PLANNING AHEAD

Notes for the Planning and Policy Community

US Army Corps of Engineers

July 2007 **Volume 10, Issue 6**

A Note from the Leader of the Planning Community of Practice

This month I would like to focus my remarks on the recently released Risk and Reliability assessment for the hurricane protection system in the New Orleans area, developed by the Interagency Performance Evaluation Task Force (IPET).

IPET has developed a state-of-the-art prototype risk assessment model to characterize current annual flood risk in the New Orleans area. As part of the analysis of flood risk the Corps released inundation maps showing where flooding can be expected to occur – and to what depths – in different sections of the New Orleans area, based on repairs and improvements to the hurricane protection system through June 1, 2007. The risk assessment model allows New Orleans residents to study the city on a block-by-block basis and learn what kind of damage they might expect under alternative future storms.

The risk and reliability modeling tool is the first of its kind for the Corps. It assesses risk for hurricanes in the New Orleans area and it has the potential for being used in other communities to assess the reliability of their protection systems. It provides a means for leaders, individuals, groups and businesses to make more informed decisions as well as better plans for reducing risk.

Inside This Issue

Sharing risk analysis with the public underscores the Corps' commitment to public safety, to communicating transparently, to effectively preparing for and responding to disasters, and to comprehensively enabling Gulf Coast recovery. I encourage all Corps planners to go to the IPET Risk and Reliability report website, http://nolarisk.usace.army.mil/ and read the report and learn more about this ground breaking effort.

I also want to remind Corps planners to keep an eye out for the soon to be released Hurricane Protection Decision Chronology (HPDC) report which is an exhaustive examination of the past record of decision making concerning the Lake Pontchartrain and Vicinity Hurricane Protection Project. The HPDC is important to the Corps and decision makers at all levels of government because it points out the importance of planning and developing infrastructure with a systems approach, and of maintaining that infrastructure with a lifecycle process that accounts for change over time to ensure it continually accomplishes its intended purposes.

Finally, by now you have likely seen the recent message from LTG Van Antwerp announcing my intent to retire from the Corps effective 30 September 2007. I will write more on about this decision in the next issue of *Planning Ahead*, but for now I would like you to know that this decision did not come easily. This time comes around for all of us, and my time has arrived. I want you all to know how proud and honored I have been to serve as your Community of Practice leader and how much I appreciate your dedication and support over the last two years.

Thanks for the very important and difficult work that you do every day.

Tom Waters
Planning CoP Leader
Thomas.W.Waters@usace.army.mil

WORDS FROM THE EDITOR

The first article in this of *Planning Ahead*, written by **Rolf Olsen** of the Institute for Water Resources summarizes an interagency meeting hosted by the Corps on the subject of global climate change and its impact on water resources.

The second article, written by **David Bucaro** of the Chicago District and a member of the current class of Planning Associates, discusses the Planning Associates travels to Philadelphia and Rock Island, Illinois to learn about the Corps storm damage reduction program and ecosystem restoration program respectively.

Other items of interest in the current newsletter include links to the recently released Risk and Reliability analysis from the Interagency Performance Evaluation Task Force, the Draft Integrated Final Report to Congress and Legislative Environmental Impact Statement for the Mississippi River – Gulf Outlet Deep Draft De-authorization Study, an announcement of the upcoming Chief of Engineers Environmental Advisory Board meeting on July 19th in Washington, DC and the "Smart Rivers 2007 Conference" on September 16-19th in Louisville, Kentucky.

I would like to thank the authors who contributed articles to this issue of Planning Ahead, and encourage members of the planning community to continue to submit articles for future issues of the newsletter.

Thanks,
Ken Lichtman, Editor
Institute for Water Resources
Kenneth.e.lichtman@usace.army.mil

PLANNING CoP NEWS

Lean Six Sigma: Another Step Forward in Streamlining the Civil Works Project Cooperation Agreement Process

By John Micik, CECW-PC

Last year, Lean Six Sigma efforts were initiated by the Planning Community of Practice (CECW-CP) and the Office of Water Project Review (CECW-PC) to review the business practices and processes for pre-authorization decision documents and project cooperation agreements (PCA's). This article provides an update of the PCA review; an update of the review of decision documents will be published in a later edition of Planning Ahead.

The Lean Six Sigma PCA team, consisting of representatives from major subordinate commands (MSC's), districts, Headquarters, and the Office of the Assistant Secretary of the Army (Civil Works) conducted a LEAN analysis of the process by which PCA's are initiated, reviewed and approved. The LEAN analysis identified 26 steps in the current process, reducing it to 19 steps in the future state (a time saving of nearly 50%). The analysis also revealed that, in both current and future states, only 9 steps are needed when approved model agreements are used.

The team developed several "Big Wins" for implementation in 2007-2008, three of which are "Quick Wins." These three are:

- Model Agreements. This ongoing effort led by Kim Smith, CECW-PC, continues to produce model agreements with built-in flexible language (sometimes called "pre-approved deviations") for district use. Since PCA's that follow model agreements may be approved by MSC or district commanders, the PCA team found that their use dramatically shortens the review and approval cycle. Headquarters is closely working with the Office of the Assistant Secretary of the Army (Civil Works) to issue new model agreements and replace older ones with improved versions.

- Shared Review. The traditional method of sequential PCA review (i.e., up and down the chain) has been replaced with vertical team review – a more efficient approach that encourages sharing of review responsibilities according to team members' knowledge and expertise, and early resolution of issues. Newly released implementation memorandums for model agreements reflect this new approach.

- Self-Certification of Financial Capability. The Assistant Secretary of the Army (Civil Works) recently approved the replacement of the non-Federal sponsor's financing plan and the district commander's assessment with the non-Federal sponsor's self-certification of its financial capability. The requirement for financing plans dates back to the enactment of the Water Resources Development Act of 1986, which instituted new cost-sharing rules for water resources projects. Since that time, experience has shown non-Federal sponsors to be reliable partners who are capable of meeting their financial obligations under a PCA. This change will boost efficiency by reducing administrative workloads and getting PCA's in the review pipeline sooner. Self-certification also replaces the preliminary financing plans required from non-Federal sponsors during the feasibility phase of plan formulation. The implementation memo for self-certification is posted on the PCA Guidance web page: http://www.usace.army.mil/cw/cecw-p/pca/pcaguide.htm

The other "Big Wins" recommended by the Lean Six Sigma team include:

1. Auto-draft software for model agreements
2. PCA training programs
3. User-friendly reference materials
4. MSC participation in the development of model agreements for regional authorities

These will be pursued as opportunities and resources become available.

Approval of New Model Feasibility Cost Sharing Agreement

By Kim L. Smith, Office of Water Project Review, CECW-PC

On June 5, 2007, the Assistant Secretary of the Army (Civil Works) approved the use of a new model feasibility cost sharing agreement (FCSA). This model is applicable for Cost Shared Feasibility Studies of Proposed Projects that will Require Specific Authorization, Cost Shared Feasibility Studies of Modifications that are Beyond the Scope of the Existing Project Authorization, and Cost Shared Feasibility Studies of Projects Authorized Without a Feasibility Study. A copy of the new model agreement is provided at the following link:
http://www.usace.army.mil/cw/cecw-p/pca/19251v11c.doc

On June 15, 2007, the Director of Civil Works distributed the implementation memo that describes the procedures for implementing the new FCSA model including the delegation of review and approval authorities. A copy of the June 15, 2007 implementation memo and the June 5, 2007 memo from the ASA (CW) approving the use of the new model agreement is provided at the following link: http://www.usace.army.mil/cw/cecw-p/pca/19071v3c.pdf.

An additional FCSA model is currently under review by the Office of the Assistant Secretary of the Army (Civil Works). The second model FCSA is applicable for Cost Shared Feasibility Studies of Proposed Projects Under the Continuing Authorities Program (CAP) and for Studies of Proposed Projects Under Other Program Authorities That Do Not Require Additional Authorization to Implement Projects. Once this model is approved, the model and its implementation memo will be posted on the approved model website:
http://www.usace.army.mil/cw/cecw-p/pca/ccpca.htm.

Availability of Lists of Items of Cooperation for Continuing Authority Program Projects

By Kim L. Smith, Office of Water Project Review, CECW-PC

To assist in the development of project decision documents and to achieve national consistency, policy compliance, legal sufficiency, and equitable treatment of project sponsors, HQUSACE has developed lists of items of cooperation for the following CAP projects: Section 14; Section 205 (structural); Section 205 (structural) and recreation; Section 206; Section 206 and recreation; Section 208; Section 1135; and Section 1135 and recreation. List of Items of Cooperation are available at the following link: http://www.usace.army.mil/cw/cecw-p/ioc/ioclist.htm.

These lists should be used as the starting point for drafting the list of items of cooperation for a project implemented pursuant to these authorities. However, when developing the list of items of cooperation for a particular project, each of the items should be reviewed to determine if they are still applicable or require modifications to address the specifics of such project.

Development of project specific items of cooperation required for your project should be coordinated with your MSC and the applicable HQUSACE Regional Integration Team. Please note that the lists are purpose and authority specific, so be sure to start with the appropriate one. Other listings of items of cooperation addressing other CAP authorities and specifically authorized project purposes will be provided for use as they are finalized.

Announcement of FY 2008 Project Cooperation Agreement (PCA) PROSPECT Training

FY 2008 training classes on Project Cooperation Agreements (PCAs) will be offered 17-21 March 2008 in Honolulu, HI and 9-13 June 2008 in Cincinnati, Ohio. The PROSPECT course number is 315. A description of the course is available in the "Training Courses" section of this issue of *Planning Ahead* and at the USACE Learning Center web site: http://pdsc.usace.army.mil/Purple_Book.aspx?y=2008.

For additional information on the new model feasibility cost sharing agreement, the lists of items of cooperation for continuing authority programs, or the FY 2008 PCA training classes, please contact Kim Smith at: Kim.L.smith@usace.army.mil

Announcement of Flood and Coastal Storm Damage Reduction (FCSDR) Newsletter

By Doyle L. Jones, Engineering Research and Development Center

We are pleased to announce the beginning of a Corps of Engineers Flood and Coastal Storm Damage Reduction (FCSDR) newsletter which will serve as a primary communication tool for the entire FCSDR community. This newsletter will be internet-based, posted on the Flood and Coastal Storm Damage Reduction Gateway (http://Operations.usace.army.mil/FloodStorm), and published quarterly. The announcement of the inaugural issue will be made via email in September 2007.

The newsletter will cover all aspects of FCSDR, including geotechnology; hydrology; hydraulics; coastal engineering; ice engineering; material science; mechanical engineering; planning and policy; and research and development. Generally each issue will highlight a specific MSC/R&D/national interest. We anticipate this newsletter will be of interest and use to those in the following business areas: water allocation, shore protection, emergency response, planning, dam safety, levee safety, ecosystems, and recreation.

The focus for the inaugural issue will be outcomes from the USACE Infrastructure Conference which took place the last week of June in Detroit. However, we are also seeking other input. Each issue will contain, as warranted, announcements pertaining to the FCSDR community, guidance updates, R&D issues, and articles of special interest. Recommended article length is ½ to 1 page.

Each issue of the FCSDR Newsletter will be announced through an automated distribution. Subscribe to this distribution list at http://operations.usace.army.mil/flood.cfm.

Mr. Doyle L. Jones
Canvassing Editor, FCSDR newsletter
Doyle.L.Jones@erdc.usace.army.mil

Ms. Dinah McComas
Managing Editor, FCSDR newsletter
Dinah.N.McComas@erdc.usace.army.mil

Climate Change and Water Resources

By Rolf Olsen, Institute for Water Resources

Climate change and its potential impacts have been in the news frequently in the past year. Although the Institute for Water Resources and other parts of the Corps have been studying climate change and its impact on water resources since the 1970s, there is now increased interest to develop policies to address the issue. Congress and the Administration have begun to show concern. For example, the House Committee on Transportation and Infrastructure asked Secretary John P. Woodley, Assistant Secretary of the Army (Civil Works), to testify in May about the Corps activities regarding climate change.

As part of the process to address climate change issues, the Corps hosted an interagency meeting on climate change and water resources at USACE headquarters on May 31, 2007. Representing the Corps at the meeting were members of the Institute of Water Resources, Headquarters staff, the Engineer Research and Development Center, and the Sacramento District office. Representatives from other agencies included staff from the U.S. Geological Survey (USGS), the U.S. Bureau of Reclamation (USBR), and the National Oceanic and Atmospheric Administration's (NOAA) Climate Program Office and Hydrology Program. The goal of the meeting was to improve communication between the science and water management agencies.

Mr. Steve Stockton, Deputy Director of Civil Works, welcomed the attendees and expressed the need for the four agencies to develop consistent policies to address climate change and for the Corps to have a consistent approach among all Districts. He said that climate change has the potential to affect many Corps missions: flood control, inland navigation, ecosystem restoration, coastal protection, water supply, and regulatory.

Climate Science and Water Resources

USGS scientists began the meeting with a series of presentations on the results of studies of climate impacts on water resources. Even without man-made global warming, climate varies on decadal time scales. One presenter described how tree rings can be used to reconstruct past climate in order to provide a longer time series record. A longer record shows there have been major large droughts in the western United States, some lasting for fifty years (Figure 1).

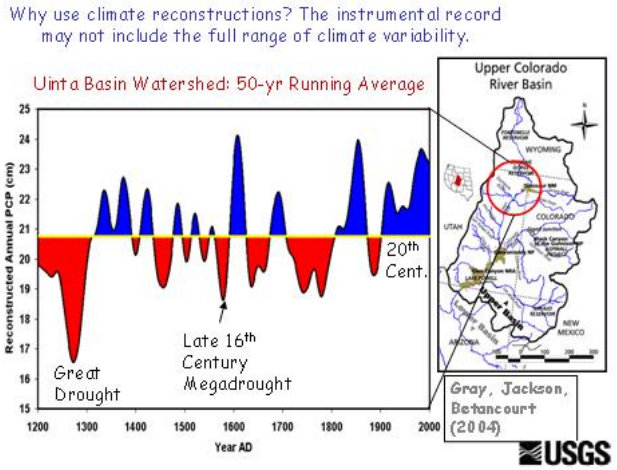

Figure 1: Climate reconstruction based on tree rings. There have been major droughts in the last 800 years in the Upper Colorado River basin. The most recent 100 years have been relatively wet.

Also presented were the results of a simulation to see what would happen to Lake Powell during a severe and sustained drought. The storage of Lake Powell was simulated based on a reconstruction of flow for 1579-1616 at Lee's Ferry, AZ (1579-1600 drought, 1601-1616 recovery) but using 1992 water use. The results are shown in Figure 2. Lake Powell empties after 17 years. The recent drought of 1995 to 2004 actually emptied Lake Powell at a faster rate than in the simulation.

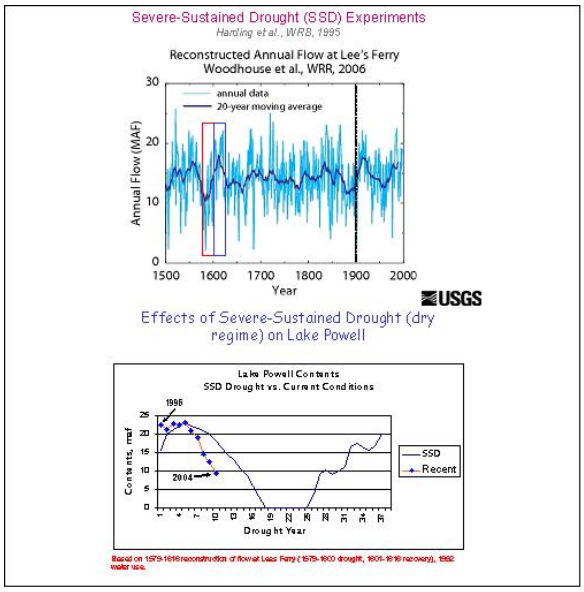

Figure 2: Severe sustained drought (SSD) experiment showing the effect of the 1579-1600 drought on Lake Powell. The effect of the drought of 1995-2004 on Lake Powell is also shown for comparison.

Another presenter described the potential impacts of a future warmer climate on water resources. He said that climate models have credibility and are capable of projecting past runoff. Modeled streamflow trends correspond well to observed streamflow trends around the world (Figure 3).

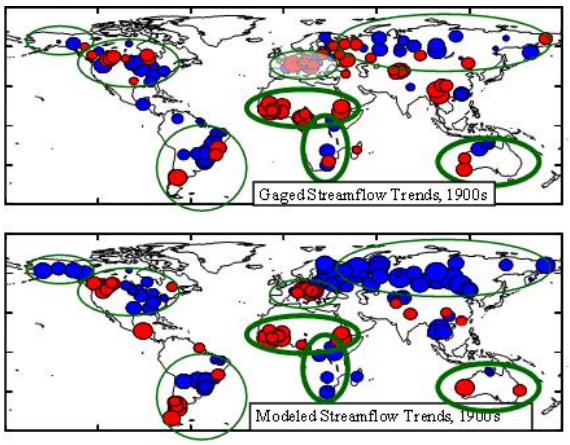

Figure 3: Comparison of observed (gaged) streamflow trends and streamflow trends based on general circulation models.

Models have credibility for understanding the processes for runoff. It also appears likely that a substantial part of global streamflow variability during the 20th century was not a random internal fluctuation of the climate system, but rather was caused by externally forced changes in climate. Figure 4 shows model-projected percentage changes in annual runoff for 2041-2060 relative to a 1900-1970 baseline. These projections show drying in the Southwestern United States and wetter conditions in the Ohio River basin. Many models show significant drying for the Colorado River basin. His conclusion is that climate models have significant, though imperfect, skill in characterizing regional trends in mean annual streamflow and they project substantial regional changes in mean annual streamflow for the 21st Century.

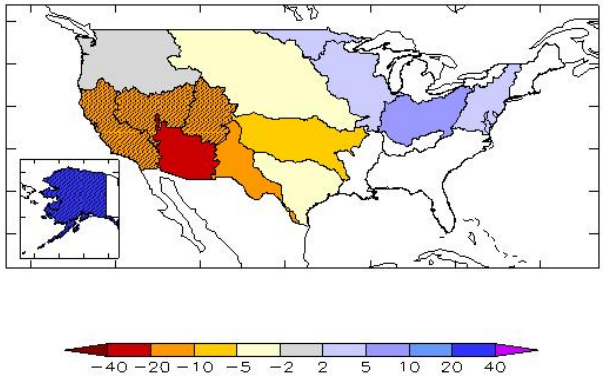

Figure 4: Model-projected changes in annual runoff, 2041-2060. Any color indicates that >66% of models agree on the sign of change; diagonal hatching indicates >90% agreement.

Another presentation discussed trend analysis using gages for rivers that are not regulated. Streamflow generally increased in the U.S. between 1940 and 1999. About 40-45% of stream gages had increases in annual minimum flow, while only 10% had increases in annual maximum flow. Trends depend on the beginning and ending date of the analysis. It appears that the early 1970s may be a turning point for trends. Conditions before 1970 were generally dryer than the period from the 1970s to 1999 (Figure 5). Increases were observed in nearly all regions of the U.S., except the Upper Colorado, Great Basin, Pacific Northwest, and California. In addition, no trend has been observed in the frequency of floods, although an increase was observed in the volume of flood flows at unregulated sites.

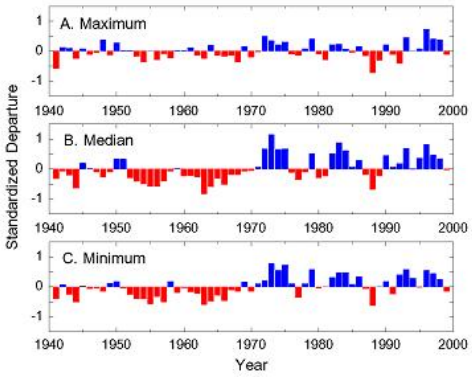

Figure 5: Mean standardized departures for 400 stations, 1941-99, showing drier conditions before 1970.

Studies in New England have examined climate-related changes to lake ice, river ice, and river flow and examined the relation between lake and river data and meteorological data (air temperature and precipitation). Lake ice-out dates are the date that ice cover completely leaves a lake. The study found significantly earlier ice-out dates at 19 out of 29 lakes and no significantly later ice-out dates. The number of days of ice-affected flow on northern New England rivers decreased significantly at twelve of sixteen rivers. The fewer days were due to earlier spring ice-free flow. Mean monthly river flows generally increased in February, March, and April and decreased in May for northern and mountainous rivers. Timing of New England river flows are changing primarily due to higher air temperatures and earlier snowmelt.

Observed temperatures in the Western States have followed a warming trend during the 20th century. This warming has already driven observable hydroclimatic changes, including less snow and more rain, reduced spring snowpack, earlier snowmelt runoff and earlier

green-up dates (Figure 6). The percentage of flows that have occurred in April through July have declined. Projections for the Sierra Nevada indicate winter flows may increase and summer flows may decrease. Aquifers tend to follow low frequency climate variations. Aquifer recharge may tend to decline in much of the West, since recharge comes mostly from snowmelt in the arid and semiarid West. Models tend to project wetter conditions in the high latitudes and drier conditions in already arid sub-tropical regions. The variability of precipitation in the middle latitudes is projected to increase.

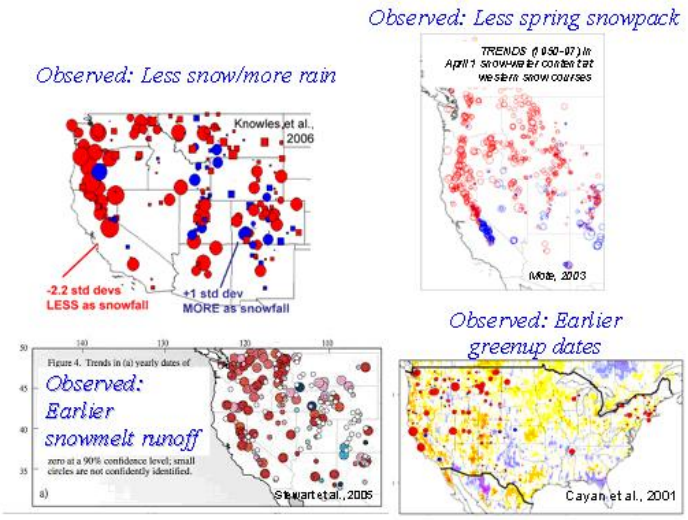

Figure 6: Warming already has driven observable hydroclimatic changes in the Western United States.

Two presentations discussed some of NOAA's activities. The Climate Program Office is involved in climate change modeling, climate outlooks, and climate observing systems. Another presentation discussed the National Weather Service's Integrated Water Resources Services.

Water Management Agencies

There is a lot of uncertainty in climate science, but water management agencies have to make decisions based on the current state of knowledge. Presentations by the Corps of Engineers and the Bureau of Reclamation discussed various efforts to address climate change. Corps topics included the effect of climate variability and trends on flood frequency analysis, the activities of the Corps climate focus group, and a pilot study on adapting reservoir management for changing snow pack and snow melt timing. Climate change impacts were included in the Lake Ontario - St. Lawrence River study that the Corps helped manage for the International Joint Commission. The study board guidelines were to be flexible in recognition of unusual or unexpected conditions, adaptable to climate change and climate variability, and to adapt to future advances in knowledge, science and technology.

The Bureau of Reclamation has released a new Environmental Impact Statement on how to share shortages for the Colorado River that are not in the historical gage record. For the Colorado River, USBR used tree ring studies to get a greater range of variability than the instrumental record. One research project has focused on long-term evaluations of climate change impacts. A risk study is being conducted in California examining climate impacts on the State Water Project (SWP) and the Central Valley Project (CVP). USBR has more than twelve studies looking at effect of climate on operations. The USBR has also developed technical guidance for incorporating information on climate change into various Reclamation planning and evaluation studies.

Conclusion

Many speakers stressed the need for the water management agencies and the science agencies to work together. An objective of the four agencies will be to work together to develop a "best practices" paper for water management agencies to follow in addressing climate change. Mr. Bob Hirsch, the USGS Associate Director of Water, placed the climate change issue in perspective. Most of our water management has been based on about one hundred years of historical data and the assumption that climate is stationary. We should not throw away that data. We must be informed about the past, but be prepared to be surprised. Good water management means adapting to a wide range of conditions. Climate change is one of many challenges affecting water resources management.

The agenda for the meeting and presentations are available at http://www.iwr.usace.army.mil/inside/products/proj/docs_proj/meet053107.cfm

For additional information on the interagency meeting on climate change and water resources ,or climate change research activities at the Institute for Water Resources, please contact Rolf Olsen at:j.rolf.olsen@usace.army.mil

Planning Associates Update: Coastal Storm Damage Reduction and Ecosystem Restoration

By David F. Bucaro, P.E., Chicago District

The 2007 Planning Associates (PAs) are at it again, crisscrossing the nation broadening their competencies and learning from mission experts throughout the organization. In May, their journey brought them to Philadelphia, Pennsylvania for a week of instruction on coastal storm damage reduction and then on to Rock Island, Illinois for a week on ecosystem restoration.

First stop Philadelphia, home of the cheese steak, the Liberty Bell and part of North Atlantic Division's Planning Center of Expertise for Coastal Storm Damage Reduction. The course was hosted by Mr. Jeff Gebert of the Philadelphia District and Mr. Tom Pfeifer, recent retiree of the New York District. Most of this year's PAs neither live on a coast nor come from coastal districts, therefore our experience coming into this course was limited. We learned some startling coastal facts that include: 35 million people, one out of eight people in the U.S., live within 100 miles of New Jersey's 125-mile shoreline; annually more people visit Miami Beach than Yellowstone, the Grand Canyon, and Yosemite National Parks combined; and from 1980 to 2005 coastal storms have claimed more than 2,300 U.S. lives and over 500 billion dollars in damages according to the National Climatic Data Center.

Over the course of the week our instructors presented concepts and discussed issues that varied from beach fill design and life cycle risk analysis to why beach nourishment and other coastal storm damage reduction projects are a Federal mission. Our instructors included Mr. Keith Watson, Mr. Randy Wise, Mr. Chris Rasmussen, Ms. Diane Rahoy, Ms. Monica Chasten, Mr. Steve Couch, Ms. Beth Brandreth, Mr. Mark Burlas, Mr. Rich Ring, Mr. Mike Wutkowski, Dr. Dave Moser, Mr. Don Cresitello, Mr. J. Bailey Smith, and our two course owners.

Most of us were amazed at the amount of work the Corps does to prevent damages to both developed and natural coastal areas. The Corps continues to be a leader in developing new technology to solve the complex issues of sediment transport within the system of beaches, bays and inlets. The latest tool for calculating benefits and residual risks using an event-based approach was discussed, and we found out how the *BeachFx* model really got its name. Throughout the week we were introduced to a wide variety of completed coastal projects, and witnessed firsthand how coastal districts are working hard to produce sustainable, environmentally-conscious engineering solutions to a wide array of coastal challenges.

We spent one of our days out in the field along the southern New Jersey shore, from Cape May to Atlantic City, which helped us see what completed and under-construction coastal projects look like. At Cape May, we saw how beach nourishment was combined with extensive wetland restoration to solve an erosion problem linked to jetties that were constructed north of the site for federal navigation.

Touring the completed portion of Cape May, NJ wetlands restoration project

Further north along the coast at Wildwood, NJ we saw where a feasibility study is underway to solve the problem of sand migrating along the littoral drift being cutoff by an inlet.

Visiting Whale Beach, NJ a narrow beach where geo-tubes were used to create a dune

At Whale Beach we saw where geotubes were used to create a dune on a very narrow area of the coast.

And in Atlantic City, we witnessed a beach nourishment project that has been performing better than anticipated as actual erosion experienced after the first nourishment was less than expected.

Later in the week, a panel of experts from around the Corps was assembled to discuss lessons learned from the 2004-2005 hurricane seasons. The panel included Mr. Charlie Chesnutt, Mr. Tim Axtman, Mr. Bill Curtis, Ms. Susan Durden, Mr. Brian Harper and some of our

instructors. As part of this process, the Corps is performing a shore protection assessment to learn how existing projects performed during the 2004 hurricanes that hit Florida. In light of Hurricane Katrina, the Corps is assessing means to change the way we do business.

Visiting the completed Atlantic City beach nourishment project

On the last day of our Philadelphia visit, another panel was convened consisting of folks outside the Corps that included Mr. Robert Brumbaugh of The Nature Conservancy; Mr. Marty Pagliughi, Mayor of Avalon, NJ; Mr. Howard Marlowe of Marlowe and Co., a Washington based lobbyist; Mr. Tony Pratt of the Delaware DNREC; and Dr. Scott Douglass, professor at the University of South Alabama and author of *Saving America's Beaches*. The wide variety of coastal topics discussed were informative and the differences in panel member opinions made for a compelling session.

On our way to the next course in Rock Island, Illinois several of the PAs spent the weekend in my hometown, Chicago. We were lucky enough to score bleacher seats to the biggest game of the year, when the White Sox come north to battle the Cubs at Wrigley Field for the annual "Crosstown Classic!" I'm proud to say the Cubs took the series and we witnessed a Cubs win that included a grand slam by Derrek Lee, a two run homer by the Cubs pitcher Jason Marquis, a wedding proposal two rows in front of us, and a heated exchange between fans epitomizing the Cubs-White Sox rivalry.

Our second week was spent in the Quad Cities, home of John Deere, Midwestern charm, and the Rock Island District, which is part of Mississippi Valley Division's Planning Center of Expertise for Ecosystem Restoration. The course was hosted by Ms. Jodi Staebell and Mr. Brad Thompson, both from the Rock Island District. Unlike

Enjoying the Cubs win over the White Sox at Wrigley Field

the Coastal Storm Damage Reduction, most of this year's PAs had various levels of ecosystem restoration experience coming into this course. We were introduced with a Division command briefing and the history of the Corps' ecosystem restoration program and authorities, which have evolved along with the Nation's environmental ethic.

Over the course of the week our instructors presented concepts and discussed issues that varied from resource significance and quantifying benefits to why it's difficult to perform cross-project comparisons on ecosystem restoration projects. Our instructors included Ms. Susan Smith, Mr. John Wright, Ms. Camie Knollenberg, Mr. Mark McKevitt, Mr. Scott Miner, Mr. Leigh Skaggs, Mr. Rayford Wilbanks, Ms. Anne Kosel, Mr. Troy Hythecker, Ms. Sue Davis, and our two course owners.

Touring the historic Clock Tower Building at the Rock Island District. Completed in 1867, the clock still works today yet requires periodic adjustments to keep accurate time.

Ecosystem restoration is a relatively new mission for the Corps and new field of study in general. As such, the Corps is helping to lead the way in developing procedures to formulate and evaluate ecosystem restoration projects. Plan formulation for ecosystem restoration is different than other Corps missions, such as flood damage reduction and navigation, because it lacks a unique and consistent measurement of outputs.

Ecosystem restoration projects are incrementally justified based on the value of increased quality and quantity of habitat outputs. There are several methods available in determining ecosystem outputs including a host of quality models and assessment tools. We discussed how the determination of resource significance is crucial to the justification for Corps investment. The concept of performance-based budgeting in an attempt to maximize benefits across the program due to limited funds and the current budget criteria were also presented.

As part of the week, we spent a day out in the field along the Upper Mississippi River from Rock Island upstream to La Crosse, Wisconsin. We drove through parts of four states that day including Iowa, Minnesota, Wisconsin, and Illinois. We toured parts of the Pool 8 Island Habitat Restoration project, which is part of the Upper Mississippi River Environmental Management Program (UMR-EMP).

This project is a multi-agency effort to restore many of the islands in Pool 8 that have either eroded or completely disappeared as a result of building locks and forming navigation pools. The restoration area is located within a National Wildlife and Fish Refuge and the loss of natural islands due to erosion was caused by increased wind fetch in the backwater areas. We learned that the erosion has resulted in a loss of valuable aquatic plant beds that migrating canvasback ducks use for food. In addition we learned the area is a globally significant bird sanctuary as between 50-70% of the world's canvasback duck population use the area annually.

Visiting the Upper Mississippi River Pool 8 Island Habitat Restoration project

This project is currently in Phase III of five planned phases. Additionally, Phases I and II together received the Environmental Award of Excellence from the Chief of Engineers in 2004. We traveled to one of the recently restored islands via boats that were captained by project team members from the various agencies. On the island, presentations on project components were given by Mr. Ray Marinan of St. Paul District, Mr. Jim Nissen of USFWS, Mr. Scot Johnson of Minnesota DNR, Mr. Jeff Janvrin of Wisconsin DNR, and Mr. Brian Ickes of USGS. We witnessed a collaborative spirit amongst all the project team members, which largely contributed to the overall success of this project.

Jim Nissen, USFWS and Jeff Janvrin, WIDNR explain the change in geomorphology of lower Pool 8 over time

Later in the week, four of the largest ecosystem restoration projects underway by the Corps were presented, followed by a lively panel discussion. Project presenters and panel members included Mr. Troy Constance of the Louisiana Coastal Area Ecosystem Restoration Study, Mr. Eric Bush of the Comprehensive Everglades Restoration Plan, Mr. Mike George of the Missouri River Recovery Study, and Mr. Mark Cornish of the Upper Mississippi River Navigation and Ecosystem Sustainability Program. Topics that were discussed included valuing ecosystem services, collaborative planning, adaptive management, and taking a systems approach to ecosystem restoration.

On the last day, a non-Federal sponsor panel was convened consisting of Mr. Doug Blodgett of The Nature

Conservancy, Ms. Gretchen Benjamin of the Wisconsin DNR, and Mr. Dan Edge of Belleville, WI. The discussions included a wide variety of ecosystem restoration topics and were quite informative thanks to the panel members' honest perspectives and experiences in dealing with the Corps as a project partner.

The two weeks we spent in Philadelphia and Rock Island were filled with new experiences and offered opportunities to build new relationships. The PAs offer our sincere thanks to the course owners, instructors and panel members who helped make these two weeks very rewarding. It's clear the knowledge we gained and the relationships we formed will help us become better planners. And now we look ahead to our next trip in June, which has us headed to the West coast for courses on Endangered Species Act, Hydropower, Water Supply, and Recreation in Portland, Oregon and Flood Damage Reduction in Davis, California.

Where are the PAs in their year long journey?
The bold items show the courses just completed.

1. Cultural Resources Management and Tribal Affairs
2. Team Building, Leadership, and Communication
3. Washington DC Experience
4. Deep Draft Navigation
5. Inland Navigation
6. **Hurricane and Storm Damage Reduction**
7. **Ecosystem Restoration**
8. Endangered Species Act, Hydropower, Water Supply, Recreation
9. Flood Damage Reduction and Hydraulic Engineering
10. Small Boat Harbors and Intergovernmental Affairs
11. Engineer Research and Development Center
12. Watersheds

SMART RIVERS 2007 CONFERENCE ANNOUNCEMENT

Registration is now open for the **Smart Rivers 2007 Conference** to be held on September 16-19, 2007 in Louisville, KY. The conference will focus on "Positioning Inland Navigation as a Powerful Link in the Global Supply Chain." Professionals interested in sharing knowledge and experience in order to achieve a better and more efficient integration of inland waterways (rivers and channels) into an integrated intermodal transport system are invited to register and attend this important conference.

The three-day conference will include a strong technical agenda and a pre-conference workshop on "The Future of the U.S. Inland Navigation System – Meeting the Challenges." Tours will be offered to the McAlpine Locks and Dam, Jeffboat Shipyard, Falls of the Ohio, and on a Historic Steamboat Cruise on the Ohio River. The conference will also feature industry exhibits and networking events, and is expected to draw more than 200 port and waterway executives, policy and technical professionals from the U.S. and Europe.

McAlpine Locks and Dam

The 2007 conference, organized by PIANC USA, will be the third in a series of international joint conferences on synergies for an efficient waterway system in Europe and the U.S.

For registration information and the detailed conference agenda, please go to www.pianc.us.

How do flood benefits relate to insurance?

Question: Isn't it true that the Corps counts as economic benefits (for benefit-cost analysis) of a structural project - the savings from NOT having to buy flood insurance and the savings from NOT having to import fill (since X number homes will be built out of the floodplain - in the newly protected area). Someone correct me if I'm wrong.

Response: *By Dr. David M. Moser, Chief Economist, USACE*

If flood insurance premiums are actuarially based, the annual premium should equal expected annual flood damage plus administrative cost of the insurance carrier. This is true of all property damage portions of insurance coverage. A flood damage reduction project's economic benefits are primarily measured as a reduction in expected annual damage. If insurance is actuarially based, a FDR project should result in a reduction in flood insurance premiums equal to the FDR benefits of the project. Whether or not insurance premiums are actually reduced is another matter.

We cannot count as benefits both the reduction in expected annual damage and the reduction in insurance premiums as they are, conceptually at least, measuring the same value. To count both is double counting. Whether or not insurance premiums are reduced is an "incidence of benefits" issue – that is, to whom the benefits accrue. If premiums are not reduced, the "FDR benefit" is captured by the insurance company; if they are reduced, the property owner gets the benefit.

Presumably the "fill" issue stems from new construction or substantial improvement of structures within a FEMA base flood area. There is no requirement to raise the first floor of an existing structure although this may be part of a non-structural plan. If a FDR project removes an area from the base flood, new structures would not be required to be raised on fill or otherwise elevated. FDR benefits should be based on avoided flood proofing costs. This gets a little complicated so benefits to a project that removes flood plain land use regulations are limited by policy on "location benefits". Location benefits arise when the use of a property changes due to a project.

"The magnitude of location benefits that can be claimed is limited by policy. In general, the NED Plan will be formulated to protect existing development and vacant property that is interspersed with existing development. Location benefits can be claimed for vacant property that is not interspersed with existing development only if it is demonstrated that the vacant property would be developed without the project and the benefits are based on savings in future flood proofing costs." ER 1105-2-100, 3.3, c. (1)

This suggests that the avoided fill costs when interspersed, currently vacant property is developed, is an NED benefit but that the reduced expected annual damage is not. To avoid fill costs when vacant property is developed, the FDR project must provide sufficient protection so that the use of vacant property is not restricted due to its flood prone location. The presumption being that the avoided fill costs are the most the property owner is willing to pay for flood protection, at least to get FEMA certification.

Also, you will note that location benefits to vacant property NOT interspersed within existing development is a little fuzzy.

To summarize:

1) FDR benefits are represented by reduced expected annual damage or reduced insurance premiums but not both. Administrative savings of reduced flood insurance polices are reported in an annual Corps Economic Guidance Memorandum.

2) Fill costs avoided are NED benefits, but not expected annual damage reduced to new development as described by policy. But there are some nuances that require more considerations than can be fully addressed here.

EMPLOYMENT OPPORTUNITIES

These are but a few of the many available positions advertised on the Army's Civilian Personnel on line website: http://cpol.army.mil

DEPARTMENT OF THE ARMY
Vacancy Announcement Number: SCGV07727909-2
Opening Date: June 11, 2007 **Closing Date**: July 13, 2007
Position: YA-2: Social Scientist (0101), Economist (0110)
Salary: $43,731.00 - $98,040.00 Annual
Place of Work: US Army Engineer Dist, Jacksonville, Everglades Division, Recover Branch, Jacksonville, FL 32232
Position Status: This is a Permanent position. -- Full Time
Number of Vacancy: 01
NSPS Position: This position is covered by the National Security Personnel System. For more information on NSPS, please visit the website at http://www.cpms.osd.mil/nsps/index.html.

DEPARTMENT OF THE ARMY
Vacancy Announcement Number: WTKC07074589
Opening Date: June 15, 2007 **Closing Date**: July 16, 2007
Position: GS-13:Social Science (0101), Regional Economist (0110), Archaeologist (0193), Biologist (0401), Fishery Biologist (0482), General Engineer (0801), Architect (0808), Civil Engineer (0810), Physical Scientist (1301)
Salary: $75,414.00 - $98,041.00 Annual
Place of Work: US Army Engineer District, Albuquerque, Planning, Project and Program Mgmt Div, Civil Works Project Management Branch, Albuquerque, NM
Position Status: This is a Permanent position. -- Full Time
Number of Vacancy: 1

DEPARTMENT OF THE ARMY
Vacancy Announcement Number: WTKC07074589P12
Opening Date: June 15, 2007 **Closing Date**: July 16, 2007
Position: **GS-12:Social Science (0101), Regional Economist (0110), Archaeologist (0193), Biologist (0401), Fishery Biologist (0482), General Engineer (0801), Architect (0808), Civil Engineer (0810), Physical Scientist (1301)**
Salary: $63,417.00 - $82,446.00 Annual
Place of Work: US Army Engineer District, Albuquerque, Planning, Project and Program Mgmt Div, Civil Works Project Management Branch, Albuquerque, NM
Position Status: This is a Permanent position. -- Full Time
Number of Vacancy: 1

DEPARTMENT OF THE ARMY
Vacancy Announcement Number: SCGV07066020-1
Opening Date: June 18, 2007 **Closing Date**: July 17, 2007
Position: **YA-2: Social Scientist (0101), Economist (0110), Geography (0150), Archaeologist (0193)**
Salary: $43,731 - $86,568 Annual
Place of Work: U.S. Army Engineer District, Jacksonville, Everglades Division, Recover & System-Wide Analysis Branch, Jacksonville, FL 32232
Position Status: This is a Permanent position. -- Full Time
Number of Vacancy: 02
NSPS Position: This position is covered by the National Security Personnel System. For more information on NSPS, please visit the website at http://www.cpms.osd.mil/nsps/index.html.

DEPARTMENT OF THE ARMY
Vacancy Announcement Number: SWGM07070091
Opening Date: June 29, 2007 **Closing Date**: July 30, 2007
Position: YC-2: Supervisory Community Planning (0020), Supervisory Economist (0110), Supervisory Archaeologist (0193)
Salary: $89,115 - $115,848 Annual
Place of Work: US Army Engineer District, Nashville, Planning, Programs and Project Mgmt Division, Planning Branch, Nashville, TN
Position Status: This is a Permanent position. -- Full Time
Number of Vacancy: 1
NSPS Position: This position is covered by the National Security Personnel System. For more information on NSPS, please visit the website at http://www.cpms.osd.mil/nsps/index.html.

TRAINING COURSES

Upcoming PROSPECT training courses of interest to the members of the Planning CoP include:

RISK ANALYSIS-FLOOD DAMAGE REDUCTION PROJECTS (Control #209)
September 10-14, 2007 Davis, CA

This course introduces Corps of Engineers field office staff to risk-based analysis for flood damage reduction projects. Participants will know the methodologies for determining uncertainty in discharge, stage, and damage and how to evaluate project size and performance accounting for the uncertainty in these parameters. Project function, safety, and workability are reviewed to increase awareness of how these issues affect the formulation of project features. The course presents current policy and technical procedures for conducting risk-based analysis of typical flood damage reduction projects such as levees, channels, and reservoirs. Included are lectures and case studies describing procedures for determining uncertainty in discharge-frequency, stage-discharge, and stage-damage relationships for various project site characteristics. Procedures for conducting Monte Carlo simulations for evaluating project reliability and size are described using current software developed for the personal computer. Concepts and procedures are demonstrated and practiced in classroom workshops. Current Corps policy related to risk-based analysis is also discussed.

PCA/FINANCE PLAN DEV (Control # 315)
March 17-21, 2008 Honolulu, HI
June 9-13, 2008 Cincinnati, OH

This course provides project managers, real estate specialists, counsel, and others working project cooperative agreements with the basic knowledge, skills, and abilities needed to develop PCA packages and to conduct financial analyses during project planning and implementation. Participants will learn critical aspects of managing the PCA process from understanding the fundamentals of project finance and financial analysis principles and methods, its relationship to program/project management, funding and construction scheduling and the new start Project Cooperation Agreement (PCA), policy, development, and negotiation. Topics include: (a) Policy for New Start/Project Cooperation Agreement Process, Development Negotiation and Processing; (b) Planning, Policy, Program, Real Estate, and Legal Considerations; (c) Non-Federal Financing Considerations; (d) Municipal Finance/Credit Analysis/Cost/Revenue and Fiscal Analysis; (e) Program Management and Implementation Procedures and Applications; (f) Budgeting, Funding, and Construction Scheduling; (g) Policies and Procedures to Account for Project Funds, (h) Project Examples and Experiences, and (i) Legal Aspects.

PLANNING FOR ECOSYSTEM RESTORATION (Control Number # 348)
May 5-8, 2008 Phoenix, AZ

Ecosystem restoration is a priority mission in the Corps' Civil Works program. Together with traditional environmental mitigation, restoration spans the range of resources from fish and wildlife to watersheds and ecosystems. The formulation and evaluation that leads to restoration projects require a collaborative approach that also involves local sponsors and other stakeholders. This course explores key issues related to the current practice of ecosystem restoration planning: current and evolving policy, definition and measurement of ecosystem outputs, resource significance, plan formulation, and cost effectiveness/incremental cost analyses. Case studies and a half-day field trip to a local Corps restoration project will be utilized to illustrate current practices.

Within the context of the six-step planning process, the following topics will be discussed: (a) Authorities for Corps involvement in ecosystem restoration projects, (b) Environmental outputs and tools available for measuring them, (c) The meaning of resource significance and the importance of the evaluation criteria of efficiency, effectiveness, acceptability and completeness in ecosystem restoration, (d) Fundamentals of ecological principles and processes, (e) Management measures, (f) How risk and uncertainty factor into ecosystem restoration evaluation, (g) The purpose of Cost Effectiveness and Incremental Cost Analysis, (h) How to formulate jointly for ecosystem restoration (NER) and National Economic Development (NED) benefits. (NOTE: Although this course addresses evaluation tools and procedures for ecosystem restoration planning, this is not a course in the theory/mechanics of ecological or habitat models such as HEP or HGM).

RISK ANALYSIS-WRP&M (Control # 349)
June 2-6, 2008 DAVIS, CA

This course introduces concepts of risk analysis into Corps of Engineers planning studies and extends these concepts to studies for structural rehabilitation and for management and operations of existing projects. Risk analysis is an evaluation framework, joined with benefit-cost analysis, to formally introduce mechanisms for evaluating alternative solutions under conditions of risk and uncertainty (R&U). Many techniques are already in use by Corps analysts, but are not applied in systematic and uniform manner. New methods and analytical models have been developed, along with a body of information on risk perception and communication that will also be transferred to practice.

Risk analysis is an integral component of Corps of Engineers planning, much as benefit-cost analysis is. It affects all technical analysis throughout each step of the planning process. For example, risk perception and communication is an important element of the scoping process. Environmental analysis, hydrologic analysis, and benefit-cost analysis all require a component of R&U analysis. In addition, risk-based analysis concepts are being adopted or proposed for use in operations and maintenance; particularly, the evaluation of major rehabilitation and dredging. Major risk analysis in planning and management topics to be included in this course are (a) concepts, (b) probability and statistics; (c) models for risk analysis; (d) hydrologic and hydraulic risk; (e) risk and reliability in rehabilitation analysis of hydraulic structures; (f) risk in planning and management of maintenance dredging; (g) forecasting uncertainty; (h) benefit-cost uncertainty; and (i) case studies for flood control and navigation planning.

To attend these courses or to receive additional information about these or other PROSPECT training courses, please contact the USACE Learning Center at http://pdsc.usace.army.mil.

WORKSHOPS

STREAM and RIPARIAN CORRIDOR RESTORATION WORKSHOP

The U.S. Army Engineer Research and Development Center (ERDC), and the Arkansas Game and Fish Commission announce a 3.5-day workshop scheduled for Sept 10-14, 2007 in Springdale, Arkansas. This will be an excellent opportunity to look at constructed and disturbed stream and riparian systems in a range of conditions and settings.

The objectives of this workshop are to introduce the methodology and procedures for initiating, planning, analyzing, and ultimately designing long-term sustainable river corridor and stream stabilization/restoration projects. Innovative, environmentally sensitive, and cost-effective approaches to aquatic and riparian habitat will be discussed. Comprehensive case studies will also be presented. Two days of field trips to local stream sites will be conducted. Rain gear and appropriate field clothes are recommended for the field trip. Two weeks before class registered participants will be e-mailed instructions on how to download class notes from a dedicated FTP site. Participants can then print & bring notes to class, or bring a laptop.

The cost of the workshop is $50.00. For additional information concerning the workshop, contact the Arkansas Game and Fish Commission, Russellville Regional Office, 1266 Lock and Dam Road, Russellville, AR 72802, phone: 1-877-967-7577 or (479) 967-7577.

CONFERENCES

Transportation Research Board 2007 Summer Conference
July 7-9, 2007 Chicago, IL
Additional information: http://www.trb.org/conferences/2007/Joint%20Summer/2007SummerConfFlyer.pdf

USACE, Chief of Engineers Environmental Advisory Board Meeting
July 18, 2007 Washington, DC
http://www.usace.army.mil/cw/hot_topics/eab.htm

Coastal Zone 07
July 22-26, 2007 Portland, OR
Additional information: http://www.csc.noaa.gov/cz/

Universities Council on Water Resources 2007 Annual Conference
July 24-26, 2007 Boise, ID
Additional information: http://www.ucowr.siu.edu

The Center for Strategic Leadership. United States Army War College
Proteus "Futures" Academic Workshop
August 14-16, 2007 Carlisle Barracks, PA
Additional information: https://www.carlisle.army.mil/proteus

Association of State Dam Safety Officials, 2007 Annual National Conference
September 9-13, 2007 Austin, TX
Additional information: http://www.damsafety.org/

Smart Rivers 2007
September 16-19, 2007 Louisville, KY
Additional information: http://www.pianc.iwr.usace.army.mil/smart_rivers2007.htm

USACE – Nature Conservancy, Third Partnership Conference: Developing Sustainable Aquatic Solutions
October 1 - 4, 2007 Wheeling, West Virginia

International Commission on Irrigation and Drainage, Fourth International Conference on Irrigation and Drainage
October 3-6, 2007 Sacramento, CA
Additional information: http://www.icid2007.org/

American Shore and Beach Preservation Association and Texas General Land Office Fall Conference
October 22-24, 2007 Galveston, TX
Additional information: http://www.asbpa.org/conferences/conf_fall_07.htm

National Oceanic and Atmospheric Administration 32nd Annual Climate Diagnostics and Prediction Workshop
October 22-26, 2007 Tallahassee, FL
Additional information: http://www.cpc.noaa.gov/products/outreach/CDPW32.shtml

Interstate Council on Water Policy Annual Meeting
October 23-25, 2007 New Orleans, LA
Additional information: http://www.icwp.org

AWRA Annual Water Resources Conference
November 12-15, 2007 Albuquerque, NM
Additional information: http://www.awra.org/meetings/New_Mexico2007/index.html

The Center for Strategic Leadership. United States Army War College
"Threats at Our Threshold: Securing and Defending the United States in the 21st Century" Symposium
November 14-15, 2007 Carlisle Barracks, PA
Additional information: http://www.carlisle.army.mil/usacsl/events.asp

4th International Symposium on Flood Defense
May 14-16, 2008 Toronto, Canada
Addition information: http://www.flood2008.org/flood/

PUBLICATIONS

The following is a list of recently published reports, studies, or articles prepared by the Corps of Engineers, other Federal agencies, or other research organizations

Organization for Economic Cooperation and Development – Food and Agriculture Organization of the United Nations, "Agricultural Outlook 2007-2016", available at http://www.oecd.org/dataoecd/6/10/38893266.pdf

Draft Integrated Final Report to Congress and Legislative Environmental Impact Statement for the Mississippi River – Gulf Outlet Deep Draft De-authorization Study, U.S. Army Corps of Engineers, New Orleans District, available at http://mrgo.usace.army.mil/default.aspx?p=MRGO

South Florida Ecosystem: Restoration Is Moving Forward but Is Facing Significant Delays, Implementation Challenges, and Rising Costs, U.S. Government Accountability Office, Report Number GAO-07-520, available at http://www.gao.gov/new.items/d07520.pdf

Measuring the Impacts of Climate Change on North Carolina Coastal Resources, Final Report Prepared for National Commission on Energy Policy, available at: http://econ.appstate.edu/climate/NC-NCEP%20final%20report.031507.pdf

Colorado River Basin Water Management: Evaluating and Adjusting to Hydroclimatic Variability, Prepared by Committee on the Scientific Bases of Colorado River Basin Water Management, National Research Council, Available at http://www.nap.edu/catalog/11857.html

Washington's Ocean Action Plan: Enhancing Management of Washington State's Ocean and Outer Coasts, Volume 1: Final Report of the Washington State Ocean Policy Work Group, available at http://www.ecy.wa.gov/programs/sea/ocean/pdf/OPWG_Volume1_web.pdf

Energy Demands on Water Resources: Report to Congress on the Interdependency of Energy and Water, U.S. Department of Energy, available at http://www.sandia.gov/energy-water/docs/121-RptToCongress-EWwEIAcomments-FINAL.pdf

HSRP Most Wanted Hydrographic Services Improvements, Prepared by Hydrographic Services Review Panel, Federal Advisory Committee, Special Report 2007, available at http://nauticalcharts.noaa.gov/ocs/hsrp/archive/general/hsrpspecrpt2007.pdf

Topics Geo: Natural Catastrophes 2006 – Analyses, Assessments, Positions. Prepared by Munich Re Group, available at http://www.munichre.com/publications/302-05217_en.pdf

360 Risk Project: Catastrophe Trends, Prepared by Lloyds, available at: http://www.lloyds.com/News_Centre/360_risk_project/

HOW TO CONTRIBUTE TO *PLANNING AHEAD*

Planning Ahead is designed to foster communication amongst the members of the Planning community of practice within the Corps, with those other members of the Corps family with which planners interact on a daily basis, and with members of the general public outside of the Corps. It is our goal that future editions of the newsletter will include information and perspectives of those members of the planning community on the front lines of the Corps' planning efforts, the District and Division offices. We hope that this newsletter becomes a forum to share your experiences to help the entire planning community learn from one another. We welcome your thoughts, comments, questions, suggestions, success stories, and lessons learned, so that we can share them with the broader community. Submissions should be moderate in length (4-5 paragraphs), except in cases where the article is compelling and circumstances warrant a lengthier treatment of the subject. The article should be prepared as a MS Word document. Pictures accompanying submitted articles are welcome. Pictures must be in JPEG format.

The deadline for material to be published in the next issue of *Planning Ahead* is
Wednesday, July 25, 2007

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http://www.usace.army.mil/cw/cecw-cp/news/pa_newsletter/pa_news.html