

Lake Zurich dips into water supply planning

By Michael Peterson

In Lake Zurich, a northwest Chicago suburb, leaders are looking at their current water situation as a glass that is half full. This Lake County village is in the process of deciding what will be its future water source because continuing to pump from its deep aquifer is not sustainable.

“Some people think of these issues as challenges; I think of them as opportunities,” said village Trustee Richard Sustich, who is spearheading the water initiative.

On March 7, the Lake Zurich Village Board signed a memorandum that approved hiring an integrated water resources management team to advise the community as it develops its future water plan. The team will assist the village with the engineering, cost, and analysis of the different water options.

The Metropolitan Planning Council is leading the team, which also consists of Illinois-Indiana Sea Grant (IISG), the Chicago Metropolitan Agency for Planning, and the Center for Neighborhood Technology.

Margaret Schneemann, a water resource economist, will represent IISG on the team. IISG will also provide the village with technical assistance programs, such as water conservation pricing.

Schneemann said studies have shown that current use of the northeastern Illinois region’s deep-bedrock aquifers is unsustainable, meaning they are pumping out water more quickly than they are recharging.

One option being explored is tapping water from the Great Lakes, and Lake Zurich is one



Lake Zurich is one of 10 communities that was recently approved to tap into Lake Michigan water.

New projects to market Asian carp	Page 3
Seed grant funding helps research bloom	Page 4
IISG expands program staff	Page 7

Continued on page 2

Illinois-Indiana Sea Grant

Two States Caring for One Great Lake

Brian Miller, Director

374 NSRC, 1101 W. Peabody
Urbana, IL 61801
217-333-6444

Lisa Merrifield Assistant Director

The
HELM

Irene Miles
Editor

Michael Peterson
Writer

Susan White
Graphic Designer



Printed on Recycled Paper

IISG online:

iiseagrant.org
lakesideviews.blogspot.com
twitter.com/ILINSeaGrant
facebook.com/ILINseagrant
youtube.com/iiseagrant



Illinois-Indiana Sea Grant is one of more than 32 programs of the National Sea Grant College Program created by Congress in 1966. Sea Grant is a partnership of universities, government, business, and industry that addresses marine and Great Lakes needs to enhance sustainable coastal economic development. Funding is provided by the U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA Grant # NA10OAR4170068), Office of Sea Grant, University of Illinois at Urbana-Champaign, and Purdue University. The University of Illinois and Purdue University offer equal opportunities in programs and employment.



Lake Zurich dips into water supply planning

Continued from page 1

of 10 communities that was recently approved by the Illinois Department of Natural Resources to receive Lake Michigan water. However, none of the communities have committed to the potential \$250 million project. Each municipality is planning to let their residents decide via referendum.

“One question is whether it is more efficient for the 10 communities to form one regional water agency versus each community having its own agency,” Schneemann said. “They need to determine which is more cost-effective and which is more sustainable—staying on groundwater versus tapping into the lake.”

Sustich, who worked for the Metropolitan Water Reclamation District of Greater Chicago for 28 years, said the deep aquifer not only is running dry but its water contains low levels of radium. This means the water has to be treated, which translates into additional costs.

Metropolitan Planning Council Project Manager Josh Ellis said the next step for the team is to form a volunteer task force comprised of engineers, economists, communicators, environmental ecologists, and more. The task force will work with the integrated water resources management team in researching water supply options. By the fall, it will submit a complete list of recommendations for the village’s short-term and long-term actions.

“What we are producing is more of a strategic document than an actual water management plan,” Ellis said. “We really want to look at the village’s interactions with water comprehensively. The village really needs to investigate the options and then make the best decision for themselves.”

Lake Zurich is also investigating an integrated water resource plan, which would simultaneously address drinking water, wastewater, and stormwater.

“In communities like Lake Zurich, the municipality handles each of these three systems—although they are disconnected,” Sustich said. “Around the country, there isn’t a lot of integration for us to study optimizing the use of water.”

In addition, the village will be redeveloping its downtown in the near future. Sustich said this allows for the village board to take into account the water issue and plan accordingly.

“This is an opportunity to really look at integrating the three water systems, and more importantly, making the results and process very public so that other communities can learn from us,” Sustich said.

Asian carp summit fosters networking, new programs

Discussions at the Asian Carp Marketing Summit last September laid the groundwork for new directions and opportunities to address the potential threat these fish pose to the Great Lakes and the Illinois River. Since then, a thriving expert network has developed and efforts are on track to turn the conclusions reached at the summit into action.

“The summit was convened to identify obstacles and opportunities associated with commercial marketing of Asian carp as a way to reduce their numbers in the Mississippi River Basin,” said Pat Charlebois, IISG aquatic invasives specialist.

Gathered together in one room were representatives from restaurants, commercial fishing, processing and related businesses,



Courtesy of Eric Gittinger, Illinois Natural History Survey

as well as agencies, and academic institutions. Altogether, experts from eight states shared their insights and ideas.

At the summit, participants agreed that high-value Asian carp

fillets marketed to restaurants and retailers may provide the financial incentive for extensive harvesting of these fish. Looking to have immediate impact, they also recommended that whole fish be exported in high numbers to Asian markets, where these species are already popular food fish. Finally, they recommended converting Asian carp by-products into pet food or treats to eliminate waste and maximize profit opportunities.



Courtesy of Paula Ouder, Louisiana Sea Grant

Asian carp fillets can be marketed to restaurants and retailers.

The Illinois Department of Natural Resources (IDNR) is now developing programs to help further these goals. “This is a public problem,” said Tom Heavisides, IDNR contaminants assessment manager. “We can’t expect this to be solved without public dollars for startups and training.”

Specifically, IDNR, in conjunction with Southern Illinois University Carbondale, is developing a pilot project to provide training for anglers in catching and proper handling of Asian carp—in large part to support marketing abroad. The pilot project will provide stipends or financial incentives based on bringing a pre-defined volume of Asian carp to market. Research will explore the impact of harvesting on the ecology of the Illinois River, where Asian carp are numerous, as well as the potential barriers and opportunities for marketing Asian carp.

The summit also provided opportunities to move new projects or plans forward. For example, Louisiana Sea Grant Fisheries Specialist Julie Anderson had been developing a plan with Operation Blessing, a non-profit organization, to send canned Asian carp to Haiti, where food is certainly needed and canned fish is preferred. At the summit, Anderson was able to meet Carole Engle, a University of Arkansas researcher who has

Continued on page 6

Seed grant funding helps projects bloom

Just as a gardener hopes that their scattered seeds will eventually bloom into a lush garden, IISG awards development grants, or “seed” grants, to a number of projects in the

hopes that the initiatives will grow into something larger. Here is a look at three of the 16 projects that were funded in 2010:

Replacing fish meal in hybrid striped bass diets



Fish swim in a Southern Illinois University Carbondale lab where researchers studied the use of ethanol yeast as a fish meal replacement for hybrid striped bass.

Courtesy of Jesse Trushenski

Recently, fish meal has become economically and environmentally unsustainable as a primary protein source for fish farming. This led to a project to search for alternative sources.

Jesse Trushenski, an aquaculture nutritionist with Southern Illinois University Carbondale, studied the use of ethanol yeast as a fish meal replacement in feeds for hybrid striped bass. Trushenski said the yeast is left over from bio-ethanol production, so she sees the idea as a “win-win” solution.

“From an aquaculture perspective, we are always protein hungry. However, the sources we traditionally used to provide protein are not going to meet the industry’s growing demand,” she said. “We are always looking for protein-dense ingredients that we can use in feeds.”

Trushenski said ethanol yeast will not completely replace fish meal, but it can significantly reduce the amount needed. The study showed that fish meal can be reduced as low as 7.5–15 percent in ethanol yeast-based feeds without having negative side effects.

The project was done as a collaboration with Archer Daniels Midland, which is funding further research on the topic now that this project has been completed.

“In Illinois, we raise more than 100,000 pounds of hybrid striped bass each year. More cost-effective feeds can help our aquaculture industry grow. So in a sense, these seed dollars are transitioning into economic development for our region,” Trushenski said, adding that saving money on fish food would greatly cut down on expenses. “Feed can represent 50 percent or more of the cost of production, so anything we can do to help our growers use regional resources to reduce costs is a move in the right direction.”

Toxic by-products in disinfected drinking water

University of Illinois geneticist Michael Plewa studied how pharmaceuticals that accumulate in drinking water sources can create toxic side effects when the water is disinfected.

The study found that water near hospitals can contain disinfection by-products due to iodinated x-ray contrast media (ICM) that is found in wastewaters from hospitals. ICM is a substance people consume to enhance medical imaging. It is usually excreted within 24 hours, but treatment plants are unable to completely remove it from drinking water.

“These drugs serve as a catalyst for chemical reactions when you use disinfectants, such as chlorine,” Plewa said.

Plewa is not suggesting that we stop disinfecting drinking water, but he said these studies have opened a whole new chapter in exploring how we should do so while protecting the environment and public health. He has submitted a federal grant proposal to continue the research.



Land use can impact stream fish physiology

U of I biologist Cory Suski said the ever-increasing restoration initiatives in North America propelled him and his co-principal investigator, Zachary Blevins, into studying how land use impacts fish physiology.

“We studied the relationship with fish’s internal biochemistry and the links from land-use patterns,” Suski said. “Ultimately, we hope to understand the implications of conservation and restoration.”

The major finding of this study was that creek chub that live in agricultural watersheds are more tolerant to high temperature spikes, while those that live in forested watersheds are more physiologically impacted by changing temperature. Other than this, the two types of creek chub had very few differences.

“Watersheds that are more forested are cooler and have fewer temperature spikes,” Suski said. “These fish’s functions are not from being born in a different watershed; it is a function of being exposed to different environmental conditions.”

Suski said this information will serve as a foundation for future research on the effects of changing stream ecosystems.



Courtesy of Cory Suski

Shown is an east central Illinois stream where researchers studied creek chub to see how land use impacts fish physiology.

New seed projects enhance key IISG issues

The latest group of scientists and graduate students awarded IISG seed grant funding represents seven institutions in Illinois and Indiana. In the past three years, IISG has funded 35 development research projects.

The nine new projects cover a range of topics and many relate closely to key concerns that IISG is committed to address. For example, David Wahl of the Illinois Natural History Survey is examining current and historic aquatic animals to assess the impacts of Asian carp on native food webs. Melody Bernot, a Ball State University biologist, is determining the location and persistence of pharmaceuticals in Lake Michigan’s near shore. In the

area of land use planning, Laurent Ahiablame, a Purdue University graduate student, is modeling the effects of low-impact development. Another Purdue researcher, David Ortega, is assessing consumer preferences and demand for fish in the Midwest to provide domestic aquaculture farmers with the tools they need to remain competitive in a global market.

Other projects will address the health of wetlands, urban fish populations, coastal pine species, and aquatic microbial communities.

For more information about IISG-funded research, visit www.iisgcp.org/research/topics_research.html.

New 'Clean Boats, Clean Waters' looking for volunteers

Just like it is important to bathe regularly to fend off invasive germs and dirt, it is equally important for boaters to clean their vessels to stop the spread of invasive aquatic species.

“To quote Benjamin Franklin, ‘An ounce of prevention is worth a pound of cure,’” said Cathy McGlynn, the Northeast Illinois Invasive Plant Partnership (NIIPP) coordinator. “And that definitely is the case with invasive species.”

IISG and NIIPP are currently working together to bring to Illinois and Indiana the “Clean Boats, Clean Waters” program, which will train people to help spread awareness on the issue.

They are currently looking for volunteers to organize and conduct a boater education program in their community. Those who sign up will attend a training workshop and will be in the field this summer. Volunteers will also perform boat and trailer checks for invasive species, distribute informational brochures, and collect and report any new water body infestations.

“Many invasive species can move from Point A to Point B through recreational boaters,” IISG

Aquatic Invasives Specialist Pat Charlebois said.

Since this is the program’s pilot year in both Illinois and Indiana, it will only take place in one county in each state—Lake County in Illinois and Lake County in Indiana.

Charlebois also said they have enough money to fund Clean Boats, Clean Waters from this summer to the next; however, she added that the goal is to partner with more organizations to make the program self-sustaining, as well as extend it across more counties in the two states. The program has been already implemented in Minnesota, Wisconsin, and Michigan.

Some tips that volunteers will be giving boaters are: Remove any visible mud, plants, fish, or animals before transporting recreational equipment; drain water from equipment before transporting; and never release plants, fish, or animals into a body of water unless they come from that body of water.

To volunteer or for more information, e-mail McGlynn at cathy.mcglynn@niipp.net.

Continued from page 3

Asian carp marketing summit fosters networking

developed a USDA-approved process for canning Asian carp.

“We were able to develop new products using this canning method, including a tomato-based version of Asian carp,” said Anderson. “We’ve taste-tested several products with Haitians and are now getting logistics and prices together to move this project forward on a larger scale.”

The summit was also helpful to partners in a new Asian carp business plan. The plan for Grafton Summit Enterprises LLC is to establish two Asian carp processing plants in Illinois—one to process fillets and the other to process the fish by-products. These plants may provide employment to more than 40 people altogether and process 50,000 to 100,000 pounds of fish per day, according to the Associated Press. This proposed business is now under review by the Illinois Department of Commerce and Economic Opportunity.

This two-day event took place at the Lewis and Clark Community College in Godfrey, Illinois. It was organized by IISG, with sponsorship from the IDNR and the National Great Rivers Research and Education Center. You can download the published summary from the Asian Carp Marketing Summit by visiting www.iiseagrant.org/asiancarp.

Staff Update—New faces, new places



Carolyn Foley, assistant research coordinator, works closely with Tomas Höök, associate director for research. She is the primary contact for questions related to requests for proposals. She also helps plan and execute research and outreach activities at Purdue's West Lafayette campus. Foley received a B.Sc. in biology from the University of Windsor in Ontario, Canada and an M.S. in entomology from Purdue University. She has worked as a field and laboratory researcher on projects spanning the Great Lakes.



Laura Kammin joined IISG as the program's pollution prevention program specialist. She is engaged in outreach efforts that help prevent unwanted medicines from ending up in lakes, rivers, and drinking water. Kammin will also enhance programs on e-waste and burn barrel alternatives as well as other pollution prevention projects. Before joining IISG, Kammin worked for Prairie Rivers Network, the University of Illinois Office of Sustainability, University of Illinois Extension, and Illinois Natural History Survey. Laura received an M.S. in wildlife ecology from the University of Illinois.



IISG's new environmental social scientist is **Caitie McCoy**. She is focused on communities interested or involved with the Great Lakes Legacy Act, which provides resources to clean up U.S. EPA Areas of Concern. McCoy will be working on outreach related to contaminant remediation and restoration (including economic and societal benefits), user needs assessments, communications plans, and case studies. She is located in the U.S. EPA Great Lakes National Program Office (GLNPO). She recently finished her M.S. in the Department of Human Dimensions of Natural Resources at Colorado State University.



Kristin TePas now has a new position at U.S. EPA GLNPO in Chicago as IISG's Great Lakes community decision-making specialist. TePas is assisting coastal communities and other clients in making informed decisions, strengthening policies, or implementing programs that improve the health of the Great Lakes ecosystem. TePas previously worked as the program's aquatic invasives extension associate for almost 10 years, conducting outreach focused on preventing the introduction and spread of invasive species. She holds an M.E.M. in coastal environmental management from Duke University.



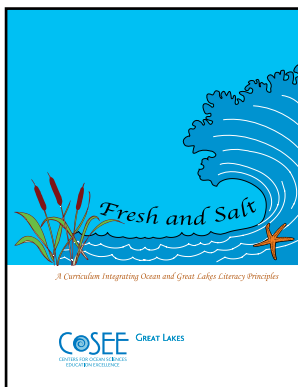
As the new Great Lakes ecosystem specialist, **Paris Collingsworth** will be working with U.S. EPA GLNPO to improve access to and sharing of Great Lakes data and research, develop indicators, and develop products and programs to sustain or improve ecosystem health. Collingsworth has a background in statistical and computer modeling and comes to IISG from the USGS Great Lakes Science Center where he was involved in building models on fish recruitment across the Great Lakes. He has a Ph.D. in evolution, ecology, and organismal biology from Ohio State and an M.S. in zoology from Southern Illinois University.

University of Illinois at Urbana-Champaign
Illinois-Indiana Sea Grant College Program
374 NSRC, MC-635
1101 W. Peabody Dr.
Urbana, IL 61801

Non-Profit Organization
U.S. Postage Paid
Permit No. 75
Champaign, IL 61820



New teacher resource links freshwater and marine sciences



Fresh and Salt is a collection of activities that enhance teacher capabilities to connect Great Lakes and ocean science topics. Designed to be used by teachers in grades 5-10, *Fresh and Salt* provides an interdisciplinary approach to ensure that students achieve optimum science understanding of both Great Lakes and Ocean Literacy principles. This curriculum offers a varied range of instructional modes, including data interpretation, experimentation, simulation, interactive mapping, and investigation.

The 14 activities that make up *Fresh and Salt* were selected for their capacity to provide science process skills that students need for effective learning. This curriculum can also help prepare students to be responsible decision-makers that promote a sustainable society.

This project was led by IISG on behalf of COSEE Great Lakes with funding and support from the National Science Foundation and NOAA-Sea Grant. To download or order a copy of *Fresh and Salt*, visit www.iiseagrant.org/catalog/ed/freshsalt.html.