Climate Change and Sentinel Monitoring Workgroup Meeting Summary
Monday, February 28, 10-12PM

Attendees
Samarra Scantlebury, NYSDEC (Co-Chair), Kathleen Knight, CTDEEP (Co-Chair), Samantha Apgar (USFW), Sarah Crosby (Norwalk Maritime Aquarium), Gregory Dietl (Cornell), Shauna Kamath (NYSDEC), Alison Kocek (USFW), Madeline Kollegger (UCONN), Owen Placido (USFW), Matthew Pruden (Cornell), Ron Rosza (retired- CTDEEP), Penny Vlahos (UCONN), Harry Yamalis (CT DEEP), Timothy Stagnitta (USGS), Anya Grondalski (NEIWPCC), Christopher Eagler (NYSDEC), Syma Ebbin (CT Sea Grant/UCONN)

Introduction
Samarra Scantlebury called the meeting to order at approximately 10:00 AM. Samarra provided an overview of the Climate Change and Sentinel Monitoring Work Group's (CCSM) purpose and the agenda.

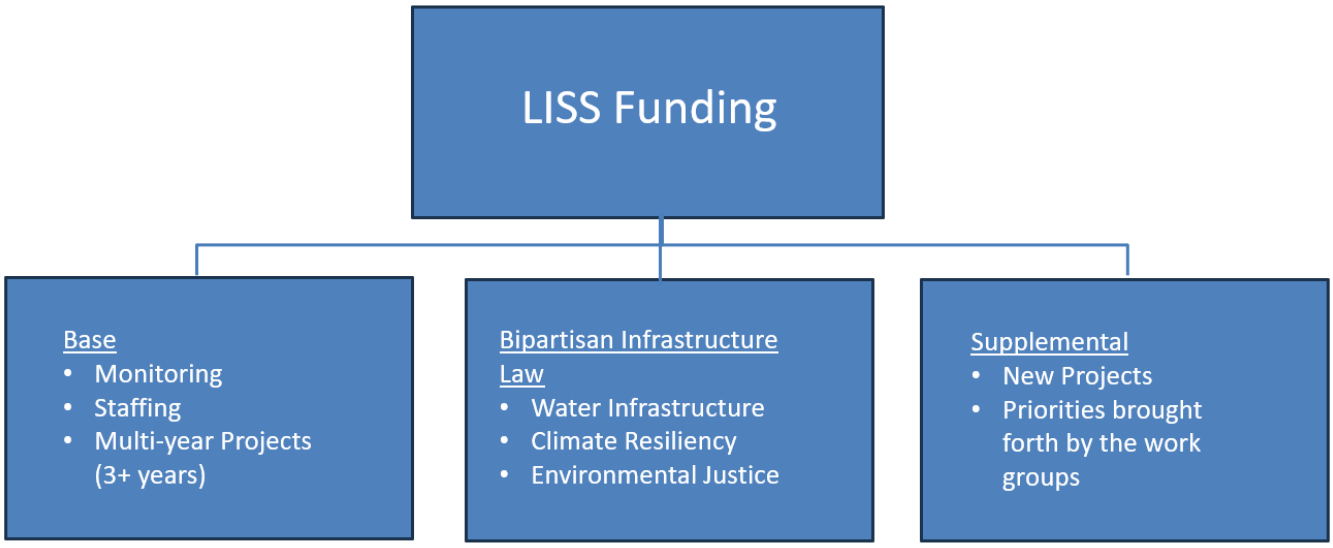
The agenda was as follows:

- LISS Women in Science Announcement
- Expertise Poll Results
- Update on Relevant Base & Supplemental Proposal for FY24
- USGS Meta-Data Database Project Update
- Overview of Fish Collaborative Meeting

LISS Women in Science Announcement
Anya Grondalski announced that LISS will be collecting photos of LIS women in science to be featured on LISS social media accounts. The submissions were due March 1st.

Expertise Poll Results
As a follow up from the CCSM environmental justice meeting, the co-chairs sent out a poll to the group so that members could share their expertise. This exercise allowed the cochairs to see what areas are lacking representation and actively seek members that can fill that gap.
Kathleen Knight shared the results via Poll Everywhere. The work group has representation in coastal ecology, seagrass, salt marshes, plankton, migratory species, fisheries, coastal plant community ecology, tidal marsh ecology, climate adaptation, coastal habitats, native plants, birds, water quality, living shorelines, coastal resiliency, eDNA, coastal physical oceanography, macroinvertebrate (ecology, paleoecology, geology), ocean acidification, harmful algal blooms, marine biodiversity, passive acoustic monitoring, marsh restoration, water quality modeling, mollusks, and benthic ecology.

Update on Relevant Base & Supplemental Proposal for FY24
Samarra gave an overview of the funding that Long Island Sound Study receives.



Samarra then went on to go over the base proposals that are climate related. Most of the base monitoring programs will be leveraged for the Sentinel Monitoring Network. Those projects include:

- LIS Water Quality Monitoring Program
- Embayment Data Collection for Modeling
- Acoustic Telemetry Array - Phase 2
- IEC Ongoing Monitoring
- IEC Hempstead Harbor
- In-Stream N Monitoring in Upper CT River
- Unified Water Study
- Water Quality Observations to Support Hypoxia Management in Long Island Sound
- Connecticut River at Middle Haddam Nutrient Loading
- USGS Water Quality Monitoring in Selected Near Coast Environments of Long Island Sound
- USGS Continuous Water Quality Monitoring in Norwalk River
- Coastal Acidification Monitoring
- Long Island Sound Tributary Sampling

Next the climate related supplemental proposals were presented, and Samarra gave a short summary on them.

- National Coastal Condition Assessment 2025 LIS Embayment Intensification
    - Collect quality-assured water quality, sediment quality, benthic macroinvertebrate community data at 60 sites utilizing standardized collection and analytical methods of the National Coastal Condition Assessment. Assist in clarifying ecosystem targets for shellfish growing areas, sediment quality improvement, and eelgrass extent.

- Accessibility of LIDAR and multi-spectral imaging of CT saltmarshes
    - build the necessary storage capacity within CT DEEP and the University of Connecticut to house all the raw data and derived products from the completed Project 'LIDAR and multi-spectral imaging for baseline saltmarsh monitoring', develop the inhouse infrastructure and ultimately

purchase the necessary licenses to enable continued access and use of the data and derived products through GEOSAP.

- Ecosystem evaluation of fish communities - embayment assessment
    - An analysis of open sound/ocean, endangered, critical bait fish, and anadromous fish such as river herring and open ocean fish that may migrate into the sound such as black sea bass.
    - Compile and analyze existing data like those tracked by the Indicators Review Team, CT DEEP, NYSDEC, and other local partners.
    - Evaluate said data streams (both long term and short term) for gaps and evaluate for climate pressures such as warming waters, altering currents and species changes.
    - Provide a comparative analysis between sampling methods utilized in LISS and other estuary programs.
    - Identify existing essential program procedures, gaps and/or potential improvements through the above analyses and provide a recommended sampling plan.

- Long Island Sound oyster health assessment: Effects of climate change on population dynamics, disease proliferation, and reproduction on natural and restored oyster beds
    - Conducting monthly water sampling for full water carbonate chemistry (pH, dissolved inorganic carbon, and alkalinity) analysis at all four sites.
    - Adding winter oyster sample collection for health and disease assessment at the intertidal sites.
    - This work will benefit the Climate change & Sentinel Monitoring Working Group efforts to develop, maintain, and enhance a dynamic climate change monitoring program for the ecosystems of the LIS.
- Acoustic Monitoring in the Western LIS
    - collect information on the numbers, locations, movements, and behavior of Atlantic sturgeon, finfish, and elasmobranchs via acoustic receivers in the western Long Island Sound to aid in the protection of species of greatest conservation needs.
- Coordinated Salt Marsh Data Collection to Support Coastal Resilience in Long Island Sound
    - establish a collaborative group with expertise in salt marsh health,
    - (2) assess existing salt marsh resources, needs, and gaps,
    - (3) determine the necessary suite of parameters to evaluate salt marsh system health under climatic pressures,
    - (4) determine a shared set of standard practices and quality assurance plans,
    - (5) establish a coordinated project directory,
    - (6) recommend at risk and baseline reference locations ideal for monitoring climate change impacts to salt marshes of CT and NY.

<u>Discussion</u>

Ron Rozsa: The last plan [2015 CCMP] had specific recommendations on advancing the monitoring program which after 17 years there still is no monitoring plan. This section [sentinel monitoring plan] should be absorbed into the next plan [2025 CCMP] in its entirety and should be the priority for the first year of the launch of that plan. It requires the identification of specific monitoring activities - like Chris E. commented on during the last [CCSM] workshop. What needs to be monitoring. There is also an approval process otherwise monitoring that does not address our specific questions will be added to the network. This approach is based in part upon the Gulf of Maine monitoring program.

Sarah Crosby: I would push back a bit against this above: "there is also an approval process otherwise monitoring that does not address our specific questions will be added to the network." The monitoring work can, and should, address needs that are not only those of the CCSM work group; there is also overlap with HRSWG and SRC, so there may be parameters/data collected that advances broader LISS objectives while also advancing the CCSM monitoring needs and goals. The goal will be to balance the goals and seek alignment wherever possible, but I think that the scope may extend beyond CCSM where appropriate.

USGS Meta-Data Database Project Update

Tim Stagnitta introduced himself and his affiliation with the USGS New York Water Science Center. The project team includes members from the USGS New England Water Science and the USGS Web Informatics Group. Tim made the group aware of this disclaimer:

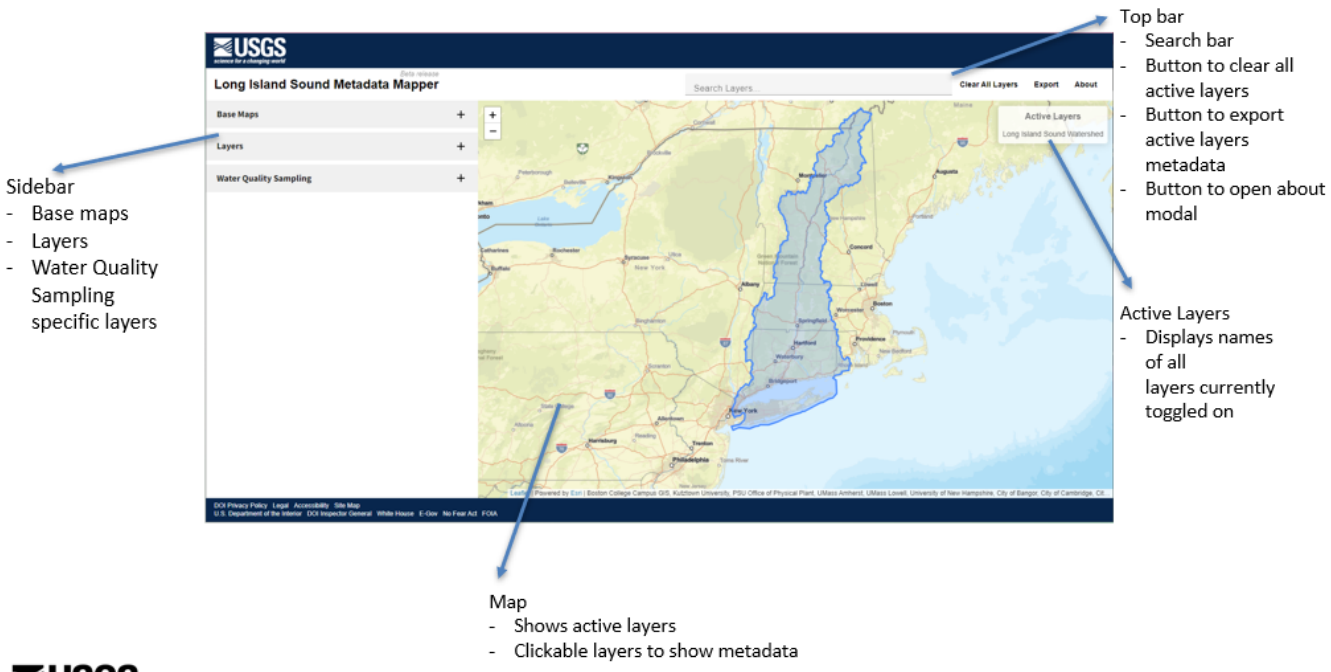
- Maps not for navigational use.
- The contributions by non-U.S. Geological Survey (USGS) authors in this volume are published as they were submitted. Contributions authored entirely by non-USGS authors do not represent the views or position of the USGS or the U.S. Government and are published solely as part of this volume.
- Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.
- Inundated areas shown should not be used for navigation, regulatory, permitting, or other legal purposes. The U.S. Geological Survey provides these maps "as-is" for a quick reference, emergency planning tool but assumes no legal liability or responsibility resulting from the use of this information.

The mapper is meant to house the location of data collected from different monitoring, research, and modeling projects across the Long Island Sound watershed. The mapper is a simple tool that will provide information on the extent of and source of various environmental information, which can increase public engagement. It will also help visualize potential data gaps, locations to prioritize data collection, information for Comprehensive Risk Assessments, and potential cost reduction in monitoring and data gathering.

The Metadata Mapper was developed using input from a questionnaire sent out to 100+ contacts and excel sheets from seven stakeholders about projects that may not have been represented by publicly accessible sources, such as WQP and state API's, which the Metadata Mapper currently hosts.

The mapper currently has state API layers (from NY, NYC DEP Harbor Quality Data, CT, Massachusetts, Vermont, New Hampshire, and Rhode Island), national basemaps, the water quality portal, and state water quality sampling layers. USGS made their own categories and subcategories within the database to showcase the same kind of data that are usually represented differently from state to state. You can download or export data from the Metadata Mapper; downloads come as csv files. The image below shows a screenshot of the mapper and how to navigate the site.

USGS is continuing to test the Metadata Mapper to ensure performance and quality of the map, as well as gather information from other data sources. The mapper will be available late summer of 2024.



Discussion

Ron Rozsa: To Sarah's point - this project seems to duplicate the LIS metadata database funded by the Sentinel Committee - it for example has a fields that link to the listed sentinels. It has A GIS layer, it can be queried etc. as per my first comment the Sentinel Network needs to set forth priorities and also have an approval process.

Kate shared that after the CCSM workshop in 2022, CCSMWG got direction to leverage other metadata mappers that were in the works since the Long Island Sound Sentinel Monitoring metadata database needed significant upgrades. She also noted that any data that from the Long Island Sound Sentinel Monitoring metadata database that has been QA/QC should be added the USGS Metadata database mapper. Kate asked that the USGS Metadata database mapper flag sources that are climate related or that can be used for sentinel monitoring for the use of the work group.

Tim offered to work with Ron on incorporating data from the Long Island Sound Sentinel Monitoring metadata database.

Ron shared the link to the LISSM metadata database in the chat http://www.sound.uconn.edu/lissm/

Samarra asked if there would be a kickoff meeting.

Tim said that there will be a kickoff meeting and it will probably be in September [2024].

Samarra asked for USGS to keep the CCSMWG in loop on updates regarding the project.

Kate noted that NERACOOS data should be incorporated into the mapper as well.

Tim said that the group is working on adding NERACOOS data to the map.

Ron thinks the mapper is duplicative of the LISSM metadata database.

Kate noted that after going through the LISSM metadata database (with Cayla Sullivan and Jordan Bishop) to assess the data quality, that it is hard to get people to put their data in the database just for the purpose of the Sentinel Monitoring Network. The CCSM leads were directed by EPA to find leveraging opportunities. Since the USGS Metadata mapper is an effort that was coordinated with EPA to do for the whole Long Island Sound, the CCSM leads thought it would be good for the work group to stay involved in the process. Tim is at the meeting to showcase what has been done already and has agreed to work with the group on adding material to the mapper.

Ron noted that data from the LISSM metadata database is not just historic, it is current data and programs. There was an issue mapping out the water quality sampling sites cluttering the map, so it was changed to just include one centralized location for the water quality sampling and when you click it more details would pop up.

Kate let the group know that we alerted the USGS team of the challenges with the LISSM metadata database. She and Samarra also provided the USGS team with notes from the Tampa Bay on the creation of their metadata database (Statewide Ecosystem Assessment of Coastal and Aquatic Resources (SEACAR)). Kate asked if it was okay to keep compiling notes to send to inform the mapper.

Tim agreed and asked for any links that house the information Ron was referring to.

Ron: Here is the new link to the database: https://www.sentinelmonitoring.org/inventory/ The LISSM website has a tutorial for using the database.

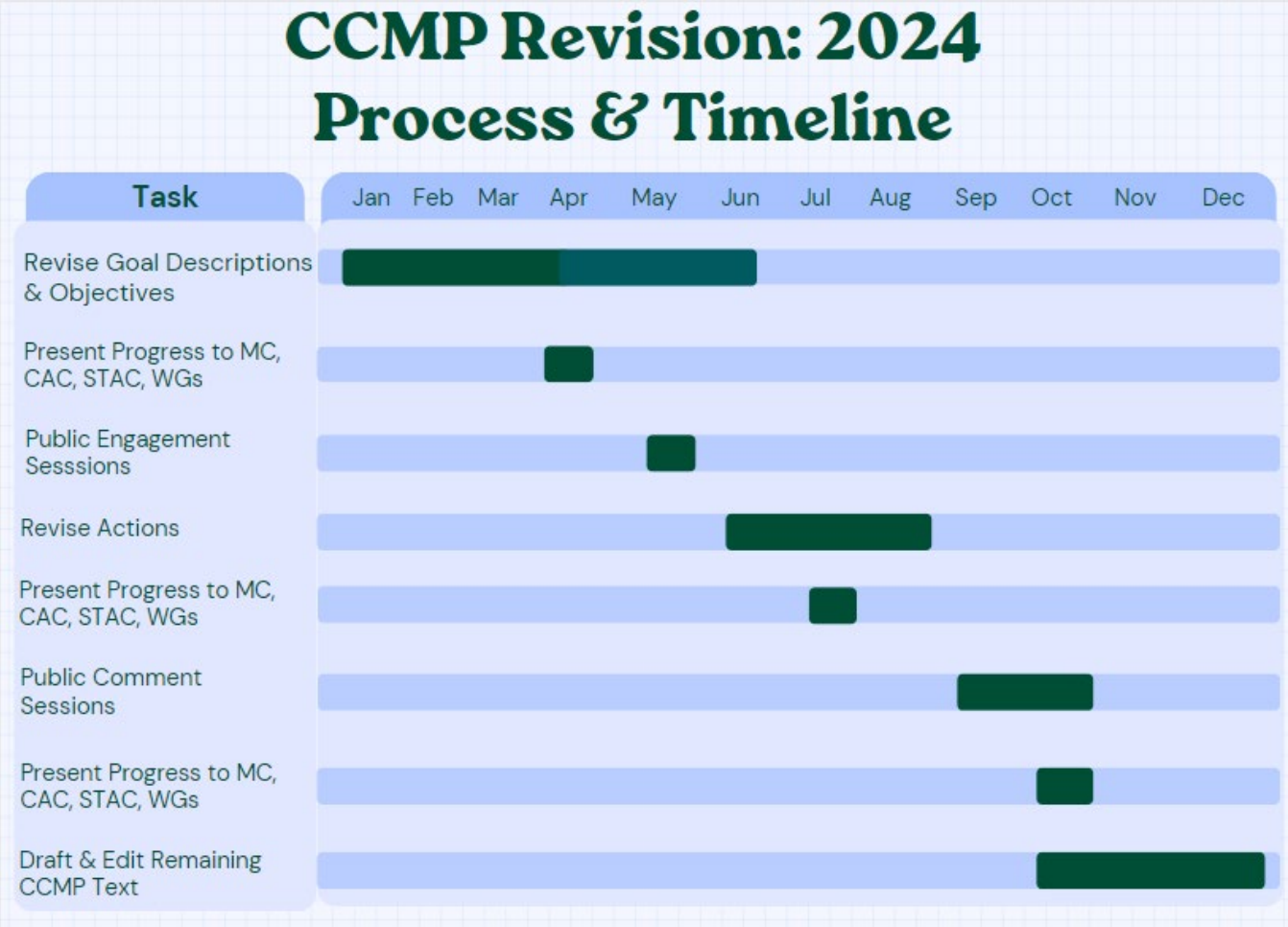
CCMP Revision Update

Samarra began reviewing the process of the revision up to February 28, 2024. Below is the timeline for the entire revision process.

There are four writing teams: Clean Waters & Healthy Watersheds (led by Sue Van Patten (NYSDEC), Chris Eagler (NYSDEC), Kelly Streich (CTDEEP), Tim Hunter (CTDEEP), and Liz Tanzi (EPA)), Thriving Habitats & Abundant Wildlife (led by DeAva Lambert (CTDEEP), Harry Yamalis (CTDEEP), Shauna Kamath (NYSDEC), Cayla Sullivan (EPA)), Sustainable & Resilient Communities (led by Deb Abibou, (CT Sea Grant), Elizabeth Hornstein (NY Sea Grant), Sara Powell (NY Sea Grant), Sarah Schaefer-Brown (NY Sea Grant), Sarah Schecter (CT Sea Grant), Kristen Lancetti (EPA)), and Informed & Engaged Public (led by Jimena Perez-Viscasillas (NY Sea Grant), Robert Burg (NEIWPCC), Maggie Cozens (CT Sea Grant), and Bob Nyman (EPA)). The mission, vision, and value statements were already drafted. Themes are being replaced with goals; ecosystem targets are being replaced by objectives; the implementation actions are being replaced by actions.

By the time of this meeting, the writing teams were just beginning to schedule meetings to create goal statements and objectives, which as the timeline suggests, would take place in the first half of 2024. In April, the draft goal statements and objectives were presented to the Management Committee (MC). Afterwards, the draft CCMP will be presented to the public in virtual and in person public engagement sessions throughout the month of May. In the summer of 2024, the actions will be drafted, presented to the MC, then presented in public engagement session. The goal is to have the final CCMP by January 2025.

Samarra also noted that the name change of the program will be rolled into the revision process; by 2025 the Long Island Sound Study will have a new CCMP and new name.



Kate gave updates on the Clean Waters and the Informed and Engaged Public writing teams, while Samarra gave updates on the Thriving Habitat and Sustainable and Resilient Communities writing teams.

Update on recent Fish Collaborative Meeting

Kate gave an update on the fish collaborative meeting that was hosted by the CCSM leads in January 2024. Here is a link to the notes of that meeting.

Discussion

Harry asked what the forecast of anadromous species due to the commercial efforts offshore causing less fish to come in the Sound and up the rivers.

Kate replied and said that the Indicators Review Team was trying to answer that. There was a reduction in buffer zone that caused commercial fisherman to be able to catch herring in their incidental catch and sell it. The herring numbers are so low in CT that recreational fishing is not allowed with this species. But the commercial fisherman can catch them in large quantities, which may be preventing the return of anadromous fish despite restoring river miles in CT. Kate would like to circle back with others in CTDEEP on repairing the buffer zone to better answer that question. Kate added that climate is not the sole culprit of low anadromous fish counts,

overfishing and development are also pressures contributing to this. Management decisions need to consider all those issues to make meaningful impacts on these issues.

Meeting Close Out\Next Steps
2024 Calendar was shared.
Next meetings are: May 21, August 20, November 12
All are from 10am-12pm via teams.

Stay tuned for agendas meeting updates and materials for feedback.