In 1818, the first Governor of Illinois, Shadrach Bond, appealed to the federal government for proceeds from the sale of public lands in the state to be reserved for construction of a canal. In 1822, the United States Congress passed an act entitled “An Act to Authorize the State of Illinois to Open a Canal Through The Public Lands to Connect the Illinois River with Lake Michigan.”

In 1822, the United States Congress passed an act entitled “An Act to Authorize the State of Illinois to Open a Canal Through The Public Lands to Connect the Illinois River with Lake Michigan.”

In 1818, the first Governor of Illinois, Shadrach Bond, appealed to the federal government for proceeds from the sale of public lands in the state to be reserved for construction of a canal. In 1822, the United States Congress passed an act entitled “An Act to Authorize the State of Illinois to Open a Canal Through The Public Lands to Connect the Illinois River with Lake Michigan.”

The Illinois and Michigan Canal was used by industry to ship goods. This is the steamboat “Peerless” used to ship a cargo of salt on the I&M Canal.

Photo provided by Lewis University Canal and Regional History Collection

(continued on page 5)
On April 17th the Section will be hosting our annual drive down to Springfield to meet with our elected officials.

Twice in the past couple of months I have been contacted by organizations regarding creations of disaster assistance programs. The first contact was from a company offering training; they have provided training to ASCE members in Missouri for a volunteer program there. The company was also very involved after the tornado last spring in Joplin, Missouri. The second contact was from the Capital Development Board (CDB) who is teaming with the Illinois Emergency Management Agency (IEMA) to develop a structure to assist in disasters. They are looking for Structural Engineers that could be called upon as building inspectors in disaster situations. The Section will be working with CDB and IEMA along with ACEC, AIA and ISPE in order to assist with developing a structure for this program. If there are any members interested in being involved, please let me know; I believe it would be valuable to have a few members helping out with the program, since it could involve both bridges and buildings.

The disaster assistance program is something that we should be very involved with, because, sadly, the needed assistance will be required after there has been large scale property damage. Hopefully with the involvement of trained individuals with technical backgrounds further damages can be reduced, and other first responders will have better information regarding the structural integrity of the buildings that they may have to enter or work near. The state has already experienced a large EF4 tornado this year; the sooner this program is up and running the better off the public will be. As much as we as Engineers may not want to agree with the global warming ideas

(continued on page 8)
USACE Leads Great Lakes and Mississippi River Interbasin Study  
By Arun Heer, P.E., CFM

As residents of Illinois, we are by now familiar with the topic of silver and bighead carp as a potential threat to the Great Lakes Basin ecosystem. What some may not know is that these varieties of Asian carp are only a few of many Aquatic Nuisance Species (ANS) that have the potential to adversely affect the Great Lakes Basin and/or the Mississippi River basin. The United States Army Corps of Engineers (USACE), in consultation with other federal agencies, Native American tribes, state agencies, local governments and non-governmental organizations, is conducting the Great Lakes and Mississippi River Interbasin Study (GLMRIS) pursuant to Section 3061(d) of Water Resources Development Act of 2007. GLMRIS will explore options and technologies, collectively known as Aquatic Nuisance Species controls, that could be applied to reduce the risk, to the maximum extent possible, of ANS transfer between the Great Lakes and Mississippi River basins through aquatic pathways.

The final feasibility of Focus Area I, the CAWS, is anticipated to be complete by 2015 following the conclusion of all necessary technical and policy reviews. Under the assumption that proper funding will be in place, the final feasibility study of Focus Area I, the CAWS, is anticipated to be complete by 2015 following the conclusion of all necessary technical and policy reviews. In order to finish the feasibility study a large amount of data collection and analysis will be performed to thoroughly develop the without project conditions now, and in the future. To analyze how a recommendation may impact area waterway uses, the current and “future without project”, meaning what the study area conditions would be in the future if no action was taken to prevent ANS transfer, will be examined. The existing and “future without project” conditions will then be used as a point of comparison in determining the benefits of each proposed alternative, in this case, to prevent ANS transfer. The baseline conditions analysis and data collection is anticipated to take 18-24 months and formulation of alternatives is expected to take one year with an additional year for review and refinement of alternatives that will ultimately lead to a recommended plan.

To date the USACE has released the Inventory of Available Controls for Aquatic Nuisance Species (ANS) of Concern–Chicago Area Waterway System (CAWS), which is an Interim Product of the GLMRIS. This paper identifies ANS controls that may be successful at minimizing the risk of the 39 ANS of Concern identified in the ANS White Paper: Non-Native Species of Concern and Dispersal Risk for the Great Lakes and Mississippi River Interbasin Study, from transferring through the aquatic pathways in the CAWS and other potential aquatic pathways. Examples of control categories used for the study include, manual harvest, hydraulic separation, accelerated water velocity, pheromones, ultraviolet light, acoustic fish deterrents, and ultrasound. The public comment period from December 21, 2011 through February 17, 2012 is now closed and USACE is currently reviewing the comments. The updated paper will be re-issued in spring of 2012 and posted on the GLMRIS website. Please see the official GLMRIS website http://glmris.anl.gov/index.cfm and Facebook page https://www.facebook.com/glmris for the most current information on the study. ASCE

Arun Heer, a Hydraulic Engineer for the USACE Chicago District, is the current chair of the EWRI Chicago Chapter. This article is not intended to reflect the opinion or stance of the USACE. For official information or questions regarding the GLMRIS study please see the above referenced website or contact the USACE Chicago District. This article was provided by the EWRI Chicago Chapter.
SAVE THE DATE

Tuesday-April 17, 2012
5th Annual Spring Legislative Trip

Do you want to meet your State Elected Officials to discuss engineering issues? The Illinois Section of the American Society of Civil Engineers is planning our 5th Annual Spring Legislative Trip to Springfield.

Tentative Itinerary

- Lunch in Springfield with State Officials (IDOT and/or IDNR-OWR to be invited)
- Afternoon visits with elected officials at the State Capitol
- Evening cocktail reception with elected officials and their staff at the Sangamo Club

RSVP: Darren Olson, PE, CFM at dolson@cbbel.com
Illinois Section ASCE Past President and Government Relations Chair
The Illinois and Michigan Canal
(continued from page 1)

corridor. Speculators additionally platted Joliet, Utica and Marseilles in the early 1830’s to take advantage of the appreciating property values brought on by the impending construction.

Construction on the I&M Canal began on July 4, 1836. William Gooding was hired as Chief Engineer of the project. Although not formally trained as an engineer, William Gooding had gained valuable experience on canal projects in Canada, Ohio and Indiana. The I&M Canal would extend ninety-six miles from the south branch of the Chicago River, in present day Bridgeport, to LaSalle-Peru. Although initially conceived to be deep enough to allow water to flow by gravity from Lake Michigan to the southwest, the additional construction cost to do this became prohibitive. Instead, the canal was typically only six feet deep, 60 feet wide at the normal water level, and 36 feet wide at the bottom. The canal was primarily constructed with black powder, horses, picks and shovels. Mostly European immigrants, particularly the Irish, completed this painstaking labor. In order to protect against malaria, cholera and dysentery, the workers requested that a gill (quarter pint) of whiskey per day be provided in addition to the dollar they received. The canal would be divided into three sections of construction. The summit level on the east would pass through what was known as the Chicago Portage.

The middle level extended from Lockport to Seneca, and would contain many of the locks on the canal. The western section was built between Seneca and LaSalle-Peru. This section was the easiest to construct.

Prior to construction of the canal, the Chicago Portage was one of the shorter land routes that permitted one to reach tributaries of the Mississippi River from Lake Michigan. Initially, Chief Engineer Gooding had intended to cross the 14-foot summit of the Chicago Portage by constructing the canal bottom at a lower level than Lake Michigan. This would permit the water in Lake Michigan to naturally flow to the southwest. This “deep cut” plan was soon abandoned upon encountering the top layer of stiff Niagaran dolomite, which underlies the Great Lakes basins as well as much of the Midwest. The design was modified then, to instead provide a lock and pumping station at the juncture of the south branch of the Chicago River and the canal. Boats would be lifted over the summit level by supplying the lock with water pumped from the Chicago River as well as additional water from a Little Calumet River feeder canal. West of this lock, the canal would have a rather flat gradient until it reached the lock at Lockport.

The elevation of the canal would drop some 140 feet from Lockport to the Illinois River connection. In order to keep the canal gradient from becoming excessive, 15 locks would be constructed. Each of the locks had dimensions of 118 feet long by 18 feet wide between the wooden gates controlling the water level. The boats that plied the waters of the canal had similar dimensions so

(continued on page 6)
they could fit in the locks. The depth of the locks varied between 8 and 15 feet, depending on the lift required. The locks were referred to as “pound” locks due to the impoundment of water between the swinging gates. Only the highest quality materials and craftsmanship were allowed for their construction.

Aqueducts were other important features of the canal. Although smaller creeks and streams were either accepted into the canal or passed underneath via culverts, five larger rivers required that aqueducts be constructed so that the rivers’ water could pass beneath the canal. Proper aqueduct design and construction required that the natural stream be allowed to pass underneath the canal while also allowing for the flood stage of the stream. This requirement was complicated by the need to keep the proper gradient of the canal. The final canal location was largely determined by the location of these aqueducts. The longest of these aqueducts was located at the Fox River crossing in Ottawa. This 400-foot-long structure included limestone piers and a timber superstructure. The piers of the Fox River aqueduct remain today, but the superstructure has been replaced with an iron trough.

In addition to the water supplied by the Chicago River pumps, four feeder canals were constructed to keep the 6-foot water level in the canal. These feeder canals included the Des Plaines, Little Calumet, Kankakee and Fox Rivers. The Little Calumet, Kankakee and Fox River feeders were also used for transportation. Another challenge of the canal’s construction involved the crossing of the DuPage River near Channahon. The near equal water levels of the river and the canal at this location precluded the use of an aqueduct. Instead, a method called slack pool navigation was utilized. This required that a dam be constructed on the canal downstream of the river. Additionally, locks were built on both sides of the river. Canal boats would then be towed across the river in the slack pool created by the dam.

After numerous delays due to funding difficulties, the construction of the canal was completed in April of 1848. The final cost, excluding interest, came to roughly $6.5 million in construction year dollars. It would not be until 1871 that Illinois retired the outstanding debts. The completion of the canal contributed immensely to the development of northeastern Illinois. Chicago grew from 12,000 inhabitants in 1845 to 74,500 residents by 1854. This growth was due to both the canal completion and the increasing presence of railroads. It would be the railroads that also contributed to the eventual decline of the I&M Canal, particularly for passenger traffic. Although freight traffic would continue to be conveyed on the canal until the early 1900’s, passengers increasingly chose trains rather than take the approximately 24-hour trip required to cover the length of the canal.

Upon completion, horses or mules walking along the adjacent towpath towed canal boats. The size of the boat and load dictated the number of animals needed to tow the boats. A driver drove the lead animal and a rudder man kept the boat in the center of the canal. Around 1870, steam-powered boats driven by screw propellers were introduced as a source of power. These constant speed boats did not develop the wake that the mule driven boats created. Before the beginning of the twentieth century, steamboats became the preferred means of power. The I&M Canal became a central component of the nation’s commodity markets. Corn, grain, sand, salt, coal, nails and lumber were increasingly marketed through Chicago upon completion of the canal. Central Illinois’ produce could now be marketed on the East Coast in addition to the already established St. Louis market. In addition, many industries were fostered and...
BillQuick

“Having an accurate, easy-to-use way to record our billable hours has resulted in a net gain of over $30,000 in our first year of use alone.”
- Al Truss, President, Fountainhead Group Consulting, Ltd.
BillQuick user

TIME TRACKING | PROJECT MANAGEMENT | BILLING

You Build It. We Bill It.

• Faster Billing
• Time & Expense Tracking
• Project Management
• Remote Access
• Budget Tracking
• Powerful & Professional Invoices

Call us today for a FREE Trial Copy
www.BQE.com/ISASCE   |   (888) 245-5669

Integrates with

Copyright © 2013 BQE Software, Inc. All rights reserved.
(because some of them lack quality technical data) I do not believe we can disagree with the theory of climate change... based on the number of large rainfalls we have had over the last 3 years, the very warm winter we have just experienced with only two real snow storms, or the unseasonably warm middle of March we have just experienced. All of these odd weather conditions are reasons we as Engineers need to be more involved, both after a bad storm and also to determine new rainfall data so that our storm sewers are properly sized to convey the increased runoff of the now-more-frequent large storms. ASCE

**President’s Notes**

(continued from page 2)
nurtured with the establishment of the canal. Limestone quarries, zinc smelters, flour mills, paper mills and steel manufacturers all benefited from the competitive shipping rates of the canal. In 1882, the highest gross tonnage (over 1 million ton) of goods was carried on the canal. The Illinois and Michigan Canal was one of the last of the great U.S. canals to be constructed. These inland waterways had a profound impact on the development of the nation and served a useful purpose until the growth of railroads and the development of more efficient ground transportation rendered the canals unnecessary. Two major problems impacted canal traffic: 1) from November to April, the canal was not navigable due to the weather, and 2) the fluctuation of the Illinois River during the summer months created traffic problems on the canal. The railroads proved to be more efficient and comfortable, particularly for passenger traffic. Various agencies have controlled the I&M Canal since the cessation of commercial operations in 1933. With the exception of the construction of Chicago’s Stevenson Expressway along the canal, the route remains mostly preserved. In 1984, the Illinois and Michigan National Heritage Corridor and Commission was established by Congress. This designation will contribute to the preservation of the historical, cultural and recreational benefits that the canal route affords.

Additional Historical Resources


Canal Days in America, The History and Romance of Old Towpaths and Waterways, by Harry Sinclair Drago. Published by Bramhall House.


Historical Data–Illinois and Michigan Canal, from the files of The Will County Historical Society. Published Summer 1997.
T&D

Board Meeting

Date: Tuesday, April 10
Time: 5:30 pm
Place: T.Y. Lin International
200 S. Wacker Dr., Suite 1400
Chicago, IL 60606

RSVP: By Monday, April 9th to host Shane Schneider at shane.schneider@tylin.com

Any ASCE member is welcome to attend.

EWRI Chapter

Monthly Meeting

Date: Tuesday, April 10
Time: 5:30 pm
Place: Michael Baker Jr. Inc.
311 W Monroe Street, Suite 1350
Chicago, IL 60606

RSVP: Please RSVP to Gary Paradoski gary.paradoski@mbakercorp.com

Younger Member Group

Dinner Meeting

Date: Wednesday, April 18
Time: 5:30pm Dinner
6:00pm Speaker

Topic: Asian Carp in Illinois waterways (subject to change)

Place: TBD

Cost: $20 for professionals
FREE for full-time students

PDHs: 1 Hour

RSVP: By Monday April 16th to Kendra Bleers at Kendra.Bleers@jacobs.com

(continued on page 11)

5th Annual Springfield Legislative Drive Down

Date: Tuesday, April 17

Do you want to meet your State Elected Officials to discuss engineering issues? We’ll start with lunch in Springfield with State Officials (IDOT and/or IDNR-OWR to be invited), then meet with our Legislators at the Capital and end the day at the Annual Springfield Legislative Reception at the Sangamo Club.

Place: State Capital
Sangamo Club, Capitol Suites
227 East Adams
Springfield IL

Cost: Free

Questions: Contact Darren Olson at dolson@cbbel.com

Land Surveying Education in Chicagoland through Southern Illinois University Carbondale

Would you like to train yourself or your employees to become licensed Professional Land Surveyors? If yes, SIU Carbondale offers its high quality land surveying courses in the Chicagoland area for those who cannot attend SIU Carbondale full-time. Along with the theoretical concepts, this program has a complete laboratory component where students learn the required field techniques and equipment used in today’s practice. Generally, one course per semester is offered on weekends in the Fall, Spring, and Summer semesters. New students can now join the 24 credit hour sequence every summer by taking the Basic Surveying course. Those who have already taken an approved Basic Surveying course, or equivalent, can join the sequence in a Fall semester (Spring semester enrollments may be allowed depending on the pre-requisites).

Course offerings are subject to minimum enrollment requirements. If you are interested, please contact Mr. Brandon Edwards (bpedward@siu.edu) or Mr. Kyle Allred (kyallred@siu.edu) in the Department of Civil and Environmental Engineering, or call the Department at (618) 536-2368.
Section Activities
(continued from page 10)

2012 Chicago Geotechnical Lecture Series
Earth Structures - Ground Improvement
Date: Wednesday, April 25
Speakers: Dr. Bob Holtz
Dr. William Marcuson
Dr. Russell Green
Dr. Donald Bruce
Dr. Skip Hendron
Place: Student Center East Building,
Illinois Room, University of Illinois,
Chicago, IL
RSVP: Kalyani Devabhaktuni at
ascigelgeotech@gmail.com
or 630-352-1146

T&D1
Board Meeting
Date: Tuesday, May 8
Time: 5:30 pm
Place: Primera Engineers
100 S. Wacker Dr., Suite 700
Chicago, IL 60606
RSVP: By Monday, May 7
to host Charlie Frangos at
cfrangos@primerachicago.com
(Any ASCE member is welcome to attend.)

Geotechnical Group
May Dinner Meeting
Date: Wednesday, May 9
Time: 5:30 pm to 8:30 pm
Topic: Wacker Drive Congress Parkway
(I-290) Project
Speaker: Brad J. Bacilek from
Alfred Benesch and Company
Place: The Parthenon, Chicago, IL.
Cost: $40 Members
$30 Education and Government Employees
$20 for students (with reservations)
$30 for members who bring a younger member or a new member
PDHs: 1 Hour
RSVP: By Monday, May 7th to
Kalyani Devabhaktuni at
ascigelgeotech@gmail.com
or 630-352-1146

ASCE Region 3 Activities

HEC-HMS Computer Workshop
April 26-27 Cincinnati, OH

Structural Condition Assessment of Existing Structures
May 10-11 Madison, WI

Earth Retaining Structures Selection, Design, Construction and Inspection:
Now in an LRFD Design Platform
June 7-8 Milwaukee, WI

Financial Management for the Professional Engineer
June 14-15 Cincinnati, OH

Structural Design of Industrial Facilities-Newly Updated
June 14-15 Chicago, IL

Wind Loads for Buildings and Other Structures-Newly Updated
June 21-22 Chicago, IL
In an effort to inform Illinois Section members of the discussions at the monthly Board meetings, the Section Secretary contributes this monthly article to the newsletter. Any questions or comments on the Board activities are welcome by contacting Patrick Lach, at plach@heyassoc.com

**Treasurer’s Report**

▲ Treasurer MacKinnon presented the Treasurer’s Monthly Report.

**Group Reports**

▲ All Groups presented a written report outlining previous and current month’s activities.

▲ Student Scholarship and President-Elect Spring Dinner: The dinner will be held on April 11, 2012 at Maggiano’s in Chicago. President Elect DiLoreto will be attending.

▲ An update from the Section’s lobbyist in Springfield was provided.

▲ Report Card: The Section is presenting to AWWA in April.

The next board meeting is scheduled for Monday, April 2, 2012 at 5:30 pm at MWH Americas, Inc., 175 West Jackson Blvd, 19th Floor.

By Patrick Lach
plach@heyassoc.com

**New Business**

▲ The Board is participating in a white paper discussion about re-reversing the Chicago River

▲ The Board is hiring an accountant to complete the Section taxes this year due to new requirements.

**Old Business**

▲ The Springfield Legislative Drive-In is scheduled for April 17, 2012

▲ The Section is sending several members to the 2012 National Fly-In in Washington D.C. on March 20-22, 2012

▲ A report on the Region 3 Leadership Conference was provided by the attendees from the Board.