

BUREAU OF LAND MANAGEMENT

# Water Resource Program Strategy

*Focus on Integration*

2015–2020

September 2015

BLM





**Suggested citation:**

Ford, L.A., and R.J. McCormick. 2015. Bureau of Land Management Water Resource Program Strategy: Focus on Integration, 2015-2020. U.S. Department of the Interior, Bureau of Land Management, Washington Office, Washington, DC.

Production services provided by the BLM National Operations Center's Information and Publishing Services Section in Denver, Colorado.

BLM/WO/GI-15/015+7400

BUREAU OF LAND MANAGEMENT

# Water Resource Program Strategy: Focus on Integration 2015-2020

**Authors:**

Larisa A. Ford, Soil, Water, and Air Program Lead  
BLM Washington Office, Washington, DC

Ron McCormick, Ecologist  
BLM Washington Office, Washington, DC

SEPTEMBER 2015





*The BLM must address complex and critical water resource management matters, including important supply and demand situations in the face of a changing climate, that will affect its ability to authorize many activities during periods of drought, flood, and increased fire intensities, all in the context of greater surface and ground water use demands.*

# SOIL, WATER, and AIR PROGRAM

## Mission Statement:

We maintain and improve foundational processes to ensure resilience of our watersheds and other landscapes and to promote ecosystem integrity by protecting, maintaining, and improving the quality of soil, water, and air resources on public lands in partnership with communities and stakeholders.

## Vision Statement:

The Soil, Water, and Air Program seeks to improve the quality and effectiveness of decisions made by the Bureau of Land Management by:

- (1) Integrating natural resource conservation and sustainable use principles in soil, water, and air activities and functions.
- (2) Providing effective engagement with other programs, partners, and stakeholders.
- (3) Striving to make soil, water, and air resources knowledge and expertise accessible throughout the BLM.

# Table of Contents

Executive Summary . . . . . iii

1. Introduction . . . . . 1

2. Emphasis, Perspective, and Approach. . . . . 3

    2.1 A Watershed Emphasis . . . . . 3

    2.2 A Landscape Perspective . . . . . 4

    2.3 An Ecosystem Services Approach . . . . . 5

    2.4 Protecting Water Quality and Quantity . . . . . 6

3. Collaborate to Protect and Restore Watersheds. . . . . 9

    3.1 Bureau of Land Management. . . . . 9

    3.2 Federal Partners . . . . . 9

    3.3 Tribes . . . . . 12

    3.4 State and Local Agencies. . . . . 12

    3.5 Other BLM Programs and Initiatives . . . . . 12

4. Goals and Objectives . . . . . 15

    4.1 Goal 1: Increase proactive measures taken to reduce the introduction of traditional pollutants to water resources. . . . . 15

    4.2 Goal 2: Incorporate collaborative, regional watershed resource assessments into BLM standard practices . . . . . 15

    4.3 Goal 3: Improve the breadth, depth, and efficiency of water quality monitoring and the effectiveness of subsequent analyses. . . . . 16

    4.4 Goal 4: Improve the availability of and access to water quality monitoring data . . . . . 16

    4.5 Goal 5: Improve relationships with other agencies and stakeholders . . . . . 17

    4.6 Goal 6: Enhance and maintain the BLM’s technical expertise relevant to water resources. . . . . 18

5. Summary. . . . . 21



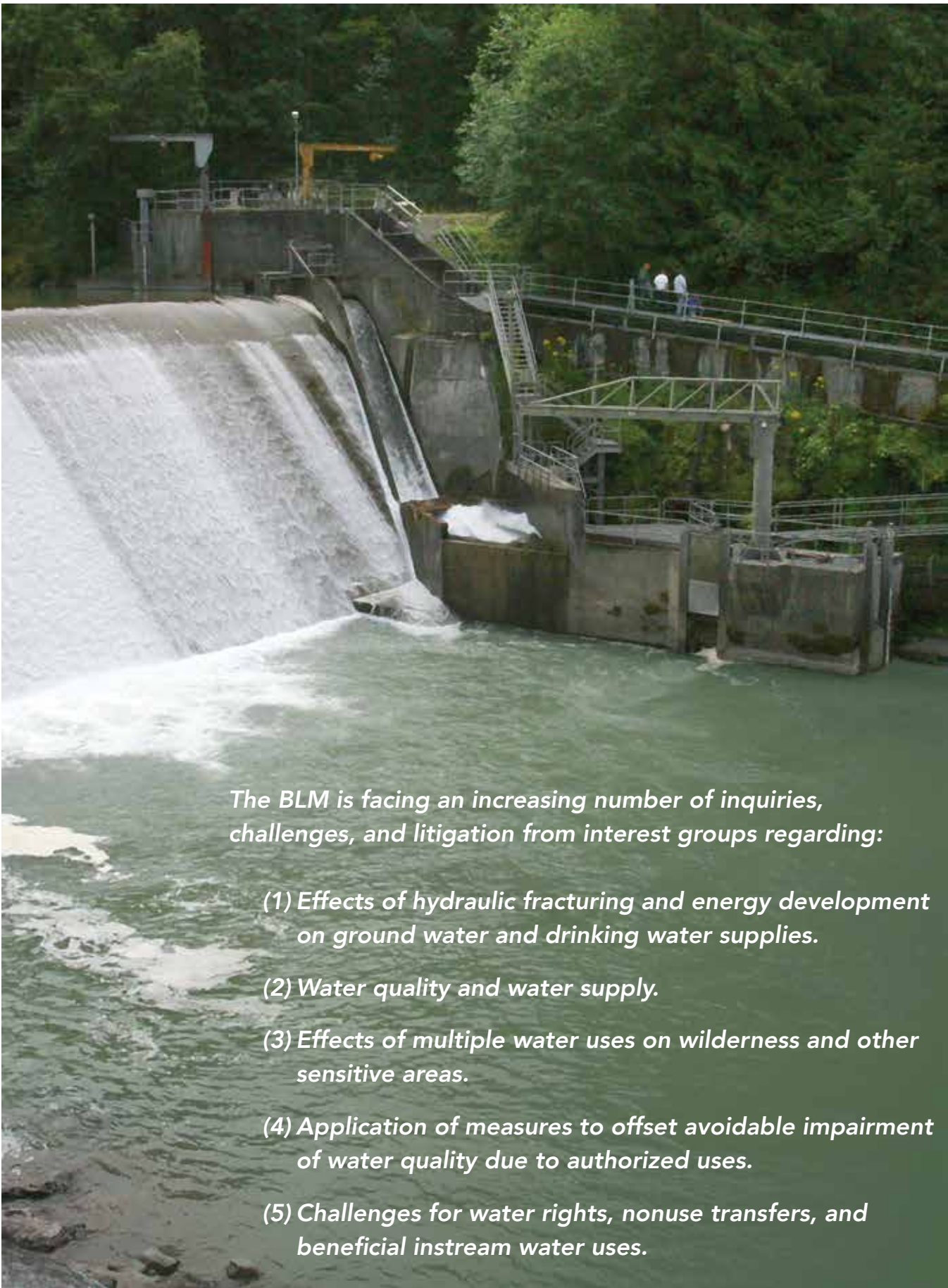
# Executive Summary

The Bureau of Land Management (BLM) Soil, Water, and Air Program is establishing 5-year strategies for all three program elements to support BLM professionals in meeting conservation challenges posed by increasing societal demands for ecological resources on public lands. This strategy highlights the management challenges particular to water resources and describes the diverse roles and responsibilities of federal, state, and tribal governments, along with local agencies. This strategy outlines six overarching goals for the BLM Water Resource Program to achieve over the next 5 years. This strategy will enable the BLM to continue protecting water resources while complying with the Federal Land Policy and Management Act's multiple-use and sustained-yield mandate for managing public lands.

The goals highlighted in this strategy include: (1) increase proactive measures taken to reduce the introduction of traditional pollutants to water resources; (2) incorporate collaborative, regional watershed resource assessments into BLM standard practices; (3) improve the breadth, depth, and efficiency of water quality monitoring and the effectiveness of subsequent analyses; (4) improve the availability of and access to water quality monitoring data; (5) improve relationships with other agencies and stakeholders; and (6) enhance and maintain the BLM's technical expertise relevant to water resources.

A critical aspect of this strategy is the use of a landscape approach based on watershed boundaries. This places new emphasis on proactive measures to reduce discharges, enhance regional salinity reduction assessments, design and implement monitoring plans, and improve data management. Also, equally critical elements include increasing collaborative relationships with other agencies and stakeholders and strengthening the water expertise within the BLM. This strategy offers opportunities for continual learning to inform BLM water resource professionals as well as to support other resource management efforts.





*The BLM is facing an increasing number of inquiries, challenges, and litigation from interest groups regarding:*

- (1) Effects of hydraulic fracturing and energy development on ground water and drinking water supplies.*
- (2) Water quality and water supply.*
- (3) Effects of multiple water uses on wilderness and other sensitive areas.*
- (4) Application of measures to offset avoidable impairment of water quality due to authorized uses.*
- (5) Challenges for water rights, nonuse transfers, and beneficial instream water uses.*



# 1. Introduction

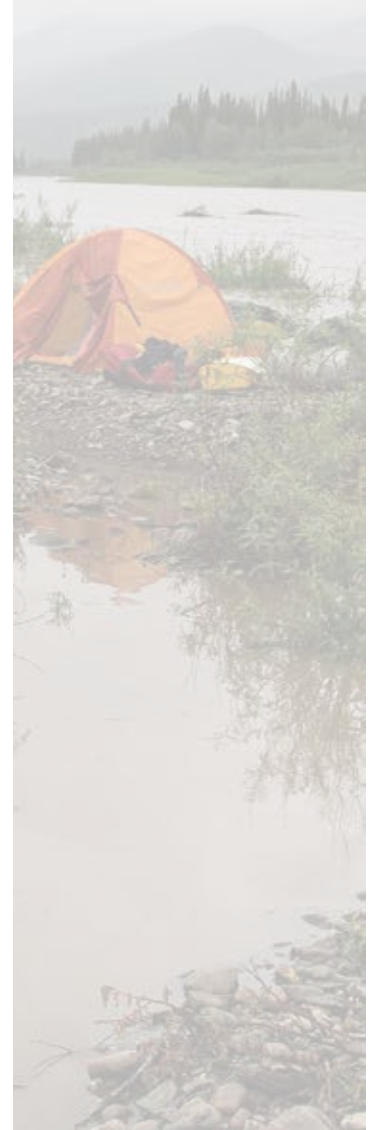
As part of managing the use of its trust resources, the U.S. Department of the Interior’s Bureau of Land Management (BLM) assesses and authorizes actions related to energy development, mineral extraction, timber harvesting, grazing, rights-of-way, dams, recreational opportunities, and other activities that may release pollutants or toxins into surface or ground waters. The Federal Land Policy and Management Act (FLPMA) directs the BLM to manage its 245 million surface acres of public lands and 700 million subsurface acres of mineral estate on the basis of “multiple use” and “sustained yield” principles.

Along with FLPMA, two other federal statutes—the Clean Water Act (CWA) and the National Environmental Policy Act (NEPA)—guide the BLM’s uses of water resources. Several provisions of FLPMA apply directly to this strategy, including: (1) that the BLM will manage the public lands in a manner that maintains water quality and protects the ecosystem values derived from water resources; (2) that the BLM’s land use plans provide for compliance with applicable water pollution standards, among other laws; and (3) that the BLM incorporate provisions allowing revocation of a lease or suspension of a use authorization for noncompliance with water quality standards or implementation plans. A common

thread among these policies is the need for accurate and timely information regarding resource location, amount, condition, and trend.

While the CWA defines a regulatory framework for protecting and improving the nation’s water quality, the BLM’s water resource decisions may, in certain circumstances, complement CWA requirements, particularly when they protect public lands, as broadly defined in FLPMA, from unnecessary and undue degradation. NEPA offers a process for identifying water resources that should be considered during the environmental review process. Under the NEPA process, the BLM is required to characterize any potential environmental effects from actions it authorizes and to offer design and permitting options to eliminate or effectively mitigate any expected adverse environmental effects.

The BLM is facing increasingly complex and critical water resource issues, such as drought and climate change, that affect its ability to authorize many activities and uses. For example, using water to develop new energy projects may influence instream flows that maintain ecosystem provisioning services and support fish habitat. The challenge for BLM managers is to decide which of the many competing activities



can be authorized within a given landscape.

The BLM is also facing mounting challenges, protests, and litigation from special interest groups regarding the effects of hydraulic fracturing and energy development on ground water and drinking water supplies and water quality. It is critical for the BLM to address these matters in order to: (1) appropriately authorize

activities and uses consistent with FLPMA's "multiple use" and "sustained yield" principles and FLPMA's provisions to protect water resources and ecosystem values; and (2) ensure the BLM is in compliance with the CWA. Addressing these matters directly should increase confidence and certainty in the BLM's planning and NEPA processes, benefiting the BLM, its government partners, and other stakeholders.



## 2. Emphasis, Perspective, and Approach

### 2.1 A Watershed Emphasis

A watershed boundary is delineated using the simple concept of which way a drop of water moves when it hits the ground. However, a watershed is much more than water moving downslope with gravity. In the 1860s, explorer and scientist John Wesley Powell spoke of a watershed as “that area of land, a bounded hydrologic system, within which all living things are inextricably linked by their common water course and where, as humans settled, simple logic demanded that they become part of a community.”

Watersheds can be as small as a footprint or large enough to encompass most of a continent, such as the Amazon River that drains half the rivers of South America into the Atlantic Ocean. For perspective, the Amazon River drains twice as much land area as the Nile and Mississippi Rivers combined and has more than 10 times the discharge volume (again, combined). Thus, the term watershed does not define a scale—that is, there is no such thing as “watershed scale” analyses—but it does describe a specific landscape and includes all the biotic and abiotic elements within and the greater landscape matrix beyond the bounds.

The United States and Puerto Rico, for example, have 2,267 defined subbasin watersheds (4th order, 8-digit Hydrologic Unit Code). These watersheds cross county, state, and national boundaries and are often managed by a diverse group of public and private entities. A landscape approach to watershed management must include interagency collaboration. By increasing its collaborative efforts, the BLM can more effectively manage its trust resources by leveraging the millions of dollars spent annually toward conjoint watershed management and monitoring actions.

Watersheds are more than just a source of water. They represent an integrated landscape where what happens in the upper reaches affects everything downstream. The demands of downstream users (both people and fish) limit what can be done upstream. Using a landscape perspective when assessing potential management actions requires those who live, work, and play in the watershed to look beyond their particular piece of land or planned projects and take into account the surrounding matrix of lands that can or will be affected by their actions. Roads, dams, gravel pits, parking lots, irrigation ditches, and neighborhoods all alter the volume, timing, and flow rate of



water—all aspects of ecosystem services. A landscape perspective accounts for changes to the efficiency of ecosystem processes and design plans accordingly, eliminating the socially and economically unacceptable changes and mitigating the remaining to a level accepted by stakeholders.

Local and global societies extract water, timber, minerals, and a vast number of other ecosystem services from their surrounding landscapes. Even if the BLM does not use this terminology, society as a whole is absolutely dependent on the continued provision of goods and services from the ecological system. This concept continues to gain recognition in social and scientific settings as the emergent deleterious effects of mismanaging water resources become more apparent in the economy. The increased understanding and awareness of the value of ecosystem services has prompted the global water community to take steps toward managing landscapes (watersheds) to support socially acceptable and sustainable water uses. With urban populations growing and water demands on the rise, the BLM must act to ensure that the ecological benefits, demanded by society and provided by resilient and intact ecosystems, remain available.

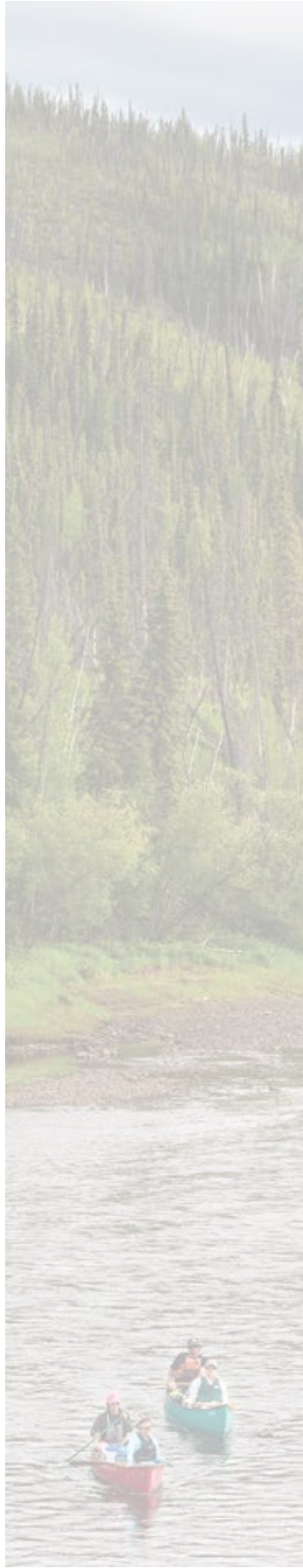
## 2.2 A Landscape Perspective

To optimize the continued provision of ecosystem services

across BLM-managed watersheds, the agency needs to promote the understanding of:

- The social, economic, and ecological context of any proposed management action with respect to the landscape, including watersheds, to potentially affected stakeholders.
- The current status and anticipated trajectory of ecological resources and systems of interest.
- The hierarchical segregation of organisms, communities, populations, and ecosystems, as defined by and scaled to a proposed management action.
- The resilience capacity of desired ecological resources and systems.
- The capacity of undesired ecological resources and systems to resist management efforts.
- Change agents currently active and those anticipated to be active for the duration of an authorized action, including the monitoring period.

Strategies to protect aquatic ecosystems include reducing water demand through conservation, managing water within the bounds of an ecological flow prescription, planning for the allocation of ecosystem services during periods of drought, and protecting source watersheds. The Water Resource Program's approach provides information concerning water quality and quantity in the context of specific watersheds, making



these data readily accessible to decisionmakers when considering effects on landscapes and other ecological resources.

## 2.3 An Ecosystem Services Approach

The beneficial aspects of local to global ecological systems have been recognized for ages by individuals and communities, yet only recently has the ecosystem services concept been expanded to describe these benefits valued by society as a whole. An ecosystem service is any positive benefit that the ecological system provides to people and society. The benefits may be direct or indirect. In general, four major categories of ecosystem services have been identified: provisioning, regulating, cultural, and supporting services. Water resources provide many ecosystem services in each of the four categories.<sup>1</sup>

### Provisioning Services

Provisioning services include any type of benefit to people that can be physically extracted from nature, such as food, water, and firewood. A society benefits from access to drinkable surface and ground water provided by ecosystem processes as water moves through soil into rivers, lakes, and aquifers.

### Regulating Services

Regulating services include those basic ecosystem services that moderate natural phenomena,

such as floods, wildfire, and weather patterns, and control the growth of plant and wildlife populations, including diseases. Most regulating services make a local environment appear stable, so people and societies can plan for the future with the expectation that the rains will come and the rivers will flow, but only in the anticipated ways.

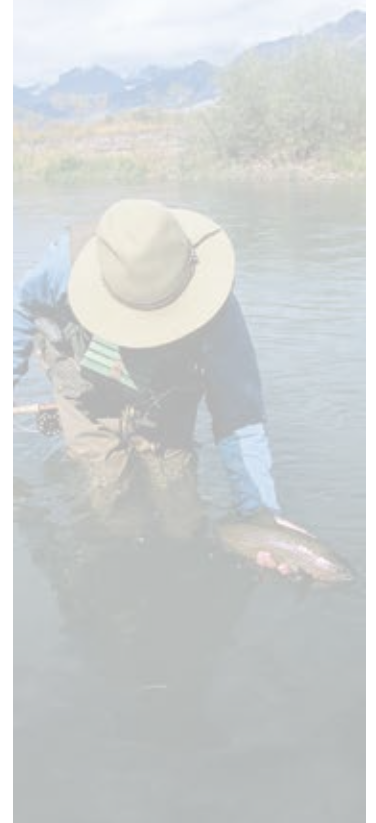
### Cultural Services

Cultural services are primarily nonmaterial benefits that contribute to the cultural development and evolution of people and society. Water resources provide cultural services by being the source of inspiration for music and art, being incorporated into architecture, being used during cultural and spiritual events, and by being a source for recreational activities.

### Supporting Services

Supporting services are essential background natural processes, such as photosynthesis, that are fundamental to the ecosystem itself. The water cycle (Figure 1) is a primary driver of ecosystem processes, aiding other supporting services such as nutrient cycling.

It is important that the BLM recognizes and articulates how potential authorized uses can affect ecosystem services. In this way, plans can be altered to avoid unmanageable changes, or adapted to mitigate unavoidable changes, such as climate change.



<sup>1</sup> Island Press, "Millennium Ecosystem Assessment: A Toolkit for Understanding and Action" (Washington, DC: 2007).

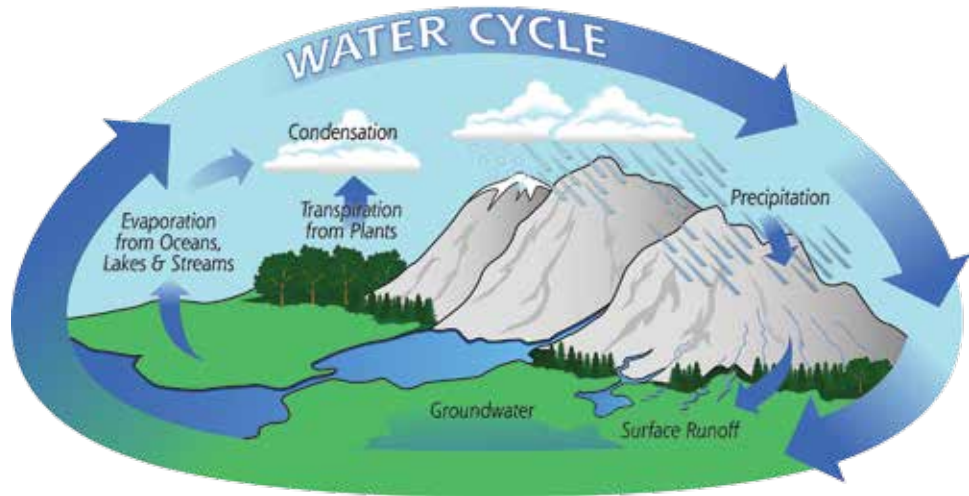


Figure 1. Diagram of the water cycle ([www.pmm.nasa.gov](http://www.pmm.nasa.gov))

## 2.4 Protecting Water Quality and Quantity

The BLM strives to sustainably manage the ecosystem services that regulate water quantity and affect water quality on landscapes under its jurisdiction. An increased emphasis will be placed on instituting measures to reduce pollutant loading into public waters, improving monitoring methods, and increasing data availability. It will also be important to establish and improve partnerships with stakeholders in a watershed, as well as to provide technical expertise on water resource and rights matters to internal and external partners. The BLM anticipates that the emphasis on protecting water supplies for sustainable uses is the best way to meet the Secretary of the Interior’s mission area #5 from the “Strategic Plan for Fiscal Years 2014-2018,” which is “Ensuring healthy watersheds

and sustainable, secure water supplies.”

### Considering a Changing Climate

A changing climate very likely will affect the water cycle and all connected seasonal and decadal processes, including nutrient cycling rates and snowpack (Figure 2). The BLM should consider these effects when choosing management actions in order to successfully protect water supplies for current and future needs. Analysis of long-term datasets indicates that average air and ocean temperatures are changing; snow and ice are melting at an increased rate and factor into rising sea levels (along with increasing water temperatures).

Regionally, the amount and intensity of precipitation has become more variable, and those trends are expected to continue. Increased variability in precipitation rates, volume, and timing will affect streamflows, soil moisture regimes, and ground



water recharge. Subsequent changes in vegetative cover and biogeochemical cycling rates within a watershed, along with changing societal demands for water supply, are anticipated. Nutrient, sediment, and pollutant loading to streams and lakes will

be influenced by wider water temperature ranges, adjacent land use actions, and changes in runoff volume and patterns. The effects of a changing climate will continue to influence BLM decisions that affect water resources and the ecosystem services they provide.

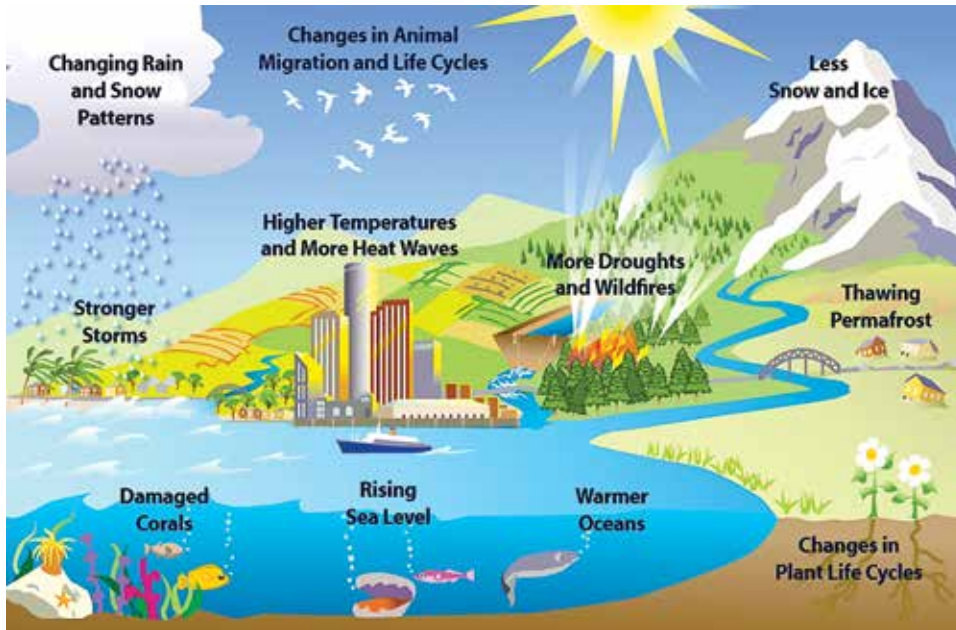
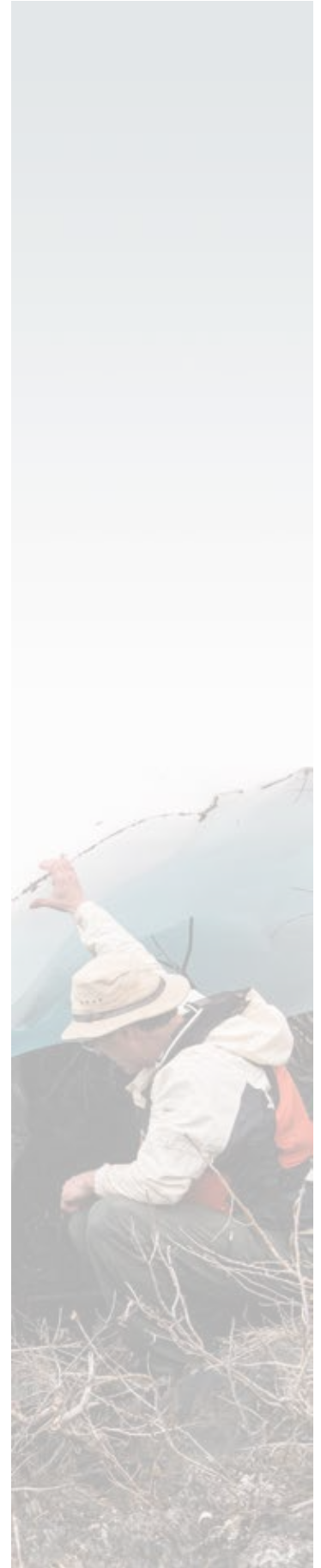


Figure 2. Diagram showing examples of the effects of climate change ([www.epa.gov](http://www.epa.gov))



*Water resources cross geographic and political boundaries and are important to numerous government entities, interest groups, and the general public.*





## 3. Collaborate to Protect and Restore Watersheds

Federal, state, and tribal governments, along with local agencies, have distinct roles and responsibilities under the legal frameworks governing water resources. Water resources cross geographic and political boundaries and are important to numerous government entities, interest groups, and the general public. Therefore, the BLM must collaborate with all levels of government, stakeholders in the private and nonprofit sectors, and members of the public to protect and use water resources on public lands.

### 3.1 Bureau of Land Management

The BLM manages the public lands under the principles of “multiple use” and “sustained yield” as described in FLPMA, which directs the BLM to manage the public lands in a manner that will protect the quality of water values, among others. Under FLPMA, the BLM must also ensure that BLM-authorized activities comply with the CWA and all applicable federal, state, tribal, and local water quality laws and regulations. One way in which the BLM manages water resources is by establishing goals and objectives in land use plans that must, at a minimum, comply with regulatory standards; these goals

and objectives also may give effect to FLPMA’s instructions to protect water quality and supplies.

The BLM maintains partnerships and coordinates efforts with other state and federal agencies that have responsibilities, such as:

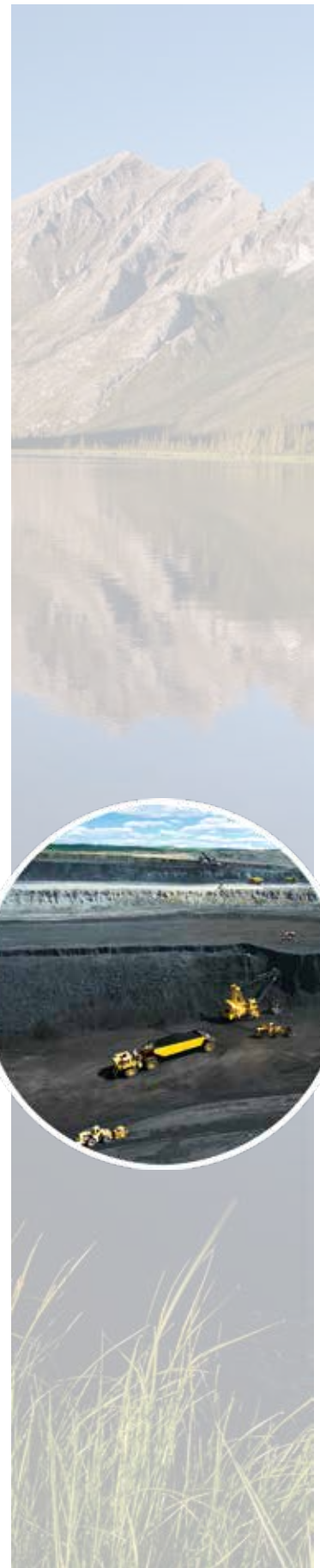
- Managing federal lands, natural resources, and tribal trust resources.
- Managing waterways and federal water storage projects.
- Permitting and oversight of surface mining.
- Implementing and providing oversight of federal environmental legislation.
- Researching earth science and agricultural science.
- Assisting private agricultural producers.

### 3.2 Federal Partners



#### **U.S. Environmental Protection Agency (EPA):**

The EPA is the lead federal agency for the protection of human health and the environment, using tools such as the CWA and the Clean Air Act. The BLM complies with federal environmental laws in its management of lands and resources just as any other entity





and thus communicates with and occasionally partners with EPA offices and officials. An example of partnership with the EPA is a locally based nonpoint source control project for sediment and nutrients; the project includes multiple ownerships in a small watershed, including federal land managers, private landowners, and a state game and fish agency.

 **U.S. Geological Survey (USGS):**

As the lead federal water data collection agency, the USGS is often a partner with the BLM in the establishment and operation of surface water monitoring stations or stream gauging stations, where quantity and quality of surface water are measured.



**U.S. Forest Service (USFS):** The USFS is often a partner with the BLM because

of the close proximity of many national forests and grasslands to BLM-administered land. An example of partnership with the USFS is collaboration of a watershed assessment on both BLM- and USFS-managed land; the watershed is experiencing high peak flows and high suspended solids loading, causing problems for a community water system at the bottom of the watershed.



**National Park Service (NPS):** The NPS also manages many tracts of land adjacent to land the BLM considers for permitting:

for example, a coal-bed methane well. The BLM will often solicit concerns from another agency if the potential effects appear to be significant for the management objectives of that agency. Stipulations for the development may include provisions that are deemed critical to protect adjacent resources.



**U.S. Army Corps of Engineers (USACE):**

The USACE is the lead federal agency for permitting work in navigable waters and wetlands of the United States; therefore, it is important for the BLM and those seeking permits to conduct relevant activities on BLM land to work in coordination with the USACE. Relevant activities that may require coordination with the USACE include any work in navigable waters and wetlands or for fish habitat improvements.



**Bureau of Reclamation (BOR):** The

BOR is a partner with the BLM in its role as the lead agency in the Colorado River Basin Salinity Control Program, in which the BLM reduces salt loading to the Colorado River by plugging saline wells and performing nonpoint source sediment and salinity control efforts. The BOR is also often a partner in the management of dispersed outdoor recreation at major federal reservoirs.



**Bureau of Indian Affairs (BIA):** The BIA and numerous tribal councils are assisted by

the BLM in several ways, including the BLM’s technical support to the Department of the Interior’s tribal trust management responsibilities (e.g., in the assessment, leasing, and development of energy resources).



**U.S. Fish and Wildlife Service (USFWS):**

The USFWS is the lead federal agency for ensuring compliance with the Endangered Species Act. The USFWS frequently assists the BLM in providing biological consultations on planning and NEPA documents. They also assist the BLM in the development and review of habitat conservation plans and may partner on mutually beneficial vegetative or watershed management projects where USFWS refuge lands lie adjacent to BLM-administered lands.



**Office of Surface Mining Reclamation and Enforcement (OSMRE):**

The OSMRE is the lead agency in preparing environmental impact statements (EISs) in compliance with NEPA for certain coal mine expansions. The BLM is often a cooperating agency in the development of the EIS.

**NRCS Natural Resources Conservation Service (NRCS):**

The NRCS delivers a wide variety of program services, technical assistance, and federal cost sharing to private landowners on western landscapes in which the BLM is sometimes a manager of lands above or below

the targeted private lands. In the planning of conservation assistance and watershed rehabilitation for these targeted lands, there is often exchange of information and sometimes cooperative implementation of projects between the two agencies.



**Agricultural Research Service (ARS):**

The ARS is a major research arm of the U.S. Department of Agriculture and has capabilities in research on livestock grazing systems, rangeland hydrology and water quality, and soil science, including soil erosion and water movement through soils. The BLM has partnered with the ARS in many studies and continues to cooperate with them on topics of mutual interest.



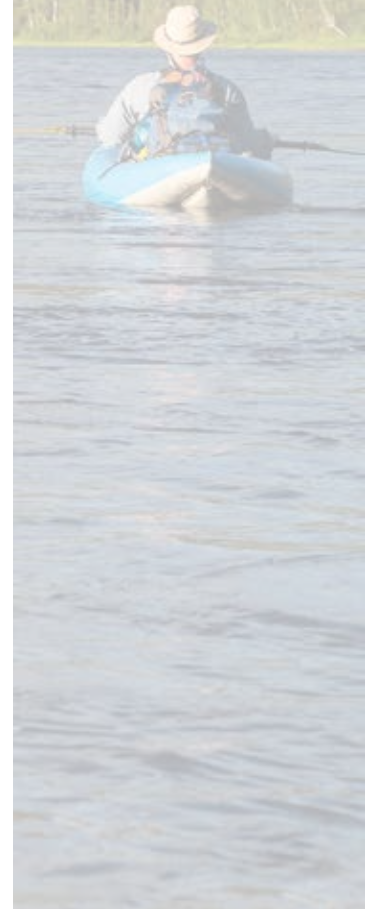
**Department of Transportation (DOT):**

From time to time, the BLM may be asked to work with the DOT and one of its agencies. For example, the BLM may be asked to work on a federal highway project requiring a gravel source adjacent to BLM-managed land.



**Department of Defense (DOD):**

With its many military installations, the DOD is responsible for a significant acreage of land. The BLM has cooperative agreements with the DOD for some land management responsibilities at some of these



installations. For example, the BLM may agree to operate the livestock grazing leasing program or other specific resource management programs for a particular military installation.

### 3.3 Tribes

Indian tribes exercise inherent sovereign powers over their members and territory. The BLM works with tribes on a government-to-government basis to address any water-related matters affecting specific Indian tribes using BLM lands or tribes affected by activities on those lands.

### 3.4 State and Local Agencies

BLM state, district, and field offices also participate in partnerships and maintain relationships on a state or local level with numerous agencies, entities, groups, and institutions (e.g., universities) with water resource responsibilities or aquatic research interests. Partnerships with states can be with various agencies of state government, such as departments of lands, fish and game, natural heritage programs, natural resources, etc. These partnerships and relationships vary by geographic location and management issues and can be very effective in achieving management objectives, leveraging funding, reducing conflict, and obtaining access to

additional technical expertise. Additionally, the BLM may work with various entities on a local level to promote public awareness of the importance of responsible use and practices on public lands to maintain and improve water resources.

The CWA assigns primary regulatory responsibility for national water quality to the EPA. While the EPA has established national water quality standards to protect public health and welfare, most states, some tribes, and some local water regulatory agencies are responsible for implementing, maintaining, and enforcing those water quality standards and complying with other CWA regulations within their respective jurisdictions. These agencies have established their own water quality regulations, which may be more, but not less, stringent than the federal standards.

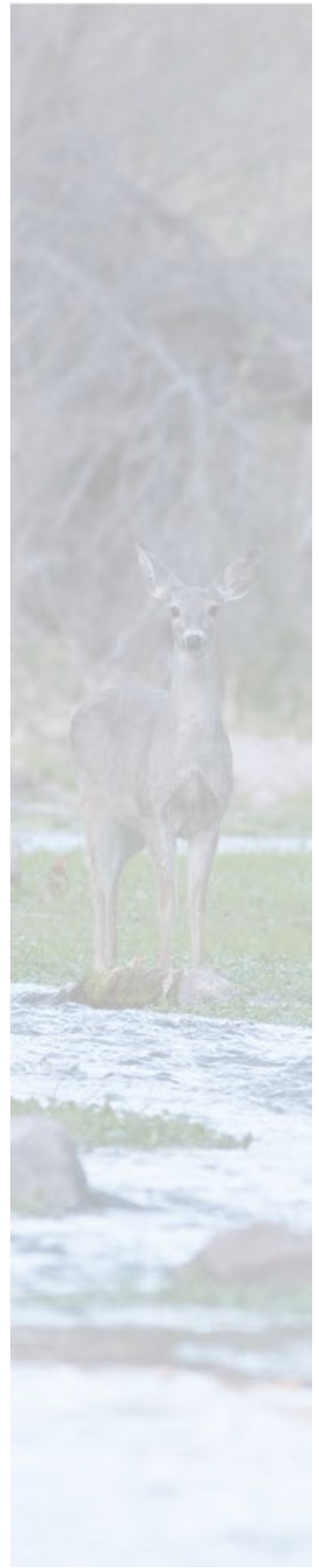
### 3.5 Other BLM Programs and Initiatives

Other BLM programs and directorates, such as the Riparian and Fisheries Programs and the National Landscape Conservation System and Community Partnerships Directorate, contribute routinely to the Soil, Water, and Air Program's goals and objectives for water resources. The Soil, Water, and Air Program is actively pursuing ways to integrate the goals of this strategy into all BLM programs. Quarterly



issue forums are open to all BLM programs; integrated site visits are encouraged; and opportunities to pool resources for projects and training are welcomed. The Soil, Water, and Air Program is available to assist other programs

with technical expertise, training programs, and projects and is anticipating learning from other programs as the aquatic aspects of the BLM's land management responsibilities are integrated.



A high-angle photograph of a river winding through a deep, rugged canyon. The canyon walls are composed of dark, layered rock formations. The river is surrounded by green vegetation and sandy banks. In the distance, more mountain ranges are visible under a blue sky with scattered white clouds. The text is overlaid on the right side of the image.

*This strategy is designed to position the BLM's Water Resource Program as a leader in protecting water resources, while the BLM continues to meet its multiple use and sustained yield principles for managing public lands, including authorizing activities needed to meet increasing demands for resources and recreational opportunities.*

## 4. Goals and Objectives

This strategy is designed to position the BLM's Water Resource Program as a leader in protecting water resources, while the BLM continues to meet its multiple use and sustained yield principles for managing public lands.

The strategy includes six overarching goals:

### 4.1 Goal 1: Increase proactive measures taken to reduce the introduction of traditional pollutants to water resources.

The BLM will adopt proactive approaches to manage water resources on a watershed basis, address challenges resulting from more stringent regulatory standards, respond to increasing human population growth and urbanization, and assess requests for mineral resource development of public lands. This will require the BLM to collaborate with all stakeholders to maintain or improve overall water quality and prevent violations of regulatory standards. The BLM's water quality monitoring activities are intended to inform and support the ultimate objective of limiting discharge of pollutants and sediments into waters.

In support of this goal, the BLM will:

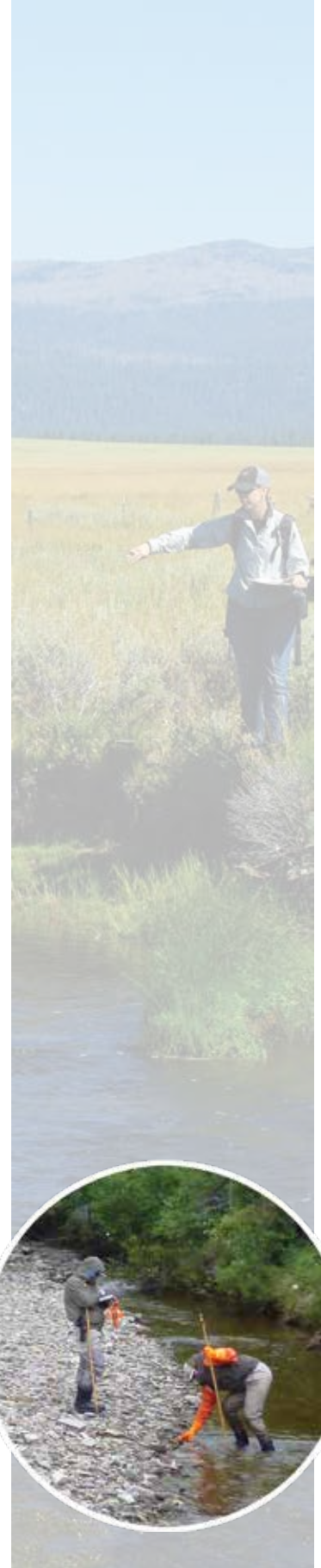
- Continue to develop policies to reduce pollutant and sediment discharges from fluid and solid mineral development and production.
- Increase the use of cost-effective best management practices, technologies, and compliance standards across BLM programs.
- Continue to work with stakeholders when developing or revising resource management plans (RMPs) to create effective water resource goals and objectives to maintain or improve water quality and increase RMP effectiveness.

### 4.2 Goal 2: Incorporate collaborative, regional watershed resource assessments into BLM standard practices.

BLM resource decisions will be improved by incorporating a landscape approach to planning with an emphasis on collaborative watershed assessments.

In support of this goal, the BLM will:

- Improve the understanding of hydrologic flow systems and the interaction of ground water with surface water.





- Implement watershed assessments that include anticipated effects of climate change; integrate rapid ecoregional assessment information when available; and use ecosystem services valuations in all planning and decisionmaking processes.
- Complete the watershed assessment handbook.
- Use collaborative watershed workgroups to resolve problems.
- Use watershed assessments and ecosystem-based management to address implementation of Executive Order 13547 (National Ocean Policy) where appropriate.

### 4.3 Goal 3: Improve the breadth, depth, and efficiency of water quality monitoring and the effectiveness of subsequent analyses.

Water resource managers and regulatory agencies request increasingly complex analyses to assess current conditions and increased supply demands for water. These analyses can sometimes be duplicative and expensive. The BLM is developing standard indicators that will address large watershed or landscape resource planning needs through the National Aquatic Monitoring Framework, a component of the Assessment, Inventory and Monitoring (AIM) Strategy.

In support of this goal, the BLM will:

- Continue to work with the AIM implementation team to develop aquatic indicators and complete assessment, inventory, and monitoring criteria where appropriate.
- Conduct collaborative water quality assessment and monitoring activities with state and federal agencies.
- Continue to prioritize and meet regulatory requirements.
- Develop guidance to assist field offices with policy and procedures for water quality matters, incorporating regular reporting requirements so that data are readily available for analyses.
- Assess baseline conditions prior to specific restoration and authorized use activities so effects (positive or negative) can be accurately reported and analyzed.

### 4.4 Goal 4: Improve the availability of and access to water quality monitoring data.

Water quality and quantity monitoring data support and inform BLM resource decisions. For example, prior to authorizing use activities, the BLM uses monitoring data to establish baseline conditions, evaluate trends, and assess potential effects on water resources from authorized



activities. Other public and private organizations, including several federal organizations, use water quality monitoring data to study long-term trends. In addition, federal and state regulators use water quality monitoring data to designate impaired water bodies.

Robust and systematic processes are lacking for storing, managing, and sharing water quality and quantity data within the BLM and among various agencies and stakeholder groups. Often, significant time and resources are expended to compile data from various sources when conducting assessments and analyses. Many of these efforts are redundant, as they are conducted for each individual project within the same geographic area.

In support of this goal, the BLM will:

- Expand the use of portable instruments to address data collection needs.
- Transition to the use of mobile, electronic data capture technologies.
- Improve the efficiency of data collection, reduce overall costs, and leverage resources through cooperative arrangements across field offices and resource programs, with other agencies, and through collaborative partnerships.
- Evaluate viability of using a national database to warehouse data that can be accessed using geospatial analysis technologies.

#### 4.5 Goal 5: Improve relationships with other agencies and stakeholders.

Collaboration among BLM offices, other federal land management agencies, the EPA, state and other water regulatory agencies, and stakeholders is essential for the sustained use and long-term protection of water resources. Collaboration can be challenging because (1) each entity has unique, often competing, sometimes conflicting responsibilities; and (2) stakeholders bring diverse perspectives to water resource management decision processes.

The BLM's land use planning and NEPA processes offer opportunities for collaboration on specific decisions that affect water resources, particularly with agencies that have environmental quality and protection oversight responsibilities. Other opportunities for collaboration include water monitoring data collection, water quality and quantity modeling efforts, selection of appropriate best management practices and erosion control measures, and regional water quality planning activities.

In support of this goal, the BLM will strive to fulfill the following objectives:

- Increase collaboration with other federal land managers, the EPA, and appropriate state agencies.
- Increase collaboration in addressing drought conditions.





The BLM will become an active partner in the EPA-led National Drought Resilience Partnership.

- Engage partners in planning and management efforts to support regional water quality improvement.
- Engage youth and provide outreach opportunities that emphasize water resource issues and protection.
- Continue to participate in regional, interagency workgroups and partnerships to build working relationships, share information, and avoid duplication of efforts. Such efforts include the:
  - Western States Water Council, which is a group of 18 states that promotes the exchange of information, serves as a forum to discuss western regional water quality matters, and shares resources for the common benefit of members.
  - Sustainable Water Resources Roundtable, which promotes sustainability of the nation's water resources through the evaluation of information, development and use of indicators, targeting of research, and engagement of people and partners to improve the management, conservation, and use of water and related resources. Members include federal, state, corporate, nonprofit, and academic sectors.

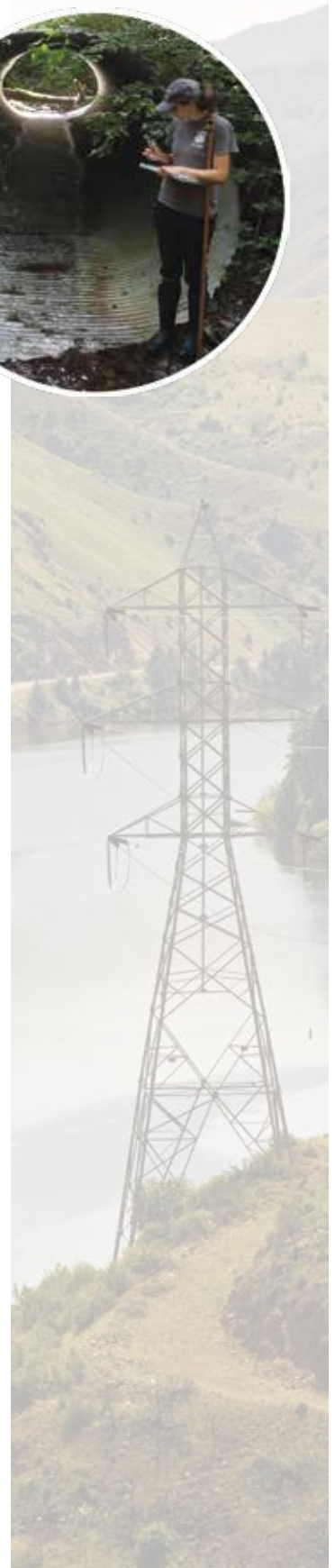
#### 4.6 Goal 6: Enhance and maintain the BLM's technical expertise relevant to water resources.

BLM managers require access to sufficient expertise and information to make informed and effective land use planning and resource decisions, assess resource conditions, comply with changing regulatory requirements, and develop effective relationships with stakeholders. The BLM is facing an increase in both the volume and the technical demands of the work required to meet applicable legal requirements, emerging stressors, and the goals of this strategy.

In support of this goal, the BLM will strive to fulfill the following objectives:

- Increase the number of BLM water resource specialists, including hydrologists, ecologists, and aquatic biologists. Additional specialists, such as water rights managers and riparian or wetland specialists, are needed to ensure that the BLM has sufficient expertise to address and resolve water resource matters associated with the increasing use and development of public lands.
- Increase the effectiveness of water resource specialists and line managers by ensuring access to relevant information and basic training.

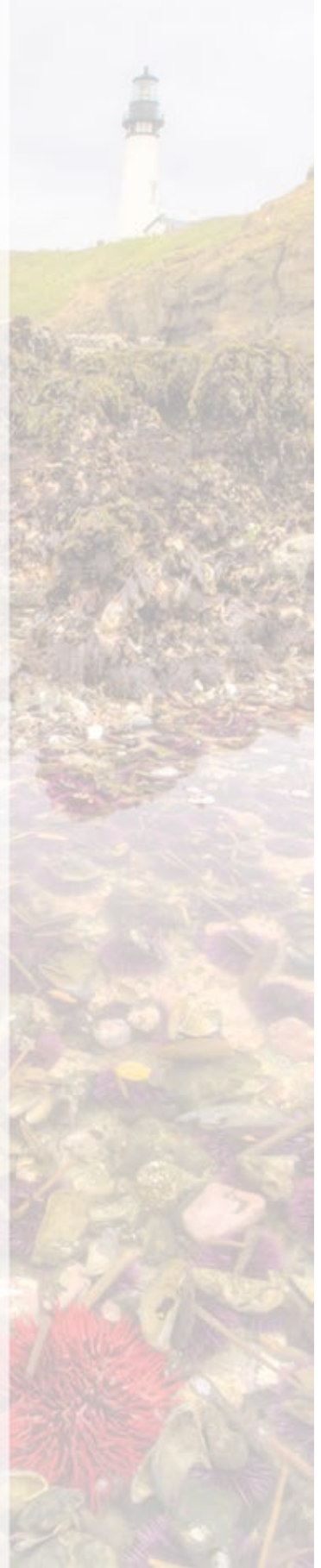
- Develop training courses to improve comprehension and awareness of management, technical, and regulatory water resource matters. Staff also will be encouraged to attend training courses available through other agencies to increase knowledge and build personal working relationships.
- Develop and issue water resource program guidance to ensure consistent approaches are used, and provide references for water contacts and line managers to address technical and process questions, including the water quality manual, water rights manual and handbook, and watershed assessment handbook.
- Increase internal communication and interaction with the Energy, Minerals, and Realty Management Directorate and the National Landscape Conservation System and Community Partnerships Directorate, in collaboration with the Fisheries and Riparian Programs, to address water resource matters.





## 5. Summary

The goals and objectives described in this 5-year strategy will enable the BLM Water Resource Program to meet challenges posed by the increasing demand for resource development and recreational opportunities on public lands. This strategy will enable the BLM to continue to protect water resources while carrying out FLPMA's multiple use and sustained yield mandate for managing public lands. New emphasis on integrated approaches to address resource issues, provide quality data, and improve monitoring and reporting will be critical to its success. Collaborative relationships with other agencies and stakeholders, plus heightened water resource expertise within the BLM, will be equally important. The strategy also offers opportunities for continual learning that can inform the BLM's water resource activities and increase awareness of water resource issues.







The mention of company names, trade names, or commercial products does not constitute endorsement or recommendation for use by the Federal Government.



