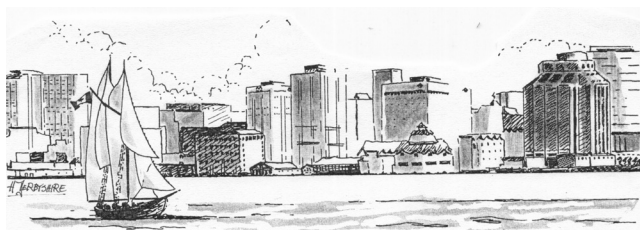


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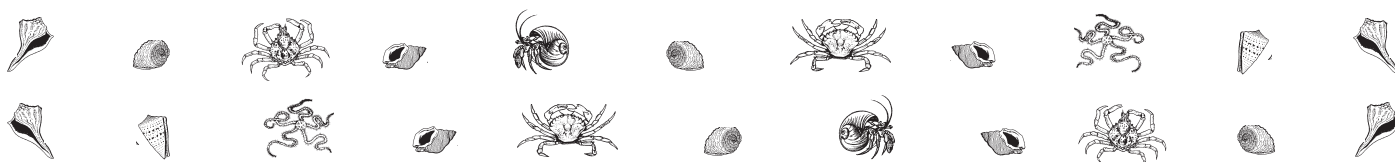
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FEES

Student	\$15.00 per year
Individual	\$20.00 per year
Family	\$25.00 per year

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GRAPHICS All uncredited illustrations are by H. Derbyshire or from copyright-free sources. **Front Cover** - Monarch on Goldenrod, Bob McDonald; **Back Cover** - Turtles at Public Gardens, Roland Marek; **p. 3** - Wood Frog, Rebecca Betts; **Tide Table** - Cdn. Hydrographic Service, Fisheries & Oceans Canada.

HFN NATURE NOTES

NATURE NOTES; SIGNS OF SPRING

APRIL

Stephanie Robertson reported an increasing **Cardinal population** in her neighbourhood between the North-west Arm and Halifax Harbour; also, a first sighting of emerging **Coltsfoot** along Tower Road. Jane and Don Flemming reported huge **Cranberries** (last year's crop) along the Duncan's Cove trail, also – an unexpected find for them there – the bones of a deer-sized animal, to whit, spinal column, pelvic area, and legs.

At Canning, Tamara Elwood went to see the reported **Tundra Swan** sighted there at a local marsh. Susan Holmes went to Wallace Bay looking to see a **Stellar's Eagle** but unfortunately was disappointed. Lesley Jane Butters saw **eight Wood Frogs** coming out of hibernation. Charles Cron in the last weekend in March at Digby Neck went to see the Balancing Rock there and also spotted **Skunk Cabbage** and **Eastern Mistletoe**; on the evening of April 7th, he heard **Wood Frogs** calling.

Also on the evening of April 7th, Burkhard Plache heard **Spring Peepers**, and Judy Keating reported hearing them on April 1st! At the rainy 2022 Save the Salamanders foray in April, she reported 44 amphibians rescued with 38 of those being **Yellow-spotted Salamanders**. She also saw her first Blue Heron in Frostfish Cove.

Charles Cron said **Great Blue Herons** are often to be found in Yarmouth in March, and are now also coming earlier in the year to the Halifax area. Judy Keating reported her **Heather blooming** and attracting **many bees**, and on March 18th there was a swarm of them in a little heathered-microclimate amongst some rocks in her garden (she posted a video for us to view on the web). Burkhard witnessed **Snowdrops** and **Aconite** attracting **many bees**.

Susan Holmes enquired how long Judy had stayed to rescue salamanders and amphibians in the Windsor Junction area; two hours Judy said, while leader Clarence Stevens was there until 1:00 or 2:00 the next morning! A new subdivision there presents many hazardous roads (now with speed bumps) between their hibernation grounds and their breeding wetlands.

On March 15th, Carol Klar saw **20 Ring-necked Ducks** on Kearney Lake, very close to the road. From March 19th to 25th she observed **Long-tailed Ducks** at Purcell's Cove; at Hemlock Ravine a **Cardinal**. From her desk out a window she spotted **woodpeckers** and **lots of Coltsfoot**. Burkhard saw **10 Ring-necked Ducks** at the Frog Pond, Purcell's Cove; Jean Gibson reported a **ground nest of hornets** in her garden in the valley.

Ingrid Plache saw a **female Teal** and a **Pileated Woodpecker** at the Frog Pond, while Judy Keating reported a number of **River Otter** in her cove on March 16th and a number of **Loons** resident there a bit later.



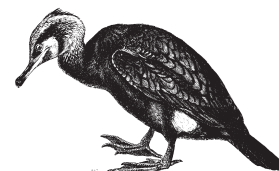
MAY

Marion Sensen reported a **Cabbage White butterfly** in her garden on Wednesday, March 4th and at Albany New Lesley Jane Butters an in-flight of **Cliff and Barn Swallows** at 11:25 p.m.; they come in every year at that time of day. She also reported **Bluets and Purple Violets** 'up' in Point Pleasant Park. Patti LeClerc has a **Porcupine** around her property and spotted it on May 1st.

At the Frog Pond Burkhard Plache has regularly seen male and female Ring-necked Ducks over the last two weeks of February. Karen McKendry got to see our provincial **Blue-felt Lichen** on Sean Haughian's 2022 City Challenge Lichen Trip behind the Prospect Community Centre; she said it's a great place to see lots of mosses.

Carol Klar spotted a **Ruby-crowned Kinglet** in her garden on May 4th! Wendy MacDonald reported the **Swallows** being back at Belcher's Marsh; out of all the installed nesting boxes, they prefer the painted ones! At her place in Mahone Bay, Nancy Covington had been seeing a **Great White Egret** for the last two weeks of February; it is now gone. Bernie McKenna, trudging back from our April 29th D'Aubin's Cove Seaweed hike, saw an **Osprey** 'working' the shore; there were a lot of lichens in the barrens there.

Carol Morrison of Oakfield reported **Cormorants** coming to her new dock and wondered how often they *would* be coming! Chris Harvey-Clarke noted that he has them regularly on their dock in Herring Cove. He reported some first eggs seen at Black Rock, and that the **Herring Gulls' eggs** were laid already; **Common Eiders** and **Black Guillemots** have increased from almost none to 100! He noted the best time to see them is in May and June.



JUNE

Don Flemming reported seeing, with Jane, a **Broad-winged Hawk** in mid-May at Ash Lake; they also spotted a **Yellow Warbler** and a **Grey Jay**. At Brookfield Wetlands they saw evidence of beaver activity in signs of de-barking, and also saw a **Snapping Turtle** there.

Andrea Norton of Porter's Lake reported that a neighbour had seen a large hawk swoop down and take one of her chickens! Jen Hahn talked about Elephant Ears (Japanese Knotweed) in her garden and wondered if anyone had good ideas of how to get rid of it; Gareth Harding said it took him 40 years to do so by just pulling it out! In early April, Max Raissi saw a **duck with eight ducklings**; three days later **only five ducklings**; today (June 2nd) there were **only two**. He had been seeing a **Bald Eagle** around, and wondered about any connection.

Stephanie Robertson reported a **dead beached Gannet** at Melmerby on June 2nd; she was advised to call DNR, as they would retrieve it for testing for evidence of

any bird diseases.

Bernie McKenna saw a Canada Goose with a single large gosling on the Brookfield Marsh trip. Check that story for details (p.13). He also saw a **willow in flower** just loaded with bees! Gareth said that this mid-April they had a **Gyr Falcon** visit a field near their farmhouse.



eNOTES

Gareth Harding at Point Pleasant Park, March 18th. It sure felt like spring in the park this morning! There is a very comic **group of Scaup Ducks** (~30) near the point that swim in a tight flotilla and dive in groups of four or so until they are all submerged. Then, after a few minutes; pop, pop, up they all come to the surface. There were lots of paired **Red-breasted Mergansers** scattered all the way along the waterfront, with some well out from shore. **Herring Gulls** attended the Mergansers in order to grab their fishy catch. **Whistlers, or Goldeneyes**, had a loose flotilla of their own away out off the Hen and Chickens, and there were a few **Eiders** on the water near the fortifications – several immature males with their strikingly white beaks. On the Northwest Arm side, there were a couple of **immature Loons**, and loads of **Black Ducks**, with a scattering of **Mallards** very close to the shore towards Black Rock Beach – quite the collection of waterfowl in such an urban harbour!

Lesley-Jane Butters at Albany New, May 2022. In October of 2021 I had cut branches from willow and forsythia then threw them in a pile to be dealt with later. In March 2022 those cut willow branches had produced very large and fuzzy pussy willow buds and their bark was still green. The cut forsythia branches had burst open with yellow bloom (long before the established forsythias!); I stuck these twigs in soil and they are now leafing out. Amazing! November 2021 and I had put my Geranium plants in a container of wood shavings to overwinter in the garage. When retrieving them this May, out crawled **three sleepy, very large bumblebees** which must have also overwintered there. They did not fly, but crawled around the shed floor eventually making their way into the outdoors and disappearing. Two weeks later, I saw them in my garden flowers, and then one by one, they flew into a large earth hole near a building foundation.

Easter Saturday - 11:30 a.m. and a **few Tree swallows** magically appeared over the Medway River just around 11:30 am; they'd flown in last year at precisely the same time of day. My neighbor had not seen any until Easter Saturday as well, and commented on the time they flew in for both years. Most people along the river have set up boxes and to our delight, we all seem to have **Tree Swallows nesting** in them. On Easter Sunday, a **single Osprey** was sighted hovering over the river.

May 3rd, and I sighted a **single male Hummingbird**; on May 8th, a **female one** made an appearance directly in front of my red hat. To date there were still no hummingbird flowers in bloom. On the same day, I also

observed a **pair of very active Chickadees** nesting in a tree hollow near my cabin; they did not seem to mind my activities.

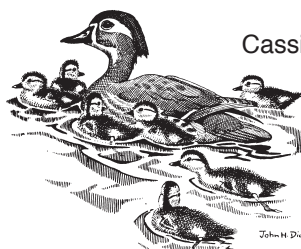
May 10th, while clearing up a winter's supply of **Beaver sticks** near the river's edge, a **snake**, too fast to ID, slithered past me and bee-lined it to the river. I happened to look up and observed a beautiful **Bald Eagle** perched on a piece of driftwood in the water, when I returned with camera, it had flown. After sunset, a **pair of Beavers** swam downriver past my place to the rapids on the other side where there is a growing **Beaver lodge**.

May 11th - **three pairs of Red-breasted Mergansers** were on river just before sunrise; they drift-danced down to the rapids, then dove underwater upriver to repeat their performance. The male, in full white plumage, really stood out in the early morning light. Mid-morning, a **pair of drifting Wood ducks** were chased away by dive-bombing **Tree Swallows**; the Wood Ducks didn't come back. A **pair of Canada Geese** appeared on the scene and took up residence on my neighbour's lush, green, over fertilised lawn; paradoxically, after this irresistible invitation, he tries his best to discourage them.

The evening of May 11th boasted a lovely **Spring Peeper Chorus** that lasted well into the night, though not sounding as many as there have been in past years. After a glowing orange sunset, (Yarmouth forest fire smoke) a **parade of Black Ducks** floated downriver - **mama Black Duck with seven tiny ducklings** trailing alongside a **pair of Canada Geese** and a **pair of Red-breasted Mergansers** all in a row, an amazing sight to see. The chatting **sound of a Kingfisher** brought the evening parade to an end. May 14th, and the **Mayflies** were taken over by the annual onslaught of **Blackflies**. Going for my first swim of the year, I was bitten by a **very large Moosefly**. The water temperature was very warm at 16°C, and the river was very low for that time. A **Male Bullfrog** was on the shoreline but wasn't bothered by my presence. The **Rhodora** near the river was just beginning to bloom, carpets of wild **Strawberries** and **Purple Violets** surrounded my cabin, and **Hover Bees** were enjoying the Strawberries. Before closing up and returning to Halifax, I was greeted by an unknown **huge black spider** the size of a serving spoon with very long legs!

NEW AND RETURNING

Robert & Réjeanne Bell
Angelica Silva & Moncayo Fernanda
Jennifer Hahn
Gareth Harding
Kathleen Law
Heather Ludlow
Jacob Smith & Ousha Nannick
Marianne Poirier
Cassie Kent and Richard Purcell
Janice Reid
Helen Ryding
Jim Steeves
Meaghan Quanz
Elizabeth Vickers-Drennan
Wendy Walsh



HFN TALKS.

SPECIES AT RISK AND EATING WILD

7 APRIL
– Patti LeClerc

SPECIES AT RISK

We were so fortunate to have Jamie Simpson give us a zoom presentation on ‘Species at Risk’ and ‘Eating Wild’.

In the ‘About the Author’ section in his book *Eating Wild in Eastern Canada: A Guide to Foraging the Forests and Shorelines*, Jamie is noted as a forester, lawyer, and writer, with a passion for exploring our natural world (and sometimes eating it). In addition to being given the Elizabeth May Award for Environmental Service he is also the recipient of both the Environmental Law award from Dalhousie University, and the Honour in the Woods Award from the Nova Scotia Environmental Network. His other books are: *Restoring the Acadian Forest: A guide to Forest Stewardship for Woodlot Owners in Eastern Canada*, and *Journeys through the Eastern Old Growth Forests*.

First, Jamie gave us a quick overview of the very important Species at Risk case in which HFN was also a litigant. Background – The Minister of Natural Resources and Renewables (formerly known as Minister of Lands and Forestry at the time of case) has certain obligations under Nova Scotia’s Endangered Species Act, specifically – to appoint recovery teams, put recovery and protection plans in place, and identify all core habitats so that they can be effectively protected. Several organisations had been noticing that the Ministry was not meeting its obligations. For example, no protective activities of any kind had been put in place for the Ram’s Head Lady Slipper nor the Mainland Moose.

The concerns expressed in a paper published in February of 2015 (“Protected on Paper Only: Evaluation of Nova Scotia’s legal obligations to protect and recover mainland moose and other species at risk” by Jamie Simpson, Steven Evans, and Lisa Mitchell, together with the East Coast Environmental Law Association and the Environmental Law Student’s Society) outlined various concerns. These were echoed by the N.S. Auditor General’s 2016 findings, and also a 2019 follow-up report from Lisa Mitchell, Peter Rak, and the East Coast Environmental Law Association which found the situation becoming remarkably even worse, and then, another follow up to the Auditor General’s 2016 report found that they were *still* not meeting their obligations under the act.

So, Jamie, Bob Bancroft and various others including HFN organised and took the government to court on the grounds of “failure to undertake their statutory duties”. The goals of the lawsuit were to get a declaration that the minister was acting unlawfully, and to seek an order from the court to compel the minister to take real and effective action.

Thankfully, on May 29th, 2020, Justice Christa Brothers ruled that “the Minister has exhibited a chronic and systemic failure to implement action required under

the Endangered Species Act”. The Minister has since begun completing his required tasks.



EATING WILD

The way that Jamie began discussion of each wild edible was so fun! He showed a slide of beautiful, different plant photos, asked participants to guess what they were, then shared information, inviting questions and discussion from the audience.

First up was High Bush Cranberry; it can often be found on the marginal areas of fields or old farmlands which have been grown over, and really, in any areas with rich soil. He noted that even at this time of year last season’s berries can be enjoyed, as they become very tasty after overwintering. He also recommended the same time of year for sampling last season’s Lingonberries (also known as Mountain Cranberry or Partridge Berry). Jamie recommended adding some sugar to make a lovely sauce or jelly.

Next was a picture of a delightful bowl of fluted, frilly golden mushrooms which elicited an audience chorus of “Chanterelles!”. Jamie said they are the perfect introductory mushroom for beginner foragers, not only because of their pleasant taste, but for their very easy identification. Other than the Jack O-lantern Mushroom which actually looks quite different, Chanterelles do not have any look-a-likes. However, Jamie cautioned that it’s best, for one’s very first time mushroom foraging, to go out with an experienced gatherer and to exercise caution to ensure the proper identification of any foraged foods.

Another reason Chanterelles are so beginner-friendly is that they grow quite abundantly and can be found in so many habitats – mixed woods to old field sites that have grown up with White Spruce; coastal areas with spruce growing up by the seashore; and where White Spruce have grown up old wood roads. A member asked for tips on cleaning them and Jamie suggested that first, a great way to make it easier is to harvest them on a dry day, as one can shake or brush off dirt and debris without having to use water.

Spruce branch tips were another picture that got the participants guessing in unison. These have so many uses! They can be eaten raw; can be added to salads, soups and stews; or ground up and made into a spice. Jamie has even made cookies with spruce tips! While spruce are the most well-known, all conifer tips can be consumed and Jamie specifically mentioned that he enjoys Hemlock tips as they have a nice mild taste. One word of caution – Jamie stressed that you not forage the tips of any Yew, as they are toxic. A participant asked whether harvesting tips would hurt the trees; Jamie answered yes, it’s very important for all foraging to be delicate, not concentrated on any one area or plant, and to take only sparingly from lots of plants.

The ever-popular Fiddlehead was next. These young Ostrich fern fronds often grow near rivers in late May



and a side benefit is that they often grow near early wildflowers. Areas of hardwood forests with rivers and streams which flood are best places to find these – places such as Hants County, the Annapolis Valley, the Northumberland Shore, and Cape Breton. Aside from sautéing the steamed heads with butter (or substitute) and serving with lemon and salt (one participant recommended the lavender sea salt from Sea Foam Lavender), another way to enjoy them is to pickle them. They can also be parboiled and then frozen (if texture is not an issue), for example to use later on in making soups.



Tips on how to clean these were, once again, to harvest them when they are dry, then, to gather them in a basket and give them a good shake around in a nearby river or in water at home; this will remove the husky chaff.

I appreciated hearing Jamie talk about the fact that when he harvests Fiddleheads, he thinks of how important this food was to indigenous people, and he considers how many have harvested on this land over so many years – a truly special feeling indeed.

The next photo, of dark berries against bright green leaves, brought guesses of Serviceberry and Chokecherry before the correct guess Huckleberry was given. There are many ways to enjoy these as well as straight from the bush. They can be frozen and also made into 'Huckleberry Bounce' by steeping the berries with sugar in brandy for a few months – sure to lift one's spirits! (The recipe for this is on page 67 of Jamie's Book, *Eating Wild in Eastern Canada*).



Next was the steadfast Dandelion, which, when it comes to its raw leaves, Jamie recommended eating their tender shoots before the plant has flowered as the leaves will not be as bitter. You can eat the roots too, but they don't need to be peeled as do carrots, only scrubbed under running water with a brush. He also recommends toasting dandelion root and steeping it as a hot beverage.

The next was a first for me! I had never before noticed Beach Pea shoots. These peas are edible but there is a very narrow window of time where they are tender enough. The part that Jamie finds most useful is the shoots, which can be harvested in early to late summer; they are a brighter and lighter green than the rest of the plant, and are shaped like spades.

Another featured seaside green was Sea Rocket. It's good in both salads and also cooked; it has a slightly mustardy flavour. Its seed pods are also edible, and a participant described the taste to be more like horseradish.

Bakeapple, or Cloudberry, is not so common in Nova Scotia but abundant in Newfoundland and Labrador; it can sometimes be found on our eastern shore and some of its islands. When these berries are ripe, they are very tasty enjoyed right off the bush.

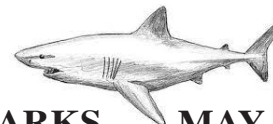
Juniper berries on the other hand are not so great for eating fresh from the bush. But, dried and added as a seasoning, they are lovely in soups and stews. One participant said that they dry them and put them in their pepper grinder. What a neat idea indeed!

Jamie also discussed some sea creatures that can be foraged food, such as periwinkles and soft-shell clams. For the latter, always reserve a bowl of hot salty water to act as a pre-eating rinse; he noted that he had a feed of soft-shell clams just the other day at Martinique beach. He chatted a bit about Razor Clams and how quick they can burrow, but they also are a tasty treat. He also noted that Sea Urchins offer a sweet/salty taste (if you are very adventurous!).

Staying near the sea, the next section covered algae such as Sea Lettuce and Dulse which are great dried, and Irish Moss which can be collected at low tide and is widely used commercially as a thickener/emulsifier and is often enjoyed having thickened the cooked pudding 'Blancmange' (essentially milk with sugar, carageenan and perhaps some flavouring such as vanilla).

Jamie patiently spent quite a bit of time answering questions. One great question was whether salt water fish like Mackerel or Pollock require a fishing license. You do not need a license for these, but there *is* a size limit on Mackerel. For clam digging, there is a size limit and also a number-per-tide limit. He advised to check on the Department of Fisheries and Ocean's website for rules regarding licensing and size limits.

An important note that Jamie discussed at the beginning of the second half of his talk was that there are actually no laws or measures in Canada which protect the public's right to clean drinking water nor for a safe or healthy environment which can provide wild foraged food. Jamie's presentation left me excited for spring and gave me new ideas for foraging. It is my hope that with more and more folks discovering the joy and magic of foraged foods, this will lead to more advocacy to protect our natural environment.



GREAT WHITE SHARKS MAY 5

– Stephanie Robertson

"The Great White Shark in Canadian Waters – recent developments in the science of an apex predator." Director of Animal Care at Dalhousie University, Dr. Chris Harvey-Clark revealed all we needed to know, and more, about the presence of the Great White Shark (GWS) in Nova Scotian waters – its biology, anatomy, and physiology, with important and interesting adaptations for its northern range; historical contact and event data; more recent Canadian shark 'incident' data; and GWS Photo ID Database development – with the first successful cage diving and image documentation in Nova Scotia in 2021.



BIOLOGY

After birth Great White Shark pups will measure around 5 ft (1.5 meters) and weigh about 77 lbs (35 kilograms). Born 'ready to go', their pups sport small, flabby tails, puny bodies, and tiny, widely-spaced, sharp pointy teeth. As they mature and move from being young fish eaters to adult mammal eaters, they go through what is known as an ontogenetic shift, slowly developing more

adult-looking teeth with their serrated edges which few sharks have, and larger, more solid, fuller-looking tails and bodies. Growing slowly, these sharks take considerable time to mature and produce offspring. They need decades to reach adult size, and they continue to grow throughout their lifetimes. Males are able to reach maturity at the age of 9 or 10 with a length of about 11.5 to 13 ft, while females mature at ages 14 to 16 with a length of about 15 to 16 ft. Reproduction is viviparous (that is, the fertilized eggs are retained within the body).

This Great White Shark *Carcharodon carcharias* is an exceptionally large and powerful high-speed swimmer with large gills. Along with the Salmon Sharks, Makos, and Porbeagles, it belongs to the mackerel shark family, the Lamnidae. It has a 'tunate' tail which resembles that of a tuna, and it's famous for its broad, serrated teeth in its extremely powerful jaws. A special 'ram-ventilator' enables it to force more water over those large gills in order to get more oxygen when more strength and energy are needed. What I found specially interesting was its 'rete mirabile', a unique network of heat-exchange blood vessels which enable it to produce a core body temperature of 14°C higher than the ambient water temperature, which is another feature that gives it more energy when needed.

HISTORICAL SIGHTINGS AND EVENTS

1534 On an expedition to the Baie de Chaleur, Jacques Cartier reported a shark attack on one of his crew. This unfortunate man was swimming in the bay's warm waters and had both legs bitten off; he died later that day.

1891 A seaman went overboard off Nova Scotia's coast and was immediately seized and eaten by a Great White (this is typical behaviour for the species).

July 1953 Off Forchu a white dory was followed by a GWS for a week; amongst that fleet of fishing dories, it was the only white-hulled one, and the only one of interest to the Great White. It finally attacked the boat itself. One man was drowned, and one clung to the dory and was rescued; the species was ID'd as a GWS by the bite marks on the hull.

1983 A female GWS was hauled up dead by Alberton PEI fisherman David McKendrick in his fishing net. At 5.2 metres it has been named one of the world's top five legendary sharks by the the Canadian Shark Research Laboratory in Bedford.

2000 On December 5th off Digby Neck, a sea urchin diver wearing dry suit and gloves reported being repeatedly rammed, passed, and chased up from a depth of 60 ft to a depth of 30 ft by a 16 ft shark for a period of 15 minutes. With only his sea urchin diving net to fend it off, he was finally rescued by a support boat. Described as having large eyes and pointy nose, it sounded like a Porbeagle Shark but at that size could have been a GWS.

2016 In August, in Hackett's Cove, two kayakers filmed a porpoise being attacked by a small GWS. In September the same year, posted on social media, a 15 ft female was found caught in a mackerel trap; it was

rescued and then released.

2020 In Maine, in July, the very first recorded fatal shark attack occurred there. Wearing a wetsuit, a mother with her daughter were swimming together when the former was suddenly killed instantly with one fatal bite; nearby kayakers rescued the daughter and recovered her mother's body.



At this point, Chris showed us a photo of bitten and badly damaged naval equipment, the type which is towed behind their vessels. These sharks bite powerfully, and they bite anything and everything! Despite more positive attitudes toward sharks, the fact is that one can never predict the behaviour of a hungry, powerful animal which has great sensory perception, is mostly a giant, lethally-toothed mouth, but has a CPU the size of a fingertip. Even pre-contact attacks were known. A graph showed a recorded population increase from the 1800s to the 1850s; then a sharp decline as they were intensely hunted. They showed an increase once again in 2010 after Great Whites were declared protected in North Atlantic waters in 1997.

2020 In this cell phone era, everyone now has a really good camera immediately to hand. From Mabou, Cape Breton, we were shown a picture of a deeply bitten tuna missing a large chunk of flesh; it's wound was ID'd to a GWS. There are many more GWS sightings and shark events commonly reported now, especially from the Bluefin Tuna fishing industry due to the many caught and stressed tuna being hauled for quite awhile behind charter fishing boats before being reeled in. Also, there are simply many more sharks. With the increase in both their population and their main prey of seals due to both species having protected status since 1997, there is also much more carcass predation by sharks being seen now and there was a photo of a very young GWS at one.

2021 At Margaree Island near St. Rose, at 5:00 p.m., two women jumped from the back of their boat to swim; a shark came from deep below and bit one across the legs. Having missed the large femoral artery, she survived, but with 120 stitches in her huge wound which sported a necessary drainage tube.

2021 In November, Chris himself was diving with RCN friend Michael Schwinghammer a few 100 metres from Chebucto Head Lighthouse. Terrifyingly, a GWS began to widely circle them again and again, going continually between them and the shore (this is typical of seal hunting behaviour). They finally managed to get to the ascent line and their boat. This was the first confirmed diving encounter with a GWS in Canada, and Chris feels it was because nearby, right next to Duncan's Cove at Seal Rocks, there is now a regular seal colony. In the past in that area, it was reported that an unfortunate shark-bitten seal (bite ID'd to a 12 ft GWS) survived for a day before it died.



GWS PHOTO ID DEVELOPMENT

There are many Canadian legal restrictions surrounding studying, researching, photographing, and interacting with Great White Sharks. With every project, Chris has to complete an eight-page(!) Species At Risk (SARA) application. He and his colleagues finally realised that a project to develop a GWS Photo ID Database would be immensely important and useful.

A first in Canada (for both the project's aims and the fact that it was done in the water with the sharks), in October of 2020 and 2021, Chris went on two south shore photo-IDing expeditions near Lunenburg with three boats on the first year's trip and two boats on the second. With a large crew of local fishers and researchers, they began establishing a photo ID database of the sharks in the area (instead of catching and tagging them). It was a team effort and it took ten days of total sea-time.

As per SARA requirements, there was to be no attracting them with fish, nor 'chumming' – providing fresh chunks of fish with bones and blood, the scent of which attracts the sharks. A photographer friend went along to film it all, who, after hearing about the GWS population resurgence in Canada, contributed to the costs of the expedition. It was a big success given how much they knew pre-trip, and how much they now know because of the trip.

They worked the Nova Scotia coastline from Liverpool to Lunenburg, and the attractant used to bring the sharks in so that they could be filmed were the very, very, hard heads of Bluefin Tuna. "They're just like granite." Chris said. These could withstand the tremendous, repetitive bite attacks of a GWS without disintegrating, remaining whole and still alluring, so could be used over and over again without having to down tools to constantly replace the attractants.

The individual identifiable traits they concentrated upon were the pigment pattern at the gill flaps; the pelvic fin; the caudal (tail) fins; the sex; and any dorsal fin notches along with any other mutilations. The Ocean Tracking Network, who are hosting the database on this, aimed for its GWS Photo-ID Database goals to monitor the following:

Specific GWS visitor patterns and to add new sharks to the 2020 database (to date seven have been ID'd in 2020 and the 2021 expedition data is still being analysed);

Sexually mature male and females visitor patterns to compare with the west coast hypothesis of the 'every-other-year' pattern of visiting;

To document sex ratios at this site, and;

Provide 'mark-recapture' type data to be used for population estimates and demographic trends.

We were shown many good photos from these trips. Yellow buoys dragged behind the boats all had a great tuna head attached. Cameras were also pulled behind, facing continually downward, filming all the time; there were cameras hung on poles as well.

Sharks have to get really close to get good enough shots for data analysis. With Safety Diver Tony Sampson along (his job was to keep others safe by 'watching'

for any hints of untoward events) Chris was lowered in a 'shark cage'.

Sharks are 'neo-phobic', they don't like anything new and unfamiliar and this is what the team were encountering with this study – the sounds of SCUBA breathing and bubbles; strange new shapes; and all the other gear that was in the water. They showed a lack of willingness to approach Chris's cage despite bait, whereas their cams on bait without cage were repeatedly approached in the same time period. In the second year, they added drone cameras plus Gemini sonar imaging equipment to their repertoire. Regular sonar looks only sideways; but the Gemini Sonar adds 'extra eyes' to the filming, and was able to detect shark lurking behaviour. Some images showed that sharks were indeed patrolling close to shorelines in shallow, only 8 ft depths. They had 32 encounters in three days, with 13, possibly 15, sharks, all juvenile. Eight were definitely ID'd as male, one was female, and four were of unknown sex. Distinctly different markings for each shark could be seen on their pelvic fins, and the smallest shark was about 4.5 ft (birth size!). This is of great significance, as historically, GWS pupping grounds are usually south of Cape Cod.

How does this impact our marine operators and tourist diving/fishing boats? Well, since the length of shark season is extending, and their populations increasing, they'll have to keep an eye on water temperatures, and only venture forth when the water is around 6° to 7°C. Also, they'll have to watch always for the seals – that is where the sharks will be. They should notice any repeated passes by GWS as well, as this is a sign of focused hunting; anyone in the water should get out immediately. For local operators, it should be known that a group of seals have moved into Purcell's Cove in an attempt to evade sharks; it's inevitable that the sharks will follow. The worst times to be in water are first two hours before sunrise and sunset; this is when the sharks are on the hunt. Great White Sharks are definitely here now, so we have to find a way to live with and around them.

Many good questions and much discussion followed, more than a half-hour's worth. One of the questions asked was "How many are out there in our Nova Scotian waters now?" Chris replied that modelling data shows 500-1000. Chris used to do about 100 dives per year, but in the last few years that number's been reduced to 50. What are odds that he would run into one in Halifax Harbour? Unlikely if numbers were low. However, a myriad of conditions are colliding right now, and he feels many, many more are out there than previously thought. Historically they were almost wiped out because of a concerted hunting response to the release of the 1975 movie "Jaws". We've always had GWSs – from Halifax south to down around Digby – but now, the data shows the highest densities to be around more northern NS regions because ocean temperatures are increasing there. Our seawaters are now mostly 20° and this is the 'sweet spot' for Great White Sharks. Too, legalised protection of both GWSs and seals since 1997 has increased both populations. The doubling time for GWS populations is 26 years, so from 1997 to present 2022, we now have reached that doubling since they were first protected.



Their protection is heavily regulated south of the border as well, and the larger sharks from those increasing populations have started to come north both for the increasing numbers of seals and for their preferred increasing warmer water temperatures. It used to be thought they were most numerous here in August, but now Chris thinks it's October. Presently, the lengths seen here are from between 6.5 to 15 ft (neo-natal to adult sizes). They prefer 16 - 20°C but also don't mind 12° - 13°C (which was the bottom temperature in November when Chris and his Navy friend experienced that frightening shark encounter). If you and your family are worried about swimming where there might be sharks, check the water temperature before you go to ensure it is not in the range sharks prefer.

Chris is also astounded by how shallow he finds them. A US colleague gets them in 15 ft or less and some are monsters in size. Why so shallow? Because that's where the seals are! So – shallow water does not ensure that there will be no sharks.

Seal pupping grounds are found all along the coasts between Nova Scotia and New Jersey. Then they go to winter off the Carolinas and are often there for several years before they begin to move further afield. Nova Scotia and area's seal breeding colonies are at its southern tip, the Sherbrook area (Liscombe), Cape Breton, Cape George, the Northumberland Strait and its islands, the Bay of Fundy off Maine, the Minas Basin (a lot are there), and PEI. We have an unprecedented number of seals right now, and about 87,500 new seals per year are added to our oceans – a huge and abundant source of predator-naïve food (the pups). This is the irresistible magnet which brings the Great White Sharks to our waters.

There are also now new seal colonies in different places which didn't exist pre-2000. There are about 44,000 Grey seals north of the Canadian border, and about 40,000 south of it. So – the future of GWSs in the Northern Atlantic? This unlimited, protected, fast-growing food source will only increase them.

Chris shared an interesting story from Capetown's False Bay, South Africa, where there was a multi-million shark viewing tourist industry. Suddenly, GWSs and their sightings had fallen right off, and the seal populations subsequently began to increase. It was found that orcas, who eat GWSs for their giant livers which are like caviar to them, had discovered this plethora of sharks and had come to take advantage of their numbers.

Dr. Chris Harvey-Clark has been deep water diving for over 40 years. He has written and published over 30 Natural History documentaries for Discovery Channel, BBC, National Film Board of Canada, History Channel, Netflix, and National Geographic. His extensive research encompasses a wide variety of expertise including investigating the biology of the Leatherback Sea Turtle, the endangered Atlantic Whitefish, the Greenland Shark, and Great White Sharks. Notably, Chris was the first underwater photographer in Canadian waters to photograph the Great White Shark.

CHIMNEY SWIFTS

2 JUN.

– Bernie McKenna

This meeting seemed to stand out for me for a few reasons. One – It was an in-person meeting in the museum theatre with 16 people attending. Not bad considering it was a change of subject on fairly short notice. Two: It was the last meeting before the July/August break and it was as above in-person versus Zoom, and Three: It was the second HFN talk given by Birds Canada in 2022.

Remember, back in February, Laura Bartlett had given us an excellent talk on Piping Plovers (newsletter No.186). Now here was Rielle Hoeg, an Aerial Insectivore Program technician, following up with this presentation on the somewhat elusive and secretive Chimney Swifts. This talk was initially slated for September but ended up being switched to June because of scheduling hiccups with the one which was originally planned (which now will take place in September). Thankfully, Rielle and Birds Canada stepped into the void and allowed us to have a live talk where there may have had to be none at all.

Rielle laid out the Chimney Swifts' identification, life history, conservation, and trends for all of us to absorb; she covered the topic with ease and did the same with the Q&A session at the end.

IDENTIFICATION

Adult Chimney Swifts are 13 to 14 cm' in length and appear very streamlined in flight, so much so that once one is familiar with them, they become easy to identify. Their feathers are a sooty or mottled brown in colour over the entire body both top and bottom. If you had one in your hands you'd notice several points. You'd see they have an enormous mouth for the size of the bird, which extends back past their eye! No doubt a functional adaptation that assists in capturing the thousands of flying insects they catch on the wing. You'd also note their large feet and short legs, again a feature that must assist in their roosting and nesting procedures on vertical surfaces. The shafts of their tail feathers extend past the vanes of their tails and this is a benefit which stabilises them when roosting or resting on a vertical surface – I suspect much as a woodpecker's tail helps them brace when clinging to a tree trunk.

BREEDING/NESTING

Swifts are late nesters – not getting into 'family mode' until July or August. They are monogamous in their nesting habits but roost communally in large numbers when not actively nesting, frequently in the hundreds. While they roost communally, when nesting they are territorial, with only one pair using any one nest site. Also, it is common for the same pair to use the same nest site year after year. Their nests are cup-shaped and constructed of twigs which both adults carry to the nest site. These twigs are then secured together and attached to the vertical surface with the bird's saliva. Preferred nesting sites are often unlined brick chimneys, tree cavities, old abandoned barns or buildings, and in one



documented case – an open, unused rock-lined well! Normally, four small white eggs are laid in the clutch but this number can and does vary. Once the eggs hatch life gets busy with both adults making countless trips to and from the nest during the day to keep filling their ever-hungry mouths. Some parents are fortunate in that sometimes they are assisted by one or more unpaired relations. This is an advantageous practice several species of birds have developed over time to the benefit of their numbers.

DISTRIBUTION

Chimney Swifts arrive in Nova Scotia and New Brunswick over a period in stretching through April and May, but as above they don't nest immediately and instead will roost at night at communal sites. At one regular site on Temperance Street in new Glasgow approximately 900 birds roost there, making it the largest known roost site in the province. Interestingly enough there are no known nesting sites in the New Glasgow area! Bridgetown also has a sizeable population in a purpose-built brick chimney which was constructed when a local high school along with its old chimney was demolished. It's claimed this purpose-built free-standing replacement brick chimney is the first successful one to be built in Canada (further information on the above two sites can be found by searching SwiftWatch New Glasgow or Bridgetown). Wolfville in the valley has two roosting sites; one is the Robie Tufts Nature Centre on Front Street, and the other is the Acadia University Hall on University Avenue. New Brunswick has a solid nesting population but P.E.I. has no known birds, and apparently, it never has. Nationally, their range stretches from Saskatchewan through Ontario, Quebec, and on to N.B. and N.S. After nesting season, the fall southern migration starts in September and eventually they end up (according to Tufts) in Peru, often a few hundred miles below the equator. They'll stay there from December through March before heading north again.



CONSERVATION

As do all other aerial insectivores, Chimney Swifts face numerous threats and obstacles in maintaining their populations. Habitat loss in both their winter and summer range is a very big problem; also, in Peru, logging and burning of forests is a constant threat. In their nesting locations the problems seem more immediate – new, unlined brick chimneys do not exist anymore, and old unlined ones are either being torn down, replaced, or will have metal liners installed; neither situation works for the Swifts. As well, solar and heat pump systems are taking a toll on brick chimneys. Old growth forests with good nesting trees are pretty much a thing of the past, and I suspect new growth is virtually useless as a nesting area. Climate change itself is negatively affecting everything – from their insect food supply, nesting sites, and also who knows what effect insecticide use is having on them. We all remember DDT. Every study done indicates they and other similar species are in a rapid decline situation.

As with the Piping Plovers, Birds Canada is taking several steps to try and help the Swifts. There's a Maritime SwiftWatch program where staff and trained volunteers are doing ongoing surveys to monitor the bird's situation. Birds Canada has a 1 to 1 Chimney Swift repair program where they will match expenditures on a 1 to 1 basis for a person who makes a repair to a known nest site. For further info on that program contact marswifts@birdscanada.org. Birds Canada also engage the public by giving public educational talks to other various organisations and groups. They also have an agricultural engagement program designed to assist the agricultural industry by raising their awareness about any practices which affect them, either positively or negatively.

This then is a summary of Rielle's presentation to our members at the June meeting. In closing it can be said Birds Canada, through both Laura Bartlett and Rielle Hoeg, have been most generous in giving their time and sharing their considerable knowledge at these meetings. For these efforts I'm sure all our HFN members are truly thankful.

HFN FIELD TRIPS

SEAWEEDS HIKE

– Susan Holmes

Date: Friday, April 29th

Place: D'Aubin's Cove, adjacent to Peggy's Cove

Weather: Cloudy, cold, drizzle, then rain; 7°C

Leaders: Herb Vandermeulen and Bev Hymes

Participants: ±18

About eighteen hikers, all keen to learn more about seaweed, met in the gravel parking lot where Route 333 meets Peggy's Point Road. There was a film crew swarming the road on the way to the lighthouse, so it was just as well we didn't have to drive further to park as the weather was becoming wetter. Our guides and sources of amazing seaweed knowledge were Bev



Hymes and Herb Vandermeulen, assisted by Dalhousie University diver John Lindley and Dalhousie Teaching Fellow and Instructor Lara Gibson.

Before we got going, Herb and Bev (in her wise and fully waterproof boots, and shiny yellow coat and pants with warm layers underneath), went ahead to 'set up' for us on the steep rocks. Just then, a mother with her 5½ month old son Marty arrived to join us, but as she got out of the car, she accidentally locked its keys in the vehicle, along with her cell phone and warm clothes! Fortunately, one of the participants called CAA.

After a little while, Herb returned without Bev, and off he led us, with Mum and baby waiting behind for CAA to come. First, we were cautioned about the slippery rocks



and mud we'd encounter on the way to the shore. It was certainly indeed muddy and with some unavoidable deep puddles, but it wasn't as yet raining so we merrily traipsed down a very narrow hilly trail, noting the different flora on the way (and hearing a trumpet being played somewhere off in the distance!). On reaching some comparatively flatter spaces on the giant rolling granites near the water, Bev, Lara, and John were all prepared and waiting for us with four or five large plastic trays. Filled with salt water and a variety of seaweeds for us to see and handle, they'd been laid out on the rocks. All of these contained seaweeds which had been pre-collected by diver John Lindley at Terrence Bay and then brought to our site (they were all returned to the water on final wrap up). Most of them were darkish brown and/or red, so the bright green Sea Lettuce really stood out.

The tide was low .2 one, and this was ideal for our hike as now Herb talked about and could show us the different seaweeds found on tidal rocky shores in the upper, middle, and lower tidal zones, each one of which presents its own unique conditions to which each algae has to adapt to survive. This was followed up later by an email with a sketch of them (specifically at Peggy's Cove) from a wonderful 1974 publication by Louis A. Hanic, *A Guide to the Common Seaweeds of Prince Edward Island*.

Herb pointed out a pond which is heavily influenced by saltwater intrusion twice per month during highest tides. There is more salt at the bottom of the pond where things 'rot out', and there is an amazing distribution of different species adapting to conditions at the different depths. Herb also explained how the exposed seaweed in the tidal pools was much lighter in colour than that deeper down and thus less exposed to sun bleaching. Protected on the rocks under this seaweed was animal life in the form of snails, periwinkles, small crabs, and other sea life; one of us looked for mussels but did not see any.

There were some salt marsh grasses visible in another muddy spot, and apparently it was the blue-green algae we saw there which was holding these sediments together for those grasses – through all weathers.

Because we were now near a place where rogue waves occur, and because these rocks can be very slippery (especially the 'black' ones), Herb demonstrated the use of a heaving line for our safety (as is used for boating). A rope with a weighted float is thrown to you. You grab the rope, *not* the float, and make a loop around your body; most importantly, the loop should be right under your armpits, not around your waist. You then tie it so that one arm is in a loop; when the rope is then pulled by the thrower, it all tightens up securely and one can be brought out of the water to safety. NB – Herb said to always only loosely 'stuff' the finished-with rope back in its bucket – don't attempt to coil it, or it will tangle when needed to be thrown next time. Another safety tip Herb mentioned for us was that walking was much less hazardous on the seaweeds near the tidal pools than on the exposed rocks; he also noted that every time they bring students down, at least one of them will slip and fall in!

The horizontal line you see from a distance on vertical

rocky seashores, which separates the lower dark rocks from the upper white ones, is called the varicar zone. The brown algae colouring the lower rocks have accessory carotenoid pigments which turn the rocks brown; these are the same carotenoids as found in carrots! One of these is a common one we all know – Rockweed *Fucus distichus*, (distichus referring to the opposite rows of leaflike structures on either side of each branch). The characteristic dichotomous branching pattern (in which the axis is divided into two branches) identifies it, as does its little 'poppable' air bladders which float it closer to the light, and also its profuse growth in the upper and middle intertidal zones. Rockweed is very important food for Common Eiders, and because 20,000 metric tons of it are harvested by us humans every year, this is of some concern for that species.

All life on shore and rocks is layered according to its desiccation tolerance. The water level was low enough that both the reddish Irish Moss and the very bright green Sea Lettuce were both exposed right at the water's edge, and a few kelp blades were just visible in the wave troughs just out from the rocks. There are four to five kelp species which grow in the lower tidal zones and also deeper. Some kelps are used to produce agar gel (think lab petrie dishes), and PEI was its lead supplier until the 1970s, when the industry collapsed due to over-harvesting with its very destructive dragnets. Although our kelps are of a better quality, the Philippines' supply is good enough and large enough to fulfil world markets, so that helps our environment. Sugar Kelp *Laminaria saccharina* is a yellowish brown marine algae widely cultivated and eaten in Asia and growing in popularity in the United States as a nutritious food high in fiber, vitamins, and minerals. Sugar Kelp has long been known as a sweetener and it has thickening and gelling qualities which can be added to food and cosmetics; Sea Urchins love to eat sugar Kelp. Bev also brought out the gooey brown kelp *Laminaria digitata*, with its long fingers (or digits) which grow from one base; it has a very high tannin content which kills sea urchins.

Another heavily harvested algae is the red Irish Moss *Chondrus crispus*. (I have also harvested this when sun-bleached and storm-tossed on beaches but still successfully used it as a thickener for puddings - ed.). Two thousand metric tons of Irish Moss are harvested for processing every year. This seaweed has the substance carrageenin which has commercially important thickening and emulsifying properties. One example is where the emulsifying component enables cocoa powder to be permanently suspended in chocolate milk instead of sinking to a gritty layer at the bottom; it also makes it nice and creamy. Carrageenin can also be used as an acceptable substitute for kelp agar gel, and as a powerful antibacterial.

We heard that everything nature provides along our shorelines are all important components of a delicate ecosystem – therefore commercial harvesting must be managed so our shores are not raped. This is the time of year when some algae species are reproducing, and some believe that harvesting should be banned at this time to allow new growth to take place. However, both



the amount and timing of harvesting are still controversial.

The pink one sees on seashore rocks (and coating undersea bottles and other objects immersed for a long time) is Coralline Algae which also grows in 90-metre-deep waters. It will slowly bleach out in the sun and turn white. Coralline algae are red algae in the order Corallinales. They are hard because of calcareous deposits contained within their cell walls. The colours of these are most typically pink, or some other shade of red, but some species can be purple, yellow, blue, white, or gray-green.

Herb gave a great demonstration which explained the reason for differing seasonal tidal highs and lows by using people as the sun, moon, and earth. He explained that it's the changing distances of both the sun and the moon from the earth's imperfect sphere as they make their yearly orbits which modify tide heights; if the earth were a perfect sphere, we'd have unchanging high and low tide levels. Also, land forms such as archipelagos and long sea basins can greatly influence tide heights, as is such places as Prince Rupert, B.C. and the Bay of Fundy. (It was around now that Mum with baby Martin were finally able to join us on the shoreline rocks – just as the tap from above started to increase!)

Seaweeds can be rinsed of salt, then dried, chopped, and put in the garden. Acadia Seaplanets on the southwest shore harvests the rockweed *Ascophyllum nodosum*, and dries it on abandoned runways. This is a large, common cold water brown seaweed in the Fucaceae family – the only species in the genus *Ascophyllum*. It grows only in the northern Atlantic Ocean and is a great natural fertiliser for gardens. Its spores can be 40 years old, and it grows only one bulb per year, so you can use this to determine age. The dots or bumps on it are sperm and egg. May is a big budding month so harvesting during this time is controversial.

A new HFN member, I had blithely volunteered to take notes; however, I was ill-prepared for how cold the air and wind became, along with the ensuing rain. With necessary mittens, writing was awkward, and of course, all the rain caused the ink to run! A helpful participant provided a pencil but by this time my enthusiasm for note taking had dwindled in direct proportion to the increasing rain and my shivering body.

We also saw a lacey looking seaweed, little shrimp Arthropods, Isopods that looked like little boats, and *Culmenia* which is a Japanese invasive seaweed, looking exactly like a hollow ball. Dead Man's Fingers *Codium fragile* occurs in the low intertidal zone, and subtidal on high-energy beaches. The whole plant consists of only one cell! The rounded tips of their closely packed 'utricle' give the fronds a velvety texture. These hang down from rocks during low tide, hence the nickname 'dead man's fingers' (which can be up to a centimeter wide and sometimes over 30 centimeters long).



At this point it began to rain *really* hard and I headed back to the parking lot along with some other shivery souls. Some who were braver (and suitably dressed like fishermen in winter) headed down to the ocean with the guides.

A sincere thank you goes out to Bev, Herb, John, and Lara for all their wonderful pre-preparation, and willingness give of their time to share all their seaweed knowledge with us under not the most ideal of conditions.



BROOKFIELD WETLANDS

– Bernie McKenna

Date: Saturday, May 14th

Place: Near Brookfield

Weather: Warm and sunny; light breeze

Leader: Emma Bocking

Participants: 7

Our very own HFN member Emma Bocking very capably led our small but attentive crew on this wetlands outing. Though quite small, our numbers made for a very enviable student/teacher ratio and allowed for a constant Q&A process from start to finish. A quick word or two about our leader – she has been living and working in Nova Scotia since 2015, mainly with Ducks Unlimited. However, recently she has switched over to HRM in a very similar environment. I should note she has previously given us a talk on HRM Wetlands at the Museum – on November 21st, 2021 (see Issue No. 185,) and is very involved in HFN as a board member at large, is active with the YNC organization, and gives wonderful walk guidance. This particular walk dovetailed very well with that earlier talk and essentially took us from theatre discussion to onsite reality (although at a manmade, but wonderfully done, wetlands).

At this point a brief history or rundown on Brookfield Wetlands is probably in order. This area is a joint venture between Ducks Unlimited and LaFarge Cement of Brookfield. Their collaboration resulted in the truly wonderful and productive wetlands we see today. While built recently, in 2009, you'd think it has been there forever, due to the borders having softened and naturalised so completely. Both of these partners should be commended for their foresight and determination in this environmentally positive accomplishment.

These wetlands are 20 acres in total size and have 1.8 kms of excellent walking trails which take you completely around the perimeter of both of its large ponds. The ponds are constructed with plenty of raised areas, and this allows for many suitable nesting locations. A small brook separates the two ponds but doesn't appear to directly feed either and is spanned by a small wooden bridge which perfectly suits its location and purpose.

Spaced along the trails are three very well-done interpretive panels which detail this wetland's features and inhabitants. There are over a dozen Tree Swallow nesting boxes that have been erected and it appears they were likely all in use! Several had Swallows peering out as we went by and most had metal barrier plates around their entrances to help deter predators and other birds. During the entire walk I doubt there was a minute where Swallows couldn't be seen swooping gracefully over the pond waters.

When we arrived at 10:00 a.m. it was 17°C and on the hike's wrap-up at noon it had risen to 22°C. With the accompanying light breeze and sunshine it's hard to imagine we could have had a better day, my own jacket soon came off and stayed off!

Obviously, the whole set-up caters to waterfowl and marsh loving birds. A list of the birds seen is as follows, Canada Geese, Mallards (both species appeared to be on nests,) Grackles, countless Red Winged Blackbirds, American Goldfinch, Yellow Warblers, Yellow Rumped Warblers, Bald Eagle, Crows, Tree Swallows, Robins, and several small birds too far away to positively identify. Emma said the brightness of the male Red Winged Blackbirds shoulder patches helps demonstrate his vitality and thus assists the female in her choice of a partner. One female stuck very close to her throughout. During all this, the avid birder in our midst was clearly captivated, especially by all the warblers and those nest box Swallows peering out. During the entire walk we had been in high hopes of seeing an Eastern Bluebird (it would have been a definite highlight!) which a lady, who was just leaving as we arrived, said she'd seen or thought she had seen. She may well have, as her camera lens itself was as long as my arm! Alas it was not to be – but it was the only downer during the whole day.



Beside birds there were a multitude of other finds, one being a Snapping Turtle in the grass by the bridge heading to one of the ponds. It didn't seem to be impressed by us in the least, it just carried along on its way and eventually entered its destination pond. Just after crossing the bridge, on the right hand side, was a willow about four feet in height which was still very much in bloom. These blooms were attracting 20 or more bees of various kinds which were giving the blossoms a thorough workover. In the same area at the edge of the trail were two unfamiliar flowers which Emma identified as Bitter Cress and Winter Cress, apparently both from the mustard family. I must say Emma was very proficient in iNaturalist and used it to confirm her own thoughts on several occasions. Here too one of the walkers pointed out a small Catfish/Brown Bullhead at three or four inches. These fish normally grow to about 12 inches or so but can reach up to 20 inches (I've never personally seen one over 12 inches). The small brook we crossed contained small fish which were probably Sticklebacks, but only probably – no clear identification was made. In the entire walk only one snake (Garter) was seen and then only briefly before it vanished in the grass. I suspect we likely interrupted its frog hunting for one of the many frogs also seen along the water's edges.



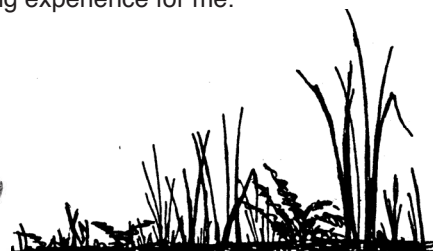
As to other plants there was a great variety, everything

from alders, to duckweed, and more. Mostly alders virtually surround the whole site and they made perfect cover and also a feeding area for the birds. Several kinds of willows in varying stages of growth, some barely in bud but others half leafed out, grew along the sides of the paths. As well, clump grasses are abundant and Emma gave us an introduction to them and how they can change and alter wetlands over time. She also took the time to point out, identify, and differentiate between reeds, sedges, and grasses – all such interesting information but not anything I'll try to detail in writing here. Water lilies were just starting to spread their pads over the water's surface, and duckweed seemed to be clustered along every inch of shoreline. The cattails and bulrushes weren't showing too much yet, at least any which could be seen from the paths. However, the overwintered seedheads were still hanging on and no doubt had been tucked into many bird nests.

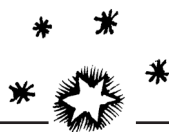


That pretty much wraps up the day other than to mention on the way back there was a father with what looked like twin boys of three or so who had them fishing with bobbers and worms for catfish, he assured me it didn't look like supper was in the works! After a brief chat at the cars Emma was sincerely thanked for taking the time to lead us on such an enjoyable outing. Every outing I go on I am always amazed at the levels of knowledge all our walks and leaders present and their eager willingness to share it.

On the back leg of our walk we had seen an adult Canada Goose with only one gosling, they were on a path eagerly eating new grass shoots. With only one young, I'm sure we all wondered what terrible tragedy had brought this on. As we got closer, they both entered the pond and swam off, with the gosling sticking very close to the adult. Not seeing any other geese, and with lots more to discover, we all carried on, probably not thinking much more of the situation. However, four days later on facebook I saw a video by a Brookfield Wetlands regular of a full goose family which had one gosling much larger than its siblings. I asked the originator if the lone gosling we had seen was the same as the larger one seen in his video; he confirmed that indeed it was. Apparently the adult gander had adopted the orphaned gosling and took it under wing, so to speak. Then, when its own clutch had hatched out, the orphan was adopted into the full clutch and a blended family was created. Apparently ducks and geese are known to do this on a regular basis. This trait made the sighting and story a truly heartwarming experience for me.



ALMANAC



This almanac is for the dates of events which are not found in our HFN programme: for field trips or lectures which members might like to attend, or natural happenings to watch for, such as eclipses, comets, average migration dates, expected blooming seasons, etc. Please suggest other suitable items.

"On the first full day of summer the sun is up / the sky as far as it will get and now it will / head south to warm the Antipodes, where today / it rains and gales blow up from the Antarctic."

– "Solstice", by Ellen Dudley

NATURAL EVENTS

- 20 Jun. [to 2 Jul.] Latest evenings of the year (sunset at 21:03).
- 21 Jun. Summer Solstice (first day of summer in the Northern Hemisphere) occurs at 05:05 AST.
- 29 Jun. New Moon.
- 6 Jul. Start of Mi'kmaw moon cycle Peskewiku's (Birds Shedding Feathers).
- 13 Jul. Full Moon ('Supermoon' closest approach to Earth) rises at 21:33 AST.
- 16 Jul. Canada Parks Day.
- 28 Jul. New Moon.
- 28-29 Jul. Peak Delta Aquarids Meteor Shower (meteors radiate from constellation Aquarius).
- 7 Aug. Start of Mi'kmaw moon cycle Kisikewiku's (Berry Ripening).
- 11 Aug. Full Moon (also a 'Supermoon') rises at 20:47 AST.
- 12-13 Aug. Peak Perseids Meteor Shower (meteors radiate from constellation Perseus).
- 14 Aug. Saturn at Opposition (closest approach to Earth and face fully illuminated).
- 27 Aug. New Moon.
- 28 Aug. Mercury at greatest eastern elongation (view low in western sky just after sunset).
- 7 Sep. Start of Mi'kmaw moon cycle Wikumkewiku's (Mate Calling)
- 10 Sep. Full Moon rises at 20:06 AST.
- 16 Sep. Neptune at Opposition (too distant to see except with a powerful telescope).
- 22 Sep. Autumn Equinox at 22:03 AST (1st day of autumn).
- 25 Sep. New Moon.
- 26 Sep. Jupiter at Opposition.



– Sources: *Sea and Sky Astronomy Calendar*, *SkyNews*, *Mi'kmaw Moons Connects with Two-Eyed Seeing* (Brunjes 2021)

SUNRISE AND SUNSET ON SUMMER SATURDAYS FOR HALIFAX: 44 39 N, 063 36 W

4 Jun.	05:30	20:55	2 Jul.	05:33	21:03
11 Jun.	05:28	20:59	9 Jul.	05:38	21:00
18 Jun.	05:28	21:02	16 Jul.	05:44	20:56
25 Jun.	05:30	21:03	23 Jul.	05:51	20:50
			30 Jul.	05:58	20:42
6 Aug.	06:06	20:33	3 Sep.	06:39	19:47
13 Aug.	06:14	20:23	10 Sep.	06:47	19:34
20 Aug.	06:22	20:11	17 Sep.	06:55	19:21
27 Aug.	06:30	19:59	24 Sep.	07:03	19:07

– Source: www.timeanddate.com. All times local.

ORGANISATIONAL EVENTS

Atlantic Geoscience Society <https://atlanticgeosciencesociety.ca>

19-21 Aug. "55th Parrsboro Gem and Mineral Show" at the Lions Recreation Centre, 210 King Street.

Blomidon Naturalists Society <https://blomidonnaturalists.ca>

25 Jun. "Nova Scotian Wildflowers", an all-day course with leader Alain Belliveau; location TBA

10 Sep. "Fun With Fungi!", an all-day course with leaders Allison Walker & Keith Egger at Ross Creek Centre for the Arts

Canoe/Kayak Nova Scotia <https://ckns.ca>

17 Sep. "Fred Lynch Memorial Canoe Race" (open to kayaks/paddle boards too) at Dartmouth Lakes, from 9:00 a.m. to 5:00 p.m.

Nova Scotia Bird Society <https://www.nsbirdsociety.ca>

30 Jul. "Mahone Bay Field Trip" with leader James Hirtle

23-25 Sep. "Brier Island Weekend" with leader James Hirtle.

29 Sep. "Vocal Learning and Neurobiology in the Anthropocene" via Zoom, with speaker Brodie Parks, MSc., 7:00 to 10:30, more details TBA.

Nova Scotia Department of Natural Resources <http://www.novascotiaparks.ca/>

16 Jul. "Canada Parks Day"; look for events at local Parks Canada sites.

Royal Astronomical Society of Canada, Halifax Centre <http://halifax.rasc.ca>

26-28 Aug. "Nova East Star Party" at Smiley's Provincial Park.

Young Naturalists Club <https://yncns.ca>

25 Jun. Nature Guardians' "Monarch Hunt and Lady Slipper Counting" at Shubie Park, from 2:00 p.m. to 5:00 p.m.

– compiled by Don Flemming

HALIFAX TIDE TABLE



July-juillet

August-août

September-septembre

Day	Time	Metres	Feet	jour	heure	mètres	pieds	Day	Time	Metres	Feet	jour	heure	mètres	pieds	Day	Time	Metres	Feet	jour	heure	mètres	pieds
1	0331	0.3	1.0	16	0409	0.0	0.0	1	0414	0.3	1.0	16	0520	0.2	0.7	1	0458	0.4	1.3	16	0618	0.6	2.0
	0942	1.6	5.2		1003	1.9	6.2		1024	1.7	5.6		1106	1.9	6.2		1101	1.8	5.9		1151	1.7	5.6
FR	1538	0.7	2.3	SA	1638	0.4	1.3	MO	1632	0.6	2.0	TU	1804	0.4	1.3	TH	1745	0.4	1.3	FR	1906	0.5	1.6
VE	2134	1.7	5.6	SA	2209	1.9	6.2	LU	2225	1.7	5.6	MA	2323	1.7	5.6	JE	2324	1.6	5.2	VE			
2	0406	0.4	1.3	17	0501	0.0	0.0	2	0450	0.3	1.0	17	0609	0.3	1.0	2	0547	0.5	1.6	17	0026	1.5	4.9
	1017	1.6	5.2		1052	1.9	6.2		1059	1.7	5.6		1148	1.8	5.9		1141	1.7	5.6		0716	0.7	2.3
SA	1615	0.7	2.3	SU	1738	0.4	1.3	TU	1720	0.6	2.0	WE	1858	0.4	1.3	FR	1843	0.4	1.3	SA	1237	1.6	5.2
SA	2211	1.7	5.6	DI	2259	1.8	5.9	MA	2303	1.7	5.6	ME				VE				SA	1959	0.6	2.0
3	0443	0.4	1.3	18	0554	0.1	0.3	3	0530	0.4	1.3	18	0009	1.6	5.2	3	0011	1.6	5.2	18	0119	1.4	4.6
	1054	1.6	5.2		1139	1.8	5.9		1134	1.7	5.6		0701	0.5	1.6		0649	0.6	2.0		0818	0.8	2.6
SU	1700	0.7	2.3	MO	1838	0.4	1.3	WE	1812	0.5	1.6	TH	1231	1.7	5.6	SA	1227	1.7	5.6	SU	1331	1.5	4.9
DI	2248	1.7	5.6	LU	2349	1.7	5.6	ME	2345	1.6	5.2	JE	1952	0.5	1.6	SA	1946	0.4	1.3	DI	2052	0.6	2.0
4	0523	0.4	1.3	19	0648	0.3	1.0	4	0615	0.4	1.3	19	0059	1.5	4.9	4	0106	1.5	4.9	19	0227	1.4	4.6
	1131	1.7	5.6		1225	1.8	5.9		1213	1.7	5.6		0757	0.6	2.0		0758	0.6	2.0		0919	0.8	2.6
MO	1751	0.7	2.3	TU	1935	0.4	1.3	TH	1908	0.5	1.6	FR	1320	1.6	5.2	SU	1322	1.7	5.6	MO	1439	1.5	4.9
LU	2327	1.6	5.2	MA				JE				VE	2046	0.5	1.6	DI	2051	0.4	1.3	LU	2145	0.6	2.0
5	0606	0.4	1.3	20	0041	1.6	5.2	5	0033	1.6	5.2	20	0157	1.4	4.6	5	0213	1.5	4.9	20	0354	1.4	4.6
	1211	1.7	5.6		0741	0.4	1.3		0708	0.5	1.6		0855	0.7	2.3		0906	0.6	2.0		1015	0.8	2.6
TU	1846	0.7	2.3	WE	1314	1.7	5.6	FR	1258	1.7	5.6	SA	1416	1.5	4.9	MO	1431	1.7	5.6	TU	1557	1.5	4.9
MA				ME	2031	0.4	1.3	VE	2007	0.5	1.6	SA	2139	0.5	1.6	LU	2156	0.3	1.0	MA	2236	0.6	2.0
6	0010	1.6	5.2	21	0136	1.5	4.9	6	0129	1.5	4.9	21	0310	1.4	4.6	6	0338	1.5	4.9	21	0502	1.5	4.9
	0652	0.5	1.6		0836	0.5	1.6		0808	0.6	2.0		0955	0.7	2.3		1014	0.6	2.0		1105	0.7	2.3
WE	1253	1.7	5.6	TH	1407	1.6	5.2	SA	1351	1.7	5.6	SU	1523	1.5	4.9	TU	1552	1.7	5.6	WE	1659	1.5	4.9
ME	1942	0.6	2.0	JE	2126	0.4	1.3	SA	2108	0.4	1.3	DI	2232	0.5	1.6	MA	2259	0.3	1.0	ME	2325	0.5	1.6
7	0101	1.5	4.9	22	0240	1.4	4.6	7	0236	1.5	4.9	22	0430	1.4	4.6	7	0501	1.6	5.2	22	0549	1.5	4.9
	0742	0.5	1.6		0931	0.6	2.0		0912	0.6	2.0		1053	0.7	2.3		1119	0.5	1.6		1148	0.7	2.3
TH	1340	1.7	5.6	FR	1505	1.6	5.2	SU	1454	1.7	5.6	MO	1632	1.5	4.9	WE	1708	1.8	5.9	TH	1746	1.6	5.2
JE	2038	0.6	2.0	VE	2219	0.4	1.3	DI	2211	0.3	1.0	LU	2322	0.5	1.6	ME				JE			
8	0201	1.5	4.9	23	0351	1.4	4.6	8	0353	1.5	4.9	23	0533	1.5	4.9	8	0000	0.2	0.7	23	0009	0.4	1.3
	0834	0.5	1.6		1029	0.6	2.0		1018	0.6	2.0		1144	0.7	2.3		0604	1.7	5.6		0628	1.6	5.2
FR	1433	1.7	5.6	SA	1605	1.6	5.2	MO	1606	1.8	5.9	TU	1729	1.6	5.2	TH	1221	0.4	1.3	FR	1227	0.6	2.0
VE	2135	0.4	1.3	SA	2310	0.4	1.3	LU	2314	0.3	1.0	MA				JE	1811	1.9	6.2	VE	1827	1.7	5.6
9	0310	1.5	4.9	24	0459	1.4	4.6	9	0508	1.5	4.9	24	0009	0.4	1.3	9	0055	0.1	0.3	24	0049	0.3	1.0
	0931	0.5	1.6		1125	0.6	2.0		1124	0.5	1.6		0621	1.5	4.9		0656	1.8	5.9		0702	1.7	5.6
SA	1531	1.8	5.9	SU	1701	1.6	5.2	TU	1716	1.9	6.2	WE	1227	0.7	2.3	FR	1319	0.3	1.0	SA	1305	0.5	1.6
SA	2233	0.3	1.0	DI	2358	0.4	1.3	MA				ME	1816	1.6	5.2	VE	1906	1.9	6.2	SA	1905	1.7	5.6
10	0421	1.5	4.9	25	0556	1.5	4.9	10	0015	0.2	0.7	25	0051	0.4	1.3	10	0146	0.1	0.3	25	0125	0.3	1.0
	1032	0.5	1.6		1216	0.6	2.0		0613	1.6	5.2		0702	1.6	5.2		0743	1.9	6.2		0734	1.7	5.6
SU	1631	1.8	5.9	MO	1751	1.6	5.2	WE	1228	0.4	1.3	TH	1303	0.6	2.0	SA	1413	0.3	1.0	SU	1344	0.4	1.3
DI	2332	0.2	0.7	LU				ME	1820	1.9	6.2	JE	1856	1.7	5.6	SA	1956	1.9	6.2	DI	1943	1.7	5.6
11	0526	1.6	5.2	26	0042	0.4	1.3	11	0113	0.1	0.3	26	0129	0.3	1.0	11	0233	0.1	0.3	26	0159	0.2	0.7
	1135	0.5	1.6		0644	1.5	4.9		0711	1.8	5.9		0738	1.6	5.2		0828	2.0	6.6		0807	1.8	5.9
MO	1731	1.9	6.2	TU	1259	0.7	2.3	TH	1329	0.4	1.3	FR	1336	0.6	2.0	SU	1503	0.2	0.7	MO	1423	0.3	1.0
LU				MA	1837	1.6	5.2	JE	1918	2.0	6.6	VE	1934	1.8	5.9	DI	2043	1.9	6.2	LU	2022	1.7	5.6
12	0031	0.1	0.3	27	0123	0.3	1.0	12	0206	0.0	0.0	27	0204	0.3	1.0	12	0317	0.1	0.3	27	0234	0.2	0.7
	0625	1.6	5.2		0727	1.6	5.2		0804	1.9	6.2		0812	1.6	5.2		0910	2.0	6.6		0840	1.8	5.9
TU	1237	0.4	1.3	WE	1336	0.6	2.0	FR	1426	0.3	1.0	SA	1410	0.5	1.6	MO	1551	0.2	0.7	TU	1504	0.2	0.7
MA	1830	2.0	6.6	ME	1918	1.7	5.6	VE	2011	2.0	6.6	SA	2011	1.8	5.9	LU	2128	1.8	5.9	MA	2101	1.7	5.6
13	0128	0.0	0.0	28	0159	0.3	1.0	13	0256	0.0	0.0	28	0236	0.2	0.7	13	0400	0.2	0.7	28	0310	0.3	1.0
	0722	1.7	5.6		0806	1.6	5.2		0854	1.9	6.2		0845	1.7	5.6		0950	1.9	6.2		0915	1.8	5.9
WE	1338	0.4	1.3	TH	1407	0.6	2.0	SA	1522	0.3	1.0	SU	1447	0.4	1.3	TU	1638	0.3	1.0	WE	1547	0.2	0.7
ME	1928	2.0	6.6	JE	1958	1.7	5.6	SA	2102	2.0	6.6	DI	2048	1.8	5.9	MA	2212	1.8	5.9	ME	2141	1.7	5.6
14	0223	0.0	0.0	29	0234	0.3	1.0	14	0344	0.0	0.0	29	0309	0.2	0.7	14	0443	0.3	1.0	29	0350	0.3	1.0
	0818	1.8	5.9		0842	1.6	5.2		0940	1.9	6.2		0917	1.7	5.6		1030	1.9	6.2		0953	1.8	5.9
TH	1438	0.3	1.0	FR	1438	0.6	2.0	SU	1616	0.3	1.0	MO	1526	0.4	1.3	WE	1726	0.3	1.0	TH	1634	0.2	0.7
JE	2023	2.0	6.6	VE	2036	1.8	5.9																