

TASK FORCE ON
DROUGHT EMERGENCY RESPONSE

HB 4113(2016)



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Department
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Inter-agency Collaboration

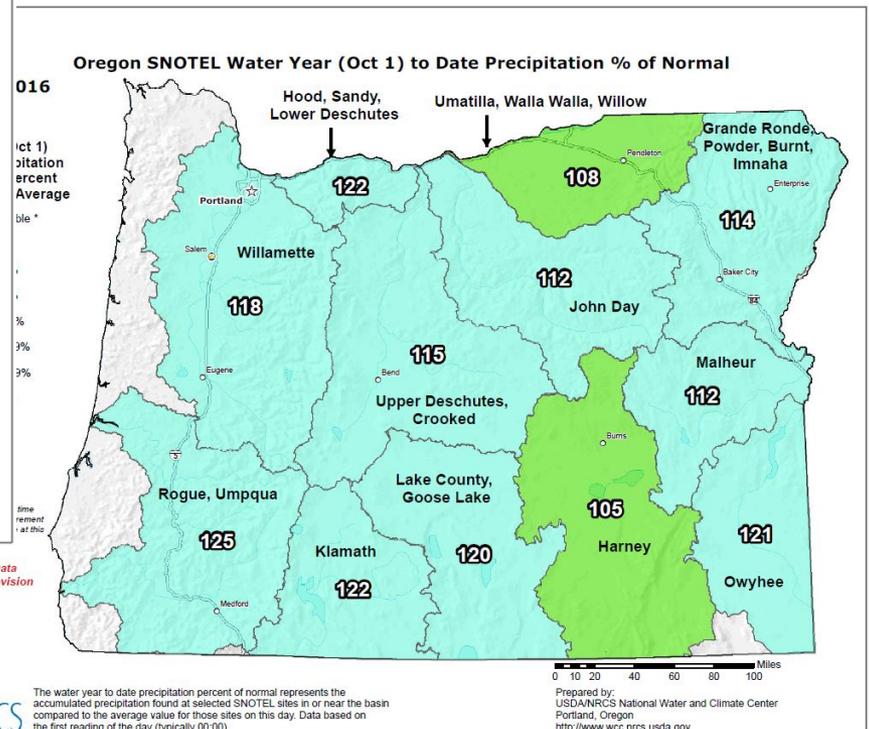
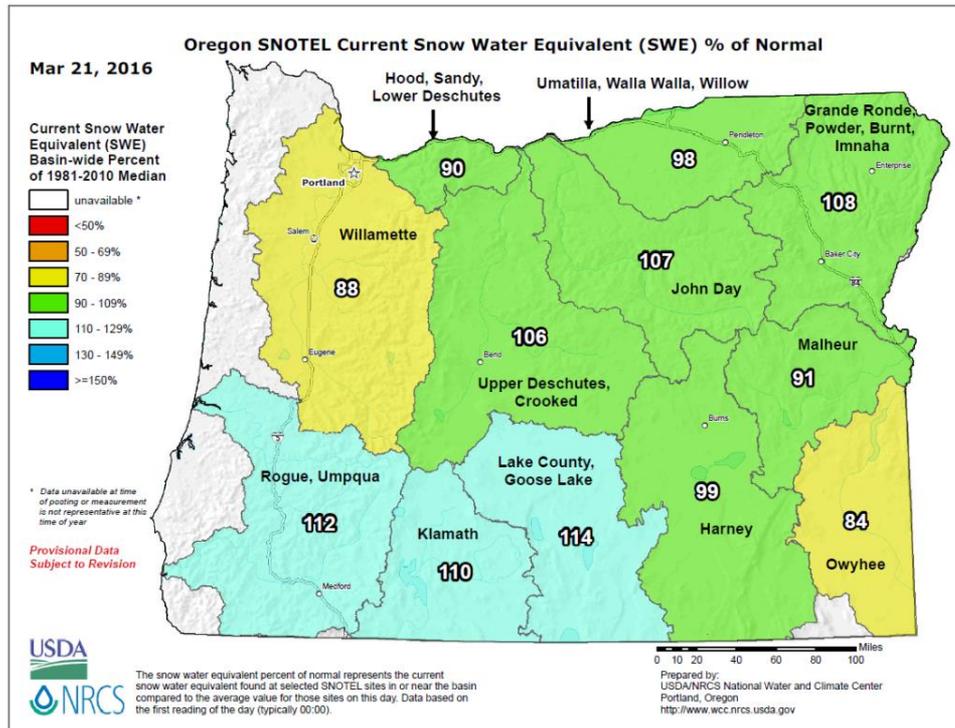
- **Integrated Water Resources Strategy**
 - State and Federal Planning Partners
 - Policy Advisory Group
 - Recent focus on drought
- **Water Supply Availability Committee**
 - State and Federal State Science Partners
- **Drought Readiness Council**
 - State Agency Partners

Drought The “New Normal”?

- **Water will need to be managed with more precision**
 - Need finer data resolution
 - Planned approach to data acquisition
- **Demand could increase even without new withdrawals**

Data

Data Used as Drought Indicators: Snowpack & Precipitation – NRCS Snow Survey



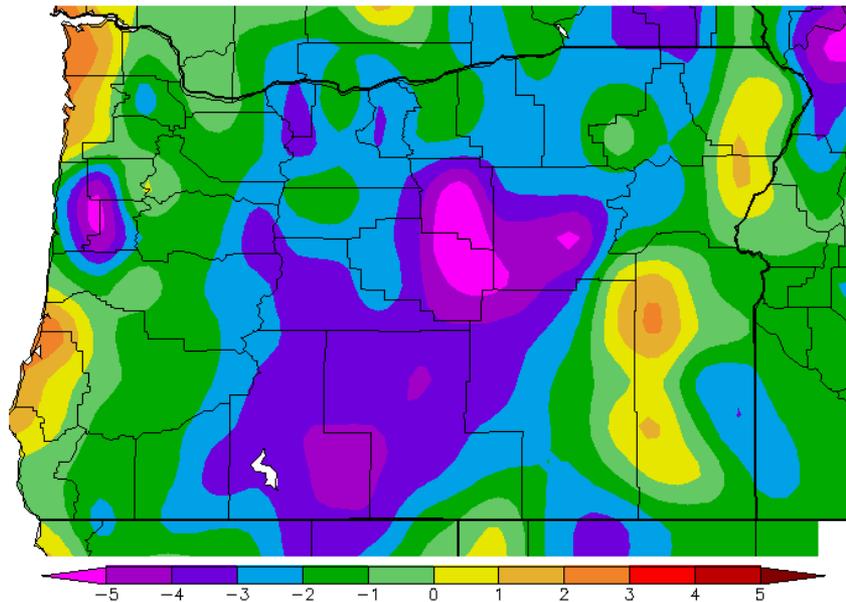
Data

Data Used as Drought Indicators:

Air Temperature – WRCC, NOAA

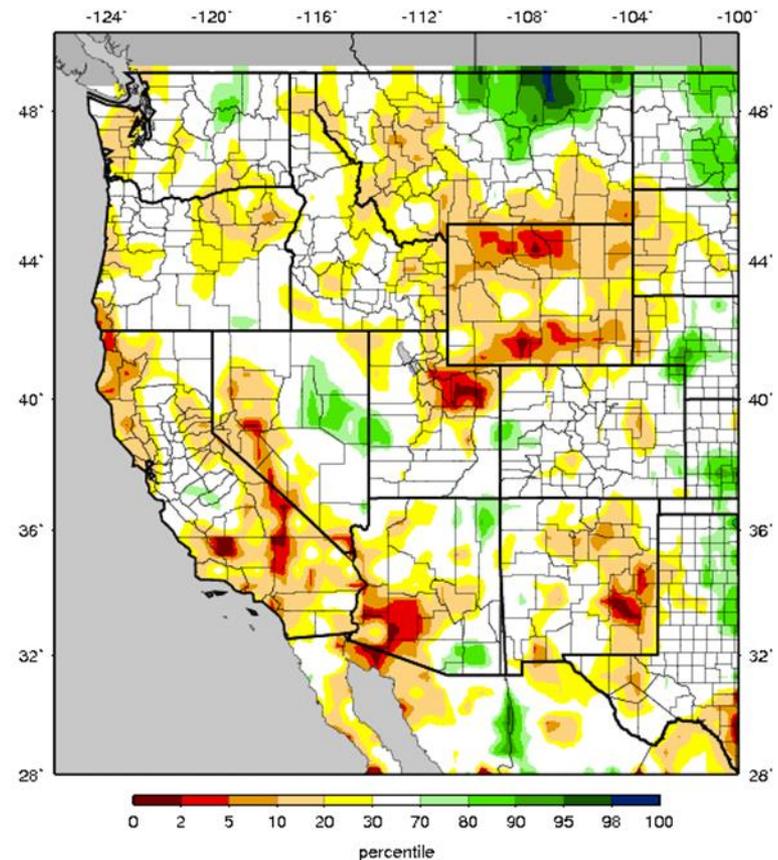
Soil Moisture – Various Models

Ave. Temperature dep from Ave (deg F)
7/13/2016 – 7/26/2016



Generated 7/27/2016 at WRCC using provisional data.
NOAA Regional Climate Centers

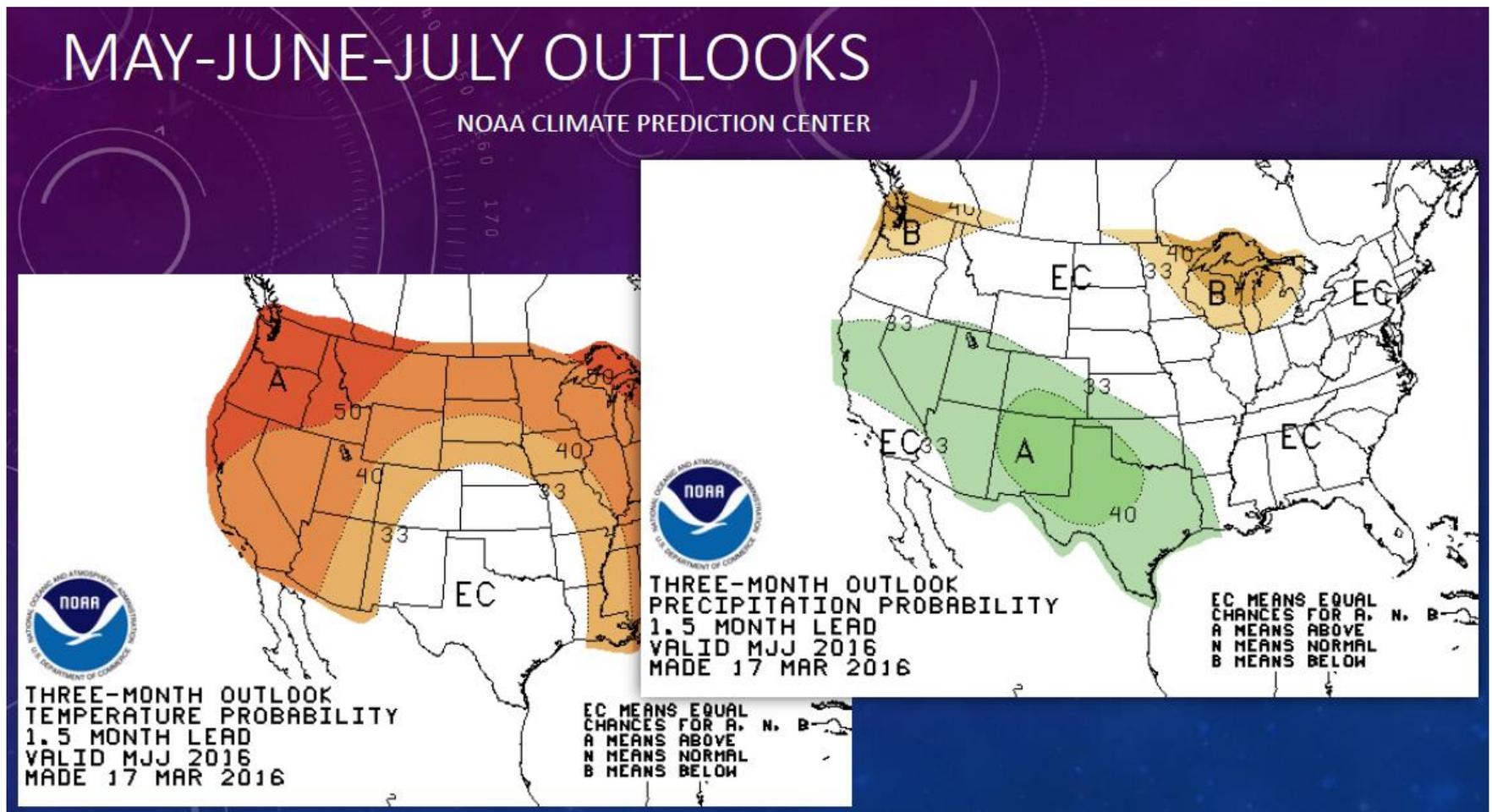
VIC Soil Moisture Percentiles (wrt/ 1916-2004)
Western United States - 20160725



Data

Data Used as Drought Indicators:

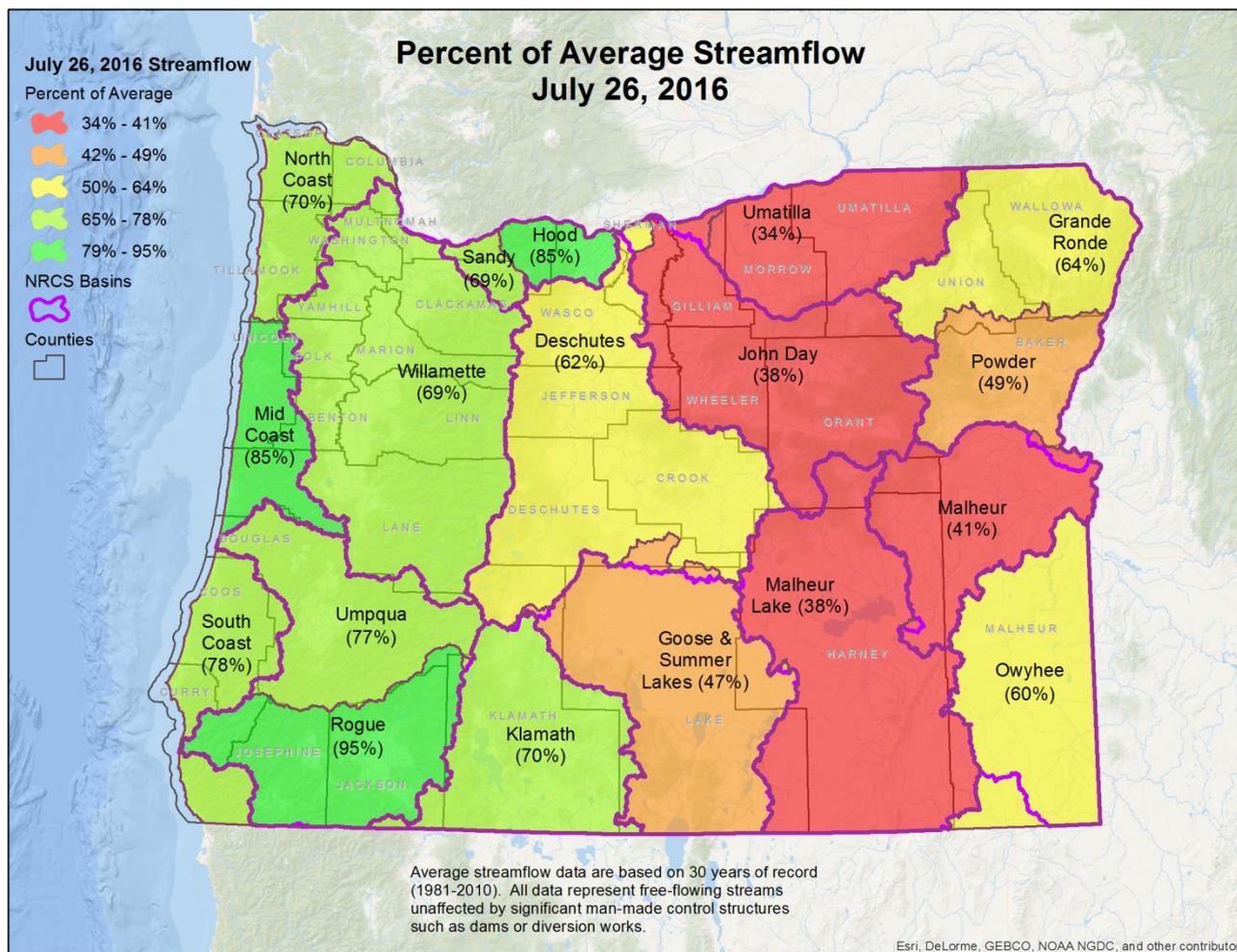
Temperature & Precipitation Forecasts – NOAA



Data

Data Used as Drought Indicators:

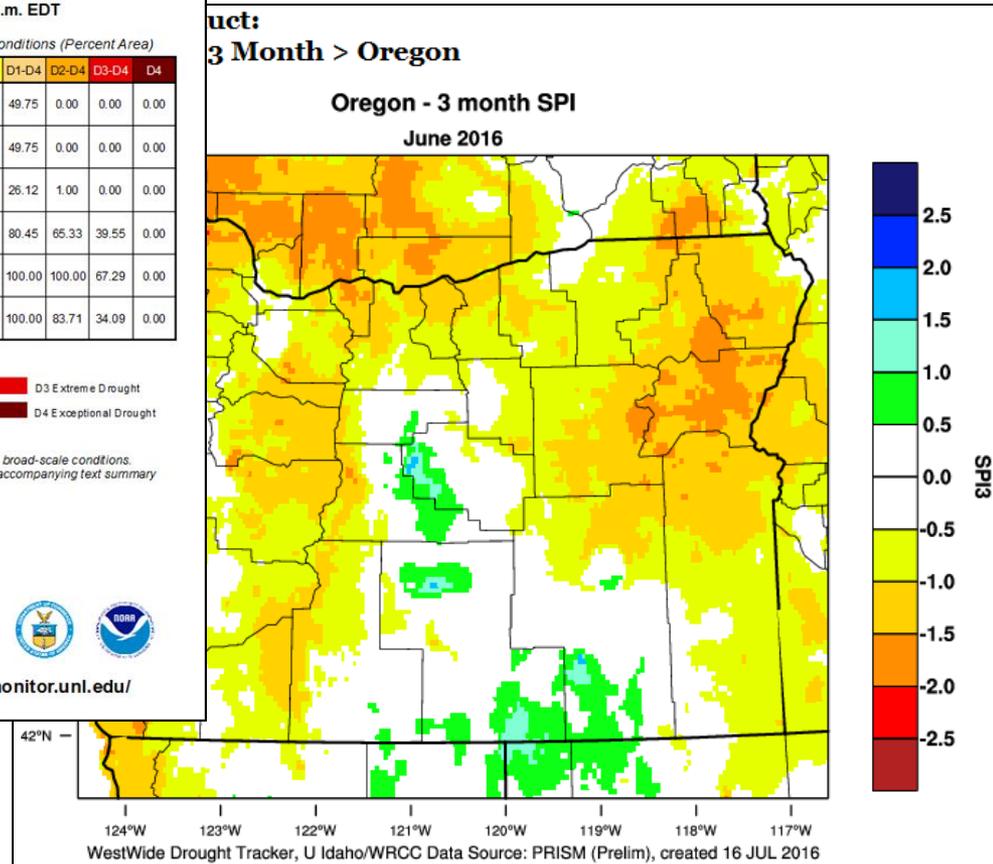
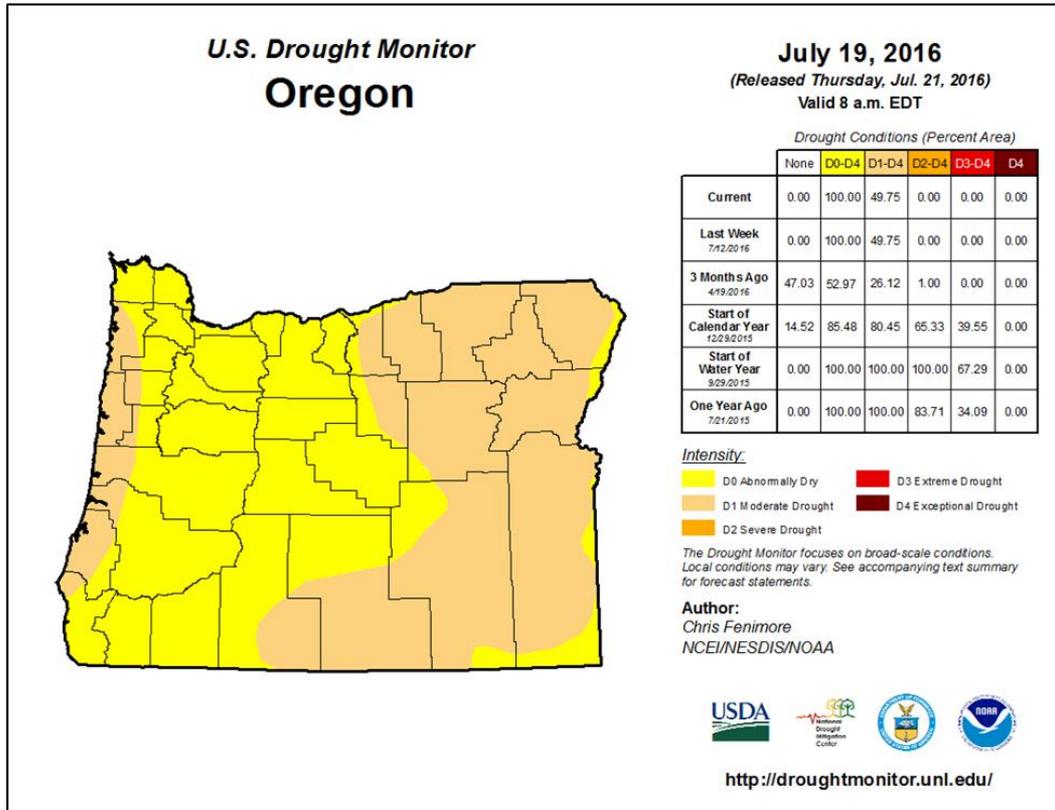
Streamflow Conditions – OWRD and USGS Gages



Data

Indicators Using Multiple Data Sources

U.S. Drought Monitor, SPI, SPEI and more...



Potential Emerging Technologies: Remote Sensing (Satellite) Technology

- METRIC & others - Evapotranspiration
- GRACE – Shallow Groundwater
- LIDAR – Airborne Snow Observatory

Require ground-based calibration with actual data

Data Gaps

Sensitive to Changing Climate:

- Mid-elevation snow sites
- Unregulated, unaffected streams
- Areas of groundwater decline
- Areas of groundwater recharge
- Monitoring extreme streamflow events
- High risk dams (public safety)

Recent Budget Package

IWRS recommended Action 1B: Improve Water Resource Data Collection and Monitoring

- **Provided Budget Resources for Additional Monitoring 2013-2015**
- **OWRD Monitoring Strategy – 2016**
 - Network Evaluation
 - Additional Data Attributes

Recommendation

Upgrade Data Collection Network

- **Real-Time Monitoring and Reporting**
 - Incl. Water Temperature
- **Groundwater Level Monitoring**
 - Unaffected by Pumping

Recommendation

Instream Flow Requirements

Additional Resources needed to Identify:

- **Flow Needs for STE species**
- **Flow Needs for Biological Functions**
- **Flow Needs for Channel Maintenance**
- **...**

Recommendation

Additional Budget Authority

- **Maintenance and Operation of Network**
- **Data Management**
- **Data Quality Control and Sharing**

More Drought Information

- **Data ‘Translation’**
- **Meaningful Local Indices**
- **Identify Impacts of Drought**
- **Identify High Risk Communities**

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Additional Parameters

Over 250 OWRD Surfacewater Monitoring Sites

Additional Water Quality Data

- **Water Temperature**
- **Other Indicators as Identified**
- **Other Agency Partnerships/Interest**
 - State Agencies
 - USGS
 - NOAA