Be WaterSmart...

In a canoe, you must carry*:

- a Canadian-approved Personal Flotation Device (PFD) or lifejacket of appropriate size for each person on board
- a buoyant heaving line not less than 15 metres in length
- a manual propelling device (e.g., paddle) or an anchor with not less than 15 metres of cable, rope, or chain
- a bailer (at least 750 mL) or a manual water pump and hose
- a sound-signalling device (e.g., whistle) or appliance
- navigation lights that meet standards (e.g., watertight flashlight)

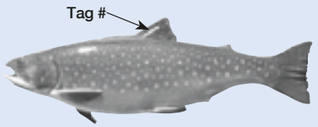
* refer to the *Safe Boating Guide* for complete details

Did you catch a tagged fish?...

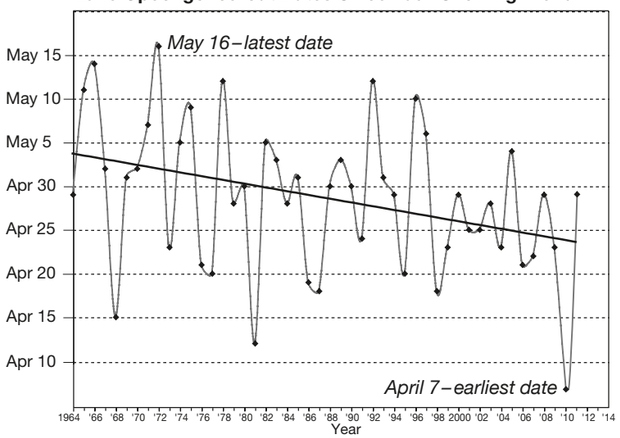
Fish have been tagged in a number of Park lakes, including: Canisbay, Harry, Louisa, Opeongo, Scott, and Smoke. We tag fish primarily to make an estimate of population sizes, survival and growth rates.

If you catch a tagged fish, please report it to **any Park office**;
Harkness Laboratory of Fisheries Research
P.O. Box 110, Whitney, ON, K0J 2M0
www.harkness.ca • (613) 637-2103; or
Algonquin Fisheries Assessment Unit
P.O. Box 219, Whitney, ON, K0J 2M0
613-637-2780 ext. 270, 271, or 274.

We will provide the date of tagging, the fish's size, sex, state of maturity and approximate age. Provide the tag number and the fish's fate (released or killed) along with a contact number or address (e-mail preferred) to receive this information. Do not remove the tag from fish you intend to release. Thank you for your help!



Lake Opeongo Ice-out Dates Since 1964 Showing Trend



Compiled by Ontario Ministry of Natural Resources: Algonquin Fisheries Assessment Unit

Be FishingSmart...

Here are a few rules, regulations* and reminders while fishing in Algonquin:

- Trout fishing season opens April 23, 2011.
- No live baitfish are permitted.
- No fishing within 100 metres of a water control dam.
- No fishing within 300 metres downstream of Lake Opeongo's Annie Bay dam.
- Daily catch and possession limit for Lake Trout is 2 per person (1 per person with a Conservation Licence).
- Daily catch and possession limit for Brook Trout is 5 per person (no more than two of which can be Lake Trout); [2 per person with not more than one Lake Trout with a Conservation Licence].
- Be aware some lakes have slot limits [check the *Algonquin: Information Guide* (tabloid) for a list].

- Worms are not native to Algonquin and remaining worms should be taken home or thrown in the trash–not on the ground!

* refer to the *Ontario Recreational Fishing Regulations Summary* for complete details

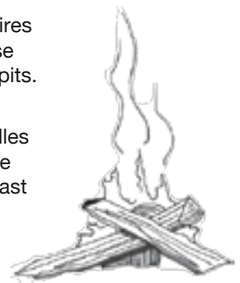
Be TrailSmart...

We are just opening our hiking, biking and backpacking trails for the season — you may come across downed trees, mud or flooded sections. With hundreds of kilometres of trails in Algonquin, it takes our dedicated staff several weeks to clean the trails after the long winter.

If you are going on a day-hike, know the length of the trail and give yourself enough time to get back to your vehicle before dark.

Be FireSmart...

- Keep campfires small and use existing fire pits.
- Ensure that leaves, needles and twigs are cleared at least one metre around the campfire.



- Never leave a fire unattended.
- Thoroughly extinguish all fires.

The Raven is available online at www.algonquinpark.on.ca and a limited number of complete sets of the previous year's Raven are available at the Visitor Centre or the main gates.

The Raven

A Natural and Cultural History Digest
Algonquin Provincial Park

ONTARIO PARKS

Vol. 52, No. 1 **July Issue** **July 7, 2011**

Dr. Mark Ridgway holding a Blackfin Cisco.

The Lazarus Fish

by Brad Steinberg

As the busy summer season finally starts for our visitors, we can't help but wonder what new and exciting discoveries will happen in 2011. It seems like every year researchers in Algonquin Park decipher another one of nature's mysteries.

We have shared many of these discoveries with you, but this issue marks a first for The Raven – reporting on a species that, like the biblical Lazarus, has come back from the dead.

Now we should clarify that we are not suggesting that re-incarnation, resurrection, or any such divine intervention has taken place like it did in the Bible, but we think a miracle has happened none-the-less.

Scientists at the Harkness Laboratory for Fisheries Research (located on Lake Opeongo) have discovered a fish that was officially considered extinct. And they found it swimming alive and well in

Blackfin Cisco

not one, but two Algonquin Lakes! The Blackfin Cisco, previously considered extinct, survives here in Algonquin Park!

The Harkness Laboratory has been home to a team of leading fisheries research scientists for 75 years. In that time many fascinating projects have been undertaken. Always well known for their pioneering work on Smallmouth Bass, Brook Trout and Lake Trout, the Lab has expanded its work looking at the biodiversity of Algonquin Lakes.

Exciting discoveries are nothing new for the Harkness researchers. The Shortjaw Cisco and the Opeongo Whitefish are two other rare fish that have been discovered here in Algonquin Park lakes. But imagine their surprise when they started catching a fish that isn't supposed to exist anymore! Furthermore – they were found in healthy numbers in both Hogan and Radiant lakes.

Identifying types of cisco (a small member of the whitefish family) is not an easy task. There are several different species and sometimes the differences are subtle – such as the number of gill rakers inside the throat. Plus ciscos can adapt to different habitats and have subtle variations within the species as well. Blackfin Cisco, however, are relatively large and have black fins, making them much easier to identify. But the researchers needed to confirm what they believed to be almost impossible. To be sure, samples of the fish were sent to a lab for genetic testing using DNA. The results confirmed their suspicions that these fish were indeed Blackfin Cisco.

Blackfin Cisco live in deep water areas of lakes and feed on freshwater shrimp and in turn are preyed upon by larger fish like Lake Trout. They grow up to 50cm long and can weigh up to 1kg. That they still exist in Algonquin is truly amazing.

To fully understand this miracle we need to appreciate how these fish came to Algonquin Park and why they were wiped out everywhere else. Their story starts several thousand years ago after the last ice age covered this area of North America.

At this time the entire watershed of the Great Lakes did not flow as it does now – instead it flowed over the north and east part of what is now Algonquin Park.

Within this mighty thrust of water lived many different types of fish: trout and minnows, sculpins and suckers, white-fish and cisco – all swimming above the same areas we now hike, portage and canoe over.

This area of Ontario, including what is now Algonquin Park, had recently (geologically speaking) been freed from the crushing weight of glaciers - billions of tonnes of ice that had squeezed and compressed the land.

Released from this pressure the land began to rise, increasing in height until the massive torrents of water that drained the Great Lakes shifted their flow to the south following the route we see today.

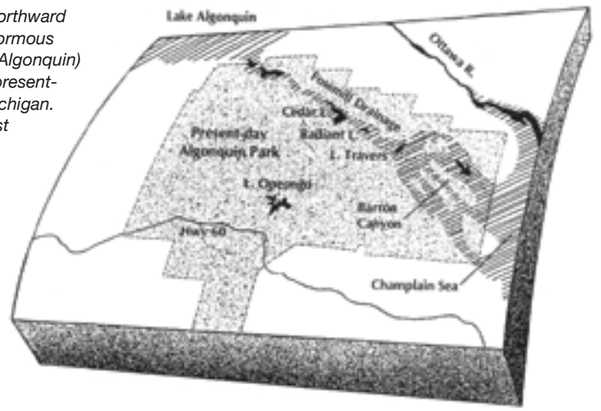
When that happened many fish were 'stranded', left behind in Algonquin Lakes, where they continued to thrive, cut off and isolated from their relatives in the Great Lakes.

Thousands of years passed, and the Great Lakes continued to support healthy, vibrant fish communities but then something changed. With European settlement came pressures on Great Lakes fish. Commercial harvesting reduced many fish populations. Dams fragmented the journeys of long distance migratory fish like eels and sturgeon. Pollution climbed its way through the food web increasing in toxicity all the way. And, perhaps the deadliest impact, dozens upon dozens of invasive species entered the Great Lakes – altering and twisting food webs that had existed for millenia. Zebra Mussels, Round Gobies, Alewife, Ruffe, and Rainbow Smelt are just a few of the 130+ invasive species that have been introduced to the Great Lakes with disastrous results.

These impacts were particularly dramatic on cisco. Whether it was one particular pressure or the cumulative 'death by a thousand cuts', by the 1960s it appears that Blackfin Cisco were all but gone from the Great Lakes. A few scattered records surfaced from time to time from inland lakes like Lake Nipigon, but most experts considered this fish extinct.

Until last year when researchers discovered a fish they had never seen before. Pictures, phone calls to other experts and access to archived museum specimens preserved in formaldehyde for over half a century confirmed their suspicion. The Blackfin Cisco is not extinct – it has survived in at least two Algonquin lakes. The lack of development, easy human access, commercial fishing and, most importantly, the lack of invasive species have allowed this rare but beautiful fish to survive here in Algonquin Park. And we think that qualifies as a miracle.

As the glaciers melted northward 10,000 years ago, an enormous waterbody (glacial Lake Algonquin) formed in the basins of present-day Lakes Huron and Michigan. For a while it drained east across the northern part of Algonquin Park.



Rainbow of Destruction

Not all the discoveries that our researchers make are happy stories. Last year Harkness scientists discovered just how destructive an invasive species can be. While studying the biodiversity of fishes in Golden Lake, just outside Algonquin Park, they found Rainbow Smelt in large numbers.

Rainbow Smelt are naturally found along the eastern seaboard of the United States but not in Ontario. However, they have been introduced into many lakes by anglers who use them for bait, and are now spreading across Ontario's lakes.

Rainbow smelt are skinny, silvery fish that measure up to 20cm long. Despite their small size they are predators, eating any smaller fish they can catch. These barracuda-like predators can literally form a 'wall' of predators, devouring all small fish they encounter, including young trout.

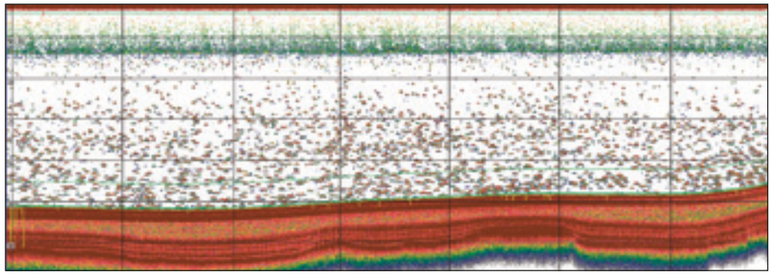
The scary thought about the discovery of Rainbow Smelt in Golden Lake was that there were hardly any other fish found - just thousands and thousands of smelt. In fact, estimates of smelt in the lake number up to 10,000 per hectare meaning Golden Lake literally has millions of smelt. Baby trout, perch and walleye don't stand a chance and the natural food chain in this lake has now been irreparably altered.

Perhaps the most alarming of all is that we know of at least two lakes in Algonquin Park, North Tea Lake and Tim Lake, where Rainbow Smelt have been introduced, almost certainly by anglers using them for bait. There is a real potential that these invasive fish could wreak havoc on our trout fishery. The extent of their impact in Algonquin is not yet known, but our team of researchers from the Harkness Laboratory of Fisheries Research is on the case and will be investigating this summer. We will keep you up to date on the status of Rainbow Smelt in Algonquin Park lakes.

You can help keep Algonquin Park lakes healthy by NEVER using live baitfish, and reporting anyone using live baitfish to Park staff or to 1-888-MNR-TIPS (1-888-667-8477).

Report invasive species wherever you find them to www.invadingspecies.org.

To learn more about research and lakes visit www.algonquinpark.on.ca.



Night echograms from acoustic surveys on Golden Lake, showng dense aggregations of smelt.