



June 17, 2020

Wade Crowfoot, Secretary for Natural Resources  
Chair, California Ocean Protection Council  
California Natural Resources Agency  
1416 Ninth Street, Suite 1311  
Sacramento, CA 95814

Sent via: [COPCpublic@resources.ca.gov](mailto:COPCpublic@resources.ca.gov).

**RE: Item 4b – Consideration of Disbursement for Integrated Earth System Model to Assess Effects of Anthropogenic Nutrients on Ocean Acidification and Hypoxia**

Dear Secretary Crowfoot and members of the Ocean Protection Council:

The California Coastkeeper Alliance (CCKA) represents local California Waterkeeper organizations working to protect water quality throughout the state and along California's coast for the benefit of California communities and ecosystems. On behalf of local California Waterkeepers, we write in support of the Ocean Protection Council (OPC)'s proposed disbursement of funds for an integrated Earth system model to assess effects of anthropogenic nutrients on ocean acidification and hypoxia (OAH).

The ocean plays a fundamental role in mitigating climate change by absorbing a significant portion of global carbon emissions. However, carbon dioxide released from increased burning of fossil fuels and changing land uses have exceeded the ocean's capacity to absorb carbon. As a result, the ocean is becoming more acidic, a condition that often co-occurs with depleted oxygen levels, or hypoxia, due to warmer surface waters. OAH have enormous implications on the health and productivity of marine ecosystems and the communities and industries that depend on them. From corroding the shells and skeletons of marine organisms to disrupting normal fish behaviors, changes in ocean chemistry have the potential to alter marine food webs and ecosystems – as well as the benefits that they provide to society, including California's \$45 billion ocean-based economy.

Nutrient pollution is one of the greatest consequences of human-accelerated global change on coastal ecosystems. Emerging studies suggest that terrestrial, anthropogenic nutrients affect primary productivity, increase nearshore algal blooms, and contribute to OAH. One important source of land-based nutrient pollution comes from wastewater treatment plants. California's urban wastewater has historically been treated solely as waste – used once, treated, and disposed of through offshore dumping. As a result, approximately 12 billion gallons of treated water are wastefully discharged into the ocean or estuaries each day, contributing to nutrient pollution that exacerbates harmful algal blooms and ocean acidification hot spots. California can better manage and treat its wastewater to prevent unnecessary pollution.

The funding of this project directly implements the OPC Strategic Plan, Objective 1.2.1., and is critical to examine the effect of anthropogenic nutrient inputs to ocean acidification and hypoxia, and subsequent biological effects. The project description states that the Southern California Coastal Research Project (SCCWRP) will provide scientific guidance to the State Water Board by 2022 to help inform the development of an OAH Water Quality Objective. *We strongly urge the state to not wait until the end of this Project to initiate development of an OAH Water Quality Objective.* Instead, the State Water Board should move forward with the development of its regulatory package concurrently with SCCWRP's research. We further recommend SCCWRP provide interim research updates to the State Water Board to help expedite the development of a final OAH Water Quality Objective.

Climate change is no longer a far-off projection. It is happening now, and the ocean bears the brunt of its impacts. Responding to climate change will require a sustained, multipronged approach to both mitigate impacts and manage the resulting disruptions. We must act to protect our coastal ecosystems – and our way of life.

Sincerely,

A handwritten signature in black ink, appearing to read "Sean Bothwell", with a stylized flourish at the end.

Sean Bothwell  
Executive Director  
California Coastkeeper Alliance

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## State Water Resources Control Board

June 17, 2020

Wade Crowfoot  
Secretary for Natural Resources  
Ocean Protection Council Chair  
1416 Ninth Street, Suite 1311  
Sacramento, CA 95814

Dear Chair Crowfoot and Members of the Ocean Protection Council:

RE: JUNE 2020 AGENDA ITEM 4B: SUPPORT FOR APPLICATION OF AN  
INTEGRATED EARTH SYSTEM MODEL TO ASSESS EFFECTS OF  
ANTHROPOGENIC NUTRIENT INPUTS ON OCEAN ACIDIFICATION AND HYPOXIA

On behalf of the State Water Resources Control Board (State Water Board), I am writing to express our support for the Southern California Coastal Water Research Project's (SCCWRP) proposal to conduct an application of a coupled physical oceanography-biogeochemical model to assess effects of anthropogenic nutrients on ocean acidification and hypoxia (OAH). The State Water Board recently identified ocean acidification, hypoxia, and climate change impacts as one of the five highest-ranked issues in the 2019 Review of the Water Quality Control Plan for Ocean Waters of California. This project will provide the necessary scientific guidance to assess whether new OAH nutrient loading standards are needed to minimize biological and chemical impacts to coastal waters and ecosystems.

The Ocean Protection Council's (OPC) previous investment in model development and validation has resulted in a state-of-the-art model to inform environmental management. This effort has demonstrated that coastal anthropogenic nutrients from wastewater treatment plant effluent and other watershed sources are having a significant impact on OAH in the Southern California Bight. The new proposal addresses additional work needed to characterize causal linkages, attribute local pollution sources, evaluate different management scenarios, and assess biological impacts to OAH. This research is critical to evaluate whether new water quality objectives may be needed, appropriate thresholds, and potential management or regulatory actions.

OPC and State Water Board staff have worked closely with SCCWRP to develop this proposal and ensure that research and project outcomes are aligned with California's needs. State Water Board staff will participate in the state advisory group that will review project progress and provide feedback.

E. JOAQUIN ESQUIVEL, CHAIR | EILEEN SOBECK, EXECUTIVE DIRECTOR

We look forward to being involved in this important work going forward and encourage your full support of this timely proposal.

Sincerely,

A handwritten signature in black ink, appearing to read "Jonathan Bishop". The signature is fluid and cursive, with the first name "Jonathan" being more prominent than the last name "Bishop".

Jonathan Bishop  
Chief Deputy Director

Cc: Ms. Karen Mogus, [Karen.Mogus@waterboards.ca.gov](mailto:Karen.Mogus@waterboards.ca.gov)  
Mr. Phillip Crader, [Phillip.Crader@waterboards.ca.gov](mailto:Phillip.Crader@waterboards.ca.gov)  
Ms. Marleigh Wood, [Marleigh.Wood@waterboards.ca.gov](mailto:Marleigh.Wood@waterboards.ca.gov)  
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