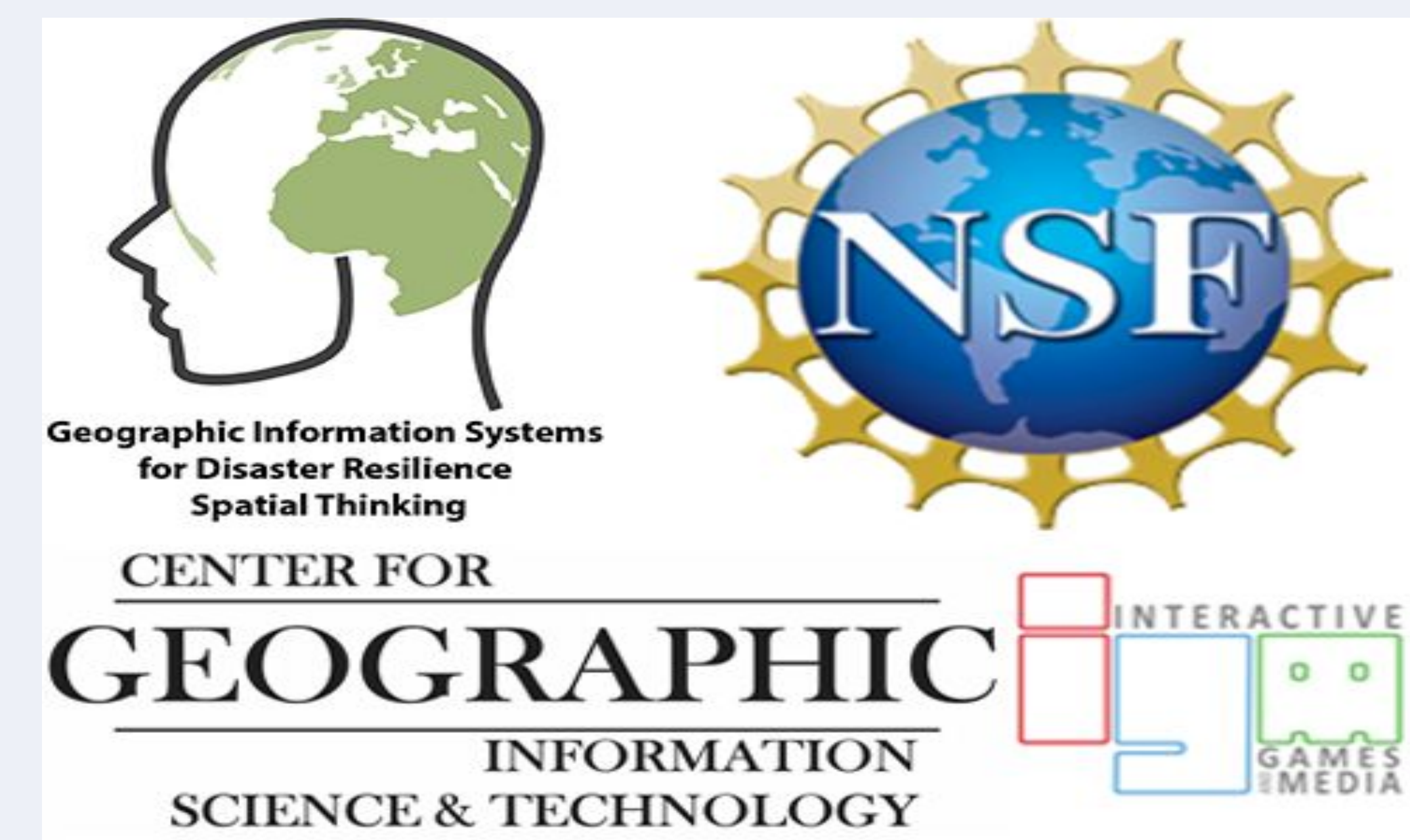


# Shoreline Resident Perceptions of Lake Ontario Flooding from 2017 to 2019

Erin Mahoney, Emma Thomley, Emily Haberlack, Kyle Pecsok, Julia Olson, Annie Lay

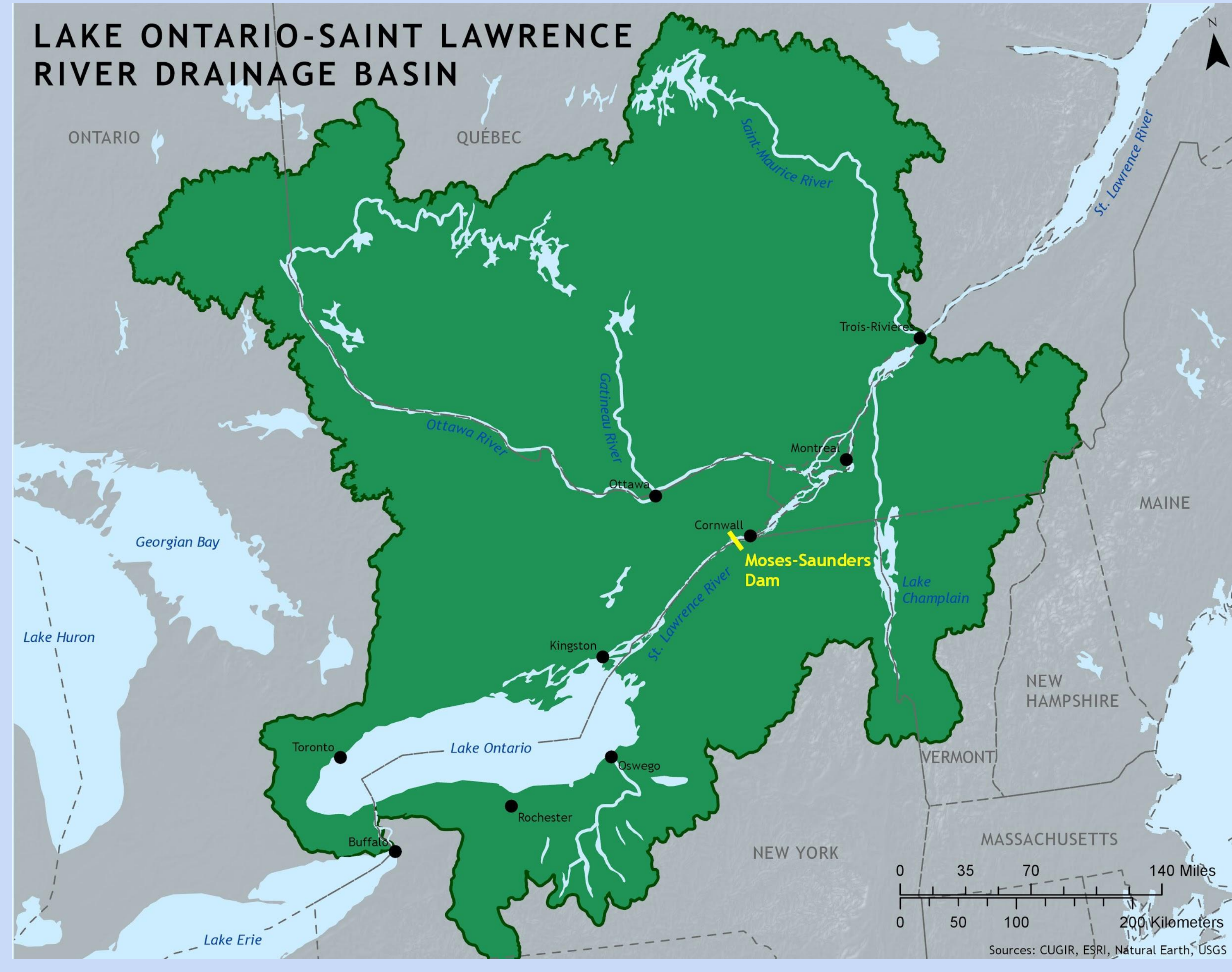


## Introduction

- The Lake Ontario St. Lawrence River basin, located in western New York and southeastern Canada, is regulated via the Moses-Saunders dam by the International Joint Commission (IJC)
- High and low water levels, both on Lake Ontario and along the St. Lawrence River have a considerable impact on various interests groups and must be moderated in order to maximize waterway use for each group
- In the 1960's, the dam was regulated as per Plan 1958DD, but after forty years of wetland erosion and changing interests along Lake Ontario and the St. Lawrence River, the IJC began a fourteen year study in 2000 to assess the impacts of Plan 1958DD and develop a new plan, Plan 2014
- In 2017, Plan 2014 was implemented and Lake Ontario Shoreline homeowners were upset, as the Plan outlined increases in Lake Ontario water heights, which have the potential to damage protection structures
- Record level flooding along Lake Ontario in 2017 during the transition from Plan 1958DD to Plan 2014 intensified riparian opposition to the regulation
- The IJC claims water levels would rise in the future under any regulation plan, but homeowners have continued to express their dissatisfaction with the current regulation
- This exploratory study presents the results of a survey of lakeshore residents and their perceptions of Plan 2014 and flooding between 2017 and 2019**

## Methodology

- Survey123 was used to create an online survey
- The survey link was disseminated to residents via facebook groups, neighborhood associations, and door-to-door surveying along various lakeshore neighborhoods.
- A total of 305 responses were recorded.
- Each respondent was required to be at least 18 years of age.
- Logistic Regression was used to determine the relationships between various survey questions.



## Topics Included in Survey

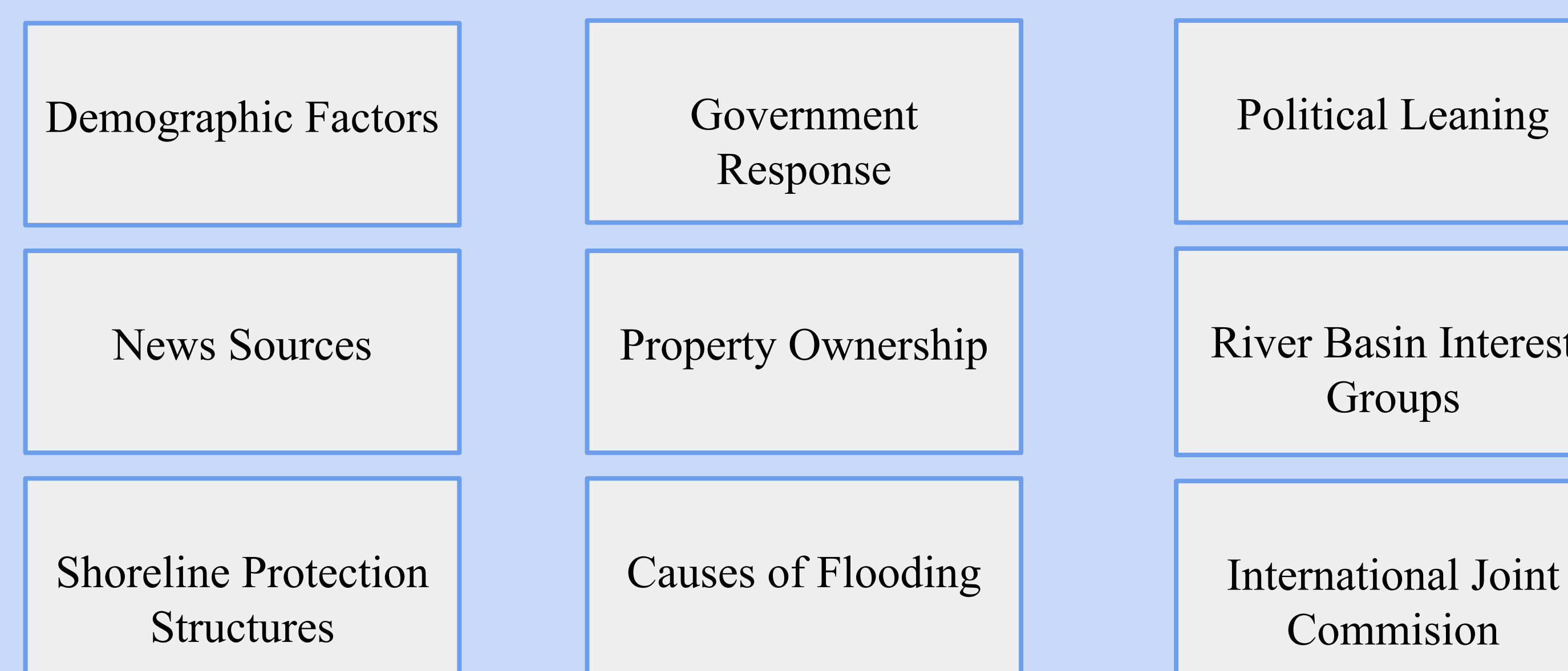


Image depicts a flooded local park as a result of high Lake Ontario water levels in July of 2019. (captured July 17th, 2019)



The Moses Saunders dam, located in Massena, NY regulates outflows of Lake Ontario (IJC.org)



The New York Army National Guard stacks sandbags on a Lake Ontario shoreline property during intense flooding in 2017 (army.mil)

## Results

Dependent variable: Plan2014	
Conservative	0.707** (0.334)
OwnProperty	-0.052 (0.469)
GenderMale	-0.379 (0.337)
Age	0.202* (0.122)
Income	0.062 (0.097)
Damage	0.308** (0.134)
Constant	-0.909 (0.712)
Observations	265
Log Likelihood	-118.635
Akaike Inf. Crit.	251.270

Logistic Regression showing significant relationship between political affiliation and blame of Plan 2014 on recent lake flooding.

Dependent variable: Plan2014	
'Trump Impact'	0.506 (0.484)
'Obama Impact'	-1.296*** (0.406)
'Town Impact'	0.341 (0.340)
'Cuomo Impact'	-0.098 (0.561)
'Senator Impact'	0.386 (0.551)
Constant	1.606*** (0.611)
Observations	197
Log Likelihood	-70.925
Akaike Inf. Crit.	153.850

Logistic Regression showing significant relationship between opinion on Obama's Administration on recent lake flooding and blame of Plan 2014 on recent lake flooding.

Dependent variable: Plan2014	
Hydropower	0.928** (0.372)
'Commercial Navigation and Shipping'	1.811*** (0.377)
Environment	-0.699 (0.463)
Constant	-0.087 (0.320)
Observations	303
Log Likelihood	-110.352
Akaike Inf. Crit.	228.705

Logistic Regression showing significant relationship between opinion that hydropower and shipping are most benefiting from Plan 2014 and blame of Plan 2014 on recent lake flooding.

- There is a significant positive relationship between being conservative and believing Plan 2014 is the primary cause of recent flooding. (p=0.0345)
- There is a significant positive relationship between the amount of damage a resident's home sustained and believing Plan 2014 is the primary cause of recent flooding. (p=0.0213)
- There is a significant inverse relationship between the belief of the Obama Administration having a negative impact on flooding and the belief that Plan 2014 is the primary cause of flooding. (p=0.00141)
- Respondents who believed that Commercial Navigation and Shipping benefitted from Plan 2014 increases the odds that respondents also said that Plan 2014 caused the flooding by 511%.
- Respondents who believed that Hydropower benefitted from Plan 2014 increases the odds that respondents also said that Plan 2014 caused the flooding by 152%.

## Discussion and Limitations

- These results are reflective of our sample, although voluntary and convenience sampling was done to collect data.
- However, the survey sample is generally representative demographically of the known population based on census data
- A majority of residents do not support Plan 2014 as it is regardless of political affiliation
- There are significant positive relationships between believing Plan 2014 was the primary cause of flooding and both being conservative as well as reporting a large amount of damage to property

## References

International Joint Commission (2014). Lake Ontario St. Lawrence River Plan 201: Protecting against extreme water levels, restoring wetlands and preparing for climate change.  
 "Summary of Monthly Normals, Rochester Greater International Airport" National Oceanic and Atmospheric Administration, generated on 30 July 2019

## Acknowledgements

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