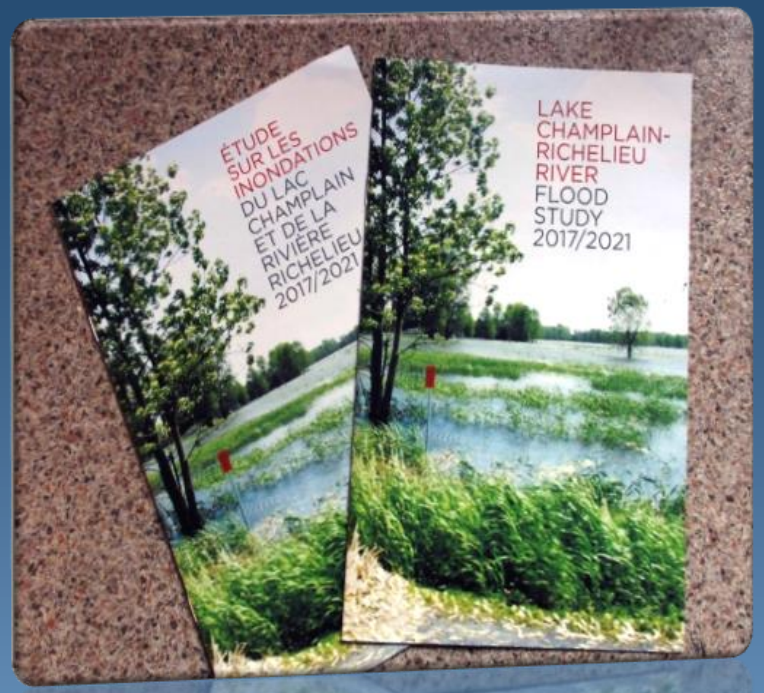
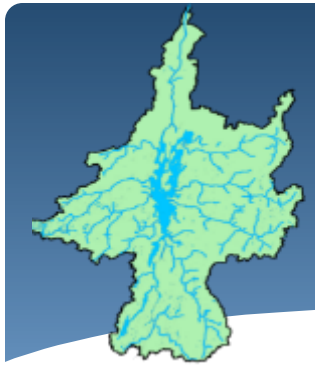


Lake Champlain-Richelieu River Study

November 2018 Public Meetings

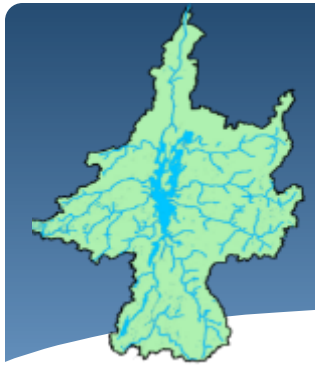
Jean-Francois Cantin (Canadian Chair)

Keith Robinson (US Chair)



Presentation Outline

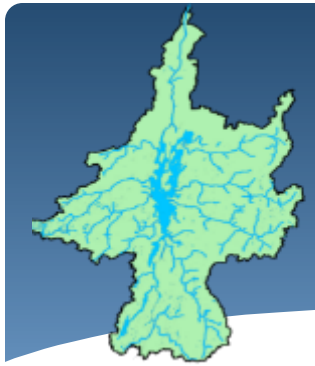
- What has happened in the past year.
- Study's approach to flood mitigation.
- The solutions that are being examined.
- The study's approach to evaluating solutions.
- Path forward.



What did we learn from last year's public meetings?

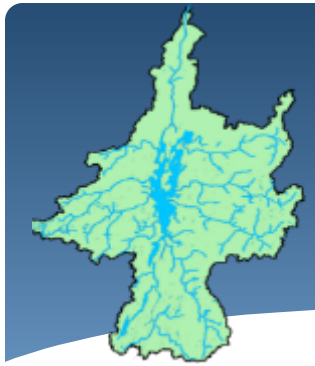
- Need action and solutions.
- Share your progress and results early and often; have products.
- Be thorough in exploring potential solutions.
- Look at the implications for each of the solutions.
- Facilitate stakeholder's participation in the study.

We heard you; let us now show you what we've done.



What is the study's focus?

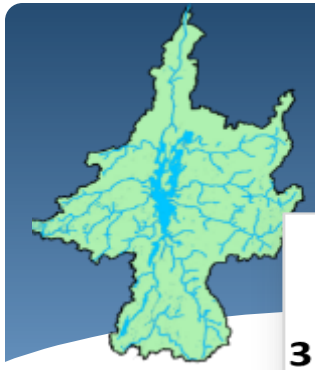
1. Causes and impacts of past floods.
2. Floodplain best management practices.
3. Flood adaptation strategies.
4. A binational flood forecasting system.
5. Potential flood management and mitigation measures
6. Social and political perception to measures.

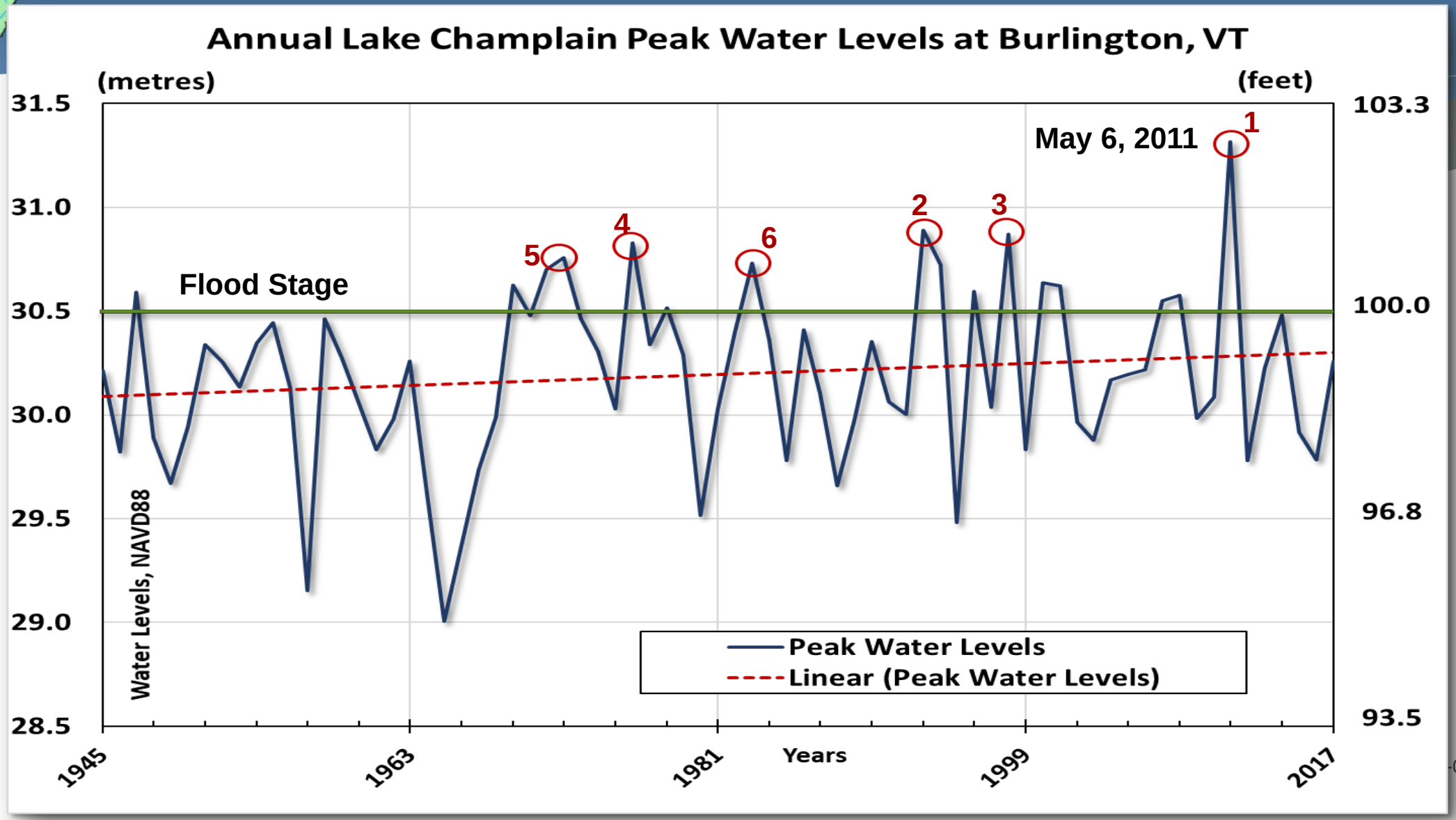


What the Study Can and Can not Do

- The Study Board is limited to making recommendations to the IJC on the findings of the Study.
- Any implementation of the recommendations will be up to the Federal, Provincial and State governments.
- The solutions developed will involve multiple levels of governance, in two countries and the study will foster common understanding
- The study is not to look at major structural solutions (dams)
- The study needs to stay focused on the terms of the reference provided to IJC

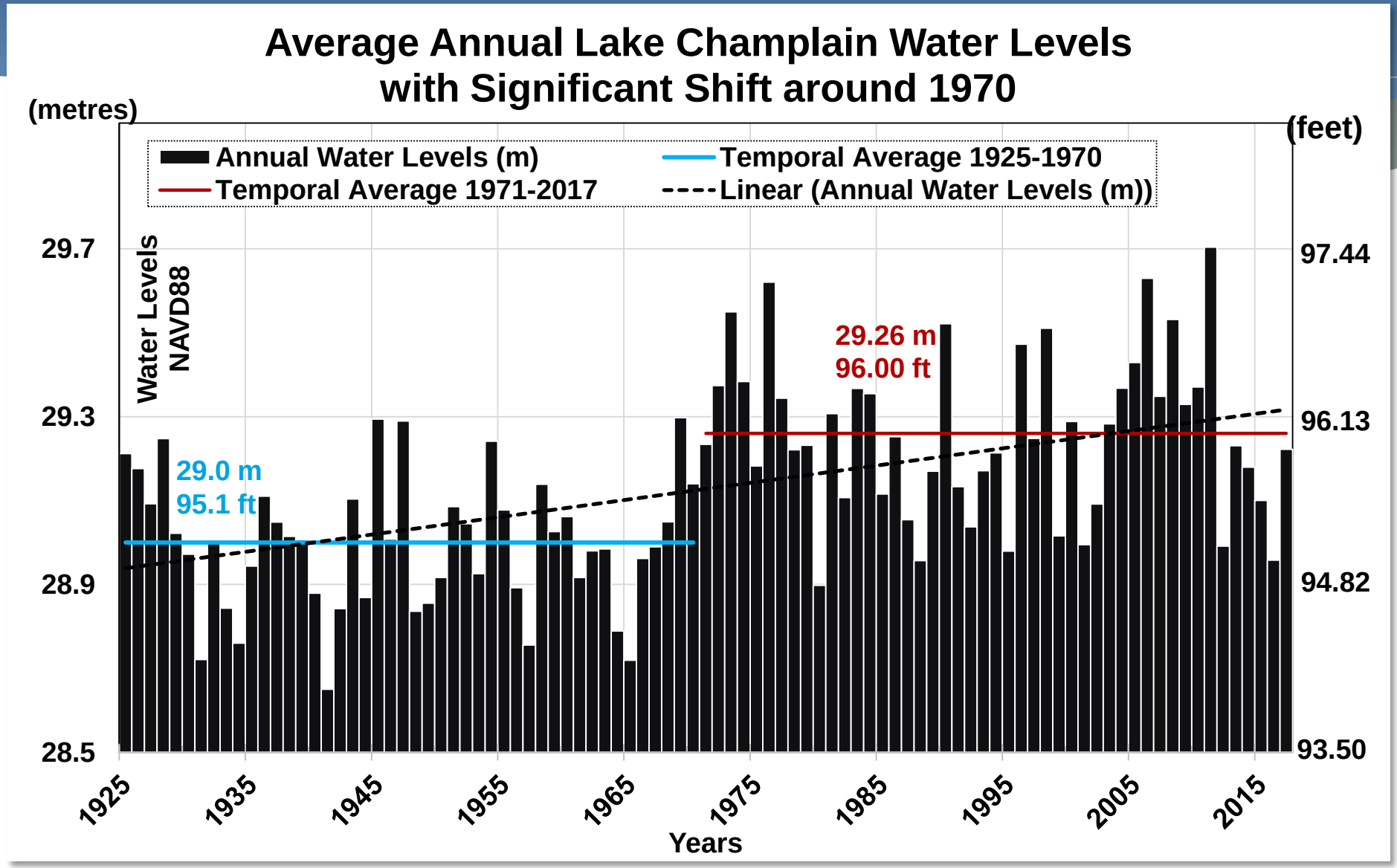
2011 flood compared to recent high levels



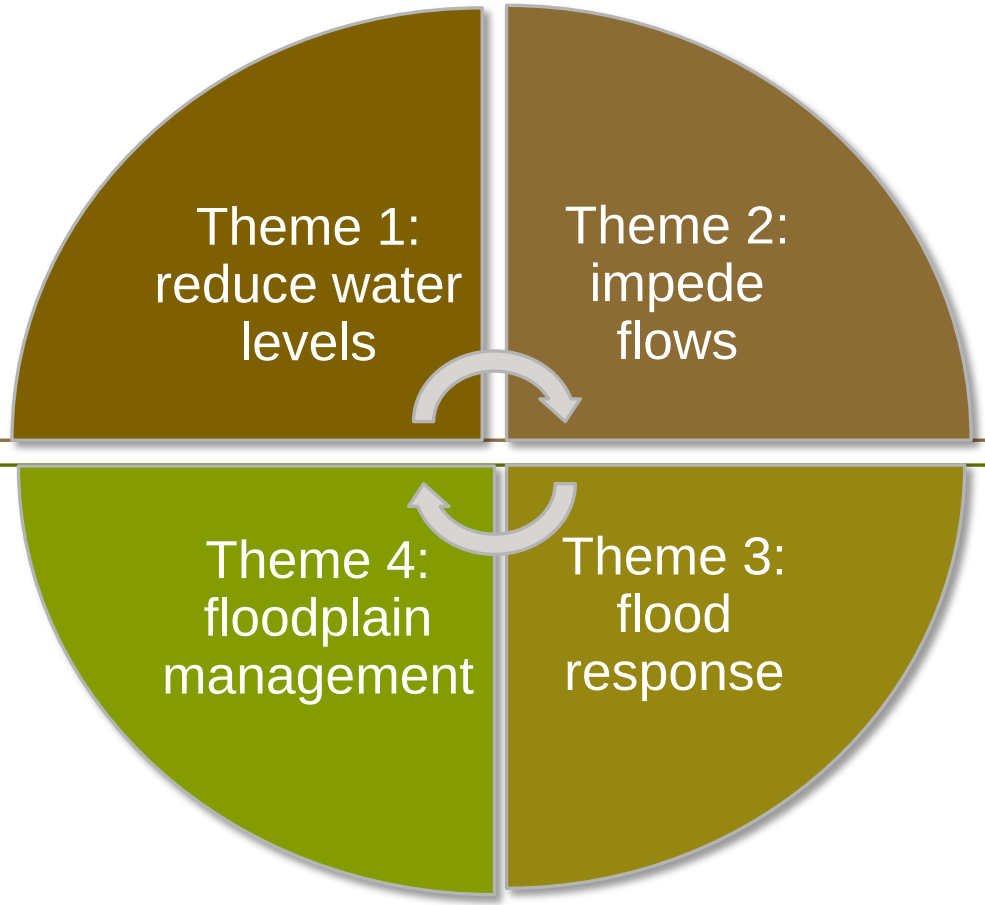


Water levels are rising in the Lake and River

- Risen by 39 cm (15 in.) since 1925.
- Significant increase since the 1970s.



Goal 1: Reduce High Water Levels and Thereby Flooding Impacts
(Moderate Structural Solutions)

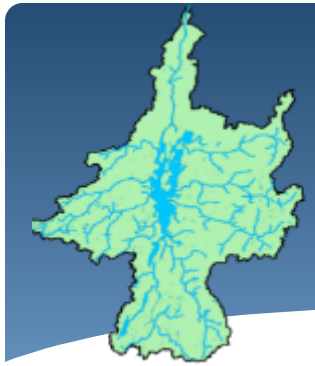


Goal 2: Reduce Vulnerability to High Water and Build Flood Resiliency
(Non-Structural Solutions)

How does the study address the flooding issue?

Examining a broad range of solutions.

To ***effectively*** address flooding will require implementing a combination of solutions.



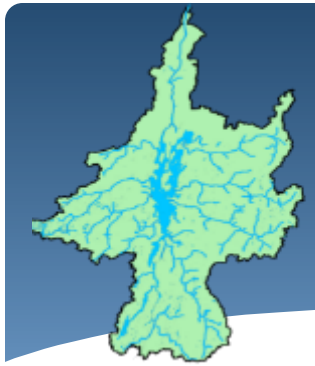
What are the structural solutions the study is focussing on?

Theme 1: Reduce water levels in the Richelieu River

- Removing instream obstructions.
- Installing a moderate structure.
- Modifying the Chambly Canal.

Theme 2: Store or impede the flow of water in contributing watersheds

- Applying nature-based solutions.
- Reconnecting of floodplains
- Temporary flooding of land.



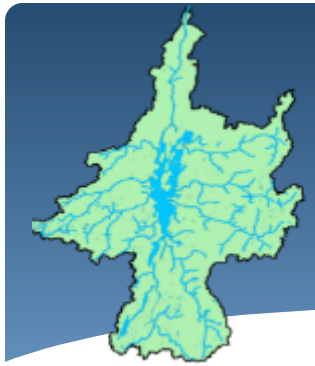
What is the study looking at beyond structural solutions?

Theme 3: Better flood response plans (emergency preparedness)

- Flood forecasting.
- Flood proofing.
- Protecting the vulnerable.

Theme 4: Better floodplain management (adaptation to flooding)

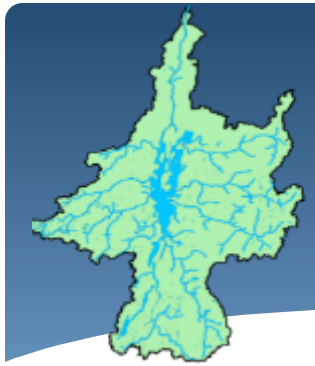
- Flood damage curves and flood delineations.
- Establish buffer zones.
- Best Management Practices.



What are the structural solutions the study is examining?

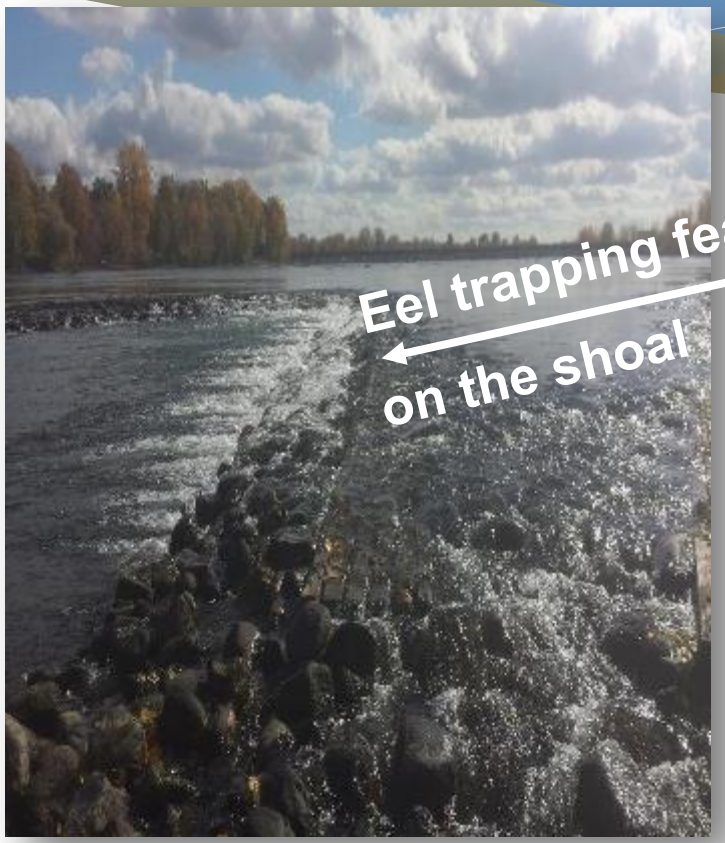
The Study is evaluating over a dozen different alternatives grouped as:

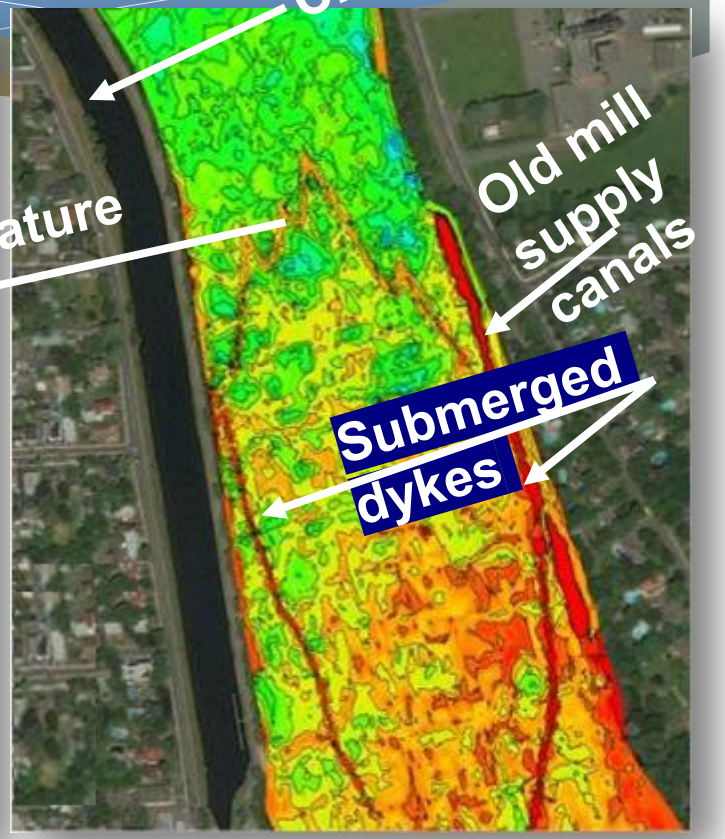
- Current conditions and the natural state (no canal, no in-river features);
- Instream modifications of existing features;
- Chambly Canal modifications and diversions;
- Channel dredging with and without inflatable bladder; and,
- Instream features with upland storage

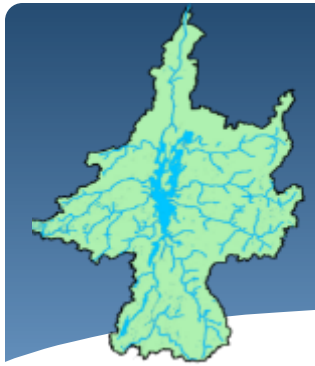


Why the focus on the St-Jean-Sur-Richelieu Shoal?

- Controls the flow of the Richelieu River.
- Numerous obstructions to the flow.
- Removal would increase flow and lower water levels.

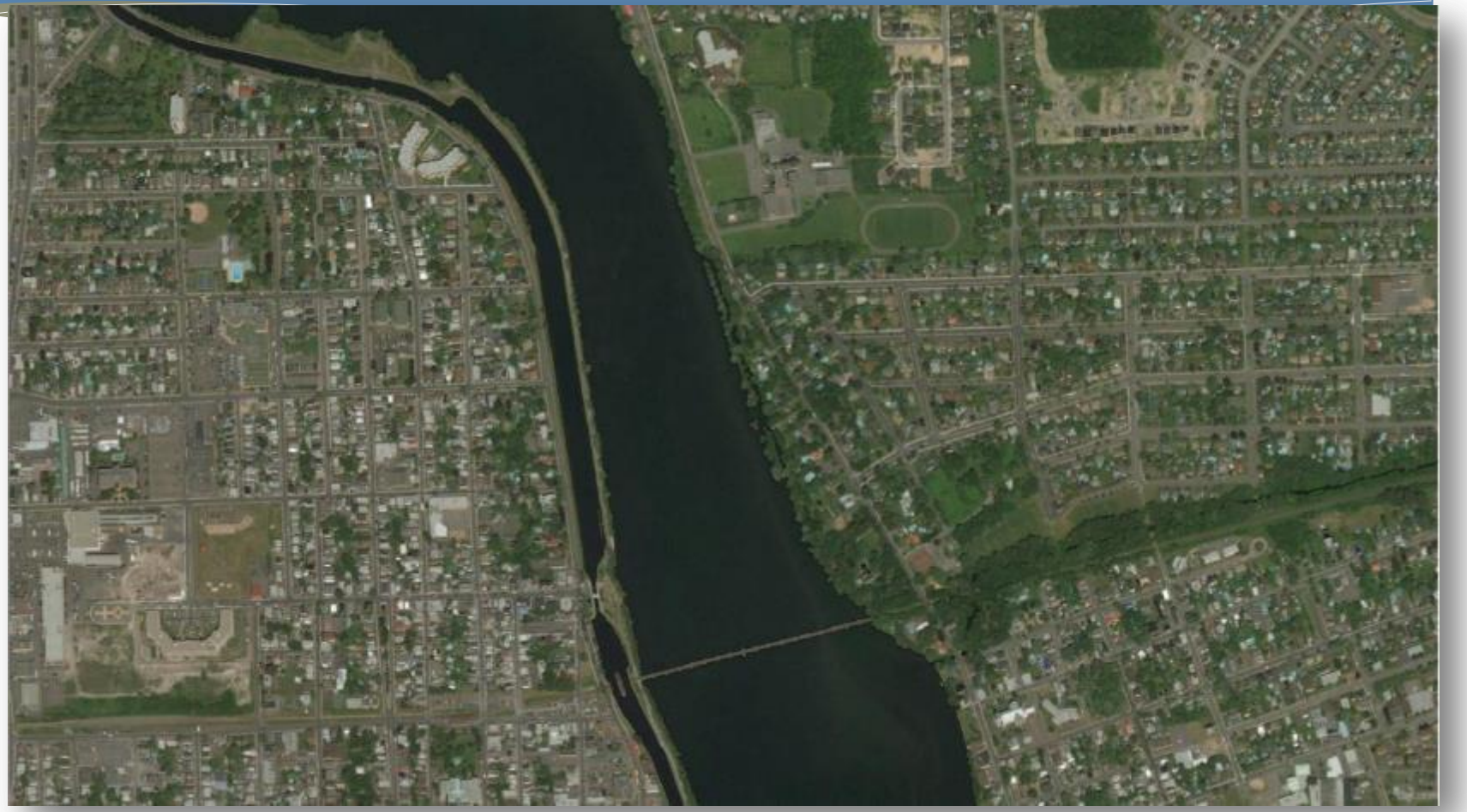




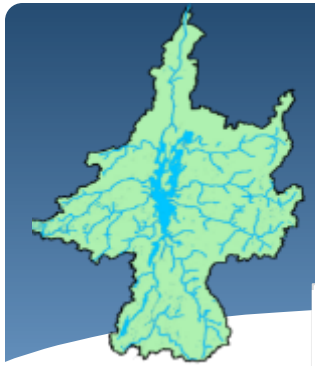


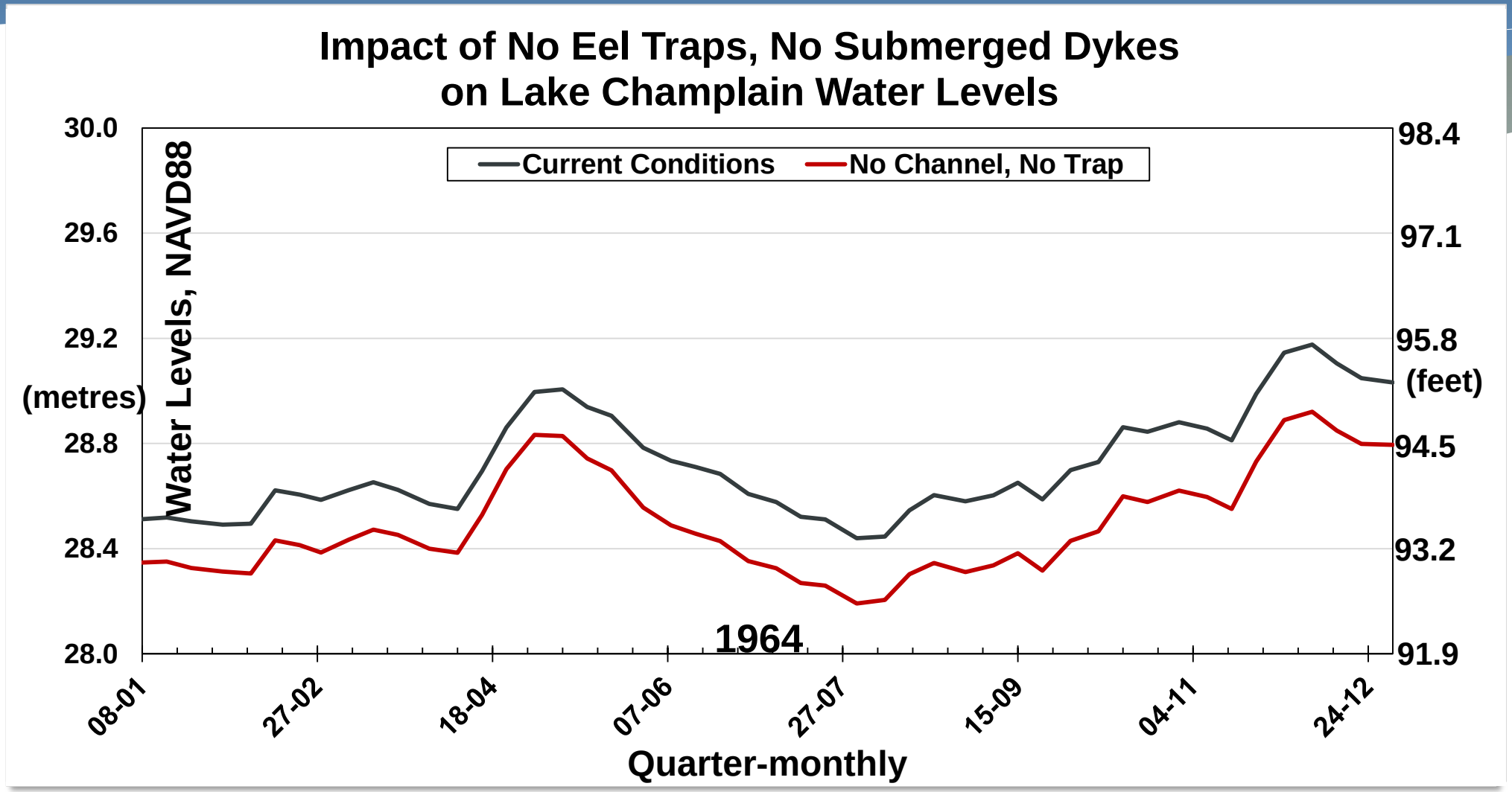
What is the Chambly Canal issue?

- Widened in early 1970s.
- Increases water levels upstream (10 cm or 4 in) at high flows.
- Examine moving more water through the canal.



What if we undo the past by removing these obsolete structures?





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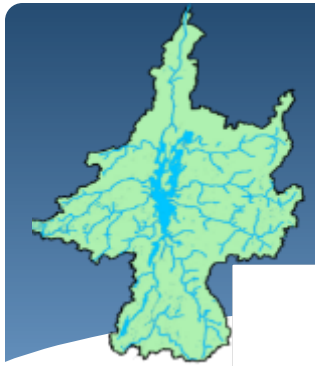
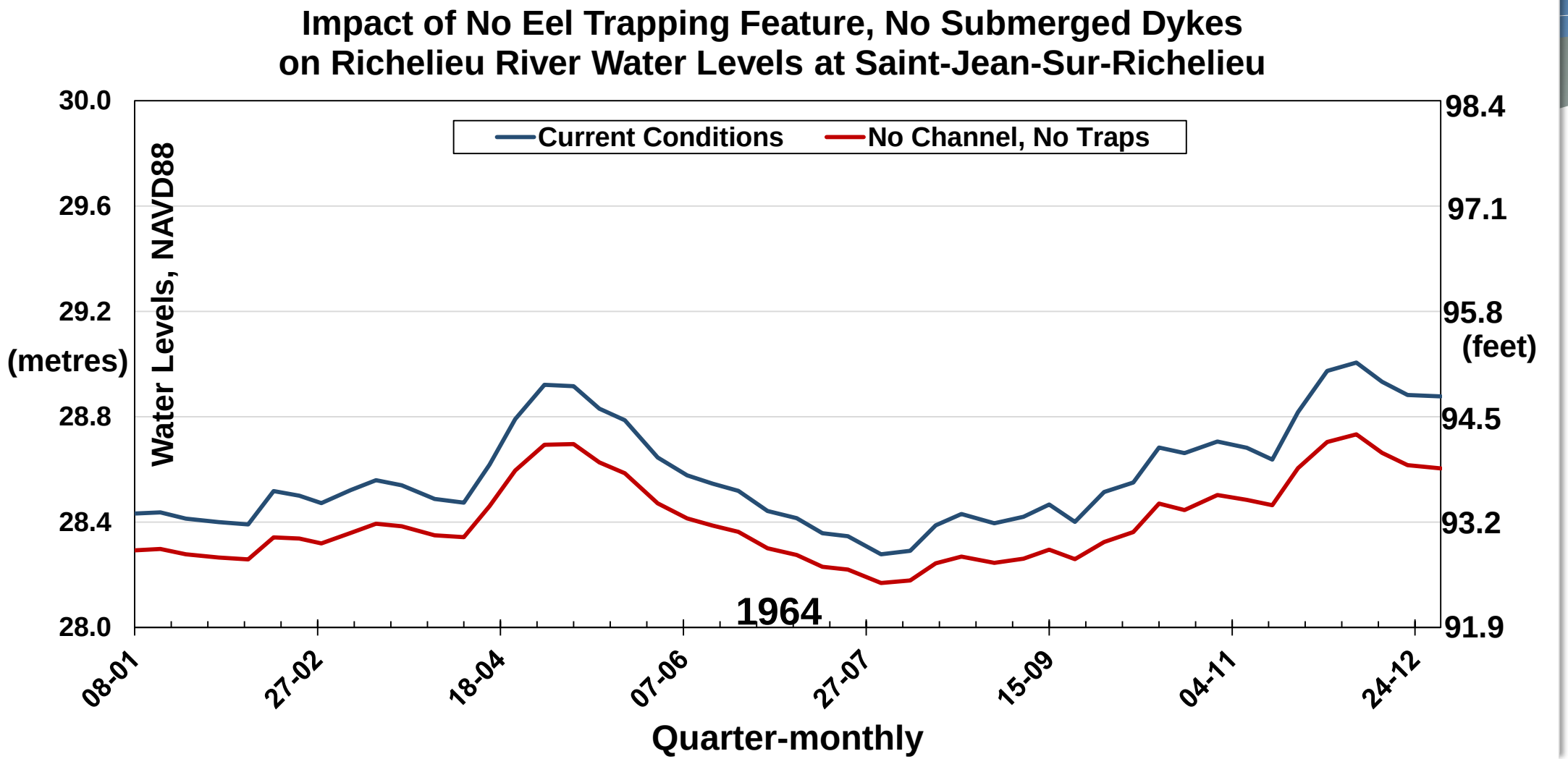
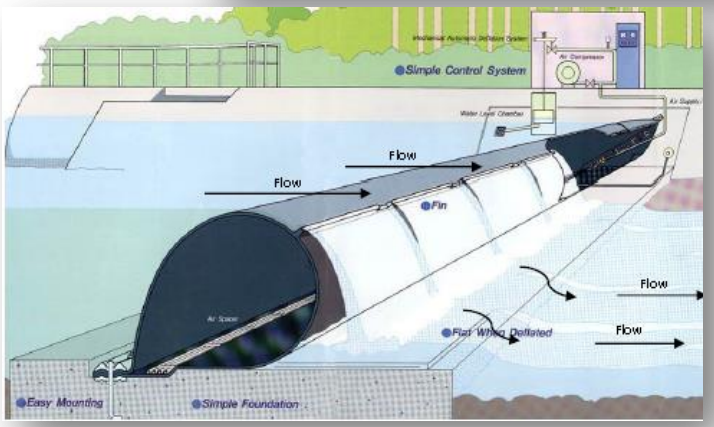
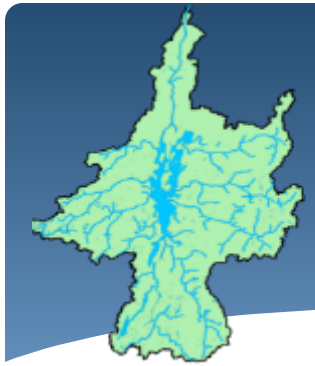




What can be achieved through a moderate structure?

- Install a moderate structure, such as an inflatable bladder or weir.
- Would reduce peaks and mitigate low levels.





Role of water storage in tributaries

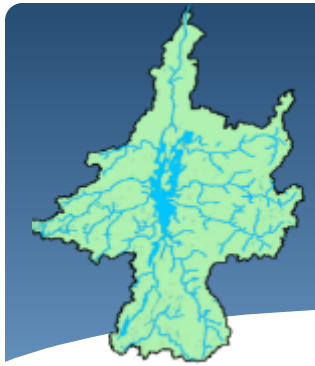
- Storing water in wetlands/flood plains/other lands could be important mitigation activity

- Preliminary analysis finds Lake tributaries storage had minimal impact on lake levels

- Need more definitive evaluation – plans to do so over the next year


Photo Credit –VT-DEC

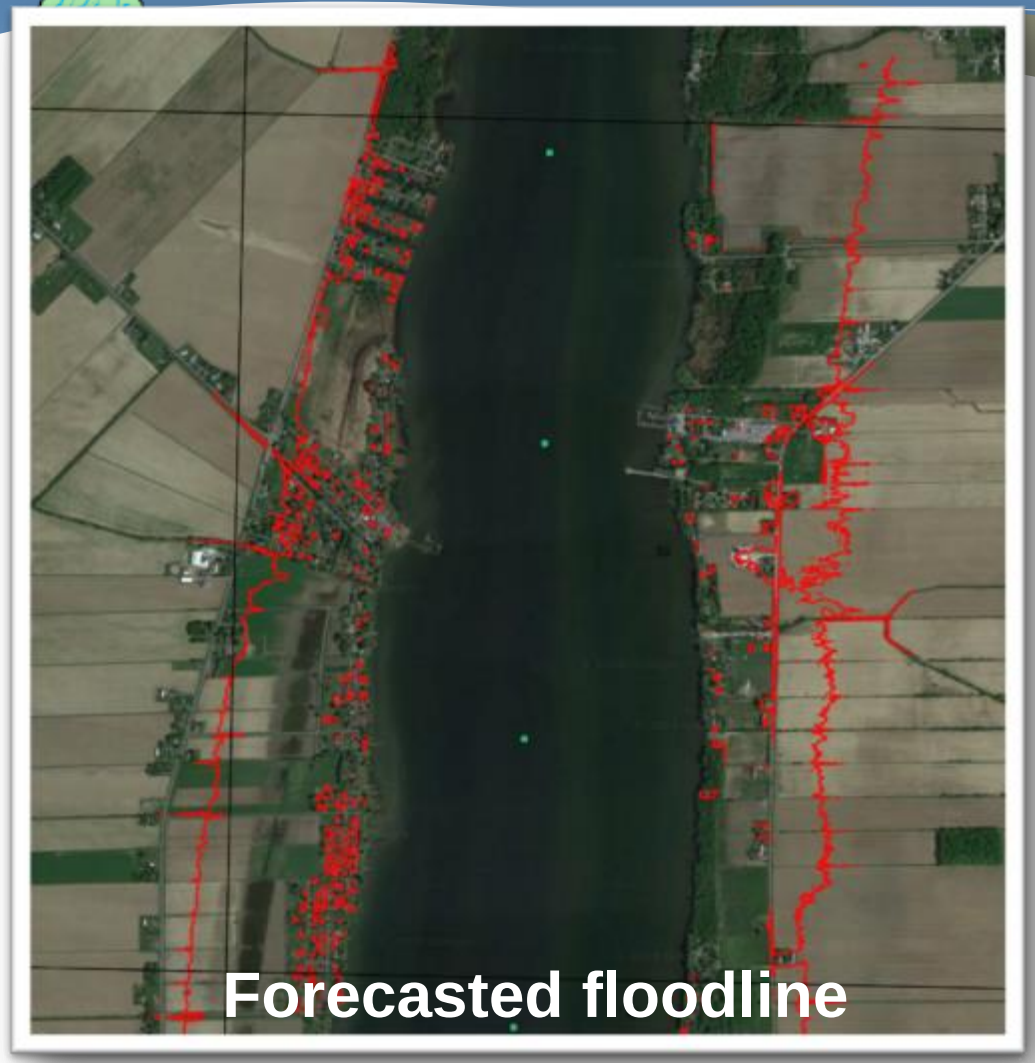

Berm removal on Otter Creek

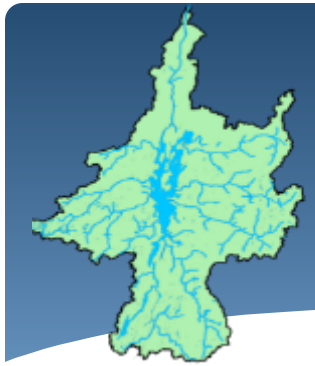


What do we expect to achieve with this Binational Flood Forecasting System?

- A binational flood forecasting system that is more ***accurate, timely and responsive*** to community needs for information.
- Linked to ***community emergency responders***.
- Focus on providing information on the ***extent and depth of water***, not just water level.

What will we get from this Forecasting System ?





How does the Study plan to evaluate proposed mitigation solutions?

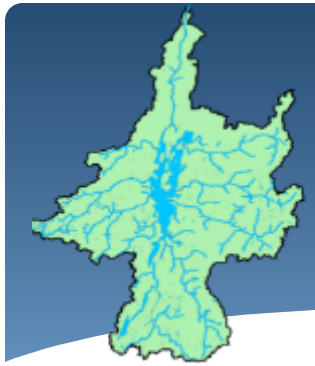
- The Study will evaluate proposed solutions using a suite of agreed upon ***social, economic and environmental performance indicators (PIs)***

Built environment
Damage to properties
Stage-damage curves

Agricultural
Yield loss
Cropland loss

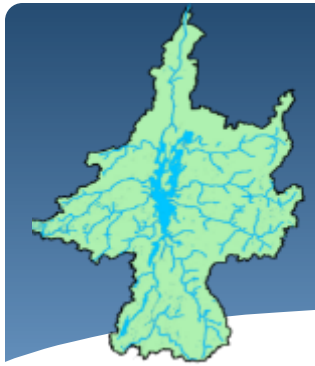
Recreational Boating
Access to marinas, beaches and camping

Environment
Northern Pike (and others)
Area of spawning habitat



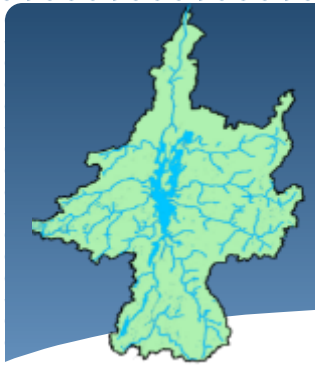
How does the Study plan to evaluate proposed solutions?

- A Collaborative Decision Support Tool is being developed
- The **best available science** will be used to evaluate the impacts.
- The Study will:
  - be ***open*** and ***transparent*** with its data and information,
  - share the ***principles,*** and ***criteria*** that will guide their decisions.



What are major goals of the study over the next year?

- Report on causes and impacts of floods.
- Evaluate additional solutions to flood control/mitigation.
- Begin how possible solutions effect important performance indicators.
- Complete initial lake and River levels forecasting system
- Determine the public, community and stakeholder desirability of potential solutions.



You have an important role in this Study!!

This effort will only be successful if we work together towards common goals in both the US and Canada.

Thank you, and we look forward to hearing your views over the course of the meeting.

Lake Champlain-Richelieu River Study Public Meeting: Instructions

Madeleine Papineau (Canadian Chair, Public Advisory Group)

Kris Stepenuck (US Chair, Public Advisory Group)