



# STRATEGIC PLAN

to Protect California's Coast  
and Ocean 2020–2025



CALIFORNIA OCEAN PROTECTION COUNCIL



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to Protect California's  
Coast and Ocean 2020–2025



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# CALL TO ACTION

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Our identity as Californians is inextricably tied to the Pacific Ocean and our majestic coastline. From surfing to fishing, sunbathing to whale watching, swimming to keeping our beaches clean, it's in our DNA to care for the ocean.

Unfortunately, our oceans are at a tipping point. Greenhouse gas pollution is warming the oceans and creating the most significant change in ocean chemistry in 50 million years. As a result, acidic waters off our coast are corroding larval Dungeness crab shells. And 95 percent of our iconic underwater kelp forests off the North Coast have been destroyed.

Warming seas and rapidly melting ice sheets are projected to increase sea levels by 3.5 feet or more by the end of century. Climate change is also driving drought, flooding, and devastating wildfires that threaten our coast. Collectively, the toll of these climate impacts could lead to the loss of iconic beaches and the inundation of wetlands that maintain biodiversity, provide recreation, reduce flooding and absorb carbon. There is a great deal at stake - including hundreds of billions of dollars in economic losses.

Fortunately, Californians are innovators and problem solvers. We have demonstrated global leadership in reducing carbon pollution, stewarding our coast, and protecting marine ecosystems. California's network of 124 ecologically connected marine protected areas safeguards the natural richness of our oceans and builds the resilience of our fisheries. This is but one example of California's model policy and programs that can be replicated across the planet.

While Californians rightfully can take pride in our progress and leadership to date, moving forward we must do more. This Strategic Plan sets out critical new actions we will take to protect our coast and ocean. These actions will require unprecedented collaboration among key partners including state agencies, tribal communities, and local governments. These actions must also recognize other urgent priorities in our state such as enabling coastal access and ensuring an equitable California for all.

From the rugged cliffs of Big Sur to the shimmering waters of Humboldt Bay, from the Golden Gate to Catalina Island, and from Imperial Beach to Crescent City our diverse coastal landscapes inspire our cultural and artistic traditions. They also support an ocean-based economy that generates more than \$44 billion annually. Given the importance of our coast and oceans to our well-being and livelihoods, now is the time for bold, decisive action.

Wade Crowfoot  
*Secretary for Natural Resources*

Jared Blumenfeld  
*Secretary for Environmental Protection*







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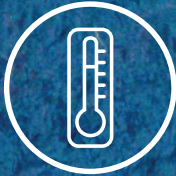
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# EXECUTIVE SUMMARY

California is a global leader of innovative, effective ocean and coastal protection. Our legislative leaders and state agencies have worked with local communities and other stakeholders in recent decades to establish an international model of coastal and ocean stewardship. Our Coastal Act, marine protected areas, and renowned scientific research programs anchor world-class approaches to safeguard these unique natural resources.

Our current climate change crisis, which impacts our oceans and coasts in alarming ways, demands California's continued leadership. The International Panel on Climate Change recently found that coastal ecosystems are under stress from ocean warming, intensified marine heat waves, ocean acidification, loss of oxygen, and sea-level rise, and that impacts to species, biodiversity, and ecosystem services are already being observed. Never before has our state's ambition and effectiveness protecting the ocean and coast been more important. Our continued progress will serve as a powerful example to places across the world to combat these unprecedented challenges to our oceans and coasts.

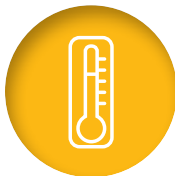
This "Strategic Plan to Protect California's Coast and Ocean: 2020-2025" provides a roadmap for this continued progress. It envisions all California communities enjoying thriving ecosystems, clean water, healthy food, secure infrastructure, ready public access to the coast and ocean, and an inclusive blue economy that advances ecosystem

health, offers meaningful work, and reverses past injustices. In the face of major challenges to our coast and ocean, this Strategic Plan offers four Goals to guide California's efforts over the next five years (below).

Collaborative partnerships among state agencies on the frontlines of regulating, funding, and developing policy that guide coastal and ocean actions are absolutely essential to achieve this vision. The California Ocean Protection Council (OPC) developed this strategic plan to advance focused, high-value interagency collaboration that is needed to meet these goals and achieve our collective vision.

This document is a bold and comprehensive plan comprised of objectives, targets, and actions in each goal area. Notably, the pace of implementation will depend on the feasibility and availability of resources and competing priorities. Nevertheless, this plan establishes an ambitious collective vision for protecting the intrinsic, cultural, ecological, and economic benefits provided by California's coast and ocean. OPC looks forward to working with state agencies, other governmental partners, tribes, and all stakeholders to ensure California advances its global leadership protecting our state's world-renowned coast and ocean.

*A chronological summary table of proposed targets and actions with achievement due dates can be found in Appendix 1.*



## GOAL 1

Safeguard Coastal and Marine Ecosystems and Communities in the Face of Climate Change



## GOAL 2

Advance Equity Across Ocean and Coastal Policies and Actions



## GOAL 3

Enhance Coastal and Marine Biodiversity



## GOAL 4

Support Ocean Health through a Sustainable Blue Economy



# INTRODUCTION



## Our Shared Ocean and Coastal Challenges

California is home to one of the most diverse coastal and ocean ecosystems in the world, with over 1,100 miles of coastline, and watersheds originating in the Sierras, traveling through the San Francisco Bay-Delta Estuary and emptying out into the ocean. From sandy beaches, tree-topped bluffs, bay shorelines, and inland salmon runs, to offshore rocky reefs, kelp forests, and whale migration routes, these habitats, and the flora and fauna that reside in them, represent our natural and cultural heritage, and inspire hope for our future. The coast and ocean delight residents and visitors, supports our livelihoods, and enriches us through a marine economy of over \$44 billion annually.<sup>1</sup>

Yet, climate change and other stressors increasingly threaten the continued health of these coastal and marine systems. The 2019 "Special Report on the Ocean and Cryosphere in a Changing Climate," approved by the 195 Intergovernmental Panel on Climate Change (IPCC) member governments, found that climate change is already "resulting in profound consequences for ecosystems and people." The IPCC report stated that the ocean is "warmer, more acidic and less productive," with effects already being seen in the distribution and abundance of marine life, including reduction in the global fish catch potential.<sup>2</sup>

Here in California, the combination of warmer water temperatures, disease, invasive species, and the collapse of sea star populations statewide has placed California's North Coast kelp forest ecosystems in a state of emergency, with South Coast kelp struggling severely as well. Ocean acidification and oxygen loss in the California Current upwelling system is further impacting biomass production and species composition.<sup>3</sup> And climate change overall exacerbates the effects of numerous other stressors on species populations, such as pollution and habitat destruction.<sup>4</sup>

The IPCC oceans report adds that sea-level rise will escalate and increase the frequency of extreme events such as storm surges, with significant impacts on coastal communities. Events that used to occur just once per century in the past will be occurring "every year by mid-century in many regions." Here in California, the infrastructure that is so critical to the state's \$44 billion annual coastal economy—including roads, rail lines, sewage treatment plants, ports, and power plants—is becoming more vulnerable to increased climate-related flooding.

California's iconic beaches, coastal wetlands, and productive rocky intertidal habitats are also threatened. The state has already lost approximately 90% of its coastal wetlands due primarily to habitat destruction. Coastal wetlands which provide critical habitats for numerous endangered and threatened species, nurseries for marine life, flood protection, water quality improvement, and carbon sequestration, are now also threatened by sea-level rise.

Reducing stressors such as pollution will help marine life better cope with changes in their environment. Our continued reliance on single use plastics, for example, has severely degraded most of our coastal watersheds, beaches, and bays. Adoption of strengthened fisheries management and marine protected area (MPA) policies will further minimize risks to marine and coastal systems, thereby benefitting all of us who depend on them.

California can strengthen its ability to adapt by understanding the causes of climate-related changes and their resulting impacts, considering other stressors, evaluating options that are available, and acting swiftly on high-priority options. Nature-based strategies to protect coastal and bay shoreline communities, ecosystems, and species are being developed now, and should be accelerated in the near term to ensure coastal safety, protect human health, and safeguard natural marine systems and coastal watersheds.



## OPC Advances California's Leadership on Coast and Ocean Policy and Action

California is a global leader in innovative, effective ocean and coastal protection, home to numerous state and local agencies and legislative bodies working together with stakeholders and the public toward a shared goal of healthy coastal and marine systems. OPC works to advance this leadership through a governance model that reflects the integrated nature of the ecosystems being stewarded. Created by the California Ocean Protection Act of 2004 (COPA), OPC arose out of new, national initiatives to advance marine ecosystem-based management.<sup>5</sup> COPA granted OPC a unique role in coordinating and integrating disparate but related government authorities and initiatives toward a comprehensive, aligned approach for protecting and conserving natural systems. As a Cabinet-level state policy body nested within the California Natural Resources Agency, OPC advances the Governor's priorities for coastal and ocean policy and works broadly to advance healthy coastal and ocean ecosystems for current and future generations. The seven-member Council is chaired by the Secretary for Natural Resources and includes the Secretary for Environmental Protection, the Chair of the State Lands Commission, two public members, and two members of the Legislature—one from the Senate and one from the Assembly (ex-officio members). OPC is led by an Executive Director who also serves as the Deputy Secretary for Oceans and Coastal Policy for the California Natural Resources Agency.

### OPC's Mission

Our mission is to protect California's coast and ocean by advancing innovative, science-based policy and management, making strategic investments, and catalyzing action through partnerships and collaboration. These efforts yield significant benefits to the state while providing a global model for ecosystem-based protection and conservation.





## Vision and Goals for the Next Five Years

The health of California's people and ecosystems is tied closely to that of our coast and oceans. OPC is charged with safeguarding coastal and ocean ecosystems for the benefit of all Californians, pursuant to a Vision of healthy, resilient, and productive coastal and ocean ecosystems in California, for the benefit of current and future generations.

OPC protects California's coastal and ocean resources by providing best-available science to decision-makers, developing science-based policy recommendations, deploying resources effectively and strategically, and by collaborating across jurisdictional, programmatic, and regional boundaries. In this vein, OPC, OPC's Science Advisory Team, California Ocean Science Trust (OST), and California's two Sea Grant Programs are collaborating with California's academic and research institutions in 2020 to understand current scientific research efforts and results that will enhance the state's coast and ocean management and conservation efforts. Also, OPC will become a communications hub on the latest state agency coastal management and scientific efforts and California's progress towards meeting Strategic Plan goals, objectives, and targets, so that the public and decision makers will have easier access to California's extensive coast and ocean information.

### Across all its work, OPC is guided by four Key Principles:


**Leadership.** OPC will identify top coastal and ocean priorities for state action and will act as a global model for strategies that ensure a healthy, accessible coast and ocean that supports thriving communities.

**Interdisciplinary action.** OPC will work with other agencies, tribes, and stakeholders across issue areas, pulling collaborators together toward cross-cutting solutions in recognition of the deep connections across land and sea, and between people and natural systems.

*Appendix 3 describes in more detail OPC's core functions of ecosystem-based governance, science, partnerships, policy, funding, and communications.*

Consistent with these values and OPC's mandate under COPA, and in the face of known challenges to our coast and ocean, this Strategic Plan highlights California's ocean and coastal priorities for statewide action. Four Goals—addressing Climate Change, Equity, Biodiversity, and a Blue Economy—guide OPC's efforts over the next five years to collaboratively catalyze, coordinate, and align key statewide policies, plans, and targets:

- **Goal 1:** Safeguard Coastal and Marine Ecosystems and Communities in the Face of Climate Change
- **Goal 2:** Advance Equity Across Ocean and Coastal Policies and Actions
- **Goal 3:** Enhance Coastal and Marine Biodiversity
- **Goal 4:** Support Ocean Health through a Sustainable Blue Economy

 **Many targets are “cross-cutting” across multiple goals and are indicated by using the four associated colors.**

These four Goals reflect the broad importance of a healthy coast and ocean, and help guide California towards tangible, quantifiable change.

**Accountability.** OPC commits to monitoring the status of ocean and coastal health, assessing the results of agency actions, reporting back to the public and decisionmakers regularly, and adapting as needed.

**Inclusivity.** OPC will work to ensure ready public access to the coast and ocean, offer meaningful participation in state ocean policymaking processes, seek correction of environmental injustices, and advance a just transition to a blue economy that offers good jobs and advances ecosystem health.



This document is a five-year Strategic Plan to protect California's coast and ocean. Development of the goals, objectives, targets, and actions in this Strategic Plan was informed by OPC member comments, extensive public comments, existing state agency planning and technical documents, and numerous

discussions with state agency staff. The targets are necessarily ambitious to inspire action, confront the impacts of a changing climate and successfully adapt. The included actions are those that most effectively set a pathway in the next five years towards the longer-range targets.

## Partnerships

OPC alone does not have the capacity or resources to ensure full implementation of this bold strategic vision for California's coast and ocean. Collaborative partnerships with state agencies on the frontlines of regulatory, policy, and financial decision-making and action around the coast and coastal watersheds, are absolutely critical. With a shared commitment, we can collectively advance these priorities. Ultimately, the pace at which these priorities advance will depend on the feasibility and availability of resources, and competing priorities.

OPC collaborates with federal, state, and local government, universities, research institutions, non-profits, tribes, educators, ports, industry, and others to advance shared goals for the state's ocean, coast, bays, and coastal watersheds. State agency partners include:

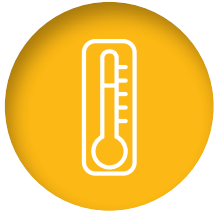
- California Air Resources Board (ARB)
- California Coastal Commission (CCC)
- California Energy Commission (CEC)
- California Department of Fish and Wildlife (CDFW)
- California Department of Food and Agriculture (CDFA)
- California Department of Parks and Recreation (State Parks)
- California Department of Transportation (Caltrans)
- California Fish and Game Commission (FGC)
- California Public Utilities Commission (CPUC)
- Delta Stewardship Council (DSC)
- Department of Conservation (DOC)
- Department of General Services (DGS)
- Department of Public Health (DPH)
- Department of Resources Recycling and Recovery (CalRecycle)
- Department of Toxic Substances Control (DTSC)
- Department of Water Resources (DWR)
- Governor's Office of Emergency Services (CalOES)
- Governor's Office of Planning and Research (OPR)
- Office of Environmental Health Hazard Assessment (OEHHA)
- San Francisco Bay Conservation and Development Commission (BCDC)
- State Coastal Conservancy (SCC)
- State Lands Commission (SLC)
- State Water Resources Control Board (SWRCB)
- Regional Water Quality Control Boards (RWQCBs)

Together, OPC and agency partners will work to achieve shared goals through specific targets and actions that ensure accountability and track progress. Without the leadership and expertise of these agencies and the Legislature— as well as action and support from all partners external to state government listed above—the state's audacious vision for its coast and ocean cannot be fully realized.

Ultimately, OPC envisions California communities enjoying thriving ecosystems, clean water, healthy food, secure infrastructure, and an inclusive, sustainable "blue economy" that supports ecosystem health, offers meaningful local work, and supports a system of environmental justice that enhances empowerment and reverses the human and environmental damage of past policies.







**CROSS-CUTTING:**  
Targets that  
cover more than  
one goal area.

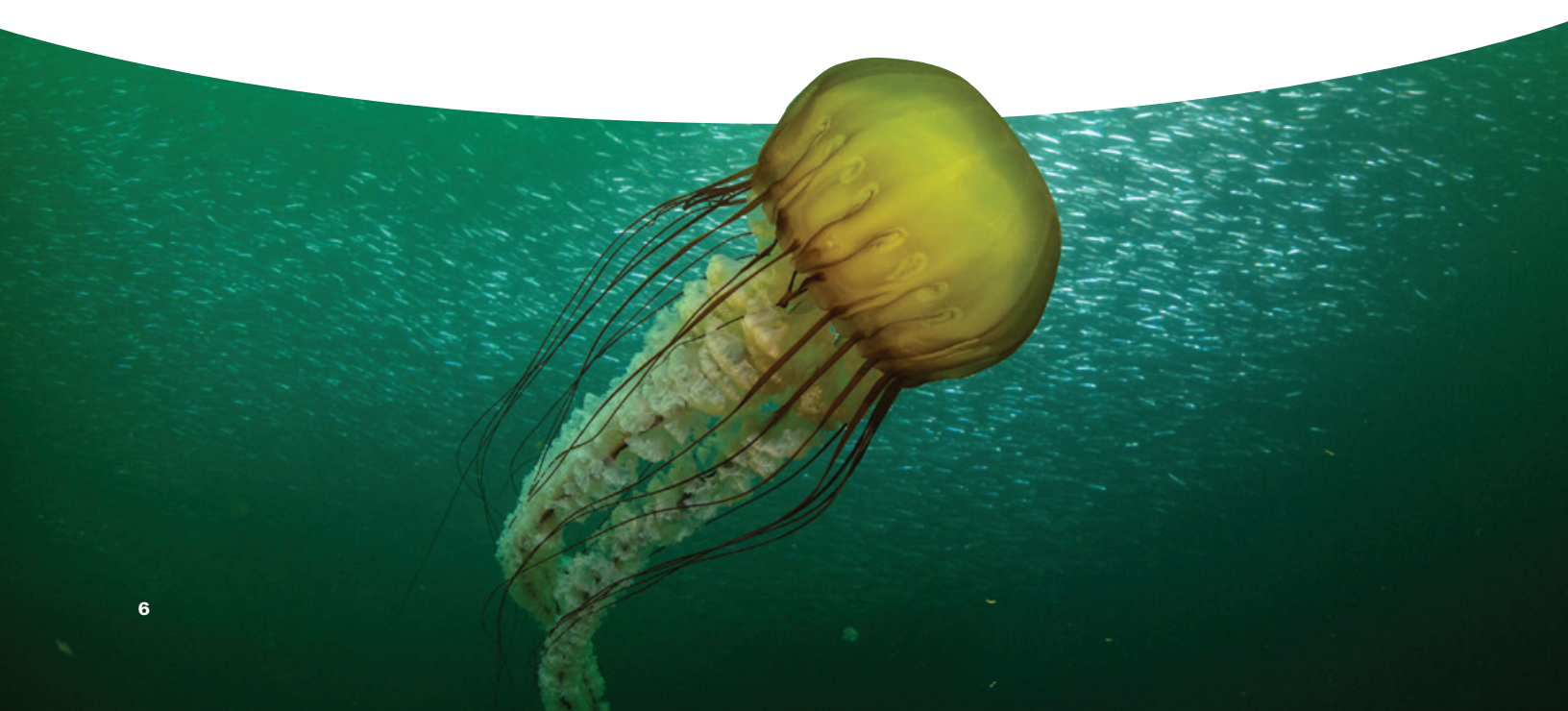


# GOAL 1: SAFEGUARD COASTAL AND MARINE ECOSYSTEMS AND COMMUNITIES IN THE FACE OF CLIMATE CHANGE

The world's oceans absorb roughly one-third of the total carbon dioxide emitted by human activities each year.<sup>6</sup> Simultaneously, they have absorbed over 90 percent of the warming caused by humans since the 1970s.<sup>7</sup> As a result, scientists have observed biological, chemical, and physical changes that include sea-level rise, coastal erosion, ocean acidification, warming seas, changing ocean currents, and shifting species distributions. Such impacts currently, and will continue to, threaten California's communities for decades to come.

Over the next five years, California will prioritize improved scientific understanding, increased resilience, raising of awareness, and integration

of changing coastal and ocean conditions into California's state government policies, planning, and operations. Collaborating closely with other state agencies and supporting active coordination, OPC will catalyze, facilitate, and align agency action toward objectives and specific targets that demonstrate activity milestones. A key component of this work will be investment in multi-benefit projects that provide nature-based climate resilience. For example, properly designed MPAs can simultaneously sequester and store carbon, protect wildlife, and enhance adjacent fisheries, achieving co-benefits across multiple sectors while contributing to climate goals.<sup>8</sup>





## Objective 1.1 | Build Resiliency to Sea-Level Rise, Coastal Storms, Erosion, and Flooding

### Target

**1.1.1:** Ensure California's coast is resilient to at least 3.5 feet of sea-level rise by 2050, as consistent with the State's Sea-Level Rise Guidance Document as appropriate for a given location or project.<sup>9</sup> This target will be modified periodically based on the best available science and updates to the State's Sea-Level Rise Guidance Document.

### Partners

OPR	Caltrans
CCC	SWRCB
BCDC	CalOES
SCC	DWR
SLC	DSC
State Parks	

### Actions

- In collaboration with agency partners, develop and adopt a California Resolution on Sea-Level Rise by 2021, outlining broad state commitments over the next ten years to completing coastal climate adaptation research, funding, policymaking, and pilot project implementation. (OPC Lead)
- Continue to lead the California Sea-Level Rise Leadership Team to ensure the state's agencies are aligned, and complementary in their regulation, planning and investments, and act consistent with the urgency of this issue (including developing recommended policies, resolutions, actions, and projects), the breadth of its impact, and the severity of anticipated harm. Participation will be expanded to additional agencies and partners, as needed. (OPC Lead)
- Fund and promote innovative and transferable nature-based infrastructure adaptation measures and projects of variable size and scale, including living shorelines, eelgrass and oyster beds, wetland and beach restoration, and other adaptation strategies such as managed retreat, where feasible.
- Develop and adopt a California Sea-Level Rise Hazard Action Plan by 2023, outlining specific mitigation and adaptation strategies for coastal communities threatened by severe sea-level rise, including the H++ scenario as defined in the State of California Sea-Level Rise Guidance Document.

### Target

**1.1.2:** In conjunction with ongoing efforts, develop a site-specific infrastructure resiliency plan focused on state roads, railroads, wastewater treatment plants, water supply facilities, ports, and power plants by 2023.

### Partners

OPR	Caltrans
CCC	SWRCB
BCDC	CalOES
SCC	DWR
SLC	DSC
State Parks	

### Actions

- By 2023, adopt an OPC Infrastructure Resiliency Resolution aligned with existing efforts that sets out a proactive approach to sea-level rise planning for state properties, facilities, and investments and other key infrastructure elements, and that prioritizes natural infrastructure solutions and regional coordination. (OPC Lead)
- By 2022, develop more protective baseline (greater than 3.5 feet of sea-level rise) 2050 and 2100 adaptation strategies and targets for vulnerable and critical infrastructure (state roads, railroads, wastewater treatment plants, water supply facilities, ports, power plants, etc.) (OPC Lead)
- By 2021, develop recommendations to the Legislature towards a dependable, adequate source of state funding for planning grants, technical assistance, and project implementation support for state and local governments and non-profits leading on sea-level rise response.





<b>Target</b> 1.1.3: Starting in 2020, provide scientific guidance to partner agencies on the potential impacts of sea-level rise on contaminated sites and how current models could be used to inform site-specific decision-making.	<b>Partners</b> OPR CCC BCDC SCC SLC DTSC Caltrans SWRCB Cal Recycle
<b>Target</b> 1.1.4: Identify pilot projects across the state that represent a diversity of locations, with variable size and scale, and demonstrate the efficacy of various sea-level rise and extreme event adaptation strategies by 2021 and begin project implementation immediately thereafter, consistent with existing laws and policies.	<b>Partners</b> OPR CCC BCDC SCC SLC State Parks Caltrans SWRCB
<b>Target</b> 1.1.5: Build on existing planning efforts to ensure adoption of a requirement that, at a minimum, all coastal counties will develop a coastal adaptation plan or element and integrate adaptation approaches into existing planning frameworks (e.g., General Plans, Local Coastal Programs, Local Hazard Mitigation Programs) by 2023. Develop templates and minimum standards for adaptation plans or elements by 2021.	<b>Partners</b> CCC OPR BCDC CalOES SCC

### Actions

- Through technical support, funding, and other methods, 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.
- Immediately facilitate enhanced coordination among state agencies and local jurisdictions and support efforts to align planning documents, including but not limited to General Plans, Local Coastal Programs, and Local Hazard Mitigation Plans, around coastal resilience goals.





<p><b>Target</b></p> <p><b>1.1.6:</b> Update the State of California's Sea-Level Rise Guidance in 2023 and every five years thereafter to incorporate best available science and projections, and continually improve integration of changing ocean conditions into California's state government policies, planning, and operations. (OPC Lead).</p>	<p><b>Partners</b></p> <p>CCC BCDC SCC DSC</p> <p>SLC State Parks</p>
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<p><b>Target</b></p> <p><b>1.1.7:</b> Work with partners to ensure an additional 10,000 acres of coastal wetlands<sup>10</sup> will be protected, restored or created by 2025, and increase the acreage of coastal wetlands in California, as defined by the coastal wetlands inventory described below, by 20% by 2030 and 50% by 2040.</p>	<p><b>Partners</b></p> <p>CCC BCDC SCC DSC</p> <p>CDFW</p>
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**Actions**

- With partners, develop a coastal wetland action plan that includes a complete baseline statewide coastal wetland inventory and outlines how to meet protection, restoration, and creation targets by 2022. (OPC Lead)
- Develop a standardized approach for optimizing coastal wetland climate resilience, carbon sequestration, flood control, and biodiversity benefits by 2022. (OPC Lead)
- Complete a statewide coastal wetland inventory by 2022. (OPC Lead)
- Develop innovative approaches to accelerate wetland and seagrass habitat creation and restoration including, but not limited to, developing and/or enhancing wetland and seagrass mitigation banking, blue carbon mitigation banking, cutting the green tape to accelerate habitat restoration and creation projects, green infrastructure projects, creative finance instruments, and other possible solutions.

**Objective 1.2 | Minimize Causes and Impacts of Ocean Acidification and Hypoxia**

<p><b>Target</b></p> <p><b>1.2.1:</b> Based on the latest scientific research, advance adoption of regulations, as needed, establishing water quality objectives for ocean acidification and hypoxia that include, but are not limited to, publicly owned treatment works, stormwater, and non-point source pollution, by 2025, with scientific analysis of the relationship between nutrient inputs and acidification hot spots completed by 2022.</p>	<p><b>Partners</b></p> <p>SWRCB RWQCBs ARB OST</p>
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**Actions**

- By 2022, 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.
- Fund research and monitoring to assess changes in chemical and biological ocean conditions caused by the absorption of airborne emissions, including carbon dioxide.



<b>Target</b> 1.2.2 Starting in 2020, with the water recycling industry and state and federal government, increase funding for water reuse projects coastwide.	<b>Partners</b> SWRCB RWQCBs
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 <b>Target</b> 1.2.3: By 2022, based on the latest scientific results, establish interim goals as needed for significantly reducing nutrient loading and/or phasing out coastal wastewater discharge into the ocean. Work with partners to achieve a goal of 80-90% coastal wastewater recycling that can be put to beneficial use by 2040.	<b>Partners</b> SWRCB RWQCBs
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 <b>Target</b> 1.2.4: Ensure implementation of California's Ocean Acidification Action Plan's Goals by 2023.	<b>Partners</b> CDFW FGC SWRCB RWQCBs CCC SCC BCDC OST
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**Actions**

- Work with partners and make targeted investments to support the development of an ocean acidification and hypoxia monitoring and observation system optimized to deliver decision-relevant information that serves user needs by 2023.
- Advance the science on ocean acidification and hypoxia vulnerability and identify risks to California's biological resources, communities, and economies, within the context of other ongoing environmental changes.

**Objective 1.3 | Improve Understanding of Climate Impacts on California's Coast and Ocean**

 <b>Target</b> 1.3.1: Identify and continue to fund and house needed climate-related data collection, research, and dissemination, with summary reports issued in 2022 and 2025.	<b>Partners</b> SWRCB CDFW SCC SLC FGC BCDC CCC OEHHA
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**Actions**

- Research and assess current and future impacts to California's ecosystems, species, communities, cultural resources, and economies due to climate change and changing ocean conditions, including support for California's Sea-Level Guidance updates.
- Invest in long-term climate monitoring, modeling, and mapping of data, at both the statewide and regional scales, to better reduce or mitigate climate change impacts.



- Fund research to better quantify the evolving role of aquatic vegetation (including submerged aquatic vegetation) in mitigating ocean acidification and storing carbon.
- Map current inventory of and projected future habitat space for seagrass meadows and kelp forests along the California coast; identify data gaps, assess damages, and set targets for restoration as needed.
- Maintain and expand sediment research activities to better understand how climate change will impact or alter sediment pathways and budgets across watersheds.

## Objective 1.4 | Understand the Role of California's Marine Protected Areas in Conferring Climate Resilience

### Target

**1.4.1:** Release a scientific report summarizing current knowledge regarding the ability of California's marine protected areas (MPAs) to provide ecosystem resilience to climate change impacts by 2020 and update with state-funded research by 2023.

### Partners

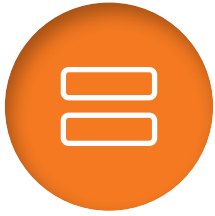
CDFW  
FGC  
OST

### Actions

- Fund identified data gaps to better understand the role of California's MPAs in providing climate change resilience by 2021.







**CROSS-CUTTING:**  
Targets that  
cover more than  
one goal area.



## GOAL 2: ADVANCE EQUITY ACROSS OCEAN AND COASTAL POLICIES AND ACTIONS

The California Constitution, the Coastal Act, and the McActeer-Petris Act guarantee the public's right to access the coast and bay shoreline. However, ongoing direct and indirect barriers to access, combined with rising sea levels and impacts to biodiversity and ecosystem health, continue to prevent the public from enjoyment of this world-renowned expanse of ocean, beach, forests, and wetlands.

Equitable coastal and ocean access also includes access to decision-making around management of our shared coast and ocean. Tribal communities have been exemplary stewards of California's coastal resources for thousands of years and the state has much to learn from their experience and traditional knowledge. California is committed to actively engaging with Tribes, underserved<sup>11</sup> and frontline communities to ensure that our

work benefits all Californians. The state prioritizes accessibility and inclusiveness in engagement, including through policy and funding opportunities for disproportionately impacted or historically disenfranchised communities.

Finally, equity spans both human and ecological systems. California recognizes the intrinsic value of coastal and ocean ecosystems and species, rather than inequitably characterizing them as simply "resources" for human use. This Plan seeks to reflect in policy the interconnected, two-way relationship of humans and nature already realized in equity and science. Through active collaboration and coordination with other state agencies, OPC seeks to advance systemic scientific research, policies, and restoration projects that reflect the interdependence of people and natural systems as a shared community.



## Objective 2.1 | Enhance Engagement with Tribes

### Target

**2.1.1:** Develop, refine, and begin updating and implementing strategies for effectively engaging and partnering with California's Tribes & Tribal Governments on ocean and coastal resource protection, access, policy, and management by 2021.

### Partners

OPR	Caltrans
CCC	CDFW
BCDC	FGC
SCC	State Parks
SLC	

### Actions

- By 2021, develop recommendations for increasing meaningful and equitable collaboration with California's tribal governments and tribal communities on coastal and ocean issues, including through development and adoption of an OPC Tribal Engagement Strategy that includes a trusted pathway for the consideration of Indigenous Traditional Knowledge/Traditional Ecological Knowledge in ocean and coastal management decisions. (OPC Lead)
- Support coastal and ocean access for tribes to enhance connections to their ancestral lands and waters.
- Support sea-level rise vulnerability assessments of tribal resources.
- Develop and fund implementation of a tribal MPA monitoring program based on priorities shared between the state and California's Tribes. (OPC Lead)
- By 2020, develop and implement a trusted pathway for the consideration of Indigenous Traditional Knowledge/Traditional Ecological Knowledge in ocean and coastal management decisions.
- Partner with coastal tribal communities to develop a resolution recommending state strategies to ensure sensitive or sacred coastal areas are protected from potentially deleterious access and use by the public. (OPC Lead)
- Provide grant technical assistance to tribes.

## Objective 2.2 | Enhance Engagement with Underserved Communities

### Target

**2.2.1:** By 2021, ensure adoption of a collaboratively developed OPC Equity Plan that includes, but is not limited to, equitable, convenient, and affordable access to coastal natural resources and access to and engagement in coastal and marine policymaking. (OPC Lead)

### Partners

OPR	State Parks
CCC	Caltrans
BCDC	SWRCB
SCC	CEC
SLC	



### Target

**2.2.2:** Develop, refine, begin, and expand implementation of strategies for effectively engaging and partnering with underserved communities on ocean and coastal resource protection, access, policy, and management by 2021.

### Partners

OPR	SLC
CCC	State Parks
BCDC	Caltrans
SCC	SWRCB

### Actions

- Identify and implement actions to assist frontline and underserved communities in addressing the impacts of climate change, including but not limited to sea-level rise, coastal flooding, and increased coastal temperatures.
- Translate and communicate information about climate change risks, vulnerabilities, and potential interventions to underserved communities to facilitate needed local action to improve adaptation and resiliency.
- Support projects that directly benefit underserved communities, including workforce training in funded projects.
- By 2020, develop a funding approach to ensure that underserved communities receive an equitable proportion of funding for habitat restoration and protection projects.
- Provide grant technical assistance to underserved communities.
- Starting in 2020, promote and invest in staff training in diversity, equity, and inclusion with a particular emphasis on environmental justice. (OPC Lead)

## Objective 2.3 | Improve Coastal Access

### Target

**2.3.1:** With leadership from the State Coastal Conservancy and the Coastal Commission, develop a "Coastal Access for All" Plan that ensures equitable public access to and along the ocean by 2025, and that includes specific, measurable targets for beaches, physical trails and access points, education, transportation, and recreational opportunities.

### Partners

CCC
BCDC
SCC
State Parks
SLC

### Actions

- Partner with relevant agencies on a coordinated approach to ensuring equitable public access to the coast, including adoption and implementation of low-cost or free transportation, reduced cost accommodations, and free recreational and educational programming.
- Support completion of the California Coastal Trail, through grants and technical assistance.



## Objective 2.4 | Enhance Healthy Human Use of the Coast and Ocean

### Target

**2.4.1:** Through the use of public education and management, eliminate unknowing consumption of locally caught contaminated seafood by 2025.

### Partners

SWRCB    DPH  
RWQCBs    OEHHA  
CDFW    DPH  
FGC

### Actions

- Coordinate with fishermen, agencies, and scientists to minimize the impacts of harmful algal blooms, consistent with Target 3.4.5, and ensure effective seafood testing and timely and effective public health notifications.

### Target

**2.4.2:** Ensure all California beaches receive straight A's on the Beach Report Card (fecal indicator bacteria densities) between April 1 – October 31 by 2025.

### Partners

SWRCB  
RWQCBs  
OEHHA

### Actions

- Partner with the State Water Resources Control Board on their efforts with the research community, Regional Water Boards, the Beach Water Quality Working Group, municipalities, and the NGO community to initiate and complete critical research, share and agree on effective beach management and public health notification approaches, and identify and abate sources of fecal indicator bacteria to beaches that do not make the grade.

## Objective 2.5 | Advance “Healthy Oceans” Policy and Science

### Target

**2.5.1:** Develop a shared state definition of “healthy oceans” grounded in ecosystem-based science intrinsic value of ecosystems and species by 2023. This will be utilized as part of the State of the Coast and Oceans Report Card completed in 2025 (see Target 3.6.1). (OPC Lead)

### Partners

SWRCB    SLC  
RWQCBs    CCC  
OEHHA    BCDC  
CDFW    OST  
SCC    OEHHA  
FGC





**CROSS-CUTTING:**  
Targets that  
cover more than  
one goal area.



## GOAL 3: ENHANCE COASTAL AND MARINE BIODIVERSITY

California's iconic coastal and marine ecosystems inspire a sense of wonder and provide food, cultural opportunities and recreation to tens of millions of Californians. Around the globe, and here in California, coast and ocean habitats are at risk of loss, and coastal and marine species are at risk of extinction. The best available science indicates that it is essential for the Convention on Biological Diversity to significantly increase and strengthen its target for global terrestrial and marine protection, and that nations and states work to halt and reverse species decline and revive ecosystem services. Through collaborative leadership, strategic investments, and policy development, OPC is committed to safeguarding our coastal and underwater ecosystems, habitats, and biodiversity.

California has been a world leader in protecting these invaluable ecosystems. For example, the state's unique and globally significant network of 124 MPAs have been designed to enhance biodiversity and fisheries sustainability, and now protect marine life and habitats in 16% of the state's marine waters. The state supports

coastal and marine habitat restoration, which helps preserve delicate ecological balances, increases climate resilience, and stewards sensitive fish nurseries.

California will continue to advance the sustainability of its marine fisheries and ensure biodiverse fish populations through science-based, collaborative management. Advancing the long-term sustainability of these fisheries offers co-benefits of protecting marine ecosystems, port communities, and coastal economies, particularly in the face of a changing climate.

Coastal and marine biodiversity also depends on clean water. Plastic pollution, harmful algal blooms, nutrient runoff, chemical pollutants, and marine invasive species harm ecosystems and species, and trigger significant health and economic costs for Californians, including costs related to litter cleanup, contaminated beaches, and fisheries closures. California recognizes the connection between our actions on land and the vitality of our ocean, and the state acts to support significant reduction of our trail of pollution that leads to the sea.



## Objective 3.1 | Protect and Restore Coastal and Marine Ecosystems

### Target

**3.1.1:** With partners, complete the ten-year assessment of MPA performance (required adaptive management review), including future monitoring and management recommendations by 2022, with implementation of those recommendations starting in 2023.

### Partners

<b>CDFW</b>	<b>CCC</b>
<b>FGC</b>	<b>SLC</b>
<b>SWRCB</b>	<b>OST</b>
<b>State Parks</b>	

### Actions

- Fund and manage statewide ecological and socioeconomic monitoring of the MPA network, in preparation for the ten-year MPA management review in 2022.
- Identify, fund, and otherwise support new, innovative, and advanced technologies and methods to support MPA monitoring leading up to and following the management review in 2022, such as environmental DNA.
- With partners, identify and fund cost-effective strategies to continue MPA monitoring beyond 2022.
- Develop and recommend effective, consistent, and precautionary policies for activities in MPAs not explicitly covered by existing regulations.
- Ensure long-term MPA monitoring and performance evaluations are placed in the context of changing ocean conditions.
- Allocate funds associated with mitigation of the impacts of once-through cooling technology to projects that increase marine life associated with MPAs.
- Support enforcement needs locally and statewide to ensure effective protection and maximize ecological benefits conferred by MPAs.

### Target

**3.1.2:** Add California's MPA network to the International Union for Conservation of Nature's Green List of Protected and Conserved Areas by 2020. If feasible, showcase this global recognition at the United Nations Convention on Biological Diversity Conference (COP 15) in late 2020.

### Partners

**CDFW**  
**FGC**

### Target

**3.1.3:** Develop an action plan for addressing rocky intertidal and beach habitat loss due to sea-level rise by 2023.

### Partners

<b>CDFW</b>	<b>BCDC</b>
<b>FGC</b>	<b>SCC</b>
<b>CCC</b>	<b>State Parks</b>

### Actions

- Identify the most endangered rocky intertidal habitats and beaches by completing a statewide mapping project/inventory of these habitats at 2-meter (or better) resolution by 2022. (OPC Lead)
- Develop a robust approach for predicting multi-scale climate-driven changes in rocky intertidal and beach ecosystems, including species range shifts, by 2023. (OPC Lead)
- Develop a Beach Resiliency Plan by 2022, in coordination with existing efforts. (OPC Lead)



### Target

**3.1.4:** Work with partners to preserve the existing, known 15,000 acres of seagrass beds and create an additional 1,000 acres by 2025.

### Partners

SCC  
CDFW

### Actions

- Support projects that protect existing and potential eelgrass habitats as identified in habitat suitability mapping, consistent with the National Marine Fisheries Service's California Eelgrass Mitigation Policy as key policy and technical guidance for protecting and restoring eelgrass.

### Target

**3.1.5:** Based on the California Natural Resources Agency (CNRA) and CalEPA's 2002 Report to the Legislature, "Addressing the Need to Protect California's Watersheds," develop a state watershed policy with updated principles by 2021. By 2022, routinely utilize the policy and principles in watershed and coastal management including planning, policy setting, resource allocation, and project development.

### Partners

SCC  
CDFW  
CCC  
BCDC  
State Parks  
Caltrans

SWRCB  
DWR  
DSC  
DOC

### Actions

- Prioritize funding of coastal habitat restoration projects, including those that support anadromous fish, and/or provide multi-benefits.
- Promote policies that facilitate and increase the scale of coastal habitat restoration and conservation, including ecosystems across the land-sea interface, such as estuaries, dunes, and coastal bluffs.
- Ensure habitat restoration projects account for sea-level rise projections and can adapt to sea-level rise through natural sediment accretion processes.
- Fund research and projects that address causes of health and habitat destruction, such as those affecting the Tijuana River, that have widespread impacts on public trust lands, resources, access, and beneficial uses.



## Target

**3.1.6:** Starting in 2020, increase opportunities for the beneficial reuse of sediment along the coast and in the San Francisco Bay and Estuary and work collaboratively with federal, state, and local agencies to encourage regional approaches to sediment management.

## Partners

OPR	State Parks
CCC	Caltrans
BCDC	SWRCB
SCC	DSC
SLC	

## Actions

- Create a permanent Beneficial Reuse Program to overcome obstacles to sediment beneficial reuse, including requirements to pursue the lowest cost disposal alternatives and to develop funding mechanisms for coastal habitat restoration projects (e.g., beaches, wetlands) that incorporate the environmentally beneficial reuse of sand and other sediment.
- Support the federal-state Coastal Sediment Management Workgroup efforts to implement the California Sediment Master Plan and regional approaches to coastal sediment management, including regional sediment coordination committees.
- Work with partners and the California Congressional Delegation on federal Water Resources Development Act reauthorizations to include language that promotes the beneficial reuse of sediment from U.S. Army Corps dredging projects and provides funding for coastal restoration projects.
- Develop potential amendments to CEQA guidelines to include consideration of impacts to coastal sand and sediment supply for all projects and activities within the coastal zone and coastal watersheds.
- Work with local, state, and federal agencies to develop guidelines to ensure that beach replenishment be considered and utilized as part of sediment removal efforts for debris basins and dams, as appropriate.

## Objective 3.2 | Restore and Protect Kelp Ecosystems

### Target

**3.2.1:** By 2020, develop and begin implementation of a statewide kelp forest research and restoration plan, which shall include potential restoration and management approaches and research and monitoring recommendations.

### Partners:

CDFW  
FGC

## Actions

- Fund research and monitoring to investigate critical knowledge gaps regarding kelp forest ecosystem protection and recovery.
- Support and coordinate research projects and volunteer restoration efforts, including local research, in a manner that expands kelp spatial distribution, enhances ecosystem health, and does so in a manner that increases statewide and regional utility of data sets and restoration effectiveness.
- Develop a cost-effective and robust strategy to map the current and evolving extent of kelp forests.
- Develop a state policy for kelp management with the California Department of Fish and Wildlife and California Fish and Game Commission.
- Fund science-based pilot projects to explore kelp forest ecosystem restoration and management approaches.



## Objective 3.3 | Support Sustainable Marine Fisheries and Thriving Fish and Wildlife Populations

### Target

**3.3.1:** Use long-term MPA monitoring data to assess the effects of protected areas on fisheries and integrate MPA data into fisheries management consistent with the Marine Life Management Act (MLMA) by 2024.

### Partners

CDFW  
FGC

### Target

**3.3.2:** Implement scaled management (e.g., Enhanced Status Reports, Fishery Management Plans) as described in the MLMA Master Plan for priority species by 2024.

### Partners

CDFW  
FGC

### Actions

- Fund scientific studies to inform fisheries and fish population management, including population dynamics, the effects of changing ocean conditions and impacts on forage and predator species, and socioeconomic considerations.
- Coordinate with state agencies and stakeholders to support implementation of the MLMA Master Plan for Fisheries.
- Fund science-based innovative tools and approaches to advance the MLMA Master Plan.
- Fund scientific research on the ecological and socioeconomic impacts of climate change on priority state-managed fisheries by 2023.

### Target

**3.3.3:** Develop rapid response capabilities to unanticipated biodiversity/fisheries emergencies (such as sea star wasting disease, abalone withering foot syndrome, harmful algal blooms, kelp forest collapse, and ocean deoxygenation) by 2023.

### Partners

CDFW  
FGC  
OEHHA

### Target

**3.3.4:** Develop adaptive management approaches to assess and effectively respond to climate-caused shifts in fish populations and fisheries by 2023.

### Partners

CDFW  
FGC

### Actions

- Support science-based experimental fishery efforts, in partnership with members of California's fishing communities and research entities, to identify innovative approaches to fishery management (e.g., box crab emerging fishery).

### Target

**3.3.5:** Develop a statewide whale and sea turtle protection plan by 2022 with a target of zero mortality (Vision Zero). As a component of this overall plan, develop and initiate a funding strategy to reduce the risk of entanglement in California fishing gear by 2020.

### Partners

**CDFW**  
**FGC**  
**ARB**

### Actions

- Collaborate with the California Dungeness Crab Fishing Gear Working Group to reduce the risk of whale entanglement in California fishing gear; fund priority projects recommended by the Working Group to address data gaps and enhance results. (OPC Lead)
- Provide funding for the state's drift gillnet transition program—consistent with SB 1017 (Allen, 2018)—and work towards the target of elimination of large mesh drift gillnets off the California coast by 2024. (OPC Lead)
- Support research and analysis of impacts of whale strikes from the shipping industry and other sources of whale and turtle mortality, including noise and marine debris from land-based sources. (OPC Lead)
- Support the testing of fishing gear innovations, such as “pop-up” fishing technologies, in 2021. (OPC Lead)
- With ARB, coastal air districts, ports, and the National Marine Sanctuary Program, develop a permanent, statewide, Vessel Speed Reduction Program that incentivizes the shipping industry to prevent whale strikes, reduce coastal air pollution, and minimize marine noise pollution.

## Objective 3.4 | Improve Coastal and Ocean Water Quality

### Target

**3.4.1:** Strengthen water quality protection in MPAs equivalent to at least that of Areas of Special Biological Significance or State Water Quality Protection Areas by 2023.

### Partners

**SWRCB**  
**CDFW**  
**FGC**







**Target**

**3.4.2:** Work to achieve zero trash entering state waters by 2030 consistent with the State Water Resources Control Board's final compliance deadline with the trash amendments.

**Partners:**

**SWRCB      DGS**  
**RWQCBs**  
**CalRecycle**

**Actions**

- Adopt an OPC Resolution to ban expanded polystyrene food serviceware and packaging by 2022; ban implemented by 2024.
- Reduce and require packaging materials and food serviceware sold in California to be reusable, recyclable, or compostable to prevent litter and reduce disposal.
- Work with DGS to change state purchasing and service contracts to require reusable food serviceware whenever feasible and reduce the state's reliance on single-use food serviceware by 2021.
- Catalyze innovation in products, business practices, and policies through competitive funding opportunities, emphasizing scalability and innovation, and targeting source reduction, microplastics, and abandoned fishing gear.<sup>12</sup>
- With the National Oceanic and Atmospheric Administration's Marine Debris Program, facilitate the implementation of the California Ocean Litter Strategy.

**Target**

**3.4.3:** Advance development of a baseline of plastic pollution monitoring data for coastal and marine waters and a standardized approach to track the state's progress in reducing plastic pollution by 2023.

**Partners**

**SWRCB**  
**RWQCBs**

<p><b>Target</b></p> <p><b>3.4.4:</b> Develop a statewide microplastics strategy by 2021 with implementation of the recommendations starting in 2022. (OPC Lead)</p>	<p><b>Partners</b></p> <p>SWRCB RWQCBs OEHHA</p>
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**Actions**

- Fund scientific research to assess microplastics risks, sources, and pathways and to develop standardized monitoring methods. (OPC Lead)
- Develop and adopt a California Resolution on Microplastics by 2021. (OPC Lead)
- Coordinate with agencies and stakeholders to implement solutions, consistent with this Resolution. (OPC Lead)



<p><b>Target</b></p> <p><b>3.4.5:</b> Support modernization of the harmful algal bloom notification network to provide real time data by 2022 and predictions by 2024.</p>	<p><b>Partners</b></p> <p>SWRCB      DPH RWQCBs      OEHHA CDFW</p>
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**Actions**

- Fund monitoring and research to increase understanding of the impacts of harmful algal blooms on estuarine, coastal, and marine ecosystem and improve the state's ability to prevent, predict and respond to events.
- Collaborate with California's Coastal Ocean Observing Systems to communicate harmful algal bloom conditions to the public in real time.

<p><b>Target</b></p> <p><b>3.4.6:</b> Develop a California-specific early detection and response system for marine organism diseases by 2023.</p>	<p><b>Partners</b></p> <p>SWRCB      CDFW RWQCBs      FGC</p>
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<p><b>Target</b></p> <p><b>3.4.7:</b> Improve and clarify the state's Desalination Policy by 2021 to address both ocean and coastal groundwater desalination.</p>	<p><b>Partners</b></p> <p>SWRCB RWQCBs</p>
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<p><b>Target</b></p> <p><b>3.4.8:</b> By 2022, evaluate the impacts of potentially harmful chemicals in sunscreens, such as oxybenzone and octinoxate, on sensitive coastal ecosystems in California, and recommend actions as needed to prevent such chemicals from entering the coastal and marine environment, including a potential recommended ban on such chemicals. (OPC Lead)</p>	<p><b>Partners</b></p> <p>SWRCB RWQCBs</p>
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<p><b>Target</b></p> <p><b>3.4.9:</b> By 2020, identify and subsequently reduce the ecological and human health risks posed by emerging contaminants that threaten coastal watershed, estuarine, and ocean water quality.</p>	<p><b>Partners</b></p> <p>SWRCB RWQCBs CDFW</p>
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**Actions**

- Fund scientific research to identify sources, pathways, composition, ambient concentrations, and potential human and ecological health impacts of emerging contaminants in marine, coastal, and estuarine waters.
- Advise the Governor and Legislature of regulatory gaps that should be addressed to minimize water quality and marine ecosystem impacts from emerging contaminants.

**Objective 3.5 | Control and Eradicate Marine Invasive Species**

<p><b>Target</b></p> <p><b>3.5.1:</b> By 2023, develop a statewide early detection and rapid response program to eradicate or control marine invasive and related inland species when first detected.</p>	<p><b>Partners</b></p> <p>SWRCB SLC CDFW</p>
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**Actions**

- Invest in research, mapping, prevention, and response strategies that minimize introduction, improve detection, increase effectiveness in combatting marine invasive species, and eradicate marine invasive species where possible (e.g., invasive Spartina in San Francisco Bay).

<p><b>Target</b></p> <p><b>3.5.2:</b> Ensure development of statewide Waste Discharge Requirements to allow in-water cleaning of large vessels to prevent the introduction of non-native species by 2025, consistent with protection of water quality and U.S. EPA regulations.</p>	<p><b>Partners</b></p> <p>SWRCB SLC</p>
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## Objective 3.6 | Accelerate Collaborative Accountability

### Target

**3.6.1:** Create an annual California State of the Coast and Ocean Report starting in 2021 (highlighting Strategic Plan implementation progress and critical issues) and a Report Card by 2025 (utilizing a scientific, indicator-based approach to grading the State of California's Coast and Ocean). (OPC Lead)

### Partners

OPR	State Parks
CCC	SWRCB
BCDC	RWQCBs
SCC	CDFW
Caltrans	FGC
CEC	
SLC	

### Target

**3.6.2:** Integrate oceans and coasts into the work of the California Biodiversity Initiative and California Biodiversity Council by 2021.

### Partners

CDFW  
CDFA

### Target

**3.6.3:** Starting in 2020, work with OPR and other state agencies to update and expand coast and ocean data into California's 5th Climate Assessment. (OPC Lead)

### Partners

OPR  
CNRA

### Target

**3.6.4:** By 2020, establish an implementation committee, co-chaired by the Secretaries for Natural Resources and Environmental Protection, to ensure California's coast and ocean vision (as described in this Strategic Plan) is implemented effectively and in a timely manner.

### Partners

SWRCB	DSC
RWQCBs	OEHHA
CDFW	Caltrans
SCC	CalOES
FGC	CDFA
SLC	DTSC
CCC	DPH
BCDC	CEC
State Parks	DWR
ARB	OPR
CPUC	







**CROSS-CUTTING:**  
Targets that  
cover more than  
one goal area.



## GOAL 4: SUPPORT OCEAN HEALTH THROUGH A SUSTAINABLE BLUE ECONOMY

Focused support for a sustainable “blue economy” can create powerful, long-term solutions to the escalating challenges faced by human and ecological communities. The ocean economy represents 2% of California’s GDP, spanning tourism, recreation, commercial and recreational fishing, shipping, and other industries, with aquaculture and offshore renewable energy becoming growing sectors.

For example, blue economy strategies can accelerate California’s policy to make the state carbon neutral by 2045 through development of

coastal and offshore wind systems, decommissioning of offshore oil and gas rigs, and decarbonization of ports and eventually shipping fleets, as recommended by international leaders.<sup>13</sup> Further, sustainable<sup>14</sup> marine aquaculture can support coastal livelihoods, provide a local, low-carbon food source for California communities, help buffer effects of ocean acidification, and improve local water quality. Through close agency collaboration and active support for agency coordination, California will advance a sustainable, inclusive blue economy that also supports a thriving ocean.



## Objective 4.1 | Advance Sustainable Seafood and Thriving Fishing Communities

### Target

**4.1.1:** By 2025, develop a statewide sustainable seafood program that includes traceability (local, domestic, and import), improvement of local markets, impacts on biodiversity (including habitat loss or damage), and reduction of bycatch, pollution, and infectious disease.

### Partners

CDFW      SWRCB  
FGC  
CDFA  
OEHHA

### Target

**4.1.2:** Implement pilot projects statewide to increase fishing communities' resiliency and adaptation to climate impacts by 2025.

### Partners

SCC      CCC  
CDFW    SLC  
FGC      State Parks

### Actions

- Assess and synthesize projected climate change impacts on working harbors and fisheries-dependent infrastructure statewide to support development of fishing community resiliency pilot projects.
- Develop a comprehensive strategy to support adaptation of fishing ports, harbors and communities to impacts from changing ocean conditions, including innovative financing.
- Fund projects to adapt shoreside fisheries infrastructure to climate change impacts. (OPC Lead)
- Fund resiliency pilot projects that minimize negative impacts on the marine environment and ecosystems, such as new gear types or technologies. (OPC Lead)
- 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.

## Objective 4.2 | Promote Sustainable Aquaculture

### Target

**4.2.1:** With the California Department of Fish and Wildlife and others, develop a statewide aquaculture action plan focused on marine algae and shellfish and land-based/recirculating tank operations of marine algae, shellfish, and finfish by 2023. The plan should identify areas of opportunity and avoidance to minimize impacts to habitat, biodiversity, and wild fisheries and should include minimum project criteria, including best practices for eliminating detrimental environmental impacts.

### Partners

CDFW  
FGC  
CCC  
SLC

### Actions

- Fund scientific studies to advance understanding of the impacts of, and opportunities for, aquaculture in state marine waters.
- Support the development and piloting of innovative tools and approaches to inform sustainable aquaculture management in California.





## Objective 4.3 | Evaluate Oil Platform Decommissioning

### Target

**4.3.1:** With partners, fully or partially remove and decommission at least one offshore oil platform by 2030.

### Partners

CDFW	SLC
FGC	CEC
SWRCB	CCC
RWQCBs	

### Actions

- Develop and fund studies and projects that investigate the effect of decommissioning and reuse of oil and gas platforms on the marine environment.
- Coordinate with State Lands Commission to identify lessons learned and recommendations from ongoing decommissioning efforts related to Platform Holly and Lease 421 facilities.

## Objective 4.4 | Guide Sustainable Renewable Energy Projects

### Target

**4.4.1:** Work towards development of a commercial scale offshore wind project in California that minimizes impacts on marine biodiversity or habitat, currents and upwelling, fishing, cultural resources, navigation, aesthetic/visual, and military operations by 2026.

### Partners

CDFW	CEC
FGC	SLC
SWRCB	CCC
RWQCBs	CPUC

### Actions

- With partners, develop a statewide policy to establish criteria by 2024 that will ensure responsible evaluation and potential implementation of offshore wind projects, consistent with state law.
- By 2020, fund research and baseline data collection to assess the environmental and socioeconomic impacts of potential offshore wind projects. (OPC Lead)

## Objective 4.5 | Decarbonize Ports and Shipping

### Target

**4.5.1:** Work to identify air pollution sources that contribute to greenhouse gas hot spots in and around ports by 2021, and by 2023 develop strategies and timeline for California's ports to be decarbonized.

### Partners

ARB                      CEC  
SLC                      CPUC

## Objective 4.6 | Enhance California's Sustainable Coastal Tourism Economy

### Target

**4.6.1:** By 2022, complete an assessment of California's sustainable coastal tourism industry and provide recommendations on how to grow and enhance the industry consistent with coastal and marine conservation law and policy.

### Partners

CCC  
SCC  
BCDC

# CONCLUSION

California's coastline and marine resources are second to none. And state agency leadership and stewardship — driven by implementation of groundbreaking laws — serves as a global model for ocean conservation. However, despite California's tremendous efforts to protect our coast and ocean, the threats of climate change, pollution and habitat loss are growing and have already put our precious coastal resources at risk.

This Strategic Plan for California's coast and ocean is bold because it must be. Climate change impacts are contributing to devastating ecosystem collapse, as seen in North Coast kelp forests, and the specter of the impacts of sea-level rise and ocean acidification on our beaches, bays, subtidal marine ecosystems, tidepools, and wetlands is daunting. The need for immediate strategic action to stem these threats, build in coastal resiliency, and provide access and equity to the coast and ocean for all Californians has never been greater. Implementation of this Strategic Plan will drive California toward achieving the vision of a healthy, resilient, productive coast and ocean, providing benefits to current and future generations.









# APPENDIX 1: PROPOSED DATES FOR TARGETS AND ACTIONS

## 2020

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**1.2.2** Starting in 2020, with the water recycling industry and state and federal government, increase funding for water reuse projects coastwide.

**1.4.1** Release a scientific report summarizing current knowledge regarding the ability of California's marine protected areas (MPAs) to provide ecosystem resilience to climate change impacts by 2020 and update with state-funded research by 2023.

**2.1.1 (Action)** By 2020, develop and implement a trusted pathway for the consideration of Indigenous Traditional Knowledge/Traditional Ecological Knowledge in ocean and coastal management decisions.

**2.2.2 (Action)** By 2020, develop a funding approach to ensure that underserved communities receive an equitable proportion of funding for habitat restoration and protection projects.

**2.2.2. (Action)** Starting in 2020, promote and invest in staff training in diversity, equity, and inclusion with a particular emphasis on environmental justice. (OPC Lead).

**3.1.2** Add California's MPA network to the International Union for Conservation of Nature's Green List of Protected and Conserved Areas by 2020. If feasible, showcase this global recognition at the United Nations Convention on Biological Diversity Conference (COP 15) in late 2020.

**3.1.6** Starting in 2020, increase opportunities for the beneficial reuse of sediment along the coast and in the San Francisco Bay and Estuary and work collaboratively with federal, state, and local agencies to encourage regional approaches to sediment management.

**3.2.1** By 2020, develop and begin implementation of a statewide kelp forest research and restoration plan, which shall include potential restoration and management approaches and research and monitoring recommendations.

**3.3.5** Develop a statewide whale and sea turtle protection plan by 2022 with a target of zero mortality (Vision Zero). As a component of this overall plan, develop and initiate a funding strategy to reduce the risk of entanglement in California fishing gear by 2020.

**3.4.9** By 2020, identify and subsequently reduce the ecological and human health risks posed by emerging contaminants that threaten coastal watershed, estuarine, and ocean water quality.

**3.6.3** Starting in 2020, work with OPR and other state agencies to update and expand coast and ocean data into California's 5th Climate Assessment.

**3.6.4** By 2020, establish an implementation committee, co-chaired by the Secretaries for Natural Resources and Environmental Protection, to ensure California's coast and ocean vision (as described in this Strategic Plan) is implemented effectively and in a timely manner.

**4.4.1 (Action)** By 2020, fund research and baseline data collection to assess the environmental and socioeconomic impacts of potential offshore wind projects.

## 2021

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**1.1.1 (Action)** In collaboration with agency partners, develop and adopt a California Resolution on Sea-Level Rise by 2021, outlining broad state commitments over the next ten years to completing coastal climate adaptation research, funding, policymaking, and pilot project implementation.



## 2021 Continued

**1.1.2 (Action)** By 2021, develop recommendations to the Legislature towards a dependable, adequate source of state funding for planning grants, technical assistance, and project implementation support for state and local governments and non-profits leading on sea-level rise response.

**1.1.4** Identify pilot projects across the state that represent a diversity of locations, with variable size and scale, and demonstrate the efficacy of various sea-level rise and extreme event adaptation strategies by 2021 and begin project implementation immediately thereafter, consistent with existing laws and policies.

**1.1.5** Build on existing planning efforts to ensure adoption of a requirement that, at a minimum, all coastal counties will develop a coastal adaptation plan or element and integrate adaptation approaches into existing planning frameworks (e.g., General Plans, Local Coastal Programs, Local Hazard Mitigation Programs) by 2023. Develop templates and minimum standards for adaptation plans or elements by 2021.

**1.4.1 (Action)** Fund identified data gaps to better understand the role of California's MPAs in providing climate change resilience by 2021.

**2.1.1** Develop, refine, and begin updating and implementing strategies for effectively engaging and partnering with California's Tribes & Tribal Governments on ocean and coastal resource protection, access, policy, and management by 2021.

**2.1.1 (Action)** By 2021, develop recommendations for increasing meaningful and equitable collaboration with California's tribal governments and tribal communities on coastal and ocean issues, including through development and adoption of an OPC Tribal Engagement Strategy that includes a trusted pathway for the consideration of Indigenous Traditional Knowledge/Traditional Ecological Knowledge in ocean and coastal management decisions.

**2.2.1** By 2021, ensure adoption of a collaboratively developed OPC Equity Plan that includes, but is not limited to, equitable, convenient, and affordable access to coastal natural resources and access to and engagement in coastal and marine policymaking.

**2.2.2** Develop, refine, begin, and expand implementation of strategies for effectively engaging and partnering with underserved communities on ocean and coastal resource protection, access, policy, and management by 2021.

**3.1.5** Based on the California Natural Resources Agency (CNRA) and CalEPA's 2002 Report to the Legislature, "Addressing the Need to Protect California's Watersheds," develop a state watershed policy with updated principles by 2021. By 2022, routinely utilize the policy and principles in watershed and coastal management including planning, policy setting, resource allocation, and project development.

**3.3.5 (Action)** Support the testing of fishing gear innovations, such as "pop-up" fishing technologies, in 2021.

**3.4.2 (Action)** Work with DGS to change state purchasing and service contracts to require reusable food serviceware whenever feasible and reduce the state's reliance on single-use food serviceware by 2021.

**3.4.4** Develop a statewide microplastics strategy by 2021 with implementation of the recommendations starting in 2022.

**3.4.4 (Action)** Develop and adopt a California Resolution on Microplastics by 2021.

**3.4.7** Improve and clarify the state's Desalination Policy by 2021 to address both ocean and coastal groundwater desalination.

**3.6.1** Create an annual California State of the Coast and Ocean Report starting in 2021 (highlighting Strategic Plan implementation progress and critical issues) and a Report Card by 2025 (utilizing a scientific, indicator-based approach to grading the State of California's Coast and Ocean).

**3.6.2** Integrate oceans and coasts into the work of the California Biodiversity Initiative and California Biodiversity Council by 2021.

**4.5.1** Work to identify air pollution sources that contribute to greenhouse gas hot spots in and around ports by 2021, and by 2023 develop strategies and timeline for California's ports to be decarbonized.

## 2022

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**1.1.2 (Action)** By 2022, develop more protective baseline (greater than 3.5 feet of sea-level rise) 2050 and 2100 adaptation strategies and targets for vulnerable and critical infrastructure (state roads, railroads, wastewater treatment plants, water supply facilities, ports, power plants, etc.)

**1.1.3** Starting in 2020, provide scientific guidance to partner agencies on the potential impacts of sea-level rise on contaminated sites and how current models could be used to inform site-specific decision-making.

**1.1.7 (Action)** With partners, develop a coastal wetland action plan that includes a complete baseline statewide coastal wetland inventory and outlines how to meet protection, restoration, and creation targets by 2022.

**(Action)** Develop a standardized approach for optimizing coastal wetland climate resilience, carbon sequestration, flood control, and biodiversity benefits by 2022.

**(Action)** Complete a statewide coastal wetland inventory by 2022.

**1.2.1** Based on the latest scientific research, advance adoption of regulations, as needed, establishing water quality objectives for ocean acidification and hypoxia that include, but are not limited to, publicly owned treatment works, stormwater, and non-point source pollution, by 2025, with scientific analysis of the relationship between nutrient inputs and acidification hot spots completed by 2022.

**1.2.1 (Action)** By 2022, 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.

**1.2.3** By 2022, based on the latest scientific results, establish interim goals as needed for significantly reducing nutrient loading and/or phasing out coastal wastewater discharge into the ocean. Work with partners to achieve a goal of 80-90% coastal wastewater recycling that can be put to beneficial use by 2040.

**1.3.1** Identify and continue to fund and house needed climate-related data collection, research, and dissemination, with summary reports issued in 2022 and 2025.

**3.1.1** With partners, complete the ten-year assessment of MPA performance (required adaptive management review), including future monitoring and management recommendations by 2022, with implementation of those recommendations starting in 2023.

**3.1.1 (Action)** Fund and manage statewide ecological and socioeconomic monitoring of the MPA network, in preparation for the ten-year MPA management review in 2022.

**(Action)** Identify, fund, and otherwise support new, innovative, and advanced technologies and methods to support MPA monitoring leading up to and following the management review in 2022, such as environmental DNA.

**(Action)** With partners, identify and fund cost-effective strategies to continue MPA monitoring beyond 2022.

**3.1.3 (Action)** Identify the most endangered rocky intertidal habitats and beaches by completing a statewide mapping project/inventory of these habitats at 2-meter (or better) resolution by 2022.

**3.1.3 (Action)** Develop a Beach Resiliency Plan by 2022, in coordination with existing efforts.

**3.1.5** Based on the California Natural Resources Agency (CNRA) and CalEPA's 2002 Report to the Legislature, "Addressing the Need to Protect California's Watersheds," develop a state watershed policy with updated principles by 2021. By 2022, routinely utilize the policy and principles in watershed and coastal management including planning, policy setting, resource allocation, and project development.

**3.3.5** Develop a statewide whale and sea turtle protection plan by 2022 with a target of zero mortality (Vision Zero). As a component of this overall plan, develop and initiate a funding strategy to reduce the risk of entanglement in California fishing gear by 2020.

**3.4.2 (Action)** Adopt an OPC Resolution to ban expanded polystyrene food serviceware and packaging by 2022; ban implemented by 2024.

**3.4.4** Develop a statewide microplastics strategy by 2021 with implementation of the recommendations starting in 2022.



## 2022 Continued

- 3.4.5** Support modernization of the harmful algal bloom notification network to provide real time data by 2022 and predictions by 2024.
- 3.4.8** By 2022, evaluate the impacts of potentially harmful chemicals in sunscreens, such as oxybenzone and octinoxate, on sensitive coastal ecosystems in California, and recommend actions as needed to prevent such chemicals from entering the coastal and marine environment, including a potential recommended ban on such chemicals.
- 4.6.1** By 2022, complete an assessment of California's sustainable coastal tourism industry and provide recommendations on how to grow and enhance the industry consistent with coastal and marine conservation law and policy.

## 2023

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- 1.1.1 (Action)** Develop and adopt a California Sea-Level Rise Hazard Action Plan by 2023, outlining specific mitigation and adaptation strategies for coastal communities threatened by severe sea-level rise, including the H++ scenario as defined in the State of California Sea-Level Rise Guidance Document.
- 1.1.2** In conjunction with ongoing efforts, develop a site-specific infrastructure resiliency plan focused on state roads, railroads, wastewater treatment plants, water supply facilities, ports, and power plants by 2023.
- 1.1.2 (Action)** By 2023, adopt an OPC Infrastructure Resiliency Resolution aligned with existing efforts that sets out a proactive approach to sea-level rise planning for state properties, facilities, and investments and other key infrastructure elements, and that prioritizes natural infrastructure solutions and regional coordination.
- 1.1.5** Build on existing planning efforts to ensure adoption of a requirement that, at a minimum, all coastal counties will develop a coastal adaptation plan or element and integrate adaptation approaches into existing planning frameworks (e.g., General Plans, Local Coastal Programs, Local Hazard Mitigation Programs) by 2023. Develop templates and minimum standards for adaptation plans or elements by 2021.
- 1.1.6** Update the State of California's Sea-Level Rise Guidance in 2023 and every five years thereafter to incorporate best available science and projections, and continually improve integration of changing ocean conditions into California's state government policies, planning, and operations.
- 1.2.4** Ensure implementation of California's Ocean Acidification Action Plan's Goals by 2023.
- 1.2.4 (Action)** Work with partners and make targeted investments to support the development of an ocean acidification and hypoxia monitoring and observation system optimized to deliver decision-relevant information that serves user needs by 2023.
- 1.4.1** Release a scientific report summarizing current knowledge regarding the ability of California's marine protected areas (MPAs) to provide ecosystem resilience to climate change impacts by 2020 and update with state-funded research by 2023.
- 2.5.1** Develop a shared state definition of "healthy oceans" grounded in ecosystem-based science intrinsic value of ecosystems and species by 2023. This will be utilized as part of the State of the Coast and Oceans Report Card completed in 2025 (see Target 3.6.1).
- 3.1.1** With partners, complete the ten-year assessment of MPA performance (required adaptive management review), including future monitoring and management recommendations by 2022, with implementation of those recommendations starting in 2023.
- 3.1.3** Develop an action plan for addressing rocky intertidal and beach habitat loss due to sea-level rise by 2023.
- 3.1.3 (Action)** Develop a robust approach for predicting multi-scale climate-driven changes in rocky intertidal and beach ecosystems, including species range shifts, by 2023.
- 3.3.2 (Action)** Fund scientific research on the ecological and socioeconomic impacts of climate change on priority state-managed fisheries by 2023.
- 3.3.3** Develop rapid response capabilities to unanticipated biodiversity/fisheries emergencies (such as sea star wasting disease, abalone withering foot syndrome, harmful algal blooms, kelp forest collapse, and ocean deoxygenation) by 2023.

**3.3.4** Develop adaptive management approaches to assess and effectively respond to climate-caused shifts in fish populations and fisheries by 2023.

**3.4.1** Strengthen water quality protection in MPAs equivalent to at least that of Areas of Special Biological Significance or State Water Quality Protection Areas by 2023.

**3.4.3** Advance development of a baseline of plastic pollution monitoring data for coastal and marine waters and a standardized approach to track the state's progress in reducing plastic pollution by 2023.

**3.4.6** Develop a California-specific early detection and response system for marine organism diseases by 2023.

**3.5.1** By 2023, develop a statewide early detection and rapid response program to eradicate or control marine invasive and related inland species when first detected.

**4.2.1** With the California Department of Fish and Wildlife and others, develop a statewide aquaculture action plan focused on marine algae and shellfish and land-based/recirculating tank operations of marine algae, shellfish, and finfish by 2023. The plan should identify areas of opportunity and avoidance to minimize impacts to habitat, biodiversity and wild fisheries and should include minimum project criteria, including best practices for eliminating detrimental environmental impacts.

**4.5.1** Work to identify air pollution sources that contribute to greenhouse gas hot spots in and around ports by 2021, and by 2023 develop strategies and timeline for California's ports to be decarbonized.

## 2024

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**3.3.1** Use long-term MPA monitoring data to assess the effects of protected areas on fisheries and integrate MPA data into fisheries management consistent with the Marine Life Management Act (MLMA) by 2024.

**3.3.2** Implement scaled management (e.g., Enhanced Status Reports, Fishery Management Plans) as described in the MLMA Master Plan for priority species by 2024.

**3.3.5 (Action)** Provide funding for the state's drift gillnet transition program—consistent with SB 1017 (Allen, 2018)—and work towards the target of elimination of large mesh drift gillnets off the California coast by 2024.

**3.4.2 (Action)** Adopt an OPC Resolution to ban expanded polystyrene food serviceware and packaging by 2022; ban implemented by 2024.

**3.4.5** Support modernization of the harmful algal bloom notification network to provide real time data by 2022 and predictions by 2024.

**4.4.1 (Action)** With partners, develop a statewide policy to establish criteria by 2024 that will ensure responsible evaluation and potential implementation of offshore wind projects, consistent with state law.

## 2025

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**1.1.7** Work with partners to ensure an additional 10,000 acres of coastal wetlands will be protected, restored or created by 2025, and increase the acreage of coastal wetlands in California by 20% by 2030 and 50% by 2040.

**1.2.1** Based on the latest scientific research, advance adoption of regulations, as needed, establishing water quality objectives for ocean acidification and hypoxia that include, but are not limited to, publicly owned treatment works, stormwater, and non-point source pollution, by 2025, with scientific analysis of the relationship between nutrient inputs and acidification hot spots completed by 2022.

**1.3.1** Identify and continue to fund and house needed climate-related data collection, research, and dissemination, with summary reports issued in 2022 and 2025.

**2.3.1** With leadership from the State Coastal Conservancy and the Coastal Commission, develop a "Coastal Access for All" Plan that ensures equitable public access to and along the ocean by 2025, and that includes specific, measurable targets for beaches, physical trails and access points, education, transportation, and recreational opportunities.

**2.4.1** Through the use of public education and management, eliminate unknowing consumption of locally caught contaminated seafood by 2025.



## 2025 Continued

**2.4.2** Ensure all California beaches receive straight A's on the Beach Report Card (fecal indicator bacteria densities) between April 1 – October 31 by 2025.

**2.5.1** Develop a shared state definition of "healthy oceans" grounded in ecosystem-based science intrinsic value of ecosystems and species by 2023. This will be utilized as part of the State of the Coast and Oceans Report Card completed in 2025 (see Target 3.6.1).

**3.1.4** Work with partners to preserve the existing, known 15,000 acres of seagrass beds and create an additional 1,000 acres by 2025.

**3.5.2** Ensure development of statewide Waste Discharge Requirements to allow in-water cleaning of large vessels to prevent the introduction of non-native species by 2025, consistent with protection of water quality and U.S. EPA regulations.

**3.6.1** Create an annual California State of the Coast and Ocean Report starting in 2021 (highlighting Strategic Plan implementation progress and critical issues) and a Report Card by 2025 (utilizing a scientific, indicator-based approach to grading the State of California's Coast and Ocean).

**4.1.1** By 2025, develop a statewide sustainable seafood program that includes traceability (local, domestic, and import), improvement of local markets, impacts on biodiversity (including habitat loss or damage), and reduction of bycatch, pollution, and infectious disease.

**4.1.2** Implement pilot projects statewide to increase fishing communities' resiliency and adaptation to climate impacts by 2025.

## 2026

**4.4.1** Work towards development of a commercial scale offshore wind project in California that minimizes impacts on marine biodiversity or habitat, currents and upwelling, fishing, cultural resources, navigation, aesthetic/visual, and military operations by 2026.

## 2030

**1.1.7** Work with partners to ensure an additional 10,000 acres of coastal wetlands will be protected, restored or created by 2025, and increase the acreage of coastal wetlands in California by 20% by 2030 and 50% by 2040.

**3.4.2** Work to achieve zero trash entering state waters by 2030 consistent with the State Water Resources Control Board's final compliance deadline with the trash amendments.

**4.3.1** With partners, fully or partially remove and decommission at least one offshore oil platform by 2030.

## 2040

**1.1.7** Work with partners to ensure an additional 10,000 acres of coastal wetlands will be protected, restored or created by 2025, and increase the acreage of coastal wetlands in California by 20% by 2030 and 50% by 2040.

**1.2.3** By 2022, based on the latest scientific results, establish interim goals as needed for significantly reducing nutrient loading and/or phasing out coastal wastewater discharge into the ocean. Work with partners to achieve a goal of 80-90% coastal wastewater recycling that can be put to beneficial use by 2040.

## 2050

**1.1.1** Ensure California's coast is resilient to at least 3.5 feet of sea-level rise by 2050, as consistent with the State's Sea-Level Rise Guidance Document as appropriate for a given location or project. This target will be modified periodically based on the best available science and updates to the State's Sea-Level Rise Guidance Document.











# APPENDIX 2: GOALS, TARGETS, OBJECTIVES, AND PARTNERS

## Goal 1:

### SAFEGUARD COASTAL AND MARINE ECOSYSTEMS AND COMMUNITIES IN THE FACE OF CLIMATE CHANGE



## Objective 1.1

### Build Resiliency to Sea-Level Rise, Coastal Storms, Erosion and Flooding

#### Target 1.1.1

Ensure California's coast is resilient to at least 3.5 feet of sea-level rise by 2050, as consistent with the State's Sea-Level Rise Guidance Document as appropriate for a given location or project. This target will be modified periodically based on the best available science and updates to the State's Sea-Level Rise Guidance Document.

#### Partners

OPR	SLC	CalOES
CCC	State Parks	DWR
BCDC	Caltrans	DSC
SCC	SWRCB	

#### Target 1.1.2

In conjunction with ongoing efforts, develop a site-specific infrastructure resiliency plan focused on state roads, railroads, wastewater treatment plants, water supply facilities, ports, and power plants by 2023.

#### Partners

OPR	SLC	CalOES
CCC	State Parks	DWR
BCDC	Caltrans	DSC
SCC	SWRCB	

#### Target 1.1.3

Starting in 2020, provide scientific guidance to partner agencies on the potential impacts of sea-level rise on contaminated sites and how current models could be used to inform site-specific decision-making.

#### Partners

OPR	SCC	Caltrans
CCC	SLC	SWRCB
BCDC	DTSC	Cal Recycle

#### Target 1.1.4

Identify pilot projects across the state that represent a diversity of locations, with variable size and scale, and demonstrate the efficacy of various sea-level rise and extreme event adaptation strategies by 2021 and begin project implementation immediately thereafter, consistent with existing laws and policies.

#### Partners

OPR	SCC	Caltrans
CCC	SLC	SWRCB
BCDC	State Parks	

#### Target 1.1.5

Build on existing planning efforts to ensure adoption of a requirement that, at a minimum, all coastal counties will develop a coastal adaptation plan and integrate adaptation approaches into existing planning frameworks (e.g., General Plans, Local Coastal Programs, Local Hazard Mitigation Programs) by 2023. Develop templates and minimum standards for adaptation plans or elements by 2021.

#### Partners

CCC	SCC
OPR	
BCDC	
CalOES	

#### Target 1.1.6

Update the State of California's Sea-Level Rise Guidance in 2023 and every five years thereafter to incorporate best available science and projections, and continually improve integration of changing ocean conditions into California's state government policies, planning, and operations.

#### Partners

CCC	DSC
BCDC	SLC
SCC	State Parks



<p><b>Target 1.1.7</b></p> <p>Work with partners to ensure an additional 10,000 acres of coastal wetlands will be protected, restored or created by 2025, and increase the acreage of coastal wetlands in California by 20% by 2030 and 50% by 2040.</p>	<p><b>Partners</b></p> <p>CCC BCDC SCC</p> <p>CDFW DSC</p>
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**Objective 1.2**  
**Minimize Causes and Impacts of Ocean Acidification and Hypoxia**

<p><b>Target 1.2.1</b></p> <p>Based on the latest scientific research, advance adoption of regulations, as needed, establishing water quality objectives for ocean acidification and hypoxia that include, but are not limited to, publicly owned treatment works, stormwater, and non-point source pollution, by 2025, with scientific analysis of the relationship between nutrient inputs and acidification hot spots completed by 2022.</p>	<p><b>Partners</b></p> <p>SWRCB RWQCBs</p> <p>ARB OST</p>
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<p><b>Target 1.2.2</b></p> <p>Starting in 2020, with the water recycling industry, and state and federal government, increase funding for water reuse projects coastwide.</p>	<p><b>Partners</b></p> <p>SWRCB</p> <p>RWQCBs</p>
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<p><b>Target 1.2.3</b></p> <p>By 2022, based on the latest scientific results, establish interim goals as needed for significantly reducing nutrient loading and/or phasing out coastal wastewater discharge into the ocean. Work with partners to achieve a goal of 80-90% coastal wastewater recycling that can be put to beneficial use by 2040.</p>	<p><b>Partners</b></p> <p>SWRCB RWQCBs</p>
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<p><b>Target 1.2.4</b></p> <p>Ensure implementation of California's Ocean Acidification Action Plan's Goals by 2023.</p>	<p><b>Partners</b></p> <p>CDFW FGC SWRCB</p> <p>RWQCBs CCC SCC</p> <p>BCDC OST</p>
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**Objective 1.3**  
**Improve Understanding of Climate Impacts on California's Coast and Ocean**

<p><b>Target 1.3.1</b></p> <p>Identify and continue to fund needed climate-related research, with summary reports issued in 2022 and 2025.</p>	<p><b>Partners</b></p> <p>SWRCB CDFW SCC</p> <p>SLC FGC BCDC</p> <p>CCC OEHHA</p>
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**Objective 1.4**  
**Understand the Role of California's Marine Protected Areas in Conferring Climate Resilience**

<p><b>Target 1.4.1</b></p> <p>Release a scientific report summarizing current knowledge regarding the ability of California's Marine Protected Areas (MPAs) to provide ecosystem resilience to climate change impacts by 2020 and update with state-funded research by 2023.</p>	<p><b>Partners</b></p> <p>CDFW FGC OST</p>
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Goal 2:

**ADVANCE EQUITY ACROSS OCEAN AND COASTAL POLICIES AND ACTIONS**



Objective 2.1

**Enhance Engagement with Tribes**

Target 2.1.1

Develop, refine, and begin updating and implementing strategies for effectively engaging and partnering with California's Tribes & Tribal Governments on ocean and coastal resource protection, access, policy, and management by 2021.

**Partners**

OPR	SCC	CDFW
CCC	SLC	FGC
BCDC	Caltrans	State Parks

Objective 2.2

**Enhance Engagement with Underserved Communities**

Target 2.2.1

By 2021, ensure adoption of a collaboratively developed OPC Equity Plan that includes, but is not limited to, equitable, convenient, and affordable access to coastal natural resources and access to and engagement in coastal and marine policymaking.

**Partners**

OPR	SCC	Caltrans
CCC	SLC	SWRCB
BCDC	State Parks	CEC

Target 2.2.2

Develop, refine, begin, and expand implementation of strategies for effectively engaging and partnering with underserved communities on ocean and coastal resource protection, access, policy, and management by 2021.

**Partners**

OPR	SCC	Caltrans
CCC	SLC	SWRCB
BCDC	State Parks	

Objective 2.3

**Improve Coastal Access**

Target 2.3.1

With leadership from State Coastal Conservancy and the Coastal Commission, develop a "Coastal Access for All" Plan that ensures equitable public access to and along the ocean by 2025, and that includes specific, measurable targets for beaches, physical trails and access points, education, transportation, and recreational opportunities.

**Partners**

CCC	State Parks
BCDC	SLC
SCC	





**Objective 2.4**

**Enhance Healthy Human Use of the Coast and Ocean**

**Target 2.4.1**

Through the use of public education and management, eliminate unknowing consumption of locally caught contaminated seafood by 2025.

**Partners**

SWRCB	FGC	DPH
RWQCBs	DPH	
CDFW	OEHHA	

**Target 2.4.2**

Ensure all California beaches receive straight A's on the Beach Report Card (fecal indicator bacteria densities) between April 1 – October 31 by 2025.

**Partners**

SWRCB	OEHHA
RWQCBs	

**Objective 2.5**

**Advance “Healthy Oceans” Policy and Science**

**Target 2.5.1**

Develop a shared state definition of “healthy oceans” grounded in ecosystem-based science intrinsic value of ecosystems and species by 2023. This will be utilized as part of the State of the Coast and Oceans Report Card completed in 2025 (see Target 3.6.1).

**Partners**

SWRCB	SCC	BCDC
RWQCBs	FGC	OST
OEHHA	SLC	OEHHA
CDFW	CCC	



**Goal 3:**

**ENHANCE COASTAL AND MARINE BIODIVERSITY**



**Objective 3.1**

**Protect and Restore Coastal and Marine Ecosystems**

**Target 3.1.1**

With partners, complete ten-year assessment of MPA performance (required adaptive management review), including future monitoring and management recommendations by 2022, with implementation of those recommendations starting in 2023.

**Partners**

CDFW      State Parks      OST  
 FGC      CCC  
 SWRCB      SLC

**Target 3.1.2**

Add California's MPA network to the International Union for Conservation of Nature's Green List of Protected and Conserved Areas by 2020. If feasible, showcase this global recognition at the United Nations Convention on Biological Diversity Conference (COP 15) in late 2020.

**Partners**

CDFW  
 FGC

**Target 3.1.3**

Develop an action plan for addressing rocky intertidal and beach habitat loss due to SLR by 2023.

**Partners**

CDFW      CCC      SCC  
 FGC      BCDC      State Parks

**Target 3.1.4**

Work with partners to preserve the existing, known 15,000 acres of seagrass beds and create an additional 1,000 acres by 2025.

**Partners**

SCC  
 CDFW

**Target 3.1.5**

Based on the California Natural Resources Agency (CNRA) and CalEPA's 2002 Report to the Legislature, "Addressing the Need to Protect California's Watersheds," develop a state watershed policy with updated principles by 2021. By 2022, routinely utilize the policy and principles in watershed and coastal management including planning, policy setting, resource allocation, and project development.

**Partners**

SCC      State Parks      DWR  
 CDFW      Caltrans      DSC  
 CCC      SWRCB      DOC  
 BCDC

**Target 3.1.6**

Starting in 2020, increase opportunities for the beneficial reuse of sediment along the coast and in San Francisco Bay and Estuary and work collaboratively with federal, state, and local, agencies to encourage regional approaches to sediment management.

**Partners**

OPR      SCC      Caltrans  
 CCC      SLC      SWRCB  
 BCDC      State Parks      DSC

**Objective 3.2**

**Restore and Protect Kelp Ecosystems**

**Target 3.2.1**

By 2020, develop and begin implementation of a statewide kelp forest research and restoration plan, which shall include potential restoration and management approaches and research and monitoring recommendations.

**Partners**

CDFW  
 FGC



### Objective 3.3

#### Support Sustainable Marine Fisheries and Thriving Fish Populations

##### Target 3.3.1

Use long-term MPA monitoring data to assess the effects of protected areas on fisheries and integrate MPA data into fisheries management consistent with the Marine Life Management Act (MLMA) by 2024.

##### Partners

CDFW  
FGC

##### Target 3.3.2

Implement scaled management (e.g., Enhanced Status Reports, Fishery Management Plans) as described in the MLMA Master Plan for priority species by 2024.

##### Partners

CDFW  
FGC

##### Target 3.3.3

Develop rapid response capabilities to unanticipated biodiversity/fisheries emergencies (such as sea star wasting disease, abalone withering foot syndrome, harmful algal blooms, kelp forest collapse, and ocean deoxygenation) by 2023.

##### Partners

CDFW  
FGC  
OEHHA

##### Target 3.3.4

Develop adaptive management approaches to assess and effectively respond to climate-caused shifts in fish populations and fisheries by 2023.

##### Partners

CDFW  
FGC

##### Target 3.3.5

Develop a statewide whale and sea turtle protection plan by 2022 with a target of zero mortality (Vision Zero). As a component of this overall plan, develop and initiate a funding strategy to reduce the risk of entanglement in California fishing gear by 2020.

##### Partners

CDFW  
FGC  
ARB

### Objective 3.4

#### Improve Coastal and Ocean Water Quality

##### Target 3.4.1

Strengthen water quality protection in MPAs equivalent to at least that of Areas of Special Biological Significance or State Water Quality Protection Areas by 2023.

##### Partners

SWRCB  
CDFW  
FGC

##### Target 3.4.2

Work to achieve zero trash entering state waters by 2030 consistent with the State Water Resources Control Board's final compliance deadline with the trash amendments.

##### Partners

SWRCB  
RWQCBs  
Cal Recycle  
DGS

##### Target 3.4.3

Advance development of a baseline of plastic pollution monitoring data for coastal and marine waters and a standardized approach to track the state's progress in reducing plastic pollution by 2023.

##### Partners

SWRCB  
RWQCBs

<p><b>Target 3.4.4</b></p> <p>Develop a statewide microplastics strategy by 2021 with implementation of the recommendations starting in 2022.</p>	<p><b>Partners</b></p> <p>SWRCB RWQCBs</p> <p>OEHHA</p>
<p><b>Target 3.4.5</b></p> <p>Support modernization of the harmful algal bloom notification network to provide real time data by 2022 and predictions by 2024.</p>	<p><b>Partners</b></p> <p>SWRCB RWQCBs</p> <p>CDFW DPH</p> <p>OEHHA</p>
<p><b>Target 3.4.6</b></p> <p>Develop a California-specific early detection and response system for marine organism diseases by 2023.</p>	<p><b>Partners</b></p> <p>SWRCB RWQCBs</p> <p>CDFW FGC</p>
<p><b>Target 3.4.7</b></p> <p>Improve and clarify the state's Desalination Policy by 2021 to address both ocean and coastal groundwater desalination.</p>	<p><b>Partners</b></p> <p>SWRCB RWQCBs</p>
<p><b>Target 3.4.8</b></p> <p>By 2022, evaluate the impacts of potentially harmful chemicals in sunscreens, such as oxybenzone and octinoxate, on sensitive coastal ecosystems in California, and recommend actions as needed to prevent such chemicals from entering the coastal and marine environment, including a potential recommended ban on such chemicals.</p>	<p><b>Partners</b></p> <p>SWRCB RWQCBs</p>
<p><b>Target 3.4.9</b></p> <p>By 2020, identify and reduce the ecological and human health risks posed by emerging contaminants that threaten coastal watershed, estuarine and ocean water quality.</p>	<p><b>Partners</b></p> <p>SWRCB RWQCBs</p> <p>CDFW</p>
<p><b>Objective 3.5</b></p> <p><b>Control and Eradicate Marine Invasive Species</b></p>	
<p><b>Target 3.5.1</b></p> <p>By 2023, develop a recommendation to create a statewide early detection and rapid response program to eradicate or control marine and related inland invasive species when first detected.</p>	<p><b>Partners</b></p> <p>SWRCB SLC</p> <p>CDFW</p>
<p><b>Target 3.5.2</b></p> <p>Ensure development of statewide Waste Discharge Requirements to allow in-water cleaning of large vessels to prevent the introduction of non-native species by 2025, consistent with protection of water quality and U.S. EPA regulations.</p>	<p><b>Partners</b></p> <p>SWRCB SLC</p>



**Objective 3.6**

**Accelerate Collaborative Accountability**

**Target 3.6.1**

Create an annual California State of the Coast and Ocean Report starting in 2021 (highlighting Strategic Plan implementation progress and critical issues) and a Report Card by 2025 (utilizing a scientific, indicator-based approach to grading the State of California's Coast and Ocean).

**Partners**

OPR	CEC	CDFW
CCC	SLC	FGC
BCDC	State Parks	
SCC	SWRCB	
Caltrans	RWQCBs	

**Target 3.6.2**

Integrate oceans and coasts into the work of the California Biodiversity Initiative and California Biodiversity Council by 2021.

**Partners**

CDFW  
CDFA

**Target 3.6.3**

Starting in 2020, work with OPR, the California Natural Resources Agency and other state agencies to integrate coasts and oceans into California's 5th Climate Assessment.

**Partners**

OPR  
CNRA

**Target 3.6.4**

By 2020, establish an implementation committee, co-chaired by the Secretaries for Natural Resources and Environmental Protection, to ensure California's coast and ocean vision (as described in this Strategic Plan) is implemented effectively and in a timely manner.

**Partners**

SWRCB	BCDC	CaIOES
RWQCBs	State Parks	CDFA
CDFW	ARB	DTSC
SCC	CPUC	DPH
FGC	DSC	CEC
SLC	OEHHA	DWR
CCC	Caltrans	OPR



Goal 4:

**SUPPORT OCEAN HEALTH THROUGH A SUSTAINABLE BLUE ECONOMY**



Objective 4.1

**Advance Sustainable Seafood and Thriving Fishing Communities**

**Target 4.1.1**

By 2025, develop a statewide sustainable seafood program that includes traceability (local, domestic, and import), improvement of local markets, impacts on biodiversity (including habitat loss or damage), and reduction of bycatch, pollution, and infectious disease.

**Partners**

CDFW  
FGC  
CDFA  
OEHHA  
SWRCB

**Target 4.1.2**

Implement pilot projects statewide to increase fishing communities' resiliency and adaptation to climate impacts by 2025.

**Partners**

SCC  
CDFW  
FGC  
CCC  
SLC  
State Parks

Objective 4.2

**Promote Sustainable Aquaculture**

**Target 4.2.1**

With the California Department of Fish and Wildlife and others, develop a statewide aquaculture action plan focused on marine algae and shellfish and land-based/ recirculating tank operations of marine algae, shellfish, and finfish by 2023. The plan should identify areas of opportunity and avoidance to minimize impacts to habitat, biodiversity, and wild fisheries and should include minimum project criteria, including best practices for eliminating detrimental environmental impacts.

**Partners**

CDFW  
FGC  
CCC  
SLC

Objective 4.3

**Evaluate Oil Platform Decommissioning**

**Target 4.3.1**

With partners, fully or partially remove and decommission at least one offshore oil platform by 2030.

**Partners**

CDFW  
FGC  
SWRCB  
RWQCBs  
SLC  
CEC  
CCC

Objective 4.4

**Guide Sustainable Renewable Energy Projects**

**Target 4.4.1**

Work towards development of a commercial scale offshore wind project in California that minimizes impacts on marine biodiversity or habitat, currents and upwelling, fishing, cultural resources, navigation, aesthetic/visual, and military operations by 2026.

**Partners**

CDFW  
FGC  
SWRCB  
RWQCBs  
CEC  
SLC  
CCC  
CPUC



**Objective 4.5**

**Decarbonize Ports and Shipping**

**Target 4.5.1**

Work to identify air pollution sources that contribute to greenhouse gas hot spots in and around ports by 2021, and by 2023 develop strategies and timeline for California's ports to be decarbonized.

**Partners**

ARB                      CPUC  
SLC  
CEC

**Objective 4.6**

**Enhance California's Sustainable Coastal Tourism Economy**

**Target 4.6.1**

By 2022, complete an assessment of California's sustainable coastal tourism industry and provide recommendations on how to grow and enhance the industry consistent with coastal and marine conservation law and policy.

**Partners**

CCC  
SCC  
BCDC

# APPENDIX 3:

## OPC'S CORE FUNCTIONS

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As directed by the California Ocean Protection Act (COPA), OPC protects California's coastal and ocean resources by effectively and strategically providing best-available science to decision-makers, supporting targeted initiatives to protect and restore coastal and marine systems, collaboratively advance policy, and coordinating relevant agency activities across jurisdictional, programmatic, and regional boundaries. OPC uses each of the following diverse categories of tools to identify and implement solutions that improve ocean governance, increase stewardship, and advance scientific understanding necessary to protect and conserve coastal and marine resources and the communities that rely on them.

### Ecosystem-Based Governance

California currently faces environmental stressors in a highly siloed manner, often undertaking management approaches for one type of ecosystem, habitat, or geographic area without considering their interconnected nature. For example, our forests are part of watersheds that drain into streams and rivers, which then flow into our estuaries, bays, and coastal waters.

Through COPA, the state charged OPC with providing a unifying lens to preserve, protect, and manage California's unparalleled wildlands and natural resources, from land to sea. OPC accordingly provides guiding principles for ecosystem-based ocean and coastal management, in recognition of the fundamental interconnectedness of humans and natural systems. OPC advances these system-based governance responsibilities through leadership, integration, and coordination of relevant state laws, policies, and institutions.

#### Sample Actions:

- *Convene quarterly meeting of state agency heads with jurisdiction over ocean and coast to ensure coordination and prompt action on pressing issues.*

- *Ensure ecosystem and biodiversity conservation approaches provide multi-use benefits where feasible, including climate resilience, ecosystem health, carbon sequestration, and public health benefits. Optimize the economic benefits of various biodiversity conservation approaches, with a particular focus on green jobs and the blue economy.*

### Science

Science is critical to informed decision-making and is a foundational component of California's initiatives to protect and enhance the health of the coast and ocean. California houses many of the leading environmental researchers and institutions on the planet, with tools including remote sensing, conservation genomics, climate and ecological modeling, and others that, when utilized optimally, help California make more effective policy and management decisions.

Consistent with its charge under COPA, OPC ensures that the best available science is applied to adaptive conservation and management of the state's natural systems.

OPC works to integrate science 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. First, the OPC Science Advisory Team (OPC-SAT), a statutorily created, interdisciplinary team of distinguished scientists, supports OPC's science-based actions and decisions. 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.

Second, the California Ocean Science Trust (OST), a statutorily created, independent non-profit, serves as OPC's Science Advisor and administers the OPC-SAT on behalf of OPC. OST's collaborative team helps lead projects and initiatives that draw together diverse perspectives to synthesize, interpret, and share science towards sound policy, funding, and management efforts.

In addition to prioritizing increased understanding of coastal and ocean ecosystems, OPC recognizes the importance of ensuring data from state-funded research projects are available and readily accessible for use by scientists, decisionmakers, stakeholders, and the public.

**Sample Action:**

- *Complete scientific analysis of existing monitoring data to determine the ability of California's marine protected areas to provide ecosystem resilience in the face of climate change. Identify data gaps and fund additional research; recommend management actions to enhance the role of MPAs in improving ocean health and building resilience to climate-driven impacts.*

## Partnerships

In drafting COPA, the California Legislature identified a need for the state to coordinate governance and stewardship of the state's coastal and ocean systems, particularly given the corresponding—and oftentimes overlapping—mandates and jurisdictions of relevant state regulatory, planning, and conservation agencies. OPC plays a leading role in coordinating the policy direction and efforts of these state agencies to increase efficiency and effectiveness. Among other actions, OPC works to establish and maintain strong relationships with agency leadership and staff, convene needed interagency working groups, collaboratively identify

and address data gaps, share fiscal and human resources, and help establish a strategic and ecosystem-based vision for protecting California's coast and ocean.

In addition, OPC leverages state efforts with those of local, federal, and tribal governments; 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 professional, personal, and cultural expertise and are equally invested in protecting coastal and ocean health in California.

**Sample Action:**

- *Coordinate and align state agencies, in collaboration with local governments, to provide universal and equitable access to the coast, including consideration of ease and convenience of travelling to and within natural areas, and the quality, health benefits, and educational value of the experience.*

## Policy

OPC works closely with the Governor's office, the Legislature, and agency partners to craft and implement science-based policies, identify gaps in policy and law, and inform legislation at both the state and federal levels. Consistent with the state's leadership in integrated ocean governance, OPC seeks to align decision-making to protect ocean health by: developing guidance documents and actions plans, mobilizing and coordinating state policy action against threats facing our coast, collaborating with partner agencies to ensure policy decisions are consistent and grounded in the precautionary principle, and identifying and recommending needed changes in state policy and law to the Legislature and the Governor.

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. One example is the Ocean-Climate Action Agenda,<sup>15</sup> developed collaboratively by OPC and non-profit partners to increase ocean-related climate policy ambitions at California's 2018 Global Climate Action Summit.



**Sample Action:**

- *Research law and policy approaches in other states and countries related to climate resilience approaches to land, water, and ocean policy and management decision making, and make recommendations for changes in state and federal law and policy as appropriate.*

## Funding

OPC collaboratively manages various funding sources towards efficient support of 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. Funding sources include bond funds, General Fund monies, special funds, and Once-Through Cooling Interim Mitigation Funds.

**Sample Action:**

- *In collaboration with local governments, support pilot projects along the coast that demonstrate the efficacy of various climate adaptation strategies, including nature-based solutions as a preferred approach to building coastal resilience to climate change impacts.*

## Communication

Regularly updated, relevant data and data products build public and decisionmaker stewardship over our shared coast and ocean. OPC strives to be a leader in open, clear, responsive, communication with partners and stakeholders, and prioritizes inclusive public engagement in all initiatives.

**Sample Actions:**

- *Create a California State of the Coast and Ocean Report Card that will provide regular information and accountability to the public.*
- *Research and implement communications approaches and tools that help reach a wider audience and constituency, such as outreach in other languages.*





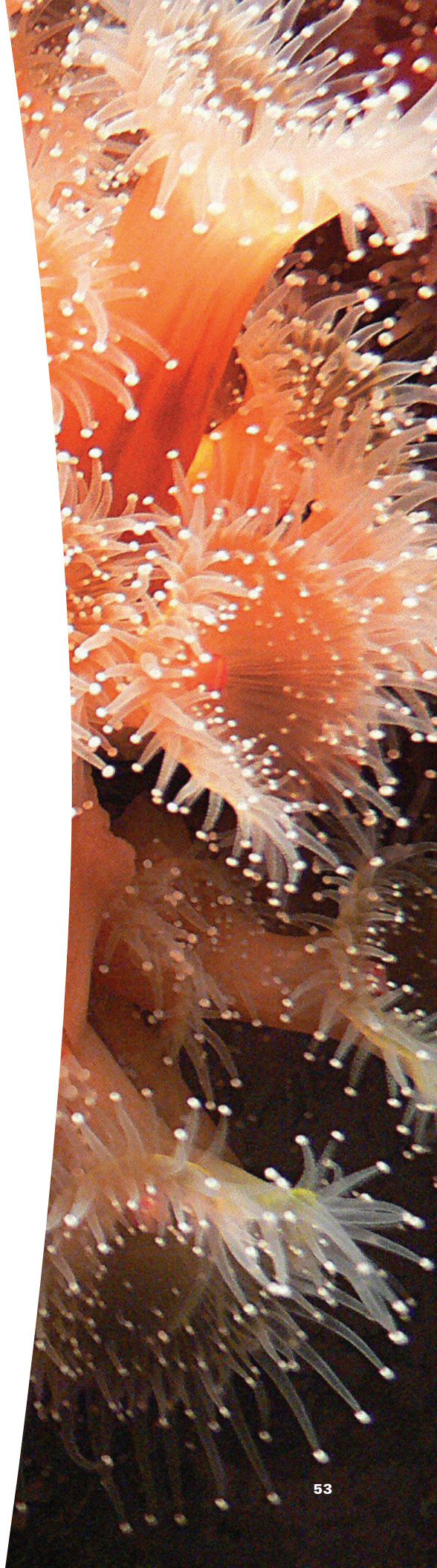




# ENDNOTES

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# Photo Credits



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Allison Kellum—Call to Action



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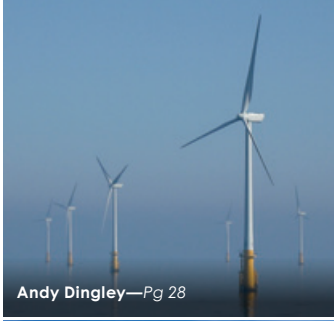
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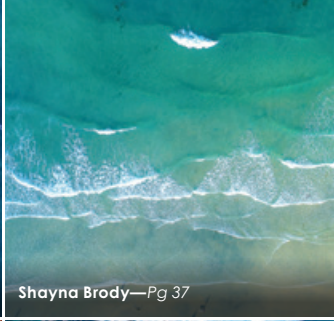
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