

ACE RESOURCES

A Newsletter for the Association
of Conservation Engineers

MARCH 2011

Enhancing Our
Natural Resources

A fish fence, not a fish bowl!

See page 13



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2011 Awards, Scholarship, and more

For the 2011 Conference, ACE returns to the place it all started 50 years ago—St. Louis, Missouri. If you've never been to St. Louis, it is a wonderful city chocked full of its own history. From early settlement days by French explorers to comfortably settling in as the Gateway to the West as more and more people migrated to America's heartland and beyond, St. Louis is filled with music, culture, sports, and lots of things to see and do. This year's conference hotel is just a few blocks from the Mississippi River and the famous St. Louis Arch. This year marks ACE's 50th anniversary and this year's conference will celebrate that achievement while looking toward the future. I know plans are being made to make this an outstanding conference so please mark your calendars to come to St. Louis this fall—October 23-27!

Please take some time to review your projects and consider submitting an entry in the 18th Annual Carl Anderson Conservation Project Engineering

Editor's Note

Awards competition. All the information you need to submit an entry can be found in this newsletter on pages 3-8. And don't forget about the ACE James (Jim) Schalk Memorial Association of Conservation Engineers Scholarship—information and application on pages 9-10.

And last, but certainly not least, a huge thank you to those who submitted the articles and photos that fill the final pages of this newsletter. It's always interesting to read about the projects our members are involved in. Send me a write up anytime and I'll save it for the next issue.

Hope spring comes soon to everyone!

Lynda Cliburn
Editor

Help get the word out about the Schalk Scholarship

The James (Jim) Schalk Memorial Association of Conservation Engineers Scholarship is to be offered again this year, with three eligible applicants to receive \$1,000 each. The purpose of this program is to promote the Association of Conservation Engineers (ACE) and the continued study and learning required for the conservation, preservation, and restoration of our natural, cultural, and renewable resources in the areas of preservation and recreation.

Any full time undergraduate sophomore, junior, or senior class student, as well as graduate level students, enrolled in an accredited course of college study directed toward a degree in engineering, any of the natural or cultural sciences, or agriculture is eligible to apply for the scholarship.

A scholarship application form can be found on pages 9-10 of this newsletter and on the ACE website:

www.conservationengineers.org.

If you know of any students enrolled in an eligible course of study, please let them know about this scholarship opportunity. Another great way to spread the word about this scholarship opportunity is to contact your alma mater and let them know that a scholarship is available. Please contact Breagan Eicher with any questions regarding the scholarship.

Breagan Eicher
525 W. Washington Avenue
South Bend, IN 46601
beicher@lawson-fisher.com

Association of Conservation Engineers

2010 - 2011

EXECUTIVE COMMITTEE

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Sanjay Olson, WI.....	President Elect
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ASSOCIATION OF CONSERVATION ENGINEERS
2011 Conference



ST LOUIS

Sunday, October 23

Noon-4 p.m.	ST. LOUIS AREA TOURS
3:30-6 p.m.	REGISTRATION
4:30-6 p.m.	EXECUTIVE COMMITTEE MEETING
6-8 p.m.	WELCOME RECEPTION

Monday, October 24

7 a.m.	REGISTRATION
8 a.m.	WELCOME— Missouri Department of Conservation and Illinois Department of Natural Resources
8:30 a.m.	“WELCOME TO ST. LOUIS”
9 a.m.	INTRODUCTIONS and BUSINESSMEETING
9:50 a.m.	GROUP PHOTO
10 a.m.	BREAK with Exhibitors
10:30 a.m.	TECHNICAL SESSION
11:30 a.m.	ANDERSON ENGINEERING EXCELLENCE AWARD PROJECT WINNERS
Noon	LUNCH (provided) with spouses/guests
1:30 p.m.	BUSINESS MEETING
2 p.m.	TECHNICAL SESSION
3 p.m.	BREAK with Exhibitors
3:30 pm.	TECHNICAL SESSION
5 p.m.	ADJOURN (dinner on your own)





ASSOCIATION OF CONSERVATION ENGINEERS
2011 Conference



ST LOUIS

Tuesday, October 25

- 7 a.m. REGISTRATION
- 8 a.m. TECHNICAL SESSION
- 10 a.m. BREAK with Exhibitors
- 10:30 a.m. TECHNICAL SESSION
- Noon LUNCH (provided)
- 1 pm. TECHNICAL SESSION
- 2 p.m. LEAVE FOR TOUR of St. Louis Arch and Missouri Department of Conservation Facility
- 5-8 pm. DINNER at Missouri Department of Conservation Facility

Wednesday, October 26

- 7 a.m. REGISTRATION
- 8 a.m. TECHNICAL SESSION
- 10 a.m. BREAK with Exhibitors
- 10:30 a.m. TECHNICAL SESSION
- Noon LUNCH (on your own)
- 1:30 pm. TECHNICAL SESSION
- 2:15 p.m. TECHNICAL SESSION
- 2:30 p.m. BUSINESS MEETING
- 4:30 pm. EXECUTIVE COMMITTEE MEETING
- 6 p.m. SOCIAL HOUR
- 7 p.m. BANQUET



Thursday, October 27

- 8:30 a.m. FIELD TRIP (attendees and guests)

ASSOCIATION OF CONSERVATION ENGINEERS

50th ANNUAL CALL FOR PAPERS



The Association of Conservation Engineers (ACE) invites all persons interested in the engineering practices of fish, wildlife and recreation development to submit abstracts of papers to be considered for presentation at the ACE 50th Annual Conference. The Conference will be held Oct. 23-27 in St. Louis, Missouri. Engineers, architects, designers, technicians, consultants, industry representatives and others in the field of conservation engineering are invited to submit abstracts. Conference presentations are scheduled for 20 minutes each, with longer presentations available.

Papers currently under consideration:

- Gulf State Park Pier Update
- Rehabilitation of Rock creek Dam Deteriorated Concrete Face—1938
- Construction of George Rogers Clark Discovery Trail
- New Overnight Facilities in PA State Parks
- An Engineer's Travelog of the Amazon & Galapagos
- Relocation of Historic Iron Bridge
- Gates Park Wilderness Trail Bridge
- TVA Ash Spill, Remediation & Stream/River Restoration / Cleanup
- Dunes Creek Daylighting
- ARRA Projects or Grey Towers Dam Rehabilitation
- Trimble County Storm Mitigation and Other Conservation Measures
- Wind Farm Impacts on Wildlife and Ecology
- 50 Years of ACE—A Look Back and a Look Forward

Guidelines for Submitting Abstracts

- Abstracts are not required, but if submitted shall be a maximum of one-page, single-spaced and be submitted prior to the established deadline.
- Biological sketches of all authors shall be submitted and shall be a maximum of one page.
- All abstracts must be postmarked by **May 13, 2011**.
- Full papers will be required for publication of the conference proceedings: PowerPoint presentations are acceptable.
- Papers shall be on CD in Word format with hard copy. Papers are due at the conference.

Announcement of selected papers will be made on **June 6, 2011**.
Further instructions for speaker presentation will be provided upon notification of a paper's acceptance.



ASSOCIATION OF CONSERVATION ENGINEERS

50th ANNUAL CALL FOR PAPERS

ENTRY FORM FOR ABSTRACTS

Submit by May 13, 2011

1. Paper Title: _____

2. Author: _____

3. Name: _____ Title: _____

4. Company / Agency: _____

5. Address: _____

6. City, State, Zip: _____

7. Phone: _____ FAX: _____ Email: _____

8. List any Conferences where this paper has been presented: _____

9. List any equipment needs (laptop, projector, etc.): _____

Fax, Mail, or Email Form to:

Gary A. Wilken, PE
HDR Engineering, Inc.
5201 South Sixth Street Road
Springfield, IL 62703-5143
PH# (217) 585-8300
Fax# (217) 585-1890
Gary.Wilken@hdrinc.com

ASSOCIATION OF CONSERVATION ENGINEERS

18th Annual Carl Anderson Conservation Project Engineering Awards 2011 Competition Announcement and Rules



Purpose

The purpose of this design awards competition is to give recognition to those members and/or their departments whose work, as judged by their peers and associates, best exhibits the goals and objectives of The Association of Conservation Engineers.

Categories

PROJECT CATEGORY A

STUDIES / RESEARCH PROGRAMS

Non-design services including, but not limited to: Pilot/experimental projects; bioengineering; electrical heating; new products and materials; basic research on new technology; fuels and water; properties and uses of fuels; research in natural resources; hazardous waste studies; resource recovery; environmental impact studies; soils and other subsurface geotechnical investigation and evaluation; damage correction; computer services; technical papers. All of the entries in Category A are involved with non-construction document design services.

PROJECT CATEGORY B

CONSERVATION / ENVIRONMENTAL

Energy generation, transmission, distribution, conversion, conservation and storage-mitigation
Dams (water supply, irrigation, flood control, recreational, fisheries management)
Drainage systems
Incineration
Mine Reclamation
Parks and Wildlife facilities
Resource recovery
Waste treatment facilities
Water resources and supply
Wetlands treatment

PROJECT CATEGORY C

SPECIAL PROJECTS

Any project that does not fit into other categories including, but not limited to:
Erosion protection and control
Recreational-theme parks, zoos, marinas, aquariums
Site development
Structure of buildings
Historical restoration
Construction projects resulting from unique studies or research of the type in Category A

Eligibility

ENTRANT:

Any governmental agency or department, or its selected consultant, engaged in the fields of recreation, wildlife preservation, tourism, and/or conservation of the natural environment, who is a member of or has made application for membership in the ACE, is eligible for participation in this awards program.

PROJECT:

The project entered must be the completed work of the governmental agency or department making the submission.

Up to two project entries may be submitted by each participant.

The project must have been completed within the **24 months** preceding its submittal.



ASSOCIATION OF CONSERVATION ENGINEERS

18th Annual Carl Anderson Conservation Project Engineering Awards 2011 Competition Announcement and Rules

For use of award chairperson only

PROJECT REG. NO. _____

DECLARATION OF INTENT TO SUBMIT FOR ACE CONSERVATION PROJECT ENGINEERING AWARDS

(This page is due by fax or mail postmarked on or before May 2, 2011)

Date submitted: _____

Note: Please furnish all information requested below for each entry. If additional forms are required, copy this format.

I intend to submit an entry to the Association of Conservation Engineers Design Awards Program in the following category and division designated.

Category (Check One)

A. Studies/Research Program _____

B. Conservation/Environmental _____

C. Special Projects _____

Budget Cost of Project: _____ Scheduled Completion: _____

Actual Cost of Project: _____ Actual Completion: _____

Name of Submitting Entity: _____

Address: _____

Contact Name: _____ Phone No: () _____

Fax No: () _____

E-mail: _____

Name of Project: _____

Location: _____

Owner's Name: _____

Note: Remember to get Owner's approval for use of project award nomination

Name of Consultant(s): _____

(if applicable) May be the same as submitting entity

Address: _____

Note: The submitting entity or the owner of the project must be a member of the ACE organization or must have made application for membership at the time the Declaration of Intent is filed.

ASSOCIATION OF CONSERVATION ENGINEERS

18th Annual Carl Anderson Conservation Project Engineering Awards

2011 Competition Announcement and Rules



Entry

Making your submittal for the ACE Conservation Project Engineering Award is a simple two-step process as follows:

FIRST: Send your Declaration of Intent to submit by fax, email or mail postmarked no later than Monday, **May 2, 2011**.

SECOND: Prepare your Entry packet. Entries must be postmarked no later than Monday, **June 6, 2011**.

Winners will be notified on or before August 15, 2011, to prepare a Project Panel to bring for display and presentation at the ACE 50th Annual Conference in St. Louis, Missouri.

Submit to:

ACE Committee Chairman—Sanjay Olson
Chief, Engineering/Construction Management Section
Wisconsin Department of Natural Resources
Bureau of Facilities and Lands
101 South Webster Street, PO Box 7921
Madison, WI 53707-7921
PH# (608) 261-6453
Fax# (608) 267-2750
Sanjay.Olson@Wisconsin.gov

Note: The entry fee for the 2011 awards competition has been waived. No entry fee will be required.

Each entry shall be submitted individually in one standard 1-1/2 inch 3-ring binder, on 8 ½ x 11, or 11 x 17 folded sheets, and shall include the following information in the order stated. **Five (5) original copies for each entry must be provided.**

1. A copy of the ACE Declaration of Intent form as previously submitted.
2. Letter from the agency or owner giving written permission allowing for publication of any feature or innovation found to be of interest to the members of the Association.
3. ACE Data Sheet 1 (attached).
4. ACE Data Sheet 2 (attached).
5. Drawings or prints on paper no larger than 11 x 17; up to a maximum of 4 sheets as needed to delineate project.
6. Colored photographs any size up to 8 x 10 mounted *or color printer pages to 8½ x 11* (to a maximum of six) may be utilized to complement the written description. (Note: no slides can be accepted)

Note: Entries shall be postmarked **on or before June 6, 2011**, and mailed to the Awards Committee Chairman at the address above.

Project Panel

To be completed before the 2011 Conference

A project panel will be required of those winning entries receiving an Award of Excellence or an Award of Merit, and is requested, but optional, from the winner of the Award of Honor. The project panels will be on display during the annual conference for viewing by all those in attendance. Project panels will be returned after the conference.

Project panels will be restricted to one 30" x 40" heavy weight crescent or mat board, or two 20" x 30" boards hinged and capable of standing on an easel. Material displayed shall be either B/W or colored photos, printed texts or drawings which best describe the features of the entry. Project panels shall be identified with the name of the submitting department or agency, the name of the project and its location.



ASSOCIATION OF CONSERVATION ENGINEERS

18th Annual Carl Anderson Conservation Project Engineering Awards 2011 Competition Announcement and Rules

For use of award chairperson only

PROJECT REG. NO. _____

Received _____

ACE 2011 DESIGN AWARDS DATA SHEET #1

PROJECT NAME: _____

1. Agency / Firm Making Submittal: _____

2. Address: _____

3. Contact Name: _____ Contact Phone No: _____

Fax No: _____

E-mail: _____

4. Project Location: _____

5. Project Category: _____

6. Outside Consultant(s): _____

7. If a winning entry, please give exact name(s) or title(s) as they should appear on the plaque or certificate:

Note: The information from the submitting entry must be confined to this sheet only.

To maintain anonymity during the judging, this data sheet, and the declaration of intent copy will be removed from the submitted material. All other submitted material will be signed or marked with the project registration number copy.

ASSOCIATION OF CONSERVATION ENGINEERS

18th Annual Carl Anderson Conservation Project Engineering Awards
2011 Competition Announcement and Rules



Judging

The judging panel shall consist of not less than three nor more than five judges. All judges will be qualified design professionals such as engineers, architects, biologists, botanists, or others involved in the conservation or environmental field. At least two of the judges will be a member of ACE. The judges will be selected by the Awards Committee and may reside in the state hosting the conference. The judges will meet soon after the

submission deadline to evaluate and select the projects to receive awards. The judges' decision shall be final.

None of the judges may submit entries nor be identified with any submitted entry.

All entries will be judged on their own merit, and within their selected category, based on their meeting or

Definitions of Ratings Guidelines

1. **Originality / Innovation / New Application of Existing Techniques:**

- Does the entry represent any new branch of conservation engineering or some type of breakthrough in general knowledge of our environment?
- Does the entry represent a unique mix of different techniques, materials or equipment?

2. **Technical value to the Conservation Engineering Profession:**

- Does the entry advance the state of the conservation engineers' art?

3. **Complexity:**

- Does the entry involve very complex criteria or types of problems to be addressed?
- Were extraordinary problems of site, location, hazardous conditions, project requirements, or similar elements present?
- Does the entry require out-of-the-ordinary technology and ingenuity for achievement?

4. **Meeting and Exceeding Owner's Needs:**

- Is it an economical and cost-effective solution?
- How did final cost relate to original budget estimate?
- How closely does the entrant's solution meet the total goals of the owner?
- Does the entry meet and justify its original concept?
- Did the entrant meet the owner's time schedule?

5. **Natural Resources and Environmental Considerations:**

- Does the entrant's solution bring into play an improved program, i.e., are additional benefits realized as a spin-off?
- Does the entrant's role provide society with any useful advancement in the area of conservation and environmental sciences?
- Is the public health, safety, or welfare enhanced as a result of the entrant's role in the project?

Awards

The jury shall make awards to three meritorious entries. At the discretion of the jury, the number of awards may be limited or expanded. The following awards will be issued:

Award of Excellence.....Special Award
Award of Merit..... Plaque
Award of HonorPlaque

A certificate of participation may be presented to all other qualified entries. From time to time a letter of recognition or certificate may be awarded to other entries as the judges may recommend.

Awards will be presented during the Awards Banquet at the 50th Annual ACE Conference on Monday, October 24, 2011, at the Holiday Inn Select Hotel in St. Louis, Missouri.



ASSOCIATION OF CONSERVATION ENGINEERS

18th Annual Carl Anderson Conservation Project Engineering Awards 2011 Competition Announcement and Rules

For use of award chairperson only

PROJECT REG. NO. _____

Received _____

ACE 2011 DESIGN AWARDS DATA SHEET #2

PROJECT NAME: _____

In approximately 500 words (total), write a short summary of the project features and solutions that best answer the following rating guidelines:

- | | |
|---|------------|
| 1. Originality/Innovation/New Application of Existing Techniques: | 15% |
| 2. Technical Value to Conservation Engineer's Profession: | 20% |
| 3. Complexity of Program: | 15% |
| 4. Meeting and Exceeding Owner's Needs: | 25% |
| 5. Natural Resources & Environmental Considerations: | <u>25%</u> |
| | 100% |

Note: The unnecessary use of names of agencies, departments, consultants, or individuals should be avoided.

James (Jim) Schalk Memorial Association of Conservation Engineers Scholarship

Application Requirements

1. The purpose of this program is to promote the Association of Conservation Engineers (ACE) and the continued study and learning required for the conservation, preservation, and restoration of our natural, cultural, and renewable resources in the areas of preservation and recreation. ACE is an international organization of engineers and allied personnel employed by conservation and natural resource agencies and consultants with specialized interests in the areas of fish, wildlife, parks, forests, and related conservation/recreation fields. Additional information about ACE can be found at our web site: www.conservationengineers.org.
2. The selection of scholarship nominees shall be according to the following eligibility guidelines:
 - a. The selection shall be restricted to undergraduate sophomore, junior, senior class, and graduate level students enrolled in an accredited course of college study directed toward a degree in engineering, any of the natural or cultural sciences, or agriculture.
 - b. Students shall carry a full program and be enrolled as a full time student.
 - c. The student shall submit a technical paper of 1250 words maximum but not less than 750 words written in essay form. The paper's topic shall relate to the conservation, preservation, and/or restoration of natural, cultural, or renewable resources. The student selected by the selection committee may be required to present their paper orally on the final day of technical presentations of that year's annual ACE Conference, generally held in October. If selected for an oral presentation, the student's travel expenses for the conference will be reimbursed by ACE .
 - d. A recommendation letter, on university letterhead, from one of the student's instructors shall accompany the submitted technical paper stating the student's qualifications for this scholarship.
3. The monetary value of this scholarship shall be \$1,000.00 (one thousand dollars) paid directly to the recipient. Presentation of the award shall be at the annual awards banquet. It is the discretion of the recipient on how the award shall be used.

Submittals may be by email to beicher@lawson-fisher.com

**The instructor should send a separate email for their recommendation
using their University email address.**

**James (Jim) Schalk Memorial
Association of Conservation Engineers Scholarship**

2011 Application Form

Name: _____ Date: _____

Address: _____

Phone Number: _____

E-mail Address: _____

Major: _____

Class (circle one): Undergraduate Sophomore / Junior / Senior, Graduate Masters / Doctors

Anticipated Graduation Date: _____

Name of School: _____

Address of School: _____

Send completed Application Form, instructor's letter of recommendation, and written essay to:

Breagan Eicher, E.I.
Lawson-Fisher Associates, P.C. 525 W.
Washington Ave
South Bend, IN 46601

[e-mail: beicher@lawson-fisher.com](mailto:beicher@lawson-fisher.com) Phone:
(574) 993-0764

Applications must be received no later than June 3, 2011.

Winner will be notified by July 29, 2011.

Transit in Parks Technical Assistance Center offering spring training sessions and more

The **Paul S. Sarbanes Transit in Parks Technical Assistance Center (TAC)** has had a busy winter so far, and we would like to share with you some of our new products, resources and upcoming events.

We recently released our first two **partnership case studies** focused on federal land units that partnered with other agencies to implement, operate, or integrate alternative transportation systems. The case studies provide great examples of working partnerships. TAC team members conducted site visits and developed reports that analyze and document effective strategies and lessons learned from these partnership experiences:

- **Santa Ana National Wildlife Refuge** (Fish and Wildlife Service Case Study). The Refuge works with two local non-profit organizations to operate a tram tour for visitors to view birds and wildlife throughout the grounds. The tram service allows the refuge to close the main road to private vehicle use during peak season, which preserves habitats and other resources.
- **North Moab Recreation Area** (Bureau of Land Management Case Study). The NMRA has embarked on an extensive collaborative effort to create a system of continuous bike lanes, non-motorized multi-use paths, transit hubs and shuttle services, which will connect Moab with surrounding highways, nearby national parks, and thousands of acres of surrounding public lands. The partnership includes federal, state and local agencies; private transportation providers; trail and bicycle advocacy organizations; and other area stakeholders.

- We will soon release two more case studies on **Grand Island National Recreation Area** in the Hiawatha National Forest, and **Cape Cod National Seashore**. To read more about these partnerships, please visit our website at www.triptac.org.

Speaking of our **website**, we have reorganized our main menu over the last couple of months to make the website more intuitive and easier to use. Our goal is to make our website your "go to" source for the latest information on alternative transportation on federal lands. As the TAC services and resources expand, so will the website, so please check back often for new information and resources.

One of the TAC's most popular resources is the webinar training we offer. Our most recent training was held on February 3rd, and the topic was Transit Vehicle Alternative Fuel Cost Benefit Analysis. This training webinar introduced users to the analysis and evaluation of alternative fuel options for mass transit investments. It offered an explanation of the required steps to conduct a life-cycle analysis for fuel fleet purchasing decisions. Participants learned how to compare the costs and benefits associated with the implementation of transit vehicles using alternative fuels, such as biodiesel, compressed natural gas, and hybrid-electric buses. This webinar, along with others produced by the TAC, is available in streaming format on our website Training page (look under TAC Training).

We will also be offering training sessions on several other topics this year, including:

- Guidance for preparation of Transit in Parks grant proposals
- Vehicle procurement
- Data collection

The USDOT Federal Transit Administration recently announced the projects that will receive FY2010 funding from the Paul S. Sarbanes Transit in Parks program, and the call for proposals for FY2011 is expected within the next few weeks. For those of you who received FY2010 funding or are thinking about submitting a proposal for the next round of grant funding, please contact us if we can be of assistance as you start your project or prepare to submit a grant proposal.

If you have any questions about transportation issues on your project, don't hesitate to call the **TAC help desk** at 877-704-5292 or send us an email at helpdesk@triptac.org. The help desk staff can assess what you need, and may match you with a personal liaison who can coordinate ongoing assistance. You can also check out our growing website and see all the information and services that are available to you. The TAC is here to be your "one-stop-shop" for free information, training, and technical support.

Jenni West
TAC Manager
Paul S. Sarbanes Transit in Parks Technical Assistance Center (TAC)
Western Transportation Institute,
Montana State University
Office: 406-994-7368
Email: jenni.west@coe.montana.edu

Critical fisheries habitat restored by Forest Service

More than 250 of the most critical fish barrier culverts within the US Forest Service Northern Region were replaced during the last two years, opening more than 400 miles of previously blocked fish habitat to fish populations.

In 2002, the Northern Region of the US Forest Service (Montana, northern Idaho, North and South Dakota) identified the need for an assessment of aquatic organism blockages at road/stream crossings. Forest Service managers knew access was restricted, but the magnitude of the problem needed to be determined.

To assess this problem, a survey of aquatic organism passage through stream crossing structures in the Northern Region was initiated in 2002 and completed in 2005. More than 2,800 culverts on National Forest System roads crossing fish-bearing streams were analyzed in 13 National Forests and Grasslands. The surveys were conducted using the guidelines of the *National Inventory and Assessment Procedure for Identifying Barriers to Aquatic Organism Passage at Road-*

Stream Crossings (Clarkin et. al. 2003).

The survey findings indicated that approximately 80 percent of the culverts impeded passage of cutthroat at some stage of life. Five hundred seventy-six of those culverts blocked all fish passage, isolating fish populations. These barriers fragmented fish populations and threatened the viability of the cutthroat fishery in the Region.

The survey was the initial step in creating a strategic approach to prioritizing replacement of blockage culverts to provide aquatic organism passage on critical streams within the affected National Forests.

After completing the survey, the Northern Region of the Forest Service began planning removal or replacement of the fish barriers. Regional Office engineers, Hydrologists and Fishery Biologists along with their Forest and Grassland counterparts, completed the Strategic Plan.

Having this plan in place allowed the Region to fully utilize increased funds from the Recovery Act, the Legacy Road Program and Forest Highway funding in 2009 and 2010. These programs funded replacement of more than 250 of the most critical fish barrier culverts in the Northern Region, opening more than 400 miles of previously blocked fish habitat to fish populations.

Total aquatic organism barriers were the highest priority. Partial barriers within the same drainages were also emphasized and replaced when practical. Expected benefits of the culvert removals and replacements included improved watershed, species recovery, improved riparian habitat, improved public access and safety, enhanced outdoor recreational opportunities, reduced maintenance costs, local economic stimulus, and reduced risk of culvert failure.

Design resources available through their four Indefinite Design, Indefinite Quantity contracts allowed the Northern Region to expedite culvert replacement designs in 2009 and 2010. This allowed the Region to more than triple its rate of fish barrier replacements during this time period, significantly accelerating the Region's restoration plan.

DJ&A, P.C., an engineering firm in Missoula, MT was integrally involved with this program from its inception. They completed the initial stream crossing inventory/surveys for two Forests, as well as the survey, design and construction management for over 40 crossings over the last two years. The Northern Region of the USFS, aided by DJ&A, P.C. have been, and continue to be leaders in conservation efforts to access and restore critical fisheries habitat. They are proud supporters of the Association of Conservation Engineers.

Vaughn Anderson
DJ & A, P.C.
Missoula, MT



Figure 1 - Before Picture
Canyon Creek Culvert - CMP Outlet



Figure 2 - After Picture
Inlet Photo - Canyon Creek Structural Plate Bottomless Arch (14' Span x 5'7" Rise)

Project Example: In 2009 the Idaho Panhandle National Forest replaced a 48 inch culvert on National Forest System road 597G where it crosses Canyon Creek. The 48 inch culvert totally impeded native west slope cutthroat trout (a sensitive species in Idaho) and bull trout (a threatened and endangered species in Idaho) access to over 4 miles of critical stream habitat. DJ&A, P.C. of Missoula, MT designed a new 14 foot span, five foot, 7 inch rise, structural-plate bottomless arch. The project also included in-stream rock weir/step pool construction to reduce stream head cutting and promote fish passage. The total construction cost of the project was \$71,340.

First fish ladders, now a fish fence!

A chain-link fence is by no means unusual. A chain-link fence in the floodplain, while certainly not encouraged by most states, is not unusual either. But a chain-link fence that is nearly 1,200 feet long, 8 feet high, and bolstered by almost 120 concrete barriers to block movement of Asian carp is an unusual project for Indiana, and probably for any state.

The numbers document the dimensions of a temporary barrier constructed at Eagle Marsh near Ft. Wayne, Indiana that is designed to block potential advancement of Asian carp toward the Great Lakes. Construction of the 1,177-foot main fence and a supplemental 494-foot debris catch fence began in early September of 2010, and was completed in October.

The Indiana Department of Natural Resources took a lead role in the temporary fence project after a multi-agency committee identified Eagle Marsh as a potential pathway for Asian carp to move from the Wabash River system into the Maumee River, a tributary to Lake Erie. Although the Wabash and Maumee basins drain in opposite directions and have no direct connection under normal conditions, their waters coningle under certain flood conditions in Eagle Marsh. Eagle Marsh is a Natural Resources Conservation Service wetland restoration site operated by the private Little River Wetlands Project and co-owned by Indiana DNR.

Eagle Marsh is located where excess flood waters from the St. Mary's River can spill into drainage leading to the Wabash River. Asian carp are known to exist in the Wabash River basin. It is under these flow conditions that the Asian carp potentially could migrate upstream and into drainage leading to Lake Erie. Indiana DNR pursued the mesh fence barrier as a short-term option while the U. S. Army Corps of Engineers and other federal agencies develop a permanent solution. The U.S. Environmental Protection Agency



IN DNR has constructed a chain link fence as a barrier to prevent Asian carp from migrating during flood conditions in drainage basins.

funded the temporary project.

While blocking passage of adult Asian carp is a primary goal of the temporary fence, another function is to avoid blocking flood flow. The fence has multiple design components to ensure unrestricted movement of water to avoid alteration of flood flow. As an added component of floodwater monitoring, the U.S. Geological Survey stepped up to provide for the installation of real-time, flood stage

While blocking passage of adult Asian carp is a primary goal ... another function is to avoid blocking flood flow.

gauging on the fence. The instrumentation will measure water levels in an effort to ensure the fence does not block water flow during significant flooding events.

Asian carp refers to several species of fish originating from Asia. Three species of the non-native fish—bighead, silver and black carp—were imported to the southern United States to keep aquaculture ponds clean. Some of the fish escaped into the Mississippi River system in the 1980s and 1990s after flooding. The fish have expanded their range northward ever since. Bighead and silver carp were first detected in Indiana in the late 1990s in the Lower Wabash River. Since then, they have moved up the Wabash, East Fork and West Fork of the White River, Patoka River, and the Ohio River and some of its tributaries in southern Indiana.

**Article by Dave Nance
Submitted by Tom Hohman
Division of Engineering
IN Department of Natural Resources**

Results revealed of circular tank raised salmon research

Swimming against a current is a challenging exercise, and hatchery fish, it turns out, benefit from the workout. This seemingly obvious research finding highlights potential shortcomings in raising juvenile hatchery salmon and steelhead in rectangular raceways with little or no current for fish to swim against. It also points the way for hatchery managers in the Northwest to save water while substantially increasing the percentage of the fish they raise that will successfully migrate to the ocean.

The research, conducted by the Chelan County Public Utility District, NOAA's National Marine Fisheries Service and The Conservation Fund's Freshwater Institute at the Eastbank Hatchery near Wenatchee, Washington, compared the effectiveness of raising steelhead and summer Chinook salmon in circular tanks that reuse water to the traditional method of raising the fish in rectangular, flow-through raceways.

The researchers found that the fish raised in the circular reuse systems migrated downstream faster, in greater numbers and with higher survival rates than the fish grown in the raceways. The main difference: the fish raised in the circular tanks swim against a relatively swift current compared to the fish in the raceways. The current is generated as water is pumped through the circular tanks in which the fish are raised.

The circular tanks are part of a system that, depending on the technologies employed, can reuse up to 99 percent of the water in the system. In the pilot project at Eastbank Hatchery the system was designed to use four times less water than the raceway systems. In addition the circular tanks collect and concentrate waste products from the fish and uneaten food, making it easier for hatchery managers to clean their discharge water and meet permit requirements.



Salmon in a circular tank

“We are really at the early stages here and recognize that hatchery innovations may require many years to prove their effectiveness, but in this case, we are extremely optimistic that water conservation and hatchery supplementation efforts can complement one another. This could be a win-win for hatchery managers and the public alike as we face increasing demands on our water resources” said Joe Miller Hatchery Program Manager for Chelan County Public Utility District.

The researchers applied a high level of scrutiny to the research, knowing that salmon and steelhead hatcheries throughout the Northwest have had a history of unintended consequences. In addition to migration speed and survival, the researchers looked at the growth, physiology and overall health of fish raised in circular reuse tanks. They determined that there were no indications of significant deleterious side effects and found there was no significant difference in growth, lipid levels, condition factors, or smolt development between the reuse fish and the raceway fish.

The differences were observed when the fish were released. The fish raised in the circular, reuse tanks migrated faster and in greater numbers. They cleared the checkpoint five-days sooner and survived in greater numbers – 72 percent compared to 52 percent -- than the raceway-raised fish. In addition, the reuse group had far fewer “mini-jacks,” or small, juvenile male salmon that become sexually mature early and stay in the freshwater section of the rivers, rather than migrate to the ocean.

Mini-jacks occur naturally, but in less than 5 percent of the total males. In hatchery raised fish, however, mini-jacks are sometimes as high as 90 percent of the population. Scientists recognize the potential that, over time, mini-jacks from hatcheries could skew the wild population's genetic makeup toward domesticated qualities found in hatchery fish.

In the recent study, the numbers of mini-jacks produced in the reuse, circular tanks was approximately 1.5 percent of all fish compared to 4.5 percent of all of the raceway fish. In the second year the number of mini-jacks was 6.5 percent of all fish versus 13 percent for the raceway-raised fish.

“Water reuse in circular tanks provides a range of swimming velocities that appears to be beneficial to the fish, and it does so with a far more efficient use of water,” said Dr. Brian Vinci, Director of Engineering Services for the Freshwater Institute, located in Shepherdstown, West Virginia. Vinci has been helping public utility districts in Eastern Washington implement water reuse technologies.

The research was presented at the Northwest Fish Culture Conference last December.

Brian Vinci
Director of Engineering Services
Freshwater Institute
Shepherdstown, WV



BP's contractors are sifting the sand on all the beaches in Alabama approximately 4 feet deep and 100 to 200 feet wide.

Sifting sand in Alabama—hear more at the Conference!

Greetings from Alabama, hope all of you are surviving the winter. It is never too early to start making plans to attend the 2011 Conference in St. Louis, Missouri. I know Gary, Bob, and the guys are working hard on the 50th anniversary conference. If any one has some history stuff please send me. We are going to scan in as many old conference books as possible so we can have them on a computer monitor. Everyone has great projects so please present a paper, who knows it might help you get permission to attend if you present a paper.

We finished our last Hurricane Ivan FEMA project in November. We are still dealing with the paper work, it will never end. Now our new white elephant is BP, we leased numerous beach accesses to them during the summer; we have wound down to just two locations now. The beach in Alabama will probably be cleaner than they have in long time. BP's

contractors are sifting the sand on all the beaches in Alabama approximately 4 feet deep and 100 to 200 feet wide. They are finding very little oil. However, we will be getting tar balls for years to come, every time there is a storm offshore and stirs up the water. If you want to help this region recover come on down this summer and spend a weekend or a week. We would be glad to have you at Gulf State Park. (www.outdooralabama.com) to make a reservation.

I have said this before but I believe it is worth saying again, Lynda does a great job of putting together the newsletter, but without input from the membership, she has nothing to put in it. So, I encourage every ACE member to submit at least send one paragraph to the newsletter letting everyone know what is going in your state or at your facilities. Please send a brief description and pictures of your projects. We can all learn from others

successes and failures.

I am still offering my membership challenge fund, so please get someone to join because I would rather pay for 8 new members than me spend it on shells or bait. I want to encourage everyone to get one new member this year.

Look forward to seeing you in St. Louis, Missouri in October.

Terry N. Boyd, PE, PLS
Chief of Engineering Section
AL DCNR

PS: We finally got to do our fishing trip this year in October, since the waters were closed because of the oil. I did not have any ACE members this year. I plan on doing a trip this year probably in June depends on when season starts. If you are interested, please call me at (334) 799-9149 cell or (334) 242-3836 office.

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