

# Geophysics company fishing for answers off Kingston's shores

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As far as fish go, the one trailing behind the dive boat Proteus was the only one like it on Lake Ontario this week.

The "fish" was actually a sophisticated sensor being used by an Ottawa company undertaking some experimental underwater geophysical mapping just off the shore of Kingston.

Sander Geophysics, a company that has done mapping and exploration in the High Arctic and all over the world, normally does this type of work with the fish trailing from a plane and relaying data to computers inside. For this project, the company put the trailer full of equipment on a dive boat co-owned by Frank Bird and spent two days doing a painstaking grid of a small area surrounding Pigeon Island, just southwest of Kingston.

"We normally do this from a plane and it's a lot quicker," said Reed Archer, a geophysicist and operations manager for the company as the equipment was lifted off the boat by a crane at Kingston Marina on Saturday morning, following the conclusion of the test.

"We know how this equipment performs on an airplane, but we wanted to undertake this test to see how it does on the water."

The sensors on the fish can see through the water and into the lakebed, mapping both the stratas of rock there and the magnetic fields, all of which can be interpreted for the telltale signs of minerals.

The advantage of using a boat is that a small area can be mapped in minute detail, as opposed to aerial surveying, which can detect large-scale anomalies or areas of interest but which does not go into the detail of a two-day grid covering just 25 square kilometres, done at a leisurely eight knots.

By contrast, federal surveys of the lakebed in this area typically only collect data every 10 kilometres or so.

Minerals and oil are usually associated with certain kinds of rocks or geological formations which, once identified in such a survey, can be explored in greater detail.

The equipment developed and used by Sander is the only type of its kind in the world and is used by, among others, the federal government as it develops its Arctic sovereignty strategy.

"This equipment is very good at mapping details such as the continental shelf, and that is obviously a very important issue in the Arctic," noted Archer.

As a side trip after mapping the grid around Pigeon Island, the boat also took soundings over an anomaly south of the island, an underwater feature that is believed to be an ancient comet impact crater.

The Charity Shoal feature, prosiacally referred to as a "small rimmed depression in Lake Ontario" by several scientific papers, is about 1,000 metres in diameter and under about 19 metres of water.

Researchers suggest it may be an impact crater similar to the one near Holleford north of Kingston, and the data gathered during last week's mapping expedition will be used to study it further.

Archer said the data gathered during last week's test may be made available to the federal government or other agencies, but is so far intended to determine if such a method of exploration could be used in other parts of the Great Lakes in ongoing mapping and mineral exploration projects.

The trip was also a first for Bird, who said keeping the boat exactly on course during the two-day grid pattern was a lot more challenging than the usual weekend routine of hauling boatloads of divers and their gear to wrecks and other underwater sites of interest.

"You have to be a lot more precise," he said, showing off the sophisticated GPS systems used to keep the craft on target.

"It's a lot different than just running divers out to one place and bringing them back."

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