



Pueblo Watershed and Organic Toxicants Workshop
UCSD Environment and Sustainability Initiative
and UCSD Superfund Basic Research Program
Scripps Institution of Oceanography
Martin Johnson House
April 19th, 2007
9:00 AM to 2:00 PM

Objectives of workshop: (1) Identify priorities, (2) information and knowledge gaps and (3) applied research collaboration opportunities concerning organic toxicants in the pueblo watershed.

PRELINARY RESULTS SUMMARY
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On April 19, 2007, with support from UCSD's Environment and Sustainability Initiative (ESI) and the Superfund Basic Research Program (SBRP), a group of 22 federal, state, regional and local government agency officials, researchers and NGO representatives met at UCSD Scripps Institution of Oceanography's (SIO) Martin Johnson House for the Pueblo Watershed and Organic Toxicants workshop. The goals of the workshop included: (1) identifying high priority issues, (2) knowledge gaps and (3) collaboration opportunities dealing with organic toxicants in the Pueblo watershed. The workshop opened with an introduction to UCSD's ESI effort and the RENEW-SD project by Dr. Lisa Shaffer, Dr. Keith Pezzoli and Hiram Sarabia. Presentations focusing on sediment toxicity, chemicals of concern (including pyrethroids, diazinon, PAHs, PCBs, DDT, chlordane), pollution trends, watershed monitoring and modeling, contaminant loading, stormwater pollution, restoration, bioavailability of contaminants, sentinel organisms, status of TMDL efforts and sources of contamination in the Pueblo Watershed were conducted by Dr. Brian Anderson, Dr. Keith Maruya, Ruth Kolb, Dr. Dimitri DeHeyn, Chuck Katz and Dr. Rick Gersberg. Presentations were followed by a focused discussion to identify remaining research gaps, current technological limitations, high priority issues, collaboration opportunities and potential projects to be conducted.

The workshop is part of the needs assessment and project development phase of the RENEW-SD project that represents a focused effort to build multi-sector and multi-disciplinary collaborations combining intellectual and technological resources to address high priority environmental issues that affect the sustainability of our region. The long-

range goal of this pilot effort is to form a consortium that connects the different levels of government and decision makers, regional academic research institutions and community stakeholders with the common goal of addressing questions that will help to improve policy, management and regulation and provide models for addressing pollution issues in our coastal region and beyond.

What are some of the priority organic toxicants in the Pueblo watershed?

Al though more work needs to be completed (e.g., Toxicity Identification Evaluations or TIEs) to identify the actual chemical species that may be responsible for causing impairment, participants of the workshop cited pyrethroids (bifenthrin, cyfluthrin and permethrin), chlordane, DDT, PCBs and PAHs as contaminants of concern. According to Brian Anderson (UC Davis) Recent TIE data show pyrethroid pesticides as the source of toxicity to ecological receptors. Similar studies show chlordane to be a contaminant of concern. Other contaminants like DDT, PCBs and PAHs are considered as priority toxicants and are cited in preliminary work conducted by the U.S. NAVY. In addition, according to work conducted by Rick Gersberg (SDSU), the concentration of the organophosphate diazinon pesticide in the watershed appears to be decreasing over time. It should be noted that out of those toxicants listed above, only PAHs and PCBs are classes of compounds that can be detected by the P450 HRGS bioassay.

What are some of the information and knowledge gaps concerning organic toxicants in the Pueblo Watershed?

Presently, more work (e.g., TIEs) needs to be conducted to identify specific chemical species responsible for toxicity and impairment, so that the direct causes of pollution can be addressed. Also, many important questions from a management, regulatory and policy perspective concern the actual sources of toxicants. Much of the work conducted has focused on site characterization and monitoring but little has been done to track down sources. An important question in the Pueblo watershed concerns the source of PCB contamination in the Convair Lagoon, a PCB contaminated site in San Diego Bay that was capped with concrete, where PCBs have recently been detected in surface water. Work in this area would likely involve upstream or watershed-based work to track down any potential watershed-based source(s) of PCBs, as according the cap appears to be working properly. Some of this work may be conducted in the dry season but this question would not be fully addressed until the rainy season when stormwater can be collected. Addressing this question would involve collaboration with the Port of San Diego, International Airport and Regional Water quality Control Board, among other stakeholders. Other significant questions that would provide useful information for the implementation of effective Total Maximum Daily Loads (TMDLs) involve collecting data of sources of organic toxicants at the watershed sub-unit level (areas that can be as small as a few acres and that can have varied land uses). The later would help to refine current predictions on contaminant loading based on models calibrated with limited spatial data, detect problem areas and suggest where resources to eliminate pollution can best be focused. Other ideas discussed were the collection of data to verify impairments,

including collecting samples in San Diego Bay to conduct a survey of organic toxicants in sediment to augment existing data. Also, the possibility of helping municipalities to augment current dry weather monitoring by adding a means to detect organic toxicants was discussed. Municipalities do not currently monitor for organic toxicants in the dry season, in part due to cost considerations. All of the above options would involve collaboration with a wide range of stakeholders. It is important to note that significant information gaps to be addressed involve sampling during the wet season.

What are the collaboration opportunities?

The participants of the workshop all expressed an interest to collaborate by working directly in projects or in an advisory capacity (e.g., as a member of a Technical Advisory Committee overseeing work). As a direct result of the workshop, we have begun an exploratory collaboration with the Lisa Levin laboratory. Samples were collected in San Diego Bay on 4/26/07 and 4/27/07 and are currently being extracted for analyses. This work is taking place as a complement to research conducted by Lisa Levin and Carlos Neira in Shelter Island, a CWA 303(d) impaired waterbody, addressing questions about the effect of copper contamination on the benthos. These data will provide complementary information to that already available about inorganic contaminants and environmental parameters. Other opportunities to establish working collaborations through limited satellite efforts, outside of the main question to be addressed in this project, are also available.