

Conservation Partners Partenaires de conservation



Mississippi Valley
Conservation
de la vallée Mississippi

OFFICE DE
PROTECTION
DE LA NATURE DE
LA VALLÉE RIDEAU



RIDEAU
VALLEY
CONSERVATION
AUTHORITY

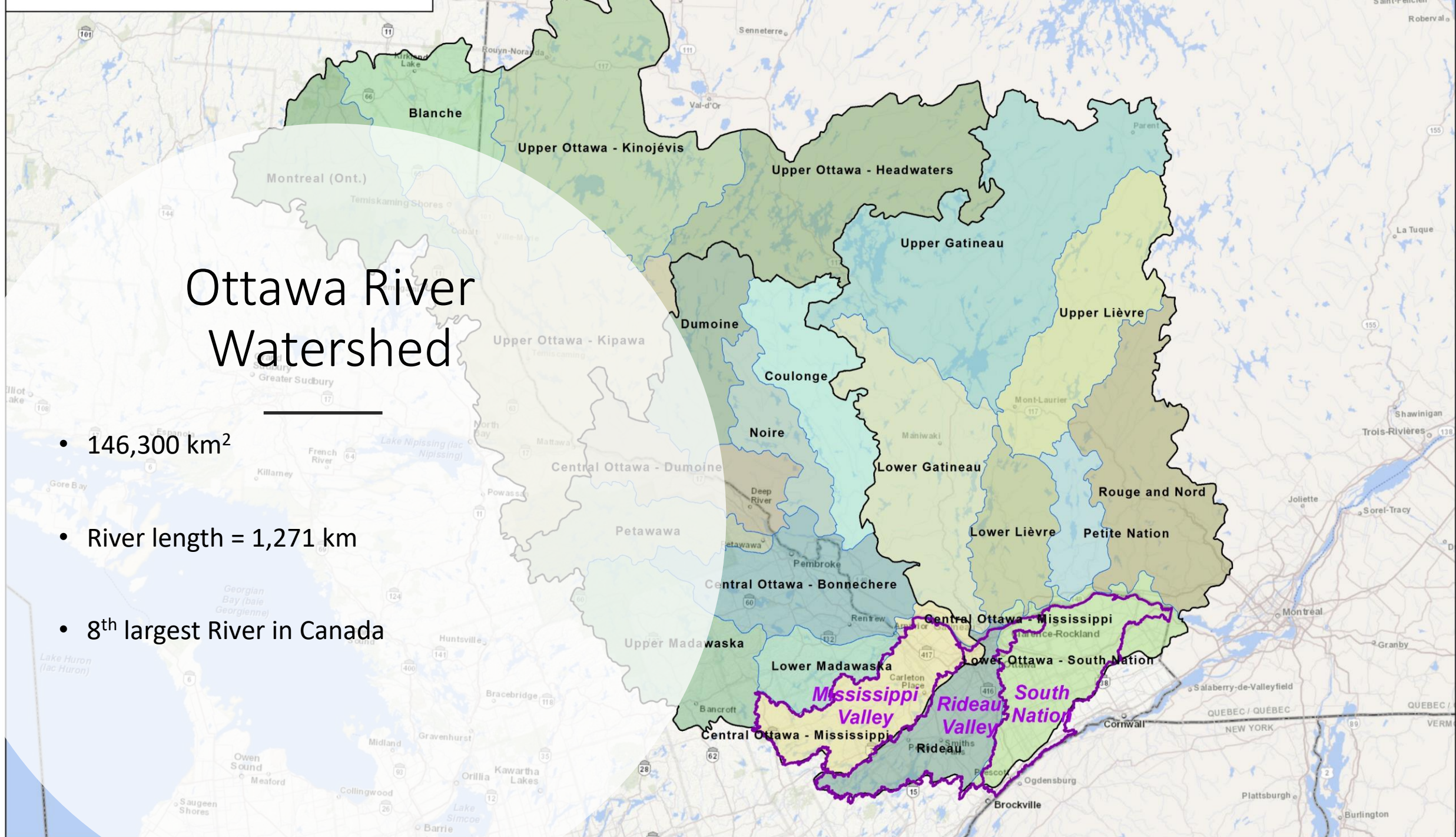


SOUTH NATION
CONSERVATION
DE LA NATION SUD

Working Together to Enhance
Lower Ottawa River Flood
Warning

Ottawa River Watershed

- 146,300 km²
- River length = 1,271 km
- 8th largest River in Canada

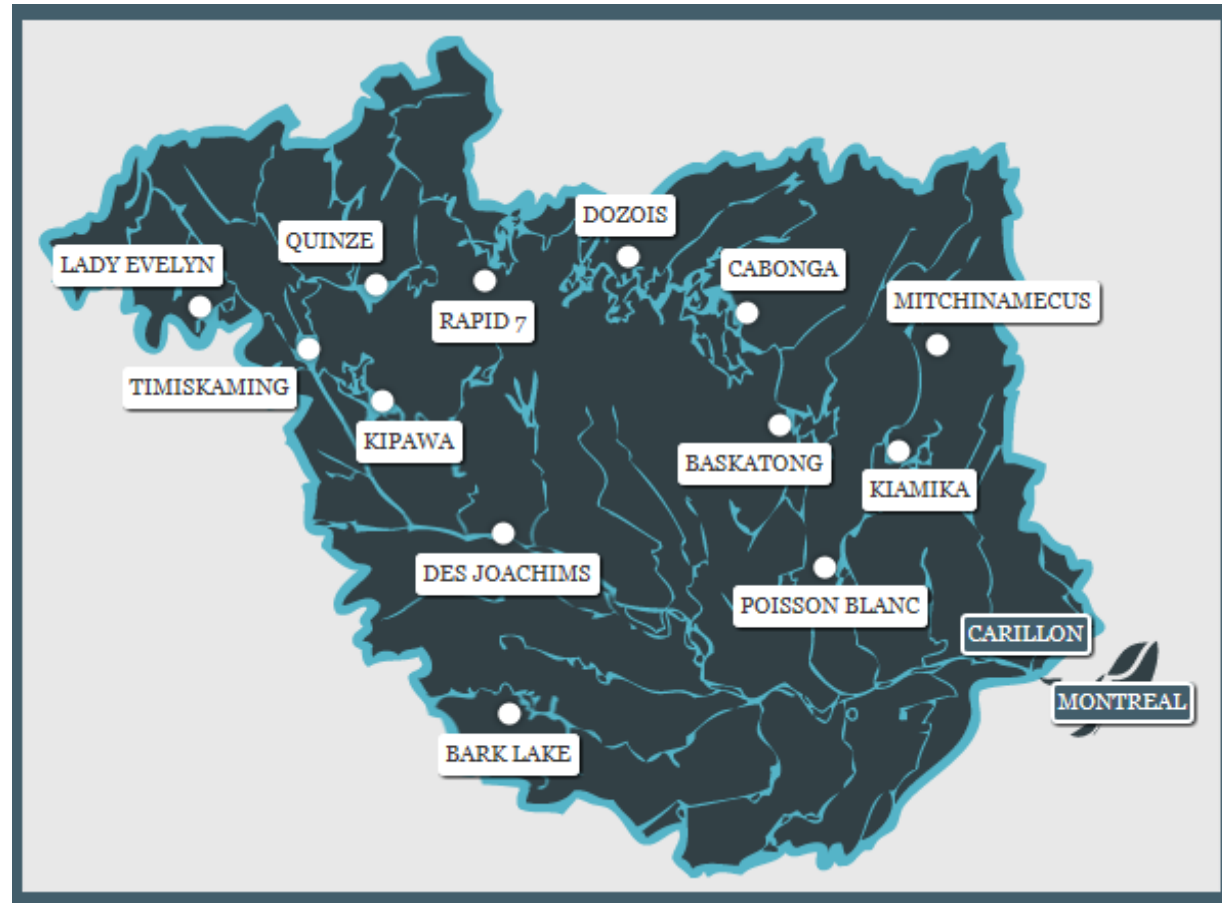


Ottawa River Reservoirs

Principal Reservoirs in the Ottawa River Basin
(having more than 200 million cubic metres live storage)

| RIVER | RESERVOIR | CAPACITY* |
|-----------|--------------------|-----------|
| Outaouais | Dozois (1) | 1,863 |
| | Rapid VII (2) | 371 |
| | Quinze (3) | 1,308 |
| | Timiskaming (4) | 1,217 |
| | des Joachims (5) | 229 |
| Montreal | Lady Evelyn (6) | 308 |
| Kipawa | Kipawa (7) | 673 |
| Madawaska | Bark Lake (8) | 374 |
| Gatineau | Cabonga (9) | 1,565 |
| | Baskatong (10) | 3,049 |
| Lievre | Mitchinamecus (11) | 554 |
| | Kiamika (12) | 379 |
| | Poisson Blanc (13) | 625 |

*Capacity is measured in millions of cubic metres.



Ottawa River Basin – Flooding

Figure credit: *Ottawa River Regulation Planning Board*

The Ottawa river - still partially a natural river...

Une rivière qui est en partie toujours naturelle...

Capacity to regulate flows

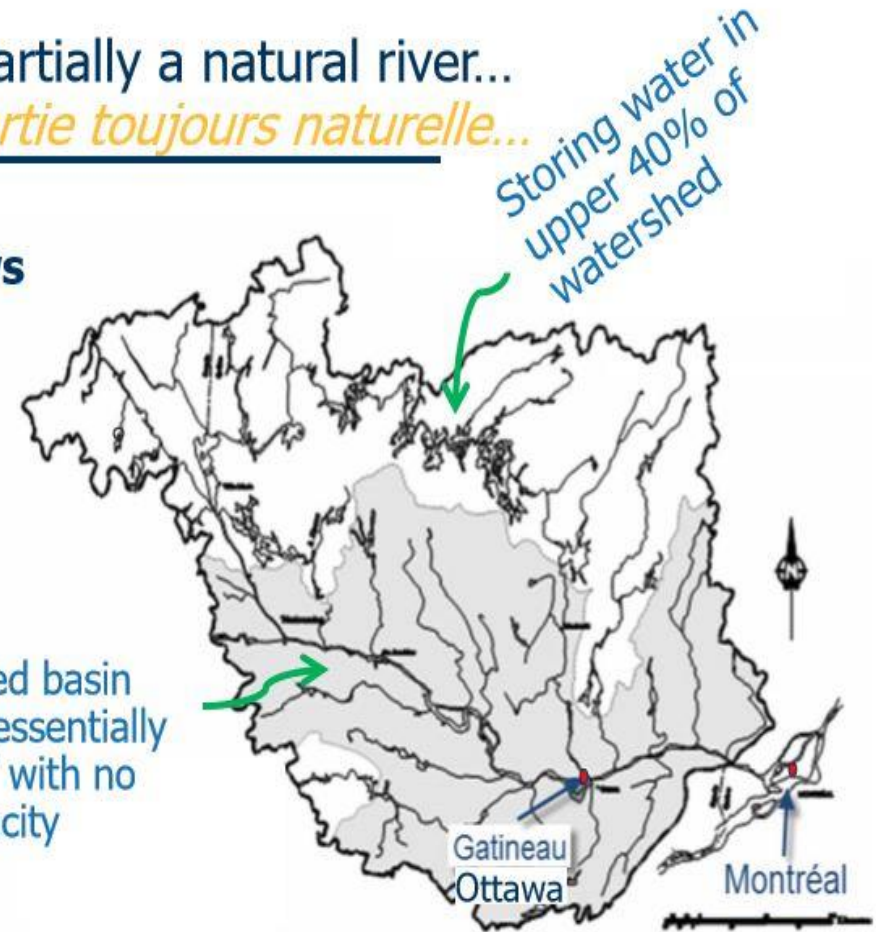
60%

unregulated
non régularisé

40%

regulated
régularisé

In the unregulated basin portion, dams are essentially "run of the river" with no storage capacity



Ottawa River Watershed's Relation with the Great Lakes

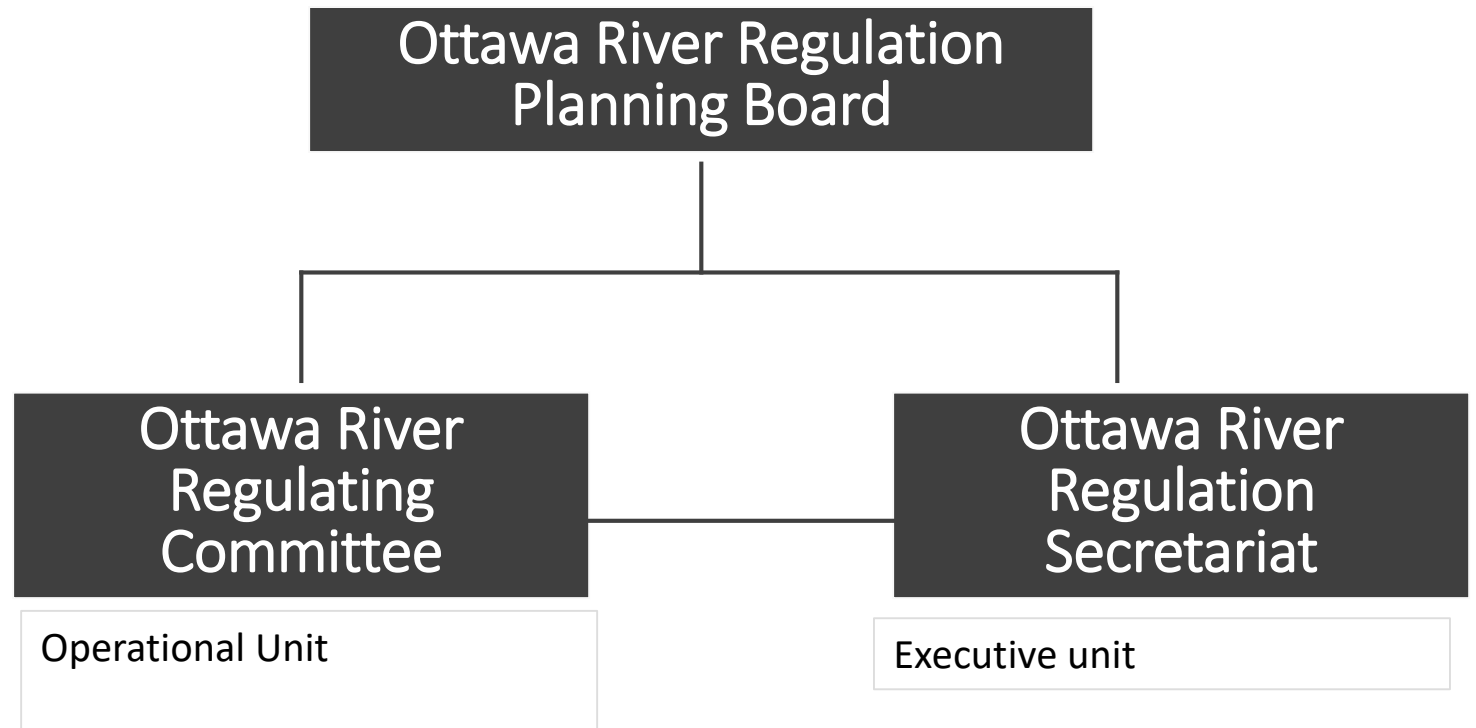
Figure credit: International Lake Ontario - St Lawrence River Board



Ottawa River Regulation Planning Board

Board Three Main Goals

- Ensuring integrated management of the principal reservoirs
- Formulating regulation policies that leads to integrated management of the principal reservoirs
- Secondary role – Preparing hydrological forecasts



Planning Board Members

Quebec

- Ministère de l'Environnement et de la Lutte contre les changements climatiques (MELCC)
- Hydro-Québec

Canada

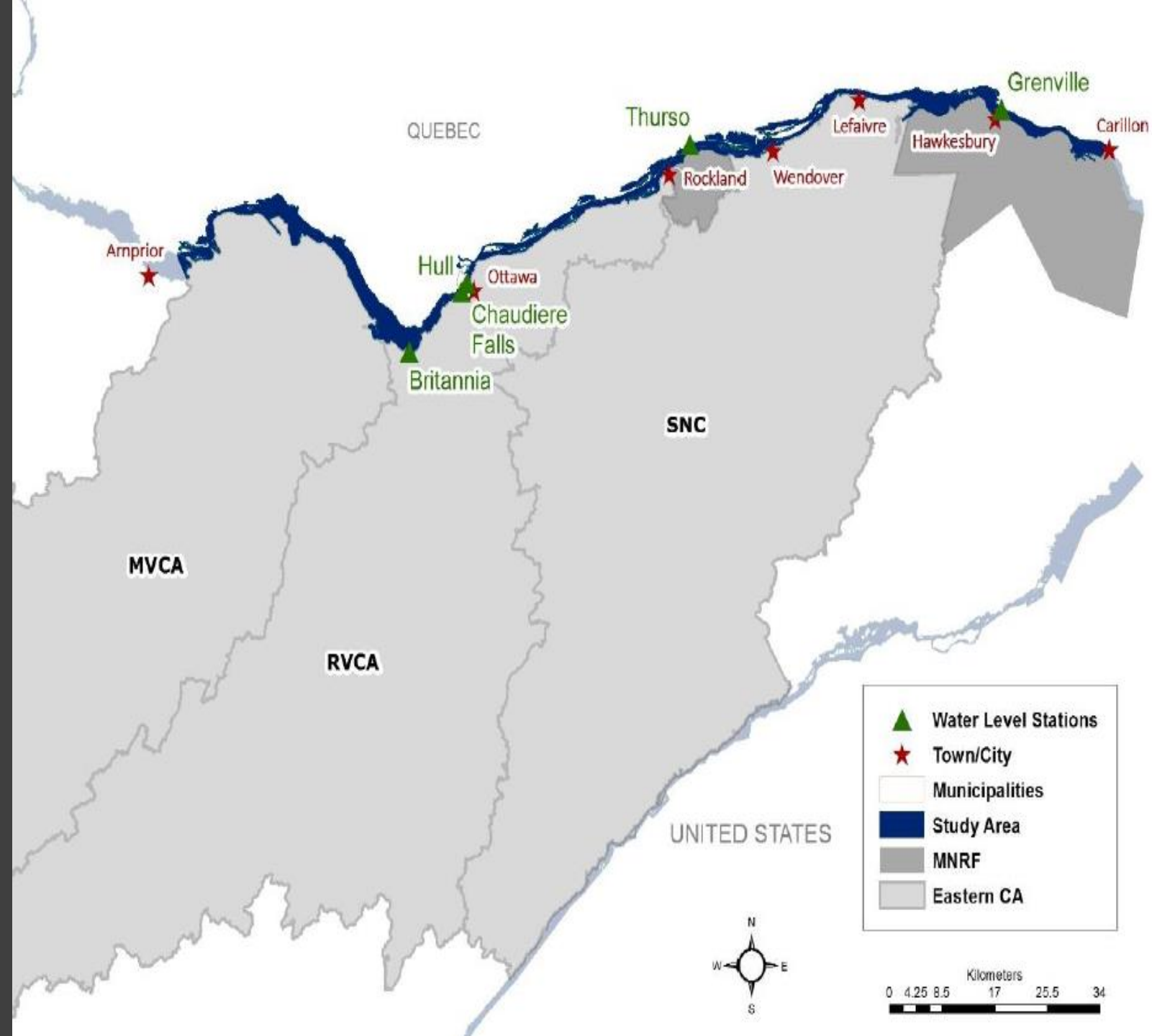
- Public Services and Procurement Canada
- Canadian Coast Guard
- Environment and Climate Change Canada (ECCC)

Ontario

- Ministry of Natural Resources and Forestry (MNRF)
- Ontario Power Generation

Lower Ottawa River

- 175 km in length
- Spans east of Arnprior to the Carillon Dam



Forecasting Key Players

- Ottawa River Regulation Planning Board
- Ministry of Natural Resources & Forestry
(Kemptonville District, SWMC)
- Conservation Authorities (SNC, RVCA, MVCA)



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Mississippi Valley
Conservation Authority



Ontario
Ministry of Natural Resources and Forestry



Ottawa River
Regulation
Planning Board

Formation of the Lower Ottawa River Early Flood Warning Working Group

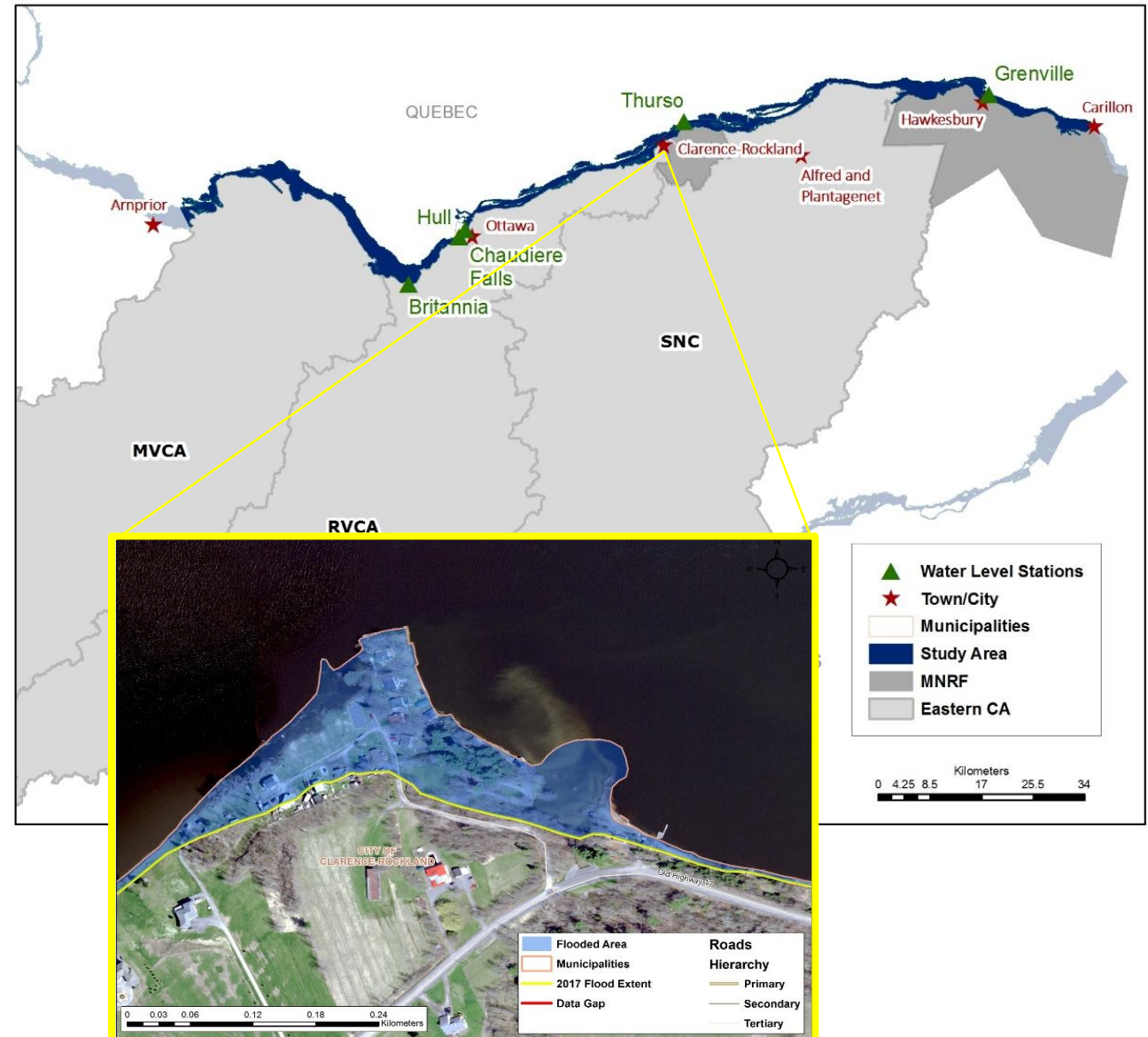
Conservation Partners


- Maintain close communications with ORRPB and municipalities
- Assess ORRPB hydrological model result, weather forecast and current conditions
- Issue flood bulletins and alerts
- Record the impacts of an event



Delineation of future flood events along the Lower Ottawa River

- The 2017 Flood Event
- The 2019 Flood Event
- Association between water levels and areas of concern



An aerial photograph of a green steel truss bridge spanning a wide river. The water is turbulent and white with foam, indicating a high flow or flood. A large, semi-transparent white circle is overlaid on the left side of the image, containing the title and a list of factors. The background shows some industrial or construction areas on the riverbank.

Overview of the 2019 Flood Event

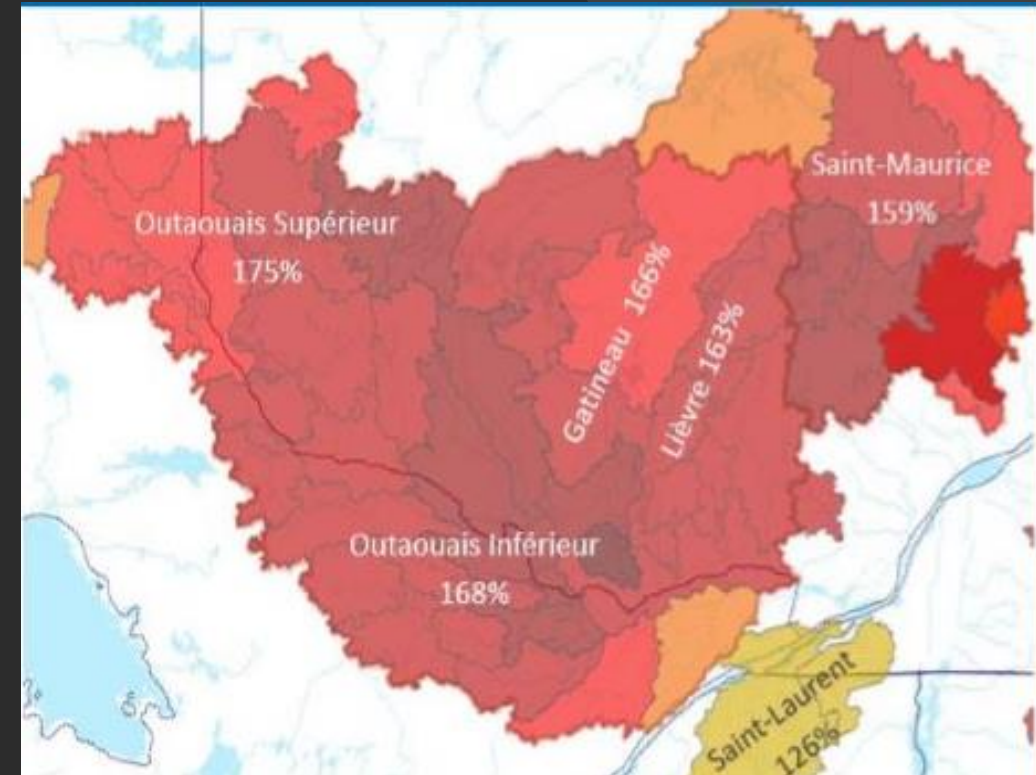
Key factors which influence flooding:

- Snowpack
- Precipitation
- Temperature

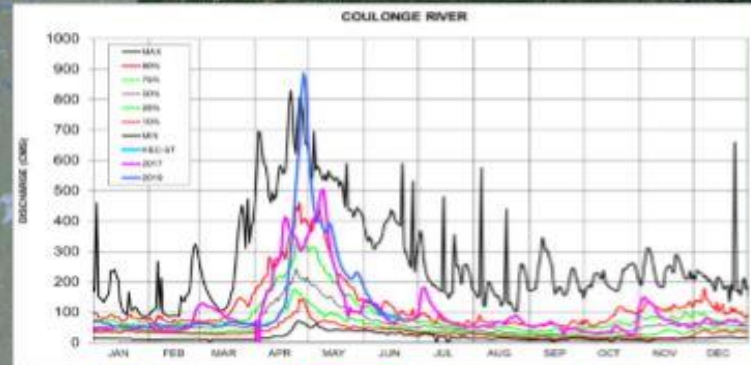
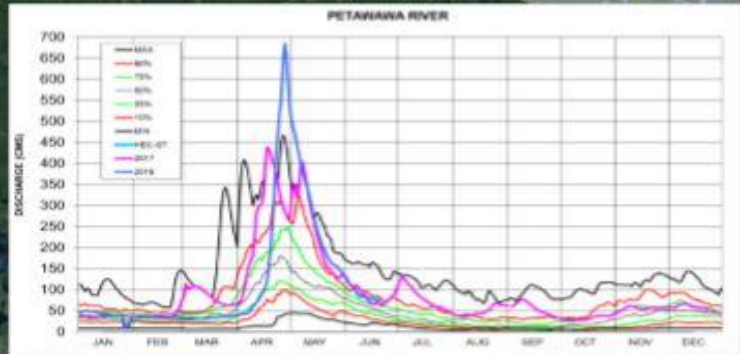
2019 Flood Event Timeline

| Date | Period | Key Message |
|--------------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| April 11 (1) | First Peak | Start of spring freshet, snowpack higher than average, potential for higher than average flows over a prolonged period |
| April 16 (2) | | Snowpack remains at twice its normal depth, forecast indicates rainfall amounts of 30 – 55 mm beginning on Thursday, levels similar to the first peak of 2017 |
| April 18 (3) | | Forecast indicates rainfall amounts of 30 – 80 mm beginning on Thursday and warmer temperatures, levels similar to the first peak of 2017 |
| April 25 (4) | | Forecast indicates rainfall amounts of 20 – 50 mm on Friday and Saturday, levels to possibly exceed those of 2017 |
| May 3 (5) | Second Peak | Levels are high with potential for further increases |

Total Precipitation from April 1st to May 27th
(% of Normal)



Tributary Flooding 2019



New historic record peak flows from the uncontrolled mid-basin tributaries

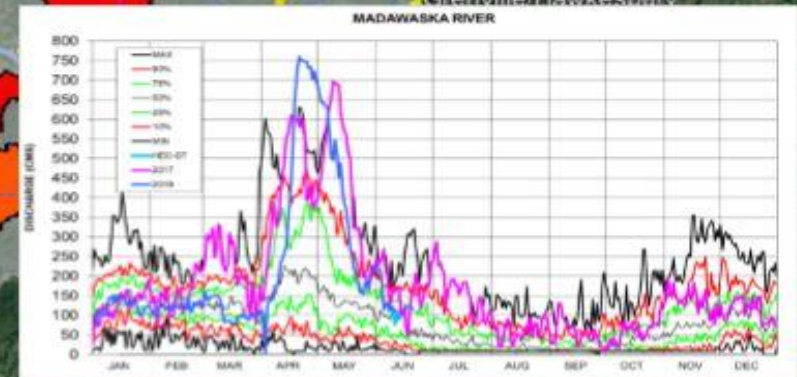


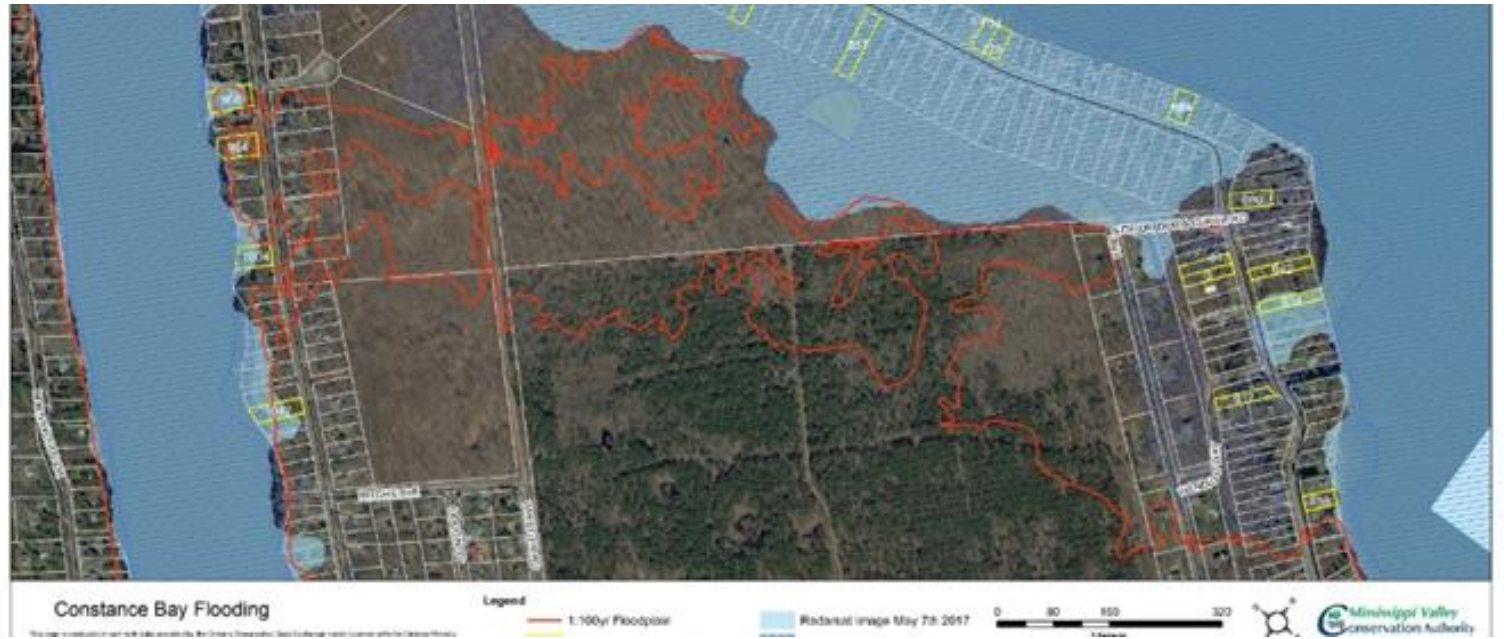
Image NOAA
Image Landsat - Copernicus

Earth

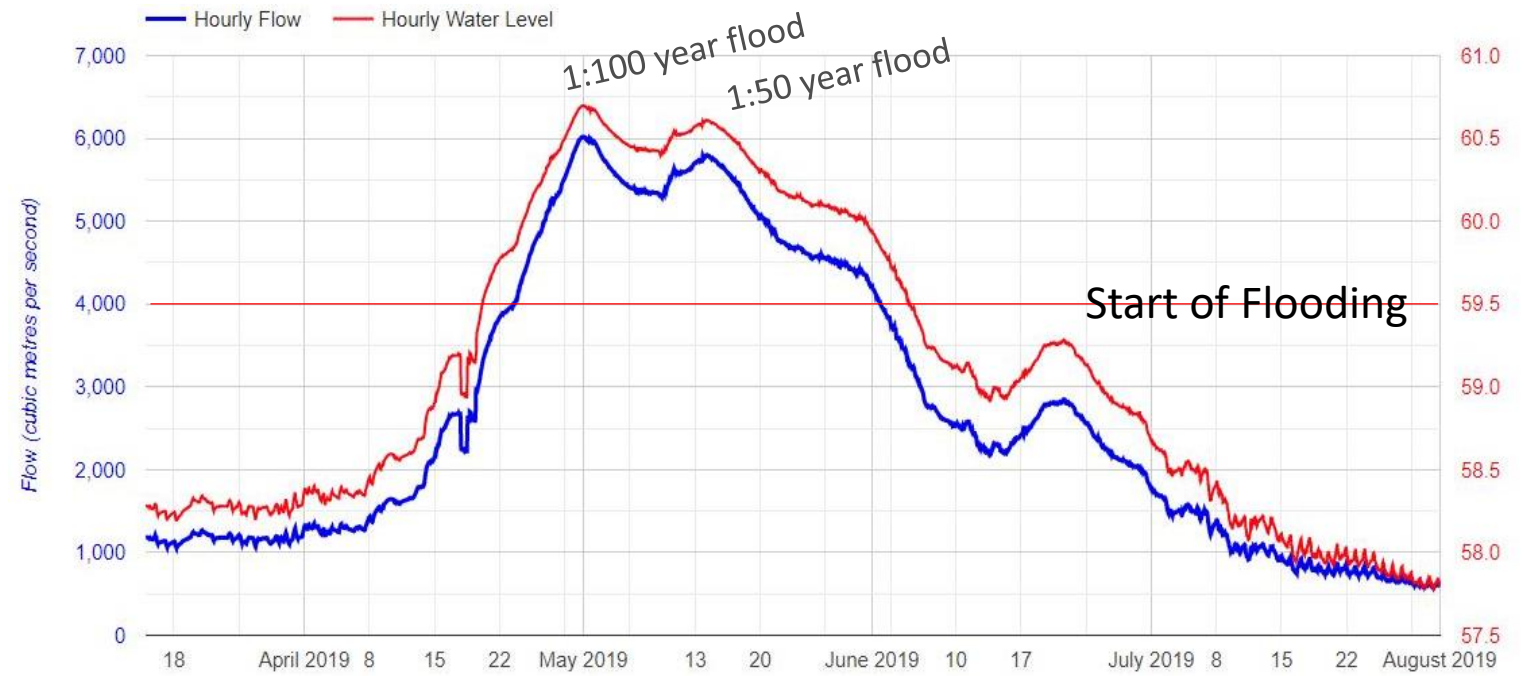


Affected Areas within the City of Ottawa





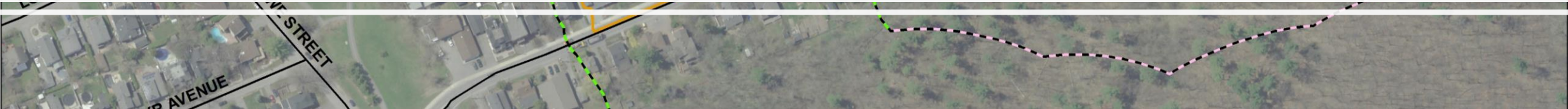
Affected Areas within the City
of Ottawa: Constance Bay



Affected Areas within the
City of Ottawa: Britannia



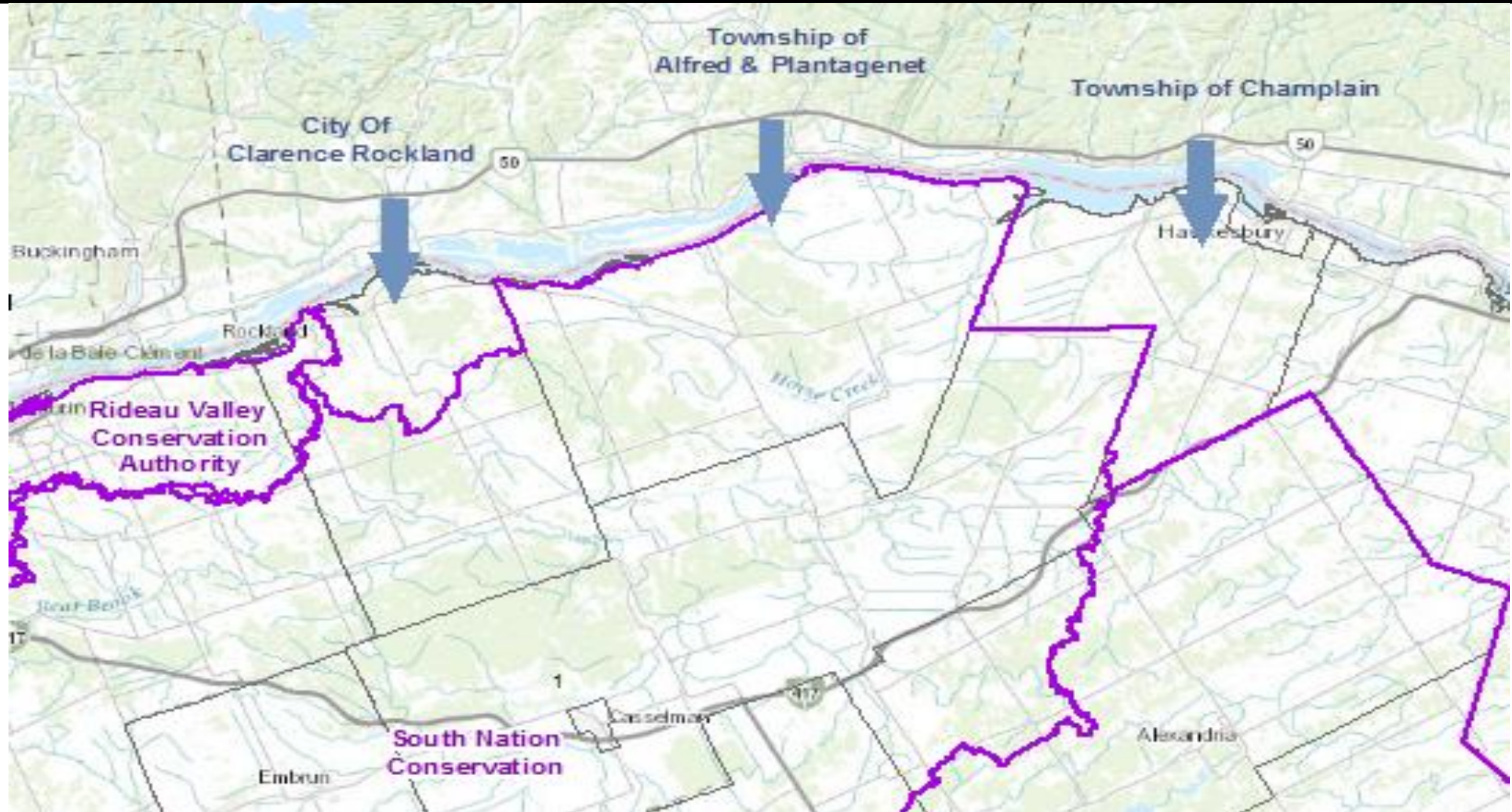
Britannia Berm





Affected Areas within the
City of Ottawa: Cumberland

Affected Areas in Eastern Ontario



Affected Areas Along the Lower Ottawa River: City of Clarence Rockland



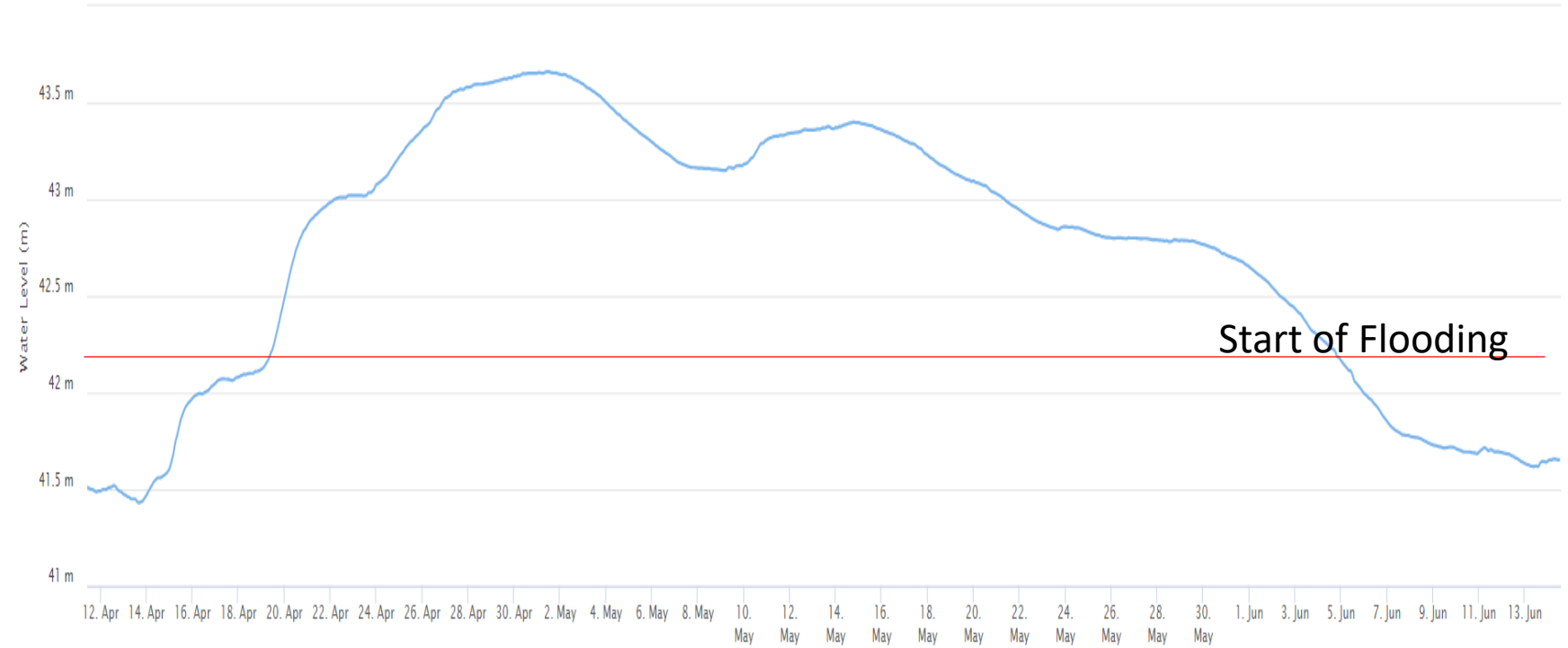
Affected Areas Along the Lower Ottawa River: Alfred Plantagenet



Affected Areas Along the Lower Ottawa River: Champlain



Affected
Areas Along
the Lower
Ottawa River:
City of
Clarence
Rockland



Thurso Gauge:

- Flooding starts at 42.24m
- Peak in 2019 at 43.66m
- Peak in 2017 at 43.70m

ORRPB Conclusions

- Reservoirs smaller than spring runoff, large portion of the watershed uncontrolled
- Flooding couldn't be prevented
- Amount of precipitation, rate of snowmelt and natural stream characteristics are main factors in flood levels



Working together...

- Identified a gap and an opportunity, after 2017 event
- Work towards a common goal
- Lean into each other's strengths



CONSISTENCY
IS 

Communication

Formal Margin Proofread Single Concept Solution Logo Letterhead Coherent Body Attachment address Enclosure Memo Internal Confidential Black margins Modified Double Informal black space

In closing...



- 2019 event raised many questions.
- Flood Task Force
- Flood Commissioner to review situation

Thank You

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- Brian Stratton P.Eng., Rideau Valley Conservation Authority Email: brian.stratton@rvca.ca

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