

# California Ocean Science Trust: A vision for 2020



SCIENCE ACCELERATING PROGRESS FOR HEALTHY OCEANS

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## California's Ocean and Coast are Changing

California's ocean and coast are integral to the State's economy and the quality of life for California residents. Valued at \$45 billion annually, California's ocean-based economy employs over half a million people. The 19 coastal counties account for 80% of the State's GDP and are home to 68% of the State's population, with millions of visitors drawn to our coastline each year.

However, in the last three years alone, Californians have witnessed an unprecedented marine heat wave, a record harmful algal bloom, a prolonged period of elevated coastal sea levels, and a near-complete loss of northern kelp forests. The resulting coastal flooding, fishery closures, and wildlife crises affect homes, jobs, communities, and the culture and traditions of coastal California.

California has a bold vision to protect our coast and ocean. While State leaders are working to reduce greenhouse gas emissions and plan for climate adaptation, the ocean will continue to change as global temperatures rise, and atmospheric carbon dioxide dissolves into seawater. These changes compound the inherently difficult tasks of sustainable natural resource management and effective water quality protection. In order to address these new challenges and continue to fulfill California's vision, we need sound science to inform policy decisions.

Ocean Science Trust bridges the gap between cutting edge scientific research and sound ocean management, accelerating progress towards a healthy and productive ocean future for California.

## CONTINUED SCIENCE-BASED ACTION IS ESSENTIAL

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Ocean Science Trust is a nonprofit organization, created by legislation, and staffed by a team of nine science-to-policy experts based jointly in Sacramento and Oakland. We work statewide and collaborate with scientists and policy leaders across the West Coast and nationally.

Our strength lies in nimble response to state priorities, creating scientific partnerships and collaborations to foster innovative yet pragmatic approaches to difficult problems. Leveraging state, federal, and philanthropic funding, we bring resources together and coordinate efforts to maximize impact and amplify return on investments.

Durable solutions require broad input and shared objectives. We serve as a nexus between managers, scientists and stakeholders (e.g., fishermen, local business owners, recreational ocean users) to bring together the diversity of perspectives and incorporate local knowledge.

## A UNIQUE ROLE AND LEGISLATIVELY MANDATED CONNECTION TO THE STATE

Ocean Science Trust was created by the California Ocean Resources Stewardship Act (CORSA), passed in 2000. Recognizing the value of independent science and the opportunity to better connect the wealth of scientific expertise in academia with policy and management decisions in the state, CORSA mandates the creation of a science trust *“to seek and provide funding for ocean resource science projects and to encourage coordinated, multi-agency, multi-institution approaches to ocean resource science” ...“many management issues are broader than the mandates of individual agencies, and existing means for coordinating agency efforts need to be improved.”* Every day the Ocean Science Trust team is committed to implementing this important legislation.

Subsequent legislation in 2004 - the California Ocean Protection Act (COPA) - created the Ocean Protection Council (OPC) to help protect, conserve and maintain healthy coastal and ocean ecosystems, and the economies they support, for current and future generations. A cabinet-level state policy body, and the Governor’s advisor on coastal and ocean policy in California, OPC is an essential partner to Ocean Science Trust.



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## Delivering Useful, Timely Science Advice

The Ocean Science Trust serves as Science Advisor to the Ocean Protection Council. We are the only nonprofit in California dedicated solely to the State government’s vision for a healthy and productive ocean and coast. With this unique perspective, we deliver pragmatic and actionable scientific advice to OPC. We represent the State’s perspective on scientific committees and panels and ensure that OPC staff and partners are kept abreast of new science advancements.

As OPC Science Advisor we help the State prioritize research and monitoring investments that provide the biggest return. We identify synergies among different research projects and advise on the sequence of investments that most effectively grow applicable scientific knowledge over time. We also seek opportunities to encourage alignment of other public and private research investments with state priorities.

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## Putting Science to Work to Create Solutions to Ocean Threats and Challenges

The Ocean Science Trust is the Secretariat of the Ocean Protection Council Science Advisory Team (OPC SAT). Including representatives from the University of California and California State University, the OPC SAT is an interdisciplinary team of distinguished and independent scientists created by statute to support OPC in science-based actions and decisions. The OPC SAT evaluates the scientific underpinnings and technical merit of state actions, translates scientific knowledge related to state priorities, provides scientific recommendations for policy and management decisions and acts as a conduit to the broader scientific community. The Ocean Science Trust Executive Director co-chairs the OPC SAT, and our team provides essential governance and day-to-day oversight functions.





CASE STUDY

## RISING SEAS IN CALIFORNIA: A NEW SCIENCE SYNTHESIS SUPPORTS PRAGMATIC RISK-BASED STATE POLICY

Sea levels in California are rising, threatening homes, roads, businesses and coastal habitats. The rate of change is accelerating, but projecting the timing and magnitude of impacts is challenging. Assessing risk in California requires a comprehensive look at the potentially catastrophic impacts of Antarctic ice melt, national and international action on greenhouse gas emissions, and the growing body of science on sea level change. To this end, Ocean Science Trust led an effort by the OPC SAT to map out probability scenarios and set the stage for innovative statewide policy. Including a risk assessment framework and guidance for decision-making as conditions change, we are now supporting implementation by agencies including California Public Utilities Commission, California State Lands Commission and San Francisco Bay Conservation and Development Commission.



CASE STUDY

## TAKING ACTION ON OCEAN ACIDIFICATION

In 2013, the Ocean Science Trust and Ocean Protection Council responded to growing interest and concern about ocean acidification by convening the *West Coast Ocean Acidification and Hypoxia Science Panel*. The Panel's work identified tangible, strategic actions that California, Oregon and Washington can take to prepare for this significant threat. Our work provided the scientific foundation for California's 2018 *State of California Ocean Acidification Action Plan* and was highlighted at the recent Global Climate Summit (San Francisco, 2018). Our efforts lay the groundwork for future actions that connect ocean acidification and hypoxia to terrestrial land and water management, leveraging climate action partnerships that span the land-sea interface.



CASE STUDY

## READYING CALIFORNIA FISHERIES TO CLIMATE CHANGE: FUTURE SCENARIOS AND MANAGEMENT OPTIONS

Changes to ocean temperatures, chemistry and currents are already impacting fish stocks and fishing communities. Ocean Science Trust convened an OPC SAT expert working group to distill and disentangle the complexity of fishery impacts from climate change into four potential future scenarios. Supported by state funding, the working group provided pragmatic guidance to California Fish and Game Commission and California Department of Fish & Wildlife on a range of potential management responses to these scenarios that could help minimize social and economic impacts. Now, with additional philanthropic support, we will build on this foundational work by convening scientists, fishermen and managers to explore new tools and management processes being developed and tested nationally and internationally, and tailor actions that support sustainable fisheries in California.

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## Charting a sustainable future

In 2020, Ocean Science Trust will celebrate the 20th anniversary of our founding legislation. The bold experiment laid out in CORSA - a trusted nonprofit created by statute - is working as an effective model for science-informed policy.

The collaborative partnership between Ocean Science Trust, Ocean Protection Council and the OPC SAT is unique to California. Together we have led the nation in responding to global challenges such as ocean acidification and sea-level rise, demonstrating the value of independent and interdisciplinary science in shaping effective, policy-relevant paths forward. Together we will support California's ocean and coastal stewardship into the future.

To manage the unprecedented changes facing our ocean, California must tap the best knowledge and expertise available. Ocean Science Trust facilitates this broad reach by prioritizing partnerships with academia, research institutions and other science-policy organizations. Collaboration is critical to advancing our mission.

Through our partnerships-based approach, we are ready and positioned to provide the scientific syntheses, science-based recommendations and reasoned advice needed for California. In line with state priorities, Ocean Science Trust is poised to advance on issues such as aquaculture, sustainable fisheries, effective marine protected area management, and climate adaptation. We look forward to continued state support and collaboration.



We are an interdisciplinary team built around collaboration. We bridge marine science and policy through creativity, innovation, and diverse partnerships. Together, we accelerate progress toward California's bold vision of a resilient coast and ocean.

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