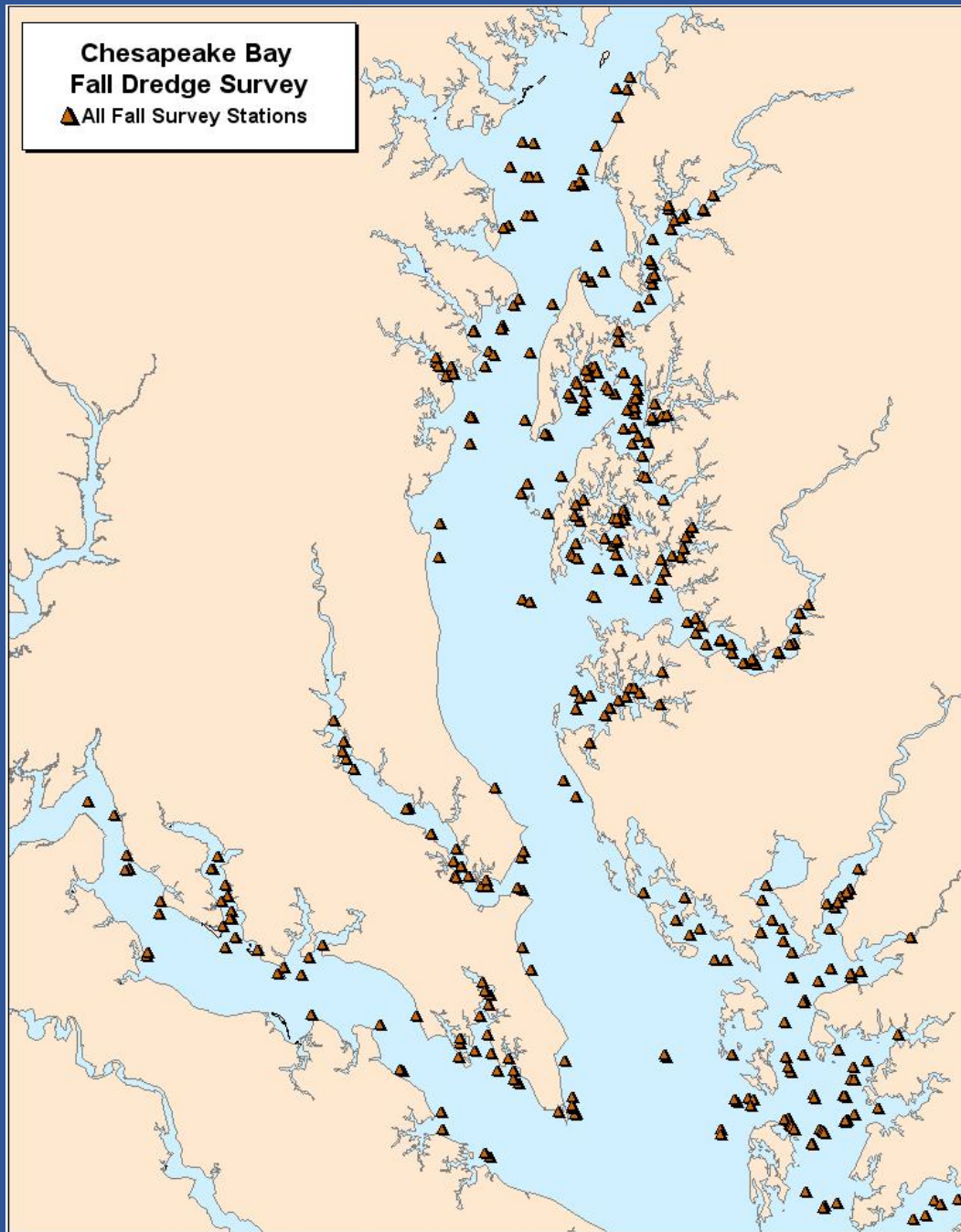


2023 MDNR Fall Oyster Survey Preliminary Results

Oyster Advisory Commission
Jan 9, 2024

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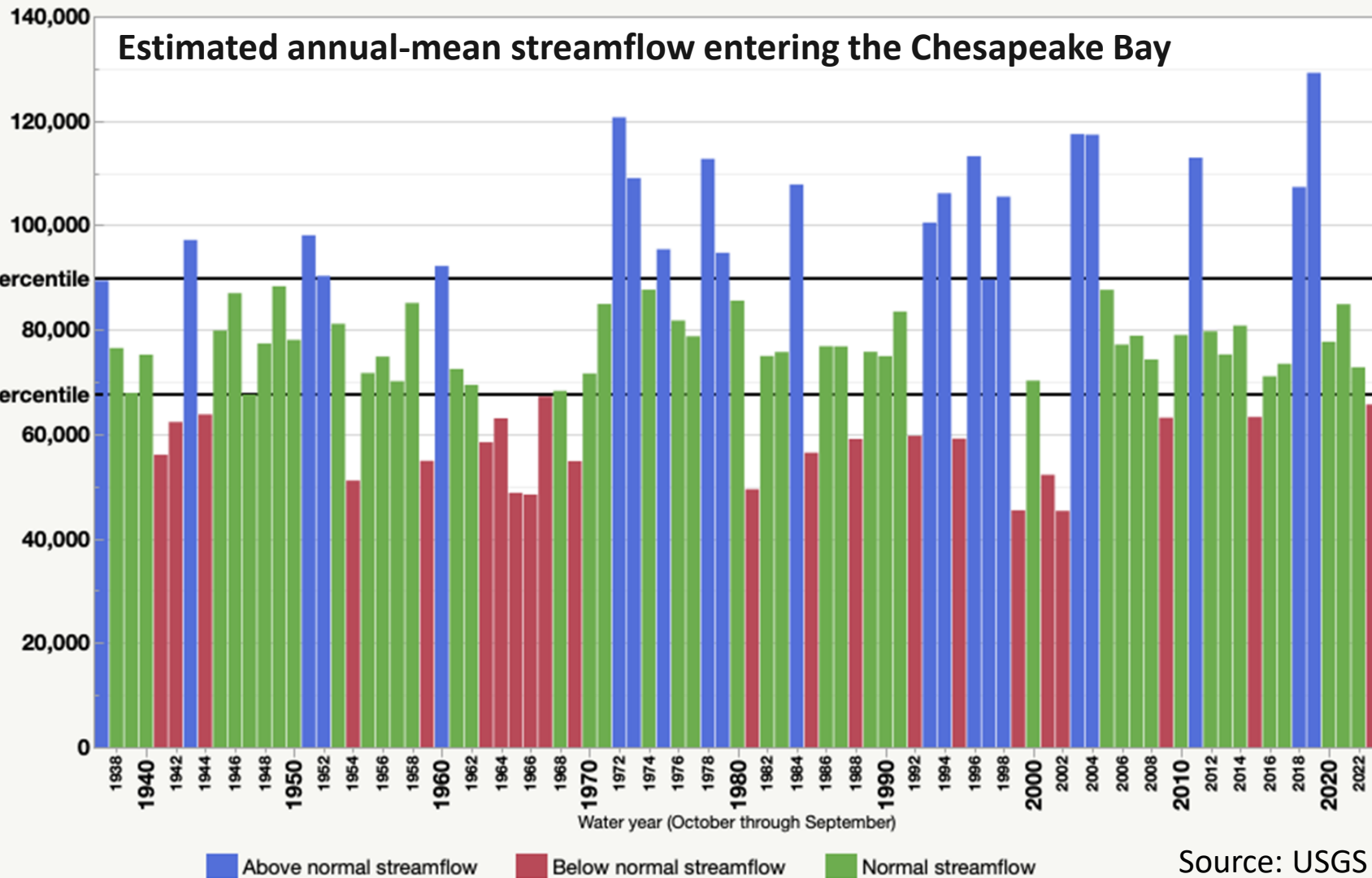


Sampling throughout Maryland's Chesapeake Bay and major Tributaries

- 3 Oct. to 15 Nov
- Includes the Potomac River
- Total of 354 samples, from 281 bars
- Sites included spat and disease index bars, seed and shell plantings, harvest areas and sanctuaries

Estimated annual-mean streamflow entering the Chesapeake Bay

Streamflow (cubic feet per second)



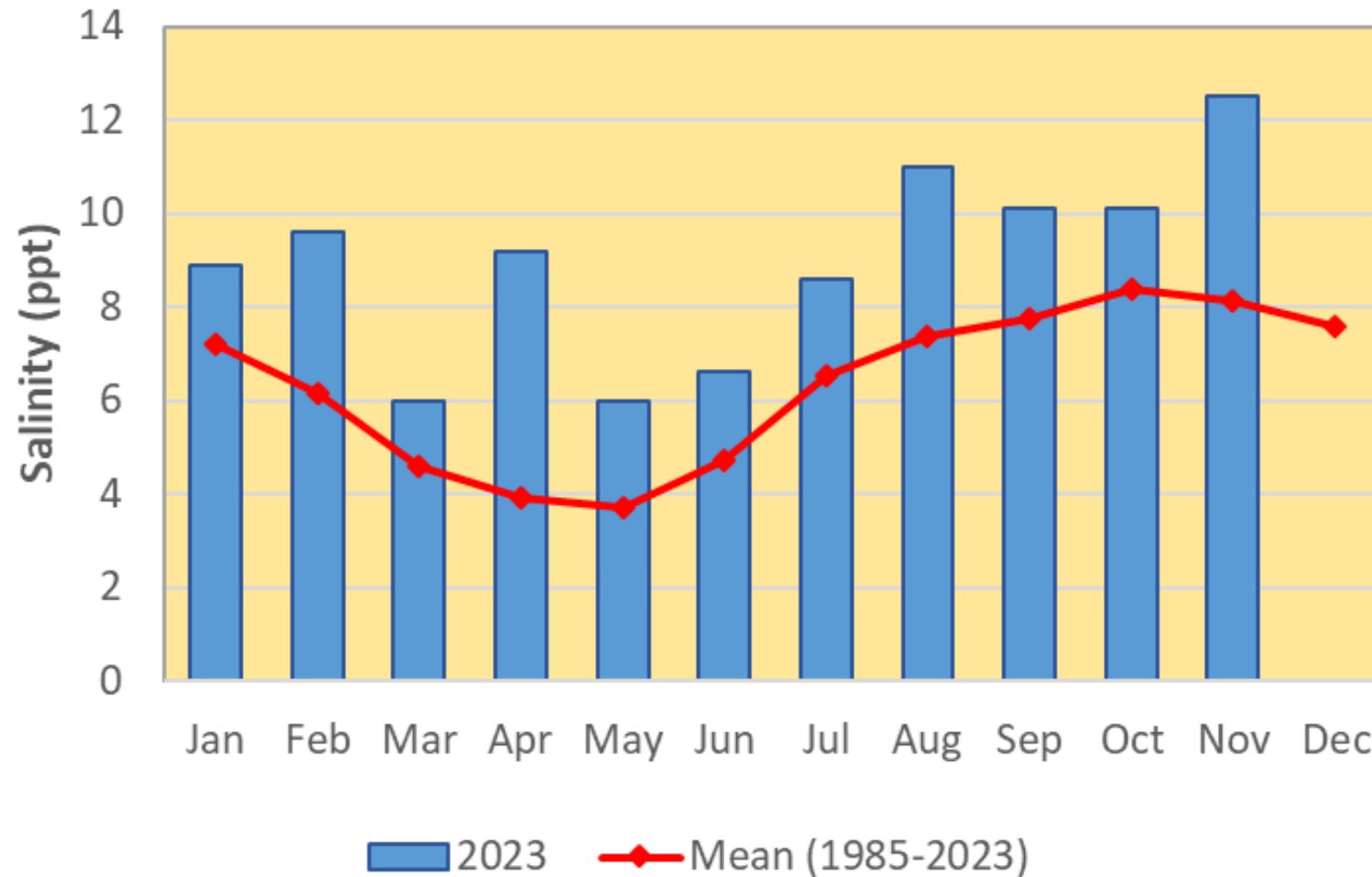
Source: USGS

Freshwater flow is a surrogate for salinity, a primary influence on oyster population dynamics

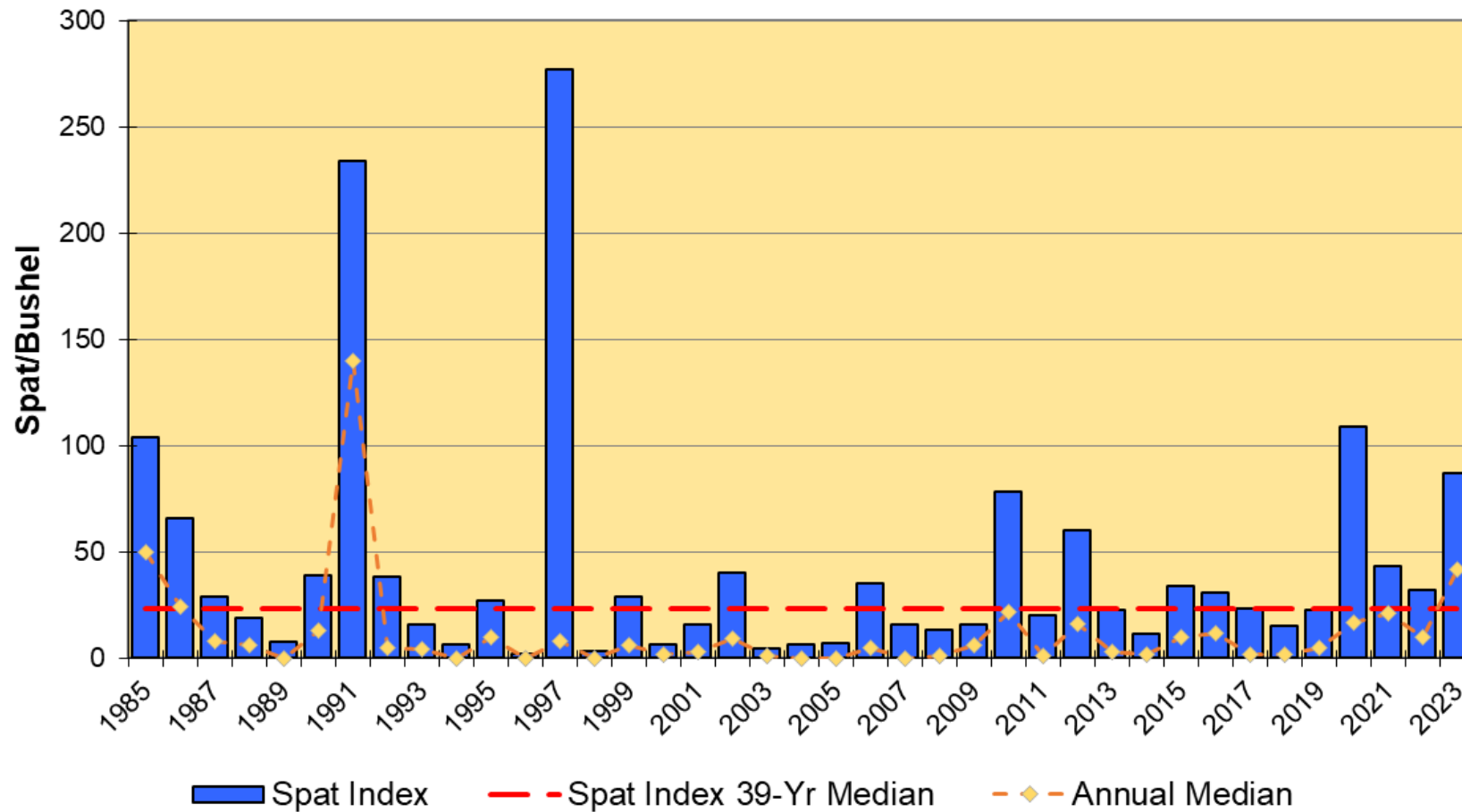
- reproduction
- recruitment
- feeding
- growth
- diseases
- mortality

Streamflow was well below normal in 2023
-Resulting in elevated salinities

2023 Surface Salinities at Morgantown Bridge Potomac River



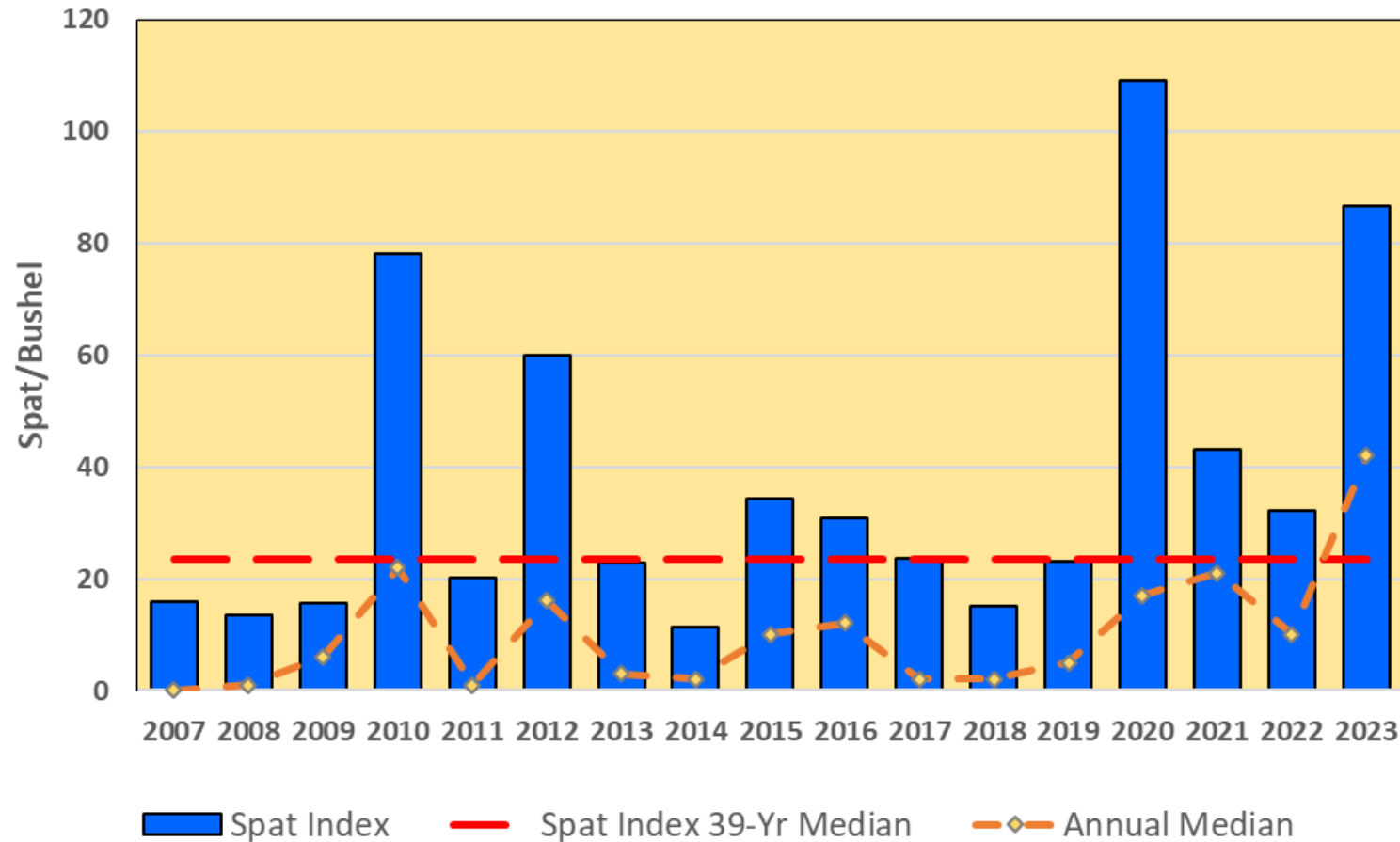
Maryland Spatfall Intensity Index, 1985-2023



The 2023 Spat Index was the **fifth highest** in the 39-year time series.

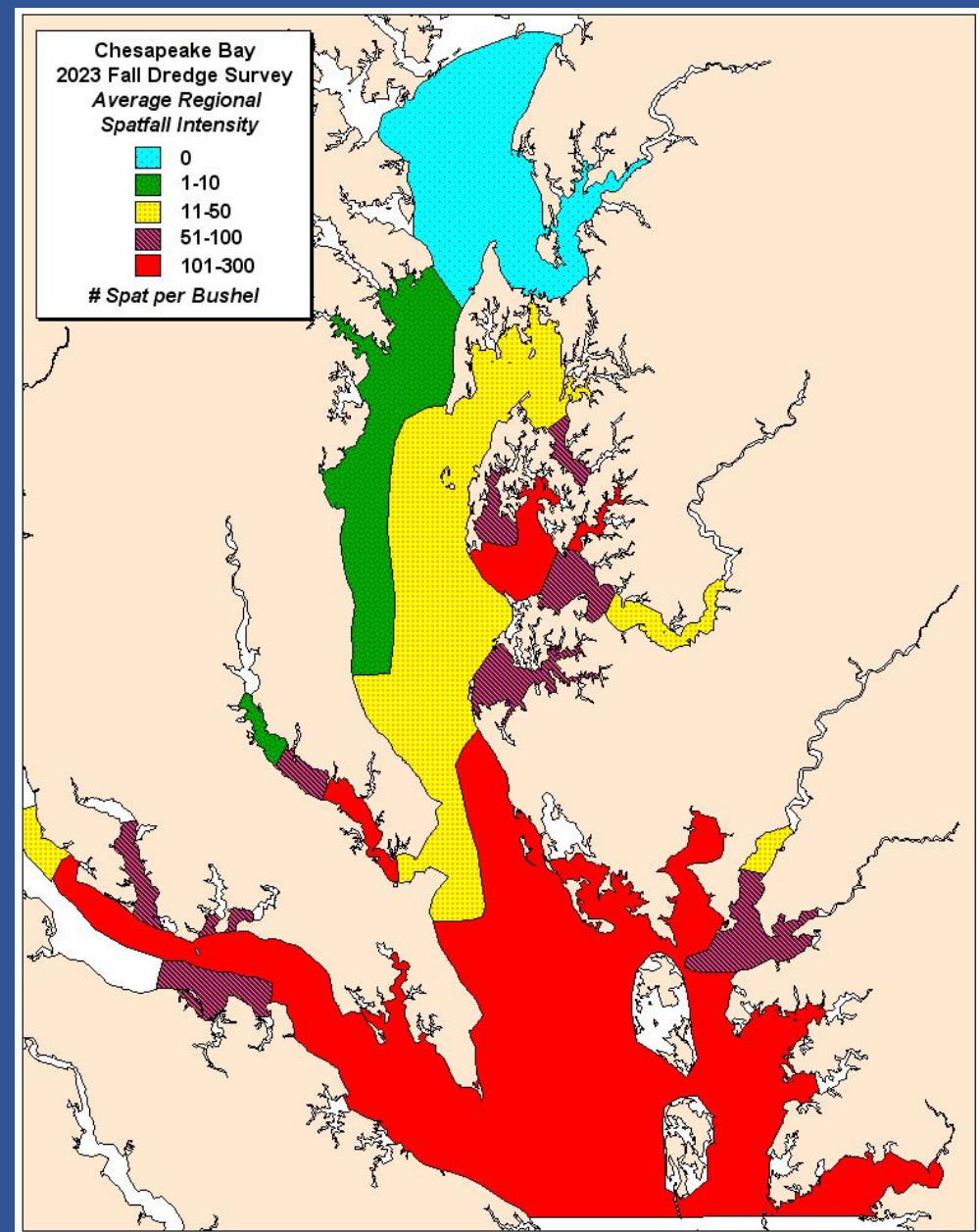
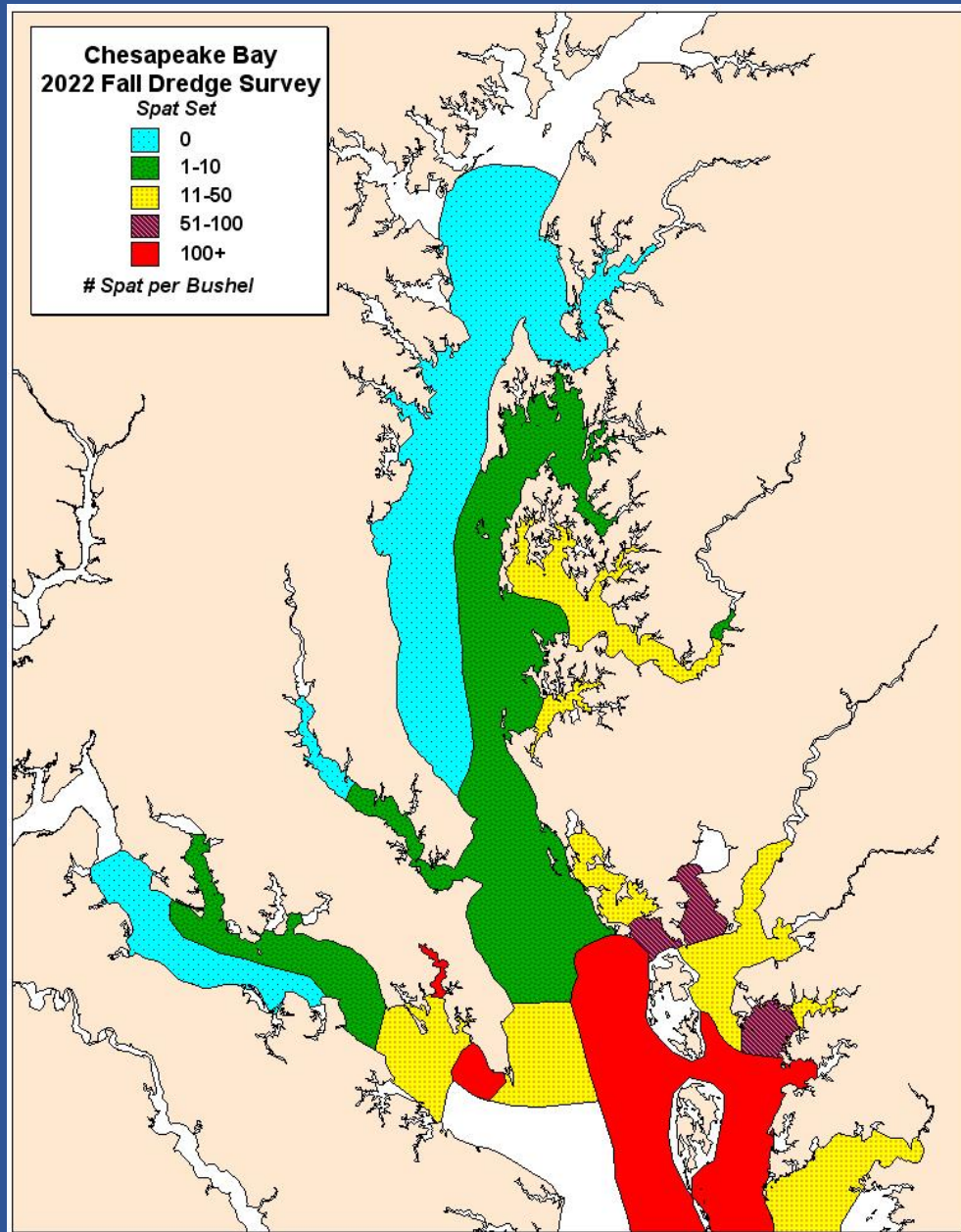
-Since 2010, eight years were above the long-term median (red line), yielding multiple good setting years to enhance the population for the near term future.

Maryland Spatfall Index, 2007-2023

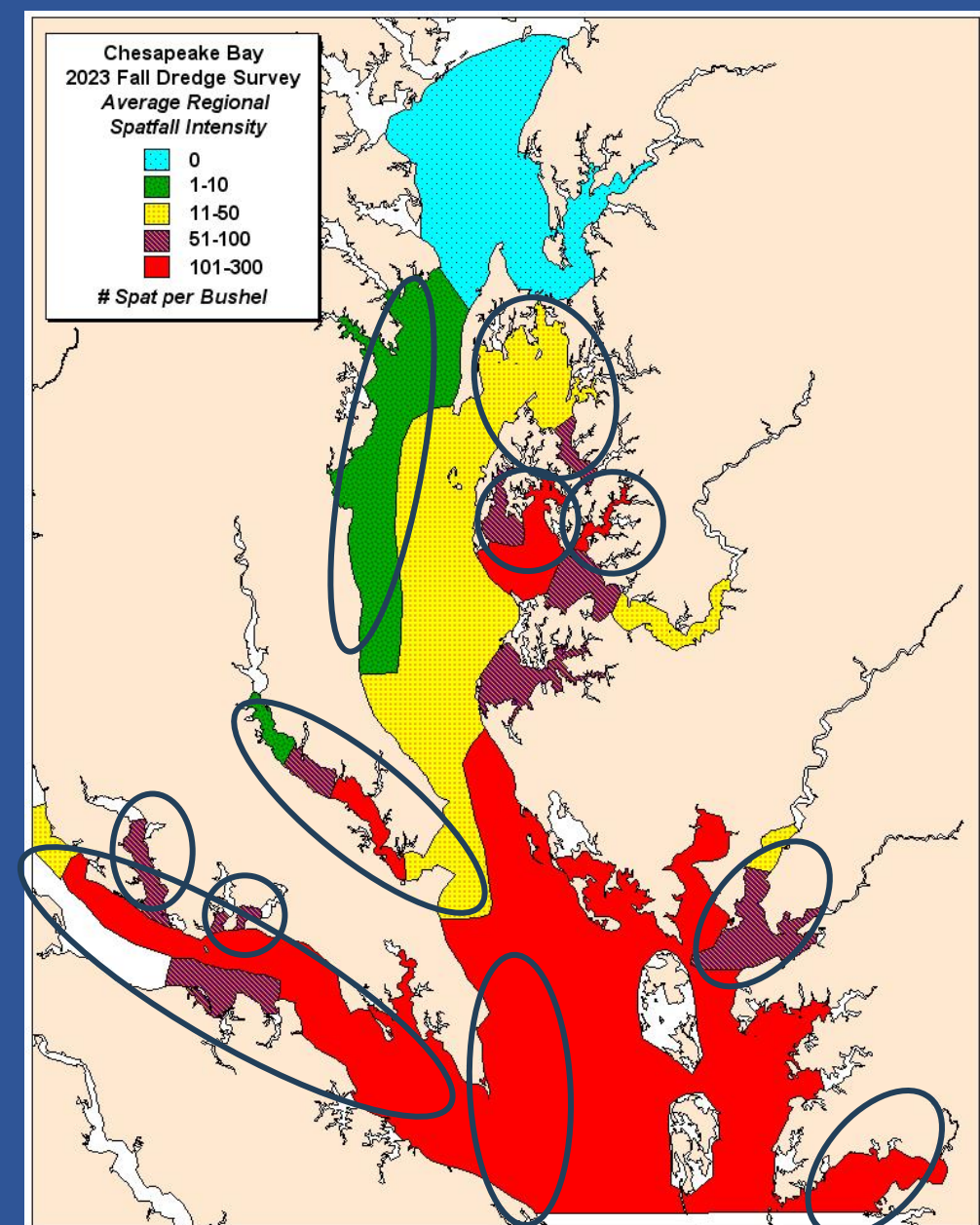
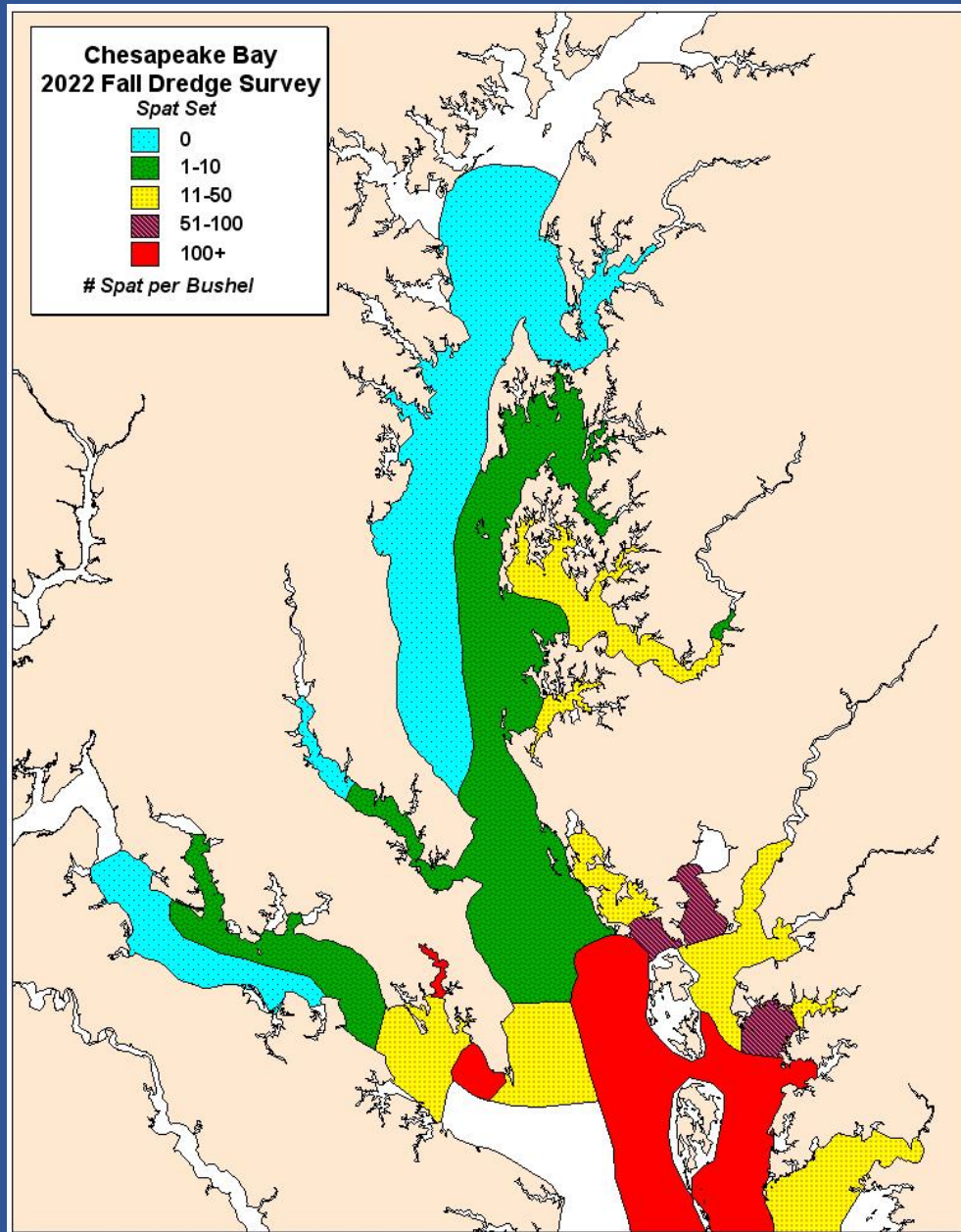


Equally important was the extensive nature of the spatset.

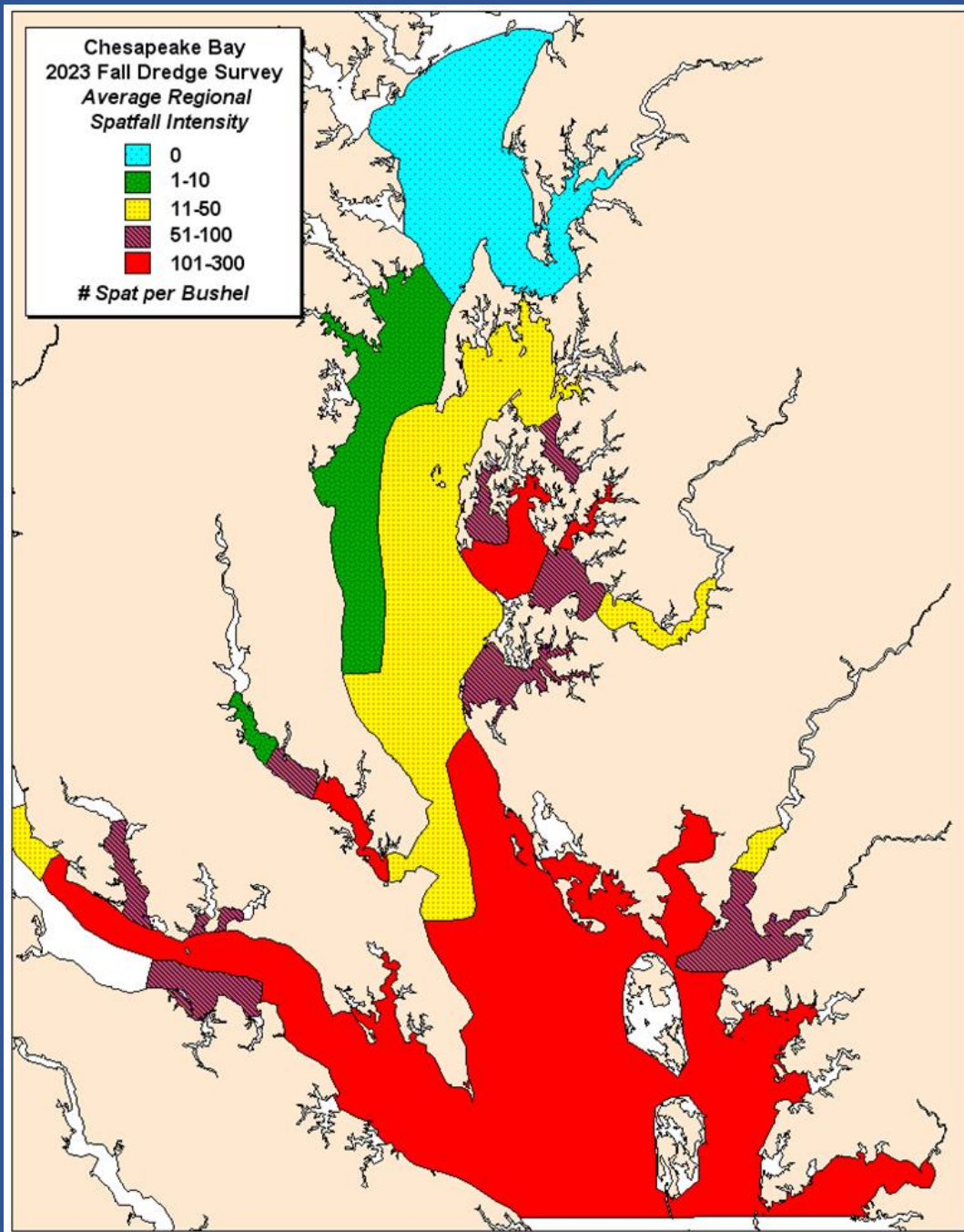
-The annual median (gold line) of the spatset is an indicator of the distribution of spat – the larger the median, the more widely distributed is the spatset.



Spatset increased substantially in numbers and geographic range from the previous year.



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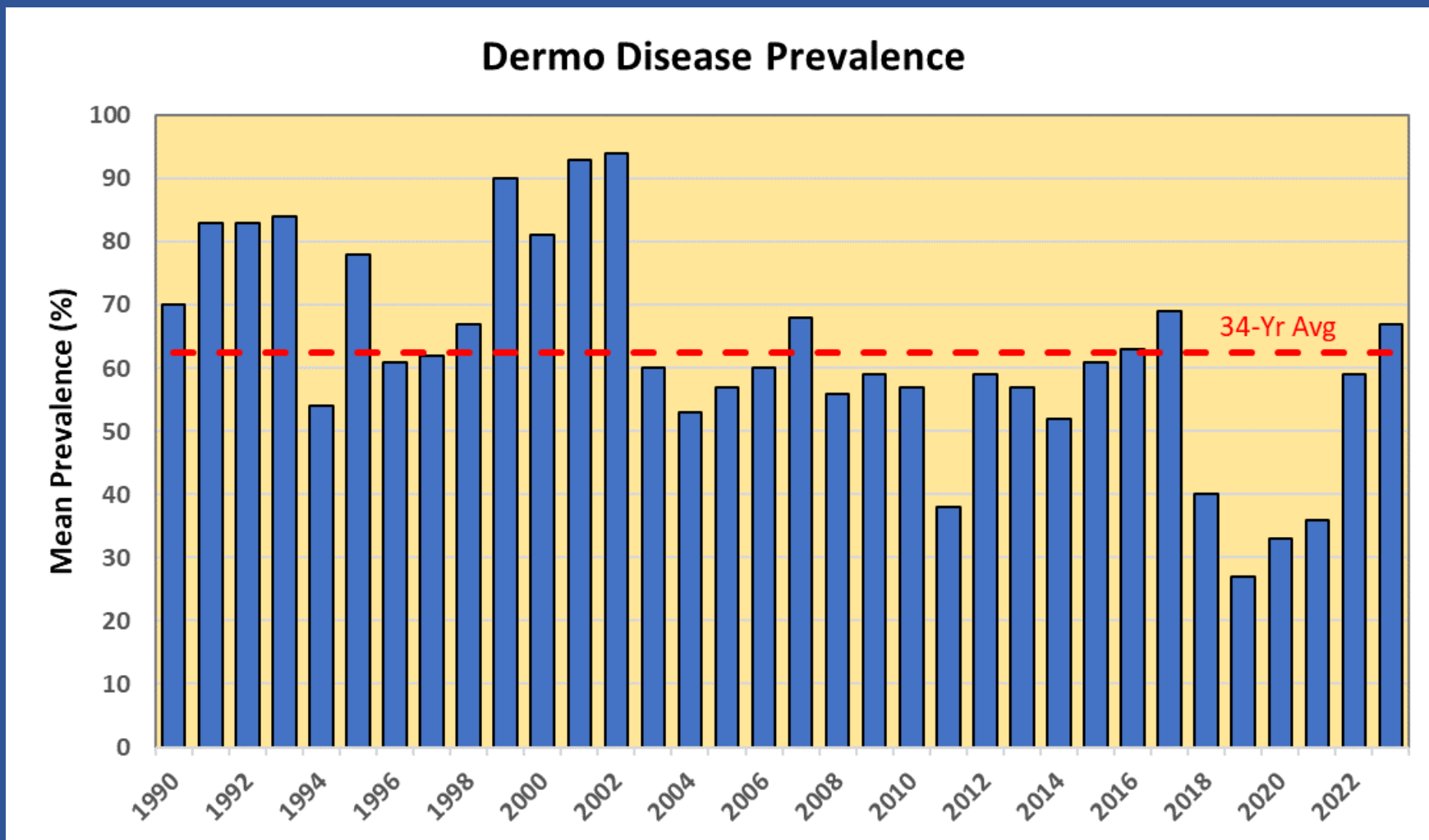


2023 Spatset Distribution in MD

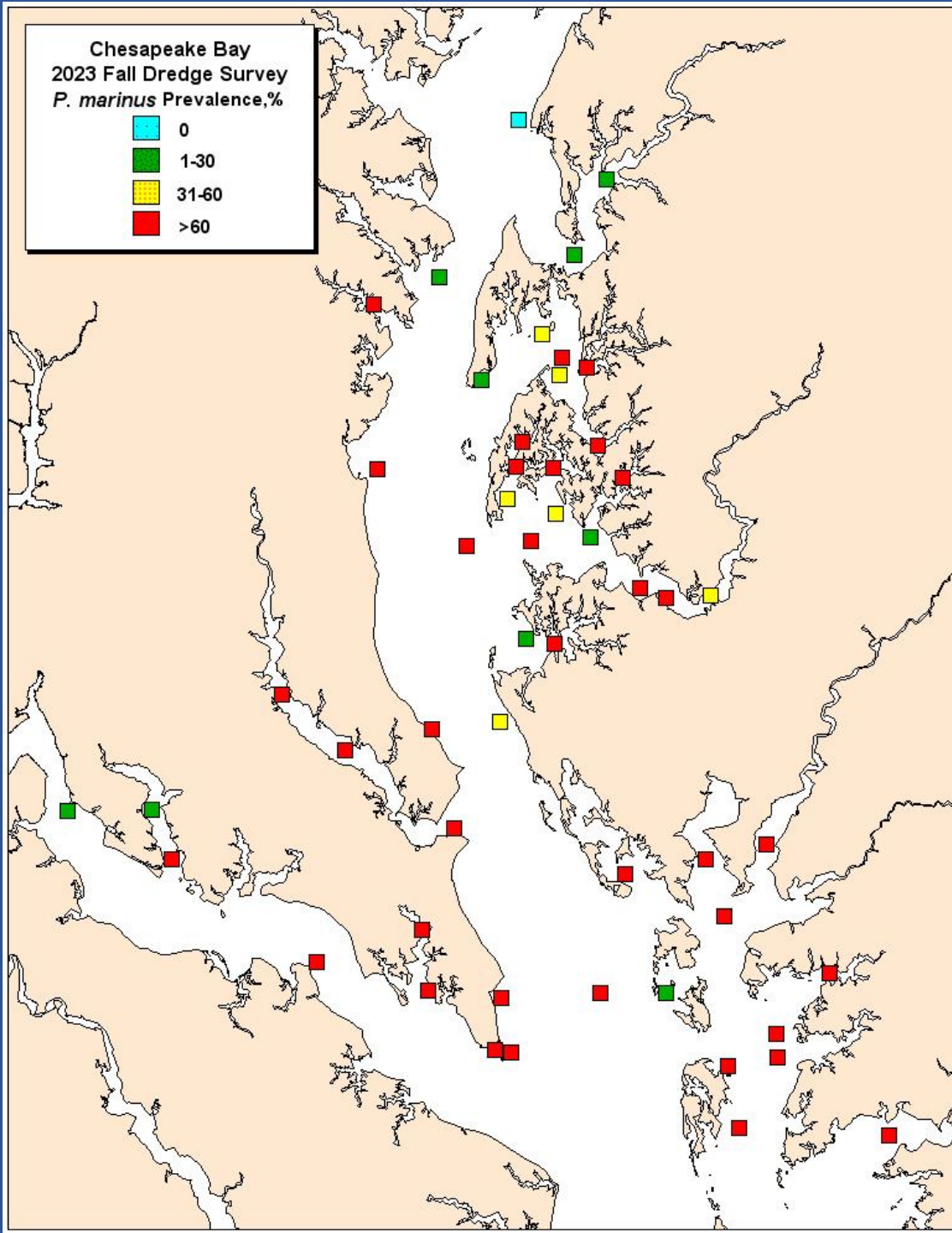
Spat were seen in areas where they are rarely observed, including in the upper reaches of tributaries that are typically too brackish for strong oyster reproduction.

The Potomac River and two of its tributaries, the Wicomico River and Breton Bay, in addition to the Tred Avon River, received a once-in-a-generation spatfall.

A supplemental survey in the Potomac found numerous spat well above the Route 301 bridge, an area where devastating freshwater deluges of 2018-19 had all but wiped out the oysters there.

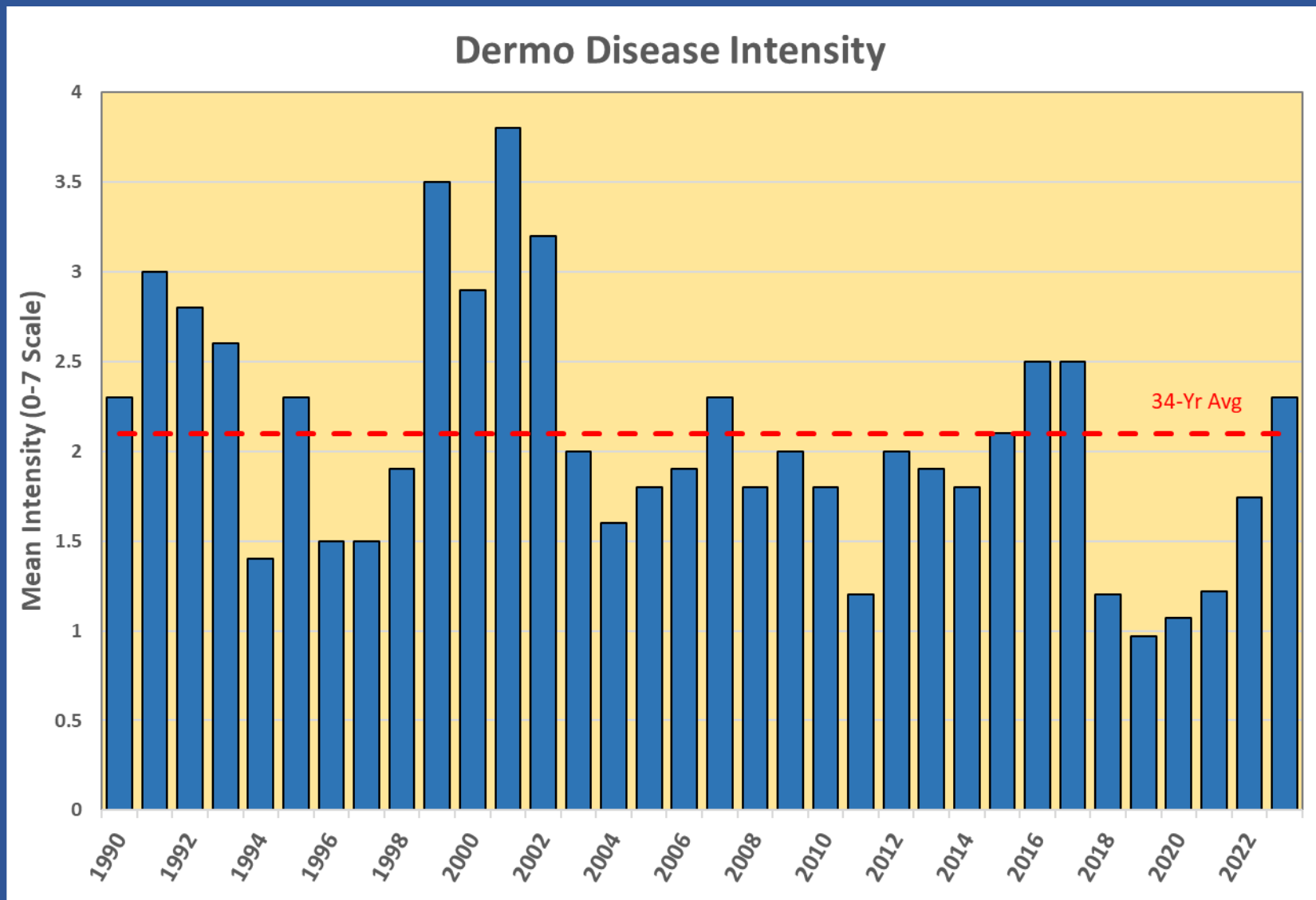


Derma prevalence increased for the fourth year in a row
Exceeding the long-term average for the first time since 2017

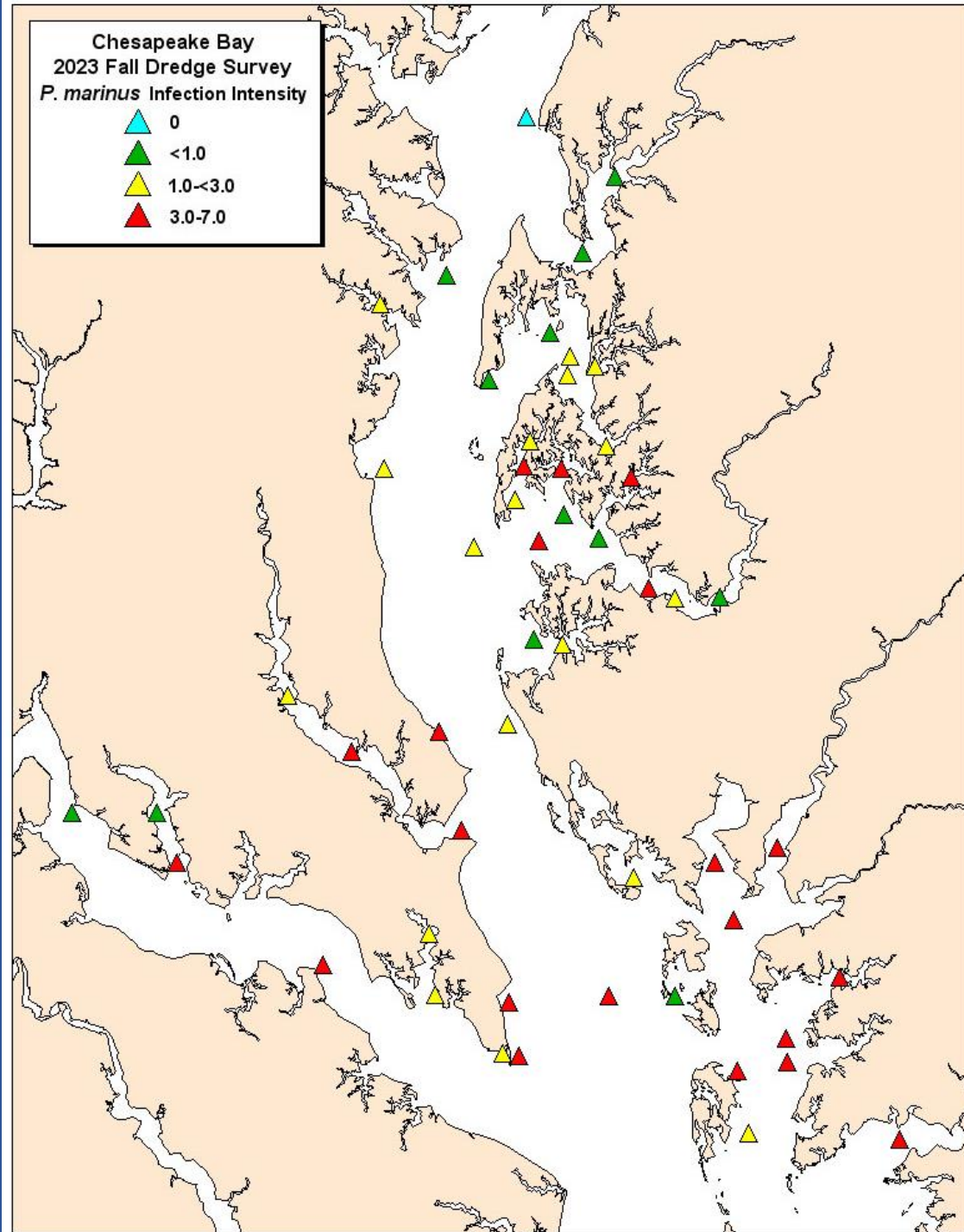


2023 Dermo Prevalence in MD

- Dermo detected at all sampled sites.
- It is widespread throughout MD.
- Elevated prevalences (>60%) were found throughout the bay and tributaries.



Likewise, dermo intensity increased in 2023, exceeding the 34-year average for the first time in six years.

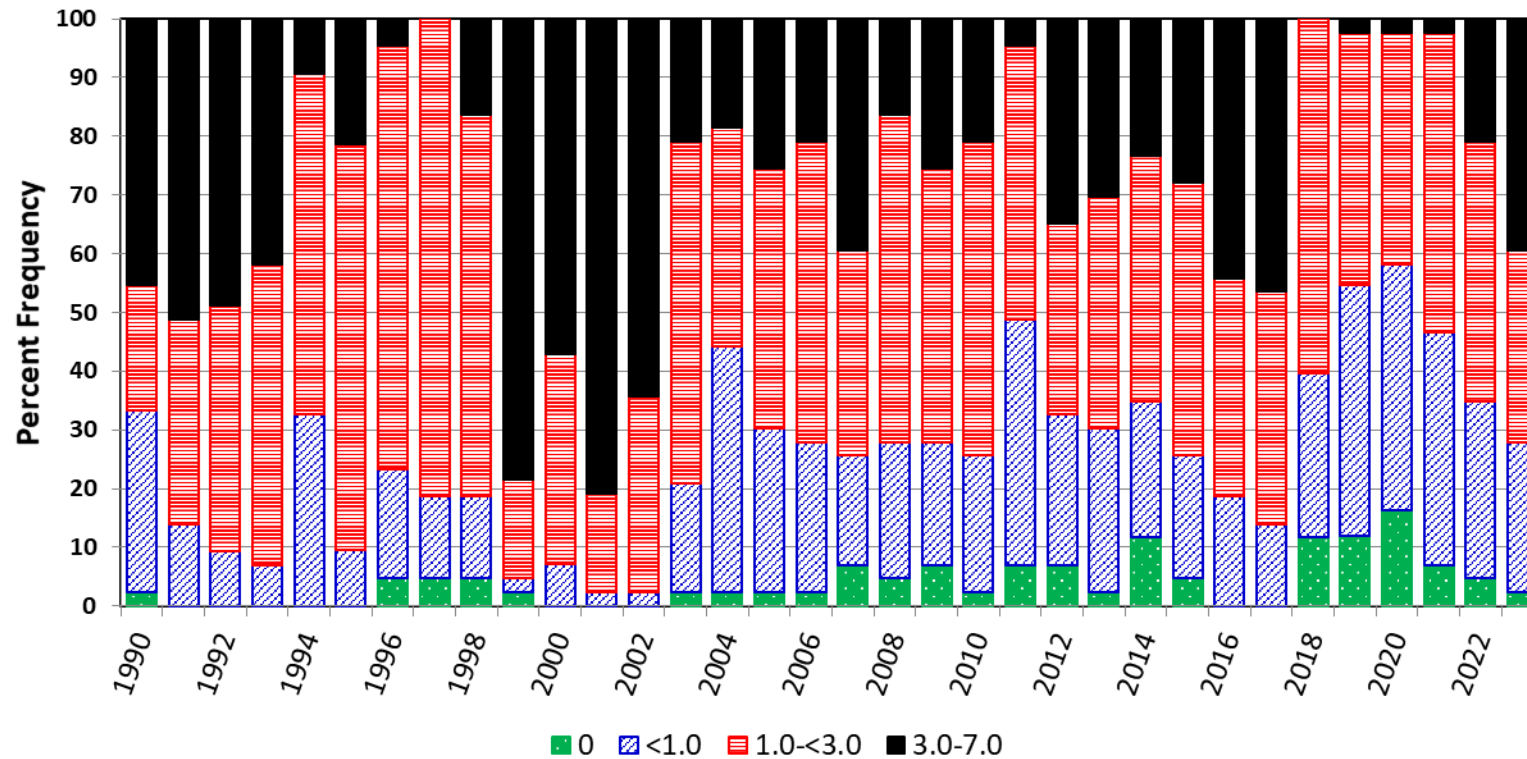


2023 Dermo Intensity Map

-Most of the highest intensities were found in the southern half of Maryland from the Choptank R. down.

-This is a substantial increase in the number of bars with intensity 3 and over, compared to a few years ago. (there were no 3+ intensities in 2018)

Derma Disease Intensity By Mean Intensity Range

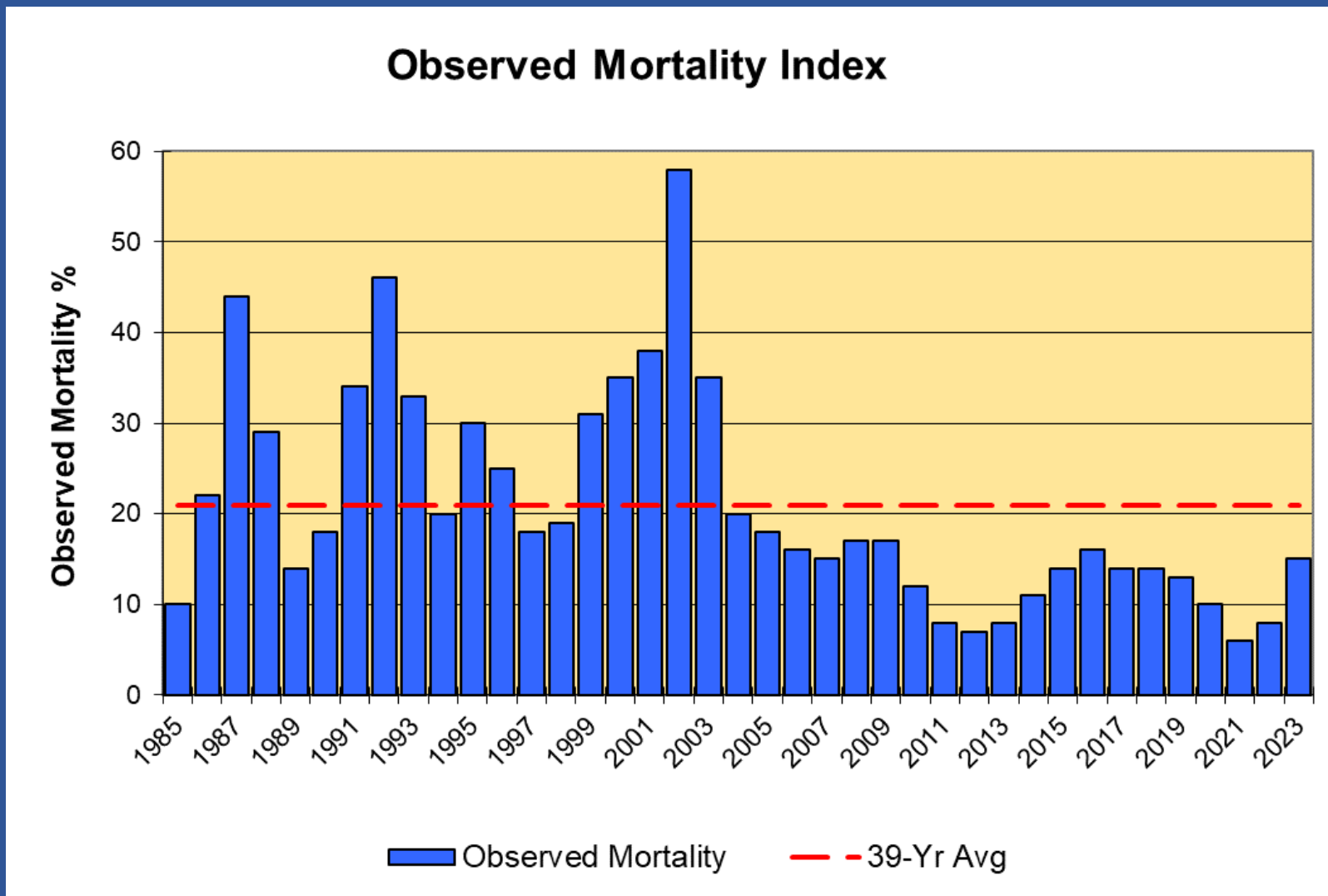


- Intensity of 3 and higher is a concern
(higher risk of mortality than being below 3).
- The number of bars with elevated intensities was the highest in six years (black bars).

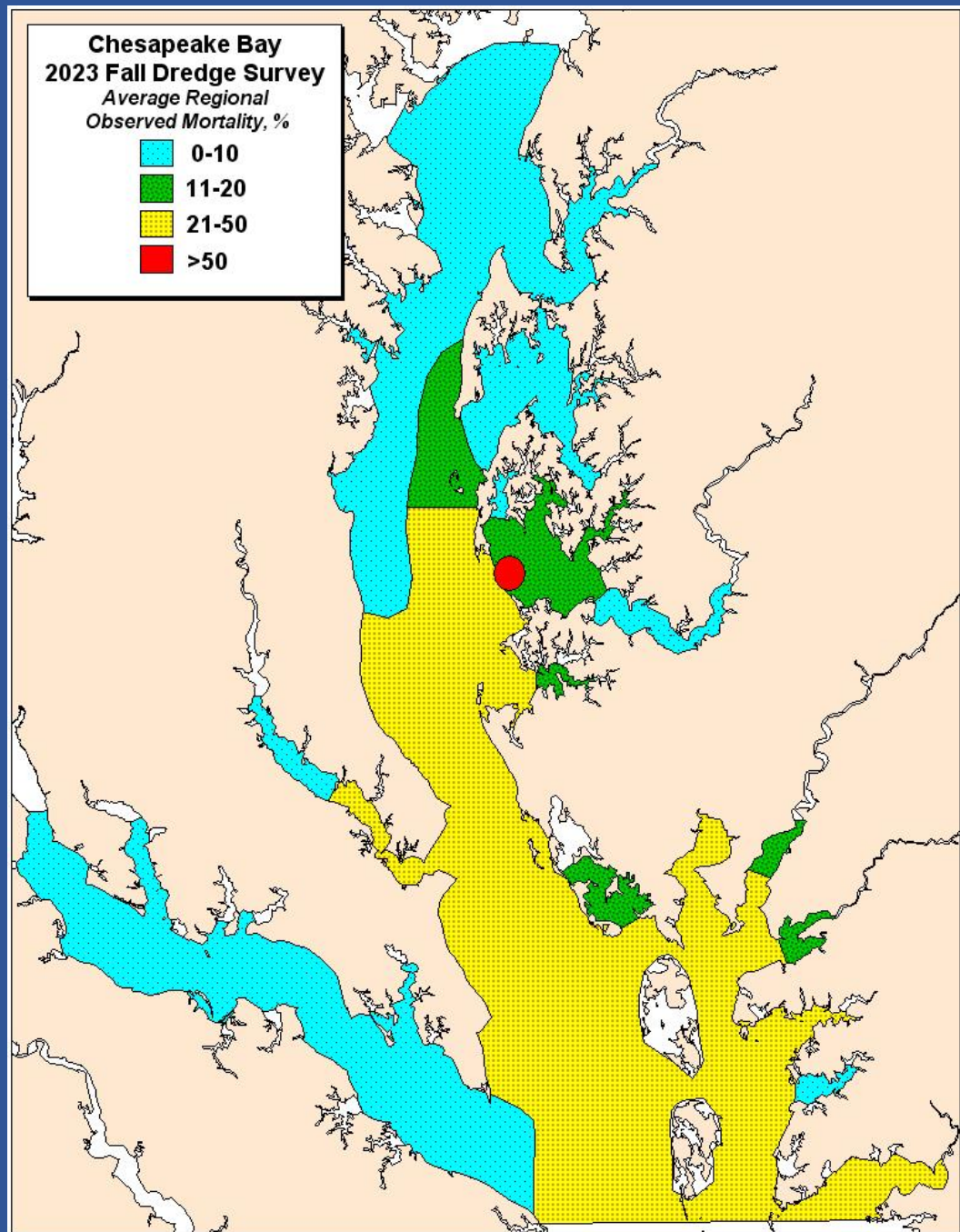
Preliminary MSX Data

- Limited results so far
- Only have results completed on 8 bars
- All 8 bars experienced increases in MSX
 - Some at alarmingly high prevalences

-----more data still to come in-----



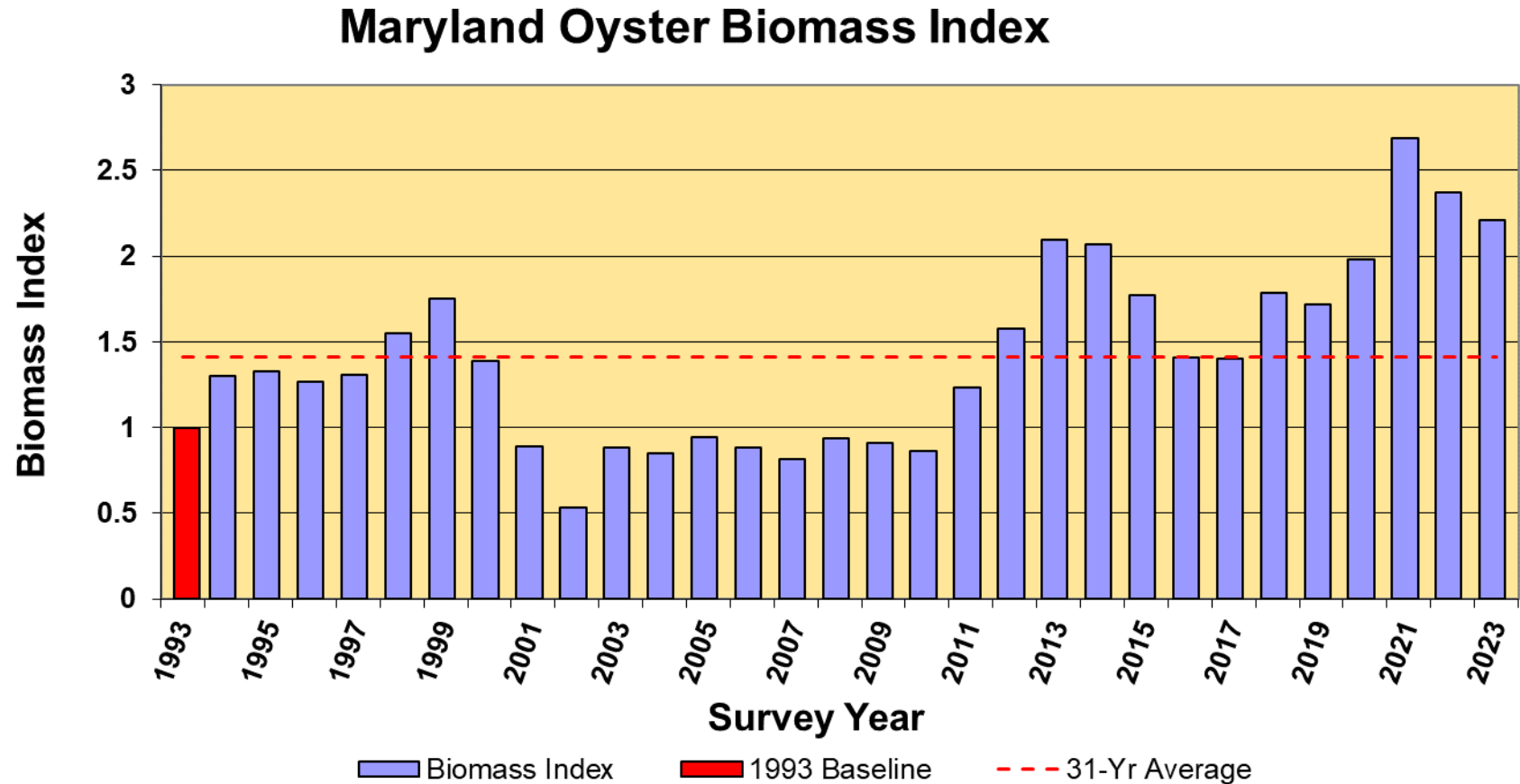
Observed mortalities nearly doubled from the previous year.
- But still remained below the 39-year average for the 20th consecutive year and well below the epizootic period at the turn of the millennium.



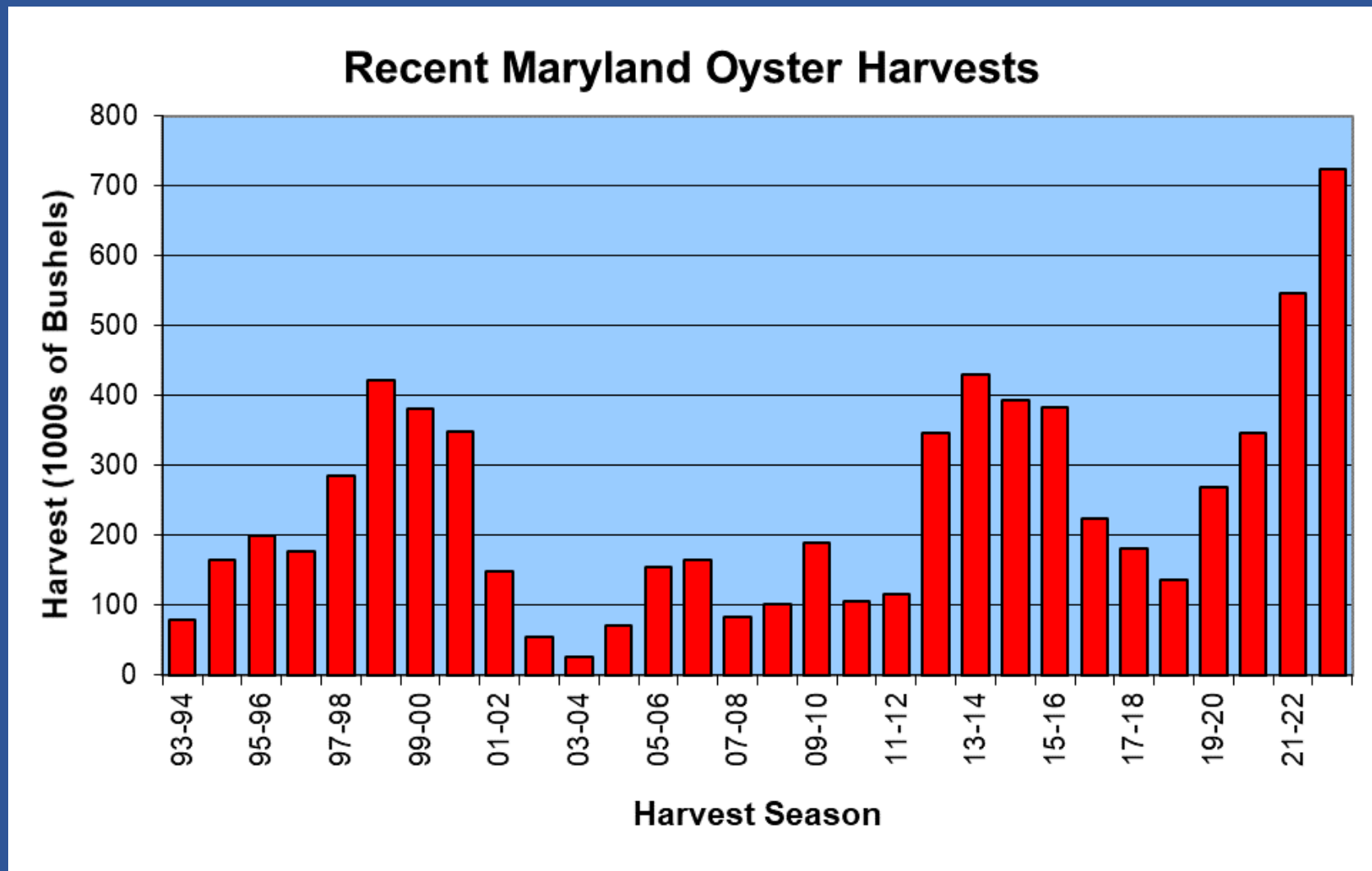
2023 Observed Mortality

- Highest mortalities were observed in the southern portion of Maryland
- Similar to the distribution of elevated dermo intensities
- Cook Pt. bar in the mouth of the Choptank River had the highest observed mortality (56%)

Biomass takes into account both the number of oysters and the sizes of oysters. The Index reflects the general status of the population. An increasing biomass speaks to an improved population.



- The biomass index was the third highest on record
- The index was above the 31-year average in ten of the last 12 years
- This suggests a recovery trend following a decade of stagnation after the devastating epizootics at the turn of the millennium



-Oyster landings for the 2022/23 season were over 700,000 bushels The highest landings in 36 years