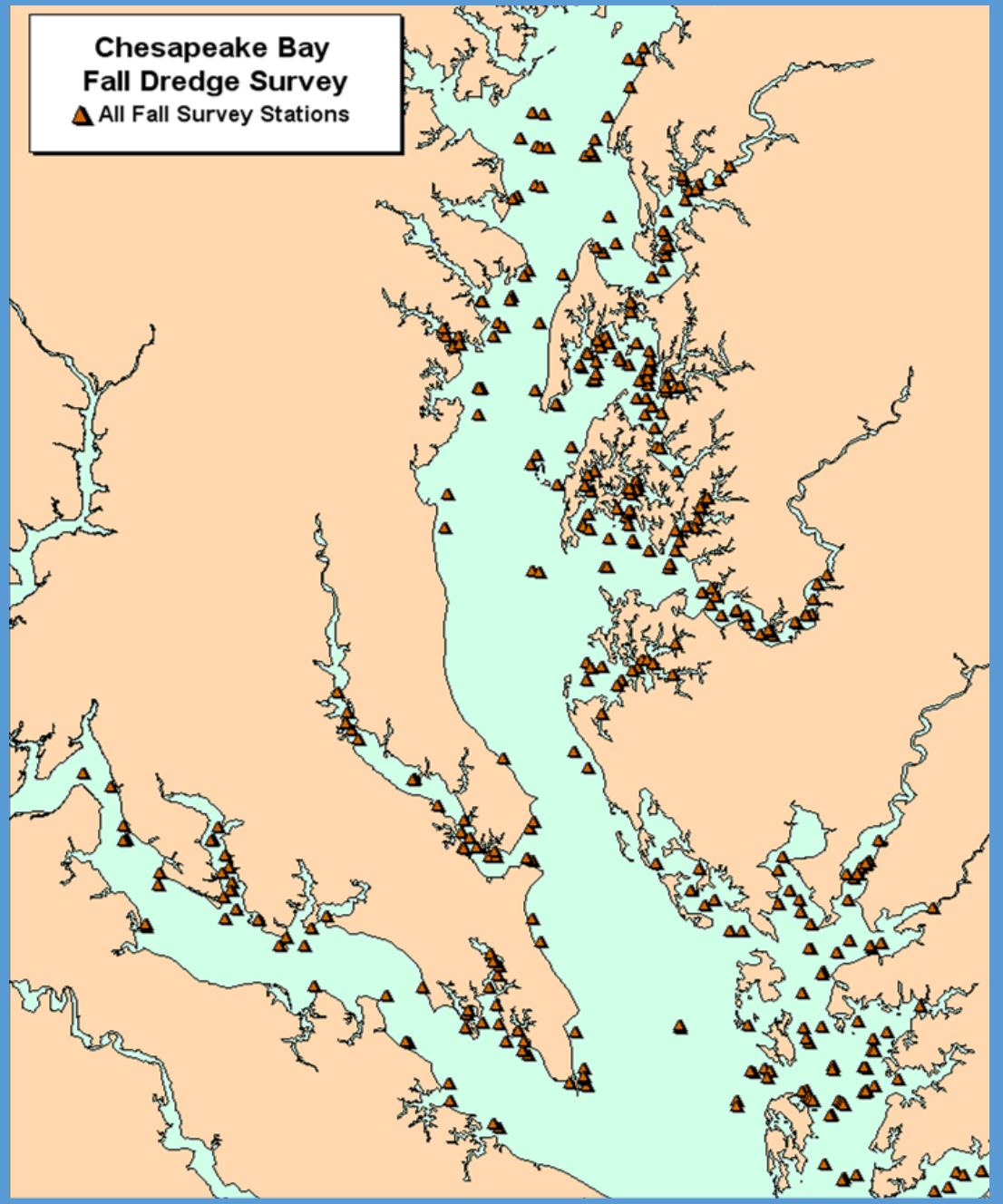
Maryland Oyster Population Status Report

2020/2021 Fall Surveys

Maryland Fall Survey Stations

- Fixed sentinel stations are examined to evaluate spatset, disease, mortality, and biomass
- Additional sites are included for a more complete picture or as needed (e.g. shell and seed plantings)
- Over 250 stations are sampled annually

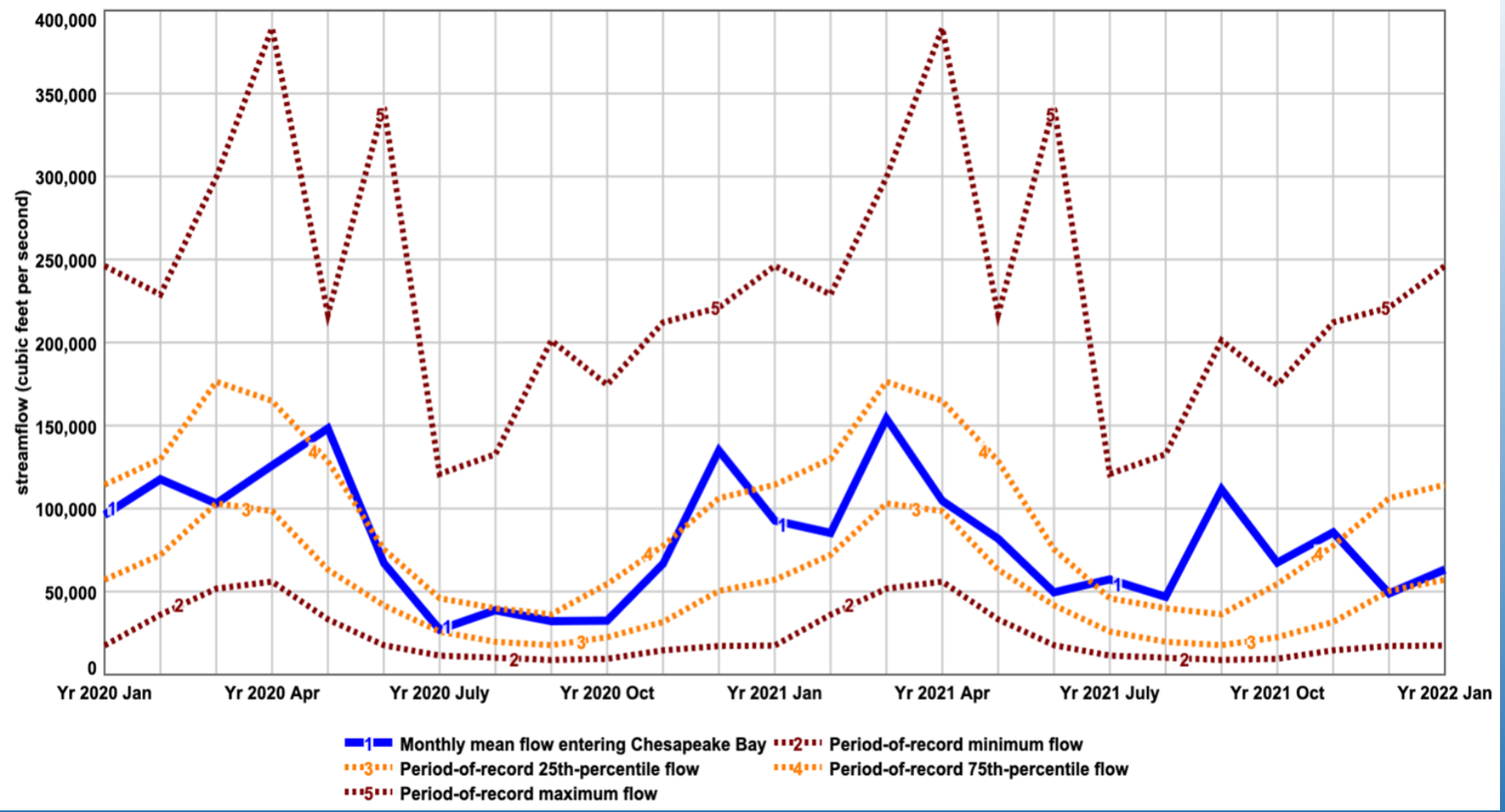


Key Factors Affecting Oyster Populations

- Streamflow: The amount of fresh water entering the bay influences salinity, which affects spat set, growth, disease and survival.

- Spat Set: The level of oyster reproduction affects future populations. Today's spat are tomorrow's oysters.

- Diseases: Dermo and MSX can severely reduce oyster populations



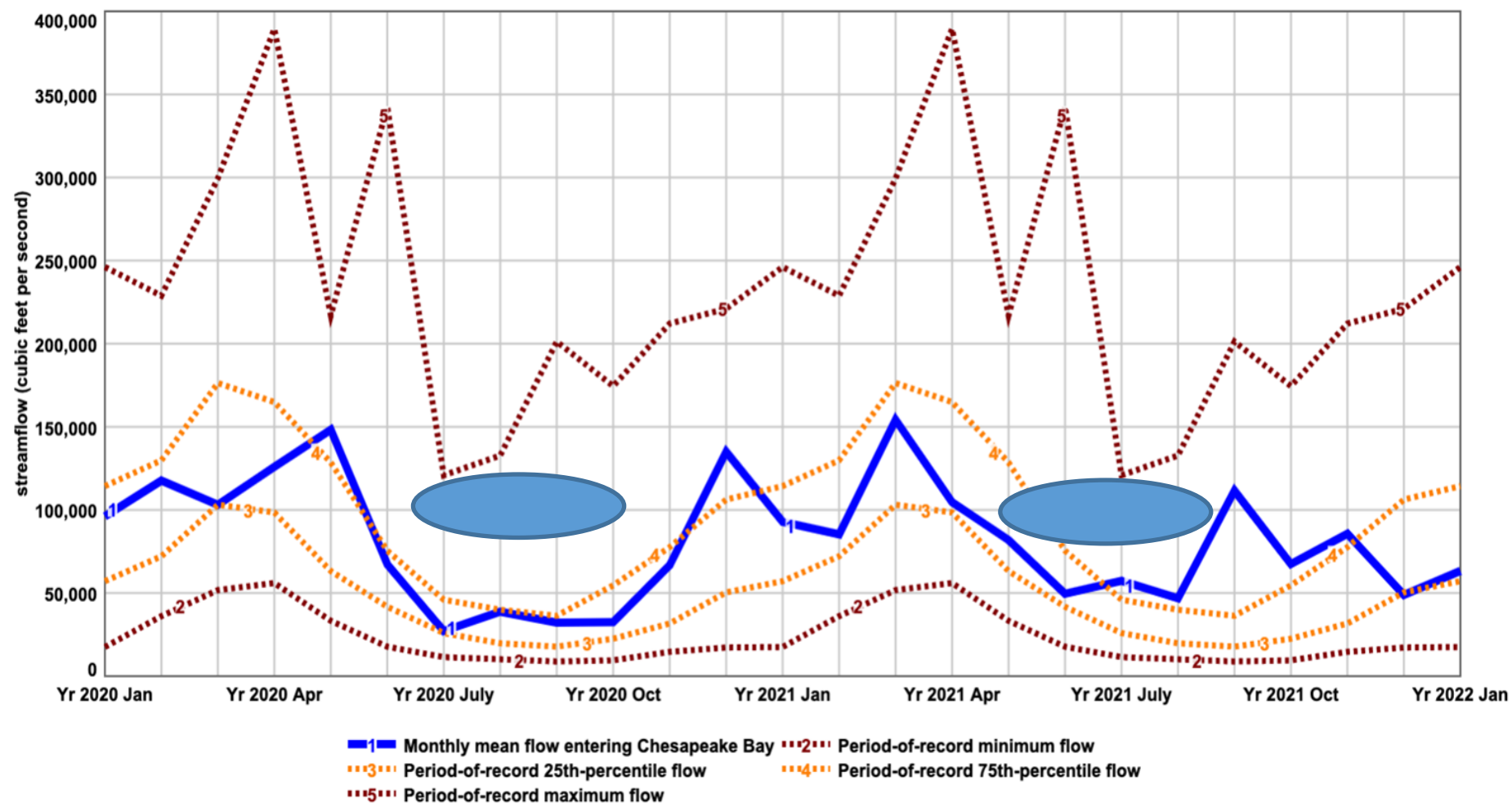
Solid blue line = stream flows for 2020 and 2021.

Note the usual summer dip in the line for both years.

Lower flow = higher salinity during oyster spawning season

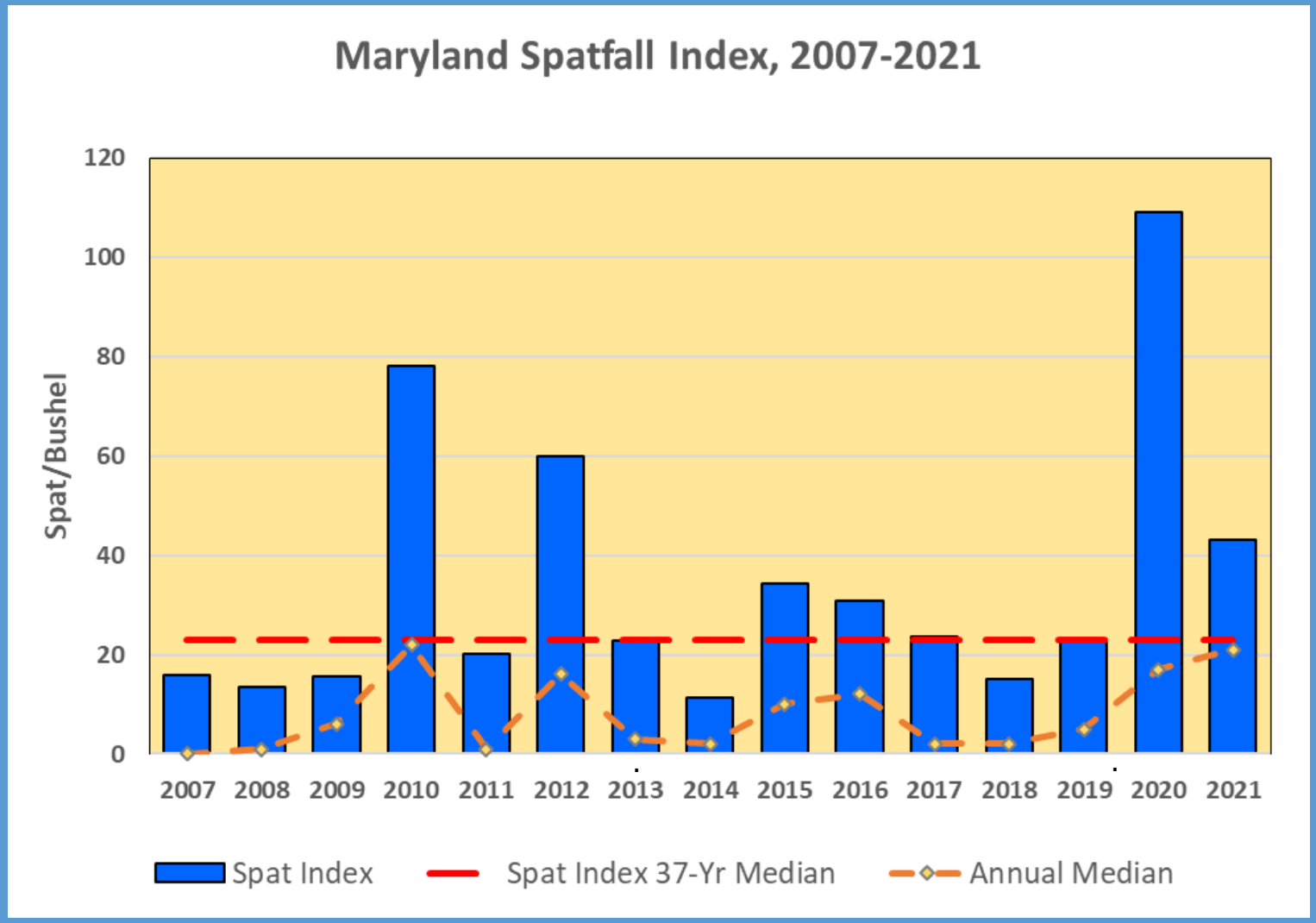
Graph courtesy of USGS

- Streamflows were generally within the normal range over the past two years
- Major exception was in September 2021 due to hurricane activity



Graph courtesy of USGS

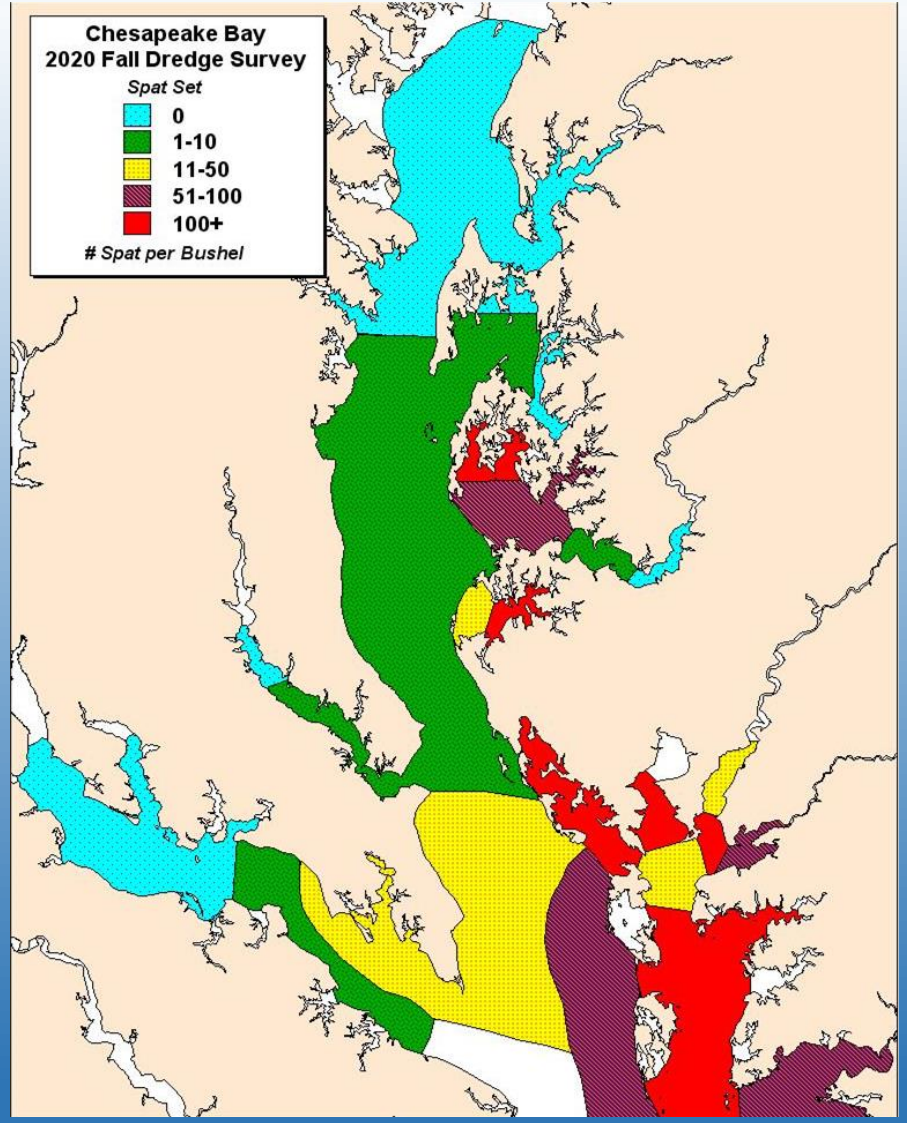
- Streamflows in summer 2018 are estimated by the ovals
- 2018 summer flows were very high compared to summer 2020 and 2021
- 2020 and 2021 were more normal summers with lower flows and higher salinity



The 2020 Spat Index
- highest since 1997

The 2021 Spat Index
- lower than 2020
- yet almost double
the 37-year median

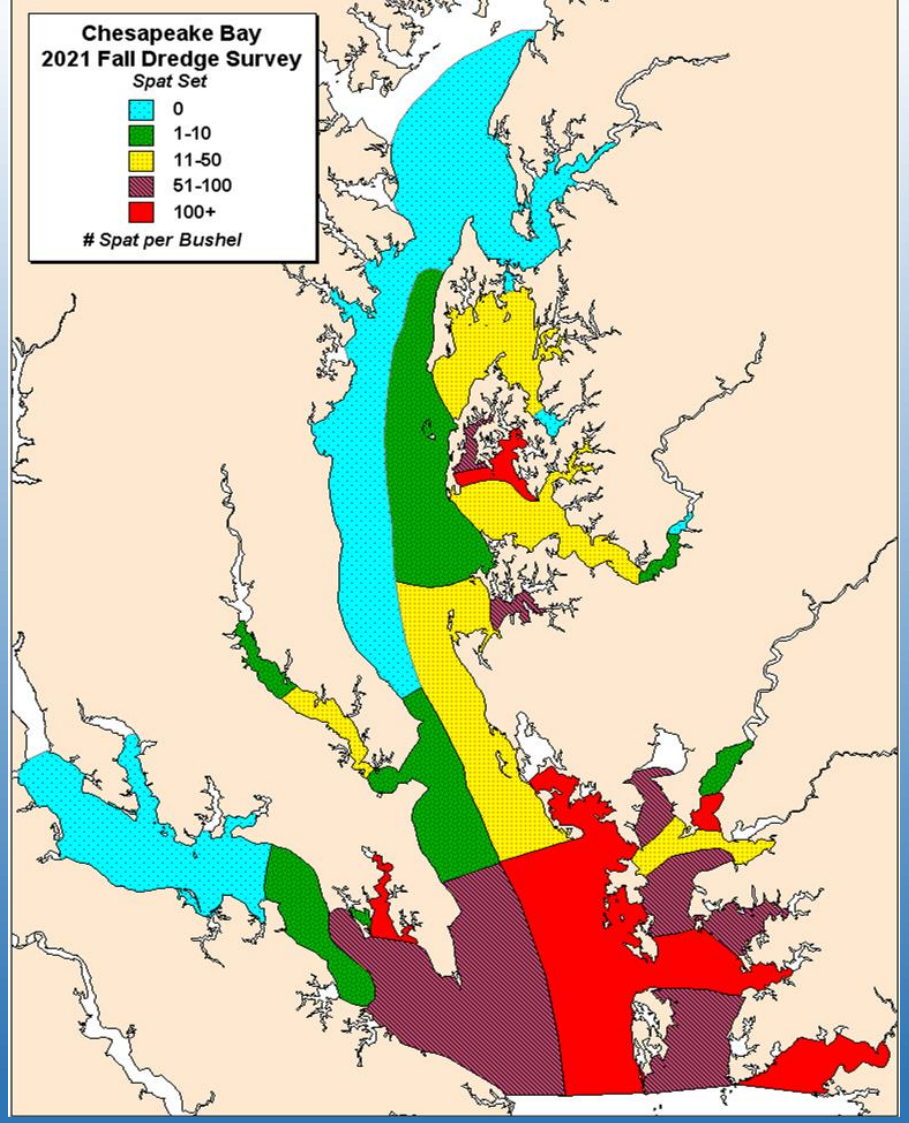
Spat grow to become the future oyster population
- two strongs sets…..
good for the future



2020

-Higher spatsets were more concentrated

Primarily in the lower Eastern Shore and Choptank R and its tributaries



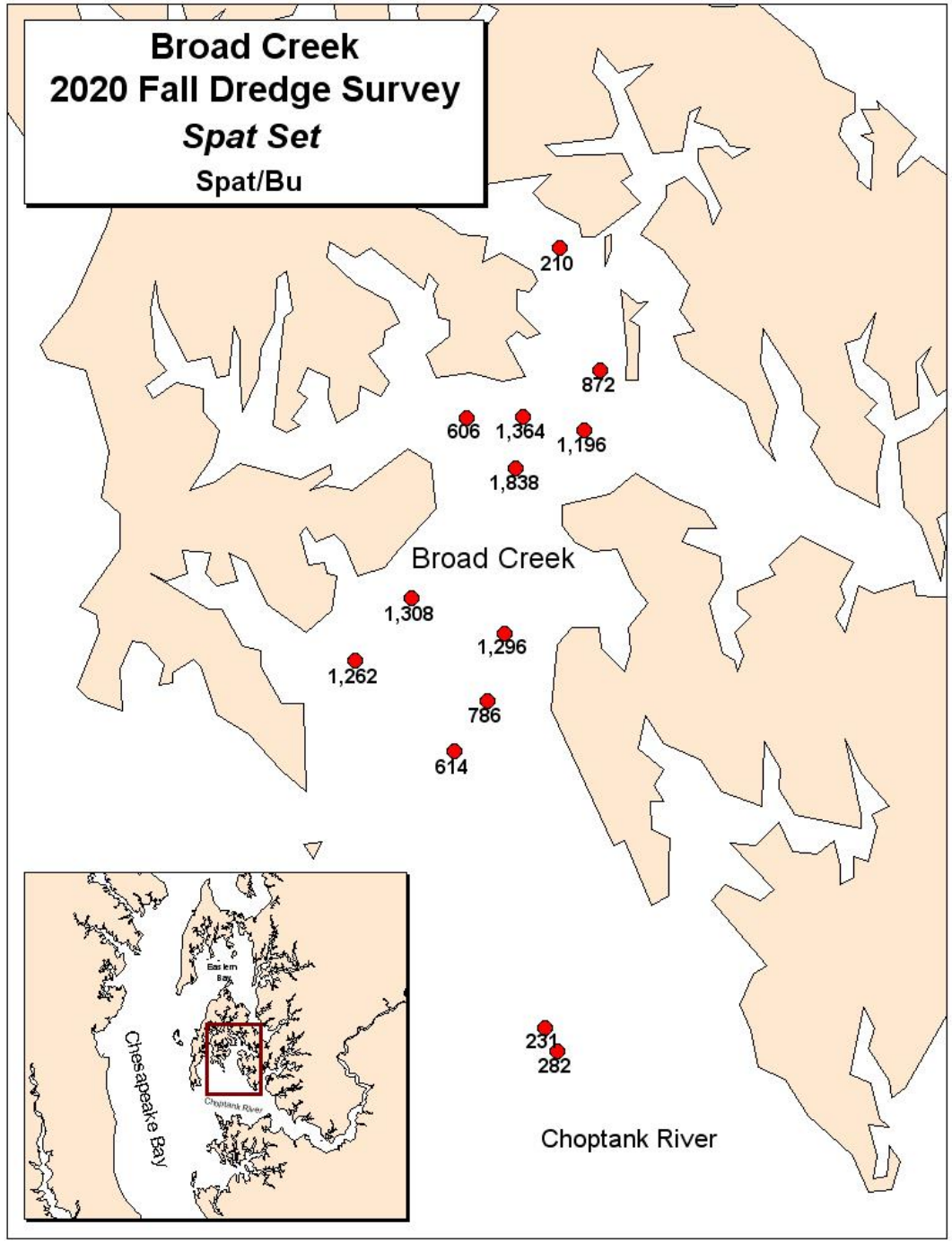
2021

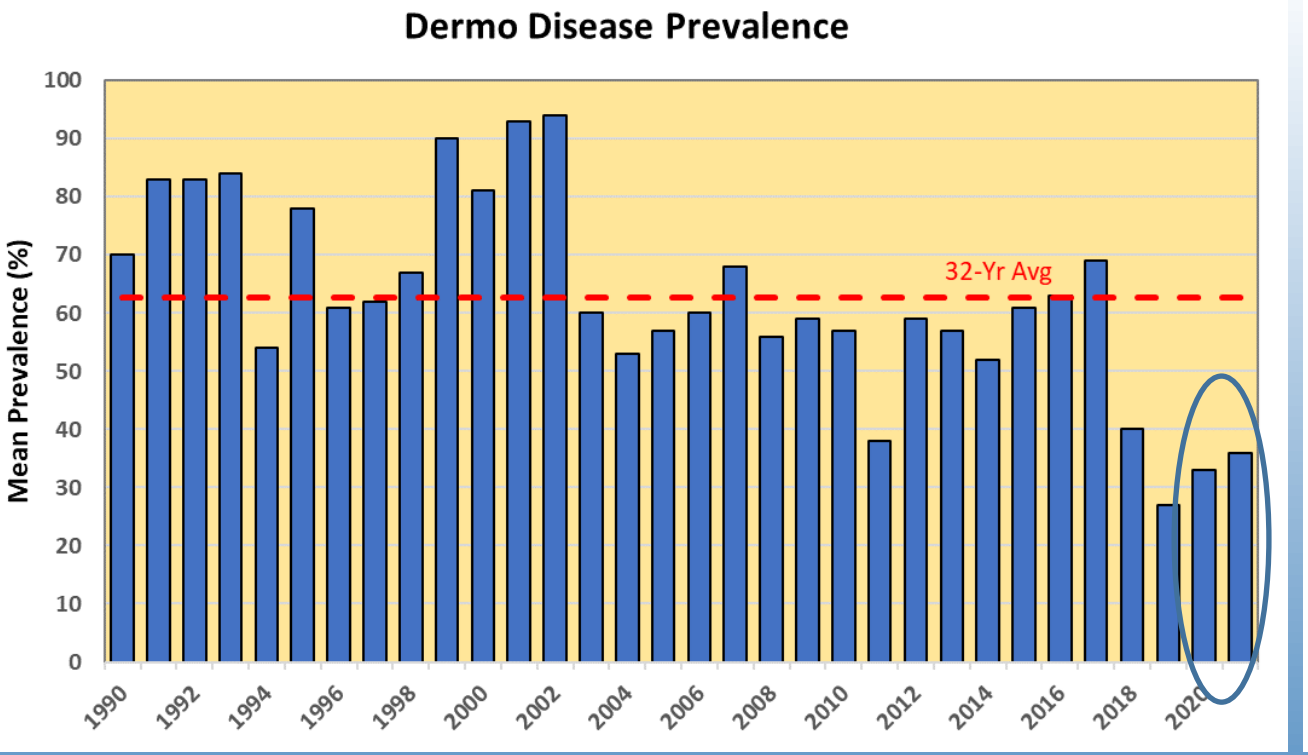
-Higher spatsets were more widely distributed

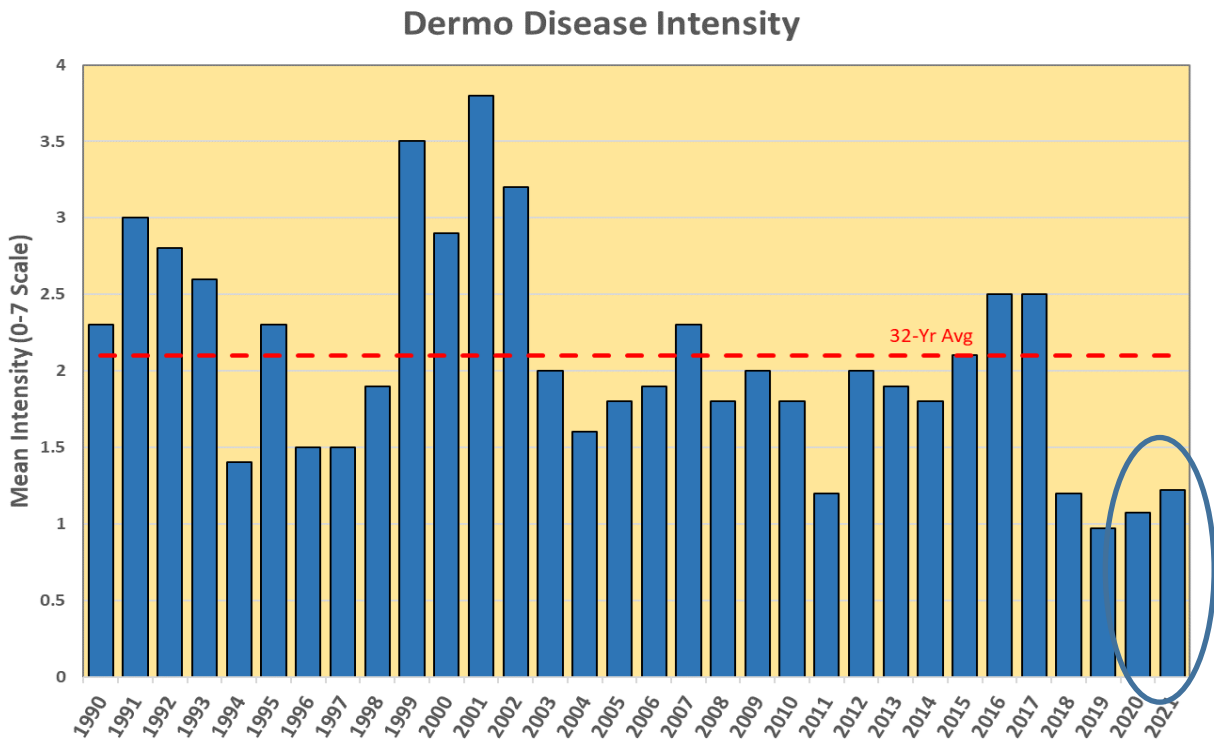
Lower E. and W. Shores, plus the Eastern Bay region had its best spatset in decades

2020 Broad Creek Spatset

- Exceptional spatset in 2020
  - -Average was over 900 spat/bushel
- Deep Neck bar had its second highest spatset since 1939 with 1,838 spat/bu
  - -Highest spat count of the 2020 survey

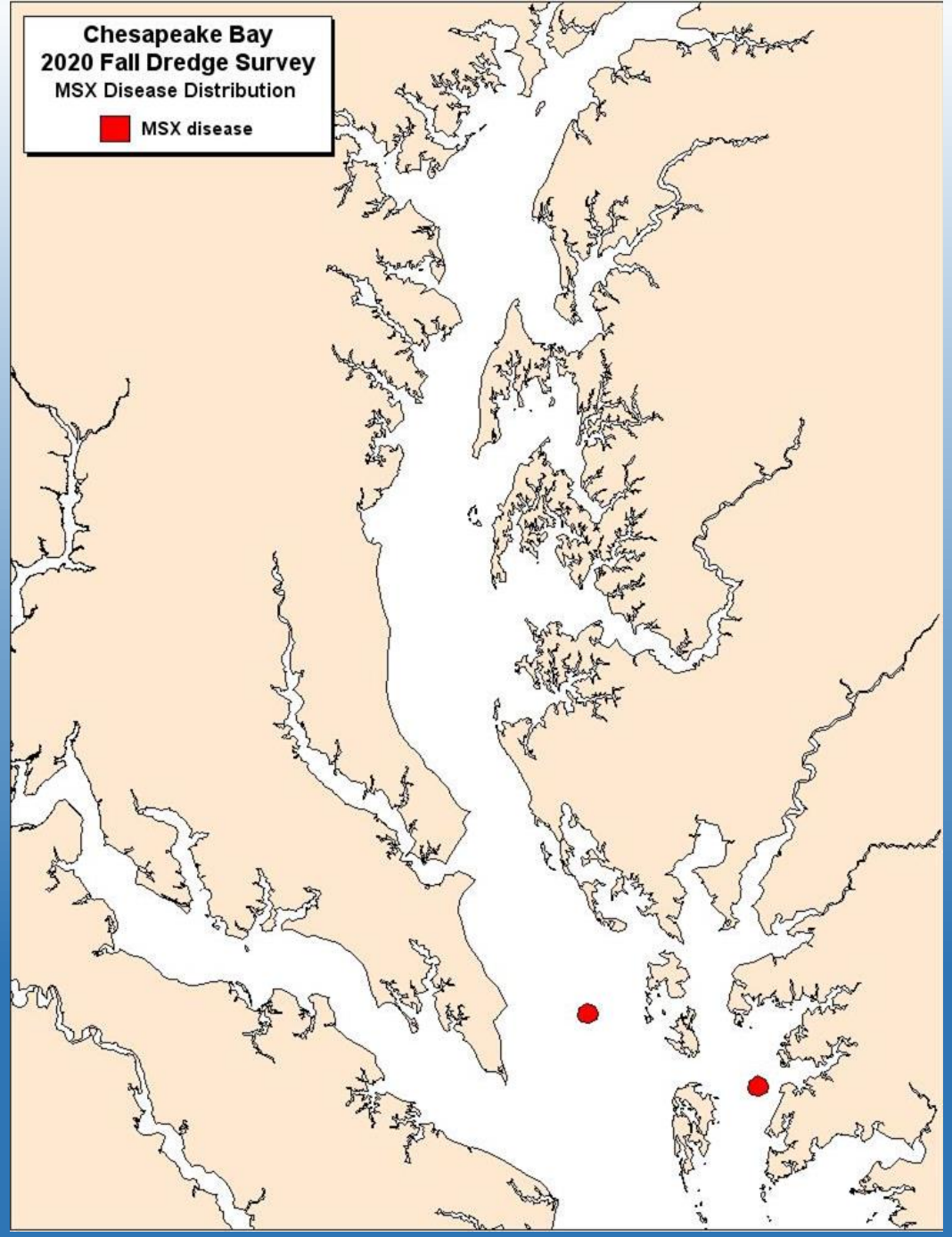


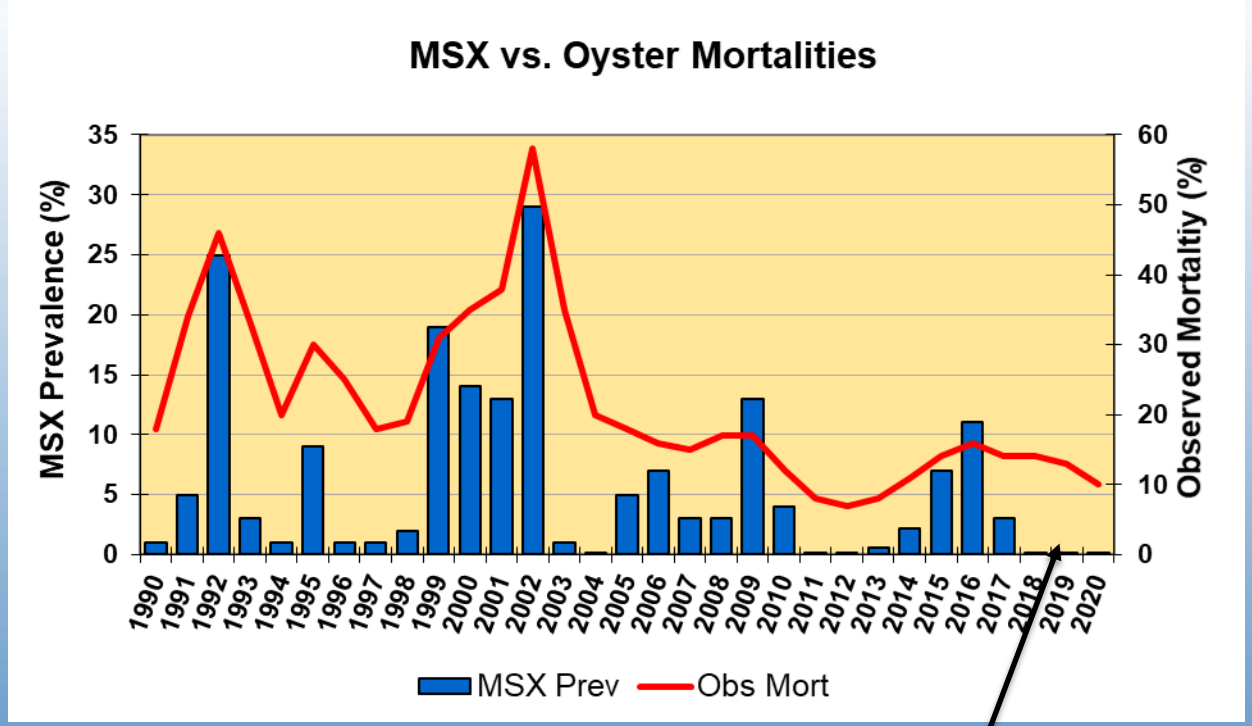




Dermo Disease

2020/2021 Dermo disease levels remained well below the 32-year average and were among the lowest of the time series



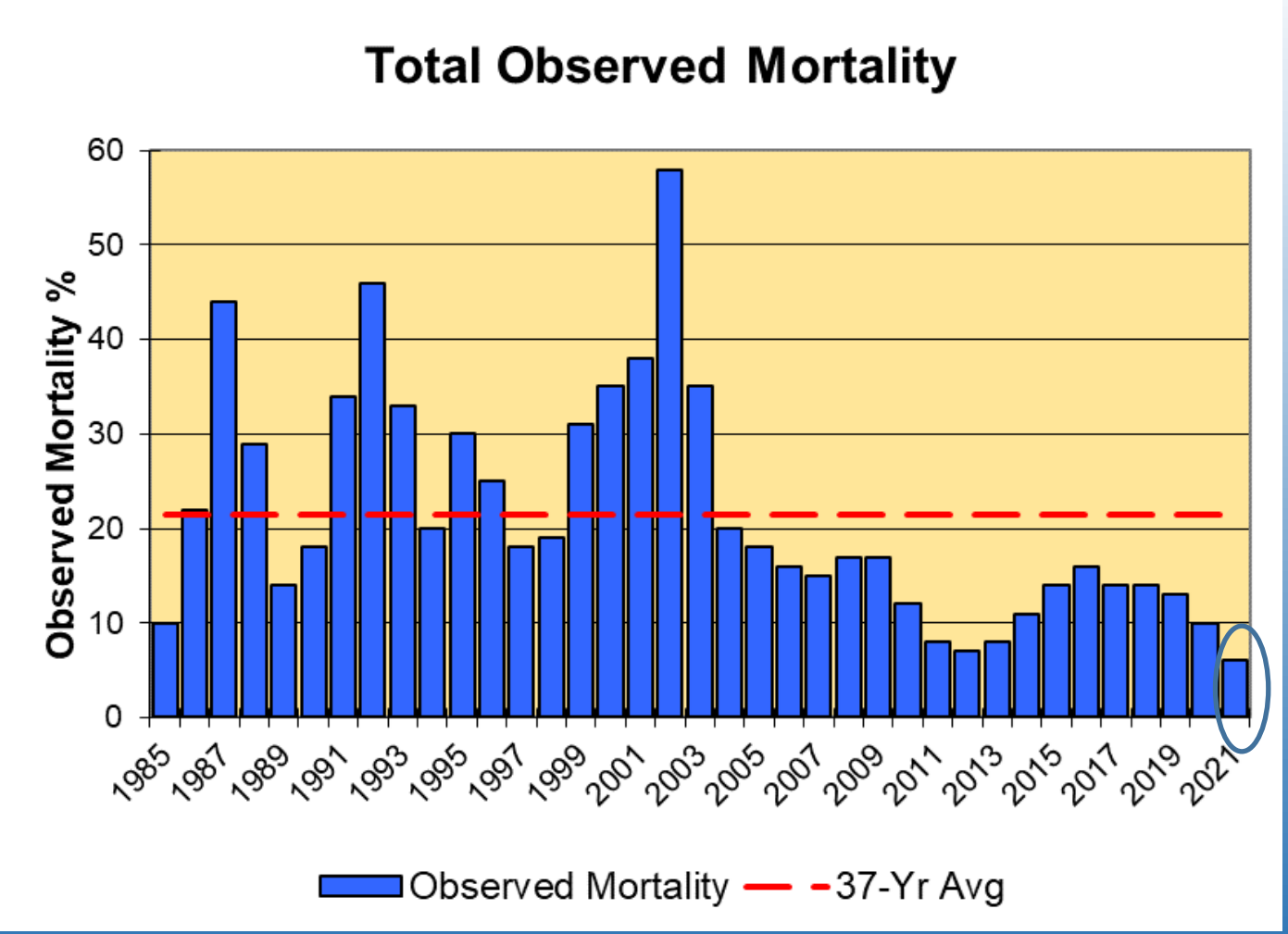


2020 MSX Disease

-MSX has been at its lowest levels during the past three years

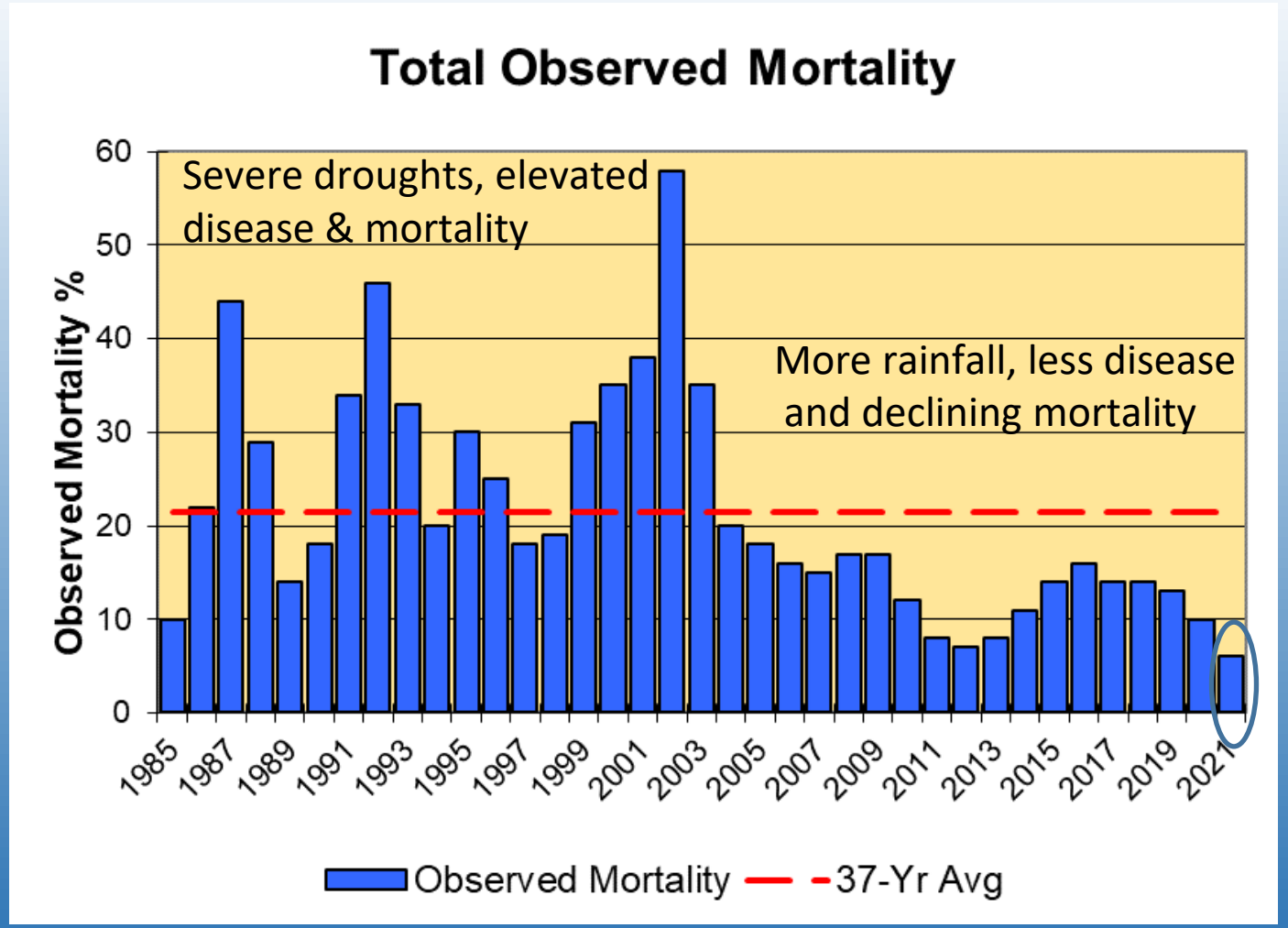
-Detected in only two oysters total at two sites

-2021 MSX results are not yet available



-Mortalities have been trending downward over the past five years

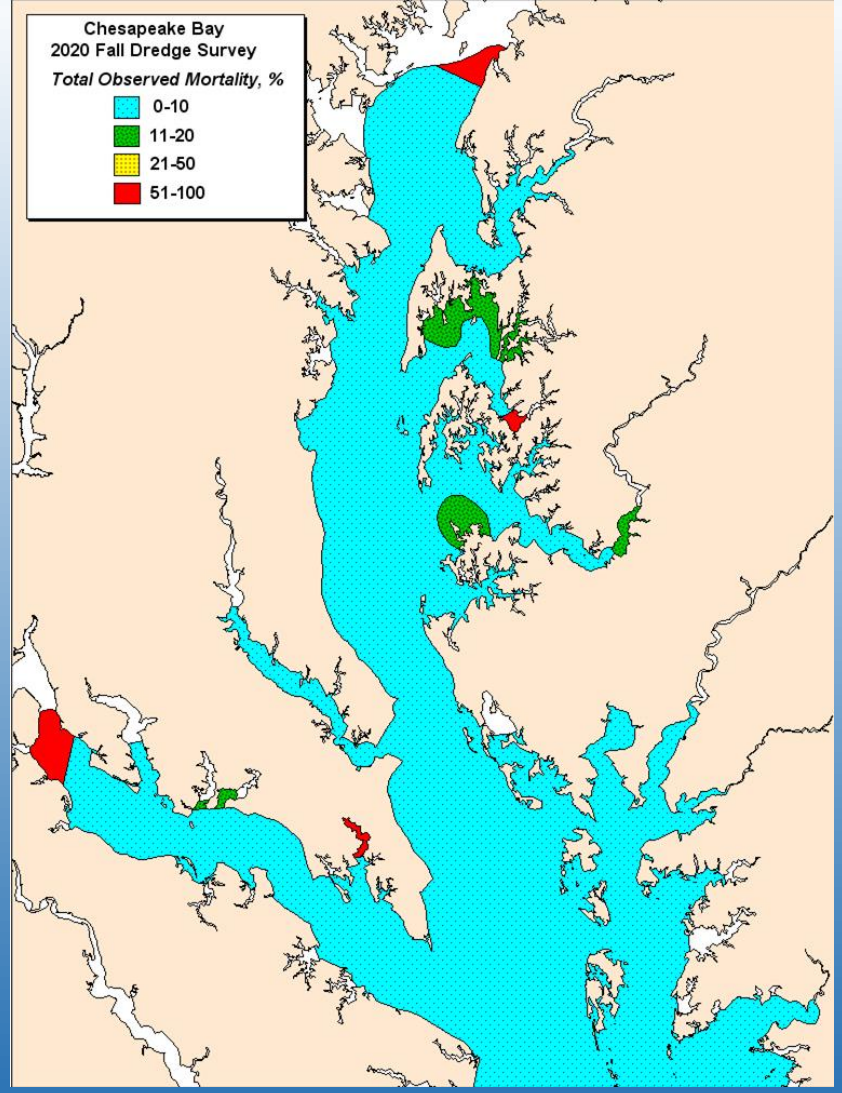
-The 2021 Mortality Index was the lowest of the 37-year time series

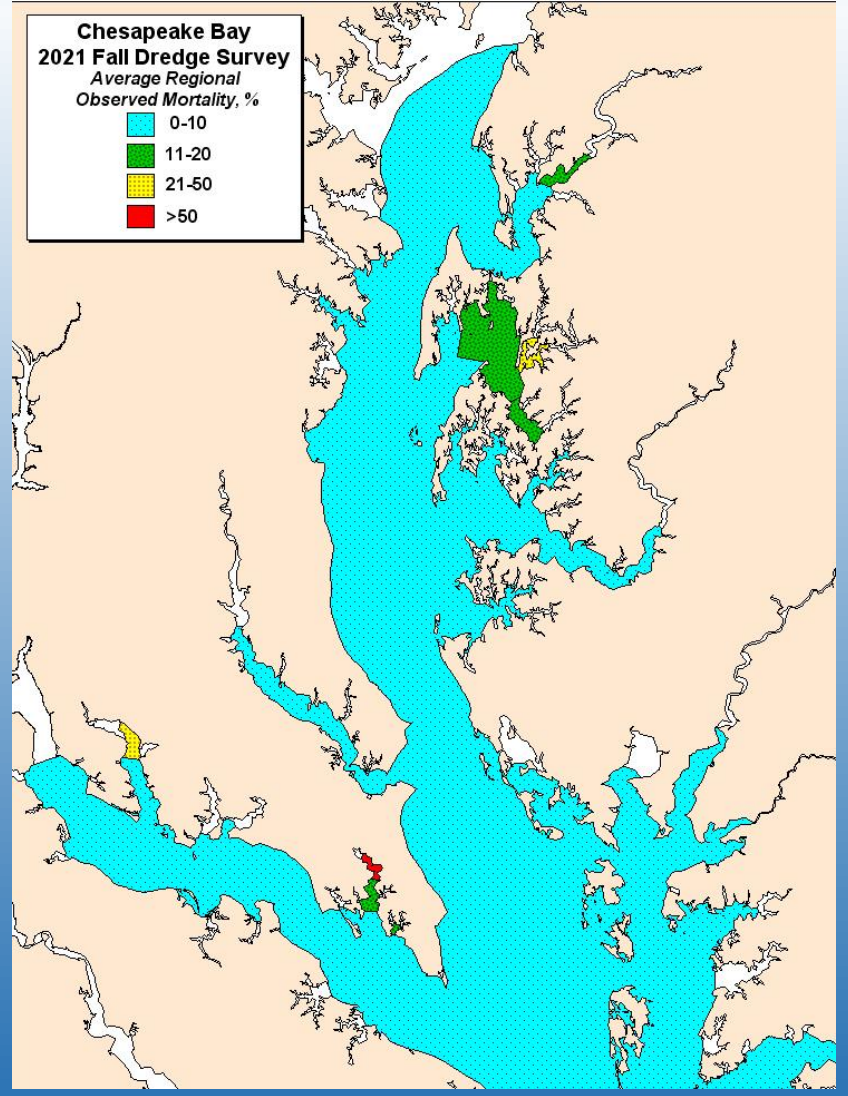


-Prior to 2003: multiple droughts, elevated salinity, high disease & mortality levels

-After 2003: greater rainfall, more freshets, lower salinity & lower mortality levels

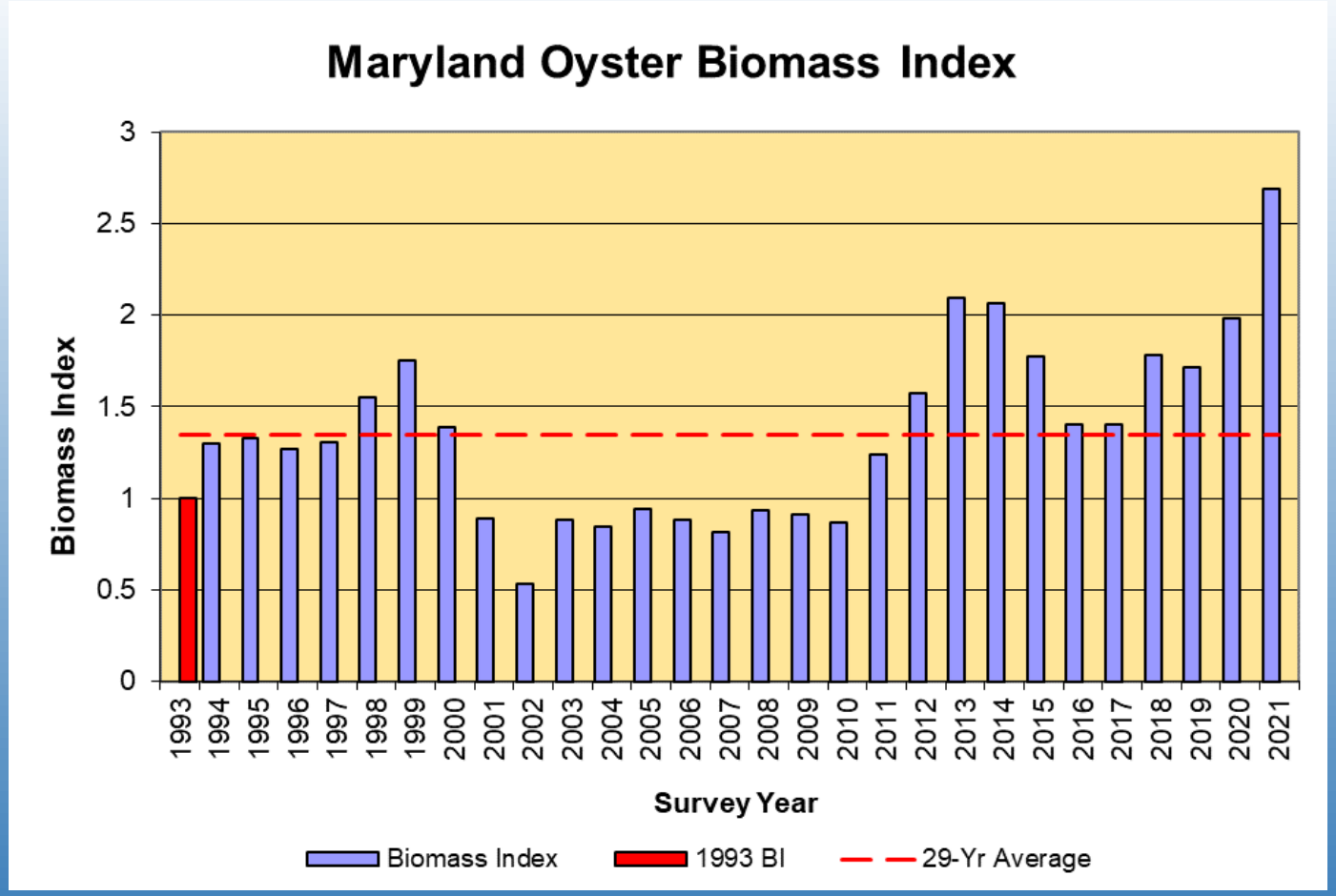
……the environment became less favorable for disease and more favorable for oysters……





-Mortalities were low throughout the Bay both years

-The primary exceptions were in the upper Potomac and St. Marys rivers



Highest Biomass Index

-The 2021 Biomass Index was the highest on record

-Biomass has been trending generally upward over the past 11 years as a result of good spatsets, low disease levels, and declining mortalities

FALL SURVEY - SUMMARY 2020 and 2021

- Strong spat sets….both years
- Continued low disease
- Continued low mortality
- Continued increase in biomass

- For copies of previous Fall Oyster Survey reports or additional information visit the MDNR Shellfish Monitoring and Assessment Program webpage at:
  https://dnr.maryland.gov/fisheries/pages/shellfish-monitoring/reports.aspx