

Water Quality Monitoring Managers' Needs Assessment Workshop for Estuarine, Coastal, and Ocean Observations

11-12 March 2008
Ramada Inn - Philadelphia International Airport

ROUGH WORKING NOTES – NOT FOR PUBLICATION
WILL BE SUPERSEDED BY FORMAL WORKSHOP REPORT

Items in yellow are key needs/issues/concerns

Working Groups Session #1: User Needs and Requirements

Breakout Group A: Public Health

ISSUES

Beach closures – bacteria and floatables

Shellfish closures (acute, storm or spill event, Vibrio)

Homeland security / spills

Fish advisory – long term integration (e.g., PCB's)

Seabreeze – aerosols (re: asthma)

Pharmaceuticals

NEEDS

MACOORA should:

- Enhance forecasting and modeling capabilities (e.g. longshore currents)
- Work with partners to enhance development of sensors and sensor specificity
- Integration of consistent format data into central portal – reduce search and decision time
- Communication to managers with proper interpretation of data
- Better (understandable) public outreach (broad goal of public literacy; specific of event (e.g. spill) communication).
- Toxic HAB - Need to work on getting newer technologies (e.g. site specific sensors for algae, etc.) accepted so that states can use (MACOORA could provide best possible, but decision rests with EPA)

Appropriate Temporal and Spatial scaling

Offshore – nearshore – big bays – sub estuary

Integrated communities

Breakout Group B: Hypoxia/Algal Blooms

- Provide better synthesis of understanding in order to develop an observing sys that informs mgmt decisions
- Gap analysis of existing observing assets
- Provide scientific “brain trust” as a resource to managers in addressing an event such as a large algal bloom and hypoxia (analogous to NJDEP using FDA as resource for shellfishery events)
- Provide information/understanding for states/municipalities to come to a common consensus on criteria (e.g., state response to proposed DO criteria). Help to develop and evaluate criteria.

Regarding HAB event, provide analysis of info to better explain source/cause
Look at where (and what) data is truly needed (strategic data collection)

Breakout Group C: Habitat Loss and Freshwater Requirements

1. FW Inflow Focus area

- FFMP, channel deepening, climate change (sea level rise) – all could affect fw flow and fw hydrodynamic mixing in estuary. Due to the extensive fw tidal prism and wide salinity gradient with associated biota, it is important to monitor how these variables might interact and possibly effect biota/habitat along the gradient and within tributaries
- Sensor-type monitoring needs to be linked to the proper biological/ecological questions (e.g., what does flood inundation modeling tell us about the impact of the biology/ecology of the system?), and could be linked into the flood inundation project being led by DRBC (Bob Tudor)

2. Tidal Wetlands

- WQ monitoring should capture at least two key metrics, salinity (for disease tie-ins) and food quantity/quality (seston composition) both of which can be affected by inflow and WQ
- We want to not just look at main channel but also flanks, such as 1-2 buoys and marsh monitoring stations on each of the river sides, connected to wetlands and oyster reefs (e.g. off Maurice River, NJ) as well as tributaries throughout region
- Inventory of available data for analysis and modeling (e.g. oysters, eel grass)
- Trend analysis and finer tune wetland analysis
- Sudden wetland dieback assessment
- Replenishment of wetlands with sediment

See above recommendations for tyover

Working Groups Session #2: Needs versus Current Capabilities (Gap Analysis)

DE Bay:

- Need to know mgmt questions that will be asked when developing model – needs to be user driven
- Linking models (estuary to coast to ocean) is very difficult but important because of their connectivity
- Sea Level rise, changing precipitation events, flood events, implications for ecosystem events; want to anticipate and plan in advance
- Frequency and duration of impaired waters and the criteria for exceedence would be helped by real-time sensors
- Integrate Dissolved Oxygen impacts with biological impacts
- State agency firewalls a huge problem in sharing with other states and agencies; need something other than WQX and STORET (EPA) and to integrate with USGS
- Beneficial for agency to have tech support from MACOORA in addressing real-time streams of data sharing/stds problem

LI Sound and Chesapeake Bay

- *Gaps:*
- *High Freq vertical profiles*
- *Spatial coverage (tributaries and shallows)*
- *QA/QC*
- *Fast response to events*
- *Nearshore sampling of salinity (proxies) Not just bacteria (for beach).*
- *Sampling for contaminants in general.*
- *Ground Water / surface water interaction*
- *Better time series of production and respiration rates*
- *Ease of data access is a problem as is disparate data formats.*
- *MACOORA could act as a web portal (pointer)*
- CHES-Waves
- LI- need system response monitoring- groundwater, nutrients, non-point source contamination

New York Bight

- Data gaps on south shore Long Island- need water quality parameters for TMDL
- Real-time data of basic parameters T/S in south shore LI are weak; in NY Harbor and Coastal NJ some still lacking
- Need DO data nearshore
- NYB- Coastal currents, offshore DO- current hypoxic
- Formatting issues of different datasets, QA QC
- Need a switchboard for where to get what you need and how to use it-needs to be more user-friendly for emergency response, etc. MACOORA could be the switchboard- survey to put all websites together
- An impediment to studying habitat loss is lack (gaps; areas and resolution) of LIDAR in estuary/elevations (regional)
- SAV trends
- Nutrient fluxes at inlets-need more data

Working Groups Session #3: Filling the Gaps: Identifying opportunities and solutions

Short-term Water Quality Issues

- **Macoora – clearing house of what is going on in each Subregion – managers can then decide if they want to try it or develop it for their region- also regional and national**
- **Future DMAC compliance (In dmac process make sure we critique marcoos proposals against whatever developing national stds are available)**
- **Action ITEM – make data available and accessible**
- **ACTION ITEM – talk to Sensor experts and others with the sensors that are available now and in near future**
- **Action item – build or adapt forecast models**
- **Action item - Expand horizon; look at biota and beyond – not just physical/ chemical parameters– are you measuring right thing – make informed decision.**
- **Action team (brain trust) of scientists (SWAT Team) to provide guidance to managers**
- **Identify canned information software applications– create something can be used over and over as template– available to academic team. - GIS type spatial dataset – multi-jurisdictional**

Long term WQ Issues

- Maintenance of long term observations of tide elevation, river discharge, winds need to be sustained.
- **Identify core observations and locales for monitoring (e.g. temperature).** Science based strategic plan is necessary to prioritize maintenance of assets and the expansion of new assets. Need a comprehensive network of permanent stations and some movable assets to refine fine scale structure (Correlation Scales).
- In the next 20 years we will want to observe Temperature and habitat changes (re climate change).
- Sea level rise is already evident in the region and effects will be substantial in the coming century on both the natural environment and coastal infrastructure.
- **Monitoring vegetative tidal wetland area trends are critical and we need to understand why they are changing. This is useful to managers. We need LIDAR surveys which have multiple uses.**

- We need a baseline for ecosystem structure in light of infrequent changes.
- We need a range of models (evolution and revision) for long term trends to inform management issues that are critically assessed and continually reassessed with new technology and data. Water supply issues are likely to result in further modification of estuaries.
- MACOORA bibliography of ocean observation studies