

Summary Report
Research on Water Councils, Watershed Groups, and Watershed Management
August 2014

Background:

Rookery Bay National Estuarine Research Reserve (RBNERR) is currently working on the *Restoring the Rookery Bay Estuary* grant-funded project awarded by the National Estuarine Research Reserve System's Science Collaborative, which is a cooperative agreement award between the National Oceanic and Atmospheric Administration and the University of New Hampshire. The collaborative approach of the funding entity requires that the project “engage the people who need the science in the research process—from problem definition and project design through implementation of the research and use of its results in coastal decisions.” During the March 2012 through May 2015 timeframe, the project is intended to address two primary areas of interest to the Rookery Bay Reserve:

1. Understand and adaptively manage the freshwater inflow to the estuary using hydrologic modeling and ecological trend analyses to compare historic and current conditions to determine estuarine health and identify potential restoration and management strategies and,
2. Assess and improve local water management decision-making to successfully implement the management strategies identified through the hydrologic and ecological research, and by encouraging a decision-making process that is strategic, inclusive, and on-going through the use of social science research and the possible formation of a Water Council.

This summary report focuses on the potential formation of a Water Council and in addressing the assertions made by RBNERR in the original grant application. The initial hypothesis of RBNERR staff in requesting funding was that freshwater allocation is a complex and far-reaching coastal management problem; that local water management decision-making was not well coordinated or inclusive; that a significant barrier to improving the decision-making process used by the primary local water manager, the South Florida Water Management District and others, is a lack of capacity including the time, coordination expertise, and investment required; and that it was important to adequately represent the interests of the various stakeholders, but there were significant challenges. RBNERR proposed to “create an integrated, decision-support mechanism to provide ongoing feedback and proactive direction to water managers about water use and management” such as a Water Council. The goals of a successful Water Council would be that key decision-makers and the community increases their understanding of water issues and water management, actively uses science in their decision-making, increases their understanding about various water users and their values, and applies their new knowledge and skills in a collaborative forum. This document is a summary report of internet research on Water Councils, Watershed Councils, and Watershed Management.

Beginning in September 2012, a Project Advisory Group of local scientists, stakeholders, and water managers was convened for the project and it has since increased to include approximately 25 people who work in water resource-related professions. There have been nine meetings so far and they are well-received with participants reporting on post-meeting evaluations that they are informative, interesting, and a good use of time. Some participants are also proponents of prioritizing management strategies which indicates an interest in influencing local decision-making. This group wants to continue to meet and when prompted to brainstorm preferred results of the project, suggested the following:

- Establishment of a permanent RB watershed advisory working group
- Working groups/advisory panels
- Integration of county water personnel, water management district personnel, local conservation lands personnel, and other pertinent personnel to form a group who can adequately address the water and ecological needs of permitting, construction, monitoring and management of the resources in the county or region within the county
- A watershed group, w/a coordinator who meets regularly
- Revive the Big Cypress Watershed Group [that folded shortly after funding for the graduate student coordinator lapsed]
- Create a “RB Western Watershed Restoration Community Panel” to monitor and assist Plan implementation.

Purpose and Methodology:

In order to pursue the idea of convening a local Water Council to implement a watershed management approach, or at least to support the continued meeting of the existing PAG, the Principal Investigator Tabitha Stadler conducted an online search of Water Councils, Watershed Groups, and Watershed Management. The information that was sought included the nature of the groups that existed in the U.S. such as where they were located, how they were structured or formed, who were the members, what issues did they address and how did they go about addressing them and if possible, why were they created and how were they funded. Below is a bulleted list of the information that was gathered which has been summarized and interpreted by the PI.

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Watershed Management

- “Watershed management is a term used to describe the process of implementing land use practices and water management practices to protect and improve the quality of the water and other natural resources within a watershed by managing the use of those land and water resources in a comprehensive manner.” (Connecticut Department of Energy and the Environment website)

- “Effective watershed management includes both planning and implementation components. While the development of a watershed plan is a critical step in the process, the plan must be successfully implemented before results can be seen. The watershed management process uses a series of cooperative, iterative steps to characterize existing conditions, identify and prioritize problems, define management objectives, and develop and implement protection or remediation strategies as necessary.” (EPA website)
- A watershed approach provides a coordinating framework for management that joins public and private sector efforts to address the highest priority water and land-related problems within hydrologically-defined geographic areas called watersheds. A watershed approach considers the effect of landscape-level changes on the watershed and seeks to incorporate multiple benefits in projects, including improvements in water quality, water supply, recreation, and habitat. A watershed approach also seeks to integrate projects and approaches across different agencies, organizations, and jurisdictional boundaries within a watershed.” (Council for Watershed Health website)
- The EPA has extensive watershed management tools and resources, especially aimed at local governments and non-profits. They are advocates of the watershed management approach and note that “a watershed approach is the most effective framework to address today's water resource challenges,” and “working together using a watershed approach will help protect our nation's water resources.” (EPA website)

State and Municipal Agency’s Approach to Watershed Management

Both state and municipal agencies throughout the U.S. publish web-based information about the value of watersheds and watershed management. However, the degree to which these agencies appear to embrace watershed management as a specific management approach, or way to do business, varies greatly. They may call themselves a watershed agency, but they may focus on regulations, flood control, water use, wastewater, environmental restoration, education, water quality and/or monitoring in any number of combinations. Some examples are provided below:

- New Jersey’s Watershed Restoration Section, within their Department of Environmental Protection, oversees activities such as the EPA 319 funding and the TMDL program, much like the Watershed Program in Florida.
- Georgia has state Water Planning Councils (there are 10) to implement a comprehensive state-wide water plan, focused primarily on water supply to help address challenges and handle expected growth over the next 40 years.
- Maine has an Agricultural Water Management Board that is part of the Department of Agriculture, Conservation and Forestry. The board works in conjunction with the Department of Environmental Protection to oversee and coordinate the environmentally sound and affordable development of water sources for agricultural use.
- Harris County Texas has the Watershed Management Department which reviews permits and plans for roads, bridges, stormwater detention basins, land

development, pipelines and other projects that could potentially affect the conveyance of stormwater channels under the Flood Control District's authority.

- Atlanta, Georgia has the Department of Watershed Management which "is dedicated to providing the highest quality drinking water and wastewater services to residential, businesses and wholesale customers at the lowest possible cost, while protecting urban waterways, conserving natural resources, and providing clean, safe water for downstream customers."

State of Florida Approach to Watershed Management

In Florida there are several agencies that address some aspect of watershed management, although they also vary in their focus and actual ability to embrace watershed management as a specific management approach. The key agencies are listed here as potential partners or sources of support for a potential local Water Council.

- Within the Florida Department of Environmental Protection's regulatory district offices are the Water Management Programs which handle groundwater monitoring, stormwater permitting, and non-point source pollution prevention. They also oversee the Total Maximum Daily Load (TMDL) program which does apply a watershed planning process, but it is strictly focused on nutrient loading reduction.
- Florida's Water Management Districts "administer flood protection programs and perform technical investigations into water resources. The districts also develop water management plans for water shortages in times of drought and to acquire and manage lands for water management purposes under the Save Our Rivers program. Regulatory programs delegated to the districts include programs to manage the consumptive use of water, aquifer recharge, well construction and surface water management." The five Districts, however, appear to vary in their focus on water management as an integrated strategy. For example:
 - The mission of the South Florida District where the Rookery Bay Reserve is located is "to manage and protect water resources of the region by balancing and improving water quality, flood control, natural systems and water supply." In reality there is a stronger focus on flood control and water supply, but less on overall coordination and conservation.
 - The Southwest Florida District has a brochure entitled *Water Management A Comprehensive Approach to Managing Water Resources in the Southwest Florida Water Management District* that explains their five step process for evaluating a watershed, creating a plan and then implementing best management practices and then maintaining the effort. This appears to be the agency that is most clearly focused on using the water management approach.
- Soil and Water Conservation Districts are sub-divisions of the state of Florida and their mission is to, "provide for control and prevention of soil erosion, and for the prevention of floodwater and sediment damages, and for furthering the conservation, development and utilization of soil and water resources, and the

disposal of water, and thereby to preserve natural resources, control floods, prevent impairment of dams and reservoirs, assist in maintaining the navigability of rivers and harbors, preserve wildlife, protect the tax base, protect public lands, and protect and promote the health, safety and general welfare of the people of this state.”

- The Florida Department of Agriculture and Consumer Services’ Office of Agricultural Water Policy (OAWP) has a mission “to facilitate communications among federal, state, local agencies, and the agricultural industry on water quantity and water quality issues involving agriculture. In this effort, the OAWP is actively involved in the development of Best Management Practices (BMPs), addressing both water quality and water conservation on a site specific, regional, and *watershed basis*.”

National Estuary Programs

Florida has four National Estuary Programs, which are funded by the EPA as “place-based programs to protect and restore the water quality and ecological integrity of estuaries of national significance.” They develop and implement a Comprehensive Conservation and Management Plan which is “a long-term plan that contains specific targeted actions designed to address water quality, habitat, and living resources challenges in its estuarine watershed.” The NEP approach is organized and systematic including “a series of cooperative, iterative steps to characterize existing conditions, identify and prioritize problems, define management objectives, and develop and implement protection or remediation strategies as necessary” which is part of the definition of watershed management. This is not surprising since the EPA is a proponent of watershed management and NEP’s are funded by EPA and local governments through cooperative agreements.

Water Councils and Watershed Councils

A common and seemingly effective approach throughout the country are Water Councils or Watershed Councils which are “locally organized, voluntary, non-regulatory groups established to improve the condition of watersheds in their local area. Watershed councils are required to represent the interests in the basin and be balanced in their makeup. Watershed councils offer local residents the opportunity to independently evaluate watershed conditions and identify opportunities to restore or enhance the conditions. Through the councils, partnerships between residents, local, state and federal agency staff and other groups can be developed.” These Councils are often non-profits, but are also sometimes created by inter-local agreements that include local, state and federal agencies and sometimes include participation by non-profit and private entities. The structure and approach for these groups is often similar and typically includes:

- Mission and vision statements,
- A Boards of Directors or Advisory Council,
- Action plans or watershed plans developed over time through a series of inclusive community forums,
- Inter-institutional work groups or committees to implement the plans, and,
- Volunteer networks.

A few examples of non-profit Water Councils and Watershed Councils are listed below to provide a sense of how these organizations describe themselves and their activities.

- The Montana watershed coordination council “has been cultivating broad-based support for community driven approaches to managing complex land and water issues ... as the statewide organization representing each of more than 60 watershed groups.” Their vision is that “all Watershed communities across Montana are successfully advancing natural resource stewardship.” Their mission is “uniting and supporting Montana’s watershed communities to promote healthy and productive landscapes.” They focus on activities such as increasing the “capacity and effectiveness of home grown efforts to manage local natural resource issues 1) Promoting effective communication, coordination, networking and support between community-based groups, nonprofit organizations and public agencies to reduce duplicative efforts. 2) Providing mutual assistance through education and training, 3) Creating access to scientific and technical expertise and opportunities for funding and collaboration 4) Encouraging and supporting citizens to take a voluntary, proactive and collaborative approach to address natural resource issues. They also have a volunteer Water Monitoring Network to “provide a who’s who of water monitoring entities, provide a monitoring resource library, which includes basic information on relevant topics and associated technical guidance resources.”
- The Pemaquid Watershed Association (PWA) in Maine is a nonprofit, membership-supported conservation association whose mission is to “conserve the natural resources of the Pemaquid Peninsula through land and water stewardship and education.” The PWA’s programs include environmental education, adopt-a-trail, pond surveys, volunteer sampling, etc. and they are also a land trust organization whose activities “are intended to ensure that these resources will remain for future generations to learn from and enjoy.”
- The Watershed Management Group (WMG) in Tucson, Arizona “develops community-based solutions to ensure the long-term prosperity of people and health of the environment. We provide people with the knowledge, skills, and resources for sustainable livelihoods. WMG envisions a world in which: everyone has the natural resources they need while ensuring adequate resources for future generations; communities cooperatively and sustainably manage the natural resources within their watershed; communities develop in concert with their environment, and the success of development is measured by the health of ecological systems, the prosperity of people, and the strength of communities.” WMG works in both rural and urban settings on issues related to soil and water resources. Primary topics addressed include: rainwater and stormwater harvesting, green infrastructure, watershed assessments and planning, community-based conservation, project administration and evaluation, rainwater harvesting, rooftop and landscape systems, greywater re-use, watershed management, restoration, etc.
- The Connecticut River Watershed Council works to protect the watershed from source to sea. From alpine forests to tidal estuaries, rural farmlands to urban riverfronts, spotted salamanders to bald eagles and mussels to salmon, the Connecticut River watershed unites a diversity of habitats, communities and resources. As stewards of this heritage, we celebrate our four-state treasure and

collaborate, educate, organize, restore, and intervene to preserve the health of the whole for generations to come.

- A local example, that may be a potential partner, is the Southwest Florida Watershed Council that “is a grass-roots, multi-county coalition of individuals, organizations, agencies and businesses that have come together to address the issues affecting the Caloosahatchee and Big Cypress watersheds. The purpose of the Watershed Council is to ensure that the interests and concerns of all stakeholders are addressed, and that long term management strategies balance the needs of this region’s growth and the natural systems upon which our economy and quality of life depend.” The majority of effort seems to be focused on Lee County and the Caloosahatchee River with activities such as commenting on projects, environmental science research, and educational forums. They are receptive to a partnership with our PAG.

Water Councils Created by Interlocal Agreements

There are a few examples of Water Councils or Watershed Councils that are created by intergovernmental agreement and are not independent non-profits. These organizations were not contacted to determine how they are funded, although it seems likely that the government entities involved in the Council, are likely to fund or staff them in some way. The three examples of these types of groups that were discovered are listed below. RBNERR may have particular interest in the Salmon Falls Watershed Collaborative which was facilitated by the Wells NERR and won the U.S. Water Prize from the Clean Water America

- The Long Creek Watershed Management District (LCWMD) was created by interlocal agreement among the municipalities of South Portland, Portland, Westbrook and Scarborough. The Long Creek Watershed Management Plan is a locally supported plan that was developed through a two-year stakeholder process that included non-profits and small and large businesses. The goal now is to implement this first in the nation effort to address stormwater impacts through a collaborative structure with public entities and private businesses. Plan implementation will include restoration of stream banks and stream channels and installation of structural retrofits in priority locations selected for environmental and cost effectiveness.
- The California Urban Water Conservation Council: Partners In Water Conservation, “envisions a water-efficient California that is characterized by reliable and sustainable water resources, healthy ecosystems, and economically strong communities. Their MOU was signed by 120 urban water agencies and environmental groups in December 1991 and now includes over 400 members who “pledge to develop and implement urban water conservation practices to reduce the demand of urban water supplies.” They are “dedicated to maximizing urban water conservation throughout California by supporting and integrating innovative technologies and practices; encouraging effective public policies; advancing research, training, and public education; and building on collaborative approaches and partnerships.”
- The Salmon Falls Watershed Collaborative grew out of the Piscataqua Region Estuaries Partnership in 2009 and is committed to addressing threats to water

quality via the following integrated actions: Land Conservation and the Protection of Working Farms and Forests, Improved Land Use Planning Practices and Policies, Best Management Practices, Education, Training, and Technical Assistance to improve watershed planning and management, and to protect water supply sources in the Salmon Falls River watershed. The Wells National Estuarine Research Reserve has led the facilitation of the group, the planning of the group's highly successful October 2010 workshop, and the development of a drinking water protection action plan for the Salmon Falls that was completed in Fall 2011. In April 2012, the Salmon Falls Watershed Collaborative was honored with the U.S. Water Prize from the Clean Water America.

University, College and Academia

There are several examples of university or college programs that focus on watershed management either as a coordinating entity, or as a partner or state representative, within a watershed-focused organization. A few examples are listed below:

- Florida Gulf Coast University in Ft. Myers, Florida has a Coastal Watershed Institute that focuses its study and research on watershed-related matters. They participate in various efforts such as the restoration of Lake Trafford management team and the Charlotte Harbor National Estuary Program's Comprehensive Conservation Management Plan and their Caloosahatchee watershed team.
- The Center of Excellence for Watershed Management (CEWM) at the University of Florida was established in 2011 within the UF Water Institute under a Memorandum of Understanding with EPA and FDEP. Faculty, researchers, students and extension personnel work with stakeholders to seek funding and/or additional resources for selected watersheds and water quality projects. Current projects are mostly focused on extension agents and include encouraging BMP's, training agents to understand BMP and TMDL designations, and sustainable landscaping with a regional focus on the north Florida.
- There are several of these EPA-designated centers including the Center for Watershed Excellence, Clemson University Institute of Computational Ecology, who works with local communities to identify watershed issues, develop site-based solutions toward economic and environmental sustainability, procure funding sources, and provide "one-stop-shop" watershed planning and management support within South Carolina. Their mission is to promote local stakeholders' involvement in protecting and improving the natural and economic resources of their watershed. Their vision is to involve Clemson University faculty and students in statewide watershed research and education programs that support the development and implementation of community-based, cost-effective watershed management programs. Activities include education and outreach, technical training, watershed stewardship mapping, historical weather database, low impact development atlas, stormwater education consortium and more.

Conclusion

The Collier County/Big Cypress Basin watershed is poised to implement a more comprehensive watershed management approach. The County's watershed Management Plan provided some of the necessary planning elements, but the implementation has not been well coordinated or reported. The people that currently meet as part of the Restoring the Rookery Bay Estuary project and the Lake Trafford Restoration project say that these coordination efforts are effective and successful at meeting multiple goals. Stakeholder interviews by Rookery Bay staff and contractors show an interest in a more coordinated and inclusive approach to water resources management. The region has an opportunity to be proactive in its planning and management of the watershed. However, there is not a clear leader for the effort and funding is uncertain. The following bullets summarize the watershed management situation:

- The best overall management approach for water resources is called “watershed management”
- Our basin could benefit from an overall action plan OR a dedicated process to review and revise the existing Collier County watershed plan to be more functional, immediate, and measurable
- The benefits of this approach would be to maximize the efficiency of the various agencies and organizations, and better engage private sector in the efforts,
- This process would support community-wide buy-in to create the plan and then a structure such as a Board, Committees, etc., to implement the plan
- The approach would ideally be *balanced* with private and public sector participation, economic and environmental goals combined, participants and actions that were representative of diverse community interests, needs and wants in order to be comprehensive, sustainable and long-lasting,
- The approach could also include routine engagement with diverse stakeholders and groups to have a say, become involved, gain buy-in, be more inclusive, and gain assistance and support for the action plan,
- The plan or the process could address both immediate and long-term needs such as the prioritization of capital improvement projects, research and monitoring efforts, restoration, and all additional watershed-related problems and solutions within the basin,
- This prioritization and planning would prepare the area to apply for, and more likely receive, funding such as from grants or the RESTORE Act,
- The effort has challenges since it would require dedicated staff, meaning someone who will drive the effort, document activities, engage participants, etc. along with dedicated funding to sustain the effort over the long-term.