

Conservation





The sound of **silence**

Imagine being outdoors and hearing nothing. No sweet sounds of an American goldfinch, cedar waxwing or western bluebird. Nothing. Just silence.

It's almost unimaginable yet as we continue to lose grasslands, wetlands and other habitat areas, it could become a reality. Since 1970, three billion birds have been lost in North America. In Canada, 40 to 60 per cent of shorebirds, grassland birds and aerial insectivore birds are no more. It's an overlooked biodiversity crisis, but there is hope.

Thanks to the support of volunteers, donors, landowners and partners, the conservation community is having an impact. Some bird populations — especially waterfowl — are making a comeback, and in some cases, thriving.

But there is more to do. To learn how you can help, visit ducks.ca



**Ducks Unlimited
Canada**

Sources: Canada's State of Birds Report, 2020
Decline of the North American avifauna, Science, 04 Oct 2019

Essential Beach Reading...

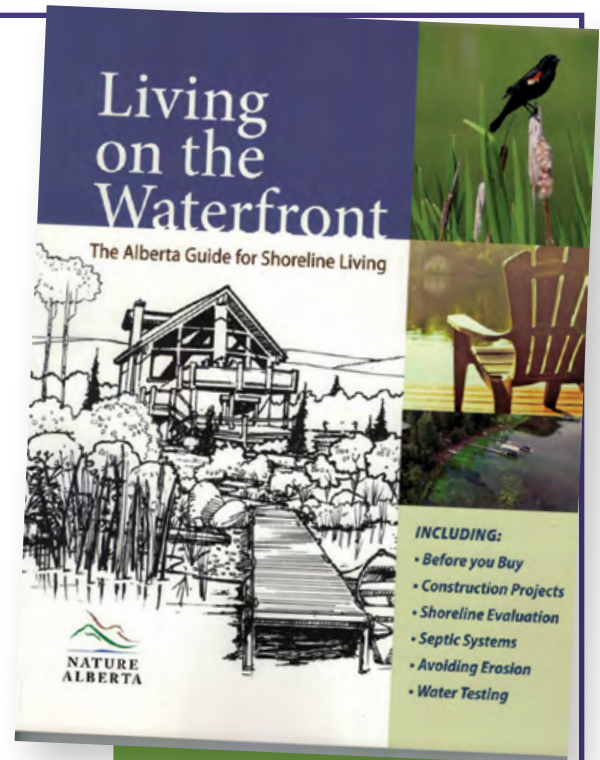
For the cottage crowd, a lakeside property is an oasis of calm—a welcome escape from the noise and pace of the city. And for thousands of Albertans, the lake isn't a getaway—it's home, year-round. Whether you're considering purchasing a dream home by the lake, or have a construction project in mind for an existing property, there's a lot to consider to make sure you're protecting both your investment and the shoreline environment.

Living on the Waterfront: The Alberta Guide for Shoreline Living is your essential guide to caring for your property, avoiding expensive mistakes, and maintaining the health of your lake and the surrounding ecosystem so you and your family can enjoy those peaceful surroundings for years to come.

This comprehensive, 150-page book is filled with facts, tips, and practical advice on every aspect of lakeshore living, including:

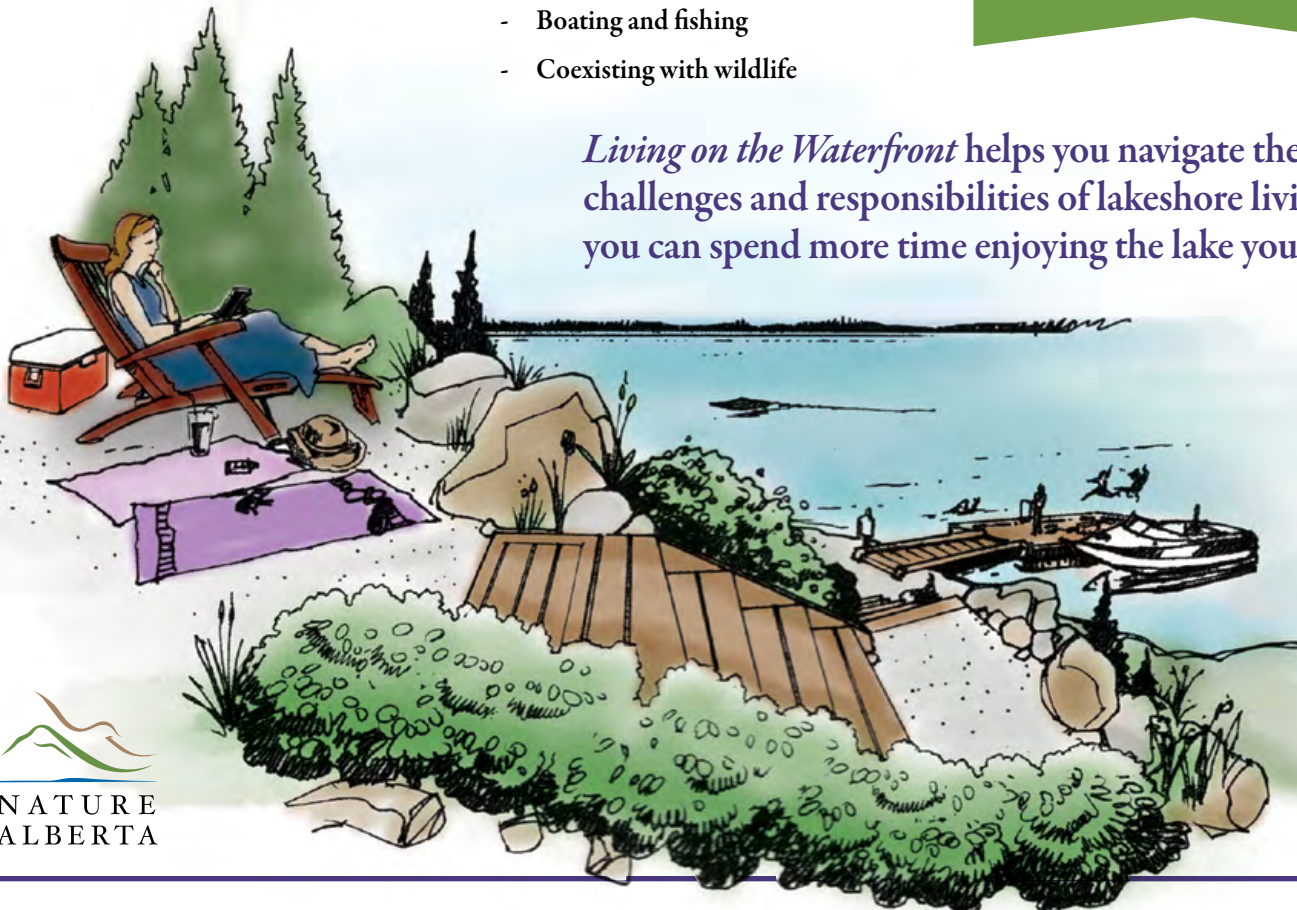
- Things to consider before you buy
- Shoreline erosion
- Protecting water quality
- Construction projects near the water
- Septic systems
- Caring for your lawn and garden
- Boating and fishing
- Coexisting with wildlife

Living on the Waterfront helps you navigate the challenges and responsibilities of lakeshore living, so you can spend more time enjoying the lake you love.



\$19.95

Get your copy from
the Nature Alberta
online store:
bit.ly/shorelineliving





CLEAN + DRAIN + DRY YOUR GEAR

Every time you move from one favorite fishing hole to the next, there is a risk of transferring aquatic invasive species and diseases. CLEAN, DRAIN, DRY everything that has been in contact with the water — including your boat, trailer, waders and fishing gear.

For more information on invasive species, call

1-855-336-BOAT

alberta.ca/clean-drain-dry-your-gear.aspx

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Our Vision

An Alberta with an abundance and diversity of wildlife, fish, and their habitats; where future generations continue to use, enjoy, and value our rich outdoor heritage.

Our Mission

ACA conserves, protects, and enhances fish and wildlife populations and their habitats for Albertans to enjoy, value, and use.



photo: Linda Zimmerling

From the President

As I am writing this letter, it is the second week of April and I am watching the most recent spring snowfall melt off my driveway. Daylight hours are getting longer (we don't have to start and end work in the dark anymore). The sunshine is starting to give off some warmth. Those of us with short memories begin to think about changing our winter tires...and then bam! Out of nowhere a snowstorm dumps five centimetres of the white stuff all over your weekend, and it feels like we took two steps back into winter again. Sometimes spring in Alberta can be frustrating! Okay, I can already hear you saying, "Suck it up buttercup. That's spring in Alberta." You are right—that is spring in Alberta, and in no time at all we will finally have pulled free of winter's grip. The creeks will be flowing, and the lakes will be free of ice and ready for fishing.

Last spring/summer, as we were just starting to figure out COVID-19, Albertans headed out to the forests, fields, mountains, and lakes in record numbers. Resident fishing licence sales in 2020 rose approximately 30 percent over the previous year. As we start into year number two of the COVID-19 pandemic, it is looking like spending time with your family at your favorite fishing hole is probably a good idea once again, so I would expect we will see large numbers of people enjoying this great family activity across Alberta.

This edition of *Conservation Magazine* is dedicated solely to Alberta's fisheries, especially since Alberta has plenty of great fishing opportunities. Have a look for ideas of where to go for a day of fun. Read about some of the research that goes on to help in managing our fisheries. Take a look at the activities everyday Albertans are doing to help conserve our valuable aquatic resources. If you didn't spend time on a lake or stream last year, you should give it a try. If you did spend time chasing fish last year, then it is time to start planning for this year. Regardless of your skill level or experience, there are opportunities for everyone to enjoy Alberta's fisheries - just make sure you are doing it in a responsible, ethical, and physically distanced manner.

See you out on the water.

Sincerely,

Todd Zimmerling
President and CEO
Alberta Conservation Association

Conservation Magazine

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Stock It to Me

ACA's Fisheries Program has a lot on the go, with one of its most important objectives being to continually improve the fishing experience for all Albertans.

We want to create or maintain recreational angling opportunities while sustaining the ecological integrity of fish populations and their habitats. A big part of that is fish stocking. Nothing is more motivating for the team than when they see individuals and families enjoying a local stocked pond.

- In 2021 ACA will be stocking over 120,000 trout.
- The fish are “catchable-sized”—that means 20 centimetres or more.
- Right now, we have 65 of these “put-and-take” ponds for Albertans to enjoy.
- The majority of fish stocked are rainbows, but we also add brown trout and brook trout into select ponds—and for the first time we will be stocking tiger trout this year too!
- Check out our map and you'll see that most of the stocked ponds are close to towns and cities—this makes the fishing experience popular for families and helps new anglers take part in our favourite pastime.

Making spring and summer plans? Be sure to visit www.ab-conservation.com/stocked-lakes to find a fun fishing opportunity near you!



McVinnie Reservoir
photo: ACA, Tyler Johns

With a Little Help From our Friends

Most people agree fish stocking is awesome. The not-so-great part? It's never free. At a time when we need fishing opportunities the most, we can't thank our supporters enough for making fishing as accessible and fun as possible across the province. And how about the many partners who help stock ponds near you? If you want to thank them for their care and generosity—just go out and fish!



McQuillan Reservoir
photo: ACA, Mike Jokinen

Aquality Environmental Consulting Ltd.: Don Sparrow Lake

Canadian Tire, Cochrane: Mitford Pond

CCI Inc.: Dewitt's Pond

City of Beaumont: Don Sparrow Lake

City of Fort Saskatchewan: Fort Lions Community Fish Pond

City of Lacombe: Len Thompson Pond, East Stormwater Pond

City of Medicine Hat: Echo Dale Regional Park Pond

County of Grande Prairie: County Sportsplex Pond

Lethbridge County: McVinnie and McQuillan Reservoirs

Nutrien: Gibbons Pond, Tees Trout Pond, Mitchell Pond, Len Thompson Pond, East Stormwater Pond, Kinsmen Lake

Saddle Hills County: Shell True North Pond

St. Mary River Irrigation District: McQuillan Reservoir

SysGen Solutions Group Ltd.: Don Sparrow Lake, Nose Creek Pond, Mitchell Pond

Thompson-Pallister Bait Company: Len Thompson Pond

Town of Cochrane: Mitford Pond

Town of High River: Emerson Lake

Town of Morinville: Heritage Lake, Morinville Fish and Game Pond

Northern Lights Fly Fishers – Trout

Unlimited Canada: Don Sparrow Lake

Update: Headway at Hasse



Hasse Lake

photo: ACA, Peter Aku (foreground); ACA (background)

Were you one of the lucky ones to experience Hasse Lake back in the day? Big trout and easy access made it one of the best fishing lakes in Parkland County. It was a vibrant destination, with family after family creating special memories.

But like a memory fades, so did the lake. It wasn't one pivotal moment—with excessive nutrient loading (from surface runoff), naturally high productivity, noxious algal blooms, and startlingly low levels of oxygen, recurring fish kills were inevitable. By 2012, Hasse Lake wasn't fishable.

Fortunately, concerned stakeholders brought the plight of Hasse Lake to ACA's attention for fisheries restoration work. We couldn't ignore that the lake's impressive volume of deep water makes for valuable fish habitat. So in summer 2015, ACA began working with local groups and landowners in the

watershed to reduce nutrient loading to the lake and improve water quality, ultimately re-establishing the fishery.

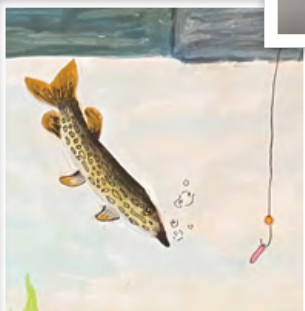
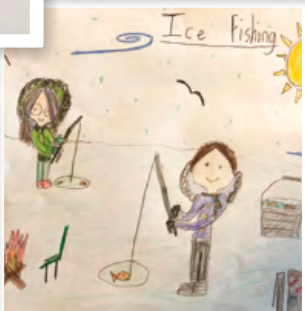
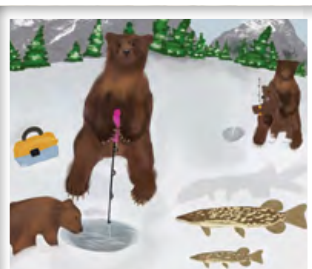
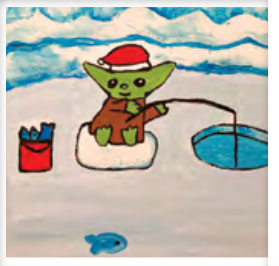
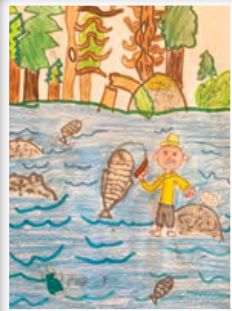
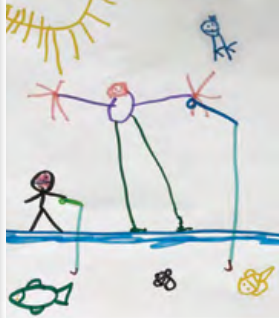
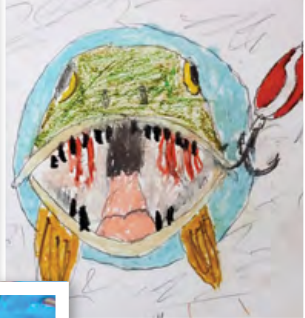
Alberta Environment and Parks (AEP) conducted pilot stocking with 5,000 rainbow trout last spring—the first stocking of the lake since 2012! A second stocking of 5,000 fish included rainbow and tiger trout. And thanks to several sponsors, ACA installed aeration infrastructure that became fully operable in October 2020.

As for now? Get ready for a big increase in AEP's fish stocking since aeration is in place. Plans for other activities continue, including monitoring and improving lake quality. The fish are back...and we're hoping people like you are too!



Project Contributors

- Alberta Environment and Parks
- Alberta Fish & Game Association
- Belair Industries Corp.
- Fortis
- Northern Lights Fly Fishers - Trout Unlimited Canada
- North Saskatchewan Watershed Alliance
- Parkland County
- Parkland County's Alternative Land Use Services Program
- RPB Industries



kids can catch

– ARTIST EDITION

We knew a lot of talented young artists would enter the Kids Can Catch Ice Fishing giveaway, but we didn't expect to receive such a wide range of art. Original drawings, digital art, finger paintings, watercolours, and even a multimedia glue piece with buttons and stickers—there were over 800 fabulous ice fishing art pieces!

Our goal was to have a child or another family member draw an ice fishing picture to inspire and encourage people to try ice fishing. Well, mission accomplished: the images showed such great creativity and interpretations of fishing adventures that it was difficult to choose just one. Fortunately, our generous sponsors contributed enough to create 50 family ice fishing kits! Each kit, valued at approximately \$65, included two ice fishing rods, a tackle box with tackle, hand warmers, and a multi-tool.

ACA hopes to have all summer Kids Can Catch events proceed as planned, depending on local health regulations. Check out www.ab-conservation.com/events and ACA's Facebook page for possible event changes and cancellations.

Thank you to the sponsors that made this contest possible:



You're in Native Trout Country!

Native Trout Recovery in Alberta

► by Ariana Tourneur

Healthy native trout populations signify several things we should all care about: clean water, wilderness, healthy ecosystems, and good recreational opportunities.

Unfortunately, Alberta's native trout are in trouble, and have been for a while. That's where the Native Trout Recovery Program comes in. It focuses on Alberta's eastern slopes and is working to protect our province's native fish populations. The main threats aren't small issues: habitat damage and loss, poaching, improper fish handling during catch and release, and hybridization and competition with non-native trout. To address these complex challenges, Alberta Environment and Parks has teamed up with partner organizations that have expertise in fish habitat protection and restoration, as well as watershed planning.

These partner organizations include:

- Alberta Conservation Association
- Canadian Parks and Wilderness Society
- Cows and Fish
- Fisheries and Oceans Canada (DFO)
- Foothills Research Institute
- Trout Unlimited Canada
- Watershed planning and advisory councils

The organizations all work together to maintain and improve natural watershed functions to support native trout species. For more information, search "native trout" on www.alberta.ca.



Watch for signs like this to let you know when you're in sensitive fish habitat.

photo: Ryan Witteman

THREATENED

Bull Trout

(*Salvelinus confluentus*)



- Bull trout have no black spots or markings on their dorsal fin. Repeat after us: “No black? Put it back!” They also have large head and jaw (“bull-like”).
- They’ve been documented with porcupine quills stuck in their snout! As a top predator, the species has been called the grizzly bear of the water—just as ferocious, only torpedo-shaped with fins and gills.
- Bull trout used to be common, but now their range has shrunk drastically. They are extremely sensitive to human disturbance.



THREATENED

Westslope Cutthroat Trout

(*Oncorhynchus clarkii lewisi*)



- The only subspecies of cutthroat trout native to Alberta, these fish historically inhabited most streams in southwestern Alberta from the alpine to the prairies. Today, they occupy only a small fraction of their historic range and are largely restricted to the Rocky Mountains and foothills.
- Non-native rainbow trout were introduced to many westslope cutthroat trout streams in Alberta in the early 1900s. The two species interbreed, creating whole populations of hybrid fish and decimating genetically pure populations of westslope cutthroat trout in the process.
- Bright orange-red slashes beneath their lower jaw is the surest way to identify them.



ENDANGERED

Athabasca Rainbow Trout

(*Oncorhynchus mykiss*)



- These are considered a unique “ecotype,” meaning they are a distinct form of the rainbow trout species, adapted specifically to rivers and streams of the upper Athabasca watershed in west-central Alberta.
- Juvenile and often adult Athabasca rainbow trout have oval blueish grey “parr” marks along their sides. Known as “cryptic colouration” in the biology world, this likely helps the fish blend in better with the gravel, boulder, and cobble streambeds in the small, cold headwater streams they prefer.
- Athabasca rainbow trout have shown severe declines from historical abundances.
- As of 2017, all Athabasca rainbow trout watersheds were assessed as either low or very low abundance of adult fish. Healthy populations remain in isolated creeks, but no longer exist within an entire watershed.



SPECIAL CONCERN

Arctic Grayling

(*Thymallus arcticus*)



- Arctic grayling (part of the trout family) prefer the waters of the boreal forest and northern foothills.
- Their colourful dorsal fin is much larger than that of any other cold-water fish, making identification a breeze. The top of the dorsal fin is rounded, and grayling sport large scales with brown or black spots on the body behind the head.
- Grayling are highly migratory, so connected streams and rivers are essential. Poorly installed crossings like culverts and bridges block upstream fish passage.



Can I Help? YES!

Learn to identify these fish and other sportfish in Alberta by taking AHEIA's FREE Identification of Alberta's Game Fish Quiz (AHEIA.com). Catch and release fish safely – read our helpful tips on page 24. And though quadding is fun for us, it's not fun for fish. Avoid quadding in waterbodies and along shorelines—that can cause silt to enter rivers and streams, smothering fish eggs. 🏠

Can Buckets Bring 'Em Back?

► by Andreas Luek and Brian Meagher



A different kind of catch and release

Remote site incubation (RSI) is one method staff are using to establish a new population in streams where these fish could survive, but are not currently found. During spawning season in June, adult fish are captured to collect their eggs and milt, and the eggs are fertilized streamside. The adult fish are released back into the stream, while the eggs are taken back to a provincial fish hatchery where they are incubated for a short period of time in a quarantine trailer. The eggs are then taken to locations (selected by AEP fisheries biologists) that do not have any fish living in them and that are isolated by barriers. This allows biologists to utilize local genetic adaptations to the fish's advantage (such as spawning timing and feeding behaviour), and also supports the fish's ability for natal homing, where they return to their egg site when they are spawning.

RSI units are very cost effective, and there is no feeding of the fish required. The RSI units are easy to build, and are essentially a bucket filled with artificial substrate simulating gravel for the eggs to rest on, with water flowing through. The remote streamside incubator allows the eggs to hatch naturally, so the young fish, known as alevin, can then find their way to a comfortable home. When these fish grow up, the hope is that they will become nursery populations and could migrate downstream where other westslope cutthroat trout live, ultimately contributing to the recovery of a threatened species.

"These fish are currently facing the same challenges as other native trout: loss of habitat, accidental harvest, and hybridization with other trout species."



Westslope cutthroat trout (*Oncorhynchus clarkii lewisi*) are a native trout that have been calling southern Alberta's eastern slopes home for thousands of years. Unfortunately, these fish are currently facing the same challenges as other native trout: loss of habitat, accidental harvest, and hybridization with other trout species. Genetically pure westslope cutthroat trout populations now have a significantly limited range and small populations, which has led to population declines and the species being listed as *Threatened* under Alberta's *Wildlife Act*. Alberta Environment and Parks (AEP) staff are working on several projects supporting native trout populations. One of our goals is to reconnect isolated populations and expand where westslope cutthroat trout are calling home.

photos: Alberta Environment and Parks

For more about native trout and how you can help, search “native trout” on www.alberta.ca.

By the numbers

In 2019, AEP staff began a pilot RSI project in a stream in southern Alberta, where 779 eggs were collected from eight westslope cutthroat trout. A total of 499 (64 percent) of those eggs hatched and swam out of the RSI units into their new habitat. AEP fisheries biologists will repeat stocking in the same location several times, and will continue to monitor the effectiveness of this method for establishing a new population. AEP isn't the only jurisdiction to use this technique—it has been effectively used in Montana in multiple watersheds for several years. Parks Canada has also completed one year of RSI projects.

Be part of the solution

There are many ways that you can help westslope cutthroat trout. If you are lucky enough to see an RSI project at work, please make sure to leave all equipment in place and don't disturb the fish. Do your part to help keep their habitat cold, clean, clear, and connected: 1) always keep your wheels out of water; 2) clean, drain, and dry all your gear between waterbodies; and 3) report poorly maintained stream crossings to the *Alberta Watercourse Crossing Inventory* app. Finally, consider joining a stewardship group to get more involved. 🏞️



A Winning Combination:

CONNECT + COLLABORATE + CONSERVE

▶ by Kelsey Cartwright, MSc

RIPARIAN AREAS

across the landscape are vital. These pathways enable movement for species from one area to the next, while the water itself is a life source for wildlife and fish alike. A vibrant vegetation buffer near waterbodies reduces runoff rates, sedimentation, and nutrient loading. It also provides essential habitat resources (read food and shelter) for many wildlife species. Enter the Connectivity Project, a joint effort between Alberta Conservation Association (ACA) and St. Mary River Irrigation District (SMRID). The project aims to improve the water quality of SMRID's 18 reservoirs in southern Alberta by re-establishing vegetative buffers, or enhancing existing ones, around the reservoirs—good for wildlife, fish, and the people who enjoy them.



HEALTHY RIPARIAN ZONE
RAYMOND RESERVOIR
photo: ACA

HEALTHY RIPARIAN HABITAT
CHIN RESERVOIR
photo: ACA



CATTLE GRAZING
STAFFORD RESERVOIR
photo: ACA

GRAZING is the primary land use on SMRID property. Grasslands benefit from grazing, which can help to reduce fire risk, store carbon, and create mixed habitat that wildlife value. Effective grazing maintains a balance between live vegetation and litter (dead vegetation) that minimizes the amount of bare ground. This balance protects soil from erosion and excessive water loss through evaporation. It can also limit the establishment of invasive species (noxious weeds and many other disturbance-caused plants do not have high forage value or produce sufficient litter). In contrast, overgrazed areas increase the amount of surface runoff in a pasture because bare, compacted soil has a reduced ability to absorb water, leading to nutrient loading in nearby waterbodies.

We will continue assessing the areas around three to four reservoirs each year until all 18 are completed. Our health assessments measure an area's ability to provide ecosystem services—such as water filtration, nutrient retention, habitat provision, and carbon sequestration—by assessing vegetative cover, species composition, soil disturbance, and hydrologic function. After synthesizing these data for the eight reservoirs assessed so far, we developed recommendations with the potential to improve water quality and enhance wildlife habitat for each site. Habitat enhancements are initiated the year following assessment.

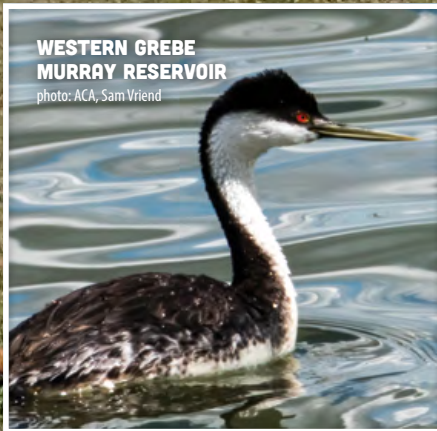
Over the 2019 and 2020 field seasons, we've evaluated the land around eight reservoirs: Cross Coulee, Raymond Reservoir, Murray Lake, Stafford Reservoir, Chin Reservoir, Sherburne Reservoir, CPR Lake, and Eight Mile Reservoir. Staff have conducted riparian and range health assessments, as well as documented incidental wildlife encounters. Multiple species at risk were found at each reservoir, including the ferruginous hawk, bank swallow, barn swallow, western grebe, long-billed curlew, black-necked stilt, pronghorn, northern leopard frog, prairie rattlesnake, common nighthawk, Baltimore oriole, and prairie falcon.



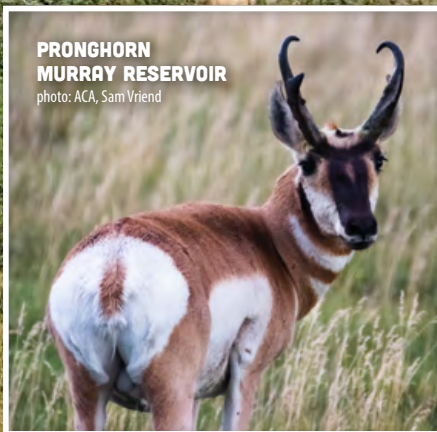
FERRUGINOUS HAWK
RAYMOND RESERVOIR
photo: ACA, Sam Vriend



PROBLEMATIC RIPARIAN ZONE
RAYMOND RESERVOIR
photo: ACA



WESTERN GREBE
MURRAY RESERVOIR
photo: ACA, Sam Vriend



PRONGHORN
MURRAY RESERVOIR
photo: ACA, Sam Vriend



NORTHERN LEOPARD FROG
MURRAY RESERVOIR
photo: ACA, Sam Vriend

BASED ON what our range and riparian assessments find, we recommend ecologically sustainable livestock stocking rates and also when to graze to maintain and enhance vegetative cover. SMRID will include these recommendations in future grazing leases. We also provide guidance and support for the farmers and ranchers who lease SMRID land. Working cooperatively to find solutions that are feasible for their unique operations, we suggest best management practices where appropriate (fencing, watering units, planting shrubs, etc.) and help implement them. For example, in small pastures, it can be difficult to use distribution tools like salt or minerals to move cattle away from sensitive riparian areas, so we recommend fencing to protect shoreline vegetation. Fencing projects include wildlife friendly options like using smooth wires on top and bottom strands. Doing so allows freer movement for ungulates like pronghorn, but is still an effective barrier for cattle.

Alternate water systems such as portable solar units or tire troughs, which pump water from an existing source, are another example. Used with riparian fencing projects, they move cattle to the less popular areas of a pasture. When livestock directly access a water source (e.g., dugout, wetland, or stream), they can create erosion and nutrient loading issues. Even when the existing water source is not fenced off, cattle often prefer the watering system, because footing is more stable. Less direct use of the waterbody equals improved water quality. As a result, cattle may experience higher weight gains, better milk production in mother cows, and overall herd health improvements. The benefits extend to wildlife, water quality, and other ecological processes too.

Applying best grazing management practices and ecologically sustainable stocking rates at each site can improve range and riparian health, and that will contribute to better local water quality. Even so, the surface water flowing to and from each reservoir will likely experience nutrient loading from fertilizer runoff in adjacent croplands. While improved grazing and healthy vegetative buffers may not completely override this effect, they are steps in the right direction. One day, these steps may have large-scale positive cumulative impacts.



IN THE MEANTIME,

better management of vegetative buffers benefits farmers and ranchers who need the water for their operations, as well as consumptive users like anglers, hunters, and wildlife enthusiasts who enjoy having wildlife and fish around. In 2020, we kicked things off with a shrub planting initiative at Rattlesnake Reservoir, funded by Pheasants Forever. We also worked closely with the Alberta Fish & Game Association at CPR Lake to manage habitat and limit destructive recreational use around the reservoir. As the years go on, we expect this project will leave a long-term legacy of improved wildlife habitat, thanks to meaningful collaborations between conservation groups and agricultural producers. 🏔️



RIPARIAN ASSESSMENT
RAYMOND RESERVOIR
photo: ACA, Sam Vriend



Exploring and Solving Problems with Funded Fish Research

► by Mary McIntyre

Each year, Alberta Conservation Association's Research Grants fund high quality research projects on wildlife, fish and habitat which inform the effective management of wildlife, fish populations, and habitat in Alberta. The following three studies are examples of research that has been completed with a focus on Alberta fish.

photo: ACA, Brad Downey



Testing anglers' **BELIEFS with DATA**

"If we don't reduce walleye numbers, won't they stunt growth or create an ecological imbalance?"

This question was repeatedly brought forward at Government of Alberta fisheries management open house events. Fisheries officials were gathering feedback from anglers on current management practices throughout the province. This took place under the direction of Alberta Environment and Parks Minister, Jason Nixon, between January and February 2020.

Many anglers voiced a belief that small or skinny walleye was evidence for the fish being slow-growing or stunted, presumably because of an oversupply of fish, which then eat themselves out of house and home.

An Alberta researcher and graduate student also attended many of the events, but for different reasons. They volunteered their time at these gatherings to listen and talk to anglers so they could better understand the issues anglers face.

These conversations lead Dr. John R. Post, professor at the University of Calgary

(U of C), and Christopher Cahill, PhD candidate, also at the U of C, to investigate if the size of a walleye population influenced its growth rate. "They had good reason to be concerned about it. This phenomenon occurs regularly in fish populations around the world," said Cahill.

Post and Cahill spent two years combing through Alberta data to determine if this phenomenon was occurring in Alberta's walleye lakes, assessing nearly 40,000 walleye from over 100 lakes, and spanning 20 years in the process.

Using state-of-the-art spatial-temporal statistics, they found that walleye growth rates did not decrease from 2000 to 2018. Follow-up research in 2019/20 led them to their key finding: walleye population size did not appear to influence fish growth rates. Cahill noted that this new information does not mean anglers are wrong: "It is possible that something else might be responsible for anglers' observations."

So, keep on sharing those observations, Alberta anglers! And for more fish research, check out Dr. Post's research at John R. Post Fisheries Lab, U of C, at www.jrpostfisherieslab.wixsite.com/postlab.

Using **environmental DNA** to detect Arctic grayling

Arctic grayling are listed as a *Species of Special Concern* in Alberta's *Wildlife Act* due to increasing environmental stressors like changes in water temperature, salinity, contaminants, and habitat fragmentation.

To improve conservation efforts, we need a better understanding of the locations of Arctic grayling populations, their migration pathways at different life stages, and their preferred habitats. Monitoring their populations has proved problematic due to their migratory nature, low densities, and limited capacity for capture with standard fishing methods. To get answers, University of Alberta post-doctoral fellow, Dr. Heather

Veilleux, and undergraduate researcher, Melissa Misutka, have established an important method to detect sensitive and specific environmental DNA for this fish that's native to northern Alberta. The team has been working under the supervision of Dr. Chris Glover, a professor at Athabasca University and a Campus Alberta Innovation Program research chair.

This research offers an important advancement in the monitoring and management of Arctic grayling populations. Data collected and yearly testing can tell us how populations are affected by changes to habitat, angling practices, or climate, and can inform population management decisions that help Arctic grayling persist in Alberta's waters.



photo: USFWS, Andrew Gilham

Minnows: The early warning system of aquatic ecosystems

Have you ever seen children walking along a shoreline point to a group of small fish they see in the water and hear them say, "Look at the minnows?"

Little minnows are big players in the aquatic community because they are a food source for many larger predatory fishes. Alberta is home to one species of minnow that cannot be found anywhere else in Canada. Western silvery minnows only live in parts of the southern sections of the Milk River. They are listed in Alberta's recovery plan as having only small scattered populations.

A global, dramatic loss of fish biodiversity has made aquatic ecosystems more susceptible to other natural and human disturbances. Dr. Mark Poesch, associate professor and lead of the Fisheries and Aquatic Conservation Lab at the University of Alberta, set out to increase our understanding of spawning habitat and reproductive behaviour of western silvery minnows.

He was the first to document this minnows' broad habitat use. Dr. Poesch learned that this minnow is vulnerable to extreme climatic fluctuations and highly variable water levels. These results will provide fisheries managers the ability to recover important habitat types and develop appropriate monitoring strategies for the Western silvery minnow. It is currently listed as *Threatened* under Alberta's *Wildlife Act*. 🐟

photo: Ryan Witteman

Prehistoric Lake Sturgeon

► by Duane Radford

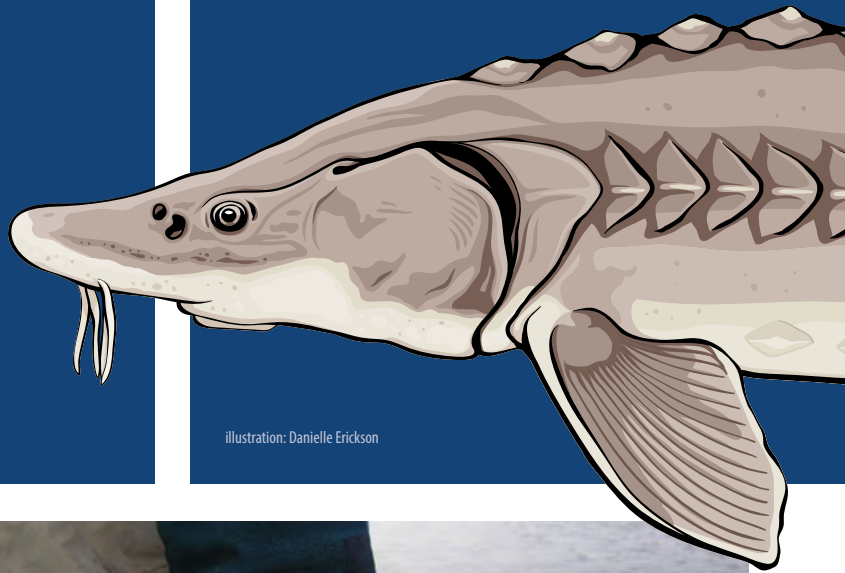


illustration: Danielle Erickson

Most Albertans have probably never seen a lake sturgeon, which have been declared a species at risk. Their scientific name is *Acipenser fulvescens*: *Acipenser* is a Latin name for sturgeon; *fulvescens* means dull yellow colour. They've been called living dinosaurs and are the largest species of fish in Alberta. Between 1940 and 1968, all types of sturgeon harvest (both commercial and recreational) were closed. The season was reopened in 1968, subject to various regulations. A zero limit came into effect in 2004, and since then, catch-and-release has been the only kind of fishing allowed for these ancient creatures.



photo: Daryl Watters



photo: ACA, Mike Jokinen

In December 2007, lake sturgeon were listed under Alberta's *Wildlife Act* as *Threatened*. The population has been managed according to the *Alberta Lake Sturgeon Recovery Plan 2011 - 2016* since 2012. Interestingly, several members of the public helped prepare this report—the participation of Duncan Baldie (Medicine Hat Fish & Game Association), Shane Hansen (professional fishing guide, North Saskatchewan River), and Les Woyechowsky (volunteer angler, South Saskatchewan River) are testament to the importance of local knowledge and citizen science. When I was a regional fisheries biologist in Lethbridge, I'd hire local expert anglers to sample sturgeon because of their knowledge and skill set.

"Populations are judged at or below critical levels for sustainability. Threats include habitat degradation and fragmentation, and over-harvesting. Inherent biological characteristics make recovery difficult."

– Alberta Wild Species General Status Listing 2015

Lake sturgeon can live over 150 years and exceed 45 kilograms in weight. They're the largest of all fish in the Northern Hemisphere and have a fairly wide distribution across Canada and America. They're shaped like a torpedo and are armour-plated. Unlike other fish, they lack scales; rather, their body is covered with a tough, leather-like hide and five rows of bony plates. They have a shark-like tail and a pointed snout featuring four sensory barbels that are probably used to find food in the often murky water they inhabit. They're good indicators of water quality.

Although they've survived since the late Jurassic geological era—about 150 million years ago—humans have jeopardized their very existence over the past two centuries, primarily due to overfishing and habitat alteration and destruction. Historically, Canada's commercial fishery targeted sturgeon primarily for caviar, but also for meat, because their flesh when smoked was regarded as a delicacy. Today's *Threatened*

- survived 150 million years

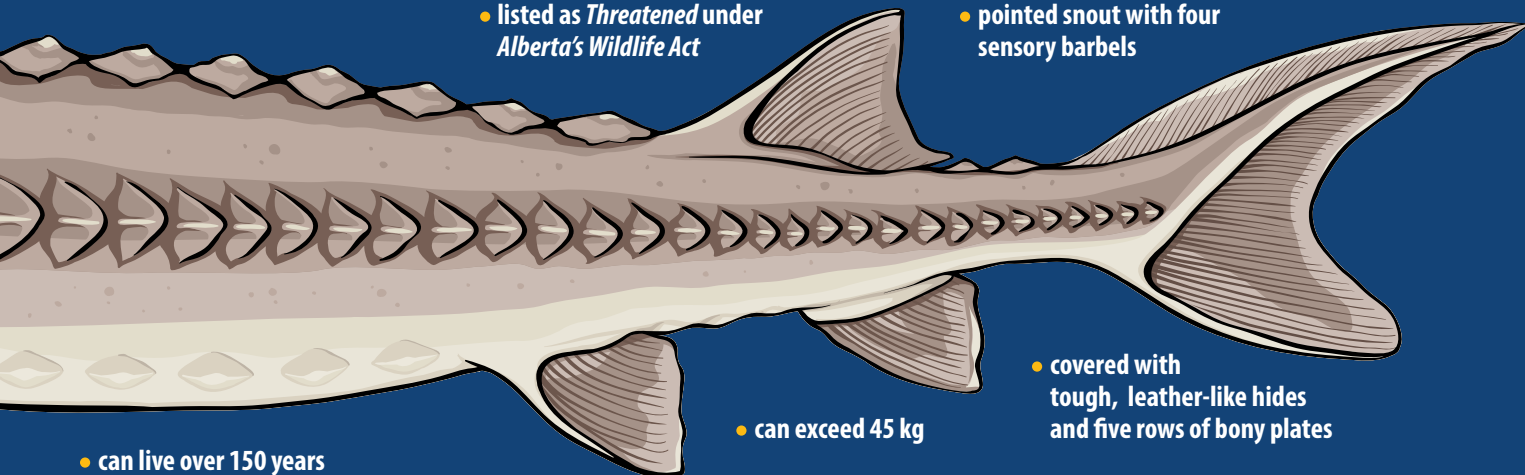
- listed as *Threatened* under Alberta's Wildlife Act

- pointed snout with four sensory barbels

- can live over 150 years

- can exceed 45 kg

- covered with tough, leather-like hides and five rows of bony plates



status in Alberta is related to the relatively small number of reproducing adults and their restricted and disjointed distribution in the province. Because sturgeon are difficult to monitor, many unanswered questions still remain about their seasonal distribution and ecology. There have been two key studies on the South Saskatchewan River (Gordon Haugen) and on the North Saskatchewan River (Owen Watkins) to better understand their distribution and ecology in these rivers.

Despite their name, in Alberta lake sturgeon live in rivers, not lakes—occasionally in the lower Bow, Oldman, and Red Deer rivers, but primarily in the North and South Saskatchewan rivers. The two key subpopulations in the North and South Saskatchewan rivers are separated from each other by the Gardiner Dam on the South Saskatchewan River, which was constructed in 1967 and backed up this river to form Lake Diefenbaker.

Sturgeon are slow growing. In the South Saskatchewan River, males mature at age 19, and females at age 25. Elsewhere, studies indicate males and females spawn at intervals of two to four and three to seven years, respectively. Sturgeon spawn in the spring and the eggs are broadcast in the current. Male sturgeon do not spawn until they are about 15 to 20 years old. Females usually start spawning between the ages of 20 and 25. Females tend to be larger than males in the older age groups. Interestingly, Haugen reported that the number of eggs per female ranged from 117,450 to 607,400. He found that aquatic invertebrates were the most numerous food items in the lake sturgeon diet. Fish were present in 25 percent of the stomachs. Primarily bottom feeders, sturgeon eat larval insects, clams, plant material, and

some forage fish. They sometimes leap from the water for unknown reasons and make a loud splash upon landing again. Noted for being transient, Watkins found that the greatest distance travelled was 925 kilometres. Because of the nature of the large rivers where they're most abundant, it is very difficult to study their biology, which makes population estimates problematic.

Although largely a curiosity, lake sturgeon are a remarkable species. We can only hope that present management programs and habitat protection measures sustain their populations into the future. 🐟



photo: ACA, Mike Jokinen

The eyes have it! There are two other lesser known species of fish that inhabit the same waters as sturgeon: goldeye and mooneye. Scientifically speaking, goldeye are a member of the *Hiodon* genera of fish and are closely related to another member of this genus, the mooneye.

Unless you look carefully, it can be hard to tell a goldeye from a mooneye—they're quite similar in appearance with laterally compressed, silver bodies and large scales. Probably the best way to differentiate them is by their eyes. Goldeye have large yellow eyes, whereas the very top of the iris is golden in a mooneye, while the bottom is silver (hence the name "mooneye" since they have a "half-moon" of gold at the top of the eye). Another distinguishing characteristic relates to the front of the dorsal fin, which is parallel or slightly behind the origin of the anal fin in a goldeye, whereas the dorsal fin origin is in front of the anal fin origin in a mooneye.

Goldeye have an average length of 35 centimetres, and a maximum length of 50 centimetres. Typically, goldeye weigh 0.75 to 1 kilogram, with a maximum weight of about 1.9 kilograms. Mooneye are smaller, with an average length of 25 to 30 centimetres, a maximum length of 32 centimetres, and averaging 200 to 400 grams, with a maximum weight of 500 grams. Goldeye are fairly abundant throughout their Alberta range, whereas mooneye are less abundant.



Goldeye
photo: Duane Radford



Mooneye
photo: Duane Radford



10 Fish Handling Tips

Taken from the Alberta Hunter Education Instructors' Association Alberta Fishing Education Program

- Using barbless hooks will make hook removal much easier and cause less damage to the fish. Pinch down the barb with needle-nosed pliers before you begin fishing.
- Using a single hook vs. a treble hook will make removing hooks easier and cause less damage to the fish.
- Using a soft, rubber mesh net is a good way to quickly and safely land a fish.
- When netting a fish in moving water, try to stand downstream of the fish and allow the current to move it towards the net.
- Once netted, keep the fish in the water and preferably keep its head pointed into the current.
- By using a net, an angler will be able to keep a fish in the water while the hook is removed. Using a net also reduces the amount of handling of the fish.
- Remove hooks as quickly as possible. If it is not easy to remove the hook quickly without harming the fish, cut the line and release the fish.
- Working with a partner can reduce handling time of a fish to be released.
- Never lie a fish on a dry surface (e.g., dock, shoreline, bottom of boat).
- When ice fishing, gently put the fish head first in the open hole in the ice and move the fish back and forth in the water until revived before releasing.



These fish handling tips are excerpted from the Alberta Hunter Education Instructors' Association (AHEIA) Alberta Fishing Education Program. The program is available FREE (for now) to new anglers and to anyone wishing to brush up on their fishing knowledge. Topics cover lots of useful territory—from ethics, the legal stuff, and safety all the way to necessary equipment, fishing techniques, and even how to prepare and cook your catch.

How long should you hold a fish out of the water?

A fish has no lungs—the moment it comes out of the water, it stops “breathing.” You should allow only at the most 5 seconds when holding a fish out of the water.

New research indicates that holding a fish outside water for 30 seconds reduces its chances of survival by 30 percent, and 60 seconds outside water reduces survival by 70 percent.

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Dream Casters Society

► by Ariana Tourneur

The sky was clear, the lake quiet (save for the echo of loons), and the boat loaded with lunch and gear. Go time.

“On a weekday, it’s quiet. Sometimes the water—it’s like glass,” says Barry Dillon, volunteer with the Dream Casters Society. “We see the odd bald eagle fly by. Or get a whole part of the lake to ourselves. For the people we bring on the boat, *this is therapy.*”

From Parkinson’s to multiple sclerosis (MS) to PTSD to Alzheimer’s and more, illnesses or chronic disabilities are only a small hurdle for the Dream Casters team to overcome. If there’s a will, there’s a way—and considering the incontrovertible health benefits of fishing, it’s not even a question.



Getting people out on the water who are unable to go fishing on their own was a dream that began with avid fisherman, Tom Adams. He was fishing with friends and noticed how much fun an older gentleman on board was having. The day was full of smiles and laughter, and Adams remembers that being worth far more than the fish reeled in. So in 2017, after researching organizations that offered fishing retreats for U.S. military veterans struggling with PTSD, the Alberta businessman used his personal savings to found Dream Casters Society. The mission? “Improve the lives of others by taking them fishing for a day. CAST a few smiles, CATCH a few fish, RELEASE their troubles, and ENJOY a relaxing day on the water.”

For every single of the 200-plus people Dream Casters has had the pleasure of taking out since, a smile is what everything rests on. “It’s seems like a small thing, but I remember being out with an older client and he looked so relaxed. He spent so much of our time laughing,” says Dillon. “That’s what it’s all about.”

Most of us would agree fishing is a break from daily stress. The moment you push off from shore, problems seem to flitter away on the breeze. That’s the essence of Dream Casters. “I can’t change those people’s

conditions, not a hope,” says Adams. “But when they’re out there fishing with us, they’re able to not even think about that stuff.” Catching fish (even if only to release them) creates a sense of accomplishment. The excursion is a chance to look forward to something pleasurable. And of course, being immersed in nature is meditative, relaxing and compels quietude—the art of being in the moment.

To create “therapy on the water,” as Dillon calls it, Dream Casters removes as many barriers and

stressors as possible. “One lady fell asleep on us,” he chuckles. “Our goal is to make our clients completely comfortable.” Mission accomplished!

From fishing gear and licences to lunch and experienced guidance, Dream Casters prides itself on supplying it all—the client (with a guest) simply shows up at the meeting spot. Alberta trips are primarily on Lake Wabamun, Lac St. Anne, and the North Saskatchewan River. And while COVID-19 has caused some hiccups, the team is more determined than ever to continue booking trips, of course taking optimal safety measures and ensuring clients are at ease.

Many client reviews give a glimpse into the positive experiences, and Dillon recalls one in particular: “Ross was an older fellow who came from the CNIB with a friend. Being blind didn’t seem to bother him, and he had the best time.” But later, after his wife sent Dillon a note, the meaning of that trip really hit home. “I’ll never forget it,” says Dillon. “She said, ‘you know he is blind, but what you don’t know is that he has been suffering from life-crippling depression. Ross came home smiling and full of enthusiasm that I haven’t seen in a long time... this is such a great thing you are doing to help so many in different situations through the use of a boat, a fishing rod and a carefree day on the lake.’”

After hearing about people who are limited in what they can do physically or mentally, one can’t help but feel a bit inadequate as an able-bodied person who can fish anytime they like. So consider this: is there someone in your life who might benefit from getting back out on the water? Reach out to Dream Casters, because it’s a small way to bring on a big smile. 🐟

The Way of the Water



Right: Adams and Dream Caster's first client, Ed Bettin, who has MS. Since that inaugural trip in 2017, Dream Casters has scheduled trips for hundreds of clients.

photos: Dream Casters Society



Getting people out on the water who are unable to go fishing on their own was a dream that began with avid fisherman, Tom Adams.



How do they do it?

With only a handful of people, including Adams and Dillon, fishing guide Mike Maidens, and admin extraordinaire Pam Pierson, Alberta's Dream Casters still makes a mighty impact. Their British Columbia base includes Marc Alexander, Randy Marquart, and guide Bill Evans. Michael Shagin in Ontario handles web and tech.

Together, they support people of any age who may suffer from PTSD, MS, Parkinson's, cancer, heart and stroke, visual impairment, Huntington's, diabetes, cerebral palsy, Alzheimer's, spinal cord injuries, and more. The society has also made connections with groups like CNIB (the organization that assists Canadians who are blind or living with vision loss), Big Brothers Big Sisters, Boys and Girls Clubs, the Canadian Armed Forces, Alberta Corrections, fire and rescue services, RCMP, provincial and municipal police, emergency medical services (EMS), and first responders.

Clients donate, but Dream Casters continues to look for business sponsorship. Elite Promotional Marketing (Edmonton), Trans Mountain (British Columbia), Northern Mat and Bridge (Grande Prairie), and Bandit Energy Services (Lloydminster) have all come on board to provide much-appreciated support. Grants from the Edmonton Community Foundation and Cabela's have also made a difference.



Len Thompson - 1929



Len and Myra - 1960 Trade Show



Abernethy Shop

Enduring LURE



► by Ariana Tourneur

The tinkle of the chime signified the tackle shop door about to swing shut, a young angler on his way out.

He hadn't found what he was looking for. So off he strode, picking up his step as he daydreamed of making his own with just the right curve and flash.

Our romanticized guess is that the story behind the legendary North American Five of Diamonds lure goes something like that. But what about the iconic features of craftsmanship that sets the Five of Diamonds apart? How did inventor Len Thompson land on red and yellow? Why diamonds?

When it comes to those finer details, Bradley Pallister, great-grandson of Len Thompson and president of Thompson-Pallister Bait Co., is upfront: “Unfortunately, the reasons behind those decisions have been lost to the history books.”



Len Thompson - 1930
19lb PIKE # 2 BRASS

What we do know is that upon his return from the First World War, Len Thompson was excited to fish again but dissatisfied with every casting and trolling lure he could get his hands on. That spurred him to use tin snips, a soup can, and a ball peen hammer to craft his own little piece of metal. Inspired by an intricate combination of shape and weight, he wanted to achieve the slow wobbling action that antagonized game fish into striking. Once Thompson was satisfied with the rough shape, prototypes multiplied and a part-time business blossomed. Making your own lures back then wasn't necessarily uncommon, but what sets Thompson's lures apart was that his seemed to outperform everything else. And still do.

“The red and yellow just works,” says Pallister. Most people agree: when nothing else is working, grab the Five of Diamonds. If you lift the lid of almost any tackle box in western Canada, it's more than likely you'll find at least one. Maybe it's because the lure is beginner-friendly and casts easily. Maybe the colour, curve, and flash are forever irresistible to fish. Thompson himself enjoyed fishing prairie lakes for pike, walleye, and lake trout, and those humble beginnings still ring true: “The Five of Diamonds is truly a prairie pattern,” says Pallister.

Originally, the Five of Diamonds was painted yellow and black. Pallister explains that his great-grandfather was colour blind and could more easily see yellow. Thompson's theory? “If I can see it, then the fish certainly can!” At one point, silver and red was offered, but it was quickly swapped out in favour of the now-classic colour combination. Despite many available patterns today, the red and yellow accounts for nearly half of all sales. “I have the paper invoice of the first one ever sold,” says Pallister. That was in 1951. Over 70 years later, the Five of Diamonds still reigns as top seller.

Despite those numbers, it doesn't get old. “When someone has a story to share that involves the Five of Diamonds, I can't help it—I get that warm and fuzzy feeling every single time. It's all about the memories,” says Pallister. “Whether the lure is part of your worst day fishing, best day fishing, smallest fish ever, biggest fish ever, a day of old friends, a day of new ones... whatever it's tied to, it's *always* a story to tell.”

It's a lure, it's a memory—and across the prairies, that's millions of memories. Although the reason behind the diamonds remain a mystery, that sure doesn't change their value. 🐟

Truth of Diamonds

- The Five of Diamonds is also the world's largest fishing lure! You can see all 42.5 feet of it at the fishing pond at the end of Len Thompson Drive in Lacombe.
- Did you know you can enjoy a Five of Diamonds pilsner outfitted in the signature pattern? In partnership with Blindman Brewery, Thompson-Pallister Bait Co. ensures 100 percent of each royalty received is donated to recreational fishing and conservation programs.
- Approximately 55 million lures have been produced since 1929.



photos: Thompson-Pallister Bait Co. (front);
ACA, Charmaine Brunnes (back right); Thompson-Pallister Bait Co. (back left)



Catfish in Alberta

Controversial or a Conversation Worth Having?

▶ *by Mike Rodtka*



photo: US Fish & Wildlife Service, Sam Stukel



In a world of 10-second soundbites and 140-character tweets, our society seems to have forgotten how to engage in deeper conversations. That's unfortunate, because a lot of the issues we grapple with as biologists don't always lend themselves to soundbites. Take, for instance, the subject of invasive species.

Invasive fish species have caused immense harm to the world's freshwater ecosystems. We need look no further than southern Alberta to see how non-native, invasive rainbow trout are pushing our native cutthroat trout populations to the brink. Not to be confused with Alberta's native rainbow trout, which occur only in the headwaters of the Athabasca River, the rainbow trout found in southern Alberta were first introduced to the area in the early 1900s. Since then, they have interbred with cutthroat trout, creating whole populations of hybrid fish and decimating genetically pure populations of cutthroat trout in the process. But not all rainbow trout are "bad." In fact, millions of rainbow trout are purposefully released to lakes across the province every year by the provincial government and Alberta Conservation Association (ACA). Rainbow trout are one of the easiest fish to grow in a hatchery setting and are loved by anglers, so they have become a mainstay of our provincial fish stocking program. And it's been a huge success: trout stocking supports roughly a quarter of all angling effort in the province.

In one situation, rainbow trout are a destructive invasive; in another, a recreational opportunity for thousands of Albertans. In other words, it's complicated.

And things are getting more complicated. That's because rainbow trout are not doing so well in some lakes. Trout thrive in colder water with high concentrations of dissolved oxygen (think mountain streams) and are poorly suited to the summer water conditions

at some of our lakes. Even if they survive, the warmer water and low oxygen stress the trout, and stressed trout aren't interested in biting a hook. This helps explain the poorer trout fishing anglers experience during the dog days of summer at certain stocked lakes. Of course, we could always stock lakes that have more suitable habitat, but unfortunately, Alberta is a relatively dry province and our selection of lakes is limited. If we can't change the lake, we need to consider changing the fish, so ACA did just that.

In 2020, at the request of the Alberta Government, we completed a detailed evaluation of seven sport fish species common to the prairie and parkland region of North America, as an alternative to rainbow trout for stocking. We were looking for a species that was better adapted to

"If we can't change the lake, we need to consider changing the fish."

the challenging water conditions that occur at some of our stocked lakes in the summer. The ideal candidate would also need to be reliably and affordably produced at the larger sizes required for a put-and-take fishery. We wanted a species, like rainbow

trout, that was not only fun to catch, but that appealed to anglers who like to keep some of their catch. Finally—and this was a deal breaker—we needed to be confident that stocking the new species would not put our native species at undue risk. No introduction can ever be entirely risk-free, but successful fish stocking programs across North America demonstrate that, properly managed, the risk can be acceptably low.

Channel catfish was the clear winner of our evaluation. Alberta is at the northern edge of the channel catfish range and the species does not currently occur within the province. Channel catfish share many of the same characteristics that make trout an attractive option for stocking, but are much more tolerant of warm water and low oxygen concentrations. We suspect channel catfish would do very well in the summer water conditions prevalent in many southern and central Alberta lakes. Although they may



"The proposed channel catfish stocking program would rely on using sterile and disease free fish, and stocking them into waterbodies with a low chance of escapement. These are the hallmarks of a responsible stocking program."

not possess the good looks of a rainbow trout, channel catfish do possess a certain homely charm, and anglers love them. It's no accident that channel catfish are one of the most widely stocked sport fish species in the United States.

Like rainbow trout, however, the decision to stock channel catfish in the province is complicated. That's because channel catfish have become invasive in some of the areas where they have been introduced. The adaptability and hardiness that make channel catfish a great candidate for stocking also means there is a good chance they would become established in Alberta if appropriate controls were not in place. This is where our province's experience stocking trout is so valuable. To minimize risk, the trout grown in our provincial hatcheries are functionally sterile and unable to reproduce. They are also screened for disease before being stocked.

Likewise, the lakes stocked with trout are chosen to minimize the potential for impact of native species and risk of fish escapement. These are the hallmarks of a responsible fish stocking program, and exactly the things we are proposing when considering stocking channel catfish: sterile, disease free, and in waterbodies with low chance of escapement.

Nobody wants a repeat of the mistakes of the past, and fisheries managers now take a precautionary approach to fish introduction. That's why the province has a rigorous process in place for the review of proposals like the one to stock channel catfish. Over the next few months, managers and stakeholders will work through the proposal, carefully assessing the benefits and risks of stocking channel catfish in Alberta. It's a conversation that does not lend itself to soundbites or tweets, but that's a good thing. 🏞️

Channel catfish at a glance

- In the United States, channel catfish are native to waters east of the Rocky Mountains, spanning southward into Florida and northern Mexico and eastward to Delaware. In Canada, channel catfish are native to the waters of southern Ontario, Quebec, and Manitoba, and southeastern Saskatchewan.
- They eat a wide range of forage, including insects, fish, and even aquatic plants.
- Considered a model species for aquaculture, they are produced across the United States for recreational angling enhancement and the food-fish market.
- While most active in late evening, they feed during the daylight hours as well. Natural and prepared baits are most effective when fishing for channel catfish, but they will occasionally take a lure. Still fishing of baited hooks, fished near the bottom when water temperature climbs above 15°C, is most productive.
- Even smaller channel catfish put up a good fight when hooked. They have white, firm, and relatively boneless flesh, making them excellent table fare.
- They are a warm water species and not anticipated to grow quickly in Alberta lakes, making them a good candidate for creation of summer, put-and-take fisheries.

When the Walls Come Down

► by Ariana Tourneur



Lisa Roper has built her reputation organically. Glance at her Instagram feed, and you'll see it's happened fish by fish. As an outdoor ambassador, influencer, writer, media personality, and educator, we can hand her a lot of titles. But maybe Lisa says it better: "I promote the outdoor experience so others will want to go outdoors too." Read on to see how she's on a mission to break down walls and build people up.

What does social media mean to you?

It's so strange to hear the words "influential" and "Lisa Roper" in the same sentence. Nothing has been bought, and I think that's why my followers continually show up for me. I just love doing what I do.

Who gave you your outdoor start?

My dad and brothers, my dido and baba—we'd do family fishing trips. Energy. I remember the energy.

When I started fishing, my dad gave me just two lures: the Len Thompson Five of Diamonds and Red and White Devil. If you weren't catching with those, you might as well go home!

What else influenced you?

I remember fishing as a family and we'd go back to my grandparents' house and have a big fish fry. Again, there's that energy. That connection. That family unit. I was young, and I distinctly remember looking at my plate and thinking, "I caught this fish today. How cool is this? And we're eating it."

Getting our first skidoos as kids stands out too. My older brother said, "If you can't start it on your own, you're not driving it." So I worked and I worked, and finally did it. If it's something you love, you'll figure it out.

How did you make a passion for the outdoors your job?

My dad passed away suddenly five years ago. Grief can be very ugly. There's an expectation to get over it, but two years later, I was still struggling. I remember I wrote down a goal for the new year: I'm going to hit the outdoor world and I'm going to start tearing down walls. My dad gave me such a beautiful gift: knowledge, experience, adventure, strength—to go out and do things. It should be shared.

I did my solo moose hunt completely alone for six days in the mountains. It was wild and crazy. I drove to northern Saskatchewan alone and went fishing. I want to help other people find that courage in themselves. We all have boundaries, but like the quote says, we're not living life until we're living outside of our boundaries. When we push ourselves is when we grow—and start to find out who we really are.



Family has been integral to your journey.

Many adventures I've been able to do are because I have that strength of my dad behind me. I drove nine hours with my son and we did a fly-in fishing trip. The pilot dropped us off at the cabin with a boat and basic map and said, "Have fun!" as he left. We were completely alone. You're starting generators, filling gas tanks, troubleshooting when something doesn't work. To be able to do that with my son, and watch him grow? It was amazing. He went from, "I don't understand why we're here," to getting up at 6 each morning saying, "Mom are you ready? Let's go!" I pushed his boundaries on that trip, and saw a newfound confidence that formed in mere days.

Why do you enjoy teaching people about the outdoors?

I live for people reeling in their first fish or their personal best. Sometimes I'm more excited than they are, because they don't even know how to process it! It's a beautiful thing.

I'm also passionate about conservation and the "right way," like teaching proper fish handling. And then to watch them take on their next fish—they got it. When they go out with their friends, they're going to be the superhero sharing proper catch and release.

Fishing has always been in your life. What would you say to people who didn't grow up with it?

At the end of the day, if you don't know how to start, simplify: let's get a line, put a hook on it, and cast it down. By doing that first step, guaranteed there's going to be growth. Let's not miss the main reason we do this—building family connections, field to fork, having fun. Just start!

Fishing as a metaphor for life—do you relate?

Absolutely! There are plenty of days I go out fishing and I'm not successful in that I didn't catch a fish, yet I am successful. Because number one? I went. Number two? Whether you catch or not, something inside of you has happened.

I think sometimes we don't fully understand what the outdoors does for us. Fishing is elusive—we wonder, what's under there? What's going to bite today? You know the fish are attainable, so there's always hope. 🏞️



QUICK BITES

Bucket list fish?

Sturgeon last year in the North Saskatchewan River. The experience was everything I could've imagined and more.

All-time fave?

Walleye. They are such a challenge—finicky with attitude. You have to get one step ahead.

Your dad's best advice?

My dad never told me how to live. He showed me how to live.

Instagram highlight?

This is so heartfelt to me—on one of my fishing pictures, a mom commented, "My daughter saw this and said, 'Mommy I want to be just like her.'" There's that ripple effect. Now a mom heard that, and thinks why can't we do this? That's the cool stuff.

Your take on 2020?

I was actually fishing on New Years, and I caught a walleye. I released it back down the hole, and I said, "Yep, this is exactly what I'm going to do with 2020. Just release it."

Where can we find you?

Instagram: @alberta_ropers_girl

Facebook: LisaRoperOutdoors

Web: lisaroperoutdoors.com



photos: Lisa Roper

Catch and Release Done Right

The first and best piece of advice? "Don't be that guy." And if you're not sure who "that guy" is when it comes to fishing and catch and release, read on!

► by Elize Uniat
illustrations: Danielle Erickson



1 The Player

Even if you have a lunker at the end of your line, you're probably still 10 times its size. Fair chase when fishing means not "fighting" (aka "playing") the fish to exhaustion. Doing so dramatically ups its chances of dying, even if you do everything else by the book. So use the appropriate tackle for your target species and bring that baby in.

2 The Chucker

No, this is not a reference to Chuck Norris because he would never disrespect a fish! What we mean is don't chuck the fish overboard once you've unhooked it. Be gentle. Don't squeeze it or poke your fingers into eyes or gills. Hold it gently in front of the tail and slowly move it back and forth—easy does it—to get water flowing over its gills. And if you whisper sweet nothings while you do so, well, that's between you and the fish. Even better is if you use a rubber mesh net and unhook the fish without it ever leaving the water.

3 The Jerk

Ever seen one of those fishing shows where the host almost throws out his back setting the hook? No need for that when fishing in Alberta. Aggressive hook sets injure fish unnecessarily. Instead be precise and quick—failing to give that swift upward tug when you feel a bite can cause the fish to suck the hook down pretty far. And if that does happen? Cut the line. The hook will come loose or dissolve later. You'll likely do more harm than good performing emergency needle nose plier surgery while the fish is out of water.

Other things good anglers avoid:

Warm water—it holds less oxygen, meaning more stressed out fish. Fish first thing in the morning or in the evening, or in areas with cooler water.

Deep water (for walleye and yellow perch)—these fish have a hard time surviving when caught in water over seven metres because they can't adapt to the quick change in pressure. Basically, they get the fish version of "the bends."

"Fizzing" the fish—so you were fishing in deep water not for walleye and perch and now you

4 The Selfie-obsessed

We've all met this person—the one in it for the photos (plural) instead of the fish. Luckily, there's the ultra-reliable tradition of the fish story! No need to take 50 photos while the fish gasps for air. Take one, two tops if you must, then put that fish back in the water. The fish might be a little stunned from the paparazzi treatment, so again, hold it gently in front of the tail until it's ready to swim away.

5 The Joker

If you're going to eat the fish, kill it quickly and humanely. No fish wants to hang out in a live well or, even worse, on a stringer, while you try catch a bigger one for your pan. Must be the worst kind of "Psych!" moment when you release the poor, probably doomed fish. Even if the fish looks fine, its survival rate sinks terribly if you're culling your catch. And getting caught with more fish on your boat than legal, even if they're in a live well, is illegal.

6 The Whiner

Complaining about the bait ban and/or size limits on your favourite lake? Boohoo. Yes, bait bans do make it harder to catch fish. That's the point. Yes, size limits are heartbreakers when the would-be fish dinner is a quarter

have a fish with a swim bladder outside its body. Do not pop that bubble. True, the fish may not survive, but if you're not allowed to keep it, the rules are the rules and it needs to go back. Know what will definitely kill it? Poking a hole in the swim bladder.

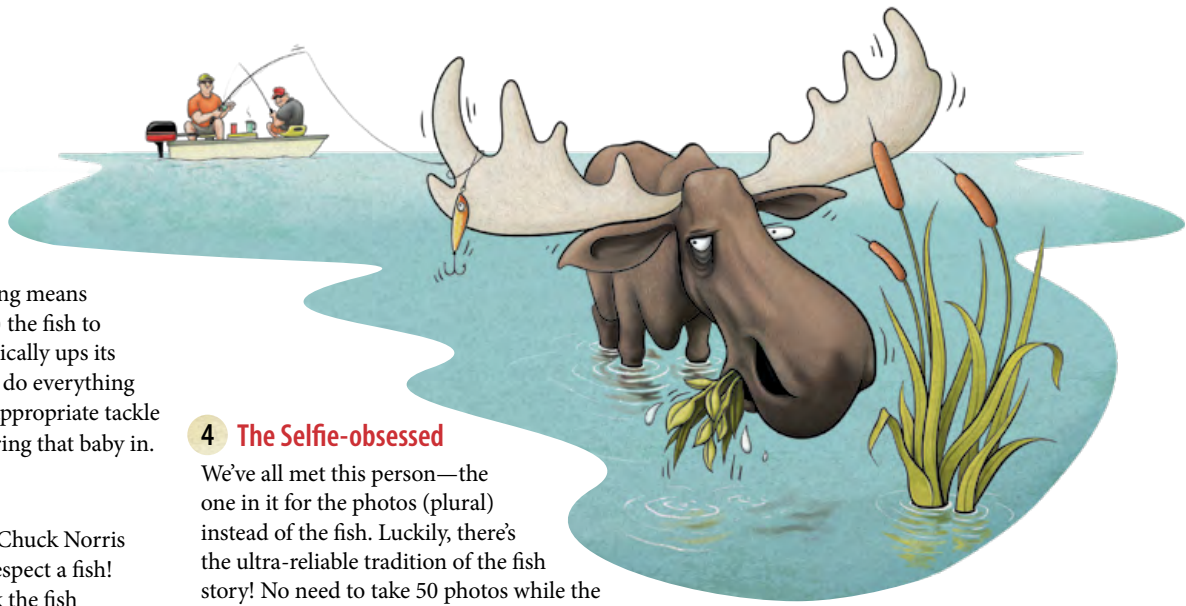
So. Many. Rules. But really, these are all pretty simple. If you're out there fishing, then you share in the collective responsibility we all carry to take care of nature. Good anglers make the world a better place. They treat the fish right. They care about conservation.

inch too long or short. But it's these exact rules that protect vulnerable or easily-caught fish populations so you have a shot at catching them next year.

7 The Poacher

Not knowing is not an excuse. And Fish and Wildlife officers hear enough sob stories every month to last them a lifetime. So do yourself and them a favour and get informed before you fish. Read the *Alberta Guide to Sportfishing Regulations*, pay attention to the rules for the lake you're on, buy everyone who puts a line in the water a licence, and keep only your limit.

And they pass on the tradition—proper fish handling included—because they want to take their grandkids fishing. So keep your sense of honour and duty strong out there. The fish depend on it. 🏹



site seeing

Wanted: Secret Streamside Fishing Spot in Alberta

► *by Erin VanderMarel*

Drake Conservation Site
photo: Jim Potter



Ready to plan your next fly-fishing adventure?
www.ab-conservation.com/RavenAngling

North Raven River Conservation Site
photo: ACA, Erin VanderMarel

You know when you see that photo of the breathtaking mountains, the perfect lake, that amazing trout...that someone else caught?! And the only caption is the photographer's name, when all you want to know is, "Where IS that?" Well, we won't be giving away anyone's secret spots, but Alberta Conservation Association (ACA) does have tools to help you find your own go-to gems.

As you may know (and if you don't, now you do), every year ACA publishes the *Alberta Discover Guide*, providing access information to over 780 conservation sites across the province. These sites are available to all Albertans for hunting, fishing, hiking, and generally enjoying the outdoors. You're bound to find at least one special spot in there to make all your outdoor buddies jealous.

But did you know that ACA has also made it easier for you to access Alberta's world-renowned trout streams—specifically, the North Raven and Raven Rivers? Our land management team has been working on this system since ACA's inception in 1997. In fact, conservation projects on the streams date back to the early seventies, when the Government of Alberta completed the first Buck For Wildlife project! Since then, more than \$12 million has been spent protecting this angling destination. Projects like livestock exclusion fencing, in-stream fish habitat construction, and streambank restoration were priorities, and helped get the stream to its present-day state.

Today, ACA continues to acquire land and work with private landowners in the area to provide additional access for your next brag-worthy fishing adventure! In the past few years, ACA's Land Management Program has added the Drake and Porter Conservation Sites, creating a 288-acre wildlife oasis with 3.8 kilometers of pristine fish habitat along the Raven River. These conservation sites are also open to hunting, but please be aware that there are specific hunting restrictions for the Porter Conservation Site (bow hunting only).

ACA also helps manage 19.5 kilometers of the North Raven River, surrounded by a 465-acre buffer of protected Crown land. There are several convenient access points along this stretch, but if you are willing to put in a few extra steps (or a bunch), you will be rewarded with parts of this river that barely see other anglers. In addition to the fish you may find, and hopefully land, the area is also home to moose, deer, birds, and elk. Although hunting is allowed within the buffer, access permission is required on the neighbouring leases and private land.

To put the cherry on top of the access cake, through collaboration with landowners, ACA's riparian team has managed to protect an additional 24 kilometres of river. And you can access all 24 kilometers to search out your next big catch! How? Well, the riparian team works with private landowners along the North Raven and Raven Rivers to manage water on their lands (for example, through off-site watering systems, exclusion fencing, or bank stabilizing projects). In return, these landowners provide reasonable public access to the riparian corridor on their property. The corridor consists of acres the landowners exclude from their farming operation to create a safe buffer along the rivers that allows natural filtration, limits siltation, and protects fish habitat. If you see a landowner out there, say thanks!

"So," you ask, "how do I get to my very own top secret fishing spot and make sure I'm contacting the right people?" We made an interactive map! Check out "Angling Opportunities on North Raven River & Raven River" at www.ab-conservation.com/RavenAngling. Zoom in on areas of interest. More information—like whether contact is required to access the areas and even the contact information—is just a click away. It's that easy!

Please remember, these landowners have voluntarily entered into an agreement with ACA to protect habitat for both fish and wildlife. These properties are working farms, so use respect while accessing them: day use only, no open fires, do not block gates and leave them as you found them, and please pack out your garbage.

We can't wait to see what you catch, so get out there! Tag @alberta_conservation to share your photos with us. Seeing the memories you make is what makes all the work that goes into creating these opportunities for Albertans even more inspiring. 🏡

For more information, please contact Erin VanderMarel, ACA biologist, at 403-846-6989 or Erin.VanderMarel@ab-conservation.com.

If you are willing to put in a few extra steps, your reward will be parts of the North Raven River that barely see other anglers.

For even more access opportunities download the FREE *Alberta Discover Guide* app today!



What's in Your Tackle Box?

The latest and shiniest gadgets are nice to have, but what are the true essentials? Besides the rod, reel and line, we mean? Behold this tidy tackle box filled with gear we think every angler—from novice to pro—should pack for a great fishing day.

- 1. Knife.** A quality stainless steel knife that won't rust can be useful to cut bait or line, open cans of sardines or fillet a fish.
- 2. Needle-nosed pliers.** Pliers or a similar multi-tool will take hooks out of fish—and out of you sometimes! It's a handy tool to depend on.
- 3. Toilet paper.** There really isn't an ideal substitute for toilet paper! Keep it dry in a baggie.
- 4. Barbless hooks, bobbers, sinkers, bait, and lures.** Have your favourite combinations of tried, tested and true tackle on hand.
- 5. Lighter or matches.** You never know when you might need a fire. A lighter can also seal up rope ends.
- 6. Bug spray.** They may be small, but pests can be the biggest aggravation on a fishing trip. Arm yourself!





7. **Sunscreen.** Your skin will thank you, so lather up for a long day in the sun. Remember to reapply!
8. **Ruler.** Stay on the right side of the regs—measure your fish.
9. **Extra line.** The one time you forget to pack it, you'll need it.
10. **First aid kit.** At some point small injuries are likely to happen. For that, a basic first aid kit is handy to have: bandages, antibiotic ointment, pain relief medication, and waterproof medical tape.
11. **Small trash bags.** Carry out what you bring in, and while you're at it, why not throw in any other garbage you see?
12. **The Alberta Guide to Sportfishing Regulations.** The last item to add to your tackle box, so it's the first item on top. 🏹

Finding stocked ponds just got easier!

Check out the new interactive stocked lakes map that includes over 130 lakes and ponds stocked by Alberta Conservation Association and Alberta Environment and Parks (AEP).

www.ab-conservation.com/stocked-lakes

Search by name, species, location, or by stocking status to find even more fishing opportunities!



Police Outpost Lake

Stocked by: **AEP**
 Stocked with: **Rainbow Trout**
 Check online for stocking status

photo: ACA, Andrew Clough



Licences are cheaper than fines

Know the regulations
Fish responsibly



REPORT A POACHER

www.reportapoacher.com
 1-800-642-3800

Zero to Hero

Parental Fishing Guide



► by Elize Uniat

Amid all the pandemic upheaval, fishing has shot to the top of many family weekend warrior lists, and that's a happy development. Are you fishing curious? I've learned that fishing with kids is a guaranteed adventure and worth the effort, thanks to several side effects that have nothing to do with fish.

First, the "work"

Getting geared up and out of the house sets the mood for the whole trip, as preparation builds anticipation. So cast your adventure off in the right direction by prepping together. Maybe everyone gets a chance to pick a lucky lure for the tackle box and load their favourite snacks and drinks (with the occasional sampling) into the cooler.

I recommend packing your vehicle the night before and going to bed early. Get excited about waking up in the dark (you're going fishing!), delight in the smell of freshly brewed coffee and fried egg sandwiches (my personal pick), soak in the stillness of the morning (cliché as it is) before the streets get busy, and appreciate the sunrise as a family.

As for gear, skills, and safety advice, the Internet has you more than covered. But if you've never fished before, family, friends, or neighbours deserve a call. Borrow some tackle. Ask for advice. Maybe they want to join you? (Accept that offer since having an experienced angler on hand is helpful.)

Buy basics if you need to—a shopping trip can be fun and educational because sales clerks often love sharing their knowledge and fishing stories—but don't break the bank. My daughter once landed a pike bigger than she was on a cheapie Dora the Explorer rod. Dad held onto the rod so it didn't go for a swim, and her uncle netted the fish, extracted the hook, and handed her the net so she could release her monster back to its weed bed. The moral of this story? She didn't need anything fancy to fish. All she needed was her people patiently passing on the tradition.

Reality bites (or doesn't)

Know that as the parent, you likely won't fish much. When you add kids to any mix, be ready for their special brand of creativity to take over. If you're patient, boots full of water are funny instead of inconvenient, and tangled lines are another chance to practice your knot-tying skills or open the cooler for a well-timed snack. In between, you'll have time to just enjoy your kids. Take note. What you're seeing in real time are what your kids will refer to as "the good old days" years from now. The experience is everything, and it's yours to shape.

Here's something else a lot of people won't tell you: your first trip may lack...fish. Yup. Fishing is a skill. It is learned over time. You might get lucky, or you might not, but if you decide to enjoy a fish-less trip anyway, you and your family will be hooked for life. The added bonus is that while you wait for the fish to bite, there's plenty of time to hear what's going on with everyone. After all, it's hard to hold a fishing rod and a phone simultaneously (although you can bet your teen will try). Eventually, there might be companionable silence accompanied by birdsong, making for real connections like few other experiences. Your best memories won't always be about the fish caught.

The unforgettable

Still convinced that fishing can't be fun without fish? Rest assured that in the heat of all the shenanigans and connecting, there will be a moment—perhaps on your first trip, perhaps not until your fourth—when a child will hook their first fish. The pure excitement igniting their squeals for assistance will still echo in your head when you're old and gray.

Little will compare to the pride in their eyes when retelling the story and showing off their fish photo (no guilt if you caved on the "no phone" rules at some point). But, listen closely, and you will hear something equally important: the dawning realization that nature is awesome, and that they are part of it. You, patient parent, were the catalyst. 🎣

Don't leave home without...

- Fishing licences for the family
- Life jackets
- Sunscreen and bug spray
- Snacks (extra, how do we manage to eat everything on the way there?!)
- Water (it sucks being thirsty when you're surrounded by water)
- Sunglasses (protects eyes from rogue casts, improperly set hooks, overeager reeling, and of course, the sun)
- Dry clothes and shoes

Where to go

Follow the link for entry-level fishing spots all over Alberta: www.ab-conservation.com/stocked-lakes
Bet you'll find something just far away enough to feel like a proper adventure.



"What you're seeing in real time are what your kids will refer to as 'the good old days' years from now. The experience is everything, and it's yours to shape."

photos: Elize Uniat



Nutrien[™]
Feeding the Future[™]

Nutrien Supports Community and Conservation

► by Mary McIntyre

Not everyone has the time or opportunity to take an extensive fishing trip. Fortunately, stocked urban ponds in or near major centres can fill that gap and provide a real connection with the outdoors. These waterbodies are special—they transform a local landmark into a place where a community can connect on many levels.

Alberta Conservation Association (ACA) is privileged to have Nutrien supporting our fish stocking program. This Canadian fertilizer company’s community relations strategy is focused on facilitating positive social change, so our partnership is an ideal fit. Together, we are creating fishing opportunities at six locations near where people live and work.

Nutrien talks about “feeding the future,” recognizing its fertilizer products help make the world grow. Along the same vein, they help bolster our communities by using community relations funds to enrich people’s lives—here, through the conservation and stewardship of Alberta’s fishery. Their decision to begin their partnership with ACA in 2018 was driven by a desire to support the communities where they operate.

It’s easy to see how funding fishing, one of the most accessible outdoor sports, is a surefire way to enhance a community’s quality of life. When people spend time fishing or learning to fish, they create or strengthen their relationships with the outdoors while fulfilling an age-old need to pursue and catch. It also gives locals a special place to explore, recharge, or unwind. “Nutrien has thousands of employees in Alberta,” says Ted Sawchuk, general manager of Nutrien’s Fort

Saskatchewan nitrogen production facility. “For us, mental wellness is a top priority, so supporting conservation in a way that is also fun and engaging for our communities, employees, and their families is a win for all.”

Fish stocking is an important part of Alberta’s recreational angling experience. For the past two years, five ponds and one lake in Alberta have sported great fishing opportunities thanks to Nutrien’s dedication to authentic community outreach and engagement. Residents from Gibbons, Lacombe, Red Deer, Strathmore, and Tees have had the opportunity to catch and harvest stocked trout throughout the summer. As Ken Kranrod, vice president at ACA, points out, “Nutrien has stepped up in a major way to help support multiple waterbodies. It’s very much appreciated.”

Nutrien also supports ACA’s live video feed of nesting peregrine falcons at its Redwater Fertilizer Operations facility in Alberta. While it is fun to watch the peregrine pair nest and take care of their young, projects like this one help ensure that the protection and conservation of these falcons remain a priority.

ACA is grateful to be collaborating with Nutrien and our other Corporate Partners in Conservation. After all, working together gives us the best opportunity to provide future generations with an abundance and diversity of wildlife, fish, and their habitats. 🏞️

For directions to these stocked sites and to many more, download ACA's **Alberta Discover Guide** app or visit www.albertadiscoverguide.com.

The map shows the outline of Alberta with six green location markers labeled A through F. Marker A is near Gibbons, B is near East Stormwater, C is near Len Thompson, D is near Tees, E is near Mitchell, and F is near Kinsmen Lake. Major cities like Edmonton, Lacombe, Red Deer, Calgary, and Strathmore are also labeled.

- A: Gibbons Pond** (D3-38)
- B: East Stormwater Pond** (E3-162)
- C: Len Thompson Pond** (E3-163)
- D: Tees Trout Pond** (E3-64)
- E: Mitchell Pond** (E3-38)
- F: Kinsmen Lake** (E3-31)

photo: Gibbons Pond
ACA, Colin Eyo



**Some moms pack a
bag of chips in your
lunch.**

**And some moms
dive bomb your
snack like a living
missile.**

As the fastest creature on earth (clocking in well over 300 km/hr!), peregrine falcons can even capture birds much larger than themselves.

It's all part of daily life. Get an insider look with HD cams streaming 24/7.

ab-conservation.com/peregrinecam

Supported by





Don't Lose Your Head, Take C.A.R.E. Instead

► *article and photos by
Alberta Environment and Parks*

*Can't look after your pet anymore?
Well, here's what to do: be responsible,
and **Don't Let It Loose!***

Releasing domestic plants and animals may seem like the most compassionate thing to do when you can't look after them anymore. But letting aquarium contents loose can have unintended—and serious—consequences for Alberta's waterbodies. It's simple: never release aquarium pets, water garden plants, live food, live bait, or sport fish into rivers, streams, lakes, ponds, or storm sewers. It is illegal!

Local or online pet stores typically sell species—including plants, animals, invertebrates, and fish—that are not native to Alberta. Releasing them into the wild can quickly lead to an invasion of non-native species. Over the last few years, over 70 populations of goldfish have been discovered in Alberta. Some fish have grown to the size of a dinner plate...all from people dumping their unwanted fishy friends.

Avoid doing something illegal—take C.A.R.E. instead:

Contact:

- Ask the pet store or place where you purchased your pet or plant if they can take it back.
- Ask someone—in person or by using social media, community lists, or online classified ads—if they can adopt your pet or plant.
- Research other places that may be able to provide a new home for your pet or plant, such as animal shelters, sanctuaries, humane societies, science centres, zoos, aquariums, schools, or other community organizations.

Act responsibly:

- Research pets and plants before buying or adopting. Understand how big they can get, how long they will live, and how much work they entail. Make sure you are willing to commit to their lifetime of care.
- Know what pets and plants are legal to own. Only buy from reputable retailers whose species are properly labelled, especially when buying online. Each province and territory has a specific list of prohibited species they ban. That means no selling, importing, transporting, or possessing.
- When gardening, select plants that are native to your region or known not to be aggressive spreaders.
- Ensure aquariums and ponds are contained with no chance of any species or water escaping into other water systems.
- Make sure any water removed from aquariums, ponds, or water gardens is drained on land and away from household drains, sewers, or other waterbodies.

Report:

- If you have an animal or plant that may be of concern or have reports or sightings of aquatic invasive species, please submit a report through the EDDMaps Alberta App or contact the Aquatic Invasive Species Hotline at 1-855-336-BOAT (2628). Early detection and rapid response is essential to localize, contain, and eradicate invasive populations before they become established.





End ownership:

- Contact a qualified veterinarian to euthanize your pet in a humane manner.
- If your pet dies, don't flush it down the toilet. Instead, bury it or dispose of it in the trash so it can't spread diseases.
- Dry and freeze plants in tightly sealed bags before throwing them in the trash. Do not compost them.

Preventing the spread of invasive species is vital to keep our ecosystems healthy. Wherever you are in Canada, get involved! Educate your friends and family, report any potential sightings of invaders, and—most importantly—**Don't Let It Loose!** 🐟



Watch out for hidden hitchhikers

There might be more than goldfish in your aquarium! In March 2021, Alberta Environment and Parks found live invasive zebra mussels hiding in moss (marimo) balls being sold in Alberta. Moss balls are a spherical algae that people often add to their aquarium or keep for decoration.



Take action—we need your help to protect Alberta's aquatic ecosystems. Aquarium dumping is always illegal, but we need to ensure zebra mussels are not introduced into the environment. If you purchased a moss ball in 2021—whether or not mussels are visible—you **MUST**:

- Destroy it by freezing it for at least 24 hours or boiling it for 1 minute,
- Dispose of it and any of its packaging in a sealed plastic bag, and
- Follow guidelines for treating container contents and water.

Full guidelines on what you can do can be found at www.alberta.ca/aquatic-invasive-species-overview.aspx.



What's on the Trout's Menu?

► by Members of Northern Lights Fly Fishers – Trout Unlimited Canada

Each spring, about 2.2 million trout, most around 8 inches long, catch a ride to new homes throughout the province. With assistance from Alberta Conservation Association and Alberta Environment and Parks, the fish move from somewhat crowded but safe, regularly catered, and temperature-controlled homes in Alberta's fish hatcheries to over 130 lakes and ponds throughout the province. When they arrive, there's much to learn; for example, some predators fly, and others carry fishing rods. But, like many youngsters, the stocked trout's primary concern is, "What's to eat?"

Food to a hatchery trout is synonymous with a small, brown pellet of protein and fat. It's not surprising, therefore, that small pieces of dead leaves or bits of twigs seem edible at first. But they quickly become aware that a vast, always open smorgasbord of fresh food is theirs for the taking.

One item will become their staple diet: chironomids. The larvae of these buzzing insects are slim and worm-like, and mostly reddish in colour, leading to their nickname, "bloodworms." They're often present in large numbers to be easily scooped up. The chironomid's pupal stage provides another ready meal, one that's easy to see, easy to catch, and available in a variety of serving sizes. The pupae hang around near the lake

Scud

Leech

Callibaetis Nymph

Chironomid Larva



Cased Caddis



bottom for a few days, then rise slowly to the surface to hatch. They have distinct white gills at the head, occur in many different colours, and range in size from a tiny 2 millimetres to 25 millimetres. Even at the surface they're easy pickings, as the pupae lay relatively still while their wings emerge.

The second most common food source is scuds. These freshwater shrimp are amazingly prolific, producing up to 20,000 offspring a year! When readily available, this high-protein food can add a pound onto a trout in a single season.

Caddisfly larvae are also on the menu. They're more difficult for the trout to find because most of them build an underwater house—from plants, sticks, bits of wood, and sand—held together with strands of silk which the larvae secrete. They drag this house around with them and seal it up altogether when they turn into pupae. Maybe that protection explains why they've been around for about 260 million years. But when they leave that case and head to the surface to emerge as adults, they're readily available.

Various and assorted nymphs—the immature stage of the mayflies, damselflies, and dragonflies we see flying above the water surface—are on offer all day long. Some, like the mayfly *Callibaetis* nymphs in most

Alberta lakes, are available to feeding trout even when there's no active hatch—trout just have to look in the weed beds where these long, slender, bulging-eyed nymphs spend most of their time. Dragonfly nymphs are a larger meal, but they are masters of camouflage and some like to hide under twigs and plants where they're hard to find.

To most of us leeches are ugly, but not to trout! They range in size from 10 millimetres to over 200 millimetres, although trout will find the smaller ones easier to eat. Leeches are more active in low light, but that's okay with trout since they also eat in the evening and at night. Swimming leeches stretch out, but smarter trout will learn to bump them—it makes the leech curl up into a ball and become an easier mouthful.

Water bugs are a popular snack in the spring, and even more so in the fall. Two in particular—the water boatman and his bigger cousin, the backswimmer—are especially appetizing. Both insects trap air bubbles from the surface to breathe while underwater, swim using a jerky “backstroke” motion of their long legs, and can fly, landing back on the water with a noticeable “splat.” That sounds just like a dinner bell to any trout nearby.

Trout aren't averse to eating some of their distant relatives. They go after the small

fish, mostly brook stickleback and fathead minnows, that frequent the shallows of the communal dining area. It may burn up some energy to chase another fish for dinner, but the reward is worth it, and it cuts down on competition for other available snacks.

While trout are often looking down at the buffet, they soon learn to glance up now and again when chironomids, mayflies, and caddis start emerging on the surface. There might also be a flying ant, a beetle, or a careless grasshopper for dessert. And then, on those lazy days when all the trout wants to do is cruise around the lake, it just needs to open its mouth slightly and inhale the minute daphnia and water fleas that are just about everywhere.

The hardest lesson for any trout to learn is that these menu items are not always real. They may wiggle and dance, spurt forward or lay still, but sometimes they're a fur and feather imitation of a menu delicacy hiding a sharpened hook. The trout's only hope then is that it can break free or come face to face with someone who will slip out the hook, keep it wet, and let it swim away to grow and become a more discerning diner. 🐟

photos: Rob Hinchliffe, Aquatic Invertebrate Taxonomist, Royal Alberta Museum

Chironomid Pupa



Trout Unlimited
CANADA



**Northern Lights
Fly Fishers**

While the Northern Lights Fly Fishers has only officially been a Trout Unlimited Canada chapter since 2010, the club's history goes back all the way to the mid-1970s. Since then, members have been involved in many fishing education and conservation initiatives across Alberta. Check out their website, www.nlft.org, if you would like to learn more or become involved.

Clear Your Gear... and Your Conscience

► by Ariana Tourneur

Thin and often camouflaged, discarded fishing line seems unassuming.

Next to wildlife, it's anything but. With deadly capabilities that go far beyond its looks, forgotten fishing line affects birds, sea turtles, seals, whales, sharks and other sea life. "North America—including Alberta—is not immune to this problem," says Ken Kranrod, ACA vice president. "There's a general ignorance about how something as seemingly insignificant as throwing away fishing line can become a critical problem for wildlife."

Birds and animals often don't see it, getting too close and becoming entangled. If entanglement doesn't kill an animal right away (typically by drowning), wounds caused by the fishing line can be ghastly. Over time, the hard material cuts into the skin and muscle, and the animal lives in this tortured condition. The other scenario is animals ingesting fishing line (it also blows out of garbage cans or landfills)—just as deadly.

It sounds gruesome enough, but one doesn't realize how bad it is until seeing entanglement in person. That distressing experience motivated Judy Robertson to found Clear Your Gear, a volunteer national network that engages communities and partners to supply hundreds of specialized recycling receptacles. So far, they're in nine of our ten provinces.

"Everything we do relies on community," says Steve Loney, volunteer. "Besides providing fishing line receptacles and instigating the entire recycling process, we educate the public about the tragic effects of poorly discarded

fishing line. Monofilament can wreak havoc in our environments for up to 600 years!"

While those messages should be heard loud and clear, Clear Your Gear depends on its quiet operators. Volunteers work behind the scenes assembling and delivering receptacles, supporting communities, and finding partners and sponsors to keep the program expanding. It's not uncommon for volunteers to meticulously piece together 8,000 components for new units, or drive three hours out of their way to deliver a receptacle. In fact, volunteers have covered over 10,000 kilometres to deploy the units to communities.

The journey doesn't stop there. Volunteers collect fishing line from the recycling units and clean it of hooks, leaders, weights, and trash. Then it's shipped to Iowa's Berkley Pure Fishing Company, where the line is melted into raw plastic pellets that can be made into other products, including tackle boxes, spools, and toys.

Sponsors like Bass Pro and Cabela's Outdoor Fund, Wildlife Haven and TC Energy help Clear Your Gear grow nationally and maximize public awareness about the implications of discarded fishing line. And now, ACA is excited to be the newest partner. "We're hoping the Clear Your Gear units will encourage anglers to properly dispose of their used fishing line so it can be recycled and kept out of habitat and far from wildlife," says Kranrod. 🦋

Watch for them in a community near you, and if you are especially passionate about the cause, contact Clear Your Gear to see how you can help. Visit www.clearyourgear.ca/#help



photos: Clear Your Gear (bottom left, bottom right, and front); Wildlife Haven (bottom center)



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As we muddled through the year that was 2020, it dawned on me that some of my best memories came from social distancing in a different way. I had found myself too wrapped up with work and life for the past few years to actually get out into the wilds armed with a fly rod and a box of feathers and fluff. Like many people, I suddenly found myself with more time on my hands, and I used it to rekindle my passion.

When it comes to fly-fishing, everyone has their own story on how they caught the bug...or how the bug caught them. For me, I had fished a bit as a kid in the seventies, mostly sitting in a row boat drinking root beer while my dad navigated local sloughs looking for jackfish, and mostly catching jack squat. Sometimes we chucked gear off the end of a rickety pier for perch. But it wasn't until around 2000 that I took up fishing again... and this time it was on the fly. It wasn't because of *A River Runs Through It*, which

to me is still a Brad Pitt movie that happens to have some fishing in it. And I certainly wasn't trying to develop some usable skills for when the zombie apocalypse hit. All I know is that the first time a trout rose to my fly, I was hooked.

It was a case of being in the right place at the right time. I was just looking for some tranquility and time to be alone with my thoughts, or not think at all. I'm a self-professed city kid. We didn't camp growing up. That came in my twenties, and was merely an excuse to enjoy adult beverages out of doors while sitting around a fire. It wasn't until years later that I began to appreciate the majesty of Alberta's outdoors through mountain biking, and then fly-fishing.

By no means am I the most ardent or accomplished flyfisher out there. But I am fortunate enough to have close friends who are. They allowed me to splash around in creeks, spoil the water for them, and

bombard them with questions about tippet weight and the advantages of going wet or dry or hopper dropper. Eventually, I managed to absorb some of their knowledge about insect hatches and reading streams to where I can confidently go after those silvery beasts that had taunted me for many years.

Since day one, I've pretty much restricted my fishing to the creeks, streams, and rivers of Alberta's foothills and southwestern slopes—the Crow, Upper Oldman, Livingstone, North Ram, Dutch Creek, Side Creek, Gold Creek, Prairie Creek, Hummingbird, and many more—places mostly accessed by trunk roads and gravel tracks, where cellphone coverage is iffy at best. It's there I find that I am happiest, surrounded by the breathtaking scenery people around the world envy. It also makes it far less frustrating if I get skunked.



*Time Flies When
You're Having Fun*

Being out in the backcountry, I've committed my fishing endeavours to catch-and-release only. Not that I don't enjoy a shore lunch of tasty Alberta trout, but I just have a thing about walking around in bear country with a creel full of "come and get it" hanging over my shoulder. I also like knowing that the fish I catch today may be the same ones I catch next year, though hopefully they'll make me work harder for it.

In a way, fly-fishing was an invitation to some sort of secret society. There are no secret handshakes, or at least none that I know of. But there are secret spots that every angler is highly protective of. You find yourself

speaking in a code that only your closest fishing buddies understand, giving names to your favourite locations, such as Badger's Point, the Miracle Mile, the University, the College, Mark's Hole, Peter's Pond, and more.

I even tried my hand at tying my own flies, which is the ultimate rite of passage for a flyfisher. Despite my best efforts, I always seem to end up with a hot mess on a hook. Thankfully, a close friend is supremely talented in this area and I have benefitted greatly from some of his creations. His "dazzling drakes" are a definite hit. His "disco superstar" fly...not so much.

Over two decades of untangling wind knots, snapping off countless flies due to sloppy casting, repeatedly stabbing myself in the fingers with barbless hooks, tying a thousand knots, and enduring a handful of unceremonious dunkings, the greatest thing I have learned is patience. Flyfishing has taught me to enjoy where I am, and to take whatever comes down the stream at me with a smile on my face.

I look forward to more social distancing in the future, even after the pandemic has passed. ▲



illustration: Jane Bailey



Fish ON A STICK

► by Brad Fenson

White, flaky, steaming hot fish coated in a batter fried to a crunchy crescendo is hard to beat. Successful Alberta anglers pursuing walleye, northern pike, yellow perch, burbot, and even whitefish can plan a Wild Rose Country fish and chips dinner.

Deep-fried fish stays incredibly moist. The cooking process creates a war between the oil in the pot and the moisture in the fish, because the oil will not let the moisture out of the flesh and vice versa.

There are two rules when making fish batter. Firstly, milk makes soft batter, and transparent liquid (like beer or even water) makes a crisp batter. Secondly, the frying oil temperature should stay between 350°F and 375°F to prevent the batter from absorbing the fats. The high temperature allows the fish to cook quickly and prevents it from tasting or feeling greasy.

Quizzing professional chefs has provided insight into the perfect fish batter: thin and crisp, with a hint of spice. A great trick comes from west coast fishing guide Jason Frank, who taught me to put a bamboo skewer through each serving of fish. The sticks make an excellent handle when lowering the fish into the oil, and later when eating it. Slowly lowering the fish into the oil allows the batter to form a shell quickly, so the pieces don't stick together or to the cooking vessel.

TIP: The easiest way to add a crunch to the batter is by adding rice flour. Wheat flour has gluten proteins, which create long strands within the batter or dough. Reducing the gluten and shortening the connective strands creates a crispy crunch that is audible around the dinner table. People with gluten intolerance could make a batter entirely out of rice flour. For this recipe, I used equal parts of regular wheat and rice flour in the batter.



photos: Brad Fenson

Ingredients

- 2 lbs fish fillets, boneless and skinned
- canola or peanut oil for deep frying

Dredge

- ¼ cup all-purpose flour
- ¼ cup rice flour

Fish Batter

- ½ cup all-purpose flour
- ½ cup rice flour
- 1 tsp salt
- ½ tsp ground black pepper
- ½ tsp smoked paprika
- ¼ tsp cumin
- ¼ tsp oregano
- ¼ tsp ground nutmeg
- ¼ tsp cayenne (optional)
- 1 large egg, lightly beaten
- 1 ¼ cups beer (lager or pilsner)



Directions

1. Prepare the fish by cutting into serving-size pieces six to eight centimetres long and half as wide. Dredge fish pieces in the flours, and run a bamboo skewer through the length of each fillet.
2. Next, prepare the batter. Combine the flours, salt, pepper, smoked paprika, cumin, oregano, nutmeg, and cayenne in a medium bowl. I enjoy using spices from High Caliber Products—their spices are fresh and they're an Alberta-based company.
3. Whisk the egg and beer together in a small bowl. Slowly add it to the dry ingredients, whisking vigorously until all lumps dissolve.
4. Prepare a deep fryer and bring oil to 375°F. (A Camp Chef cast-iron Dutch oven works well to fry fish—it holds even heat and doesn't require as much oil.)
5. Set the skewered fish into the batter and spoon the batter over until covered. Let excess batter drip off. Insert the fish into the oil by holding one end of the skewer. Submerge the fish slowly and prevent it from sticking to the bottom by allowing a crust to form first.
6. Fry for three to four minutes, depending on the thickness of the fillets. The batter should be golden brown on all sides. Remove fish from oil and let each piece drain on a wire rack for 15 seconds. Serve immediately with a wedge of lemon or tartar sauce. ▲

Fishing in the Dark

► by Darren Unreiner

Published in the Winter 2021 edition of the Western Canadian Game Warden magazine, this article is part of their "Take Down Tales" series. A reminder: know and respect the fishing and hunting regulations—it's important.

On the evening of September 19, 2019, fish and wildlife officers were en route to deal with a wildlife investigation.

While driving, officers located a parked vehicle at a bridge crossing on Range Road 22 at Tide Creek, located north of Pigeon Lake, Alberta. Tide Creek is a tributary waterbody to Pigeon Lake and zero walleye can be retained unless an angler has special walleye harvest license/tags.

A fisheries compliance check was conducted with the subjects in the vehicle. The parked SUV had three occupants inside the vehicle who were from the local and Edmonton area. The two male occupants stated they were fishing in Tide Creek but kept no walleye.

Officers asked if any fish were inside the parked vehicle, and once again the Edmonton men stated that "No fish were kept as they were catching and releasing fish only."

An inspection of the vehicle revealed a yellow and red cooler near the back storage area of the SUV beside all the fishing equipment. An inspection of the cooler revealed three fresh walleye.

All the occupants were informed they were under arrest for unlawful possession of fish. A search of the vehicle recovered two firearms and a small amount of open liquor.

The Edmonton man stated the three walleye were his and took full responsibility for them. He claimed that he had walleye tags for the fish and produced a 2018 special walleye harvest tag that was used. He then stated his tags were at home as he may have forgotten them. Officers advised the man of obstruction and it was in his best interest to be upfront and honest. The subject now stated that he

is fully aware of the special walleye tags for Pigeon Lake. He had Class B walleye tags for the 2019 season, but he has already used them all. He lived about five miles north of Tide Creek and decided to come fishing tonight with friends and keep a few walleye.

The Edmonton man was issued an Appearance Notice for his infractions and his rod, reel, cooler, and three walleye were seized. On January 7, 2020, the accused pled guilty in Wetaskiwin court to retaining fish without a special fish harvest license and providing false information. He was fined \$2,000 and received a one-year recreational fishing license suspension. 🏠

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Everything in nature

..... is truly linked
to everything
else

..... including us

▶ by Dr. Lee Foote



On one side lies the walleye-filled lakes of Saskatchewan, where one can fish all day accompanied only by a loon and an occasional black bear. On the other, British Columbia, bristling with big, muscular fish surging upstream to mountain headwaters. In between lies Goldilocks Alberta; we have some of each, thus, we are jussst right! But the quality of our fishing depends largely on how the water is handled before it ever reaches our boreal ponds and foothill streams; it depends on the land. Our fish waters lie cheek-to-jowl with a working landscape of forestry, oil extraction, motorized recreationists, grazing lands, mines, and water diversions. Don't forget the blanket effect of a changing climate. Borrowing from Dr. Bronner's New Age organic soap bottle, "All is one and one is all." Everything in nature is truly linked to everything else, including us.

Wildlife research linked bears feeding on West Coast salmon (and by extension, Alberta's sucker runs) to increased tree growth. Whaaatt?? Well, those migrating fish spend years accumulating nitrogen, calcium, and phosphorus-rich bone and muscle for their spawning runs. Bears consume this concentrated smorgasbord of fish flesh from shallow streams, then walk into the surrounding forest to answer that eternal question about what a wild bear does in the woods. Under a fertilization regime that would make a gardener proud, the composted blood meal, fish oil, calcium, nitrogen, and phosphorus produce phenomenal tree growth. The nutrient connection flows both ways too. Those big alders, willows, and spruce combine the soil nutrients with solar energy and carbon dioxide from the atmosphere to produce showers of slow-release, carbon-rich leaves into streams. Trillions of little organisms consume the carbon via decomposing algae, leaves, and dead wood. (I think those tiny organisms resemble my trout flies; unfortunately, the trout disagree.) Our beloved trout and walleye grow delicious white flesh from those tiny carbon-concentrating insects. Who knew we were indirectly eating tree leaves and bear fertilizer?

Incidentally, if even one of the links in that nutrient-leaf-insect chain is broken, we also diminish the food supply to the ruffed grouse chicks, tiger salamanders, bufflehead ducks, and olive-sided flycatchers that depend on those insects. This circularity of nature is a beautiful exchange of energy flows running in both directions, much like a well-oiled

bicycle chain. That continuum can power or brake our progress.

Conservationists appreciate and try to keep all the links of this ecosystem chain sound and intact, but understanding and diligence are key to the appropriate connections. For example, if a little nutrient transfer is good, is a whole lot of nutrients better? Well, not so fast. Farmers and gardeners know that excessive fertilization kills crops. One definition of a poison is, "Anything in excess." For example, selenium is an essential nutrient for human health, but also a toxic poison at even moderate doses. A warm doughnut is a delicious treat, but after the twelfth doughnut it becomes a repulsive excess. Scientists call this a "dose-response curve": benefits increase dramatically with the first dose (pick your poison—fertilizer, selenium, or doughnut) but, eventually, further additions add no value, then, even later, really bad stuff starts to happen—urrrr!

Like bear scat, agricultural runoff into streams increases water nutrient levels; however, agricultural nutrients can increase dramatically—hundreds of times beyond what is beneficial. One year's worth of agricultural runoff spread evenly over 100 years might be acceptable, but to put such a load downriver in one spring runoff is like eating that dozen doughnuts at one sitting. Nothing good will come of it. Any angler who encounters a mid-summer algae bloom in an Alberta lake—a sure indicator of excessive nutrients—will agree. The decomposing scum sucks up oxygen and produces toxins that can kill fish and sicken cattle, dogs, and humans drinking such water. How sad that essentially all Alberta streams and lakes were safely drinkable just three generations ago. No more.

Everything in nature is connected, remember? The key to clear, safe, fish-filled and even drinkable waters starts with how we treat the lands leading outwards from the waters. Turns out deep, undisturbed soils and healthy range conditions are the best fish protectors we have. So conservation that maintains grasslands, wetlands, and forests also protects the fish, plus produces wonderful upland conditions for healthy lives, flushing grouse, abundant big game, and a diversity of birds and amphibians.

Goldilocks indeed! 🐾



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Fort Lions Community Fish Pond
photo: ACA, Rhianna Wrubleski

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