



The Lake Beat

Welcome Aboard!

This season starts the 30th for Illinois' Volunteer Lake Monitoring Program (VLMP). We have several volunteers who have been with the program since its inception. Well done! Still more new volunteers come on-board each year and we are delighted to have their participation. These volunteers take responsibility for protecting the water quality of Illinois' lakes and ponds, which includes efforts to identify and help prevent the spread of invasive species.

Along with this year's new volunteers, I can count myself as new to the program as well. My name is Greg Ratliff and I'm a sixteen year veteran of the Illinois EPA's Federal Superfund Cleanup Program. I've had extensive experience in soil, sediment, groundwater and surface water sampling geared toward contaminant identification and spatial extent through the subsurface. I've worked with the Illinois Department of Natural Resources (IDNR) to identify damages to, and potential restoration activities for natural resources, as well as wetland delineation with the US Army Corp of Engineers (USACE).

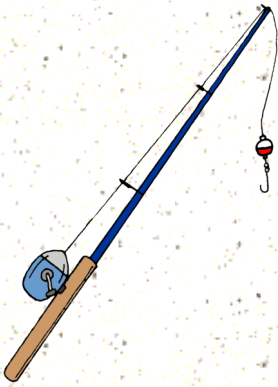
I graduated from University of Illinois, Springfield, with a Biology degree and Chemistry minor. I'm a locally raised small-town boy from Chatham, a little south of Springfield. I did a ten year stint in the US Air Force, dragging my wife Vicky back to Illinois with me to finish my education. Friends and family have already commented on my excitement for the Volunteer Lake Monitoring Program.



Greg Ratliff taking DO Temp on Lake Springfield

I ask your indulgence for this, my first season in the VLMP, but don't hesitate to contact me for assistance. Teri Holland will be taking me on my duly appointed rounds and I look forward to meeting as many of you as I can. Feel free to call me with questions. If I don't know the answer immediately, I'll find out. You can reach me at 217-785-6938 or greg.ratliff@illinois.gov. I look forward to working with you. 🌐

~Greg Ratliff



Angling for Protection

Anglers, commercial fishermen, and fishery professionals should know how to identify exotic fish species. Often, anglers are the first to discover exotic fish species because aggressive fish are commonly caught by hook and line. Your help to report new sightings and to prevent their spread is vital.



Eurasian Ruffe (Rhymes with tough)

Image courtesy of USFWS

The Eurasian Ruffe, (*Gymnocephalus cernuus*), is a freshwater fish native to Eurasia Ruffe can spawn multiple times in a year allowing it to become abundant quickly. They are able to feed in complete darkness, allowing ruffe to compete with native fish species for food and habitat resources. If found outside of the Duluth area of Lake Superior and the St. Louis River estuary, kill it, freeze it, and call. Never transport a live ruffe!

The Ruffe is a member of the perch family and resembles perch in body shape.

Round Goby

The round goby (*Neogobius melanostomus*) may pose a serious threat to North American aquatic ecosystems, with potential impacts on sport and commercial fishing. Once established, populations typically increase quickly, displacing native fish (eat their eggs and young), take over optimal habitat, spawn multiple times a season, and sur-

vive in poor quality water (giving them a competitive advantage).

The round goby, unlike any other fish in the Great Lakes, has a single pelvic fin. Its young are solid slate gray and adults usually grow to 3-6 inches long, but may be up to 10 inches.

Asian Carp

Five species of Asian carp now occur in the United States. The species most anglers are familiar with is the



Photo courtesy of Oklahoma Department of Wildlife Conservation

Common Carp (*Cyprinus carpio*). Common carp, brought to the United States in 1831, were soon propagated and distributed throughout the country. Common carp are so universally common today that they are generally considered part of the native fish community. However, few anglers would argue that our lakes and rivers would be better without them.



Photo courtesy of the Minnesota Sea Grant

Grass carp (*Ctenopharyngodon idella*) were imported from eastern Asia in 1963. Negative impacts on native organisms have been summarized to include: competition for food with invertebrates and other fishes; significant changes in the composition of aquatic vegetation, phytoplankton, and invertebrate communities; interference with the reproduction of other fishes; modification or elimination of preferred fish habitats; enrichment and eutrophication of lakes; disruption of food webs and trophic structure; and introduction of nonnative parasites and diseases.



Photo courtesy of Oklahoma Department of Wildlife Conservation

Bighead carp (*Hypophthalmichthys nobilis*) and **Silver carp** (*Hypophthalmichthys molitrix*) are native to the large rivers of eastern China. Bighead carp have been reported to be “piling up” in large numbers below dams on many Midwestern rivers, and filling the nets of commercial fishermen to the point that nets can not be lifted and sites have to be abandoned. The bighead carp utilizes open water areas, moving about in the surface zones of large lowland rivers, consuming large quantities of bluegreen algae, zooplankton, and aquatic insect larvae and adults. Bighead carp

have a keel on the belly that extends only partway to the head and has dark blotches along the back. The keel on silver carp



Photo courtesy of the Illinois Sea Grant

extends all the way to the head. Silver carp have a smaller head and mouth than the bighead carp. Silver carp have spread throughout the large rivers in the Mississippi basin and are reproducing in off-channel and backwater habitats. Bighead carp have the unusual habit of jumping out of the water from the sound of outboard motors. The problem has become so severe on some surface water habitats that water skiers have quit using these rivers and lakes.

Black carp (*Mylopharyngodon piceus*) is native to most Pacific drainages of eastern Asia. To date, black carp are the only one of the Asian carp species that has not established itself in the wild. The black carp uses pharyngeal teeth for crushing the shells of mollusks and crustaceans, its primary food source. Even at relatively small sizes (age 4), black carp will eat 3-4 lbs. of mollusks daily, posing a direct threat to one of the most diverse mollusk faunas in the world. Black carp pose a threat to many aquatic organisms through competition for food with native molluscivores.

Photo courtesy of the Illinois DNR



Improving Water Clarity



(Excerpt from Lake Smarts: The First Lake Maintenance Handbook by Steve McComas)

If roughfish are already in a lake, the most ecologically sound way to control them is to improve water clarity. Game fish, such as northern pike, walleyes, or bass, are primarily sight-feeders. They use other senses as well, including smell, and can feel movement through their lateral line system, but they rely heavily on sight. The better the water clarity, the better they can spot potential prey, such as young carp minnows.

Although turbid waters with high algae production will support more fish biomass than the clear waters of infertile lake, roughfish often make up a high percentage of this biomass. Although roughfish will probably always be found in eutrophic lakes, the strategy is to channel the fish biomass into game fish.

The first step is to find out what kind of turbidity is reducing the water's clarity – algae or suspended mud? Fertile ponds should have at least 18 inches of water clarity.

Techniques for Reducing Turbidity Caused by "Settleable" Particles

Controlling outboard motor size

Establishing "No Wake Zones"

Establishing weed beds in lakes

Stabilizing shorelines

Riprapping


You may even want to implement erosion control in the watershed to prevent streams from carrying sediments into your lake or pond.

Measure water clarity with a Secchi disk, a black and white disk about eight inches in diameter, that is lowered into the water until it

drops from sight. If a Secchi disk isn't available, use any shiny object. Check the type of turbidity by collecting a water sample and having a laboratory analyze for algae and sediment.



A less expensive way to evaluate turbidity is to collect your own water sample in a quart jar and let it sit in a window. If the sample has a greenish tint, it is mostly algae; a brownish tint indicates sediment. Let the jar sit for a week. At week's end, if most of the sediment has fallen to the bottom of the jar,

sediment suspension in your lake is probably caused from fish, wind, waves, or incoming streams. If the water is still cloudy after a week, then clay particles are being held in suspension because of the chemistry of the water. If the water is clear in less than a week, your sediment is "settleable." 

Techniques for Reducing Turbidity Caused by Algae Blooms

Nutrient reduction strategies

- Nonpoint Source Pollution Reduction
- Fertilizer Ordinances
- Motorboat Restrictions

Chemical Additions

- Buffered Alum
- Calcium Compounds
- Liquid Dyes
- Herbicides
- Chlorine (diatoms)

Aeration/Circulation

- Conventional Aeration
- Wind-powered Aerators
- Fountain Aerators
- Hypolimnetic Aeration

Biological Controls

- Biofilters, Aquascaping, and Nutri-pods
- Bio-manipulation
- Algae-eating Fish

Physical Removal of Algae

- Coagulation
- Microscreens
- Sand Filters
- Swirl Removal

Techniques for Reducing Turbidity Caused by Small Suspended Particles

- Hay Bales
- Gypsum
- Alum Products



LEAP into Action!

The Lake Education Assistance Program (LEAP) has an anniversary! Started in 1995, LEAP is celebrating its 15th. Over the years, LEAP has provided teachers, schools and not for profit organizations with nearly a quarter of a million dollars to study lakes and their watersheds. LEAP provides funding for approximately one hundred lake and lake watershed related educational field trips, seminars/workshops, projects, and activities every fiscal year. Projects and activities must have stated goals and involve the enhanced lake/lake watershed education of teachers, students, organizations and/or the community. A one page final report will be required, including such things as the level of participant involvement, videos, photographs, artwork, and/or written work. Funding will be in the form of reimbursement of documented costs incurred, and can be applied to such items as educational materials, scientific equipment, substitute teacher payment, buses/drivers, seminars, workshops, software, and visual materials. ♻️



Want to know more? Contact Steve Kolsto at steve.kolsto@illinois.gov or call (217) 782-3362.

Going for Water

Robert Frost (1915)

*The well was dry beside the door,
And so we went with pail and can
Across the fields behind the house
To seek the brook if still it ran;*

*Not loth to have excuse to go,
Because the autumn eve was fair
(Though chill), because the fields were
ours,
And by the brook our woods were there.*

*We ran as if to meet the moon
That slowly dawned behind the trees,
The barren boughs without the leaves,
Without the birds, without the breeze.*

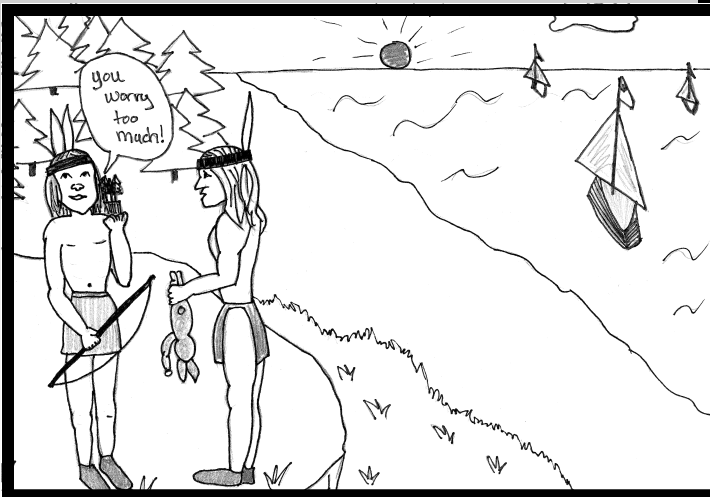
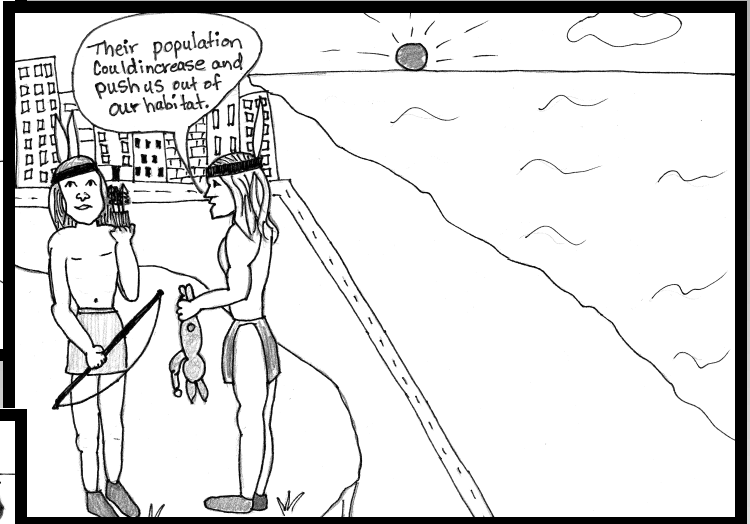
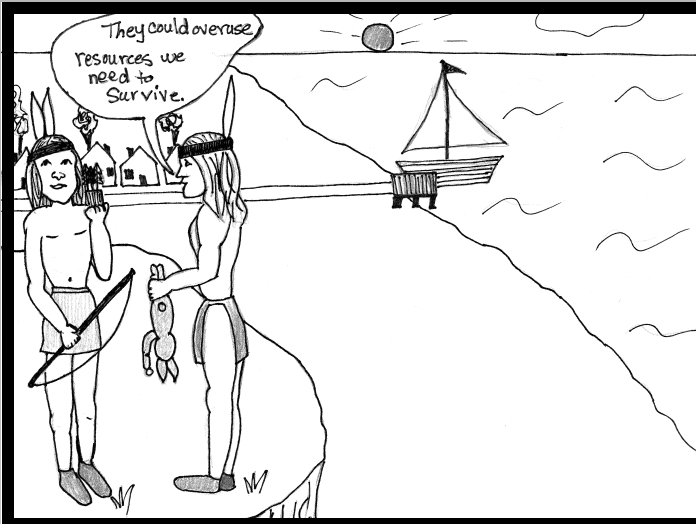
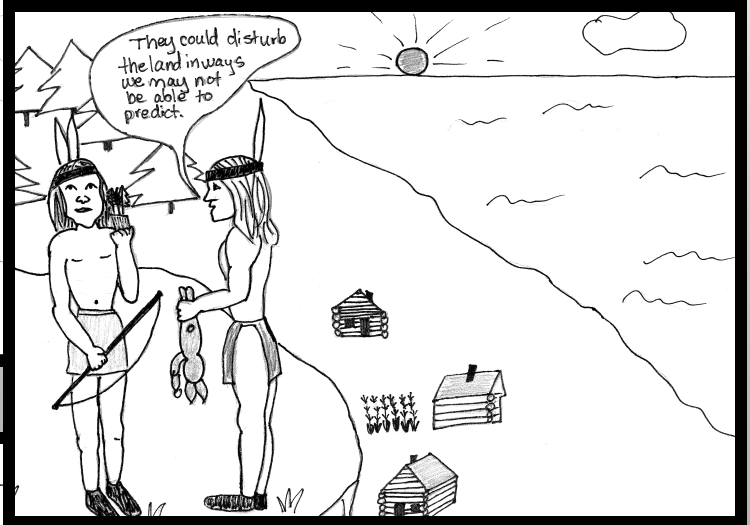
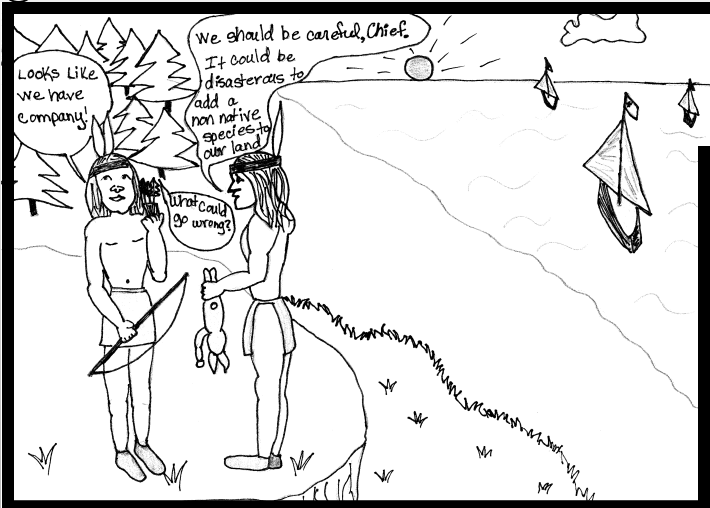
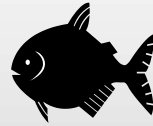
*But once within the wood, we paused
Like gnomes that hid us from the moon,
Ready to run to hiding new
With laughter when she found us soon.*

*Each laid on other a staying hand
To listen ere we dared to look,
And in the hush we joined to make
We heard, we knew we heard the brook.*

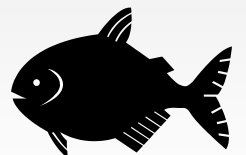
*A note as from a single place,
A slender tinkling fall that made
Now drops that floated on the pool
Like pearls, and now a silver blade.*

Eurasian Hominid Dispersal:

An Example of Exotics Spreading Through Transport Media



Author: Greg Ratliff
Illustrator: Susan Klein



VLMP Contacts



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Online Resources

VLMP Website:

<http://www.epa.state.il.us/water/conservation/vlmp/index.html>

Email: epa.vlmp@illinois.gov

Online Database:

<http://dataservices.epa.illinois.gov/waBowSurfaceWater/Default.aspx>





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~Note To Volunteers: Secchi Online Data Entry

The online data entry web site continues to evolve. Some volunteers have problems while for others data entry works well. We continue to work with our programmers to clear up the errors received by volunteers. One common error has come up when clicking on the finish tag after all of your data has been entered. An error announcing that "Input string was not in a correct format" pops up, but the data has arrived regardless.

Please continue to perform online entry. Whether that attempt works or not, please mail in your Secchi form(s) to us. We would appreciate a note in the mail with your Secchi monitoring form pointing out any problems you are still having. Do not keep Secchi forms to try data entry again at a later point, if entry fails. We will work out your problem and you can try again on the next Secchi monitoring event.