



VOLUME  
**VIII**  
ISSUE 1, SPRING 2015

# Sage Winds

NATIONAL WEATHER SERVICE BOISE

## SUMMER Spotter Checklist

### When should you call us?

**HAIL:** Pea size or larger.

**REDUCED VISIBILITY:** from fog, blowing dust, rain.

**WIND:** Greater than 40 mph or damage.

**HEAVY RAIN:** 1/2"+ in 1 hour

**FLOODING:** Any water where it shouldn't be, or overflowing river/creek.

**TORNADO or FUNNEL CLOUD.**

**ANY WEATHER RELATED DAMAGE, DEATH, OR INJURY.**

### How to contact us:

1-800-882-1428

@NWSBoise

facebook.com/NWSBoise

boise.weather@noaa.gov

### Trivia:

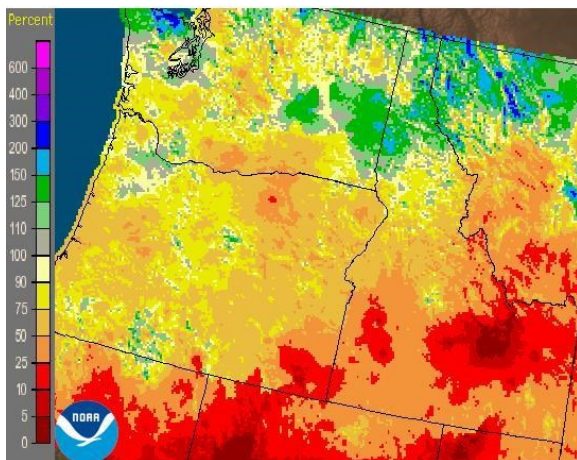
**When was the deadliest tornado in Idaho?**

## Season in Review

Joel Tannenholz

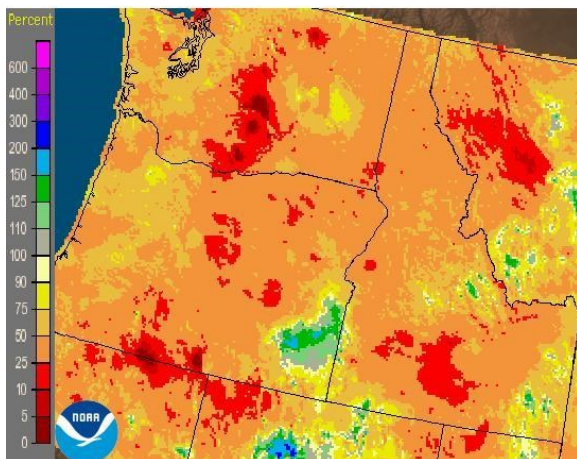
Spring 2015 started out warm. In fact, in the Boise area it was the warmest March since 1940 and the fourth warmest March going all the way back to 1864. It was also drier than normal for most of our area, especially in the mountains, where winter snowpack was already below average.

Idaho: March, 2015 Monthly Percent of Normal Precipitation  
Valid at 4/1/2015 1200 UTC- Created 4/20/15 23:23 UTC



April temperatures were close to normal, but precipitation continued below normal across much of the region. For example, Burns received only .15 inch compared to their April normal of .93 inch.

Idaho: April, 2015 Monthly Percent of Normal Precipitation  
Valid at 5/1/2015 1200 UTC- Created 5/16/15 0:21 UTC



The ongoing El Niño might have been partly to blame early this spring, but in our region its main effects are in winter. At Boise 75% of the warmest and 80% of the driest winters have occurred during an El Niño, but our spring weather does not correlate well with this phenomenon.

A dramatic change came after the first week of May, as an upper level trough developed over western North America south of the Canadian border. It was maintained by a series of cold upper level lows from the Gulf of Alaska which moved down the coast and inland across California and the

Season in Review **P.1**

Meet & Greet **P.2**

2015 Fire Season Outlook **P.3**

America's PrepareAthon, StormReady **P.4**

Drought & Water Supply Outlook **P.5**

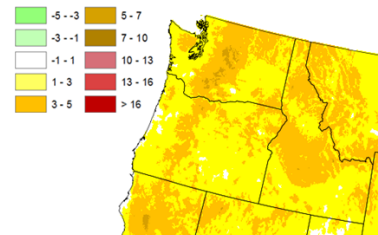


Lightning over North Boise 5/26/15- Courtesy Michael Smith

Great Basin. Moist and unstable air circulating within this system provided us with daily afternoon and evening showers and thunderstorms with locally heavy downpours, gusty winds, and small hail.

The last of the lows came inland on Memorial Day, this time farther north over the Pacific Northwest and British Columbia, and the unsettled weather continued for a few more days.

### Daily Mean Temperature Anomaly March - May 2015

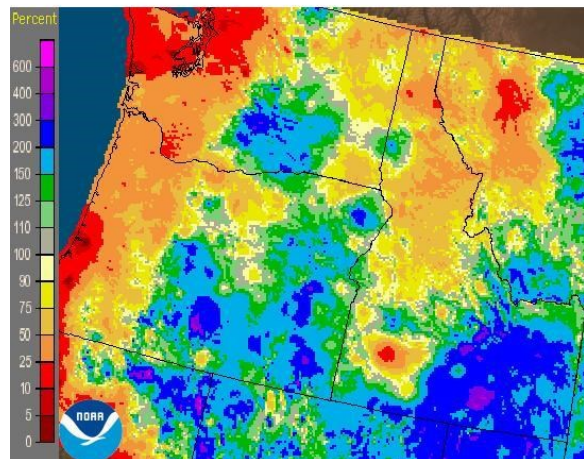


Copyright (c) 2015, PRISM Climate Group, Oregon State University

Precipitation for May was in sharp contrast to the predominantly dry weather of most of the season (see figure below).

A temporary return to drier and much warmer weather arrived the final weekend of May as an upper level ridge brought a preview of summer.

Idaho: May, 2015 Monthly Percent of Normal Precipitation  
Valid at 6/1/2015 1200 UTC- Created 6/3/15 14:05 UTC



# Meet & Greet

Aviva Braun

Most of our community has seen Ron Abramovich on the evening news being interviewed about the current snowpack at the Snow Survey's Mores Creek site, but who is this guy and what is the Snow Survey? This quarter I took a field trip with Ron Abramovich, the Water Supply Specialist at the Idaho Natural Resources Conservation Service (NRCS) office, and his team, in order to answer these questions. On April 30th, we went up to Mores Creek Summit (6100 feet), just north of Idaho City, to measure what was left of this winter's snowpack. The snowpack wasn't terribly impressive. Ron described the scenery as one we normally see in June, not April or May. Still, participating in April's Snow Survey was fun. I had a hand in measuring the monthly snowpack – a number that can be directly correlated to the Boise River Basin's streamflows; Mores Creek is a tributary of the Boise River, and helps feed Lucky Peak Reservoir.

**NWS: Hi Ron. Good morning! Tell me, what is the Snow Survey program and why was it first established?**

**Ron:** The main mission of the Snow Survey is to aid in the prediction of agricultural water supplies and snowpack runoff; this became a priority after the dust bowl days. With our assistance, farmers can plan for the upcoming season and plant accordingly. Our SNOTEL (short for Snow Telemetry) data and streamflow information is used for more than just agriculture, since it collects snowpack and other climatic data.

**NWS: How many SNOTEL sites does NRCS have in Idaho?**

**Ron:** There are 78 SNOTEL sites in Idaho, but our Boise office is responsible for 119 total. The sites span the region from Spokane, WA, to Jarbidge, NV, east to Pinedale, WY. There are another 100 manually measured sites, called snow courses – Mores Creek just happens to have a long-term snow course and automated SNOTEL site! We use about 50 snow surveyors to help measure all of these sites at the end of each month.

**NWS: I assume that some of your sites are pretty remote – how do you reach them?**

**Ron:** We use various technologies such as snowshoes, snowmobiles, snowcats, and helicopters. We also have one site in Wyoming that we get to by horse – that trip takes several days.

**NWS: What does the Snow Survey Program entail?**

**Ron:** What we do is inventory the mountain snowpack to produce streamflow forecasts for users, primarily to assist agricultural water users. So in the dry years, you don't want to over-plant and be water short. With this information, you can adjust accordingly based on the previous winter's snowfall.

**NWS: You've already touched on this a bit, but could you give me an overall picture of what Idaho's snowpack looks like this year?**

**Ron:** We had a very unusual cold spell back in November where we got down to 1°F in Boise and subzero in the mountains. That was associated with the largest 2-day total November snowfall record in Boise at 7.6 inches. The mountains got off to a good start and those cold temperatures actually stuck around into early January, with snowfall every couple of days. But then, after mid-January, the moisture stopped coming. The other major influence was the warm waters off the coast of Oregon and Washington, and a ridge of high pressure, which allowed for very little snow in the Cascades. In February and March, that ridge started to spread east over Idaho from the Cascades, which continued the warm temperatures and lack of moisture. Snowpack peaked in early March, when normally it peaks in early April. It was unusual in that we had a net decrease in the month of March rather than continued accumulation – this is what is going to hurt us the most this summer.

The other unique aspect of this season was our snow drought from high snow levels. Though our precipitation-to-date amount was near normal, most of the precipitation came in the form of rain, not snow. We'd rather have the precipitation come as snow late in the season, when the growing season is just commencing. When snow accumulates during the spring and melts later in the season, as it normally does, Idaho's rivers and reservoirs fill gradually over time.

We are looking at a snowpack average of 0-50% of normal across the western part of Idaho and it's not much better in the upper Snake River Basin either. What we saw in our April Snow Survey readings is that the snowpack is only 24% of normal at the Mores Creek site. Overall, the Boise Basin snowpack is only 50% of normal in its total water content.

**NWS: So, what does this mean for Idaho's farmers?**

**Ron:** Irrigation shortages will be more widespread this summer. We are going to see an early draw down of reservoir levels this year due to the early snowmelt and runoff. Farmers are going to be much more limited in their usage and will have to adjust to the water supply accordingly. Some farmers will be out of water in July. By summer's end, most of Idaho's reservoirs will be at their minimum storage levels; therefore, we'll be dependent on next year's snowfall (and runoff) to bring our reservoir levels back up.

**NWS: To end on a happier note, could you tell me how you become interested in this line of work?**

**Ron:** It probably began when I started playing in the sandbox in my house growing up. I dug a bunch of rivers and canals into the sandbox, and then I'd pull out the garden hose and run the water from the top to the bottom, run it through the dams, then they'd break and I'd flood the whole sandbox. Then I couldn't play in the sandbox again for a week or two while I waited for the sand to dry out. I had a blast! That's what got me into hydrology. But what got me into snow hydrology specifically is the great time I had with my father at his part time job as a snow plower – he'd take me out with him. I really enjoyed it.

**NWS: Well Ron, that is all of the questions I have. Thank you!**

**Ron:** Thank you for having me.



Ron Abramovich



# 2015 Fire Season Outlook

Chuck Redman

The year 2015 started with a very good start to the snowpack ranging from 70% to 120% across eastern Oregon and southwest Idaho, but the storm door closed rapidly as an upper ridge developed over the Pacific Northwest. This ridge brought very warm conditions to the entire area and began to decrease the snowpack in the mountains. As an example, February temperatures were on the order of 10 degrees above normal for several locations and March was 5-10 degrees above normal. The storms that did move into the region only brought high elevation snow levels and therefore rain came on top of the already low snowpack across most of the region. Part of the reason for the above normal temperatures was the El Niño, but also above normal sea surface temperatures (Figure 1) were observed in the Gulf of Alaska and along the entire West Coast.

Typically, the peak snow depth amounts are in March and April. This year was atypical as the region recorded its peak snow depth amounts in February and then stalled with no significant accumulation during the February-April time period. At elevations below about 6,000 feet, snow melted off about a month early and the higher elevations about 4-6 weeks early. As a result, streamflow predictions (an ad hoc measurement of fuel stress) show that, across the mountainous areas, less than 50% of the expected water will be coming down the drainages (Figure 2).

## Spring and Summer Streamflow Forecasts as of May 1, 2015

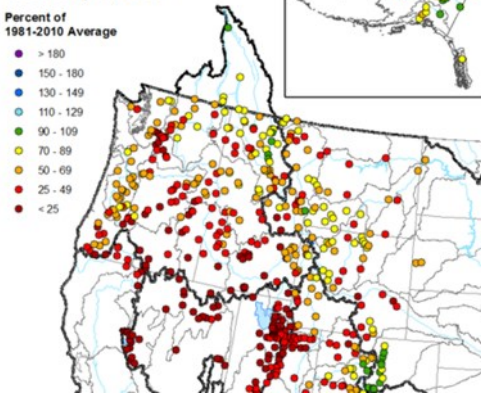
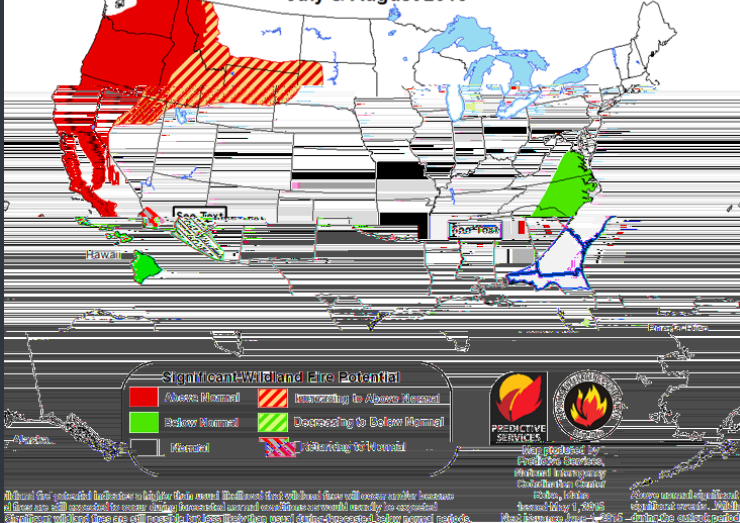


Figure 2: 2015 Summer Streamflow Forecast

Rainfall amounts ranged from about 200%-500% of normal (generally 2-3 inches) for May across most of eastern Oregon and the Nevada border region, but less relative to normal across both the Boise and Payette National Forests.

## Significant Wildland Fire Potential Outlook July & August 2015



It should be noted that the outlook for the fire season is based on the current conditions and will change as more information becomes available. The outlook is based on the current conditions and will change as more information becomes available. The outlook is based on the current conditions and will change as more information becomes available.

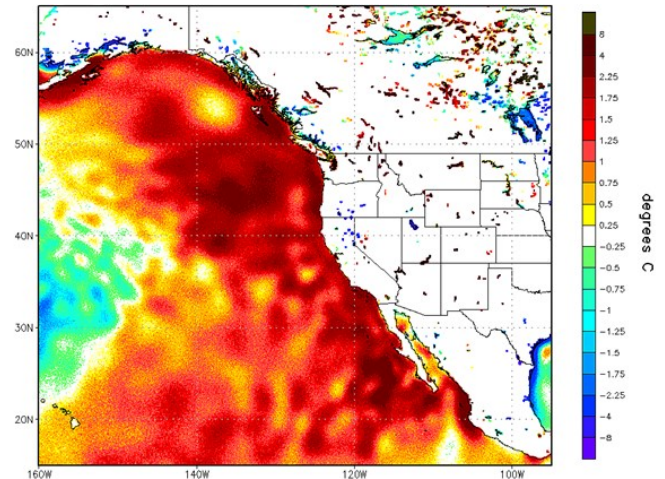
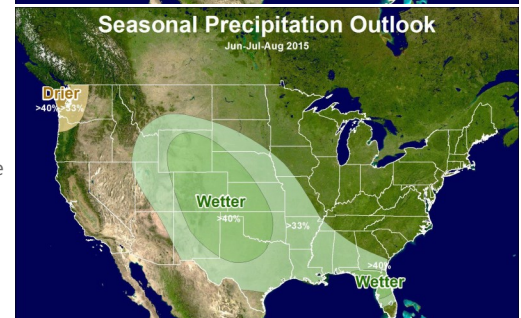
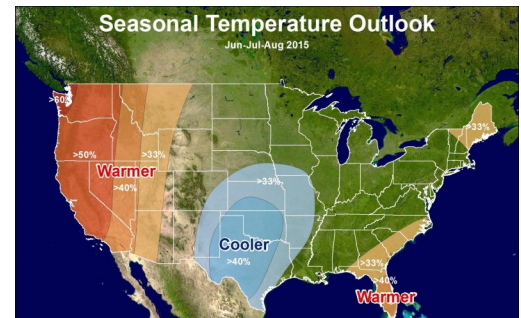


Figure 1: 2015 Sea Surface Temperature Anomaly

Snow that is expected to help elevate streamflows during a normal year have already melted off and made it to area lakes. The lack of precipitation through the end of April is a big concern for the upcoming fire season, where the March – May period is critical for determining of the severity and timing of the fire season.

The month of May has been a gift! An upper ridge aloft developed in British Columbia and became nearly stationary through the month. This allowed low pressure areas to drop south of that ridge and into the Pacific Northwest/Great Basin. Abundant atmospheric moisture was brought northward by the slow moving upper lows.



The outlook for the months of June through August indicates better chances of above normal temperatures across most locations in the area. Precipitation is a little harder to judge as the seasonal monsoonal moisture typically lifts northward out of Utah into southcentral Idaho then shifts eastward. Better chances of above normal moisture are expected across areas east of Mountain Home and Stanley. West of that line, normal precipitation is more probable at this time (shown in the figures above).

With this outlook, along with the received Winter/Spring precipitation, this area should begin to see an increase in fire activity about mid-June. Above normal fire activity is then expected for the remainder of the summer. The graphic to the left shows the Summer Fire Season Outlook from Predictive Services (an Interagency Partnership between USFS, BLM, BIA, USFWS).

# National Weather Service Boise Staff

## Meteorologist In Charge

Robert Diaz

## Science Operations Officer

Tim Barker

## Warning Coordination Meteorologist

Jay Breidenbach

## Service Hydrologist

Troy Lindquist

## Information Technology Officer

Jason Baker

## Electronic Systems Analyst

Travis Mayer

## Electronics Technicians

George Buckwold  
Eric Johnson

## Observing Program Leader

David Decker

## Administrative Support

Kelly Jardine

## Senior Meteorologists

Les Colin  
Dave Groenert  
Valerie Mills  
Stephen Parker  
Bill Wojcik

## Meteorologists

Jeanne Allen  
Korri Anderson  
Elizabeth Padian  
Josh Smith  
Joel Tannenholz

## Fire Weather Meteorologists

Chuck Redman  
Megan Thimmesch

## Hydrometeorological Technician

WasyI Hewko

## Meteorologist Interns

Aviva Braun  
Jessica Caubre

## America's PrepareAthon

Jay Breidenbach

The National Weather Service (NWS) is building a Weather-Ready Nation and has partnered with the Federal Emergency Management Agency (FEMA) to help America prepare for severe weather and other natural disasters. You can also partner with the NWS and FEMA by participating in America's PrepareAthon. The website for the PrepareAthon (<http://www.community.fema.gov/connect.ti/AmericasPrepareathon>) has much more information, including a toolkit with preparation information for earthquakes, floods, hurricanes, tornadoes, wildfires, and winter storms.

We know that severe thunderstorms, flash floods, hail, high winds, and even tornadoes can strike just about anywhere in the country, including Oregon and Idaho. These types of events are simply part of the dynamic planet that we live on. Forecasts for these hazards have gotten better over the years, but will never be perfect or prevent them from happening. The best thing that you can do is to plan ahead and prepare so that you will be ready for the next significant event!



## Mountain Home Air Force Base Becomes StormReady

Bill Wojcik

National Weather Service Boise forecast office officially recognized Mountain Home Air Force Base as a StormReady community at a ceremony held on April 23rd, 2015. Bill Wojcik and Bob Diaz presented a framed certificate and a StormReady sign to base commanders and members of 366th Operations Group who championed the StormReady Program. The base is the first military installation in Idaho to be certified as StormReady. There are approximately 5,400 people that live and work on the base. A longer-term partnership has developed as a result of the StormReady process, and National Weather Service Boise forecasters have been invited to 'job shadow' with Air Force forecasters at Mountain Home AFB this spring. Air Force weather forecasters will job shadow at National Weather Service Boise later this summer.

StormReady communities, counties, universities, military bases, indian nations, commercial enterprises, and other groups are better prepared to save lives from the onslaught of severe weather through advanced planning, education, and awareness. To learn more about StormReady, visit

<http://www.stormready.noaa.gov/>.



**Trivia Answer:** June 7, 1936: An F3 tornado struck Ruebens, ID of Nez Perce County. A house and a barn were leveled and 2 people were killed.



Want to help NOAA weather scientists with research?

If you own a smartphone or tablet download the free **mPING** app in the App Store or Google Play.



# SUMMER is HERE!

*Friendly reminders on keeping you and your family safe*

By Elizabeth Padian

## Lightning Safety:

If you hear thunder, lightning is close enough to strike you, and on average, lightning kills 49 people in the U.S. every year. What should you do if a thunderstorm is near?

- ◆ Move inside a shelter: a substantial building with plumbing and electricity, or a metal-topped vehicle with the windows up.
- ◆ Stay in shelter for 30 minutes past the last thunder heard.
- ◆ If inside a building, stay away from windows and doors, and stay off porches.

If you're caught outside with no safe shelter nearby take the following actions to reduce your risk:

- ◆ Get off any elevated area such as a hill or mountaintop
- ◆ NEVER shelter under an isolated tree, or lie flat on the ground.
- ◆ Get out of and away from bodies of water.
- ◆ Avoid being near objects that conduct electricity, such as barbed wire fences, power lines, or windmills.

For more information, visit:

<http://www.lightningsafety.noaa.gov/>

## Fire Safety:

How to protect your home from wildfires:

1. Create defensible space by clearing brush away from your home
2. Use fire-resistant landscaping and harden your home with fire-safe construction.
3. Assemble emergency supplies and belongings in a safe place
4. Plan escape routes and make sure all members of the household know the plan.

For more information, visit: <http://www.nws.noaa.gov/om/fire/ready.shtml>

[www.nws.noaa.gov/om/fire/ready.shtml](http://www.nws.noaa.gov/om/fire/ready.shtml)

**Questions? Comments? Suggestions?**

Email:

[boi.spotter@noaa.gov](mailto:boi.spotter@noaa.gov)

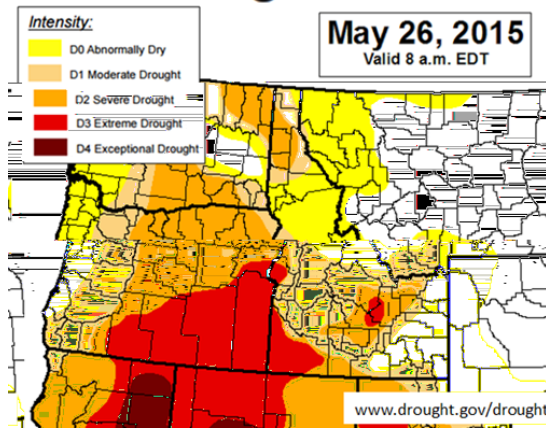
# Drought & Water Supply Outlook

Troy Lindquist

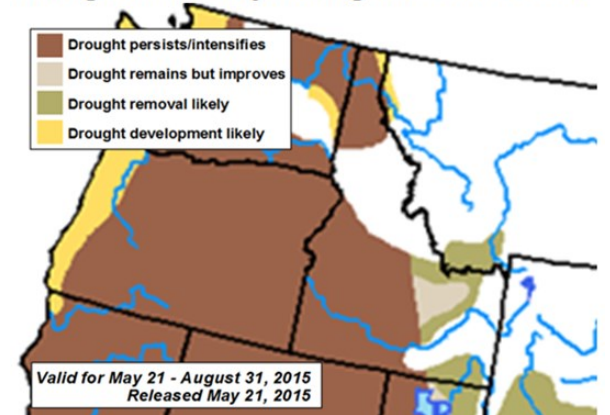
Drought is no stranger to southwest Idaho and southeast Oregon. It's a phenomenon that develops slowly and the impacts can often appear subtle, but in reality are far reaching and of great consequence. Some may think of drought as the lack of precipitation in comparison to some normal or average amount over a long period of time. However, drought is complex and one must consider not only the lack of precipitation, but also agricultural, hydrologic, and socioeconomic impacts when determining drought severity.

Southwest Idaho and southeast Oregon are currently experiencing drought and some of the region has been in some degree of drought for the past three years. Consecutive years of below normal precipitation have impacted reservoir storage, soil moisture, irrigation water demand and availability, crops and livestock, streamflows, vegetation, fish and wildlife, ground water, and wildfires. All these things affect our communities and economy in some fashion.

## U.S. Drought Monitor



## U.S. Seasonal Drought Outlook



The latest U.S. Drought Monitor indicates that southeast Oregon is in extreme drought, while drought conditions in southwest Idaho vary from moderate to extreme. The U.S. Drought Monitor is updated weekly by drought experts, who collaborate with several local, state, and federal entities in determining drought conditions across the region. The seasonal drought outlook indicates that drought will persist or intensify through this summer.

With drought being at the forefront, one would expect that this year's water supply outlook isn't what we'd like to see. Winter snowpack is vital to an adequate water supply across most of the western states and the lack of snowpack this past winter resulted in what many are calling a "snow drought". Mountain snowpack acts like a natural reservoir, and when melted it sustains our streamflows, fills reservoirs, and helps recharge ground water and soil moisture. This cycle is essential in sustaining our water supply and a healthy ecosystem during the warm and dry summer months. This year's "snow drought" in addition to long term precipitation deficits will lead to water shortages and a curtailed irrigation season for many farmers and ranchers. Water supply forecasts produced by the National Weather Service Northwest River Forecast Center in Portland indicate around 50% of normal or less runoff volumes during the April through September period this year (see figure to the right).

When will the drought end? That's a good question. Weather patterns next fall, winter, and spring will determine whether or not drought conditions continue. Hopefully, good rains this coming fall will replenish soil moisture, and abundant snowpack next winter will set the stage for a much better water supply outlook next year.

## Northwest River Forecast Center Water Supply Forecasts

