Western Science Connection
Oil Spill Modeling and Remediation

Learn about Diane Orihel's work on oil spill modeling and remediation using mesocosms at the International Institute for Sustainable Development Experimental Lakes Area (IISD-ELA) by checking out the following website:
https://www.queensu.ca/research/features/deliberating-dilbit

Summary:

- Dilbit is a chemical compound that makes petroleum extracted from oil sands easier to transport. Bitumen will only flow through pipelines with the help of additives.
- There is a lack of understanding of how dilbit transported by pipelines could potentially contaminate lakes and rivers in freshwater ecosystems.
- For instance, in 2010 there was an oil spill in Southern Michigan. A pipeline operated by Calgary-based Enbridge Inc. ruptured releasing 3.7 million litres of dilbit which made its way through the Kalamazoo River. The cleanup cost more than a billion dollars over the next four years.
- Scientists are seeking to understand the impacts of dilbit better on freshwater ecosystems at the International Institute for Sustainable Development Experimental Lakes Area (IISD-ELA) in northwestern Ontario. Here there are over 58 wilderness waters and watersheds that act as outdoor labs for conducting experiments.
- In 2018 nine large, enclosed tubes called limnocorrals, each 10 meters in diameter, were sunk into lakes and anchored to the bottom isolating the water in them.
- Dilbit was poured into each chamber and observed by scientists.
- This real-world setting was important because sunlight, moisture, and fluctuations in temperature can alter dilbit's physical properties. These are conditions that would be hard to replicate in a lab. Based on this experiment we are learning more about the potential impacts of dilbit on freshwater ecosystems.

Reflection:

- Why is this research important in light of societies reliance on fossil fuels?
- Consider what other types of biological research can only be done in the field and not in the lab.