

The California coast stretches nearly 1,100 miles, spanning the warm subtropical waters of southern California to cooler temperate waters in the north. The mix of ocean currents and climate regimes, coupled with episodic upwelling events throughout the year, make California waters one of the most productive marine ecosystems on earth. Thousands of species inhabit its nearshore environment, including those that historically or currently support important commercial and recreational fisheries, such as lobster, Dungeness crab, giant black sea bass, and abalone.

Habitat-forming species such as kelp, native oysters, and eelgrass are the foundation of this biodiverse system and provide a wide range of benefits to nature and people.



Kelp forests protect coastal communities by buffering wave energy, support recreational and commercial fisheries through habitat provisioning for socially and economically important species, serve a climate change mitigation function through carbon fixation and ocean acidification reduction, and supply the burgeoning seaweed industry with food and industrial products (Wernberg et al. 2019; Feehan et al. 2021).



Eelgrass meadows similarly augment the production of diverse and abundant species, including those recreationally and commercially fished, support thriving coastal ecosystems through sediment stabilization (Plummer et al. 2013; Sherman & DeBruyckere 2018), and are considered one of the most globally important blue carbon ecosystems, sequestering carbon faster than terrestrial forests (Prentice et al. 2020).



Beds of native oysters, namely Olympia oysters, although functionally missing from many tidal marshes and bays following historic overharvest, provide habitat and nursery areas for important fishes and invertebrates through the creation of its own structurally complex substrate, filter immense volumes of water, stabilize sediments, and are of cultural significance as it was once an important food source for Native Californians (Gray et al. 2019; Ridlon et al. 2021).

Yet, despite their essential role in supporting healthy nearshore oceans in California, each of these habitats has been devastated, declining by more than 90% from historical baselines, driven by a combination of factors from coastal development, pollution, and even overfishing, in the case of oysters. And now these threats are being exacerbated by the accelerating climate crisis. While restoration projects are moving forward, all too often these efforts are limited in scale, slow to permit, and insufficiently resourced. Unfortunately, on our current trajectory, we may experience the collapse of these iconic coastal habitats and the benefits they provide.

However, there is reason for optimism. New tools, new approaches, and recent scientific advances show that restoring ecosystem health is not only necessary, but it also is now possible. **Together, we can restore abundance, health, and resilience to California's coastal ocean ecosystem by radically increasing the pace and scale of successful marine and coastal restoration.** Assembly Bill 1407, authored by Assemblywoman Dawn Addis and Senator John Laird, is the next important step in advancing this essential work, setting science-driven targets and addressing existing barriers to success through a four-pronged approach, while positioning California as a global leader in Ecosystem Restoration. Specifically, AB 1407 will achieve the following objectives:

- ▶ **ESTABLISH AMBITIOUS, SCIENCE-DRIVEN RESTORATION TARGETS.** The state would establish acreage-based restoration goals for kelp forests, eelgrass, and native oyster beds by the year 2050. This would be accompanied by a framework and an inclusive stakeholder engagement process to monitor and track progress towards goals.
- ► FACILITATE INTER-AGENCY COORDINATION TOWARDS ALIGNED RESTORATION GOALS. A strategic and coordinated approach will be needed to achieve the 2050 restoration goals. The Ocean Protection Council (OPC) would oversee an inter-agency working group that coordinates and facilitates large-scale coastal restoration.
- ▶ **ESTABLISH AN OCEAN RECOVERY AND RESTORATION FUND.** Financial resources are essential to ensure long-term restoration objectives are realized. The OPC would oversee a fund to support the development and execution of large-scale marine resource restoration and enhancement projects intended to restore and enhance kelp forests, eelgrass meadows, and native oyster beds under the jurisdiction of the state.
- ▶ **DEFINE 'LARGE-SCALE RESTORATION'.** The state and key restoration and academic partners will have clear alignment on what is considered large-scale restoration.

WORKS CITED:

Feehan, C. J., Filbee-Dexter, K., & Wernberg, T. (2021). Embrace kelp forests in the coming decade. *Science*, *373*(6557), 863-863.

Gray, M., Ermgassen, P. Z., Gair, J., Langdon, C., Lemagie, E., & Lerczak, J. (2019). Spatially explicit estimates of in situ filtration by native oysters to augment ecosystem services during restoration. *Estuaries and Coasts, 42*, 792-805.

Plummer, M. L., Harvey, C. J., Anderson, L. E., Guerry, A. D., & Ruckelshaus, M. H. (2013). The role of eelgrass in marine community interactions and ecosystem services: results from ecosystem-scale food web models. *Ecosystems*, 16, 237-251.

Prentice, C., Poppe, K. L., Lutz, M., Murray, E., Stephens, T. A., Spooner, A., ... & Klinger, T. (2020). A synthesis of blue carbon stocks, sources, and accumulation rates in eelgrass (Zostera marina) meadows in the Northeast Pacific. *Global Biogeochemical Cycles*, 34(2), e2019GB006345.

Ridlon, A. D., Marks, A., Zabin, C. J., Zacherl, D., Allen, B., Crooks, J., ... & Wasson, K. (2021). Conservation of marine foundation species: learning from native oyster restoration from California to British Columbia. *Estuaries and Coasts,* 44(7), 1723-1743.

Sherman, K., & DeBruyckere, L. A. (2018). Eelgrass habitats on the US West Coast. State of the Knowledge of Eelgrass Ecosystem Services and Eelgrass Extent. A publication prepared by the Pacific Marine and Estuarine Fish Habitat Partnership for The Nature Conservancy.

Wernberg, T., Krumhansl, K., Filbee-Dexter, K., & Pedersen, M. F. (2019). Status and trends for the world's kelp forests. In *World seas: An environmental evaluation* (pp. 57-78). Academic Press.