The Chinese Mystery Snail Project:

CITIZEN SCIENCE UTILIZED TO REPORT AN AQUATIC INVASIVE SPECIES, THE CHINESE MYSTERY SNAIL (*CIPANGOPALUDINA CHINENSIS*), IN ATLANTIC CANADA

Sarah Kingsbury[1], Dr. Donald F. McAlpine[2], Edward Parker[3], and Dr. Linda Campbell[1]

[1]Saint Mary's University, Halifax, NS
[2]New Brunswick Museum, Saint John, NB
[3]Fisheries and Oceans Canada, Dartmouth, NS

Research Question:

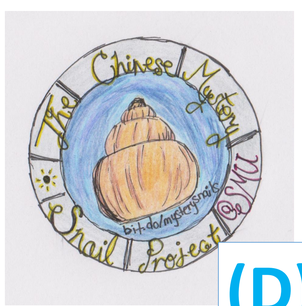
Where is *C. chinensis* distributed within Atlantic Canada (Nova Scotia, New Brunswick, and Prince Edward Island)?

Background

- Native to central Asia
- Arrived in North America in 1890
- Largest freshwater snail in North America
- Found in 29 US States and 8 Canadian Provinces
- Not yet listed as an invasive species in North America
- Able to alter water chemistry, displace food resources, and out-compete native snail species for resources

Objectives

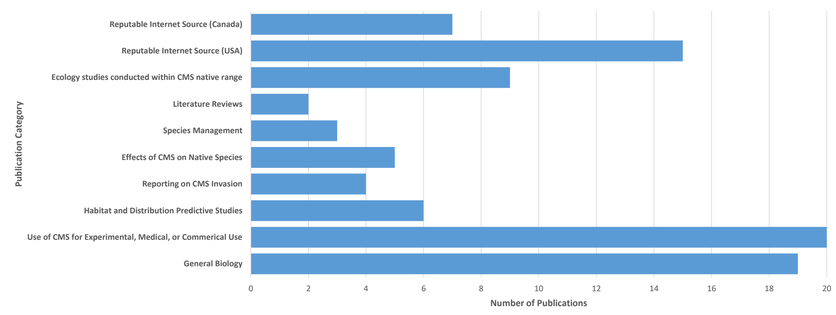
1. To determine probable impacts of *C. chinensis* on invaded ecosystems.
2. To create an effective citizen science program which can be used to monitor numerous aquatic species.
3. To determine areas in Atlantic Canada that are at high-risk of *C. chinensis* either being present or likely to be invaded



(D)

Methods

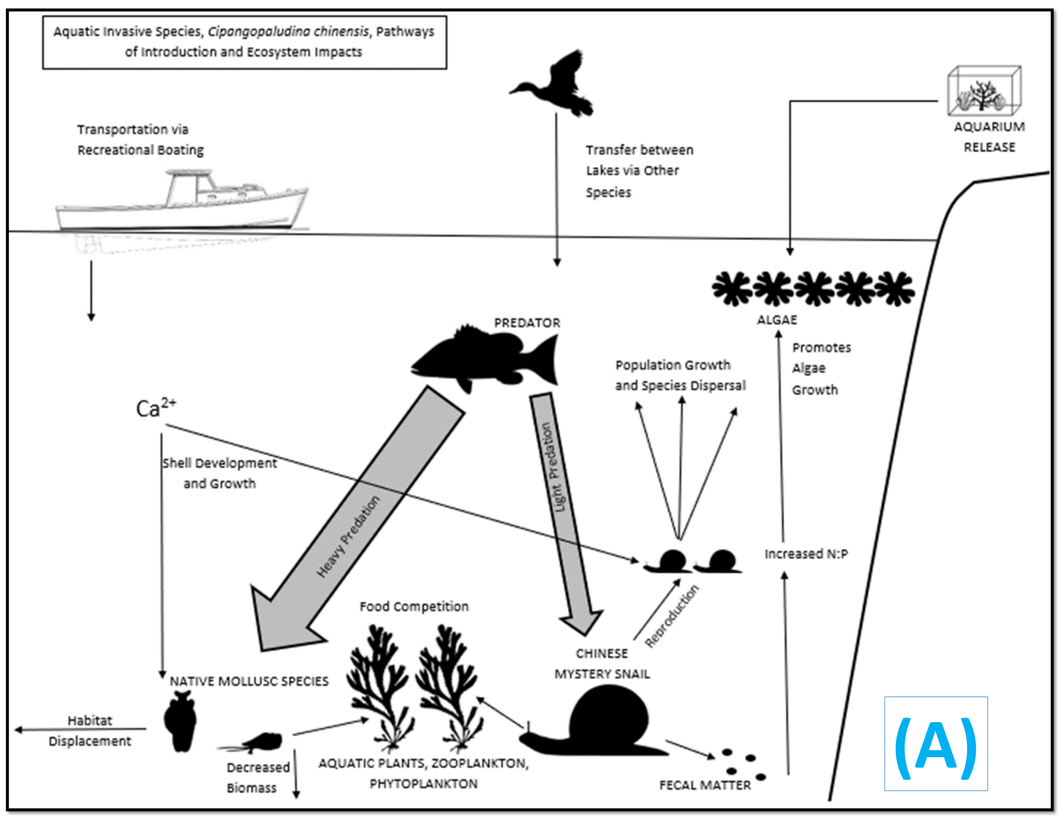
Literature Review:



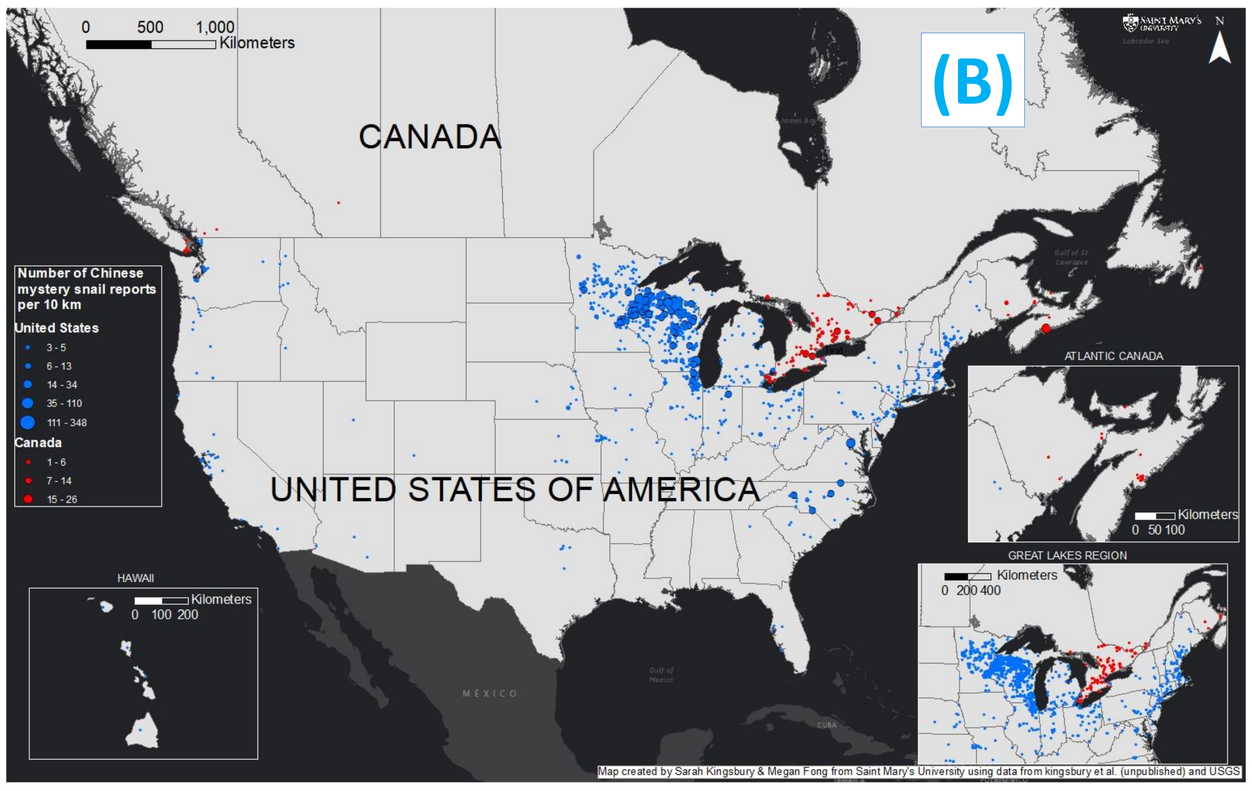
Matching the right people with the right communication strategies:

Media	General Public	Profession and Semi-Professional Researchers	Policy-makers
Email	✓	✓	✓
Formal Meetings	✓	✓	✓
Informal Meetings		✓	
Invasive Alien Species of Nova Scotia Guidebook and Website	✓	✓	✓
The Chinese Mystery Snail Project Website	✓	✓	✓
The Chinese Mystery Snail Project App	✓	✓	✓
The Chinese Mystery Snail Project Twitter	✓	✓	✓
Mailing or Giving-Out Informative magnets, species identification cards, shell magnets, or informative brochures	✓	✓	✓
Public Lecture	✓	✓	✓
Conference Presentation		✓	✓
Academic Papers		✓	✓
Workshops on biodiversity and Informal Lake Survey Methods		✓	✓

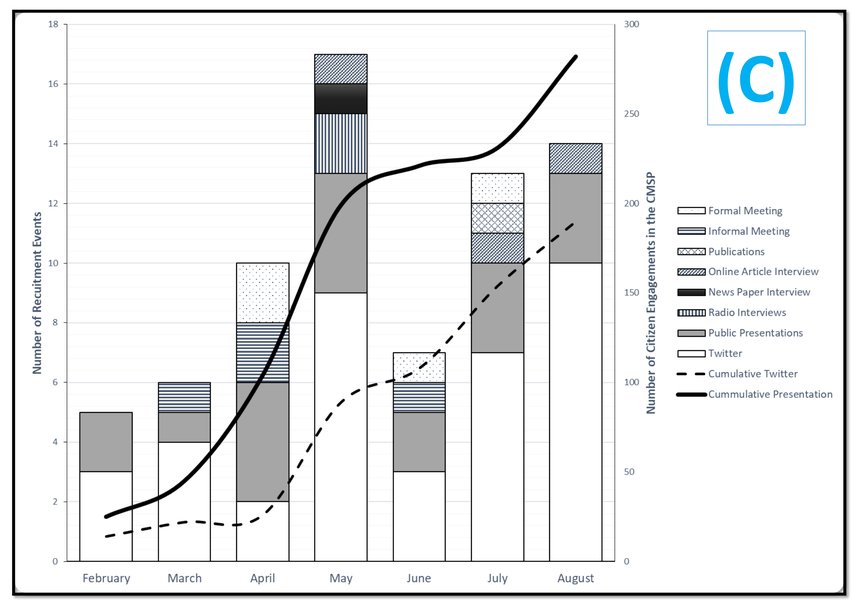
Results



(A)



(B)



(C)

(A) We developed a conceptual model of the probable consequences of *C. chinensis* invasion based on the results of North American studies.
(B) Collecting data from literature, museum networks and scientists across Canada, we mapped *C. chinensis* occurrence reports and compared the Canadian reports to the American reports (obtained from USGS).
(C) Citizen involvement was slow at first. Social media (e.g. Twitter) had a high output, but a low engagement.
(D) Promotional magnets and stickers were the most effective educational tools.

Discussion

Four things needed to do citizen science in Atlantic Canada:

1. Green education for schools
2. Centralized, open-access database for multiple species
3. Make species monitoring "cool"
4. Connect researchers with citizen groups

Conclusion

Citizen science is an effective tool for surveying freshwater systems for aquatic invasive species, but more work needs to be focused at encouraging involvement and improving accessibility of these programs.

Acknowledgements

Maritime Aboriginal Peoples Council
172 Truro Heights Road, Truro Heights, Nova Scotia B6L 1X1
Tel: (902) 895-2982 Fax: (902) 895-3844

Fisheries and Oceans Canada
Pêches et Océans Canada

CLARI
CHANGE LAB ACTION RESEARCH INITIATIVE

Veterans Affairs Canada

DOI: 10.6084/m9.figshare.11525592