An Approach to Sharing World Environmental Data & Information

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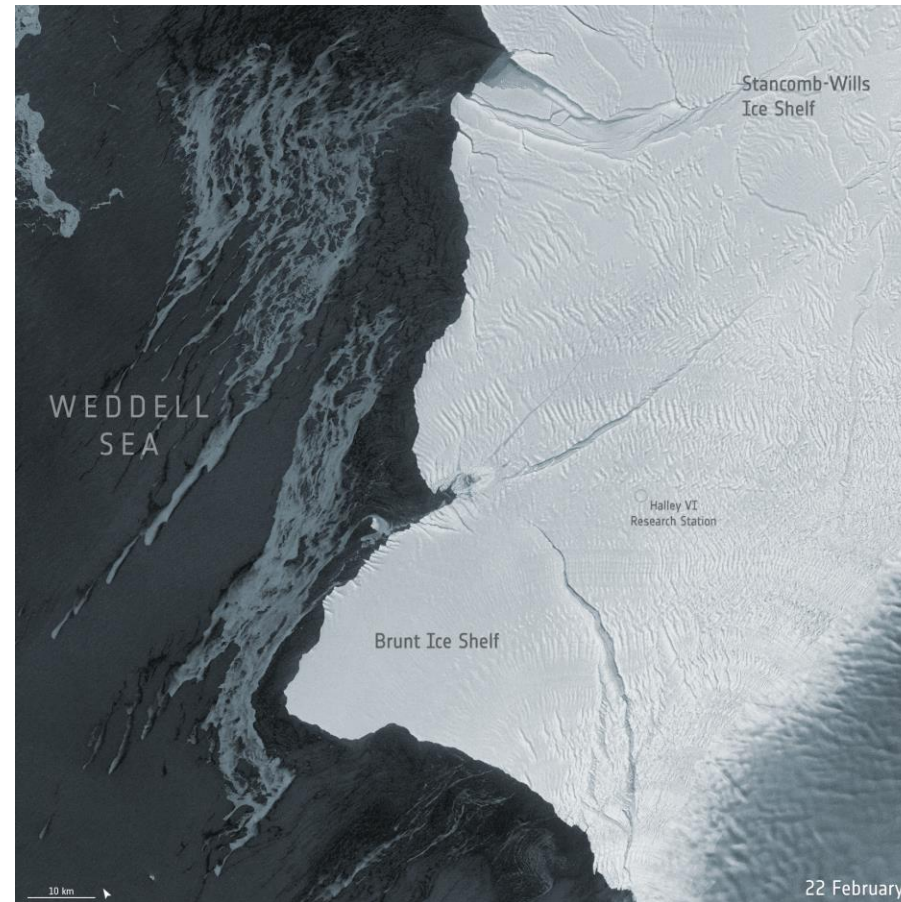
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Environmental Impact

Melting Ice
- Antarctic, Greenland, Arctic
- Pictures and data from credible authorities
  - federal government, UN, International NGOs, news
- Feel bad, but everything local looks normal
- No apparent local effect

WEDDELL SEA

Stancomb-Wills Ice Shelf

Halley VI Research Station

Brunt Ice Shelf

10 km

22 February

Should we be concerned?
- Some of us are concerned
- What about the general population?
- How do we communicate concern for the common good?

We are local

Impact
- Most affected by what happens to house/property neighbourhood, district, town/city
- Further from home less impact
- Impact of local actions on local environment
- Cumulative local effects have global impact

Local Knowledge
- People locally focused
- Comfortable about knowledge of our locale
- Yet little knowledge
  - Observation
- A need for local data & knowledge

Need to acquire local data/knowledge

Local data
- Is there local data?
  - Government, NGOs, citizen science, businesses
- Unusable, even though open
  - Shelves, reports, PCs
  - Retirement, re-assigned
  - Data "disappears"
- Need - a local data "grocery store"
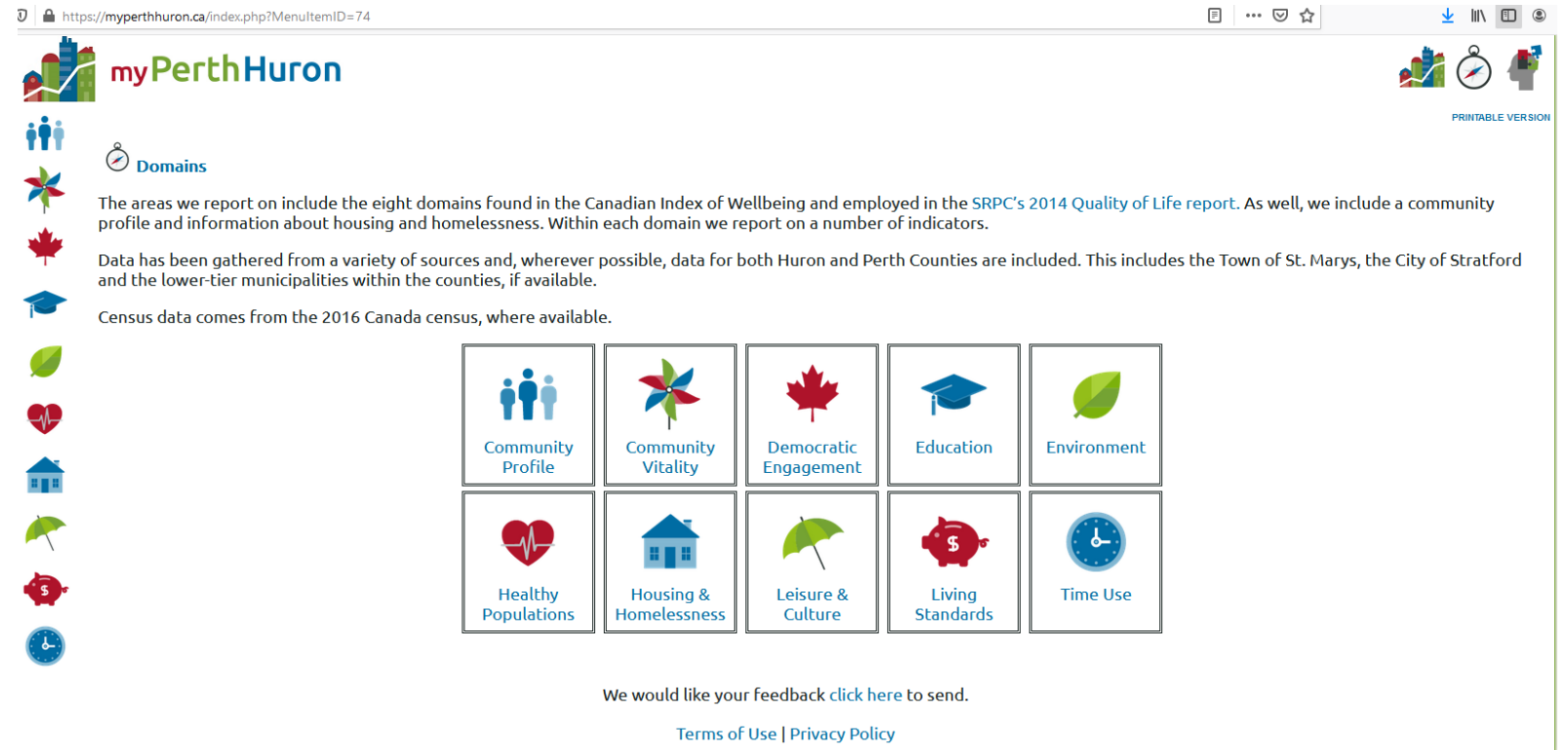 - One-start shopping
  - Combine items to create value

Local Community Data

Operating on data
- Have spent about 30 years
  - Locating/aggregating data
  - Combining data
  - Extracting value from data combinations
- Three examples
  - myPerthHuron.ca
  - FWIS (comap.ca/fwis/)
  - Dreamcatcher
- Data sharing agreements

myPerthHuron.ca (2013)

Community Data

- Southwestern Ontario
- Community functioning
- Education, housing, environment
- Environment
  - Consumption
  - Recreation
- Multiple data partners
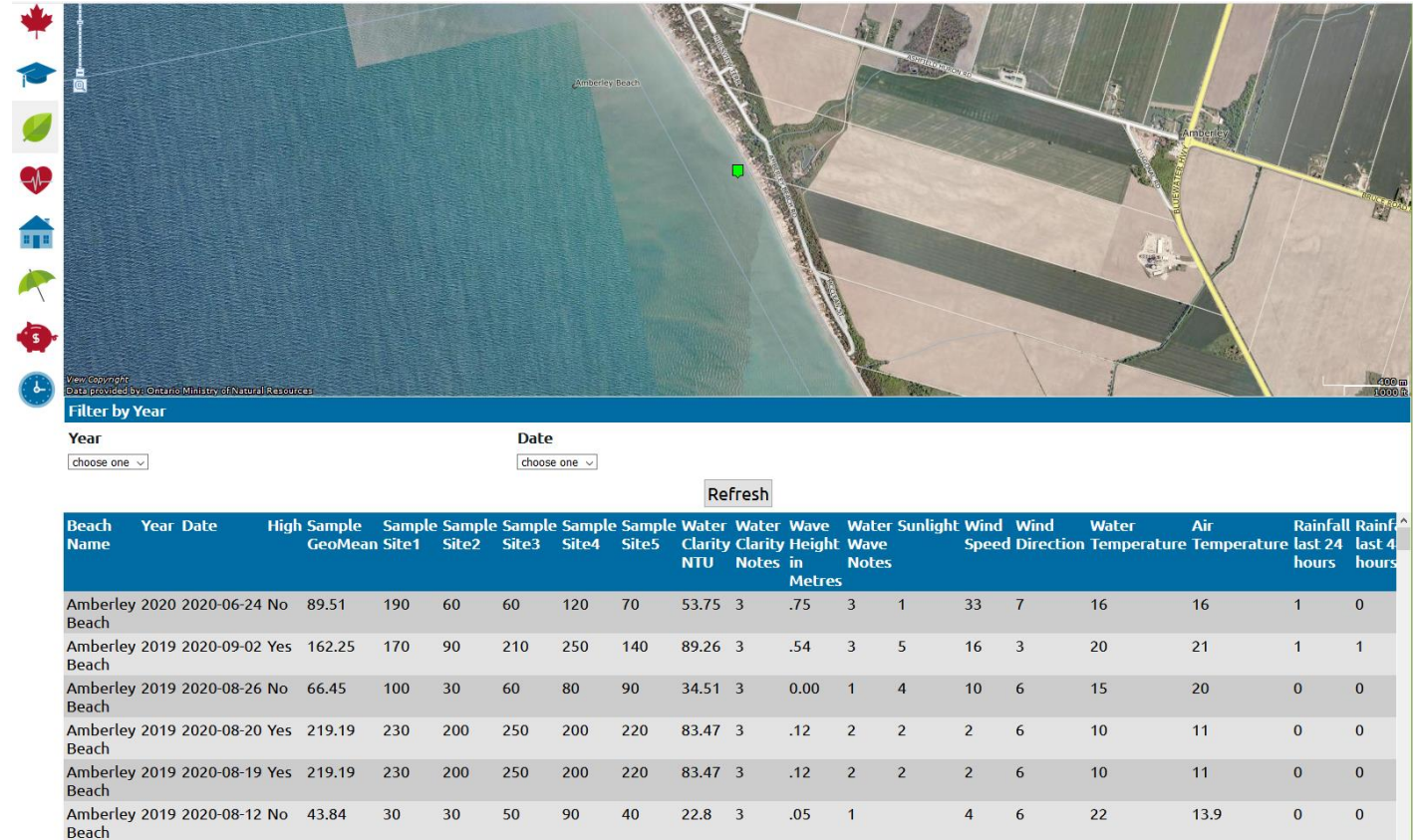 - They get IT!!!
- Community voice
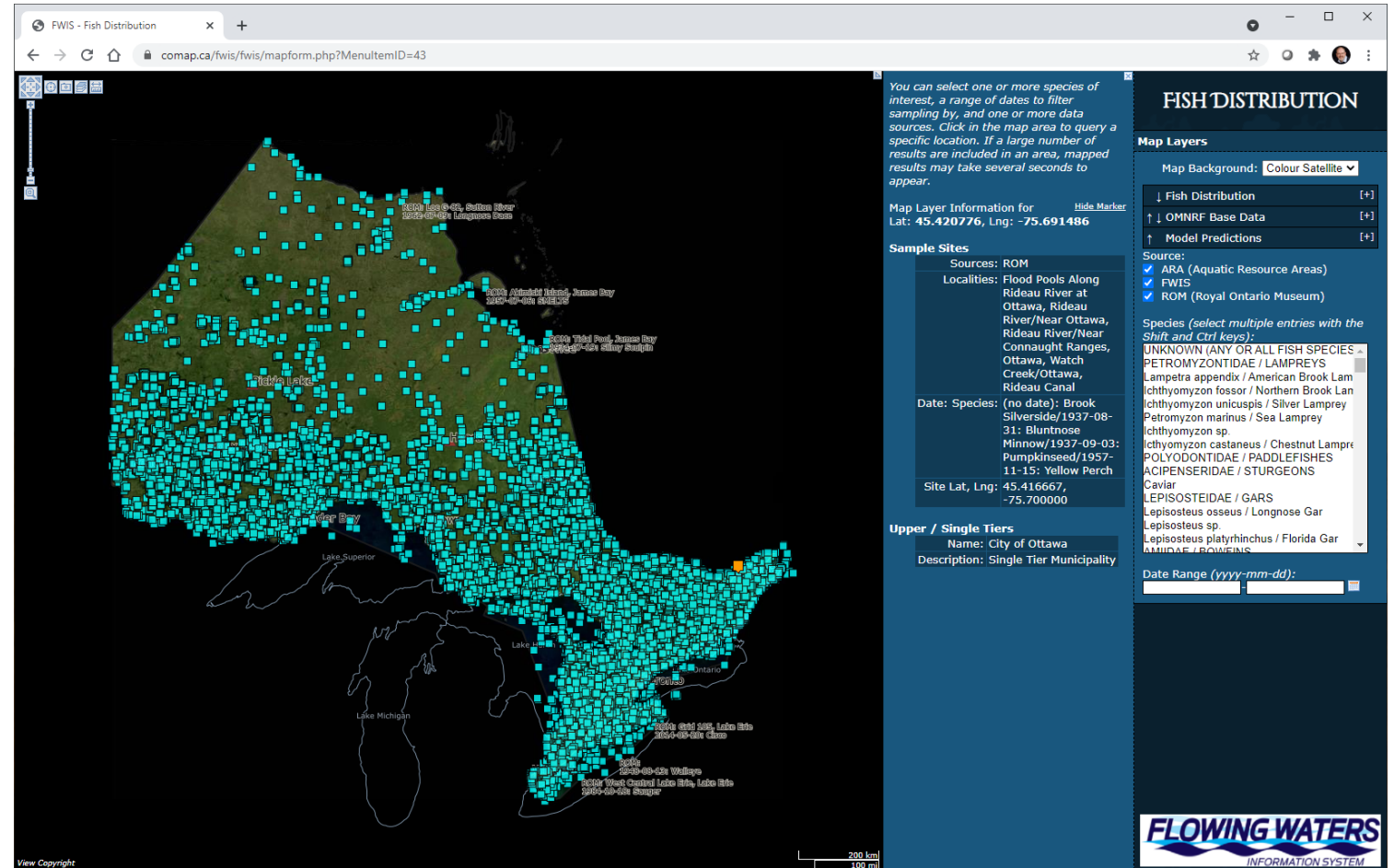 - Power

myPerthHuron.ca

Environment – recreation
- E-coli measurements
  - Suitable for swimming
- Obtained from public health
- Funded by Ontario Poverty Reduction Fund, United Way

Filter by Year

Year
[choose one ▾]

Date
[choose one ▾]

[Refresh]

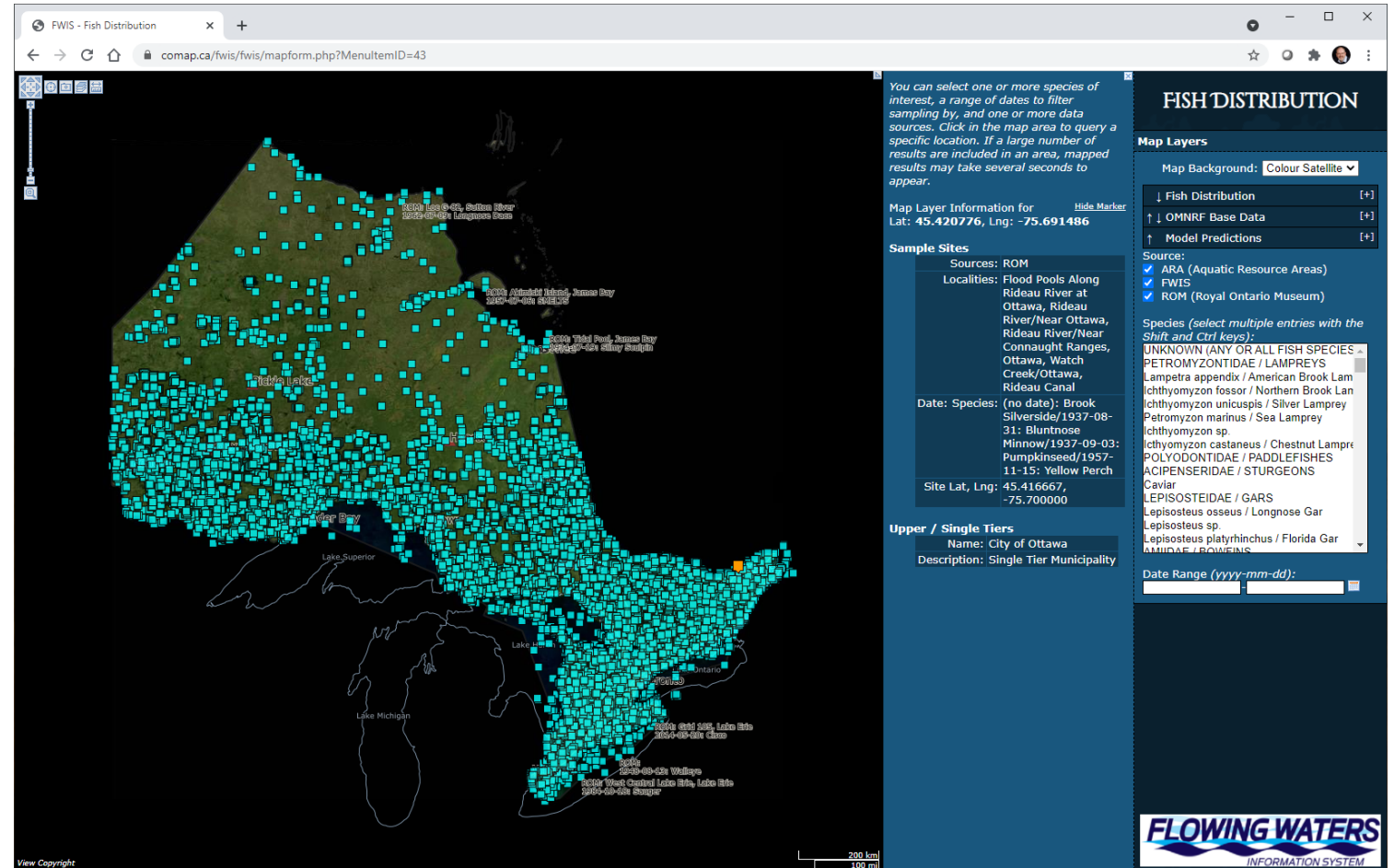| Beach Name	Year	Date	High	Sample GeoMean	Sample Site1	Sample Site2	Sample Site3	Sample Site4	Sample Site5	Water Clarity NTU	Water Clarity Notes	Wave Height in Metres	Water Wave Notes	Sunlight	Wind Speed	Wind Direction	Water Temperature	Air Temperature	Rainfall last 24 hours	Rainfall last 4 hours
Amberley Beach	2020	2020-06-24	No	89.51	190	60	60	120	70	53.75	3	.75	3	1	33	7	16	16	1	0
Amberley Beach	2019	2020-09-02	Yes	162.25	170	90	210	250	140	89.26	3	.54	3	5	16	3	20	21	1	1
Amberley Beach	2019	2020-08-26	No	66.45	100	30	60	80	90	34.51	3	0.00	1	4	10	6	15	20	0	0
Amberley Beach	2019	2020-08-20	Yes	219.19	230	200	250	200	220	83.47	3	.12	2	2	2	6	10	11	0	0
Amberley Beach	2019	2020-08-19	Yes	219.19	230	200	250	200	220	83.47	3	.12	2	2	2	6	10	11	0	0
Amberley Beach	2019	2020-08-12	No	43.84	30	30	50	90	40	22.8	3	.05	1		4	6	22	13.9	0	0

Flowing Waters Information System (2008)

- Ontario Biological & Geomorphology data
- Multiple sources
- 50 to 100 years of data
  - > 60,000 sites
  - > 300,000 fish catches
  - 1882 onward
- Multiple sources/partners
  - MNRF, ROM, DFO most Ontario CAs
  - Canadian Universities
- Constantly expanding sources & data types

Flowing Waters Information System (FWIS)

- Collected using OSAP
  - Defines importance of data
- Extensive diagnostics
  - Geography
  - Units
- Multiple indicators
  - Stability
  - Temperature
  - Benthic goo (proxies)
- Extensive metadata
  - Who, when, why
- Funded by CANARIE, MNRF

Indigenous Knowledge – Dreamcatcher (2004)

Secure Database of Indigenous Knowledge
- Traditional lands, History, Culture
- Areas of sustenance, Archeology
- Land use, Ecological knowledge
- Spiritual use, Important plants

Record of
- Indigenous "documents"
- Highly geographic
- Peter Jones Diary

Mississaugas of the New Credit FN
Northern Ontario First Nations
Funded by SSHRC, MNCFN

Data is necessary but boring

Understanding
- Data needed for understanding, but dull
- Just watch the COVID press conferences
- Data tells us
  - Where have we been?
  - What are the trends?
  - What is the likely future (models)

Living Data
- Bring data to life
- Use stories - advertising
- Bringing history, cultural and environmental stories to life
- First Nations use stories
- myPerthHuron.ca
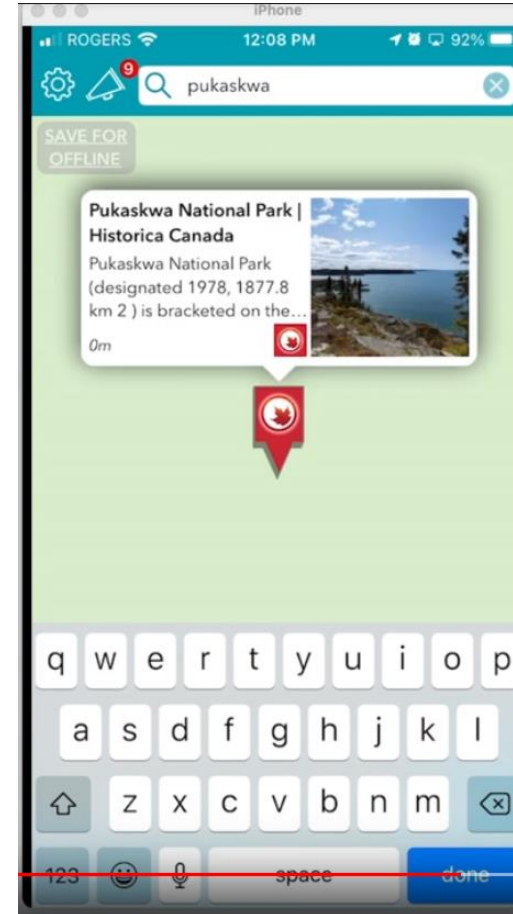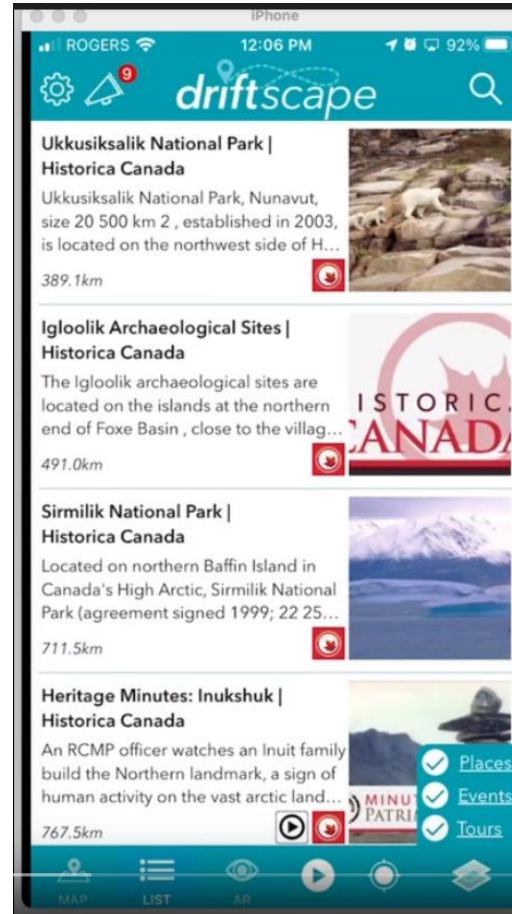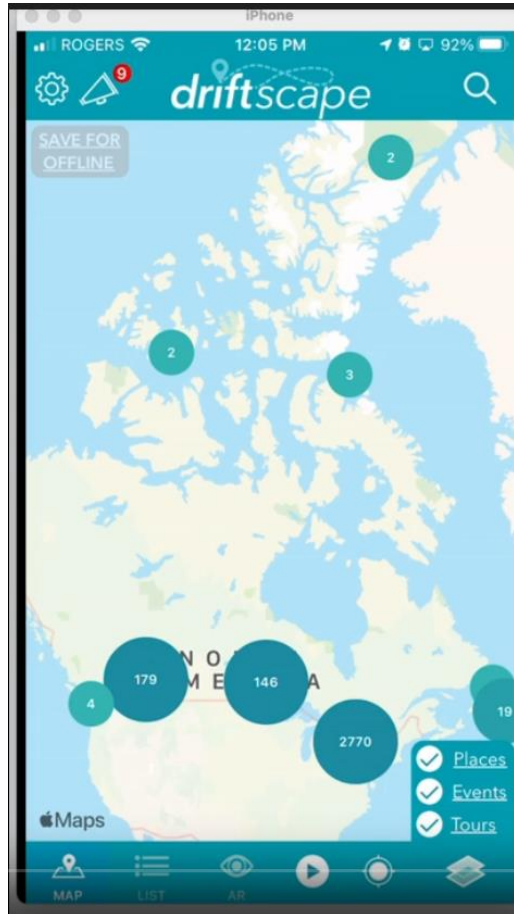- Created story-telling tools, Building Stories, First Story, Driftscape

Driftscape – Stories in Your Pocket

- Mobile phones common (85%)
- Driftscape Mobile App for telling local stories about
- Culture, history, environment
- On the move
  - Foot, bicycle, canoe, car
  - Notification (proximity)
- On the couch

- Single sites or tours
  - Multimedia
    - Text, graphics, audio, video
- Currently focused on
  - Community stories
- Content easily added or changed by supplier
- Demonstration

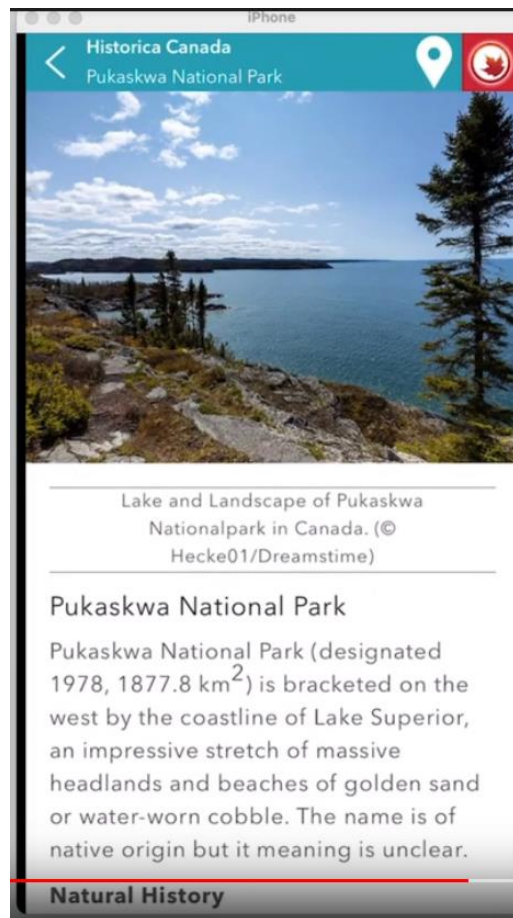# A Brief Tour (1)

Map View
- 5,000 sites
- Across Canada

List View
- Proximity order

Vignette of selected site

A Brief Tour (2)

Expanded View
- Location/site
- Natural history
- Human history
- Facilities

Tour
- Indigenous
  - Mississauga – lower Don
  - Audio, Video
- Location aware
- Scavenger hunt

Environmental Stories

Environmental Stewardship
- Local stories about
  - Appreciation
  - Protection
  - Rehabilitation
    - Change over time
- Engage the community
  - Eco-tourism
  - Indigenous
- Socialize the environment

Focus on
- Local natural sites
- Wildlife
- Trails & tours
  - Bruce
  - National Trail System
  - Community-based
- Offline – out of cell range

What's Next?

- Create more in-depth local societal/environmental stories
  - Engage story tellers (advertising)
- Data grocery store
  - Combine ingredients (data, language) for new dishes (information)
- Artificial Intelligence (AI)
  - Process data and documents
  - Detect patterns, relationships
- Extract value from data

Thank you
Questions????
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Software and Data Availability

- Access free to most
- Perth Huron data
  - https://myperthhuron.ca/
- Flowing Waters Information Systems (FWIS)
  - http://www.comap.ca/fwis/ Click on Sign up now – tracking use for errors
- Dreamcatcher (iAtlas) – secure
- Driftscape (ad-free)
  - Apple iPhone – App Store, Android Phone – Play Store
  - Just type Driftscape

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