

COVID-19 and the Environment: Ocean Impacts



Josh Kohut

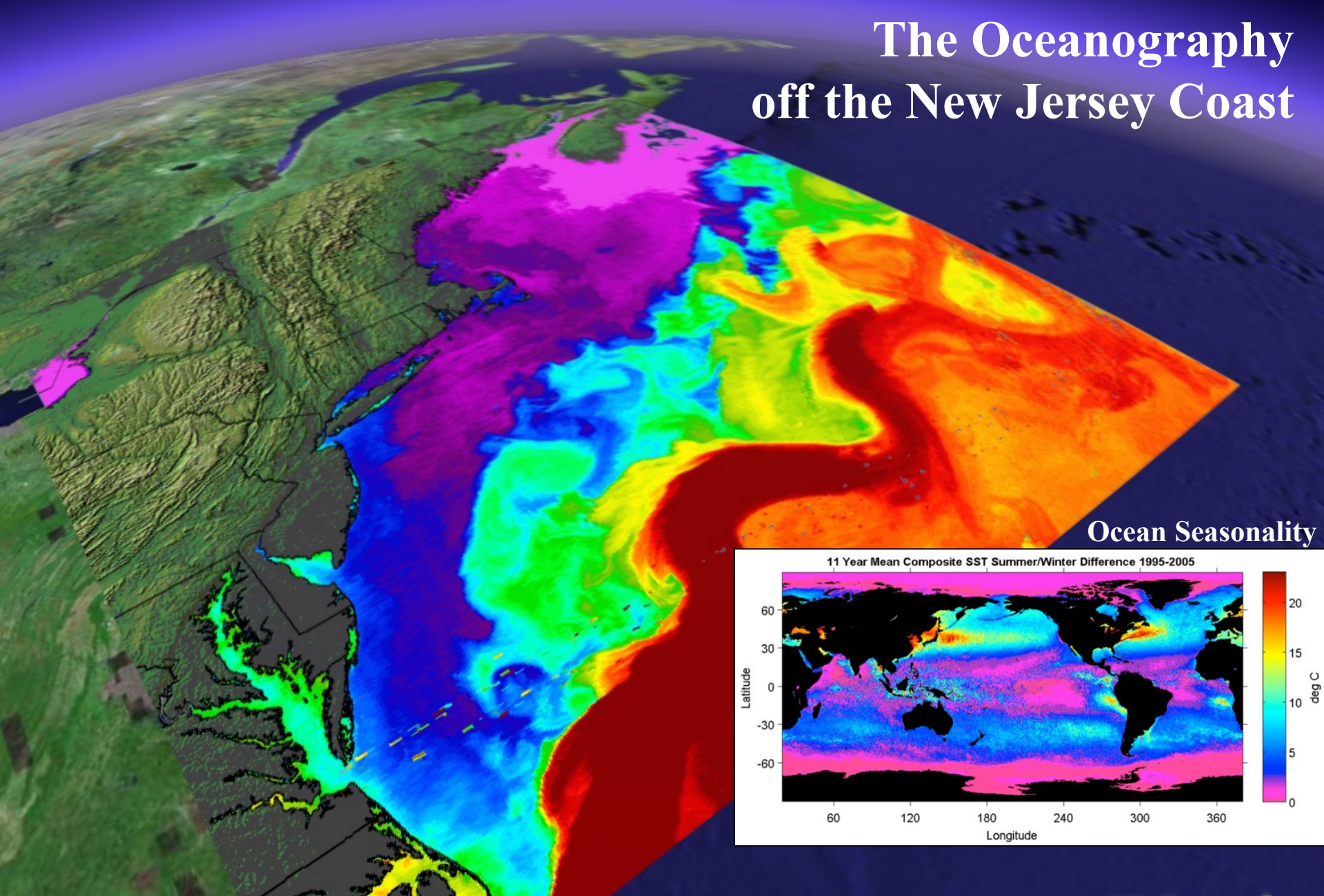
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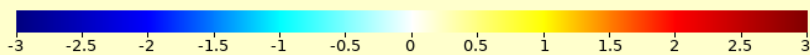
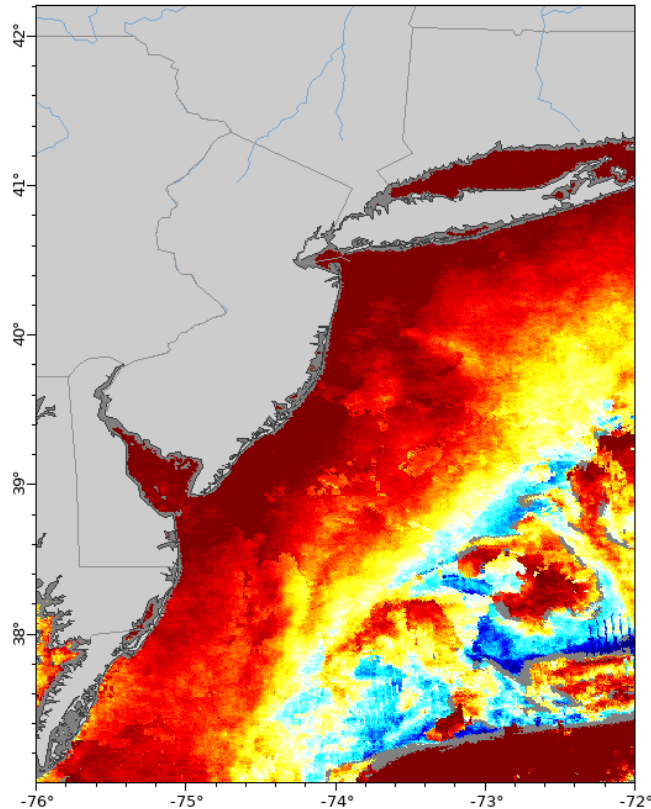
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The Oceanography off the New Jersey Coast



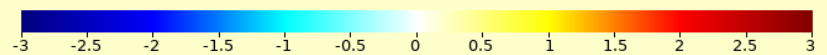
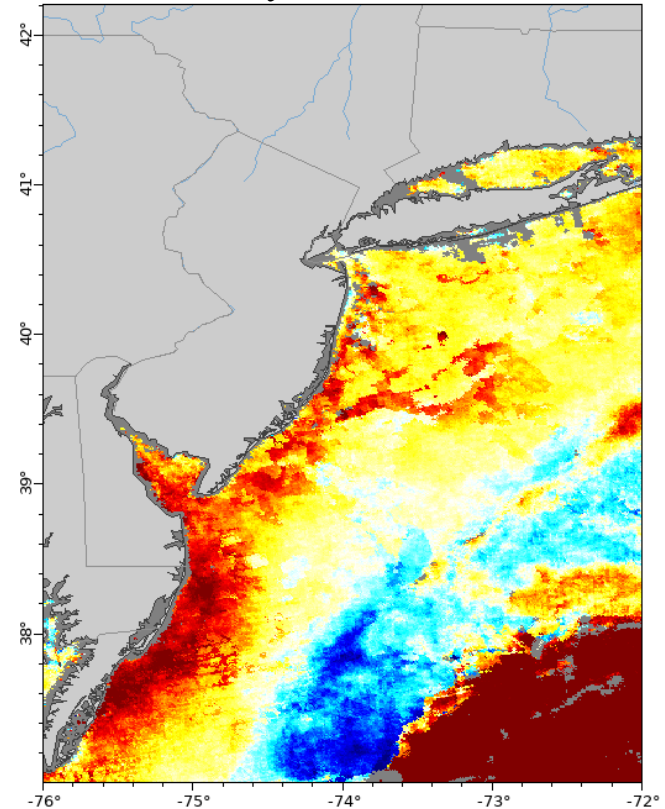
Coastal Ocean Sea Surface Temperature Departures

March 16, 2020



Sea Surface Temperature Anomaly (Celsius)
MODIS Aqua 8-day 1 km SST Anomaly Northwest Atlantic
(2020-03-16T23:59:59Z)
Data courtesy of University of Delaware

May 8, 2020



Sea Surface Temperature Anomaly (Celsius)
MODIS Aqua 8-day 1 km SST Anomaly Northwest Atlantic
(2020-05-08T23:59:59Z)
Data courtesy of University of Delaware

Data provided by MARACOOS Partner, University of Delaware



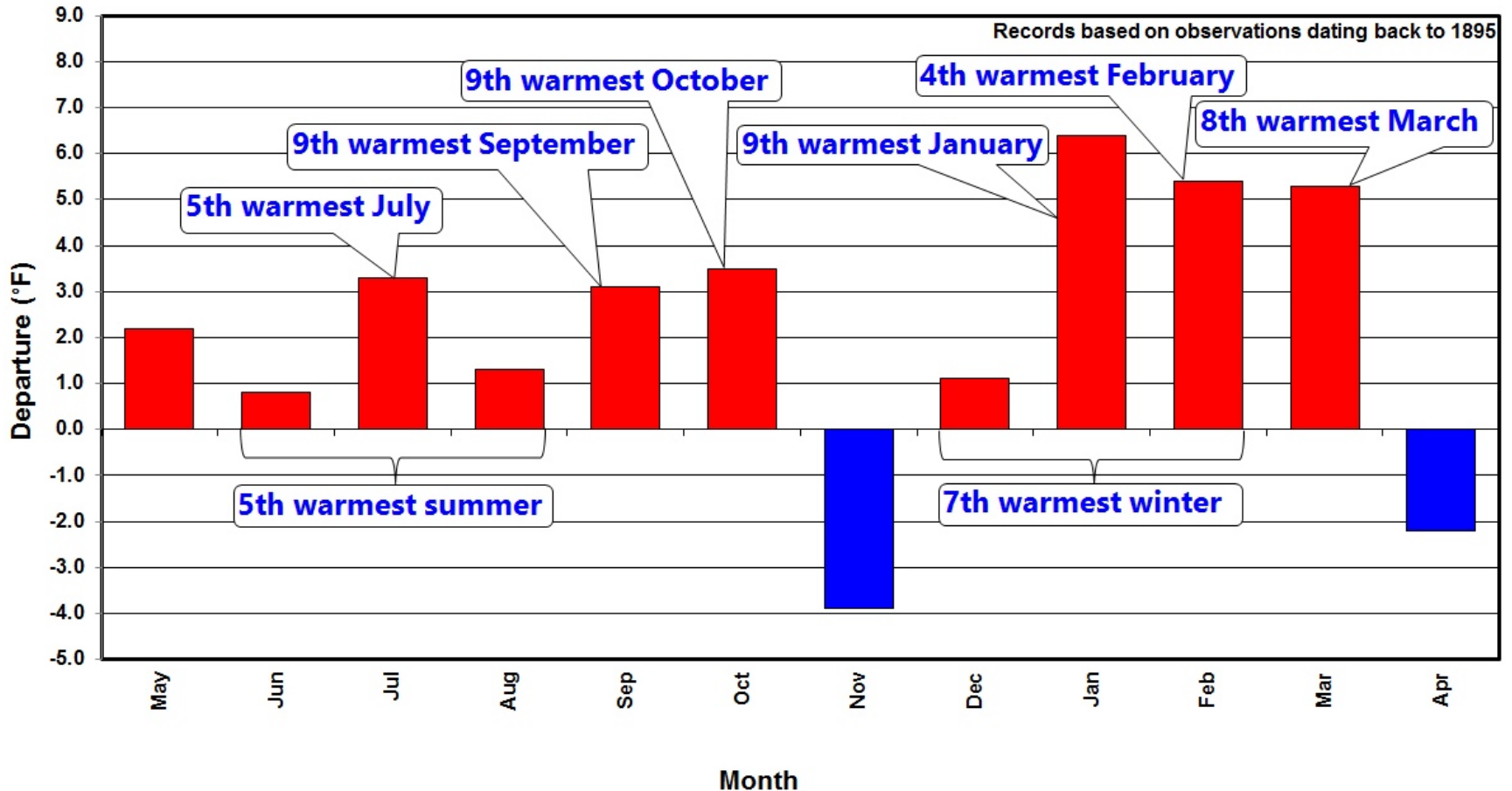
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New Jersey Air Temperature Departures

NJ Monthly Temperature Departures (May 2019 – April 2020)

Departures calculated from differences between observed monthly temperatures and 1981–2010 monthly averages



Data provided D. Robinson (NJ State Climatologist)



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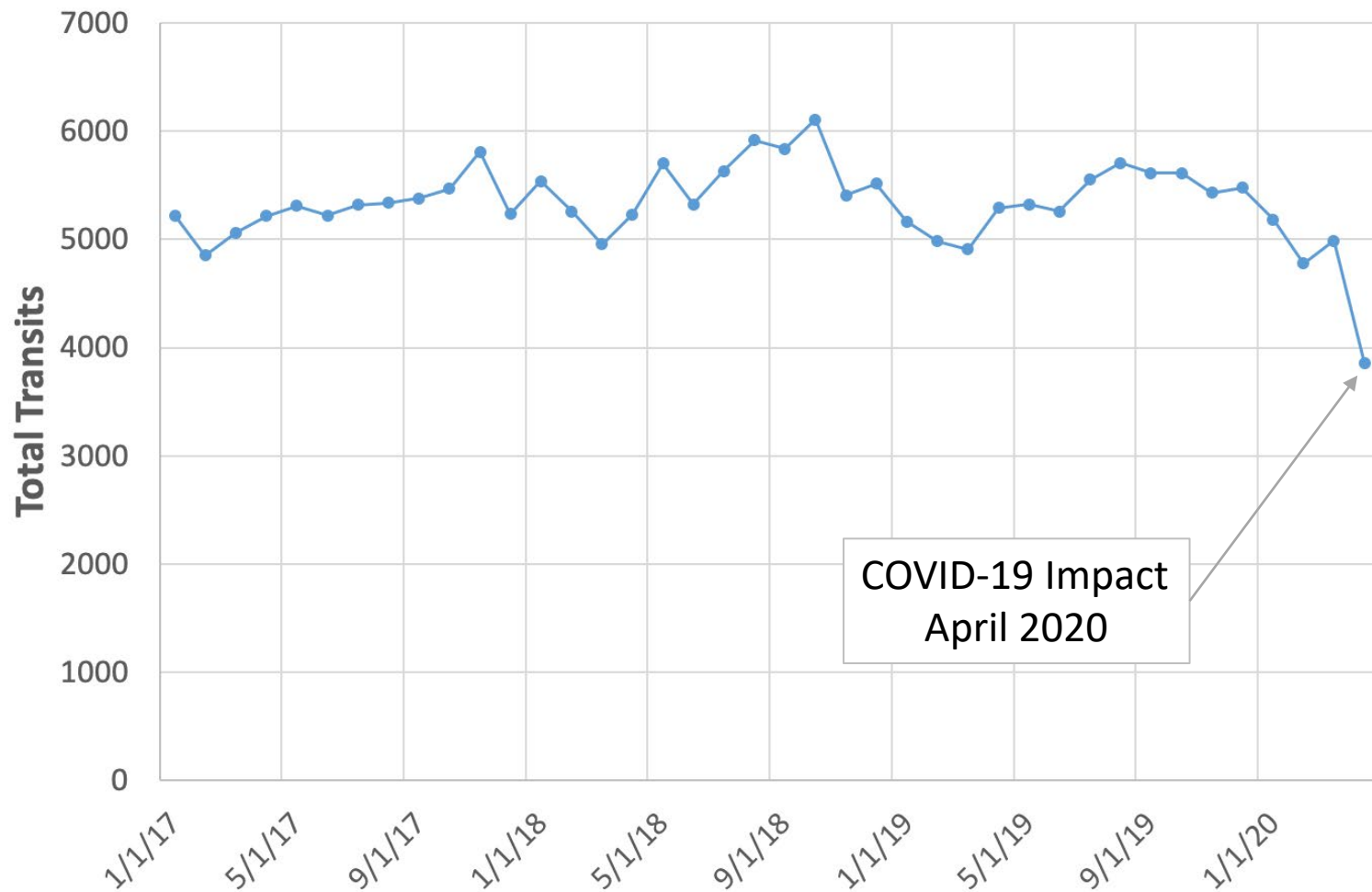


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Office of the New Jersey
State Climatologist

Vessel Traffic Services New York Total Transit Data 2017-2020

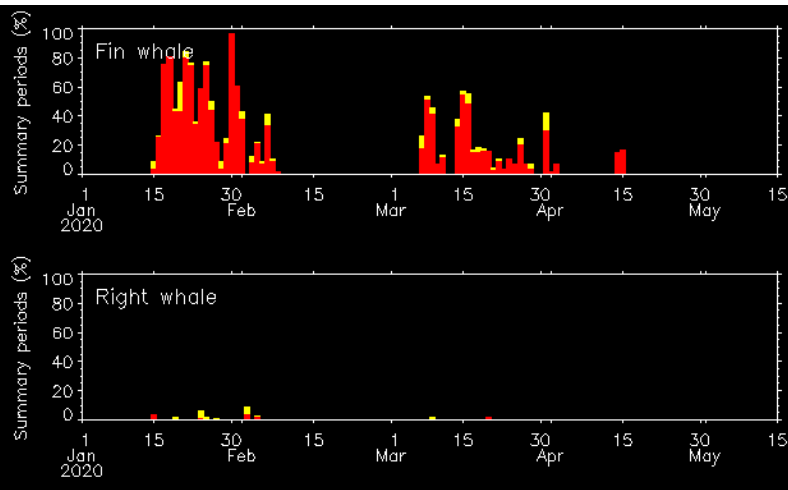


Data provided by Mr. Darin Mathis, Coast Guard Navigation Center

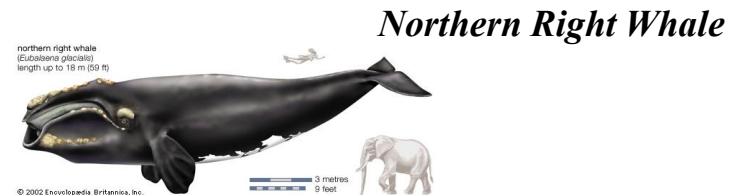
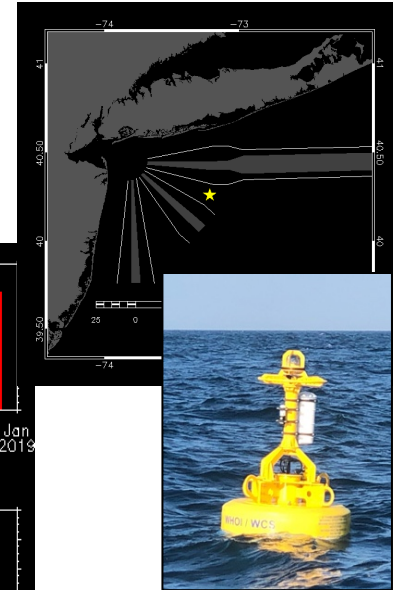
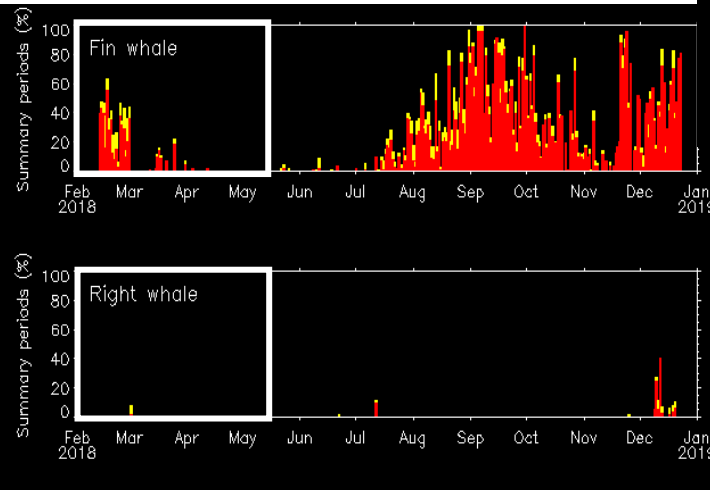
Reduction of vessel traffic leads to a reduction of ship noise contributions to the ocean soundscape

What is the impact?

2020



2018



Data provided by M. Baumgartner and H. Rosenbaum



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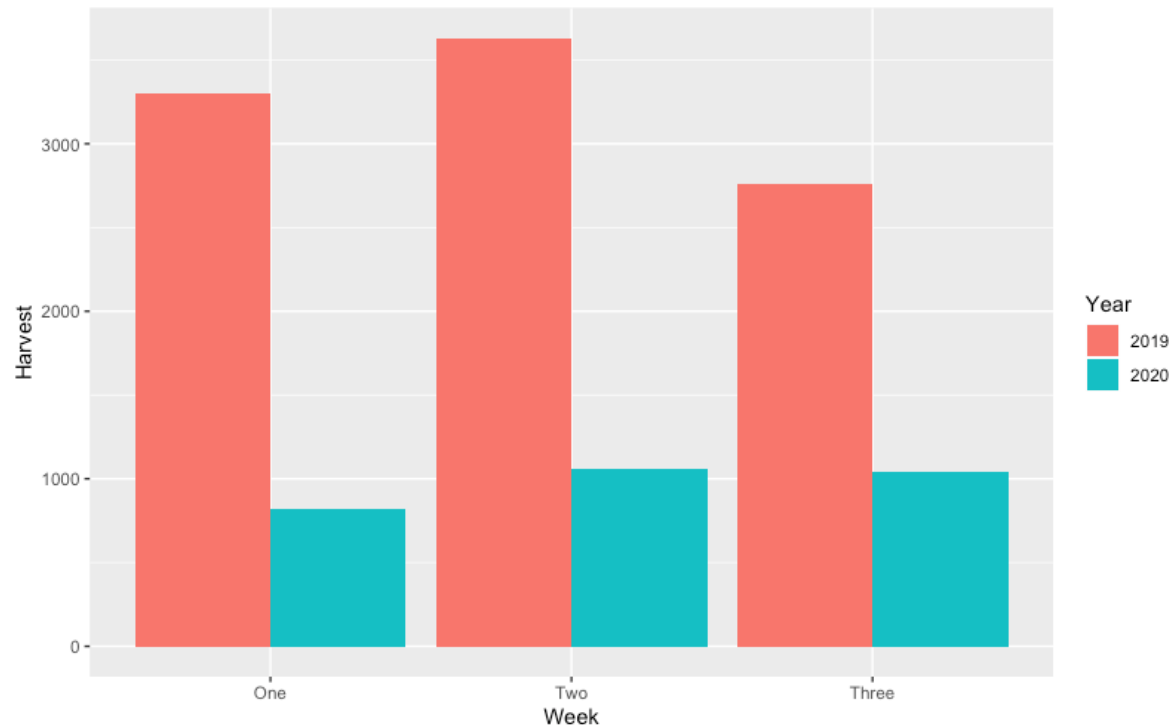


COVID-19 mitigation reduces commercial and recreational fishing effort

What is the impact?

- **Commercial fishing continues but at reduced effort**
 - Reduced Markets
 - Fishers are redefining supply chains
- **Recreational fishing continues but at reduced effort**
 - Charter boats are not operating
 - Limited beach access

Delaware Bay NJ oyster harvests



Data provided by J. Morson, Rutgers HSRL



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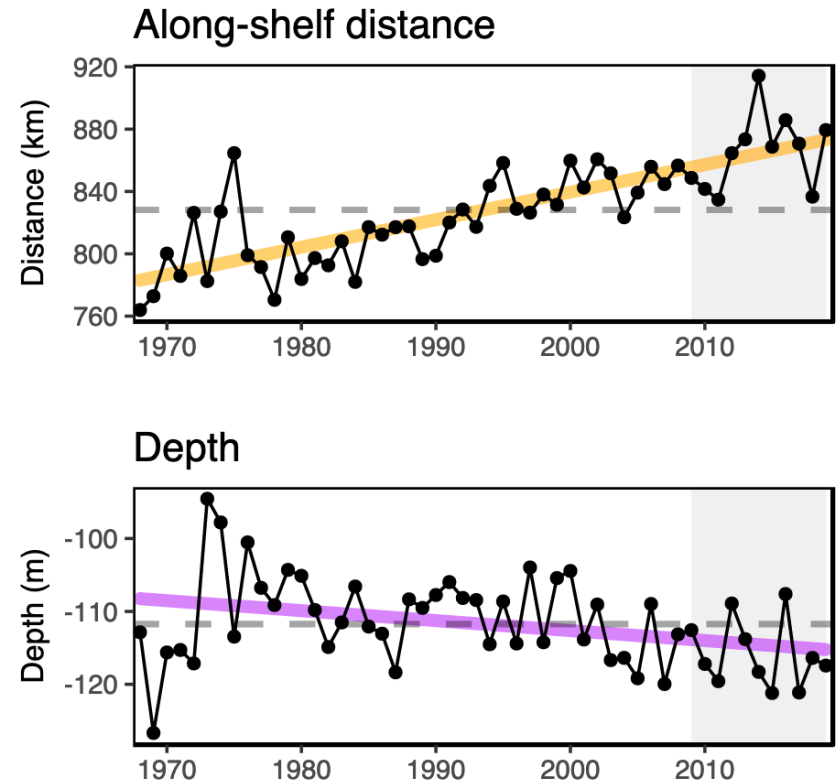
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Haskin Shellfish Research
Laboratory

COVID-19 mitigation reduces access for ocean research and monitoring

What is the impact?

- Many research facilities are closed or operating at greatly reduced capacity
 - Observer program is waived
 - Federal surveys and research cruises postponed or cancelled
- Uncertain effort and funding jeopardizes ocean data time series.

Aggregate Species Distribution



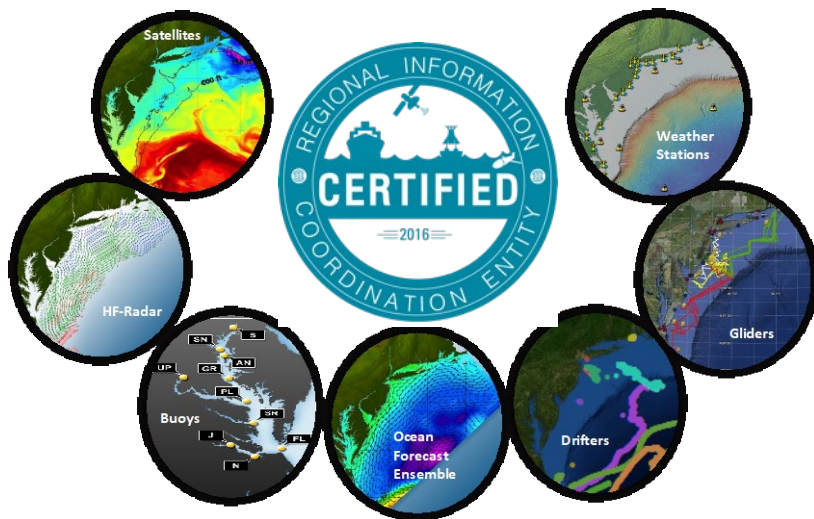
Courtesy of NOAA/NEFSC State of the Ecosystem Report 2020: Mid-Atlantic



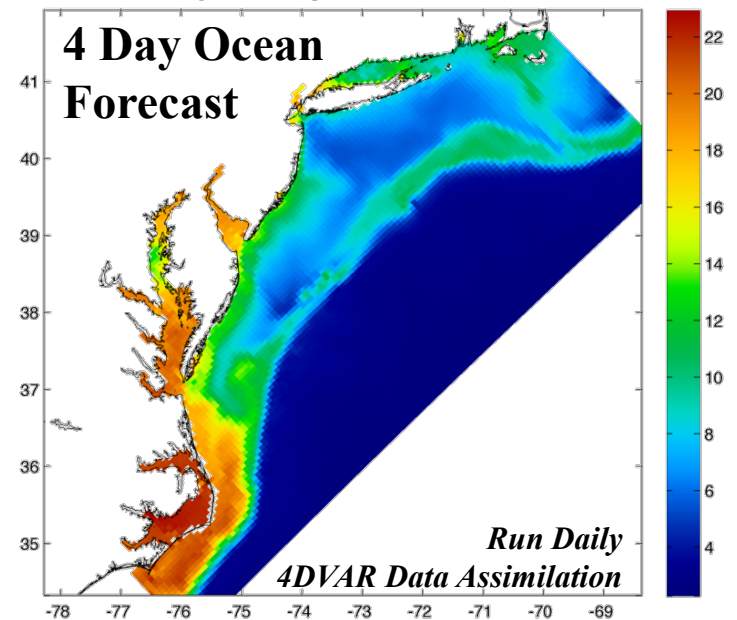
MARACOOS: Mid-Atlantic Regional Association Coastal Ocean Observation System



Data QA/QC



maracoos.org/



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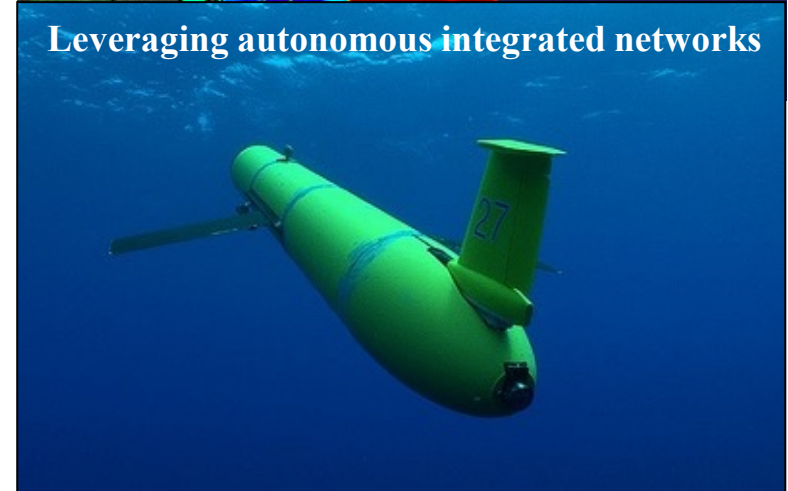
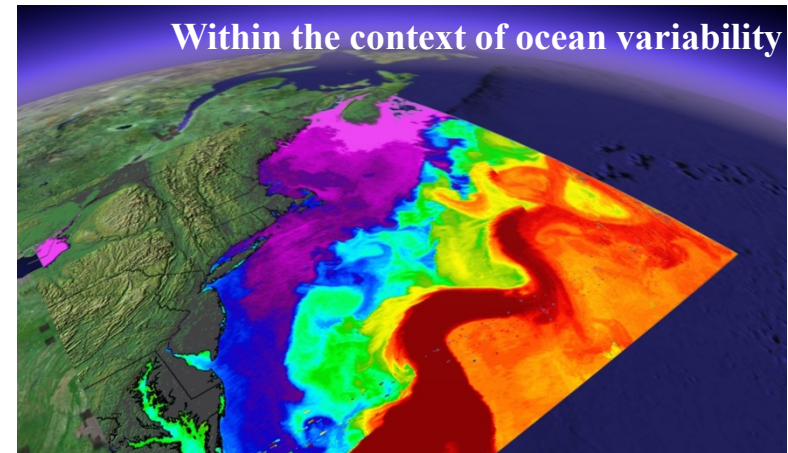
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Understanding the marine ecological impacts of COVID-19

- What is the impact once people abruptly change the way they interface with the ocean?
- How does the coupled natural and social economic system respond?
- To do this we must continue to monitor:
 - Ocean conditions
 - Movements of species
 - Abundance of species
 - Linked socio-economic systems



*“This **unique view** into the relative stillness we find ourselves in is only possible because of the **existing baseline knowledge** that NOAA has built over **decades of monitoring, modeling and research.** ”*

- Craig McLean, assistant administrator for Oceanic and Atmospheric Research and acting chief scientist, NOAA.