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Dr. Clarissa Anderson, Executive Director
Southern California Coastal Ocean Observing System
Scripps Institution of Oceanography
9500 Gilman Drive, 0206
La Jolla, CA 92093-0214

LETTER OF SUPPORT: SOUTHERN CALIFORNIA COASTAL OCEAN OBSERVING SYSTEM

Dear Dr. Anderson:

On behalf of the City of Los Angeles' LA Sanitation and Environment (LASAN), I enthusiastically endorse the valuable data and services provided by the Southern California Coastal Ocean Observing System (SCCOOS) at the Scripps Institution of Oceanography, University of California San Diego. SCCOOS provides critically needed coastal and ocean observations and generates extremely valuable products for environmental managers, regulators, and non-governmental agencies (e.g., environmental groups). The City conducts extensive monitoring in the coastal ocean of Southern California, primarily in Santa Monica Bay (SMB). A significant portion of this effort involves tracking the Hyperion Water Reclamation Plant's (HWRP) effluent plume as it is discharged from the 5-Mile Outfall pipe offshore in SMB, as well as estimating bacterial concentrations in the surfzone due to the potential for pathogens to adversely impact public health. The effluent plume has the potential for traveling considerable distances, as consistently observed by conductivity-temperature depth (CTD) profilers, with metal and organic pollutant deposition into the sediment localized around the HWRP 5-Mile Outfall. Storm drains are the major source of bacteria and other pollutants to these waters and discharge into the surfzone.

Southern California beaches and nearshore waters are world famous, and nearly 80 million people engage in water contact recreational activities at Los Angeles and Orange County beaches every year. This is not only an important component of the Southern California lifestyle, but also an important economic engine for the region. Unfortunately, it has been estimated that between 627,800 and 1,479,200 "excess" cases of gastrointestinal illness occur at these beaches each year, with estimated healthcare costs of \$21 million to \$414 million annually (Given et al. 2006); therefore, ensuring

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good, safe water quality along our coast is an extremely high priority. In addition, the deposition of pollutants and their subsequent accumulation have adverse impacts on the benthic macrofaunal and demersal fish and invertebrate communities. Some of the seafood, e.g., white croaker, have been issued fish advisory notices and may not be safe for consumption. Both Los Angeles County and the City of Los Angeles are very interested in the nearshore current data and SCCOOS' s surfzone model to help shed light on the dispersion of legacy pollutants, i.e., DDT and PCBs that were discharged from the Los Angeles County Sanitation Districts' (LACSD) outfall at White Point and onto the Palos Verdes shelf.

Knowledge of circulation patterns in the coastal region are only now emerging, especially from a regional perspective. A better understanding of circulation in the shallow and nearshore regions is extremely valuable because it holds the potential to forecast the fate of surfzone and nearshore pollutants that increases our ability to protect public health and the environment.

The work conducted by SCCOOS is vital because their focus on improving our understanding and potential for modeling dispersion within a few hundred meters of the shoreline, which is where most water-contact recreation occurs, as well as the nearshore waters. This information is useful in studying stormwater dispersion and fate, as well as discharges from wastewater treatment plants. The data served publicly greatly benefits monitoring efforts aimed at protecting public health and the environment.

In 2006, the City of Los Angeles' Hyperion Water Reclamation Plant diverted the flow of its wastewater from a pipe with an outfall that is five miles from the shoreline to one that is only one mile from the shoreline in order to inspect the interior of the 5-Mile Outfall pipe. The diversion lasted approximately three days and approximately 800 million gallons of secondary-treated effluent was discharged through the 1-Mile Outfall. The City of Los Angeles' Environmental Monitoring Division, in conjunction with other researchers, conducted an extensive monitoring effort during this diversion. Our monitoring effort greatly benefited from surface current information provided through SCCOOS. The real-time current information provided by SCCOOS enabled us to adaptively modify our sampling grid to better track the discharge plume and to predict the dispersion of the surface plume by the use of a trajectory model developed by SCCOOS researchers using high frequency radar (HFR) data. The 2006 5-Mile Outfall pipe inspection determined that important preemptive repairs were required in the Effluent Pumping Plant Header instigating a more extensive six-week diversion of 9,363,000,000 gallons (35,438,955,000 L) into the shallow, nearshore environment and comprehensive monitoring program in fall 2015. Again, the HFR data and related particle dispersion model were extremely critical to our adaptive monitoring and plume tracking effort during 2015, which spanned nearly eight weeks, including pre- and post-diversion monitoring.

SCCOOS also developed and provided a dedicated website for this 1-Mile Diversion Monitoring Program, which operated 24 hours a day, and allowed seven days a week group communication, both scientific partner-restricted and publicly accessible. The website provided a centralized platform to share data from all assets and partners (in most cases real-time), which was critical to developing daily sampling strategies, documenting daily boat-based activities, facilitating project decisions, and functioning as a data archival clearinghouse. The SCCOOS public-access postings consisted of HFR, wind forecasts, plume trajectories, drifter tracks, shoreline (beach) fecal indicator bacteria data, and CTD and Wirewalker graphics. The SCCOOS password-protected postings included scientist contact

list, field data sheets, daily notes, various monitoring documents, wave height data, satellite images, and Wirewalker raw data.

The services that SCCOOS provided in 2006 and 2015 were invaluable to our monitoring efforts. We believe improved understanding of dispersion in the surfzone and offshore may similarly benefit our monitoring efforts in the future, as well as those of other monitoring agencies in southern California, for example, the LACSD, Orange County Sanitation Districts (OCSD), and the Southern California Coastal Water Research Project (SCCWRP), academic institutions, among several others.

SCCOOS also works with the California Department of Public Health Marine Biotxin Monitoring Program to assist in production of the monthly California harmful algal bloom (HAB) bulletin that synthesizes results and issues public health alerts, providing a more complete picture of the regional variability of HABs. Because HWRP's 5-Mile Outfall effluent currently has significant levels of ammonia (i.e., nutrients), the potential for HABs and phytoplankton blooms and their associated adverse impacts on the environment and biological communities are a concern to LASAN.

As a science-based decision support system, SCCOOS works interactively with local, state and federal agencies, resource managers, industry, policy makers, educators, scientists, and the general public to provide data, models, and products that advance our understanding of the current and future state of our coastal and global environment. SCCOOS focuses on coastal observations and product development to provide information necessary to address issues regarding marine operations, coastal hazards, climate variability and change, and ecosystems, fisheries, and water quality.

In summary, the City of Los Angeles shares an interest in better understanding the dynamics of water transport in the surfzone, nearshore, and offshore waters, which may increase our understanding of the fate of flow from storm drains and other sources into the surfzone, as well as the flow from offshore sources into nearshore waters. Because of this, in addition to its work on ocean acidification, HABs, and temperature anomalies, the City believes it will continue to directly benefit from the ocean observing activities proposed by SCCOOS; the City wholeheartedly endorses SCCOOS and recommends it be funded. Sustained funding will be crucial to the maintenance of the program's ocean observing network and to the continuity of the important data products and services that these observations enable.

Please feel free to contact me at either (213) 485-2210 or at mas.doiiri@lacity.org if you have any questions.

Sincerely,



MAS DOJIRI, PHD, BCES
Assistant General Manager
LA Sanitation and Environment

MAD/cc:cc

c: Farhana Mohamed, LASAN Stacey Karnya, LASAN Curtis Cash, LASAN