

Sierra Club Three Lakes Group Spring 2010 Newsletter

Three Lakes Group Officers: Roger Blanchard, Chair; Annemarie Askwith, Treasurer; Cathy Akre, Secretary; Carol Ward, Forestry; Diane Meyer, Conservation Chair.

From the Chair

We had 2 well attended programs in the fall:

- 1). The video "Out of Balance: ExxonMobil's Impact on Climate Change"
- 2). "The Mascoma Project"

As I remember it, we had around 30 people at the video "Out of Balance". For "The Mascoma Project" we appeared to have ~100 people.

The Mascoma Project appears to engender strong views because of the jobs vs environment element. Both sides were given an opportunity to express their views on the project. My view, looking at the bigger picture, is that cellulosic ethanol will go about as far as government subsidies take it. The Mascoma Project may get up to ~\$72 million in government subsidies. Also, ethanol itself has substantial government subsidies.

I would like to thank Pat Egan for organizing the event.

Roger

Spring Program Schedule

Our spring programs will be held at Bayliss Public Library (Sault Ste. Marie).

February 11, 6:30 pm: "Addicted to Plastic"-This video takes the viewer to the middle of the Pacific Ocean to illustrate how plastics have made their way to even remote areas of the globe and how they affect the ecology of those remote locations. The video shows what various individuals are doing to recycle plastics or develop alternatives to petroleum-based plastics. The documentary is 85 minutes long.

April 8, 6:30 pm: "The Age of Stupid" -This ambitious documentary/drama/animation hybrid stars Pete Postlethwaite as an archivist in the devastated world of the future, asking the question: "Why didn't we stop climate change when we still had the chance?" He looks back on footage of real people around the world in the years leading up to 2015 before runaway climate change took place.

May 27, 7:00 pm: "Gila Cliff Dwellings National Monument within the Gila National Forest" – This is a slide presentation by Carl and Diane Meyer of their volunteer work within the national monument in 2009. They will provide information on the history of the national monument as well as volunteer opportunities within the national parks system.

Working on the North Country Trail

If you have an interest in working on the North Country Trail during the spring/summer/fall of 2010, contact me by phone or e-mail. There will be major work done around Castle Rock, ~11,000 feet of re-route, maintenance work around Tahquomenon Falls, and possibly some re-route work in the Loon Lake area.

Roger

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HIAWATHA NATIONAL FOREST NIAGARA PROJECT DECISION

The Record of Decision for the Niagara Project has been published. Unfortunately Alternate 2, which allows 6,569 acres of trees on the Niagara Escarpment to be selection harvested, thinned, or clear cut was selected for implementation. On behalf of the Three Lakes Group an appeal is being prepared. Although we could have used additional input from our members, my thanks go to all who did send comments. If you wish more information on this or any other Hiawatha Forest project please contact me at 437-4357.

Carol Ward

Frontier (Mascoma Project) Update

The Frontier Renewable Resources Project, planned for 350 acres in Kinross has applied for a \$32 million Department of Energy (DOE) grant. This grant would bring the state and federal total for the project to \$72 million. The biomass movement, using wood fiber for heat generation, and in this case, conversion to ethanol is working the Obama administration for federal clean energy funds. To date no Michigan federal representative has questioned this or any other bio-fuel project. Staff for Congressman Bart Stupak and Senators Debbie Stabenow and Carl Levin have been meeting to plan earmarks and funding requests.

The Frontier Project is seeking township help, in the form of a citizen-backed bond, to create a wastewater treatment system. It has received a 12 year property tax waiver from Chippewa County, and is pressing regional planners to apply for additional grants for infra-structure and construction of what is described as a \$200-\$300 million building project. The project is also seeking government help to build a transmission line from the Central Upper Peninsula, described as a \$48 to \$80 million project.

In the middle of 2009 the parent company, Mascoma, announced a break-through in the wood-to-ethanol process. Professor Bruce Dale, of Michigan State University, with federal research grant funds, announced a man-made bacteria discovery that will create great quantities of enzymes used in breaking down the wood fiber into sugars. Representatives of the project assure that the bacteria will die in the conversion process. Whether the engineered bacteria will be able to mutate is not discussed.

The Frontier Project, in its DOE grant application, described converting 1.36 million tons of wood fiber annually into forty million gallons of cellulosic ethanol. It will de-bark 400,000 cords of hardwood at the plant site, bringing in an estimated 68 pulp trucks daily.

It will draw 200 gallons of freshwater a minute and discharge at least half that amount. All wood fiber will be drawn from a radius of 150 miles. The project owners have enlisted planning and research help from Michigan Department of Natural Resources foresters and the US Forest Service.

Private forestry groups, and the head of the Michigan State Forestry School, at a meeting in Sault Ste Marie in November, questioned the value of converting wood to either ethanol or heat, as it adds little value in the process, as opposed to timber for construction or furniture production. Fewer workers are used in the woods and fewer workers are used in the conversion process. The \$300-\$350 million Frontier Renewable Resources Project will employ 50 to 75 plant workers.

Project owners describe the process as a “green” project that will be carbon-neutral or carbon-positive. A carbon audit of the project will only happen after its development.

Pat Egan

**Weather History of Sault Ste. Marie
By Roger Blanchard**

Having always been interested in weather and because numerous people have told me about how cold and snowy the 1970s were in Sault Ste. Marie compared to the decade 2000-2009, I thought it would be interesting to look at the historical weather data for Sault Ste. Marie.

I was also encouraged to look back at the weather history of Sault Ste. Marie because I've heard claims that this summer was among the coldest summers on record.

It turns out that this summer was not among the 15 coldest summers dating back to 1931 and not even the coldest summer for the decade 2000-2009. This summer's average temperature (June/July/August) was 60.75°F. The sum of the deviations for June and August were 0.12°F below average but July was 3.58°F below average. Table I contains data for the 10 coldest and warmest summers dating back to 1931.

One point to be made about extremes in seasonal temperature data is that El Nino's, La Nina's, persistent high or low pressure patterns, and persistent southerly or northerly winds will lead to extremes in temperature data. El Nino's can lead to extreme warmth, La Nina's can lead to extreme cold and high and low pressure systems can lead to extreme heat or cold depending on the season.

As an example, in 1998 a strong El Nino led to pronounced warmth over much of North America, including Sault Ste. Marie. That was the warmest year on record in the Soo. Also, 1931 was an extreme El Nino year, being the second warmest year on record dating back to 1931. The year 1931 was 2.39°F warmer than any other year during the 1930s.

The 1930s were characterized by some extremely warm summers, as illustrated by having 3 of the top 10 warmest summers on record dating back to 1931. I assume that those years had persistent high pressure systems over this region during the summer.

For the period from late 2007 into April of 2009, Sault Ste. Marie was influenced by a La Nina, which leads to cooling over North America. In the first half of 2009, Sault Ste. Marie was 0.54°F below the 1971-2000 average. During the second half of 2009, the Soo was 1.29°F above the 1971-2000 average.

The 10 Coldest/Warmest Summers in Sault Ste. Marie (June/July/Aug)^{a,b}

Coldest			Warmest	
Order	Year	Temperature (°F)	Year	Temperature (°F)
1	1982	57.37	1955	67.60
2	1992	58.07	2005	66.28
3	1950	58.29	1983	66.20
4	1977	58.35	1998	65.01
5	1965	59.00	2006	64.88
6	1985	59.30	1937	64.85
7	1951	59.49	1933	64.84
8	1958	59.52	2007	64.82
9	2004	59.67	1959	64.79
10	1968	60.04	1931	64.63

Table I

^aThere was incomplete data for 1947-1949 so those years are not included in Table I

^bThe 1971-2000 average summer temperature was 62.04°F

I've heard frequently about how cold the summers were in the 1970s but only 1 summer during the 1970s made it into the 10 ten coldest summers. Several other summers, 1976 and 1978, did make it into the top 15 coldest summers.

I think most people would consider a monthly summertime temperature average below 60°F to be a cold summer month. A monthly summertime average temperature below 60°F suggests that many daytime high temperatures were in the 50s°F and many morning lows were below 40°F.

The coldest monthly summertime temperature average dating back to 1931 was June 1982 with an average temperature of 51.67°F. That is colder than many May average temperature values. There were 20 morning lows below 40°F, with the lowest being 26°F. There were 16 daytime high temperatures below 65°F.

Table II contains the 10 coldest and warmest falls on record dating back to 1931.

The 10 Coldest/Warmest Falls in Sault Ste. Marie (Sept/Oct/Nov)^{a,b}

Coldest			Warmest	
Order	Year	Temperature (°F)	Year	Temperature (°F)
1	1983	39.70	1931	50.84
2	1993	40.32	1963	48.84
3	1981	40.57	1998	48.58
4	1936	41.07	2001	48.38
5	1951	41.30	1971	48.14
6	1974	41.47	2004	47.94
7	1995	41.52	2005	47.76
8	1933	42.26	2000	47.76
9	1972	42.29	2009	47.73
10	1959	42.39	1953	47.36

Table II

^aThere was incomplete data for 1947-1949 so those years are not included in Table II

^bThe 1971-2000 fall average temperature was 44.00°F

It might surprise people that fall 2009 made it into the top 10 warmest falls on record. The first few weeks of October were quite cold but the average for the month was only 1.44°F below average. November and September were respectively 7.50°F and 5.25°F above average.

Table III contains the 10 coldest and warmest winters on record dating back to 1931.

The 10 Coldest/Warmest Winters in Sault Ste. Marie (Dec/Jan/Feb)^{a,b,c}

Coldest			Warmest	
Order	Year	Temperature (°F)	Year	Temperature (°F)
1	1994	10.31	2002	25.43
2	1977	10.41	1932	25.17
3	1963	10.64	1998	24.28
4	1979	11.13	1987	22.70
5	1936	12.20	2006	20.93
6	1934	12.47	1986	20.86
7	1982	12.76	1995	20.80
8	1996	13.19	1983	20.48
9	1962	13.35	1999	20.28
10	1981	13.75	1933	20.23

Table III

^aData for 1947-1960 is incomplete and not included in Table III

^bThe year corresponds to the January of that year. Data for 1931 is incomplete because data for Dec. 1930 is not available

^cThe 1971-2000 winter average temperature was 16.77°F

January 1994 was exceptionally cold. The average temperature for the month was 1.16°F. There were 23 morning lows of 0°F or below and 6 morning lows of -20°F or below. The lowest morning low was -29°F. The lowest high temperature for the month was -11°F.

For the period 1970-1985, there were 7 January's where the average monthly temperature was below 10.00°F. The average January temperature for the period 1971-2000 was 13.43°F.

Table IV contains the 10 coldest and warmest springs on record dating back to 1931.

The 10 Coldest/Warmest Springs in Sault Ste. Marie (March/April/May)^{a,b}

Coldest			Warmest	
Order	Year	Temperature (°F)	Year	Temperature (°F)
1	1950	32.13	1998	43.87
2	1943	32.79	1987	42.85
3	1996	33.03	2006	41.75
4	1956	33.48	1999	41.67
5	1967	33.99	1991	41.52
6	1934	34.07	1977	41.36
7	1940	34.43	2000	41.12
8	1954	34.56	1986	41.04
9	1997	34.73	1973	40.56
10	1939	34.75	1942	40.34

Table IV

^aThere was incomplete data for 1947-1949 so those years are not included in Table IV

^bThe 1971-2000 spring average temperature was 38.23°F

Table V contains data for the 10 coldest and warmest years on record dating back to 1931. The years 1998 and 1931 were influenced by strong El Nino's. There hasn't been a strong El Nino since 1998 but 5 years in the decade 2000-2009 made it on the list of the 10 warmest years on record.

No year during 2000-2009 had an average temperature below 40.00°F but 7 of the 10 years during the decade of the 1970s had average temperatures below 40.00°F. During 2000-2009, only 1 year, 2004, was below the 1971-2000 average of 40.39°F, at 40.11°F. The average annual temperature in 2009 was 40.82°F.

The 10 Coldest/Warmest Years in Sault Ste. Marie^a

Coldest			Warmest	
Order	Year	Temperature (°F)	Year	Temperature (°F)
1	1980	38.38	1998	45.52
2	1943	38.42	1931	44.28
3	1996	38.42	2006	43.82
4	1967	38.49	2001	43.77
5	1936	38.66	1987	43.48
6	1972	38.66	2000	43.28
7	1976	38.70	2005	42.61
8	1934	38.84	2007	42.53
9	1989	38.89	1973	41.98
10	1978	38.90	1991	41.92

Table V

^aThe 1971-2000 average temperature was 40.39°F

Table VI contains the average temperature for each decade since 1930.

Average Temperature per Decade

Decade	Average Temperature (°F)
1931-1939 ^a	40.82
1940-1946 ^b	40.14
1950s ^c	-
1960s	39.86
1970s	39.77
1980s	40.18
1990s	40.85
2000s	42.29

Table VI

^aThe data does not include 1930 because data is not available for that year. If 1930 data were included, I suspect the average temperature for the 1930s would be lower due to less weight being associated with the unusually high 1931 value

^bThere was incomplete data for 1947-1949

^c1950s data was incomplete. It appears that the weatherman went to Florida during the Januarys of the 1950s because January temperatures are not available

Sault Ste. Marie gets Snow

Because Sault Ste. Marie is relatively cold and because it's close to Lake Superior, the Soo gets a fair amount of lake effect snow as well as system snow. It's common for the Soo to get several days of lake effect snow after a system storm has gone through due to winds coming out of the northwest after the storm passes.

Table VII contains the 10 snowiest snow seasons for the period 1960-2005.

Top 10 Snowiest Snow Seasons from 1960-2005 (snowfall total)^a

Order	Snow Season	Total Snowfall (inches)
1	1995-1996	220.5
2	1976-1977	178.2
3	1981-1982	169.6
4	1971-1972	169.0
5	1989-1990	164.2
6	1964-1965	163.7
7	1996-1997	161.1
8	1978-1979	159.6
9	1984-1985	155.2
10	1985-1986	148.4

Table VII

^aThe average snowfall per season for the period 1960-2005 was 123.1 inches

In December 1995, Sault Ste. Marie received 97.9 inches of snow, the record monthly snowfall during the period 1960-2005.

The snowiest season in Sault Ste. Marie doesn't compare to Houghton, MI. Houghton received 355.90 inches of snow in the winter of 1978-1979 and averaged 252.0 inches per season in the 1970s. For the period 2000-2008, Houghton's average dropped to 218.73 inches of snow per season. Houghton is more strategically located to get lake effect snow than Sault Ste. Marie is.

It's typical for Sault Ste. Marie to have a maximum snow depth of 30 inches or more during the snow season but there have been years when the snow depth didn't exceed 20 inches: 1979-1980, 1982-1983, 1992-1993 and others.

Table VIII contains the top 5 maximum snow depth values during the period 1960-2005.

Top 5 Maximum Snow Depths per Season in Sault Ste. Marie

Snow Season	Maximum Snow Depth (inches)
1971-1972	49.5
1995-1996	48.5
1996-1997	44.6
1976-1977	38.6
1981-1982	37.6

Table VIII

The regions west and north of Sault Ste. Marie get more snow due to northerly or westerly winds off of Lake Superior dropping more lake effect snow in those areas compared to Sault Ste. Marie. I've been told that Whitefish Point gets more snow than Houghton, MI but based upon data from Michigan State University, Whitefish Point averaged 136.2 inches of snow during the period 1971-2000. The snowiest season at Whitefish Point during the period 1971-2000 was 1976 when it received 251.3 inches of snow.

Table IX contains the top 10 maximum 24 hour snowfall totals for the period 1960-2005.

Date	24 Hour Snowfall (inches)
12/10/1995	26.3
12/09/1995	19.2
02/02/1968	12.3
01/25/1972	12.1
01/29/1996	11.6
01/16/1982	11.0
01/31/1977	10.9
12/11/1980	10.9
12/01/1985	10.9
12/11/1995	10.4

**Top 10 Maximum 24 Hour Snowfalls
Table IX**

Those who were here in December of 1995 may remember that over a 5 day period (12/07/95 – 12/11/95), Sault Ste. Marie received 64.9 inches of snow. There has been no snowfall comparable to that since then.

Table X contains the average annual snowfall per decade during the period 1960-2005.

Average Annual Snowfall per Decade

Decade	Average Annual Snowfall (inches)
1961-1969 ^a	94.5
1970-1979	134.0
1980-1989	129.9
1990-1999	120.3
2000-2005	114.2

Table X

^aThe decade starts with the January of the first year in the decade. Since snowfall data is not available for Oct., Nov. and Dec. of 1959, 1960 is not included in Table X

The 1970s were indeed snowier, on average, than other decades since 1960. I don't have snowfall data after 2005, but I don't believe we have had any seasonal snowfall totals exceeding 130 inches since

2005. The highest seasonal snowfall total since 2000 was the 2000-2001 snow season in which the Soo received 143 inches of snow.

Frog Survey People Needed

Frog surveys were initiated in 1988 to increase knowledge of frog and toad abundance and distribution in Michigan at a time when frogs, toads, and other amphibians were declining worldwide. In 1996, a statewide system of permanent survey routes was developed. Each route consists of ten wetland sites, which are visited three times during spring and summer by volunteer observers. At each site, the observer identifies the species present based on calls and makes an estimate of their abundance

The Michigan Frog and Toad Survey has just completed our 14th year. We are very pleased with the success of the program and intend to continue the statewide surveys indefinitely. As we continue to see declines in amphibian populations in other parts of the world, it becomes increasingly apparent that we need to continue monitoring Michigan's frog populations.

Every year we gain new routes and new volunteers just as we lose a few. The area of the state that currently has the fewest number of routes is the eastern Upper Peninsula. We encourage people residing in that part of the state to become involved in the Survey, help to increase our knowledge of frog populations in the area and have a lot of fun.

Please contact Lori Sargent at sargentL@michigan.gov or 517-373 9418 and leave your name and address and information will be sent to you. You can also find out more about the Survey on our website at www.michigan.gov/dnr.

This project is supported with funding from the Nongame Fish and Wildlife Fund and Federal State Wildlife Grant funds. You can support important work on endangered, threatened, and nongame species by looking for the loon at your Secretary of State office and purchasing a Wildlife Habitat License Plate. For more information on the Frog and Toad Survey or to get information on other projects supported by the Nongame Fish and Wildlife Fund, visit the DNR web site.

