North American Drought Monitor September, 2007

CANADA: The southern Prairies, southern British Columbia, and much of Ontario continue to be the areas of greatest concern. Other regions in Northern Alberta, Southern Quebec, New Brunswick, and Prince Edward Island have been classified as abnormally dry.

British Columbia: While the majority of the province has received near-normal or above-normal rainfall in last few months, the south central and southeastern parts of British Columbia have recorded only 40-60 percent of normal precipitation since April 1st. Coupled with extremely low snowfall the past winter, this had led to below-normal stream flows for the regions of the Thompson, Nicola, Okanagan, Columbia, and Kootenay basins and eastern sections of the Lower Fraser Valley. Dry land forage yields are being reported at 50-70 percent of normal. These factors have led us to assign a D0-D3 drought condition to this region.

Alberta: In Alberta, areas of significant concern remain in the south, where only 60-85 percent of normal rainfall has fallen since the start of April. In these areas, soil moisture is very low and pastures have been reported as fair to poor. Conditions have improved slightly in the past 30 days with up to 45 millimeters (1.77 inches) of precipitation in some areas. As a result, the drought severity was reduced; however, much of the area has remained as a D1-D2 because of long-term deficits. A D3 classification remains for a small portion of the southern region. In the north, the region around Fort McMurray continues to be classified as D0 because of below-average long-term precipitation.

Saskatchewan: For much of the province, pastures are in good to excellent condition and there are no water supply concerns at this time. This is in contrast to the southwest, where 60-85 percent of normal rainfall has been reported for the entire growing season. In this area, sloughs and dugouts are very low, and in some cases, cattle are being brought home to water and feed. As a result, the majority of this region remains in a D1 classification. A slight improvement in conditions has been observed in central portions of the province, resulting in a slightly smaller drought designation this month. Conditions in the southeast corner have deteriorated significantly because of lack of precipitation throughout September, resulting in a change from D0 to D1-D2.

Manitoba: Much of the southern agricultural regions of Manitoba have been classified as abnormally dry because of a lack of September precipitation as well as agricultural difficulties. In this area, pastures have seen limited re-growth and supplemental feeding is taking place. The most extreme conditions are located in the southwest corner of the province, where D1-D2 conditions have developed.

Ontario: Much of Ontario remains in a D0-D3 drought condition because of the lack of precipitation and extreme heat throughout much of the growing season as well as dry conditions at the beginning of the season. In the northwest, the Ministry of Natural Resources has classified the Districts of Wawa and Fort Francis in a confirmed Level 1

Low Water Condition. In these regions, there has been some improvement in the dry conditions, but pasture re-growth is quite variable because of long-term water deficits and the fact that less than 40 percent of normal rainfall has fallen over the last three months in some locations. In southern Ontario, much of the region has reported extremely variable rainfall, with some areas reporting 40-60 percent of normal since April 1st. Flows have been reported at less than 50 percent during September, resulting in classification of Level 1 or Level II Low Water Condition.

Quebec: Although the majority of Quebec has enjoyed average precipitation with good growing conditions, much of the southwest has not. Although the dryness in the Lac-St. Jean region has eased, various drought indices still place the region under an abnormally dry classification. This also goes for a considerable area south and west, where below-normal precipitation has been reported over the past few months.

Atlantic Canada: Generally, in the Atlantic, growing conditions have been good this year and harvest is underway, with average yields and qualities anticipated. However, in portions of New Brunswick and PEI, areas are drier than normal because of variable rainfall, and as a result, water shortages and rationing is taking place. For this reason, the area has been assigned a D0 drought condition.

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UNITED STATES: September was a warm month for most of the United States. Outside of the west coast, the entire country recorded temperatures that were 2-6 degrees Fahrenheit (1-3 degrees Celsius) above normal. Temperatures along the west coast ranged 2-4 degrees Fahrenheit (1-2 degrees Celsius) below normal. Precipitation was varied through the country, with localized events that pushed many areas above normal for the month. Overall drought conditions improved during September, with 58.7 percent of the United States depicting abnormally dry or drought conditions at the end of the month compared to 61.9 percent at the beginning of the month. Extreme to exceptional drought conditions continued to dominate the southeastern United States, where some relief came in September. The intensity eased in the upper Midwest while drought conditions continued to intensify over portions of western New York.

Drought conditions eased over the upper Midwest of the United States during September, with D3 intensification improving to D1 and D2 status. The D3/D4 conditions over the southeastern United States expanded during the month, shifting to the north and east, with D4 now covering 3.35 percent of the United States. In Florida, an increase in precipitation since July has yet to effectively eliminate hydrologic drought. For example, the average level of Lake Okeechobee has slowly crept upward to 9.86 feet (3 meters), but this is still 5 feet (1.5 meters) below normal at the end of September.

Hurricane Humberto helped to ease some drought conditions in the southern United States when it came ashore near High Island, Texas, on September 13th with 85-mile-per-hour sustained winds. Tracking to the northeast after landfall, the remnants of Humberto brought locally heavy but beneficial rains to the Southeast and into the Middle Atlantic states.

After a below-normal wet season in the western United States, hydrological impacts are now being observed in this area. In eastern Oregon, Idaho, and western Wyoming, major reservoir storage and stream flow statistics depicted some very low storages and stream flow values, especially in the Upper Snake and Owyhee River basins. With this, D3 was expanded into this region with a hydrologic impact label.

MEXICO: During September, rainfall at the national level was 142.6mm (5.56 inches), 3 percent above the climatological average of 142.3mm (5.55 inches). According to the National Meteorological Service (SMN), September 2007 was the 28th driest month with more precipitation for the historical period from 1941 to 2006. The average September temperature was 23 degrees Celsius (73.7 degrees Fahrenheit, which is 0.5 degrees Celsius (32.9 degrees Fahrenheit) above climatological average, reaching the 5th warmest September in the period 1971-2006.

Precipitation during September 2007 in Mexico was associated mainly with hurricanes Henriette and Lorenzo, which struck the shores of the Pacific and the Gulf of Mexico, respectively, in addition to the remnants of Felix and Ivo and the passage of eight tropical waves and transitory low pressure systems. By the end of the month, tropical storm Juliette had formed in the Pacific Ocean, leaving precipitation over Baja California Sur.

The states that received the greater rainfall were: Sonora, 169 percent; Baja California Sur, 75 percent; Distrito Federal, 53 percent; and Puebla, 31 percent. By contrast, the states showing precipitation deficits were Baja California, 75 percent; Quintana Roo, 48 percent; Morelos, 35 percent; Oaxaca, 34 percent; Zacatecas, 34 percent; Aguascalientes, 29 percent; Guerrero, 23 percent; and Nuevo Leon, 21 percent.

Major changes occurred during the month in the distribution of drought. There was a reduction in its intensity, mainly in the northwest and the Baja California Peninsula. Thanks to the rainfall left by Hurricane Henriette over Sonora at the beginning of September, the northwest and south regions of the state recovered from the hydrological drought. However, it is important to note that in spite of the precipitation in northwest

Mexico, Sonora registered only a 7.4 percent above average in dam volume levels, compared to the volume registered by the end of September 2006 (67.7 percent).

Conditions that remained unchanged were in the northern part of the Baja California Peninsula, northwest Sonora, southern Veracruz, Tabasco, and northern Chiapas. The areas that saw increased drought intensity include portions of northern Chihuahua, Coahuila, and Durango, and an area in the west between the borders of Jalisco, Guanajuato, Michoacan, and the states of the Yucatan Peninsula.

D3 drought conditions prevailed in the northern tip of the Baja California Peninsula and northern Sonora, with small areas of D0 and D1. However, significant decrements were observed in drought conditions from D2 to D0 and D1 to D0, and drought labels were removed in southern Sonora, Sinaloa, and north of the southern Baja California Peninsula, mainly because of the moisture produced by Hurricane Henriette and the latest monsoon rains of the season. Preliminary reports indicate that the passage of Henriette caused damage to agriculture, mainly by flooding mango plantations and crops of alfalfa and vegetables, as well as losses in livestock. The cyclone caused isolated maximum 24-hour rainfalls of 440.0 millimeters (17.32 inches) in La Paz, Baja California Sur; 232.0 millimeters (9.13 inches) in Villa Juarez, Sonora; 214.0 millimeters (8.42 inches) in Topolobampo, Sinaloa; and 208.5 millimeters (8.21 inches) in Sufragio, Sinaloa; these amounts exceeded their historical records of 169.0 millimeters (6.65 inches), 200.0 millimeters (7.87 inches), 160 millimeters (6.30 inches), and 162.5 millimeters (6.40 inches), respectively.

Some areas started developing D0 drought during the month, including southern Chihuahua, the far western part of northern Coahuila, and northern Durango. An area with D1 hydrological drought is designated in the southern region of Chihuahua.

Areas of D0 and D1 remain in southern Sinaloa and Durango and northern Nayarit. Areas of D1 increased to the south of Zacatecas and north of Jalisco, and D0 appeared over the coast of Jalisco.

Through the states of Michoacan and Guerrero there was an increment in the areas of D0 drought, and a region with D1 drought developed over the border between Michoacan and Jalisco.

There were no significant changes in the distribution and intensity of drought in southern Veracruz, northern Chiapas, and Tabasco. But major changes occurred in the Yucatan Peninsula, where areas of D0 and D1 appeared.

The National Water Commission (CONAGUA) reported slight increases in dam levels during September: northwest region, from 79.6 percent to 81.0 percent; north central, from 67.8 percent to 69.2 percent; northeast, from 64.5 percent to 64.8 percent; center, from 87.6 percent to 87.7 percent; and south, from 76.4 percent 76.8 percent.

The official agency CONAFOR reported that for the first few days of September alone, five wildfires occurred in Baja California, affecting a total of 2963ha (7318.6 acres). Most of the vegetation affected was grasses, shrubs, and bushes; wooded areas were affected to a lesser extent.