

Illinois-Indiana Sea Grant College Program

2004 Annual Report




Sea Grant
ILLINOIS - INDIANA

Dear Reader,

We are pleased to highlight activities and impacts associated with the Illinois-Indiana Sea Grant College Program (IISG) for 2004. Our program directly benefits the economic and ecologic health of the unique southern Lake Michigan region. This region is one of the largest population centers on the continent and is sustained by the largest fresh water resource in the world. Sitting on the continental divide, water flows both to the Great Lakes and the ocean.

IISG focuses on the interplay of coastal, urban, suburban, and agricultural issues. We address the range of issues pertinent to a major coastal city, the heavily industrialized and rapidly changing portions of Indiana, protection of natural areas, recreation, and agriculture; and the smart growth issues that are at the interface of economic and environmental sustainability in the region. Thus, Illinois-Indiana Sea Grant addresses issues of common interest to the Midwestern agricultural heartland and the coastal oceans population.

We are especially proud and appreciative of the strong partnerships that we have formed with numerous public and non-governmental organizations in the region. Together, we are ensuring that the wonderful southern Lake Michigan setting is a healthy and prosperous one for future generations.



Richard E. Warner
Director

This publication was produced by the Illinois-Indiana Sea Grant College Program,
Dr. Richard E. Warner, Director

Compiled by: Lisa Merrifield
Design and Layout: Jennifer Fackler
Cover Design: Susan White
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Illinois-Indiana Sea Grant is a joint federal and state program at the University of Illinois at Urbana-Champaign and of Purdue University, West Lafayette. Purdue University and the University of Illinois provide equal opportunities in programs and employment.



For additional copies please contact:

Illinois-Indiana Sea Grant College Program
University of Illinois
350 NSRC, MC-635
1101 West Peabody Drive
Urbana, IL 61801

Sea Grant Publication Number: IISG-05-18
Phone: 217-333-6444
Fax: 217-333-8046
E-mail: iisg@uiuc.edu
url: www.iispcp.org

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We are pleased to present a capsule view of Illinois-Indiana Sea Grant (IISG) staff activities for 2004. The broad scope of education, outreach, and research activities touches lives and improves the aquatic resources greatly in the two-state region. Major activities included efforts to help prevent and mitigate the impacts of aquatic nuisance species, campaigns to educate people about human health threats such as contaminated beaches and fish, research and marketing to improve the states' aquaculture industry, and realization of better city and regional planning practices to promote a more sustainable environment. It has been a fruitful year!

This document describes the outreach, education and research accomplishments in six major categories.

- Stopping Aquatic Invasive Species
- Keeping Beaches Clean
- Balancing Risks and Benefits of Fish Consumption
- Farming Fish
- Restoring Rivers and Waterways
- Growing Smarter

This document concludes with a description of our exciting efforts to connect research to outreach for greatest impact and detail other programmatic efforts of note.

Although not detailed in these pages, in May, we hosted Program Assessment Team members from around the country and showcased the depth and breadth of activities in the two-state region. The assessment week started in Chicago, to ensure that the team understood the ecological and societal context within which the program operates and to introduce team members to the people we personnel work with every day. Then the team moved south to the University of Illinois at Urbana-Champaign to become familiar with the institutional setting under which program management occurs. A longer assessment could also have included a trip to Purdue University in West Lafayette, Indiana, where the outreach and extension efforts are headquartered; a trip to northern Illinois, where the heart of our aquatic nuisance species work is conducted; and a trip to the southern regions of the states to showcase aquaculture activities, to name just a few. The high marks given to the IISG program by the assessment team confirm that the impact staff members are having in the Southern Lake Michigan region is significant and important. We look forward to many more years serving the people and environment in our two states.



Stopping Aquatic Invasive Species

Nonindigenous aquatic invasive species (AIS) such as lamprey, alewife, and zebra mussel have tremendous impact on the Lake Michigan ecosystem and its reliant industries (e.g., commercial fishing, electrical power generation). Several of these species also threaten our inland waters. The potential introduction of additional species, such as the Asian carp, may have further environmental and economic impacts on the Lake Michigan region. In 2004, we undertook the activities described below to stop new invasions and mitigate the impacts of existing invasives. Detailed are our various outreach efforts and research projects that has been conducted over the past year.

Outreach

Focusing on species that are already in the lake and those that are imminent threats, we have worked extensively with user groups, local governments, stakeholders, students, and citizens to raise awareness about the impact of AIS and to take action to prevent their spread.

AIS information reached a national audience through an announcement that aired 20 times on fishing programs on The Outdoor Channel during the two weeks prior to Memorial Day, 2004, the official start of the boating season. This 30-second message gave a summary of the AIS issue and reminded boaters of steps they can take to prevent the spread of these species. It also directed viewers to the Sea Grant Nonindigenous Species Web site (SGNIS.org) for pertinent information. The Outdoor Channel projects that we reached 740,000 households with this announcement.

Federal agencies and the pet industry have teamed up to help consumers prevent the release and escape of non-native plants and animals through Habitattitude™, a new public education and outreach effort launched in September 2004. This government/industry coalition includes the Pet Industry Joint Advisory Council, the U.S. Fish and Wildlife Service and the Great Lakes Sea Grant Network. The campaign encourages aquarium owners and water gardeners to avoid unwanted introductions of non-native species by adopting simple prevention steps when faced with an unwanted aquatic plant or fish.

To inform hundreds of retailers throughout the U.S. about the Habitattitude™ campaign, we have coordinated the placement of ads in pet industry trade journals and are working with aquarium hobbyist and garden pond magazines. These ads, which incorporate the Habitattitude™ logo and message, raise awareness about alternatives that will prevent release of unwanted aquarium and pond fish and plants. A Habitattitude™ exhibit at the prominent Backer Annual Pet Industry Christmas Trade Show provided an opportunity to distribute resource packets and invite retailers to become partners in the information campaign. An article titled "A New 'Habitattitude' on Aquatic Invasive Species," was featured on the NOAA Research Web site "Spotlight" news series. This article was developed by IISG and Minnesota Sea Grant.



Graphic courtesy of Paul Lennon, Queensland, Australia. Source from the Queensland State Department of Primary Industries and Fisheries, Australia

Habitattitude™
PROTECT OUR ENVIRONMENT
DO NOT RELEASE FISH AND AQUATIC PLANTS
FWS - U.S. FISH & WILDLIFE SERVICE - NOAA'S SEA GRANT

"It's not about the fish and plants, it's about responsible consumer behavior."

For more information, go to this website:
www.Habitattitude.net

Alternatives to Release

- Contact a retailer for proper handling advice or for possible returns
- Give/trade with another aquarist, pond owner, or water gardener
- Donate to a local aquarium society, school, or aquatic business
- Seal aquatic plants in plastic bags and dispose in the trash
- Contact a veterinarian or pet retailer for humane disposal guidance
- Know your state regulations regarding these alternatives

We developed the *Stop Carp in their Tracks!* display in 2004 to shed light on the emerging issue of Asian carp, their potential invasion of the Great Lakes and the problems that can ensue from the spread of this species. Information about how to recognize Asian carp and help prevent further introductions is presented. Control methods, including the building of an electrical barrier, are also described in this exhibit. An attention-getting feature of the display is a life-sized, three-foot long, fabric Asian carp that demonstrates its propensity to leap out of the water.

We spread the word about invasive aquatic plants at Calumet Stewardship Day at Wolf Lake in Chicago, Illinois where two interactive exhibits were presented to over 900 middle school students

that included underserved communities of Hispanic and African Americans. These young people learned about invasive aquatic plants at the *Arrest that Invader!* exhibit and about the importance of the Lake Michigan ecosystem and associated issues at our *Wheel of Information* fishing booth.

We conducted a national review of its pilot version of *Nab the Aquatic Invaders! Be a Sea Grant Super Sleuth* Web site, and received extremely useful feedback from 31 educators and scientists. Revisions were made based on these comments, which got the site ready for the pilot-testing phase in Fall 2004. For the pilot test, the site was incorporated into classroom instruction in several schools where users analyzed its effectiveness as an instructional methodology.



Through the *ESCAPE from Exotics Project*, we focused on university students studying to become teachers. Sea Grant educators trained 50 pre-service teachers at Eastern Illinois University to incorporate instructional resources on aquatic invasive species into their future curriculum. Each future teacher had an opportunity to use the new *Nab the Aquatic Invader!* Web site and explore its numerous offerings for teaching and learning.

Find 7 Ways Aquatic Exotics Are Spread, an exhibit that highlights the human pathways through which invasives can be introduced into new waterways, received an award for Graphic Design from the Association for Communications Excellence.

Research

In the past years, aquatic invasive species research has been a major focus of our research efforts. Several projects were completed in 2004, yielding important results for the AIS community, local and state government and user groups. Other projects are still on going, and will bring even more potential in the coming years.

Researchers David Lodge and Reuben Keller of the University of Notre Dame completed a project investigating the importance of trades in live bait, pets, watergardens, and biological supplies as pathways for the introduction of nonindigenous freshwater species and the spread of existing nuisance species within the Great Lakes region. Nonindigenous species sometimes spread and become harmful or invasive with both environmental and economic consequences. To determine the importance of these industries on the introduction of nonindigenous species, Lodge and Keller purchased plants and animals from vendors to sample what organisms were available. They also estimated the ecological and economic risks of some of these potentially or already invasive species.

Lodge and Keller found that many invasive and potentially invasive plants and animals were readily available for purchase. They were able to purchase a variety of already established invasive aquatic plants, both from watergarden vendors and pet vendors. Misidentification of organisms by vendors was common - only 61 percent of the scientific names of 140 plants purchased were correct. Because of the large variety of plants available in the aquarium and watergarden industries, Lodge and Keller developed a risk assessment to determine which non invasive aquatic plants might become invasive. The published results will be available for voluntary use by wholesalers and retailers and for possible adoption by regulatory agencies as a tool for determining which species should be available for sale in the Great Lakes region. In addition, Lodge and Keller have been working with industry leaders and representatives from biological supply companies, pet, watergarden, and bait trades to provide input into the development and distribution of educational literature to vendors of live aquatic organisms in the Great Lakes region.

Mark Pegg and John Chick, Illinois Natural History Survey, tested control mechanisms to block the movements of fishes without the use of physical impediments. The major goal of this study was to evaluate and assess the efficacy of fish barrier types (i.e. electric barriers and acoustic-bubble barriers) and combinations of these barrier types (i.e. sound/bubble/electric) in preventing the upstream movement of bighead and silver carp into the Great Lakes from the Illinois River.

The barrier technologies tested proved to be effective in stopping movements of bighead and silver carp under controlled situations and provide promise for similar results under applied conditions. However, Pegg and Chick emphasize that many extraneous factors that could also influence the outcome of these species moving through a given barrier (e.g., barge traffic, unexpected equipment failures, etc.) were not addressed. Nonetheless, their results provide a significant amount of promise in applying these technologies in the field as a management tool to prevent the spread of bighead and silver carp into Lake Michigan. The efficiency of this management tool to stop the movement of Asian carp will be further refined and improved through research on the effects of prolonged exposure to these technologies and the precise sensitivities (e.g., hearing range) of these fishes.



Photo courtesy of Mark Pegg

Ron Taylor and Mike Smith work on a fish barrier. Findings from this research will help prevent the spread of bighead and silver carp into Lake Michigan

Researcher David M. Lodge, University of Notre Dame, is using state-of-the-art methods to integrate the best ecological, economic, and social information available, is currently investigating mechanisms to prevent zebra mussels from moving west of the 100th meridian.

To accomplish this goal, Lodge is addressing several questions in a step-wise manner:

- What is the probability of boaters accidentally moving live zebra mussels from the heavily invested Midwest to the western US? Results suggest that although this probability is low, it poses a serious threat.
- Does the western US provide suitable habitat for zebra mussel? Parts of the Colorado, Columbia, and Sacramento-San Joaquin River systems do provide suitable habitat.
- What environmental and financial goods and services are at risk in these river basins, and what would be the financial impact if zebra mussels became established?
- Finally, given what is at risk, what prevention and possibly control investments would be prudent to make sure zebra mussel don't become established in one or more locations in the west?

Researchers Dianna K. Padilla, State University of New York at Stony Brook, Chris R. Rehmann, Iowa State University, Daniel W. Schneider, University of Illinois, and James A. Stoeckel, Miami University, sought to address the role of large-river embayments and/or backwater areas in serving as either sources or sinks of zebra mussel larvae and their role in controlling metapopulation dynamics of zebra mussels in rivers and estuaries.

Padilla, et al. measured abundance, settlement, and water quality parameters in two pairs of side embayments in the Hudson River and conducted a dye tracking experiment in the Hudson River to measure dispersion parameters and retention in one of the two side embayments. The dye study showed the effect of storms and the timing of the dye release on the retention in the embayment. The scientists analyzed previous dye study data from the Hudson River and constructed a quasi-two-dimensional model, calibrated with field data, to examine the effect of an embayment on larval abundance and settlement.

They studied zebra mussel measurements in the Upper Mississippi River and developed a one-dimensional model of larval transport that shows that Lake Pepin (near Lock & Dam 4) can control larval abundances downstream. Estimates of retention time

STOPPING AQUATIC INVASIVE SPECIES

in Lake Pepin, which is the pool between LD 3 and LD 4, suggest that larvae spawned in the lake can settle as adults there. Thus, Lake Pepin can support a self-sustaining population of adults. Computer simulations of larval transport suggest that Lake Pepin plays an important role in providing larvae to downstream populations. This was revealed through the abundance of early stage, unshelled larvae. Studies that consider only abundances of older shelled stages (visible by cross polarized

lighting) may yield misleading results. This project suggests that efforts to control zebra mussels should focus on identifying and controlling self-recruiting adult populations within water bodies such as Lake Pepin and reducing or eliminating larvae exiting the lakes.



KEEPING BEACHES CLEAN

Many residents and visitors in the region flock to the beach each year - 1.7 million to Indiana beaches alone. *Escherichia coli* (*E. coli*), a contaminant along Lake Michigan shorelines, is a bacteria that thrives on excess nutrients such as nitrates and phosphates, which end up in the waters from combined sewer overflows and household activities. In the summer, it is common in the southern Lake Michigan region for swimming beaches to be closed or posted with warnings about potential health risks because of contamination by bacteria and viruses. In 2002, there were over 300 beach closings in Illinois and Indiana. Keeping beaches open and safe is important to the quality of life in the region, as well as its bottom line.

Outreach

At the end of 2004, we joined Save the Dunes Conservation Fund and Indiana University Northwest to successfully completed the initial phase of Indiana's Public Notification and Monitoring Plan to notify beach-goers of beach closings. The monitoring plan was developed with the assistance of the *E. coli* Interagency Task Force, beach managers, and Indiana Department of Environmental Management (which implemented the plan) and was used during the 2004 summer sampling season. As a result of public comments, the plan has been updated for the summer 2005 beach season.

In an ongoing attempt to ensure accuracy in beach closings along Indiana's Lake Michigan coastline, monitoring was conducted to evaluate the beaches' risk of contamination, their usage and other factors. Based on the monitoring results, sampling locations will be changed accordingly. Changes to sample collection locations will reflect whether a beach is classified as being a Level 1 (high chance of a beach closure and high use by people), Level 2, or Level 3 (lowest risk of a beach closure and or lowest beach goer use) beach.



Photo courtesy of EPA

BALANCING THE RISKS AND BENEFITS OF FISH CONSUMPTION

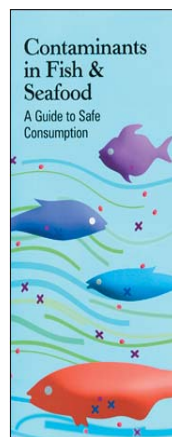
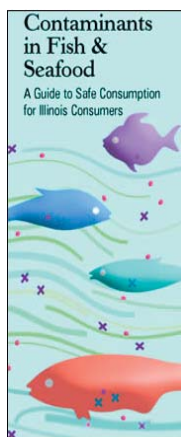
Fish are chock full of nutrients, but they are often contaminated with pollutants that can have serious human health effects, particularly on growing babies and children. In recent years, increased understanding of fish contamination (due to industrial pollutants in the water) and the human health risks associated with consuming those fish have warranted increased vigilance.

Outreach

Families with limited resources tend to be most at risk for consuming contaminated fish because they are more likely to depend on their catch for subsistence. IISG has focused significant energy towards improving information and outreach available to high risk populations. We established a

BALANCING THE RISKS AND BENEFITS OF FISH CONSUMPTION

working relationship with University of Illinois Extension in Chicago, the Illinois Environmental Protection Agency (IEPA) and the Illinois Department of Natural Resources (DNR) to develop informational literature on Illinois' fish advisories for the limited resource families in Chicago (e.g. families with small children, families using food stamps, subsistence anglers). Based on many discussions, we revised its brochure



Contaminants in Fish & Seafood to be specific for Illinois consumers. In the works are fact sheets and other teaching products. All informational pieces produced from this project will be available in English, Spanish, Chinese and Polish. Illinois Extension will be presenting the information around the Chicago region starting next year. The information will be updated as needed to reflect changes in the annual Illinois Fish Consumption Advisory.

FARMING FISH

The Chicago seafood market is the fifth largest in the U.S. and imports 99 percent of the products consumed in the Midwest. Right now, less than one percent of the farm-raised seafood consumed in the U.S. is produced in the Midwest, but with such a large consumer base, it makes sense for these numbers to increase.

The importance of aquaculture goes beyond putting perch on our plates. In addition to satisfying a hungry market, Illinois and Indiana can provide a ready supply of corn and soybeans for low cost fish feed as well as potential producers receptive to diversifying their existing farm operations. Aquaculture also holds the promise of improving struggling economies in rural as well as urban counties.

Outreach

We developed a new exhibit, *Sea Grant's Wheel of Aquaculture Information* that highlights five aspects of aquaculture—production, marketing, species, water quality, and types of aquaculture. This exhibit, which had visitors spinning a wheel and fishing for information, was extremely well received at the 2004 Indiana State Fair, engaging over 5,000 visitors, both young and old.

We held two formal training sessions conducted for aquaculture educators. In addition, various educational meetings were held on topics such as freshwater prawns, hybrid striped bass, pond management, cage culture, and cage constructions. Audiences ranged from aquaculture farmers to school children.

Research

We funded a project conducted by Paul Collodi, Purdue University, to develop technology for the efficient genetic manipulation of fish to improve aquaculture production, enhance disease resistance, or control fertility for the purpose of biological containment. Once gene targeting methods are established in zebrafish, work will be directed towards applying this technology to aquaculture species.



Participant at Indiana State Fair reads question after spinning the Wheel of Aquaculture

Within the Illinois and Indiana coastal region of Lake Michigan, there are numerous areas where decades of industrial pollution have contaminated sediments. Current proposals for remediation of these toxic sediments are very expensive. A comprehensive assessment of the benefits of remediation is difficult and is needed in the Great Lakes region. Likewise, the restoration of rivers, streams, wetlands, and beaches requires careful planning and up-to-date information.

Outreach

In conjunction with Chicago Wilderness, we conducted the “Riparian Bioengineering and Restoration Techniques Conference.” Over 100 individuals attended the conference, which was geared towards the bioengineering/geomorphology aspect of river restoration. The audience ranged from students to consultants to federal and state employees. Based on the comments received after the event the River Restoration Steering Committee is planning a fourth conference, which will be presented in a classroom setting with lectures, exercises and field trips to restoration sites around the Chicago region.

Research

Robert Hudson, University of Illinois, explored mercury contamination in wetlands in an IISG funded project. This project entailed two major tasks aimed at improving our capabilities to measure methylmercury in environmental systems. The first task was to complete the development of a new analytical method for measuring methylmercury and inorganic mercury in environmental samples. The second task was to use the system to analyze methylmercury in sediments of a contaminated urban watershed, in this case, the Grand Calumet River watershed in northwestern Indiana.

The most significant application of the new analytical methods developed in this project is in the area of environmental management. In making decisions about how to remediate contaminated lake or river sediments, local data concerning the long-term fate and transport of the hazardous materials are needed.

That is, environmental managers must decide whether it is best to leave the contaminants undisturbed, to seal them from surface exposure to immobilize them, or to remove contaminated materials. In cases of mercury contamination, the primary concerns are the production of methylmercury, its release to nearby waterbodies, and its subsequent bioaccumulation in food webs—methylmercury is the form of mercury that is absorbed by organisms, potentially affecting the central nervous system. It is important to know whether highly mercury-laden sediments, as would be found near old metal smelters in the Grand Calumet basin or in contaminated sediments at the mouths of rivers draining to the great lakes, provide a significantly larger source of methylmercury than do sediments with more moderate or background mercury loads. Such information would help determine what kind of remediation will be most effective and the extent of clean up needed.

Researchers Edwin Herricks and Bruce Rhoads, University of Illinois, are developing methods to integrate ecological, geomorphological, and hydrological/hydraulic information to support selection and placement of best management practices for stream naturalization. Herricks and Rhoads have completed development of a method to define the fish hydraulic habitat unit (FHU) and initiation of mapping on the target watersheds. A FHU has two components. The first is a characterization of flow-related hydraulic features associated with channel structures. The second is suitability of those hydraulic features to an organism—in this research a fish species. In flowing water ecosystems, habitat is primarily dependent on the flow stage and channel geomorphology. In any reach of channel, features of importance to aquatic organisms can be, and usually are, delineated as a mosaic of habitat units, environmental needs of an organism as related to features of the environment. The identification of habitat units can be species specific recognizing that the inherent spatial heterogeneity and dynamics over time related to changes in flow or stage in a channel will produce a range of habitat units in any reach of stream. The diversity, spatial extent, and juxtaposition of the habitat units in streams can be used to develop a means to describe how habitat units are related to the distribution and composition of aquatic communities.

By the year 2025 the Great Lakes region will likely experience a population increase of 32 million people, expanding into 9,000 square miles of green space, according Daniel McGrath, University of Illinois Chicago and former IISG staff member. The price of growth is often polluted streams, erosion, flooding, excessive runoff, or a significant loss of open land. Accommodating the region's projected growth while protecting its fragile natural resources presents an urgent challenge for government planners and decision makers.

There are also other challenges. Lake Michigan provides a bountiful supply of drinking water for a large population, but right now this resource is being withdrawn to its legal limit. At the same time, many western suburbs in the Chicago area that depend on deep aquifers for their drinking water are using them at unsustainable rates. In the face of growing populations, how can municipalities ensure that there will be enough water for everyone?

Planning wisely, both on a large scale and in local communities, is key to preserving what remains of our natural resources and ensuring their availability for future generations. And, using resources wisely includes going back and fixing what has been broken, both in natural and industrial areas.

Outreach

As subdivisions spring up across the landscape in Illinois, the need to plan for sewer extensions becomes increasingly critical. Future planning will



Photo courtesy of Planning With Power

now take place on a watershed basin as a result of the Basinwide Management Advisory Group, established by the Illinois Environmental Protection Agency (IEPA). This group, which includes Sea Grant as well as representatives from agriculture, developers, industry environmental groups and governing bodies, is developing recommendations about how watershed planning should be structured.

The advisory group has helped IEPA develop a two-pronged approach to water quality management: at the state level, where “big picture” water quality issues provide an overarching framework; and at the local level, where communities define their specific visions, requirements, and resources. Under the proposed regulations, local governments will create and adopt a watershed plan. Pilot testing will take place in two Illinois watershed shortly.

We are also active participants in regional planning efforts through the Tri-State Water Consortium, established to plan for a sustainable, high quality water supply for future generations in the greater Chicago metropolitan area. The consortium includes 17 counties, nearly 8000 square miles, and more than 1,500 government entities in northeastern Illinois, southeastern Wisconsin, and northwestern Indiana. It was born from the Wingspread Tri-State Accord, which was also initiated through funding and expertise from Sea Grant. The consortium is building on the agreement between four planning agencies in the three states to work together on economic and environmental issues critical to the region.

The Planning with POWER (Protecting Our Water and Environmental Resources) Project is a statewide educational program that links land use planning with watershed planning at the local level. We coordinate Planning with POWER in conjunction with the Purdue Cooperative Extension Service. Through this program, the Smart Growth Initiative was launched in Lake and Porter Counties in Indiana with funding from NOAA and U.S. EPA.

At the first event of this initiative, over 45 participants from 11 municipalities, two counties, three universities, a regional planning agency, and several special interest groups were represented. Information and strategies on how communities can

implement smart growth tools and techniques were presented. Subsequently, a small planning group met to develop the next steps to further the smart growth and natural resource protection message in the Lake and Porter County region and along the Lake Michigan shoreline. The planning committee outlined several possible topics for further discussion and as possible future presentations.

The next presentation featured United Growth for Kent County from Michigan. United Growth for Kent County involves over 85 local organizations, rural and urban committees, and a 27 member advisory committee. United Growth for Kent County is developing strategies and policies directed at urban sprawl, land conservation, open space development, and farm land preservation programs.

The third smart growth presentation featured the Kane County, Illinois growth plan that includes a “purchase of development rights” program for farm land preservation. The Kane County program involves directing development toward the urban and fringe sectors and away from the rural areas, thus protecting farmland, open space, natural areas, and critical sensitive environmental areas. Recently the Porter County Plan Commission adopted a conservation design subdivision ordinance requiring open space preservation in subdivisions.

The Smart Growth Initiative in Lake and Porter Counties will continue to bring in resources and presentations on protection of natural resources and water quality and also to focus on smart growth strategies for the region. This may include touring regional smart growth communities as well as providing examples of natural resource protection in developments around the area.

Research

Low lake levels reduce the carrying capacity of cargo ships, affect location of water intake pipes, dredging at marinas, boat ramps left high and dry, exposed littoral zones, and lake access. Knowing the history of lake highs and lows will better enable planning for future fluctuating lake levels. Through his research, Timothy Fisher, University of Toledo, hopes to provide information on past low lake levels of Lake Michigan, understand why there have been

lower lake levels in the past, and to better predict and, thus prepare, for future low lake levels. To reconstruct low lake levels of Lake Michigan, 16 cores have been retrieved from three different lakes (Silver Lake, Hamlin Lake, and Stony Lake) along the west coast of the Lower Peninsula of Michigan during the first year of this project.

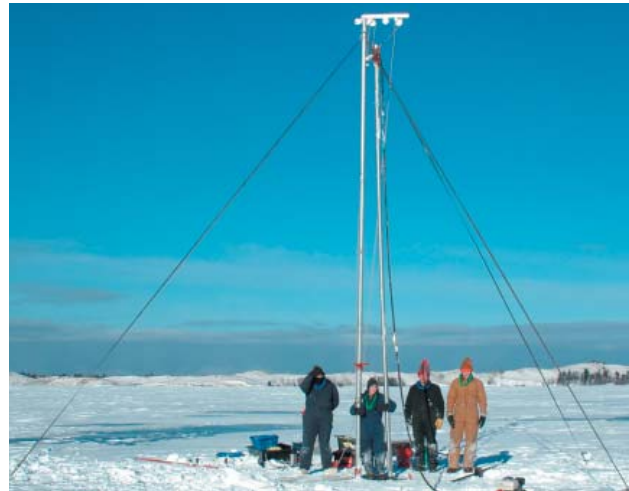


Photo courtesy of Timothy Fisher

Coring on Hamlin Lake, MI. Monopod apparatus enables Timothy Fisher to get vibracores about 7 m long. Pictured from left to right are Amber Lahners, Kelly Weyer, Dr. Walt Loope, Henry Loope.

Researchers Momcilo Markus and Sally McConkey, Illinois State Water Survey, are investigating management strategies to more accurately predict flood magnitudes, which is fundamental to reducing flood damage. The goals of this research are to identify the contributions of land cover change and climate change on increasing flood discharges in northeastern Illinois; to provide tools to improve projections of future flood magnitudes that can be used with existing management practices to reduce flooding impacts; to provide input for flood study prioritization through a comparison of published regulatory discharges with flood discharges computed for current conditions, identify those streams in northeastern Illinois with the greatest increase in flood discharges; and to investigate possible future impacts of changes in land cover and precipitation on flood peaks.

During the first year of funding, various datasets were collected including precipitation and runoff data for over 100 rainfall-runoff events in the region, GIS coverage and soil data for

selected watersheds, and urban development maps. Comparison between the old and the recent floods will best illustrate the impact of changes in the watersheds. The results of this research will provide floodplain managers with information to identify watersheds with under-predicted regulatory flood discharges providing key information for prioritizing re-studies.

To prioritize and target future public investments for preservation and restoration, researcher Daniel McGrath, University of Illinois- Chicago, is investigating how public officials and other decisions-makers in the region can assess the importance of environmental assets. McGrath's research estimates non-market economic use-values

associated with a wetland site in the Calumet region which can contribute to the cost-benefit component of an ongoing decision making modeling framework. This valuation information will support decision making by providing a range of monetary values on a dollars-per-acre basis facilitating a comparison and prioritization of remaining wetland habitat sites for public intervention. This applied environmental economic valuation research project will provide new valuation information to prioritize actions in the Calumet region and provide data for benefits transfer studies that can assist decision makers in other Great Lakes regions in estimating the economic benefits accruing from other interventions to restore compromised urban ecosystems.

CONNECTING RESEARCH TO OUTREACH

Answering today's environmental and societal concerns regarding the Great Lakes region requires linking the results of research with the practical needs of planners and resource managers. Outreach is the link between research and the user. It incorporates various forms of extension and education where consumers and advocates are engaged in the process of sustaining our natural resources and economy.

At IISG, connecting research and outreach begins with our extension specialists providing input in the development of the request for research proposals. Specialists review the preproposals for compatibility with thematic area objectives and potential for impact. Researchers are urged to describe how their findings will benefit their scientific field and contribute to the solution of a problem facing the region.

Research and outreach linkage continues with the formal procedures established in 2000. As each research project begins, we develop a working relationship with the team's scientists. The Program Management Team and communications and extension staff meet with project leaders midway through the funding period to review milestones and likely impacts, plan for supportive extension and communications efforts, and to plan future

actions. This relationship with researchers enables our outreach staff to include researchers into outreach efforts such as workshops, conferences, and events. This integration process also helps to identify short term development projects that would benefit the region and provides new ways to transfer research results by identifying outreach activities to achieve impact. The extension specialist informs media staff of significant findings that merit release to the press or through other public information venues. As projects end, the research coordinator and appropriate extension and communications staff interact with project leaders about findings and outcomes and how they are best communicated to various audiences.

This year, the biennial Research Symposium was convened to showcase the research conducted by our investigators. The symposium was attended by over 60 agency officials, university administrators, researchers, and members of the media. This year topics included aquatic nuisance species pathways, sediment contaminants, drinking water quality, biotechnology in aquaculture, and threat of Asian carp. Researchers discussed their findings with interested agencies and individuals to ensure the results reached those who can use them. Results of research were presented and abstracts of the proceedings produced.

The research coordinator also communicates with researchers periodically after funding ends to track products and outcomes (publications, leveraged funds, and others), optimize impacts, and develop a history of related project activities. These meetings will take place in 2005. This coordinated research and outreach effort focuses on impacts from the beginning and ensures that outreach efforts are targeted toward programming that will allow the research to be used by or to have an impact for clients.



Amy Heberlein, a summer intern for Pegg and Chick, holds a bighead carp that jumped into her boat. These carp can grow to 50 pounds in the U.S.

PROGRAMMATIC ACCOMPLISHMENTS

A set of four special reports were created to succinctly describe our positive impacts in the two states over the past four years. Each of these impact statements focused on one thematic area of the program, encompassing research, outreach, and education activities. These reports, initially developed for the Program Assessment Team review, provide a comprehensive overview of the needs and concerns in the region, the program efforts, and its successes. They have since served as useful tools to inform a number of audiences about the success stories of Illinois-Indiana Sea Grant. They highlight the program's relationships with a range of key institutions and agencies, participation in critical programs, and ultimately, regional impact.

Making Waves: A Guide to the Public Service Activities of Illinois-Indiana Sea Grant was updated to include its newest topic area, Great Lakes Ecosystem Health. This effort is staffed through a partnership with the U.S. EPA, Great Lakes National Program Office (GLNPO). The program distributed the Making Waves guide to decision makers and other key Lake Michigan resource users in Illinois and Indiana.

A number of press releases on critical topics were circulated to large and small media outlets in Illinois and Indiana reaching urban and suburban audiences throughout the two states. News from IISG included research results on the potential impact of Asian carp in the Great Lakes and Mississippi River; aquaculture and biotechnology; and the detrimental effects of lake currents and invasive species on yellow perch, an important sportfish.

Staff Changes

Elizabeth Hinchey-Malloy joined the staff as the Great Lakes ecosystem extension specialist. This position resides at U.S. EPA GLNPO in Chicago and is administratively housed in the Department of Forestry and Natural Resources at Purdue University. Hinchey-Malloy was formerly a research ecologist and post-doctoral fellow at the U.S. EPA Atlantic Ecology Division in Narragansett, RI. She has a Ph.D. in Marine Science from the College of William & Mary, Virginia Institute of Marine Science. Her research interests include organism-sediment interactions and shellfish-habitat relationships. Hinchey-Malloy works on Great Lakes issues that include ecosystem monitoring, wetland habitats, sediment removal and mass balance issues relating to policy. She is also helping to develop and participate in educational outreach events on board the U.S. EPA research vessel, the R/V Lake Guardian.

Terri Hallesy joined the staff as a communications assistant. She provides information regarding aquatic invasive species and fish contaminants to a variety of audiences and helps research staff relay their findings to the public. This is accomplished through Sea Grant's educational Web site, teacher training workshops, traveling trunks and other communications and outreach activities. Hallesy coordinates the Zebra Mussel Mania Traveling Trunk national lending center network. She earned a B.S. in Elementary Education from Southern Illinois University. Hallesy has held management positions in industry, and served nine years as a licensed social worker and counselor in the academic and social service field.

EXTRAMURAL FUNDS

JANUARY 1 - DECEMBER 31, 2004

<u>Principal Investigator</u>	<u>Co-PI</u>	<u>Project Title</u>	<u>Agency/Source</u>	<u>Start Date</u>	<u>End Date</u>	<u>Amount</u>
	Patrice Charlebois Robin Goettel Douglas A. Jensen Marshall Meyers Joe Starinchak David Lodge Randy Sanders William Rendall Mike Conlin Steve Curcio Michael Klepinger Frank Lichtkoppler Marie Zhuikov	A National ANS Outreach Campaign for the Aquarium Industry and Hobbyist Consumers: A Collaborative Effort Involving the Pet Industry Joint Council, the U.S. Fish and Wildlife Service and the Great Lakes Sea Grant Network.	National Sea Grant	6/1/2003	7/31/2005	\$300,000
	Patrice Charlebois M. Klepinger J. Schwartz J. Gunderson D. Jensen R. Kinnunen E. Obert F. Snyder R. Pitman	Aquatic nuisance species: a national ANS-HACCP training initiative to prevent the spread of aquatic nuisance species in baitfish and fish for stocking.	National Sea Grant	10/1/2001	9/30/2003	\$148,245
Turco, Ron	Leslie Dorworth L.S. Lee, P.S.C. Rao A.EKonopka M. Bischoff T. Filley L.Nies C. Jafvert F. Whitford	Contaminant Remediation Optimization Program	Environmental Protection Agency	11/15/2002	3/31/2004	\$500,000
Charlebois, Patrice		Augmentation of ANS outreach activities in Illinois.	Illinois Department of Natural Resources	7/1/2003	6/30/2004	\$10,000
Charlebois, Patrice		Illinois state comprehensive management plan for aquatic nuisance species.	Illinois Department of Natural Resources	4/1/2001	3/31/2004	\$6,000
Goettel, Robin	Rosanne Fortner Helen Domske Marie Zhuikov Mike Klepinger Anne Danielski	ESCAPE from Exotics: Break Out of Your Classroom Routine by Exploring the Interesting World of Exotic and Aquatic Species	NOAA/Sea Grant	1/1/2003	12/31/2003	\$31,065
Miller, Brian		North Central Regional Center Plan of Work	Michigan State University/ U.S. Department of Agriculture	9/1/2003	3/31/2005	\$500
Miller, Brian		Great Lakes Monitoring and Habitat Program: Provide Extension and Outreach Support for Great Lakes	Cooperative State Research service - U.S. Department of	9/15/2004	9/14/2006	\$231,482

<u>Awardees</u>	<u>Date</u>	<u>Award Name</u>	<u>Awarding Organization</u>
White, Susan Robin Goettel Kristin TePas Patrice Charlebois Jerry Barrett	May 2004	Bronze Award for Exhibits	Association for Communications Excellence
Goettel, Robin; Jennifer Fackler (Marie Zhuikov Doug Jensen Helen Domske Rosanne Fortner Anne Danielski Mike Klepinger)	September 14, 2004	Outstanding Program Award: ESCAPE from Exotics-- Break out of your classroom routine by exploring the interesting world of exotic aquatic species.	Great Lakes Sea Grant Network Extension Program Leaders
Miller, Brian	April 2004	Chair's Award Grant Extension	The Assembly of Sea Program Leaders
Mark Einstein	12/2004	Certificate of Appreciation	USDA

STUDENTS SUPPORTED BY ILLINOIS-INDIANA SEA GRANT
JANUARY 1 - DECEMBER 31, 2004

<u>Level of Study</u>	<u>Number of Students</u>
Undergraduate	3
Graduate (MS Students)	8
Graduate (PhD Students)	10
Post Doctorial Associates	0

RESEARCH AND OUTREACH PROJECTS

JANUARY 1 - DECEMBER 31, 2004

Completed During this Omnibus Cycle

<u>Project Number</u>	<u>Title</u>	<u>Investigator</u>	<u>Affiliation</u>
R/CMB-27	Effects of Invasive Invertebrate Predators on the Food Web of the Great Lakes	Carla Caceres	University of Illinois
R/A-03-01	Targeted Inactivation of the Fish Aromatase Gene	Paul Collodi	Purdue University
R/PS-01-01	Chemical Speciation and Availability of Metals in Wetlands	Jean-Francois	Gaillard Northwestern University
R/A-01-04	A Study of Yellow Perch, <i>Perca flavescens</i> , and Growth Based on Varying Dietary Regimes	James Gentile	Aquatic Research Interactive, Inc.
R/PS-02-01	Mercury Methylation and Demethylation in a Contaminated Urban Watershed	Robert Hudson	University of Illinois
R/ES-05-01	Quantifying Pathways of Nonindigenous Aquatic Species	David Lodge	University of Notre Dame
A/SE(ANS)-08-01	Transferring Sea Grant Research and Outreach Results to the Nation Using a World Wide Web Server	Brian Miller	Illinois-Indiana Sea Grant
R/ANS-03-02	An Evaluation of Barriers for Preventing the Spread of Bighead and Silver Carp to the Great Lakes	Mark Pegg	Illinois Natural History Survey
R/ANS-02-02	Metapopulation Dynamics and Control of the Zebra Mussel in Freshwater and Estuarine Systems: The Effects of Hydrodynamics, Larval Supply, and Embayments (Thru NY)	Chris Rehmann	Iowa State University
R/A-01-02	Modeling the Inactivation of <i>Vibrio parahaemolyticus</i> in Oysters by High Pressure Processing	Peter Slade	Illinois Institute of Technology, Moffett Campus

Ongoing at Time of Omnibus Submission

A/SE(ANS)-01-03	Implementation of a National Outreach Strategy for the Pet/Aquarium Industry	Patrice Charlebois	Illinois Natural History Survey
R/ES-04-01	Bighead Carp in the Upper Mississippi River: Competition with Native Filter-Feeding Fishes and Potential Threats to the Great Lakes	John Chick	Illinois Natural History Survey
R/EM-03-04	Reconstructing Low Lake Levels	Timothy Fisher	University of Toledo Michigan
R/CP-04-04	Urban Stream Naturalization -- A System Context for Practice Implementation	Edwin Herricks	University of Illinois
R/ANS-01-03	Evaluating the Ecological and Economic Value of the 100th Meridian Initiative	David Lodge	University of Notre Dame
R/CM-05-04	Quantifying the Impact of Land Cover Change and of Climate Change on Floods in Northeastern Illinois	Sally McConkey	Illinois State Water Survey
R/SE-01-04	The Calumet Area Ecological Management Strategy: Measuring the Non-Market Economic Benefit	Daniel McGrath	Institute for Environmental Science and Policy
R/SE-02-04	Water Supply Planning Modeling Tool for Local Governments	Sarah Nerenberg	Northeastern Illinois Planning Commission

Universities

Indiana University Northwest
Public and Environmental Affairs

Kentucky State University
Aquaculture Research Program

Loyola University
Department of Biology

Northwestern University
Department of Civil Engineering

Purdue University
Animal Disease Diagnostic Laboratory
Environmental Sciences and Engineering Institute
School of Agriculture
Agricultural Communications Service
Agricultural Research Programs
Cooperative Extension Service
Department of Agricultural Economics
Department of Animal Sciences
Department of Food Science
Department of Forestry and Natural Resources

Purdue University Calumet
School of Engineering, Mathematics & Science

Purdue University North Central
Department of Biological Sciences

University of Delaware
College of Marine Studies

University of Florida
Center for Aquatic and Invasive Plants

University of Georgia
Savannah River Ecology Laboratory

University of Illinois at Chicago
College of Urban Planning and Public Affairs
Institute of Environmental Science and Policy
School of Public Health
Great Lakes Center for Occupational and Environmental Safety and Health
The Great Cities Institute

University of Illinois at Urbana-Champaign
College of Veterinary Medicine
Department of Veterinary Biosciences
Department of Civil and Environmental Engineering
Department of Urban and Regional Planning

Environmental Council
School of Agriculture, Consumer, Environmental Sciences
Agricultural Experiment Station
Cooperative Extension Service
Department of Natural Resources and Environmental Sciences
Information Technology and Communications Services
Water Resources Research Center

University of Minnesota-Duluth
National Resources Research Institute

University of Notre Dame
Center for Environmental Science and Technology

Department of Biological Sciences
University of Wisconsin-Madison
Aquaculture Program

University of Wisconsin-Milwaukee
Great Lakes WATER Institute

State and Federal Agencies

Chicago Park District, Fishing Program
Cook County Forest Preserve
Great Lakes Commission
Great Lakes Fisheries Commission
Great Lakes Panel on Aquatic Nuisance Species
Hendricks County Plan Commission
Illinois Department of Public Health
Illinois Department of Natural Resources
Division of Education
Office of Law Enforcement
Office of Resource Conservation
Illinois Environmental Management
Illinois International Port District
Illinois Natural History Survey
Indiana Department of Environmental Management
Indiana Department of Natural Resources
Division of Water
Fish and Wildlife
Indiana Dunes National Lakeshore
Indiana Dunes State Park
Indiana Land Resources Council
Inter-Agency Fish Advisory Council
International Joint Commission
Lake County Health Department
Maine Department of Environmental Protection
National Oceanic and Atmospheric Administration
Natural Resources Conservation Service
Nebraska Game and Parks Commission
Newton County Plan Commission
Ocean and Atmospheric Research
Putnam County Plan Commission
Soil and Water Conservation Districts
South Carolina Department of Natural Resources
U.S. Army Corps of Engineers, Chicago District
U.S. Environmental Protection Agency - Great Lakes National Program Office
U.S. Environmental Protection Agency Region 5
U.S. Fish and Wildlife Service
Department of the Interior
U.S. Geological Survey
Biological Resources Division
United States Coast Guard
Wisconsin Department of Natural Resources

Sea Grant Institutions

California Sea Grant
Connecticut Sea Grant College Program
Delaware Sea Grant College Program
Florida Sea Grant College Program
Great Lakes Sea Grant Program Network (GLSGN)
Hawaii Sea Grant
Louisiana Sea Grant College Program
Maine Sea Grant
Massachusetts Sea Grant
Michigan Sea Grant College Program
Minnesota Sea Grant College Program
Mississippi-Alabama Sea Grant College Program
National Sea Grant College Program (NSGCP)

New York Sea Grant College Program
North Carolina Sea Grant College Program
Ohio Sea Grant College Program
Oregon Sea Grant College Program
Pennsylvania Sea Grant Program
Sea Grant Association (SGA)
Washington Sea Grant College Program
Wisconsin Sea Grant College Program

Partnerships

Aquaculture Information and Technology Task Force of the Joint Subcommittee on Aquaculture
Association for the Wolf Lake Initiative
Chicago Academy of Sciences
Chicago Wilderness Consortium
Chicago Botanic Gardens
City of Gary
Cooperative Extension Service
Delta Institute
Environmental Educators Network of the Southern Lake Michigan Region
Hendrick's County Planning with POWER Advisory Committee
Illinois Aquaculture Association
Illinois Lake Management Association
Indiana Aquaculture Industry Association
Indiana Lake Management Association
Inter-Agency Technical Task Force on E. coli
John G. Shedd Aquarium
NASAC: National Association of State Aquaculture Coordinators
NCRAC: USDA North Central Regional Aquaculture Center
Openlands Project
Peggy Notebaert Nature Museum
Pet Industry Joint Advisory Commission
Save the Dunes Conservation Fund
World Aquaculture

International Agencies

Ontario Federation of Anglers and Hunters
Ontario Ministry of Natural Resources

Publications Developed by Illinois-Indiana Sea Grant Staff

Biological Resources

Articles, Peer-Reviewed

Mankin, Phil; John M. Drake and David M. Lodge, Department of Biological Sciences, University of Notre Dame, Notre Dame, IN 46556, USA. Global hot spots of biological invasions: evaluating options for ballast-water management. Proc. R. Soc. Lond. B (2004) 271, 575580.

Brochures

TePas, K. M., S. White, and P. M. Charlebois. 2004. Invaders in Our Waters page and cover page in 2004 Illinois Fishing Information booklet.

Fact Sheets

Goettel, Robin; Fackler, Jennifer; Charlebois, Patrice; TePas, Kristin; White, Susan. Designer - Susan White. 2004. Great Lakes Invasions, Newspapers in Education Teacher Supplement (Chicago Tribune)

Goettel, Robin and Irene Miles, editors. Poster and Brochure designer by Susan White. Co-Authors: White, Susan; Wittman, Stephen; Ricker, Karen; Focazio, Paul; Obert, Eric; LaPorte, Elizabeth; Zhuikov, Marie. 2004. Title: Research on Native and Invasive Species in the Great Lakes Region--Selected Projects from the Great Lakes Sea Grant Network

Products

Charlebois, Patrice; Kristin TePas; Randi Grigoletti; 2004. Bighead and Silver Carp WATCH. ID card.

TePas, Kristin, P.M. Charlebois, and S. White. 2004. Stop Aquatic Hitchhikers/ Advertisement on Illinois boat registration mailers. Envelope.

Great Lakes Ecosystem

Fact Sheets

Beardsley, K.E., R. Lawson, and S. Glutting. 2004. "Great Lakes Coastal Wetlands Consortium Fact Sheet".

Beardsley, K.E. 2004. "Lake Michigan Mass Balance Study: Atrazine Data Report Highlights".

Products

Beardsley, K.E., and L. Jacobs. 2004. "R/V Lake Guardian Position Report". Daily fact sheet reporting on location of GLNPO's research vessel, the survey underway, survey objectives, sampling and sampling progress.

Marketing

Brochures

Felkner, Charles; White, Susan. 2004. Indiana Aquaculture Fall Meeting in Indianapolis, IN announcement/agenda brochure. A New Look at Indiana Aquaculture.

Merrifield, Lisa; Mankin, Phil; White, Susan. Designer - Susan White. 2004. Illinois-Indiana Sea Grant Graduate Fellowships

Merrifield, Lisa; White, Susan; Goettel, Robin. Designer - Susan White. 2004. Find research Funding through Illinois-Indiana Sea Grant College Program.

Water Quality

Fact Sheets

Beardsley, K.E., Horvatin, P., Bertram, P., Shear, H., Leadlay, H., Clark, E., and C. Forst. "State of the Great Lakes Fact Sheet Series". Folder and Fact Sheet Series. EPA 905-F-03-001.

Dorworth, Leslie. Layout and design by Cindy Salazar. 2004. Understanding Why Some Organic Contaminants Pose a Health Risk. IISG-03-08.

Dorworth, Leslie. Layout and design by Cindy Salazar. 2004. Understanding Contaminated Sediments: Bioavailability of Contamination. IISG-03-09

Dorworth, Leslie. Layout and design by Cindy Salazar. 2004. The Rural Brownfield: Community Threats and Risk Reduction Approaches. IISG-03-10.

Dorworth, Leslie. Brownfields: Barriers to Redevelopment IISG-03-11.

PRESENTATIONS, POSTERS, DISPLAYS AND CONFERENCES
JANUARY 1 - DECEMBER 31, 2004

<u>Name</u>	<u>Date</u>	<u>Venue</u>	<u>Subject</u>	<u>Attendees</u>
Conferences				
Einstein, Mark	02/29-03/05/2004	Wakiki Conference Center, Wakiki, HI. World Aquaculture Center Society, International Meeting.	E-Extension and the Agricultural Network Information	30
Einstein, Mark	9/26-29/2004	Purdue University, West Lafayette, IN. National Extension Technology Conference.	E-Extension and the Agricultural Network Information Center	35
Goettel, Robin	4/1-2/2004	Environmental Educators Association of Illinois Annual Meeting and Conference. Danville, IL	Distributed ANS species watch cards; provided Exotic Species workshop materials for teachers; donated three Sea Grant curriculum resources for the silent auction.	150
Other				
Andrade, Priscila	11/14/2004	Greater Chicago Cichlid Association. Rolling Meadows, IL.	Habitattitude campaign.	70
Einstein, Mark	5/20/2004	University of Illinois, Champaign-Urbana, IL. PAT Visit.	What AgNIC is About and It's Relevance to Sea Grant	10
Goettel, Robin	2/5/2004	U of I Extension Youth Educators Meeting. Wheaton, IL	Opportunities for Collaboration with Sea Grant through its Curriculum Resources.	19
Goettel, Robin Irene Miles	5/26/2004	Calumet Stewardship Day Calumet Park, IL	Sea Grant's Wheel to Reel in Information.	920
Goettel, Robin Helen Domske	7/19/2004	National Marine Educators Association Meeting. St. Petersburg, FL.		20
Goettel, Robin Dr. Rosanne Fortner, Ohio Sea Grant	09/20/04	International Aquatic Nuisance Species Conference. Ennis, Ireland	Educators respond to invasive species: Interactive web-based activities for learning and decision making.	100
Other - Panelist				
Jaffe, Martin	05/04	6th Annual CUPPA Alumni Association Spring Speaker Series	Improving the Environment & Improving Communities	30
Jaffe, Martin	12/16/04	Critical Water Resources Issues in the Chicago Metro Area, Panelist. Held by Metropolitan Planning Council, Openlands Project, and Campaign for Sensible Growth in Chicago, IL.	Joyce Foundation presentation of "Changing Course: Recommendations for Balancing Regional Growth and Water Resources in Northeastern Illinois."	60
Poster Display/Exhibit				
Charlebois, Patrice Kristin TePas Priscila Andrade	3/26/2004	Illinois Lake Management Association 19th Annual Conference. Glencoe, IL.	Identification of common AIS.	150

PRESENTATIONS, POSTERS, DISPLAYS AND CONFERENCES

JANUARY 1 - DECEMBER 31, 2004

Dorworth, Leslie S. M. Shim, J.A. Lasrado C. R. Santerre	07/14/04	Institute of Food Technologists Annual meeting, Las Vegas, NV.	Mercury and Fatty Acids in Canned Fish. Institute of Food Technologists Annual meeting Paper #49I-14.	1000
Goettel, Robin Angela Archer Brian Miller Charles Felkner Irene Miles Susan White Cindy Salazar Kristin TePas Leslie Dorworth	8/11-22/2004	IN State Fair exhibit. State Fairgrounds	Indiana Sea Grant's Wheel of Information.	530
Goettel, Robin	10/20/04	Illinois Extension Share Fair Hilton Springfield, IL	Aquatic Invasive Educational Resources and Wheel to Reel in Information.	40
McCormick, Robert	05/19/04	East Chicago, IN (Sea Grant PAT)	Planning With POWER	15
McCormick, Robert	10/14/04	Indianapolis, IN (Regional Planning Conference)	Planning With POWER	600
McCormick, Robert	10/20/04	West Lafayette, IN (Purdue Extension Annual Conference)	Planning With POWER	300
TePas, Kristin Patrice Charlebois Priscila Andrade	2/28-29/2004	Spring Fever Outdoor Show. Valparaiso, IN.	Identification of common aquatic nuisance species.	500
TePas, Kristin Patrice Charlebois Priscila Andrade	3/2/2004	Illinois Chapter--American Fisheries Society 42nd Annual Meeting. Champaign, IL.	Identification of common aquatic nuisance species.	100
TePas, Kristin Patrice Charlebois Priscilla Andrade	4/2-3/2004	16th Annual Indiana Lakes Management Society Conference. Angola, IN.	Identification of common AIS.	200
TePas, Kristin	10/9/2004	Chicago River Summit. Chicago, IL.	Identification of common AIS.	60
White, Susan Robin Goettel	3/21/2004	Clean Water Celebration on the deck of the Spirit of Peoria riverboat; Peoria, IL	Nab the Aquatic Invader	100
White, Susan Robin Goettel Irene Miles	3/22/2004	Clean Water Celebration, Peoria, IL	Fishing for Sea Grant Information	400
White, Susan Robin Goettel Jennifer Fackler Irene Miles	10/12/2004	Illinois Water 2004 Urbana, IL	Stop Carp in their Tracks	225
Presentation - Lay Audiences				
Andrade, Priscila	11/4/2004	Circle City Aquarium Club. Indianapolis, IN.	Habitattitude campaign.	25
Archer, Angela Patrice Charlebois Priscila Andrade	2/11/2004	Aquanauts Scuba Association. Mount Prospect, IL	Aquatic Invasive Species	30

PRESENTATIONS, POSTERS, DISPLAYS AND CONFERENCES

JANUARY 1 - DECEMBER 31, 2004

Charlebois, Patrice Kristin TePas	3/27/2004	Illinois Lake Management Association 19th Annual Conference. Glencoe, IL.	Preventing The Spread Of Exotic Species	100
McCormick, Robert	01/06/04	Franklin, IN.	Planning With POWER	35
McCormick, Robert	01/07/04	Lawrenceburg, IN	Planning With POWER (Dearborn)	60
McCormick, Robert	01/08/04	New Albany, IN	Planning With POWER (Floyd)	55
McCormick, Robert	01/28/04	Franklin, IN	Farm Land and Natural Resource Protection (Johnson)	220
McCormick, Robert	01/29/04	Jasper, IN	Land Use Planning (Dubois)	150
McCormick, Robert	02/12/04	West Lafayette, IN	Planning With POWER (Agronomy 585)	20
McCormick, Robert	02/26/04	Connersville, IN	Planning With POWER (Fayette and Franklin)	35
McCormick, Robert	03/03/04	Kokomo, IN (Howard- Northwestern H.S.)	Planning With POWER	15
McCormick, Robert	03/25/04	Hobart, IN (Lake)	Planning With POWER	15
McCormick, Robert	03/30/04	New Albany, IN (Floyd)	Natural Resource Protection	15
McCormick, Robert	03/31/04	Lawrenceburg, IN (Dearborn)	Natural Resource Protection	50
McCormick, Robert	05/05/04	West Lafayette, IN (Tippecanoe- Exchange Club)	Planning With POWER	35
McCormick, Robert	05/10/04	New Albany, IN (Floyd)	Natural Resource Protection	12
McCormick, Robert	05/13/04	Crown Point, IN (Lake)	Smart Growth and Water Quality	20
McCormick, Robert	05/25/04	Danville, IN (Hendricks)	Planning With POWER	25
McCormick, Robert	06/03/04	West Lafayette, IN (13 receive sites across Indiana)	Planning With POWER	50
McCormick, Robert	06/15/04	Elkhart, IN (Elkhart)	Planning With POWER	130
McCormick, Robert	11/23/04	New Albany, IN (Floyd)	Planning With POWER	35
McCormick, Robert	12/15/04	LaGrange, IN (Lagrange)	Planning With POWER	16
Presentation - Professional Audience				
Charlebois, Patrice Kristin TePas	3/26/2004	Illinois Lake Management Association 19th Annual Conference. Glencoe, IL.	Illinois-Indiana Sea Grant Outreach Activities On Aquatic Exotics.	50
Charlebois, Patrice Kristin TePas Phillip Moy	9/21/2004	13th International Conference On Aquatic Invasive Species. Ennis, Ireland.	Outreach and communications are vital components of any rapid response plan.	50
Dorworth, Leslie Lasrado, J.A. S.M. Shim C.R. Santerre	07/14/04	Institute of Food Technologists Annual Meeting	Mercury and Omega-3 Fatty Acids in Retail Fish Sandwiches. Paper #49I-13.	1000

PRESENTATIONS, POSTERS, DISPLAYS AND CONFERENCES

JANUARY 1 - DECEMBER 31, 2004

Dorworth, Leslie Lasrado, J.A. S.M. Shim C.R. Santerre	07/14/04	Institute of Food Technologists Annual Meeting	Mercury and Omega-3 Fatty Acids in Retail Fish Sandwiches. Paper #49I-13.	1000
Goettel, Robin Jennifer Fackler	10/14/04	Illinois Water 2004 Urbana, IL	“Nab the Aquatic Invader! Be a Sea Grant Super Sleuth.”	225
Jaffe, Martin	May, 2004	Chicago, Illinois 6th Annual CUPPA Alumni Association Spring Speaker Series	“Improving the Environment & Improving Communities,”	30
Jaffe, Martin	07/26-27/04	U.S. Environmental Protection Agency and U.S. Department of Housing and Urban Development Workshop on Public Sector Approaches to Promoting Sustainable Development.	Removing Local Regulatory Barriers to Sustainable Development.	40
Jaffe, Martin	09/21-22/04	Conference on the Analysis of the 2004 Annex Implementation Agreement and Water Resources Compact. The Center for Humans and Nature, Peggy Notebaert Nature Museum, Chicago, IL.	“Critical Overview: Advances and Distances Still To Be Covered,”	25
Martin Jaffe D. Perry J. Fitzgerald	07/8-10/04	City Futures Conference. University of Illinois at Chicago, College of Urban Planning and Public Affairs, in Chicago, IL.	The Politics of Promise: The Rhetoric and Practice of “Non-Governmental Regionalism” in Economic Development in the United States”	22
McCormick, Robert	02/19/04	Crown Point, IN (Lake)	Smart Growth and Water Quality	46
McCormick, Robert	04/15/04	Greenwood, IN (Indiana Environmental Health Association)	Planning With POWER	120
McCormick, Robert	05/12/04	Valparaiso, IN (Porter)	Planning With POWER	75
McCormick, Robert	05/18/04	Chicago, IL (Sea Grant PAT)	Planning With POWER	15
McCormick, Robert	05/19/04	East Chicago, IN (Sea Grant PAT)	Planning With POWER	17
McCormick, Robert	07/27/04	Chicago, IL (EPA Region 5 Sustainable Development Conference)	Planning With POWER	45
McCormick, Robert	09/09/04	Peoria, IL (Illinois NEMO Scoping Session)	Planning With POWER	50
McCormick, Robert	09/23/04	Crown Point, IN (Lake)	Smart Growth and Water Quality	35
McCormick, Robert	09/22/04	LaGrange, IN	Planning With POWER	25
McCormick, Robert	11/04/04	Portage, IN (NIRPC Environmental Management Policy Committee)	Planning With POWER	40

PRESENTATIONS, POSTERS, DISPLAYS AND CONFERENCES

JANUARY 1 - DECEMBER 31, 2004

McCormick, Robert	11/23/04	Elkhart, IN (Septic Committee)	Sustainable Wastewater Options	35
McCormick, Robert	11/30/04	Indianapolis, IN (Indiana Land Resources Council)	Land Use Issues	15
McCormick, Robert	12/06/04	New Buffalo, MI (Great Lakes Sea Grant Smart Growth Retreat) (Rural Water Alliance)	Planning With POWER	10
Miller, Brian	01/21/04	Indiana Coastal Zone Management Board Meeting, Portage, IN	Opportunities for partnership with the Illinois-Indiana Sea Grant College Program	15
Miller, Brian A. Archer M. Tift P. Moy M. Einstein	09/19-23/2004	13th International Conference on Aquatic Invasive Species, Ennis, County Clare, Ireland	SGNIS: Expanding the Knowledge Base Globally	
TePas, Kristin Patrice Charlebois	3/2/2004	Illinois Chapter--American Fisheries Society 42nd Annual Meeting. Champaign, IL.	AIS-HACCP for resource professionals.	60
TePas, Kristin	3/6/2004	Midwest Aquatic Plant Management Society 24th Annual Conference. Oak Brook, IL.	The Asian Carp Invasion. Presentation.	200
TePas, Kristin Patrice Charlebois	4/2-3/2004	16th Annual Indiana Lakes Management Society Conference. Angola, IN.	Illinois-Indiana Sea Grant outreach activities on aquatic exotics	150
Workshops				
Einstein, Mark	3/27/2004	Indiana Aquaculture Association, Indianapolis, IN. Invited Talk.	What AgNIC is About.	25
Goettel, Robin	2/5/2004	Calumet Stewardship Initiative Workshop Calumet Park, IL	Invasive Species Stewardship Workshop for Teachers	5
Goettel, Robin Irene Miles	2/14/2004	Chicago River Student Summit. Amundsen High School. Chicago, IL	Creating Barriers to Asian Carp	50
Goettel, Robin Susan White	3/21-22/2004	Clean Water Celebration Workshop. Peoria, IL	Aquatic Invasive Species educational station on the Spirit of Peoria boat tour; Sea Grant's Wheel to Reel in Information; Fishing for Information on Invasive Aquatic Species.	575
Goettel, Robin Jennifer Fackler	4/5/2004	Eastern Illinois Pre-Service Workshop. Eastern Illinois University, Charleston, IL.	Great Lakes Invaders - New Teaching resources from Sea Grant.	48
Goettel, Robin	10/06/04	Youth Environmental Symposium Independence Grove Libertyville, IL	"Don't Stop for Hitchhikers! Find Out Why Aquatic Invasive Species Are a Nuisance."	135
TePas, Kristin	6/24/2004	Calumet Initiative/Chicago Wilderness. Calumet, IN.	Identification of regional AIS.	20

PROFESSIONAL AND COMMITTEE AFFILIATIONS

JANUARY 1 - DECEMBER 31, 2004

Patrice Charlebois

Asian Carp Rapid Response Committee of the Dispersal Barrier Advisory Panel
Asian Carp Rapid Response Plan - Outreach Subcommittee
Communications, Education and Outreach Committee of the Aquatic Nuisance Species Task Force
Dispersal Barrier for the Chicago Waterways Advisory Panel
Information and Education Committee for the Great Lakes Panel on Aquatic Nuisance Species
Member, Advisory Panel for Great Lakes Model Rapid Response Plan
Member, Dispersal Barrier Advisory Panel
Member, Great Lakes Panel on Aquatic Nuisance Species
Member, Illinois DNR Aquatic and Terrestrial Nuisance Species Task Force
Member, International Association for Great Lakes Research
Public Outreach and Education Committee, Illinois Natural History Survey

Leslie Dorworth

Blue Green Algae Task Force
CARE Committee
Environmental Management Policy Committee (voting member)
Grand Calumet River / Indiana Ship Canal Corridor Vision Steering Committee
Inter-Agency Technical Task Force on E. coli
Wolf Lake Task Force

Mark Einstein

Executive Board Member - Agricultural Network Information Center (AGNIC) Project (2003 - 2005)

Robin Goettel

Aquatic Invasive Species Theme Team, Member and Chair of Education Committee
Asian Carp Outreach Committee
Association for Communications Excellence
Calumet Stewardship Day Planning Committee
Communications, Education and Outreach Committee of the Asian Carp Rapid Response Task Force
East Central Illinois Center of Regional Environmental Education Committee
Education Organizing Committee - Chicago Wilderness
Environmental Education Association of Illinois
Great Lakes Educators in Aquatic and Marine Sciences
Member-at-Large/Liaison to Communications Network, Sea Grant Educators Network Executive Committee
Michigan State University Museum Invasive Species Exhibit Development Committee
National Marine Educators Association
National Marine Educators Association Ad Hoc Committee on National Science Education Standards
National Sea Grant Exhibit Development Committee
National Sea Grant Exhibits and Special Events Taskforce
National Sea Grant Outreach Growth Committee
Sea Grant Educators Network Executive Committee, Member-at-Large

Elizabeth Hinchey Malloy

Atlantic Estuarine Research Society
Estuarine Research Federation, Student Education Committee and 2005 Student Activities Conference Chair
Mentor, U.S. Department of Labor Women's Bureau Girls E-mentoring in Science, Engineering & Technology
National Shellfisheries Association
SOLEC Steering Committee

Martin Jaffe

Chicago Metropolis 2020 Project, Commercial Club of Chicago, Natural Environment Work Group
Chicago Wilderness, Sustainability Team and Community Development Outreach Advisory Board
City of Chicago, Department of Environment, Lake Calumet Ecological Management Plan Task Force and Government Working Group
City of Chicago, Department of Planning and Development and Mayor's Committee on Nature and Wildlife, Chicago Biodiversity Plan Working Group
Commissioner, Village of Wilmette (IL) Historic Preservation Committee
Editorial board, Journal of Architectural and Planning Research
Editorial board, Land Use Law & Zoning Digest
Ely Chapter, Lambda Alpha International Honorary Land Economics Society
Executive Committee, Illinois Water Resources Center
Lake Michigan Forum, U.S. Environmental Protection Agency, Great Lakes National Program Office
Northeastern Illinois Planning Commission and Illinois State Water Survey, "Straddling the Divide" Water Supply Conference Steering Committee

Martin Jaffe (cont.)

Northwestern Indiana Regional Planning Commission, Little Calumet-Galien Watershed Plan Technical Team and Air Quality Sub-Committee
Southern Lake Michigan Regional Water Supply Consortium (Northeastern Illinois, Northwestern Indiana, and Southeastern Wisconsin
Regional Planning Commissions) Steering Committee
University of Illinois at Chicago Institute for Environmental Science and Policy, Faculty Steering Committee

Phil Mankin

American Society of Mammalogists
Illinois Habitat Fund Advisory Committee, Illinois Department of Natural Resources
The Wildlife Society

Robert McCormick

American Whitewater Affiliation
Epsilon Sigma Phi National Extension Honorary
Indiana Rural Development Association
Purdue University Co-operative Extension Specialists Association

Lisa Merrifield

Champaign County Extension Executive Board
Governor's Conference on the Illinois River Planning Committee
Illinois Water Resources Center Advisory Board, ex officio
Midwest Groundwater Association Conference Planning Committee

Brian Miller

Association of Natural Resource Extension Professionals
Coastal Communities and Economies Theme Team, National Sea Grant
Indiana Chapter of The Wildlife Society Continuing Education Committee
Indiana Coastal Management Program Coastal Advisory Board
Indiana Coastal Zone Management 6217 - Urban Practices Workgroup
International Association for Society and Natural Resources
Lake Calumet Intergovernmental Working Group
Lake Calumet Stewardship Initiative Board Member
National 4-H Sport Fishing Executive Board
National Sea Grant Academy - Co-Organizer and trainer
National Sea Grant Assembly of Program Leaders
National Sea Grant's Regional and National Extension Program Development Committee
NRCS Prescribed Fires Committee
Programming Subcommittee of the Lake Calumet Intergovernmental Working Group
Purdue University Cooperative Extension Service, Water Quality Common Interest Group
Purdue University representative to the North Central Regional Aquaculture Center's Technical Advisory Committee
State Wetland Management Plan User Advisory Committee
Tristate Water Use Consortium Steering Committee Member

Kristin TePas

Asian Carp Rapid Response Plan - Outreach Subcommittee
Member, Advisory Panel for Great Lakes Model Rapid Response Plan
Member, American Fisheries Society
Member, American fisheries Society & Introduced Species Section
Member, Society for Conservation Biology

Richard Warner

AD Hoc Agricultural Policy Committee - The Wildlife Society Regional/National
Cook County Illinois Animal Control Advisory Committee
Executive Board, Illinois Water Resources Center
Illinois Advisory Committee on Animal Damage Control, USDA-APHIS
National Association of University Fish and Wildlife Program (NAUFWP)
North Central Region Aquaculture Committee (NCRAC) Board of Directors
North-Central Regional Experiment Station Committee NCA-23
North-Central Regional Experiment Station Committee, Administrative Advisor for NC-94
Partnership Illinois Water Issues Ad Hoc Advisory Board

Susan White

Agricultural Communicators in Education



IISG-05-18