

WORKSHOP ON WATERSHED RESERVOIRS: LOCATIONS, EFFECTS AND SOLUTIONS

*APRIL 13-15, 2009
CHARLOTTE HARBOR EVENT AND CONFERENCE CENTER
PUNTA GORDA, FLORIDA*

*HOSTED BY THE
CHARLOTTE HARBOR NATIONAL ESTUARY PROGRAM*



Harns Marsh, Lee County. Photograph provided by the East (Lee) County Water Control District

The **CHARLOTTE HARBOR NATIONAL ESTUARY PROGRAM** is a partnership of citizens, elected officials, resource managers and commercial and recreational resource users working to protect the ecological integrity of the greater Charlotte Harbor watershed. A cooperative decision-making process is used within the Program to address diverse resource management concerns in the 4,700-square-mile study area.

THE CHNEP WISHES TO THANK THE FOLLOWING PEOPLE FOR THEIR GENEROUS CONTRIBUTIONS TOWARD MAKING THIS WORKSHOP POSSIBLE:

Sponsors

CF Industries (\$1,500)
Coastal Wildlife Club (\$100)
Friends of the Charlotte Harbor Aquatic Preserves (\$100)
Greater Charlotte Harbor Sierra Club (\$100)
Lemon Bay Conservancy (\$100)
PBS&J (\$1,500)
Scheda Ecological (\$500)

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Peer Reviewers

Dr. Ernst Peebles, USF College of Marine Sciences
Mr. Arturo Torres, USGS Florida Integrated Sciences Center
Dr. Sam Upchurch, SDI Environmental Services, Inc.



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**WORKSHOP ON WATERSHED RESERVOIRS:
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APRIL 13-14, 2009
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PURPOSES, OBJECTIVES AND OUTCOMES

Workshop Purposes:

- Begin a process to bring public and private stakeholders together to inform and educate the community regarding reservoirs within the CHNEP watershed.
- Provide a forum for exchange of technical information between scientists and citizens about the locations, purposes, designs, benefits, impacts, alternatives and solutions for existing and proposed reservoirs on the natural environment in the CHNEP watershed.
- Implement the CHNEP CCMP Priority Action HA-K: Identify the hydrologic and environmental benefits and impacts of surface water reservoirs on estuaries within the CHNEP watershed.

Workshop Objectives:

- Facilitate understanding of current natural resource and human water budget needs and their relationship to reservoirs within the CHNEP watershed.
- Facilitate understanding of the locations, purposes, designs and management alternatives of existing and proposed reservoirs within the CHNEP watershed.
- Facilitate understanding of potential individual and cumulative habitat, water quality and hydrological benefits and impacts of existing and proposed reservoirs within the CHNEP.
- Develop recommendations for needed changes in reservoir research, review criteria, policies, public outreach and implementation strategies within the CHNEP watershed.

Workshop Outcomes (to be available on the CHNEP website at www.chnep.org):

- Background information about reservoirs within the CHNEP to review before the workshop.
- Bibliography of suggested references relating to reservoirs.
- Maps of existing and proposed reservoirs within the CHNEP Watershed.
- List of purposes, designs and management options for reservoirs within the CHNEP Watershed.
- List of current studies, methods and models used to evaluate benefits and impacts of reservoirs.
- List of types of benefits and impacts of reservoirs on habitats, water quality and hydrology.
- List of sum of cumulative benefits and impacts of reservoirs within the CHNEP watershed.
- Lists of current processes and criteria used to evaluate current and potential effects of reservoirs.
- List of criteria needed to enhance evaluation of reservoirs, and ideas for implementing criteria.
- List of research needed to enhance design, management and evaluation of reservoirs, and ideas for implementing research.
- List of policy changes needed to ensure reservoirs are consistent with CHNEP CCMP, and ideas for initiating policy changes.
- List of public outreach strategies needed to enhance understanding of reservoirs, and ideas for implementing outreach strategies.
- List of remaining questions and problems, and ideas for solving.
- Final Report of workshop technical presentations and facilitated discussions, available Fall 2009.

WORKSHOP GUIDELINES
FOR SHAPING SHARED UNDERSTANDINGS AND SOLUTIONS

Facilitators' Roles:

- The facilitators will guide discussions and seek consensus on workshop insights.
- The facilitators will maintain a record of group's products.

The Participants' Roles:

- Share in keeping to the agenda.
- Be focused and concise – balance participation.
- Ask questions and verify assumptions.
- Express and acknowledge differing views – no attacks or stereotyping.
- Seek shared understandings and consensus on workshop insights.
Make sure recording is accurate.
- Take notes and e-mail additional comments after the workshop.

Brainstorming Guidelines:

- Generate as many ideas as possible.
- Do not discuss or evaluate ideas until the end.
- Suggesting ideas does not imply a commitment to them.
- Innovative ideas are encouraged.
- Contribute one new idea at a time to the group list.

The Name Stacking Process:

- Facilitator asks who wants to speak on the topic, participants raise their hand.
- Facilitator assigns each person a number based in the order they observed person wishing to speak.
- Facilitator calls on each person based on that order.
- Facilitator may interrupt the stack (change the speaking order) in order to promote discussion on a specific issue or, to balance participation and allow those who have not spoken on an issue an opportunity to do so before others on the list who have already spoken on the issue.

AGENDA SUMMARY

DAY 1: MONDAY APRIL 13, 2009

- 8:00 a.m.** *Coffee and Registration*
- 8:15 a.m.** **Welcome, Introductions, Review Agenda and Workshop Ground Rules**
Welcome and Introductions
Dr. Lisa Beever, Director – Charlotte Harbor National Estuary Program
Review Workshop Agenda and Ground Rules
Dr. Tom Taylor – Florida Conflict Resolution Consortium/USF
Mr. Rafael Montalvo – Florida Conflict Resolution Consortium/UCF
- Session 1:** **Where are the Existing and Proposed Reservoirs within the CHNEP Watershed and what are the Habitat Effects?**
- 8:45 a.m.** **Reservoir Overview: Water Budgets, Landscape Patterns, Plans**
Dr. Lisa Beever, Director – Charlotte Harbor National Estuary Program
- 9:10 a.m.** **Overview of Potential Habitat Effects Associated with Reservoirs**
Dr. Joan Browder, Research Ecologist - NOAA National Marine Fisheries Service
Note: Dr. Browder’s presentation relates to Session 4: Benefits and Impacts of Reservoirs, but it is given here to accommodate scheduling conflicts.
- 9:35 a.m.** **Surface Water Resource Planning within the SWFWMD's Regional Water Supply Plan: Only the First Step**
Mr. Brian Armstrong, P.G. – SWFWMD Water Supply and Resource Development
- 10:00 a.m.** **Facilitated Exercise 1: Review and refine maps and lists of existing and proposed reservoirs within CHNEP watershed. Identify key insights from presentations.**
- 10:30 a.m.** *Break*
- Session 2:** **What are the Purposes, Designs and Management Options for Reservoirs within the CHNEP Watershed?**
- 10:45 a.m.** **Water Storage Considerations: A Case Study of an Alternative Design Plan**
Mr. Church Roberts, Ecologist – Johnson Engineering, Inc.
- 11:10 a.m.** **The Role of Agricultural Reservoirs in Watershed Management**
Mr. Bill Orendorff, Manager – SWFWMD Facilitating Agricultural Resource Management Program
- 11:35 a.m.** **Design and Construction of Reservoirs in South Florida**
Mr. Carl W. Christmann, P.E. – BCI Engineers and Scientists, Inc.
- Lunch and** **Key Note Speaker** (*Lunches are available for purchase on site or at nearby restaurants.*)
- 12:00 a.m.** **Lunch**
- 12:30 p.m.** **“Water Sustainability and the Future of Florida”**
Ms. Cynthia Barnett, Journalist – Florida Trend Magazine

- Session 2:** **Continued**
- 1:15 p.m.** **Design and Construction of Earthen Reservoirs in Florida (1967-2007)**
Dr. John Garlanger – Ardaman and Associates
- 1:40 p.m.** **Capture and Storage of Surface Water in the Peace River Basin: Above-ground vs. Underground Storage**
Mr. Peter J. Schreuder, CEO, Hydrologist – Schreuder, Inc.
- 2:05 p.m.** **Ecoreservoirs Program: EAA A-1 and C-43 CERP Alternatives**
Mr. Forest Gray Michael, Florida Landscape Architect
- 2:30 p.m.** **Facilitated Exercise 2:** Refine lists of purposes, designs and management options for reservoirs within the CHNEP watershed. Identify suggestions for balancing environmental and human uses.
- 3:00 p.m.** **Break**
- Session 3:** **What are Current Studies, Methods and Models Used to Evaluate Benefits and Impacts of Reservoirs?**
- 3:15 p.m.** **Using Hydrologic and Ecological Information to Develop Withdrawal Schedules for In-stream Impoundments and Off-stream Reservoirs in the SWFWMD**
Mr. Sid Flannery – SWFWMD
- 3:40 p.m.** **C-43 West Basin Storage Reservoir: An Acceler8 Project's Development Process, Potential Environmental Benefits, and Calculated Impacts**
Ms Sandy Scheda, President – Scheda Ecological Associates
- 4:05 p.m.** **Physicochemical Factors Affecting Near-Bottom Dissolved Oxygen Concentration in Reservoirs in Southwest Florida**
Mr. John Cassani – Lee County Hyacinth Control District
- 4:30 p.m.** **Facilitated Exercise 3:** Refine lists of studies, methods and models used to evaluate benefits and impacts of reservoirs and identify gaps in data and methods. Formulate suggestions for modeling and measuring effects.
- Day 1 Summary: What are the Technical and Facilitated Lessons Learned and Questions Remaining?**
- 5:00 p.m.** **Synopsis of Key Technical Points from Day 1**
Dr. Ernst Peebles, Biological Oceanographer – USF College of Marine Sciences
Mr. Arturo Torres, Chief – USGS FISC Special Studies Section
Dr. Sam Upchurch, Geologist – SDI Environmental Services, Inc.
- 5:15 p.m.** **Brief Concluding Thoughts from Participants**
Mr. Tom Taylor – Florida Conflict Resolution Consortium/FSU
Mr. Rafael Montalvo – Florida Conflict Resolution Consortium/UCF
- 5:25 p.m.** **Adjourn for the day**
- 5:30 p.m.** **Social Gathering (at a location to be announced.)**

AGENDA SUMMARY

DAY 2: TUESDAY APRIL 14, 2009

- 8:00 a.m.** *Coffee and Registration*
- 8:15 a.m.** ***Welcome and Summary of Day 1***
Welcome and Introductions
Dr. Lisa Beever, Director – Charlotte Harbor National Estuary Program
Review Workshop Agenda and Ground Rules
Mr. Tom Taylor – Florida Conflict Resolution Consortium/FSU
Mr. Rafael Montalvo – Florida Conflict Resolution Consortium/UCF
Synopsis of Main Points from Day 1
Dr. Ernst Peebles, Biological Oceanographer – USF College of Marine Sciences
Mr. Torres, Hydrologist – USGS FISC Special Studies Section
Dr. Upchurch, Geologist – SDI Environmental Services, Inc.
- Session 4:** **What are the Types of Potential Benefits and Impacts of Reservoirs?**
- 8:40 a.m.** **Potential Hydrologic and Water Quality Effects of Reservoirs**
Mr. George Kish, Hydrologist – USGS Hydrologic Investigations Section
- 9:20 a.m.** **The Use of Off-Stream Reservoirs Combined with Percent Flow Withdrawal Schedules to Reduce Downstream Estuarine Impacts**
Dr. Ralph Montgomery – PBS&J
- 9:45 a.m.** **Ecological Monitoring at the C.W. Bill Young Regional Reservoir**
Mr. Christopher Shea, Wetland Scientist – Tampa Bay Water
- 10:10 a.m.** ***Mini Break***
- 10:20 a.m.** **An Examination of the Ecological Health of Wetlands in Proximity to a Public Supply Off-Stream In-ground Reservoir in DeSoto County, Florida**
Mr. Jeffrey L. Clark, PMP – EarthBalance
- 10:45 a.m.** **Facilitated Exercise 4: Refine a general list of benefits and impacts of reservoirs on hydrology, water quality and habitats.**
- 11:15 a.m.** ***Mini Break***
- Session 5:** **What is the Sum of the Potential Cumulative Benefits and Impacts of Reservoirs within the CHNEP Watershed?**
- 11:25 a.m.** **Dead Zones, Stagnation and the Water Crisis: Watershed Effects on Estuarine Communities**
Dr. Ernst Peebles, Biological Oceanographer – USF College of Marine Sciences
- Lunch and** **Poster Session** (*lunches are available for purchase onsite or at nearby restaurants*)
- 11:50 a.m.** **Poster: When a Pile of Dirt is So Much More - Dam Safety Design Criteria**
Ms. Becky J. Hachenburg, P.E. – MWH Americas, Inc.

Session 5:

Continued

- 1:00 p.m. Linking Ecological Restoration with Water Supply Development using Off-Stream Reservoirs in Southwest Florida**
Dr. Dave Tomasko, Senior Program Manager – PBS&J
- 1:25 p.m. Environmental and Water Supply Benefits of an Off-Stream Reservoir System at the Peace River Water Supply Facility**
Mr. Samuel S. Stone, Environmental Affairs Coordinator – PRMRWSA
- 1:50 p.m. Site Evaluation Study for Potential Raw Water Off-Line Regional Reservoir Storage Facility**
Mr. Gary Wantland, P.E., Principal – MWH Americas, Inc.
- 2:15 p.m. Facilitated Exercise 5:** Assemble a comprehensive list of potential cumulative benefits and impacts of reservoirs within the CHNEP watershed. Identify possible strategies for coordinated planning and review.
- 2:45 p.m. Break**

Session 6:

What Processes and Criteria are Used to Evaluate Current and Potential Benefits and Impacts of Reservoirs within the CHNEP Watershed?

- 3:00 p.m. Overview of FDEP Regulations and Criteria Used to Evaluate Proposed Reservoir Projects**
Ms. Elizabeth Gillen, Environmental Manager – FDEP ERP
- 3:20 p.m. Considerations in the Evaluation of Environmental Resource Permit and Water Use Permit Applications for Borrow Pit Construction in the Southwest Florida Water Management District**
Ms. Jennifer Brunty, PhD, Senior Environmental Scientist – SWFWMD
- 3:40 p.m. Overview of USACE Regulations and Criteria Used Evaluate Proposed Reservoir Projects**
Ms. Susan Blass or Mr. Skip Bergman – USACE (invited)
- 4:00 p.m. Facilitated Exercise 6:** Refine a list of processes and criteria used to review proposed reservoirs. Identify gaps and suggest ways to improve regulations.

Workshop Summary: What More is needed to Assure that Existing and Potential Reservoirs don't adversely Affect the CHNEP Watershed?

- 4:30 p.m. Concluding Comments from Peer Reviewers**
Dr. Ernst Peebles, Biological Oceanographer – USF College of Marine Sciences
Mr. Torres, Hydrologist – USGS FISC Special Studies Section
Dr. Upchurch, Geologist – SDI Environmental Services, Inc.
- 4:45 p.m. Concluding Comments from Facilitators**
Mr. Tom Taylor – Florida Conflict Resolution Consortium/FSU
Mr. Rafael Montalvo – Florida Conflict Resolution Consortium/UCF
- 5:00 p.m. Concluding Comments from Workshop Participants**
- 5:15 p.m. Thank You and Adjourn the Workshop**
Dr. Lisa Beaver, Director – Charlotte Harbor National Estuary Program