

MINUTES  
**CHIEF OF ENGINEERS ENVIRONMENTAL ADVISORY BOARD**  
January 22, 2010  
Mobile, Alabama

1. The Chief of Engineers, **LTG Robert L. Van Antwerp**, called the Environmental Advisory Board (EAB) to order at 0900, hours, 22 January 2010 at The Battle House Hotel, Mobile, AL. The following EAB members were present:
  - **Mr. Terry Cook**, EAB Vice-Chair, State Director of the Kentucky Chapter of the Nature Conservancy.
  - **Dr. Christopher I. Goddard**, Executive Director of the Great Lakes Fisheries Commission;
  - **Dr. William L. Graf**, Foundation University Professor and Chair, Department of Geography, University of South Carolina
  - **Mr. Robert S. Joe**, Special Projects Manager (Retired), Metropolitan Water District of Southern California;
  - **Dr. James E. Kundell**, EAB Chair, Professor Emeritus and Director of the Environmental Policy Program (Retired), Vinson Institute of Government, University of Georgia
  - **Dr. Denise J. Reed**, Professor, Department of Earth and Environmental Sciences, University of New Orleans; and,
  - **Dr. William W. Walker**, Executive Director, Mississippi Department of Marine Resources

Also present were **Mr. Steven Stockton**, Director of Civil Works; **MG William Grisoli**, Deputy Commanding General for Civil and Emergency Operations; **Mr. Theodore (Tab) Brown**, Chief of Planning and Policy; and **Ms. Rennie Sherman**, Executive Secretary for the EAB.

## 2. WELCOMING REMARKS AND OPENING DISCUSSION

- The Chief of Engineers, LTG Robert L. Van Antwerp opened the meeting with welcoming remarks; discussing the importance of the EAB and having leaders in the environmental arena participate. He then introduced the EAB: Dr. James Kundell, Chair, Mr. Terry Cook, Dr. Christopher Goddard, Mr. Robert Joe, Dr. William Graf, Dr. Denise Reed and Dr. William Walker. Corps representatives included MG William Grisoli, Mr. Steven Stockton, Mr. Theodore Brown, Ms. Rennie Sherman and staff from the Mobile District, the Institute for Water Resources (IWR), Headquarters (HQ) and Engineering Research & Development Center (ERDC).
- LTG Van Antwerp presented Dr. Susan Rees and Ms. Ruda King with a Chief's coin in recognition of their significant roles and exceptional assistance in accomplishing this meeting.

- He then discussed the Campaign Plan for the U.S. Army Corps of Engineers (USACE), particularly the Plan's 4 goals of:
  - Ready for All Contingencies
  - Engineering Sustainable Water Resources
  - Delivering Effective, Resilient, Sustainable Solutions
  - Recruit and Retain Strong Teams
- Watershed planning, climate change, water resource management, sea level rise were mentioned as key issues
- LTG Van Antwerp discussed the USACE Environmental Operating Principles (EOP), indicating that the organization still has a way to go to engrain these into the USACE psyche.
- The Principles and Standards (P&S) make environmental benefits an equal partner to economic benefits and will hopefully change the nature of our business for the good.
- Asian carp is a pertinent current issue.
- After his opening remarks, LTG Van Antwerp performed the oath of office for Dr. Graf, Dr. Reed, and Dr. Walker as new members of the EAB and Dr. Kundell and Dr. Goddard for their second terms on the Board.
- Dr. Kundell thanked the Mobile District for hosting the EAB meeting and those attending.
- Dr. Kundell then updated the Chief on the actions of the EAB in the past year including:
  - The focus of the Board on ecosystem restoration and implementation of the EOPs.
  - Members of the Board attended the National Ecosystem Restoration Conference; EAB was instrumental in the creation of this series of ecosystem restoration conferences.
  - Research and Development (R&D) is a crucial area highlighted by the EAB and the Board believes USACE should use the best science available. EAB visited ERDC in August during a work session and one question was how USACE uses the R&D produced by ERDC and other labs in the Districts? The EAB had a discussion with the Mobile District on the previous day (Jan. 21) to talk about the use of R&D and it was a helpful and informative session.
  - Individual members of the EAB have participated in the initiative for Building Strong Collaborative Relationships for a Sustainable Water Resources Future. The EAB discussed the recommendations in the report and will be submitting comments on the draft report soon.
  - Individual members have also been involved in flood risk management and will continue to monitor progress on this issue.
  - The P&S and Principles and Guidelines (P&G) are important to USACE in the future. One of the major issues is quantifying environmental costs and benefits. The EAB will provide comments to the Corps on these reports in the next few weeks.

- EAB has started developing their work plan for the coming year and plan to finalize it at their next meeting. Dr. Kundell then opened the floor for the EAB members to make comments.
- Dr. Goddard said that over the past few years the EAB has visited a number of Districts and was impressed with how they have incorporated the EOPs. He was pleased to see USACE incorporating the issue of uncertainty and adaptive management. Dr. Goddard believes USACE is moving in the right direction with its environmental restoration efforts.
- LTG Van Antwerp said that adaptive management is essential when dealing with uncertainty. You cannot delay a project but have to start it and be able to adapt when moving forward. This idea will carry over to the P&S/P&G.
- Dr. Walker said that in terms of collaboration on a nationwide basis that USACE sat down with Mississippi state government after Hurricane Katrina and agreed to partner in the recovery efforts. The partnership with the USACE Mobile District resulted in a very well thought out recovery plan which will make the state better than before and more resilient and more protected in the future.
- Dr. Graf said that the partnerships with scientific communities include the ability to share data with the public who have invested much into federal agencies so environmental data should be made available to the public. Dr. Graf would like to see reciprocal relationship of sharing data with universities and USACE.
- LTG Van Antwerp said that he thinks the sharing of information is important. The USACE R&D community needs to also give us the truth, no matter what. Bigger role is the R&D arena, how do we share data across those lines.
- Mr. Joe thought that USACE should focus on environmental health benefits and the Watershed Investment Decision Support Tool (WIDT).
- Dr. Kundell introduced Dr. George Crozier, previous chair of EAB, who was in attendance.

### **3. CLIMATE CHANGE INITIATIVES WITHIN THE CORPS**

- Dr. Kathleen White, Institute for Water Resources, opened her presentation by stating that it is a fact that climate change is unequivocal and that freshwater resources are vulnerable.
- Climate change is regional; there will be different impacts in different areas.
- We can project and try to predict climate change but there is much uncertainty going forward.
- Dr. White showed the four campaign plan goals, and highlighted the importance of adaptation and mitigation.
- MG Temple previously told the USACE staff that there should be “no duplication” of present studies, that USACE should use the data of others, including those science agencies receiving large funding for climate (NASA, NOAA, USGS), rather than re-creating the science. USACE is working with all federal entities and academia.
- USACE has been involved in climate change issues from the 1940’s beginning with ice cores in Greenland and then Antarctica.

- USGS Circular 1331 on climate change and water resources management represents a collaboration of the federal water resource operating agencies and presents the federal perspective on climate change impacts to water resources management.
- EC 1165-2-211 is updated USACE guidance to evaluate projects in terms of the sea level rise impacts. Because this is a fundamental process impacting the public safety and performance of our projects, there will be no grandfathering. We will need some time to evaluate our projects with respect to sea level, and potentially funding, to evaluate project alternatives.
- The future is uncertain; all curves are equally plausible; we must be robust to the potential futures; we cannot just plan for one. With water policy we have to be interdisciplinary and consider water as a common resource.
- Want to move from data-driven systems to decision-driven systems (WIDT)

## QUESTIONS AND DISCUSSION

- LTG Van Antwerp asked about designing projects today that will be built tomorrow, how do we think about this for the future of these projects? Dr. White agreed with the LTG Van Antwerp and said that we do need to make a decision now and build these projects, and that we typically have enough information now to conduct an evaluation to evaluate performance under future conditions (i.e., avoid paralysis), but we also need a mechanism to incorporate new and changing information. These issues should be part of the USACE asset management and adaptive management programs; to evaluate and constantly evolve the guidance for projects.
- Dr. Kundell asked - How do you deal with uncertainty? Dr. White first said that we need to explore the uncertainty thoroughly rather than simply try to reduce it immediately without a good understanding. Models should be considered hypotheses, with associated uncertainty about the results. As far as policy, USACE is dealing with sea level change first as there is much more scientific agreement regarding the potential changes of sea level in the future. Changes to hydrology are more difficult to predict as there is very little agreement in this area. The global circulation models (GCM) for instance may have some agreement on precipitation changes in the north and southwest, but there is really no agreement on the direction and magnitude of the changes for most of the country. Our first step in this was a workshop of national and international experts to discuss the issue of nonstationarity and how we should move forward in the future under the dynamic rather than static paradigm. This workshop was held last week in Boulder. We are also planning a second workshop to look at acceptable pathways from emissions scenarios through GCMs through downscaling to use in assessing planning and operational impacts (so-called “end-to-end” methodology). Because of uncertainty, we need the richness of many models and pathways, but at the same time, the pathways should be outcome-based and we should be able to provide guidance to districts and stakeholders about methods that provide the most useful information. The second workshop will take place in the May-June time frame. Regional downscaling adds

uncertainty but provides information at the operational time scale. We should not down-select now but need both dynamical and statistical downscaling.

Nonstationarity hydrology looks at the future, trying to figure out what the possible conditions will be for the future.

- Dr. Walker said that in reality certain decisions on changes in land use patterns, etc. are made by politicians who do not think much beyond the end of their political term. What the Gulf of Mexico Alliance is starting to do is develop short-term predictions and explain those to politicians and what might happen in the future. He asked that USACE help state governments in helping politicians make their decisions. Dr. White said that we need to make sure we understand both long-term and short-term impacts and the solutions which are often financial and political solutions and we need to inform decision makers of these issues. Communication of climate change information is an important part of the USACE program and we are learning more about this all the time.
- Dr. Graf said we should take a step back to view the overall philosophy of how USACE deals with climate change. USACE has enormous control over water with their interior water control infrastructure and these structures can be utilized to go on the offense and deal with future hydrology changes. We have to be flexible, so USACE can think of itself as an offensive position going forward. Dr. White said that a good point to highlight is that inland hydrology and coastal hydrology are different. For most of our 609 dams, we operate according to congressionally authorized operating rule curves, and we operate according to “water on the ground”. This can limit our flexibility, but we recognize this, and, knowing that more flexibility would likely be required in dealing with climate change impacts, we commissioned a study to evaluate our flexibility and options with respect to rule curves. This is one reason we are looking at updating our drought contingency plans. Note that where there is snow, we generally have more flexibility in the rule curves.
- LTG Van Antwerp indicated that he would like to work on predictive capability.
- MG Grisoli said that his previous experience on the Missouri River taught him and USACE to be more aware of the needs along the river and the way USACE operates the system.
- Dr. Reed said there is a disconnect between identifying climate change as a “Wicked Problem” and to get the GCMs downscaled to daily predictions. Dr. White said that when USACE operates reservoirs, we do it sub hourly, so needing specific data is a dilemma we face. Mean monthly data is not sufficient to evaluate impacts on an operational time scale, so we do need some type of downscaling, be it statistical, dynamical, or both. There is a need for an end-to-end methodology with the best available science. Reed indicated that a major focus should not be on getting it right but on how far we should not get it wrong. Dr. White agreed, and said that we do not want to be “precisely wrong.”
- Dr. Reed asked - how do you make sure that you use the best available science? She said that making sure that nothing is grandfathered in is good, but USACE has many partners who are in denial about climate change and related issues. What have been the consequences of the Sea-Level Change EC? Dr. White said that the EC only created a small change in the guidance compared to the previous

planning guidance. If the projects did not follow the previous guidance, it could be a major change but if they did use the guidance, the changes should be minor. Some stakeholders, e.g. California, are relieved that the guidance has been updated and strengthened. As far as policy development and best available science, other agencies such as NOAA and USGS were involved in developing the guidance, and there have been both internal and external reviews. The external reviews included other agencies, stakeholders, NGOs and others to ensure the best available science is used.

#### **4. Gulf of Mexico Alliance**

- Mr. Philip Hinesley, Alabama Department of Conservation and Natural Resources, gave a background and overview of the Alliance. He indicated that there has been much federal support for the Alliance through the National Oceanic Atmospheric Association, Environmental Protection Agency (EPA), and Department of the Interior.
- The Regional Sediment Management Master Plan has been drafted and will hopefully lead to a reduction in erosion and storm damages.
- Mr. Hinesley discussed some of the road blocks and hurdles they have faced. These include funding which at the present is not much of an issue but has been previously. They will have a line item in President's budget for regional ocean alliances but this money will be shared with other alliances nationwide.
- Walker said the Alliance is trying to go forward with a federal approach and encourage states to use regional partnerships. He asked that federal agencies and USACE look at what regions are trying to do and to align capabilities and support to mesh with regional alliances.
- Mr. Cook asked how can we more fully integrate states not on the coasts into the coastal alliances, and how can we support more inland alliances? EPA regions have reached out to some of the states, particularly regarding nutrient runoff problems. They are working through the EPA hypoxia taskforce to work with Iowa and some states in the region and have some pilot projects funded by EPA where ground water has been captured and returned to landscape in a wetland that is critical habitat for species and the amount of nutrients in water is reduced after it leaves the wetland. Louisiana and Mississippi have each pledged \$1 million to nutrient reduction efforts. Encouraging federal agencies, including the U.S. Department of Agriculture to help fund these efforts.
- Dr. Graf asked about the relationship with Mexico governments. Walker said that the six Mexican states along the Gulf of Mexico are interested in joining the Alliance. They have provided funding and resources to Mexico governments and they have also held a meeting with the Cuban government. Hinesley indicated that there are some barriers to this partnership, particularly language and travel restrictions.
- Dr. Graf asked what are implications of shipping and commercial development on the Mexican coast (Yucatan) in terms of economic impact.

Dr. Walker said the Gulf Coast Governors are interested in this issue since there will be much larger cargo ships coming through the Panama Canal and states are trying to adjust to these changing conditions.

**5. Navigation Lock Fish Passage at Woodruff Lock and Dam and Claiborne/Millers Ferry**

- Mr. Brian Zettle, USACE Mobile District, provided an overview of the study which tracked the Alabama shad to determine how they actually move through the lock.
- The typical fish passage operation is similar to the locking of a boat. They usually have one in the morning and one in afternoon, leaving it open for 30 minutes to an hour.
- Attraction flow was used in relatively dry years.
- Most of the funding for the project was from the Georgia Department of Natural Resources.
- Mr. Zettle hopes through this effort and others to improve the population numbers of the shad.
- Locking is an effective, low cost method for moving fish.
- Dr. Goddard asked if they have thought about increasing the flow to increase the attractiveness of the lock? Mr. Zettle responded that this has not been addressed yet because there are issues with funding, but they are thinking about adaptive management for the future.
- Dr. Kundell said that the study looked at dry and wet years, but did you factor in the seasonal differences (within the season)? Mr. Zettle replied that they are still awaiting the data. Then, they will be able to look back and see if and how the flows factor in.

**6. PUBLIC COMMENTS**

- No public comments

**7. CLOSING REMARKS AND ADJOURNMENT**

- Dr. Kundell thanked the Mobile District and USACE staff for helping put together the EAB meeting.
- LTG Van Antwerp called for comments from around the table.
- Mr. Brown mentioned the Planning Community of Practice Conference in June 7-10, 2010 in Orlando, FL and encouraged all members to attend the conference.
- Dr. Walker said he appreciates the opportunity to serve on the EAB and for the opportunity to increase collaboration with USACE and state agencies. He is encouraged by hearing USACE talk about changing the way they do business and to have more effective methods. Gen. Antwerp responded that

USACE is trying to change their culture and appreciate you (Walker) coming to the table.

- Mr. Joe said that he has been with USACE for many years, and has observed a cultural change with the agency being much more progressive now.
- Mr. Cook was gratified to hear The Nature Conservancy (TNC) mentioned on many occasions and to see the level of collaboration. He appreciates USACE and the leadership role they are taking to have a national dialogue on these issues.
- Mr. Stockton said that he appreciates the dialogue and discussion and would appreciate the comments of EAB on the Building Collaborative draft report.
- Dr. Reed said she has been on the Board previously and is pleased to see USACE taking climate change seriously. She thinks it's essential that USACE is thinking about climate change and how to get out adaptations in the field. To see the USACE trying to collaborate is good to see. Work on environmental assessment benefits is moving along which is also good to see. One continuing challenge is that there is no central contact at USACE HQ with knowledge and information on environmental issues.
- Dr. Graf said USACE is a very old organization and although it has changed slowly, we will need to change faster now. Some of the things USACE has done in the past will be less important, while the environmental component will be a major part of USACE's work in the 21<sup>st</sup> century. Water is a strategic resource that gives a nation power. The role of USACE in restoring the environment will become more important and the EAB would like to help with that. On a day-to-day basis we are worried about the small things but it is important to step back and see that environmental restoration and maintenance success may be the most important thing we do.
- LTG Van Antwerp said that a sign of a good organization is understanding what their core mission is but also having the ability to change and adapt. Some of what is happening now changes the dynamics of the system.
- MG Grisoli said that he enjoyed the session and the opportunity to learn and he looks forward to future discussions.
- LTG Van Antwerp said thank you to everyone and adjourned the meeting.