Anyone flying across Southern Illinois on a plane into St. Louis or Paducah, on a clear day, will see miles of river and lake. The Wabash, the Ohio, and the Mississippi Rivers form the boundaries of our distinct region, pocket-marked by dozens of familiar lakes: Rend, Egypt, Kinkaid, Crab Orchard, Cedar, and many smaller ones like them.

At the right angle, our home literally shimmers in the sun reflected off the water that surrounds and binds us. It is no accident that the campus of Southern Illinois University Carbondale has its own flexes of light emanating from a pond. Campus Lake was dredged back in the early 1960s, not for the coal beneath it, but rather for the beauty it shares with the nearby Shawnee National Forest.

The region’s debt to its watershed is well symbolized by the presence of the university in its midst. SIU has a mission to serve the area of the state that makes up two-thirds of its name. The university is very much immersed in Southern Illinois. The SIU School of Medicine provides health care in 54 of the state’s most rural communities south of Springfield. The university’s College of Education and Human Services trains school teachers, principals, superintendents, school social workers, rehabilitation counselors, and other trained personnel for public service.

What would the region be without the SIU’s museums, arts programs, theater, symphony orchestra, radio, and TV stations? SIU’s commitment exceeds its economic impact. It is much more than the $2.3 billion that the university infuses into the local economy. It is its civic engagement and outreach, an effort as important as the water everywhere in the region.

The university’s research programs reach far from campus in specialties apparent to local residents visited by faculty and students in Civil and Environmental Engineering, Forestry, Geography and Environmental Sciences, Geology, Plant Biology, and Zoology. There are good reasons why the federal Delta Initiative originally included the university’s researchers, who are now engaged in a task force to create a Center for Water and Hydrology.

Exemplary research and outreach programs include protecting the Cache River basin and resurrecting the small Enormous Swamp of the ancient Lake of Olive Branch after the terrible Mississippi flood in 2011. Even first-year students on the campus are reading about the impact of water on the local environment. What happens on campus readily moves off campus with students, faculty, and staff.

In another task force applies to the Carnegie Foundation for the Advancement of Teaching to have SIU designated as a civically engaged institution. Its grandiosity is an essential story we tell of our commitments to Southern Illinois. The rest of the country deserves to know as well as our closest neighbors.

On Sharing Knowledge

The effort to mobilize and share the knowledge and other expressions about water found in these pages exemplifies SIU’s commitment to civic engagement and collaboration with regional partners. Indeed, many of the authors, photographers, and artists who contributed materials shared with you in this publication are SIU faculty members and graduate students. No small number of these varied voices are speaking here are those of regional elders, activists, educators, and artists whose lives are immersed in issues of the environment, including our waters.

This edition of the SIU Imagining Geographies series — Sharing Knowledge — entitled: The Waters of Southern Illinois: Past, Present, and Future — gathers together some of our region’s most respected as well as emerging young researchers, artists, and photographers for one primary purpose: To share insights about our region’s, and the world’s, most precious and perhaps the most underused of natural resources, as well as sources of beauty, wealth, and leisure.

Following greetings offered by representatives of some of the many SIU units co-sponsoring this publication, you are invited to reconnect with one of our region’s leaders, Senator Paul Simon, whose last entry into writing, in his book — Tapped Out, lays out the full range of global as well as local water-related issues. From here, we proceed to examine some of these key issues.

It is generally a broad view, linking the issues, stakeholders, and actions. You will find authors who relate to water environments — or watered in terms of past interventions, that diverted waters, and present/future efforts to conserve land and water, enrich our ecological systems, mitigate hazards to improve the safety and quality of life of residents and visitors. We create a better view of our rapidly changing climate and economy.

While there is a special focus in this publication on exploration through research, policy analysis, actions, and personal experiences — one of our region’s most unique and rich resources — the Cache River watershed, and beyond to the mighty Ohio and Mississippi Rivers, the scope of knowledge shared here is derived from beyond Southern Illinois to research conducted by SIU’s researchers in Louisiana’s Atchafalaya River Basin as well as in the Tisza River watershed in central Europe. Along the way you will also learn about some of the nation’s leading environmental resources, including environmental programs based here at SIU, as well as efforts with high school and college students to advance their understandings and actions related to water and other environmental matters.

Finally, we note that the moments you spend with our contributors will, indeed, enable you to share our ideas and desires to become involved in developing as well as enjoying our rich region.

Jim Allen
Associate Provost for Academic Programs
SIU Carbondale

Peter Lemish
Editor, Sharing Knowledge — series Facilitator, Imagining Geographies
Email: peterlemish@siu.edu

Silvia Secchi

Many of you are probably thinking that the value of water is what happens when we open the tap and let the water flow. If we forget to turn that water off, we will get a stiff water bill. However, the value of water to society goes well beyond its direct use as drinking source. Different water bodies in different places have different uses for people and natural systems. In the Mekong River in South East Asia, water is valuable because it contains a very valuable commercial fishery. In the Wisconsin River in Oregon, water is valuable both as a source of electricity and for the production of salmon. In Italy, where I am from, water from the river Po has for centuries been valuable for the production of rice.

In Southern Illinois, water from the Mississippi River and its tributaries has been a crucial resource throughout history. More generally, water is an important role for its watershed that is, the lands that drain into it, and the animals, plants and people living in it.

What are the values of water in the Mississippi river watershed?

Water is valuable as a transportation route. Mapping the depth of the river channels so that barges can move along is one of the main human management activities. In the Mississippi River Basin, historically, large transportation has been very important to move grain from the Corn Belt to the rest of the country and the world.

continued on page 3

THE VALUE OF WATER

An Imagining Geographies — University College Collaboration, Southern Illinois University Carbondale

An Imagining Geographies collaboration with University College, SIU Carbondale

Waters of Southern Illinois: Past, Present, and Future

November 2013

www.imagining.siu.edu

Sharing Knowledge...
Water – A Campus-wide Theme at SIU

University College is delighted to support this year’s campus theme of water through many sponsored activities, including this publication - Waters of Southern Illinois, in the Imagining Geographies series. Sharing Knowledge . . .

The interdisciplinarity/transdisciplinary nature of the topic and of SIU’s embrace of it speak directly to University College’s mission of bridging – and occasionally transcending – the interests of its various parts.

Our college advances the campus theme of water in many of the sections of our first year seminar – Foundations of Inquiry (UCOL 101), including reading Water by David Feldman. Indeed, we are very much looking forward to Professor Feldman’s exciting visit. This is one way we have been engaged with an abundance of water and its various uses throughout the year.

Our college has also organized a campus-wide series of water-related events centered on this theme, by encouraging attendance of our first-year students via announcements distributed through our electronic outlet, as well as, to the entire campus population through our poster series. University College is eager to support many campus-wide events centering on this theme, as well as to engage and understand regional issues in the many sections of our first year seminar – Foundations of Inquiry (UCOL 101), including reading Water by David Feldman. Indeed, we are very much looking forward to Professor Feldman’s exciting visit. This is one way we have been engaged with an abundance of water and its various uses throughout the year.

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Students across the campus have been engaged with events centered on the topic, and it is wonderful to see the discussions permeate teaching in a variety of disciplinary settings. Indeed, the campus’s embrace of this theme speaks to our desire to treat the big issues, to see the big picture, to look not just at our varied subject areas, but at the world.

I am pleased to welcome you to this publication, a collaborative effort by Imagining Geographies and University College, and hope you will find the articles to be informative and insightful, and, as well, to learn about the multiple ways SIU’s researchers are assisting us engage and understand regional issues in the Waters of Southern Illinois.

Mark Amos
Associate Provost & Dean of University College
Associate Professor of English

Quenching Our Thirst

It is through our media that public agendas are set, crystalized, facilitated, and diffused. We cannot think of our social and physical world anymore without the mediation of the information and interpretation we consume – as well as produce – in our many channels of expression. It is through the media that we learn, expect, and perceive romantic love as associated with leisure sailing on a yacht, drink in hand, swelling horizons and learn much about what we know about water and its life-force.

This publication is such a medium too. It brings together writers from a diverse disciplines and stakeholders – are exciting ways to incorporate this theme in an enriching and rewarding fashion.

Water

Water is one of the most vital natural resources we have, and the Southern Illinois region is blessed with an abundance of it. However, how do we manage its use and ensure that it remains uncontaminated so that future generations of humans and wildlife can enjoy its use for years to come? On the other hand, the limited availability of water in our region makes us especially sensitive to its flow and power, which make the rivers angrier and more unpredictable.

Adding to the demand for water is the need to cool off on hot days. The region is a classroom waiting to be explored and discovered. As an aquatic ecologist by training, I have come to appreciate the diversity of aquatic life in Southern Illinois and its contribution to the planet. I know that the region is one of the most diverse freshwater fish habitats in both the United States and the world. The region is a classroom waiting to be explored and discovered.

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Paul Simon Foretold Present & Future Water Problems

Jonathan Gray

Daily I commute to work on the SIU campus from my home in Makanda, passing a yellow water tower as I turn onto Hwy 51. Painted on its bulbous top is that icon of the 1970's - a yellow smiley face. But this happy yellow fellow sports another iconic mark - a bowtie under the smile, on the "neck" of the tower. That bowtie commemorates a citizen of Makanda who came to our small valley and left a legacy of respect for the environment.

Simon's legacy is more substantively commemorated in the Paul Simon Institute for Public Policy on the SIU campus, but his association with the logo for the Buncome Water District is also important. Before he died in 2003, Simon penned Tipped Out The Coming World Crisis in Water and What We Can Do about it, a book that details an impending global fresh water shortage.

From the waters of Drury Creek wind- through a small Southern Illinois village across oceans to the waters of the world. Simon was a public figure deeply concerned about social justice and basic human rights. He predicted that access to drinking water, even more so than fossil fuels, was going to be one of the central human rights issues of the 21st Century. It is no accident, then, that two important pieces of legislation concerning international water rights bear his name.

About Paul Simon

Simon was born in 1928 in Eugene, Oregon to Martin and Ruth Simon. His father was a Lutheran minister and missionary in China. Paul attended universities in Oregon and Nebraska, but did not complete a degree. At 19, he moved to Troy, IL where he became one of the youngest editors of a local newspaper. Acquiring over a dozen small newspapers, he championed exposing corruption and crime, brochures, and illegal gambling operations along the Mississippi.

He served in the US military from 1951 to 1953, and soon after completing his military service he ran for and was elected to the Illinois State Legislature. There he served for 14 years, first as a representative then as a senator. In the early 1970's he served as Lieutenant Governor and in 1972 made a failed attempt at a run for Governor. He was also an early but ultimately failed contender for Democratic nomination in the 1988 Presidential campaign.

He served as a representative in the US Congress from 1974 to 1984 and then as a Senator from 1984 to 1997. Upon retiring from Congress in 1997, he moved to Makanda Illinois and began teaching at SIU, where he co-founded the Paul Simon Public Policy Institute.

Tapped Out

Throughout an impressive career of citizen activism, military service, and public service, he championed a number of progressive causes, encouraging a favorable comparison of his political positions to those of President D. Roosevelt. But what interests me most is the legacy of his last cause.

Richard Durbin (D-IL) introduced the "Paul Simon Water for the World Act" in 2009, while Earl Blumenauer (D-OR) introduced similar legislation in the House. Both bills proposed to increase US aid efforts to improve access to safe water and sanitation, with a stated goal to provide 100,000,000 people with first-time access to safe drinking water and sanitation on a sustainable basis by 2015.

Another place where the issue of tradeoffs becomes prominent is in the water-energy nexus. The US Agency for International Development, working in coordination with the US Secretary of State, has provided over $1 billion for international development projects. This has included the development of renewable energy sources, such as solar and wind, to provide access to safe drinking water and sanitation. The Paul Simon Water for the Poor Act, legislation that allocated money to foreign aid specifically for fresh water and access to sanitation for poor communities. The law requires the Secretary of State in coordination with the US Agency for International Development to develop and implement strategies to increase affordable, equitable access to safe drinking water and sanitation. In 2009 alone, as a result of implementing this legislation, Simon was able to increase access to drinking water and sanitation to 4 million people.

The solution for each of these problems is another case where important tradeoffs are present in the Mississipi. There is water also valuable as an input to agricultural activities such as irrigation for crops and industrial production. For example, both ethanol and electricity generation from coal are heavily dependent on water.

However, using water for industry and agriculture can cause water pollution. This can cause problems all along the watershed. For example, high levels of nitrates in drinking water cause blue baby syndrome, and it is very expensive to treat water to reduce nitrates. Pollution can also create problems out of the watershed, as in the case of the Asian carp in the Missouri River and the Illinois River.

The solution for each of these problems is another case where important tradeoffs are present in the Mississippi. Note that nearly 1 billion people worldwide have no access to safe drinking water and 2.6 billion lack a way to dispose of their human waste safely, the sponsors of the bill found bi-partisan support in a Congress marked by partisan bickering, fiscal conservatism, and a general reluctance to allocate funds to foreign aid. Yet, the bill failed to pass in either house in 2009; it was introduced again in 2011 where it passed in the Senate but failed to pass in the House.

"The Paul Simon Water for the World Act of 2013" (HR 2901) was introduced in the House again by Rep. Earl Blumenauer (D-OR) this past August, and has been referred to the House Foreign Affairs Committee, where it is widely anticipated to stall again.

This kind of inaction in Congress is enough to make a smiley face water tower frown. But while the legislative news is dire, the fight for the bill clearly is not over, with each year bringing fresh evidence of the accuracy of Simon's prediction about water access and the turmoil it will cause in the coming decades. Driving home, I sometimes forget to even notice that water tower with its perpetual sunny optimism and its bowtie. As Southern Illinois braces itself for the incursion of hydraulic fracturing operations and the millions of gallons of water they will need to be used in the process, it is easy to imagine what the Paul Simon legislation means to the people who depend on the water tower.

At SIU, we are in an exceptional position to appreciate all the values of water, because of our unique geographical setting and the breadth of our faculty's research capabilities. Several of the articles in this publication highlight specific trade-offs. The Cache River in Illinois has been heavily dependent on water. However, using water for irrigation in agriculture can cause water pollution. This can cause problems all along the watershed, for example, high levels of nitrates in drinking water cause blue baby syndrome, and it is very expensive to treat water to reduce nitrates. Pollution can also create problems out of the watershed, as in the case of the Asian carp in the Gulf of Mexico, which scientists attribute to the high level of nutrients coming from the Mississippi into the ocean. The dead zone is obviously bad for the marine ecosystem, but it also affects fishermen, who may not be able to find enough fish and shrimp to continue their way of life. THE VALUE OF WATER

Siliavia Secchi

The focus on maintaining the channels for barge transportation has had consequences on other values of water – wetlands have been drastically reduced from pre-Colombian days, and many of their beneficial services have been lost. These services range from carbon sequestration to habitat for birds and other animals, many of which are or were hunted by humans for food or fur: geese, ducks, muskrat, mink.

This brings us to the issue of tradeoffs. The water of the Mississippi River and its tribu-

taries provides many benefits and has there-
fore very high value for human and natural systems. However, if we use water for one specific function, there may be less available for others.

The watersheds drained by the Mississippi and its tributaries have been managed to increase agricul-

tural production, and habitat for wildlife in the watershed has suffered. The Asian carp is an invasive species that is very disruptive to river ecosystems and to fisheries – it has moved into the Mississippi and the Illinois River. Some stakeholders argue we ought to stop it from entering the Great Lakes. To do otherwise would increase the risk of alien species entering these waterways and increase the cost of controlling them. However, the Asian carp is also an important species in the Great Lakes ecosystem. It is a major component of the commercial and sport fisheries in the Great Lakes, and it provides an important food source for other species. The solution for each of these problems is another place specific. However, there are some general rules to keep in mind. We need to think about all the services and values that water provides in the watershed when making deci-
sions. We also must keep in mind who wins and who loses as we manage the river, and make sure that all people that have a stake are included in the decision-making process.
Why Restore Wetlands?

Interview with Professor Michael Eichholz

Christopher Douglas*

Chris Douglas: Please tell us about your professional activities?

Dr. Eichholz: My name is Mike Eichholz. I am a professor in the Department of Zoology at Southern Illinois University Carbondale, and conduct my research in the Cooperative Wildlife Research Lab. I study how habitat influences wildlife populations and communities. What I'm particularly interested in is how wetlands influence waterfowl communities. I study how environmental factors influence the productivity of the wetlands, and how that influences ducks, geese, and some other bird species. My background is in wetland restoration, and I am interested in how and why to restore wetlands.

Why Wetlands are Important

C: Tell us why wetlands are important, and what is it that they do?

E: There are two kinds of critical aspects. The first is that they are really important because they are the primary habitat for very important wildlife species. Ducks and geese are dependent on it. They are also the habitat for many endangered species. In North America we have lost almost 50% of our wetlands. In Illinois we have lost almost 90% of our wetlands. If you think of these wildlife species, they have lost 90% of their habitat, and the other 10% are degraded, so they are not functioning like they once did. So these animals who live in wetlands and depend on wetlands, their populations decline quickly.

The second aspect is how wetlands maintain the water supply - they drain, or strain, or store, the water supply. They take nutrients and pollutants out of the water supply. For example, in Southern Illinois, we hear a lot about flooding problems. Wetlands, historically, allowed water to spill out into the environment, in what we call the flood plain. We've channelized the rivers and forced it down a very narrow channel. So, we get too much water flowing at once, and it floods areas that normally would not flood.

Historically, when it rained, waters would go into the wetlands and stay there. When it rains, the water would gradually flow back into the river. So, instead of causing flooding problems, it stayed in the wetlands. It kept flooding from occurring, and it kept fresh water on the continent. Wetlands maintain our water supply. Historically, if rain fell on Carbondale, it would take three or six months to flow into the Gulf of Mexico. Now, because we've lost most of our wetlands, it flows down into the Gulf of Mexico very quickly, so we've decreased our fresh water supply.

Wetlands also provide many economic benefits. Species that we call "economically important wildlife species," species that people hunt, come from wetlands, and are dependent on them. For example, they maintain fish populations. Most of the brood habitat for babies of the fish we eat are located in wetlands along the coast and in a lot of fresh water areas. Those fish populations decline with diminished wetlands.

E: Ducks and geese are an economically important one. Just in Southern Illinois, duck hunting brings in well over $30 million a year. (...) North American-wide, it is over $2 billion a year. So, that has a huge influence.

Amphibians and reptiles are very dependent upon wetlands. Most of those populations are declining. They depend on wetlands that don't have fish in them. These are "ephemeral" wetlands or wetlands that dry up once a year, or even once every other year. When they dry up, it kills the fish in them. When they are wet, typically in the spring, they are very important for the productivity of these amphibians and reptiles. Because these wetlands are easiest to drain for construction purposes, they are typically the ones that get drained first. There are lots of amphibian species that are rare now, due to the loss of habitat and these wetlands.

Wetland Restoration

C: Have you been involved with wetland restoration projects?

E: I'm a part of the Upper Mississippi River Great Lakes Venture, where we are on their research coordination board. I work with the engineers and various people to restore the hydrology (water distribution). The flooding regime determines the plants that will grow there, and the soil type, and those two things determine what animals will live there. These wetlands will provide ecological services, which are things that naturally occur that benefit the human race – flood prevention. But the environmental factors influence the productivity of the wetlands, and how that influences ducks, geese, and some other bird species. My background is in wetland restoration, and I am interested in how and why to restore wetlands.

Supporting Wetlands

C: What sorts of laws or regulations exist in Illinois to support wetlands?

E: There are two primary driving forces one to preserve wetlands and one to restore wetlands. The Clean Water Act of 1972 made it illegal to fill, drain, or modify wetlands without a permit from the Corps of Engineers. That is the general view. What that allows, then, is that if you need to do something to a wetland, to destroy a wetland, and there is just no way of getting around it, you allow you to do that, but you need to restore additional wetlands to make up for the wetland that you impacted. We recognize that there are times where you just need to build a highway, or a school, and the costs of going around that location are too much. As long as we do the appropriate mitigation and restoration, it is not a big problem to hunters paying licenses, fees, and donating money to groups like Ducks Unlimited or the Audubon Society. It is their willingness to restore the habitat that the ducks need to live on. When we are restoring wetlands, we are often restoring them for wetland-dependent birds, but we also get all the other ecological services that these wetlands provide. I would say that 80% of hunters care more for the environment than most other people.

Threats to Wetlands

C: What threatens the number of wetlands animals the most?

E: The frog issue is very interesting. It's primarily, we think, a disease, a bacteria. It really started occurring in Central America first. We can see, in various countries in Central America, it is almost like a wave of all the frogs dying millions and millions of frogs. This disease has been around in the environment for a long time, and so we think that one of the reasons that these amphibians are so susceptible to this disease is due to an increase in stressors. So, there's things like increased solar radiation and a lack of habitat due to wetlands loss.

C: IF may be so brash, why care about the number of frogs in a pond or ducks on a lake? What difference does it really make?

E: If we assume for a moment that wetlands were all about the wildlife, and didn't have the other ecological services, if you're not a duck hunter, you don't care about the number of ducks. If you don't own a hotel in Southern Illinois that caters to duck hunters, then you don't care about it. If you don't care about frogs, the reality of it is, yes we could live without them. But I've seen many studies that show the mental benefits of being able to go out into a peaceful, quiet, natural environment. And the animals are an important part of maintaining that environment.

In terms of frog die-off: Frogs take nutrients from the land, lay their eggs in the wetlands, and disperse the wetlands. So they add a tremendous amount of nutrients into the wetlands. Without these frogs, the largest source of nitrogen, billions of these frogs are a lot of algae, too, and cleaned up the system.

Another thing is that frogs disrupt the food systems in a certain streams that provide fresh water for people who live further down the mountain. So, it matters to people who depend on the streams those frogs maintained, as the frogs were helping to keep that water clean.

The important thing to me, is that it's not just the wildlife, it's not just the frogs. If all the frogs die because those wetlands don't exist anymore, it's going to have a huge impact on us.

Supporting Wetlands

C: What does the support for these programs come from?

E: There are two kinds of critical aspects. The first is that they are really important because they are the primary habitat for very important wildlife species. Ducks and geese are dependent on it. They are also the habitat for many endangered species. In North America we have lost almost 50% of our wetlands. In Illinois we have lost almost 90% of our wetlands. If you think of these wildlife species, they have lost 90% of their habitat, and the other 10% are degraded, so they are not functioning like they once did. So these animals who live in wetlands and depend on wetlands, their populations decline quickly. The second aspect is how wetlands maintain the water supply - they drain, or strain, or store, the water supply. They take nutrients and pollutants out of the water supply. For example, in Southern Illinois, we hear a lot about flooding problems. Wetlands, historically, allowed water to spill out into the environment, in what we call the flood plain. We've channelized the rivers and forced it down a very narrow channel. So, we get too much water flowing at once, and it floods areas that normally would not flood.

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Waters in Southern Illinois are Reaching a Crossroad

Maybe we should let water tell us what to do?

Justin Kozak

Our present changing climate and economic considerations demand a new approach to water management. Can we ask what water would tell us in Southern Illinois? So far, the evidence suggests that we have not listened closely to the messages from water. Will our new initiatives be any different or will we continue to build new levees, feed the dead zone in the Gulf of Mexico, and jeopardize the cultural heritage of Southern Illinois?

Water Management Issues

Southern Illinois is an agricultural powerhouse, feeding the United States and much of the world. Agriculture is one of the leading causes of nutrient loading in the Gulf of Mexico. However, Southern Illinois is also home to some of the most productive fisheries in the nation. The Atchafalaya River Basin is a prime example of the importance of sustainable fisheries. In the Atchafalaya River Basin, crawfish are a major economic driver, attracting tourists from Montana and New York to the Gulf of Mexico. The primary aim of such efforts is to protect everyone and everything for the experience.

Learning from the Atchafalaya

Our work in Louisiana’s Atchafalaya River Basin has strengthened support for the latter approach, taking the lead from those who know this vast wetland firsthand. Our work has shown that building levees to control flooding does more harm than good. Once levees are built, wetlands are drained and wildlife is displaced. Our work has also shown that reconnecting bayous to maintain floodplains often means stepping back and taking notes from nature.

More Sustainable Future

More recent efforts involve a push to embrace its multitude of economic values and cultural value sought by many stakeholders. The Atchafalaya River Basin might be the most important place in the Mississippi River Basin you’ve never heard of. And if you have heard of it, you’re probably not pronouncing it correctly (acha-fa-lai-ah). If you are pronouncing it correctly you’ve probably been there and should count yourself lucky for the experience.

It is the largest swamp in North America, contains some of the largest remaining tracts of baldcypress forests left in the world, and is the heartland of Cajun culture. It is an integral part of the Mississippi Flyway of which Southern Illinois is a part, where an estimated 50% of the migratory birds in North America set down each year. It is a popular recreational fishery and hunting ground, and also the largest wild crawfish fishery in the nation, averaging yearly sales of up to $25 million. But if you ask anyone who has ever been to a crawfish boil (I’m talking real crawfish boil with some genuine Cajun characters), they will tell you that $25 million is just the tip of the iceberg.

Water Management Issues

Yet, while crawfish and Cajun culture are resources valuable beyond any dollar amount, they are not the main concern of all those involved in extensive water management efforts, as the Atchafalaya Basin is the keystone of a flood control effort that stretches from Montana and New York to the Gulf of Mexico. Closer to home, this effort includes the Bird Point-New Madrid Floodway. Levees we erected have reduced the Atchafalaya Basin to half of its natural size and a massive engineered control structure allows 25-30% of the flow from the Mississippi River into the Basin on a daily basis. But when the flood waters arrive, the Basin is tasked with providing safe passage of up to half of the Mississippi River’s flood waters (1.5 million cubic feet per second) to the Gulf of Mexico. The primary aim of such efforts is to protect everyone and everything in between, including port cities of Baton Rouge and New Orleans.

With flood control being nearly an exclusive concern of water management policies in the Basin for decades, ecosystems including fisheries and forests were threatened by the altered hydrology. For example, some areas of the Basin are drying out and others are converting to open water.

More Sustainable Future

More recent efforts involve a push to save the Basin and its culture by re-capturing and promoting its values beyond flood control. There is a growing ecotourism market due to improved access for fishing and hunting. And, restoration projects are reconnecting historic bayous to maintain the fish and shrimp harvests and improve water quality.

Looking to the future, scientists are following the lead of the water by studying current sediment dynamics that make the Atchafalaya River Delta the only area of the Louisiana coast actively building land in an effort to improve coastal restoration elsewhere in Louisiana.

Our present changing climate and economic considerations demand a new approach to water management. Can we ask what water would tell us in Southern Illinois? So far, the evidence suggests that we have not listened closely to the messages from water. Will our new initiatives be any different or will we continue to build new levees, feed the dead zone in the Gulf of Mexico, and jeopardize the cultural heritage of Southern Illinois?

Water sites in Southern Illinois

Waters of Southern Illinois: Past, Present, and Future

An Imagining Geographies — University College Collaboration, Southern Illinois University Carbondale

www.imagining.siu.edu
In keeping with the spirit driving Imagining Geographies, we recall that “To be and not to be” is the state of “Everything is related to everything else, but near things are more related than distant things.” Such is our conclusion after spending Spring 2013 semester abroad in the Tisza river region shared by Austria, Hungary, Romania, and Serbia, as SIUC’s third cadre of National Science Foundation IGERT doctoral students.

Southern Illinoisans might eat their catfish fried, and many in the Tisza Basin smoke it in paprika sauce. But, they enjoy their river fish just the same. Illinois sees its river heights measured in feet and its flooding characterized in terms of meters, while Central Europe’s Tisza River is measured in meters, and the floodplain is protected by dykes.

Overall, while the history, culture, and geography of the region make it differ- ent between Central Europe’s Tisza River Basin and Southern Illinois, both regions’ big rivers and flooding issues transcend an ocean, political borders, and language barriers.

Levees allowed development of the Great Hungarian Plain during the latter half of the 19th Century, while Southern Illinois ramped up development beyond flood control structu- res adjacent the Ohio and Mississippi Rivers during the early 20th Century. As a result, both regions have enjoyed great- er prosperity. Floods may destroy river communities and require long-term, present- ent multiple engineering challenges. While research can inform river management and policy, regions and countries ultimate- ly decide which objectives and tradeoffs they prioritize.

For example, five countries integrate their water-related policies with international agencies and actors to manage the Tisza river region, compared to the myriad of local, county, state, and federal agencies within the United States that manage inter- state rivers like the Ohio and Mississippi that converge along little Egypt. The vast portion of the Great Hungarian Plain is used for agriculture, while land use in Southern Illinois includes both agri- culture and the 288,000 acre Shawnee National Forest.

Ross Guida, Shanna McClain, Amanda Marshall

Conflictheaddwaters in Ukraine

Whether near or far, rivers provide fresh- water for development, navigational routes, recreational opportunities, and diverse ecosystems. On the other hand, rivers pres- ent challenges. Floods may destroy river communities and require long-term, present- ent multiple engineering challenges. While research can inform river management and policy, regions and countries ultimate- ly decide which objectives and tradeoffs they prioritize.

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The last 20th century brought a new era in water-resources management, emphasizing collaboration and involving stakeholders in consensus-building and adaptive management. Traditional, single-discipline graduate education can no longer address the complex issues of water and watershed management at the scales of stream, watershed and river basin. The central approach of SIUC’s IGERT program is to train outstanding Ph.D. students to become the scientists, managers, and leaders who will tack- le the challenges that confront us.

The National Science Foundation’s Integrative Graduate Education and Research Traineeship (IGERT) program was developed to meet the challenges of educating U.S. Ph.D. scientists and engineers who will pursue careers in research and education, with the goal of creating science-literate leaders and policy-literate managers. The program is intended to catalyze a cultural change in graduate education for students, faculty, and institutions by establishing innovative new models and training in 4-5 year Ph.D. programs that transcend traditional disciplinary boundaries. It is also intended to facilitate diversity in student participation and prepara- tion, and to contribute to a world-class, broadly inclusive, and globally engaged science and engineering workforce (from www.nsf.gov).

The SIUC IGERT program in Watershed Science and Policy responds to these needs with several unique features: (1) team-based collaborative problem-solving and networking to address societal challenges, (2) development of an online community of practice for IGERT fellows, (3) integration of under-represented groups as students, mentors, and trainees; (4) model-based data synthesis; (5) practical experience via extended internships; (6) exposure to transboundary rivers and international watershed management issues; and (7) graduates with training in national and international best practice in integrat- ed watershed science and management.

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Transcending Floodling Boundaries: From Southern Illinois to Central Europe

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Troubleshooting Discovery in Cache's Buttonland Swamp

Future Restoration Efforts Guided by Research

Tracy Boullette Fidler and Steve Shults

FINDING: According to an aquatic ecologist, Kristen (Pitts) Bouska, who is part of the SIUC’s IGERT Watershed-science doctoral research program, a group of fish that depends on bottomland forests has disappeared from the Cache River. “That kind of habitat is very rare nowadays,” she explains; “there isn’t a lot of bottomland habitat in the Cache, though there are efforts to increase it.”

What happened to the Cache?

The Cache river system and the consequences of these changes led to the realization that conservation and restoration efforts were needed. A private-public collaborative group known as the Cache River Wetlands Joint Venture Partnership, formed in 1991 with the vision to “restore habitats and processes necessary to sustain the plants, animals and natural communities of the watershed — habitats and processes that are also important to people who depend on the health of the Cache River basin for their livelihoods and quality of life.” JVP partners, today, include Ducks Unlimited, Illinois Department of Natural Resources, Resource Conservation Service, The Nature Conservancy, and U.S. Fish and Wildlife Service.

Thus, the JVP’s initial success includes protective sites - the Cache River State Natural Area and Cypress Creek National Wildlife Refuge - covering an area of about 35,000 acres.

Restoring Water Flow

As conservationists made headway on restoring critical lands and sharing up invisibility in the upper Cache, they started asking researchers how water flow might be restored. At first, the U.S. Army Corps of Engineers was enlisted to help. But, as funding waned, resource managers asked Demissie if he would be willing to study how water could be returned to downstream forests and other natural communities that were suffering, including Buttonland Swamp.

Demissie agreed and the Illinois State Water Survey launched a study in 2007. Since then, the survey has published two reports and provided details about how such a project could be executed. Using that information, the JVP developed an approach and that it would like to advance into final planning and design.

Restoration by local citizens. These questions intrigued Matt Whiles, an ecologist at Southern Illinois University and the force behind a lot of research currently underway in the Cache. In collaboration with Heidi Rantala, the two started looking at how adding more water into the lower Cache might affect the amount of oxygen in the water, as well as the number of macroinvertebrates — or, essentially, bugs.

“With a little management, the bug population could be restored,” says Rantala, an aquatic ecologist, “but they can tell us stuff about what they eat and who eats them.”

And that’s the point. The Cache manages the overall integrity of the stream. They can provide insight to what is happening with fish, as well as water chemistry.”

Not surprisingly, Rantala has seen fish kills on the Cache, including one of Asian carp, a hearty invasive fish. “They are pretty resilient,” she says. “If it’s bad for them, then you know, native fish species are suffering as well.”

Further, these drops in oxygen are found throughout the area the Cache. Rantala has documented the loss of many bottomland-dwelling fish species. In the deepest deeper, Whiles and Rantala found sediment in this stretch of the river may be holding the water in.

“There is a lot of dead stuff in the river … dead algae, dead bugs, pieces of leaves and trees. All those things consume oxygen and don’t produce any,” Rantala says. And, it all sits there because the water isn’t moving.

Whiles and Rantala recently launched a short-term research project to simulate water flow by pumping a small amount of water into the lower Cache to study how it affects the river and the species that depend on it.

Guiding Restoration

The research, and other studies underway, should allow land managers to better design a project for the species that depend on the Cache and its connected wetland. The watershed enjoys a unique designation — a “wetland of international importance” because it harbors 91 percent of the state’s high-quality wetlands and shelters more than 100 species listed as threatened or endangered in Illinois. One special focus of the restoration effort is the Cache River fishery, a goal driven in part by the local community’s pride of the fish and one resisted through the years.

Pre-assembly research efforts have catalogued 84 freshwater fish species in the project area, including the state-endangered cypress minnow, bigeye shiner and restored sunfish, and the state-threatened bantam sunfish. All four of those rare species historically called Buttonland Swamp home, though they haven’t been found to be there in more than a decade.

Jim Duckworth, a long-time resident, spends most warm days fishing the river. He remembers when the river was “great habitat” for fish but that it was “ruined when water went dry.” Since then he’s tried to do what he could to support the effort to restore the river, including installing a trap on his private property through the Wetland Reserve Program of the National Resources Conservation Service.

“We can restore it back close to what it was,” he says. And, with this new knowledge Rantala has gained, the SIU research community and others, land managers hope to do just that.

What to do about flying fish?

Combating an Invasive Carp in Southern Illinois

Sarah Varble

Asian carp, a voracious fish, are destroying the Cache’s water quality and food web by overpopulating the river. "They are pretty resilient" says Rantala. "If it's bad for them, then you know, native fish species are suffering as well."

Further, these drops in oxygen are found throughout the area the Cache. Rantala has documented the loss of many bottomland-dwelling fish species. In the deepest deeper, Whiles and Rantala found sediment in this stretch of the river may be holding the water in. There is a lot of dead stuff in the river... dead algae, dead bugs, pieces of leaves and trees. All those things consume oxygen and don't produce any," Rantala says. And, it all sits there because the water isn't moving.

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What can be done?

First, electric barriers were erected to prohibit Asian carp from entering Lake Michigan.

While this is somewhat effective in stopping them from swimming upstream, it is not 100% effective. To completely prevent Asian carp from gaining entry into Lake Michigan, many Great Lakes states call for erecting physical barriers. However, this intervention would also halt barge traffic from the Great Lakes to the Mississippi River, which is important for inexpensive transportation of goods and products.

Second, fishermen contracted through the Illinois Department of Natural Resources are removing Asian carp from the Illinois River to slow their advancement to Lake Michigan. As of July 2013, over 115,000 Asian Carp have been removed from the Illinois River.
Tracey Boutelle Fidler

It’s easy to be an Eeyore when it comes to restoring nature.

Projects often span lifetimes, and, because of this, it’s easy to despair, to throw up your hands and declare, “nobody minds. Nobody cares,” as Eeyore did in A.A. Milne’s Winnie-the-Pooh.

What is harder is to have faith and determination to see a project to its end.

The Cache River, located in southernmost Southern Illinois, is one of these places. It’s a complicated river system, with a rich and difficult history. It’s also very likely the most biologically diverse place in the state. It definitely is unique, as it contains America’s northernmost cypress and tupelo swamp. Think Louisiana Bayou — without the gators.

Efforts to protect and restore its rare places started in the 70s. Residents and conservation professionals coalesced around 1) protecting these great places; 2) reducing sediment, which was choking streams and the river; and, 3) restoring water flow to the lower Cache.

Today, the region boasts 35,000 acres in conservation ownership, with another 1,350 acres on private land, restored through the USDA National Resources Conservation Service’s Wetland Reserve Program. Another 31,500 acres of private land are using conservation measures, from conservation tillage to strategically-located flow retention ponds. And sediment, once dumped into the river at an astonishing rate, has dropped by 1.1 million tons annually.

By any measure, this project is a success.

Success, but...

What remains elusive, however, is that final goal — restoring water flow.

And, it’s that elusiveness that has made some of us become a bit like Eeyore — gloomy, grumpy and pessimistic. Nobody minds, nobody cares, as Eeyore did in A.A. Milne’s Winnie-the-Pooh.

But, since it has been talked about for 40 years and nothing has happened, people have given up hope.

Great for Fish, Good for Nature, Tough for People

Restoring water flow in the lower Cache, even a small amount, could have tremendous benefits. Unpublished work by Southern Illinois University Carbondale found restoring even minimal flow and easing oxygen stress could result in numerous positive ecological responses and ultimately enhance energy available to higher trophic levels such as fishes.

They then state that restoring even a small amount of water would maintain oxygen levels for aquatic life and increase macro-invertebrate production by about 240 percent. That would be great news for fish who call the Cache home.

What’s good for nature, though, can be tough for people. In the Cache River, where wetlands abut farmland, people tend to think of water as an impediment to drainage. With livelihoods at stake, the conflict between people and nature can be very real.

It’s no wonder, then, that people have lost faith that the project will come to fruition.

Thinking like Pooh

Another SIU research project, led by Mae Davenport and Christopher Bridges, found that the Cache River has meaning to people. They chose the Cache as a case study to explore landscape and cultural meanings.

They found that the Cache River was a dream. No one was sure how it would work, but they knew they needed to do something or it would be lost to future generations.

Engineers at the Army Corps examined the river in the early 2000s. They identified a possible solution, but conservation partners needed more land to make it a reality. By 2010, the project was moving once again. The Illinois State Water Survey had modeled the solution and found the project could advance. Further, their models could be used to acquire the permits needed to build the project.

Today, this long-term and elusive goal is poised to become a reality.

It’s possible, therefore, to envision a Cache where everyone benefits, and where a healthy river sustains people.

Pooh is often quoted as saying, “When you see someone putting on his Big Boots, you can be pretty sure that an Adventure is going to happen.”

I believe we can achieve that final, elusive goal of restoring some water flow to the lower Cache. Let’s put on our big boots — together.
An Authentic Visit to Heron Pond

Julie Weinert

Rrwak Rrwak Rwwaak….

One of the best ways to visit Heron Pond is to arrive just before sunrise, when no other people are around. Then you can hear wildlife—like geese, frogs, and, of course, the Rrwak rrwak of the herons, as they awaken to a new day. Then, visit as night falls to hear other wildlife, like owls and bats, awaken to a new night.

Then, travel to the pond on a beautiful spring day when hoards of other people have the same idea for a visit. Then, travel to Heron Pond with young children so they can ask questions about nature that cannot be answered.

Then, visit other sites in the Cache River Watershed to find the oldest and largest examples of bald cypress and cherry bark oak in the state, canoe in the lower Cache River, dissect owl pellets, and bicycle along the Tunnel Hill State Bicycle Trail.

Finally, travel to the pond on the coldest day in winter to see icy fingers stretching across the surface of the water.

In other words, one of the best ways to have meaningful and authentic experiences at Heron Pond is to visit many times and try to find something new every time.

Heron Pond is an isolated wetland located in the Cache River Watershed near Belknap, IL. The trail to Heron Pond is a 1 mile loop that brings you to Heron Pond via a floating boardwalk.

In this boardwalk was the site for the short film - Heron Pond Boardwalk View, created by Cade Bursell, an Associate Professor in SIUC’s Department of Cinema and Photography.

Bursell’s film was shot over the course of a year where she was able to experience many of the scenarios described above. The filmmaker visited Heron Pond several times during each season to collect the sounds, images, and even duckweed from the pond that she included in making her film. According to Bursell, “The intention of the film is meant to communicate how difficult it is to know or understand the shifting nature of a place such as Heron Pond especially if visitors only walk out on the boardwalk for a single visit… to say that they visit and therefore know a place.”

One may argue that it is not possible to have an authentic visit to Heron Pond because the pond is not an authentic part of nature. For, if the Cache River had been left to its own devices, the erosive forces of water flowing through tributaries of the river would cut into Heron Pond. That is, Heron Pond only exists today because of the manmade berm maintained to prevent Heron Pond from draining into the Cache River. To understand why such measures are taken to maintain a wetland, one needs to understand a little of the history of wetlands in Illinois.

Wetlands in this state have been significantly manipulated, even in the area of the Cache River Watershed. Over the past two centuries, wetlands in Illinois have been drained for many different reasons that include reduction of mosquito habitats for health reasons, to expand arable farmland, and to make rivers more navigable. In Illinois, less than 10% of wetlands that existed prior to European settlement are still around today. As a result, the hydrology (the way water flows across landscape) has changed and erosion of soil has increased. The Cache River Watershed is no longer fully connected, and wildlife populations have shrunk or disappeared. Therefore, one may argue that the only way one could have had an authentic experience in the Cache River Watershed is to have visited the area hundreds of years ago, before the Native Americans and later European settlers.

According to the Illinois Department of Natural Resources, the Cache River watershed was first exploited by settlers in the early 1800s for timber. By the beginning of the 20th century, thousands of acres of wetlands were drained for agriculture. The 1970s marked a turning point in the history of the Cache when the State of Illinois acquired land that became the Cache River State Natural Area with a mission to conserve, restore, and preserve wetland. Currently, over 60,000 acres are protected by the state of Illinois, private land owners, and non-governmental organizations as part of the Cache River Wetlands Joint Venture Partnership.

Since Heron Pond and the surrounding Cache River have been so deeply manipulated by humans over time, one may wonder what can be gleaned by a visit to the area? I suggest that much can be learned about mistakes of the past, adjusting to new realities, and exploring possibilities for renewal. One important thing to observe, in this regard, is that Heron Pond demonstrates how many people, government agencies, and organizations can work together to protect and restore a unique, important, and beautiful place.

Heron Pond is a living testament to the value of not giving up on a degraded landscape. Restoration of the Cache River Watershed is still in progress, but progress is happening. No matter what the circumstances are for a visit to Heron Pond, one can be garnered by visiting and re-visiting a place that is unlike the places that one inhabits in everyday life.

There is no such thing as a best experience or a complete experience to Heron Pond or any other place on Earth. Each scenario described at the beginning of this article may appeal more or less to different people, but each visit is a true and real way to interact with the place.

An Authentic Visit to Heron Pond

Heron Pond. Photo courtesy of Thomas Publishing.
The US Fish and Wildlife Service has designated giant cane as a species of concern and SIUC researchers are trying to restore giant cane riparian buffers in the Cache River basin to mitigate disturbances including agricultural runoff.

Giant cane may soon see a resurgence with help from researchers at Southern Illinois University.

Giant cane is a native bamboo species that once occupied hundreds of thousands of acres throughout the southeastern and south central United States, including southern Illinois. Historic accounts describe canebrakes, or dense stands of giant cane, as being as tall as 40 feet, up to a mile wide and so thick that bison and black bears had difficulty passing through them.

Giant cane provides important habitat and food resources to many species of insects, birds, reptiles and mammals. However, due to agricultural land clearing, altered fire regimes, overgrazing by domestic livestock and flood control projects, giant cane currently occupies only 2% of its historic range.

The US Fish and Wildlife Service has designated giant cane as a species of concern and SIUC researchers are trying to restore giant cane riparian buffers in the Cache River basin to mitigate disturbances including agricultural runoff.

Giant cane stands are performing as well as, or better than forest vegetation in terms of reducing groundwater and surface water nitrogen levels. Currently, SIU graduate students are conducting research to determine if the spreading of canebrakes is encouraged through fertilizer and prescribed burnings. In addition, these students are documenting the species’ general life history in addition to describing soil and landscape characteristics where canebrakes are found. For example, although cane is a known evergreen species, it was not known if there were any seasonal patterns to the dropping of its leaves until SIU graduate students discovered that, like deciduous trees, cane drops the highest quantity of leaves during the fall months.

In order to re-establish giant cane, we first need to know how it is best propagated. Dane Goble, a recent SIU Forestry graduate student, found that hand digging and transplanting 45 cm diameter clumps of cane resulted in 98% survival over the first two years. In addition, this technique of transplanting resulted in the number of stems per clump doubling in the first year and quadrupling in the second year. Although it is labor intensive, this has shown to be a successful propagation method for giant cane.

Other techniques have been recently documented to have similar success, including the use of bare rhizomes (underground stems) and greenhouse-raised stock. A giant cane nursery has been established at SIU by Forestry researchers Jim Zaczek and Jon Schoonover to help provide propagating materials for future restoration efforts.

Although cane restoration in the Cache River basin is just one piece of the much larger restoration puzzle, the collaboration between SIU researchers and management agencies continues to provide a deeper understanding of the species’ life history, the ecological services it provides, and how it can best be restored.
On Water, Environmentalism, and the Cinema

Walter Metz

C. P. Snow argued in The Two Cultures (1959) that the intellectual productivity of the sciences rendered them superior to the rearward nature of the humanities. Snow boldly predicted that science would solve the world’s problems with food production within a decade.

Snow was absolutely correct about one thing: human agricultural technologies make it possible to produce plenty of food to feed all of the planet’s inhabitants. However, by ignoring what science cannot predict—the social behavior of humans, Snow did not foresee that the future would bring a world far worse off than existed in the tumultuous post-war era in which he wrote.

It does us no good to produce food if our social structures prohibit us from delivering it to the millions of people starving to death. As SIGR E Geographies initiative, as well as the IGERT and Environmental Resources & Policy Programs make clear, an interdisciplinary approach to the question of sustainability is our only hope for imagining a third culture, where various methods of sustainability is our only hope for imagining a third culture, where various methods can work in tandem to invent and diffuse the knowledge which will allow humanity to survive.

Here, in this article, I argue that the cinema contributes to our understanding of the human geography of Southern Illinois. Cache Girl Saves the World (Adam E. Stone, 2010), Between Two Rivers (Jacob Cartwright and Nick Jordan, 2012), and Heron Pond - Boardwalk View (Craig Bursell, 2007) represent recent examples of the three basic modes of cinema - narrative, documentary, and experimental, respectively.

Cache Girl

Subtitled - “A Novel in Visions,” Cache Girl is a fiction feature film using voice-over dialogue and still photographs to tell the story of Ta’li, a woman acquitted in a criminal trial for attempting to poison lobbyists with herbs meant to awaken their consciousness to the destruction of the ecology of the Cache River wetlands.

Using the Native American tradition of vision quests, Ta’li - who is part Cherokee and whose ancestors endured the Trail of Tears march through southernmost Illinois, refers to local stories of global environmental consequence, including the Egyptian swamp, the mythical Big Muddy River monster, the spirit of a deer killed during a lightning storm, and Bitterness, a 2006 novel from Zambia.

Between Two Rivers

Between Two Rivers is a documentary film that mixes contemporary interviews and historical footage of Cairo - the southernmost city situated at the confluence of the Ohio and Mississippi Rivers - to explore the reasons for the town’s decline of the town. Central to Mark Twain’s The Adventures of Huckleberry Finn (1884), Cairo’s location at the confluence of the North and South also made it one of the battlegrounds of the Civil Rights movement in the late 1960s. The film intercuts footage from the late 1960s’ Civil Rights era battles in Cairo with newspaper accounts of the town’s near destruction during the recent 2011 flood. After much debate as to whether to allow the town to be finally destroyed or to breach the levee on the western, Missouri side of the Mississippi River, the Army Corps of Engineers finally alleviated the pressure, flooding profitable Missouri farm land. In what I think is the film’s best moment, a public official in 1969, black-and-white footage calls the situation in Cairo, “explosive.” He adds to the prviet-day color footage is accompanied by a massive blaat, which we at first are led to believe is a political action in Cairo. However, it turns out the explosion is the breaching of the levee, and thus the salvation of Cairo.

Heron Pond - Boardwalk View

In my view, it is the short, seven minute experimental film, Heron Pond - Boardwalk View that best demonstrates how art may contribute to public dialogue about scientific issues. Shot on the boardwalk in Heron swamp located in the Cache River Nature Preserve, Bursell uses the visual and language of cinema to expose the complexity and externality of reality. Invoking Henry David Thoreau’s experiment of Walden Pond, Heron Pond demands that we experience the Cypress trees before we consider their scientific importance. As the film begins, Bursell’s camera approaches one of the natural history signs placed in the nature preserve to give us factual information. However, before we can read the sign, red flares engulf the image. Instead, the camera tilts up, spiraling to follow birds flying. Heron Pond is a virtual catalogue of how differently we see and hear with the cinema as our exploratory tool in the hands of a talented artist. We see people on the boardwalk in slow motion, but only from behind the trees, obscured. Then, after a collage of still photographs of the exquisitely beautiful trees, we hear a little girl’s voice on the soundtrack, running on the boardwalk, declaring ironically, “It’s a dead end.”

In response to this, Heron Pond transitions into a different pictorial mode, where representation ceases and Bursell experiments with us by painting directly onto the rawfilm itself. Using natural color chalk crafted artistic substitutes to constitute abstract film images. In recalling the voice of the young girl, she asks us—the viewers—to consider what it would be like to see Heron Pond from the point of view of a child, one uncontaminated by corruptions of the adult world. The representational mode returns as the natural history signage re-appears in the film’s final movement. Now that we have truly experienced the emotional impact of the space, we are provided with enough time to read the full scientific text.

However, Bursell continues to house this more objective experience within an artistic framework as we see the filmmaker’s shadow outlined in footprints on the boardwalk. These final moments of the film force us to reflect upon the complex relationship between nature and the human necessity of intervening in that space in order to record it. Here, the film echoes the more objective style of the Transcendentalists like Thoreau and Emerson who marveled at the relationship between the beauty of the whirls of the trees and the beauty of the Mausoleum of London, or the natural beauty of the woods that they otherwise celebrated.

Local films, global issues

I’m discussing “Water Ethics and Environmental Justice” in his book – Water – that I am reading with my first year students at SIU, David Feldman argues that we need to find a “newer idiom for environmental justice and water,” one which replaces 20th century American environmentalism which focused on global issues. Feldman argues that divisive worries about the large-scale politics of dam building and water pollution caused by nuclear power plants can be gravitated toward issues such as wastewater re-use and the privatization of the water supply, where there is some hope that what Feldman calls “soft power” can win the day.

I would observe that our cinematic language—in both those local films and those produced in Hollywood—have exclusively been directed toward such conventional large-scale modes of environmentalism. For example, Roman Polanski’s Chinatown (1974), a masterpiece of the Hollywood Renaissance, is a film about conflicts over water rights: Los Angeles’ desperate need for drinking water competes with the orange grove farmers’ traditional access to the water for agricultural purposes, leading to corruption and murder.

Similarly, the three films discussed, briefly, here do look backward - Between Two Rivers to 1930s Works Project Administration documentaries, Cache Girl to mythical legends, and Heron Pond to early 19th century Romanticism. What a “third culture,” interdisciplinary approach demands is that we both imagine a cinema motivated by new scientific ways of addressing questions of water use, and, as just as important, a scientific approach that listens to the experiential mode of humanities methods such as the cinema so as not to repeat the tragic error of C.P. Snow.

www.imagining.siu.edu
An Imagining Geographies — University College Collaboration, Southern Illinois University Carbondale

page 11
Model for Citizen Environmental Activism
On the Shawnee High School’s Levee Project

Suzanne Smeltz*

Should our schools develop future community leaders and active citizens who will make a difference?

Shawnee High School, located in Union County in Southern Illinois, is doing just that. Its students investigated a local issue, brought together local, state and federal officials, found solutions, and then the students helped raise $100,000 toward a solution.

The school has only 160 students, 65% of whom are low income, and one teacher, Jamie Nash-Mayberry, for all its social studies courses, but it is preparing youth to be active citizens and community leaders.

Conflicting the Problem

Two years ago, Ms. Nash-Mayberry raised the issue with her students of potential flooding of homes, farm land and other properties due to the deteriorating levees surrounding their communities. The students devoted about one class day a week over two years to studying and acting to confront this issue [see inset].

For example, they consulted experts from the Corps of Engineers, Southern Illinois University, and local and state officials. Then the students invited their state and federal legislators to hold a summit in the community to address the flooding problem. When the summit seemed delayed, they wrote Oprah Winfrey asking her for help. While Oprah did not respond, the students’ letters attracted press attention. After the story appeared in local newspapers and on the local television, the legislators set the summit date. Eventually, the summit produced some potential solutions and some grants.

Later, when local levee commissioners needed help securing their portion of funding for a new drainage system, they came to the students. The students tapped into the resources they had developed and were able to help the levee district secure the needed $100,000 in funding. The students, working with the art department, also designed and sold t-shirts with the funds going to the levee district.

What students learned

These students learned the need to keep public officials informed of local problems. In return, they witnessed the willingness of these officials to respond, and so learned that collective citizen advocacy can be effective.

To be effective, these students conducted original research, gathered and processed information, thought critically, spoke and wrote persuasively, and collaborated and worked as a team.

The students also learned the power of the media to highlight an issue as well as the limits of the media when it gets the facts wrong.

Their teacher also reports that students experienced the value of “giving back” to their communities.

In my considered view, these students possess the knowledge, skills, and civic dispositions necessary for effective citizenship.

Thus, Ms. Nash-Mayberry and Shawnee High School met the challenge of teaching citizenship with nothing more than a creative teacher, a supportive administration, willing students, and a few hundred dollars for one field trip. This school is fulfilling its mission “that all students acquire and use knowledge, skills and behaviors necessary to become productive and successful members of society.”

A welcome model and example for us all.

* This article also appears on the Illinois State Bar Association’s Law Related Education for the Public webpage: http://www.isba.org/committees for the Public webpage:

FUTURE EVENTS OF IMAGINING GEOGRAPHIES

November 13, 4 PM, Guyon Auditorium, Morris Library
Flood Risk & Mitigation Challenges in Illinois: A Discussion
- Ron Davis, State Hazard Mitigation Officer, Illinois Emergency Management Agency.
- Paul Osman, Floodplain Program Manager, Illinois Department of Natural Resources.
Sponsors: Environmental Resources & Policy Program, IGERT Program, SIU.

January 29
Distribution of Sharing Knowledge...series publication - Land, Lives, and Arts of Southern Illinois - 2014, and Imagining Geographies Spring 2014 program.

February 5, 5 PM, Guyon Auditorium, Morris Library.*
Film - Between Two Rivers & Discussion: Cairo at the Confluence of Mega-Forces.

March 5, 5 PM Guyon Auditorium, Morris Library.
Film - Around Crab Orchard & Discussion: Confluence - The Case of Crab Orchard.
March 23–25
Environmental Justice Scholar-in-Residence, Professor David Feldman (also a writer). Author of Water. *

April 7, 5 PM Guyon Auditorium, Morris Library.*
Film - Heron Pond Boardwalk View. Discussion: How Should We View & Experience our Environments?
*Tentative dates; check Imagining website for updates, resources, & details.

Details: www.imagining.siu.edu

Levee Summit Attendees

Jamie Nash-Mayberry

Four years ago my students and I became aware of the deteriorating river levees that surround the school district where Shawnee High School is located in Wolf Lake, Illinois. Due to a strong desire to save their homes, farms, and school, the students and I began bringing this issue to light, and attempting to find solutions to fix the levees and decrease flooding. The school community, which includes portions of the towns of East Cape, McClure, Ware, Jonesboro, Wolf Lake, and Grand Tower, were very appreciative of our efforts and have encouraged us to continue the efforts. The local levee district commissioners stated that we are making a difference, and ask that we continue our work. Thus, each year students learn from and build upon past classes successes. This list shows some of the students’ many activities.

Year 1: Fall 2010-Spring 2011
- Article in Southern Illinoisan about Clear Creek Levee District Commissioner sparks interest in endangered levees;
- In response to students’ letters, Senator Durbin & Representative Costaello suggest Levee Summit for locals to share concerns with politicians & Army Corps of Engineers;
- Army Corps visits school to talk about levees, meeting attended by local levee commissioners;
- Two Levee Summit meetings hosted at Shawnee high school;
- Students and Nash-Mayberry help sandbag during floods in their communities;
- SUVC Professor Pinter speaks to students about wing dikes & how they contribute to raised flood levels.

Year 2 Fall 2011-Spring 2012
- Army Corps hears about student investigations of wing dike effects, & invites them to STL base of operations;
- Levee commissioners ask students for help, stating they need $100,000 more dollars for drainage system;
- Students write letters to regional authorities to request collaboration on fund-raising campaign;
- Efforts prove a success, receive word that DRA will award $100,000 to levee districts for drainage system.
- Professor Pinter & Netherlands researcher Friderich Huffman present counter argument on wing dikes in response to Corps argument. Several levee commissioners attend this meeting as well.
- Students in Government, English, & Art work on cross-curricular project creating satires about the levee project;
- Students design & sell t-shirts to raise money for the levee districts, making $2100;
- Community hosts dinner at school to honor students and Mrs. Nash-Mayberry;
- Students and Nash-Mayberry present research on wing dikes to Lt. Governor Sheila Simon at Shawnee High

Year 3 Summer 2012-2013
- Learn of third drainage pipe collapse while fixing other 2, appeal to DRA leads to pledge of another $40,000 for project;
- Levee alliance established with Cairo and Egyptian High Schools;
- Little River Drainage District, largest river district in U.S., presentation on levees to Levee Alliance;
- Student present research on wing dikes at Lt. Governor’s Mississippi River Coordinating Council;
- Ms. Nash-Mayberry is appointed to Lt. Governor-Mississippi River Coordinating Council;
- Dance held at school to raise money for levee districts;
- Students meet with U.S. Rep. Enyart at Shawnee High, shared with them concerns about flood-related issues;
- June 2013 students and Nash-Mayberry help sandbag in Wolf Lake due to sand boils;
- July 2013 levee t-shirts again sold, this time to help repair Grand Tower Levee hole, double media coverage, information cover t-shirt story

Year 4 - 2013-14: Current Plans
- Meet with Army Corps to find solutions to sand boils and deteriorated drainage pipes;
- Work with Project Eco Rover to examine river models and better understand flooding; Partner with SUVC’s Civic Communication Collective to create a new YouTube video to draw public and political interest in levee problems.
A natural hazard perspective, mitigation refers to the minimization of future losses including life and property. A natural hazard is any naturally occurring phenomenon that could potentially harm human life. A natural hazard does not become a disaster until it wreaks havoc on the human population. Many times we are aware of the hazard-prone locations, such as tornado alley, San Andreas Fault, coastal regions, floodplains. However, the timing of disasters is very difficult, if not impossible to predict, and often seem “random” to most folks. For example, the exact timing of earthquakes and tornadoes are beyond the current capabilities of scientific prediction. In contrast, hurricanes and floods on larger rivers develop more slowly allowing for more accurate forecasting.

Unfortunately, one fact of modern life seems to be constant. Even though we are accumulating ever-increasing knowledge about hazard locations, developers continue to attract persons to move into these at-risk areas.

Mitigation is vital for sustainable development in at-risk areas because, on the one hand, it allows for development in areas with natural hazard risk, but, on the other, it assists in properly preparing for hazards that may befall residents.

Regionally, here in Southern Illinois, mitigation efforts are prospering and many are a result of SIU-led projects. SIU’s Natural Hazards Research and Mitigation Group works with communities across the state on various mitigation projects. One of the most important efforts is the Mitigation Planning Initiative. Mitigation plans are FEMA-required documents for any community participating in the National Flood Insurance Program (NFIP). The Hazards Research Group at SIU led most of the region’s mitigation plans, and is about to embark on the five-year update with most of the counties in Southern Illinois.

To date these plans have spurred a number of mitigation projects, for example: Due to earthquake hazards in Southern Illinois, structural enhancements for earthquake resistance have been made in plans for the new Carbondale fire station, a newly constructed school in Williamson County, and key water mains that deliver water to many communities in the region.

Mitigation projects for flooding have included $11.6 million for buyouts of flood-damaged properties in Alexander County, as well as a mobile home park affected by the 2011 flooding in Jackson County. There are many other large-scale projects taking place across the region, but the main point is that you can do at home to mitigate against your potential future losses.

Flooding Brings Us Together: Benchmark Efforts in Regional Collaboration

Elizabeth Christenson, Craig Anz, and Nicholas Pinter

More than 200 homes and businesses were plunged under six feet of water in 2011 when flood water from the Mississippi River breached a levee and surged toward the Southern Illinois towns of Olive Branch and Miller City. This event changed how Olive Branch’s residents think about their community and its future.

Olive Branch to 2011

Olive Branch is a quintessential rural Illinois town located just north of the confluence between the Ohio and Mississippi rivers, about 15 miles north of the southernmost tip of Illinois at Cairo. Here the economy is rooted primarily in agriculture and oil manufacturing, and oil consumption increases pollution led to enacting air quality regulations.

In the 1950s, scientists found ways to measure carbon dioxide which lead to theories of climate change. The measurements indicated that carbon dioxide emissions were increasing over time, leading to postulation that these emissions were among the main causes of average temperature increases. Since then, several policies and regulations have been put in place to mitigate against future losses related to climate change. In the 1990s, the decade of disasters, Mississippi River flooding illuminated the effects of development on floodplains leading to several new federal policies on floodplain management. This disaster hit close to home, flooding several southern Illinois communities. Valmeyer, which had up to 16 feet of water in some structures. Today, Valmeyer is located high and dry off of the Mississippi River due to mitigation efforts by locals.

The natural hazards research and mitigation group, based in the Southern Illinois University’s Department of Geology, reached out to residents of Alexander County after the flood to assist with recovery and long-term planning. Together faculty, staff, and students worked with Olive Branch community members and Alexander County officials to strategize possibilities for the rebuilding and the long-term development of the area. As they did so, participants also thought about how to use the planning effort to build disaster preparedness and environmental resilience, while also considering funding, value and well-being for its inhabitants.

Residents and Alexander County officials discussed their opinions and decided to pursue a large-scale buyout of flooded properties and a partial relocation of the town off the floodplain. Working together with the SIU group, the county submitted a buyout application to the Federal Emergency Management Agency (FEMA) that same year. Subsequently, the community established the Olive Branch Community Recovery and Rebuilding Planning team to guide recovery and rebuilding. Since then, the planning team became the non-profit Olive Branch Area Community Development Corporation.

Certainly, the recent $11.6 million award for SIU’s FEMA for buyouts is important for moving forward, to meet the remaining significant challenges. This will not be easy, as, recovery and rebuilding efforts proceeding slowly and residents may lose their patience and enthusiasm. The text here is to continue to build a strong desire to build a community that will not only recover but thrive. This is where all of the region’s resources— infrastructure, skills, and key water mains that deliver water to many communities in the region—play a role.

Benchmark for Regional Collaboration

Southern Illinois University faculty, staff and students joined with Olive Branch community members and Alexander County officials to strategize possibilities for the rebuilding and the long-term development of the area. The project has been going on for several years, and the need for additional funds became evident very early in the process. At that point, SIU and SIU’s Hazards Research Group became involved, and the project is still ongoing. The SIU group, the county submitted a buyout application to the Federal Emergency Management Agency (FEMA) that same year. Subsequently, the community established the Olive Branch Community Recovery and Rebuilding Planning team to guide recovery and rebuilding. Since then, the planning team became the non-profit Olive Branch Area Community Development Corporation.
“We can start today and create the world we want to live in.”

On SIU’s efforts to advance sustainability and water themes with SIU Students

Tara Hembrough and Sandra Pensoneau-Conway

Southern Illinois University Carbondale achieved an important distinction by being listed in the 2012 Princeton Guide to Green Colleges for its sustainability-oriented initiatives advanced on campus over the last several years. Events listed in the 2012 Princeton Guide to Green Colleges are chosen by the Southern Illinois University Carbondale Sustainability office, and the reader was edited by the first author of this article. Entitled The Mercury Reader: Sustainability, the collection includes essays by nationally known figures, as well as articles and interviews with SIU faculty and administrators. Here we learn how our own “local” sustainability experts are involved in research that contributes to our regional efforts to combat climate change.

One primary aim of these efforts is to create a campus-wide dialogue by focusing on the interplay of land, water, and people. This process begins in the classroom, where students in the courses normally undertaken in their first year of studies on campus, four departments at SIU – Education, English, Speech Communication, and University College - are collaborating to develop critical thinking, speaking, reading, and writing among first-year students.

Our College - are collaborating to develop critical thinking, speaking, reading, and writing among first-year students.

The research vessel

Sustainability

In a class taught by Speech Communication Department doctoral student Dave Whitlett, Engineering majors read stories about environmental groups active in Oregon, Washington, Virginia, and Massachusetts. Here, students read cases of farmers’ attempts to make a living as small growers – raising, transporting, advertising, and selling crops to growing numbers of environmentally conscious local clientele. These farmers and community groups demonstrate the necessity for their farms to not only grow food, but also to act as active partners in creating communities of active social - environmental justice workers.

In addition to reading from Reclaiming Our Food, students debated and wrote on a variety of sustainability issues, including land and mineral use, deforestation, and animal rights as part of that year’s expansive and far-reaching curriculum. In order to generate additional interest in sustainability, the collection includes essays by nationally known figures, as well as articles and interviews with SIU faculty and administrators. Here we learn how our own “local” sustainability experts are involved in research that contributes to our regional efforts to combat climate change.

Changes in the curriculum studied by students is part of this university-wide effort, as SIU seeks to enrich students’ understanding of and practice sustainability on campus.

Fourth, another group of researchers at SIU are examining uses of Asian carp for fish processing. The US Department of Agriculture’s Economic Research Service (ERS) has found that the story of Gateway Greening, a farm located just a couple of hours away in St. Louis, Missouri to be particularly compelling. Students found that the case studies helped them understand the interconnectedness of community, social justice, and communication. They learned that growing food isn’t just growing food, but is, indeed, growing cultural identity.

Water – a new theme

In 2013-2014 academic year, students are undertaking the study of “water” as a new university theme that branches off from sustainability. Selected as one common reader, David Feldman’s book - Water (2012) - focuses on such interrelated topics as the organization of water, water management and communities’ relationships with divergent river and lake systems worldwide, and effects of consumer practices on water markets.

In a class taught by Speech Communication Department student Dave Whitlett, Engineering majors read stories about environmental groups active in Oregon, Washington, Virginia, and Massachusetts. Here, students considered the ways in which people simplify their “life and living on Earth” when purchasing new clothing, shopping for groceries or selecting food items from a menu, purchasing a vehicle or selecting alternate forms of transportation, monitoring the energy and resources necessary to live comfortably, and considering the implications of such decisions on all of us, globally.

In all, engaging in a sustainable lifestyle means, “simplifying” one’s “life and living simply,” according to poet and SIU Creative Writing faculty member, Judy Jordan, author of the Mercury Reader essay, “I Have Met the Zombies and the Zombies Are Us.” Instead, at a presentation she gave in connection with her essay in 2012, she urged students to engage in sustainable practices by stating, “We can start today and create the world we want to live in.”

What to do about flying fish?

Combating an Invasive Carp in Southern Illinois

Continued from page 7

Third, at SIU are examining the potential for creating a market for Asian carp meat in the United States. This win-win solution would benefit both local fishermen and economists through job creation and revenue, as it involves processing carp meat into fillets, fish sticks, fish cakes, and other prepared items for sale in grocery stores and restaurants. Currently, fish processors in Western and Northern Illinois ship approximately 800,000 pounds of processed Asian carp to Chinese buyers each year. This amount could increase, and with it, the habitat for native fish populations may be improved.

A Keysia survey conducted by the Southern Illinois University’s Department of Agribusiness Economics found that a majority of fish eaters are interested in trying and, possibly, purchasing Asian carp at grocery stores or restaurants. Such results could be significant, not only nationally, but also internationally, as Asian carp are a significant threat to the native fish populations of many rivers, lakes, and reservoirs.

Fourth, another group of researchers at SIU are examining uses of Asian carp for fish meal. These researchers, and others, are concerned that Asian carp may become a new major aquaculture commodity. If this happens, it is thought that the demand for Asian carp would be large enough to support the conversion of many US acres to aquaculture production, leading to loss of agricultural land and mineral use, deforestation, and animal rights as part of that year’s expansive and far-reaching curriculum. In order to generate additional interest in sustainability, the collection includes essays by nationally known figures, as well as articles and interviews with SIU faculty and administrators. Here we learn how our own “local” sustainability experts are involved in research that contributes to our regional efforts to combat climate change.

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The research vessel Shovelnose...
Sharing Knowledge... Waters of Southern Illinois: Past, Present, and Future

About the Authors

Jim Allen (Ph.D.) is SIUC Associate Provost for Academic Programs. His professional responsibilities include facilitating the university’s Carnegie Foundation Task Force charged with submitting SIUC’s application to be recognized as a critically engaged campus, in recognition of SIUC’s varied regional contributions.

Craig Anz (Ph.D.) is an Associate Professor in SIUC’s School of Architecture, and professional architect. His research engages place-making, environmental design, and various large-scale development approaches toward long-term well-being for various communities.

Kristen (Pitt) Booka is an IGERT Fellow completing doctoral stud-ies in SIUC’s Program [ER & P]*. Her research focuses on the effects of climate and land use change on the distribution of native fish species’ to the Midwestern United States. More broadly, she seeks to develop projects that help formulate long-term, sustainable solutions to envi-ronmental challenges.

Tracy Bouteille Fidler resides in Carbondale, and works on a variety of conservation issues, from restoring health to rivers to promoting sustainable practices. She worked on Nature Conservancy teams in Chumash Yapáti River to Brazil’s Pantanal. Today, with Shawnee Resource Conservation & Development, she is helping Southern Illinois protect its wild places.

Jamie Brooks Nash-Mayberry of Cobden is a graduate student in SIUC’s Department of Curriculum and Instruction, and teaches social science at Shawnee High School in Wolf Lake, Illinois. In addition to working with to raise public awareness about the status of levees, she is School Board coach, a volunteer sponsor of student government league, and also a member of the Little Egypt Search & Rescue team.

Elizabeth (Beth) Christenson is a doctoral student in SIUC’s ER & P Program*; Beth joined the SIU Natural Hazards Research and Mitigation Group in 2010. Her expertise is in geopolitical applications, flood mitigation, floodplain management, and communitymitigation planning.

Curt Carter is co-founder and Director of the Land Learning Institute, based in Jordonville, Illinois. Formerly, he directed environmental education programs at SIUC’s Touch of Nature Environmental Center. His programs, songs and stories remind us to take the time to listen to the voices of nature——and to listen with our hearts.

Christopher Douglas is a graduate student in SIUC’s Department of English.

Stace England is a graduate student in SIUC’s Department of Curriculum and Instruction, and teaches social science at Shawnee High School in Wolf Lake, Illinois. In addition to working with to raise public awareness about the status of levees, she is School Board coach, a volunteer sponsor of student government league, and also a member of the Little Egypt Search & Rescue team.

Jamie Brooks Nash-Mayberry

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Jonathan Gray (Ph.D.) is an Associate Professor in SIUC’s Department of Speech Communication. His research focuses on environmental communication, using rhetorical criticism and performance methods to investigate public discourse about environmental issues. His envi-ronmentally themed solo performance work has been presented in universities and other public venues across the country.

Tara Hembrough (Ph.D) is Assistant Director of Writing Studies in SIUC’s Department of English. She coordinates integration of univer-sity themes of sustainability and water in the English 101 curriculum, and edits the core Mercury Reader. Additionally, she facilitates universi-ty-wide faculty research presentations related to these subjects.

Ross Guise is a NSF IGERT Fellow and doctoral student in SIUC’s ER & P Program*. His research interests include hydrology, river dynamics, and watershed management and policy.

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Peter Lemish (Ph.D) is a Visiting Assistant Professor in SIUC’s School of Education and Leadership. His research, teaching, and civic engagement include civic communication, conflict and crisis reporting, media involvement in social change initiatives.

Amanda Marshall is a NSF IGERT Fellow and doctoral student in SIUC’s ER & P Program*. Her research focuses on analyzing local stakeholder involvement in decision-making (i.e., public participation) in transboundary water-shed management.

Shanna McClain is an IGERT Fellow and doctoral student in SIUC’s ER & P Program*. Her research focuses on multilevel governance in international river basins, and the effect of multilevel governance on the themes of preparedness and response to environmental emergen-cies and adaptation to climate change.

Walter Metz (Ph.D.) chairs SIUC’s Department of Cinema and Photography, where he teaches film, television, and theatre history, theory, and criticism. His many books and articles concern the relation-ship between film and literature.

Amanda Nelson is an IGERT Fellow and doctoral student in SIUC’s Department of Forestry. Here research focuses on native cane in the Cache River Watershed, including its role in the nitrogen cycle and site-specific characteristics to help restoration projects.

Nicholas Pinter (Ph.D.) is a Professor in SIUC’s Department of Geology, and serves as Director of the NSF funded IGERT program in Watershed Sciences and Policy. His areas of research include river dynamics, flooding, floodplain management, and related policy issues.

Sandra Ponsenoue-Connay (Ph.D.) is an Assistant Professor and Director of the Introductory Course in Department of Speech Communication. Her research and teaching interests include crit-ical communication pedagogy, communication and identity, and automethodology.

Jonathan Reme (Ph.D.) is Assistant Professor in SIUC’s Department of Geography and Environmental Resources. His research areas focus on environmental policy and the impacts of land use on floodplains, water, and carbon emissions.

Suzanne Smeltz (Ph.D) is Professor Emeritus of the SIUC School of Law and a member of the Illinois State Bar Association Committee on Law-Related Education, dedicated to teaching the public about the American legal system.

Steve Shults is Regional Administrator for Illinois Department of Natural Resources and past co-chair of the Mississippi River Basin Panel for Invasive Species. He serves as Illinois delegate to Mississippi Interstate Cooperative Resource Association. Steve currently helps with the Invasive Species Campaign for IDNR, and assists with habitat and watershed restoration projects.

Sarah Variable is a doctoral student in SIUC’s ER & P Program. Her research interests include sustainability in agro-ecosystems, agricul-tural climate change adaptations, and marketing initiatives focused on natural resource sustainability, such as the potential uses of market-based initiatives to control invasive species, such as Asian carp and snow geese.

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*SIUC’s Environmental Resources and Policy Program [ER & P] provides advanced interdisciplinary training and research on physical, biological, and social processes responsible for natural resource and environmental problems facing contemporary society. Additionally, researchers focus on assessing public policy alternatives to address these problems.

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**I'm the Mississippi, you're the Ohio**  
I'm restless and churning, you're peaceful and tranquil  
When we get together, the effervescent flow  
Swirls until we are one

High in Minnesota, west in Pennsylvania  
Icy black swampland, blue clay topsoil  
When we get together, our flesh and blood  
Churn until we are one

---

**Slip stream flow doesn't even know**  
When the red-tail soars over ships below  
Farther till we are one  
Lincoln cupped his hand for a cool sip  
Straining calm blue water through his fingertips  
Onward till we are one

---

**I'm the Mississippi, you're the Ohio**  
I'm racing fast, you meander slow  
When we come together, our ancient streams  
Boil until we are one

---

**I have two spiritual ground zeros. Didn't think that was possible, turns out it is. One is my family farm in Lawrence County, Illinois. The other is the confluence of the Mississippi and Ohio rivers just south of Cairo, Illinois. Why? The farm is an easy answer. Unless you grow up on a piece of land you can't possibly understand the spiritual attachment to it. It's in your DNA. Never goes away or fades. The surprise was discovering the same sense of place, permanence and balance at a location I had no relationship to.**  
I've tried to analyze this for years, even though most of me doesn't want to, I just want to let it ride and let it be. My musician side has an appreciation and sense of wonderment for the two rivers' role in shaping American music. The banjo guy jamming with the fiddle guy, then bringing in the fife and drum folks. The guitarist stealing a lick from a piano player he saw in a Cairo saloon and transferring it to a new instrument. The countless songs and styles floating up from New Orleans and the Mississippi delta meshing with American folk songs floating down from Appalachia. For God's sake, can someone please hurry up and perfect time travel so we can experience this astonishing cross pollination in real-time? I know my attachment is beyond rational thought and shallow analysis. When I'm at the confluence, watching the racing Mississippi merge with the tranquil Ohio, time slows, sometimes even stops. My head is clear but when thoughts drift back I realize I'm an Illinoisan and a Midwesterner though and though. Sure I appreciate the grand sites all over the country and the world, I've seen a lot of them. But I wouldn't trade the confluence for the Rockies, grand as they are. When I'm at the confluence I know I'm staring at our Rocky Mountains. If others can't see it, it's because they're looking through a different set of lenses. Pity them.

Driving away from the site about two years ago the song *Confluence* gushed out in about two minutes, words melody and all. I pulled over and was racing to write it down and sing the melody into a smart phone so nothing was lost. When this happens, and it's very, very rare, you know you've snagged one, or been given one by some unknown force you'd like to get to know better. And it doesn't matter if no one else likes it, because you're literally singing your own song. A farm and two rivers, how'd I get so lucky? 

*Stace England*