



Loon Mortality and Human Attitudes

Maine Lake's Wednesday Webinar – May 13, 2020

Questions and Answers Recap – Brooke Hafford MacDonald, Maine Lake's LakeSmart Program Manager

What options are available in place of lead sinkers?

I believe the most commonly used replacements are steel and tungsten, but there are tin, brass, bismuth, glass, clay, and natural stone alternatives out there as well. For loons, natural stone is probably the best way to go!

If the number of total deaths is stable, and the percentage of loon deaths from lead poisoning goes down, then the percentage dying from trauma will go up. Was the number of trauma deaths stable? (I'm assuming you had a stable number of deaths to study.)

Wild animal mortality studies are very opportunistic – necropsy numbers each year are dependent on a wide variety of conditions – so no, the numbers are not stable. The best way for us to analyze mortality over time is to compare percentages rather than the number of cases each year. (The graphs I presented were in % scale.)

Is there a website to find what other states' legislation is regarding the use of lead tackle?

Fish Lead Free (www.fishleadfree.org) has links to rules and regulations for several northeastern states, not just Maine, so it's worth a look. I think New Hampshire, New York, Massachusetts, Michigan, Minnesota, Vermont and Washington also have regulations, but I don't know specifics offhand.

Is there any problem with the invasive Chinese mystery snail as food for loons?

Invasive species are a big concern, particularly those that loons may use as a food source. For example, there may be a connection between invasive green crabs, which loons eat while wintering at sea, and acanthocephalans (thorny headed worm parasites). There appears to be a more recent increase in acanth infestations in loons, possibly related to the increase in green crabs, but as far as I know,

evidence of this has not been published. Snails are not a "normal" food source for loons (they tend to eat them only when they are too sick to fish and are hanging out in the shallows), so I'm not sure what kind of impact they may have. That said, Chinese mystery snails are definitely on our radar.

How can we obtain a PDF flyer to send to our members?

I don't have a PDF flyer based on this particular study, but sharing the fishleadfree.org/me website with your members would be a great start!

I know our focus today is on loons but what about other birds of prey? Any information about lead tackle and its impact on eagles or osprey?

Yes, evidence of lead poisoning from lead fishing tackle has been found in both eagles and ospreys. Lead tackle has been found in many other fish-eating species too, such as herons, egrets, and pelicans; and grit eaters like swans and ducks. It has even been found in painted and snapping turtles.

We see the eagles dive bombing loons often on our lake. Is eagle predation on chicks a significant cause of loon mortality?

Yes, eagles are definitely a problem for loon chicks, and they harass adult loons, too. There is also evidence that they kill and feed on adults. We don't see very many chicks in the necropsy lab, likely because they are small and are easily taken off the lake by predators, so I can't comment on statistical significance – but we certainly know it exists.

I read a paper several years ago about how the lobster industry keeps other lobster fisherpeople in check through kind of a "peer pressure" (if you will). This was in Maine. Would that type of thing work with fishermen/women and lead?

"Peer pressure" sure sounds like an establishment (or enforcement?) of a social norm! Social norms are often very influential – there is evidence in the literature that they can be more influential than educational campaigns or the presentation of scientific evidence. Sometimes people respond better to their friends and peers than they do to people who they have little connection to (organizations, researchers, "people from away"). It is definitely worth further investigation.

Is there anyone looking at jet skis – or are they considered "boats"? They move so much more quickly and must sound quite different underwater.

Yes, when we refer to "boat strikes" or "blunt force trauma," that may also include jet skis. I have had lake users tell me they have witnessed jet skis hitting loons.

Are there any laws/penalties about hitting a loon with a boat?

Loons are protected under the U.S. Migratory Bird Act, which prohibits intentional killing or harassment.

What is the mortality percentage for loons killing loons compared to the other forms of mortality?

Loon-related trauma accounts for roughly 2-3 percent of cases, where other CODs, such as lead and blunt force trauma, account for 20-25 percent.

Do you find painted lead tackle with the paint abraded off in the gizzard of loons?

There is unpublished evidence that digestive fluids and the grinding action of the gizzard erodes paint quickly, so by the time a loon comes into the lab the paint has likely worn off. I have never found lead tackle inside a gizzard with paint still intact, but perhaps Dr. Mark Pokras has – he has necropsied thousands of common loons!

You mentioned 2019 necropsy work is currently ongoing. When can we expect to see these results? Little Sebago is awaiting results from 2 young chicks deaths last season where there were no outward signs of trauma.

Necropsies for 2019 did not begin until just a few months ago, and staff availability is very limited. Unfortunately, that work has also been postponed due to the pandemic. We are hoping for the 2019 necropsies to be completed by the end of the year.

Where are the most loons and on which lakes?

For the most up to date information about loon numbers in Maine, please visit the Maine Audubon website loon count data: <https://www.maineaudubon.org/projects/loons/annual-loon-count/>

How many loons die of old age?

While we can age chicks and immature loons based on their plumage, it is nearly impossible to age an adult unless it is banded. We do know that wild loons can have a fairly long lifespan (20+ years). My guess is that when they get older and weak they become more susceptible to disease and predation and do not actually die of old age. It's hard to say!

Was LD730 the first lead tackle legislation and was it done in 2003?

The first lead tackle legislation in Maine was enacted in 2002, and LD730 was passed in 2013 (but rolled out in several stages over time).

How difficult was it to get the lead free legislation passed?

Lead tackle legislation is often met with a fair amount of resistance – there are many people out there who are against strengthening regulations. By 2013, however, Maine had a lengthy mortality dataset and the Maine Audubon report as solid, science-based evidence. This certainly helped pass LD730.

We are in the process of conducting a four-year loon survey and study on Great Pond and Long Pond by the Belgrade Lakes Association. We are very concerned by the limited number of chicks. And thoughts on this topic?

Loons generally have very low reproductive numbers (0.5 chicks live to fledge per year per pair, or one every other year). And if you look at the Maine Audubon loon count, there are far fewer chicks than adults. That said, sometimes it's perplexing to have loon pairs (and seemingly good habitat) on the lake, yet not see very many chicks survive. If eggs aren't hatching or are breaking too easily, it could be a heavy metal issue or maybe the adults are being driven off the nests and abandoning them. If chicks aren't surviving it could be that there are a high number of predators. If I am correct, you have Lee Attix leading the effort? If so, he is an experienced, trusted biologist and a great person to help you solve the mystery.

Are you able to survey the population of lake homeowners that live out of state for some part of the year?

Yes, we did ask if they were full-time or part-time Maine residents. There were far more full-time residents who responded to the survey, likely because it was sent out during the fall/winter, so we were unable to compare the two samples.

This is just an observation, not a question. We live right on the lake and have noticed over time an increased use of personal, fast boats, such as jet-skis. These go very fast, which do not allow adult loons and certainly not chicks to get out of the way.

Yes, unfortunately I have heard similar stories several times.

Are there some effective educational materials available that we could use here in Wisconsin?

Yes! Northland College in Wisconsin has LoonWatch - check out their website for information about loons/lead in that area, information about Loon Appreciation Week, how to buy posters and signs, and a lot more: <https://www.northland.edu/centers/soei/loonwatch/>

A couple years ago, we encountered a cormorant that appeared to have lead poisoning, but were told to just bury it because these were not of concern to studies. Why would that be?

The truth is, funding for these kinds of studies is not widely available and unfortunately a lot of species get left out. Species of conservation concern – either because they are rare, under threat or are otherwise vulnerable, etc. - tend to receive the most attention. Although loon numbers in Maine are currently healthy, that could change quickly. Loons are also iconic, charismatic, and generally beloved in Maine. And even though loons are the Fish Lead Free ambassador, reducing lead in our environment benefits many species, including cormorants!