DEPARTMENT OF TRANSPORTATION
OFFICE OF HYDRAULICS AND STORMWATER
1120 N STREET
SACRAMENTO, CA 95814
PHONE (916) 653-3718
www.dot.ca.gov

Making Conservation a California Way of Life.

August 3, 2018

California Ocean Protection Council
1416 Ninth Street
Suite 1311
Sacramento
CA 95814

Dear California Ocean Protection Council,

I am writing to express my support for the proposal *"Groundwater Inundation Hazards and Socioeconomic Impacts due to Sea Level Rise Across the California Coast."*

The California Department of Transportation (Caltrans) owns, operates and maintains the State Highway System (SHS) which includes highways in the coastal areas of the State. Vulnerability assessments have determined that several highways within the SHS are susceptible to sea level rise (SLR) and locations of segments of highways potentially impacted by SLR have been identified. Downscaled climate models predict that by the end of the century sea level has the potential to rise by 7 to 10 feet on the west coast resulting in disruption of evacuation routes and isolating communities which traverse these routes. Whereas direct impacts on highways from SLR has been defined, the unknown issue of potential rising groundwater resulting from SLR has not been studied.

As sea level continues to rise and accelerate in the coming decades, coastal aquifers will respond to the new ocean conditions. This phenomenon creates a potentially serious "hidden" problem in coastal areas: SLR could eventually cause shallow groundwater to intersect the ground surface, permanently flooding previously dry areas where flooding would not have been predicted from SLR and storms. Moreover, deeper groundwater could rise to shallower depths, impacting subsurface infrastructure like roadbeds, foundations, pipes, utilities, and increasing the salinity of shallow groundwater. There is potential for creation of conditions that adversely impact water quality within Caltrans right-of-way and any increases in salinity (possible increase of chlorides) could adversely impact concrete and steel culverts. Rising groundwater may potentially destabilize the structural section of segments of highways and such segments need to be identified so that appropriate mitigation measures may be developed.

This hazard has not been addressed but is important to coastal highways within Caltrans jurisdiction as we proceed to develop adaptation strategies. We are eager for the results of this modeling and look forward to working with the USGS to help develop a web-based platform that

displays this information for the benefit of the people of California. Further this will be an excellent complement to the projections of coastal flood hazards due to SLR and storms already provided by the Coastal Storm Modeling System (CoSMoS).

We are supportive of this project. Please feel free to contact me at (916) 653-3718 or e-mail at Gurdeep.Bhattal@dot.ca.gov if you have any further questions.

Sincerely,

Gurdeep Bhattal

GURDEEP S BHATTAL
P.E. (Civil), P.E (Mechanical)
Senior Transportation Engineer
Office of Hydraulics & Stormwater Design
HQ Division of Design

CC: Balwinder Tarlok, P.E.
Senior Transportation Engineer
Division of Research, Innovation and System Information

California Ocean Protection Council
1416 Ninth Street, Suite 1311
Sacramento, CA 95814

6 August 2018

Re: USGS Proposal "Groundwater Inundation Hazards and Socioeconomic Impacts"

Dear California Ocean Protection Council,

I am writing to express my strong support for the USGS proposal "Groundwater Inundation Hazards and Socioeconomic Impacts due to Sea Level Rise Across the California Coast." The Bay Foundation (TBF) has been involved in organizational planning for climate resilience through a vulnerability assessment of our priorities and actions, through implementation of adaptive management measures such as softscape beach and dune restoration efforts, and partnerships with agencies and municipalities evaluating potential climate change impacts over time. Our understanding of the impacts of climate change at a regional scale continues to increase, though is still limited, especially for coastal aquifers and water management.

As sea level continues to rise and accelerate in the coming decades, coastal aquifers will respond to the new ocean conditions. This phenomenon creates a potentially serious "hidden" problem in coastal areas: sea level rise (SLR) could eventually cause shallow groundwater to intersect the ground surface, permanently flooding previously dry areas where flooding would not have been predicted from SLR and storms. Moreover, deeper groundwater could rise to shallower depths, impacting subsurface infrastructure like roadbeds, foundations, pipes, and utilities, and increasing the salinity of shallow groundwater, affecting agriculture and wells in addition to increasing the potential for corrosion of buried infrastructure.

This hazard has not been addressed but is critically important to the Los Angeles region as we continue to inform our 'climate ready' strategic development. We are eager for the results of this modeling and are excited to work with USGS to help develop a web-based platform that displays this information for our stakeholders, as well as those across the state. Further, this will be an excellent complement to the projections of coastal flood hazards already provided by the Coastal Storm Modeling System (CoSMoS).

We are fully supportive of this proposed project. Please email if you have any further questions (kjohnston@santamonicabay.org).

Sincerely,

Karina Johnston
Director of Watershed Programs; The Bay Foundation
www.santamonicabay.org

Central Coast Wetlands Group

To coordinate the advancement of wetland science and management on the Central Coast

Moss Landing Marine Labs | (831) 771-4495 | www.centralcoastwetlands.org

California Ocean Protection Council 8/1/18
1416 Ninth Street, Suite 1311
Sacramento, CA 95814

Dear California Ocean Protection Council,

I am writing to express my strong support for the proposal "*Groundwater Inundation Hazards and Socioeconomic Impacts due to Sea Level Rise Across the California Coast.*"

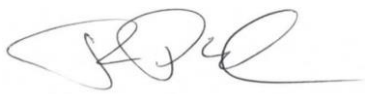
CCWG staff have assisted local and regional partners in the development of climate mitigation and adaptation plans for the central coast. CCWG is focused on supporting adaptation planning through the collection of regional data and the coordination of adaptation planning among jurisdictions, regulatory authorities and resource managers.

As sea level continues to rise and accelerate in the coming decades, coastal aquifers will respond to the new ocean conditions. This phenomenon creates a potentially serious "hidden" problem in coastal areas: sea level rise (SLR) could eventually cause shallow groundwater to intersect the ground surface, permanently flooding previously dry areas where flooding would not have been predicted from SLR and storms. Moreover, deeper groundwater could rise to shallower depths, impacting subsurface infrastructure like roadbeds, foundations, pipes, and utilities, and increasing the salinity of shallow groundwater, affecting agriculture and wells in addition to increasing the potential for corrosion of buried infrastructure.

This hazard has not been addressed but is critically important to the central coast as we develop our adaptation plans and vulnerability assessments. We are eager for the results of this modeling and are excited to work with the USGS to help develop a web-based platform that displays this information for our stakeholders, as well as those across the state. Further this will be an excellent complement to the projections of coastal flood hazards due to SLR and storms already provided by the Coastal Storm Modeling System (CoSMoS).

We are fully supportive of this proposed project. Please feel free to contact me at 831-771-4411 if you have any further questions.

Sincerely,



Ross Clark
Director, CCWG at Moss Landing Marine Labs

CALIFORNIA
Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Los Angeles Regional Water Quality Control Board

July 31, 2018

California Ocean Protection Council
1416 Ninth Street, Suite 1311
Sacramento, CA 95814

Dear California Ocean Protection Council,

I am writing to express my strong support for the proposal "*Groundwater Inundation Hazards and Socioeconomic Impacts due to Sea Level Rise Across the California Coast.*"

The California Water Boards are the primary agency responsible for protection of surface and ground water quality throughout California. Recently both the State Water Board and the Los Angeles Water Board adopted resolutions recognizing the current and projected impacts of climate change, and the need to implement a comprehensive response to mitigate and adapt to climate change to ensure maintenance of water quality and ongoing support for beneficial uses of surface and ground waters. The Los Angeles Water Board is also developing a Framework for Climate Change Adaptation and Mitigation and has completed Part 1 – Current State of Knowledge and Water Quality Regulatory Program Considerations.

As sea level continues to rise and accelerate in the coming decades, coastal aquifers will respond to the new ocean conditions. This phenomenon creates a potentially serious "hidden" problem in coastal areas: sea level rise (SLR) could eventually cause shallow groundwater to intersect the ground surface, permanently flooding previously dry areas where flooding would not have been predicted from SLR and storms. Moreover, deeper groundwater could rise to shallower depths, impacting subsurface infrastructure like roadbeds, foundations, pipes, and utilities, and increasing the salinity of shallow groundwater, affecting agriculture and wells in addition to increasing the potential for corrosion of buried infrastructure. This "hidden" problem puts water quality at risk in several ways.

The Los Angeles Water Board is currently supporting two research projects that will help further understanding of the impacts of climate change in the Los Angeles Region. However, neither addresses the hazard of SLR from groundwater inundation. An evaluation of this hazard is critically important to the Los Angeles Water Board as we develop and implement Part 2 of the Los Angeles Region Framework for Climate Change Adaptation and Mitigation – Potential Regulatory Adaptation and Mitigation Measures. We are eager for the results of this modeling and are excited to work with the USGS to help develop a web-based platform that displays this information for our stakeholders, as well as those across the state. Further this will be an excellent complement to the projections of coastal flood hazards due to SLR and storms already provided by the Coastal Storm Modeling System (CoSMoS).

We are fully supportive of this proposed project. Please feel free to contact me [Renee.Purdy@waterboards.ca.gov | (213) 576-6609] if you have any further questions.

Sincerely,

Renee Purdy
Assistant Executive Officer

displays this information for the benefit of the people of California. Further this will be an excellent complement to the projections of coastal flood hazards due to SLR and storms already provided by the Coastal Storm Modeling System (CoSMoS).

We are supportive of this project. Please feel free to contact me at (916) 653-3718 or e-mail at Gurdeep.Bhattal@dot.ca.gov if you have any further questions.

Sincerely,

Gurdeep Bhattal

GURDEEP S BHATTAL
P.E. (Civil), P.E (Mechanical)
Senior Transportation Engineer
Office of Hydraulics & Stormwater Design
HQ Division of Design

CC: Balwinder Tarlok, P.E.
Senior Transportation Engineer
Division of Research, Innovation and System Information