

Planning for Drought Clark Fork Task Force June 7, 2010

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Sec. 85-1-203 MCA (3) (c)

- The state water plan must be completed for the Clark Fork River Basin, submitted to the 2015 Legislature, and updated every 20 yrs.
- Plan must include: Analysis of the effects of frequent drought and new or increased (future) depletions.

Clark Fork Basin - Statistics

- Total Area of basin – 21,883 sq. miles
- State of West Virginia – 24,231 sq. miles
- Mean annual discharge – 21,818,240 a.f.
- Yellowstone and Missouri – 16,680,000 af
- Over 30 gaged tributaries – USGS site
- Watershed Groups – 16
- Counties - 11

Role of the Clark Fork Task Force

- History - Watershed-wide in scope?
- Statutory mandate?
- Constituency includes...
- Concerns include....
- Past impacts have included...
- Effects of growth - water resources?

Drought Management

Primary areas of activity

- Monitoring – Real-time; Field Intel
- Assessment – Vulnerability, Risk
- Reporting – Group & Public
- Response – Plan triggers – Local, By tributary, Basin-wide, Statewide.

National Drought Mitigation Center

Drought planning process

1. The right people with the right data;
2. ID priority vulnerabilities & impacts;
3. For the subject area;
4. Understand underlying causes;
5. ID successful historic solutions.

Stakeholders and managers with pertinent information & data

Issue Example – Streamflow impacts

- Water user groups & senior rights
- ID Historically dewatered reaches
- Existing limitations – Points of diversion; reservoir operating plans
- Other reasons for dewatering – ex. Spikes in irrigation demand

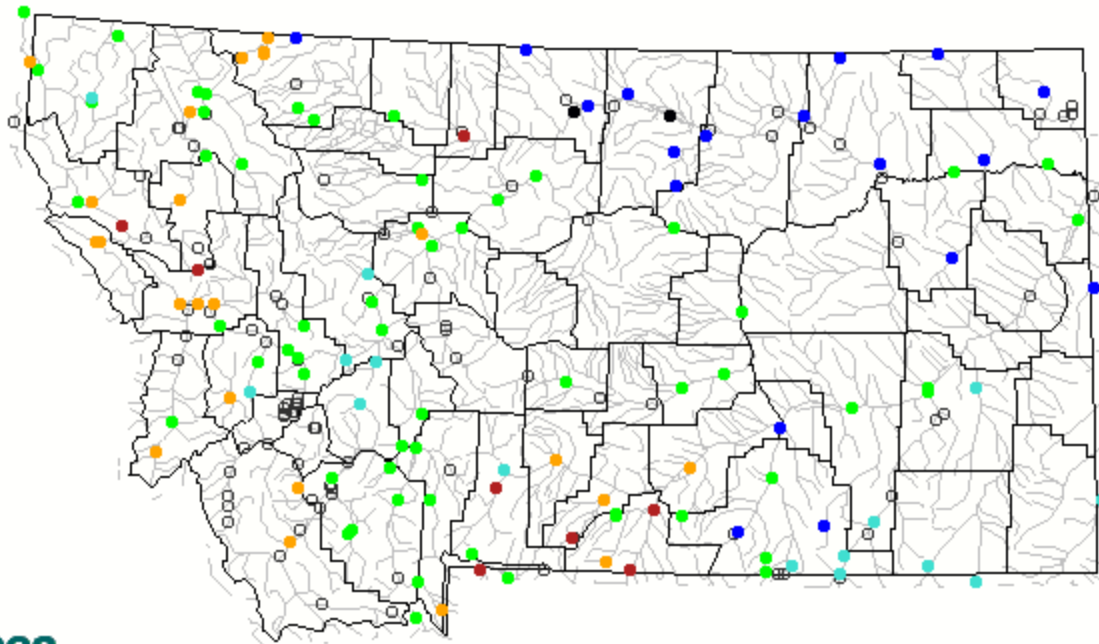
Dewatered river reaches

Resources and data

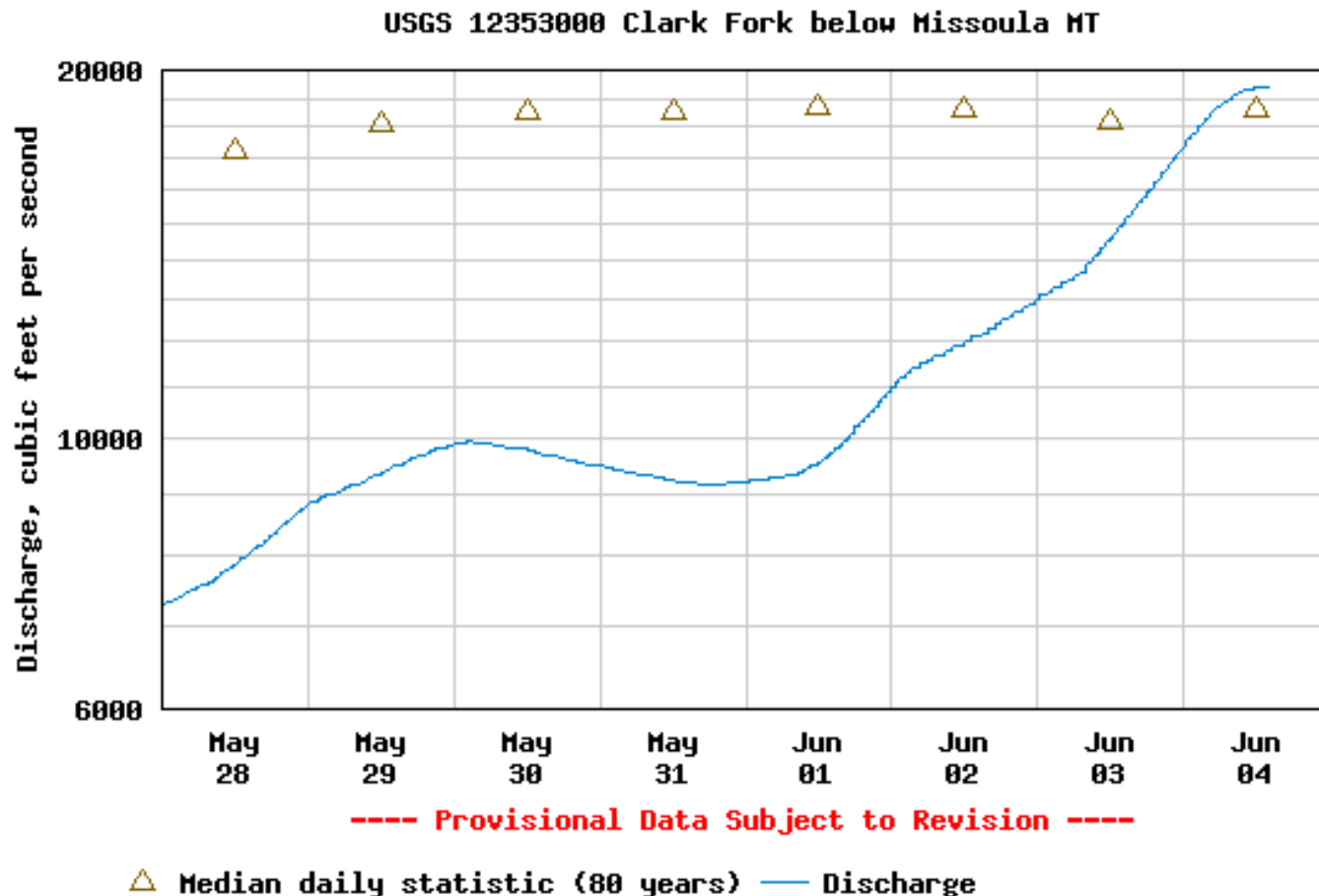
- Water Resources Surveys
- User group records – Places of use.
- Supply forecast – NRCS SWSI maps; Water Supply Outlook Reports; Peak flow dates; Low flow dates.
- US Geological Survey real-time and on-line historic flow data.

USGS Real-time streamflow

Tuesday, June 01, 2010 17:30ET



USGS real-time and historic data



Clark Fork River basin statistics

Missoula County, Montana

Hydrologic Unit Code 17010204

Latitude 46 52'09", Longitude 114 07'33"

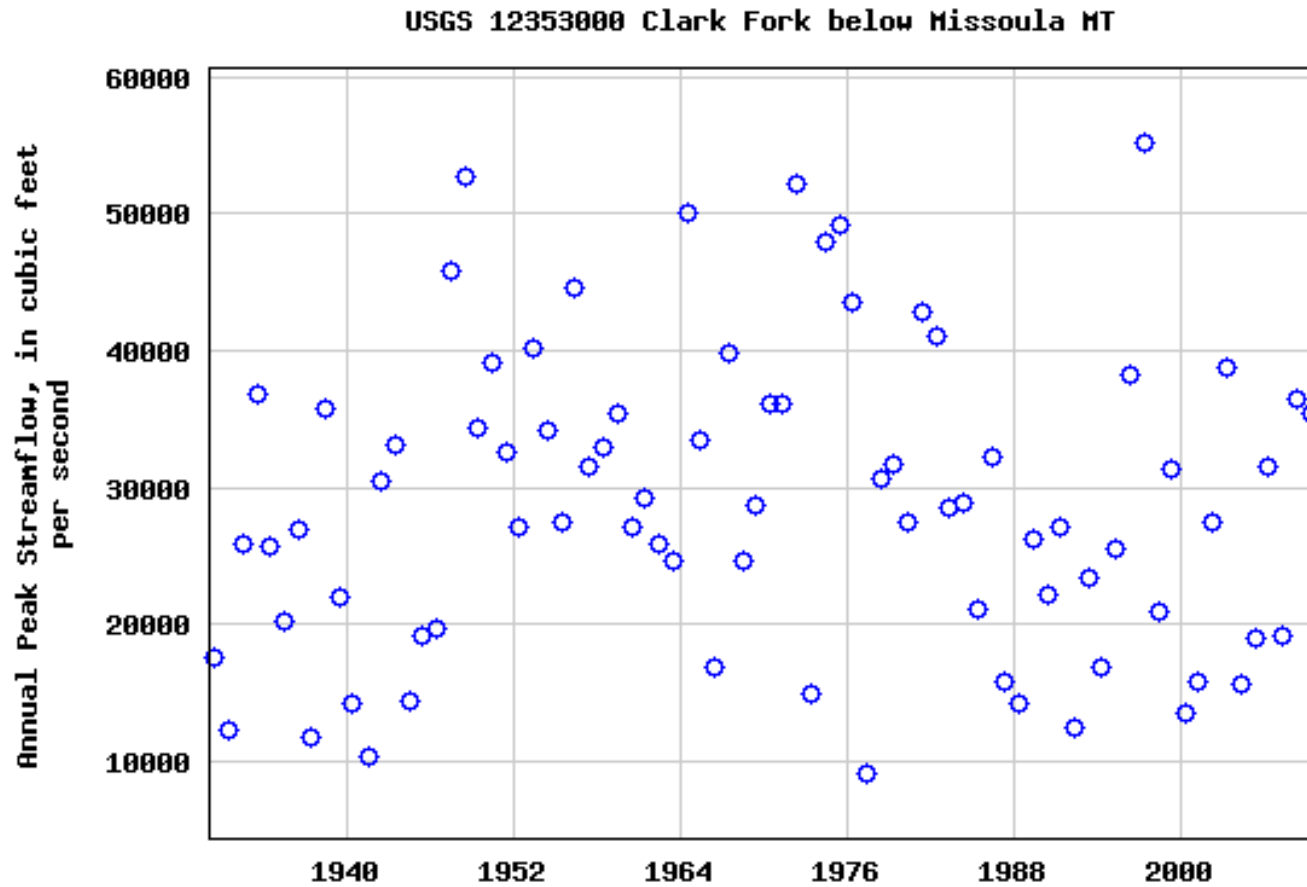
NAD27

Drainage area 9,003 square miles

Gage datum 3,083.88 feet above sea level

NGVD29

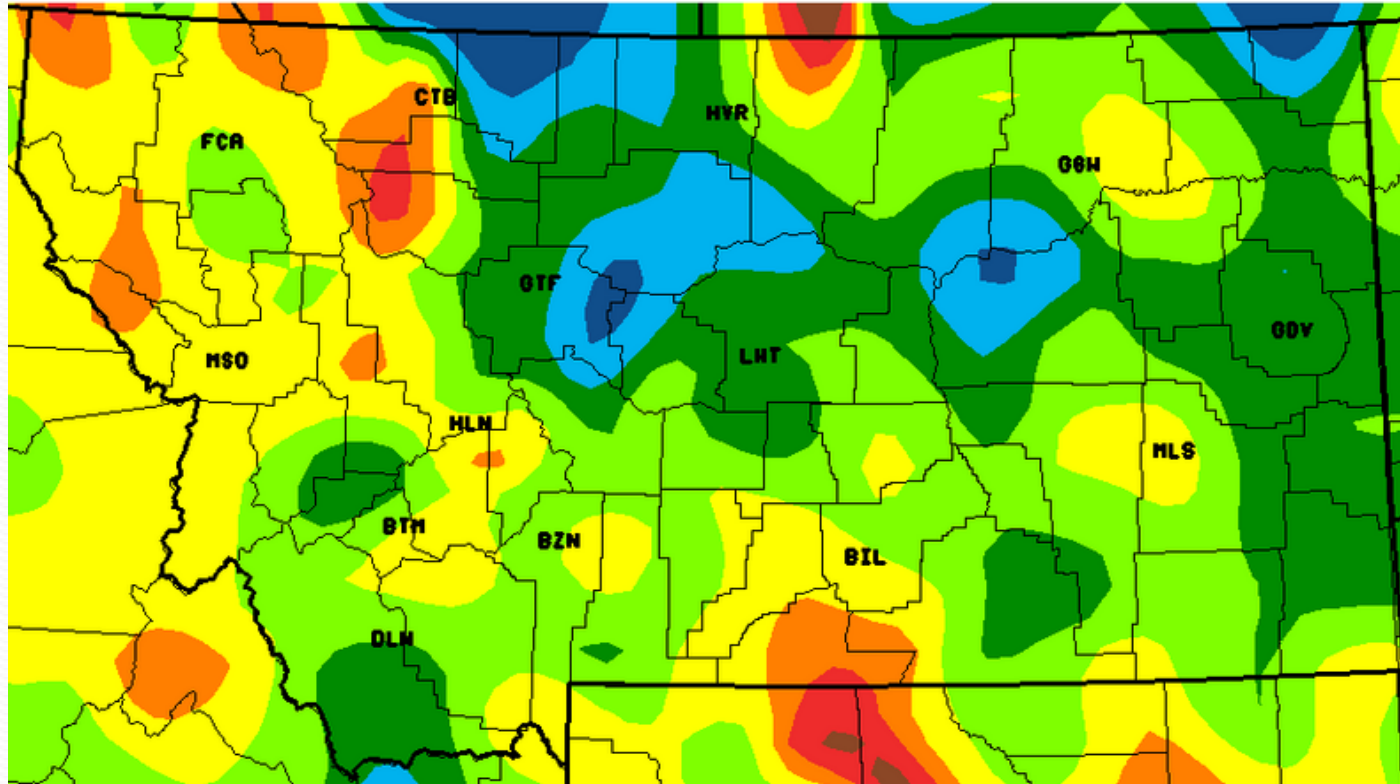
Annual Peak flow cfs – 80 years



Water Year Precip thru April



National Weather Service - Great Falls, MT
Montana Precipitation for the Water Year
(Water Year is Oct-Sept)



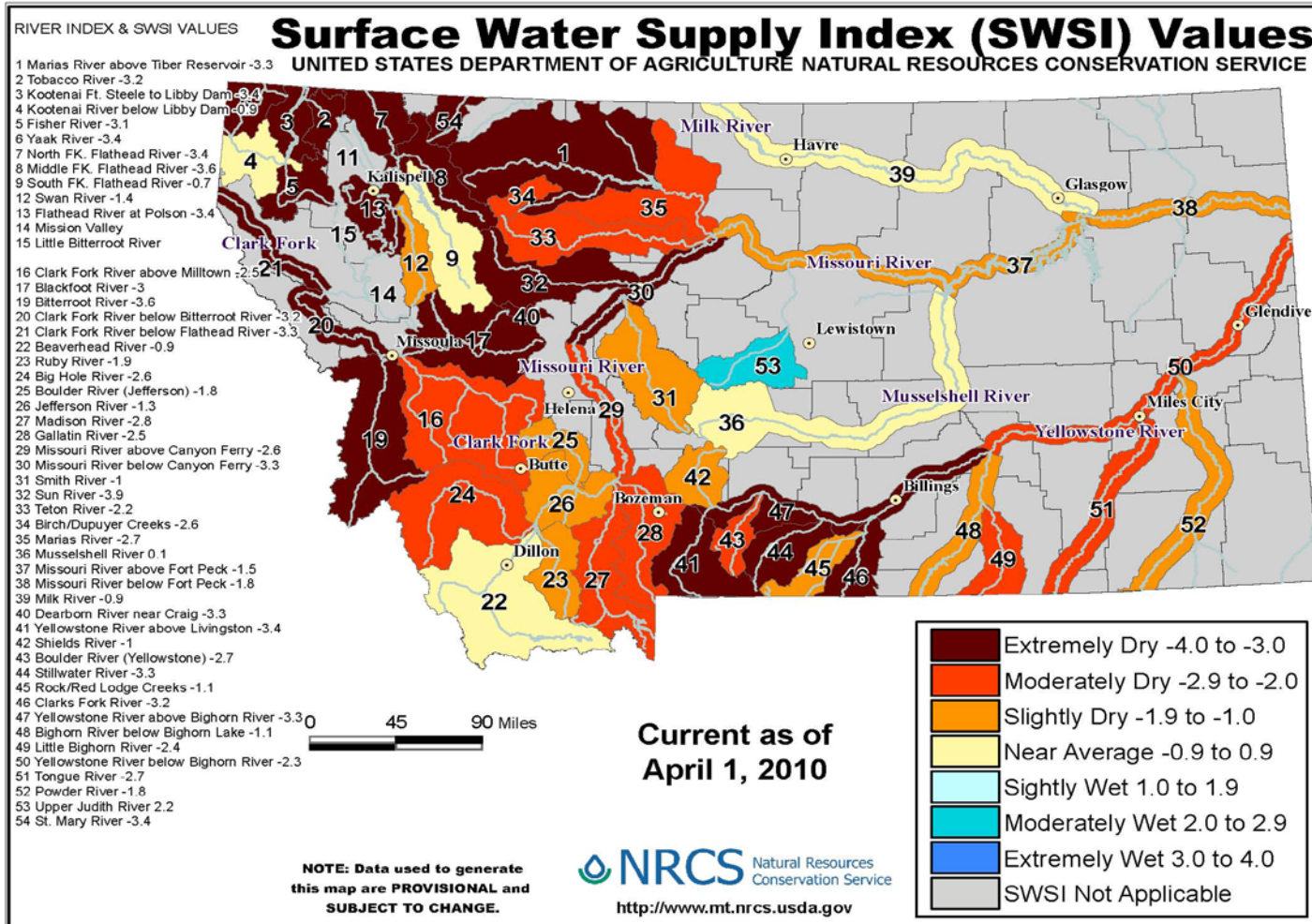
Oct 2009-Apr 2010 Percent of Normal Precipitation
Period of Normal: 1971-2000

20 40 60 85 115 150 200

NOTE: Data used to generate this image are
PROVISIONAL AND SUBJECT TO CHANGE.

<http://www.wrh.noaa.gov/Greatfalls>

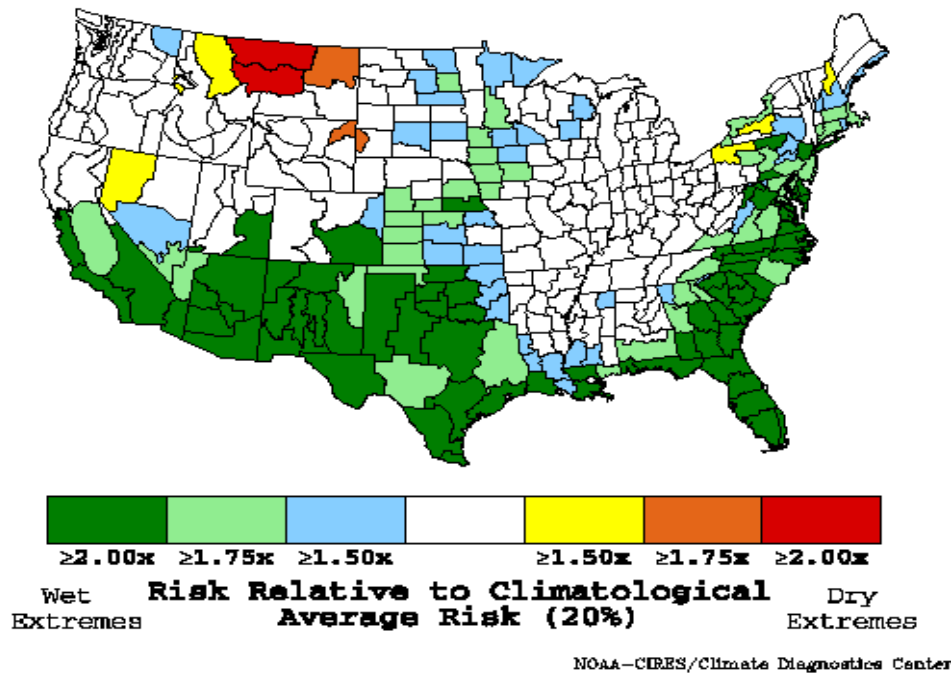
Surface Water Supply Index April 2010



Identification of Vulnerability

El Nino Precipitation Nov – Jan NOAA

**NDJ Precipitation Extremes During El Nino
Risk of Extreme Wet or Dry Years**

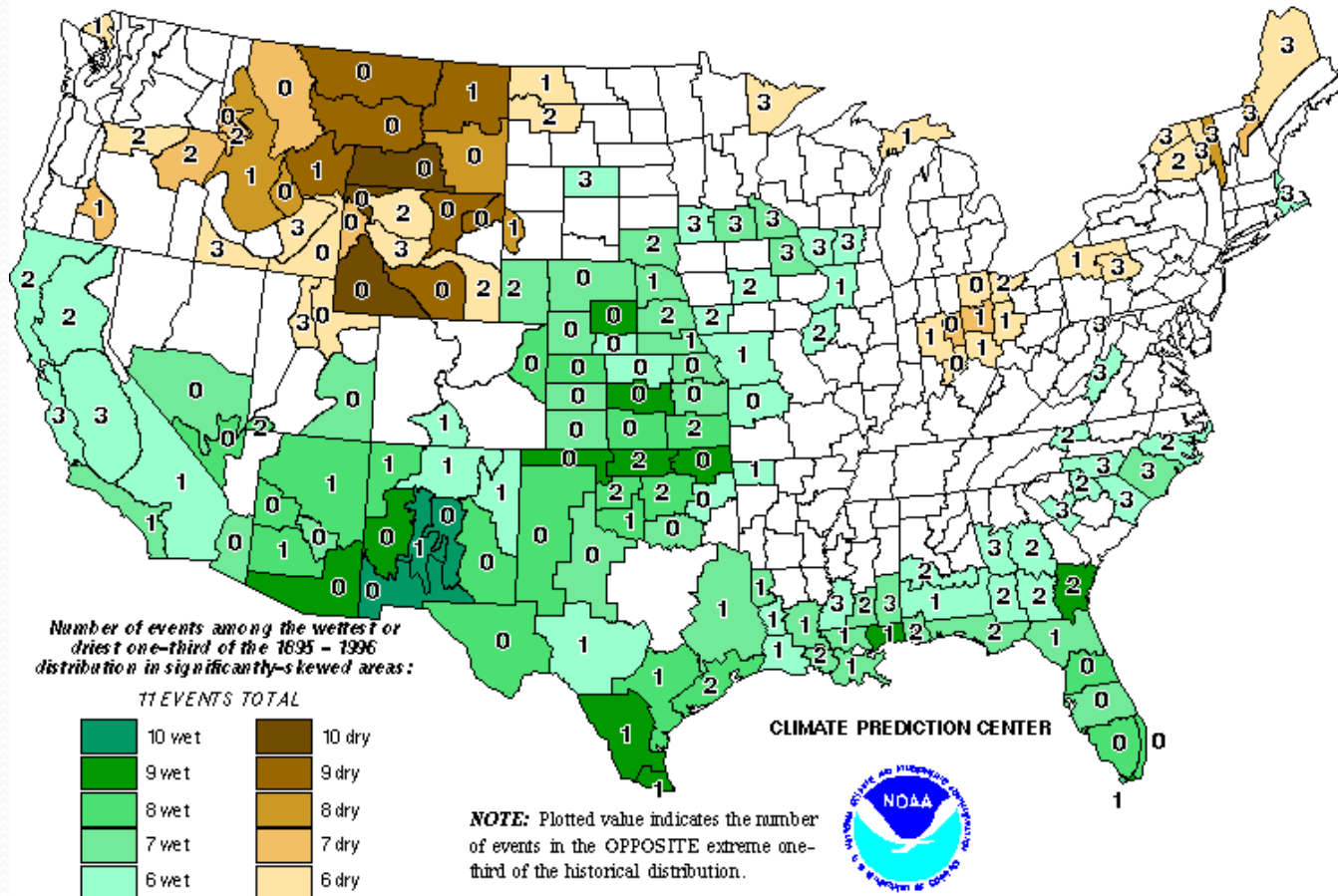


Climate risk assessment maps

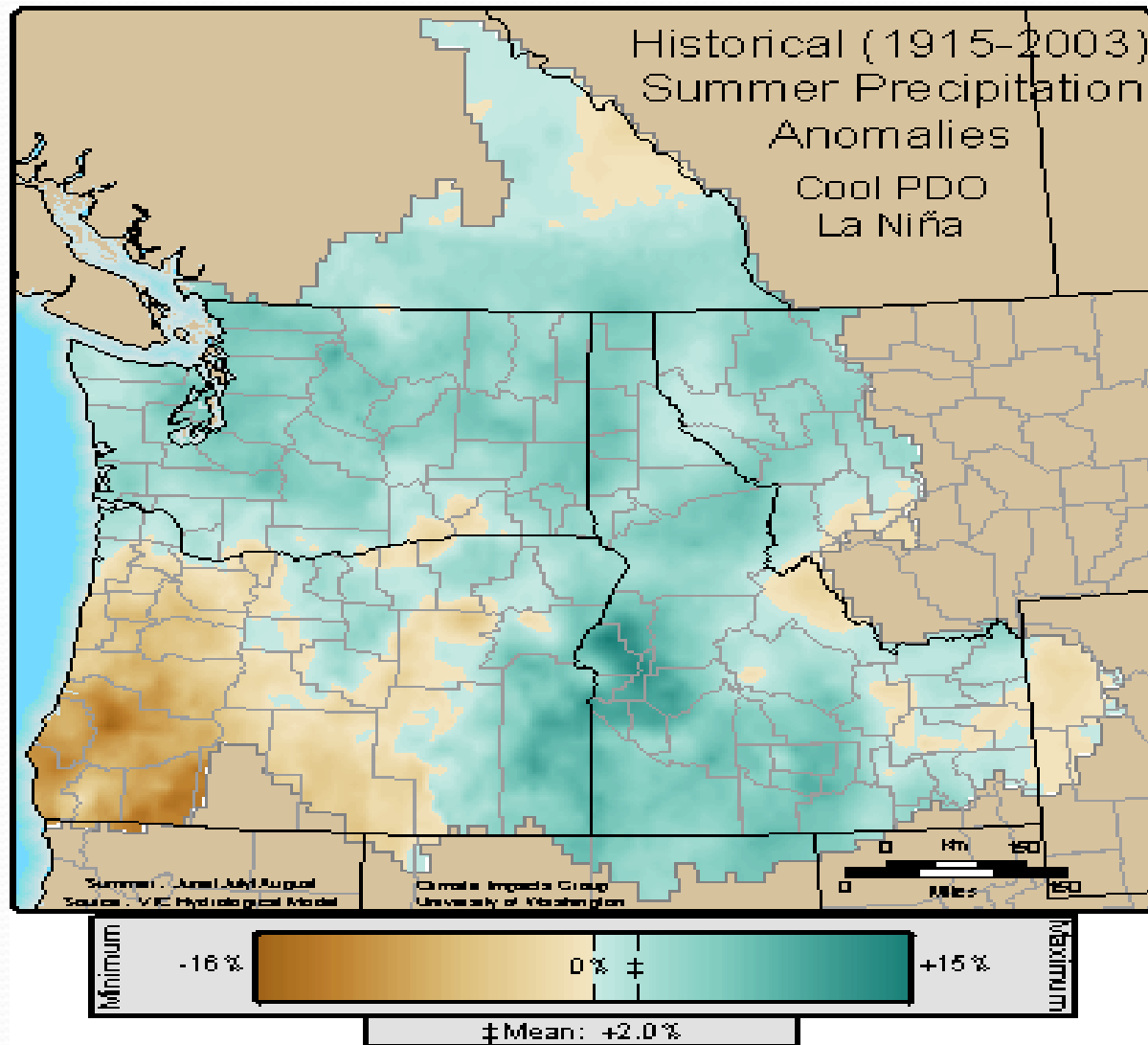
Significantly-Skewed El Niño Precipitation Distributions — December - February

1915 1919 1941 1958 1966 1973 1983 1987 1988 1992 1995

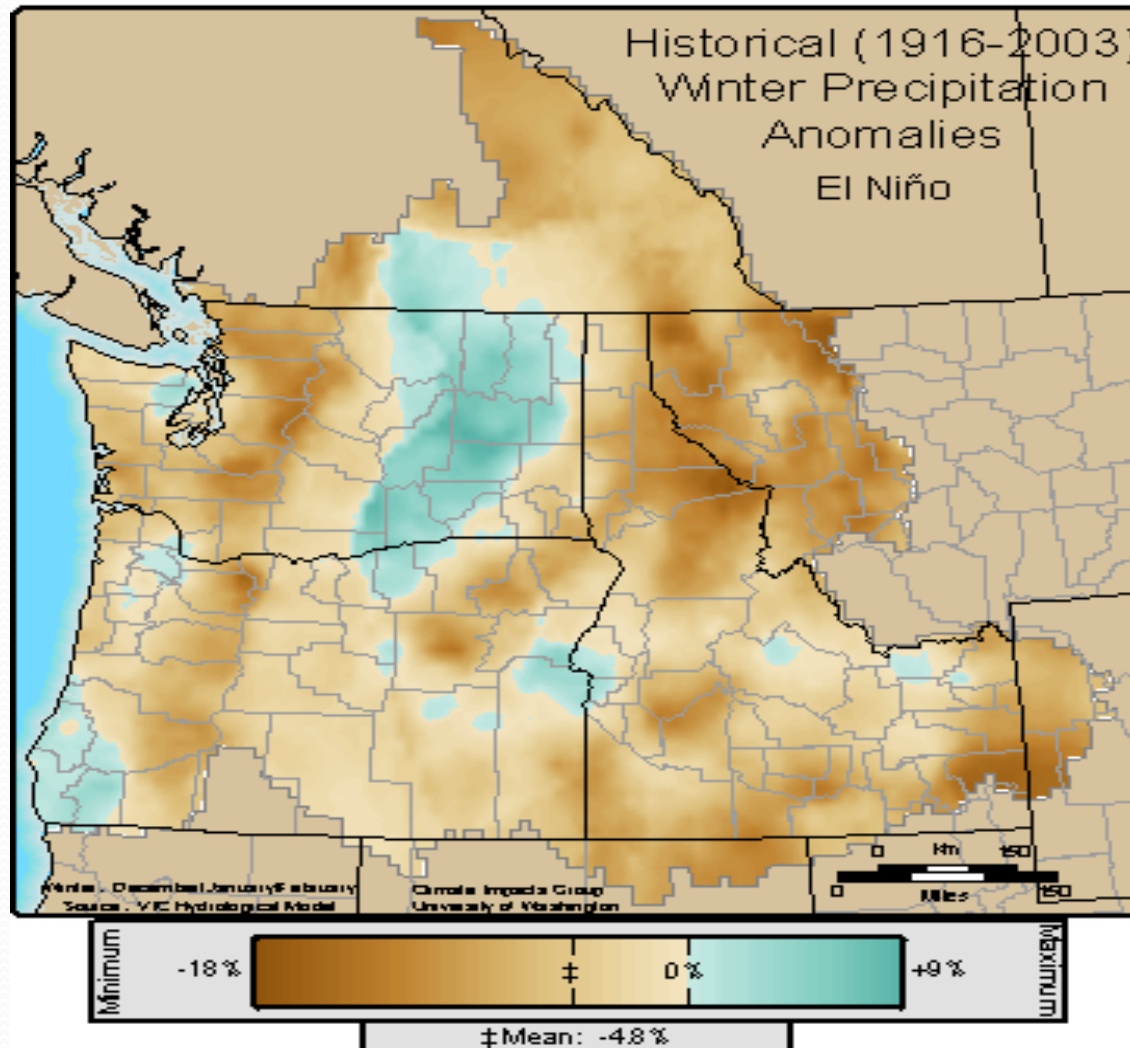
Based on 1895-1997



Interactive climate scenario maps

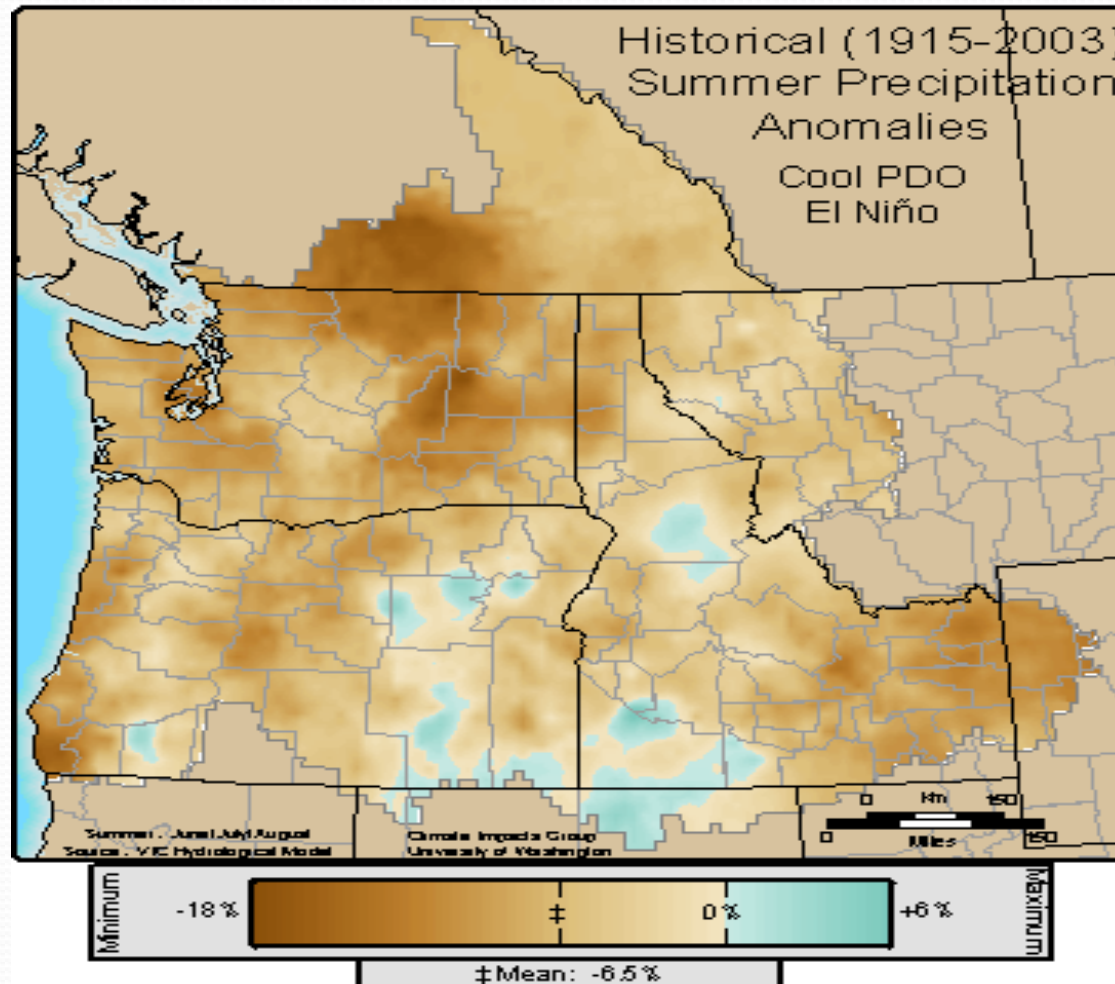


Winter Dec - Feb precip - El Nino



Summer Precip – Jun-August

Cool PDO with El Niño



Vulnerabilities Identified

Where Can a difference be made?

- Irrigated Agriculture
- Fisheries
- Hydropower Production
- Municipal Water
- Urban Forest
- Wildfire

Starting Point for Planning

- Manageability of Basin – Statutory purview; Sheer size & diversity
- Basin-wide v Localized impacts – Existing Groups, autonomy, history
- Institutionalized restrictions – Water rights; Municipal supplies; ESA; COE floodways; Hydropower - FERC

One Possible Approach

- Define role of CFTF – Media outreach
- Link to Drought Advisory Committee
- Develop web site with trib template
- Existing plans inserted into CFB site
- Google-based map with layers for attributes, plans, assistance

CFTF – Clearinghouse

- Drought forecasted – Bring tributary group reps together in Missoula
- Shared Learning – Experienced groups like Blackfoot explain plan
- Bring federal, local, and state agency reps together for vision and structure
- Get Started!