MinnAqua Moments with Fishing: Get in the Habitat!

November 2008

Minnesota DNR
MinnAqua Program

Statewide Coordinator
Jenifer Matthees
651-259-5217

Metro Area
Roland Sigurdson
612-625-1291

Metro Area
Michelle Kelly
651-259-5751

Northern MN
Nadine Meyer
218-740-2063

Southern MN
Position Vacant
507-359-6049
Contact Roland Sigurdson

Inside this issue:

Thank You

By Jenifer Matthees

Returning from a national conference with other aquatic and angling educators and tracking the outcomes from the educators helping MinnAqua evaluate ***Fishing: Get in the Habitat!*** leader's guide I'm reminded of the quote "Never underestimate the power of a few committed people to change the world. Indeed, it is the only thing that ever has."

At the conference a group of teachers from Katy Independent School District in Katy, TX presented how they use fishing as a way to increase standard test scores in their district and how a group of four teachers, lead by one, grew an after school fishing club to an interdisciplinary phenomenon that will continue, as they say "even if they left the district, because now its part of the school culture." It was the drive of few that made a difference in that District and the lives of many children.

To all our volunteers working with Julie Ernst from University of Minnesota, Duluth for the MinnAqua evaluation, it is the work of few that are changing the context of learning in their circle of influence. Like Ethal Nelson, Claire Torrey, Janet Vestal and Julie Myhr of Bluff Creek Elementary in Chanhassen, MN who have worked together to get their 4th grade classes interactive in MinnAqua and using fishing as a context for learning. Louis Parenteau of Mount Iron Buhl's Merrit Elementary, Pam Beecham of East Bethel Community School, Abbi Case of Cedar Creek Community School and Gerri Fitzloff of Girl Scout of America/MN and WI River Valleys who took the time to try something new and also introduced angling and aquatic environments as a context for learning.

To the dedicated MinnAqua Specialists, Liaisons, and interns both past and present who work to leave a legacy of quality experiences, resources and partnerships to those who share the stewardship ethic of conserving Minnesota's aquatic and fisheries resources; indeed the power of few moving to change the world…or at least Minnesota's citizens, I applaud you!

And thank you everyone for the work you do to enhance and change the citizens of Minnesota to knowledgeable and active stewards in our natural resources, we can not do it alone, we share responsibility to create a new generation of stewards…together we will change the world, one state at a time!

Minnesota DEPARTMENT OF NATURAL RESOURCES

MINNAQUA PROGRAM
Minnesota Waters · Fishing, Sharing, Caring

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. If you would like to be removed from our mailing list please let Jenifer Matthees know by contacting her at 651-259-5217 or jenifer.matthees@dnr.state.mn.us.

MinnAqua Training Workshops - Feedback Loop

by Michelle Kelly

In systems-theory, feedback is defined as a process whereby some proportion of the output signal of a system is passed (fed back) to the input.This system "loop" is often used to control or impact the dynamic behavior of the system. Examples of feedback can be found in most complex systems, such as engineering, architecture, economics, thermodynamics, biology, and in MinnAqua training workshops.

It's important for us here at MinnAqua to receive your feedback about ***Fishing: Get in the Habitat!*** Leaders Guide training workshops. In the concluding minutes of every training workshop, an evaluation form is distributed for the workshop participants to complete. The evaluations provide us with valuable comments and suggestions that, in turn, help us revise and refine the workshops – creating a "feedback loop". In this way we are able to continue to improve the effectiveness of the workshops in meeting our program objectives as well as continually work to better serve the needs of those who will attend our workshops in the future.

The feedback we've been receiving to date is overwhelmingly enthusiastic! We'd like to thank all of you who have shared your insightful ideas. Thank you so much, and please send us any additional thoughts you may have as you start to implement the lessons and activities in your setting.

We've also received many glowing responses telling us what we are doing right. Some of this feedback includes:

- *"This was a really fun, active workshop"*
- *"The tie-in to language arts and social studies will enrich the science experience."*
- *"Now I can teach academic standards in a practical way."*
- *"My students and coworkers will benefit by getting outside more!"*
- *"I'll be able to bring in a new idea to our building."*
- *"Very knowledgeable instructors. Wish we had more time!"*
- *"This is a fantastic workshop! Well planned and executed."*

If you are wondering how you can share your positive experience from a MinnAqua ***Fishing: Get in the Habitat!*** training workshop with your colleagues - here's how:

1. Contact a MinnAqua Education Specialist to learn how you can host a training workshop for your group of educators. Workshop participants will each receive their own copy of the ***Fishing: Get in the Habitat!*** three-ring binder and CD, learn how it works, and how to put it to use it in their setting. Workshops can be arranged for any group of ten to thirty educators and/or youth program leaders at your location. We'll come to you! Workshop participants also receive additional supportive material resources. MinnAqua's workshop registration fee is $30.00 per participant. If your site is located near a lake, river or stream, we can plan fishing time for workshop participants too.

Don't have ten people? We can open up registration for your workshop to increase the number of participants to the minimum of ten or more. To do so, we can post it on our website calendar of events, and help you promote it to other educators and youth group leaders in your area.

2. Your group has already attended a MinnAqua Program Training Workshop? We can design an advanced workshop for you around a theme or topic of special interest to your group (service-learning, ice fishing, fly fishing, fish in winter, aquatic invasive species, fish management, community connections, meeting requirements for Jr. Girl Scout or Boy Scouting badges, 4-H fishing program requirements, fish and fish habitat, getting kids outdoors, etc.) to further expand, enhance and enrich the learning experiences you provide for your students and youth.

If you are ready to host a MinnAqua workshop, or advanced workshop for your group, or if you have any other questions about MinnAqua training workshops give us a call! Oh, and keep the feedback coming!

Contact us to schedule your workshop:

Statewide Coordinator
Jenifer Matthees
651-259-5217

Metro Area
Roland Sigurdson
612-625-1291

Metro Area
Michelle Kelly
651-259-5751

Northern MN
Nadine Meyer
218-740-2063

Southern MN
Position Vacant
507-359-6049
Contact Roland Sigurdson

Species Profile** - Close-up on the Yellow Perch

By Roland Sigurdson

Yellow perch: Perca (purr´-kah) the early Greek name for "perch" and flavescens (flah-vess´-sins) means "becoming gold" or "yellow colored" in Latin

Yellow perch occur in lakes, rivers and streams throughout Minnesota. Yellow perch are more abundant in lakes and backwaters of large rivers, but also occur in the pools and runs of many of our small streams.

While not typically targeted by sport fish anglers in the summer, yellow perch are highly sought after by ice anglers. Yellow perch have firm, very good tasting flesh that rivals that of their larger cousin, the walleye.

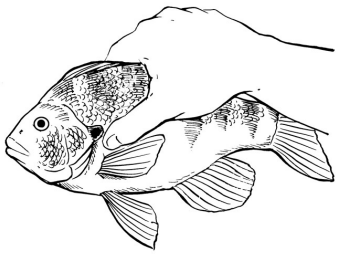
Identification

Yellow perch have a stocky torpedo shaped body. They are pale yellow to bright orange with 6-7 dark, vertical bars on their side. Their mouth is small and points forward. One of the sure signs that you've caught a perch is that their dorsal fin is made up of two parts, divided by a space. The front portion is spiny and rear portion soft-rayed. Perch have two spines in their anal fin and a forked tail. In order to correctly identify the yellow perch utilize **Lesson 1:3 – Fish Families** to learn about all the members of the Perch Family.

Food

Young of the year yellow perch (those that hatch out in any given spring) feed on zooplankton, and then as they grow they switch to benthic macroinvertebrates and finally fish. Yellow perch swallow their food whole. An esophagus, the tube between the mouth and stomach, is flexible. A fish esophagus usually can handle anything that fits into the fish's mouth. It can even adjust mid-swallow—just in case the fish eats something that happens to be considerably larger than it.

Handling

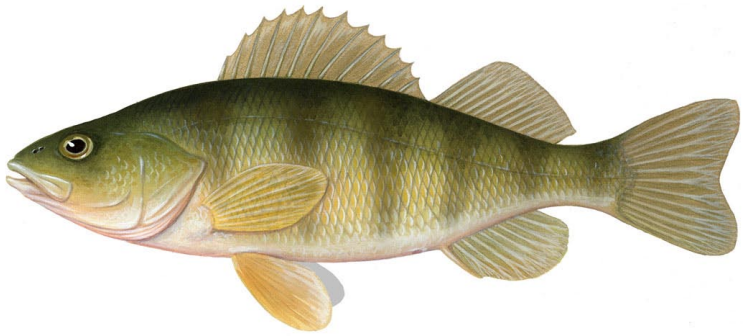


When landing a yellow perch, smooth down the spines of the dorsal fin from nose to tail much like you would handle a sunfish. **Lesson 6:1 – Safety and Fishing at the Water's Edge** gives a good overview on handling fish.

Reproduction

Female yellow perch mature between two to four years old, males usually mature one year earlier. Spawning takes place in the spring (April through early May) when the water temperature reaches 45 - 52°F. The average female will lay approximately 23,000 eggs. After deposition the eggs rapidly swell and harden. Eggs hatch in 8 -10 days and the emerging fish are 4-7 mm in length.

Yellow perch larvae have large mouths, well-developed jaws, teeth and eyes. They begin active feeding immediately after hatching,



but still absorb food from the yolk sac until it is used up. Yellow perch are relatively short-lived fish, few over seven years old are ever caught.

Predators

The yellow perch is a common prey to many piscivorous (fish-eating) fishes, including largemouth and smallmouth bass, northern pike, musky, walleye, bowfins, burbot, lake trout, and others. Common fish eating birds such as gulls, mergansers, loons, kingfishers, eagles and herons consume perch of various sizes. Since the meat from this fish is similar to that of the ever-popular walleye, it is commonly a treat for many anglers, especially those who ice-fish.

Tackle

Use a light action fishing rod spooled with 4-6 lb. test line. While a basic hook will work fine, you can also try spinner rigs, beetle spinner, small jigs, and curly-tail grub worms. Jigs, flies & live bait work well at night in vegetation and off bottom or during the day in open water. Live bait such as nightcrawlers, red worms, crayfish, shiners, or fathead (crappie) minnows can increase your success. During the ice fishing season use smaller jigs and ice flies tipped with small minnows, wax worms or other grubs.

If you are taking your students out for some perch action, shallow water around docks, scattered weeds, lily pads and rocky bottom points will be some good places to start. A piece of worm rigged underneath a bobber will give your students plenty of action.

Preparation for Cooking

Filleting a yellow perch is very similar to filleting a sunfish. Follow the step-by-step instructions provided in **Lesson 6:5 – Eating Fish** to clean your catch and cook up some tasty treats.

Fun Facts

The largest yellow perch recorded in Minnesota was caught in Lake Plantaganette (Hubbard County) and weighed 3 lbs., 4 oz. The yellow perch method of spawning is unique in that female yellow perch lay their eggs in long gelatinous strands, usually floating or hanging from vegetation or some other structure.

***Species highlighted in this section will be aquatic (fish, plants or bugs) or semi-aquatic in the case of shoreline plants. We'll try to rotate through the various fauna and flora of our aquatic ecosystems in order to help you to become familiar with some amazing organisms from our state!!*

Featured Lesson - Lesson 3:2 - Function of Aquatic Plants

by Michelle Kelly

Chapter 3 of the MinnAqua Leader's Guide - ***Fishing: Get in the Habitat!*** focuses on water stewardship. Water quality not only determines where fish live, how they behave, and their survival, it is also important for human health and our quality of life. Chapter 3 houses seven of our 39 lessons. This edition's highlighted lesson is the second lesson in Chapter 3, **Lesson 3:2 – Function of Aquatic Plants**.

With winter fast approaching, aquatic plants may be the last thing on your mind - unless you've recently been out fishing with kids, and have heard the cry "Help! My line's stuck in the weeds!" Weeds? Are all aquatic plants "weeds"? Of course not!!

Lesson Summary *– Students conduct experiments to explore the value of aquatic vegetation to lakes and streams. In Part 1, students learn that aquatic vegetation provides food and shelter for fish and other wildlife. They will also learn about the types of aquatic vegetation living in the littoral zone. In Part 2 students learn how algae blooms can occur in nutrient-rich conditions. In Part 3, students learn that aquatic plants absorb nutrients and some polluting chemicals.*

Tips & Tricks

- With three parts to this lesson it is important to read through the entire lesson before planning the time you will need for the entire lesson.
- In Part 1 of the lesson activity, students create some type of littoral zone mural or model. We'd love to see a photo of your students' work! You can e-mail photos to us at michelle.kelly@dnr.state.mn.us.
- In Part 2 of the lesson activity, you may want to first experiment with the amount of fertilizer you will be using to stimulate algal growth before having students do this part of the activity. Depending on the size of your containers, the type of fertilizer used, and temperature and light conditions in your room, results may vary, and you may want to decrease the amount of fertilizer that is suggested in the lesson.

Discussion notes

The vast majority of plant species growing in Minnesota's lakes, rivers streams and wetlands are considered beneficial and only rarely become a problem. Most healthy ecosystems have natural restraints that limit the abundance of native plants preventing them from becoming weeds. The major weed species having a negative effect on Minnesota's waterways are non-natives like Eurasian water milfoil and curly leaf pondweed. But even a native species like algae can be a problem in some cases when excessive nutrients from runoff cause dense algal blooms. In the absence of natural enemies, or when the local ecosystem is disrupted or out of balance, 'weeds' grow uncontrolled and rapidly invade new areas forming dense stands. The primary difference between aquatic plants and aquatic weeds is where they occur and their abundance. For more information on aquatic plants and shoreline habitats go to http://www.mndnr.gov/shorelandmgmt/index.html

Alternative Wrap-up

After finishing all three sections:

- Ask students to review the benefits of aquatic plants. List the benefits of aquatic plants on the white board or smart board. Then ask the students to define "aquatic plant".
- Then ask students to define the word "weed". Discuss how a weed is a plant growing where it is not wanted. By this definition, any aquatic plant has the potential to be a weed if it hinders navigation, water movement in irrigation and flood control canals, swimming, recreational boating or fishing, or if its abundant growth adversely effects fish populations and other wildlife.
- Ask students how they might feel the next time they go fishing, cast and reel in their line with a plant on the hook instead of a fish. Would they move to an area with no plants or continue fishing near the plants? Would they change whether they categorized the plant as a beneficial aquatic plant, or a weed?

Corrections & Updates*

If you notice any needed corrections or edits for this or any other lesson that you'd like to bring to our attention, please contact MinnAqua specialist Nadine Meyer at Nadine.meyer@dnr.state.mn.us, and we'll post any corrections on the MinnAqua Program page on the DNR website at: http://www.mndnr.gov/minnaqua.

MinnAqua Lesson Connections

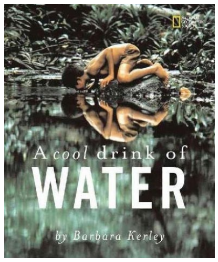
Lesson 3:2 – Function of Aquatic Plants can be combined with a number of related lessons to enrich student's learning experience. To introduce you students to aquatic habitats and get your students "in the habitat" use **Lesson 1:1 – Design a Habitat** or **Lesson 1:4 - Water Habitat Site Study**. You can follow **Lesson 3:2** with **Lesson 3:3 – Wonderful Watersheds** to investigate the value of aquatic plant buffers on a watershed scale, or with **Lesson 4:3 – Aquatic Plant Power** which focuses on shoreland vegetation and it's impact on fish habitat, and on aquatic plant management. **Lesson 4:5 – Town Meeting** is a nice follow-up lesson that enlists students' citizenship skills, critical thinking and decision making skills in resolving a community's shoreland development issue.

After completing Lesson 3:3 with your students, the next time you take them fishing, instead of hearing "Help! I caught a weed!" you just might hear a student say "Look! I reeled in an aquatic plant! I think I found a great place to catch fish!"

Pickeralweed
a native emergent aquatic plant

Book Reviews* - Stewardship

by Nadine Meyer

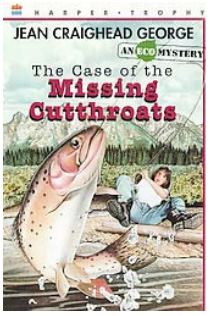


A Cool Drink of Water by Barbara Kerley
National Geographic Children's Books
ISBN 0792254899 Grades: PreK-2

Gorgeous full-page illustrations and minimal text provide a global perspective on water's critical role in human life. Photos depict people collecting, transporting, and drinking water, as poetic text reminds readers that "everyone everywhere" enjoys a "nice, cool drink of water." The book's type is visually interesting, and a picture index offers thumbnail versions of the illustrations, and captions, as well as a map. This book is also an excellent introduction into service-learning.

Available in hardcover and paperback

The Case of the Missing Cutthroats by Jean Craighead George

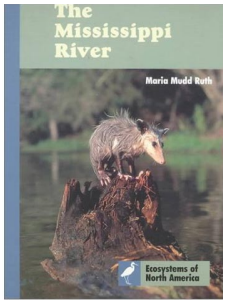


Illustrated by Suzanne Duranceau
Published by HarperTrophy
ISBN 0064406474 Grades: 3-6

After Spinner Shafter catches a cutthroat trout in the Snake River, she and her cousin Alligator search nearby mountains to determine where the endangered fish came from and how it survived.

Available in hardcover and paperback.

The Mississippi River by Maria Mudd-Ruth
Published by Benchmark Books, NY
ISBN 0761409343 Grades: 5-8



Flowing from Lake Itasca in northwestern Minnesota to the Gulf of Mexico, the Mississippi River traverses approximately 2,350 miles. This majestic river bisects the United States and serves as both an amazing source of resources and a diverse ecosystem. In this science text, the complex elements of the multiple ecosystems comprising the Mississippi River Way are presented in an understandable and comprehensive manner. The environmental effects of dams, dredging, flood control levees, and pollution are presented in a balanced fashion. Plants and wildlife that use the Mississippi as their homes are described in a way that affords an in-depth glimpse of this wonderfully complicated natural resource.

Available in hardcover.

**Book reviews are provided as an educational service and are not an endorsement by the MN Department of Natural Resources.*

Mentoring and MinnAqua

by Mike Kurre

Tools in the Tackle Box

As good angler knows, quality tackle and how to use the wide array of fishing lures is an essential part of any tackle box and fishing experience.

Back in July, I wrote my debut MinnAqua Newsletter article talking about how numbers of participants in angling and hunting are headed south in the north-bound lane. Legislators had taken previous note and created the first-of-its-kind, Minnesota Department of Natural Resources Mentoring Program with responsibilities such as developing relationships with outdoor and mentoring organizations, looking for ways for these organizations to be mutually beneficial, developing project templates, replicating excellent existing outdoor programs and driving best practices for the future.

These tackle box tools are a work in progress, but we are building our assortment of lures. Connections have been made and outdoor activities are being planed, but we have only scratched the surface with stuffing the tackle box.

Do you have all the tackle and lures necessary to "hook'm on the outdoors"? Not all teachers and group leaders are at ease in the outdoors and fishing. In fact, I've heard from several educators requesting coaching on such subjects as the proper technique of lure presentations, when to apply said presentations, what are some other practical applications from angling and they just wanted to feel more comfortable educating our anglers and outdoors stewards of the future.

Looking for some new lures to add to "your" tackle box? Don't have the outdoors skills needed to fill your own tackle box of tools? We might just be able to help.

Recently the DNR met with the National Professional Angler Association (NPAA) to talk about future collaborations between educators, group leaders, mentoring and the NPAA organization. This group of experienced anglers is spread across the state and is proficient as presenters and possesses considerable knowledge pertaining to fishing and the outdoors in general. In addition, we hope to provide access to these local professionals along with retailers, manufactures and vendors who can help you with hands-on practical outdoors skills, in-school visits, help with deciphering lesson plan terminology and field trips. These guys and gals really know how to tie the knot with time spent on the water, catching fish and the aquatics education relationship.

In the coming year, a high priority will be sharing our tackle box after we develop our "lures". So keep a tight line.

Hook'm Where it Counts, On the Outdoors!

Mike "Cold Front" Kurre
Mentoring Program Coordinator

P.S.
We have many topics we could address here, but if you have a question or comment, drop me a line at Michael.Kurre@dnr.state.mn.us.

Community Connections - Boy Scouts Special Needs Unit

by Roland Sigurdson

'I wanted my special needs child to get a chance to enjoy fishing as much as the next kid', said Mike Quesnell. Mike is someone that knows that things 'don't just happen' for many special needs kids out in our communities. As a volunteer member of the Boy Scouts of America, Northern Star Council – Special Needs Unit and leader in his own district, Mike works tirelessly to make sure that special needs scouts have the same opportunities as other scouts. But this time he wanted to take it a step further. Why not use the organizational infrastructure of the scouts to bring a day of fishing to the larger community? So he did.

The Set Up

In June of 2008, through a connection with Muskies, Inc member Al Jacobsen, Mike met with the MN DNR – MinnAqua program. This initial meeting helped Mike to understand what it was going to take to put on a quality program for a large group of special needs kids and adults in early October. Together with other enthusiastic people, Mike began to get things organized. What would it take?

Where!

First the group would need to reserve a site that met their safety, space and fishing requirements. In this case, Ft. Snelling State Park fit the bill.

- Accessible space for learning stations? Check!
- Accessible picnic shelter to serve lunch? Check!
- Accessible open space for activities? Check!
- Accessible fishing area? Check!
- Accessible restrooms? Check!

Making cane poles

Who!

Next they needed to advertise the event. A large ad campaign seemed to unmanageable and expensive. What if they were overwhelmed with requests? In the end, targeting specific organizations that worked with special needs kids and adults made the most sense and ultimately worked well.

Volunteers!

They needed people to teach at the learning stations, prepare lunch and move equipment. Not just a handful, they needed a bunch. The success of any large –scale event hinges on the number of enthusiastic volunteers that step-up to make it happen. Mike was able to get folks from Boy Scouts (adults and scouts), Muskies, Inc, Npower where he worked, friends and relatives.

Food!

Just one note here, scouts know how to get food! That said, Mike and others worked to line up donations from a number of stores in the area and then filled in the holes using money from a small budget that he had to work with from the Boy Scouts. No one went hungry, plenty for all.

Bluegill!

Equipment!

Mike and his team lined up loaner equipment from the MN DNR – MinnAqua program. Additionally, they had donations of fishing tackle from several sporting goods retailers that the participants were able to take home with them that day.

READY! SET! GO!

October 11th came, bright sunshine and great weather was the order of the day. Volunteers began arriving by 7am to assist with set-up and get an orientation from MinnAqua specialist, Roland Sigurdson, on their assignments. The instructors were nervous, but at the end of the day performed like well-seasoned veterans. Boy Scouts, many working on their Disability Awareness badge, lined up to carry equipment, run errands, assist at learning stations, and act as guides for participants.

The participants arrived at an event brimming with Scouts eager to share with them. Participants learned about aquatic insects, tried fish printing, identified fish species, constructed bamboo fishing poles and tried casting several other types of rods. They learned about safety and regulations, made their own fishing lure and even caught a few bluegills in the backwaters of the Minnesota River.

Smiles were in abundance, laughter was everywhere. I guess Mike got what he wanted after all.

Piers & Places - Fishing Behind the Great Lakes Aquarium in Duluth

By Nadine Meyer

The MinnAqua Program and Great Lakes Aquarium (GLA) are natural partners and have enjoyed a long-standing relationship including family fishing programs, outreach education and teacher training. The Northern Minnesota MinnAqua Education Specialist is headquartered at Great Lakes Aquarium providing added benefits for both organizations.

The highly acclaimed Duluth Lakewalk skirts GLA and offers both an excellent view of the harbor and a great place for school groups and families to fish. The Lakewalk is accessible for free by following the sidewalk around the Aquarium. (Parking is available at the Aquarium, during winter weekdays the lot is free, otherwise parking is $4/vehicle.)

Fishing in the Duluth Harbor provides an opportunity to introduce youth to invasive species. One of the easiest fish to catch is the round goby - an invasive species brought over from Europe in the ballast water on the "Salties", the ocean-going vessels that visit the Great Lakes. Round gobies are an unwelcome, but established invader. According to the Wisconsin Sea Grant

Round goby

"Round gobies are bottom-dwelling fish that perch on rocks and other substrates. They are aggressive fish and voracious feeders. They will vigorously defend spawning sites in rocky or gravel habitats, thereby restricting access of other less aggressive fish to prime spawning areas. Gobies also have a well-developed sensory system that enhances their ability to detect water movement. This allows them to feed in complete darkness, and gives them another advantage over other fish in the same habitat.

Gobies also are capable of rapid population growth. They spawn repeatedly during the summer months, and each time, a female can produce up to 5,000 eggs. The males die after spawning."

Because round gobies are so abundant, it is almost guaranteed you will catch a fish each time you cast your line from the Lakewalk, (sometimes bait is optional if the gobies are really active). While the prevalence of this invasive species is a bad sign for this unique Great Lake habitat, it can provide a successful fishing experience for many first-time anglers. **Lesson 3:5 - Mussel Mania** provides information about invasive species and their effects on native species and habitats. For more on invasive species go to http://www.mndnr.gov/eco/pubs_invasives.html.

Don't worry, there is still a diverse population of fish (including native species) in the harbor. This past summer young anglers fishing with MinnAqua on the Lakewalk behind the aquarium caught yellow perch, smallmouth bass, and rock bass. Other potential catches of the day are northern pike and an occasional walleye. Lake Sturgeon use the harbor for migration between the St. Louis River and Lake Superior, but fishing for this threatened fish in the St. Louis River and its outlet is prohibited.

A bonus to coming to fish at the Duluth Harbor is having easy access to Great Lakes Aquarium where you can learn about and view a great variety of Minnesota fish species and other freshwater fish from around the world. Visit GLA's website for admission rates: http://www.glaquarium.org.

The Lakewalk behind the Aquarium has an iron railing that provides a clear and solid barrier between the pubic and the 55-degree water. The Lakewalk is wheel-chair accessible by the Aquarium and also has park benches nearby. The area isn't shaded in the heat of the afternoon, so be sure to put on sunscreen, bring water and wear protective clothing.

Anyone 16 years and older must have a fishing license when assisting others with fishing or when fishing themselves. Most gas stations, sporting goods stores, and some general stores (especially those that sell bait) sell fishing licenses. You can also purchase a license by calling the Minnesota Department of Natural Resources license hotline at 1-888-665-4236 (1-MN-LICENSE) or go to the MN DNR online license center at http://www.dnr.state.mn.us/licenses/index.html. Stores & gas stations charge a $1 convenience fee for each license purchase and the online or phone license services charge a $3.50 convenience fee.

Great Lakes Aquarium provides a variety of aquatic resource based educational programs for schools and other groups, which can include fishing and other MinnAqua activities. For more information on the educational programming at Great Lakes Aquarium check out their website at http://www.glaquarium.org and when calling to schedule a program be sure to ask about fishing opportunities on-site!

Fishing with MinnAqua on the Lakewalk behind Great Lakes Aquarium

School Spotlight - *Fishing: Get in the Habitat!* in St. Paul Schools

By Michelle Kelly

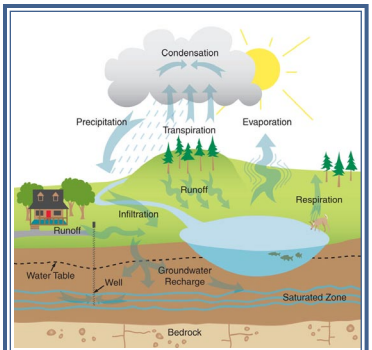
The lessons in the Minnesota DNR MinnAqua Program's ***Fishing: Get in the Habitat!*** curriculum guide are aligned with MN Academic Standards for grades 3-5, and the Environmental Literacy Scope and Sequence. Its lessons engage students in learning that is relevant, place-based, interdisciplinary and fun – all within an environmental context of fishing, aquatic education, and natural resources management.

The St. Paul Public School District (SPPS District) has recognized the value of providing resources for teachers and students that advance education through environmental literacy and has incorporated several ***Fishing: Get in the Habitat!*** lessons into its new elementary science academic standards and curriculum framework. (The SPPS elementary science framework can be found at http://curriculum2.spps.org/elem_science.html.)

This framework document was developed by the St. Paul Public School District to create a culture of high aspirations for its students and to provide coursework that:

- is guaranteed, viable, and appropriately challenging in every classroom
- is relevant to students' lives and goals
- develops from student performance data
- aligns with state and district standards
- is accountable to a community of practice

The SPPS elementary science framework was the culmination of a three-year effort by teams of Saint Paul teachers. The framework lists the districts' science standards and benchmarks that were adopted from the MN State Academic Standards as well as from the National Science standards. The framework also identifies curriculum resources used within the district and aligns lessons and activities from those resources with the adopted benchmarks. This framework is meant to provide St. Paul teachers with resources to address the base level of instruction necessary to meet standards for science in Saint Paul. The new science framework is aligned with the SPPS BluePrint and Project for Academic Excellence effort for curriculum review in all subject areas.



Water cycle image from MinnAqua Leader's Guide

Well over a year and a half ago, before the final publication of the ***Fishing: Get in the Habitat!*** curriculum guide, MinnAqua Education Specialist Michelle Kelly worked with Randee Edmundson (former SPPS district science coach now serving in the Peace Corps in Tanzania) and the district's science framework team to identify the lessons and activities from the MinnAqua curriculum guide that specifically addressed holes that the team had identified in the elementary science framework. These were holes where the curriculum resources used in St. Paul schools such as the FOSS kits, resources from DSM, NASA, VBLC, Sci ST, various websites, and BAC, etc. did not address some of the framework's listed benchmarks. There were several of these holes at the 4th grade level that MinnAqua lessons successfully filled and they were added to the SPPS academic standards and curriculum framework for elementary science. Of course, there are many other academic benchmarks in the science framework that MinnAqua lessons address, as well, but MinnAqua lessons were plugged in where other curriculum resources already being used in the district left a critical gap.

Students classifying fish using physical characteristics from Lesson 2:3 - Fish Families

To support St. Paul elementary teachers in using their new science framework, MinnAqua provides free ***Fishing: Get in the Habitat!*** training workshops to St. Paul teachers, where they can receive the curriculum guide, and has also provided 15 copies of the curriculum guide to the St. Paul School's Materials Resource Center (MRC) that are available for teachers to check out. Soon, ***Fishing: Get in the Habitat!*** will be available on-line.

Gene R. Carter, past executive director of the Association for Supervision and Curriculum Development has said that "Across disciplines, teachers find that incorporating the environment into the curriculum, sometimes as a central focus, using local issues explorations, community service-learning projects, outdoor learning experiences, and themes that cross disciplinary boundaries produces very positive results. Students are engaged in learning, feel challenged, and often perform better in school when they are studying their local environment. Learning about the environment can help students meet academic standards while providing them with the knowledge and citizenship skills they will need to participate effectively in environmental decision making." Are you incorporating the local environment into your teaching? We'd love to hear your stories!

And, if you are serving on a district's elementary curriculum team (science, social studies, language arts or math), or are a district content area coach or curriculum specialist and are interested in seeing how the MinnAqua Program's ***Fishing: Get in the Habitat!*** lessons can fit into your district's curriculum framework and be a resource for your teachers in using the local environment as a focal point for teaching, please contact Michelle Kelly at michelle.kelly@dnr.state.mn.us.

For more information about the SPPS science framework contact: Bill Lindquist, SPPS District Science Team, Elementary Specialist, bill.lindquist@spps.org, 651-214-0480

Fishing Equipment & Tips - Gearing up for "Hardwater" Season

by Nadine Meyer

Learning how to remove a yellow perch from a hook safely

Imagine a bright, sunny school day. The sun is reflected off of white snow and the sky is an incredible blue. A perfect clear day to enjoy teaching students outside. What?! Teaching outside in the winter! Absolutely, with the right hook and appropriate clothing, your students (and yourself) will be so busy that you don't even notice it is close to zero. Ice fishing is a unique experience to the northern regions of the US. It is a very economical method of fishing that doesn't require much more than good winter clothes, basic tackle, a thermos of warm beverages and a sharpened auger. Ice fishing can be a fun, safe way to introduce youth to the joys of being outdoors during our longest season while socializing with friends, as well as enjoying the satisfaction and excitement of catching one's own food.

Fishing Equipment

You don't need to invest in high-end fishing equipment to go ice fishing. The basics include small lead-free ice fishing jigs sometimes called ice-flies or a basic hook and lead-free sinker; bobber; clip-on depth finder; bait such as wax worms, eurolarvae or minnows; fishing line and a jiggle stick to wrap the line onto. **Lesson 5:4 - Making an Ice Fishing Jiggle Stick** has full instructions on how to make your own ice fishing equipment and includes photos of other types of fishing rods & reels you can purchase. This lesson also includes instructions on how to use the clip-on depth-finder to set the bobber depth for fishing.

Safety Equipment

Being thoughtful about your safety prior to heading out on the ice will make the fishing excursion much more enjoyable for all involved. It is important to have some basic equipment on-hand for emergencies – most of which provide creature comforts during the fishing trip. Important items to have are:

- sled, for towing fishing gear or a person off the ice if needed
- wool blanket if someone gets wet or chilled, nice for sitting on or covering up with while fishing
- cell phone –to call 911 in an emergency
- certified PFD seat-cushion with a long rope attached to it, to throw out to someone if needed, makes a great seat on the ice
- non-alcoholic hot beverages, to warm up someone who may be having a thermal emergency, tastes great on the ice anytime
- first aid-kit, always a must for any excursion
- life jacket, provides a layer of warmth and flotation if you should happen to fall through the ice.

Ice Safety

MinnAqua's **Lesson 6:2 - Ice Fishing and Winter Safety** provides in-depth information and activities to prepare you and your students for going out on the ice for a fun, safe fishing excursion. A short video called Danger Thin Ice! by the MNDNR is available online at http://www.youtube.com/watch?v=TlfBgVJiKVg. This video provides excellent information on how to prevent ice accidents and how to do a self-rescue. Overall, always check with your local bait shops, DNR fisheries office or local sheriff water patrol about ice conditions before taking your students on the ice. MinnAqua has a policy of having 12 inches of clear ice for any fishing program. Clear ice, ice that doesn't have bubbles or water in it, is the strongest type of ice. If the ice is cloudy or contains water pockets we err on the side of safety and cancel programs.

Support for your Ice Fishing Experience

Many communities have local sports groups and fishing experts that may be willing to support you as you introduce your students to tradition of the north country. The DNR MinnAqua Program is currently working with a group called Ice Team to provide a standards-based educational ice fishing program in schools. MinnAqua trains teachers on the new ***Fishing: Get In The Habitat!*** curriculum and points out the lessons that highlight winter ecology and ice fishing skills. Ice Team members, also training on the MinnAqua curriculum, work with the school to provide skilled fishing experts for the on-ice fishing event. You can find out more about the Ice Team/MinnAqua Ice Fishing Education Initiative by contacting Nadine Meyer, MinnAqua Education Specialist at nadine.meyer@dnr.state.mn.us.

Check our website periodically for updates on the Leader's Guide and other MinnAqua activities.
www.mndnr.gov/minnaqua

Resources to Support Environmental Education

Future Fisherman Foundation
Physh Ed Grants Available
application deadline for 2009/2010 is January 19, 2009
All applications must be submitted electronically to peapp@asafishing.org **no later than Monday January 19, 2009 by 5:00 PM.**
http://www.futurefisherman.org/programs/physh_ed/grants.html