Summary Report on the Peace River Watershed Management Conference

Keeping the Peace: Translating Management Plans into Action October 5, 2006

Introduction: The Peace River Watershed

The Peace River Flowing 105 miles from its origin in the Green Swamp and Lake Hancock in central Polk County through Polk, Hardee, DeSoto and Charlotte counties to the estuary known as Charlotte Harbor, the Peace River is a special ecological resource with several beneficiaries.

On the human side, the Peace River provides most of the freshwater flow to Charlotte Harbor, which attracts tourists world wide to enjoy some of the best sport fishing in the United States. The basin provides water resources to grow the fruit exported to the world. The system provides water resources for water supplies in DeSoto, Charlotte and Sarasota counties. The system provides water resources used to mine minerals which in turn help feed millions of people across the globe.

On the natural side, the Peace River is a placid stream with an extensive floodplain, canopied with a mixture of elegant cypress and dense hardwoods. It is one of the best canoe-camping rivers in the state where visitors can experience alligators, gar, sliders and even snook. The river bed keeps a record of Florida's past fauna, which one can sift through to hunt fossils.

The river's fluvial functions depend on interactions between the groundwater and surface water systems – like many Florida rivers, the Peace River belongs to two basins, the drainage basin on the surface and the groundwater basin below the land.

Many stakeholders depend upon the river. Most can proclaim their interests. However, one of the most important stakeholders, nature, is voiceless.

The Peace River has a lot of problems as demonstrated by numerous studies resulting in many management plans. There is cause to believe that substantial recovery is feasible, but it will take hard work, creativity, persistence and a collaborative spirit of dedicated citizens and environmental professional to achieve sustainable use of the river and its watershed.

This summary will follow the conference agenda laid out in these topical areas: water

quantity; water quality; specific projects along the Peace River; wildlife and fisheries management/recreation; local land management, development in the watershed, land purchase and management; and watershed management. The summary will conclude with suggested action steps recommended by panel with expertise in the issues surrounding the Peace River.

Water Quantity

Minimum Flows and Levels for the Peace River

By Dr. Martin Kelly, Manager, Ecologic Evaluation Section, Southwest Florida Water Management District

Martin Kelly focused on minimum flows and levels (MFLs) for the Middle Peace River, roughly between Zolfo Springs and Arcadia, for which a sizable amount of records and data exist as far back as 1932. The key factor in the establishment of MFLs is the amount of flow necessary to protect the ecology downstream, and this will factor into the establishment of MFLs for the Upper Peace River from Bartow to Zolfo Springs. When establishing minimum flows, this factor is considered along with historic and current flow conditions, climatic factors of rainfall and drought, and withdrawals from the river. The district then set baselines or benchmarks based upon seasonal low, medium and high flow periods and developed specific recommendations for each period based upon what the district thinks should occur. At no point, Kelly stressed, should the MFL drop lower than a 15 percent reduction.

Peace River Cumulative Impact Study & Management Plan

By Rick Cantrell, Division Director, Division of Water Resource Management, Florida Department of Environmental Protection

By virtue of the omnibus phosphate legislation in 2003, the Florida Department of Environmental Protection was directed to perform a cumulative impact study and prepare a resource management plan for the Peace River basin. In particular, DEP's charge included: studying the cumulative impact that changes in land uses and hydrology had on water resources and evaluating floodplain buffers. The resource management plan would propose strategies to minimize the impacts noted during the study, including statutory changes needed and regulatory and nonregulatory actions needed. The legislature provided $750,000 in funding.

Looking first at land use changes, DEP found that significant shifts had occurred within the basin with wetlands and upland habitat totaling 1,188,985 acres to just 461,081 acres in 1999. Actively mined lands, improved pasture, intense agriculture and urban land use all saw marked increases in usage during this period. Regarding hydrology, the study found that there have been changes in both the long-term rainfall patterns and significant long-term changes in the low/base flow not related to rainfall in the Peace River Basin. These significant changes in the upper watershed included loss of spring flows, declines in groundwater levels and declines in discharges.

The loss of Kissingen Spring is similar to a canary in a coal mine in terms of indicating the onset of conditions in the Upper Peace River, Cantrell noted. It would take “draconian changes in groundwater withdrawals” to restore the Kissingen Spring.

The study notes that water quality trends show: large declines in ortho-phosphate, fluoride, and sulfate levels associated with changes in mining practices; water color has increased, reflecting declines in spring flow and reduced mining discharges; and different spatial long-term patterns such as relative improvements in water quality in the upper basin

and significant degradation of surface water quality in the southern basin.

A draft report of the resource management plan will be available soon and stakeholder meetings are ongoing. Preliminary recommendations could include:

- Implement the SWUCA Recovery Strategy
  - Identify re-connection and re-hydration opportunities
  - Discuss “competing applications”
  - Prioritize wetland systems for restoration, fix mitigation rule “glitches”
  - Pursue mineralization abatement
  - Require “Cradle to Grave” phosphate mining and reclamation permitting and off-site mitigation
  - Fund the “Old Lands” Program fully
  - Create incentives to protect floodplains
  - Fund floodplain acquisition
  - Obtain better data
  - Convene a standing work group

Upper Peace River Watershed Management Program

By Dawn Turner, P.E., Resource Management Department, Southwest Florida Water Management District

Turner discussed the need for a watershed support system for the Peace River watershed, indicating that there was either too much water or too little water.

The District's Watershed Management Program provides a method to evaluate the capacity of a watershed to protect, enhance, and restore water quality and natural systems while achieving flood protection. The Watershed Management Program includes five elements:

- Digital Topographic Information which uses a digital terrain model to establish a foundation for surface water modeling. Models are in place in the Peace River watershed for Polk, Hardee, DeSoto and Charlotte counties.
- Watershed evaluation includes an inventory of the storage and conveyance system elements, and the identification of immediate maintenance projects that require no permitting.
- Watershed Management Plan includes a survey,the development of watershed parameters and a watershed model, floodplain analysis, the identification of levels of service, and a Best Management Practices (BMP) alternative analysis. The Watershed Management Plan includes recommendations for the implementation of preferred BMPs.
- Implementation of BMPs includes design, permitting, land and easement acquisition, and construction. Typically, the entity that owns the constructed facility is responsible for operation and maintenance costs.
- Maintenance of watershed parameters and models involves keeping model and GIS data up to date.

The program aims to achieve sustainability through science and to facilitate informed decision making. Analysis of existing and projected future conditions can be used to identify policies and projects needed to achieve desired future conditions. The District is committing about $3 million annually for watershed management projects within the Upper Peace River

watershed. The Federal Emergency Management Agency is contributing funding for the Flood Insurance Rate Map modernization effort.

Water Quality

Florida's TMDL Program: Protecting and Restoring Water Quality in the Peace River Basin

By Tom Singleton, Basin Coordinator, Florida Department of Environmental Protection

A Total Maximum Daily Load is the maximum amount of a given pollutant that a water body can assimilate and remain healthy, such that all of its designated uses are met. The Florida Department of Environmental Protection is implementing a statewide watershed management approach to restore and protect water quality and address TMDL program requirements set by the 1972 federal Clean Water Act and the 1999 Florida Watershed Restoration Act. Both laws mandated the establishment of TMDLs for all impaired waters, which are defined as those not meeting their designated uses.

FDEP has adopted a verified list of impaired waters that includes the Peace River. In the Upper Peace River Basin, FDEP has developed draft TMDLs for high-priority waters within the basin and Basin Management Action Plans (B-MAP) will be developed once the TMDLs are adopted. Watershed Management Plans for Shell Creek and Prairie Creek in the Lower Peace River Basin have been approved by FDEP. The process for Shell Creek took two years to complete and stands as a testament to the success of the program being one of the most successful water quality restoration projects in the state.

A B-MAP is the method to implement the TMDL program. Development of a B-MAP is a four-step process:

- Basin characterization to identify pollutant sources and existing water quality, analyze relationships, review existing data and identify data gaps and unknown factors.
- Management actions that identify existing and planned projects, establish or enforce existing codes and ordinances, quantify benefits of specific actions, initiate studies to investigate unknowns, implementation priorities, and funding opportunities.
- Allocation of responsibility for load reductions that includes initial allocations to point and nonpoint sources and an estimation of loadings from future growth.
- Mechanisms to track progress, which means monitoring programs that are difficult to implement and extremely expensive.

Two specific areas for water quality restoration in the Upper Peace River Basin are currently underway. In the Winter Haven chain of lakes, Lake Smart and Lake Howard have draft nutrient TMDLs to restore water quality. At Lake Hancock, outfall treatment and raising the lake level is FDEP's focus. In total, about $100 million is being spent on TMDL implementation programs in the Upper Peace River basin, but these two projects indicate that if it is done right, “double bang for the buck” can be achieved.

Agricultural BMPs and Cost Share Programs

By Lynda Garvin, Office of Agricultural Water Policy, Florida Department of Agriculture and Consumer Services

Agriculture too has a role in implementing TMDLs. The Florida Department of Agriculture and Consumer Services is responsible for assisting farmers and growers in the implementing TMDLs by using best management practices that are adopted by rule. To that end, the department has adopted BMP manuals for agriculture. The goals of the BMP

program are to improve and protect water and soil resources, reduce expenditures for farm improvements, and increase yields through better water quality and management.

A significant incentive for farmers to participate in implementing TMDLs exists in that using these best management practices results in a presumption of compliance with state water quality standards. Participation also protects farmers and growers from cost recovery by the state, gives them credit for existing practices and allows them to qualify for cost-share assistance to offset the expense of BMP installation. A participating farmer or grower only has to file a notice of intent which includes a schedule of implementation with the Department, keep records and allow for field verification.

The Facilitating Agricultural Resource Management Systems (FARMS) program is a BMP cost-share partnership between the Department and the Southwest Florida Water Management District. Demonstration BMP projects developed for the FARMS program provide water quality improvement; reduction of Floridan aquifer withdrawals; and conservation, restoration or augmentation of the area's water resources and ecology. To date, 26 projects have been approved and approximately 16 are operational. A number of these have been constructed in the Peace River Watershed.

Through the voluntary implementation of agricultural BMPs, all sources contributing to impairment will be removed by 2014.

Projects along the Peace River

Bridgewater Wetland

By Michelle Harmeling, Bureau of Mine Reclamation, Florida Department of Environmental Protection

The created uplands and wetlands in the Bridgewater Tract of the Tenoroc Fish Management Area in Polk County serves as an example of an ecosystem restoration project using phosphate mined and reclaimed land.

Mining occurred on the property in the 1960s and 1970s, and was reclaimed as pasture and lakes. The land was slated for development before being purchased by the Florida Fish and Wildlife Conservation Commission in 2000 to fulfill mitigation obligations following the construction of the Polk Parkway.

Following the acceptance of a memorandum of understanding (MOU), FDEP, the Florida Department of Transportation, the U.S. Army Corps of Engineers, and the Southwest Florida Water Management District cooperated to ensure a maximum benefit within the Peace River Basin. FDEP assumed project management responsibility and a master plan was created using mitigation monies to shape the restoration of the Upper Peace River basin. The project involved the construction of an east wetland and a west wetland both connected to the natural system. It took one year to complete the restoration and upon completion, the wetlands saw immediate use by wildlife. To date, 98,824 plant varieties have been identified within both wetlands.

Future projects include mitigation at the BDN-T-C, creation of a waterfowl area, and nonmandatory reclamation within the BDN-T-07 area.

Besides fulfilling the requirements of the MOU, the project also resulted in stormwater treatment, wildlife enhancement, and improved recreational opportunities.

It took many years of planning to restore water quality and quantity, but these wetlands mark the first 40 of 184 mitigation acres and are a prime example of how to restore function to an area.

NPDES Stormwater and Water Quality Projects in the Lake Hancock Watershed

By Robert Kollinger, P.E., Water Resources Manager, Polk County Natural Resources Division

The National Pollutant Discharge Elimination System (NPDES) is a federally mandated program through the 1972 Clean Water Act to address point sources of pollution. In 1990 the program was modified to address stormwater through permitting of the discharges from municipalities and industrial sources. The Peace River watershed, including Lake Hancock, is part of FDEP's Group 3 basins in which TMDLs have been adopted for the surface waters verified as impaired. The 22 water bodies listed within Polk County with TMDLs include 15 lakes and 8 stream segments impaired for nutrients, fecal coliform and dissolved oxygen.

The Lake Hancock watershed encompasses over 131 square miles in the headwaters of the Peace River. Drainage is received from Lakeland as far north as Lake Gibson and Lake Parker through Saddle Creek while from the west Banana Creek conveys discharges from Lake Hollingsworth and Banana Lake. To the east Lena Run drains portions of Auburndale through Lake Ariana and Lake Lena. Stormwater runoff is the major source or cause of pollution in streams and lakes and has a significant impact on the quality of water in Lake Hancock and the Upper Peace River.

For industrial activities, the Environmental Protection Agency required NPDES stormwater permits for 11 classes of industrial activities that included erosion and sediment discharges from construction activities. Municipal sewer systems is another area of concern and the EPA permitted municipal systems based upon an inventory of storm system sewer outfalls, but also required municipalities to estimate the pollutant loads discharged based on monitoring. It also required the incorporation of TMDLs into the MS4 NPDES permits.

TMDLs have been adopted that require a 75 percent reduction in the nitrogen and phosphorus loads to Lake Hancock. In conjunction with the FDEP, local municipalities are participating in a committee to develop the B-MAP to address this issue. The goal will be to identify and implement specific stormwater management practices and projects and quantify the expected pollutant reductions. It is anticipated that the B-MAP will be incorporated into the NPDES stormwater permit issued collectively to Polk County and its 17 municipalities.

Current restoration opportunities within the Lake Hancock watershed are:

- Inflow treatment at Banana Creek and Lake Lena Run (wetlands) and North Saddle Creek (settling pond with chemical treatments).
- Discharge treatment at South Saddle Creek (wetlands)
- Sediment inactivation through hydraulic dredging, draw down and mechanical excavation, chemical inactivation with alum, and recirculating treatment in wetlands.
- Others including reestablishment of littoral zones, restoration of fishing, and increasing water levels.

Cooperative projects include the 1991 dredging of Banana Lake , the 2003 Circle Bar B Reserve upland restoration and the Banana Creek Marsh restoration in 2006.

Projects in the City of Lakeland included the Lake Hollingsworth dredging in 2001, Whole Lake alum treatment in 2003, Anchor Park wetland treatment in 2004, Lake Parker southwest stormwater outfall and the Griffin Road and U.S. 98 wetland system both in 2005.

These projects demonstrate that retrofit projects do play an important role in restoring water quality. Proposed future projects will continue for outfall wetland treatments and dredging.

The status and future of the Integrated Habitat Network

By Kevin Claridge, Environmental Manager, Bureau of Mine Reclamation, Florida DEP

The Integrated Habitat Network is a region-wide landscape plan for the Southern

Phosphate District incorporating the maintenance and protection of regional water resources, a balance of intensive and non-intensive land uses, and the replacement/protection of critical native plant and animal habitats. The program is managed by FDEP's Bureau of Mine Reclamation.

The nucleus of the program is a series of protected properties deeded to the state during phosphate mining-related activities. Within the Peace River Basin, Clear Springs, Homeland, Bowlegs Creek and Little Payne Creek are all part of the IHN. Included by conservation easements are FPC Hines, the West Fork Creek headwaters, and Camp Meeting Ground Branch. Once reclamation is complete, these former phosphate-mined lands become part of the conservation easement established through an earlier settlement with the phosphate industry.

Land management activities on these lands include controlled burns, native plant establishment, and removal of exotic or invasive species. Other activities include public education, working with adjacent property owners, mapping, and herbiciding.

A previously used non-mandatory lands trust has no funding to acquire properties, but the agency is recommending that funding be budgeted for the Upper Peace River for the additional reclamation of lands already reclaimed. Doing so would result in hydrology benefits for the basin.

Shell and Prairie Creek Watersheds Management Plan

By Eric DeHaven, Director, Resource Conservation and Data Department, Southwest Florida Water Management District

The 230-acre Shell Creek reservoir, located in the southern region of the Peace River Basin, provides potable water to the city of Punta Gorda. The reservoir is sustained by two Class I waters: Shell and Prairie Creeks. In 2000 the city reported degradation of water quality in the reservoir due to the introduction of mineralized water from agricultural irrigation. It was also observed that stream flows in the creeks were generally above historical median daily discharge rates throughout the drought of 1999-2000. In 2003 FDEP place Shell and Prairie Creeks on its list of impaired waters. The mineralization of the reservoir was so severe that it exceeded secondary drinking water standards.

A stakeholder's group, supervised by the Southwest Florida Water Management District, was formed to address the issue. The group developed a reasonable assurance plan with management actions to restore the creeks to unimpaired conditions by 2014. Specific actions within the management plan included back plugging of wells, participation in the FARMS program, resource regulation by the District, best management plans and land acquisition.

DEP has approved the reasonable assurance plan and listing status. These await EPA approval. In the Shell and Prairie Creeks area, management actions have occurred in 46.3 percent of the region which covers 55.3 percent of the water use permitted area. Appropriate funding for the management actions continues as well as a cooperative approach among area stakeholders.

Back-plugging has proven to be an immediate remediation technique for poor water quality wells. Cost-share reimbursement projects on agricultural properties have resulted in the reduction of groundwater withdrawals and subsequent water quality improvement in area surface waters through the development of alternative irrigation sources such as tail-water recovery. Measurable improvements in water quality have been made and an Annual Performance Monitoring Report will be provided to the FDEP in early 2007.

Wildlife/fisheries Management/Recreation

Current status and future concerns for fish communities in the Peace River

By Tom Champeau, Florida Fish and Wildlife Conservation Commission

As a species, fish serve as indicators of ecological integrity because they are sensitive to a wide range of environmental variables, are long-lived providing time-scale effects, and can evaluate ecological conditions over a range of life history phases. They also possess economic value and stakeholder interest. Using fish data, the following environmental factors can be evaluated: water quality, hydrological cycles, structural habitat, extreme events such as hurricanes or droughts, invasive exotic fish impacts, and seasonal habitat for marine species.

In studying fish species in the Peace River, the study team concentrated on two data types: relative fish abundance and relative productivity (biomass), and species richness and diversity at Homeland, Wauchula, Gardner and Nocatee. While there is much historical data available, data from 1983-1992 was compared to more recent data collected during 2002-2006. The goal was to quantify habitat and overlay habitat on minimum flow data. A secondary goal was to tie this data in to studies on habitat loss.

Updating the fish community database will also assist in the evaluation of minimum flows and levels currently being adopted for the river.

Three new exotic species were observed as established in the Peace River at the above monitoring stations. Those species are blue tilapia, walking catfish, and armored catfish. Brown hoplo and African jewelfish, also exotic species have also been observed. Snook have also been observed although the Peace River is not the customary habitat for this species of fish.

Current issues and possible impacts to Peace River fish communities include expansion of phosphate mining into the Horse Creek and Charlie Creek watersheds, increasing upper river dry season flows by discharging treated water from Lake Hancock, and increasing withdrawals to meet future water demands within the watershed.

Finally, sport and commercial fisheries represent a large and diverse group of stakeholders and accurate assessment of the condition of this valuable resource is a need to manage this resource. Development of a long-term sampling program is also needed.

Recreational opportunities in the Upper Peace River

By Derek Harpe, Recreation Supervisor, Polk County Leisure Services

The Polk County Leisure Services Department manages 2,558 park acres in Polk County, maintains 112 athletic fields, 31 playgrounds, and 32 parks and 11 mini-parks. These parks include three campgrounds at Lake Arbuckle, Lake Rosalie and Saddle Creek.

Specific to the Peace River, Leisure Services manages several canoe launching facilities on the river including the Peace River Canoe Launch on State Road 60 east of Bartow. The department also organizes fishing derbies throughout the year along the river.

In addition, the service has two parks with amenities in the Peace River basin. These are the 460-acre IMC Peace River Park in Homeland and the Fort Meade Outdoor Recreation area in the city of Fort Meade.

Future recreational opportunities include expansion of the boardwalk in the IMC Peace River Park and the addition of the Homeland-Garfield Canoe Launch.

Local Land Management/Development in the Watershed/Land Purchase/Management

Polk County's environmental Lands Acquisition and Management Program

By Gaye Sharpe, Environmental Lands Coordinator, Polk County Natural Resources Division

Polk County voters approved a referendum on Nov. 8, 1994 that created an Environmental Lands Program funded by 0.2 mills of ad valorem property taxes. The purpose of the program is to acquire, preserve, protect, manage and restore endangered and environmentally sensitive lands, water resources, and important wildlife habitat. To date, the program has acquired more than 19,526 acres throughout Polk County. A majority of the sites are open to the public providing nature-based recreation opportunities.

Key management activities on these properties include restoration projects, control of invasive or exotic species, prescribed burning, monitoring projects, and providing compatible nature-based recreation and environmental education opportunities.

Decisions on acquisitions involves a technical assessment group, geographical information, a citizens advisory group and the Board of County Commissioners. In the Peace River watershed, the county has acquired the Peace River Hammock and Circle B Bar Reserve through the Environmental Lands Program.

The Peace River Hammock is a 42-acre property that contains floodplain swamp and floodplain forest utilized by migratory birds seasonally. The Circle B Bar Reserve is a 1,267-acre property on the northwest side of Lake Hancock. The historic Banana Creek Marsh once flowed through the center of this property. Several bird species inhabit this property.

Polk County plans to create an environmental education center on the Circle B Bar Reserve that will teach people about the important natural resources, including water resources, in Central Florida and the riverine systems that are crucial to healthy ecosystems.

Regional Land Management Plans

By Pat Steed, Executive Director, Central Florida Regional Planning Council

The Central Florida Regional Planning Council includes Polk, Hardee and DeSoto counties within the Peace River watershed besides Highlands and Okeechobee counties. It looks at land use changes that have a regional impact that include considerations aimed at protecting sensitive natural habitats, waterways and water resources. Specific consideration is given to the integrated habitat network, regional land acquisition, mitigation banks, watersheds and water bodies.

Within the Central Florida Regional Planning Council's area of jurisdiction, Green Swamp is an area of critical concern, while protecting the Peace River basin is also of importance. The agency also recognizes the impact these two water bodies have upon Charlotte Harbor further downstream.

To meet its mission, typical development order conditions include provisions to protect groundwater and surface water resources, protection of natural habitat, mitigation on-site, monitoring of past development or reclamation activities, and land management agreements to maintain restoration after reclamation.

In the future, major potential development impacts are expected from two proposed transportation corridors within Central Florida. The north-south route known as the Heartland Parkway would connect Interstate 4 in Polk County to State Road 82 in the Fort Myers area. The east-west corridor known as the Heartland Coast to Coast would connect Interstate 75 around Port Manatee to the Florida Turnpike in the St. Lucie area. In addition to phosphate mining, other major projects have been proposed along these potential corridors. These

include a regional airport at the Polk/Hardee County line, residential/new town developments such as Williams along the headwaters of the Peace River and Clear Springs near the intersection of Peace Creek and the Peace River. Other new residential developments are proposed in DeSoto County.

Sensitive lands that require protection must be identified and management plans proposed to protect these environmentally significant lands prior to development.

Watershed Management

Peace River Education Efforts

By Kendra Antoine, Senior Communications Coordinator, Southwest Florida Water Management District

The Southwest Florida Water Management District funds many education outreach programs and projects within the Peace River watershed. Three primary funding programs used by the District within the Peace River basin are the mini-grants program, community education grants and cooperative funding initiatives. Other educational projects are being implemented within the entire Peace River watershed.

Mini-grants of $5,000 per school target hands-on programs for youth. Mini-grants funded the Hardee County fifth grade Charlotte Harbor Study butterfly garden and The Florida Aquarium: Lessons Coming & Going and Waterworks. Mini-grants reached 84,000 students during the 2005-2006 school year.

Community Education grants of $5,000 or less are funded between March and June. Types of projects funded by these grants include display signs at Lake Parker, an interpretive nature trail at Lake Hollingsworth and Polk County Utilities water conservation education.

For cooperative funding initiatives, funding varies by project and requires matching funds from the applicant. Examples of cooperative funding initiatives are the Polk County Watershed Exhibit and the Polk County Florida Yards and Neighborhood Program.

Other educational and community outreach programs funded by the District include teacher training, field trips, and Water C.H.A.M.P., a program that promotes towel and linen reuse by hotels and motels. The District has 224 properties participating in the program saving 50 gallons of water per room per day.

The District also publishes a variety of periodicals, materials for teachers, brochures and other items, many of which are available on the District's Web site.

CHNEP and the Peace River

By Lisa Beever, Director, Charlotte Harbor National Estuary Program

The Charlotte Harbor National Estuary Program was authorized by the 1995 federal Clean Water Act as an estuary of national significance. CHNEP's jurisdiction includes seven counties, seven municipalities, two regional planning councils, two water management districts, three state agencies and the Environmental Protection Agency. Within its seven-county jurisdictional boundary are eight separate river watersheds. The largest CHNEP watershed is the Peace River basin.

The CHNEP is a partnership of the jurisdictional agencies within its area of concern as well as academia, private citizens, environmental groups, business, industry and research institutes. Together, they implement the CHNEP Comprehensive Conservation and Management Plan. The CCMP addresses water quality, hydrologic alteration, habitat and stewardship. CHNEP implements the CCMP through research, restoration, legislative action and public outreach. The CCMP concentration on restoration of Lake Hancock and the Peace

River highlights the importance of these water bodies to the Charlotte Harbor system.

Freshwater flow is the breath of the system affecting sea grasses, fish abundance, the clam industry, shells, tourism and economic development. Within the Peace River basin, water quality, hydrologic alterations and wildlife and fish habitat are the primary issues.

To address concerns arising from these issues, CHNEP has several grant programs available: research and restoration partner projects, public outreach grants and micro-grants.

Next steps

At the conclusion of the presentations, a panel of presenters assembled to offer their assessments and recommendations for action steps to translate many of the management plans into action. The panel included, Martin Kelly, Rick Cantrell, Pat Steed, Lisa Beever, and Bob Kollinger. Their conclusions and recommendations:

- Meet the goals of minimum flow levels to get more flow into the Peace River and pursue a recovery strategy.
- A flow of 45- to 50 CFS is needed for the health of the Peace River and a strategy is needed to reach that number.
- Implement regulatory constraints that are more comprehensive but flexible.
- Restore the connectivity of older mines.
- Continue public education efforts about the importance of water and the system, and the benefits of reducing loads.
- Emphasize the interaction between sustainable communities and sustainable resources.
- Pursue public land acquisitions and management of the Peace River corridor and along its major tributaries. Also acquire land adjacent to riparian zones.
- Build solutions on the priorities of the people who live along the corridor while pursuing regional approaches because the river impacts so many counties.
- Begin to treat the resource as something that is really important. Stop dwelling on negatives, stop fighting and begin to focus on making it better. A unity is needed in the basin that doesn't exist today.
- Recognized that there's a cultural disconnect between the harbor area and the river and begin to link them.
- Pay attention to the SWIM priority list.
- Encourage the adoption of low impact design standards.
- Reduce the amount of impervious surface to get stormwater runoff into the ground.
- Charge a royalty on water extraction and use the funds for water resource projects.
- To address the gap between the development approval process and the ultimate effects, think about ways to create a seamless comprehensive development approval process that also includes sub-DRI development to alleviate these ultimate impacts.
- Because there's no one agency with a single set of rules, integrate to the extent possible.
- The verified list of impaired water bodies is an excellent way to measure outcomes.
- Don't delay projects while awaiting further data collection. Water quality data does exist. But be ready to use adaptive management to make changes as new data and information becomes available. Continue to learn and change things.
- Identify what is most important and address only the critical needs. Agree on the goals.
- TMDLs will be the driving force to answer water quality.
- Restore impaired streams and lakes in Polk County.

Summary

Besides the specific action steps, a majority of the panel felt the development of a "hook" was the key to getting people excited about protection of the river as a sustainable resource. The "hook," they thought, could come about through the recreational roles the river plays in the region or through its importance to the water supply.

A second major theme weaving through the discussion was the need for leadership and local ownership within the basin. This would include coordination of planning and development efforts, local activist groups and basin-wide connectivity.

Finally, several panelists expressed the need for a visioning process for the watershed area so that future protection can be assured.