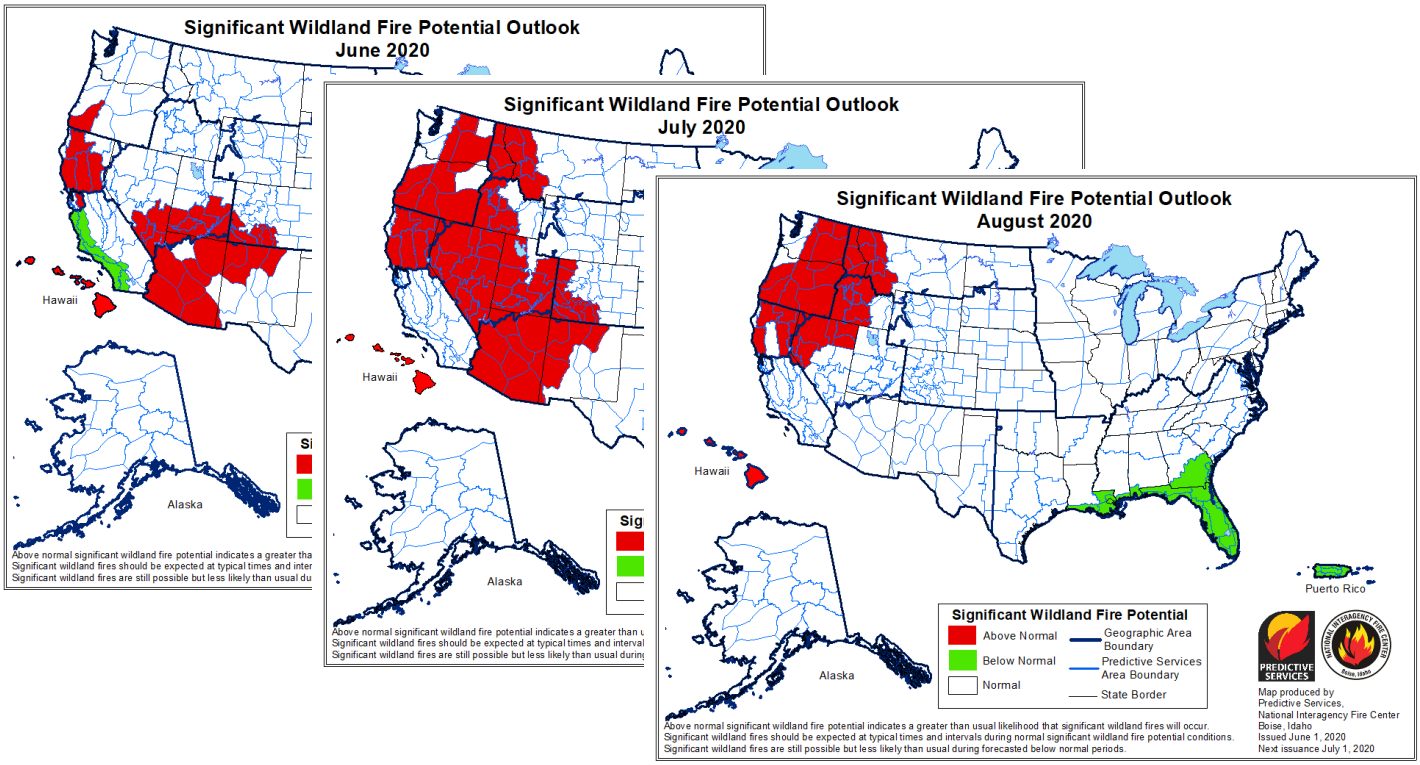
TETON INTERAGENCY FIRE

2020 WILDLAND FIRE OUTLOOK

June 1, 2020



Significant Wildland Fire Potential for June, July and August 2020 (issued June 1 2020, National Interagency Fire Center. **https://www.predictiveservices.nifc.gov/outlooks/outlooks.htm**.

SUMMARY

Fire season outlooks for the Teton Interagency Dispatch area and for the Great Basin Geographic Area reflect the continuing effect of above-average winter snowpack followed by a drier than normal spring. Outlooks for a normal fire season in the Teton Interagency Dispatch Center response area may transition to a more active fire season if warm and dry conditions occur. Wyoming also has an outlook for normal fire conditions (see Rocky Mountain Area Outlook https://gacc.nifc.gov/rmcc/predictive/outlook/Seasonal_Outlook.pdf). Potential fire activity is projected to be above normal for much of the Great Basin region.

As a result of winter moisture, lower elevation areas with grass fuels may experience increased fuel availability that in turn may intensify fire spread if a drying-curing trend occurs. Current 30- and 90-day probability outlooks indicate a warmer than normal summer fire season and normal precipitation for June but below-normal precipitation in the 90-day outlook. The fire season may be impacted by a delayed/weak onset of our typical mid-summer monsoon moisture flow from the Southwest. Evolving tools -- such as the Evaporative Demand Drought Index (https://psl.noaa.gov/eddi/) -- along with fire danger ratings, energy release component and fuel moisture monitoring will assist in tracking the impact of long-term or "flash drought" conditions.

During a normal season, Bridger-Teton National Forest will have 67 fires for 3290 acres (40-year average from 2016) and Grand Teton National Park will average 11 unplanned fires for 1858 acres (based on a 20-year fire history, 1997-2016).

The Teton Interagency Wildland Fire Outlook is updated monthly. Current information on fire conditions, fire indices and fire activity can be found at www.tetonfires.com, with local and related regional and national outlooks at https://gacc.nifc.gov/gbcc/dispatch/wy-tdc/home/predictive-services/outlooks.

CLIMATE AND FUELS

(1) Area Snowpack and Streamflow

Snowpack, accumulated precipitation, and streamflow in western Wyoming tracked normal in terms of total precipitation for Water Year-to-Date (YTD) and slightly above normal snow water equivalency content (SWE), with the exception of the Wind River drainage, which is below normal. SNOTEL sites in the north and west indicate slightly above normal SWE for the end of May but the majority of sites exhibit normal to below-normal moisture for the Water YTD. Snowmelt is proceeding at a normal rate overall, though a warmer than normal period at the end of May supported a hazardous weather alert for rapid snowmelt and rising water levels from the National Weather Service.

Table 1: Percent of 30-Year Average Snow Water Content and Precipitation by Basin. 6/1/20. (http://www.wrcc.dri.edu/snotelanom/snotelbasin). * = Analysis may not be valid measure of conditions.

	Snow Water Content	Total Precipitation (Water YTD)
Snake River	106 %	96 %
Upper Green River	118 % *	93 %
Yellowstone	106 %	102 %
Wind River	68 % *	78 %
Upper Bear River	57 % *	84 %

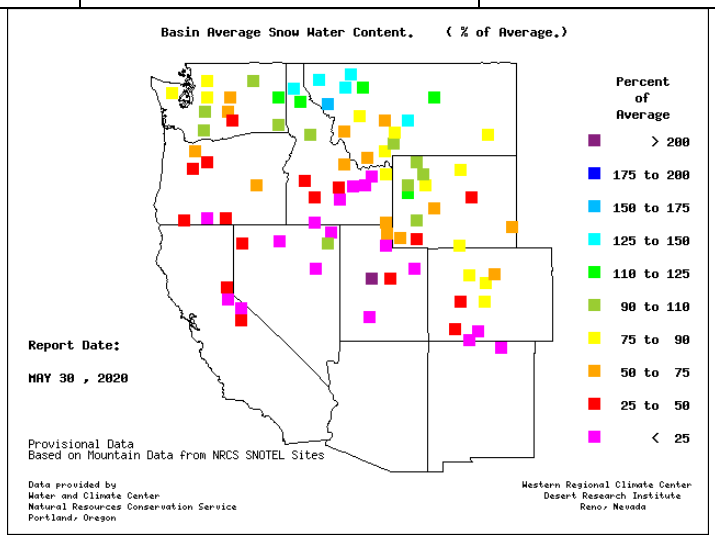


Figure 1a: Basin - Percent of Average - Snow Water Content

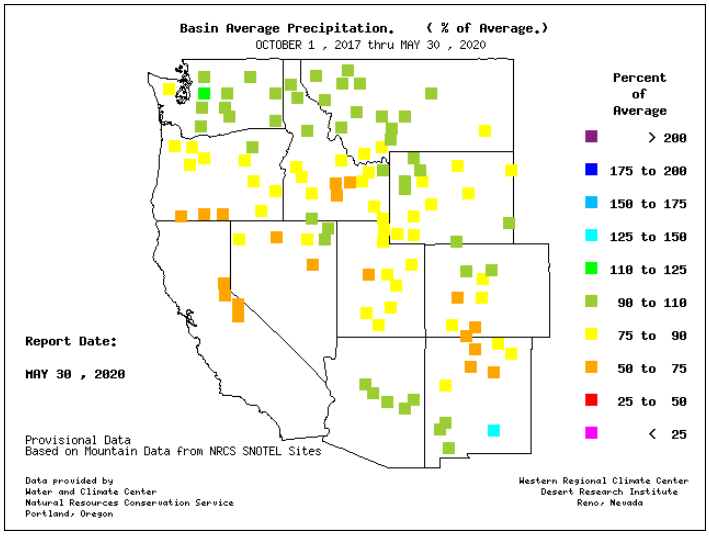


Figure 1b: Basin – Percent of Average – Precipitation

Figures 1 c-e. SNOTEL Water Year to Date, Snow Water Equivalent for Grassy Lake (North Zone), Elkhart Park Guard Station (East Zone), and Snider Basin (West Zone). Generally, these representative sites exhibited normal to slightly below-normal moisture (in total precipitation and snow water equivalent), with normal rate of snowmelt in the North Zone and earlier snowmelt in East and West Zones. One site, Elkhart Park, received notably lower total precipitation, as noted by the difference between the lower dark-red line (2020 water year) compared to average (light red line).

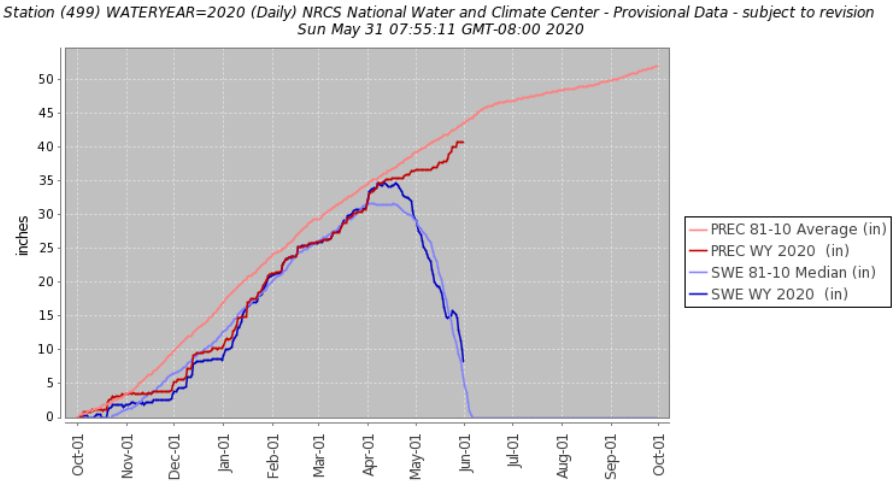


Figure 1c: Grassy Lake Snotel (Teton Zone), 499.

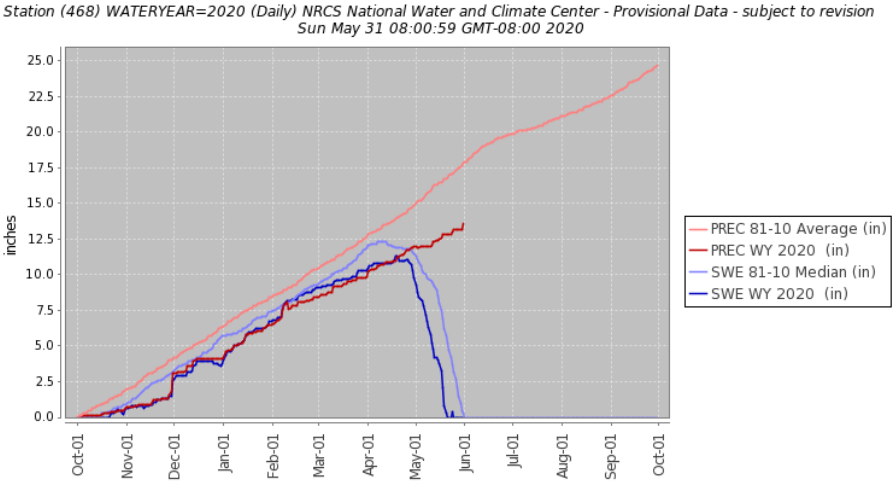


Figure 1d: Elkhart Snotel (Wind River Zone), 468.

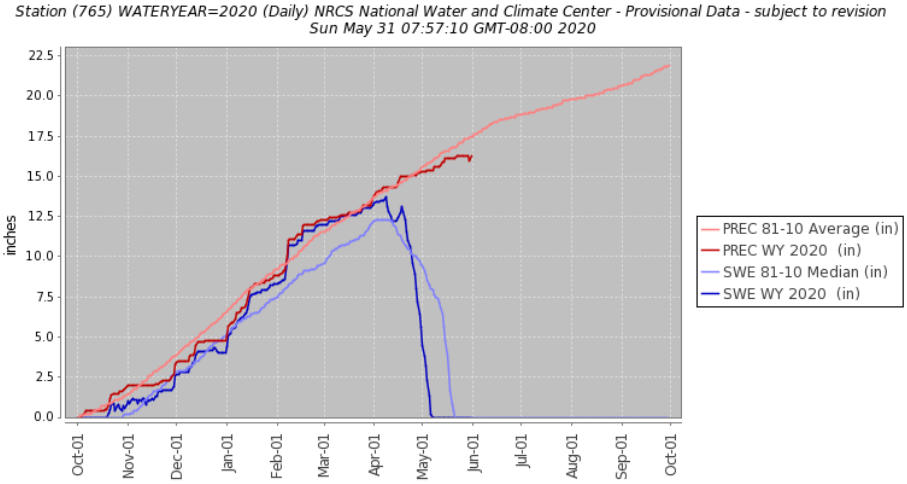


Figure 1e: Snider Basin Snotel (Wyoming Range Zone), 765.

(2) Precipitation Monitoring

Area precipitation for the past 30 and 90 days illustrates the recent drying trend and the contrast of wetter and drier patterns within the TIDC area.

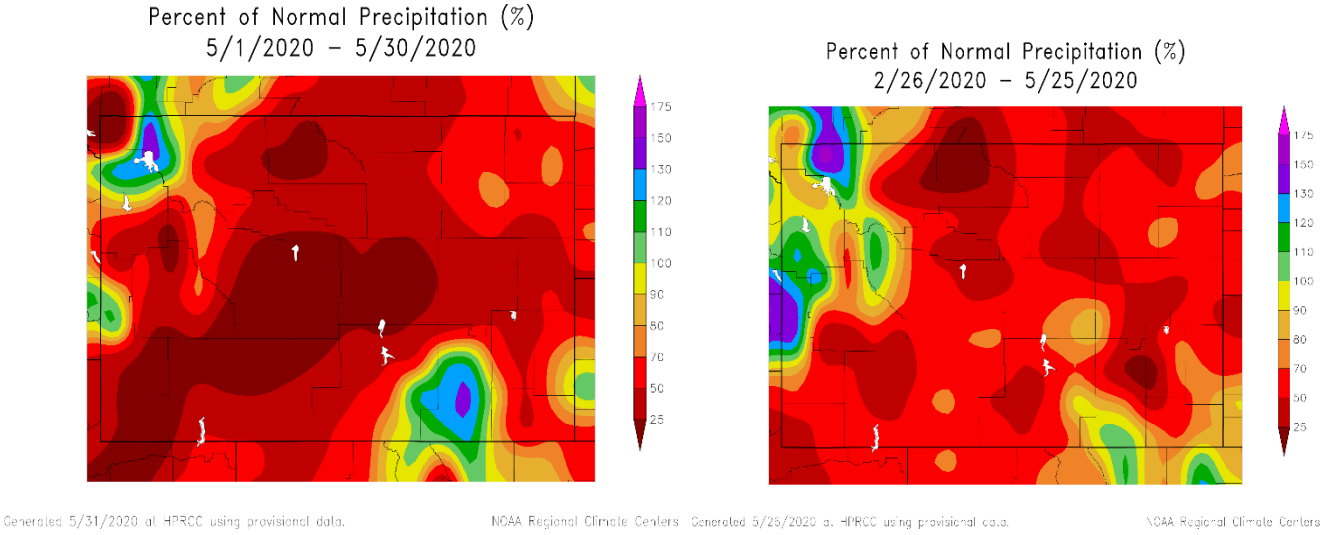
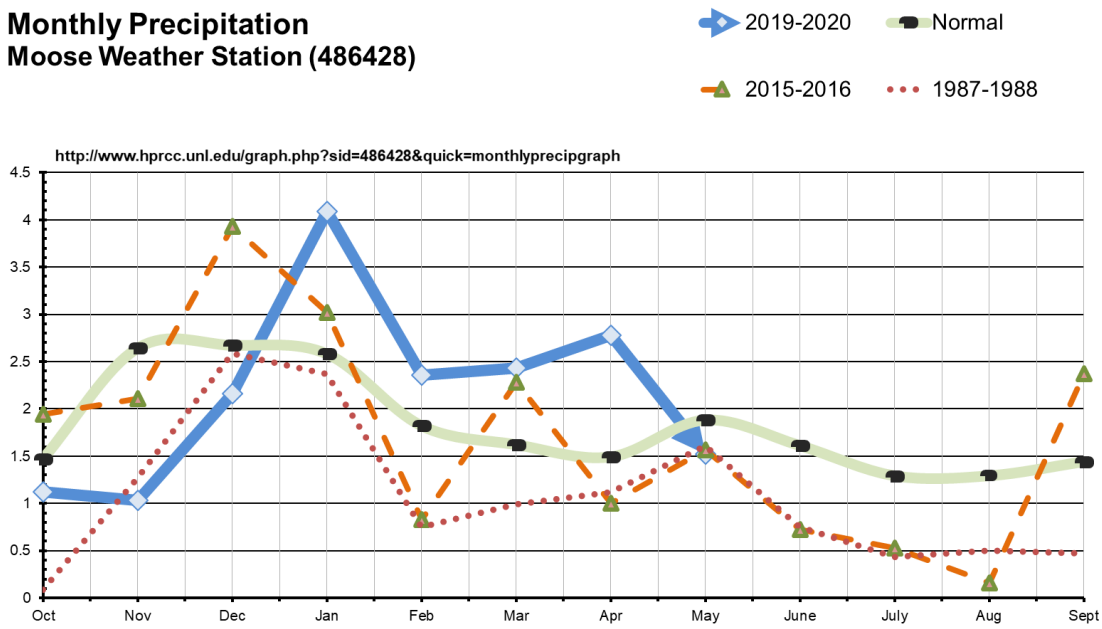


Figure 2a (left). Wyoming, Current Precipitation – Percent of Normal -- for the past 30 days. https://hprcc.unl.edu/products/maps/acis/subrgn/WY/30dPNormWY.png. Most of the TIDC North, East and West Zones received below normal precipitation for May. ***Figure 2b (right).*** *The prior 90 days of Precipitation – Percent of Normal displays above-normal winter precipitation in western sections of the TIDC, with a below-normal moisture pattern prevalent in most of Wyoming. https://hprcc.unl.edu/products/maps/acis/subrgn/WY/90dPNormWY.png*

Precipitation tracking at the Moose weather station, the only automated Climate Reference Station in the dispatch area, is representative for lower elevation sites in Grand Teton National Park and some North Zone sites. The station recorded 108% of normal for water year-to-date, with half the months below and half above normal precipitation. The drier months occurred in fall of 2019 and this May and averaged 69% of normal, contrasted with four wetter-above-normal months from January through April, at 157% of normal, with April receiving 187% of normal moisture (Table 2 and Graph).

Table 2 - Graph and Table: Precipitation at Moose Weather Station (Grand Teton National Park).



		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	YTD total
Monthly Precipitation	1987-88	0.09	1.27	2.59	2.37	0.75	0.99	1.12	1.61	10.79
(inches)	1999-00	0.08	0.67	2.03	2.27	5.04	1.03	0.4	1.38	12.9
	2015-16	1.94	2.11	3.93	3.02	0.83	2.28	1	1.57	**16.68**
	2018-19	**1.08**	**2.82**	**1.21**	**1.56**	**7.83**	**0.78**	**3.04**	**1.5**	**19.82**
	Normal	2.58	1.82	1.62	1.49	1.88	2.58	1.82	1.62	*16.17*
	2019-20	**1.12**	**1.03**	**2.16**	**4.09**	**2.36**	**2.43**	**2.78**	**1.52**	**17.23**
Percent of NORMAL	1987-88	6%	60%	102%	92%	40%	63%	75%	84%	70%
	1999-00	6%	32%	80%	88%	267%	66%	27%	72%	83%
	2015-16	132%	80%	147%	117%	46%	141%	67%	84%	103%
	2018-19	73%	107%	45%	60%	430%	48%	204%	80%	**123%**
	2019-20	76%	39%	81%	159%	130%	150%	187%	81%	108%

(3) Drought Monitor

The current drought map for the U.S. West shows 58% of the West with drought conditions, compared to 13% drought at this time in 2019 and comparable to the 61% with drought conditions at this time in 2018. In Wyoming, 26% of the state exhibits some level of drought conditions, compared to 5% exhibiting drought conditions at this time in 2019. The southern and southeast dispatch area is showing initial drought stages. If the warmer and drier conditions forecast for mid-summer occur, this drought may expand and support earlier fuel availability in 1000-hour fuels (downed logs) and curing of live fuels.

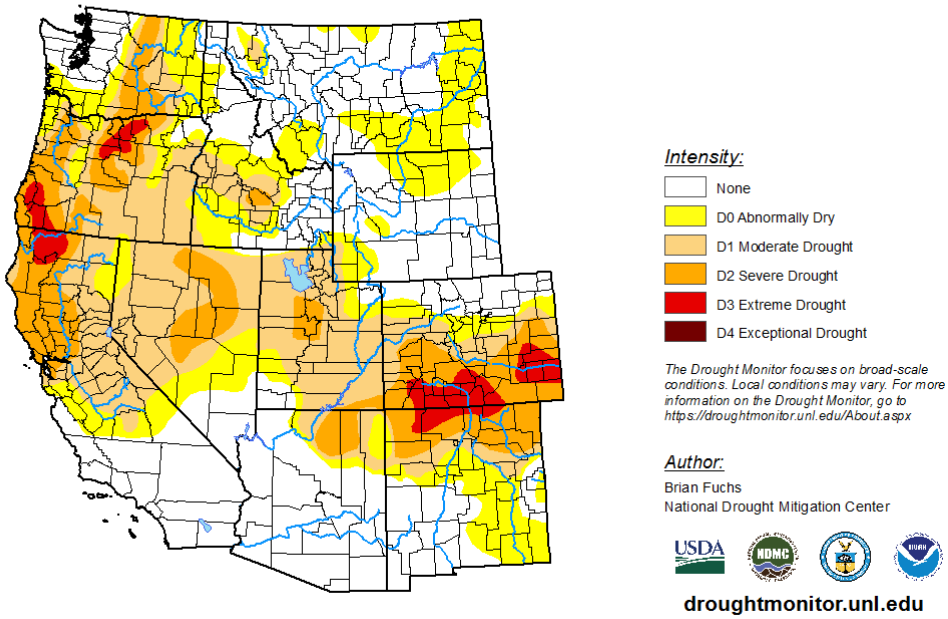
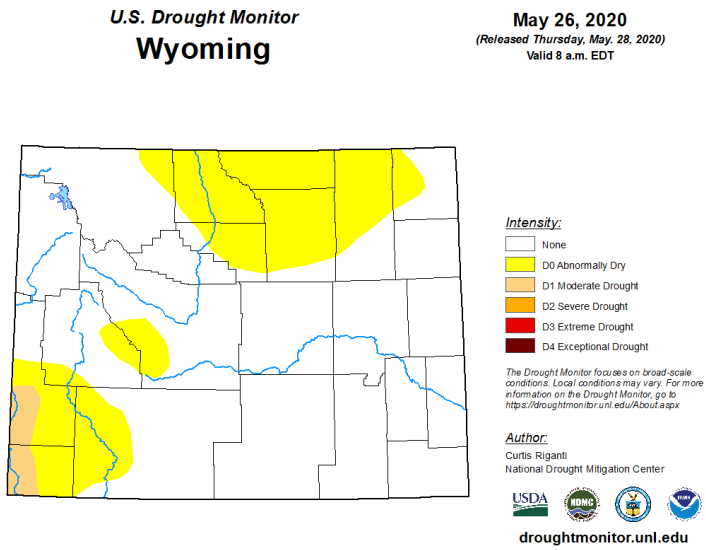


Figure 3a. U.S. Drought Monitor – West.
https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?West



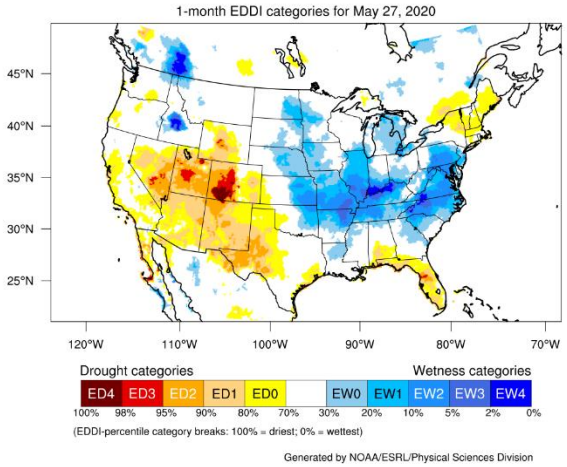
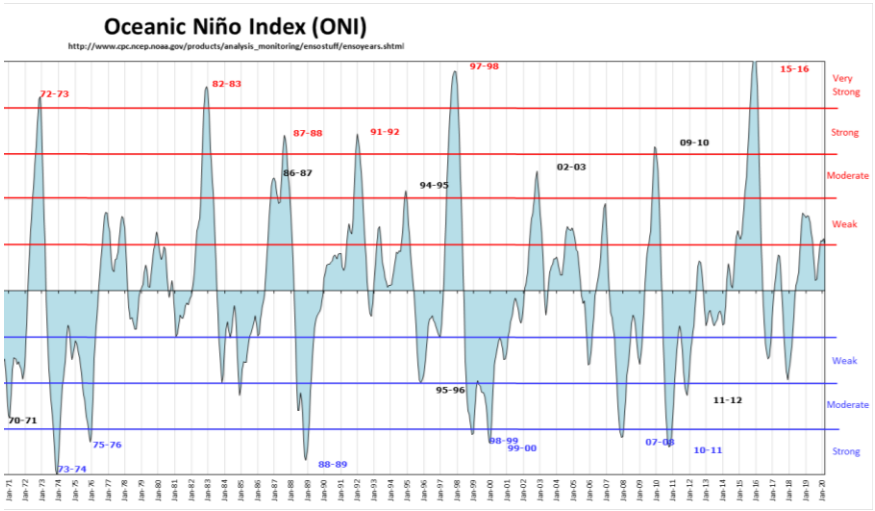


Figure 3b. U.S. Drought Monitor – Wyoming – May 26, 2020. https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?WY.

Figure 3c. Evaporative Demand Drought Index, prior month ending May 27, 2020. *https://psl.noaa.gov/eddi/realtime_maps/images/EDDI_01mn_20200527.png*.

(4) Oceanic Niño Index (for tracking El Niño / La Niña / ENSO-Southern Oscillation)

For July-August-September, *El Niño* conditions historically have reduced the risk for dry extremes for most of Wyoming (see https://wrcc.dri.edu/Graphics/Maps/ENSO/ElNino_Dry/JAS/wy_cl.png for an example of this correlation).With neutral conditions projected, these correlations are not likely to be a strong predictor for this season's fire conditions.



The Oceanic Niño Index (ONI) (Figure 4 - http://ggweather.com/enso/oni.htm) offers a streamlined tool for tracking *El Niño* (warm) and *La Niña* (cool) events in the tropical Pacific. In summer 2016 we transitioned to ENSO-neutral followed by alternating periods of weak *La Niña* and neutral conditions, which transitioned in January of 2019 to weak *El Niño* and now neutral *El Niño* conditions into spring 2020.

CURRENT STATUS:

- ***El Niño* neutral conditions** *are* likely to continue through the Northern Hemisphere summer 2020 (65% chance) and with chances decreasing through autumn (to 45-50% chance).

- Weak *El Niño* conditions may be associated with recent (April-May) anomalous high-pressure ridges (and warmer temperatures) in the Northwest and British Columbia, and the Eastern US, and low-pressure troughs (and cooler temperatures) in the Southwest and Central US. Though we are in neutral *El Niño* conditions, these anomalies were observed this spring.
- Current updates at http://www.cpc.ncep.noaa.gov/products/precip/CWlink/MJO/enso.shtml.

El Niño/ENSO Impacts: Monthly and seasonal risk assessment maps from the Desert Research Institute offer a visual analyses of changes in wet/dry and warm/cool probabilities under *El Niño/ La Niña* conditions. Seasonal risk analysis down-scaled to the state level are at http://www.wrcc.dri.edu/enso/ensorisk/index.html.

(5) Fuel Moisture

Initial fuel moisture sampling in Grand Teton National Park shows green-up occurring at a typical rate, with some open, lower elevation sites reflecting a slightly earlier green-up. Initial fuel sampling measurements show live woody and live herbaceous fuel moistures in sagebrush as drier than normal for June 1, while fuel moistures at conifer sites are trending normal. With hotter than average temperatures, 1000-hour fuels can dry out faster and these and other fuels will be monitored over the summer across the Bridger-Teton NF and Grand Teton NP zones.

Current Wyoming fuel moistures:
https://www.wfas.net/nfmd/public/current_state_data.php?gacc=EGBC&state=WY&submit_button=Submit+Request

(6) Long-term Temperature and Precipitation Trends and Outlook

COOLER WINTER. This winter was cooler than normal in the Teton Interagency area (see Figure 6a), though this may be offset by a warmer spring and snowmelt that was normal to slightly early.

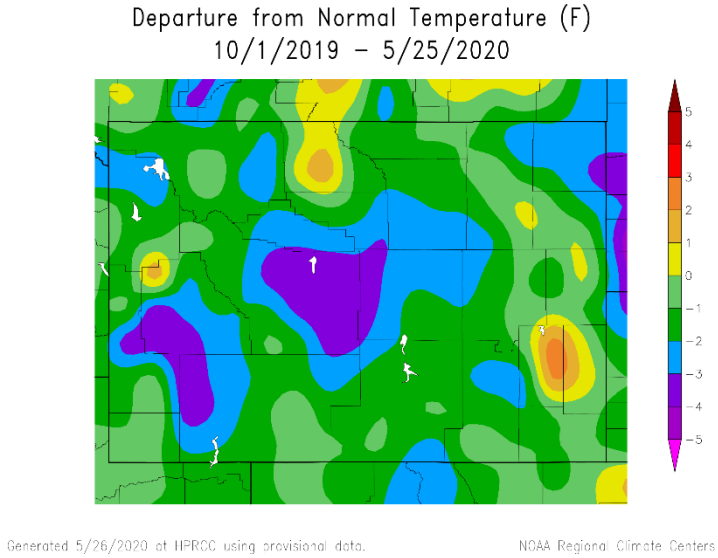


Figure 6a. Departure from Normal Temperature, Wyoming, October 1, 2019 through May 25, 2020 (Water Year-to-Date) indicates a cooler winter than normal and when compared to normal and to 2017-2018, and comparable to the prior 2018-2019 winter.
https://hprcc.unl.edu/products/maps/acis/hprcc/wy/WaterTDeptHPRCC-WY.png

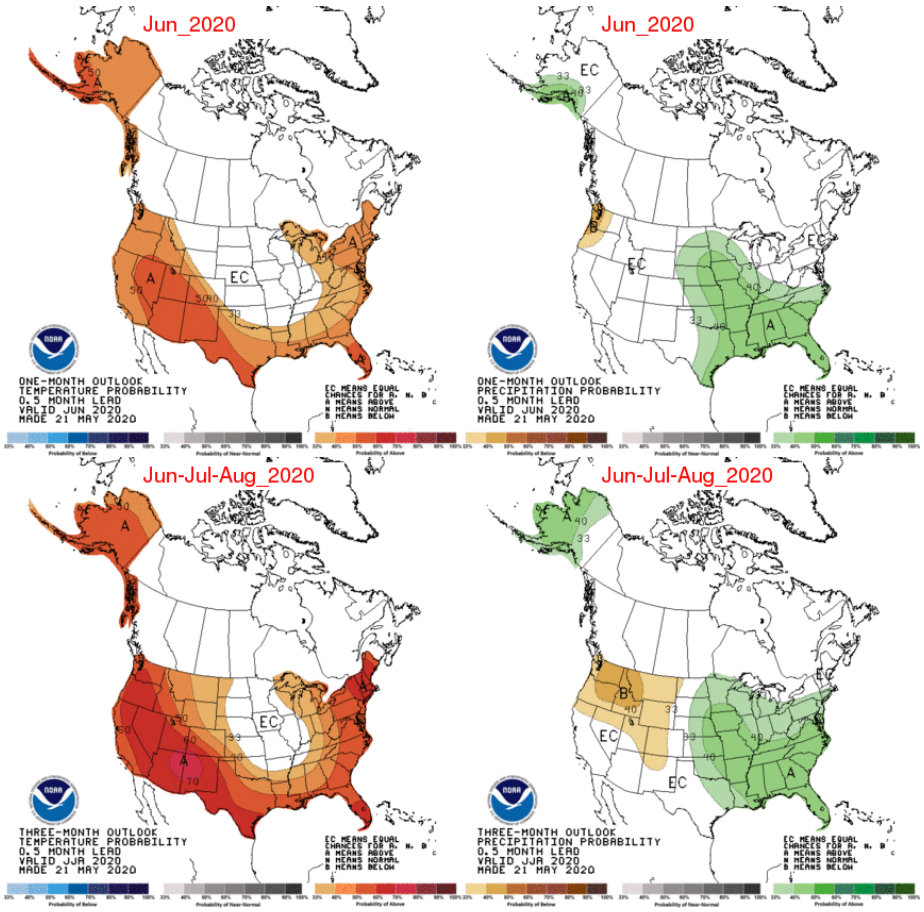


Figure 6b: June and June through August, 30- and 90-day Outlook.

SEASON OUTLOOKS – Warmer temperatures with below normal precipitation.
The 30- and 90-day temperature outlook (Figure 6b above) shows TIDC on the edge of probabilities for normal to above-normal temperature ranges for June and 40% probability of above-normal temperature ranges for the summer overall (June through August). The precipitation outlook (right) indicates a normal range for June and 33% probability of below-normal moisture for the summer (June through August). This warmer-drier trend, if realized, may increase fire activity beyond the normal activity currently predicted.
(http://www.cpc.ncep.noaa.gov/products/predictions/multi_season/13_seasonal_outlooks/color/page2.gif).

NATIONAL AND GEOGRAPHIC AREA OUTLOOKS
The Teton Area fire zone is within the Great Basin Geographic Area. Fire seasons in our zone also track with similar conditions in adjacent areas within the Rocky Mountain and Northern Rockies geographic areas, which converge within the Greater Yellowstone Area (GYA) and share common trends of fire activity. The season outlooks excerpted below support an outlook for normal fire activity in the Teton Interagency Dispatch area, with potential for above-normal fire activity by August in western and northern areas of the Great Basin geographic area.

Excerpts of National - Regional Outlooks from "National Wildland Significant Fire Potential Outlook" (June 1, 2020, NICC Predictive Services). http://www.nifc.gov/nicc/predictive/outlooks/monthly_seasonal_outlook.pdf.

National – Fire Activity Outlook
June through early July is the peak of the fire season across the Southwest. Expect for the normal fire activity across the region to increase through the period with some areas experiencing Above Normal significant large

fire potential, especially across Arizona. As the monsoon begins in mid-July, activity across the Southwest will diminish. Activity across Alaska will also diminish as the rainy season begins. California, central and northern portions of the Great Basin, the Pacific Northwest, and the Northern Rockies will begin to enter their peaks. Above Normal significant large fire potential is expected in the areas shown on the maps to the left *(see page 1 of this Outlook)* due primarily to increasing drought conditions, early loss of mountain snowpack, anticipated lightning activity, and overall hot and dry conditions that should persist through August. As is typically the case, the peak season fire activity across the northwestern portion of the country should diminish by mid-September as the seasonal transition begins and allows for wet fronts to begin to bring precipitation to impacted areas.

Great Basin

A steady increase in small fires across the Great Basin is expected in June, especially across the southern two thirds of the region where fuels are beginning to rapidly dry due the late May heat wave. Fire potential should increase significantly in June across of southern Nevada, southern Utah, and the Arizona Strip due to increased lightning activity following very hot temperatures. Fires will increase in size in June as fuels cure and lightning potential increases. The carryover fine fuels from 2019 will likely be a concern for fire starts, along with any new growth from the recent rains and precipitation in the south from last fall. If the monsoon is weak at the onset, or even slightly delayed, the Above Normal fire potential will extend north into central and northern Utah in July, mainly during the first half of the month. Above Normal significant large fire potential is expected in July over all of Nevada into southwestern and central Idaho in the lower to middle elevation grasses. Above Normal fire potential is expected to last into August over western and northern Nevada into Idaho, before it decreases seasonally in September. Fire potential will increase to Above Normal across the central Idaho Mountains by August after a significant dry period once the snow melts and soil moisture and fuel moisture levels drop.

Great Basin Coordination Center – Seasonal Outlook for June-September 2020 (excerpt).
https://gacc.nifc.gov/gbcc/predictive/docs/monthly.pdf

Fuels have dried out considerably heading into June due to nearly a week of near record breaking heat across the Great Basin. Lower elevation grasses are generally cured, with sagebrush below normal and on the downward trend. Fuels will continue in various states of curing over the next couple of weeks and are expected to be fully cured and available to burn in all areas by July.

Fire potential increasing. A period of cooler/showery weather is expected through the first week in June over the northern half of the region which will temporarily quiet down fire activity. Above normal fire potential will remain over the southern half of NV/UT/AZ Strip which will remain drier. However, later in June and into July, higher fire potential is expected over a large area of the Great Basin due to fine fuel contributions, and a possibly delayed/weak onset to the monsoon. As moisture works it's way into the southern/eastern areas of the Great Basin later in July, those areas should return to normal. However, warm and drier conditions will likely remain over western/northern areas of the Basin in August/September with continued above normal fire potential, especially as fall cold fronts begin to bring windy conditions to these areas.

CURRENT FIRE ACTIVITY

Fire Activity: Teton Interagency Dispatch Center

https://gacc.nifc.gov/gbcc/dispatch/wy-tdc/home/predictive-services/intelligence

Early season wildland fire activity is typically limited to a period after snowmelt and prior to green-up. The early fire season saw minimal fire activity, limited to three human-caused fires, with one each on Bridger-Teton NF, Sublette County and Teton County. Prescribed fires in spring 2020 were limited in part due to constraints in response to the COVID-19 pandemic.

Table 2: **Year-to-Date Fire Activity (Unplanned and Planned Ignitions).**

TETON INTERAGENCY FIRE MANAGEMENT AREA TOTALS	Human Fires	Human Acres	Natural Fires	Natural Acres	RX Fires	RX Acres
	3	4.1	0	0	3	1

Selected Sources

- Precipitation Tracking: https://water.weather.gov/precip/
- Precipitation Tracking focused on Snotel sites, Wyoming (beta site)
- Climate Prediction Center, Three-Month Outlooks: https://www.cpc.ncep.noaa.gov/products/predictions/90day/
- Drought.gov Portal / Fire: https://www.drought.gov/drought/data-maps-tools/fire
- Intermountain West Climate Dashboard: https://wwa.colorado.edu/climate/dashboard.html
- Regional outlooks from "National Wildland Significant Fire Potential Outlook" (first of each month during fire season, NIFC Predictive Services): https://www.nifc.gov/nicc/predictive/outlooks/monthly_seasonal_outlook.pdf.
- Great Basin Area – Predictive Services/Outlooks: https://gacc.nifc.gov/gbcc/outlooks.php.
- Rocky Mountain Area – Predictive Services/Outlooks: https://gacc.nifc.gov/rmcc/outlooks1.php.
- Teton Interagency Dispatch: www.tetonfires.com / https://gacc.nifc.gov/gbcc/dispatch/wy-tdc/home/.

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