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Status of California's Marine Water Quality Protected Areas

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ABSTRACT

California has designated 34 different marine water quality protected areas, termed Areas of Special Biological Significance (ASBS), which extend across roughly 500 miles (32%) of state shoreline. Recent surveys observed over 1,600 outfalls into ASBS, most of which are storm drains potentially discharging nonpoint sources of pollutants. The goal of this study was to assess the extent and magnitude of water quality impacts in California's ASBS following storm events. A stratified probabilistic design was used for sampling receiving water shorelines near (discharge) and far (non-discharge) from storm drain outfalls. In all, more than 98 target analytes were measured from 33 sites immediately prior to (pre-storm) and immediately following (post-storm) wet weather. In general, reasonably good water quality exists in California's ASBS following storm events. Many of the target analytes measured did not exceed the State of California's Ocean Plan water quality standards (WQS) and toxicity, using an endemic test species, was rare. The post-storm concentrations of most constituents in discharge and non-discharge strata of ASBS were similar. Likewise, the average concentration increase across all target analytes from pre- to post-storm was less than 3-fold in the discharge stratum. The three potentially problematic parameters identified were total PAH, chromium, and copper. Total chromium did not exceed state WQS such as the instantaneous maximum and daily maximum, but did exceed the six-month median WQS in an estimated 50% of the state's ASBS shoreline-miles. Total PAH exceeded the 30-day average WQS in an estimated 87% of the state's ASBS shoreline-miles. Copper exceeded WQS less extensively (7% of ASBS shoreline-miles), but exclusively in the discharge stratum and for dissolved as well as total copper concentrations. The relatively good water quality on a statewide basis was not evenly distributed. In southern California, whose shoreline is under much more intense development than elsewhere in the state, almost twice as many target analytes exceeded WQS as in central or northern California.

Full Text

ftp://ftp.sccwrp.org/pub/download/DOCUMENTS/TechnicalReports/631_WaterQualityStatewide_ASBS.pdf