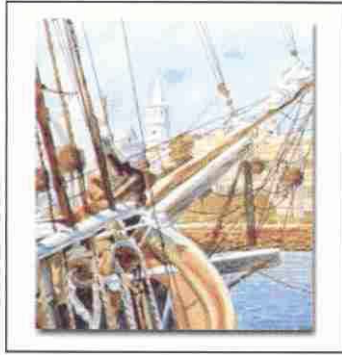


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Monday, November 17, 2003

**A VISION OF ENVIRONMENTAL PROTECTION,
ACCESSIBILITY, AND SAFETY**

Welcome to ACE 2003 and the old City of Charleston. As we all face tough budgetary times it is good to reflect back on the 333 years of recorded history here and remember that times today are not really that tough. Old Charleston has survived Yemassee, Pirate, British, and Federal Army attacks and sieges, a major earthquake, and numerous hurricanes. For almost 100 years it was "too poor to paint and too proud to whitewash" and stood frozen in time. Today Charleston has overcome the problems of its past and stands as a model of historic preservation and environmental sensitivity.

Three key elements in Conservation Engineering today are environmental protection for the resources we manage, safety for the public, and accessibility to more segments of the population. The papers today describe efforts to save an endangered species and to save the capital city of South Carolina from a catastrophic flood. Updates on the regulatory requirements for accessibility and dam safety will be presented. Then we wrap up with a project to improve the flowrates, safety and health standards for the water system of a remote mountain conference center.

8:30 am - 9:30

Opening Session, Charleston Welcome Center (5 minute walk)

Welcome and Introductions

Charleston Welcome Center Movie & Exhibits

9:30 am Return to Hotel, Group Pictures

10:15 All technical sessions to be held in the Colonial Ballroom

10:30 am - 11:00 am Monday

Running in Circles to Save the Rio Grande Silvery Minnow

Mark Hassebrock, PE

Fish Pro, Port Orchard, Washington

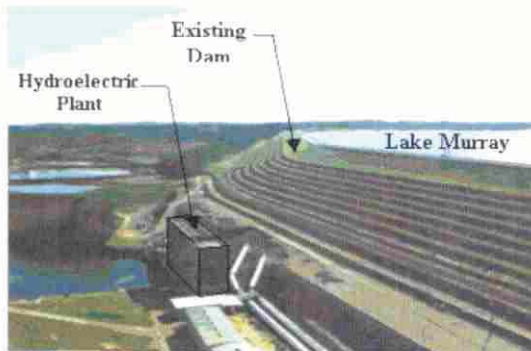
The Rio Grande silvery minnow is a small cyprinid fish endemic to the Rio Grande Basin of New Mexico, Texas, and Mexico. It occurred historically throughout most of the Rio Grande drainage. The species was federally listed as endangered in 1994, and it is presently found in only about 10% of its historic range. Concern about possible extinction of the species was heightened due to the extended drought cycle that the region is still experiencing today. Funding for a facility to protect and bolster silvery minnow populations was appropriated, and FishPro started work on the design in 2000. In addition to providing refuge for a reserve population during severely adverse river conditions, the facility has been designed to mimic natural river conditions to the extent that the fish will spawn naturally. Previous efforts to breed the species in captivity required substantial handling of the fish and hormone injections to induce spawning. Fish spawned and reared in this naturalized environment will have the best chances for survival when they are released into the Rio Grande to bolster natural populations. Numerous challenges were encountered in the design including devising a means to create a river-like current in a closed system. The facility was designed with a high degree of adjustability because very little was previously known about the specific habitat preferences of the fish and the combination of river conditions required to trigger a spontaneous spawning event. Operators can fine-tune conditions and observe the response, providing invaluable opportunities to learn more about habitat conditions that are crucial to perpetuating the species in the wild. In its first week of operation, the facility successfully triggered the first ever large-scale spontaneous silvery minnow spawning event in captivity.



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11:00 – 11:30 Monday

Remediation of Saluda Dam at Lake Murray, S.C.

Jeffrey D. Holchin, Paul C. Rizzo Associates, Inc.

Paul C. Rizzo Associates is managing Construction for the \$200 million seismic upgrade of the Saluda Dam located in Columbia, South Carolina. This Project is the largest active Dam Construction Project in the United States today. The existing Dam is a semi-hydraulic fill embankment constructed in 1930, which dams the Saluda River. The headwaters of this river extend into North Carolina. This dam was the largest in the world at that time, with a length 7,800 feet and maximum height of over 200 feet. Lake Murray has become a major recreational lake in central South Carolina, with excellent boating, swimming and fishing opportunities for many thousands of people every year. Safety investigations in the 1990's determined that the existing dam could fail in a recurrence of the 1886 Charleston earthquake, and the subsequent flooding would be catastrophic. It was decided that repair of the existing Dam would be difficult and costly. The remedial approach developed was to construct a backup Dam at the downstream toe of the existing Dam, consisting of rockfill and Roller Compacted Concrete. One major challenge was to complete this construction project with minimal interruption to recreational use of the lake. The normal procedure for a dam of this size, given the consequences of a failure, is to drain the lake during the construction period, which in this case is over 2 years. However, certain engineering measures were taken to allow the lake to remain almost at normal levels, with only a 15' drawdown. Biography for P.E.

The Access Board

a federal agency committed to accessible design

1:00 pm - 1:45pm Monday

An Overview of Accessibility Requirements for Recreational Projects

Paul Beatty, Accessibility Specialist, U.S. Access Board

The challenges for access for more of our citizens have special significance in natural settings with the natural barriers and environmental requirements also affecting park projects. The Americans with Disabilities Act and subsequent guidance are the most familiar requirements to most engineers, but there are other regulations that must also be considered. Mr. Beatty will present an overview of the current state of the regulations, interpretations, and guidance and present thoughts on what changes may be coming in the future. He will also provide sources of information for more study.

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2:00 pm – 2:30 pm Monday

Small Dam Safety Requirements

Steve Bradley, P.E. Dam Safety Engineer
South Carolina Department of Health and Environmental Control

Mr. Bradley will give a presentation on the dam safety program and current problems and solutions being experienced with South Carolina dams. The program will briefly go over regulated dam criteria and the permitting process. It will include hazard analysis for illustrating how the design criteria are established. For the current problems portion, he will discuss the corrosion of steel pipe problems, concrete pipe joint separation, seepage failures, improper trash-racks or vegetation in spillways, overtopping failures and adverse animal impacts to the dams. Solutions for the problems will also be presented. This program will help engineers in any state not to make some common mistakes that are made on South Carolina Dams, especially for the wildlife type ponds.

3:45 pm - 4:15 pm Monday

Ridge Haven Conference Center Water System

David Shaw, P.E. Fletcher Group, Inc., Greenville, S.C.

Ridge Haven is the national conference center of the Presbyterian Church in America and is located in the North Carolina mountains near Rosman. The water system provides water, not only to the Conference Center, but also two subdivisions on the property as well as an RV site and campground. The system was not in compliance with public water system regulations. The system was divided into two separate distribution areas one with a well and pneumatic tank and the other with a well, two storage tanks, and a booster station. The systems were tied together with a new booster station and storage tank. Drilling for and finding water in this region is tricky and providing adequate flows and pressures for the ridges without over pressurizing the valleys is a challenge. Mr. Shaw's presentation will illustrate how these problems were surmounted.

2:30 pm - 2:45 pm

Conservation Project Engineering Award Presentations

2:45 pm - 3:30 pm **Business Meeting**

3:30 pm – 3:45 pm **Break**

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Tuesday, November 18, 2003

A VISION OF HISTORIC PRESERVATION AND BRIDGES LARGE AND SMALL

Charleston is a living museum of historical preservation and reuse. History is intertwined with the public parks, residences, churches, business and government. Two presentations today reflect historic reconstruction and preservation. Charleston is also a City of waters with the bridges and waterways directing the destiny and traffic flow of the community. Although the Cooper River Bridges dwarfs most projects by park and natural resource agencies, the presentation here is timely as the SCDOT strives to protect the history and environment while creating the largest project in the area. As a contrast to this, the Forest Service will present a packable bridge for you mule to carry up the trail. We have the opportunity to see first hand the results of the Fort Sumter project and the current status of the Cooper River Bridge work from the water.

Charleston made a commitment to provide public access to much of the Cooper River frontage, one of the highlights of this commitment to parks is the South Carolina Aquarium. We are fortunate to be able to visit the Aquarium as a first hand Technical Tour of a unique "fish" project.

8:15 am - Announcements



8:30 am – 9:00 pm Tuesday

Reconstruction of Historic Hay Press

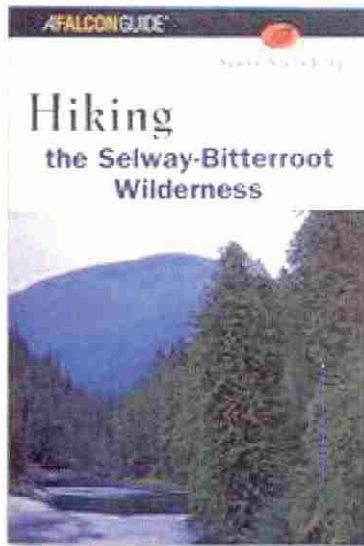
Craig Bair, Indiana

The Leavenworth-Lang-Cole hay press and barn are remnants of the Nineteenth Century southern Indiana hay culture. This project preserves a rare historic agricultural/transportation based resource, resources that are threatened by changes in agricultural methods and urban sprawl. This project has an array of values for Indiana's citizens and visitors. Primarily, and essentially, the hay press and barn will be preserved for future generations to experience, firsthand, a rare cultural resource unique to the southern Indiana landscape. It is anticipated that the press will become an annual field trip destination for school groups, and the interpretive facilities are being designed to hold approximately two classrooms. This project promotes general tourism in southern Indiana and use of the Ohio River Scenic Byway. The Federal Highway Administration estimates 148,000 visitors will travel the byway contributing \$20 million to local economies. It will increase the visitation of Wyandotte Woods State Recreation Area that already has an estimated annual attendance of 300,000.

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9:00-9:30 pm Tuesday

Forest Service Packable Trail Bridge Design

John R. Kattell, P.E.

Forest Service Northern Region Bridge Engineer,
Missoula, MT.

The Forest Service has many trail bridges located in wilderness areas, some as far from the trailhead as 30 miles. Native materials (trees) were used primarily in the past but have a life of 10 to 15 years. Replacement bridges with long-term life require materials to be transported to the sites and helicopters have been used extensively. However, due to increased emphasis on wilderness values, an alternative bridge design that can use traditional wilderness tools and construction methods has been developed. The trail bridge design presented can be packed to the site by mules and built with hand tools. This session will present the packable trail bridge design and construction for three trail bridges built in the Selway-Bitterroot Wilderness of the Nez Perce National Forest in Idaho.

9:30 – 10:00 am - Break



10:00 am – 10:30 am Tuesday

New Cooper River Bridge

Charles Dwyer, PE

South Carolina Department of Transportation

David Weitz (see slt)

Building an 8 lane bridge through sensitive wetlands, a 300 year old City, over two shipping channels and over two existing bridges is an engineering and environmental challenge. SCDOT is proud of its efforts to protect the Ospreys, fishing, and create City Greenspace while it prepares to move the traffic of the next century.

As a design-build project, the SCDOT has faced numerous challenges in the construction of this bridge, the largest single project in the department's history with a total cost of \$650 million. When completed the new bridge will be the longest cable stayed span in North America. It will have a span of 1546 feet and clearances of 186 feet vertical and 1000 feet horizontal for shipping traffic calling on the port of Charleston. With a history that includes Hurricane Hugo and magnitude 7.3 earthquake of 1886, the new bridge is designed with the current best practices in wind and seismic engineering.

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10:30 am - 11:30 am Tuesday

Fort Sumter Stability Study

Randy Knott, P.E., Mac Tec

Mr. Knott will present a structural/ geotechnical stability study of Fort Sumter prepared for the National Park Service. The study included a review of the construction history and structural modifications to the fort following the civil war and how these modifications and other manmade forces and natural forces affected the structural performance of the fort until after World War II. This will be a good preparation for the tour of the Fort in the afternoon.

1:00 pm - 2:00 pm

Tour South Carolina Aquarium

Technical Session by Aquarium Staff



2:00 pm - 5:00 pm

Boat Tour to Fort Sumter and to observe Cooper River Bridge Construction

Follow-up to morning technical sessions

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Wednesday, November 19, 2003

A VISION OF SUSTAINABLE DEVELOPMENT

“Sustainable” has become a buzzword in our new century. As engineers for conservation agencies and environmental firms we need to be in the lead in sustainable “green” initiatives. This takes a comprehensive understanding of design, construction, maintenance, management, and upgrades. Buildings, utilities, and stormwater management are all integral to this goal. Record keeping, planning and infrastructure studies, and management tools are critical in this effort. The following papers all address different aspects of this issue.

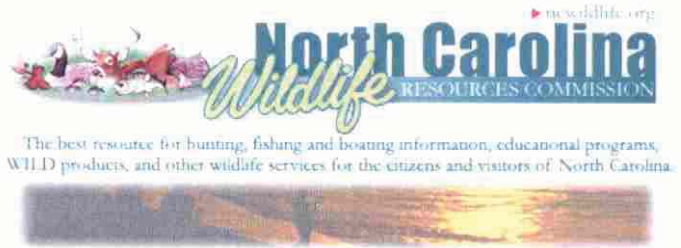


Thursday's field trip will include a drive through of coastal and beach projects from the 1670's through today including Sullivan's Island and the Isle of Palms and then a boat trip to Dewees Island – the sustainable barrier island. South Carolina's coast shows great contrasts from the mega development of Myrtle Beach and the Grand Strand with high rise hotels right on the beach through the “Arrogantly Shabby” Pawley's Island an early Planters sea retreat. Then as you travel south from Georgetown to Charleston the coast for 60 miles is wildlife refuge including Cape Romain, Capers Island and others. Dewees bridges the gap between the wild islands and marshes and the development of the Charleston area.

Going south from Charleston many of the beachfront islands are devoted to exclusive resorts from Kiawah to Hilton Head. The old beach communities of Folly Beach and Edisto Island still keep their old charm and swarms of visitors.

From North Carolina to Georgia Public Beach access is maintained by four State Parks and numerous local community access points.

8:15 am – Announcements



The best resource for hunting, fishing and boating information, educational programs, WILD products, and other wildlife services for the citizens and visitors of North Carolina.

8:30 am – 9:00 am

Sustainable Design for Wildlife Education Center

Gordon Myers, Division Chief, North Carolina Wildlife Resources Commission
Raleigh, NC

The North Carolina Wildlife Resources Commission (WRC) commissioned the design of a new headquarters building to consolidate the central administrative offices of the WRC into one building while providing a public environmental education center to further the environmental education objectives of the Agency. The project implements a comprehensive array of systems and components designed in the ecological categories of site, water, energy and atmosphere, indoor air quality, and materials and resources.

In keeping with the conservation mission and the environmental education mission of the WRC, it is intended that the new building be sustainable in its relationship with the environment and with its occupants. The project site design particularly emphasizes those ideas that are relevant to the missions of the Wildlife Resources Commission including 1) sustaining wildlife habitat at the site, down-stream, at the source locations of material resources, and energy, 2) sustainable building and site design as an object lesson on ethical means of building, 3) and sustainably constructed site features and systems will be used as teaching tools for the Wildlife Education component, 4) integration of architecture, structure, and mechanical systems for optimum day-lighting and views. The building design creates a work environment for staff that places them in more positive contact with the natural world they are responsible for protecting by providing every workspace with positive contact with the natural world through abundant natural light and a view to the out-of-doors.

The project is anticipated to qualify for a “Gold” rating under LEED's High Performance Guidelines. The project's energy performance was modeled using DOE 2 software and compared to a baseline building of the same size shape and site orientation that meets ASHRAE 90.1, 1999 standards. The potential energy savings of the proposed design are a 48% improvement over the baseline model. Extensive scale and near-full size models were built to test the performance of the day-lighting strategy proposed for this multi-story building. Construction will begin June 2003 at a cost comparable to similar buildings which do not implement sustainable design features.

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9:00 – 9:30

Building Green

David Freedman, P.E.

Chief Engineer

Georgia Department of Natural Resources

Building construction results in the destruction of natural resources as well as the production of large amounts of waste. In addition, buildings are the primary users of electrical energy in the United States. Procedures must be implemented to reduce the impacts of buildings on the environment as well as building occupants. Utilizing the LEED program developed by the U.S. Green Building Council during design and construction results in a green building that is friendly to the environment. The Georgia Department of Natural Resources has several LEED registered projects employing technologies such as composting toilets, water reuse, pervious pavements, high efficiency HVAC systems, extensive use of recycled materials, and indoor air quality improvements. Utilizing these strategies results in buildings that have a minimal impact on the environment and provide pleasant environments for the building occupants.



9:30- 10

Better Management Through Electronic Filing

Frank H. Temple

Alabama Department of Conservation and Natural Resources (Retired)

In order to achieve better efficiency within the office, faster services to contractors at job sites, and better access for consultants, Alabama has converted from the "old ways" (flat files, etc.) to faster and more modern procedures. Using OCE TDS 600 Scanner, Printer, Computer, this system enables the office to have an archive and data base of maps, charts, graphs, original survey plats, and engineering drawings.

10:00 – 10:30 Break

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10:30 – 11:15 am

**Integrated Comprehensive Resource Management
Planning and Sustainable Development**

Sie Ling Chiang, Bureau of Land Management, US Dept. of the Interior

The continuing world population growth in the environment of limited natural resources has raised the global concerns on the question of sustainability. Sustainable Development (SD) has been used world-wide as a concept and principle to develop the natural resources to meet the social, economic, and environmental goals of this generation without compromising the ability of future generations to meet their own needs. This paper describes an integrated conceptual approach of SD linking management of all natural resources to an agency's strategic plan, goals – oriented resource management planning, plan implementation, monitoring, and evaluation in a complete resource management cycle. The presentation will also address the use of planning processes as an "upstream strategy" for alternative dispute resolution.



11:15 am - 12:00 am

Construction Infrastructure Study

Greg Mihalivich, Missouri

Mr. Mihalivich will present a paper on the Missouri Department of Conservation's Infrastructure Survey. They are in the process of cataloging (with GPS locations) all of the roads, parking lots, pump stations, etc. to quantify what they have and to try to schedule maintenance.

12:00 noon - 1:30 lunch (on your own)

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1:30 pm - 2:00 pm Technical Session

Service Center Facilities and Controlled Maintenance Study

Norval Olson, P.E. Colorado

The Colorado Division of Wildlife maintains 18 service center office facilities throughout the state and owns, leases, and operates over 232 properties totaling approximately 613,675 acres. In general, the service centers provide locations for the public to obtain licenses, information, and assistance as well as employee office space and operations bases for geographic state areas. Many of the Division's service center offices are old structures that were originally constructed for other purposes. Many of these buildings are not adequate for the purposes currently intended. The Division recognizes the need to modernize and update these buildings to better provide service to our public and employees. The Comprehensive Office Study for Service Center Facilities was completed this year and a new annual budget line item has been established to fund recommended improvements. A Controlled Maintenance Study was also created to consider the development, funding and implementation of an ongoing program for maintaining over 400 Division structures and other capital improvements. For the last forty years or more, the Division has been continuously constructing new facilities with little investment in maintaining the infrastructure it was constructing. A lack of maintenance for these facilities has only deferred the liability of protecting these assets. A comprehensive maintenance plan will accurately define the maintenance need, the funding level required, a process for implementation, and a long-term funding strategy for the Division of Wildlife.



2:00 - 2:30

Pioneering Stormwater Solutions in Park Settings **Andrew L. Bender, P.E.**

Director of Engineering, JFNew
Indianapolis, IN 46254

Mr. Bender's presentation focuses on the use and integration of stormwater solutions in park settings. The presentation will detail stormwater best management practices (BMPs) with an emphasis on biological BMPs. New federal regulations require the implementation of stormwater BMPs for most cities above a population of 10,000. While the regulations do not specifically apply to park settings, the techniques are valuable lessons in stormwater management.

The presentation will present a general overview of techniques and applications but will also focus on the implementation of stormwater techniques within an urban park setting in the Midwest. Design considerations and project photos will be presented. Parks provide a unique environment for stormwater management and visitor education and interaction. This presentation will focus on these techniques and their application at park facilities.

2:30 pm - 4:30 pm - Business meeting

4:30 pm - 5:30 pm - Executive Committee Meeting & Election of Officers

7:00 pm - 9:00 pm - Annual Awards Banquet