U.S. Department of the Interior
Bureau of Land Management

BLM California State Office

Conserving and Restoring Riparian, Aquatic, and Water Resources

A 5-year Strategic Plan for the Aquatics Resources Program

EXECUTIVE SUMMARY

The Aquatic Resources Program (ARP) was created in 2019 following integration of the BLM's Riparian and Fisheries Programs and the water resource component of the Soil, Water, and Air Program. The program was renamed the Aquatic Resources Program (formerly Aquatic Habitat Management Program) in 2021 to better reflect the breadth of the program's core functions. This strategic plan was developed at a critical time for aquatic resources on public lands. Currently, California is experiencing rapid ecological change and destruction, increased wildfire intensity and size, long-term drought, interspersed with stronger atmospheric rivers. At the same time, the diversity and intensity of public land uses are increasing and societal values regarding those uses continue to evolve. A renewed focus on the conservation and restoration of riparian resources, fisheries, and water resources is needed to build drought and wildfire resilience, and to protect water supplies and habitats for species of management concern. Similarly, we need to ensure adequate technical expertise, and management tools are available to implement the program's core functions.

This plan is intended to support BLM professionals in meeting conservation challenges posed by increasing societal demands for ecological resources and the challenges posed by long-term drought and increased variability in water availability on BLM lands in California. This strategy highlights the management challenges particular to fisheries and aquatic species, riparian, and surface and groundwater resources. In addition, the Aquatic Resources Program includes water rights, water quality, and aquatic invasive species management areas. This strategy will help BLM continue to protect aquatic resources, while complying with the Federal Land Policy and Management Act's (FLPMA) multiple-use and sustained-yield mandate for managing public lands.

This five-year strategic plan highlights four main overarching goals to achieve conservation and restoration of riparian, aquatic, and water resources in an era of rapid ecological change.

Person fly fishing on the clear waters of the Trinity River, California.

BLM-CALIFORNIA AQUATIC RESOURCES PROGRAM

INTRODUCTION

America has strong connections to hunting and fishing—these pastimes are part of our heritage. Hunters and anglers play a significant role in the conservation of wildlife, fish, and their habitat. In California during 2021, about 2,162,000 anglers spent $3.4 billion while fishing in California.[1], [2] These expenditures were well distributed across California rural congressional districts in 2019.[3]

The BLM is committed to manage, protect, and improve its lands in a manner that serves the needs of the American people. Management is based upon the principles of multiple use and sustained yield of our nation's resources within a framework of environmental responsibility and scientific understanding. Cooperative ecosystem management in concert with other Federal, State, and local agencies, businesses, organizations and interested individuals can allow us to sustainably manage our aquatic resources.

Aquatic resources rely on California springs, streams, rivers, wetlands, and their associated riparian areas. Each of these water resource categories is threatened by extended drought, hot temperatures, wildfire, invasive species, climate change, or other anthropogenic effects. Conserving and restoring connectivity of floodplains and water resources, removing invasive aquatic and riparian species, and protecting habitat for aquatic species are some of the key actions to combat these unprecedented changes. Healthy streams, lakes, and rivers benefit Americans in multiple ways, from clean drinking water to diverse recreational opportunities. Abundant clean water supports human communities as well as healthy habitats for fisheries, riparian communities, and other aquatic dependent species. The BLM lands in California include some of the State's best remaining habitats for threatened, endangered, and other aquatic species.

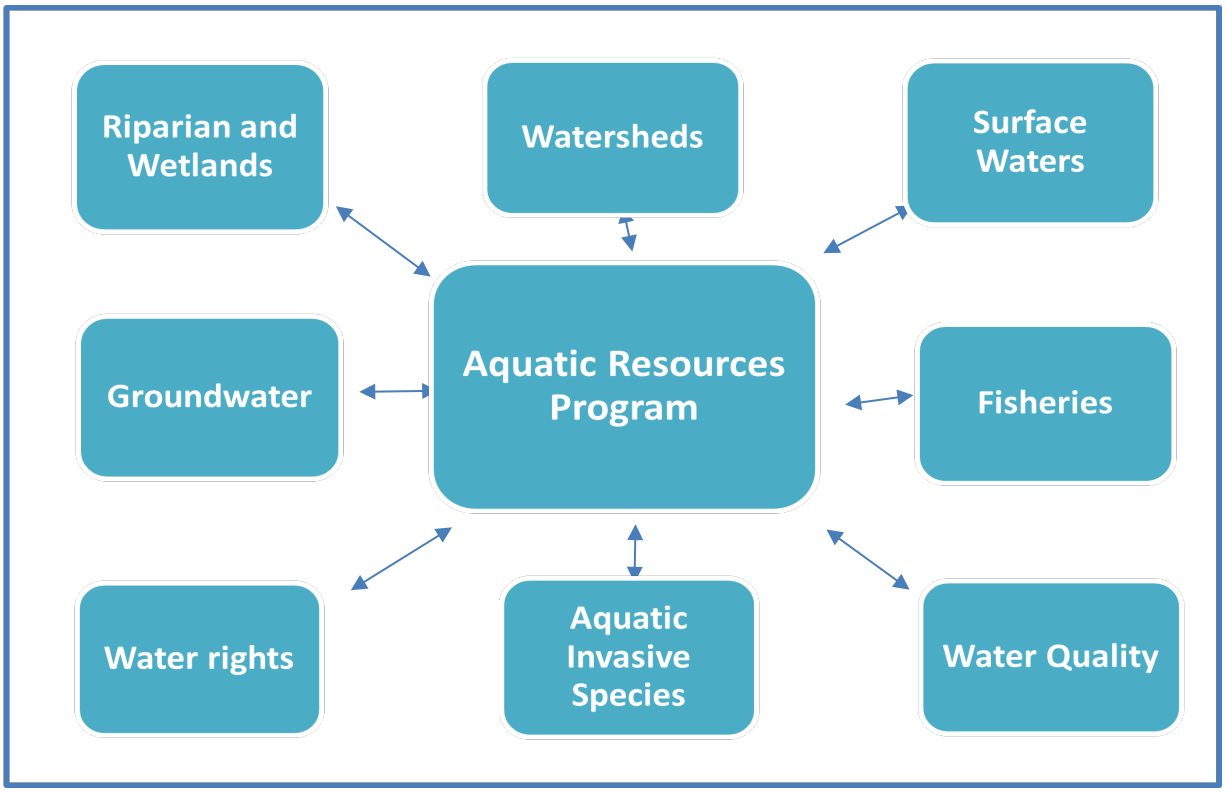
The Aquatics Resources Program aims to support healthy riparian and aquatic habitat and clean water for amphibians, birds, rare plant assemblages, invertebrates, native and sport fisheries, and other anthropogenic uses. Toward this goal, ARP's protection goals include those for surface and groundwater resources, as the resources are commonly connected and are increasingly considered by the water resources community as a single water resource. Protecting the quantity and quality of BLM's water resources benefits ecosystems, municipal, industrial, agricultural water users, and local communities. Healthy riparian areas, fisheries, and watersheds are essential to achieving the agency's multiple use and sustained yield mandate, as directed by FLPMA, and ensure the agency complies with the Clean Water Act, the Endangered Species Act, and the National Environmental Policy Act (NEPA).

This Strategic Plan identifies steps to move the Aquatic Resources Program forward to meet the many challenges facing these vital resources. The Bureau of Land Management-California (BLM-California) lacks the staffing to fully implement the Aquatic Resources Program Strategic Plan on our own. More specifically, the ARP relies on collaborative relationships with BLM's National

[1] https://asafishing.org/wp-content/uploads/2023/03/California/2023_ASA_Senate_Handout_Digital_California.pdf
[2] https://www.fisheries.noaa.gov/national/sustainable-fisheries/fisheries-economics-united-states
[3] https://asafishing.org/wp-content/uploads/2019/02/ASA-Congressional-Fishing-Econtributions-Report-2019-01-31.pdf

Operations Center, Federal and State agencies, and other stakeholders to provide assistance on aquatic resource restoration and monitoring.

The Multidisciplinary Aquatic Resources Program



CORE FUNCTIONS FOR AQUATIC RESOURCES

The Aquatic Resources Program supports conservation and restoration of floodplain connectivity and aquatic habitat, removes invasive species from riparian and aquatic ecosystems, and protects California's water supplies to ensure delivery of the ecosystem services and resources values needed to achieve the BLM's multiple use and sustained yield mandate. Resistance and resilience are attributes of healthy, functioning riparian and aquatic ecosystems capable of adapting to a changing climate. Restoration of as much of the whole watershed as possible is key to achieving resistance and resilience to fire, floods, and long-term drought.

The Aquatic Resources Program's resources and management issues are diverse and encompass watersheds; riparian-wetland systems; springs, groundwater, streams, and rivers; ponds and lakes; fisheries and habitat; water quality; water rights; and aquatic invasive species. Staff conduct or oversee fieldwork to conserve and restore riparian and aquatic resources and to protect water supplies and uses to support BLM's mission. Outreach to communities to foster a love of fishing and nature is an important part of the program.

To achieve the BLM's multiple use and sustained yield mandate in an era of rapid ecological change, the Aquatic Program's core functions are:

- ***Conservation***: Maintain and protect the chemical, physical, and biological integrity of California's rivers and their floodplains, streams, wetlands, and waters.
- ***Restoration***: Restore whole valleys to improve water quality connectivity of floodplains to achieve resilience to the effects of atmospheric rivers and other large storm systems. Restore aquatic and riparian resources affected by past and present land and water uses, aquatic invasive species, wildfire, drought, and floods; and increase their resistance and resilience to the impacts of climate change.
- ***Decision Support***: Assess, inventory, and monitor (e.g., AIM) riparian and wetland, aquatic, and water resources to facilitate and inform our understanding of condition and trend, guide BLM management activities, and assess regulatory compliance.
- ***Sustainability***: Identify the quantity and quality of water required to conserve and restore riparian and aquatic resources, and secure water rights and protections to ensure sufficient water is physically and legally available for all compatible public land management purposes.
- ***Environmental Compliance***: Ensure compliance with applicable Federal law, Executive Orders, regulations, and state laws where such compliance does not conflict with Federal law mandates.
- ***Collaboration***: Coordinate, cooperate, and consult with Federal, Tribal, State, and local governments, and other programs, partners, and stakeholders, to foster flexible and adaptive approaches to conservation, restoration, and community involvement.

The White Water Wild and Scenic River, within Sand to Snow National Monument. The river has willows and other native shrubs along the banks which are home to rare endangered southwestern willow flycatchers and least Bell's vireo and provides opportunity to see other migrating birds. The large wood in the stream is evidence of flooding which is essential to maintain healthy willows.

CURRENT CONDITIONS FOR AQUATIC RESOURCES

The wide dispersal and scattered parcel distribution of BLM-administered lands in California results in lotic aquatic habitat (e.g., streams and rivers) crossing multiple land jurisdictions. Aquatic habitats are diverse and consist of coastal rivers and streams, Great Basin meadows and small streams, inland mountain streams, springs, seeps, playas, wetlands, and lakes or reservoirs. These water bodies provide perennial and seasonal habitat for fish, rare plants, aquatic invertebrates, amphibians, reptiles, birds, and mammals.

The Bureau of Land Management-California manages more than 15 million acres of public lands in California, and 1.6 million acres in northwestern Nevada. BLM-California manages 129 miles of river federally designated as Wild & Scenic, 1,852 miles of streams, and 25,600 acres of fish or amphibian bearing lakes. Additionally, many small but vital aquatic habitats are found in the drier parts of the state in eastern California and in the desert. Springs (over 3,300 documented), seeps, playas, and riparian vegetation are crucial to wildlife in these dry landscapes.

Drought and wildfire exacerbated by climate change have the potential to adversely impact multiple BLM programs by reducing the availability of water and vegetation. Interacting with these threats are challenges related to invasive species, pollution, and permitted uses on public lands. For example, the health and subsequent resistance and resilience of riparian and aquatic resources in California are greatly impacted by structural starvation resulting from historic beaver extirpation, large wood removal for improved water conveyance, and the development of river valley bottoms. Long-term drought and warming seasons have resulted in increased demands for groundwater; declines in surface flows; and drying soils.

The Aquatic Resources Program supports assessment and restoration of the condition of springs and rivers in the desert. Removing tamarisk and other thirsty invasive plants that disrupt water supplies is a labor-intensive endeavor. Managing invasive species is an increasingly challenging task as conditions change on the landscape. Nutria disrupt native vegetation, invasive mussels disrupt habitat and water supply pipes, crayfish in pupfish habitat prey on or compete with pupfish. Nonnative fishes can disrupt food chains and out compete native fish.

Fisheries and the protection of aquatic species habitat are an important part of the Aquatic Resources Program. On BLM-managed desert or inland lands in California, isolated springs harbor populations of endemic fishes, spring snails, amphibians, and rare plants. Our coastal streams support listed Coho and Chinook salmon and steelhead, and our inland streams support endemics like Lahontan cutthroat trout. Many of these aquatic habitats contain fish and other aquatic species important to individuals and local economies. These waters and riparian habitats provide recreation opportunities for the American people, support overall scientific understanding of ecosystems and water resources, and foster a sense of social well-being.

The interconnectedness of groundwater, surface water, and riparian-wetland resources are a focus of the Aquatic Resources Program. If we look at where we have data on changing groundwater levels (USGS Groundwater Watch[4] and the Groundwater Information System from the State Waterboards (GAMA) [5]) we find many of our desert lands have little data on changed groundwater levels. The program works to ensure the sustainability of surface and groundwater in the desert to support

[4] https://groundwaterwatch.usgs.gov/NetMapT1L2.asp?ncd=lwl&sc=06
[5] https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/

renewable energy, mining, and other BLM permitted activities that require water. Long-term drought and changes in recharge rates make this a complex issue to monitor.

The Amargosa Wild and Scenic River. A groundwater fed river with lush reeds and sedges is nestled in the dry surrounding landscape.

Combating the climate crisis through sound decision making will require balancing resource utilization with the availability of water and need to protect and enhance aquatic and riparian ecosystems. A drought information memorandum will be coming out in 2023 with examples of the metrics that can be used to evaluate drought severity. Health of watersheds and their streams are important for BLM-California to work on to combat effects of changing climate. State evaluations of health of watersheds including fragmentation due to dams, , water sustainability , and water quality can be used to evaluate how well we are managing in the face of unprecedented changes to our lands.

California’s rivers, wetlands, and other freshwater ecosystems are facing an unprecedented future. Extended drought has put a stress on aquatic species, aquifers, limited livestock, and wildlife water supplies, and has increased fire risk. The intense storms that are predicted to worsen with a changing climate; flood rivers and threaten infrastructure and communities. This strategy sets a template for addressing these threats and for making the most of opportunities to collaborate with partners and cooperators to restore, maintain, or improve sustainability of aquatic and riparian habitats.

MANAGEMENT GOALS

Informed decision making is paramount given the challenges associated with ever-increasing diversity and intensity of public lands uses, competing societal values for public lands, and rapid ecological change. At risk are countless species, habitats, ecosystem services, and the social and economic well-being of western communities that depend on healthy, functioning riparian, aquatic, and water resources. A key challenge for the Aquatic Resources Program is to iteratively develop and use the best available science to maintain or improve riparian, aquatic, and water resources for the use and enjoyment of present and future generations in an era of rapid ecological change. The assessment, inventory, and monitoring (AIM strategy) of our aquatic and riparian resources is essential to understand needs for conservation, restoration, or maintenance of riparian and aquatic ecosystems.

This five-year strategy focuses on four overarching goals that support the Aquatic Resources Program in the conservation and restoration of riparian and aquatic resources and the protection of water supplies for the benefit of all Californians. These four goals below tie directly to the Program's core functions of conservation, restoration, and sustainability. Their successful implementation is dependent on funding, staff, decision support, environmental compliance, and collaboration.

Each goal is broad enough to support resource management plans or project-level objectives that address current- and future-challenges such as invasive species, and increasing public demands on natural resources, and impacts from drought, floods, and other extreme weather events. To achieve these four long-term goals, the BLM must work collaboratively both within the agency and with partners to conserve and protect aquatic habitats and their dependent species. Using the AIM strategy, as well as the best available science we can begin to evaluate the success of our resource management plans and actions taken to protect species, water quality, and habitat to inform adaptive management.

Goal 1: Conserve, Restore, and Connect Riparian and Aquatic Resources

As one of the largest landowners in California, the BLM has a critical role to play in ensuring the health and sustainability of riparian and aquatic resources and ecosystem resistance and resilience to combat climate change. The BLM must focus on policies and management efforts that conserve remaining high-quality lands and waters, restore degraded riparian and aquatic resources, and ensure the connectivity of these systems. Conservation of good habitat and restoration of degraded aquatic and riparian resources are important activities to achieving this goal.

Objective 1.1: Conserve Remaining High-Quality Lands and Waters
Actions:

a. Remove, minimize, or mitigate current threats and stressors to remaining high-quality riparian habitats, fisheries and amphibian habitats, and water resources.

Objective 1.2: Restore Degraded Riparian, Fisheries, and Water Resources
Actions:

a. Restore processes required to improve the health and associated resistance, resilience, and adaptability of riparian, fisheries, and water resources, where applicable. Examples include restoring floodplain connectivity, habitat diversity, instream flows and thermal regimes, and the natural processes supporting surface water and groundwater retention.

b. Streamline the administrative process for restoration projects by developing programmatic environmental assessments and improving coordination with permitting agencies.
c. Develop and implement tools to prioritize watersheds and water bodies for restoration and to assess the efficacy of restoration activities.
d. Recruit and employ the next generation of resource specialists to conduct restoration efforts.

Objective 1.3: Connect Riparian, Fisheries, and Water Resources
Actions:

a. Reconnect tributaries within mainstem habitat by removing fish passage barriers and maintaining free-flowing and adequate thermal conditions throughout watersheds.
b. Reconnect systems laterally by ensuring floodplains are connected and rivers are free to traverse valley floors to dissipate energy, recharge aquifers, and create complex habitats.
c. Maintain groundwater levels and discharge to springs, riparian and wetland systems, streams, and other freshwater resources that provide habitat and ecosystem services.
d. Implement these strategies in compliance with state water laws.

Goal 2: Protect Water Supplies and Uses

Water resource sustainability is the development and use of surface and groundwater water supplies to meet present and future needs without causing unacceptable environmental or socioeconomic consequences. Providing for future needs requires developing sustainability goals and informed long-term engagement in Federal and State procedures that guide the allocation and administration of water. Increasing proactive measures to protect instream and groundwater dependent uses on BLM-managed lands is key to providing reliable water supplies, building fire and drought resilience, and maintaining the ability of the BLM to conserve the economic and resource values of public lands. In addition, part of reliability entails conserving and acting to improve water quality as required by law, regulation, and policy. Surface water and groundwater management requires appropriate land use management, adequate monitoring of water levels, and water uses.

Unregulated groundwater pumping from aquifers where BLM lands occur is commonplace and can harm BLM resources such as surface and groundwater, as well as BLM-permitted activities such as renewable energy, or mining, as well as groundwater dependent ecosystems. BLM-California needs to be aware that if a groundwater basin is adjudicated, that BLM will have to document permitted land uses and amounts of water required. More adjudications are anticipated as more Groundwater Sustainability Plans are approved by the State of California. Maintaining and improving agency expertise in hydrology and water law is essential to accomplishing this goal.

Objective 2.1: Ensure Water Availability to Sustain Healthy Riparian and Fisheries Resources
Actions:

a. Quantify ecological water requirements by estimating the rate, volume, timing, and quality of surface water and groundwater required to sustain healthy riparian and fisheries resources on public lands.
b. Use the BLM's land use planning and authorization authorities, and develop new or supplemental policies where needed, to ensure water uses on BLM-managed lands are sustainable.
c. Participate in State, Tribal, and community efforts to identify shared sustainability goals and public trust resources to prevent unsustainable uses of surface water and groundwater supplies.

Objective 2.2: Secure Water Rights and Uses for Public Land Management Purposes
Actions:

a. Acquire Federal reserved and State-based water rights in compliance with state law to ensure water is available for public land management purposes.
b. Prioritize proactive measures for areas that are likely to be adjudicated, not fully appropriated, or facing emerging threats. Due to drought and increased water demands in the desert improve water resource monitoring and data management. Examples include inventorying public water reserves[6]and quantifying instream flows for designated wild and scenic rivers and freshwater systems in other components of National Conservation Lands for which Federal reserved water rights have been established.

Dos Palmas has series of ponds that serve as desert pupfish refugia. Pools fed by artesian springs and water from the Coachella canal form a lush wetland area. The exceptional habitat shelters endangered species.

Objective 2.3: Protect Water Rights and Uses in Compliance with State Law
Actions:

a. Participate in state adjudications, federal negotiations to settle tribal water rights claims, and the negotiation of water right settlement agreements.
b. Comply with federal and state water use reporting and water rights administration requirements to maintain the validity of BLM-administered water rights.
c. Determine the extent to which existing and proposed diversions of surface water and groundwater affect the agency's water interests and work with legal counsel to protect those interests.

Goal 3: Prevent the Establishment and Spread of Aquatic Invasive Species

[6] Springs and waterholes that existed as of April 17, 1926, on vacant, unappropriated, unreserved public lands were reserved by Executive order (Public Water Reserve No. 107) for the primary purposes of stock watering and human consumption.

Preventing and controlling the spread of aquatic invasive species (AIS) is critical to conserving
Preventing and controlling the spread of aquatic invasive species (AIS) is critical to conserving aquatic and riparian resources, protecting sensitive species, and mitigating economic losses from local communities. Successful AIS prevention and management requires dedicated and coordinated efforts among multiple agencies and sustained funding. In partnership with national, State, and regional efforts, the BLM will work to prevent and contain the spread of AIS through outreach, prevention, and control measures. Following the U.S. Department of the Interior Invasive Species Strategic Plan, the BLM will work collaboratively to manage aquatic invasive species.

Objective 3.1: Work Collaboratively to Manage AIS
Actions:

a. Ensure all AIS efforts are coordinated across Federal, State, Tribal, and local governments.
b. Work with the State of California to strengthen collaboration to advance efficient monitoring and management strategies.
c. Work to improve invasive species data management for decision making across the California (e.g., Collaborate with the state on AIS Management Plans and where needed monitoring plans, AIS distribution, watercraft inspection tracking, efficacy of control efforts).
d. Educate public land users on invasive species prevention and control measures.
e. Work collaboratively with BLM programs to prevent the spread of AIS from BLM actions or BLM-permitted actions.
f. Develop and implement site-specific prevention, containment, and eradication strategies to reduce the invasion risk and spread of AIS.

Goal 4: Foster a Watershed or Landscape Approach to Benefit Neighboring Communities

Healthy watersheds and landscapes provide clean, safe water resources, which are essential for healthy communities, ecosystems, and economies. The BLM has a key role in managing diverse lands for fishing, subsistence needs, clean drinking water, and economic opportunities associated with permitted water-dependent activities. Individuals and communities also benefit from outdoor experiences and interactions with water resources on public lands to support and rehabilitate their physical and emotional well-being. The watershed or landscape approach requires consideration of the full range of ecosystem processes and functions critical to providing clean, safe water during unprecedented drought.

Objective 4.1: Enhance Education and Outreach
Actions:

a. Develop new water quality monitoring and restoration partnerships with Federal, State, Tribal, and local governments; nongovernmental organizations; and frontline communities.
b. Promote and continue to participate in programs such as the American Fisheries Society's Hutton Junior Fisheries Biology Program and the Civilian Climate Corps to provide summer internships and mentoring opportunities for underrepresented communities.
c. Increase participation in programs, such as Project Healing Waters Fly Fishing and the Wounded Warrior Project, that seek to rehabilitate the physical and emotional well-being of disabled veterans and underrepresented communities.
d. Promote BLM engagement in citizen science efforts to improve public understanding of freshwater resource conditions.

The King Range NCA covers 68,000 acres and extends north 35 miles from the mouth of the Mattole River. The foreground has flowers, with a small farm. The beach and estuary of the Mattole River is in the middle of the picture. Past the estuary are the steep slopes of California's Lost Coast.

Objective 4.2: Reduce the Release of Pollutants Into Public Waters
Actions:

a. Ensure the BLM's land use plans and policies provide for compliance with applicable water pollution standards, basin plans, and incorporate provisions allowing for the suspension or revocation of a lease/grant/permit/authorization for noncompliance with water quality standards.
b. Use the California Best Management Practices for Water Quality to design and implement projects to protect water quality in the project area.
c. Collaborate with law enforcement and other programs to identify areas with illegal cannabis grows in need of rehabilitation and restoration after HAZMAT and other dangerous elements have been removed.
d. Collaborate with BLM programs to identify wells, well sites, and other uses on public lands that pose a risk to water quality and drinking water supplies to ensure full compliance with applicable water pollution standards.
e. Develop and implement tools to identify priority watersheds and river segments for water quality improvements and protections.
f. Update or develop new memoranda of understanding/agreements with the Environmental Protection Agency and State and local agencies to protect water quality.

Atwell Island is a BLM wildlife sanctuary in the middle of farms in the Central Valley. Alpaugh and Allensworth students study water quality as part of the Atwell Island Project-Work Based Learning Program.

KEYS TO PROGRAM SUCCESS

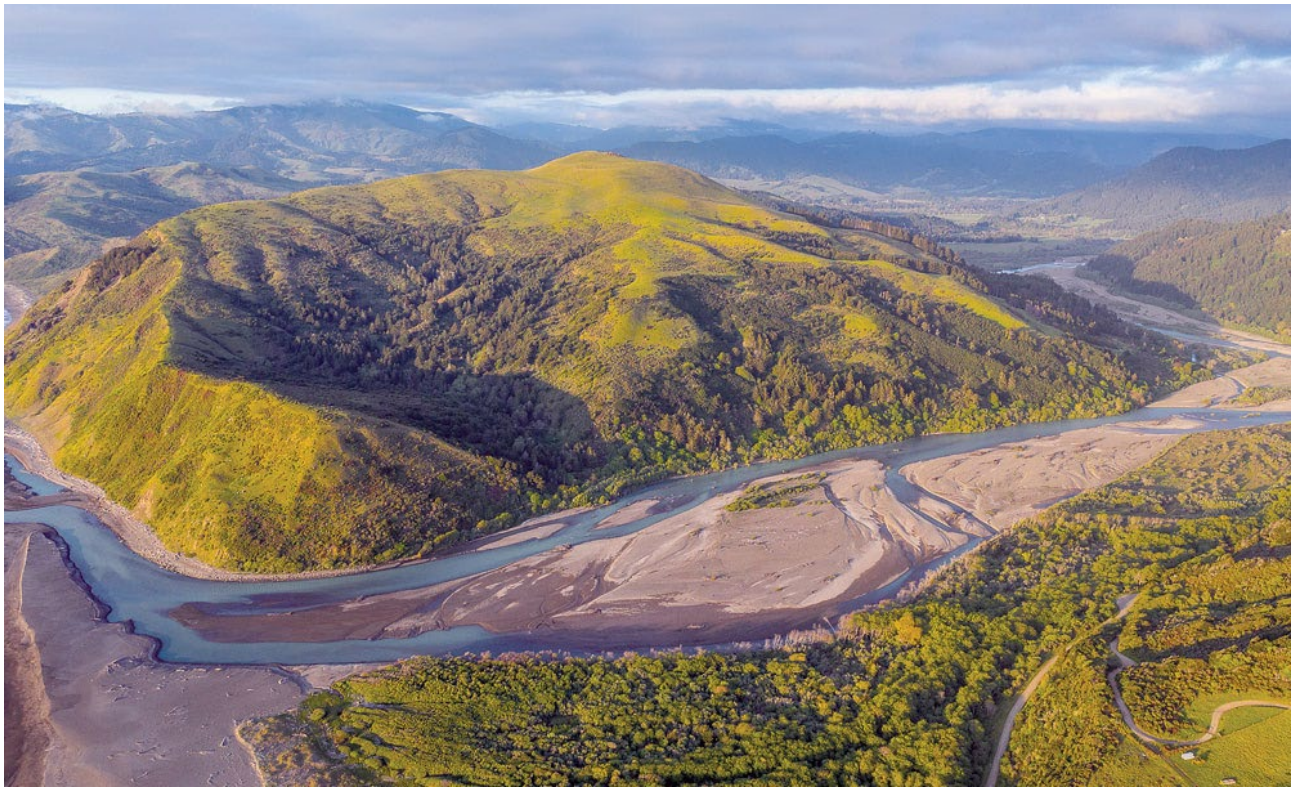
Achievement of these four long-term goals requires BLM-California to implement an integrated Aquatic Resources Program. The Aquatic Resources Program highlights four that focus on increased use of process-based restoration, improved partnerships, enhanced human capital, and generating and using the best available science to inform management decisions. Outreach and partnerships are key to the success of the program.

Increase Sustainable Restoration of Physical and Biological Processes

A process-based[7] approach to restoration promotes healthy riparian, fisheries, and water resources and their resistance, resilience, and adaptability to droughts, wildfire, and flooding and yields benefits for water supplies, habitats, species, and local economies. Process-based restoration seeks to reestablish normal rates and magnitudes of physical, chemical, and biological processes that create and sustain riparian, fisheries, and water resources. Example practices include reestablishing natural hydrologic or thermal regimes; promoting lateral, longitudinal, and vertical connectivity of riparian and fisheries resources; and managing uplands for natural rates of sediment erosion and

[7] https://www.americanrivers.org/resource/new-report-state-of-the-science-on-restoring-western-headwater-mountain-streams/

transport. Process-based approaches are cost effective and efficient, allowing BLM field offices to implement restoration at scales that match the scope of degradation.



Mattole River Estuary showing side channels, floodplain elevation changes, and other process-based restoration work done to improve salmonid habitat and survival in the estuary. The Mattole Salmon Group; Mattole Restoration Council; and, U.S. Bureau of Land Management, Arcata worked together to implement the restoration.

Improve Partnerships to Further the Science and Management of Public Lands and Waters

Successful implementation of conservation and process-based restoration projects requires partnerships in:

- Education and outreach to inform communities about the benefits of riparian, fisheries, and water resource conservation and restoration for drought resiliency, clean water supplies, the control of aquatic invasive species, and the recruitment of the next generation of resource managers.
- Conservation, restoration, and connectivity efforts beyond the BLM's footprint—bringing together diverse interest groups representing different perspectives.
- Research involving Federal partners, Tribes, universities, and other stakeholders, to ensure the best available science and data inform the decision-making process. Example focal areas include new species monitoring tools such as environmental DNA, planning and monitoring approaches for implementing and assessing the efficacy of processed-based restoration, mapping of flow permanence and hydrologic regimes, quantifying ecological water requirements, and responding to a changing climate.

Enhance and Maintain the BLM's Human Capital and Technical Expertise

To successfully carry out the mission and core functions of the Aquatic Resources Program, BLM-California requires significant breadth and depth of professional skills. Fish and aquatic ecology, riparian and wetland ecology, water rights, groundwater and surface water quality, and groundwater modelling are skills needed within the state to accomplish the core functions of this program. BLM-California should employ a diverse array of technical specialists and invest in continuing education under this program to successfully meet mission requirements. The program must also reestablish early career positions and career ladders to ensure long-term program development and momentum.

Increase Use of the Best Available Science and Data to Inform Decision Making

The Aquatic Resources Program's efforts to support Field Office decision-making process must be evidence-based and informed by the best available science. The program must work across directorates to integrate science into the BLM's decision-making processes. A cornerstone of the Aquatic Resources Program and the BLM's decision making is inventory, assessment, and monitoring information. These data are required by FLPMA to characterize what resources exist, where they are located, what condition they are in, how they are used by people and wildlife, and how they are changing over time in response to natural and anthropogenic drivers. Furthermore, such information is needed to inform actions required to conserve or restore riparian, fisheries, and water resources. BLM-California should further implement the AIM program. This includes multiscale applications from national-scale reporting, field data to improve remotely sensed products, and local-scale applications that integrate AIM with other assessment and monitoring tools such as Multiple Indicator Monitoring and assessments of riverscape health. These data, and all other information sources, must be current and of known quality, stored in enterprise data systems, and readily available to the BLM's decision makers. All information used to inform decisions shall be robust, repeatable, transparent, and adhere to the Department of the Interior's scientific integrity standards.

CONCLUSION

The Aquatic Resources Program applies a broad scale approach to maintain or restore habitats and water quality in shared landscapes and to build the resistance and resilience of water resources to natural and anthropogenic disturbances. This cohesive aquatic strategic plan will enable the BLM field offices and districts to identify needs for aquatic and riparian habitat conservation and improved water quality to support fishing, wildlife viewing, and other favored outdoor activities. An increased emphasis will be placed on collaborating with other programs and partners that share responsibility for preventing water quality degradation, loss of groundwater, managing fisheries, aquatic, and riparian habitat, and ensuring that communities have safe drinking water.

BLM-California is strongly committed to working in cooperation with States of Nevada and California, other Federal agencies, and Tribal governments. Frequent partnerships with nongovernmental organizations, private landowners and water users, the private sector, and others can accomplish specific objectives and protect valuable aquatic and riparian resources. Our work to protect, restore, and enhance aquatic, riparian, and water resources has become increasingly integrated across disciplines and ever more collaborative. As we carry out this strategic plan, we will strive to ensure that abundant fish and aquatic species; and healthy aquatic and riparian habitats are available for Americans to enjoy both now and for generations to come.