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Alaska Ocean Observing System Southeast Alaska Planning Session

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Juneau, Alaska

Meeting Summary

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Background

The planning session was sponsored by the Alaska Ocean Observing System (AOOS) in Juneau, Alaska following a 2-day workshop synthesizing the state of scientific knowledge of Southeast coastal and ocean science. That workshop was sponsored by the North Pacific Research Board (NPRB) as part of their science planning effort in order to assist with prioritizing Southeast marine research needs.

Purpose

The AOOS planning session was intended to introduce Southeast stakeholders/users to the national Integrated Ocean Observing System and its regional counterpart – AOOS – and to begin the dialogue over what information products (and the data to generate them) would be needed as part of a Southeast coastal and ocean observing system.

Approach

The approach used was 2 hours of presentations/overviews and 2 hours of discussion in an informal setting. Representatives of a sampling of Southeast stakeholder/user groups were invited: commercial fishermen, hatcheries, shellfish growers, marine shipping and transportation, National Weather Service, Coast Guard, state and federal fisheries researchers and managers, the University of Alaska Southeast, port and harbor masters. Not all invitees attended, but will still be included in all future outreach efforts.

Presentations

Four formal presentations were given. Copies of the PowerPoint presentations are posted on the AOOS website: www.aos.org under meetings/workshops/reports.

AOOS Director Molly McCammon gave an overview of the national ocean observing effort, as well as the planning and implementation for the nascent Alaska effort. She described the efforts in the major three ecoregions of the state: Arctic, Bering Sea/Aleutians, and Gulf of Alaska. The GOA is further divided into 3 sub-regions: Southeast, the central GOA which includes PWS, and the western GOA including Cook Inlet and Kodiak. The major goals of IOOS and AOOS are to:

- Improve the safety and efficiency of marine operations;
- More effectively mitigate the effects of natural hazards;
- Improve predictions of climate change and its effects on coastal populations;
- Improve national security;
- Reduce public health risks;
- More effectively protect and restore healthy coastal marine ecosystems; and
- Enable the sustained use of marine resources.

Dr. Carl Schoch, Science Director for the Oil Spill Recovery Institute in Cordova, described the AOOS pilot project in Prince William Sound and the three major information products being developed: atmospheric models and information, ocean circulation model, and a wave model. These are all products that will be expanded in coverage to include other regions of Alaska. Dr. Schoch described how the system was being put together, and how the products would be tailored to meet the needs of such stakeholders as hatchery operators, marine navigation interests, fisheries managers, and oil spill response.

Dr. Tom Weingartner, a physical oceanographer from the University of Alaska Fairbanks, summed up what little is known about Southeast Alaska oceanography: not much. Southeast is challenging because of its fragmented and complex geography, huge tides, significant freshwater input (estimated to be 60% of the freshwater contribution to the Alaska Coastal Current), strong winds, and paucity of observations. The region receives significant vessel traffic (highest in state?) due to cruise ships, the Alaska Marine Highway System, tug and barge delivery of goods, and fishing and recreational boaters. Dr. Weingartner emphasized the need for more information about ocean circulation, temperature and salinity, meteorological observations, and tidal models.

Dr. Ginny Eckert, an ecologist with the University of Alaska Southeast, summarized some of the findings from the NPRB Southeast Science Work Shop relating to fish, birds, and mammals. Although Southeast commercial fisheries represent a relatively small proportion of the state harvest compared to the Bering Sea and other GOA fisheries, they provide about half of the Southeast economy. Likewise, marine mammal and sea bird populations are small compared to other regions of the state, but there are pockets of high productivity and large numbers. Southeast marine mammal and seabird populations are not experiencing the declines seen in the western GOA and in contrast, appear to be very healthy. Glacier Bay is probably the most studied area in Southeast.

Discussion

Following the presentations, Molly McCammon led an informal discussion among the participants concerning Southeast observing needs and issues. The following is a summary of that discussion and individual discussions during breaks.

Dale Kelley with the Alaska Trollers Association said she had discussed with the National Weather Service the possibility of developing a ship of opportunity weather observation program since trollers fish year-round and are well distributed throughout Alaska. The big issue was timing for the program. Sufficient lead time is essential.

Gordon Kruse, University of Alaska fisheries biologist, emphasized that fisheries are driven by good year classes – and these appear to be developed early in the life history given certain oceanographic conditions. But what those conditions are is largely unknown. The Sitka Eddy off Sitka Sound is large enough to actually affect migration patterns. The sablefish fishery is a large fishery offshore of Southeast, but its connection to oceanographic conditions is largely unknown.

Tom Ainsworth with the NWS said that more information is needed about surface conditions in the southern half of the panhandle between Frederick Sound and Dixon Entrance (around Sumner and Clarence Straits). NWS area of responsibility in Southeast is 150,000 square miles, but only about 30 observing platforms report hourly (or at least more than once per day). Wind speed and wave height information is needed for the inside channels. They get some reports from the ferry system and from ships of opportunity program, but not enough. The eastern half of the GOA has significant lack of information about offshore wave heights.

According to Ainsworth, Southeast is the only stretch of coast that isn't modeled for coastal storm surge – storm surge modeling information is needed there. Access to lightning detection network data is needed. (Some data from Canadian network may be made available to AK NWS this summer.) Interior AK network is too far away to detect lightning south of about Cape Suckling.

Improved remote sensing by satellite would be helpful, although SE is cloudy. Canadian SAR data which can read through clouds is used, but near real-time is needed and SAR only flies about once every 10 days. QuikSCAT provides scatterometer data several times per day for daily snapshots, but doesn't have fine enough resolution and cannot detect conditions within about 25 km of shore.

Vessel icing conditions is an issue here also.

NWS has a system of volunteers who keep coastal weather logs which are archived by NWS. Volunteers can deliver observations using satellite phone, VHF, cell phone, or mail in on weekly basis. NWS is testing toll-free satellite phone service to call in obs.

Mariner weather log program could be instituted – give it a generic name and recruit boats to report in sea state, temp, sky conditions.

Al McCabe, Coast Guard: many of vessels have satellite tracked VMS systems that are geo-referenced. Could transfer log book data that way. Coast Guard uses information for search and rescue models, oil spill response, and public education.

AIS – Automated Information System – ship collision avoidance system. Currently used in Prince William Sound, Seattle, Puget Sound – has infrastructure for remote receiving and ship to ship transmission. Does it have sufficient bandwidth?

Dale Kelley – AIS is designed for homeland security issues, transmits and receives, has privacy issues for her fishermen and for people who live on boats. She supports programs that seek to coordinate information and use less money. Need lead time to engage the industry – late summer/early fall is better. Could survey fishermen about their needs and whether they would take temperature readings – surface and at depth (use temperature loggers on gear).

Halibut and sablefish longline fisheries – most valuable fisheries in Southeast.

Rich Focht – DIPAC – needs oceanographic info for early marine survival as aid in forecasting returning adults. Like PWS hatcheries, need info about freshwater flow.

Jeff Short – NOAA Fisheries Auke Bay Lab. Essential fish habitat is important for fisheries management. SE – collecting high resolution bathymetry using multibeam sonar. Need not just bottom habitat type, but also oceanographic conditions. Concerned about deep sea corals and sponges – NMFS is closing off some areas to longline fisheries. Currents have big impact on filter feeders.

National Ocean Services is doing nearshore mapping and hydrography. Benthic habitat maps not available on line.

Cruise ship traffic – high priority.

Coastal and western GOA – has more research and monitoring information collected than SE.

Need 1 stop shopping for all the information. Maybe endow a chair at the university to oversee this. New climate change/fisheries center in Juneau being discussed between UAF/NMFS. Lena Pt facility supposed to be completed by 2008. Need oceanography expert – coordination position. Maybe partner with Pacific States Marine Commission (AKFIN). GINA (UA's Geographic Information Network of Alaska) node in Southeast. How could that be used?

Communication – wireless network needed – series of relay stations to relay data.

Kimberly Vaughan with NWS – could add new cooperative observing stations to existing network. “Coop” stations report daily weather records (max/min temp, precipitations, snowfall, and, based on comments today, could provide SST sensors at coastal sites with access to water).

Tom Weingartner – what is needed most are steady state, long time records.

Peter Olsson, who is doing the atmospheric modeling for the AOOS Prince William Sound pilot project, is now the state climatologist. He should be involved in this effort.

Hatcheries – some are still collecting some basic oceanographic data based on the old plankton watch program. Need to capture data.

Snettisham has SNOTEL site to their east at Long Lake.

Conclusions

More discussion needs to occur with additional stakeholders about Southeast needs, but some of the largest needs appears to be inshore for wind, wave and current information; circulation models that are realistic; offshore information about shelf conditions and eddies, especially Sitka Eddy; and improved estimates of freshwater flow from Southeast into Alaska Coastal Current. Information of this nature would go a long ways toward meeting the needs of marine navigators, hatcheries, fisheries and other resource managers, and commercial and recreational fishermen.

APPENDIX A – March 31, 2005 workshop participants

APPENDIX B – Summary of existing observing assets in Southeast