

North American Drought Monitor – October 2003

CANADA: The first few weeks of October brought little relief to the drought devastation that impacted much of western Canada this year. Later in October, heavy precipitation fell on the west coast, flooding many low lying coastal basins in British Columbia. By the end of October, the coastal agricultural regions had received above average precipitation, while most interior regions with the exception of parts of the Lower Columbia basin, received average precipitation for the fall period to date. Moisture conditions have improved only marginally in Alberta and Saskatchewan as a result of widespread precipitation during the last week of October. Abnormally dry conditions persisted in much of Alberta, with moderate drought occurring at scattered locations in the province.

Drought conditions persisted in eastern agricultural regions of Saskatchewan and western Manitoba. For the most part, flows in the major river systems in Saskatchewan remained at below normal levels. North-central areas of the grain belt (north of Saskatoon) and parts of the central grain belt east of Regina are experiencing some water supply shortages.

Levels of Manitoba's lakes, rivers, aquifers and some reservoirs are unusually low. River flows are generally at 10-year lows while many lakes are at 20-year lows or lower in Manitoba. Many aquifers are the lowest since the early 1990's when the last dry spell occurred, and a few are nearing all-time lows. On-farm water supplies, such as dugouts and shallow wells, are very low in many areas. While water conditions in general are unusually low, the problems this winter will be mainly for on-farm water supplies and hydroelectric generation. Some rural water shortages have already developed and more are expected this winter as additional dugouts and shallow wells dry up. A few significant aquifers supplying villages and loading stations may be in difficulty later this winter or in 2004. There may also be some difficulties in accessing water from rivers due to the unusually low river levels. However, water supplies in reservoirs are quite good at this time and, with careful water management, will continue to supply adequate water through 2004 to villages, towns and farms which depend on them. Moisture and water supplies in eastern Manitoba have improved. Most locations in Ontario, Quebec, New Brunswick, Nova Scotia, and Prince Edward Island have had average or surplus fall precipitation. Watersheds in 11 Conservation Authorities (CA) in southern Ontario are in a confirmed Low Water condition based on the provincial criteria. Only the Dryden area remains in low flow in northwest Ontario.

MEXICO. The wet conditions observed during September across Mexico continued into the first half of October. The above normal rainfall totals were tied to three tropical cyclones in early October and a series of cold fronts that stalled over northern Mexico. A similar synoptic pattern was also responsible for the wet conditions observed in September. The National Meteorological Service of Mexico reported an aerial mean precipitation anomaly of 147% for October. The greatest concentration of wetness included northeast and north-central Mexico in a broad region that extended from Tamaulipas westward into the southern half of Chihuahua. These states received more than 200% of their normal October precipitation in association with a stalled frontal boundary that was overrun with moisture from Hurricanes Nora and Olaf. Abundant rains were also observed in portions of central and southern Mexico, with notably heavy precipitation occurring in the three corner region of Puebla, Guerrero, and Oaxaca. Heavy rains in the region surrounding the Gulf of Campeche were associated with slow-moving Tropical Storm Larry. With two consecutive wet months, there has been a notable reduction of drought conditions across Mexico.

Wet October conditions left only a few small pockets of abnormal dryness (D0) in a few isolated coastal sections of Michoacan, Guerrero, and Oaxaca. Another small region of abnormal dryness (D0) extended from eastern Chiapas into Tabasco and sections of the Yucatan peninsula. The northern tip of Baja California persisted under abnormal dryness (D0) as an extension of the dryness that developed during October over California. Drought conditions in northwestern Mexico retreated northward, with a small region of abnormal dryness continuing from northern Sinaloa northward along the Sonora and Chihuahua borders. Far northern Chihuahua continued to experience extreme drought conditions. Although most of the dams in central and northern Mexico have shown moderate recovery from their severely low levels of early summer, it is recommended that water users continue to be cautious about their water usage.

UNITED STATES: Generally drier and warmer than normal conditions prevailed across much of the lower 48 States during October, maintaining or worsening abnormal dryness or drought. According to the National Climatic Data Center, October 2003 nationally ranked as the 8th warmest October since 1895, with several Western states observing one of the top 5 warmest Octobers on record. In contrast, the northeastern quarter of the nation experienced subnormal monthly temperatures. Precipitation-wise, October 2003 ranked as the 30th driest October during the past 109 years, with much of the West and Nation's midsection well below normal. Significant surplus October precipitation was limited to Washington and the Northeast.

In the West, a persistent ridge of high pressure kept the region unseasonably warm and dry, steering Pacific storm systems and moisture northward into western Washington and British Columbia. High pressure located over the Great Basin produced a prolonged Santa Ana wind event across southern California, helping to spark devastating, late-month wildfires north and east of Los Angeles and near San Diego. Twelve major southern California wild fires charred nearly 750,000 acres of vegetation, according to the National Interagency Fire Center, with 22 lives lost and more than 4,500 structures, many of them residences, destroyed by the flames. With highs nearing or topping the century mark, over 100 daily record highs were set during October 18-23. Even with a change in the upper-air pattern late in the month (cooler and wetter weather), monthly temperatures still averaged between 4 and 8°F above normal from the High Plains westward. As a result of the extreme wildfire danger and deteriorating pasture and range conditions, D0(A) and D1(A) expanded across much of California during October. In contrast, a series of heavy precipitation events across western Washington, which culminated in severe flooding on October 20-21, especially along the Skagit River, eliminated short-term drought.

Farther east, warm and dry conditions during much of the month promoted summer crop harvesting in the Plains, but left much of the winter wheat crop with little moisture for autumn establishment. During late October, however, rain and snow in the northern Plains boosted topsoil moisture reserves, but frigid air halted winter wheat germination and growth. Fortunately, shallow snow cover insulated the northern Plains' poorly established wheat with some insulation. With the northern Great Plains, central Rockies and Plains, Red River Valley, and upper Delta recording less than 50% of normal precipitation and temperatures 2 to 4°F above normal during October, dryness and drought worsened in parts of the north-central and south-central High Plains, Red River Valley, and Delta. In the western Corn Belt and upper Midwest, August-October precipitation was less than half of normal, expanding severe and extreme drought in Iowa, Minnesota, and Wisconsin.