National Drought Summary

Summary: A vigorous Pacific storm system and a series of low pressure centers traversing along a semi-stationary front in the eastern half of the Nation brought moderate to heavy precipitation to portions of the Northwest, the Ohio and Tennessee Valleys and eastern Great Lakes region, and parts of the lower Mississippi Valley and west-central Gulf Coast. With subnormal temperatures present, heavy snows fell on higher-elevations of the Cascades, northern Sierra Nevada, and northern and central Rockies, producing an early Water Year to Date (WYTD; Oct. 1-Nov. 7) basin average snow water content (SWC) much above normal across the northern half of the West, along with above-normal basin average precipitation. Unfortunately, the WYTD basin average SWC and precipitation values were below to much below-normal across the southern third of the West. In the East, strong upper-air energy and low-level moisture produced widespread showers and thunderstorms, including some that were severe, in the Ohio Valley. In contrast, little or no precipitation fell on Southwest, southern Rockies, much of the Plains, western Corn Belt, the Southeast, and along coastal New England. Temperatures averaged below normal in the Pacific Northwest, northern Rockies, northern half of the Plains, upper Midwest, and Florida while above-normal readings occurred across the Southwest, southern Plains, Southeast, Ohio Valley, East Coast, and Alaska. Drier weather returned to both Alaska and Hawaii after several weeks of ample precipitation while light to moderate showers fell across Puerto Rico.

Northeast: After last week’s deluge in New England and mid-Atlantic, more tranquil conditions returned to the Northeast. Significant precipitation (more than an inch) was limited to most of Maine and western New England, although the Ohio Valley system brought heavy rains (2-5 inches) to western Pennsylvania and western New York. The rains were enough to remove D0 in most of northwestern Pennsylvania (and into eastern Ohio) except for a small part in the extreme northwestern section of the state where 90-day deficits and low SPIs still lingered after 2-3 inches of rain. In northern New England, the two D0(L) areas in central Vermont and from coastal northeastern Massachusetts to southeastern Maine received 0.5-1.5 and 0.1-0.5 inches of rain, respectively, which was not enough to eliminate long-term deficiencies. To the south, the lingering D0 area in central Maryland was slightly adjusted northward into southeastern Pennsylvania to reflect the dryness at 60-days as 0.3-1 inch of rain was not enough to erase short-term (60- and 90-day) shortages as some USGS stream flows remained below the lower tenth percentile (much below normal).

Southeast: Little or no rain and above-normal temperatures prevailed across the region with the exception of some rain (0.5-1.5 inches) in northern Virginia and west-central Alabama. The rain was enough to bring short-term deficiencies close to zero and raise USGS stream flows to normal, thus D0 was erased from northern Virginia and in Pickens County in Alabama. In contrast, a dry and mild week, plus subnormal August and September precipitation has accumulated short-term deficits of 4-8 inches in the central Carolinas. As a result, D1 was extended westward and southward in central North Carolina, while D1 was expanded and added in central South Carolina. USGS 7-day averaged stream flows have fallen below the tenth percentile in most of these areas, and the westward D1 expansion in North Carolina took into account the upstream watersheds from Falls and Jordan Lakes where the Army Corps reported that the lake levels were 3 and 3.5 feet, respectively, below the guide curves. With 7-day average inflows running under 25% of the median into these reservoirs, the Corps is operating under drought contingency
plans to reduce downstream releases. In southern Georgia, a lack of adequate short-term rainfall has led to anomalies at 60- and 90-days, requiring an expansion of D0 southwestward into extreme southeastern Alabama and southward into extreme northern Florida. In southeastern sections of the state, 90-day deficits of 2-4 inches, below-normal stream flows, and rapidly declining soil moisture readings in Appling County via the UGA AEMN network supported a new D0 area.

South: Although western sections of the South were mainly dry, light to moderate (0.5-2.5 inches) rain fell on southeastern Texas, most of Louisiana, eastern Arkansas, and most of Mississippi and Tennessee. Isolated, heavy totals (2-6 inches) were reported in northwestern and central Tennessee and south-central Louisiana. These rains were responsible for some D0 removals, most notably in extreme east-central Texas, south-central Louisiana, and near the intersection of Arkansas, Louisiana, and Mississippi. The light rain was enough for status-quo in Mississippi, eastern Arkansas, and northeastern Louisiana.

With October normally one of the wetter months in central Texas, spotty precipitation during September and October plus this week’s lack of rain made it ideal to expand the D0 across southwestern and central areas into northeastern Texas. Some areas that were already in D0 went to D1 in central Texas, as did extreme northeastern Texas and southeastern Oklahoma (areas that did not receive rain from Harvey). Farther to the north and west (northeastern Texas, western and central Arkansas into southern Missouri) where Harvey rains missed, both 60- and 90-day precipitation has been less than 50% of normal, creating 4-8 inch shortages. Accordingly, where both the 2- and 3-month SPIs and deficits were similar, D2 was added (northeastern Texas, northwestern Louisiana, southwestern and northern Arkansas). In western Oklahoma, the two D0 areas were merged into one (similar 60-day conditions), and although the 30-day precipitation has been extremely dry in western Oklahoma, the Texas Panhandle, and western Kansas, the 60- and 90-day tools were wet, thus holding off widespread D0 deterioration in much of this area for now.

Midwest: Widespread showers and thunderstorms dropped moderate to heavy amounts (2-5 inches) on most of the Ohio Valley and the eastern Great Lakes region, providing relief from short-term D0 and D1 in southern Illinois, southwestern Indiana, northwestern and northeastern Ohio, the Missouri Bootheel, and western Kentucky. Lighter amounts (0.5-1.5 inches) fell on parts of the two small D0 areas in Wisconsin and were enough to bring the short-term deficiencies closer to zero, thus eliminating the southeastern area and reducing the size of the central area. Where the rain fell, however, some D0 and D1 areas were kept intact as weekly totals were less than surrounding locations and 90-day shortages and negative SPI values still remained. No major changes were made in Iowa, northern Missouri, and western Illinois as subnormal temperatures helped to mitigate the lack of precipitation. A small extension of D0 was added in northwestern Missouri as the 60- and 90-day indices were similar to the D0 area just to the east.

In southern Missouri, however, 60- and 90-day indices were quite negative, along with precipitation deficiencies of 4-8 inches below normal (less than 50% of normal) even though some areas in eastern sections reported 0.5-2 inches of rain this week. Therefore, impact reports from south-central Missouri (Howell, Wright, Oregon, and Dent counties) were used to supplement the various indices in the short-term to determine where D2 should be incorporated even in areas with rain this week. Impacts included fall stockpiled forage unavailable due to dry conditions limiting pasture growth; fall plantings have been lost or have struggled; ponds very low or dried up; hay feedings going on for 2 months as pastures have no forage available; and conditions currently as bad as 2012 which had a dry summer but wet fall.
High Plains: Cold weather and light precipitation (about 0.5 inches or less) occurred across most of the High Plains region, including light snow blanketing parts of the Dakotas and northern Nebraska. The combination of subnormal temperatures and light precipitation was enough to keep conditions from deteriorating, but not enough for improvement, thus no changes were made. The exception to this was some improvements made in southeastern Wyoming and adjacent southwestern Nebraska where short-term surpluses existed and most indices were normal or wet, even out to 1-2 years. Accordingly, D0 was removed in southeastern Wyoming and D0 and D1 slightly trimmed in southwestern Nebraska. The D0 and D1 remained where long-term indices were still negative. In South Dakota, winter wheat conditions continued to be poor, with the USDA condition index reported as the second lowest in the last two decades. Causes included the ongoing long-term drought impacts, and most recently the sudden cold spell.

West: This week’s weather pattern produced a story of the haves (northern half) and have nots (southern half) as a strong storm system brought plentiful precipitation to coastal and mountainous areas (including high-elevation heavy snows). Along coastal Washington, Oregon, and northern California, 1-4 inches of rain fell while the Cascades, northern Sierra Nevada, and northern Rockies reported 1-5 inches of liquid equivalents. After a rather wet September in Wyoming, Idaho, and Montana (although precipitation is normally low) and a wet October is Washington and Oregon, November has also started out wet in the Northwest, leading to favorable WYTD basin average precipitation and snow water content (SWC). Since October 1, the basin average precipitation was between 100-150% of normal across the northern half of the West while recent colder conditions have increased basin average SWC from 100-900%, although it is early in the season and normal SWC values are low. However, with the recent wetness across much of the northern half of the West, and since the abnormal dryness and drought were short-term in western and southern sections (e.g. Washington, Oregon, Idaho, southwestern Montana), it was easier to justify improvements across this area as compared to long-term drought in northern and eastern areas (e.g. northern and eastern Montana, the Dakotas). Accordingly, with most short-term deficits nearly erased or some areas now with surpluses, most USGS streams have risen to near or above normal levels, including western Montana’s Clark Fork, Bitterroot, and Blackfoot River basins that indicate they have recovered from the dry summer, and SPEI values during the past 2-3 months have been positive (wet) across most of Washington, Oregon, Idaho, and the southern half of Montana. The 2-month SPEI values, however, have remained negative (dry) across northern Montana but not as significant as earlier (thus less or no improvement here), but SPI values depicted significant improvements nearly statewide. Soil moisture continued to show low values along the U.S.-Canada border and northeast Montana, and it may be a while (spring thaw?) before we know if the soil moisture has truly improved. Large precipitation deficits remained in northeastern Montana, and stock ponds have water quality issues or no water currently. Unfortunately, cattle pregnancy terminations are likely due to the high nitrates in the feed due to the drought.

Further south, the opposite is true of the WYTD conditions, with subnormal basin average precipitation and SWC, including no snow at some Utah, Arizona, and New Mexico basins. But the majority of the cold season precipitation normally occurs later in the winter here, so there is still plenty of time left. However, due to a weak summer monsoon and early withdraw, 90-day deficits existed in northwestern and southeastern Arizona, southwestern Utah, and extreme western New Mexico, thus D0 and some D1 was added to these areas.
**Alaska, Hawaii, and Puerto Rico:** After several wet weeks, much drier weather returned to both Hawaii and Alaska, while scattered light to moderate showers (weekly totals 0.5-2.5 inches) fell across Puerto Rico. With the drier weather in Hawaii (except southern Kauai 1-2 inches), status-quo was this week’s choice. The FSA was still evaluating the agricultural impacts of the recent rainfall, but at a minimum, it has mitigated the spread or worsening of drought. There is no dryness in Alaska or Puerto Rico, with the latter still recovering from the devastating wind and rain impacts of Hurricane Maria in late September.

**Looking Ahead:** During the upcoming 5-day period (November 9-13), another Pacific storm takes aim on the Northwest (from northern California northward), with the greatest totals (4-8 inches) expected along the immediate coast, in the Cascades, and the northern Sierra Nevada, with lesser amounts (1-2 inches) in the northern Rockies. Light to moderate rain (1-1.5 inches) is expected in a narrow band from central Texas eastward to coastal Georgia and the Carolinas, along the far western Gulf Coast, and in the northern Great Lakes region. It should be dry in the Southwest, Great Basin, and northern and central Plains, with only light amounts (less than 0.5 inches) elsewhere. Temperatures should average above normal in the Southwest, Great Basin, and Rockies, and near to below-normal in the eastern half of the Nation.

During the 6-10 day period (November 14-18), odds favor above-median precipitation in the Northwest, northern Alaska, and the Great Lakes region while sub-median precipitation is likely in southern California, the Plains, and the Gulf and southern Atlantic Coast States. The chances for above-normal temperatures are likely in the middle third of the lower 48 States, especially in the Southwest and southern Plains, with odds tilted toward below-normal readings limited to most of Alaska and the Pacific Northwest Coast.

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