Énergie NB Power

First Nations Liaison

(Field Monitor)

Austin Paul

Purpose

- The First Nations Liaison (field monitor) position was created to respond to interests expressed from First Nations communities to foster inclusion and involvement in terms of studies related to the Mactaquac project.
- To reduce the likelihood that project work would infringe on First Nations interests.
- To identify opportunities to improve studies and study methods as they relate to First Nations' culture and knowledge.

Duties

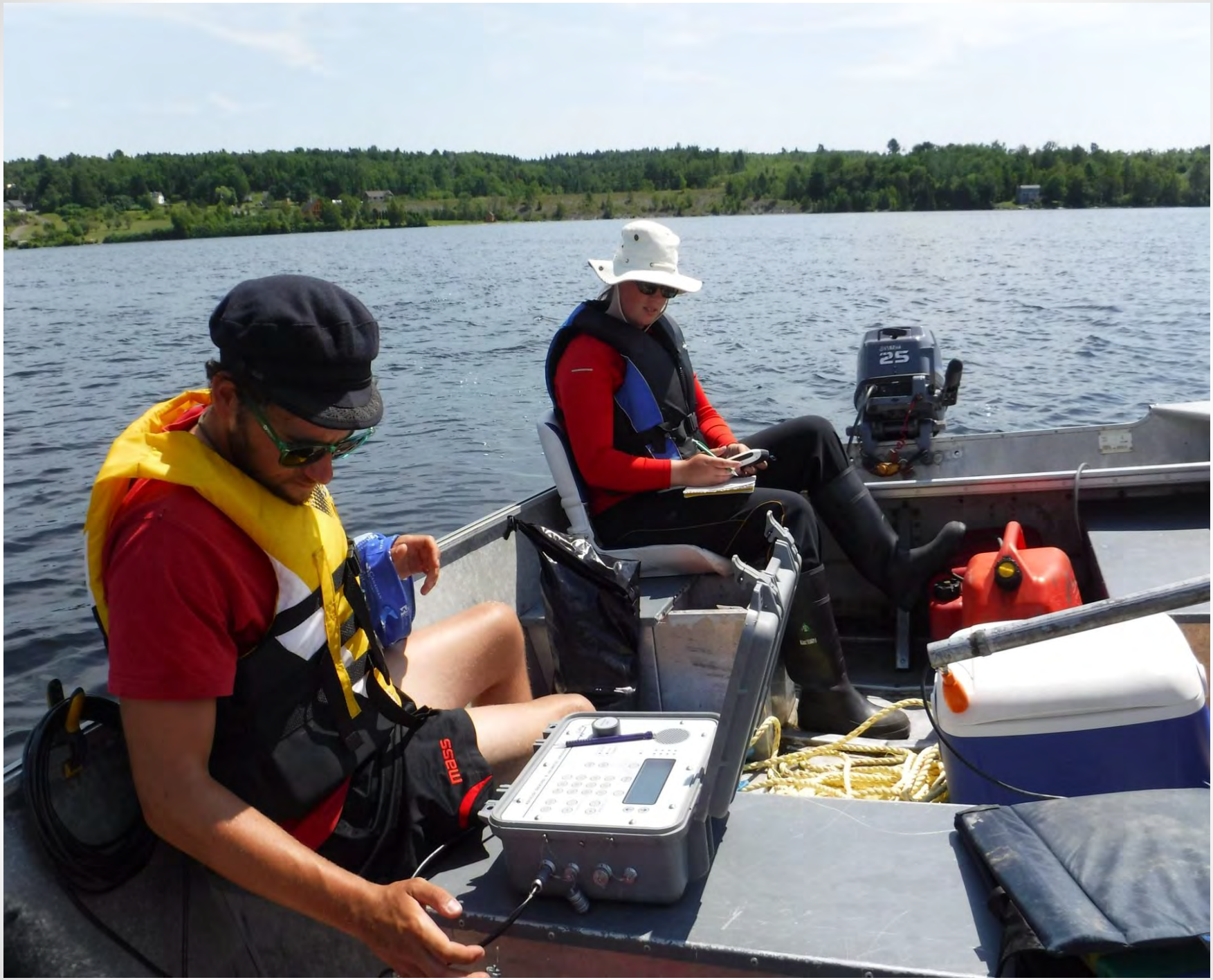
- Participate in all aspects of field work associated with the Mactaquac project.
- Maintain daily logs and compile bi-weekly reports to be shared with First Nations communities providing details regarding fieldwork.
- The implementation of communication plans for sharing project specific information with the local First Nation communities.
- Ensure that First Nations concerns and interests are identified and addressed appropriately.
- Assist in facilitating community-based open houses focusing on the Mactaquac project.
- The development of a field guide outlining New Brunswick pre-contact artifacts and traditional plant medicines.
- The development of a background report concerning the pre-contact Native occupation site of Meductic Flats, N.B.

Fieldwork

- Fieldwork focusing on the St. John River was carried out by the Canadian Rivers Institute (C.R.I.)
- Geotechnical studies associated with the Mactaquac Project were carried out by AMEC Consulting and the Conestoga-Rovers & Associates (C.R.A.).

Salmon Studies (C.R.I)

- Salmon smolt were captured using a floating drift net and a surgery was performed to insert tracking tags.
- The smolt were released back into the river and tracked using Vemco receivers.
- After launching the watercraft, we would place an omni-directional hydrophone in the water to detect the tagged smolt. The hydrophone would be left in the water for 3 minutes, at which time we would move upstream 500 meters and repeat the process.
- Once a tagged fish was identified, we would record their identification number, coordinates of our position and the signal strength.
- We would then use a directional hydrophone to more accurately pinpoint the fish's location.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American Eel Studies (C.R.I.)

- Various forms of eel habitat traps were placed in locations along the St. John River and used to capture eel specimens.
- I assisted the C.R.I. staff in removing the traps from the river. The captured eels were then placed in a bath of fresh water, ethanol and clove oil which acts as a sedative.
- Once sedated, the eels were weighed, measured and placed into a freshwater bath to recover.
- We then released the eels and reset the habitat traps.
- A velocity meter was used to gauge the flow rates near the habitat traps.
- The goal of the study is to establish the spawning grounds of American eels in the St. John River.


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Striped Bass Studies (C.R.I.)

- My involvement with the striped bass studies began by assisting the C.R.I. staff with the deployment of fyke nets used to capture juvenile bass. We would check the nets daily and sort through the fish which were captured.
- Active angling was employed to capture adult bass. Once a bass was landed on the shore, it would be sedated in a mixture of clove oil/ethanol/fresh water.
- Genetic samples were taken by removing scales and a small clipping of the caudal fin.
- A surgery was then performed to insert an identification tag under the dorsal fin and an acoustic tag was placed inside of the stomach cavity and stitched shut with surgical implements.
- The movements of the tagged fish could then be tracked and recorded as they move through the river.


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Bathymetry Studies (C.R.I.)

- Various teams have been mapping the St. John River bottom throughout the course of the summer.
- Sonar equipment was used to conduct the bathymetry surveys.
- I assisted C.R.I. staff in mapping the area immediately in front of the main spillway of the Mactaquac dam as well as the Belleisle Bay.
- The images acquired through the survey not only accurately map the river bottom, but can also be used to compare historical aerial photographs with the current mapping in order to determine changes in sediment deposition and erosion.

Cobblestone Tiger Beetle Study (C.R.I.)

- The cobblestone tiger beetle is currently on the endangered species list in New Brunswick.
- Pedestrian shoreline surveys were carried out in order to ascertain tiger beetle population numbers along the St. John River.
- Our team would line up a few meters apart and walk the cobble beaches. We would record how many beetles we encountered as well as their color variations.
- No samples were collected and we were not permitted to touch the beetles as they are endangered.
- The areas that were assessed demonstrated a healthy population of tiger beetles.

Geotechnical Studies (AMEC)

- Seismic testing was conducted near the Mactaquac Generating Station to assess bedrock composition.
- Bird surveys were conducted in the proposed study corridors.
- The corridors were carefully analyzed, looking for any traces of nesting birds, only one nesting area was identified, marked and avoided.
- After the bird surveys were complete, heavy machinery was brought in to clear the brush. I analyzed the ground disturbances to identify any cultural material present.
- A seismic array was then used to test the depth of bedrock. I assisted the AMEC staff in the set up and tear down of the sensor array as well as the trouble-shooting of malfunctioning equipment.

Geotechnical Studies (AMEC)

- Drill coring was conducted near the Mactaquac Generating Station to establish bedrock composition and permeability.
- Various locations were drilled to the depth of 40 meters. When the bore hole reached a depth of 26 feet, a packer bit was used to test the permeability of the bedrock.

Marginal Slope Survey (CRA)

- The shorelines within the Mactaquac head pond were assessed, analyzing the substrate and slope.
- Active erosion was photographed and recorded.
- This work was carried out to acquire baseline data for option 3: the draw-down of the head pond.
- Eroding areas would have to be reinforced if option 3 is chosen.
- The shorelines that are actively eroding are composed of glacio-fluvial deposits of sand and gravel.
- Stable shorelines are situated on bedrock outcroppings of greywacke, shale and granite.

Conclusion

- We have received positive feedback from First Nations representatives in terms of the Liaison field reports.
- First Nations representatives had suggested that the reports take into consideration natural resource procurement areas and traditional land use sites (archaeological).
- While waiting for the other team members to arrive on site, I made a habit of conducting pedestrian surveys along the shorelines, in hope of discovering pre-contact Native artifacts.
- As a result, one previously unidentified archaeological site was discovered while conducting field work on the St. John River. This site was brought to the attention of Archaeological Services New Brunswick and the local First Nations communities.

Questions?