

Assessment of Rapidly Developing, Accessible Technology for the Engagement of Coastal Communities in Ocean Observations

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- Small
- Cost - Efficient
- Easy to use!

New Tech = New Possibilities

- Community-led research
- Influence on policy
- Knowledge exchange between coastal communities and scientific community

Objectives:

- Explore, with Cape Breton community members, their ideas for use of the technology
- Test technology in the field
- Engage community members in research
- Analyze salinity and temperature profiles

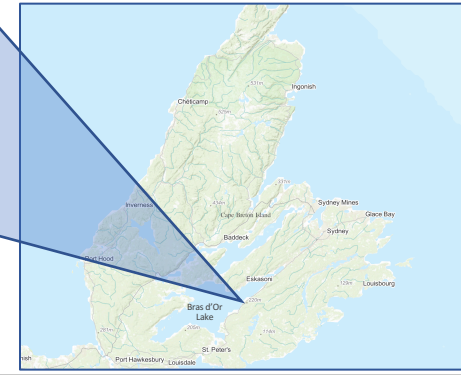
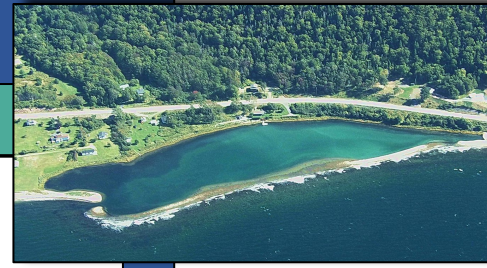
Location: Irish Vale Pond

What is it?

Barachois pond - a small, brackish pond separated from Bras d'Or Lake by barrier beach

Why?

- Provide important ecosystem services
- Uniquely threatened by human disturbances
- Provide suitable conditions to test ROV
- Little-studied



- 400m x 135m
- Chosen by community leaders
- Easy to access

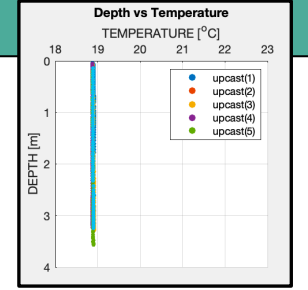
Field Testing

- *limited considerably due to Covid-19 restrictions
- Using BlueROV2
 - August 17th, & September 14th, 2020
 - Completed with UINR, CEPI & CBU BASE students
 - Measured depth, conductivity, & temperature

Initial Results:

ROV Data:

- Max. depth found to be shallower than historical data
- Measurements less variable in September – sensor relocation



Temperature profile created from September upcasts

	August	Temperature Variance	Salinity Variance
Upcast		0.1949	29.4161
Downcast		0.298	90.5052
September			
Upcast		1.67E-04	0.0225
Downcast		8.19E-05	0.0258

Table of calculated values from a t-test comparing the means of upcasts and downcasts taken by the ROV

Community Engagement:

- Youth and professional participation
- Survey delayed, current lack of data informing tech opinions and ideas

Conclusion & Next Steps

- ROV may provide greater resolution compared to previous methods
- Sensor location impacts data quality
- Future actions include comparing ROV values to a CTD, & variance between field dates, casts,

1 the BlueROV2. Photo taken from Blue Robotics at <https://bluerobotics.com/store/rov/bluerov2/>

3 <https://d-a-l.maps.arcgis.com/home/webmap/viewer.html>

4 Nixon, F. C. Barachois Evolution in the Bras d'Or Lakes Under Past, Present and Future Sea-Level Rise: Progress to Date.