureau of Shellfisheries  
**From:** Dr. David Bushek and Iris Burt  
**Date:** January 5, 2023  
**Re:** Delaware Bay Seed Bed Monitoring

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Oyster samples were collected on October 21 and again on November 28, 2022 for our regular monthly monitoring. Average bottom water temperatures were 15.1°C (63°F) and 9.4°C (51°F) respectively. Both are below the long term means for recorded fall temperatures. Salinities were above the long-term means in both months. Average salinities were 18.9 ppt and 17.2 ppt in October and November, respectively. Salinities ranged from 13.3 ppt at Hope Creek to 21 ppt at New Beds.

Dermo disease prevalence on the regular monthly beds was 74% in October, only decreasing slightly to 67% for November. The highest prevalences in November were on Bennies (95%), New Beds and Nantuxent (90%), Shell Rock, (75%), Cohansey (70%), and Arnolds (5%). There was no dermo detected in the Hope Creek sample.

Total mean box counts on the regular monthly monitoring beds increased to 16% in November but remained below the long-term mean of 18%. Highest box counts were on New Beds, Nantuxent and Shell Rock (>22%). Average new box counts increased in November (4%) which is equal to the long term mean for this month. Cumulative new mortality remains below long-term means for October and November.

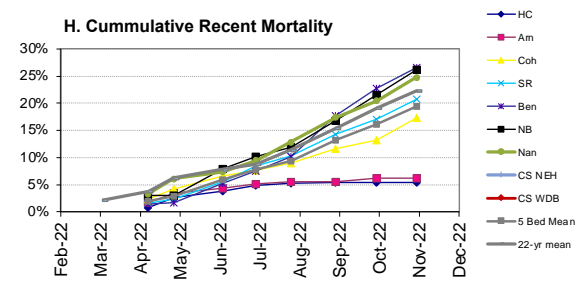
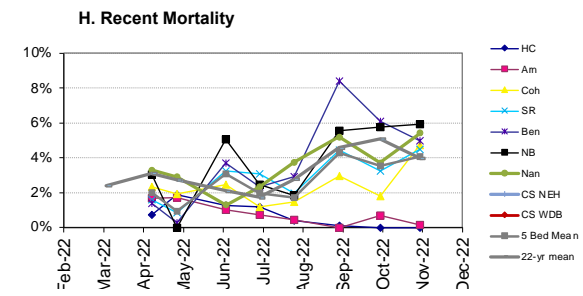
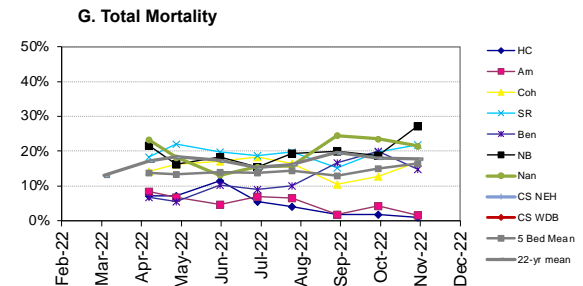
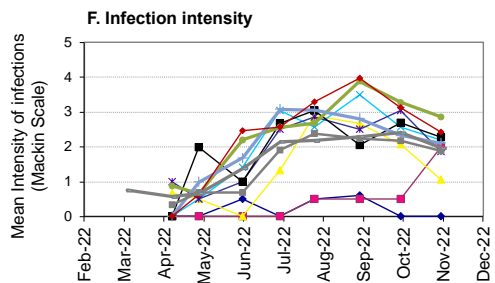
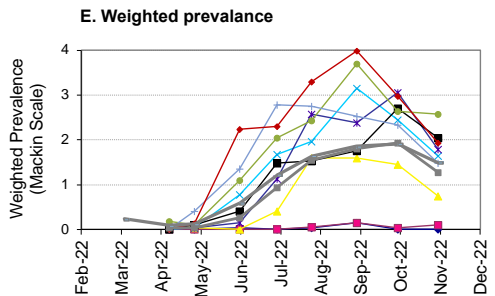
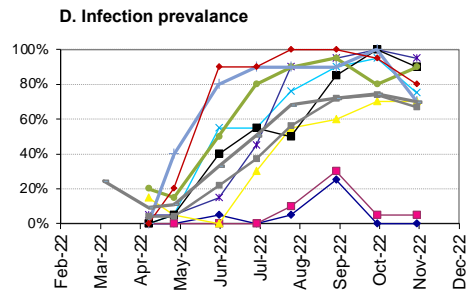
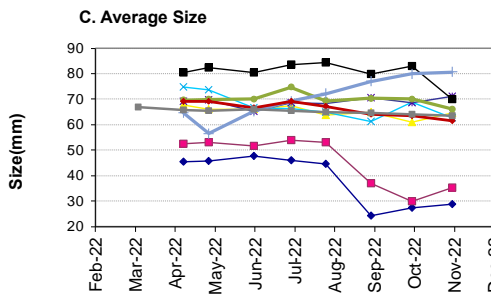
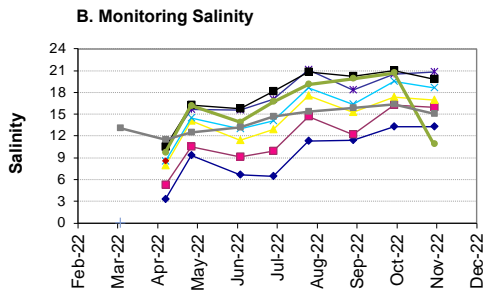
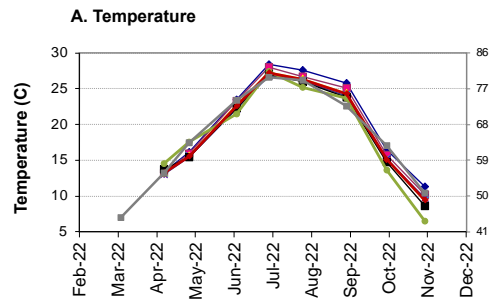
Dermo disease in two groups of 2-year-old oysters sampled from the Cape Shore this season (a wild Delaware Bay spawn and the AIC 2020 NEH line) showed some interesting results. Prevalence was 95 and 100% respectively in the October sampling dropping slightly in November. Although the prevalences were similar in the two samples, the wild Delaware Bay group had a higher weighted prevalence than the NEH sample throughout the fall months.

The 2021 and 2022 intermediate transplant sites were sampled on October 24 and on November 29, 2022. Dermo disease prevalence on the 2021 sites were all above 75% in October and continued to increase in November. The weighted prevalence's were above 2.0 on these sites in October but the Nantuxent and Shell Rock sites showed decreases in November. The Bennies site continued to increase. Total box counts averaged 26% across all 3 sites with less than 11% new boxes found in October and these counts remained steady for November.

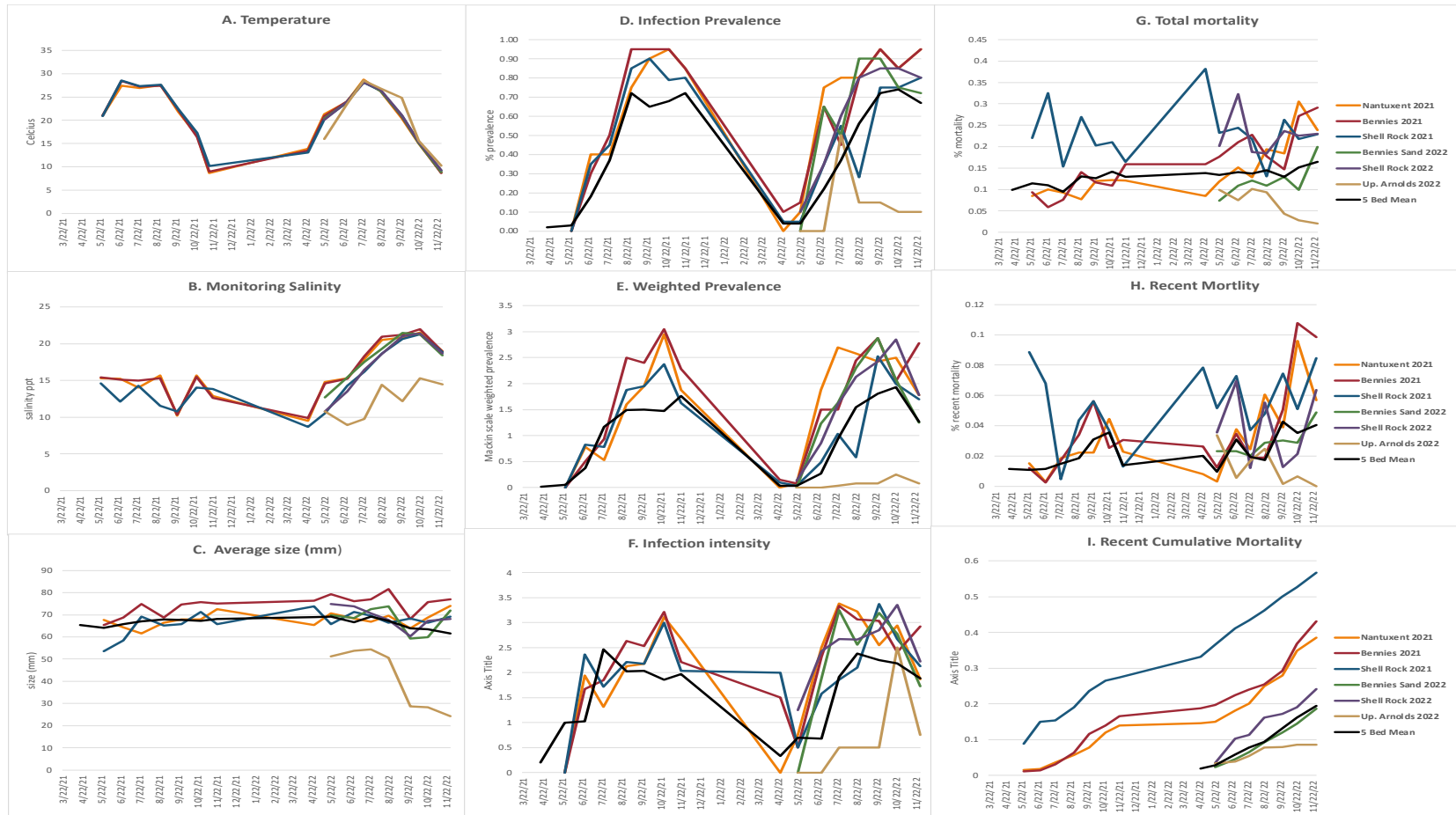
Nantuxent and Shell Rock 2022 transplant sites averaged 80% dermo disease prevalence in both months. Weighed prevalence's were equal to the 2021 sites for October but began to decrease in November. Mortality levels averaged just over 20% on both sites with less than 6% new box counts on both. The very low mortality experimental transplant did well with light dermo disease and little mortality. An added bonus of this transplant is that it received a very nice spat set.

The 2020- 2022 shellplant sites were sampled on October 24 and on November 29, 2022. The 2020 Bennies Sand plant has reached an average size of 61 mm (2.4 in). We have had difficulty in locating oysters attached to planted shell on this site during the season. This has been a common problem when sampling the 3<sup>rd</sup> year of a shellplant site. Total box counts on both samples were 31% with new

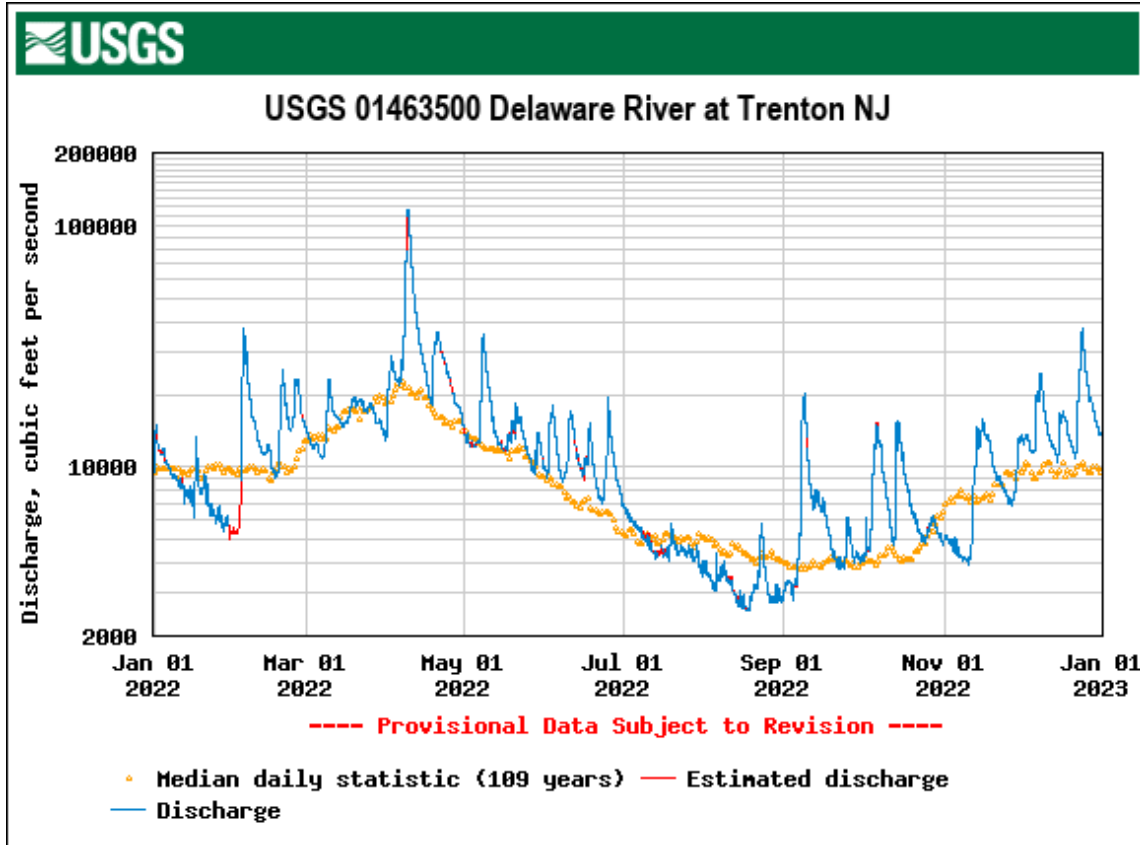
box counts accounting for about 11%. Dermo disease prevalence was at 85% for both samplings with light – moderate weighted prevalence. The 2021 shellplant sites on Nantuxent and Shell Rock now average 42.59 mm (1.68 in). Total mortality on these sites have been very light at less than 6% with very light new box counts. Dermo disease prevalence was comparable to the beds they are located on but weighted prevalence remained light. The 2022 shellplant sites on Nantuxent and Shell Rock have reached an average size of 14.9 mm (0.59 in). Both total and new box counts have been very light.



Composite summary of 2022 NJ oyster bed monitoring data. Bed abbreviations: HC = Hope Creek, Arn = Arnolds, Coh = Cohansey, SR = Shell Rock, Ben = Bennies, NB = New Beds, Nan = Nantuxent, CS = Cape Shore oysters grown on Rutgers lease. The “5 bed mean” is the 2022 average of Arn, Coh, SR, Ben and NB. The “22-yr mean” is the 5 bed Mean averaged across 1999 through 2022.



Summary of the 2021 and 2022 intermediate transplant sites compared to the “5 bed mean” from the regular monthly monitoring sites.



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

[https://nwis.waterdata.usgs.gov/nwis/uv/?ts\\_id=195092&format=img\\_stats&site\\_no=01463500&begin\\_date=20220101&end\\_date=20230101](https://nwis.waterdata.usgs.gov/nwis/uv/?ts_id=195092&format=img_stats&site_no=01463500&begin_date=20220101&end_date=20230101)