

# **JUNE 23, 2017 FLOOD EVENT CHRONOLOGY**

**STEVE JACKSON**

**MAITLAND VALLEY CONSERVATION AUTHORITY**



Harriston



Harriston



Harriston

## **ENVIRONMENT CANADA FORECAST**

**8:15 PM, Thursday, June 22 2017**

WINGHAM - BLYTH - NORTHERN HURON COUNTY

LISTOWEL - MILVERTON - NORTHERN PERTH COUNTY

MOUNT FOREST - ARTHUR - NORTHERN WELLINGTON COUNTY.

**SEVERE THUNDERSTORM WATCH IN EFFECT.**

**TONIGHT..SHOWERS WITH RISK OF A SEVERE THUNDERSTORM. AMOUNT 10 TO 15 MM.**

**FRIDAY..SHOWERS ENDING LATE IN THE AFTERNOON THEN CLOUDY. RISK OF A THUNDERSTORM. AMOUNT 10 TO 20 MM.**

8:15 pm, June 22, 2017 Environment Canada Forecast

## **SEVERE THUNDERSTORM WATCH**

**AT 8:15 P.M. EDT THURSDAY 22 JUNE 2017.**

SEVERE THUNDERSTORM WATCH FOR:

WINGHAM - BLYTH - NORTHERN HURON COUNTY

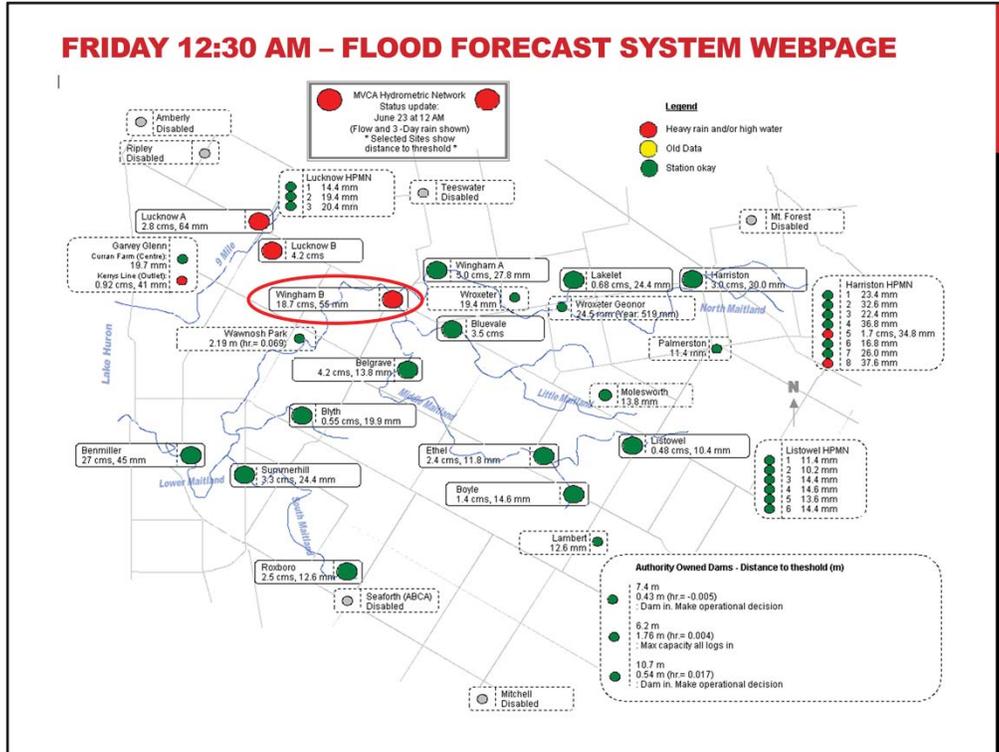
MOUNT FOREST - ARTHUR - NORTHERN WELLINGTON COUNTY

CONDITIONS ARE FAVOURABLE FOR THE DEVELOPMENT OF SEVERE THUNDERSTORMS THAT MAY BE CAPABLE OF PRODUCING STRONG WIND GUSTS, LARGE HAIL AND HEAVY RAIN.

SEVERE THUNDERSTORMS ARE POSSIBLE THIS EVENING.

Based on the potential for severe thunderstorms, Duty Officer arranged to monitor conditions.

## FRIDAY 12:30 AM – FLOOD FORECAST SYSTEM WEBPAGE



- First alarm from MVCA flood forecast system went off at 12:30 am due to intense rainfall
- Gauges showing 10 to 35 mm on average
- Highest amount of 56 mm localized to Wingham

## **ENVIRONMENT CANADA FORECAST**

**11:26 PM Thursday, June 22, 2017**

WINGHAM - BLYTH - NORTHERN HURON COUNTY

MOUNT FOREST - ARTHUR - NORTHERN WELLINGTON COUNTY

SAUGEEN SHORES - KINCARDINE - SOUTHERN BRUCE COUNTY

HANOVER - DUNDALK - SOUTHERN GREY COUNTY.

**SEVERE THUNDERSTORM WATCH IN EFFECT.  
TONIGHT..SHOWERS WITH THUNDERSTORMS.  
RISK OF A SEVERE THUNDERSTORM**

**LATE THIS EVENING. LOCAL AMOUNT 40 MM.**

**FRIDAY..SHOWERS ENDING LATE IN THE  
AFTERNOON THEN CLOUDY. RISK OF  
THUNDERSTORMS IN THE MORNING. AMOUNT  
10 TO 20 MM.**

- Staff continued to watch the forecast (use forecasts from several sources)
- Forecasts called for local amounts of 40 mm

## **SEVERE THUNDERSTORM WARNING**

**AT 12:17 A.M. EDT FRIDAY 23 JUNE 2017.**

SEVERE THUNDERSTORM WATCH FOR:

WINGHAM - BLYTH - NORTHERN HURON COUNTY

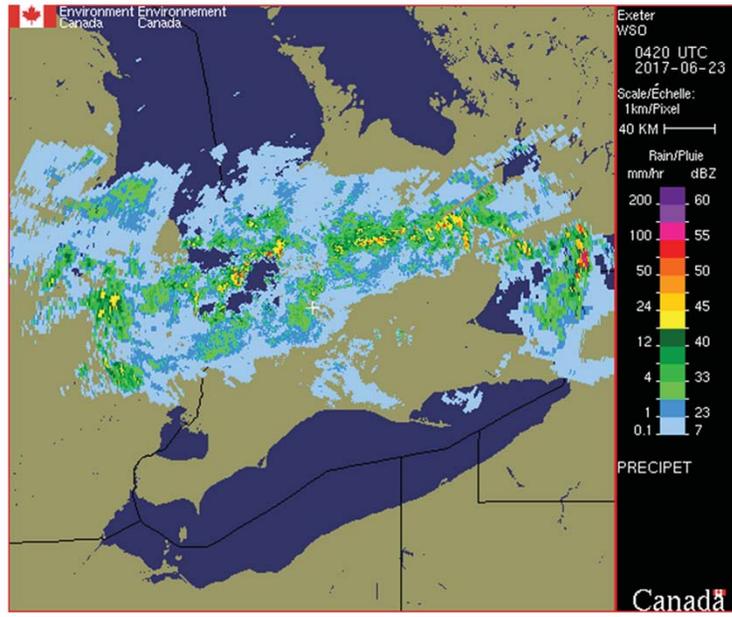
MOUNT FOREST - ARTHUR - NORTHERN WELLINGTON COUNTY

AT 12:14 A.M. EDT, ENVIRONMENT CANADA METEOROLOGISTS ARE TRACKING A LINE OF SEVERE THUNDERSTORMS CAPABLE OF PRODUCING STRONG WIND GUSTS, PEA TO DIME SIZE HAIL AND TORRENTIAL RAIN.

A LINE OF THUNDERSTORMS TRACKING ACROSS LAKE HURON WILL CONTINUE MOVING OVER THE SAME AREA BETWEEN GODERICH AND KINCARDINE AND INLAND TO MOUNT FOREST AND SHELBURNE FOR NEXT FEW HOURS. LOCAL RAINFALL **AMOUNTS OF 75 TO 100 MM ARE POSSIBLE**. A WEATHER STATION IN MOUNT FOREST REPORTED 36 MM IN JUST UNDER AN HOUR.

Severe thunderstorm warning issued at 12:17 am.

**FRIDAY 12:30 AM**



Based on the radar image, staff continued monitoring weather data.

**FRIDAY 2:30 AM – EMAIL FROM  
FLOOD FORECAST SYSTEM**

Listowel: Alarms [Water Level 2hr Delta (0.205) ].

Blyth: Alarms [Hourly Precip. (41.2) Precip. 24hr Sum (82.8) Water Level 2hr Delta (0.5) ].

Summerhill: Alarms [Hourly Precip. (39) Water Level 2hr Delta (0.268) ].

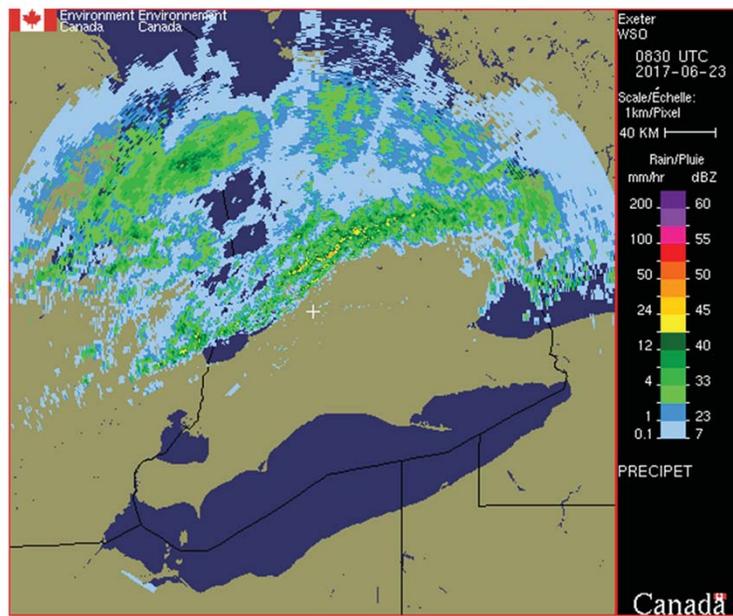
Benmiller: Alarms [Hourly Precip. (66.6) Precip. 24hr Sum (126)

Lucknow B: Alarms [Hourly Water Level (2.554) ].

Luck03: Alarms [Precip. 24hr Sum (75.2) ].

At 2:30 am staff began making preparations to issue a flood message to municipalities.

## FRIDAY 4:30 AM 70 MM OF RAIN IN HARRISTON



- By 4:30 am, precipitation gauges were showing approximately 70 mm of rain (a few gauges near Harriston were late pulling in data)
- More rain still on the radar
- Communications Coordinator sent out initial flood message
- Phone meeting between Flood and Erosion Safety Services Coordinator and Water Resources Technician. Conservation Areas Coordinator and Watershed Stewardship Coordinator also contacted.
- Staff arranged to be in the office by daylight.

## **ENVIRONMENT CANADA FORECAST**

**4:45 AM Friday June 23, 2017**

WINGHAM - BLYTH - NORTHERN HURON COUNTY

MOUNT FOREST - ARTHUR - NORTHERN WELLINGTON COUNTY

SAUGEEN SHORES - KINCARDINE - SOUTHERN BRUCE COUNTY

HANOVER - DUNDALK - SOUTHERN GREY COUNTY.

SEVERE THUNDERSTORM WATCH IN EFFECT.

TODAY..SHOWERS ENDING NEAR NOON THEN  
CLOUDY WITH 60 PERCENT CHANCE OF  
SHOWERS. A FEW THUNDERSTORMS EARLY  
THIS MORNING. RISK OF A SEVERE  
THUNDERSTORM EARLY THIS MORNING.

4:45 forecast had improved slightly.

## **SEVERE THUNDERSTORM WARNING**

**4:45 AM Friday June 23, 2017**

WINGHAM - BLYTH - NORTHERN HURON COUNTY

MOUNT FOREST - ARTHUR - NORTHERN WELLINGTON COUNTY

SAUGEEN SHORES - KINCARDINE - SOUTHERN BRUCE COUNTY

HANOVER - DUNDALK - SOUTHERN GREY COUNTY.

SEVERE THUNDERSTORM WATCH IN EFFECT.

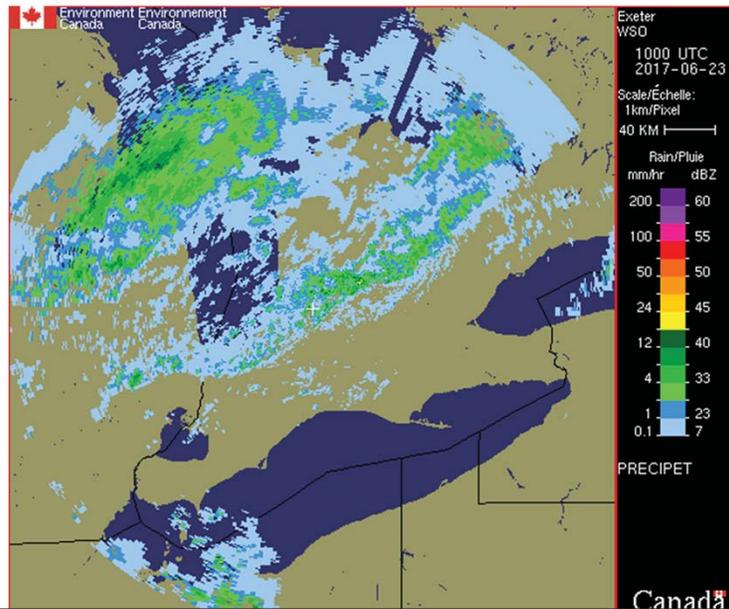
**AT 4:47 A.M. EDT, ENVIRONMENT CANADA METEOROLOGISTS ARE TRACKING A SEVERE THUNDERSTORM CAPABLE OF PRODUCING TORRENTIAL RAIN.**

**THUNDERSTORMS CROSSING LAKE HURON CONTINUE TO AFFECT AREAS BETWEEN GODERICH AND KINCARDINE AND INLAND TO MOUNT FOREST AND ORANGEVILLE.**

**THE THUNDERSTORMS ARE BEGINNING TO WEAKEN AND SHOULD TAPER TO LIGHTER SHOWERS IN THE NEXT HOUR OR SO. RAINFALL AMOUNTS OF 50 TO 75 MM HAVE BEEN REPORTED AND **AMOUNTS UP TO 100 MM ARE POSSIBLE.****

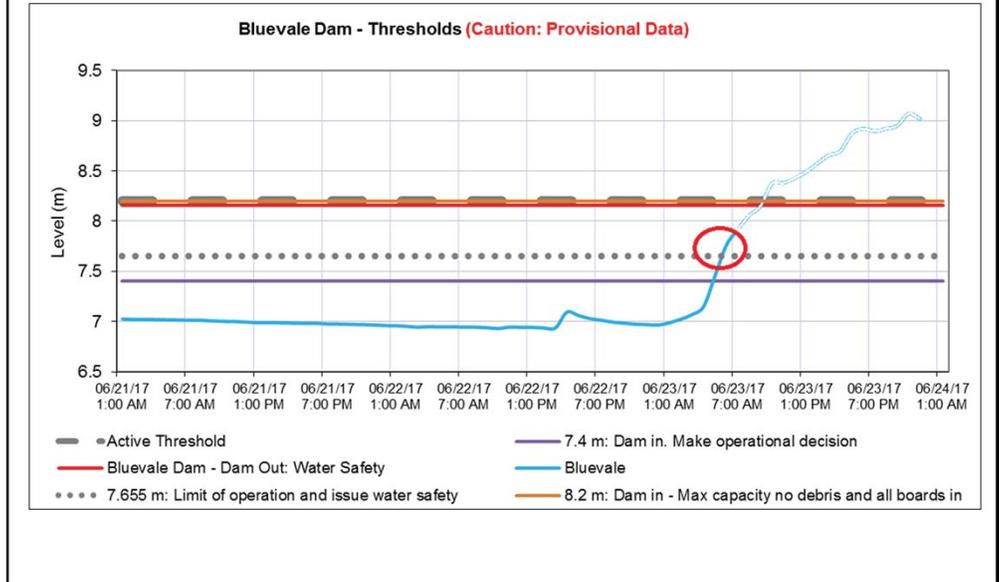
But, rainfall amounts in the Harriston area turned out to be much higher than predicted.

**FRIDAY 6:15 AM  
100 TO 160 MM OF RAIN IN HARRISTON**



- By 6:00 am staff had contacted Wroxeter Village Management Committee about operating Wroxeter so MVCA could operate Gorrie Dam
- Minto Fire Chief had been contacted
- MVCA General Manager-Secretary Treasurer had been contacted
- Huron-Kinloss Public Works staff had been contacted
- At approximately 6:30 am information from gauges indicated 100 to 160 mm of rain had fallen in the Harriston area.
- Contacted Minto Fire Chief again to update him on the Flood Warning for Harriston. Needed to get trailer park evacuated ASAP

## FRIDAY 7:15 AM BLUEVALE DAM BEYOND OPERATION



By 7:15 am the water level was too high to operate the Bluevale Dam.

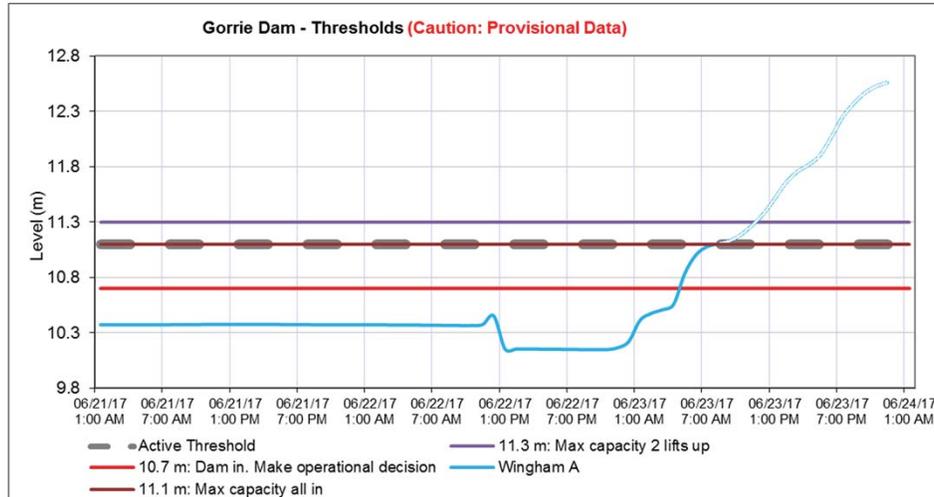


- By 8:00 am MVCA River Watch crew was in Harriston
- River Watch crews enroute to Lucknow and Port Albert
- Reiterated to Wroxeter Village Management Committee that we needed them to operate their dam asap so we could operate Gorrie
- Howick Fire Chief contacted to let him know the MVCA was issuing a Flood Watch statement for Wroxeter and Gorrie



- 3 more conversations with Minto Fire Chief advising that:
  - Main conduit now at capacity in Harriston
  - Levels in Harriston would rise steadily all day and were then expected to start receding in the evening
- Talked to ACW about flood warning for Port Albert
- Talked to Huron-Kinloss about flood warning for Nine Mile River
- Equipment initially brought in by the Wroxeter Village Management Committee was insufficient to handle the load
- Heavier equipment was brought in by the Committee to lift the Wroxeter boards
- Once the boards were lifted in Wroxeter, MVCA staff lifted 1 top section at Gorrie. Before additional boards could be lifted, staff received a call from North Huron asking that no additional boards be pulled at Gorrie due to the levels Wingham

**FRIDAY 10:15 AM**



- Advised the Township of Howick that the Gorrie Dam spillway may fail later in the day and requested a meeting with North Huron, Howick and Huron County
- Key issue was that the flows were so great in Gorrie that regardless of how the dam was operated the spillway would have failed.
- Meeting was setup for 1:00 pm
- Flood Watch statement issued to municipalities with campgrounds along the Lower Maitland River
- At 11:50 staff received a call from North Huron saying we could pull more boards in Gorrie but by that point the water was too high to operate the dam.



- Preparations were undertaken by Howick and North Huron in case the Gorrie Dam spillway failed
- Another conversation was held with the Minto Fire Chief to inform him that the water would keep rising in Harriston for a few hours more hours.



- Spillway to Gorrie Dam began failing
- Fortunately it progressed slowly enough to prevent a large surge of water from heading downstream
- Flow rate was twice the rate recorded when the 1974 dam failure occurred.



Bluevale Dam flanked



- Record flooding in Harriston
- Previous high flow in 1982 of 57 m<sup>3</sup>/s
- New record of 78 m<sup>3</sup>/s (nearly 40% more than previous record)



- Flood levels peaked in Harriston around 6:00 pm

**FRIDAY 9:00 PM – HOWSON DAM (WINGHAM)**





- Howson Dam at capacity
- Friday and Saturday in the office: front desk, communications, duty officer, field services, and GM staff. Monitoring continued overnight and throughout the weekend
- River Watch crews in the field throughout the event

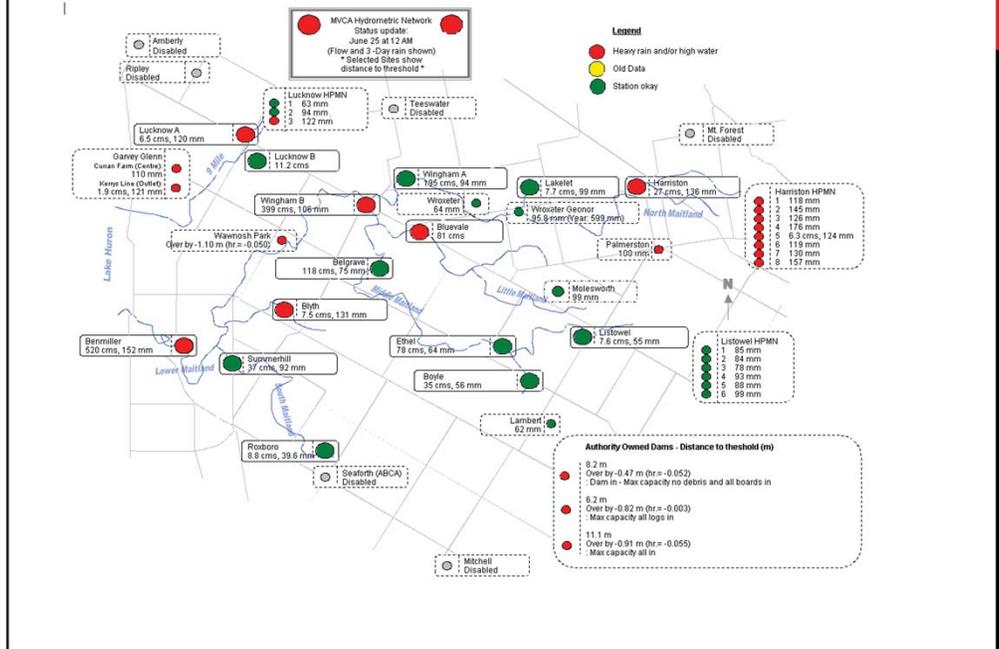


Significant debris in Bluevale Dam



- Lower Maitland River campground flooding

# SUNDAY



- Continued monitoring of gauge network

**SUNDAY 3:00 PM**





Flood sediment load at the mouth of the Maitland River





- Stop logs removed from the north bay of the Gorrie control structure to try to keep the low flow channel in its original location
- Second highest flow on the North Maitland in the 48 years of record

