

PART #3 - DROUGHTS FROM THE 1900S TO THE 1930S.

HERE IS A LOOK AT SOME OF THE MORE SIGNIFICANT DROUGHTS ACROSS NORTH CENTRAL AND NORTHEAST WISCONSIN SINCE 1900. SOME CAUTION SHOULD BE USED WHEN LOOKING AT PRECIPITATION DEPARTURES FROM NORMAL DURING THESE PERIODS. IN SOME CASES...THERE WERE SPORADIC LOCALLY HEAVY RAIN AMOUNTS DURING A PARTICULAR MONTH THAT WAS VERY LOCALIZED. A GOOD EXAMPLE OF THIS WOULD BE SUMMER TIME THUNDERSTORMS THAT CAN BRING LOCALLY HEAVY RAINS. THESE ISOLATED LOCALLY HEAVY RAIN EVENTS CAN OBSCURE THE MAGNITUDE OF THE DROUGHT AT THAT LOCATION COMPARED TO SURROUNDING SITES.

IN THIS STUDY...THE DEPARTURES FROM NORMAL WERE CALCULATED USING THE 1971-2000 NORMALS SINCE MANY SITES HAVE DIFFERENT STARTING DATES AND MAY NOT HAVE HAD A LONG PERIOD OF RECORD AT THE TIME OF THE DROUGHT. ALSO...AS YOU GO FURTHER BACK IN TIME...THERE WERE FEWER LOCATIONS THAT HAD A COMPLETE PRECIPITATION DATA SET DURING THE PERIOD. ONLY SITES THAT HAD A COMPLETE DATA SET WERE USED IN THIS STUDY.

FOR YOUR INFORMATION...RICE RESERVOIR IS NEAR TOMAHAWK AND LAC VIEUX DESERT IS IN VILAS COUNTY. LOCATIONS WERE RANKED BY THE TOTAL PRECIPITATION DEFICIT.

DROUGHT 1930-1937

SOME PORTIONS OF NORTHEAST WISCONSIN DID NOT FULLY RECOVER FROM THE DROUGHT OF 1920 TO 1925 AS PRECIPITATION TOTALS WERE NEAR NORMAL OR A FEW INCHES BELOW DURING THE LATE 1920S FROM GREEN BAY TO KEWAUNEE TO MANITOWOC AND STURGEON BAY.

THE 1930S ARE KNOWN AS THE DUST BOWL YEARS ACROSS THE PLAINS. THE DROUGHTS OF THE 1930S WERE CHARACTERIZED BY VERY HOT SUMMERS WITH INTENSE HEAT WAVES WHICH DID NOT SPARE WISCONSIN. SOMEWHERE ACROSS NORTH CENTRAL AND NORTHEAST WISCONSIN...100 DEGREE TEMPERATURES WERE REPORTED EACH YEAR. THE DROUGHT PEAKED IN 1936 WITH THE WARMEST JULY AND MONTH ON RECORD FOR MANY LOCATIONS IN THE REGION. JULY 1936 ALSO WENT DOWN IN THE RECORD BOOKS AS THE MOST DAYS IN THE 100S IN A GIVEN MONTH AND ALSO RECORDED THE MOST CONSECUTIVE DAYS WITH HIGHS ABOVE 100. THE INTENSE HEAT WAVE PEAKED BETWEEN JULY 7TH AND JULY 14TH.

1936 WENT DOWN IN THE RECORD BOOKS AS THE THIRD DRIEST YEAR ON RECORD AT GREEN BAY. SEVEN YEARS OF PRECIPITATION DEFICITS OF 3 TO 10 INCHES TOOK ITS TOLL. THE HARDEST HIT AREA WITH RESPECT TO PRECIPITATION DEFICITS WERE FROM MARINETTE AND OCONTO INTO GREEN BAY AND THE FOX CITIES WEST TO ANTIGO AND MERRILL. 1938 BROUGHT MUCH ABOVE NORMAL PRECIPITATION TOTALS AT LOCATIONS NORTH AND WEST OF GREEN BAY AND THE FOX CITIES. SOME TOTALS INCLUDE: 52.13 INCHES AT STEVENS POINT...52.05 INCHES AT REST LAKE...48.72 INCHES AT WAUSAU...46.81 INCHES AT WISCONSIN RAPIDS...45.73 INCHES AT LONG LAKE DAM...43.83 INCHES AT OSHKOSH...42.01 INCHES AT HANCOCK...41.51 INCHES AT RHINELANDER...40.08 INCHES AT SHAWANO AND 38.25 INCHES AT CRIVITZ HIGH FALLS.

ALTHOUGH PRECIPITATION WAS ONLY A FEW INCHES ABOVE NORMAL... AREAS FROM GREEN BAY...KEWAUNEE...MANITOWOC AND STURGEON BAY CONTINUED TO EXPERIENCE NEAR OR BELOW NORMAL PRECIPITATION FROM

1939 TO 1942. IT APPEARS THIS PORTION OF THE STATE WENT THROUGH A PERIOD OF 25 TO 30 YEARS OF NEAR OR BELOW NORMAL PRECIPITATING IF YOU INCLUDE THE DROUGHT CONDITIONS FROM 1943 TO 1948.

| LOCATION | 1930-1937 PCPN TOTAL | NORMAL (INCHES) | DEFICIT (INCHES) | PERCENT OF NORMAL |
|--------------------|-------------------------|--------------------|---------------------|----------------------|
| OCONTO | 189.11 | 253.60 | -64.49 | 75 |
| MARINETTE | 204.52 | 259.20 | -54.68 | 79 |
| STURGEON BAY | 197.83 | 252.24 | -54.41 | 79 |
| WAUPACA | 215.85 | 268.88 | -53.03 | 80 |
| GREEN BAY | 185.56 | 233.52 | -47.96 | 79 |
| WAUSAU | 220.33 | 266.88 | -46.55 | 83 |
| OSHKOSH | 206.71 | 252.56 | -45.85 | 82 |
| APPLETON | 197.89 | 241.28 | -43.39 | 82 |
| MERRILL | 218.19 | 259.28 | -41.09 | 84 |
| CRIVITZ HIGH FALLS | 200.31 | 238.64 | -38.33 | 84 |
| WISCONSIN RAPIDS | 222.02 | 259.36 | -37.34 | 86 |
| BRILLION | 198.18 | 233.68 | -35.50 | 85 |
| MARSHFIELD | 231.77 | 264.48 | -32.71 | 88 |
| HANCOCK | 221.00 | 252.96 | -31.96 | 87 |
| SHAWANO | 221.79 | 251.84 | -30.05 | 88 |
| ANTIGO | 219.07 | 245.04 | -25.97 | 89 |
| STEVENS POINT | 233.45 | 257.04 | -23.59 | 91 |
| RHINELANDER | 232.47 | 255.20 | -22.73 | 91 |
| NEW LONDON | 227.93 | 246.56 | -18.63 | 92 |
| PHELPS | 229.11 | 246.96 | -17.85 | 93 |
| MINOCQUA DAM | 242.41 | 256.80 | -14.39 | 94 |
| MANITOWOC | 232.01 | 243.92 | -11.91 | 95 |

DROUGHT 1920-1925

FIRST SIGNS OF DROUGHT CONDITIONS BEGAN IN DECEMBER 1919 WITH MUCH BELOW NORMAL PRECIPITATION. MANY LOCATIONS REPORTED UNDER AN INCH OF PRECIPITATION DURING THE MONTH. THE DROUGHT OF 1920 TO 1925 CAN BE CHARACTERIZED BY PERSISTENT BELOW NORMAL MONTHLY PRECIPITATION TOTALS. EARLY IN THE DROUGHT PERIOD...THERE WERE PERIODIC HEAVY RAINS DUE TO THUNDERSTORM ACTIVITY AT STURGEON BAY THAT BROUGHT WELL ABOVE NORMAL PRECIPITATION TO A SMALL AREA ACROSS DOOR COUNTY. 1926 BROUGHT DROUGHT RELIEF TO MANY AREAS OF NORTH CENTRAL AND NORTHEAST WISCONSIN. SOME YEARLY PRECIPITATION TOTALS FOR 1926 INCLUDE: 37.24 INCHES AT NEW LONDON...37.02 INCHES AT WAUSAU...36.84 INCHES AT OSHKOSH...36.59 INCHES AT MARINETTE... 36.47 INCHES AT MERRILL...36.54 INCHES AT STEVENS POINT...35.90 INCHES AT ANTIGO AND 35.08 INCHES AT OCONTO.

THERE WERE SOME PORTIONS OF NORTHEAST WISCONSIN THAT NEVER REALLY RECOVERED FROM THE 1920 TO 1925 DROUGHT THAT INCLUDED AREAS FROM GREEN BAY...KEWAUNEE...MANITOWOC AND STURGEON BAY. ALTHOUGH PRECIPITATION TOTALS WERE SLIGHTLY ABOVE NORMAL IN 1926...PRECIPITATION DEFICITS OF A FEW INCHES WERE REPORTED EACH YEAR FROM 1927 THROUGH 1929. A CASE COULD BE MADE THAT THE DROUGHT CONDITIONS PERSISTED IN THIS PORTION OF THE STATE FROM 1920 TO 1937.

| LOCATION | 1920-1925 PCPN TOTAL | NORMAL (INCHES) | DEFICIT (INCHES) | PERCENT OF NORMAL |
|------------------|-------------------------|--------------------|---------------------|----------------------|
| WAUSAU | 165.57 | 200.16 | -34.59 | 83 |
| MARINETTE | 166.68 | 194.40 | -27.72 | 86 |
| RHINELANDER | 164.99 | 191.40 | -26.41 | 86 |
| MERRILL | 169.16 | 194.46 | -25.30 | 98 |
| ANTIGO | 159.95 | 183.78 | -23.83 | 87 |
| MARSHFIELD | 174.56 | 198.36 | -23.80 | 88 |
| MINOCQUA DAM | 173.72 | 192.60 | -18.88 | 90 |
| STURGEON BAY | 173.40 | 189.18 | -15.78 | 92 |
| OSHKOSH | 174.11 | 189.42 | -15.31 | 92 |
| PHELPS | 177.27 | 185.22 | - 7.95 | 96 |
| WAUPACA | 194.37 | 201.66 | - 7.29 | 96 |
| GREEN BAY | 168.39 | 175.14 | - 6.75 | 96 |
| WISCONSIN RAPIDS | 192.94 | 194.52 | - 2.13 | 99 |
| STEVENS POINT | 203.93 | 192.78 | +11.15 | 106 |
| MANITOWOC | 202.86 | 182.94 | +19.92 | 111 |
| NEW LONDON | 206.86 | 184.92 | +21.94 | 112 |

DROUGHT 1917

THE FALL OF 1916 (SEPTEMBER THROUGH NOVEMBER) WAS EXTREMELY WET. THE WEATHER PATTERN ABRUPTLY SHIFTED WITH BELOW NORMAL PRECIPITATION DURING DECEMBER 1916. THERE WERE THREE PERIODS OF WELL BELOW NORMAL MONTHLY PRECIPITATION TOTALS...JANUARY AND FEBRUARY FOLLOWED BY THE SECOND PERIOD OF DRY WEATHER IN JULY AND AUGUST. THE DROUGHT PEAKED DURING NOVEMBER AND DECEMBER 1917 WITH PRECIPITATION RUNNING SEVERAL INCHES BELOW NORMAL. THE WEATHER PATTERN THEN SHIFTED ABRUPTLY TO A VERY WET PATTERN DURING JANUARY AND FEBRUARY OF 1918. PRECIPITATION AMOUNTS IN THESE TWO MONTHS ALONE WERE 1 TO 3 INCHES ABOVE NORMAL AT MOST PLACES. THE YEAR 1918 ENDED UP RANGING FROM NEAR NORMAL IN A FEW PLACES TO AS MUCH AS 5 TO 6 INCHES ABOVE NORMAL ACROSS NORTHEAST WISCONSIN. ABOVE NORMAL PRECIPITATION WAS REPORTED FOR A SECOND YEAR IN A ROW DURING 1919.

| LOCATION | 1917 PCPN TOTAL | NORMAL (INCHES) | DEFICIT (INCHES) | PERCENT OF NORMAL |
|--------------------|--------------------|--------------------|---------------------|----------------------|
| PHELPS | 20.21 | 30.87 | -10.66 | 65 |
| RHINELANDER | 21.48 | 31.90 | -10.42 | 67 |
| OCONTO | 23.25 | 31.70 | - 8.45 | 73 |
| MERRILL | 24.71 | 32.41 | - 7.70 | 76 |
| GREEN BAY | 22.27 | 29.19 | - 6.92 | 76 |
| WAUPACA | 29.05 | 33.36 | - 5.22 | 87 |
| REST LAKE | 27.53 | 32.64 | - 5.11 | 84 |
| KEWAUNEE | 25.20 | 30.30 | - 5.10 | 83 |
| ANTIGO | 26.97 | 30.63 | - 3.66 | 88 |
| CRIVITZ HIGH FALLS | 26.47 | 29.83 | - 3.36 | 89 |
| WISCONSIN RAPIDS | 29.39 | 32.42 | - 3.03 | 91 |
| MANITOWOC | 27.92 | 30.49 | - 2.57 | 92 |
| APPLETON | 27.98 | 30.16 | - 2.18 | 93 |
| STEVENS POINT | 30.95 | 32.13 | - 1.18 | 96 |
| NEW LONDON | 29.70 | 30.82 | - 1.12 | 96 |

| | | | | |
|------------|-------|-------|--------|-----|
| MARSHFIELD | 32.63 | 33.06 | - 0.43 | 99 |
| OSHKOSH | 32.05 | 31.57 | + 0.48 | 102 |

DROUGHT 1907-1910

FOUR YEARS OF BELOW NORMAL PRECIPITATION WERE NOTED DURING THIS PERIOD...WITH MANY CONSECUTIVE MONTHS OF BELOW NORMAL PRECIPITATION. THE FALL OF 1908 WAS VERY BAD...ESPECIALLY OCTOBER 1908 WHEN MONTHLY PRECIPITATION TOTALS WERE GENERALLY UNDER AN INCH AND A HALF. GREEN BAY REPORTED ONLY A TENTH OF AN INCH OF RAIN DURING THE MONTH. THE PRECIPITATION DEFICITS WERE THE GREATEST ACROSS NORTH CENTRAL INTO NORTHEAST WISCONSIN.

THE FIRST SIGNS OF THE DROUGHT BREAKING OCCURRED DURING AUGUST AND SEPTEMBER 1910 WITH ABOVE NORMAL PRECIPITATION ACROSS MUCH OF THE AREA. MUCH OF THE IMPACTS OF THE DROUGHT WERE MITIGATED IN 1911 WITH PRECIPITATION TOTALS FOR THE YEAR RUNNING 5 TO 10 INCHES ABOVE NORMAL. SOME YEAR PRECIPITATION TOTALS FOR 1911 INCLUDE: 42.94 INCHES AT WISCONSIN RAPIDS...40.79 INCHES AT RHINELANDER...40.62 INCHES AT WAUPACA...40.36 INCHES AT MERRILL...37.01 INCHES AT MANITOWOC... 36.65 INCHES AT APPLETON AND 34.67 INCHES AT OSHKOSH. NORMAL PRECIPITATION IS AROUND 30 INCHES ACROSS THE REGION.

| LOCATION | 1907-1910 PCPN TOTAL | NORMAL (INCHES) | DEFICIT (INCHES) | PERCENT OF NORMAL |
|--------------|-------------------------|--------------------|---------------------|----------------------|
| WISC. RAPIDS | 97.53 | 129.68 | -32.15 | 75 |
| WAUSAU | 103.79 | 133.44 | -29.65 | 78 |
| MERRILL | 102.38 | 129.64 | -27.26 | 79 |
| WAUPACA | 110.09 | 134.44 | -24.35 | 82 |
| MINOCQUA DAM | 108.23 | 128.40 | -20.17 | 84 |
| OCONTO | 108.11 | 126.80 | -18.69 | 85 |
| MANITOWOC | 107.83 | 121.96 | -14.13 | 85 |
| OSHKOSH | 112.38 | 126.28 | -13.90 | 89 |
| APPLETON | 107.85 | 120.64 | -12.79 | 89 |
| HANCOCK | 114.52 | 126.48 | -11.96 | 90 |
| GREEN BAY | 105.15 | 116.76 | -11.61 | 90 |
| NEW LONDON | 114.52 | 123.28 | - 8.76 | 93 |
| STURGEON BAY | 137.72 | 126.12 | +11.60 | 109 |