

Implementing Climate-Smart Conservation

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Highlights

- ▶ California's commitment to protecting its endangered freshwater species spans decades, yet most protected species have not recovered. Now climate change is pushing many populations to the brink.
- ▶ The usual conservation tools cannot keep up with the pace of change; instead, the state needs to adopt a broad portfolio of climate-smart tools to conserve at-risk species.
- ▶ Laws such as the Endangered Species Act are not, for the most part, impediments to using climate-smart conservation tools. Rather, the problem lies with how society is applying these laws.
- ▶ California must address the issues hampering conservation: permitting complexity, competition for funding, inadequate staffing, and a culture of risk aversion within agencies, water users, and environmental organizations.

California needs a new approach to managing freshwater ecosystems

Though California remains committed to maintaining and restoring high-quality freshwater habitat and native biodiversity, its current management approach is failing. Decades of land and water uses changes have radically transformed California's freshwater ecosystems, and these modifications—exacerbated by a changing climate—have left nearly half of California's freshwater species vulnerable to extinction. Only 6 percent are protected under state or federal endangered species regulations. While the historical approach to implementing endangered species laws has limited extinctions, no protected freshwater species has recovered and been delisted in California, and many continue to decline.

Climate-smart conservation could help . . .

California needs to implement climate-smart conservation with a statewide directive to recognize and prioritize bold climate adaptation actions to protect native freshwater biodiversity. Planning should occur at the statewide and watershed levels, with the development of collaborative, watershed-scale plans.

These plans should consider future conditions, identify management priorities, and assign responsibilities and benchmarks for implementation. Priority conservation tools include traditional approaches to habitat restoration, newer tools for conserving biodiversity in a changing climate, and contingency actions to preserve data about species that may become extinct.

. . . however, a range of factors is impeding responses to climate change

These include complex permitting processes; resource constraints; litigation risk; and a culture of risk aversion within agencies, water users, and environmental organizations. As a result, most conservation efforts focus on familiar tools—attempting to maintain the status quo or restore historical conditions rather than promoting innovation, experimentation, and flexibility at the pace and scale needed. Actions necessary for effective adaptation are often deferred or delayed, especially if they are controversial or pose some risk.

Most new climate-smart tools are legal under federal and state law

In our analysis, the hesitation to use climate-smart conservation tools originates not with the endangered species laws, but with the way society is applying these laws. Climate-smart conservation is consistent with many statutes, including the state and federal Endangered Species Acts.

The federal Endangered Species Act's (ESA) central directive is to manage ecosystems in a way that helps populations recover, so that species no longer face extinction and can be removed from the protected lists. This recovery goal must be applied in a manner that is consistent with the ESA's guiding principle: using the best available science to conserve species.

Although the agencies consider climate change in evaluating species condition, that does not often translate into bold conservation actions designed to respond to ongoing change. In some cases, the roadblock lies in policy. For instance, both federal and state law authorize assisted species migration—a useful tool in our rapidly changing climate—but state policy discourages its use.

Critical reforms could enable bold actions

The law and policy framework for climate-smart conservation could be strengthened. Three sets of reforms can help (responsible parties in parentheses):

1. Strengthen the legal framework

- ▶ Develop species and habitat protection policies that respond to climate change; increase resources dedicated to climate adaptation. (State and federal agencies, state legislature)
- ▶ Assess and regulate emerging conservation tools, such as assisted migration and genetic support. (State and federal agencies, state legislature, Congress)
- ▶ Revisit hatchery policy. (California Department of Fish and Wildlife [CDFW], California Fish and Game Commission, NOAA fisheries, US Fish and Wildlife Service)

2. Support watershed planning and implement urgent actions

- ▶ Develop a statewide climate-smart conservation plan to guide local watershed planning for native freshwater species; conduct climate-smart conservation planning at the watershed scale. (CDFW, California Natural Resources Agency, Department of Water Resources, State Water Board)
- ▶ Incentivize the development of climate-smart conservation plans. (State legislature)
- ▶ Act now—before it's too late. (All stakeholders)

3. Build institutional capacity

- ▶ Continue to promote and expand permitting for actions to build climate resilience. (State and federal agencies)
- ▶ Allocate resources (funding, staffing, regulatory attention) with climate change in mind, setting and then acting on priorities. (State and federal agencies, legislatures)
- ▶ Take advantage of existing legal flexibility to improve ecosystems and address ongoing change, updating laws where necessary. (Regulatory agencies and stakeholders)
- ▶ Design governance that allows for nimble responses to ongoing change; reform institutional culture to promote innovation and risk-taking. (All)

Many species, given half a chance, show remarkable resilience. The threats facing California's aquatic ecosystems call for bold and immediate action to improve ecosystem function so they can support our natural heritage in a changing world. Climate-smart planning can change the trajectory for declining freshwater biodiversity—if leaders are willing to take risks and make change.

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