

Proposition 84 Grant Evaluation Report: Assessing Pollutant Reductions to Areas of Biological Significance

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EXECUTIVE SUMMARY

California coastal ecosystems are a valuable economic and ecological resource, which is why the State Water Resources Control Board (SWRCB) created 34 Areas of Special Biological Significance (ASBS) along the state's coastline as marine water quality protected areas. Despite its mandate of "no discharge of waste", the SWRCB identified over 1,650 outfalls that discharge to ASBS, most of which were stormdrain outfalls with dry and/or wet weather flows. In 2006, the voters of California passed Proposition 84 authorizing up to \$32 million in grants to reduce or remove discharges to ASBS. The goal of this study was to assess the effectiveness of this grant program by answering the question: **What is the reduction in pollutant loads to ASBS as a result of the Proposition 84 grant program?** To answer this question, the study collated the monitoring data required of each grantee and determined volume reductions, assessed treated effluent concentrations, and then quantified pollutant load reductions for the target time period Calendar Year 2013 (CY2013).

Of the 14 grants awarded, only eight grantees successfully completed their construction and monitoring requirements. The primary reasons for lack of success included delays in engineering design and challenges selecting contractors. Grantees that already had well-developed engineering designs and processes, and those who had experience with monitoring, were best able to accomplish their grant requirements.

Of the eight grantees, 12 different Best Management Plans (BMPs), or combinations of BMPs were evaluated. These BMPs fell into three categories including biotreatment (swales, treatment wetlands), filters (sometimes with treatment media), or diversions (to sanitary sewer or for infiltration). Generally speaking, biotreatment and filter BMPs were flow-through systems, while diversion BMPs were full-capture devices. All BMPs evaluated were designed for low flows during dry weather, storm flows during wet weather, or both.

In general, full-capture BMPs were the most effective, reducing discharge volumes and pollutant loads by 100%. However, these systems are generally small because capturing large volumes is much more difficult. Of the flow-through systems utilized for wet or dry weather, grassy swales had the greatest load reduction efficiency. The grantee that installed this BMP used them in a distributed fashion, spread throughout their watershed. One grantee installed a single, but larger biotreatment wetland system at the end of their watershed. This BMP was exceptionally effective during dry weather low flows and outperformed swales, but was overwhelmed during wet weather and provided no benefit.

Proposition 84 ASBS grantees cumulatively removed an estimated 250 to 300 million liters (L) of discharge volume in CY2013 for both wet and dry weather. In addition, the Proposition 84 ASBS grantees cumulatively removed an estimated 6,150 kg of suspended sediments. For context, the volume captured would roughly half-fill the Rose Bowl in Pasadena and require five Ford F-150 pick-up trucks to haul that much sediment. Finally, the Proposition 84 grantees cumulatively removed nearly 20 kg of trace metals, with over 85% of this load comprised of zinc, selenium, nickel and copper. Changes in loads for organic constituents, including polycyclic aromatic hydrocarbons (PAHs) and pyrethroids pesticides, were more modest because of a universally high frequency of non-detectable values in both influent and effluent.

Pollutant reductions should continue as these BMPs function in future years. This will provide additional value to the Proposition 84 investments. As noted by several grantees, this will require ongoing maintenance for most BMPs to ensure that they are performing at initial design standards. However, there is currently no monitoring specifically required or planned to ensure maintenance occurs or to quantify future pollutant reductions

Full text: [858 ASBS BMPRep.pdf](#)