

***Southern California Coastal Ocean Observing System (SCCOOS)***

**Senior Advisory Committee Meeting  
Facilitating Southern California's Coastal Observing Enterprise**

**12 June 2007  
SCCWRP  
Costa Mesa, CA**

**MINUTES**

Committee members present:

Jeff Crooks, Tijuana River National Estuarine Research Reserve; Mas Dojiri, City of Los Angeles; Linda Duguay, USC Sea Grant; Dominic Gregorio, State Water Resources Control Board; Samuel Johnson, US Geological Survey; Russ Moll, California Sea Grant; Bruce Moore, Southern California Stormwater Monitoring Coalition and County of Orange RDMD; Dave Panzer, Minerals Management Service; Jonathan Phinney, NOAA Southwest Fisheries/PaCOOS; George Robertson, Central Bight Water Quality Working Group; Arthur Shak, US Army Corps of Engineers; Sam Schuchat, California State Coastal Conservancy

Attendees:

Steve Weisberg, Southern California Coastal Water Research Project, SCCOOS Board of Governors; Russ Davis, Scripps Institution of Oceanography, SCCOOS Executive Steering Committee; Burt Jones, University of Southern California, SCCOOS Executive Steering Committee; Libe Washburn, UC Santa Barbara, SCCOOS Executive Steering Committee; Sheila Semans, California State Coastal Conservancy; Paul Siri, Ocean Science Applications; Susan Lohr, Lohr Associates; Julie Thomas, CDIP/SIO; Eric Terrill, SCCOOS; Stephanie Peck, SCCOOS; Lisa Hazard, SCCOOS; Paul Reuter, SCCOOS; Jen Bowen, SCCOOS

\*Denotes that a Powerpoint of the agenda item presentation is available for viewing at:  
<http://www.sccoos.org/CostaMesaJune2007.html>.

1. Welcome and Introductions

Stephanie Peck welcomed Committee everyone to the meeting, and introductions were made by all attendees. Ms. Peck reviewed the agenda and contents of the meeting packet.

Objectives for the meeting were presented\*:

- Establish avenues for how SAC efficiently and effectively engages SCCOOS.
- Provide updates to Senior Advisors of SCCOOS operations and activities, and state and federal related activities, to inform discussion about SCCOOS directions and priorities.
- Solicit feedback on present SCCOOS trajectory, identify defined products and activities to benefit stakeholders
- Address pending Committee organizational matters such as structure, meetings, and terms.

- Formulate input and recommendations to forward to Board of Governors.

## 2. Ocean Observing Overview and Updates

Eric Terrill gave a presentation\* on ocean observing systems, the Integrated Ocean Observing System (IOOS), Regional Coastal Ocean Observing Systems (RCOOS), and on Regional Associations (RA). An update of SCCOOS was given\*, including a portfolio of existing projects. SCCOOS is both the RA, the coordinating entity for the Southern California region, and the RCOOS, the regional ocean observing system.

Updates about State ocean observing activities, including the Ocean Protection Council, State Coastal Conservancy, and Ocean Science Applications, were provided by Sam Schuchat, Sheila Semans, and Paul Siri.

- Sam Schuchat stated that Coastal Conservancy is interested in permanent operational funding for the Regional Associations. SCCOOS and CeNCOOS are providing products that they can then demonstrate utility and nexus. Looking to get some funding redirected to operational ocean observing, such as OSPR monies.
- OPC has gotten very involved in working on MPA funding. Ocean observing must strive for relevancy for MPA monitoring and management. Served on Fish & Game Commission for five years; very interested in seeing us move on biological observing (better, faster, less expensively).
- OPC is concerned about increasing coastal erosion processes and what climate change means for that; beginning to think how they are going to manage that. Need sea level products developed.
- Relationship with ports needs to be worked on, the ports are not as aware as they could be.
- State particularly interested in wetlands, particularly coastal wetlands restoration, which are vulnerable to very small changes in climate change. Observational capabilities should be included in the planning and performance assessment of wetland restoration programs.
- Sea level rise are being considered by local governments are updating general plan amendments. Will need solid predictive tools to get a good EIR.
- Have three major dam removals going on. Assess nearshore impacts of sediment transport. USGS and Cal State Monterey involved in some baseline mapping, funded by SCC.
- Prop 84 - \$90 million. Intention is to spend a chunk of accomplish OPC Strategic Plan; fairly large portion going to mapping project; other \$ to MPLA; and assume another \$10 M to state observing systems. Approach taken is to integrate ocean observing components into other activities, rather than make ocean observing a separate element. Anticipate about \$27 M in Year 1, and little less than that in Year 2 and subsequent years.

- Implementation level – how ocean observing can provide cross-cutting activities, think about where \$ can go and creating good investment. Can we identify impediments to development of the efficient sensors for MPAs, currents, water quality. Sensors like this would be really good investments as present means of monitoring are not cost-efficient
- California is in a very influential position to affect development of NOAA IOOS. We've developed very good relationships and demonstrated leadership. Thinking about priorities in regard to MPAs and how surface currents mapping can assist in local larval transport.
- HF radar archived data can support development of ocean energy projects. PG&E looking to invest in ocean energy projects in Northern California.
- Amplify MPAs; state has statutory commitment to set up MPAs. Established in law before anyone calculated and knew the costs. Very expensive to set up and monitoring is very expensive. Would be important if observing systems can help keep these costs under control or keep them down. Trying to maintain relationships w/sanitation districts, ports, and others, which all provide enormous infrastructure for the state.
- State is getting more and more data and larger statewide data sets. Asking SCCOOS to consider this. Cyber infrastructure – will be necessary to interpret and distill the volumes of data that will be generated by these initiatives.

### 3. SCCOOS Organization and the Senior Advisory Committee

Members of the SCCOOS Executive Steering Committee that were present were introduced.

Eric Terrill gave a presentation\* on potential directions for the SAC to set the stage for the discussion about the SAC role in providing external input to SCCOOS development. Committee members will be considering the SAC's level of involvement, the kinds of activities with which the Committee could be engaged, and the ways in which Committee members could contribute to SCCOOS. Examples were provided such as providing technical input, guiding product development, and facilitating growth of SCCOOS, and communicating regional priorities.

### 4. Overview of SCCOOS activities, capabilities, and direction

Eric Terrill gave a presentation\* of SCCOOS components, data management efforts, and existing SCCOOS product lines and efforts. Data products can be generally categorized under three organizing principles or product lines: Climatic time series, Short-term regional predictability, and Intensive Regional Observations. Senior Advisory Committee had consensus that this was a logical approach to organizing activities given the disparate, and wide-ranging uses of the ocean observing system in California.

- Question of how to vertically integrate programs and interpretation, not just a series of radars installed? This was the idea with HB06.
- Do we see SCCOOS doing 24/7 marine forecasts or other role? Think about infrastructure in place and needed.

- Discussion about SCCOOS priorities, role. What are some of the realms of possibility? Flexibility in system. What is greatest use to clients out there?

## 5. Roundtable Discussion on SCCOOS direction

Stephanie Peck facilitated a discussion about the use of data and information by the agencies and organizations represented on the SAC, identifying data products of utility, and priorities in future development of data products and data services. To help guide the discussion, Committee members were provided with a set of questions in advance to consider from their agency or organization's perspective and come prepared to discuss.

### A. Discussion Questions

- How does your agency/organization currently use ocean data and information?
- What are the top three issues facing your agency/organization for which a better understanding of ocean information is important or critical?
- What resource management issues, decision processes, or mission does your agency face that would benefit from improved access or availability of ocean and coastal data/information? (eg. cooling water problem, search & rescue operation planning . . .)
- What are the impediments or challenges your agency faces in using ocean information and data products? (eg. in-house technical capabilities, training, data sharing, cost).
- What will be of most utility to you – data, data synthesis, type of product? (tool to manage data, tool to analyze data, data access, a particular database)
- Are there other types of information that could readily be added to what SCCOOS collects and synthesizes?
- In thinking about three timeframes in SCCOOS's growth – present, short-term, and long-term – what can we do, what can be added, or what needs to be developed with 1) existing resources; 2) an incremental increase in resources; and, 3) longer term, sustainable funding?

B. Committee members provided the following input and information during the discussion. *A final, collective list of recommended data products identified by Committee members is provided at the end of this section.*

- George Robertson, Central Bight Water Quality Working Group and Orange County Sanitation District (OCSA)
  - OCSA – responsible for compliance with permit (CORE - California Ocean Plan and Long Term), Regional, Special Studies). Organized efforts with other NPDES permit holders 4 times a year. There is considerable temporal and spatial variability (oxygen) in measured fields – Permits written to consider variability of data – eg. is there greater than 10% variability?; not a good time for monitoring effluent.

- Wants to be able to see what the ocean state conditions are on a given day – especially useful for interpreting the intermittent, boat-based measurements that are conducted for their permit. In this regard, a hindcast would be of use.
  - Decide on metrics that are valid and scientific.
  - Need Ph measurements; 2 sensors have more of a .2psu difference, need models for plume location. Need to be able to understand transport with multiple inputs (rivers, outfalls, etc)...where are the resources? Need more context in which to interpret data. Need something to put plume discharge into context and others: rivers, ocean outfalls. Ex. Is CDOM better?
  - Operationally – disinfect based upon environmental conditions. When it’s going to affect areas should we or should we not disinfect (more/less) (chlorinate/dechlorinate - ~\$8M/yr) – stop (easy); start (harder, order chlorine, can not stock). Develop a predictive model when potential impact of water is present. OCSD considering adaptive management approaches to when they chlorinate. for sustainability, economic, and environmental reasons.
  - Regional aspect – provide additional context for regional surface, spatially and temporal, quarterly surveys. How can SCCOOS leverage OCSD’s current efforts? Required to do regional monitoring.
  - Special studies – they don’t really have a good idea of where plumes are going. “Constituent of Concern” where are they going? “Nutrients” what impact are they having? How far can you see the plume?
  - Products:
    - *Periodic sub-surface maps of DO, transmissivity, salinity and pH - gliders, long-term climatology, web updated*
    - *Continuous and 5-day predictive model of plume location - ROMS model and interactive of other sources.*
    - *Plume surface prediction. Pay attention to surface layer and interaction with wind.*
- Dominic Gregorio, State Water Resources Control Board (SWRCB)
    - Interested in Ph, climate dependent.
    - Charge of SWRCB is to enforce permits. Agency lacks the information to help steer permits and lack of basic data to refine Ocean Plan. The more scientifically sound data will help to set standards better. Standards are based on incomplete data, not informative.
    - Standards are reviewed and reset every 3 years. Permit cycle is every 5 years.
    - Interested in technology related to sensor HABs.
  - Arthur Shak, US Army Corps of Engineers (USACE)
    - USACE is charged with civil functions, serving four primary missions: navigation, flood control (shore protection – projects and operations of navigation), environmental restorations.

- Agency oversees flood control, storm damage. WRDA - report must be submitted. Climatology drives study, looks out over 50 years. Trying to state “include sea level” rise in evaluation – but what does that mean? Risk and uncertainty analysis in report recommendations.
  - Matijilla Dam – Corps is agency that would take it down. Environmental restoration for examining what the effects are?
  - dredging upper Newport Bay (sensitive to tidal levels), changes in tidal DATUMS, standardize DATUMS, maintaining a good tidal database. Use to project with climate change models. Site specific and relative to local project.
  - \$8 M spent on dredging; question of where is best place to place dredge material? Requires information on nearshore dynamics, cross shelf transport, circulation.
  - Shore protection mission – Surfside/Sunset – because of major navigation in San Pedro Bay, northern Orange County doesn’t have a source of sediment. Borrow sand from offshore to nourish beaches. USACE and Beach Erosion Board monitored area. Better understanding of near coast regime. One of the data sources is CDIP and its 30 years of record – must project for 100 years. Having knowledge of long-term wave climatology is important.
  - Storm damage studies – looking at wave run-up or erosion. Look at different scenarios of sea level rise.
  - Products:
    - *Need longer term wave records.*
    - *Nearshore circulation*
    - *Tidal height information (more places). Real time and longer term, predictive record. Continue at index stations.*
    - *Need decimeter accuracy for sea levels. Better predictions.*
    - *Example of King Harbor – tidal benchmark needs to be updated. Land and ocean move...NOAA - Update tidal benchmarks.*
- Mas Dojiri, City of Los Angeles
    - The city’s 5-mile outfall pipe needs repair; will require a 2-4 week diversion. Will need SCCOOS help. Trajectory modeling will help with closing beaches, public perception problem. If he can close less of the beach, the better. Will be protective of public health.
    - When there is a sewage spill, would be good to know what bacterial contamination is in deeper water. Could SCCOOS develop model that would indicate dispersion and also show dilution? If predictive model was available, this would be good.
    - Santa Monica Bay Restoration Commission – SCCOOS information on larvae dispersion helpful.
    - Products:
      - *Same products as OCSD, but in tighter temporal. Also, want nearshore, surfzone models.*
      - *Would like nearshore circulation model*
      - *Would like Sea Surface Height*

- Dave Panzer, Minerals Management Service
  - Confirm complex circulation in Santa Barbara Channel. Look at the influence of wind and current speed and the effect on oil. Pt. Conception area is complex.
  - Surface to bottom – bottom currents move a lot of sediment around in the Santa Barbara Channel. Has an effect on pipelines, scouring cables, etc. Know more about sediment movement. What are forcing parameters for scouring. Must do external ROV(video) survey pipelines every 2 years.
  - Sediment Transport Model
  - Model currents to correlate to plume tracking of produced water
  - San Pedro Bay circulation. 4 platforms of San Pedro Bay. CODAR and gliders would paint a better picture of San Pedro Bay. Having updated trajectories for each platform would be helpful, would be a useful tool. NOAA has surface currents tool.
  - Product:
    - *Access to Nearshore time series of relevance to the Rocky Intertidal Monitoring sites.*
  
- Sam Johnson, US Geological Survey (USGS)
  - USGS is a science agency that provides decision support to other people. Already working with SCCOOS as collaborators. Users in the sense that would be helpful to USGS.
  - Seafloor and benthic habitat mapping – both in State and Federal waters. This activity will be generating enormous amounts of data. SCCOOS could help in archiving data, and with interpretation of wave and surface/subsurface currents. SCCOOS could serve info. Preserved and served. Particularly important for studying change. Want to have as much information as possible for interpret change. USGS assumes responsibility for maps that they generate. Video is ground-truthed with video.
  - Involved with a large variety of source-to-sink sediment studies. Look at sediment in plumes, turbidity flows, coastal erosion and shoreline change and cliff change. All this work needs to be placed in context...appropriate is climate studies, atmospheric. Impressed by time series that go back in time. Good for SCCOOS to collect as much historical data as possible. Provide a data repository function for the region.
  - Participate in a lot of large collaborative efforts. SCCWRP & USGS have looked at a lot of historical data. Collecting as much data as possible in order to be able to interpret. Developing tsunami models for California. Looking at submarine landslides. Need more offshore bathymetric data for the landslides and regional hazard assessment.
  - Involved in studies of resources off SoCal. Studies of hydrates and oil seep. Fingerprint oil samples so that you can tell where they originate. Also, determined that there were some interesting oceanographic conditions that drove oil to north (for the oil from Santa Barbara that ended up on the beach in Monterey). SCCOOS could provide a model that shows where oil ends up.
  - Products:

- Serve and archive large historical data sets, including benthic data.
  - Sea Floor Mapping
  - Extend and maintain long- term data sets – temp, salinity, etc.
- Sam Schuchat, California Coastal Conservancy (SCC)
  - Missing Fish & Game as key agency.
  - One of SCCOOS strengths is how the website is the portal for the users. What can you add on? Mapping website. SCCOOS is in the information management business. Eric Terrill pointed out that SCCOOS encourages feedback on website.
  - Coastal Conservancy /Ocean Protection Council – wholeheartedly endorses what the Coastal Commission responses indicate. Must understand waves and tidal energy processes. OPC cares about Ocean Energy. Any products that would support this aspect would be useful.
  - Conservancy needs to have models that address sea level rise. Fisheries, climate is a management driver.
- Jeff Crooks, Tijuana River National Estuarine Research Reserve (TRNERR)
  - Increasing interest in monitoring systems for wetlands. These systems should become part of SCCOOS data stream. Measures sediment, fish, invertebrates, etc. Catchall for the data coming out of these will be critical.
  - Tijuana River Estuary – filter between watershed and ocean. Stream gauge info is invaluable.
  - Eric Terrill noted common website for stream gauges.
- Burt Jones, USC
  - Work out technologies for bloom location.
- Jonathan Phinney, NOAA Southwest Fisheries/PaCOOS
  - Need for offshore currents for larvae dispersion, squid, etc. Squid is voracious predator. Knowing deep water currents and ocean state would be helpful to fisheries.
- Bruce Moore, (for Chris Crompton) Southern California Stormwater Monitoring Coalition
  - Evaluate effects of urban runoff. Monitor ocean outfalls and looking at areas. Couldn't detect the plumes of smaller outfalls on SCCOOS website. Have area at Sunset Beach that is flooded. Tide and wave information would help.
  - Emergency response team – method of tracking spill was driving up and down the beach...hopefully other methods.
- Linda Dugay, Sea Grant
  - Address national priorities. Tied to Resources Agency and OPC for State priority. Research is needs based. Outreach is important; broaden this component. SCCOOS could promote ocean literacy. Include hands-on activities.
  - Develop products concerning LA River.

- Russ Moll, Sea Grant
  - Encourages anything that can be done to lower the cost of research.
  - SCCOOS could archive more data.
  - Also, develop new technologies to do research more effectively and efficiently.
  - Monitor MPA's with new technologies.
  - Outreach to these groups:
    - surfing community interest - nearshore waves and predictions
    - fishing community, recreational and commercial - temperature distributions.
    - recreational beach goers - rip currents, nearshore waves, nearshore wave quality
    - boaters, - wind and waves
    - divers – water clarity, sediment. Water quality.
  - All groups are severely impacted by HABs.
  - Data Mining – intensely interested in one spot. Focus or customized website for that location.
  
- Susan Lohr, Lohr Associates, SCCOOS Business Plan Consultant
  - Input covers a huge amount of information. Would be helpful to prioritize. Each person should check products that they think should be a priority.
  
- Lesley Ewing, Coastal Commission (submitted by email prior to meeting)
  - The Coastal Commission uses ocean data and information for review of projects before the commission such as the LNG terminal, ocean outfall projects, desalination and the looming offshore energy issues.
  - If you expand the "ocean data" to the coast, the Commission also is using the LIDAR shoreline change data to: 1) get an indication of the seasonal and interannual shoreline change at a site, and 2) get an indication of beach conditions prior to unpermitted sand movement (moving sand from the intertidal to the dry beach in LA to create berms and pushing down sand dunes in Orange County to improve first floor ocean views).
  - The top three issues facing our agency for which a better understanding of ocean information is important or critical are:
    - Global warming/sea level rise and shoreline change
    - Review of the full array of potential ocean energy projects
    - Continued power plant use and/or co-location of Desal facilities to continue use of existing ocean water intake and outfall structures.
  - Challenges to agency in using ocean data:
    - In house expertise, location specific data, a long enough time series to determine baseline conditions and trends.
  - Trend Analysis would be of most utility to the Coastal Commission
  - Other types of information that could readily be added to what SCCOOS collects and synthesizes - possibly add in some pH sampling and get some higher resolution shelf bathymetry.

- Global warming is going to be one of the big drivers for trends in ocean data -- changes in the surface temperatures, in the depth of the thermocline, habitat shifts, changes in storm tracks and intensities. The existing data products will likely form the baseline for future analysis of changes and trends. The Coastal Commission is glad to see that there is some discussion about longer-term data sets and consideration given to what we can expect to sustain for the long term.

C. Based on the discussion, the following list of data products was identified by the Senior Advisory Committee as targeted and priority products for SCCOOS development.

### **Recommended Priority Data Products for SCCOOS**

(for ranked list, see below)

- Periodic Sub-surface Maps of DO, transmissivity (optical properties), salinity and pH, gliders, climatology, web updated
- Continuous and 5 day predictive model of plume location
  - ROMS model and interactive of other sources.
  - Plume surface prediction. Pay attention to surface layer and interaction with wind. (or oil applications)
  - Fate based for storms
- Nearshore circulation model including Riptide predictions.
- Sea Surface Height
  - Waves
  - 100 year prediction
  - Tides
- Serve and archive large/longterm historical data sets.
  - Sea Floor Mapping
  - Extend long term data sets – salinity, etc.
  - GIS – served
  - Stream Gauges
  - Wetlands
- HAB spatial display and evolution.
  - Relation to nutrients. Technology related to blooms.
- Theme based website for disparate classes of users
- Supporting ocean education initiatives
- Sediment Transport

## 6. Business Items

- In considering organizational formation of the Senior Advisory Committee, Committee members decided to not have a formal leadership structure, including no designation of a committee chair.
- The Committee discussed meeting frequency and scheduling, with Committee members recommending meeting twice per year, with an attempt to schedule the meetings to coincide with other related meetings. It was suggested that a meeting be focused on a particular topic.
- The Committee discussed potential additional membership on the SAC.
- The Committee discussed potential development of a science plan, based on product requests and the rationale behind the requests. It would be a stakeholder approved plan.
- It was recommended that a matrix of products be developed.

Adjourn at 5:00 p.m.

### Recommended Data Products – Ranked

- Continuous and 5 day predictive model of plume location (#1, 11 votes)
  - Data assimilating (radar, mets, etc) model and interactive of other sources.
  - Plume surface prediction. Pay attention to surface layer and interaction with wind. (or oil applications)
  - Fate-based model of stormwater/discharge constituents
- Nearshore circulation model including Riptide predictions. (#2, 7 votes)
- Sea Surface Height(5, 3 votes)
  - Waves
  - 100 year prediction
  - Tides
- Serve and archive large/longterm historical data sets. (#3, 6 votes)
  - Sea Floor Mapping
  - Extend long term data sets – salinity, etc.
  - GIS – served
  - Stream Gauges
  - Wetlands
- HAB spatial display and evolution. (#4, 5 votes)
  - Relation to nutrients. Technology related to blooms.
- Periodic Sub-surface Maps of DO, transissivity, salinity and pH, gliders, climatology, web updated (#4, 5 votes)
- Supporting ocean education initiatives (#6, 1 vote)
- Sediment Transport (#6, 1 vote)
- Theme based website.