



MinnAqua Moments



August 2011

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Lake Sturgeon

by Nadine Meyer, Newsletter Editor

Lake Sturgeon have always fascinated me. Their unique body shape, life cycle and habitat are a few of the reasons I have found this fish so intriguing. This issue of MinnAqua Moments spotlights this ancient relic of oceans past. You can learn more about the life-history of this fish in the [Species Profile](#).

If you are interested in fishing one of these giants up check out the [Fishing Equipment & Tips](#) and [Piers & Places](#) articles to learn about where to find them and what to use to tantalize their taste buds.

We adapted [Lesson 1:3 - Run For Your Life Cycle](#) to focus on Lake Sturgeon. For a new set of cards and instructions for the game that show the migration pattern and life cycle of Lake Sturgeon visit our [Featured Lesson](#).

Our [Book Reviews](#) highlight three books about Lake Sturgeon for Pre-K through Adult readers. And, in our [Angling for a Laugh](#) segment, we attempt to link some strange "food firsts" to the decline of the sturgeon.

Don't forget to see the [Mentoring & MinnAqua](#) article and check out the upcoming [Updates & Opportunities](#) for educators.

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Remember Us?

MinnAqua is sending you this newsletter because you have received the new leader's guide, *Fishing: Get in the Habitat!* either through a training workshop or you have requested information about the leaders guide.

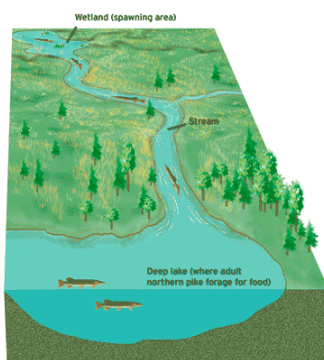
Featured Lesson

Lesson 1:3 - Run For Your Life Cycle

by Nadine Meyer

August 2011

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Chapter 1 of the MinnAqua Leader's Guide - *Fishing: Get in the Habitat!* contains six lessons, all of which focus on aquatic habitats. Exploring and learning about the habitats where fish live is an important step in increasing future angling success and helps students see how they, too, are connected to aquatic habitats.

For this issue of MinnAqua Moments the Featured Lesson includes a new adaptation of Run For Your Life Cycle that focuses on the Lake Sturgeon. This adaptation includes supplemental Instructor Background Information found in our [Species Profile](#) – Focus on the Lake Sturgeon, new [Life Cycle Cards](#), and a [new Lesson Plan](#).

[Download the Lesson](#) 

Lesson Summary ("Original Version")

The northern pike is an example of a Minnesota fish species that migrates to complete its life cycle. In this role-playing activity, students become northern pike traveling a migration route through a course depicting a wetland, a stream, and a deepwater lake. Dangers accompany migration—the northern pike encounter both natural and human-induced obstacles as they grow to adulthood and return to the wetland to spawn.

Lesson Summary (NEW "Sturgeon Version")

The lake sturgeon is an example of a Minnesota fish species that migrates to complete its life cycle. In this role-playing activity, students become lake sturgeon traveling a migration route through a course depicting a gravelly or rocky bottomed shallow stream, a river, and a deepwater lake. Dangers accompany migration—the lake sturgeon encounter both natural and human-induced obstacles as they grow to adulthood and return to the shallow stream to spawn.

Tips & Tricks

- For both the original version and the sturgeon version of Run For Your Life Cycle you may want to have photographs/magazine images available of each of the main habitats that the fish use for their life cycle.
- The images of the low head dam and fish passage found in the original version of the lesson plan are available on your MinnAqua Fishing: Get in the Habitat! CD and can be easily printed on 8.5 x 11 paper to use during the game for both versions.
- This game can easily be adapted for a 20-minute up to a 50-minute class period by reducing the number of rounds or adding more obstacles that the students suggest.
- While this game is best used outdoors, it can be set up indoors in a large hallway, gym, or in your classroom if you are able to move your student desks allowing for a large open space.



Diving Deeper

- Find out more about fishing for Lake Sturgeon in our [Piers & Places](#) and [Fishing Equipment & Tips](#) articles for the August 2011 issue of MinnAqua Moments.
- Look up [Minnesota Fishing Regulations](#) for Lake Sturgeon and Northern Pike.
- Contact your local DNR [Fisheries Office](#) to find out if it is possible to view Northern Pike or Lake Sturgeon migration in your area.

MinnAqua Lesson Connections

[Lesson 1:3 – Run For Your Life Cycle](#) [PDF](#) (25 pages | 3.7 MB) links directly to [4:1 – Fishing Regulations and Sportsmanship](#) [PDF](#) (24pages | 1.6 MB) when you add the angler into the mix of limiting factors for pike survival. Discussions about limits, seasons, and special regulations may come up while you play the game and you can refer to the Minnesota Fishing Regulations as your students come up with solutions using fisheries management techniques. Following up this activity with [4:5 – Fisheries Management and You](#) [PDF](#) (36pages | 4.5 MB) or [4:2 – Fish Surveys](#) [PDF](#) (35pages | 4.3 MB) will add to the depth of understanding how humans impact our natural environments and what we can do to have a positive impact on our aquatic habitats.

NEW: Suggested Online Student Resources

Have your students access these online resources to engage in these concepts further.

- [Fish Migration Game](#)
- [Atlantic Salmon Kids Activities](#)
- [BioKids "Critter Catalog" Northern Pike](#)
- [Kids Biology.com Northern Pike](#)
- [Fishing Sustainably fish-game](#)

Species Profile **

Lake Sturgeon

by Nadine Meyer

August 2011

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Lake Sturgeon

Acipenser fulvescens: *Acipenser* is Latin for "sturgeon and esteemed dainty fish," *fulvescens* is Latin for "becoming tawny, somewhat tawny (yellowish brown)"



Lake Sturgeon

Introduction

Lake Sturgeon, sometimes called a living dinosaur of the fish world, are a remnant of an ancient and primitive group of fish that have cartilaginous skeletons and bony plates in their skin. Lake Sturgeon are one of three species of sturgeon that live exclusively in freshwater, the other two species are Shovel Nosed Sturgeon (found in Minnesota) and Pallid Sturgeon (Federally listed as an

endangered species, not found in Minnesota). There are twenty-seven species of sturgeon worldwide, all of them found in the Northern Hemisphere.

Lake Sturgeon almost disappeared from Minnesota in the early 1900's. During the 1800's sturgeon were considered a nuisance fish because they easily broke through commercial fishing nets. They were taken out of the rivers and lakes they inhabited and stacked on the shorelines like logs; sturgeon were also used to power steam boats because their meat has a high oil content. In the late 1800's sturgeon eggs were recognized as a dining delicacy. They were harvested by the 1000's for their caviar until the population crashed in the early 1900's. This dramatic harvest along with significant habitat changes around the sturgeon's spawning areas nearly drove the entire population in the United States to extinction. Currently Lake Sturgeon are listed as a **Species of Special Concern** in Minnesota and have strict regulations for harvest.

Identification

Sturgeon can easily be identified by the following characteristics:

- Flattened spade-like shaped head
- Four **barbels** on the underside of snout
- Bottom facing sucker-like mouth with fleshy lips and no teeth
- **Heterocercal** tail – the top edge of the tail is longer than the bottom edge
- Grayish to brown-gray in color with a white belly
- Large bony plates covering the head and five rows of shield like plates along the body that are topped with



Lake Sturgeon Mouth

bony ridges which can be extremely sharp when the sturgeon are small

Habitat



Historically Lake Sturgeon were found throughout the Mississippi River and its tributaries including the Missouri and Ohio rivers from Minnesota to Louisiana, all of the Great Lakes and most of the St. Lawrence Seaway, the Red River from Minnesota to Hudson Bay, and many tributaries of Hudson Bay. 19 of the 20 States that Lake Sturgeon were found have Lake Sturgeon listed as a **threatened**, **endangered**, or **species of special concern**. Lake Sturgeon is considered **extirpated** from Louisiana, Alabama, and Arkansas.



Lake Sturgeon Tail

Lake Sturgeon are endemic to each major watershed in which they are found. For example, Lake Sturgeon found in the Great Lakes do not interact with Lake Sturgeon found in the Hudson Bay watershed or the Mississippi River watershed. Restoration projects that include stocking Lake Sturgeon in each of these major watersheds use brood stock that comes directly from the same watershed. Tagged sturgeon have been tracked migrating 300 miles or more throughout contiguous bodies of water.

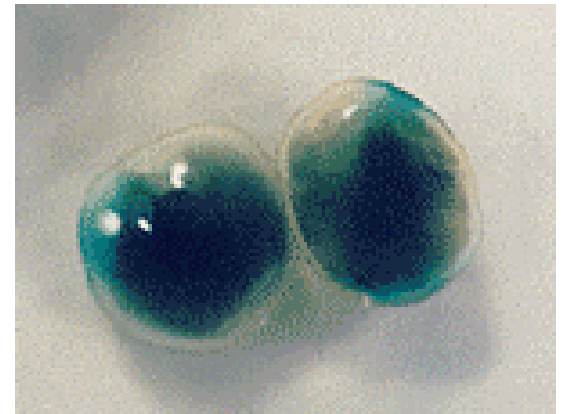
Food

They forage in areas with sandy, gravelly and muddy bottoms using their snouts to stir up the benthic material and their powerful sucking mouths to draw in the water and floating debris. The small particles of sand and muck are expelled through their gills and the larger food items are consumed.

Sturgeon primarily eat aquatic macroinvertebrates, freshwater mussels, snails, crustaceans, and small fish. They do not eat decomposing or dead organisms, preferring fresh food even in hatchery situations.

Reproduction

Around mid-May through June, when water temperatures reach 50 degrees F, sturgeon begin to migrate to their spawning habitat. They spawn in shallow rivers that have clear water and gravel or cobble bottoms free of silt and sand once temperatures reach 55 degrees F. During this time the males arrive before the females and neither forage for food until they leave the spawning grounds. The females, accompanied by two males, lay hundreds of thousands of eggs generally in one or two days and the males fertilize the eggs after they are released from the female. The eggs stick to the rocks and gravel at the bottom of the stream and hatch in about 5-8 days; ideal water temperature for hatching is 59-64 degrees F.



Sturgeon Eggs



Sturgeon spawning habitat is being threatened by the introduction of zebra mussels. Zebra mussels attach to hard surfaces and can cover rocks in one season leaving no space for sturgeon eggs. Zebra mussels are found throughout the Great Lakes watershed, Mississippi River watershed and have recently been discovered in the Red River &

The freshly hatched sturgeon have a large yolk-sac on their belly and are called sac larva. They settle into the rock crevasses and feed off of their yolk-sac.



Sturgeon Fry with Yolk Sac

After 10 days the yolk-sac is consumed and the larva are now able to swim up into the river current. They float downstream and settle out in areas with sandy bottoms to feed on burrowing invertebrate larva and other small organisms in the benthic substrate of the river.

The larva grow rapidly and in about five months they are five to seven inches long and are now fingerlings.

Lake of the Woods watershed.

For the next five years the fingerlings continue to forage in the river for larger aquatic invertebrates,

freshwater mussels, small snails, and fish. They continue to grow rapidly and by five years old they are now around 20-inches in length and are ready to migrate into larger river and lake systems.



Sturgeon Fingerling



Sturgeon Larva

At this point the sturgeon are still juveniles and will not reach sexual maturity until 15 years for males and 25 years for females. Their growth slows significantly and they generally grow to 45-50 inches by the time they reach sexual maturity.



Sturgeon Juvenile

Once sturgeon reach sexual maturity they return to the spawning grounds where they were born. The females spawn once every four to eight years, and the males spawn every one to two years. Males have a shorter life span than females. Generally males live for 65-90 years and females can live over 150 years.

Predators

Most predation of sturgeon happens during the egg stage. Sturgeon eggs are vulnerable to predation by larger benthic organisms such as crayfish, and small fish.

Fingerling and small juvenile sturgeon can be predated by herons. By the time sturgeon reach 20 inches or more in length their primary predator is humans.



Sturgeon Adult

Fishing and Handling

To learn more about fishing for Lake Sturgeon and how to handle a Lake Sturgeon if you are lucky enough to catch one see our [Piers & Places](#) and [Fishing Equipment & Tips](#) articles.

Fun Facts

- Common names for Lake Sturgeon include: rubberrnose sturgeon, rock sturgeon
- Among Great Lakes Indians, the Lake Sturgeon was the most respected of all fish. The Ojibwe referred to it as Nahmay or Namé, meaning the king of fish.

Publications and More Information on Lake Sturgeon

- US Fish & Wildlife Service Brochures:
 - [Lake Sturgeon Giant of the Great Lakes](#)
 - [Lake Sturgeon *Acipenser fulvescens*](#)
- [Minnesota Conservation Volunteer: Sturgeon Come Surgin' Back](#)
- [Minnesota DNR Rare Species Guide: Lake Sturgeon](#)
- [Fishes of Minnesota: Lake Sturgeon](#)
- [Great Lakes Lake Sturgeon Website](#)
- [Review of Lake Sturgeon Habitat Requirements by the Ontario Ministry of Natural Resources](#)

Fishing Equipment & Tips

Minnesota's Finest Fight -- Fishing for Sturgeon

by Ben Brettingen, MinnAqua intern

August 2011

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Ben Brettingen with his catch

"I honestly can't move it off the bottom", I said, barely audible over the squealing of the reel's drag. I thought to myself, "If he struggles, what in the world am I going to do?" I soon found out.

It must have been quite a sight! -- A 6'4", 240 lb. collegiate wrestler with a fishing rod bent over in half, which looked more suited to being a diving board than a fishing rod! Slowly, the fish started to make its way to the surface and, moments later, I lay the 102 lb. behemoth across my exhausted body for a quick snap shot. It was then that I remembered why I came to the border waters of the Rainy River.

Are fish this big really located in Minnesota's waters? You betcha, the Lake Sturgeon! Catching fish of this caliber must require top of the line gear and a boat that's worth more than most people's

house...right? No! The beauty about fishing for sturgeon is that it doesn't have to break the bank.

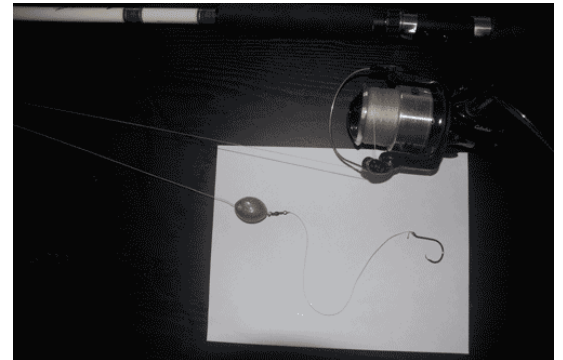
The basic set-up can be purchased at your local sporting goods store. The rods needed for these fish are similar to a catfish set-up, a medium-heavy to heavy fiberglass rod and a spinning or bait casting reel combo. The most critical component to your sturgeon set-up is the line. You'll need braided line in a 50 lb. test or more will allow you to hoist these pre-historic creatures from the depths of the rivers without fear of breaking.

Rigging the rod is also quite simple. All you need is a 2 to 5 ounce no-roll sinker, a heavy-duty barrel swivel and an octopus hook. As seen in the picture, attach a foot long length of line to the barrel swivel with a polymer knot, then tie the hook to the other end of the line. Finally, slide the sinker on the line and attach the swivel to the line of the rod and reel.

Sturgeon are found in lakes and rivers such as the Rainy, St. Croix and St. Louis Rivers. The best time of year to target Sturgeon is immediately following ice out up until the end of April. Deep pools of 20 to 40 feet of water are optimum locations to fish from a boat or even from shore.

The preferred bait is 3-5 night crawlers hooked multiple times, in a ball like form. When you get to your fishing hole, let your rig sink to the bottom but keep enough tension on the line in order to see the bites on the rod tip. The bites will range from slow up and down movements of the rod to the fish hitting the bait like a freight train.

When a bite occurs, let out roughly 5 feet of line, point the rod tip directly at the fish and start reeling quickly. As soon as tension from the fish is felt, set the hook as hard as possible. Get ready for the best freshwater fight of your life—all in the land of 10,000 lakes!



Typical sturgeon fishing tackle

- ***Check out this short video of my 2011 spring sturgeon trip deemed "Battle on the Border".***
- ***For sturgeon fishing opportunities in your area please contact the nearest area fisheries office.***

Piers & Places

The Lake Sturgeon of Rainy River

By Dennis Topp, Assistant Supervisor, Baudette Area Fisheries Office

August 2011

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When I moved to Baudette some twenty years ago to work as a DNR biologist, I was enthralled with the opportunity to live in the 'walleye capital of the world.' But, almost immediately after I arrived in this land of walleye, pike, and sauger, I found myself enamored by a completely different fish species-one that I had previously never considered-the lake sturgeon.

And, I was not alone. Fishing for lake sturgeon in the Rainy River, as it winds downstream from Rainy Lake to Lake of the Woods, has become very popular in recent years. Folks travel to these Ontario-Minnesota border waters from all over the country with the allure of catching fish that can grow to sizes over 100 pounds.

Fishing success can be very good. The lake sturgeon population of Rainy River/Lake of the Woods is in the midst of recovering after being over-fished in the early 1900's. Nowadays, it is not unusual for anglers to catch fish that exceed 60 inches in length. And, there are some fish being caught that are over 70 inches long. An 'average' 70-inch lake sturgeon weighs 89 pounds, and is 51 years old. [This length-weight-girth key](#) can help you determine a sturgeon's approximate age based on its size.

Anglers are allowed to fish the Rainy River for lake sturgeon from July 1 through May 15. The period of mid-April to mid-May is the most popular time to fish. This is the time-of-year when lake sturgeon are traveling to spawning areas, so the chance of encountering big fish is highest. But, summer and fall are also good times to fish for them.



An early May catch



Although most fishing takes place from a boat, lake sturgeon can also be fished from shore. There are [eight public boat ramps](#) along the U.S. side Rainy River. If you plan to fish the Rainy River from a boat, be sure to stay in Minnesota waters of the river. Anglers are not allowed to target lake sturgeon in Ontario waters of the River.

Several of the Rainy River boat access sites provide good areas to fish from shore. The sites at Manitou Rapids, Upper Sioux, Nelson Park, and Vidas are among the best spots to catch a lake sturgeon from shore.

Angling for a fish that can be over 100 pounds will take some special preparation for most people. For information on being prepared to fish for lake sturgeon, refer to this informational guide with advice about [fishing for and handling sturgeon](#).

There are special regulations and seasons applicable for sturgeon anglers on the Rainy River. That information is available in the Canada-Minnesota Border Waters section of the [Minnesota Fishing Regulations synopsis](#) (begins on page 48 of the 2011 Reg's Book).

Another good source of information on Rainy River lake sturgeon is the [Baudette DNR Fisheries web site](#). One thing is for certain...if you are like me, and most other anglers, once you catch your first sturgeon you will be 'hooked for life!'

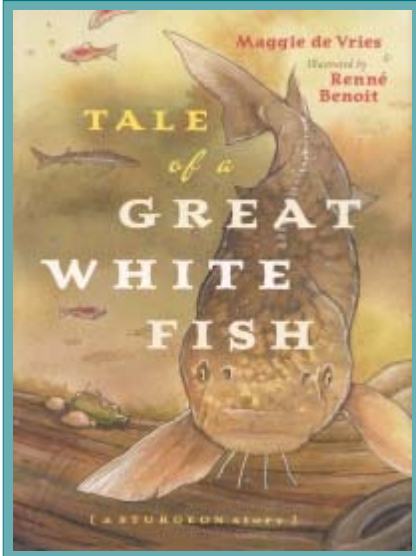
Book Reviews

Sturgeon

by Nadine Meyer

August 2011

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Tale of a Great White Fish: A Sturgeon Story, 2010

by Maggie De Vries, Illustrated by Renne Benoit Greystone Books

Grades: PreK-4 ISBN: 9781553653035

"Award-winning writer Maggie de Vries and prize-winning illustrator Renne Benoit present Tale of a Great White Fish: A Sturgeon Story, a children's picturebook about Big Fish, an ancient sturgeon nearly 177 years old who has dodged death many times, from drainage to disease to the threat of sports fishermen. Now laws protect her and her kind, and keep up hope that humans can help her species to survive. A fascinating tale about survival amid both natural and man-made dangers, Big Fish concludes with a handful of scientific and historic facts about sturgeon. A brief letter by Rick Hansen, chairman of the Fraser River Sturgeon Conservation Society, rounds out this engaging fishy adventure spanning nearly two centuries." ~ Midwest Book Review

Available in paperback.

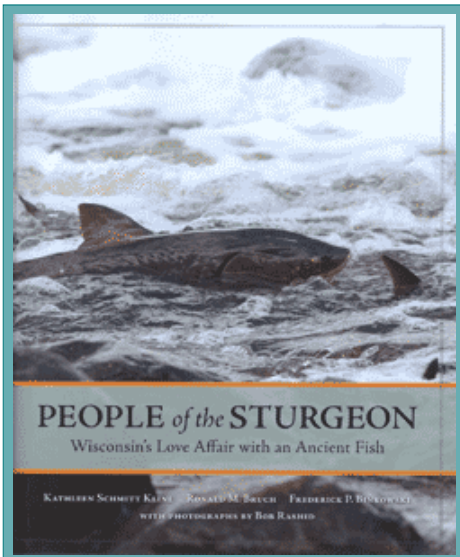
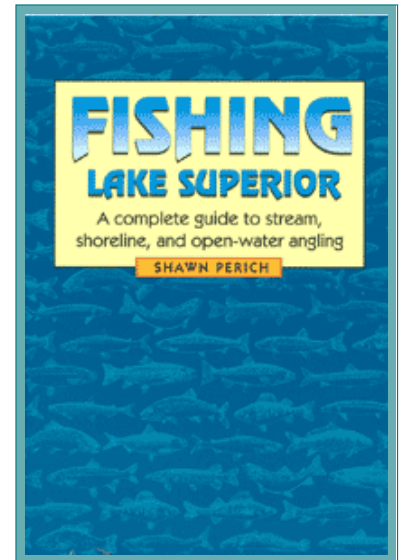
Fishing Lake Superior, 2002

by Shawn Perich, University of Minnesota Press

Grades: 5-Adult ISBN: 0816642001

This book is a nice reference book on a variety of fish and fishing techniques used in the Lake Superior watershed. Lake sturgeon are mentioned in the fish identification section of the book and again in a cultural history story. The author uses clear language that is easy to follow and engaging to read.

Available in paperback.



People of the Sturgeon, Wisconsin's Love Affair with an Ancient Fish, 2009

By Kathleen Schmitt Kline, Ronald M. Bruch, Frederick P. Binkowski, Wisconsin Historical Society Press

Grades: 8 and up ISBN: 9780870204319

This book provides a very deep history of the cultural connections between the people of Wisconsin and the Lake Sturgeon. The story includes the history of how the sturgeon almost became extinct, the bitter battles between management and public perceptions, and the success stories of the sturgeon's survival. The photographs alone make this book worth the view.

Available in hardcover.

Mentoring & MinnAqua

It's all in the presentation!

by Michael Kurre, Mentor Coordinator

August 2011

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As anglers going after walleye, bass, or mighty sturgeon, we seldom make multiple presentations of a lure or bait to the same location more than once. After all, fish only bite on the first offering, right? Well, maybe not.

Think about this -- professional tournament anglers are always reading the mood of our scaly friends and pitching repeated presentations to the exact same location to learn what might trigger that lunker into biting. They might try different speeds or angles at which the bait is reeled-in, or the wounded action that is imparted to the lure. Details like the color of the lure, the type of the bait (live or artificial), the size of the bait or even the sun's location in the sky are all additional factors in an angler's presentation.

Every day is an adventure in trying to outsmart a fish with a brain the size of a pea. Some days we get lucky, but the professionals are consistently more productive because they utilize as much knowledge as possible about fish, habitat, and predator-prey relationships.

When it comes to introducing our youth to the outdoors as good stewards, should we rely on luck, or can we utilize a more systematic approach?

No two students become skilled in the same manner. Some are hands-on learners; Others can read the instructions and be knowledgeable very quickly with the subject. Others need only a visual demonstration, and some need all of the above. The Outdoors Mentoring Program can help in providing experiences and people who can help you "set the hook" in your efforts to educate students and help them become stewards of the outdoors.

A new lure in our tackle box is the **Outdoor Advisor** newsletter, which contains pertinent outdoor information on programs sponsored by the [Minnesota DNR](#) and community organizations. The newsletter highlights hands-on skills opportunities at DNR and public venues; visual aids like popular outdoors websites; outdoors television shows and organizations that might interest the students after their initial introduction; as well as audible opportunities through radio shows and podcasts. The newsletter also gives you ways you can "drop me a line".

Nearly 300 Outdoor Advisors and groups and are now part of the growing mentoring community that already receives the **Outdoor Advisor**. Joining them are 91 individuals who have had background checks and received training to become **DNR Certified Outdoor Mentors**. These outdoor coaches are looking to make a difference in the classroom or the field.

It is simple to sign-up for the **Outdoor Advisor** or to be matched up with a **DNR Certified Outdoor Mentor**. Just make your next cast to my email address at: Michael.Kurre@state.mn.us or for more information on outdoor opportunities reach out and [Discover Your Outdoors](#).



Mentor Pete Takash assists a young angler

Angling for a Laugh

Wine and cheese, anyone?

by Scott Moeller

August 2011

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I love to think about strange “food firsts.”

Cheese is a good example. Cheese, it turns out, can only be made using rennet, which is a complex of enzymes that occur only in the lining of the stomach of mammals like cows and sheep. For this reason, most historians agree that the very first cheese was probably made entirely by accident when someone carried some fresh milk on a long trip in a bag made of an animal’s stomach.

That’s a pretty cool story, but what really makes me curious is, who was that first person, and what went through his or her head? I like to imagine them sitting down, parched after their long trip, anticipating a drink of refreshingly smooth milk, but finding a foul, disgusting lump of clumpy goo instead. I assume some primitive expletives were uttered, but then came the moment that changed history: they looked down at the quivering mass of clotted sludge and said “I’m gonna eat it anyway!”

It must have been the same thing with alcoholic beverages. Somebody had to have been the first person to discover an oozing pile of berries way past their prime and proudly proclaim “I’m still going to eat this!”

Think about it. Wine and cheese owe their very existence to the fact that someone said to themselves, “This is probably a bad idea.... But I’m gonna do it anyway!” We can relate to that. It’s the attitude that settled this continent, founded this country, and continues to provide endless fodder for reality TV. It should probably be on our coins and license plates.

And, once alcohol was invented, I can only assume that these strange food firsts probably took off like a rocket. I’m sure that if we could have been there to document them, we would find that many of these strange firsts were born of either desperation, or a dare from a friend. Take a group of teenage Neanderthal buddies around a campfire, one of them dares another one, and you could easily have the first person to milk a cow, the first person to get honey from a beehive, the first person to eat mushrooms and the first person to make pudding from tree roots (possibly all in the same night if fermented berries were involved).

Of course, some strange food firsts are difficult to explain even with desperation and dares. I can picture the first person to make lutefisk or haggis leaning over the stove and reassuring the gathering crowd of horrified onlookers, “Trust me.... This is gonna be great!”

So what do these strange “food firsts” have to do with fish? Well, it seems to me that a few of these strange firsts apply to our very own lake sturgeon. The once-abundant lake sturgeon of the upper Midwest had their populations decimated in the late 1800s and early 1900s. The



extreme overharvest of these sturgeon happened because people want the sturgeon for: fuel, meat, caviar and something called "isinglass."



First, before we fully discovered their value for meat, somebody had to be the first person to catch a sturgeon and say "hey, instead of eating this fish, I think I'll burn

it to power my boat!" And, for that reason, believe it or not, countless sturgeon were harvested and stacked like cordwood so their oil-rich flesh could be used as fuel to power steamships.

Eventually, somebody had to be the first person to stop shoveling them in the furnace, lick their fingers, and realize that they could eat these things.



And, somebody else was the first person, presumably while gutting a sturgeon, to notice the jelly-like mass of eggs in the fish and decide "I don't normally eat fish guts but, this time, I think I'll try it." **Caviar** is still viewed as an obscure, high-end luxury food by most, but the common usage of caviar in Europe helped fuel the overharvest of lake sturgeon here in North America.

Now, this last one is a real head-scratcher: Sturgeon harvested in the 1800s, were also harvested for their swim bladders. It turns out that, if you take a sturgeon swim bladder, dry it completely, then pulverize it into a fine powder, this powder was necessary for the production of beer and wine. The powder is call

"**isinglass**," and it was an essential step in making beer and wine, as it binds to the exhausted yeast cells and causes them to precipitate, thereby turning the beverage from cloudy to clear.

Now, this is all very well and good, but who in the world was the first person to discover this, and how did they make this discovery? Peanut butter and chocolate I can understand, but under what circumstance is it appropriate for fish entrails to come into contact with your chardonnay? Someone has some explaining to do.

However these strange sturgeon firsts came to be, the important thing is that we appear to have learned the error of our ways and have put **conservation measures** in place that have at least stabilized the lake sturgeon populations.

As for the other strange food firsts, I'll keep wondering, as I eat my cheese and sip my glass of clarified fermented beverage.

Updates & Opportunities

[Download this article](#) [PDF](#)

For upcoming events go to the [DNR Calendar](#).

Cynthia Krieg Watershed Stewardship Fund

The Minnehaha Creek Watershed District seeks grant proposals for the Cynthia Krieg Watershed Stewardship Fund. \$100,000 is available for projects within the District that create public awareness and education about water stewardship and that use innovative methods to improve water quality. The Grant is available to cities, schools, churches, lake associations, neighborhood associations, local businesses and other community groups within the watershed.

Applications for pre-proposals can be submitted any time between now and **Wednesday, September 28, 2011**. Full proposals are due by Wednesday, October 19, 2011. Information, past grant winners and proposal applications available online.

Proposals can be sent to the [Education Manager](#) or call 952-641-4524 for more information.

Call for Presentations

The Minnesota Association for Environmental Education (MAEE) will be calling for presentations this fall for the 2012 Midwest Environmental Education Conference (MEEC), at Itasca State Park, June 21 and 22, 2012.

Journey to the source of the Mississippi to join imaginative educators and administrators transforming their offices, classrooms and personal lives into something fresh, rewarding and extraordinary. Together, we will explore how play and creativity can enhance our work and beyond.

The application to present at this conference will be posted on the MAEE website in September 2011. Please send your questions to maeeinfo@gmail.com.

Visit the [MAEE website](#) for more information on the 2011 MEEC Conference.

Take part in Earth Science Week

Earth Science Week 2011 will be celebrated from October 9-15, with the theme "Our Ever-Changing Earth." During Earth Science Week, we hope that you will bring some aspect of Earth Science into your classroom, and take your classroom outside! Your students will not only learn something new about the world around them, but will have fun discovering why Earth Science is important to society.

Minnesota Science Teachers Association annual conference

MnSTA is excited to announce the **2012 Minnesota Conference on Science Education** March 1st - 3rd, 2012 in Duluth, MN.

Please plan now to join us at the Duluth Entertainment and Convention Center for our new annual conference for ALL science educators in Minnesota! Two fantastic, nationally recognized keynote speakers have committed to share their expertise with you! We welcome Dr. Eric Jolly, the president of the Science Museum of Minnesota and Dr. Bill Robertson, author of the NSTA Best Selling "Stop Faking It!" Series. Please check back to the **MNSTA Conference Website** for many further updates as our planning continues!

Participate in **World Water Monitoring Day**

World Water Monitoring Day™ is an international education and outreach program that builds public awareness and involvement in protecting water resources around the world by engaging citizens to conduct basic monitoring of their local water bodies. In 2010, over 200,000 people in 85 countries monitored their local waterways. Celebrate with us on September 18, or host your World Water Monitoring Day anytime from March 22 until December 31! Find out more [here](#).

Melinda Gray Ardia Environmental Foundation Grants

K-12 teachers are invited to apply for grants up to \$1,500 to implement environmental curricula, such as PLT, that integrate hands-on ecology exercises into the classroom. To facilitate learning and student empowerment, environmental curricula should be holistic and strive to synthesize multiple levels of learning (facts, concepts, and principles), including experiential integrated learning and problem solving.

Visit the [Melinda Gray Ardia Environmental Foundation website](#) for more information and proposal submission details.

Deadline: September 20, 2011