California's
Ocean-Climate Contribution

Advancing the global climate effort through subnational ocean-climate leadership

In 2015, nearly 200 countries came together to adopt the Paris Agreement. Parties to this historic accord committed to take steps both to limit warming to well under two degrees Celsius above pre-industrial levels and to increase resilience to the impacts of climate change. National climate goals are at the heart of the agreement and are critical to achieving its objectives. Every five years, countries submit their goals—called "Nationally Determined Contributions," or NDCs—which are to be increasingly ambitious over time. The agreement also encourages countries to submit and update "adaptation communications" that articulate their priorities, needs, and strategies for guarding against climate impacts. To support the Paris Agreement, California is sharing its "ocean-climate contribution" at COP24.

Mitigation

1	**Invest in Ocean Renewables**	
	a. Co-lead state/federal offshore renewable energy task force	collaboration
	b. Conduct feasibility analyses for offshore renewable energy	scientific research, strategic investments
2	**Reduce At-Sea Emissions**	
	a. Adopted ocean-going vessel at berth in CA port regulations (must plug into electric grid in port)	policy
	b. Enacted vessel speed reduction program in major ports (e.g., Los Angeles, Long Beach, Santa Barbara, and San Diego)	policy
	c. Adopted Ocean-Going Vessel Fuel Rule – reductions in black carbon emissions	policy
3	**Nature-based Mitigation Solutions: 'Blue Carbon'**	
	a. Established an ocean acidification/hypoxia reduction program that promotes seagrass and wetland restoration and protection to ameliorate the effects of ocean acidification	scientific research, strategic investments

As we approach 2020, countries will reassess their climate goals and determine what more can be done to achieve the objectives of the Paris Agreement. Although few countries to date have included meaningful ocean-based mitigation actions in their NDCs, a healthy ocean holds great potential to help us in the global fight against climate change. The conservation and restoration of coastal "blue carbon" ecosystems, for example, is an essential pillar of a strong mitigation strategy. Sea grasses, mangrove forests, and salt marshes are particularly effective at capturing and sequestering carbon dioxide. When they are degraded, however, they not only fail to act as carbon sinks but also become sources of greenhouse gas emissions. Unfortunately, these ecosystems are some of the most threatened on earth.

Countries must also act to adapt to the impacts of climate change that we are observing in the ocean and along our coasts. Greenhouse gas emissions are causing an increasingly warm, deoxygenated, and acidic ocean. Consequently, coral reefs are bleaching, marine ecosystems are in a state of flux, and fisheries are moving poleward. We are observing faster, more intense ice sheet melting, leading to faster and higher projections of sea level rise. We must prepare our coastal communities for these changes.

Adaptation

4	**Preparation for and Adaptation to Sea Level Rise**	
	a. Governor Brown's Executive Order B-30-15 directs state agencies to factor climate change into their planning and investment decisions	policy
	b. Law (SB 379) requires local governments to incorporate climate adaptation and resilience strategies into their General Plans	policy
	c. Statewide guidance document relies on best available scientific projections and incorporates adaptation pathways and strategies into decision-making processes (OPC Statewide Sea-Level Rise Guidance Document)	policy
	d. Agencies emphasize green infrastructure, restoration and rehabilitation of coastal habitats, and living shoreline projects (e.g., Marin Bay, Surfer's Point, Cardiff Beach, local coastal program grants, coastal sediment management)	scientific research, strategic investments
	e. Investments in visualization and modeling tools	scientific research, strategic investments
5	**Climate-Ready Fisheries**	
	a. California master plan for fisheries incorporates climate change into management decisions	policy
	b. Scientific study outlines steps needed to ready California fisheries for climate change (http://www.oceansciencetrust.org/wp-content/uploads/2016/06/Climate-and-Fisheries_GuidanceDoc.pdf)	scientific research, policy
	c. California Harmful Algal Bloom Monitoring and Alert Program (HABMAP) assists in managing fisheries in light of harmful algal blooms	scientific research, consumer protection
6	**Ecosystem protection and restoration**	
	a. California's science-based network of 124 marine protected areas (MPAs) was designed to protect ecologically connected places that can improve the ability of the ocean to adapt to the effects of climate change. Legislation creating the MPA network explicitly requires adaptive management, which could be applied to climate-related decision making	collaboration, governance, policy, scientific research, strategic investment
	b. At the international climate summit, California committed to protecting coastal habitat from up to five feet of sea level rise	policy
7	**Ocean Acidification/Hypoxia**	
	a. Investing in ocean acidification science associated with modeling, monitoring, water quality, aquatic vegetation, and more	scientific research, strategic investments
	b. As a founding member of the International Alliance to Combat Ocean Acidification, California adopted one of the first Ocean Acidification Action Plans in the world	collaboration, policy, scientific research, strategic investment
	c. Collaborating with western coastal states to create an ocean acidification/hypoxia monitoring network and public data platform	scientific research
	d. Established a science task force to advise the state on ocean acidification and hypoxia issues	collaboration, scientific research, strategic investment, policy

The scale of the climate crisis requires engagement from all sectors and levels of government. Subnational governments are playing an increasingly powerful role in climate action and diplomacy. The California-sponsored Global Climate Action Summit, for example, set a global precedent by including ocean-climate action among its main priorities, issuing an "Ocean-Climate Action Agenda," and calling on all members of society to pursue ocean-based solutions as vital steps toward realizing the Paris Agreement.

To continue to support the Ocean-Climate Action Agenda and the Paris Agreement, California is sharing its ocean-climate contribution. California has long been at the forefront of ocean-climate protection and has built a holistic strategy to address the unique challenges that climate change brings to its shores and offshore waters. California's ocean-climate contribution consists of ocean-based mitigation and adaptation actions.

We encourage other national and subnational leaders to create and communicate their own ocean-climate contributions. We believe such contributions will demonstrate the importance and feasibility of integrating ocean and climate action—and that they will inspire action around the world. Ocean-climate contributions could inform a country's adaptation communications and increase their mitigation ambition through enhanced NDCs and supplementary climate goals. They also could help governments identify gaps in their ocean-climate actions and prioritize future research, initiatives, and policies.

As with NDCs, ocean-climate contributions will vary according to the circumstances of each government. California's ocean-climate contribution highlights key goals and issues other governments could adopt while tailoring its initiatives to its specific challenges.

Integration of ocean-based actions can be a next major step forward in the international climate effort. With California's ocean-climate contribution, we hope to show the way toward more ambitious ocean and climate protection.

[1] United Nations Convention on Climate Change (UNFCCC), "Paris Agreement" (2015).
[2] UNFCCC, "Paris Agreement." This routine "ratcheting up" of mitigation and adaptation is the course of action needed to ultimately meet the goals of the Paris Agreement.
[3] D Herr and E Landis, "Coastal Blue Carbon Ecosystems: Opportunities for Nationally Determined Contributions" (IUCN and The Nature Conservancy, 2016).
[4] Ocean-Climate Action Agenda, developed for the Global Climate Action Summit, September 12-14, 2018.

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