

Physics, Hydrography & Contaminants Breakout Session

Identify Topics Important for PacMARS-SOAR:

- Coastal Sea Level (tide gauges, Chukchi to Beaufort)
- Contaminants
- Documenting change
- Ice cover
- Primary Production
- Key Variables for a biophysical model
- Sea ice conditions
- Sediment transport
 - Wind driven
 - Hydrography
 - Ice movement
- Monitoring
 - Historic, real-time and future
 - DBO addressed some of this



PacMARS-SOAR Open Workshop: January 20, 2013



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Discussion (cont)

- Coastal Sea Level (tide gauges, Chukchi to Beaufort)
- Integration process (community level) for synthesis
- How is synthesis meeting the needs of NGO's ?
 - How has the system evolved over time with climate change forcing functions?
 - Do we have models to make projections or where are we just guessing? (even conceptual models are helpful)
- What variables do we need to create a conceptual model?
 - Not that we would do the model, but identify what is needed
- How will results from the synthesis affect environmental monitoring?
 - NGO's want to know what is going to be monitored; do we have enough data to for example run trajectories for an oil spill?
 - Where can we get this data (real time, historical, etc.)?
 - How will availability of data be communicated?
- Physics are well monitored, but chemistry is not.
 - Cadmium and other contaminants need to be included
 - Open water conditions fairly well monitored.
 - Ice covered areas not as well.
- PacMARS will have a nice one-stop shop to find out what data we have and where we have gaps.



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Discussion (cont):

- Major concern is oil spills.
 - Do we have enough historical data, real-time monitoring and models to develop predictions and responses?
 - Gather information from stake holders (NSB as an example).
 - Consider oil spill as a change like climate change
- Are we using enough industry data?
 - PacMARS and SOAR critically important to Identify data sets.
 - Not using industry data as much as possible.
 - Other data sets are there, but need to be unlocked (OCSEAP)
- Are we documenting changes?
 - Do we have monitoring in place to document those changes?
 - What is the funding plan for the future?
 - NOAA has responsibility for modeling (specifically for Chukchi/Beaufort area)
 - Modeling is not good enough in this area for impacts on the ecosystem; Arctic physical and meteorological modeling is very variable
 - DBO plan will help and address some of the monitoring issues
- What are the key variables for a biophysical model?
 - Time and space important; need to know what drives variability and what spatial extent can be included (what region? For what period?)



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Discussion (cont)

- How to articulate the value of synthesis to the local community?
 - Communities ask what contaminants are in the food?
 - Tie answers into currents and circulation (people are very familiar)
 - How does it impact what I eat? (bioaccumulation)
 - Shell brings scientists in and and back to the local communities
 - Community can contribute valuable information:
 - Capture beaches would be good place to look for understanding water movement
 - Krill wash-ups
 - Helps us understand how the system works, where oil spill might go, where whales feed, etc.
 - Getting community to help put out and maintain moorings (can we design them to be easier to deploy on smaller boats)
- Ice cover and primary production
 - Do we have enough data to model?
- Are we learning enough about sea ice conditions?
 - This relates to many issues (oil structures, fishing/hunting, infrastructure)
- Hard to find people working on sediment transport modeling for our area of interest
 - From the benthic perspective, hot spots have moved (~40 km)
 - Important to monitor wind changes and hydrography

