LISS MANAGEMENT COMMITTEE MEETING JULY, 18 2024

ATTENDENCE:

Abibou, Deborah, UCONN; Alexander, Danielle NYCDEP; Ammerman, James, NEIWPCC; Balla, Richard, EPA R2; Beatriz, Jimena, NYSG; Begum, Shahela, RAE; Bellucci, Christopher, CTDEEP; Boyer, David, MADEP; Burg, Robert, NEIWPCC; Cernadas, Sara, NYSDEC; Clingan, Carrie, NFWF; Coffey, Emma, CTDEEP; Cohn, Alan, NYCDEP; Corsair, Cindy, USFWS; Cozens, Margaret, CTSG; Deguise, Sylvain, CTSG; Drinkuth, Holly, CAC/ CT; DuMont, Alex, NEIWPCC; Duvall, Melissa, EPA LISO; Eagler, Christopher, NYDEC; Friesner, Richard, NEIWPCC Ferlow, Nancy, USDA-NRCS; Genovesi, Lillit, NYSG; Grondalski, Anya, NEIWPCC; Hagy, James, EPA ORD; Hayden, Daniel, RAE; Hornstein, Elizabeth, NYSG; Hunter, Timothy, CTDEEP; Kamath, Shauna, NYSDEC; Laccetti, Kristen, EPA LISO; Lyons, Regina, EPA R1 Morrison, Jonathan, USGS; Morgart, Thomas, USDA-NRCS; Mudahy, Anna Lisa, EPA ORD/ORISE; Nelson, Esther, EPA LISO; Nyman, Robert, EPA R2; O'Brien, Kevin, CT DEEP ; O'Neill, Leah, EPA R1; Perez-Viscasillas, Jimena, NYSG; Powell, Sara, NYSG; Robert, Burg, NEIWPCC; Savageau, Denise, CAC; Scantlebury, Samarra, NYSDEC; Schaefer-Brown, Sarah, NYSG; Schecter, Sarah, CTSG; Shuford, Rebecca, NYSG; Spencer, Evelyn, EPA R1; Stacey, Paul, Footsteps in the Water; Stranko, Denise, STS; Street, Jennifer, NYSDOS; Sullivan, Cayla, EPA LISO; Sullivan, Susan, NEIWPCC; Tachiki, Nicole, EPA LISO; Tanzi, Elizabeth, EPA LISO; Wright, Elizabeth, EPA R1; Yamalis, Harry, CTDEEP Yap, Kimarie, NYSDEC

Introduction: **Mark Tedesco** welcomed everyone to the meeting around 9:00 am. He reviewed the meeting agenda and opened the floor for any personnel updates.

***Final FY24 Budget and FY25 Planning*:** **Leah O'Neill** gave an update on LISS's final FY 24 workplan and budget as well as went over the Justice 40 percentages over the past three years. Each organization receiving BIL funding developed fact sheets on work accomplished and proposed for additional funding. From that information, EPA, CT, and NY estimated the percent of work contributing to Justice 40 targets for environmental justice work. The fact sheets and the estimated Justice 40 contributions were included in the package provided to the Management Committee. Note that the percentages are projections because some has not been accomplished yet or there is still discussion on what projects will be supported. Leah noted that based on discussions, calculations, and assessments the proposed funding distribution for the different state awards and the Restore Americas Estuary award for the final two years of infrastructure funding (FY25 and FY26) constitute around a $700,000 reduction for each year for each state award including NY, CT, and MA to balance the overall distribution while increasing confidence that the final distribution will meet the Justice 40 targets. NY and CT work will then roll over into the traditional budget. Leah noted that we are focused on putting infrastructure funding toward benefiting disadvantaged communities as well as costal resiliency. **Richard Friesner** asked and received clarification that the entire funding of RAE is to directly provide funds to underserved communities to build capacity, support and technical

expertise in these communities. **Penny Vlahos** asked for CT DEEP's response to the reduction in funding. Both **Chris Bellucci** and **Brian Thompson** responded that they understand the need to meet Justice 40 targets and that CT DEEP is working diligently to identify projects that qualify. Leah also noted that EPA was able to directly hire staff to implement these infrastructure awards and to track these dollars. **Nancy Seligson** asked about the "TBD" status of the DEC awards. Leah explained that through DEC's proposal they showed that 100% of the benefit of land acquisition would go to disadvantaged communities. **Rebecca Shuford** noted there aren't any disadvantages communities/ environmental justice communities right nearby any of the land acquisition sites so we need to make sure there is adequate outreach to Justice 40 communities about these sites and how to utilize them. **Samarra Scantlebury** noted that wile acquisitions on disadvantaged communities is a priority, the land acquisition areas we have/get are all dependent on availability and what landowners are is willing to sell. **Alex DuMont** noted that LISS hired a real property coordinator/ land acquisition specialist in New York and they will officially be starting in August. They will help to track the benefits of greenspace as their job is dedicated to these types of projects. **Bessie Wright** spoke of how the Environmental Justice (EJ) group has been working on developing a series of deep dives into the subjects covered in the needs assessment. The first deep dive will be on August 15 at the EJ work group meeting which will specifically discuss 'access'. A presentation in September will also be given regarding the internal EJ needs assessment that everyone participated in. Leah then moved to discuss the proposed distribution of remaining BIL funds.

Action: The Management Committee approved the distribution proposed in the budget table.

Leah then moved on to potential FY25 traditional funding. The amount, if consistent with FY24, will be $41.5 million. It is a combination of $40 million from LIS appropriations, $850,000 from the National Estuary Program, as well as the $650,000 carry-over funds. Base funding is approximately $33.4 million, which leaves us with about $8 million unallocated for FY25. With uncertainty in the final appropriation amounts and the program working to finalize the CCMP, we have not asked for work group funding needs at this time. Instead, we will focus on revising the CCMP, reassessing the structure of the Management Conference, and use that as the guide for supplemental funding priorities. Final FY25 budget decisions will be made at the April 2025 Management Committee meeting. Nancy highlighted that elected officials emphasized during the CAC trip to Washington, DC that funding under a CR for part of the year at least is likely.

10:25 BREAK

2025 CCMP Revision and Public Engagement Updates: **Bob Nyman** went over the public engagement sessions (four in person and two virtual) that were held for the revising of the CCMP. Total number of participants across all the meetings was 135 participants, most of those participants joined on the May 14 3:00 PM virtual meeting. Each meeting had a breakout

session for the 4 goals along with one table/ breakout session regarding the Mission, vision, values statement and name change for LISS. Some overarching themes from the public engagement session were: 1. being more intentional about engaging and working with local organizations, 2. Keep language consistent across the objectives and goals, 3. Tie the health of the LIS more closely to the health of the people in the watershed, 4. Do more public education, especially for kids 5. Concern that the objectives may be too restrictive and 6. More language referring to sub-watersheds and sub-estuaries. Among the name change options, the Long Island Estuary Program was the winner. The writing team leads (Kelly Streich, Harry Yamalis, Deb Abibou, Jimena Perez-Viscasillas) were each given a few moments to share their perspectives and areas of still active discussion.

Nikki Tachiki detailed the current CCMP content, describing each section and how they relate to EPA requirements. Nancy asked who is writing the Geography and Hydrology section and emphasized the need for brief and public friendly language. Samarra noted that the Sentinel Monitoring for Climate Change work group will be reviewing the CCMP for climate change aspects. Nikki communicated that the LISO is integrating the sections and will submit the CCMP for internal LISS/Partner review from August 1- 12. All input on the document is requested in "review mode" so that edits and comments are visible to all. Separate email comments are also welcome. EPA will summarize all the comments and make changes directly into the document were warranted. Any edits or comments needing Management Committee deliberation will be presented at an August 20 meeting from 9:00 AM to 12:00 PM. This contractor facilitated review meeting will be open to all the Management Conference. Based on the Management Committee decisions, EPA will incorporate edits until August 30. The draft will then be sent out for public comment beginning September 3 until November 2. There will also be a CAC/STAC meeting on September 12 to review and comment on the CCMP. All public comments will be documented, responded to, and edits made to the CCMP as warranted. **Robert Burg** asked how will comments be solicited from the public. Nikki responded that EPA is evaluating whether use of a form is allowed for the public. There was discussion on the best timing for release of the draft CCMP considering the upcoming election. While acknowledging the timing challenge, it was noted that extensive public engagement was conducted in the spring along with the earlier EJ listening sessions. **Anya Grondalski** also noted that the Communication Team is considering multiple communication channels will be used to engage the public on the CCMP; the document itself will not be the sole product.

Nikki then presented the CCMP approval timeline: Management Committee approval at the January 2025 meeting, Executive Steering Committee approval in February 2025, Policy Committee approval in March 2025, Governor's approval in April/May of 2025, and finally, potential public announcement on LIS Day, May 23, 2025.

Mark gave an update on the potential program name change. The draft CCMP will include the options and encourage comment. Focus group sessions scheduled as part of the public perception survey will also present the name options for reactions. Bessie Wright noted that formal consultation with Tribal Nations on the CCMP has been initiated.

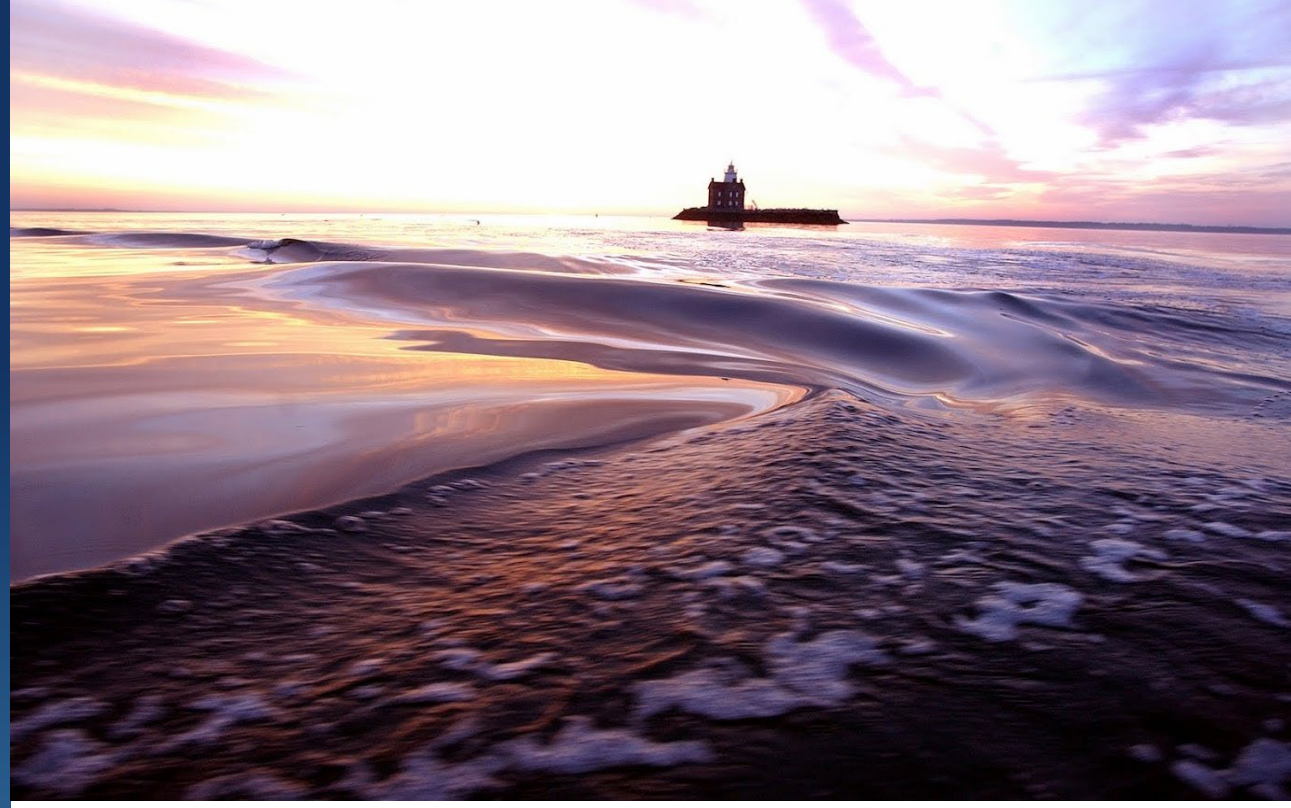
Hypoxia Forecast Tool Presentation: **Jim Hagy** gave a presentation regarding Hypoxia in the LIS and the Hypoxia Forecast Tool. Hypoxia has been and continues to be a focus of restoration in the Long Island Sound and the aim of the TMDL. The information in this forecast not only supports communication of hypoxia and hypoxic zones but also nutrients, eutrophication, and other restoration goals that we have identified for the Long Island Sound Study. Jim and his team are using Generalized Additive Models (GAMs) to describe the spatial and temporal distribution of oxygen in the Sound. The presentation slides are attached. The next step of this project is to create a web-based story map that effectively integrates maps, photos, videos, and text to help users explore a topic of interest. The story map also outlines the successful management of nutrients in the LIS to reduce hypoxia. This is all to be followed up by evaluating the accuracy of the forecast and using that as another opportunity to communicate to the public about LISS programs. The discussion then shifted to how the program can use multiple models under development (GAMS, RCA/ROMS, watershed models) to better understand the water quality response to nutrient load reductions, *and* the options and costs to achieve those reductions.

Final Notes- Mark Tedesco noted the EPA program evaluation was completed in June with thanks to Evelyn Spencer and Ashley Desrosiers.

Attachment: Hypoxia Forecast Tool presentation

Long Island Sound Study
A Partnership to Restore and Protect the Sound

Messaging around Hypoxia and Eutrophication in Long Island Sound



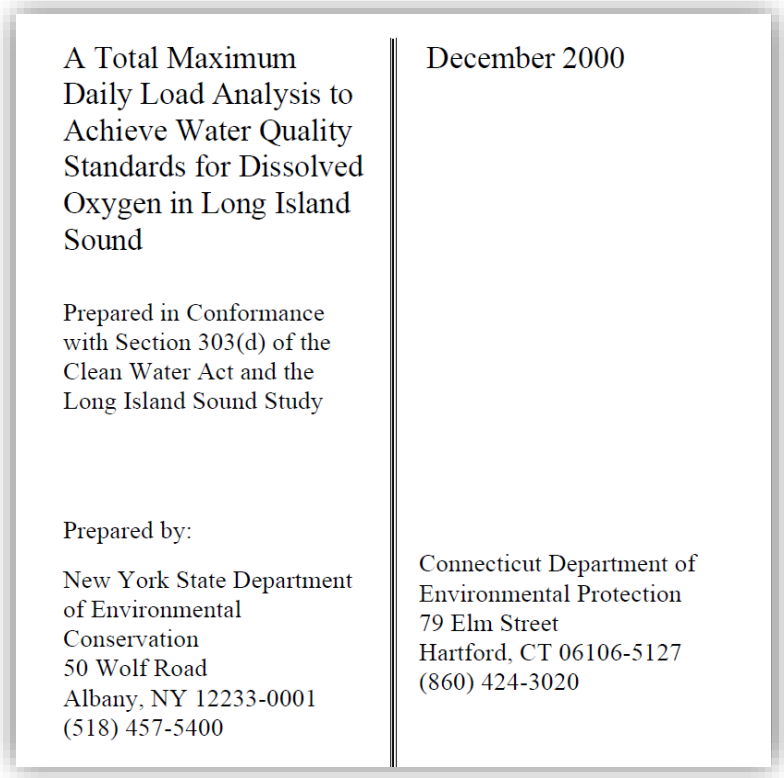
Long Island Sound Study Management Committee Meeting

July 18, 2024

Jim Hagy (EPA/ORD)
Anna Lisa Mudahy (ORISE/ORD)
Jim Ammerman (LISS/NEIWPCC)
Melissa Duvall (EPA/LISO)
Cayla Sullivan (EPA/LISO)

Hypoxia is an important nutrient-related issue for LIS. We've made progress, but we aren't finished.

- Attaining water quality standards for DO is a TMDL objective.
- "Measurably reducing" extent of hypoxia is an Ecosystem Target of the LISS CCMP
- Nitrogen reductions to LIS have succeeded in reducing the extent of hypoxia.
- While hypoxia has been an important concern, communicating the impacts of hypoxia and benefits of remediation is hard and may get harder if management efforts continue to be effective.



A Total Maximum Daily Load Analysis to Achieve Water Quality Standards for Dissolved Oxygen in Long Island Sound

December 2000

Prepared in Conformance with Section 303(d) of the Clean Water Act and the Long Island Sound Study

Prepared by:

New York State Department of Environmental Conservation
50 Wolf Road
Albany, NY 12233-0001
(518) 457-5400

Connecticut Department of Environmental Protection
79 Elm Street
Hartford, CT 06106-5127
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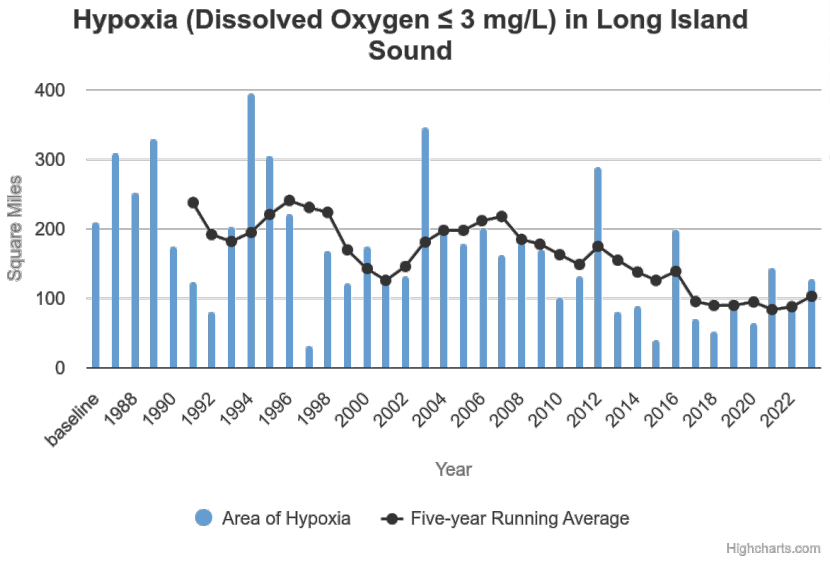
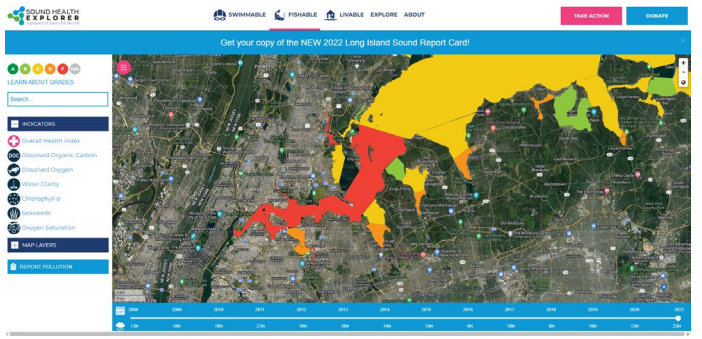
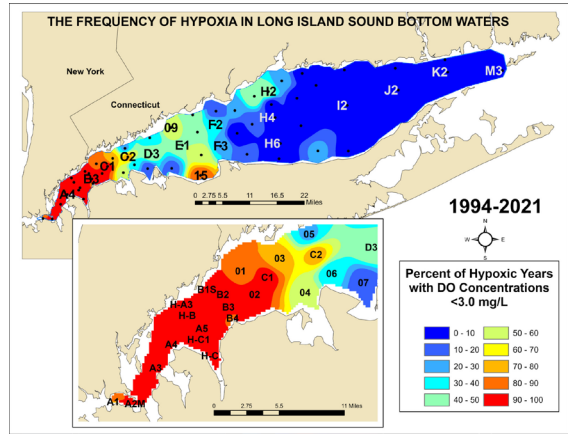
An LIS Hypoxia Forecast can support communication around nutrients, eutrophication and hypoxia.

- Communication around hypoxic focuses on attainment of Ecosystem Target, which has already been attained.
- Should transition to quantifying ongoing impacts of benefits of remediation.
- Includes understanding effects in shallow water embayments.



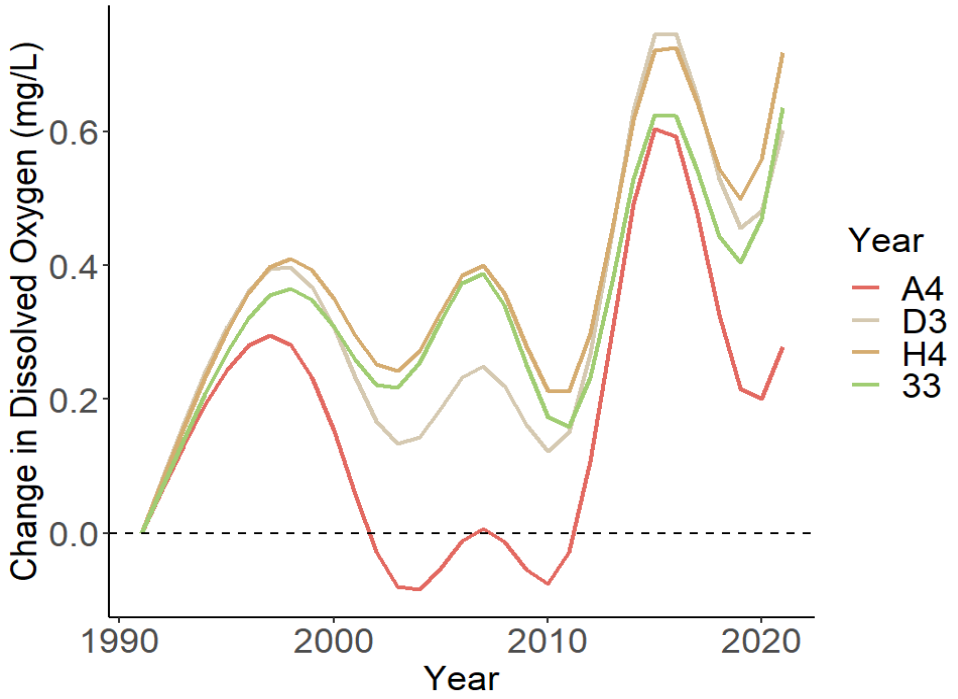




From Long Island Sound Study webpage

We are using Generalized Additive Models (GAMs) to describe the spatial and temporal distribution of oxygen

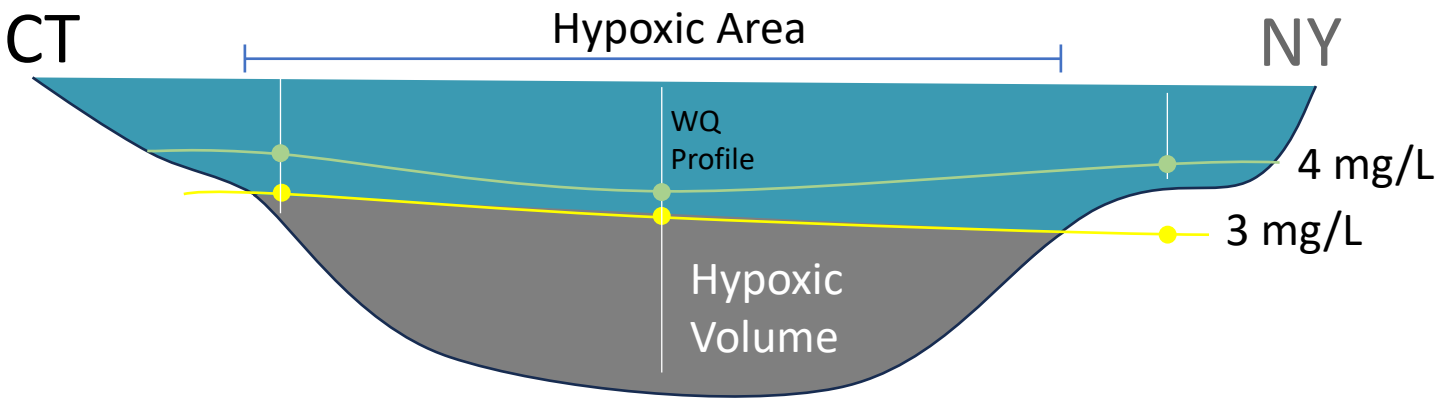
- GAMs are regression models that can include non-linear (i.e., “smooth”) functions to describe patterns in the data.
- We used data from CTDEEP and IEC for 1991 to 2023 to describe DO in open waters of LIS.
- A GAM that includes only covariates (i.e., “predictors”) for TIME (long-term, day of year), and LOCATION (lat, long, depth) explains 90% of DO variability from 1991-2023.
- This is both *a good thing* and *a real challenge* …. (i.e., unexplained variation is only 10%)



Near-bottom DO increased by >0.6 mg/L across all stations, with smaller improvements in the far western sound (station A4).

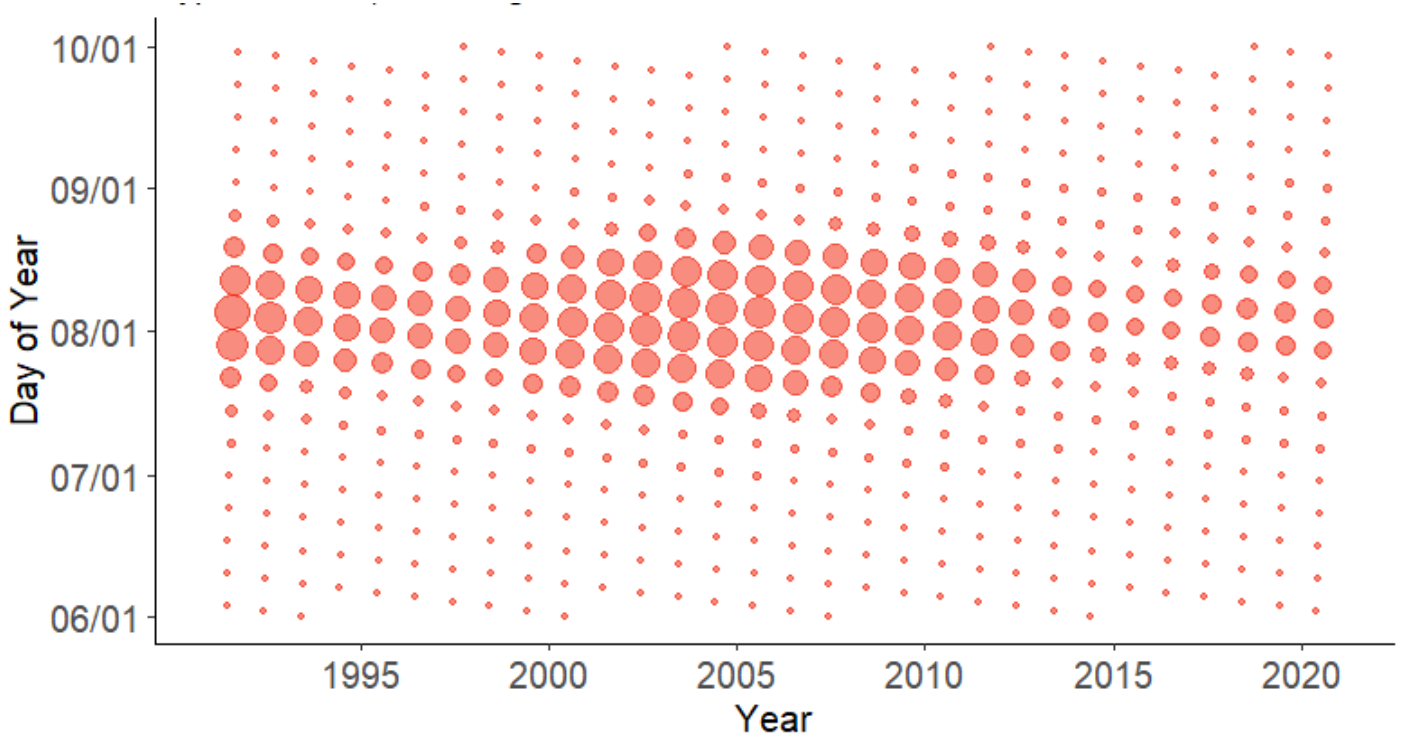
We also used an alternative approach to quantifying extent of hypoxia

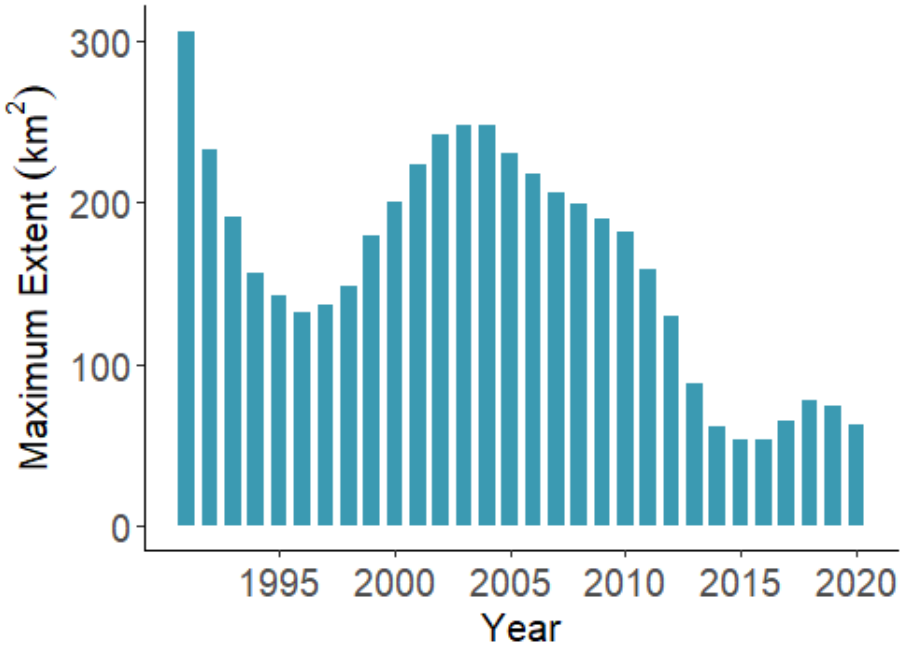
- We predicted the depth where oxygen was <3 mg/L (or <4 mg/L), then intersected it with the bathymetry (i.e., depth profile).
- This approach is quantifies extent of hypoxia, but not the concentration throughout space and time.



This method, adapted from application in Denmark, residual distribution challenges when DO is very low.

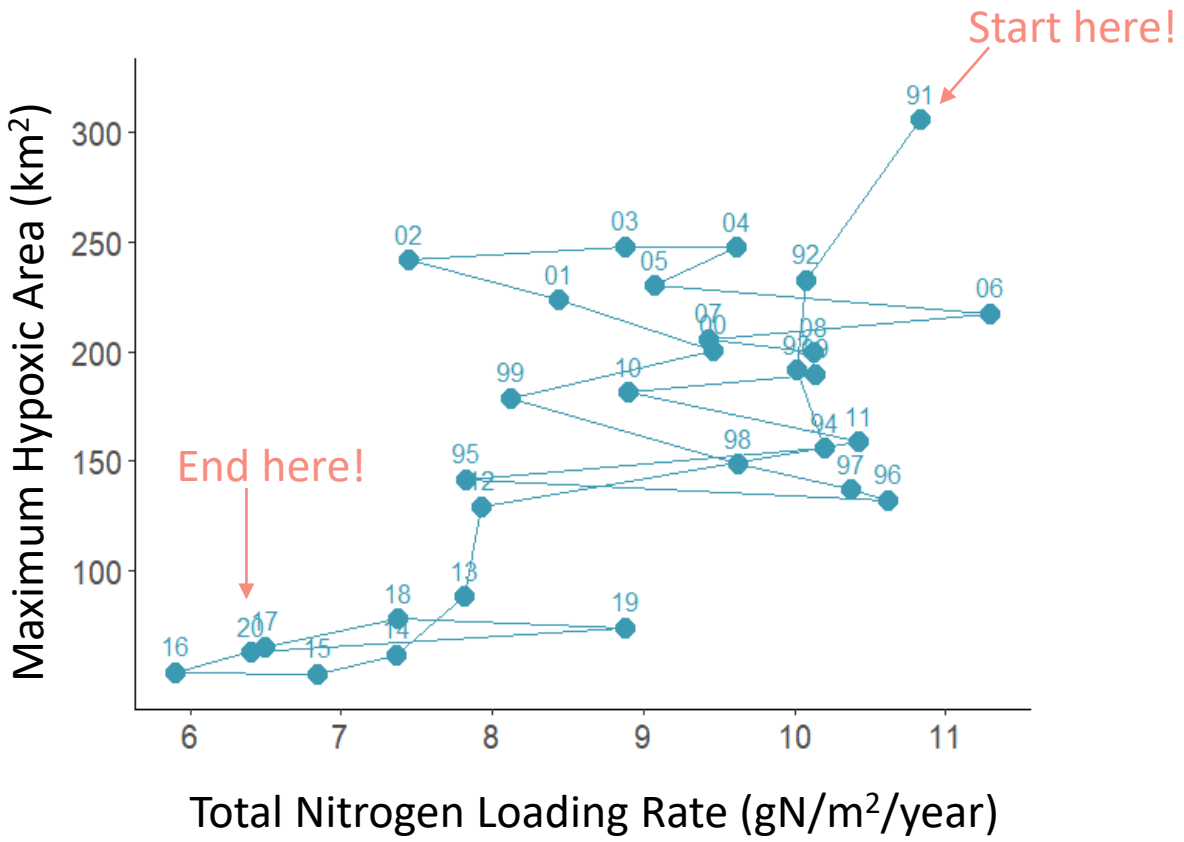
Using a GAM approach (again), applied to “hypoxia depth,” we can quantify (smooth) spatial and temporal trends in hypoxia extent.





We can quantify DO in space and time, or time/space extent of DO< a threshold. Where does that leave us?

- Can make the good use of CTDEEP and other monitoring data to describe water quality, WQ change over time, and some relationships to key drivers (e.g., N loading)
- Can compare DO with water quality standards or other measures that may relate to aquatic life and habitat quality.
- We can predict expected extent onset, extent, termination, and severity of hypoxia.
- Key caveat: limited ability to predict short term (i.e., year to year) variations



How are GAMs different from other modeling efforts – such as the new LIS water quality model?

- GAMs are empirical models that quantify spatial and temporal patterns and other relationships that emerge from data, in this case water quality observations.
    - Empirical models are data driven - models are fit to data and can be used to predict what is likely to happen in a new situation based on what happened in the past in similar situations.
- LISS's Water Quality Model is a mechanistic model that simulates ecological processes in time and space, predicting biogeochemical rates and resulting water quality conditions.
    - Process driven – models reproduce processes and are calibrated to reproduce observations. Models may be used to predict what will happen in a new scenario, even if that scenario has never occurred (e.g., a nutrient reduction scenario, or a climate change scenario)

How does modeling extent relate to forecasting communicating? Let's "unpack" NOAA's Gulf Hypoxia Forecast:

https://www.noaa.gov/news-release/noaa-forecasts-above-average-summer-dead-zone-in-gulf-of-mexico

- Who is making the forecast? (NOAA)
- What hypoxia extent do we expect this summer? (some context about how big that is .. i.e. size of Connecticut)
- How does this expectation compare to the past? What are the reasons why we expect more/less hypoxia compared to the past?
- What is hypoxia and why do we care?
- What are the human drivers or causes of hypoxia?
- What are different agencies / groups doing to monitor or address the issue and where can we find more information?

Relevant (sort of) photo of scientists collecting data!

What about the Chesapeake Bay Hypoxia Forecast? Let's unpack it …

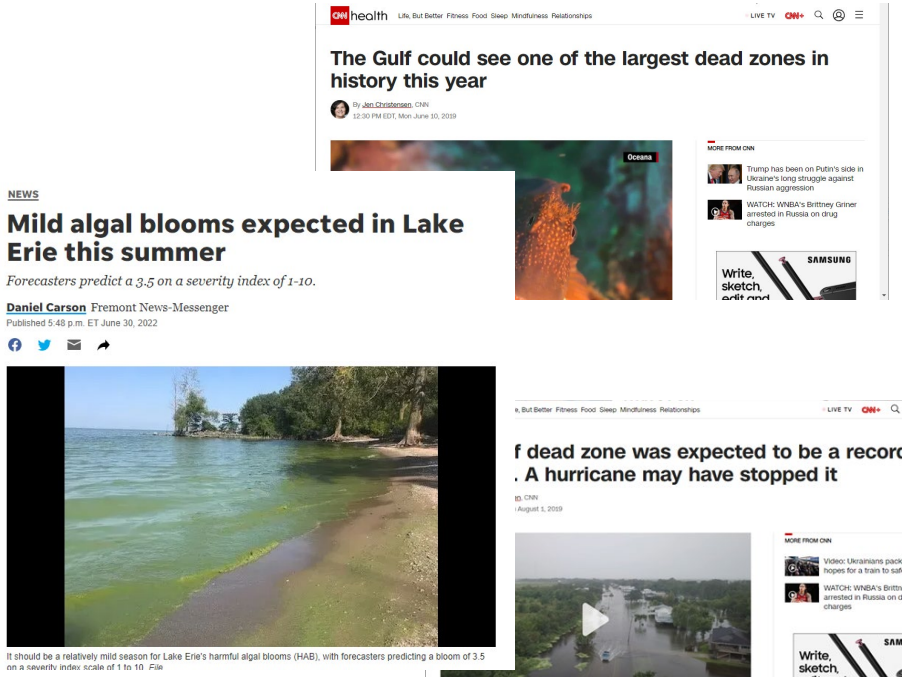
https://www.chesapeakebay.net/news/pressrelease/chesapeake-bays-dead-zone-predicted-to-be-33-smaller-than-long-term-average

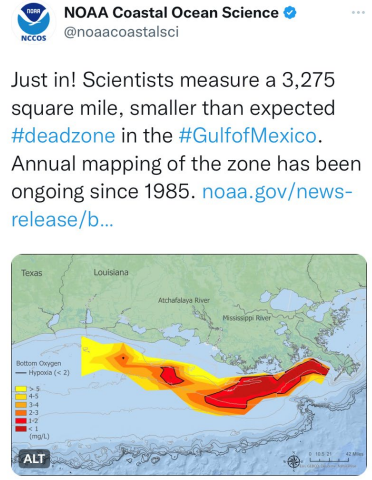
- Who is making the forecast? ("Researchers from the Chesapeake Bay Program, Univ. of Maryland, Univ. of Michigan, and USGS")
- What hypoxia extent do we expect this summer? ("significantly less than long-term average")
- What causes hypoxia in CB?
- Why is hypoxia expected to be as forecasted? (i.e., forecast rationale)
- What have Bay states done lately to address hypoxia?
- What are different agencies / groups doing to monitor or address the issue and where can we find more information?

Pretty but irrelevant photo of Chesapeake Bay. The Sassafras River (pictured) is outside the area that has seasonal hypoxia.

Many aspects of these forecasts are well within our reach.

Focus on the communication … and keep working on the science.





Home / News / Best States / Louisiana News / NOAA Forecasts Average Dea...

NOAA Forecasts Average Dead Zone off Louisiana and Texas

The National Oceanic and Atmospheric Administration is forecasting an average oxygen-depleted “dead zone” in the Gulf of Mexico this summer.

By Associated Press | June 2, 2022, at 2:24 p.m.

We convened a workshop in May 2023 in NYC to discuss communication around hypoxia

Workshop Objective: Working with people at the interface of science and practice to identify best engagement for a forecasting website, and other engagement practices, to improve public awareness about hypoxia in Long Island Sound

Table 1. Summary of recommendations for design of an effective Long Island Sound hypoxia forecast communication tool

Recommendation	Description	Section
Define intended audience(s) for communications and understand their relationships to the Sound	Eight potential audiences were identified: regulators and decision-makers, fishers and aquaculturists, media, wastewater treatment plant operators, environmental nongovernmental organizations, coastal recreators, scientists, and the public. Additional demographics and related equity concerns could affect audiences' relationships to the Sound and need to be considered in communication.	3.1.1 3.1.3
Target communications to anticipated audience uses of the tool	Three primary uses of a hypoxia forecast were identified: planning, furthering science, and educating & inspiring. Leveraging these uses could help demonstrate its value. In tool design, this should manifest as different "layers" or "paths" so that users can look at their most relevant information.	3.1.2 3.3
Choose a communicator who is trusted and well-known by the intended audience	Who is communicating impacts how the information is received. Local nongovernmental organizations, newspapers, boat captains, and formal stakeholder liaisons were all recommended as effective communicators to turn to in distributing information about the hypoxia forecast tool.	3.1.4
Frame messages effectively and learn from past effective environmental campaigns	Four effective frames for communicating about the tool were identified: environment, economy, nutrient loads, and behavior change. The implementation of these messages will vary based on the audience, their relationship to the Sound, and communication goal. Use local success stories to demonstrate we can noticeably and measurably improve this environmental challenge.	3.1.5 3.1.7 3.2.1
Use terminology thoughtfully and with clear definition	Several scientific terms were identified as needing explicit definition and thoughtful use in communications with nonscientists, as they can often be poorly or misunderstood. These included dissolved oxygen, eutrophication, harmful algal bloom, forecast, nutrients, and dead zone.	3.1.6
Addressing challenges in communicating about hypoxia	Challenges related to communication include the complexity of hypoxia science, the lack of hypoxia imagery, the lack of general urgency to manage nutrient loads that can lead to hypoxia, and conveying both the progress made and lasting challenges of hypoxia in the Sound.	3.1.4
Integrate with existing user-friendly, environmental tools	Incorporating hypoxia forecast data with existing tools for the Sound will connect users who are already interested in the health of the Sound with new information.	3.2.2
Consider accessibility and ease of use in tool design	The forecast tool needs to be easy for users to learn to use, with information that can be quickly and easily understood. This could include translating dissolved oxygen levels to colors, while being thoughtful about accessibility for colorblind users. Providing different "paths" would allow a generalized view of hypoxia in the Sound and allow varying users to further investigate relevant environmental quality data.	3.3

https://longislandsoundstudy.net/2023/10/messaging-and-forecasting-hypoxia-for-long-island-sound-workshop-proceedings/

Here are a few of the recommendations …

- The report identified 8 recommendations, with detailed descriptions. Here are 3.
  - Define intended audiences for communication and understand their relationships to the Sound.
  - Frame message effectively and learn from past effective environmental campaigns (e.g., forecasting tools for other locations, Save the Sound Report Card, CTDEEP Annual Report)
  - Addressing challenges in communicating about hypoxia (e.g., complexity of science, lack of meaningful imagery, conveying progress made *and* continuing challenges.

We plan to implement several communications related initiatives

- Building a Communications ToolKit (Lead: NEIWPCC)
  - Develop an animated video that communicates the issues and impacts of hypoxia in Long Island Sound with emphasis on land-use and anthropogenic influence.
  - Pilot targeted communications, engagement, and connection with 1-2 communities in the western Long Island Sound and install signage at selected communities.
  - With design and language translation support, create a communications kit of brochures, memes, graphics, etc. in different languages to help tell the story that conditions are improving and how it benefits communities.
  - Scope out development of a communications game like Chesapeake Bay's UVA Bay Game

Some other next steps …

- Developing a Story Map
  - A story map is web-map that effectively integrates maps, photos, videos, and text to help users explore a topic of interest.
  - We are developing a story map to tell the story of nutrient management in Long Island Sound, including the successful efforts to reduce hypoxia.
  - The Story Map can be a platform to communicate the annual forecast and integrate with other information being provided by LISS partners.
  - We can follow up on a forecast by evaluating how well we did after new data become available and using that as another opportunity to communicate about the LISS program.