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2022 State of the Ecosystem: Chesapeake Bay

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NOAA Chesapeake Bay Office

Overview

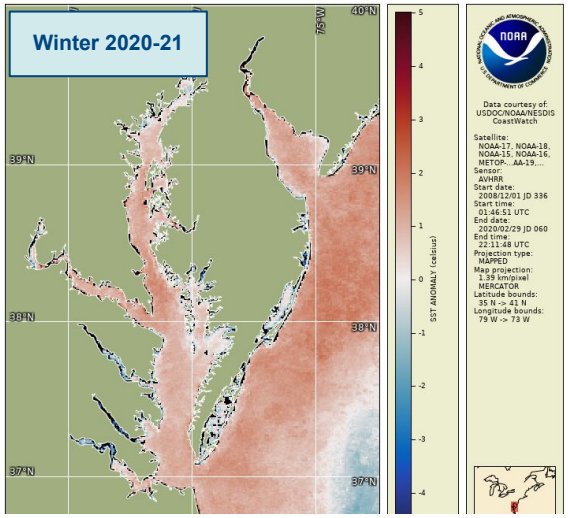
- What: Summary of seasonal environmental conditions relative to long-term averages and the potential impacts on key fishery resources
- Target Audience: State and coast-wide fishery resource managers
- Purpose: To guide habitat and fishery management decisions in an ecosystem context in the face of changing environmental conditions

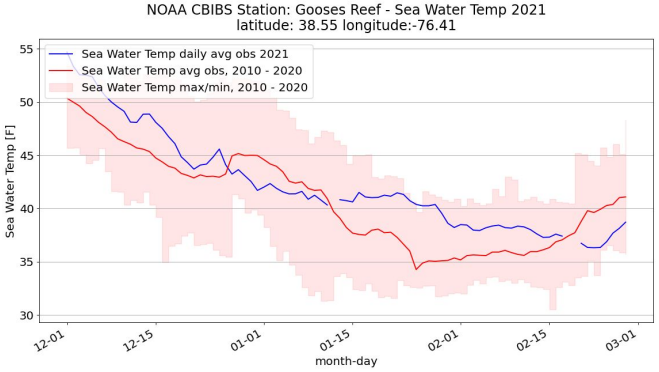
Data Sources

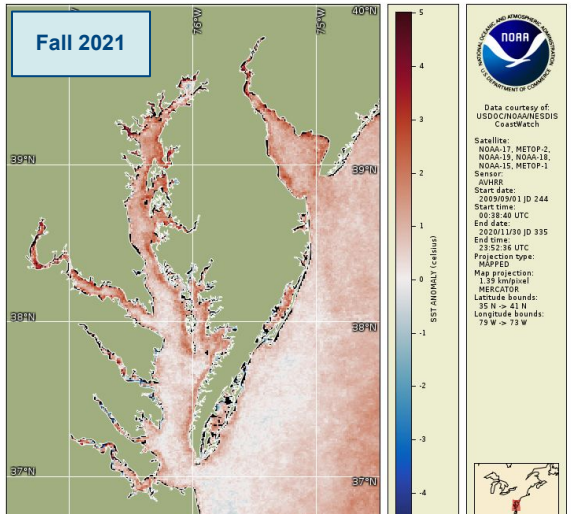
- NOAA Chesapeake Bay Interpretive Buoy System (CBIBS)
- NOAA CoastWatch Program
- NOAA National Weather Service
- USGS National Water Information System
- Fisheries surveys
- Oyster surveys
- Hypoxia reports

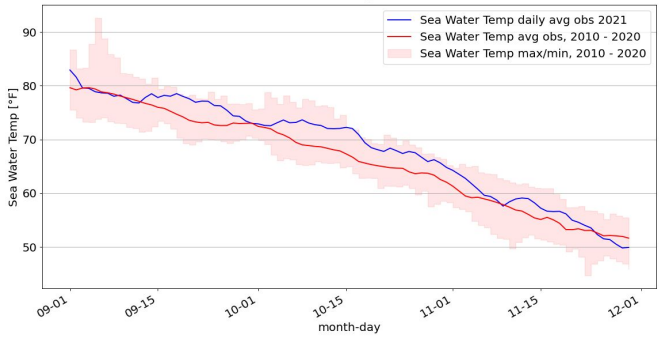
Water Temperature

- Warmer-than-average winter and fall water temperatures









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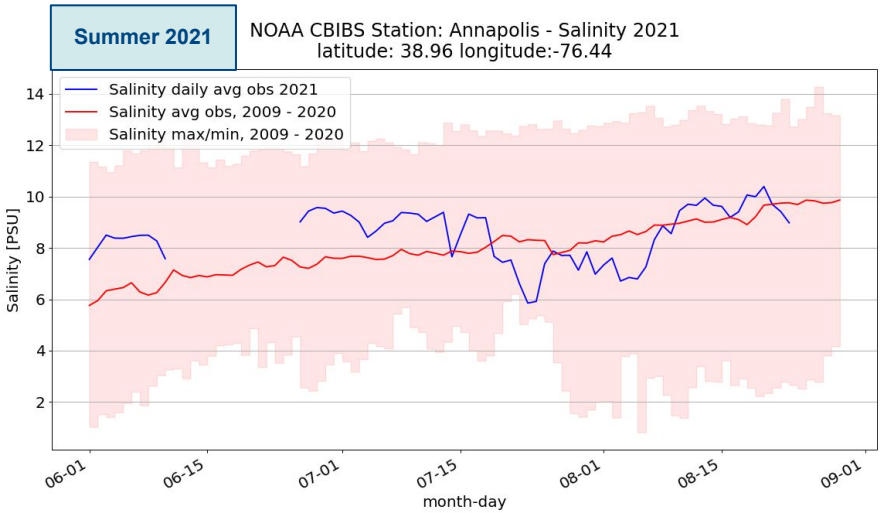
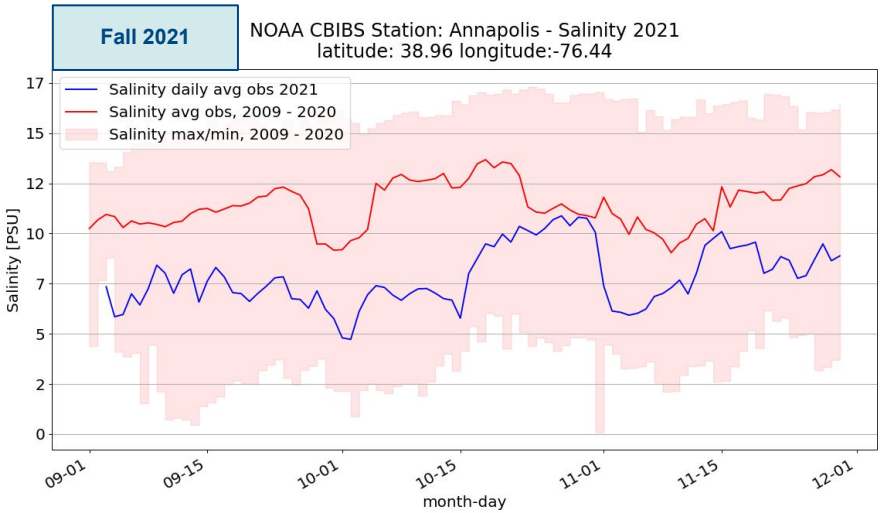
Salinity





- Above-average salinity in summer
- Below-average salinity in fall
- High-precipitation storm events reduce salinity

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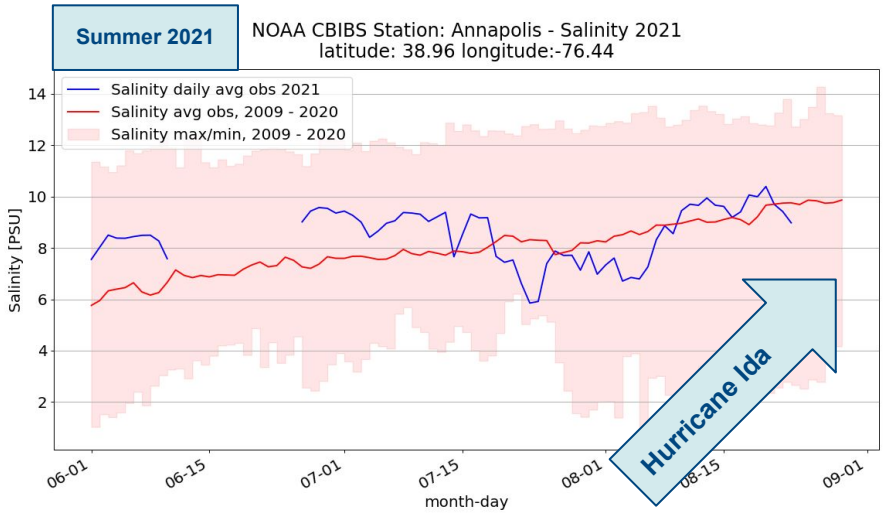
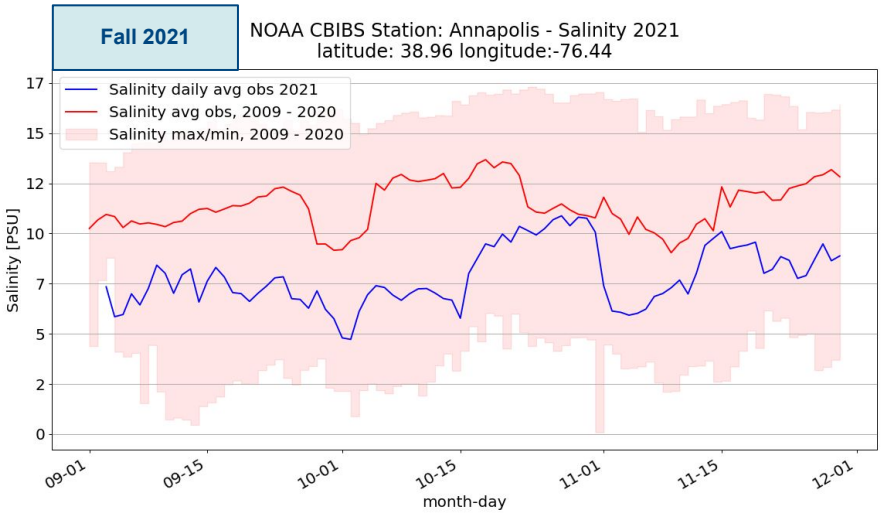
Salinity





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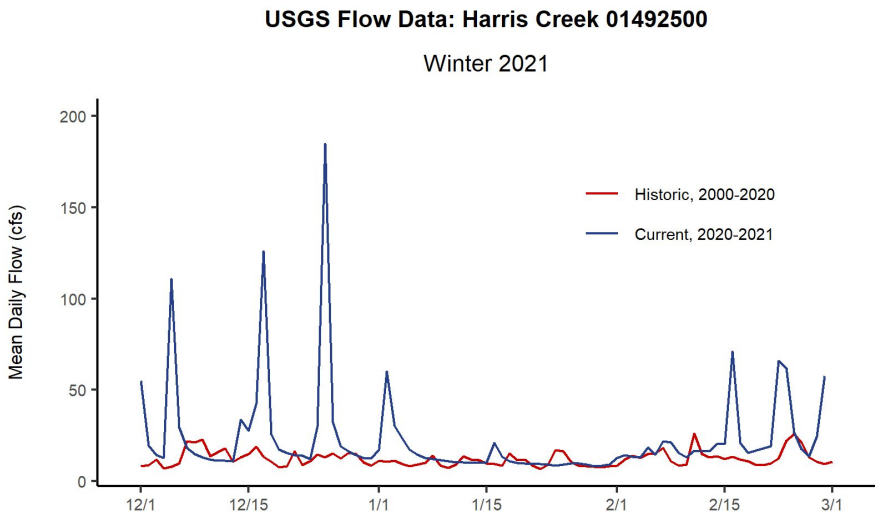
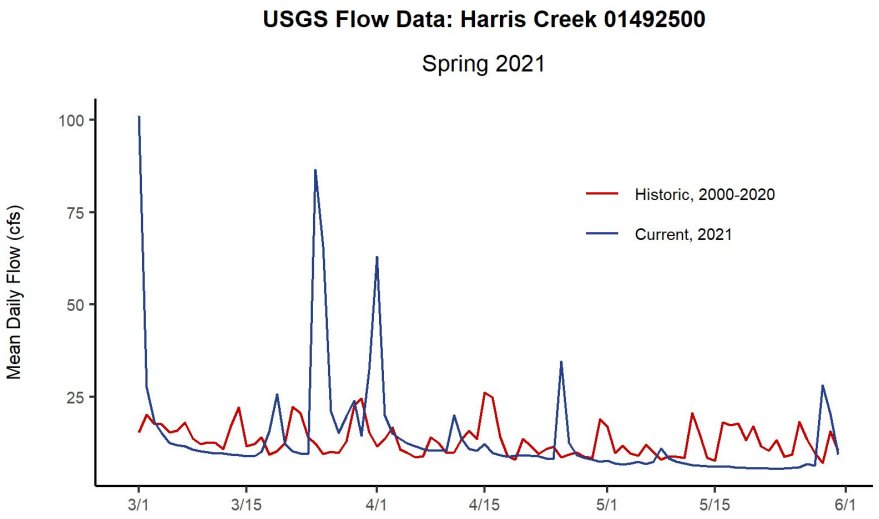
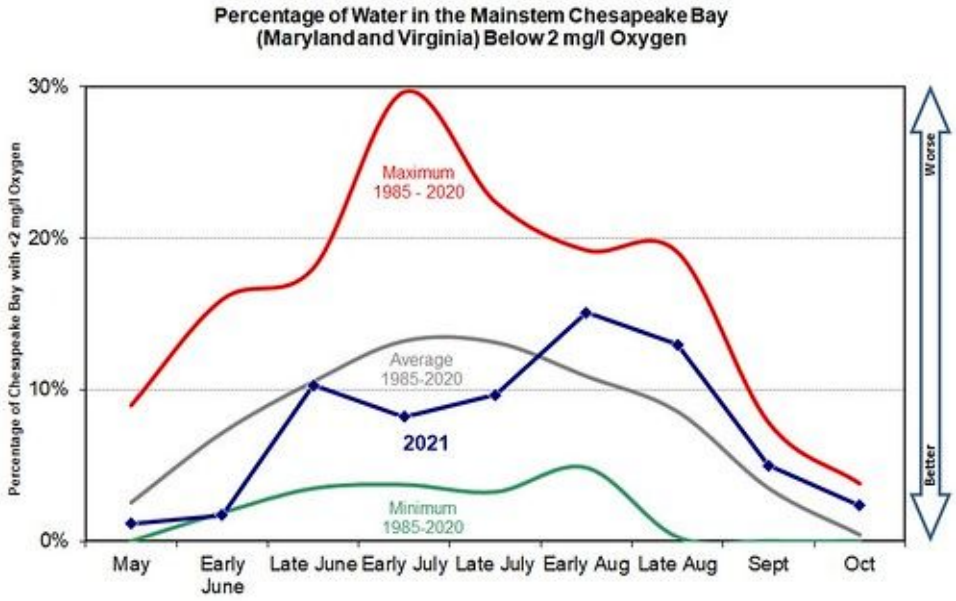
Freshwater Flow

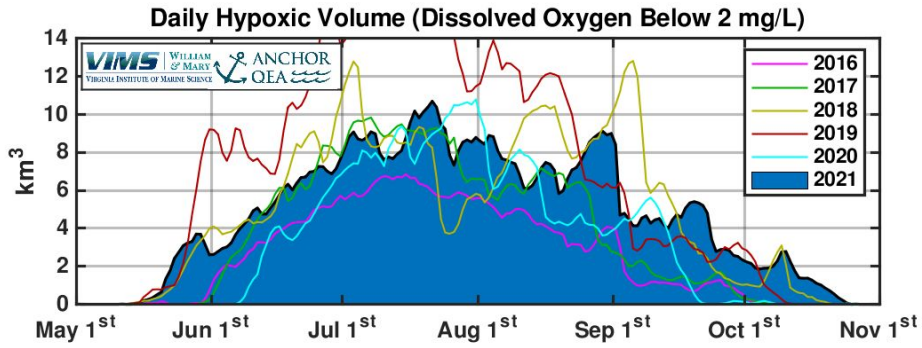




- Above-average freshwater flow in winter and early spring

Dissolved Oxygen





- Below-average hypoxic volume in early summer
- Above-average volume in late summer and fall
- Decrease in hypoxic volume with Hurricane Ida
- Relatively long duration of hypoxia
  - Warm fall temperatures
  - High-precipitation events

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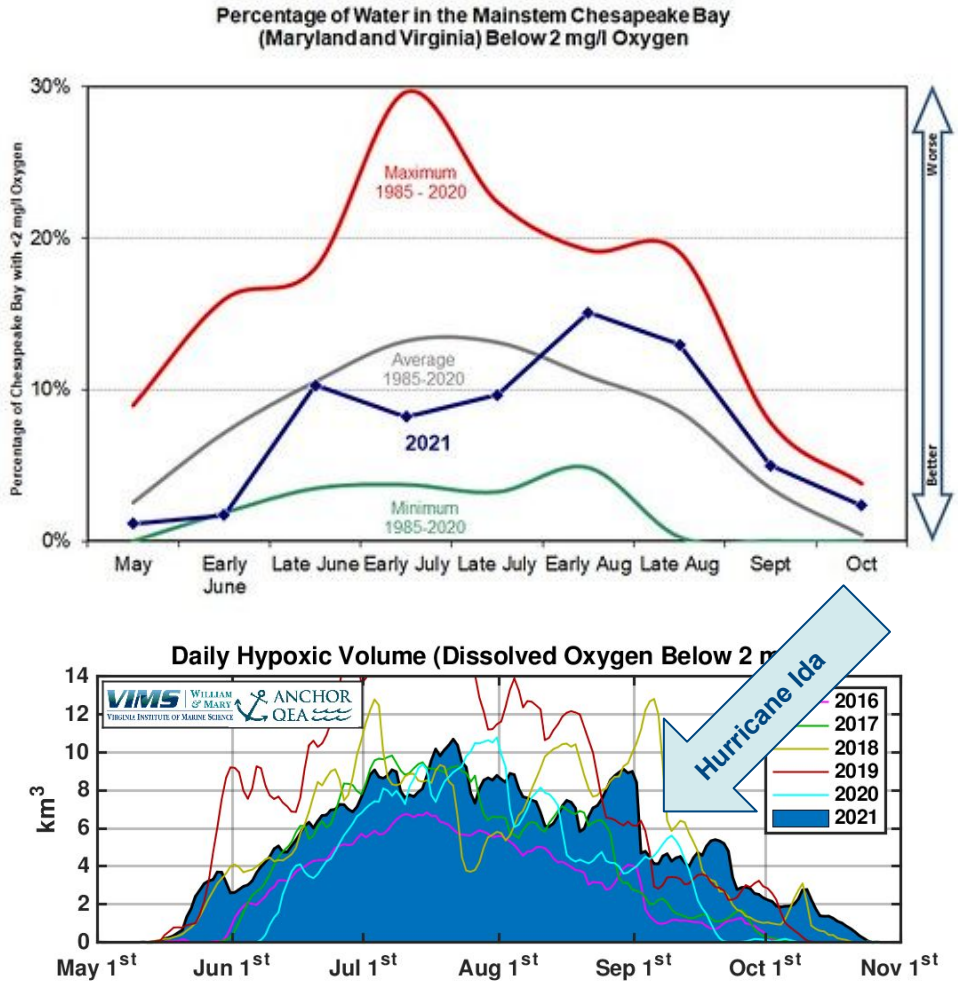
Dissolved Oxygen



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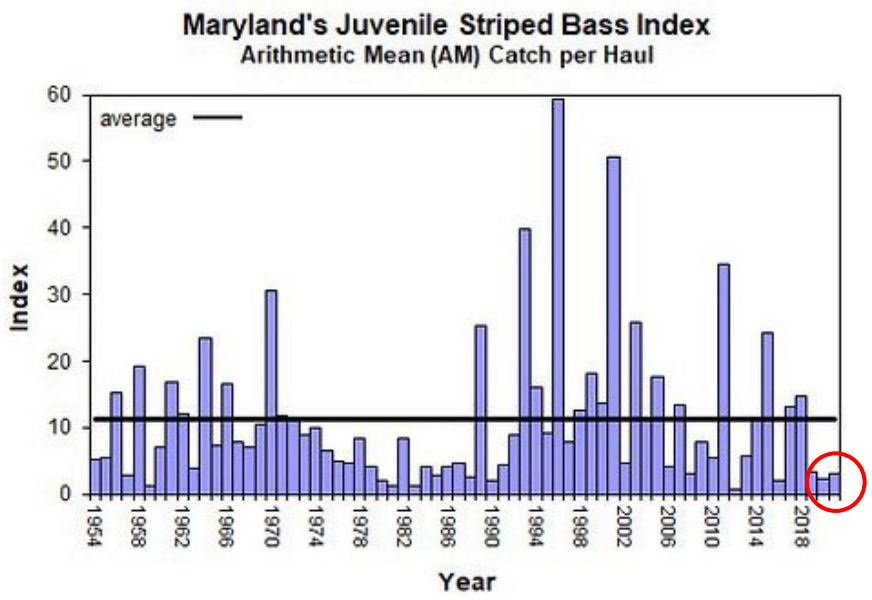
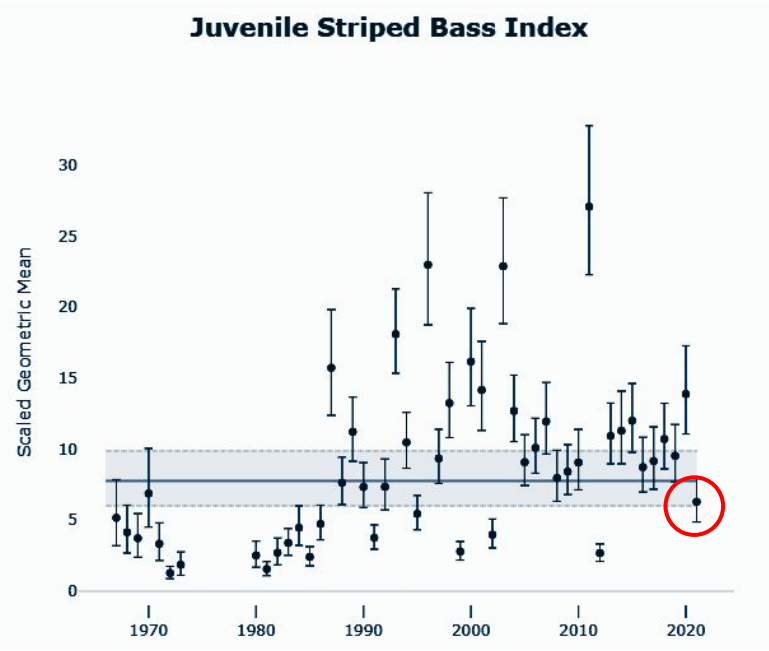
Impacts on Striped Bass





- Warm winter temperatures may have reduced striped bass recruitment despite high flow in winter and early spring
- Warm fall temperatures may have delayed southward migrations of resident striped bass

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Impacts on Oysters

- High summer salinities may have benefited oyster recruitment, growth, and survival

Next Steps

- Continue developing seasonal summaries and distribute them broadly to the Bay community
- Incorporate more analysis as able
- Provide annual summaries for the Mid-Atlantic State of the Ecosystem Report
- Feedback is welcome!

Contributors

- Aaron Bever, Anchor QEA
- Andrew Button, VMRC
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