



Wakulla Springs Alliance

8-11-14 WSA STRATEGY RETREAT REPORT

Overview

The Wakulla Springs Alliance held Strategy Retreat on August 11, 2014 at the Leon County Main Library. The agenda and list of participants can be found in Appendices A and B. Before the retreat started, Todd Kincaid made a presentation on Wakulla Springshed flow models for both Florida and Georgia. This report is based on the secretary’s notes and does not capture everything or exactly what was said.

Wakulla Springshed Flow Models for Both Florida and Georgia

The text from the PowerPoint presented by Todd Kincaid is in appendix C. The full presentation with maps and images is available from Todd or Tom Taylor. Todd explained the problems with current modeling and the need for high permeability modeling that will more accurately describe flows and that can be validated by field measures. The group discussed ways to fund the approximately \$100,000 for modeling and how to be sure that the NFWFMD and others accept the results to implement withdrawal reductions as appropriate. This may include political and legal action.

DRAFT WSA Action Strategy

The group began by refining the list of strategic issues and each voting for the 2 they feel are the most important (see votes in the right column). They then revised a draft list of strategies for each issue in priority order. These draft strategies may be refined and adopted at the next WSA board meeting and WSA will implement the strategies over time based on their importance and urgency. There are references to the goals and objectives in the WSRP (Draft Wakulla Springs Restoration Plan, 2014) that provides additional guidance that Tom Swihart has agreed to incorporate into this draft. The acceptability of the strategies for each issue were rated using this scale: 3 = Good, and possibly could be better; 2 = I have serious concerns but can live with it; 1 = Opposed

Strategic issues

- | | |
|---|----|
| 1. BMAP process | 10 |
| 2. Nutrient (Septic) system management | 7 |
| 3. Restoring Spring Flows (Recharge wastewater from Hopkins Power Plan) | 5 |
| 4. Cherokee sink lease | 4 |
| 5. Wakulla wetlands ordinance | 3 |
| 6. Promotion and coordination of monitoring, modeling and other science efforts | 3 |
| 7. Engagement of elected officials, the public and other partners. | 3 |

Draft Strategies

1. BMAP process (WSRP Goals 3, 5 & 8)

- a. Work with staff to design and implement a coordinated research agenda (TMDL, MFL, water quality/quantity monitoring, biological surveys, etc.)
- b. Advocate for a strong, comprehensive, timely BMAP report that significantly reduces total nitrogen (measurable and verifiable)
 - i. Advocate for a wastewater Responsible Management Entity, RME for Leon and possibly Wakulla County.
 - ii. Get DEP to name the nitrogen sources and assign responsibilities, especially for non-point sources.
 - iii. The BMAP should make it clear what is going to be done by whom to get real reductions.
 - iv. Get DEP to include the Leon County RME in the BMAP report.
 - v. Advocate for restoration of the biological community not just a minimum nitrate level.
- c. Advocate for action by each pollution contributor and joint funding and action that focuses on those efforts that have the highest benefit/cost ratios.
 - i. Make sure Leon report takes responsibility for septic system management by implementing the study and promote cluster systems and other ways to reduce nutrients. The RME facilities plan will have the details.
 - ii. Promote this project in sales tax referendum, including using the brief description.
- d. Pam will provide a description of the Sales tax project description.

3	2	1
Most	1	0

2. Nutrient (Septic system) management (WSRP Goals 3, 5 & 8)

- a. Support the sales tax extension project #39 as a tier 1 stand alone project for septic system management study and pilots.
- b. Seek funding for the septic system management plan and pilot projects in the shorter term from springs protection and other legislative appropriations, federal grants, etc.
- c. Advocate for a BMAP report that requires the establishment of a Leon and/or Wakulla RME.
- d. Allow comp plan amendment to permit a variety of treatment methods. Bob Deyle will look into this.
- e. Encourage developers to use cluster systems to obtain higher densities (where appropriate) to demonstrate how the systems work and are profitable.
- f. Advocate for or host meetings of DEP, DEO and DOH to coordinate efforts on septic system research, policy and action.
- g. Advocate for legislation regarding septic systems and springs.

3	2	1
Most	1	0

3. Restoring spring flows (WSRP Goals 2 & 4)

- a. Work with WMD. DEP and other staff to design and implement a coordinated research agenda (TMDL, MFL, water quality/quantity monitoring, biological surveys, etc.)
- b. Make the link between quantity, dilution and nitrates in the BMAP process, etc. consider biological health and clarity measures.
- c. Address water withdrawals by Georgia with the WMD, NRCS, SWCDs, and DEP.
 - i. Have a meeting with NRCS, Leon, WMD (Guy), City (Buss), DACS, DEP (Cioccia) to consider GA withdrawals. Evaluate Todd's and other models using actual measures of aquifer levels. Bill will take lead on this.
 - ii. Advocate for an EPA plan for FL and GA with EPA in Atlanta and make the link between quantity and quality (Get parts of EPA to talk to each other).
 - iii. Seek funding for calibrating Todd's karst model of the Wakulla Springshed (\$100K?)
 - iv. Work with the NFWFMD to get them to consider the karst model.
 - v. Encourage the WMD to set up their peer review process early.
- d. Participate in the Sharing Water Conference Oct 2-4, in Monticello.
 - i. Do a talk there.
- e. Advocate for legislative, policy and administrative decisions that expedite the MFL designation/action process (Only if there is a good model and data).
 - i. Advocate for metering of all groundwater uses.
- f. Advocate for setting appropriate levels of use by each group of water users and joint funding and action that focuses on those efforts that have the highest benefit/cost ratios.

3	2	1
Most	1	0

4. Cherokee sink lease

- a. Oppose for any new lease or transfer attempts.
- b. Support TCC/WEI efforts to contribute to environmental restoration/management and education of students that does not involve a campground or a lease.
- ~~c. Support Friends of Wakulla Springs efforts to get funding for Wakulla Springs State Park.~~
- d. Contact TCC board of trustees about indicatives.
- e. Advocate for changes in FL Statutes to clarify the process for leasing state lands with a requirement for public meetings. Bob Deyle and Albert will work on this.

The acceptability of these strategies was rated with and without "c" above.

Without "c"			With "c"		
3	2	1	3	2	1
Most	1	0	Most	3	0

5. Wakulla wetlands ordinance referendum campaign

- a. Continue to provide and solicit funding. Howard Kessler and Wakulla Wetlands Alliance, WWA, are taking the lead on this
- b. Support Friends of WS wetlands education activities. Madeleine Carr is the lead for this.
- c. Support a letter writing campaign to the media, Eugene Watkins, WWA, is coordinating this.

3	2	1
All	0	0

6. Coordination of monitoring, modeling and other science efforts (Goals 1 - 8)

- a. Prepare a draft comprehensive research agenda. Sean will do a draft for a future meeting.
- b. Provide input on section 6 of the BMAP regarding monitoring and research. Bob Thompson and Sean will help with this.
- c. Hold agency meetings to seek consensus on measures, methods, funding/responsibilities, etc. (NFWFMD, DACS, DEO, DOH, FSU and DEP Laboratories, Water Resources, Parks, etc.).

3	2	1
All	0	0

7. Engagement of elected officials, the public and other partners

- a. All of the above issues and strategies.
- b. Continue Wakulla Springs springshed tours.
- c. Fund, produce and distribute a Wakulla Springs video.
- d. Hold personal meetings with key elected officials and staff.
- e. Participation in bill and ordinance drafting and advocacy.
- f. Media outreach.
- g. Hold a symposium on Wakulla Springs. Debbie, Bob Deyle and Charles will work on this. The FSU Department of Urban and Regional Planning will help on this.
- h. Provide comments on the Knight Wakulla Springs Restoration Plan and consider adopting it in the future as a comprehensive plan for WSA, after amendments.

3	2	1
Most	2	

Protocols for Action and Coordination

There was a short discussion at the end of the Retreat about HC/WSA organizational issues. It was acknowledged that there has not been an election of board members and officers in years and that the HC/WSA has been effective for 18 years in initiating and coordinating scientific and advocacy efforts without focusing on formal protocols. There seemed to be general agreement that there should be a general membership meeting with elections in September.

Todd Kincaid and Howard Kessler agreed to prepare a slate of board members and officers. After the meeting it was discovered that the by-laws prohibit members of a nomination committee from being elected. Because both Todd and Howard want to be on the board it was suggested that listed board members and others who want to be on the ballot at the September HC/WSA General Member Meeting must send an email to the Secretary saying they want to serve, will attend meetings regularly and participate in WSA activities. Listed board members and others should also indicate whether they are willing to serve as an officer (Chair, Vice Chair, Secretary and/or Treasurer).

Mission Statement

There was a short discussion of the mission statement and the fact that the HC by-laws and the WSA webpage have different versions. There was a suggestion that the word "conserve" be added but others disagreed. Some thought that working on the wording was a waste of time. Everyone agreed to defer the discussion to a future date. The following options are from the retreat materials, with the suggested edit.

The bylaws for the "Hydrogeology Consortium" do not mention the Wakulla system and say the mission is to: *"...cooperatively provide scientific knowledge of ground water and surface water resources and advocate for the effective application of that knowledge towards management, conservation and protection."*

In contrast, the Wakulla Springs Alliance [website](#) seems much more like what we are actually doing:

The mission of the Wakulla Springs Alliance is to conserve, restore and protect the ecological health of the Wakulla Springshed, including the Springs and River, including its flow, water quality, biology, and cultural and recreational attributes.

The Alliance endeavors to achieve these goals by supporting scientific research and advocating environmental protection through education and outreach to government officials and the public at large.

The Alliance is composed of concerned citizens, scientists, educators, and other professionals who are passionate about protecting Wakulla Springs. We work collaboratively with other organizations to encourage federal, state and local government agencies to conserve, restore and protect our local water resources from further decline with emphasis on Wakulla Springs.

8-11-14 WSA STRATEGY RETREAT AGENDA

- 1:00 Opening (Agenda, guidelines and expectations)**
- 1:10 Clarification of strategic issues (Refine, add and prioritize)**
- 1:20 Strategy Development**
Brief presentation of pre-workshop strategy outlines
(For each issue) Identify next steps, timeframes, lead assignments and partners
- 4:00 Protocols for Action and Coordination**
Decision protocol for official WSA actions
WSA leadership (officers and/or coordinated volunteers)
Legal changes to by-laws, if needed
- 4:45 Closing (Summary and concluding comments)**
- 5:00 Adjourn**

GUIDELINES

Facilitator Role:

1. Help structure and guide discussions
2. Maintain a record of group products

The Participant Role:

1. Share in shaping and keeping to the agenda
2. Be focused and concise - balance participation
3. Ask questions and verify assumptions
4. Express and acknowledge differing views - no attacks or stereotyping
5. Make sure recording is accurate

Retreat Decisions

1. We have operated effectively as an informal group without elections or formal votes.
2. We will formulate strategies and organization procedures and record the consensus rating for consideration at future formal meeting, if desired.

Consensus Rating Scale

3. Good, and possibly could be better
2. I have serious concerns but can live with it
1. Opposed

Appendix B

8-11-14 WSA Retreat Participants

Rodney DeHan - Chair

Ed Conklin

Bob Deyle

Anthony Gaudio

Albert Gregory

Pam Hall

Larry Hendricks

Howard Kessler

Debbie Lightsey

Sean McGlynn

Charles Pattison

Jim Stevenson

Tom Swihart

Tom Taylor

Bob Thompson

Rob Williams

Appendix C

Why a Better Model is Critical [for the Wakulla Springshed]

This is the text from the PowerPoint presented by Todd Kincaid. The full presentation with maps and images is available from Todd or Tom Taylor.

Current Equivalent Porous Media (EPM) approach:

- Drastically over-estimates the amount of water in the aquifer.
- Cannot simulate impacts to aquifer from pumping.
- Cannot reasonably simulate springshed boundaries.
- Cannot reasonably simulate travel-times, thus spring and aquifer vulnerability.
- Is not consistent across different regions of the State, i.e. different models describe the aquifer differently in overlapping areas.

Underestimates Drawdown

- Cone-of-depression = amount of groundwater level decline around a pumping well due to the magnitude of pumping.
- Key parameter = aquifer permeability.
- EPM models must rely on overly high permeability values, which result in under-estimated impacts.
- SRWMD EPM under-estimated measured drawdowns around the City of Gainesville's wells by > 30 feet.

Underestimates Zone of Influence

- Zone of Influence = region in the aquifer where flow directions are directed toward a pumping well, i.e. the well's capture zone.
- Key parameter = aquifer permeability.
- EPM models must rely on overly high permeability values, which result in under-estimated impacts.
- SRWMD EPM under-estimated map

Inaccurate Springsheds

- Flow paths are controlled by conduits:
 - Connect swallets to springs;
 - Extend up-gradient from springs.
- Key parameters = aquifer permeability and recharge.
- EPM models rely on overly simplistic flow path assumptions.
- SRWMD EPM incorrectly simulated 5/7 traced groundwater flow paths.

Inaccurate Water Budget

- Concept of “Proven Reserves”
 - Base predicted quantities on observed conditions.
 - Prevents exaggerated estimates of reserves.
 - Should apply this concept to our groundwater.
- Data = cumulative riverine discharge to coast.
- EPM assumption: large amount of diffuse flow to Gulf of Mexico.
 - Unproven = no data to substantiate claim
 - Results in more estimated water in aquifer than can be proven from data or even reasonable extrapolations from the available data.
 - ~50% of simulated flow in SRWMD model is to non-verifiable boundaries.
- Karst assumption = majority of flow is to springs and spring fed rivers, which can be quantified from data.

Over-Estimated Permeability

- Most of SRWMD model relies on assigned permeability values that are 1-2 orders of magnitude higher than measured values.

Over-Estimated Permeability

- Same for SJRWMD – North Central Florida Model

Inconsistent Definitions

- SJRWMD models don't even use a consistent definition of aquifer permeability.
 - View regions independently
 - Assignments based on convenience rather than a consistent scientific understanding.
 - Means that impacts will be predicted differently for the same action by the different models.

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