

# Data, Water and Snow Monitoring Needs in the Upper Missouri River Basin

Western State Water Council - July 2014 Doug Kluck NOAA Regional Climate Services National Climatic Data Center



### Agenda

- Monitoring Issues
- Water Resources Reform and Development Act (WRRDA) of 2014
- Next Steps and Considerations
- Drought Early Warning Missouri Basin





#### Missouri River Mainstem Reservoir System



**Courtesy: Army Corps of Engineers** 

## Annual Runoff above Sioux City, IA



Courtesy of the Army Corps of Engineers

#### Proposal for a Missouri River Basin Interagency Expanded Plains Snow and Soil Condition Network

#### Purpose:

The goal of this proposal is to present a framework for the establishment of an interagency, usable and sustainable network that will enhance the forecasting of runoff and act as an indicator for early warning. This proposal is **not intended to be a final plan**, rather a launching point for additional discussion to include appropriate subject matter experts into developing the final plan.

#### Approach:

This proposal involved consultation with **subject matter experts** from various agencies and states. The group took the approach **of summarizing current observing platforms** across federal, state and academia to note areas of non-coverage and **leveraging existing platforms** where feasible to include enhanced observations.

### Missouri River Basin Inter-Agency Proposal for an Expanded Plains Snow and Basin Conditions Network





#### **Automated Measurements**

# Budget

Phase	Description	Capital	Annual/O&M
1	Upgrade Existing AWDN Sites (67)	\$1,628,100	\$301,500
2	Upgrade Existing NRCS SCAN Sites (10)	\$56,000	\$35,000
3	Upgrade Existing NOAA USCRN Sites (15)	\$31,500	\$52,500
4	Install New AWDN Sites in SD (3)	\$88,500	\$13,500
5	Install New SCAN Sites in WY and MT (26)	\$969,800	\$91,000
6	Enhance Aerial Gamma Measurements	\$2,550,000	\$150,000
7	Add State Manual Snow Sampler Coordinator in WY, MT, SD, ND and NE	\$618,750	\$618,750
8	Add Collateral Duty Manual Snow Surveyors (5)	\$302,500	\$193,600
		\$6,245,150	\$1,455,850

# Long-Term Investment

- Better understanding of basin ... during flood, normal and drought conditions (water supply, agriculture, ecosystems, navigation, flood control, energy, etc...)
- Consistency throughout the basin regarding instrumentation, standards, QA/QC
- Data collected real-time, quality controlled, archived and available to everyone

# **Event Timeline**

- 2011 Flood
- Independent Assessment 2011
- Mar-Jul (2012) Project Initialization/Team Formation
- September 18-19 Face-to-Face Meeting (Bismarck, ND)
- Sep-Jan (2012 2013)
  - Formation of Instrumentation and Inventory Sub-Team
  - Development of Instrumentation Recommendation
  - Refinement of Final Proposal
- Jan-Mar Proposal informally vetted through upper states and agencies (2013)
- Senate language introduced (WY) and passed WRRDA Bill (May 2013)
- Congress passed conference bill (May 2014)
- President signed HR 3080 (June 2014)

## Final Language – HR 3080

#### • Section 4003. Missouri River.

"This section authorizes the Secretary, in coordination with the Administrator of the National Oceanic and Atmospheric Administration, the Chief of the Natural Resources Conservation Service, the Director of the United States Geological Survey, and the Commissioner of the Bureau of Reclamation, to provide for a coordinated and supported effort to conduct soil moisture and snowpack monitoring in the Upper Missouri River Basin. "

https://www.govtrack.us/congress/bills/113/hr3080/text

# Final Language (cont.)

(A) soil moisture and snowpack monitoring in the Upper Missouri River Basin to reduce flood risk and improve river and water resource management in the Upper Missouri River Basin, as outlined in the February 2013 report entitled Upper Missouri Basin Monitoring Committee—Snow Sampling and Instrumentation Recommendations;

(B) restoring and maintaining existing mid- and high-elevation snowpack monitoring sites operated under the SNOTEL program of the Natural Resources Conservation Service; and

(C) operating streamflow gages and related interpretive studies in the Upper Missouri River Basin under the cooperative water program and the national streamflow information program of the United States Geological Service.

https://www.govtrack.us/congress/bills/113/hr3080/text

### Upper Basin Monitoring – Next Steps

- USACE recommendations
- Discussions with states and feds on long term viability
- Appropriation?







# Missouri Basin DEWS (Drought Early Warning System) Initial Steps

- February 2014 First Basin Drought Meeting
  - Needs, gaps and concerns
  - Report forth coming; 2 pager available
- Tribal Drought Meeting September
  - Wind River Tribes drought planning and conversation underway
- MO Basin drought portal via drought.gov
- Multi-year process
- Big basin
- Many key agencies, states, academics, tribes, NGOs involved

# Thank You

More information on the Missouri Basin drought early warning system: http://drought.gov/drought/regional-programs/mrb/missouri-river-basin-home



Doug.kluck@noaa.gov