Threshold Projects Session

Water Quality Break-out Report

• Facilitator [Kim Yates]
1) Identify the Information needed to create a threshold nowcast for Water Quality:

• Identify stressors and related parameters (e.g., temperature, salinity, pH, DO, nutrients, currents, etc…)
  • Dissolved oxygen, pH, nutrients, salinity (informs FW inflow and drought events), density (salinity & temperature), chlorophyll, HABs, bacterial stressors, multi-stressor interactions.
  • *Emerging contaminants*: Endocrine disrupting compounds like pharmaceuticals, markers of human waste, PFAS, PAHs

• Do we currently collect this information? If so, where is it available? If not, what new observations are needed?
  • Many of the variables in (a) are collected by various federal, state, local, and other groups primarily at the surface. As a starting point, we need to review and synthesize existing inventories, data availability, methods across labs, QAQC standards, data quality objectives to inform gap analysis, and prioritization.
  • Endocrine disruptors collected via water sampling, some sensors available for PAH data.
  • Need proxy or sensor development in some cases.
• **What do we know about species tolerances and socio-ecological impacts of these thresholds?**
  • DO has a well-established biological standard of 2 mg/L. Other stressor standards are very localized based on species. E.g., there are EPA and state standards for nutrients and other variables, difficult to standardize across the region...may need to be sub-regional ranges.

• **What and where are the data gaps that need to be filled?**
  • In general, more observations are needed through water column and at bottom. There are geographic gaps along coastlines and shelf. Need to review inventories to inform gap analysis including the CMAP funded by the RESTORE Council.

• **What is the readiness level of a threshold nowcast (for MHW, WQ, Currents) and starting point for moving forward?**
  • There are existing forecasts for HABs in the GOM (satellite based info), hypoxia in the Great Lakes and GOM, and for OA in the Pacific Northwest that can be used as models.
  • DO is ready for application of data via well-established standard threshold.
  • See info above re: review of inventory of other stressors, gap analysis, prioritization of need and readiness.
2) Identify 2-3 examples of decision-making applications related to threshold information about the topic (Marine Heatwaves, WQ or Currents)

- Helping EPA to update their thresholds (e.g., nutrients) working with state and county entities.
- Expand coastal salinity and real time drought, low salinity monitoring, Texas Water Development Board for sensitive nursery areas, help redirect waters, active engagement for water flow management. Benthic indicators in place (oysters, seagrass). USGS, Texas Water Development Board have near real-time monitoring systems (12 stations, entire Texas coasts), many decades of data.
- HABs condition forecasting, OA forecasting, Hypoxia forecasting
- EPA Beacon Beachwatch bacteria application...beach application through GCOOS.
- Special outreach and comms opportunities for GCOOS. Example, can GCOOS ID successful examples from Texas and how they can be applied across the Gulf Region...needs advocacy from GCOOS, state and local partners as well...through GOMA and Governors. Outreach and Comms build on successes.