

Ideas for expanding the impact of our collective monitoring work - Great Bay Research Symposium, January 2024

Idea	Interested People	Additional Comments
Theme: Expanding our coastal observing system		
More structured time to discuss linking coastal, estuary and watershed monitoring efforts. We just started to scratch the surface of how to most effectively leverage, link, and build off of these data sets during the symposium lunch discussion group.	Michelle Shattuck, Tom Gregory , Wil Wollheim, Jody Potter, Easton White	
Ecological and environmental forecasting is becoming more en vogue. Can we start integrating short-term forecasts into our data streams of physical parameters in portals like the NERRS?	Jake Kritzer, Beth Turner, Chris Kinkade, Easton White	
Year-round water temperature data. Much of the NERRS temperature/water quality data is collected in spring/summer/fall and buoys are removed due to ice over of GB, can we get year round data? Water data for temperature is critical for determining survival of oysters and determines if larval stage of invasive invertebrates like blue crab can survive.	Jake Kritzer, Tom Gregory , Easton White	Also a problem inland in lakes, buoys that sit slightly under surface have been used in lakes to avoid ice damage
Use eDNA to detect saltmarsh sparrow nests- can it help us find successful nests that point observations miss?		Can eDNA be used/collected from sediment cores to get a longer-term view of population change?
Theme: Maximizing the potential of monitoring programs		
Greater integration between watershed/inputs and observations within GB (e.g. Greg Moore's Integrated Conceptual Model Approach using watersheds)	Grant McKown, Deni Murray, Steve Jones, Wil Wollheim, Jody Potter, Easton White	
Identifying monitoring gaps in Great Bay (list, prioritize, matchmaking)	Chris Peter, Gregg Moore, Tom Gregory, Easton White	DO, turbidity, Chl A, cdom high frequency measurements withing eel grass beds
New England watershed online network, people have profiles that show what they're studying, affiliations, publications, and email address to more easily collab.	Deni Murray, Tom Gregory, Katherine Wieck	
Workshop of different statistical approaches for common monitoring goals?	Deni Murray, Katherine Weick, Easton White	I like this idea, it would be great to identify datasets people want to work with beforehand and maybe do actual writing and the workshop in small targeted breakout groups
Ecosystem scale modeling- this would include a food web, constraints of abiotic and biotic factors and researchers could work together to first develop a conceptual model then add in real data/math and then press this model under different climate change or disturbance scenarios and see who/what responds positively or negatively.	Kalle Matso, Kaitlyn Shaw, Easton White	

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Interested in linking between trophic levels. So starting to either make networks or move from one feeding trophic levels to multiple.	Liz Harvey, Easton White	We do a fairly good job of measuring each one of these alone but power lies in making mechanistic linkages between them.
Compare monitoring approaches both in terms of information gained and lost, bring different databases together	Easton White, Tom Gregory	Great workshop today, maybe we can try a poster session sometime.
Dedicated funding and staff for analyzing and synthesizing existing data into single repository.	Grant McKown, Tom Gregory	
Bringing decision makers and community members along with these discussions or innovations in monitoring so they are also prepared to make decisions based on new approaches, especially where it is a shift away from past approaches they may have used.	Lindsey Williams, Kaitlyn Shaw	
Develop conceptual models of GB (abiotic drivers, biotic interactions, human interactions/interests) What are most important intersections that we need to monitor? What can we learn from monitoring these components about the greater ecology and function of GB?	Steve Jones, Easton White	
Workshop for sharing monitoring techniques and technology. Example: demonstrations of different loggers, sensors, samplers, etc.	Tom Gregory, Jody Potter, Easton White	
Shared space for data and ongoing monitoring projects- online or website?	Madelyn Kaplin	
Expanding/improving the portfolio of data products that connect monitoring outputs with diverse user groups. (A surprisingly light topic today)	Anna Mikulis	
The use of API's and computer learning to combine and streamline datasets that use the same/similar protocols (i.e. satellite data, water quality, biological data) this expands the possibility of setting up workflows that consider interacting long-term variables and new occurrences due to climate change, such as using long term data to generate short-term rapid response	Kaitlyn Shaw	
Organizing disparate data into overarching database repository for easy access/use to allow cross study interactions with other field data.	Sara Smith	Check out PREP's data explorer
Mapping current efforts: what, where, when to understand where datasets interact (or repeat/are redundant)	Steve Jones	
Introducing or expanding community outreach with communication and or social media posting. This could reach a broader audience to share restoration or monitoring work with.	Chris Chabot - for HSCs	Great Bay NERR is a great example of folks who are already doing this (check out their instagram/facebook) recruit recreational community members

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Justify monitoring efforts across critical ongoing and emerging issues and seek synergies between related issue-driven efforts.		
More collaboration space/opportunities		Create a set of program/project overviews., keep up the momentum, more inter-dataset reuse and synthesis would be great.
high level summary table of monitoring parameters used by each monitoring program to go along with GBNERR monitoring program directory	Chris Chabot - for HSCs	
Centralized data portal that combines all the data presented (e.g. fish, nutrients, PFAS, water level, etc.) for easy analysis and comparisons to inform proposals, research questions, and management in the area.		
Centralized and simplified approach, summarize the need then simplify information access		
Find a way to improve and enhance data discovery, not enough stakeholders know about available data!		
Outlining monitoring protocols- monitoring intervals and parameters in an easy to access database for long-term monitoring projects across GB		
Maximizing resources by re-evaluating monitoring plan design i.e. frequency of sampling where and when. Connected to integrating target monitoring parameters with useful accessory data (data sonde/sensors)		
What ways are areas of Great Bay connected besides water? The idea of PFAS getting taken up in one place and deposited somewhere else- food web. The interaction of nutrients and compounds being moved by abiotic and biotic influence, talk about how they work together. There are very few beaches in GB. It was mentioned that this might be why HDC are using the marsh, think about which habitats are present and missing from GB. Polling people, survey fatigue, what can we learn from our community and ABOUT them?		
More cross-organizational fellowships. Digital/online resources to connect researchers doing different work across GB- a storymap/interactive map or contact list of some sort or enewsletter to inform colleagues, other researchers from different organizations, and the public about monitoring and research being done?		
Better match the need for implementation-ready monitoring, new ideas or ideas of tomorrow with supply, to build a more efficient system of monitoring and data providers		

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Salt marsh folks (GBNERR, TNC, NHCP) should chat with Easton White and Barbara Spieker for data consolidation		
Establishing GBNERR data collection protocols so that data can be compared 1:1 for certain variables (i.e. protocol for water level monitoring using EPA for PFAS) that way multiple projects could be integrated together.		Check out the New Jersey Tidal Wetland Monitoring Network for database ideas
Collection of not just ongoing monitoring but protocols/metadata sharing too (maximize existing datasets and efforts)		This seems to be a common theme of setting protocols for data collection within GBNERR.
Outlining monitoring protocols- monitoring intervals and parameters in an easy to access database for long-term monitoring projects across GB		
Ensuring meaningful analysis of our collective monitoring data (i.e. do we gather too much data if we don't analyze it all?)		
Theme: Watershed dynamics and water quality		
Construction of databases combining data on ecological variables as well as contaminants of emerging concern.		PREP watershed data explorer? Need a table that lists orgs/groups and checks off different parameters (by columns) for what they monitor (not necessarily where/frequency just high level parameters)
Systems thinking, Where are toxins coming from and how does it affect the system as a whole? Which species are they affecting and are they affecting biodiversity?		
Theme: Informing habitat restoration		
Curious about soil characteristics and ability for marshes to migrate. Want to know 1) if some soil types or characteristics enable marsh migration and 2) if the loss of forest of field and creeping marsh vegetation actively change the soil.	Julie Paprocki, Kaitlyn Shaw	
the use of flow cam to assess sediment slated for beneficial reuse to assess grain size and resting cysts of specific bloom forming species. Meant to generate a project to increase the ability to understand and avoid long-term impacts due to sediment movement/reuse.	Kaitlyn Shaw	
Summary of where we are all monitoring or some sort of web map to show where/what we are monitoring.	Marjorie Mednikova	

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Standardizing monitoring metrics between restoration projects could be useful in generating local and regional comparisons and streamlining long-term data collection (including community science data!)	Marjorie Mednikova	
Looking toward connecting between predators and prey which could lead to collaboration across terrestrial and aquatic environments. Looking at connection between watershed/restoration with a multitude of other organisms in the surrounding coastal environments.		
Combining biological monitoring datasets (oyster metrics, eelgrass monitoring, saltmarsh conditions, fish counts) with environmental factors (precipitation, salinity, turbidity, nutrients) to better understand how these datasets are interacting and how pulling one lever can have cascading impacts- developing these models could be helpful with restoration efforts, predicting impacts with climate, etc.)		
When a restoration project is planned as much toxa monitored before and after for a robust iea of the impacts of restoration.		
Knowing more about biogeochemistry		
Theme: Fish and Wildlife		
Abundance of tern eDNA and documented abundance of terns on White and Seavey Island- ground truthing for bird eDNA, do concentrations of tern eDNA align with frequent foraging grounds from telemetry work?	Aliya Caldwell	
Incorporate eDNA into as many biological sampling projects as possible.	Aliya Caldwell	
Curious about eDNA and acoustic biodiversity metrics	Chris Peter	Also add seining, underwater video
It's the GB symposium but the talks aon HSC and blue crabs have me thinking about including the HSE. Could future symposiums feature a block for the HSE?	Kalle Matso	This could be sponsored/organized by SHEA
Theme: Monitoring of human dimensions		
Adding local indigenous nations to various aspects of monitoring/research in general (including indigenous knowledge and culture)	Callalyn Lacio, Lindsey Williams, Cory Riley, Sidney Axtell, Madelyn Kaplin, Elizabeth Harvey	
Frameworks for incorporating natural resources management into the scientific design process for maximum impact and not feeling like you need to reinvent the wheel each time you write a grant!	Cory Riley, Lindsey Williams, Callalyn Lacio, Sidney Axtell	

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Collaborations of human dimensions (surveys, interviews, etc.) elements so we are not oversampling same audiences but also making use of data that is available more readily- also helping to understand the impact of other work and how it might shift.	Lindsey Williams, Callyan Lacio, Cory Riley, Marissa Gast	
Better communication of monitoring results and data with interested communities, stakeholders, and the public.	Lindsey Williams, Madelyn Kaplin	
Follow the lifespan of ideas (monitoring/research) to see if it makes it way outside of academia (management, education)	Lindsey Williams	
MA DER funded a project on a community based social marketing survey with the Ipswich River Watershed Association, Erin Casey is the contact for that project. It was related to water use and fertilizer use.		
<p>NOTE: This list of ideas was generated at the Great Bay Research Symposium on January 9, 2024 through a "Crowdsourcing" activity. These ideas are being shared to help spark new ideas and collaborations. To learn more about the event, see: Symposium Participant Packet</p>		