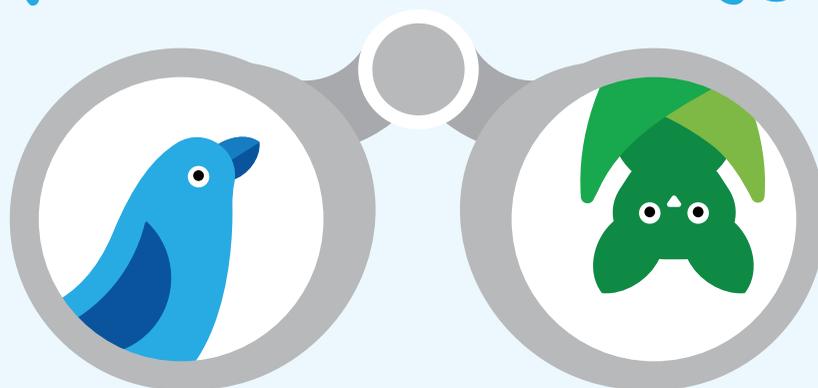


Find Your 4-H Wings



Loons

2018

Activity
Book





Acknowledgements

Find Your 4-H Wings encourages 4-H'ers to learn about and protect native birds and bats. This unique program would not be possible without the commitment of TransCanada Corporation, a North American energy infrastructure company that has supported 4-H for over a decade. For more information about TransCanada, please visit [csreport.transcanada.com](https://www.transcanada.com/csreport).



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Introduction

Dear 4-H Leader(s),

Thank you for joining us for year four of Find Your 4-H Wings! This club outreach initiative, generously supported by TransCanada, has encouraged more than 300 4-H clubs like yours across Canada to get active outdoors and to learn about our winged friends.

In 2018, we're loony for loons! They're an iconic Canadian bird whose call is often mimicked and who can be found on the one dollar coin. But loons can tell us a lot about Canadian lakes and waterway health. In this reference and activity book, we're going to learn more about loons and identify ways that we can be loon and lake activists!

This year's objectives include:

- Learning about loons
- Identifying ways you can support loons and their lake habitats
- Sharing lessons with your community and helping people to understand the importance of loons and waterway health.

Your Find Your 4-H Wings Loons Kit includes the following resources:

- gloves and garbage bags to support waterway cleanup activities,
- signs you can post near local waterways to educate the public about caring for loons,
- outlines of suggested hands-on activities that your club can participate in,
- details on how to request more materials from 4-H Canada to learn about water health and,
- a PowerPoint presentation that you can give to your members before heading outdoors.

We hope you and your club enjoy this opportunity to Find Your 4-H Wings. When it comes to learning about our winged friends, the sky is the limit...literally!



A Little About Loons

Canada is home to more than 451ⁱ different bird species, and yet the Common Loon has always particularly captured our attention. Their image is on our one dollar coin (the loonie) and comedic characters have tried to impersonate their unique voice.

We are fascinated by loons despite their shyness – and perhaps that’s exactly why we find them so special. Canadians love to be outdoors – fishing, hiking, exploring and breathing the fresh air of our vast wilderness. When we are lucky enough to see a loon, we know that we are in a truly undisturbed environment.

The natural beauty that loons seek is also our responsibility to protect. So as we seek to “Find Our 4-H Wings” with loons this year, let’s consider: how can we ensure that the lakes and waterways in our communities are places that a loon – or any other natural inhabitant – would want to call home?

Writers note: While four different types of loons will be referenced in this resource, there are sections where we will generally focus on the Common Loon. Ironically, however, it is believed that the “Common Loon” is not the most common of the loons; the Pacific Loon is!

TALK ABOUT IT!

Have loons been found in your region before?

If not, what is a solitude animal in need of habitat protection?

Clumsy on land, graceful on the water

Loons are beautiful, mysterious birds with many special features and a few comedic ones. They are found almost exclusively in the water or the air; because of the way they are built, they are very clumsy on land.

The legs of loons and their feet are placed very far back on their body. Between having a big chest and their feet being so far back, they are awkward and clumsy and they shuffle around on land as their chest gets in the way.

The physique that makes them awkward on land gives them the edge on the water. Loons spend much of their summer on fresh water lakes, paddling around and fishing. They will stick their heads into the water, looking for fish. Once they sight something, they dive very suddenly and smoothly, leaving hardly a ripple in the water. They push through the water like a torpedo, moving with their powerfully thrusting feet, and they are able to move in a zig-zag pattern, similar to how small prey fish swim.

Loons are most interested in fresh water fish, like perch or sunfish, and will eat a lot of their prey underwater. If the water is murky, or the fish are scarce, they will eat things like small crabs, snails, and aquatic insects and larvae. That said, because of their focus on hunting freshwater fish, you can be sure that a lake with a loon population is a healthy, pristine lake.ⁱⁱ

TALK ABOUT IT!

Everyone has strengths and weaknesses. What are some of yours?



A Little About Loons

Most birds have pneumatic bones - this means they have air spaces that make their skeleton light, making it easier to fly. But loons' bones do not have air spaces. Because of this extra weight and less air, loons are less buoyant and have an easier time diving. They have air sacks that help them to float when they're just swimming around, but when they need to, they can quickly expel the air from those sacs and in their feathers and dive!

Not so bad in the air, either

Loons are like airplanes in that they need a runway for take-off. The thing with loons is, however, they use the WATER as their runway. Generally, loons will take off by flapping their wings and 'running' about 50 meters on the surface of the water so that they pick up enough speed to take off. Do you remember why they need to use the water as the runway?

Once in the air they are good flyers, but they must flap their wings a lot to maintain quick speeds as high as 100km/h.

A little more about loons

	Red-Throated Loon	Pacific Loon	Common Loon	Yellow-Billed Loon
Image				
Nesting Habitat	Canadian Territories & Northern Quebec	North Western Canada	Most of Canada and the northern USA	Deep north, nearly exclusively central/ west Nunavut
Winter Habitat	Pacific and Atlantic coasts	Pacific Ocean near the coast or a slow moving river	Pacific and Atlantic coasts, Gulf of Mexico	Usually the Pacific Coast
Special Markings (in adults)	Red markings on throat. Otherwise a bit plainer than other loons.	Racing stripes along shoulders. Checkerboard back.	A striped necklace around their neck and bold, white spots on the back	Very similar to the Common Loon, only has a yellow bill and is usually larger
Unique Characteristics	Smallest loon. Only loon that can take off from land (in an emergency) and can nest on really small ponds. They do not carry chicks on their backs, which the other three do. Builds nest right along shoreline.	Will pair during migration back to nesting ground. Will chase fish in water as deep as 50 meters! Less is known about this bird	Will chase fish in water as deep as 50 meters!	Less is known about this bird



A Little About Loons

Mating, Nesting and Reproductionⁱⁱⁱ

Male and female loons look very similar, making them hard to tell apart. Males are generally a little bit bigger, but this can only be assessed if they are together.

Common Loons usually breed in the late spring. Courtship is quiet, consisting of swimming and diving together. Eventually, the male will lead the female to a proposed spot on land to nest. Both will work together to build the nest using mud, grass, moss, pine needles and other vegetation.

Loons build their nests very close to the water because they are very clumsy on land. Because of how far back on their bodies their legs are, they build nests at the water's edge to ensure they can safely leave the nest (escape from harm) and to allow ease of access to the nest. Loons will usually lay two, but sometimes just one, egg. Once eggs are laid in May or June, they will incubate for about four weeks or 26-28 days before they hatch.

Loons tend to return to the same lake and breeding partner every season. While they are thought to be mostly monogamous birds, they are known to change partners if one does not return from winter, if there is a territorial dispute or if their nesting space is displaced by another loon. Both the male and the female are very involved in the incubating of eggs and rearing of the young.

LOOK IT UP!

What other species have the male involved in child-rearing?

Loon Language

One of the most iconic things about loons is their call. The Common Loon has five distinctly unique calls that appear to serve four different purposes:

- **Hoot.** This short call is used when there are groups of loons relatively close to one another. It's kind of like knocking on the door and indicating that you are entering another loon's territory. This call is also used between adults and their young.
- **Mew.** Another call used by adults to call the young out of hiding, probably for a meal. A short, low call that is soft and deliberate, rising in pitch in the middle, then descending at the end.
- **The Wail.** It's the iconic 2-3 note, long call that everyone has heard before. The wail is used to call to a mate. It is kind of a "where are you?" The mate will respond "I am here!"
- **The Tremolo** sounds kind of like a chuckle, with multiple notes. It is used to indicate danger. People might be familiar with this one because it is heard when the loon habitat might be disrupted. If you hear a loon giving this call, you could be the danger - back off and give them their space.
- **The Yodel** starts like the wail, but adds several high-pitched notes at the end. The yodel is made by males to announce their territory.

LOOK IT UP!

Visit a site like <http://www.loon.org/voice-loon.php> to listen to and compare each loon sound.



A Little About Loons

Common Loons Winter Plans

Common Loons nest on fresh water lakes, but generally migrate to spend their winters on the salt water ocean. That is quite the habitat transition – and hardly anyone goes to the shore in the winter time!

Before migrating, loons will molt their feathers, in the autumn and again in the early spring. Unlike some birds that molt just a few feathers here and there, loons will molt ALL of their feathers at once, because even when they're just missing a couple of wing feathers, they are unable to fly.^{iv}

Adult loons will depart for their winter home in late fall. Depending on where they are coming from, they will settle up and down the eastern or western coasts, and nest near land in bays and inlets in the salt water.^v

Loons have special attributes that allow them to thrive in both fresh water and salt water. They have salt glands in their head, between their eyes. In the winter time especially, these glands are helping to process the increased salt exposure in their environment and food.^{vi}

Keeping Loon Homes Safe and Healthy

Loons are important bio-indicators. A bio-indicator is a living organism that gives us an idea of the health of an ecosystem.^{vii} Because loons are sensitive to pollution in their environment if the lake is unhealthy, if they may be unable to successfully rear young.^{viii} A successful breeding ground will be one where loon chicks will survive past six weeks. All of this to say, if loons are not present at a lake, it indicates that there may be problems with the lake.

One of the first challenges is water clarity. Loons like crystal-clear lake water; they will dip their head right into the water to try and identify fish to catch. If the water is murky, seeing and hunting fish is more difficult! The clarity of water is called the "turbidity."

DO IT!

Visit an outdoor living store, and try and find lead-free fish tackle.

Was it easy? Hard?

Talk to the owner about the important role that outdoor enthusiasts have in respecting the environment that we all love!

If a lake is polluted, the fish and food within it risks being contaminated and so it goes up the food chain. Oil spills from motor boats, pesticide run-off, mercury, and acid rain all can have terrible effects on lake ecosystems, and over time impact not only the health of loons but all those that use the lake's water, including humans. Lead poisoning is something loons are particularly susceptible to because loons will ingest pebbles to help digest their food. Because lead shots and lead fishing sinkers look kind of like pebbles, loons can mistakenly ingest them.

Irresponsible watercraft use can be very disruptive to loon populations. Boats can cause a few risks.^{ix} First, loons nest extremely close to the water; if there is a lot of boat traffic or fast traffic close to shore, it can create large waves that may knock eggs into the water or flood the nest. After eggs hatch, chicks are also vulnerable



A Little About Loons

to the havoc a watercraft can bring to their environment. Chicks are just little and tire easily; while they swim almost immediately, it takes time to learn to dive to get out of harm's way successfully. Plus, little chicks can't dive like an adult loons; they float like a cork, making it much more difficult for them to get out of the way.

Trash is another negative impact that humans have brought to loon populations. Loons get tangled in fishing nets or the plastic rings that connect a six-pack of pop. Loons can swallow and choke or get tangled up with monofilament - leftover fishing line that was disposed of improperly.

Climate change is a very real threat to many of the world's species, including loons. As water temperatures change, there are ramifications on the entire eco-system, from the species living in the water, to the plants living by the shore to everything interacting around the water.^x

One of the deepest threats to loons and many other water inhabitants is shoreline habitat loss. As we know, loons are territorial birds and they are dependent on a specific type of habitat by the water. We must be conscious of the impact we are making when building cottages and cabins, paths and docks, roads and other kinds of infrastructures. How might water levels change? Is erosion a concern? Are contaminants a concern?

The environment is important to all of us. It is where we live and play and work. It is where the earth's species lives and plays and works, too. Regardless of whether there are loons or plovers or herons or ducks living in the waterways around your home, it is our responsibility to ensure that their home is protected and respected. How can you help? Check out some of the activities to play your part in conservation.

TALK ABOUT IT!

What are some important things to consider before building anything near a waterway?



Activities

ACTIVITY: Visit a Naturalist

Many people have dedicated their lives to ensuring that we adapt to the environment and don't force animals to adapt to us. You can learn a lot from these people and they are often very happy to share their knowledge with you.

Identify a naturalist in your community. Some places to look include:

- Provincial park staff
- Parks Canada staff
- Local watershed organizations
- Local naturalist or conservation clubs
- Local museums
- Local hunting clubs or bird watching clubs
- Nature Conservancy of Canada Website ("Where We Work")
- College and university conservation programs
- Local science teachers

You never know who might be a loon or bird enthusiast until you ask!

If you are in a region with few loons, you should still identify a local naturalist to help better understand an animal that should be protected at local waterways.

Once you've identified someone, invite them to meet with your club to explain what they do, where they work, and what they know about loons and waterway protection in your region.

The expert may want to come to your club house to give a presentation or may want to take you out to check out a habitat in your community.

Discussion

- What types of questions will you ask?
- What type of activities do naturalists enjoy doing?
- Did you learn a lot? What was the coolest thing you learned from the naturalist?



Activities

ACTIVITY: Loony Impersonations

The loon's call is iconic. You too, can try and sound like a loon using just your hands and air! What will you say to all of your loon friends?

How to make a loon call:

1. Cup your hands together.
2. Make your thumbs parallel and hold them tight, while maintaining a small opening around the thumb knuckles.
3. Blow hard, but not so hard that no sound is made.
4. If at first you don't succeed, play around with size of the hole and how hard you are blowing. It will take experimentation to achieve the sound you're looking for.
5. You can change pitch by opening your cupped hands.

****Tip for leaders: practice before presenting this activity to members. It is tricky and it takes experimentation to get it just right. If you struggle with it, consider using one of the many YouTube videos out there, to help demonstrate to members how to do it.***

Discussion

- Can you hear the differences between each of the loon sounds?
- What do you think they're trying to say to each other?
- What do you think they're trying to say to us when we get close?
- What should we do when we hear a loon talking to us?



Activities

ACTIVITY: Loon Obstacle Course

Adapted from: Common Loons in the Classroom, A Teachers Guide for Grades 3-6. Created by Maine Audubon with support from the Maine Outdoor Heritage Fund and the Margaret E. Burnham Charitable Foundation.^{xi}

Create a loon obstacle course using simple things and help members to understand the challenge of and dangers associated with migration. Members will start at the “lake” with the goal of making it to the “ocean.”

Challenges on the course might include:

Wind Turbine: Run through a spinning jump rope

Good feeding area: Playing field with food chips spread out

Poor feeding area: Marked area with few or no food chips

Staging areas: Various roped-off areas with food chips

Speedboat or jet ski: Someone trying to tag the loon

Human disturbance on the lake: Loon must hide until the disturbance ends.

Bad weather: Crawl or other impediment to flying/running

Power lines: Limbo stick

Fishing tackle: Carry books or other object

Trash: Rope wrapped around them loosely that they must get out of

Pond starting to freeze: A roped-off area that only has room for one person (loon) to enter at a time

Long runway: Students must circle one staging area 3 times before moving to the next

Discussion

- What did you think about those challenges? Can you see how a loon and other birds might have to face them?
- How many of those challenges are human-related?
- Which of those challenges can we help to minimize for loons?



Activities

ACTIVITY: For the Love of Loons!

4-H Canada, with help from Bird Studies Canada, has prepared a sign outlining responsible behaviour to ensure wildlife-friendly waterfronts. Consider posting at a waterway in your community, particularly one that is frequented by the public. Talk to those responsible for the maintenance of the space, and enquire whether posting the sign as a public service might be an option. The sign is light and waterproof, so it is good indoors and outdoors and may be simply stapled on a fence post or building, or taped up in a public rest room.

As a group, consider some of the tips on creating signs and some of the cool things you have learned about loons. How can you create a campaign to educate other people, beyond those who will see your sign?! Design posters or buttons or social media pages and share them in your community. Discuss each of the tips more fully, making individual posters for each tip. Always remember the questions you are trying to answer with your neighbours: Why are loons important? Why are our waterways important? How can we all contribute to their conservation?

If loons are not common in your region, consider the waterways that are, and identify the animals that live there. Present to other members in your club or peers at school about the importance of those waterways to those animals and tell everyone how they can be involved in waterway conservation!

Materials

- Pen, paper, markers and creativity!
- Sign provided in your Find Your 4-H Wings kits.

Discussion

- What would you like people to better understand about local waterways?
- What animals live at the waterways in your community? Is their habitat changing at all?
- Share some of the threats facing your community's waterways. If there are none, share threats facing other waterways and encourage people to not let those things happen in your region.



Activities

ACTIVITY: Trash Fishing

Make a difference in your community by helping to restore and rejuvenate local waterways. Identify a lake front, shoreline, river or stream that is important to your community and plan to dedicate a few hours to cleaning it up.]

1. Identify a waterway in need of your time and effort. Consider talking to a local watershed group or conservation office. They might be able to help you identify a space in need of attention!
2. Plan to go clean up as a club. Consider - do you need more help? Invite family, friends and neighbours and make it a community event!
3. Prepare supplies. In your Find Your 4-H Wings kits, you will find trash bags and gloves. As a group, discuss what else might be needed. Good ideas might include:
 - a. What to wear? Flip flops or rubber boots? Favourite white shorts or splash pants?
 - b. What's the weather forecast? Should we wear sunscreen? Take bug spray?
 - c. Water? In a reusable water bottle of course!
4. Discuss what will happen to the trash that is collected. Will recyclables picked up be recycled? Where will the trash bag and the recyclables be brought?
5. How will you celebrate your hard work? BBQ? Pizza?

Discussion

- Were you surprised at how much garbage was picked up?
- What kinds of trash were the most common?
- Where do you think the trash came from?
- Have any of you ever littered? Will you litter again?
- We cleaned up things this time; who will clean up next time?



Activities

ACTIVITY: Citizen Science

Bird Studies Canada Lakes Loons Survey

Canadian Lakes Loon Survey participants have worked since 1981 to track Common Loon reproductive success by monitoring chick hatch and survival. Participants dedicate at least three dates, visiting their lake once in June (to see if loon pairs are on territory), once in July (to see if chicks hatch) and once in August (to see if chicks survive long enough to fledge).

Participants also work as stewards within their communities sharing knowledge of better boating, fishing and shoreline practices, protecting and supporting not only loons but also the many other aquatic species that share our waterways.

Families, lake property owners, fishermen, boaters and 4-H clubs can all help monitor the health of their favourite lake. By participating in the Canadian Lakes Loon Survey, you can become an active participant in science towards conservation.

The Canadian Lakes Loon Survey is a benefit of Bird Studies Canada membership. All Bird Studies Canada members are invited to participate. If you would like to be part of the 2018 Canadian Lakes Loon Survey season please donate what you can and let them know your interest, and they will register you for the program. Follow the details below, if you're interested:

Contact Information:

**Canadian Lakes Loon Survey
Bird Studies Canada**

<http://www.birdscanada.org/volunteer/clls/>

P.O. Box 160, 115 Front Street
Port Rowan, ON N0E 1M0

Ph. 1-888-448-2473 ext. 124
Fax: 1-519-586-3532

Email: volunteer@birdscanada.org



Activities

ACTIVITY: Waterway Health Audit

Does your group want to dig deeper and take some more quantitative measurements that may help determine your waterway health?

4-H Canada has Shallow Water Testing Outfits that 4-H clubs can request for two-week periods, with shipping and return shipping covered. Each testing outfit comes with the tools to test:

- Temperature
- pH
- Turbidity
- Dissolved oxygen

The test kit we are providing may be viewed here: <http://www.lamotte.com/en/education/water-monitoring/5854-02.html>

If your group has decided to request a Water Health Audit Kit, it would be good to discuss, as a group, the following questions:

1. What do we hope to achieve by doing an audit?
 - a. Understand what the current health of our waterway or lake is?
 - b. With hopes of monitoring changes in our waterway or lake health?
 - c. With hopes of identifying what may have detrimental effects on our lake health?
 - d. To learn how to use new scientific tools?
2. What will we measure? All four things? Do we know what we are measuring against?
3. Will we report our data to anyone?
4. Where will we conduct our waterway or lake health audit?

Temperature

Different animals have evolved to survive and thrive at different temperatures. Therefore when the water temperature in a waterway is outside of its normal range for a sustained period of time, organisms within it can become stressed. Temperature also affects the oxygen within the water (see below). Cold water has more oxygen, warm water has less.

pH

pH is a measurement of acidic or basic qualities in a substance. As they have with temperature, most underwater organisms have adapted to a specific pH level and will suffer if the pH is too high or too low. As a general rule, most organisms prefer a pH range of 6.5 to 8.0, but you'll want to ask someone about what is normal in your region.



Activities

Turbidity

Which do you think is better – when water is clear or when it's murky?

Turbidity is the measure of the relative clarity of the water. High turbidity indicates that there are solid particles such as clay, silt, organic matter, trash or pollution and other microscopic organisms that make it hazy. High turbidity is bad for the waterway health because it can clog fish gills, block light from aquatic plants and absorb heat, changing the temperature.

Dissolved oxygen

Having the right amount of oxygen dissolved in the water is important for the aquatic organisms living in waterways. Just like we breathe oxygen in the air, fish breathe oxygen dissolved in the water through their gills. Generally, the more oxygen dissolved in the water, the easier it is for organisms to survive.

For a great video on what dissolved oxygen is and why it's important for lakes and the things that live in them, take five minutes to watch this video from MIT Kids: <https://www.youtube.com/watch?v=oVW5LAzd7Ec>

Within your kit will be instructions on how to use each of the tools. Be sure to record your data, in case you want to share it with someone or measure it again later. Consider a chart like the one on the next page.

Consider talking to a local worker with the Department of Natural Resources, or to a local scientist, to better understand what is considered healthy for lakes and waterways in your area.

Reserving Your Kit

To reserve your Water Health Audit Kit, please log back into the Find Your 4-H Wings registration page at register.4-h-canada.ca. There you will:

- Confirm the mailing address that the kit will be shipped to.
- Select first, second and third choices for two-week time frames with the kit, between April and September 2018.

After completing this information, you will receive an email confirming which week the kit will be sent to you, and the kit will be mailed at least one week in advance of your request. Once your activities are complete, you will mail the kit back with a pre-paid shipping label.

The deadline to request your kit is July 30, 2018.



Activities

Testing Location:		
Measurement	Date One:	Date Two:
Air Temperature <i>Celsius</i>		
Water Temperature <i>Celsius</i>		
Turbidity <i>JTU</i>		
Dissolved Oxygen <i>ppm</i>		
pH <i>pH</i>		



References

- ⁱ http://www.stateofcanadasbirds.org/State_of_Canada's_birds_2012.pdf
- ⁱⁱ https://www.allaboutbirds.org/guide/Common_Loon/lifehistory
- ⁱⁱⁱ <http://www.loon.org/loon-family.php>
- ^{iv} <http://www.learner.org/jnorth/search/LoonNotes3.html>
- ^v <https://wildlifeinontario.wordpress.com/birds/common-loon/>
- ^{vi} <http://www.learner.org/jnorth/search/LoonNotes3.html>
- ^{vii} <https://www.sciencelearn.org.nz/resources/1538-bioindicators>
- ^{viii} Kathy Jones, Volunteer Coordinator, Loon Studies Canada
- ^{ix} <http://lbla.net/wp-content/uploads/LBLA-loon-brochure-final-in-pdf-Jan-2012.pdf>
- ^x <http://climate.audubon.org/birds/comloo/common-loon>
- ^{xi} <http://www.maineaudubon.org/wp-content/uploads/2017/03/FINAL-OCTOBER-2011-lo-res-with-links.pdf>