Minutes of the
ASBS Natural Water Quality Committee
September 7, 2007
at the Southern California Coastal Water Research Project

Members in attendance:
Andrew Dickson - Scripps Institution of Oceanography
Dominic Gregorio - State Water Resources Control Board
Burt Jones - University of Southern California
Bruce Posthumus - San Diego Regional Water Quality Control Board
Kenneth Schiff - Southern California Coastal Water Research Project
Rich Gossett - CRG Marine Laboratories
Steve Murray (on telephone) – California State University Fullerton

Members absent:
Jim Allen - Southern California Coastal Water Research Project

Others in attendance:
Connie Anderson - State Water Resources Control Board
Rolf Schottle – AMEC Environmental, Inc.
Kimberly O'Connell - UC San Diego /Scripps Institution of Oceanography
Julie Hampel – UC San Diego/ Scripps Institution of Oceanography
Steve Benedict – UC San Diego/ Scripps Institution of Oceanography
David Pohl – Weston Environmental, Inc.
Ruth Kolb – City of San Diego
Ed Parnell - Scripps Institution of Oceanography

Dominic Gregorio began the meeting at 9:30 AM. There were six items on the day's agenda: 1) Approval of Minutes; 2) Planning toward assessing biological impacts in the ASBS; 3) Planning toward defining natural water quality; 4) Approval of presentation/outline to the SWRCB; 5) Review of SIO/San Diego ICWM monitoring plans; and 6) other issues/public comment.

The minutes from July 27, 2007 were reviewed and, with minor edits, were approved by the Committee.

Dominic opened the second agenda item on assessing biological impacts. He started with a review of the previous bioaccumulation results conducted at the La Jolla ASBS. Ed Parnell reminded the Committee that bioaccumulation was a valuable tool because organisms serve as integrators of pollutant inputs and represent entry of pollutants into the food chain. Two species were utilized for the bioaccumulation study; sand crabs (*Emerita* spp.) and mussels *(Mytilus* spp.). The results from the sand crabs were difficult to interpret due to large variability contributed by differences in age and sexual maturity.

The large variability, combined with a small gradient of exposure, led to a decreased ability to detect differences between sites. Ed suggested that mussel tissues were less variable and produced a potential signal in exposure. The site just south of the SIO pier produced higher tissue concentrations of Cr, Ni, Fe, Mn, and PAH. The mussel tissues from sites to the south of the ASBS tended to have higher As concentrations. None of the other organic compounds were detected from any site. Dominic asked the Committee to answer two questions:

1) Does the bioaccumulation study show effects to species or communities?

The Committee agreed the answer was no. The study was not designed to answer that question.

2) Does the study demonstrate that ambient water quality was changed as a result of the discharge?

The Committee agreed that the answer depended upon the constituent. For example, the answer would be no for organic constituents such as chlorinated hydrocarbons (CHC); no CHCs were detected in the discharge and none was observed in mussel tissues. However, the answer would be maybe for trace metals since there were spatial differences and some of these constituents were associated with the discharge. However, there was insufficient information from the study for the entire Committee to conclusively link the bioaccumulation to the regulated discharges.

The Committee struggled with the concept of natural water quality. They discussed different approaches for defining "natural" including comparisons to present day concentrations at reference locations, comparisons to concentrations at SIO that were measured prior to the discharge of wastes, or some sort of normalizing tool to quantify the human fraction. The action item from the Committee's discussion was:

- Dominic will create a strawman for defining natural water quality that the Committee can respond to at their next meeting.

As part of the topic on assessing biological impacts, Kimberly O'Connell presented a list of the previous biological surveys conducted at or near the SIO ASBS. Of the more than 40 studies identified, she suggested only two were appropriate for the needs identified in this application. The first was intertidal surveys conducted by Jack Engle at Dike Rock between 1997 – present. The second was various algal surveys in the La Jolla ASBS by F.C. Gunnil. The Committee agreed that SIO should utilize these previous studies to help design their own work. The Committee recommended:

- Jack Engle be asked to present his Dike Rock surveys at the next meeting

Finally, Ed Parnell was asked to present potential ideas for future biological surveys. Two were discussed. The first was an infaunal assessment using multiple cross-shore transects at various depths from intertidal to subtidal soft bottom, conducted seasonally

and following episodic events (i.e. storms). The second was examining biomarkers of exposure in resident bloodworms. After some discussion, the Committee agreed that these studies do not directly answer the natural water quality issues the Committee was asked to address. Additional discussion ensued on what biological impacts had been detected in other rocky intertidal locations around the world, many of which were impacts to algal species.

Dominic started the third agenda item on defining natural water quality by reviewing what we had learned about SIO up to this point in time. Both effluent and receiving waters had been sampled. Effluent chemistry had: 1) identified some constituents of concern (e.g., copper, dioxin); 2) dioxins appeared to be ubiquitous and not linked to SIO; 3) revealed some technical issues with test methods (i.e., total residual chlorine, acute toxicity interpretations); and 4) many constituents were not present or present in amounts that represented no reasonable potential to cause impacts (i.e., RPA analysis). Bioaccumulation in receiving waters indicated that: 1) organic constituents were present at statistically nonsignificant levels; 2) certain metals were elevated (e.g., As in the La Jolla ASBS, Cr and Ni in the Scripps ASBS); 3) study design issues increased variability and precluded a complete understanding of potential effects (i.e., spatial scale gradients, sand crab age classes); 4) mussel growth was inhibited in/near the La Jolla ASBS.

Ken was asked to present to present the strawman monitoring design for the SWRCB's statewide monitoring program. He began by describing the outcome of the stakeholder meetings in southern California and Monterey Bay. Both sets of stakeholders had set a large priority on assessing receiving water conditions. Therefore, the strawman design focused on three elements: 1) defining natural water quality using a reference envelope approach; 2) comparing individual ASBS to the reference envelope using a targeted sampling design; and 3) assessing the areal extent of natural water quality in ASBS. The Committee generally liked the probabilistic approach for the third element to define percent of shoreline-miles impacted. This approach would also serve for a good baseline of ASBS condition for the SWRCB to determine if, after future monitoring surveys, the resources allocated to improving natural water quality were successful. Some of the stakeholders present in the room were concerned about the first step of defining reference condition. The Committee agreed that the need to clearly define these types of reference sites, which did not have to be in an ASBS, was a critical design element.

Ken then discussed other elements of the design including timing and indicators. While the design could be applied to either dry of wet weather, wet weather was the preferred condition since dry weather discharges were likely to be disallowed in future ASBS exceptions. Water column chemistry was the preferred indicator. Biological indicators were also discussed, but there was concern about the level of effort to monitor both soft and hard substrates, as well as intertidal and subtidal habitats. The Committee agreed that the priority for biological monitoring should be placed on rocky intertidal habitat. Toxicity was also brought up as a potentially useful indicator, if resources allowed.

Ken presented the fourth agenda item outlining the topics to be discussed at the Committee's annual presentation to the SWRCB and RWQCB. The Committee agreed

the presentation should include the charge to the Committee, the three questions posed before the Committee, the timeline of activities, and some of the lessons learned thus far. Additional items that should be presented included a working definition of natural water quality (see action item for Dominic on page 2).

Kimberly presented the fifth agenda item on the Integrated Coastal Watershed Management Plan (ICWM). David Pohl described the elements of the ICWM monitoring plan. They included using a triad approach that was defined as: 1) contaminant inputs to the ecosystem; 2) physical fate and transport; and 3) biological effects (??). Kimberly noted that the public response to the draft ICWM has been positive. They hope to use the ICWM to garner additional grant funds. Finally, one of the Committee members asked if the plume tracking component included the Southern California Coastal Ocean Observing System (SCCOOS) being deployed by SIO. While using SCCOOS could conceptually be used to help quantify the encroachment of plumes into the La Jolla ASBS, the details of exactly how the ICWM plan would make this occur was unclear. The action item from this was:

- Individual comments from the Committee on the ICWM are due by Sept 30th

The meeting adjourned at approximately 4:50 PM.