

Areas of Special Biological Significance: Bioaccumulation Monitoring

Nathan Dodder, Wayne Lao, David Tsukada, Dario Diehl, and Kenneth Schiff

Southern California Coastal Water Research Project, Costa Mesa, CA 92626

ABSTRACT

The California Water Resources Control Board (SWRCB) has designated Areas of Special Biological Significance (ASBSs) as marine regions that require water quality protection. Discharges of waste into ASBSs, such as polluted storm water, are prohibited, but the State Water Resources Control Board (SWRCB) grants exceptions if it can be shown that the protection of marine life in ocean waters is not compromised. The standard for protection is that discharges “shall not alter natural ocean water quality in an ASBS” (SWRCB Resolution 2012-0012). In California, there are approximately 1,658 known discharges into ASBSs, nearly all of them storm water outfalls, which have a potential to impact ASBS water quality (SCCWRP 2003).

Wet-weather water column contamination in ASBS receiving waters was monitored in 2008 (Schiff et al. 2011). In order to define “natural”, the study used reference sites that were minimally impacted by human activities. The results from this survey found concentrations near discharges were, on average, similar to concentrations near reference sites. However, there were individual ASBS discharge sites that were greater than reference site based natural water quality thresholds. While these results were encouraging, the study did not focus on bioaccumulating compounds.

Driven by the needs of the SWRCB, the goal of this project was to answer the following questions for bioaccumulative contaminants. 1) What is the range of natural water quality for bioaccumulative compounds, as defined by mussel tissue sampled near reference stations? 2) Is the water quality for bioaccumulative compounds at ASBS discharge stations similar to that at reference stations representing natural water quality? Mussels are filter feeders that will accumulate contaminants over a longer period of time compared to storm water grab samples, and will bioconcentrate contaminants resulting in lower analytical method detection limits. Mussels have been used for decades in NOAA’s Mussel Watch Program to monitor bioaccumulative contaminants across the U.S. coastline (Kimbrough et al. 2008), but have not been previously utilized to assess ASBS water quality.

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[ASBS: Bioaccumulation Monitoring](#)