

# Montana Drought Demonstration Project

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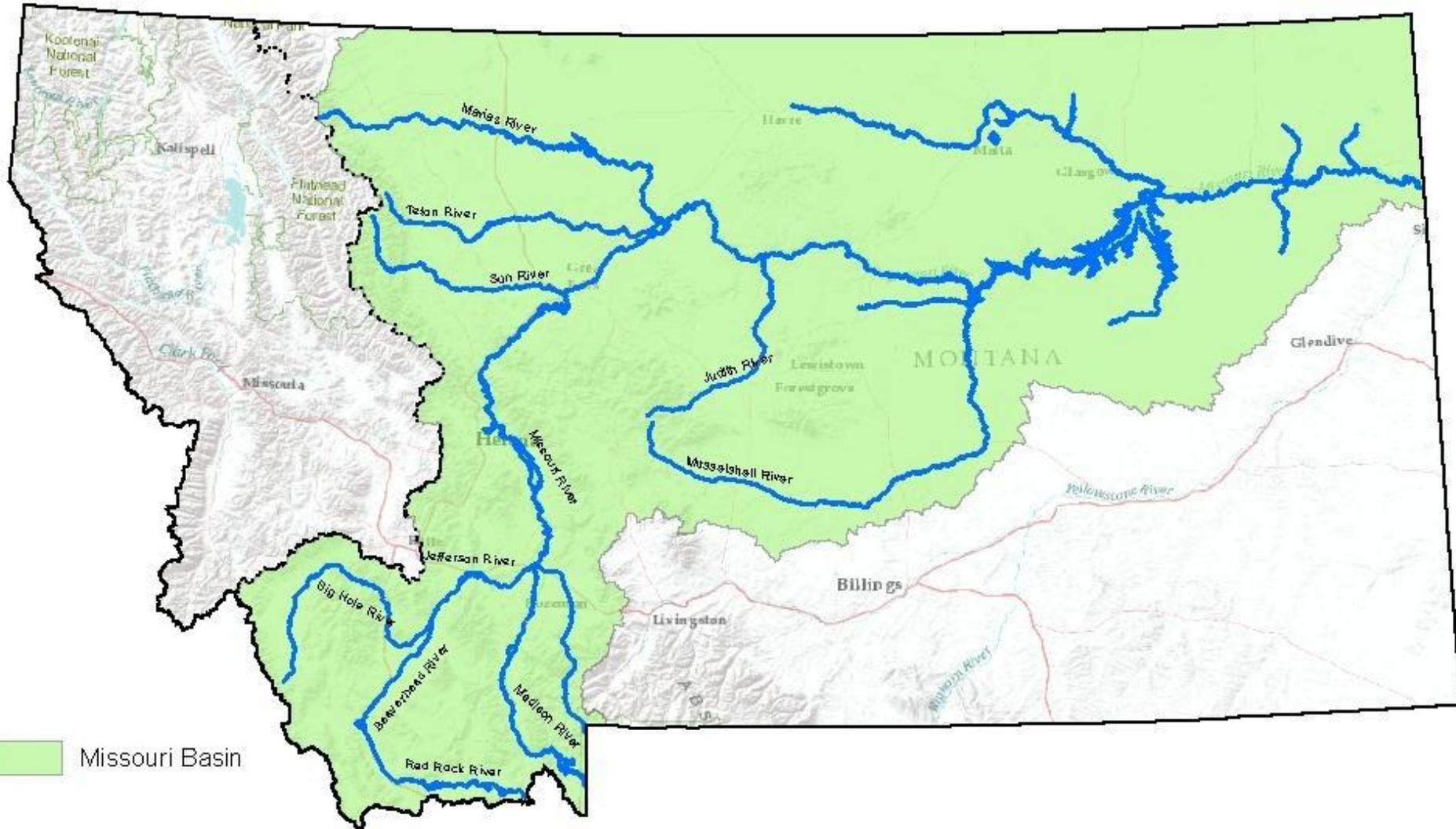


# Background

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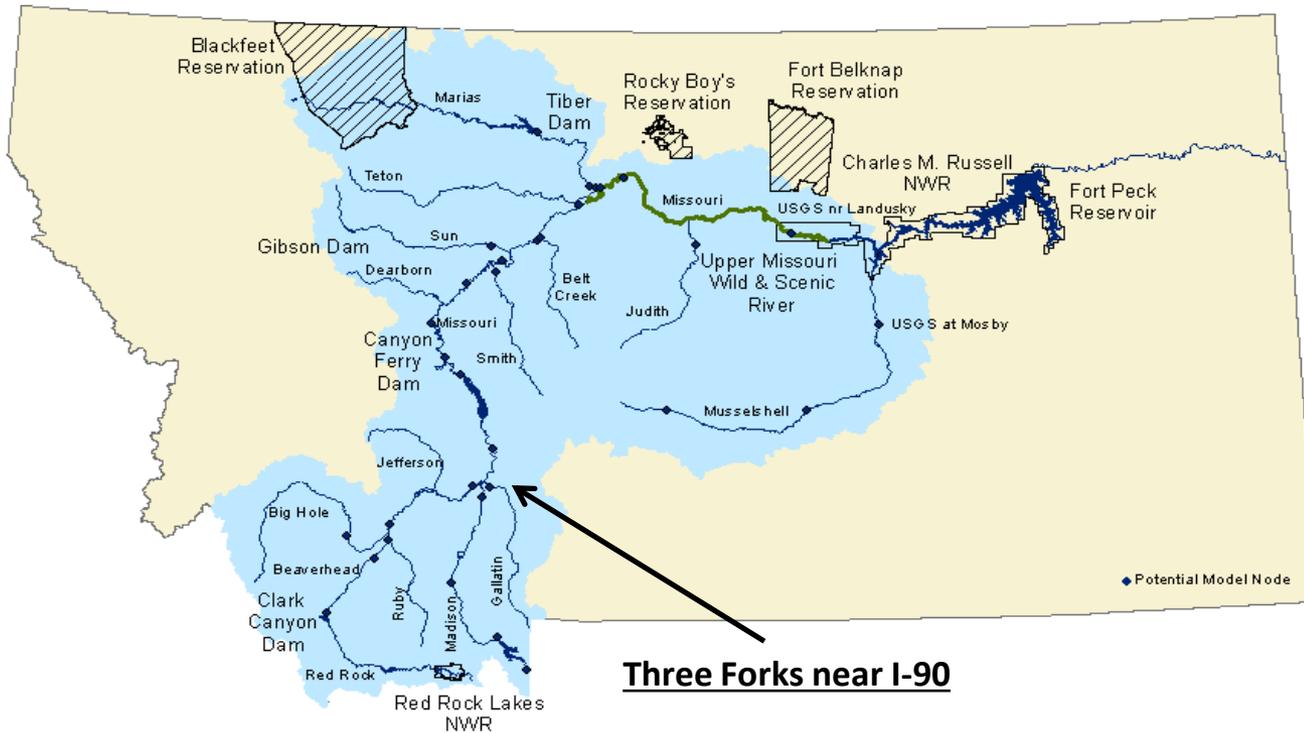
- National Drought Resiliency Partnership is part of the President's Climate Action Plan
- Montana project to provide “proof of concept” by demonstrating how improved drought mitigation outcomes could be achieved through enhanced coordination of federal agency resources
- Montana's Vision: Successful drought preparation must be:
  - locally-led
  - reflect the water management issues specific to that watershed, and
  - produce on-the-ground results.

# Missouri Basin in Montana



# Upper Missouri River Basin Study Area

Missouri River and Musselshell headwaters above Ft. Peck Reservoir  
Drainage area of about 50,000 sq. miles and 880,000 acres of irrigated land

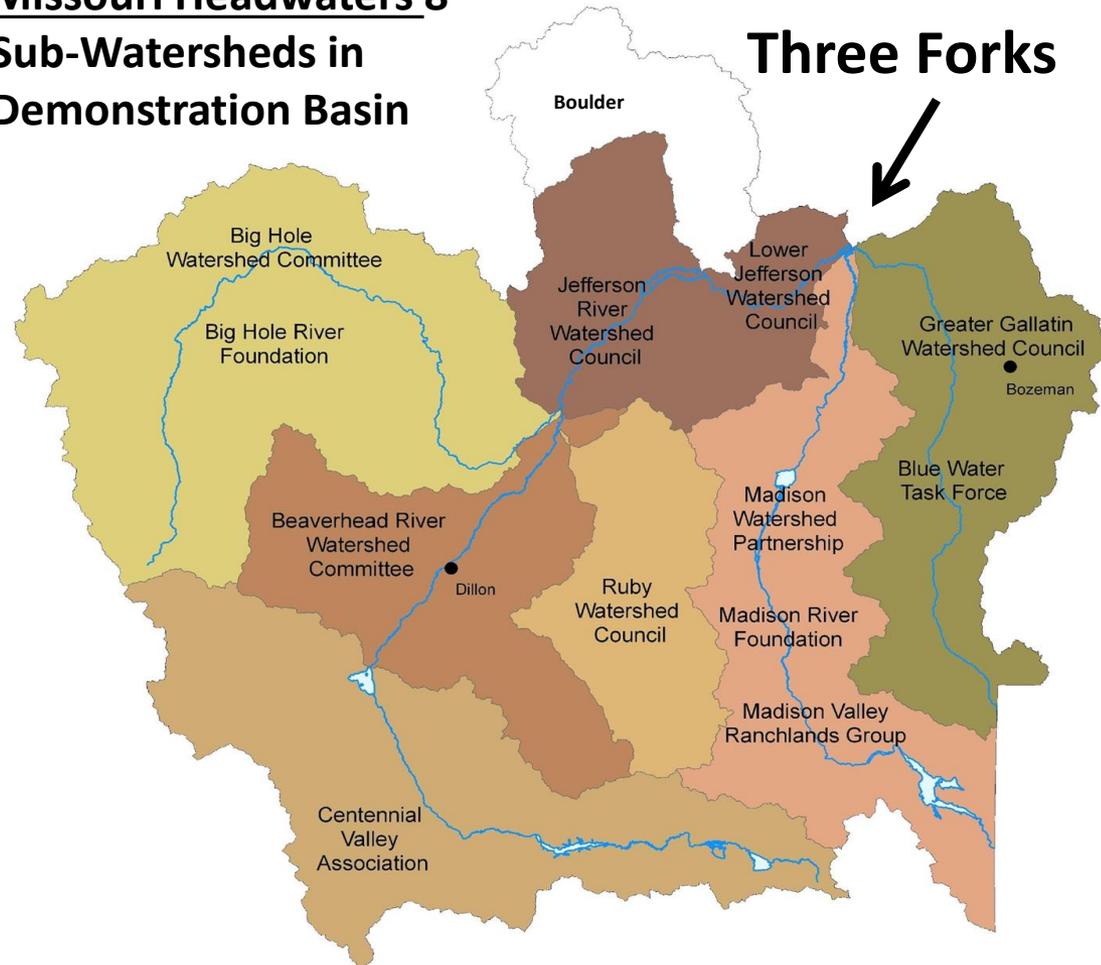


# NDRP Demonstration Project

## Missouri Headwaters 8 Sub-Watersheds in Demonstration Basin

This area selected  
by DNRC for the  
Demonstration  
Project

State has a  
number of  
outreach and  
drought related  
activities ongoing  
in these  
watersheds



# Overall Goal

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To *leverage multiple resources* to *engage communities* in drought preparedness planning and put forward *implementation* projects that build resiliency in the Missouri Headwaters Basin.



# State and Federal Partners

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FEMA

NOAA-NIDIS

Office of Climate Change Policy

BOR

US Fish and Wildlife

EPA

BIA

NRCS

USFS

BLM

MT DEQ

MT DNRC

MT FWP

MACD

Center for Large Landscape

Great Northern Landscape  
Conservation Cooperative

Big Sky Watershed Corps

# Challenges/ Opportunities

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## ***Challenges:***

- Basin mostly closed to new surface water appropriations
- Persistent drought
- Large mostly rural landscape
- Rapid growth and changing land use
- Improved real time measurement
- Data integration and resolution

## ***Opportunities and Partnerships:***

- Strong core of Watershed groups and Conservation Districts
- Big Sky Watershed Corps/capacity
- State agencies, Basin water planning and water quality
- Great interest in the area

# Watershed Issues

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- Agriculture / Irrigation
  - Improving irrigation efficiency
  - Off-channel stock watering ponds
  - Fishery vs. agricultural impacts
- Hydropower storage
- Forest management / Fuel management
- Ground water/ surface water interaction
- Endangered species issues (i.e., Arctic grayling)
- Urban issues
  - Drinking water supply
  - Stormwater



# 2015 Activities

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Jan. – Montana Big Sky Watershed Corps (BSWC) arrived to start their work in the watersheds an

Mar. - NOAA, NIDIS and the National Drought Mitigation Center conducted a workshop titled “Building Drought Early Warning Capacity in Montana”. Approximately 50 people attended the 2-day workshop.

Sept. – Workgroup meeting to develop drought resilience workplan

Nov – Finalized project workplan. Shared plan with Agency reps in DC.

# Workplan Goals

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1. Provide Tools for Drought Monitoring, Assessing and Forecasting
2. Develop Local and Regional Capacity to Plan for Drought
3. Implement Local Projects to Build Regional Drought Resiliency



## KEY GOALS, OBJECTIVES, AND IMPLEMENTATION TASKS

### GOAL 1: PROVIDE TOOLS FOR DROUGHT MONITORING, ASSESSING, AND FORECASTING

#### A. Develop a Drought Monitoring Network

- Coordinate a monitoring network to support local and regional needs
- Expand soil moisture monitoring
- Expand streamflow monitoring to address data gaps
- Expand precipitation monitoring (CoCORaHS)

#### B. Develop a Portal to Share Monitoring, Assessment and Forecasting Information Across the Network

- Explore and compile existing data to create a central information portal on Basin specific data accessible to all water users

### GOAL 2: DEVELOP LOCAL AND REGIONAL CAPACITY TO PLAN FOR DROUGHT

#### A. Build and Engage Local Capacity for Drought Planning

- Assure adequate staffing and operational needs
- Provide consistent drought mitigation trainings and technical assistance

#### B. Increase Local Community Awareness of Drought and Supply Planning, Forecasting, and Mitigation

- Inventory and assemble local community member lists and conduct awareness workshops
- Develop creative communication and outreach tools to engage local leaders in the planning process
- Develop a marketing or branding strategy for drought and the demonstration project

#### C. Provide the Tools and Technical Assistance to Help Local Groups Strategize and Develop Drought Plans

- Monitor and identify risks, vulnerabilities and supply/demand triggers
- Set systems in place to manage voluntary agreements

#### D. Connect Local Drought Plans at the Regional Scale

- Review local plans and merge into a regional drought preparedness plan for the entire Basin
- Explore agency drought plans

#### E. Develop a Regional Network to create a Streamlined Structure to Share Learning, Coordinate and Pursue funding opportunities and Deliver Resources across the Basin

- Build a network/framework that unifies, coordinates and simplifies the delivery and sharing of resources.

### GOAL 3: IMPLEMENT LOCAL PROJECTS TO BUILD REGIONAL DROUGHT RESILIENCE

#### A. Increase Water Conservation Measures

- Work with municipalities in the Basin to develop water conservation campaigns and measures
- Work with the farmers/ranchers in the Basin to implement water conservation and irrigation efficiency and delivery measures.

#### B. Ensure Riparian, Floodplain and Water Management Measures Are in Place

- Inform the public of the value of riparian areas and floodplains for improved water holding capacities
- Assess and improve natural storage capacity
- Install off-stream stock water tanks to reduce impacts to riparian areas and facilitate upland grazing management
- Consolidate and maintain points of diversion to improve efficiencies
- Implement hybrid sprinkler/flood systems that transition as flows change

#### C. Ensure Upland Management Measures are in Place

- Demonstrate integrated management on public lands, and collaborate to implement projects to protect water quantity and quality in the headwaters
- Develop a suite of soil and upland health demonstration projects in the Missouri Headwaters
- Explore the impacts of conifer expansion on water yield
- Study, understand, and implement practices that improve soil health and moisture holding capacities.

# 2016 Activities

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- Offering a Missouri Headwaters Drought Ready Communities Course
- Assisting groups with developing local drought plans
- Establishing a drought monitoring workgroup
- Working with federal and state partners to link to existing planning / mitigation planning efforts (i.e., hazard mitigation plans)
- Developing communication materials/tools on drought conditions that can be used at the regional and local level
- Identifying on-the-ground projects that build resiliency

