

**CALIFORNIA OCEAN PROTECTION COUNCIL**  
*Strategic Priorities to Protect California's Coast and Ocean*  
**2019- 2024**

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**OCEAN  
PROTECTION  
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## **INTRODUCTION**

California is home to one of the most diverse coastal and ocean ecosystems in the world, ranging from sandy beaches and tree-topped bluffs to rocky reefs and kelp forests. These habitats, and the flora and fauna that reside in them, are central to the Californian ethos: symbols of our natural and cultural heritage, and sources of hope and inspiration for our future. Affecting our everyday lives, these ecosystems also support the nation's largest ocean economy, valued at more than \$44 billion per year.

A healthy ocean is essential to the well-being of both marine and human communities. The California Ocean Protection Council (OPC) advances science-based decision-making and leads coordinated policy efforts to safeguard marine life, habitats and livelihoods – efforts that have become even more critical in the face of a changing climate.

The 2019-2024 Strategic Plan builds on the momentum generated by previous OPC efforts and prioritizes actions that will protect the state's ocean and coast – resources that residents and visitors rely on and revere, defining the California way of life.

## **ABOUT OPC**

OPC is an innovative leader on ocean and coastal protection in the state and globally. Created by the California Ocean Protection Act in 2004, OPC was established to help protect, conserve, and maintain healthy coastal and ocean ecosystems and the economies they support, for current and future generations. As a cabinet-level state policy body nested within the California Natural Resources Agency – with its Executive Director also serving as the Deputy Secretary for Oceans and Coastal Policy – OPC serves as the Governor's advisor on coastal and ocean policy in California.

As described in more detail below, OPC uses partnerships, policy and funding to advance science-based solutions to protect coastal and ocean ecosystems in California. These efforts yield significant benefits to the state while providing a model to improve protection and conservation across the world.

## **ABOUT THIS PLAN**

OPC's 2019-2024 Strategic Plan is a roadmap to achieve the mission of protecting vibrant ocean ecosystems and the coastal communities and economies that rely on them. It is designed to set a five-year course for addressing the broad range of challenges facing California's ocean and marine ecosystems while guiding targeted investments focused on critical issues and policy changes with the potential for greatest impact. This plan will also be used to articulate OPC priorities to decision-makers, stakeholders, and the public; leverage other conservation, research and funding efforts across the state in coordination with state agencies and other partners; and educate and cultivate champions in the Legislature.

This plan was developed in close coordination with OPC Council members, the OPC Science Advisory Team, the Ocean Science Trust, state and federal agencies, tribal governments and tribal communities, stakeholders and the interested public.

In addition to updated goals, objectives and actions, this plan includes several organizational changes from OPC's previous strategic plan. Those changes are as follows:

**The role of science.** OPC advances and integrates best available science throughout all our work. Rather than calling out a specific goal devoted solely to scientific inquiry, this plan includes monitoring and research priorities, and associated policy and management applications, within each of the goals described below.

**Climate change.** It is impossible to separate the individual effects of a changing climate from the broader ecological health and resilience California's coast and ocean. As a reflection of this inextricable link, climate change has been interwoven in all our priorities. Our climate program will continue to address impacts and solutions related to ocean acidification, sea-level rise, coastal erosion, and natural sediment supply, while increasing efforts around hypoxia, temperature, salinity and other climate-driven changes in the ocean. We will expand our cross-cutting work to increase understanding of climate change impacts on fisheries and fishing communities, the role that California's marine protected areas can play in building resilience, the ability of seagrasses and kelp to sequester carbon, and the triggers and responses to harmful algal blooms.

**Sustainable fisheries and marine ecosystems.** In the previous strategic plan, these priority areas were addressed in a singular goal. While fisheries are clearly a critical component of healthy marine ecosystems, the focused work that OPC is conducting in each of these areas merits separate goals dedicated to these individual conservation priorities.

**Land-sea connection.** This plan continues to acknowledge the link between land-based activities and ocean health but includes these priorities in the climate change and water quality goals. The previous strategic plan had combined water quality, marine pollution and sediment management into one goal.

**Sustainable ocean economy.** This plan includes a new goal focused on protecting the ocean while encouraging sustainability in the blue economy. Issues within this priority area include marine renewable energy, aquaculture, offshore oil platform decommissioning, and artificial reefs.

**Equity.** Previous strategic plans did not identify environmental justice or social equity as priority components of OPC's work. We are committed to more actively engaging with low-income and frontline communities and tribes to build trust, understand the challenges and needs associated with resource protection and coastal access, advance solutions, and ensure that OPC's work provides benefits to *all* Californians. In this plan, we have incorporated equity as one of our organization values and prioritized the integration of environmental justice and social equity into OPC's conservation work under Goal Six.

## **OUR MISSION**

OPC protects California's coastal and ocean resources by advancing innovative, science-based policy and management, making strategic investments, and catalyzing action through partnerships and collaboration.

## **OUR VISION**

Healthy, resilient and productive coastal and ocean ecosystems in California for the benefit of current and future generations.

## **HOW WE WORK**

As directed by the California Ocean Protection Act, OPC protects California's coastal and ocean resources by providing best-available science to decision-makers, deploying resources effectively and strategically, and by collaborating across jurisdictional, programmatic, and regional boundaries. With this diverse complement of tools, OPC has unique flexibility to develop creative and impactful approaches to conserve our shoreline and coastal waters. The following section provides a brief overview of how OPC uses each of these tools to identify and implement solutions that improve ocean governance, increase stewardship, and advance scientific understanding necessary to protect and conserve marine resources and the communities that rely on them.

## **SCIENCE**

Science is critical to informed decision-making and is a foundational component of all OPC's work. We ensure that science is integrated into California's policy and management decisions by: 1) funding applied scientific research and monitoring that increases our understanding of ecological, economic and social vulnerability to potential impacts and the efficacy of various conservation and management approaches; 2) convening scientific experts to synthesize information and develop findings that can root policy development in cutting-edge science; 3) coordinating with agency, academic and other partners to identify and address critical data gaps; and 4) ensuring that conservation and habitat restoration projects use the latest science and restoration techniques, especially with regard to climate resiliency.

Two important partners support OPC in these efforts: the OPC Science Advisory Team (OPC-SAT) - an interdisciplinary team of distinguished scientists created statutorily to support OPC's science-based actions and decisions - and the California Ocean Science Trust (OST), an independent non-profit created by statute that serves as OPC's Science Advisor and administers the OPC-SAT on behalf of OPC. The OPC-SAT identifies emerging environmental and scientific challenges related to the ocean and coast; evaluates the scientific underpinnings and technical merit of state actions and decisions; provides advice and translates scientific knowledge related to state priorities; and acts as a broader conduit to the scientific community. OST is a non-profit organization dedicated to California's vision for a healthy and productive ocean and coast and the role of science in accelerating progress to that vision. OST's collaborative team

helps lead projects and initiatives that draw together diverse perspectives to synthesize, interpret, and share science that can advance policy, funding, and management decisions.

In addition to prioritizing increased scientific understanding of coastal and ocean ecosystems, OPC recognizes the importance of ensuring that data from state-funded research projects are available and accessible for use by scientists, decisionmakers, stakeholders, and the general public. To that end, OPC is developing an Open Data Platform<sup>1</sup>, in alignment with state agency partners, that will have the ability to import data from external sources and serve as a repository for state-funded data, technical reports, and outreach materials. OPC's Open Data Platform will serve as a valuable, enduring tool for data access and visualization. It will also allow for enhanced understanding of long-term oceanographic and biological trends, providing a critical asset to the state as resource managers confront changing ocean conditions.

## **PARTNERSHIPS**

In drafting the California Ocean Protection Act, the Legislature identified a need to coordinate governance and stewardship of the state's ocean resources, particularly given the corresponding - and oftentimes overlapping - mandates and jurisdictions of state regulatory, planning and conservation agencies with a connection to ocean and coastal resources in California. OPC plays a leading role in coordinating the policy direction and efforts of these state agencies to increase efficiency and effectiveness by establishing and maintaining strong relationships with agency leadership and staff; convening interagency working groups; collaboratively identifying and addressing data gaps; sharing fiscal and human resources; and helping establish a strategic and holistic vision for protecting California's coast and ocean.

In addition, OPC leverages state efforts with those of local, federal and tribal governments and tribal communities, academic and research institutions, non-profits, community groups, fishermen and other stakeholders. Through working groups, advisory bodies and collaborative projects, OPC integrates state activities with the broader management, stewardship and research efforts of partners outside state government who have personal, cultural and professional expertise and are equally invested in protecting ocean health in California.

## **POLICY**

OPC works closely with the Governor's office, the Legislature, and agency partners to craft and implement science-based policy and inform legislation at both the state and federal levels. We use policy to align decision-making in California and protect ocean health by developing guidance documents and actions plans; mobilizing and coordinating state action against threats facing our coast; collaborating with partner agencies to ensure decisions are consistent and based on the precautionary principle; and identifying and recommending changes in state policy to the Legislature and the Governor.

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<sup>1</sup> <https://data.cnra.ca.gov/>

OPC is also actively engaged in driving policy at the international level, not only by taking action that provides a model for global efforts, but by establishing goals and guidance to accelerate ocean conservation and adaptation action around the world. An example of such work is the Ocean-Climate Action Agenda<sup>2</sup>, which was developed collaboratively by OPC and non-profit partners to increase ocean-related climate ambition at the Global Climate Action Summit in September 2018.

## **FUNDING**

OPC has a variety of funding sources (including bond funds, General Fund, special funds, and Once-Through Cooling Interim Mitigation Funds) that support strategic investments in scientific research and monitoring, collaborative policy development, and restoration and other projects that will improve conditions for ocean and coastal ecosystems and California communities. We will continue to leverage these sources and any future appropriations across OPC's program priorities - and with the efforts of partners throughout California - to advance the goals described below while maximizing the state's efficiency and effectiveness in protecting coastal and ocean resources.

## **OUR VALUES**

The following principles guide our actions and define our culture as we work to conserve the health and diversity of ocean ecosystems for their intrinsic, environmental, aesthetic, educational, recreational and economic values:

### ***TRANSPARENCY***

We understand that decisions made by OPC will affect marine life and habitats, coastal communities and livelihoods. We strive to be responsive, communicate clearly and openly with our partners and stakeholders, and prioritize inclusive public engagement in all our work.

### ***INTEGRITY***

We carry out our work with honesty, respect and fairness. We value diverse perspectives and the need for, and strength in finding common ground.

### ***COLLABORATION***

We acknowledge the power of partnerships and collective action to drive solutions and safeguard natural resources. We prioritize cooperative problem-solving and stewardship across agencies, tribes, scientists, stakeholders and the general public and rely on these partnerships to increase our effectiveness.

### ***INTERDISCIPLINARY APPROACH***

We recognize the complexity of ocean ecosystems, the connection between land and sea, and how individual and cumulative stressors are affecting marine life and habitats. We advance

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<sup>2</sup> [https://www.oceanclimateaction.org/wp-content/uploads/Ocean-Climate-Action-Agenda\\_FINAL\\_8.16.18-2.pdf](https://www.oceanclimateaction.org/wp-content/uploads/Ocean-Climate-Action-Agenda_FINAL_8.16.18-2.pdf)

cross-cutting action at the intersection of science, policy, and management to bolster ocean health and build resilience.

### **INNOVATION**

Challenges facing the coast and ocean require creative solutions. We promote increased scientific understanding and the development of new ideas to solve problems, build flexibility, and expand investment, management and policy approaches.

### **STEWARDSHIP**

We take seriously our responsibility to protect the ocean through state action. We also recognize that local connections to the coast generate social investment that results in long-term conservation outcomes. We promote partnerships, policy and action that increase public awareness and create community stewards committed to protecting ocean health into the future.

### **EQUITY**

We believe that everyone has a right to voice their perspectives and engage in decisions that affect California's natural resources and access to the coast. We prioritize accessibility and inclusiveness in our engagement, policy and funding opportunities, and acknowledge the need to further support disproportionately impacted or historically disenfranchised communities through our work.

### **OUR GOALS**

Over the next five years, OPC will work towards the following six goals to achieve its mission and vision.

Call out box:

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*Ocean health issues are inherently complex and interconnected. Understanding this, several objectives below are described as "cross-cutting," indicating an overlap of two or more goal areas and identified by their corresponding icons.*

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End call out box

### **GOAL ONE: SAFEGUARD COASTAL AND MARINE ECOSYSTEMS AND COMMUNITIES IN THE FACE OF CLIMATE CHANGE**

Globally, the ocean absorbs roughly one third of the total carbon dioxide (CO<sub>2</sub>) emitted by human activities every single year.<sup>3</sup> Simultaneously, it has absorbed over 90 percent of the warming caused by humans since the 1970s.<sup>4</sup> As a result, the ocean is experiencing a suite of

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<sup>3</sup> <https://www.noaa.gov/education/resource-collections/ocean-coasts-education-resources/ocean-acidification>

<sup>4</sup> <https://www.climate.gov/news-features/understanding-climate/climate-change-ocean-heat-content>

biological, chemical, and physical changes, including but not limited to: sea-level rise, coastal erosion, ocean acidification, rising sea temperatures, hypoxia, stratification, salinity shifts, changing ocean currents, shifting species distributions, coastal erosion and beach loss. These cumulative climate impacts pose a significant threat to the health of California's coastal and marine ecosystems and will continue to have significant consequences for California's communities, economy, culture, and heritage, for decades to come. Due to the value of California's coastal areas and our reliance on the coast and ocean for recreation, food, and critical infrastructure, it is increasingly important to understand how climate change will impact our ocean resources. OPC is prioritizing and addressing this critical need by improving scientific understanding, increasing resilience, raising awareness, and integrating changing ocean conditions into California's state government policies, planning, and operations. By continuing to anticipate and prepare for changing ocean conditions, OPC can make progress towards its overarching goal of safeguarding coastal and marine ecosystems and communities in the face of climate change.

**Objective 1.1: Improve scientific understanding of how climate change fundamentally alters coastal and marine ecosystems.**

*Proposed Actions:*

- Fund scientific research assessing current and future climate change impacts to California's biological resources, communities, and economies in the context of other environmental stressors.
- Make targeted investments in long-term monitoring, modeling, and mapping of data at both statewide and regional scales to better understand the mechanisms and effects of climate change impacts and identify opportunities for reducing or mitigating these impacts.
- Synthesize current scientific understanding of how marine and coastal ecosystems will change in the coming decades as the climate and ocean chemistry changes.
- Assess current and future risks to ocean-dependent industries, including aquaculture, fisheries, and coastal tourism.
- Quantify the role of aquatic vegetation in mitigating ocean acidification and storing carbon while mapping current and projected future habitat space for seagrass meadows, salt marshes, and kelp forests along the California coast.

**Objective 1.2: Increase coastal and marine ecosystem and community resilience.**

*Proposed Actions:*

- Expand scientific and capital investments in blue carbon by deploying living systems, such as eelgrass habitat, to slow ocean acidification, sequester carbon, provide a buffer from increased storm surges, and help adapt to sea-level rise.
- Fund and promote nature-based infrastructure adaptation measures and projects, including living shorelines, managed retreat, wetland and beach restoration, and related

strategies, to ameliorate the climate risks related to coastal erosion, sea-level rise, and ecosystem degradation.

- Encourage the utilization of the State of California Sea-Level Rise Guidance<sup>5</sup>, the California Ocean Acidification Action Plan<sup>6</sup>, and other guidance documents, that inform best decision-making in the face of uncertainty and a changing environment.
- Build on existing efforts to develop, test, and apply coupled aquaculture production systems by integrating seagrasses or kelps to locally ameliorate ocean acidification.
- Continue to aid local governments in completing or updating Local Coastal Programs to integrate sea-level rise and other climate impacts into local planning, consistent with the California Coastal Act.
- Identify and implement actions to protect frontline and low-income communities from the impacts of climate change, including sea-level rise and coastal flooding.

**Objective 1.3: Raise awareness of climate change impacts to coastal and marine ecosystems and communities.**

*Proposed Actions:*

- Continue to support, lead, and engage in West Coast-wide partnerships, such as the Pacific Coast Collaborative, to ensure sharing of scientific information, policy and technical innovations derived from participating governments.
- Translate and communicate information about climate change risks, vulnerabilities, and potential interventions to assist affected communities and industries in prioritizing and undertaking actions for improving adaptive capacity and resiliency.
- Collaborate with the Federal government to identify priority needs and partnering opportunities.
- Continue to participate in national and international networks, such as the International Alliance to Combat Ocean Acidification and the Ocean Acidification Information Exchange, that facilitate knowledge sharing and collaborative problem solving among different regions.
- Amplify and share California's work in climate change mitigation, adaptation, ocean stewardship policies and actions through participation in international events, such as the Conference of the Parties convened under the United Nations Framework Convention on Climate Change.

**Objective 1.4: Integrate changing ocean conditions into California's state government policies, planning, and operations.**

*Proposed Actions:*

- Ensure understanding of climate change and its significance among policymakers and leaders in California's legislature and public agencies through briefings, hearings, and at public OPC meetings.

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<sup>5</sup> [http://www.opc.ca.gov/webmaster/ftp/pdf/agenda\\_items/20180314/Item3\\_Exhibit-A\\_OPC\\_SLR\\_Guidance-rd3.pdf](http://www.opc.ca.gov/webmaster/ftp/pdf/agenda_items/20180314/Item3_Exhibit-A_OPC_SLR_Guidance-rd3.pdf)

<sup>6</sup> [http://www.opc.ca.gov/webmaster/\\_media\\_library/2018/10/California-OA-Action-Plan-Final.pdf](http://www.opc.ca.gov/webmaster/_media_library/2018/10/California-OA-Action-Plan-Final.pdf)

- Identify and evaluate state policies, decision-making processes, and investments that should address climate change impacts on managed resources or interests and assist sister agencies in doing so.
- Improve coordination with appropriate entities to support action by local and regional agencies and authorities.
- Continue to lead interagency working groups that include senior-level staff from the full set of state agencies whose decisions affect or will be affected by climate change and changing ocean conditions.

**Objective 1.5: Improve coastal sediment management and increase understanding of coastal processes.**

*Proposed Actions:*

- Work with the Coastal Sediment Management Workgroup and the OPC-SAT to develop research priorities and proposals that increase understanding of coastal processes and climate resilience.
- Coordinate project and research funding with other state programs that rely on natural sediment supply for coastal resilience such as California State Park’s Coastal Program and the Southern California Wetlands Recovery Project.
- Continue co-chairing the federal-state Coastal Sediment Management Workgroup to implement the California Sediment Master Plan and support regional approaches to coastal sediment management in California.
- Work to amend CEQA guidelines to include consideration of impacts to coastal sand supply for all projects and activities within the coastal zone and coastal watersheds.
- Work with partners and the California Congressional Delegation on federal Water Resources Development Act reauthorizations to include language that promotes the beneficial reuse of sand from U.S. Army Corps dredging projects and provides funding for coastal restoration projects.

**GOAL TWO: PROTECT AND RESTORE COASTAL AND MARINE ECOSYSTEMS**

California’s coastal and marine ecosystems support a diverse array of plant and animal species, many of which are found nowhere else in the world. From rocky shorelines to lush underwater kelp forests, these iconic places inspire a sense of wonder and stewardship. They also provide food, cultural resources, and recreational opportunities to millions of Californians. OPC supports innovative science to enhance our understanding of the structure and function of marine ecosystems and promotes the use of ecosystem-based solutions to address complex ocean problems. The state’s unique and globally significant network of 124 marine protected areas (MPAs), for example, is helping to conserve California’s natural marine biodiversity by protecting marine life and habitats in 16% of state waters. Similarly, ongoing habitat restoration efforts will help to preserve a delicate ecological balance and provide climate resilience while maintaining the delivery of ecosystem services upon which much of the state’s economy depends. Through

partnerships, strategic investments, and policy development, OPC is committed to safeguarding our coastal and underwater wilderness.

**Objective 2.1: Ensure the long-term success of California’s MPA network, consistent with the goals of the Marine Life Protection Act.**

*Proposed Actions:*

- Continue coordinating MPA Statewide Leadership Team efforts and advance priorities focused on outreach, policy, research, and enforcement.
- Fund and manage statewide ecological and socioeconomic monitoring of the MPA network, consistent with the state’s MPA Monitoring Action Plan <sup>7</sup>, in preparation for the ten-year MPA management review in 2022.
- Communicate the results of long-term monitoring projects to the California Fish and Game Commission and the public as part of the 2022 review.
- Identify and fund innovative, sustainable, and cost-effective methods to continue MPA monitoring beyond the 2022 review.
- Develop and implement effective, consistent, and precautionary policies for activities in MPAs not explicitly covered by existing regulations.
- Inspire stewardship of California’s MPAs and increase compliance through inclusive, engaging outreach and education efforts.
- Mitigate the impacts of power plants using once-through cooling technology by funding projects that increase marine life associated with MPAs.
- Increase collaboration with California’s tribal governments and tribal communities on all aspects of MPA management.
- Partner with fishermen, academia, citizen/community scientists, non-profit organizations, foundations, and local MPA Collaboratives to integrate diverse perspectives, resources, and expertise into management and decision-making.

**Objective 2.2: **Cross-Cutting Objective:** Leverage California’s MPA network to further enhance coastal and ocean ecosystem resilience.**

*Proposed Actions:*

- Communicate the results of MPA monitoring efforts to inform fisheries management, linking the goals of the Marine Life Protection Act and the Marine Life Management Act.
- Increase engagement of commercial and recreational fishing communities in MPA management.
- Advance policy that improves water quality within MPAs.
- Fund innovative research to improve understanding of the role of MPAs in providing resilience to climate change impacts.

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<sup>7</sup>[http://www.opc.ca.gov/webmaster/ftp/pdf/agenda\\_items/20181025/Item4b\\_2Exhibit%20A\\_MPA Monitoring Action Plan-textonly\\_10.8.18.pdf](http://www.opc.ca.gov/webmaster/ftp/pdf/agenda_items/20181025/Item4b_2Exhibit%20A_MPA%20Monitoring%20Action%20Plan-textonly_10.8.18.pdf)

- Ensure that long-term MPA monitoring and performance evaluations are placed in the context of changing ocean conditions.
- Complete the process to add California’s MPA network to the International Union for Conservation of Nature (IUCN) Green List of Protected and Conserved Areas.
- Foster collaboration and continue knowledge exchange with the United Nations Convention on Biological Diversity.

**Objective 2.3: Cross-Cutting Objective: Promote healthy kelp forest ecosystems along the California coast.**

*Proposed Actions:*

- Fund scientific research and monitoring projects to investigate critical knowledge gaps regarding kelp forest ecosystem protection and recovery.
- Support and coordinate citizen science projects and volunteer restoration efforts to ensure these efforts inform management and policy decisions.
- Develop a cost-effective and robust strategy to map the current extent of California’s kelp forests to inform adaptive management of kelp forest ecosystems.
- Collaborate with the California Department of Fish and Wildlife and California Fish and Game Commission to develop coordinated state policy for kelp management in the face of changing ocean conditions.
- Leverage partnerships with state agencies, fishing and coastal communities, and other stakeholders to implement a collaborative and multi-pronged strategy for kelp forest protection and resilience.
- Fund science-based pilot projects to explore kelp forest ecosystem restoration and management approaches.

**Objective 2.4: Support coastal habitat restoration in California’s outer coast, bays, estuaries, and tidally influenced riparian habitat.**

*Proposed Actions:*

- Fund coastal habitat restoration projects, including seagrass, wetlands, and other habitats that support anadromous fish, that provide multi-benefits in coordination with partner agencies and based on priorities articulated in this Strategic Plan and other relevant state policy and guidance documents.
- Promote policies that facilitate and increase the scale of coastal habitat restoration and conservation.
- Prioritize habitat restoration projects that are designed to take sea-level rise projections and guidance into account and can adapt to sea-level rise through natural sediment accretion processes.

**GOAL THREE: ENSURE THRIVING AND SUSTAINABLE MARINE FISHERIES**

Upwelling along the coast of California pulls cold, nutrient-rich water from the deep, enhancing the productivity of marine life and creating some of the most biologically productive and diverse

ocean ecosystems in the world. These conditions support thriving fish populations, which play a critical role in the ocean ecosystem and drive California's recreational and commercial marine fisheries, providing an important annual contribution to the state's ocean economy and forming a central part of California's coastal identity. In 2017, California's commercial fisheries landed over 208 million pounds, totaling over \$196 million<sup>8</sup>. Ensuring the long-term sustainability of California's ocean fisheries is vital to protect marine ecosystems, port communities, and coastal economies, particularly in the face of a changing climate. OPC will continue to focus on sustainable fisheries through science-based, collaborative approaches.

**Objective 3.1: Cross-cutting Objective: Advance fisheries science to inform sustainable management of marine fish stocks.**

*Proposed Actions:*

- Coordinate with the California Department of Fish and Wildlife, the California Fish and Game Commission, and other partners to identify science questions and data gaps and align funding priorities with state management and policy needs.
- Fund scientific studies to inform fisheries management that, for example deepen and refine understanding of fisheries population dynamics; the effects of changing ocean conditions on fisheries, such as increased water temperature, species distribution shifts, and ocean acidification; and socioeconomic considerations for fisheries management.

**Objective 3.2: Cross-cutting Objective: Promote resilient fishing communities.**

*Proposed Actions:*

- Assess and synthesize projected climate change impacts on working harbors and fisheries-dependent infrastructure statewide.
- Collaborate with the California Fish and Game Commission and other partners to develop a comprehensive strategy to support adaptation of fishing ports, harbors and communities to impacts from changing ocean conditions, including maintaining viable access to needed infrastructure.
- Fund projects to adapt shoreside fisheries infrastructure to climate change impacts.
- Continue to administer the Dungeness Crab Task Force (DCTF), in coordination with the California Department of Fish and Wildlife, including DCTF elections.
- Encourage innovation and experimentation by funding pilot projects, such as new gear types or technologies, that minimize negative impacts on the marine environment.

**Objective 3.3: Encourage market-based approaches for sustainable fisheries.**

*Proposed Actions:*

- Continue to support the California Fisheries Fund revolving loan fund, which provides loans to California fishermen, seafood businesses, ports and communities to support sustainable commercial fishing.

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<sup>8</sup> <https://www.wildlife.ca.gov/fishing/commercial/landings#260042120-2017>

- Explore other innovative financing mechanisms and partnerships to increase sustainability within California fishing communities.
- Complete the OPC-sponsored Fish 2.0 California track to advance climate resilience fisheries technology and drive innovation and traceability in seafood supply chains.

**Objective 3.4: Improve fisheries data efficiency and accessibility.**

*Proposed Actions:*

- Coordinate with the California Department of Fish and Wildlife, the California Fish and Game Commission, tribes, fishermen, and other stakeholders to leverage strategic partnerships and identify opportunities to improve efficiency of fisheries data collection, availability and transparency.
- Fund science-based projects to streamline and digitize fisheries data collection, synthesis, and management processes to support more adaptive management.

**Objective 3.5: Advance implementation of the Marine Life Management Act Master Plan for Fisheries.**

*Proposed Actions:*

- Coordinate with state agencies, tribes, fishermen, environmental non-profit organizations, and other partners to collaboratively implement the Marine Life Management Act (MLMA) Master Plan for Fisheries.
- Fund the development and piloting of science-based innovative tools and approaches to improve state fisheries management in alignment with the MLMA Master Plan for Fisheries.
- Strengthen integration of ecosystem-based management approaches, potential climate impacts, and socioeconomic considerations within California fisheries management.

**Objective 3.6: Reduce risk of marine life entanglement in California fishing gear.**

*Proposed Actions:*

- Continue to collaborate with the California Dungeness Crab Fishing Gear Working Group, a multi-disciplinary group of commercial and recreational fishermen, state and federal agencies, environmental organization representatives, and members of the disentanglement network, who work to reduce the risk of whale entanglement in California fishing gear.
- Fund priority projects recommended by the California Dungeness Crab Fishing Gear Working Group to address data gaps and improve the Risk Assessment and Mitigation Program (RAMP).
- Develop, fund, and implement a collaborative strategy to further reduce the risk of whale and sea turtle entanglement in California fishing gear.
- Support the California Department of Fish and Wildlife's drift gillnet transition program.

## GOAL FOUR: IMPROVE COASTAL AND OCEAN WATER QUALITY

Plastic pollution, harmful algal blooms, nutrient runoff, chemical pollutants, and marine invasive species threaten coastal and ocean water quality and negatively impact the natural resources we strive to protect. In addition to harming ecosystems, degraded coastal and ocean water quality triggers significant economic and health costs for Californians, including litter cleanup, contaminated beaches, and fisheries closures. Furthermore, marine pollution exacerbates the impacts of climate change on marine life. OPC recognizes the connection between our land-based actions and the vitality of our ocean, and the need to significantly reduce our trail of pollution that leads to the sea.

### **Objective 4.1: Reduce plastic pollution at its source to protect coastal and marine ecosystems.**

#### *Proposed Actions:*

- Catalyze innovation in products, business practices, and policies through competitive funding opportunities, focused both on reducing reliance on plastics and the significant impacts plastics have on ocean ecology.
- Coordinate with agency partners to develop comprehensive waste management approaches, policies, and changes in institutional purchasing that will encourage greater reliance on reusable rather than disposable goods and that will address the problems posed by single-use packaging.
- Work with regional, state, and international policy experts to reduce reliance on plastics around the world.
- Develop a comprehensive funding strategy that emphasizes scalability and innovation, and that targets the three prongs of OPC's Ocean Litter Prevention Strategy - source reduction, microplastics, and abandoned fishing gear.<sup>9</sup>

### **Objective 4.2: Minimize the impact of microplastics and microfibers on coastal and marine ecosystems.**

#### *Proposed Actions:*

- Advance a scientifically robust microplastics strategy to increase understanding of the scale and impacts of microplastics on California's marine ecosystems and to identify solutions to address the problem.
- Fund scientific research to assess the risk of microplastics to humans, marine life, and habitats; the sources and pathways of microplastic pollution; and the development of standardized monitoring methods for sampling, detection and characterization.
- Coordinate with agency partners, industry and stakeholders to implement solutions that prevent microplastic from polluting coastal and marine waters.

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<sup>9</sup> [http://www.opc.ca.gov/webmaster/\\_media\\_library/2018/06/2018\\_CA\\_OceanLitterStrategy.pdf](http://www.opc.ca.gov/webmaster/_media_library/2018/06/2018_CA_OceanLitterStrategy.pdf)

**Objective 4.3: Cross-Cutting Objective: Minimize the impacts of harmful algal blooms on coastal and marine ecosystems, fishing communities, and the public.**

*Proposed Actions:*

- Fund additional monitoring and innovative scientific research to increase understanding of the impacts of harmful algal blooms on ecological and human health, and to improve the state's ability to prevent, predict and respond to these events.
- Collaborate with California's Coastal Ocean Observing Systems to communicate harmful algal bloom conditions to decision-makers, agency partners, interested stakeholders, and the public.
- Continue coordinating with fishermen, public health and resource agencies, and scientists to minimize the impacts of harmful algal blooms and ensure effective seafood testing of harmful algal toxins and public health notifications.
- Build on prior investments to enhance the State's response to freshwater harmful algal blooms that may reach and impact the coastal and marine environments.

**Objective 4.4: Cross-Cutting Objective: Reduce nutrient runoff and other pollution that impact water quality and exacerbate climate change impacts.**

*Proposed Actions:*

- Identify sources and pathways of nutrient pollution to coastal waters and collaborate with partner agencies, local stakeholders, and scientists to develop and fund projects to reduce polluted runoff.
- Provide scientific guidance to the State Water Resources Control Board to inform new nutrient loading standards that minimize biological and chemical impacts including ocean acidification, hypoxia, and harmful algal blooms.
- Coordinate with local, state and federal entities to develop a comprehensive strategy that will improve water quality conditions in the Tijuana River Watershed.
- Emphasize the land-sea connection by investing in projects that directly benefit local communities and simultaneously improve coastal water quality.
- Fund research and monitoring to assess changes in chemical and biological ocean conditions caused by the absorption of airborne emissions, including but not limited to carbon dioxide, nitrous oxide, and sulfur compounds.
- Assess the combined impacts of climate change and pollution on the marine environment.

**Objective 4.5: Identify and address emerging contaminants<sup>10</sup> that threaten water quality.**

*Proposed Actions:*

- Fund scientific research to identify sources, pathways, and composition of emerging contaminants in marine and estuarine waters, and the associated impacts of these contaminants on coastal and marine ecosystems.

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<sup>10</sup> Emerging contaminants are chemicals that are currently unregulated in a water quality context. Emerging contaminants may include chemicals used in pharmaceuticals, personal care products, and pesticides, among other products.

- Provide best available science to partner agencies, including the State Water Resources Control Board, the Department of Pesticide Regulation and the Department of Toxic Substances Control's Safer Consumer Products Program, to inform their regulatory policies.
- Advise the governor and legislature of policy and regulatory gaps that should be addressed to minimize water quality and marine ecosystem impacts from emerging contaminants.

**Objective 4.6: Minimize impacts from marine invasive species.**

*Proposed Actions:*

- Collaborate with partner agencies, including the California State Lands Commission and the California Department of Fish and Wildlife, to develop a coordinated early detection and rapid response program to eradicate or control marine invasive species when first discovered.
- Identify and make targeted investments in research, prevention and response strategies that minimize introduction, improve detection, and increase effectiveness in combatting marine invasive species.
- Evaluate the potential for climate-driven range expansions of marine invasive species.

**GOAL FIVE: PROTECT THE OCEAN AND ENCOURAGE SUSTAINABILITY IN THE BLUE ECONOMY**

The ocean economy is critically important to California, representing \$44.2 billion, or 2%, of California's GDP, and spans sectors such as offshore renewable energy, aquaculture, tourism, and recreation. California's ambitious energy policy aims to make the state carbon neutral by 2045. This transition includes decommissioning of offshore oil and gas rigs, and development of new energy infrastructure through offshore wind turbines to fuel our growing population and businesses. Sustainable marine aquaculture that minimizes impacts to marine life and habitats has the potential to support coastal livelihoods, provide a local food source for California communities, help buffer effects of ocean acidification and improve local water quality. Clean and healthy ocean and coastal ecosystems are essential to supporting important recreation and tourism activities, like surfing, whale-watching, coastal hikes, and others along the California coast. Pressures on the ocean as a resource will only continue to increase as we look to it as a source of food, energy, and resilience against climate change. It is essential for OPC to work with policymakers, industry, and other partners to maximize ocean protection and safeguard sensitive habitats, while transitioning to more sustainable energy sources and developing new industries at the interface of land and sea.

**Objective 5.1: Ensure marine renewable energy projects minimize impacts to the coastal and marine environment, recreation, and fishing communities.**

*Proposed Actions:*

- Continue convening the California Marine Renewable Energy Working Group to improve agency coordination and address data gaps and regulatory uncertainty related to marine renewable energy projects in the state.
- Collaborate with the U.S Bureau of Ocean Energy Management and the California Energy Commission on priorities and operation of the Intergovernmental Renewable Energy Task Force related to offshore shore wind energy and marine kinetic energy.
- Provide information on the permitting process for marine renewable energy projects through workshops, legislative hearings, webinars, and written materials.
- Collaborate with research institutions to develop and fund studies and projects that investigate the impacts of deploying and operating marine renewable energy technologies on the marine and coastal environment.

**Objective 5.2: Cross-cutting Objective: Ensure aquaculture in state marine waters is sustainable and minimizes impacts to marine life and habitats.**

*Proposed Actions:*

- Fund scientific studies to advance understanding of the impacts of, and opportunities for, aquaculture in state marine waters and to inform potential development of a statewide aquaculture management strategy.
- Support the development and piloting of innovative tools and approaches to inform sustainable aquaculture management in California.
- Coordinate with state agencies, industry, scientists, non-governmental organizations, and others to ensure aquaculture practices in California are sustainable.
- Apply lessons learned from other states, regions and countries to California's state marine aquaculture operations.

**Objective 5.3: Prepare local, state and federal agencies for the eventual decommissioning of oil and gas platforms and their possible conversion to alternative uses.**

*Proposed Actions:*

- Continue to co-convene the Interagency Decommissioning Work Group with State Lands Commission, U.S. Bureau of Ocean Energy Management and U.S. Bureau of Safety and Environmental Enforcement to coordinate on environmental review and permitting of decommissioning projects, identify scientific and engineering research priorities, and disseminate information on the decommissioning process to the public.
- Through the Interagency Decommissioning Work Group, receive information on oil and gas platform decommissioning activities and programs, including conversion to reefs, from the Gulf of Mexico and other parts of the world.
- Provide information on the decommissioning of oil and gas platforms and their conversion to reefs and other alternative uses through workshops, legislative hearings, webinars, and written materials.
- Collaborate with research institutions to develop and fund studies and projects that investigate the effect of decommissioning and reuse of oil and gas platforms as artificial reefs on the marine environment.

**Objective 5.4 Investigate unresolved and ongoing scientific issues surrounding the creation and management of artificial reefs.**

*Proposed Actions:*

- Improve scientific understanding of the trade-offs between replacing soft-bottom habitats with hard-bottom habitats and how artificial reefs interact with natural ecosystems and commercially and recreationally important fisheries.
- In cooperation with the California Department of Fish and Wildlife, hold a state-federal agency workshop to further identify important scientific and management issues surrounding artificial reefs.
- Organize an OPC-SAT artificial reef working group to assist with these actions and to identify and address other important data gaps related to artificial reefs in California.
- Support the California Department of Fish and Wildlife's efforts to update the state's Artificial Reef Plan to ensure that management decisions are protective of natural marine life and habitats.

**GOAL SIX: STRENGTHEN ORGANIZATIONAL EFFECTIVENESS**

As we look forward to the next five years, OPC strives to strengthen our organizational effectiveness, both in California and throughout the world. As discussed above, we recognize the need to take meaningful steps towards improving relationships with and understanding the needs of tribes and frontline and disadvantaged communities while increasing access to information, technical assistance, and funding to better integrate environmental justice and social equity into our work. Additionally, we are committed to increased and ongoing collaboration with state as well as local, regional, federal and international partners. All our work remains grounded in California-specific priorities and is reflective of California-specific policies, but we acknowledge the value and power of alliances beyond state boundaries.

**Objective 6.1: Integrate environmental justice and social equity into OPC's conservation work.**

*Proposed Actions:*

- Identify partners and assemble an advisory committee or working group to inform future OPC investments, grantmaking processes and priority-setting to integrate environmental justice and social equity considerations into OPC's work.
- Research and implement communications approaches and tools that help improve OPC communications and outreach to reach a wider audience and constituency, such as outreach in other languages.
- Invest in staff training around environmental justice and social equity and government best practices.

**Objective 6.2: Increase coordination of coastal and ocean policy and management decisions in California.**

*Proposed Actions:*

- Strengthen relationships with local, state, and federal partners to leverage resources and expertise.

- Convene regular meetings of state coastal management agency leadership to coordinate priorities funding opportunities and collaborate on coastal and ocean policy.
- Identify gaps in capacity, science, and funding and develop strategies to address those needs.

**Objective 6.3: Increase OPC’s visibility and influence by advocating for coastal and ocean protection at state, regional, national, and international levels.**

*Proposed Actions:*

- Actively participate in and develop leadership roles with regional, national, and international efforts such as the: Pacific Coast Collaborative; West Coast Ocean Alliance; International Alliance to Combat Ocean Acidification; International Union for Conservation of Nature’s (IUCN) Green List of Protected and Conserved Areas; and the United Nations’ Convention on Biological Diversity.
- Continue to lead and coordinate state and West Coast preemptive responses to oppose the federal government’s plans to renew oil and gas leasing, development, and exploration, including seismic surveys, on the Outer Continental Shelf off the coast of California, Oregon and Washington.
- Educate state legislators and the California Congressional Delegation on issues and threats of emerging concern facing our coast and ocean.
- Host and participate in workshops and conferences to showcase OPC’s work.

**CONCLUSION**

Over the past 15 years, OPC has made incredible progress towards improving ocean governance, contributing scientific understanding, and shaping policy to preserve our marine heritage, wilderness, and thriving coastal economies - demonstrating leadership in the state and internationally. OPC is now looking to the future, carrying through critical long-term work on existing ocean issues, and developing strategies to anticipate and address emerging challenges facing marine and coastal ecosystems and communities. To finance and implement this important work, OPC is developing an investment plan to ensure that our future spending is strategic and leveraged across our priority programs and the efforts of agency and other partners.

The mounting challenges to California’s coast and ocean represent an existential threat both here and globally, so the time for bold, science-based innovation is now. Using this plan, OPC will continue to advance solutions and drive action to preserve the state’s beloved coastline and ocean, now and into the future.