SWAP

California State Wildlife Action Plan

WATER COMPANION PLAN

SEPTEMBER 2025

Disclaimer:

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Acronyms and Abbreviations

AB	**Assembly Bill**
ACWA	**Association of California Water Agencies**
AFWA	**Association of Fish and Wildlife Agencies**
Blue Earth	**Blue Earth Consultants, LLC**
CalEPA	**California Environmental Protection Agency**
CASGEM	**California Statewide Groundwater Elevation Monitoring**
CBC	**California Biodiversity Council**
CDFA	**California Department of Food and Agriculture**
CDFW	**California Department of Fish and Wildlife**
CDWR	**California Department of Water Resources**
CEC	**California Energy Commission**
Ch.	**Chapter**
CNRA	**California Natural Resources Agency**
CVP	**Central Valley Project**
Delta Conservancy	**Sacramento-San Joaquin Conservancy**
DOGGR	**Division of Oil, Gas and Geothermal Resources**
DRECP	**Desert Renewable Energy Conservation Plan**
EQIP	**Environmental Quality Incentives Program**
GAMA	**Groundwater Ambient Monitoring and Assessment**
HCP	**Habitat Conservation Plan**
IRWMP	**Integrated Regional Water Management Plan**
KEA	**Key Ecological Attribute**
LAFCO	**Local Agency Formation Commission for San Bernardino County**
LCC	**Landscape Conservation Cooperative**
MAF	**Million Acre-Feet**
NCCP	**Natural Community Conservation Plan**
NGO	**Non-Governmental Organization**
NRCS	**Natural Resources Conservation Service**
NOAA	**National Oceanic and Atmospheric Administration**
RAMP	**Regional Advance Mitigation Planning**
RCD	**Resource Conservation District**
RWQCB	**Regional Water Quality Control Board**
SGC	**Strategic Growth Council**
SGCN	**Species of Greatest Conservation Need**

SNC	**Sierra Nevada Conservancy**
SWAMP	**Surface Water Ambient Monitoring Program**
SWAP	**State Wildlife Action Plan**
SWG	**State and Tribal Wildlife Grants**
SWP	**State Water Project**
SWRCB	**State Water Resources Control Board**
TMDL	**Total Maximum Daily Load**
TNC	**The Nature Conservancy**
USACE	**U.S. Army Corps of Engineers**
USEPA	**United States Environmental Protection Agency**
USFS	**U.S. Forest Service**
USFWS	**U.S. Fish and Wildlife Service**
WCB	**Wildlife Conservation Board**
WIP	**Watershed Improvement Program**

1. Introduction

In 2000, Congress enacted the State and Tribal Wildlife Grants (SWG) program to support state programs that broadly benefit wildlife and habitats, particularly Species of Greatest Conservation Need (SGCN), as defined by individual states. Congress mandated that for a state or territory to receive federal funds through the SWG program, that state or territory had to develop a State Wildlife Action Plan (SWAP) that outlined a comprehensive wildlife conservation strategy.

The SWG program requires SWAP updates at least every 10 years. CDFW prepared and submitted SWAP 2025, the second comprehensive update of the California SWAP 2005, to the U.S. Fish and Wildlife Service (USFWS).

The California State Wildlife Action Plan 2025 Update (SWAP 2025) provides a vision and a framework for conserving California's diverse natural heritage. The update allows CDFW to expand and improve the recommended conservation activities addressed in the original plan by integrating new knowledge acquired since 2015 (CDFW 2025).

SWAP 2025 describes a collaborative approach to sustainably manage California's ecosystems. Through active partnerships, SWAP 2025 strategies can be applied to conserve natural resources in balance with human use. In 2015, the California Department of Fish and Wildlife (CDFW) and partner agencies and organizations prepared companion plans to address the need for a collaborative framework. The 2015 partnerships set the stage to achieve the state's conservation priorities and have continued to foster collaborative management of natural and cultural resources throughout the state. SWAP 2025 includes revisions to only two of the 2015 companion plans: the Tribal Companion Plan and the Water Companion Plan. Appendix E - Glossary provides important definitions for SWAP 2025 and the companion plan process.

1.1 SWAP Companion Plans

Need for Partnerships

The State of California supports tremendous biodiversity and a large human population, along with facing many challenges that widely affect biodiversity and natural resources, such as climate change. To balance human activities with conservation needs to sustain the state's ecosystems, collaborative management is a necessity. Many conservation actions identified under SWAP 2025 are beyond CDFW's

jurisdiction. The "companion plans" were created collaboratively with partners in 2015 to provide more detailed, sector-specific collaborative approaches beyond the recommendations presented in the SWAP. Companion plans were developed for these sectors:

- Agriculture
- Consumptive and Recreational Uses
- Energy Development
- Forests and Rangelands
- Land Use Planning
- Marine Resources
- Transportation Planning
- Tribal Lands
- Water Management

Two of these companion plans were updated in 2025: the Tribal Lands Companion Plan and the Water Companion Plan.

Companion Plan Purpose and Sector Selection

Companion plans highlight SWAP 2025 priorities that are shared with partners that were involved in the companion plan development. Figure 1 illustrates how, through collaboration with partner organizations, shared priorities come together in the companion plans and become elevated as high priority implementation actions for SWAP 2025. Together, SWAP 2025 and the associated companion plans describe the context and strategic direction of integrated planning and management efforts that are crucial for sustaining California's ecosystems.

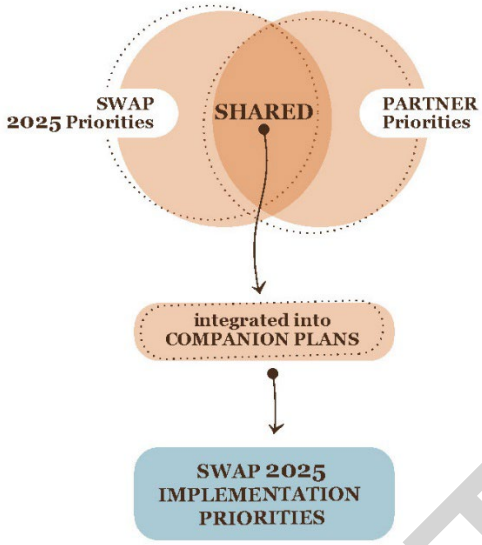

Figure 1. Aligning SWAP 2025 and Partner Priorities

Companion Plan Development

In 2015, CDFW and partners developed the initial set of companion plans to respond to feedback and to align with the National Fish, Wildlife, and Plants Climate Adaptation Strategy (National Fish, Wildlife, and Plants Climate Adaptation Network 2021), which emphasizes partner engagement as a best practice in climate change adaptation. Work on the companion plans has helped CDFW comply with legislation requiring CDFW to "seek to create, foster, and actively participate in effective partnerships and collaborations with other agencies and stakeholders to achieve shared goals and to better integrate fish and wildlife resource conservation and management with the natural resource management responsibilities of other agencies" (Assem. Bill No. 2042 (2011–2012 Reg. Sess.)).

The 2015 companion plans were developed under the guidance of Blue Earth consultants and CDFW staff, who organized and advised the sector-specific teams. To form sector teams, CDFW sought statewide representation of public and private partners with topical expertise. Blue Earth facilitated four virtual meetings for each sector in 2015. During these sector meetings, CDFW and participants discussed efforts that would benefit wildlife and habitat conservation and identified shared priorities and collaboration opportunities to achieve those mutual interests. After incorporating review and public feedback, CDFW published the original nine companion plans in

2015. During the 2025 SWAP update, CDFW sought internal and external review of the Tribal Lands and Water Management companion plans.

Although CDFW sought to engage a broad range of partners, CDFW recognizes that there are many other partners who play important roles in conserving and managing natural resources in California who were not involved in developing the companion plans.

Companion Plan Contents

Each companion plan addresses the following components:

- SWAP 2025 overview
- Companion plans overview—approach, purpose, development process, and content
- Sector overview
- Common themes across sectors
- Common priority pressures and strategies across sectors
- Priority pressures and strategies for the sector
- Potential collaboration activities
- Potential partners and resources
- Evaluating implementation
- Desired outcomes
- Next steps

2. Water Management Sector

2.1 Water Management in California

California covers nearly 156,000 square miles of land, has more than 1,100 miles of coastline, and is home to over 39 million people (US Census Bureau 2023). California receives 200 million acre-feet (MAF) of water on average each year from precipitation and regional imports from Oregon, the Colorado River, and Mexico (DWR 2023). California water distribution varies in wet and dry years, with native vegetation, evaporation into the atmosphere, agricultural crops and wetlands, and flows to other states or the ocean generally using over 50–60% (DWR 2023). The remaining water is dedicated to urban and agricultural uses, environmental restoration, and storage for future use (Table 1).

California's water supports three primary interests: cities and communities, agriculture, and the environment.

On average, the proportion of water dedicated to each interest is 10% cities and communities, 40% agriculture, and 50% to the environment. This statewide ratio varies widely depending on whether a year is wet or dry. In wet years, the proportion that serves environmental purposes can be 60% or more, while in dry years that proportion drops to roughly one-third.

Water often serves double duty; Water allocated for one purpose is often reused for other purposes downstream. For example, water flowing into the Delta to repel saltwater intrusion often serves a dual purpose by providing water for urban and agricultural use and improving habitat for native fish.

Water Distribution in California

California has a complex system to distribute water throughout the state. The unique delivery system of the California State Water Project (SWP), constructed and operated by CDWR, provides water for 27 million residents and 750,000 acres of irrigated agricultural land (DWR 2025). The main purpose of the SWP is to store and distribute water to 29 urban and agricultural water suppliers in California, where 70% goes to urban users and 30% goes to agricultural users (DWR 2025). The U.S. Bureau of Reclamation's Central Valley Project (CVP) also helps to address California's water demands. Spanning approximately 400 miles between Redding and Bakersfield, the CVP is one of the world's largest water storage and transport systems (USBR 2025). The CVP consists of 20 dams and reservoirs, 11 power plants, and several hundred miles of major canals (USBR 2025). The CVP provides about 5 MAF for farms; 600,000 acre-feet of water for municipal and industrial uses; 800,000 acre-feet per year to fish, wildlife, and habitat enhancement; and over 400,000 acre-feet to state and federal wildlife refuges and wetlands (USBR 2025).

Within this mosaic of storage, distribution, and usage, water availability for the environment can fluctuate significantly depending on precipitation, which varies considerably throughout California (Null et al. 2022). Water distribution ranges from 9% to 13% for urban uses, 31% to 48% for agricultural uses, and 40% to 60% for environmental water (DWR 2023). In 2010, an "average" water year, the figures were 10% for urban use, 41% for agricultural use, and 49% for the environment. Average total water usage for the 10-year period between 2001 and 2010 shows environmental water at 46%, agriculture at 43%, and urban use at 11% in the state, totaling about 82 MAF (DWR 2023).

Water use in 2019 was tabulated for different sectors under specific water years, (Table 1; Figure 2); (DWR 2023). As 2019 was a wet year, environmental water accounted for 56% of the total 90.5 MAF of the applied water use in the state. In contrast, environmental use decreased to 37% of the total water distribution in 2020, a dry year. Figure 2 data shows that water allocations for urban and managed wetlands changed minimally, agricultural use increased by 1 MAF, and instream flow requirements decreased by 1.3 MAF from wet to dry years. However, minimum Delta outflow requirements decreased by nearly 4 MAF and wild and scenic rivers by about 22 MAF from wet to dry years. The percentages show a shift in water allocation in dry years to agriculture and urban use, although actual use in MAF did not change more than 25% (urban and agricultural use not more than 10%), with the exception of minimum requirements for Delta outflow and wild and scenic rivers (DWR 2023). Additional information on water use is available at the [Public Policy Institute of California website](#).

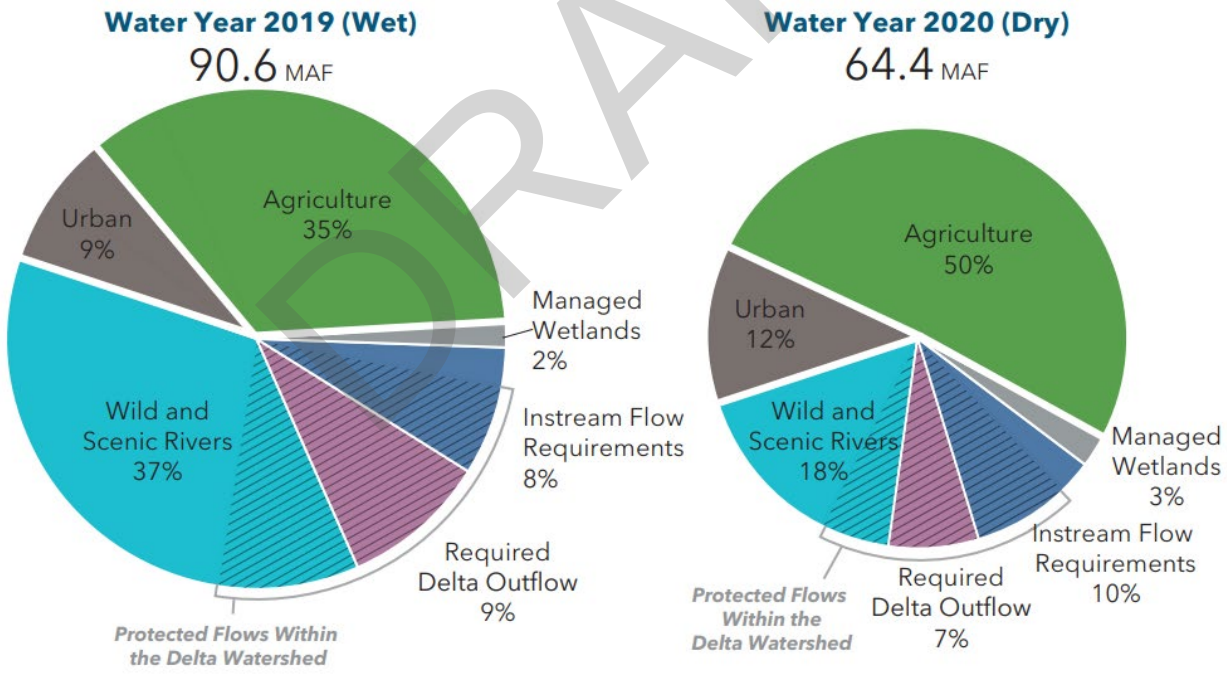

Figure 2: Water Use Percentages in California (2019 versus 2020) (DWR 2023)

Table 1: Water Use Types and Definitions

Water Use Type	Definition
Urban	Water for urban purposes, including residential, commercial, institutional, and industrial
Agriculture	Water for irrigated agriculture including multi-cropping
Managed Wetlands	Water for managed wetland areas
Minimum Instream Flow Requirements	Water within natural waterways as specified in an agreement, water rights permit, court order, FERC license, etc.
Minimum Required Delta Outflow	Freshwater outflow from the Sacramento-San Joaquin Delta required by law to protect the beneficial uses within the Delta from the incursion of saline water
Wild and Scenic Rivers	Over 2,000 miles of river systems are designated wild, scenic, and recreational under the 1968 National Wild and Scenic Rivers Act and 1972 California Wild and Scenic Rivers Act

Groundwater in California

Groundwater is another critical resource for meeting California's diverse water demands. From 2011 to 2016, the most recent period reported in California's Groundwater Update, groundwater accounted for 46% of the average annual total water supply (DWR 2020). There are 515 groundwater basins that the California Statewide Groundwater Elevation Monitoring (CASGEM) Basin Prioritization Program has categorized and prioritized to help identify, evaluate, and determine the need for additional groundwater-level monitoring (DWR 2020). The SWRCB Groundwater Ambient Monitoring and Assessment (GAMA) program was established in 2000 and expanded by Assembly Bill [AB] 599 (Groundwater Quality Monitoring Act of 2001) with the goals of improving statewide groundwater monitoring and increasing the availability of groundwater quality information to the public (SWRCB 2025).

Several existing and planned efforts seek to address and balance California's current and future water demands. The most significant efforts include SWRCB updates to the San Francisco Bay/Sacramento-San Joaquin Delta (Bay-Delta) Water Quality Control Plan (Bay-Delta Plan) and associated voluntary agreements, and the Department of Water Resources' Sustainable Groundwater Management Act (SGMA).

2.2 Current Water Management and Conservation in California

Many state water management partners have incorporated strategies to conserve California's natural and wildlife resources in their programs and plans. For example, Governor Brown's Water Action Plan was developed to meet three objectives: reliable water supplies, the restoration of important species and habitat, and increased resiliency and sustainability of water resources (CNRA et al. 2014). The plan addressed pressing water issues through 10 priority actions to address urgent needs and provide the foundation for sustainable management of California's water resources. Steady advances were made in the Water Action Plan during the 2014–2018 implementation period, including Proposition 1 funding for water quality, supply, and infrastructure improvement, drought/climate resiliency, water conservation, ecosystem enhancement, and sustainable groundwater management (CNRA et al. 2019).

To support further water conservation efforts, in 2019 Governor Newsom issued an executive order that recognized the need to take stock of California's water resources and act to address more extreme droughts and floods, rising temperatures, over drafted groundwater basins, aging infrastructure, and other challenges being magnified by climate change. The Water Resilience Portfolio (CNRA et al. 2020) was released to fulfill the executive order and has guided State water policy since July 2020. The Portfolio is a comprehensive suite of actions that support local water resilience with the goal of equipping California to cope with more extreme droughts and floods as well as address long-standing challenges that include declining fish populations and an over-reliance on groundwater. The Portfolio outlines four categories of goals and actions:

- Maintain and diversify water supplies to enable flexibility as conditions change and help regions reduce reliance on any one water source, reducing pressure on river systems across the state
- Protect and enhance natural ecosystems to restore the environmental health of many of our river systems to sustain fish and wildlife
- Build connections throughout the state to improve physical infrastructure to store, move, and share water more flexibly and integrate water management through shared use of science, data, and technology

- Development of State guidance enabling preparation, protective actions, and adaptation to new threats, including flashier floods, deeper droughts, and hotter temperatures

The record-breaking temperatures and aridity of droughts in the past two decades have shown that to secure and preserve water supplies, the State must continue to progress on the Portfolio and take additional action. Released in 2022, the California Water Supply Strategy – Adapting to a Hotter, Drier Future (Strategy) centers on a set of Portfolio actions to adapt and protect water supplies in an era of rising temperatures (CNRA 2022). The Strategy outlines California's approach and priority actions. Executing this Strategy will require coordination with local, tribal, and federal partners to:

- develop new water through recycling and desalination
- capture and save more stormwater, above ground and below ground
- reduce use of water in cities and on farms
- improve all water management actions with better data, forecasting, conveyance, and administration of water rights

The California Water Plan is the State's strategic plan for sustainably and equitably managing, developing, and stewarding water resources. As required by Water Code Section 10005, "the plan presents the status and trends of California's water dependent natural resources; water supplies; and agricultural, urban, and environmental water demands for a range of plausible future scenarios." Updated every five years, the 2023 California Water Plan Update builds upon the Portfolio and the Strategy, in addition to existing water policies, laws and regulations, and recent legislation. The three themes of the 2023 Update – addressing climate urgency, strengthening watershed resilience, and achieving equity – focus on creating more equitable and climate-resilient water systems to benefit all Californians (DWR 2023).

Improving habitat conservation through better water management is a state priority. The $7.545 billion Proposition 1 water bond, approved overwhelmingly by California voters in 2014, provided a significant source of funding for water projects and programs at a crucial time. Proposition 1 has funded 1,889 projects across key funding areas included regional water reliability, public benefit of water storage capacity (e.g., agriculture and urban users, water quality objectives for wildlife), water recycling, groundwater sustainability, safe drinking water, and watersheds and flood management (Association of CA Water Agencies 2014). California also enacted the Sustainable Groundwater Management Act "allows local agencies to customize groundwater sustainability plans to their regional economic and environmental needs" (CA Groundwater 2015). In addition, CDFW received funding from the USFWS SWG in

2004 for the California Coastal Watershed Planning and Assessment, which supported multi-disciplinary, large-scale watershed assessments along the length of California's coast to help improve freshwater habitat and support increased salmonid populations (CDFW 2014). SWAP 2025, Chapter 6 provides detail on California's anadromous fish and highlights core principles, including water conservation, to identify and implement water management strategies designed to provide sufficient flow quality and quantity to meet fish and habitat needs (CDFW 2025). By continuing to enhance water management, CDFW and other partners can work together to meet California's current and future water needs while also protecting and conserving the state's natural and wildlife resources.

There are numerous collaborative conservation management efforts found in California. Three examples of collaborative efforts related to water management are provided below.

1. **Maintaining Migratory Bird Habitat:** BirdReturns is a flexible, cost-effective wildlife habitat marketplace designed to increase flooded habitats for migratory birds where and when they need it most, in ways that deliver multiple benefits for the farmers, wetland managers, and communities who participate. BirdReturns is implemented by the Migratory Bird Conservation Partnership – a strategic partnership between The Nature Conservancy, Audubon California, and Point Blue Conservation Science - with the goal of creating a climate-resilient California with thriving bird populations and sustainable water for wildlife and people.

2. **Restoring the Sierra Nevada Watershed:** In March 2015, the Sierra Nevada Conservancy (SNC) partnered with U.S. Forest Service (USFS) to launch the Sierra Nevada Watershed Improvement Program (WIP), a collaborative effort to restore and improve ecosystem health of the Sierra Nevada Watershed through a suite of restoration and conservation activities. The WIP will work to restore streams and meadows, preserve working landscapes, restore forest health, and improve socio-economic conditions in the region (USFS 2025). The program will begin by focusing on forest restoration activities to increase the resilience of forests to catastrophic wildfires. SNC and USFS are working with state, federal, tribal, and local agencies, as well as other interested stakeholders, to implement activities that will occur under the WIP.

3. **Building Water Resilience:** Executive Order N-10-19 directed CNRA, CalEPA, and CDFA to prepare a portfolio of actions for equipping California to cope with more extreme droughts and floods and rising temperatures, while addressing long-standing challenges that include declining fish populations, over-reliance on groundwater and lack of safe drinking water in many communities. First released in July 2020, with annual progress reports there-after, the Water Resilience Portfolio consists of more than 100 separate detailed actions. Carrying out this portfolio requires cooperation across state agencies, and collaboration between state, local, regional, and tribal organizations to maintain and diversify water supplies, protect and enhance ecosystems, build flexible and integrated infrastructure, and prepare for future climate threats.

3. Common Themes Across Nine Sectors

Equally important to discussion topics unique to each sector are the common themes across all sectors. This section summarizes the two major overarching themes discussed through the course of developing the nine companion plans: climate change and integrated regional planning.

3.1 Climate Change-related Issues

Climate change continues to be one of the major pressures forcing us to examine the relationship between modern society and nature. Describing climate science, however, has been difficult due to its inherent complexity. Because of this and other factors, our society has not been able to fully embrace the seriousness of the implications of climate change. In the most recent analyses, annual statewide average maximum temperature is expected to increase roughly 5.5°F by mid-century (a 30-year period from 2035–2064) and 9°F by end-of-century (2070–2099) under a high-end emissions scenario (Pierce et al. 2018).

The effects of climate change are already present. Global sea level rise over the past century has exceeded the mean rate of increase during the previous two millennia, and the earth's surface temperature over each of the last three decades has been successively warmer than any previous decade since 1850. The evidence of these observed climate change impacts is manifested the strongest and most comprehensively in natural systems where many species of terrestrial, freshwater, and marine organisms have shifted their geographic ranges, migration patterns, abundances, and life cycle activities in response to ongoing climate change (IPCC 2023).

As climate conditions are inextricably linked to the welfare of environments and societies, even conservative projected increases in global mean temperatures would trigger significant changes to socio-economic and ecosystem conditions. Food production, energy and water development, and preparation and response to catastrophic events are examples of human systems that would be negatively affected by climate change. Pressures and stresses to ecosystems identified in SWAP 2025 will likely increase in magnitude and severity through the compounding effects of climate change (CDFW 2025). Accordingly, the potential far-reaching effects on California's natural resources induced or exacerbated by climate change were a common concern among sectors, and cross-sector collaboration was considered critical for ecosystem adaptation while avoiding disasters.

Two key discussion points for sectors were to 1) strategically assess the state's climate change vulnerabilities and 2) implement adaptation actions. These actions included but were not limited to establishing a well-connected reserve system to increase ecosystem integrity (e.g. habitat resilience and mobility); incorporating climate change related factors (e.g. carbon sequestration, habitat shifts and sea level rise) into natural resource management; improving regulations to reduce greenhouse gas emissions; developing research guidelines to comprehensively evaluate climate change effects; and raising awareness of climate change.

3.2 Integrated Regional Planning

California presents a landscape that is ecologically, socioeconomically, and politically intricate. The status of the state's ecosystems reflects not only the interactions between biological and abiotic components, but also among ecosystems and diverse human activities that are further controlled by mandates imposed on regulated activities.

Integrated regional planning arose from the realization that it is not sustainable to address only one aspect of a complicated human/nature system. Paraphrased from the DWR's Integrated Regional Water Management Program, this planning approach prepares for effective management, including conservation activities, while concurrently achieving social, environmental, and economic objectives to benefit regional projects across the state that foster climate resilience by mitigating drought impacts, improving water supply reliability, reducing flood and fire risk, increasing surface and groundwater storage, restoring and enhancing ecosystems, and improving water quality. Cities, counties, water agencies, special districts, non-governmental organizations, community/environmental groups, underrepresented/disadvantaged communities, California Native American tribes, and others across the State have worked collaboratively to organize and establish 48 regional water management groups, covering over 87 percent of the State's area and 99 percent of its population.

Integrated regional planning begins with accepting diverse priorities and values articulated by the stakeholders of a region. With this mutual understanding, attempts are made, often through intense negotiations, to integrate various activities associated with multiple interests occurring in the region. Expected tasks under integrated regional planning include: identifying conflicting or redundant activities occurring in a region, minimizing redundant activities by aligning similar efforts, streamlining and integrating needed processes across different priorities, and collaborating and complementing efforts to effectively achieve mutual and/or diverse interests. As an example, integrated regional planning could result in zoning a region and limiting activities within each zone to avoid or reduce incompatible activities

occurring in the region, or deferring timing to reduce negative consequences of interactive activities occurring in a region. In sum, integrated regional planning requires trust, open-mindedness, transparency, patience, strategic thinking, and collaboration among partners who seek to use the same or similar resources from different perspectives.

Establishing a framework for integrated regional planning was considered as one of the state's top priorities across sectors. Related topics included: preparing, approving, and implementing regional and landscape-level conservation plans; systematically pursuing necessary resources to implement conservation strategies; coordinating effective partnerships; adapting to emerging issues; and reviewing and revising the plans. Several existing plans were recognized as ongoing integrated regional planning efforts: Natural Community Conservation Plans (NCCPs), Regional Conservation Investment Strategies (RCIS), Habitat Conservation Plans (HCPs), Habitat Connectivity Planning for Fish and Wildlife (CDFW 2025), the Master Plan for Marine Protected Areas (CDFW 2016), individual species management plans, and SWAP 2025 and related endeavors, including this companion plan.

SWAP 2025, Chapter 7 describes implementation and integration opportunities, and identifies where partners can engage in cooperative implementation. Such opportunities include programs under various state and federal agencies such as California's 30x30 Initiative, the California Water Resilience Portfolio, and the Central Valley Flood System Conservation Strategy by DWR; Fire and Resource Assessment Program by CALFIRE; and federal programs under regulations such as the Central Valley Project Improvement Act, and the National Forest Management Act (CDFW 2025).

4. Commonly Prioritized Pressures and Strategy Categories across Sectors

SWAP 2025 uses the planning framework outlined in the Open Standards for the Practice of Conservation (Conservation Measures Partnership 2020) to identify conservation actions for conservation targets. The process included identifying and evaluating the key ecological attributes (KEAs) of conservation targets, reviewing the factors influencing the compromised conditions of KEAs (stresses), and the sources of these stresses (pressures). This analysis then selected conservation strategies (sets of actions) for each target, either to improve the conditions of KEAs, or to reduce the negative impacts from the stresses and pressures (CDFW 2025).

4.1 Pressures across Sectors

A pressure, as defined in SWAP 2025, is an "activity that influences a stress and could significantly change the ecological conditions of a community. Pressures can be

positive or negative depending on the intensity, timing, and duration. Pressures can be anthropogenic (human-induced) or naturally induced." Pressures are all recognized to have strong influences on the well-being of ecosystems. The 29 standard pressures addressed under SWAP 2025 include:

- Agricultural and Forestry Effluents
- Airborne Pollutants
- Annual and Perennial Non-timber Crops
- Catastrophic Geological Events, including Volcano eruption, earthquake, tsunami, avalanche, landslide, and subsidence
- Climate Change
- Commercial and Industrial Areas, including shoreline development
- Dams and Water Management/Use
- Fire and Fire Suppression
- Fishing and Harvesting Aquatic Resources
- Garbage and Solid Waste
- Household Sewage and Urban Wastewater, including urban runoff (e.g., landscape watering) and point discharges
- Housing and Urban Areas, including shoreline development
- Industrial and Military Effluents, including hazardous spills and point discharges
- Introduced Genetic Material
- Invasive Plants/Animals
- Livestock, Farming, and Ranching
- Logging and Wood Harvesting
- Marine and Freshwater Aquaculture
- Military Activities
- Mining and Quarrying
- Other ecosystem modifications, including modification of mouths/channels, ocean/estuary water diversion/controls, and artificial structures
- Parasites/pathogens/diseases
- Recreational activities
- Renewable energy
- Roads and railroads
- Shipping lanes, including ballast water
- Tourism and recreation areas
- Utility and service lines

- Wood and pulp plantations

4.2 Strategy Categories across Sectors

SWAP 2025 outlines 11 categories of conservation strategies:

- Data Collection and Analysis
- Partner Engagement
- Management Planning
- Direct Management
- Economic Incentives
- Environmental Review
- Land Acquisition, Easement, and Lease
- Land Use Planning
- Law and Policy
- Outreach and Education
- Training and Technical Assistance

The strategy categories identified are most relevant to the water management sector and are described in Section 5.2.

5. Water Management Priority Pressures and Strategy Categories

As described in SWAP 2025, a pressure such as dams and water management/use, can affect biodiversity and natural resources in the state. Although key challenges exist, these seemingly negative aspects of pressures present opportunities for improving ecological health through collaborative conservation work.

CDFW identified the pressures and strategy categories that are relevant to each sector-specific companion plan. Section 5.1 and 5.2 provide the results of this prioritization and list pressures and strategies considered important but not included in this plan (for future consideration).

5.1 Priority Pressures

Dams and Water Management/Use – The management of water resources to meet water (stream and off-stream use) and power supply needs, and to accommodate communities and agricultural production, results in numerous pressures on rivers, wetlands, estuaries, and aquifers. Pressures include changing natural water flow patterns either deliberately or as a result of other activities like dam construction, dam operations, sediment control, salt regime change, wetland filling for mosquito control,

levees and dike construction, surface water diversion, groundwater pumping, channelization, artificial lake creation, and illegal diversions.

5.2 Priority Strategy Categories

The top six strategy categories selected for this sector are the following (in alphabetical order):

Data Collection and Analysis (long-term) – Data collection and analysis is the utilization of robust data and thorough analysis to inform and facilitate more effective implementation of conservation strategies under other categories. Example strategies include conducting research on groundwater, improving data availability across programs and agencies, and conducting data analysis to directly inform resource management and regulatory decisions.

Direct Management (short-term) – Direct management is the participation in and implementation of activities that support stewardship of habitats and natural processes to maintain, enhance, and restore species population and ecological functions/conditions. Example strategies include improving fish passage, managing barriers on water movement, managing water flows/use, and restoring natural flows.

Land Acquisition, Easement, and Lease (short-term) – Land acquisition, easement, and lease are types of transactions and agreements that help set aside or obtain land or water rights, which support conservation of the land, water, and/or habitat that species depend upon. Example strategies include acquiring water rights and purchasing land and/or acquiring easements through negotiation with willing sellers.

Law and Policy (short- and long-term) – Law and policy is the development, revision, guidance, and implementation of legislation, regulations, policy, and voluntary standards to improve conservation stewardship of species and habitats. Example strategies include advocating for effective law enforcement, strengthening alignment of policies across government agencies, supporting legislative actions, and writing permits to improve habitat.

Management Planning (long-term) – Management planning is the development of management plans or processes for species, habitats, and natural processes/conditions that will lead to implementation of more effective conservation strategies. Example strategies include integrating resource management activities and providing input on project planning and decision-making processes.

Partner Engagement (long-term) – Partner engagement is the process for engaging and developing collaboration among state and federal agencies, California Native American tribes and tribal communities, NGOs, private landowners, and other partners to achieve shared conservation objectives and enhance coordination across

jurisdictions and areas of interest. Example strategies include establishing collaborative partnerships and establishing/developing co-management partnerships.

6. Collaboration Opportunities for Joint Priorities

Conservation programs in California are managed by diverse partners, including state and federal agencies, tribal governments, local governments, and non-governmental organizations (NGOs). Because SWAP 2025 is a comprehensive conservation plan, integrating their work into SWAP is crucial for impactful conservation outcomes for the state (SWAP 2025 Chapter 7). While the full array of relevant efforts is too extensive to list here, potential alignment opportunities were identified. Conservation activities considered most relevant to each prioritized strategy category (companion plan Section 5.2) are summarized below. Potential partners and financial resources for implementing these conservation activities are listed in companion plan Appendices C and D.

6.1 Alignment Opportunities and Potential Resources

Conservation activities that the team considered important for collaboration and that can be implemented over the next 5–10 years are listed below. While some activities may apply across many spatial scales and jurisdictions (statewide, regional, and local/site-specific), they are assigned only to the most relevant scale and jurisdiction. The information is not comprehensive and does not obligate any organization to provide support for strategy implementation.

Data Collection and Analysis Potential Activities

Statewide

- Advance integration of data management/data exchange
- Build distributed network of common spatial datasets

Regional

- Adopt resolution on strategic integrated regional conservation and development planning

Local/Site-specific

- Conduct fact assessments
- Conduct reporting by permittees as required by mitigation, monitoring, and reporting programs under the regulation of permitting actions or site cleanups
- Lead adaptation efforts in each sector
- Make databases available to public, community monitoring groups, and watershed stewardship organizations

- Monitor data collection efforts (e.g., the Delta)
- Outline primary risks of climate change vulnerabilities
- Prioritize financial and political support for data sharing
- Utilize existing databases and data visualization tools (e.g., DataBasin, EcoAtlas) for conservation planning efforts

Direct Management Potential Activities

Statewide

- Raise awareness on flood protection efforts from other agencies to refine flood system management

Regional

- Contribute to basin planning by focusing on water quality objectives to protect aquatic life and wildlife beneficial uses (e.g., warm and cold water and estuarine habitats)

Local/Site-specific

- Adopt instream flow standards to support fisheries and habitats
- Contribute to implementation of riparian restoration (e.g. mitigation for permits/in lieu fees)
- Control point and non-point sources to ensure compliance with water quality objectives
- Engage the agriculture industry in contributing to improved water quality and climate solutions
- Establish simplified and expedited permitting process for implementation of habitat restoration projects
- Focus on long-term license or relicense of hydroelectric projects
- Guide cap-and-trade investments in agriculture to achieve other environmental, health and economic benefits
- Implement wetland and riparian area protection policies
- Integrate research, education and technical assistance, and financial incentives to support agricultural producers
- Manage water flows/use and restore natural flows
- Plan groundwater management
- Reset flow objectives as needed
- Update plans (e.g., Bay Delta upgrade to septic systems through small community grants plan)

- Write permits to improve habitat (e.g., rare water bodies such as desert vernal pool areas)

Land Acquisition, Easement, and Lease Potential Activities

Local/Site-specific

- Amend agreements to promote wetland restoration
- Develop easement strategies with multiple objectives
- Focus on agricultural land stewardship strategies
- Improve water management through habitat restoration and levees
- Lease water rights in critical habitat areas
- Participate in ongoing wetland restoration programs (e.g., Suisun Marsh)
- Purchase land with senior water rights or directly purchase water rights
- Work with local landowners on species conservation

Law and Policy Potential Conservation Activities

Statewide

- Adopt wetland and riparian area protection policies
- Improve conservation planning alignment on policies and regulations between government agencies
- Improve greenhouse gas goals by looking at natural infrastructure functions and opportunities to analyze executive orders

Local/Site-specific

- Adopt water quality standards that support fish, wildlife, habitats, and ecosystems uses of water, including in-stream flow standards
- Identify beneficial uses in wetland and riparian areas that have to be protected in water quality and water rights actions
- Take actions for land acquisition where appropriate and add ecosystem values in planning

Management Planning Potential Conservation Activities

Regional

- Include consistent regional-scale methods for planning and conservation assessments
- Integrate water management approach with environmental stewardship
- Local/Site-specific
- Address reservoir health and drinking water source issues

- Encourage low-impact development
- Filter salts, nitrogen, and other dissolved solids from groundwater
- Focus on waste discharge requirements (e.g., 401, 404)
- Monitor mitigation concurrent with construction
- Keep storm water on site and maintain open space between structures
- Recommend and target floodplain guidance
- Use de-salters for groundwater basins
- Utilize wetland and riparian area protection policies

Partner Engagement Potential Conservation Activities

Statewide

- Engender collaboration between organizations so that each considers the needs of other organizations in the collection and assessment of data, rather than the requirements of individual organizational mandates
- Collaborate with partners on fisheries/watershed habitat restoration projects that CDFW could fund under the Watershed Restoration Grants Branch's grant programs (e.g. Fisheries Restoration Grant Program, Prop 1, Prop 68, etc.)

Regional

- Develop integrated water management plans with natural resource stewardship components
- Engage multiple partners at the regional scale
- Include variety of public and private stakeholders in communications and partnerships

Local/Site-specific

- Broaden watershed focus by integrating working groups
- Engage tribal groups and landowners in projects to understand land values to benefit water quality
- Manage healthy watersheds to create a combined framework for engagement and evaluation
- Provide collaboration on water quality and ecosystem health
- Encourage groups to come together to develop water management plans and water budgets to show relative sources/uses and sustainability plans

7. Evaluating Implementation Efforts

Implementing SWAP 2025 and its nine companion plans is a complex undertaking. SWAP 2025 Chapter 8 emphasizes the importance of adaptive management based

on performance monitoring and evaluation during the implementation stage. SWAP 2025 implementation will be monitored over time in concert with other conservation activities conducted by CDFW and partners.

By incorporating lessons learned through monitoring conservation activities and evaluating for future actions, CDFW and partners have opportunities to improve performance and include emerging needs that were not previously considered. For stakeholders including decision-makers, partners, and funders, the resulting data would be useful for not only understanding the status of SWAP 2025 and companion plan implementation, but also to prioritize resource allocations necessary for managing natural resources in the state.

8. Desired Outcomes

Desired outcomes for this sector, within the context of SWAP 2025, were identified and are provided below. These outcomes are organized by the selected strategy categories described in companion plan Section 5.2 and are not listed in order of priority.

Data Collection and Analysis

- Data is accessible, available, and usable for users beyond water resource professionals; User-friendly data visualization tools and products (e.g., presentation of data through Geographic Information System tools) created and existing tools (e.g., EcoAtlas and Data Basin) shared to promote use of data for various users involved in decision-making processes
- Analysis of, access to, and application of integrated, high-quality data and information for decision-making processes and investments promoted to achieve SWAP 2025 and companion plan goals; Data shared with key audiences (e.g., decision-makers, agency staff, and conservation groups) involved in management and land conservation decision-making
- Appropriate performance measurement metrics designed that accurately track project investments and implementation; High-quality data collected for each metric that helps partners assess performance
- Existing recommendations and data collection efforts (e.g., the 2014 Delta Stewardship Council Environmental Summit recommendations) used in decision-making

Direct Management

- Partner and agency awareness regarding flood protection efforts, floodplains, and instream flow regimes increased

- New standards for flow objectives reset for priority California streams to reflect current flow regimes and standards instituted in management plans; Outcomes of flow management standards and data used to establish flexible flow regimes for top priority streams to benefit fish and wildlife
- Existing water quality plans and stream flow metrics incorporated into current management activities (e.g., the Bay Delta San Francisco Estuary Water Quality Control Plan and the Federal Energy Regulatory Commission relicensing program)
- Importance of ground water management highlighted and known (e.g., how ground water basins affect stream flow and what mechanisms and direct management support for integrated groundwater management)

Land Acquisition, Easement, and Lease

- Assessment and designation of protected area acreage improved and increased at the watershed scale through creation of master plans for each hydrologic region and/or watershed and maps of priority areas
- Water rights obtained to support conservation of habitats and ecosystems
- Additional management practices and actions (beyond easements) promoted so that key audiences (e.g., landowners) have higher awareness about and understanding of conservation strategies to better manage working lands for conservation and improved wildlife habitat and ecosystems values (e.g., agricultural and urban land stewardship framework and toolbox)
- Water and soil management improved through habitat restoration, control of Hydraulic Conditions of Concern, and sediment load movement within flow regimes for healthy streambed ecosystems

Law and Policy

- Water quality control planning improved through development of water quality standards that recognize and support ecosystems and habitats (e.g., identification of wetland and riparian areas to establish standards for statewide adoption by SWRCB)
- Alignment and consistency of laws and policies across resource management sectors improved to encourage achievement of SWAP 2025 and companion plan conservation goals

Management Planning

- Water management approaches (e.g., groundwater sustainability plan, reservoir reoperation plan) modified to incorporate environmental stewardship
- Criteria designed to improve ecological conditions for easement standards in various regions (e.g., the Delta)

Partner Engagement

- Collaboration among entities involved in integrated regional water management increased
- Greater investment secured in integrated regional water management planning at the watershed scale
- Multi-partner collaboration for data collection and scoping increased.
- SWAP 2025 and companion plans used as the cornerstone for defining conservation priorities and informing statewide resource planning and habitat improvement projects in partners' investments and environmental stewardship actions
- State and Regional Water Boards and other partners engaged in drought management efforts that link available water supply and quality of supply in decision-making

9. Next Steps

The key next steps identified to ensure successful implementation of the companion plan over the next five years are: partnership and collaboration, human and financial resources, and communication and outreach. Activities that are relevant to these steps are listed below and steps of secondary priority are listed under "Additional Next Steps".

Partnership and Collaboration

- Encourage and support increased interagency collaboration at the management level to help answer conservation questions, allocate sufficient staff capacity, and conserve resources through coordinated implementation of SWAP 2025 and companion plans
- Ensure use and integration of recommendations and strategies from SWAP 2025 and companion plans across sectors. Incorporate recommendations in future relevant documents and conservation actions by incorporating information and citing SWAP 2025 and companion plans as major interagency documents demonstrating productive collaboration

Human and Financial Resources

- Across partners, incorporate priorities from SWAP 2025 and companion plans into project planning and implementation efforts and prioritize existing conservation projects with sufficient implementation funds that address the long-term goals of SWAP 2025 and companion plans

- Encourage and obtain agency and partner support to leverage information and cross-reference priorities and recommendations common to all sector companion plans through integrated regional planning (e.g., through support of the SGC)
- Identify mechanisms for implementing recommendations and strategies in SWAP 2025 and companion plans
- Determine program goals and available resources alignment and potential synergies between SWAP 2025 and companion plans and other relevant planning documents (e.g., the Delta Plan and the California Water Plan)

Communication and Outreach

- Prepare a communication plan for SWAP 2025 and companion plans that targets multiple audiences and identifies venues to share information (e.g., the SGC, CBC, Delta Council, the Governor and legislature); Continued communication and outreach will ensure awareness of and ongoing engagement on SWAP 2025 and companion plan implementation
- Obtain support (human and financial) at the statewide and regional levels through various mechanisms (e.g., SWG) for outreach efforts to promote SWAP 2025 and companion plans

Additional Next Steps

- Provide input to the 2028 Update of the State Water Plan's environmental stewardship and ecosystem objectives and actions so that they align with the companion plan
- Draw upon the recommendations from the 2014 Delta Stewardship Council's Environmental Data Summit to organize and expand upon identified conservation activities and next steps highlighted throughout this companion plan

10. Acknowledgements

This companion plan was developed in collaboration with many partners who deserve special recognition for their time and commitment. Please see companion plan Appendix C for a list of water management development team members. CDFW express our warmest gratitude to those who were involved in the plan's development, as well as to the organizations that generously offered their staff time.

Appendices

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Appendix C - Potential Partners for Collaboration

Please note that the following list does not provide an exhaustive list of potential partners for engagement and their specific alignment opportunities. The organizations listed here were identified in 2015, but the listing does not imply that they have agreed to partner or to implement SWAP 2025.

- Association of CA Water Agencies (ACWA)
- Audubon CA
- Bay Foundation
- Bureau of Reclamation
- CA Association of Resource Conservation Districts
- CA Association of Sanitation Agencies
- CA Biodiversity Council (CBC)
- CA Climate and Agriculture Coalition Network
- CA Coastkeeper Alliance
- CA Coastal Conservancy
- CA Department of Conservation
- CA Department of Fish and Wildlife (CDFW)
- CA Department of Food and Agriculture (CDFA)
- CA Department of Water Resources (CDWR)
- CA Department of Conservation - Division of Oil, Gas and Geothermal Resources (DOGGR)
- CA Energy Commission (CEC)
- CA EcoRestore
- CA Environmental Protection Agency (CalEPA)
- CA Lake Management Society
- CA Rangeland Conservation Coalition
- CA WaterFix
- CA Water Plan State Agency Steering Committee
- CA Water Quality Monitoring Council
- Bioaccumulation Oversight Group
- CA Wetland Monitoring Working Group
- CA Estuary Monitoring Group
- Healthy Streams (Watershed) Partnership
- Central CA Tribal Chairs Association
- Central Valley Flood Protection Board

- Central Valley Joint Venture
- City and County Governments
- Delta Conservancy
- Delta Stewardship Council
- Farm Bureau
- Fish Passage Improvement Program and Forum
- Flood Control Agencies/Districts
- Floodplain Managers Associations
- Former Water Plan Groups
- Groundwater Ambient Monitoring and Assessment (GAMA) Program
- Heal the Bay
- Landowners
- Local Agency Formation Commission for San Bernardino County (LAFCO)
- Mountain Counties Water Resources Association
- National Association Lake Management Society (NOMS) California Chapter
- National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS)
- Northern CA Tribal Chairs Association
- Open Space Districts
- Public Trust Agencies
- Point Blue Conservation Science
- Resource Conservation Districts (RCDs)
- San Francisco Bay Joint Venture
- San Francisco Estuary Institute
- Santa Ana Watershed Project Authority
- Sierra Nevada Conservancy
- Southern CA Tribal Chairs Association
- Southern CA Wetlands Recovery Project
- State Water Resources Control Board (SWRCB)
- Division of Water Rights
- Public Trust Unit
- Surface Water Ambient Monitoring Program (SWAMP)
- Regional Water Quality Control Boards (RWQCBs)
- Strategic Growth Council (SGC)
- Suisun Resource Conservation District

- Surfrider Foundation
- The Nature Conservancy (TNC)
- Tribal Governments
- U.S. Army Corps of Engineers (USACE)
- U.S. Fish & Wildlife Service (USFWS)
- Waste Water Treatment Plants
- Water and Utility Districts
- Waterkeeper Alliance
- Watershed Authorities
- San Bernardino
- San Gabriel Valley Watershed Authority
- Western Riverside County Agricultural Coalition
- Wildlife Conservation Board (WCB)

Appendix D - Potential Financial Resources

This list is intended to serve as a starting point for outreach and potential engagement and does not represent a comprehensive list of all the potential funding sources.

- CA Department of Fish and Wildlife (CDFW)
- CA Department of Water Resources (DWR)
- Sustainable Groundwater Management Act
- FloodSAFE Environmental Stewardship and Statewide Resources Office
- Integrated Regional Water Management Plans (IRWMPs) program
- Delta Conservancy
- National Fish and Wildlife Foundation
- Five State and Urban Water Restoration Grant Program
- Natural Resources Conservation Service
- Environmental Quality Incentives Program (EQIP)
- Proposition 1
- Regional Water Quality Control Board (RWQCB)
- Small Communities Grant
- State Revolving Fund
- Suisun Marsh Plan
- Supplemental Environmental Projects through Water Board enforcement actions
- Wildlife Conservation Board (WCB)
- U.S. Environmental Protection Agency (USEPA)
- Greenhouse Gas Reduction Fund (cap and trade)
- In lieu fees
- Wetland Program Development Grants

Appendix E - Glossary

The definitions found here are referenced from SWAP 2025 and are mostly adopted from the glossary in the Conservation Measures Partnership's (CMP) Open Standards for the Practice of Conservation (Version 4.0). Some terms have been added or refined to clarify their use by CDFW.

activity: a task needed to implement a strategy, and to achieve the objectives and the desirable outcomes of the strategy.

anadromous: fish or aquatic species that spend most of their lives in the ocean but migrate to freshwater rivers and streams to spawn.

aquatic: growing, living in, or frequenting freshwater, usually open water; compare with wetland.

aquifer: an underground reservoir of water.

bay: a body of water connected to an ocean or lake, formed by an indentation of the shoreline.

bioaccumulation: the uptake and concentration of chemicals by living systems.

biodiversity: the full array of living things.

climate change vulnerability: the degree to which an ecological system, habitat, or individual species is likely to be negatively affected as a result of changes in climate and often dependent on factors such as exposure, sensitivity, and adaptive capacity.

conservation: the use of natural resources in ways such that they may remain viable for future generations. Compare with preservation.

distribution: the pattern of occurrences for a species or habitat throughout the state; generally more precise than range.

ecosystem function: the operational role of ecosystem components, structure, and processes.

ecosystem health: the degree to which a biological community and its nonliving environmental surroundings function within a normal range of variability; the capacity to maintain ecosystems structures, functions, and capabilities to provide for human need.

ecosystem processes: the flow or cycling of energy, materials, and nutrients through space and time.

ecosystem: a natural unit defined by both its living and non-living components; a balanced system for the exchange of nutrients and energy. Compare with habitat.

estuary: an area in which salt water from the ocean mixes with flowing freshwater, usually at the wide mouth of a river.

evaluation: an assessment of a project or program in relation to its own previously stated goals and objectives.

fragmentation: the process by which a contiguous land cover, vegetative community, or habitat is broken into smaller patches within a mosaic of other forms of land use/land cover; e.g., islands of an older forest age class immersed within areas of younger-aged forest, or patches of oak woodlands surrounded by housing development.

goal: a formal statement detailing a desired outcome of a conservation project, such as a desired future status of a target. The scope of a goal is to improve or maintain key ecological attributes. A good goal meets the criteria of being linked to targets, impact oriented, measurable, time limited, and specific.

habitat: where a given plant or animal species meets its requirements for food, cover, and water in both space and time. May or may not coincide with a single macrogroup, i.e., vegetated condition or aquatic condition. Compare with ecosystem.

impact: the desired future state of a conservation target. A goal is a formal statement of the desired impact.

landscape: the traits, patterns, and structure of a specific geographic area, including its biological composition, its physical environment, and its anthropogenic or social patterns. An area where interacting ecosystems are grouped and repeated in similar form.

monitoring: the periodic collection and evaluation of data relative to stated project goals and objectives. Many people often also refer to this process as monitoring and evaluation (abbreviated M&E).

native: naturally occurring in a specified geographic region.

nonpoint: pollution whose source cannot be ascertained, including runoff from storm water and agricultural, range, and forestry operations, as well as dust and air pollution that contaminate waterbodies.

outcome: an improved (and intended) future state of a conservation factor due to implementation of actions or strategies. An objective is a formal statement of the desired outcome.

output: a deliverable that can be measured by the activities and processes that will contribute to accomplishing the desired outcomes and goals.

population: the number of individuals of a particular taxon in a defined area.

pressure: an anthropogenic (human-induced) or natural driver that could result in impacts to the target by changing the ecological conditions. Pressures can be positive or negative depending on intensity, timing, and duration. See also direct pressure and indirect pressure.

private land: lands not publicly owned, including private conservancy lands.

program: a group of projects which together aim to achieve a common broad vision. In the interest of simplicity, this document uses the term "project" to represent both projects and programs since these standards of practice are designed to apply equally well to both.

project: a set of actions undertaken by a defined group of practitioners – including managers, researchers, community members, or other stakeholders – to achieve defined goals and objectives. The basic unit of conservation work. Compare with program.

public: lands owned by local, state, or federal government or special districts.

range: the maximum geographic extent of a taxon or habitat; does not imply that suitable conditions exist throughout the defined limits. Compare with distribution.

rangelands: any expanse of land not fertilized, cultivated, or irrigated that is suitable and predominately used for grazing domestic livestock and wildlife.

result: the desired future state of a target or factor. Results include impacts which are linked to targets and outcomes which are linked to threats and opportunities.

richness: a measure of diversity; the total number of plant taxa, animal species, or vegetation types in a given area.

riparian: relating to rivers or streams.

salmonids: collective term for a family of fish that includes salmon and trout.

Species of Greatest Conservation Need (SGCN): all state and federally listed and candidate species, species for which there is a conservation concern, or species identified as being highly vulnerable to climate change.

stakeholder: any individual, group, or institution that has a vested interest in the natural resources of the project area and/or that potentially will be affected by project activities and have something to gain or lose if conditions change or stay the same. Stakeholders are all those who need to be considered in achieving project goals and whose participation and support are crucial to its success.

strategy: a group of actions with a common focus that work together to reduce pressures, capitalize on opportunities, or restore natural systems. A set of strategies identified under a project is intended, as a whole, to achieve goals, objectives, and other key results addressed under the project.

stress: a degraded ecological condition of a target that resulted directly or indirectly from pressures defined above (e.g., habitat fragmentation).

total maximum daily load (TMDL): a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, as well as an estimation of the percentage originating from each pollution source. A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The calculation must include a margin of safety to ensure that the waterbody can be used for state-designated purposes. The calculation must also account for seasonal variation in water quality.

watershed: defined here as a stream or river basin and the adjacent hills and peaks which "shed," or drain, water into it.

wetland: a general term referring to the transitional zone between aquatic and upland areas. Some wetlands are flooded or saturated only during certain seasons of the year. Vernal pools are one example of a seasonal wetland.

wildlife: all species of free-ranging animals, including but not limited to mammals, birds, fishes, reptiles, amphibians, and invertebrates.