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Subject: Interest in Making a Presentation at the Next Spring MFLs Workshop
Date: Monday, August 08, 2011 10:20:00 AM

Greetings:

District staff is working on a tentative agenda for the next Springs Coast Minimum Flows and Levels Public Workshop, and would like to know whether any stakeholder representatives are interested in making short (five or so minute) presentations on any of the potential agenda items listed below. Our expectation would be that the presentations will address data-related or methodological enhancements to the District's current approach to minimum flows development. Note that the workshop is scheduled for September 6, 2011 at 1:30 PM in Room 166 at the Lecanto Government Services Building.

Draft Agenda

Opening remarks, Doug Leeper (SWFWMD) (5 minutes)
Significant harm, Doug Leeper (SWFWMD) (20 minutes)
Modeling of salinity and thermal-based habitats, Doug Leeper (SWFWMD) (20 minutes)
Modeling of biological responses to flow changes, Doug Leeper (SWFWMD) (20 minutes)
Water quality issues, Doug Leeper (SWFWMD) (10 minutes)
Identification of follow-up District actions, Doug Leeper (SWFWMD) (10 minutes)
Public input (3 minutes per individual)
Adjournment, Doug Leeper (SWFWMD)

I would appreciate your contacting me by August 23rd if you are interested in making a presentation during the workshop.

Thanks,

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Subject: Springs Coast MFLs Workshop Date & New Documents on Web Page
Date: Monday, August 08, 2011 12:35:00 PM

Greetings:

Thanks again for contributing to the recent Springs Coast Minimum Flows and Levels Public Workshop. The next workshop is scheduled for **September 6, 2011** and will begin at 1:30 P.M. in Room 166 of the Lecanto Government Services Building, which is located at 3600 West Sovereign Path, Lecanto, FL 34461. An agenda for the upcoming meeting will soon be posted on the workshop web site at:

<http://www.WaterMatters.org/SpringsCoastMFL>

Summary notes for the July 19th workshop are currently posted in the "Updates" section of the workshop web page. Excerpts from a 2010 report prepared for the District by HydroGeoLogic, Inc.

have also been posted on the web page, under the "Background Information and Reports" heading. The excerpts include a report chapter and associated figures that address recent modeling of saltwater intrusion for the Springs Coast area. The modeling approach that was employed is described in the posted file, along with results for scenarios associated with recent and projected water usage and drought conditions. This saltwater-intrusion modeling information is being provided in response to requests from various stakeholder representatives made during the July workshop.

Please let me know if you have any problems accessing either of the recently posted documents.

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From: [Richard L Kane](#)
To: [Alan Martyn Johnson](#)
Cc: [Doug Leeper](#); [Kevin J Grimsley](#); [Richard L Kane](#)
Subject: Re: USGS Data
Date: Monday, August 08, 2011 12:46:29 PM

Mr Johnson, thank for your interest in the USGS data and the quality of the data. USGS has been collecting streamflow data at springs in Florida for over 100 years and quality assurance of our data is of the highest importance to our agency and is not taken lightly. I have responded to your comments below. Kevin will reply to your previous letter to the record in more depth when he returns to the office next week. I look forward to meeting up with you in our office soon as I don't think exchanging emails back and forth is productive at this point. I think we will be able to explain our procedures more effectively at a face to face meeting where we can show you our data and procedures.

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From: Alan Martyn Johnson <martynellijay@hotmail.com>
To: Doug Leeper <doug.leeper@swfwmd.state.fl.us>, rkane <rkane@usgs.gov>, Kevin J Grimsley <kjgrims@usgs.gov>
Date: 08/06/2011 10:16 AM
Subject: USGS Data

Doug,

Thanks for taking the action to remove the 'data' document from the working group web site, as I suggested. While it had no value as a stand alone document, we would have had to included a disclaimer statement that it was based on Provisional Data from USGS had it remained.

If I had copied the data today from the USGS web site there would have been lots of P's next to the data. While this is strictly in line with USGS Policy (2006) it was interesting to note this change to strict compliance only occurred very recently on all the real time data that I look at. I trust there will be a meaningful review before approval.

The "P" was applied at during last NWIS upgrade. These upgrades come from HQ and cannot be edited when retrieving data from NWISWEB. The purpose of the provisional flag was to prevent the provisional data statement at the top of page from being separated from the actually data and being used erroneously.

Richard and Kevin,

Where will Real Time Data be available as Approved Data?

Data is worked, checked and reviewed all throughout the year. Some of our more complex sites are reviewed once annually. All data is published by April 1 and is approved by that

time for the previous water year.

On the subject of Provisional Data Approval for SE Fork

May I suggest when USGS is reviewing the 2010-2011 water year data to make it 'Approved', USGS may want to have someone take a serious look at the Specific Conductance Data from the SE Fork Homosassa.

Quality assurance is of the highest importance to USGS. Our hydrologic technicians and hydrologists all have science degrees and years of specialized USGS training. Kevin is the national trainer for the water quality monitors and we are very fortunate to have someone of his caliber in the Florida Water Science Center. After data is collected in the field it is worked up provisionally, then checked by another technician, and then reviewed by a senior technician or hydrologist. Finally after all of the data has been verified it is approved in the database and then published in the annual data report. In addition, every three years the National USGS technical offices of Surface Water, Ground Water, and Water Quality visit our center and review all of our procedures, and a portion of data that has been worked up in the past three years. Further, since we do publish all of our data, it is constantly being reviewed and scrutinized by the scientific community.

I first commented about the eddy currents drawing water along the concrete wall downstream of the site in an e-mail December 20, 2010. Later I commented about the build up of material (sand) just upstream of the gage site.

The higher Specific Conductance readings at this site, I believe, are due to location of the gage site and the bags of concrete that have been placed by whomever to make it easier to get in/out of the water. I seriously doubt it was USGS placed these bags (I do have some photographs but they are not like having on on site report from one of your people).

If someone took the time, the flow can easily be seen on site when the tide is rising rapidly.

If you review the data you will also see this pattern of higher SC figures when tide is increasing rapidly and it is clearly not due to reverse flow into the approx 3 acre pool upstream of the bridge/gage site. I pass on these observations to help USGS provide the best possible data. Please advise if you have passed this on to the appropriate persons in USGS, or that you disagree with my observations.

I believe Kevin previously addressed your concerns of the eddy current. We do not feel it has any affect on the water quality data or the discharge. This site is not controlled by geomorphic features in the channel like a normal stage-discharge site may be. Tide and changes in groundwater affect the water quality and discharge. The flow is bidirectional, meaning the flow on the top moves in a different direction than the flow on the bottom. If we were measuring velocity continuously it would matter, but in this case we only measure stage and the water level of the aquifer. Since the water level is affected by gravity it is constantly seeking it's lowest level and an eddy current would not affect the water level or the forces of tide throughout the cross section of the channel. When we install the velocity sensor we will want to avoid this eddy current; thanks for bringing it to our attention.

When the tide comes in the salinity increase (this is normal). As the stage rises due to high tides the head on the spring increases and the downward pressure caused by gravity prevents freshwater from flowing out of the spring at the same rate and this is seen in the decreasing discharge. I am not sure about the concrete bags (we have to deal with a lot of vandalism at this site (we would certainly appreciate your efforts in keeping us informed when you notice unusual happenings at the springs). I'll check on this matter, but that the concrete bags would have no more affect on water quality than the concrete bridge. Even if the concrete bags were not in a solid state and dissolving in the river, any additions of matter from the bags would be very dilute and not expected to affect salinity.

And while I am on the subject of Specific Conductance

Doug,

Take a look at the attached graph of Specific Conductance for the Homosassa Springs Site. (Hope it attached correctly, if not it is from the USGS web site Gage 02310678 and covers the time period for which daily data is available).

The graph shows an increasing trend in the Minimum Daily Specific Conductance over the last 5-6 years. If it were possible to remove the extremely high figures from this analysis the trend could be seen more easily; not sure but I think the very high figure was at the time of a hurricane was it Alberto mid 2006?

Yes I agree when you remove the outliers you get a better view of the long term trends.

This graph is another strong indicator of how the nature of water entering the river is deteriorating; more salt water intrusion less flow from the aquifer fed spring in the group of three vents. The pattern is also evident when looking at Specific Conductance in relation to stage height over a few days.

I think we all agree with this statement. During the workshop, Doug gave an excellent presentation of long term sea level rise using NOAA gages in the Gulf over the past 50 years. As sea level continues to rise, salinity will continue to increase at the spring head and that, with the combined affect of groundwater pumping of the Floridan aquifer will cause the flow in the spring to decrease and the estuaries to change. Similarly, any reductions in rainfall would be expected to lead to increased salinity in the river system.

Sorry to spoil your morning coffee again with more questions and commentary!!!

Martyn

[attachment "Specific Conductance Homosassa Sprngs Gage.htm" deleted by Richard L Kane/WRD/USGS/DOI]

From: Doug Leeper
To: ["Alan Martyn Johnson"](#)
Bcc: [Marty Kelly](#); [Mike Heyl](#); [Sid Flannery](#); [Ron Basso](#); [Mark Barcelo](#); [Cara S. Martin](#); [Richard Kane \(rkane@usgs.gov\)](#); [Kevin Grimsely \(kigrims@usgs.gov\)](#)
Subject: RE: Input on Hydrologic Data & Question about the Northern District Model
Date: Monday, August 08, 2011 1:42:00 PM

Martyn:

Thanks for your continued input regarding flows in the Homosassa River system. In response to the question at the bottom of your August 4th e-mail, Ron Basso, a Senior Professional Geologist/Engineer with the District's Resource Projects Department prepared the following comments and gave me the approval to forward his comments to you. So, here they are ---

Response from Ron Basso

I'm not sure the exact nature of your question but I believe your concern is what is the effect on the SE Fork of Homosassa River from groundwater withdrawals that impact the Weeki Wachee Spring. My answer is that we modeled all groundwater withdrawals within a 5,000 square mile basin and the cumulative impact from all these withdrawals is reflected in the Northern District Model predicted reductions in flow of the Homosassa Springs group. The active domain of the Northern District model (NDM) includes all of the Northern West-Central Florida Ground-Water Basin (NWCFGWB) of the Floridan aquifer. In addition, most of Lake County outside the NWCFGWB is also included in the model to assess water use near the SWFWMD eastern boundary. A groundwater basin has well-defined boundaries in a lateral direction with a definable bottom. Rainfall that falls within a groundwater basin provides recharge to the aquifer within that basin. Groundwater does not flow laterally between groundwater basins or outside of a basin. It is important to include all groundwater withdrawals within a basin to conservatively assess the total impact to a spring, stream, or aquifer level. District staff could have limited the modeling assessment to a smaller area of groundwater withdrawn near Homosassa Springs but the predicted impact would have been smaller than the flow decline presented in the report.

It is also true that impacts to spring flow increase the closer the withdrawal is to the spring vent, particularly if they are large withdrawals since it is the elevation of the Floridan aquifer water level near the spring that drives its flow. This is one of the main reasons why predicted reductions in spring flow at Weeki Wachee Spring are much greater than those at Homosassa springs. Two very large public supply wellfields are located within 10 miles of Weeki Wachee Spring: west Hernando Utility (Spring Hill) and the Cross Bar wellfield that supplies Tampa Bay Water Utility.

I hope this response addresses your question regarding the Northern District model. Please feel free to discuss this issue further if it requires further clarification or I did not fully address your question.

End of Response from Ron Basso

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Resource Projects Department, Southwest Florida Water Management District
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E-Mail: doug.leeper@watermatters.org

Web Site: watermatters.org

From: Alan Martyn Johnson [mailto:martynellijay@hotmail.com]

Sent: Thursday, August 04, 2011 8:55 AM

To: Doug Leeper

Cc: Kevin J Grimsley; rkane

Subject: RE: Public Input for Spring Workshop

Doug,

Appreciate you complying the various pieces of correspondence in such an orderly manner. I have them all but not as neatly presented, excellent job. This would certainly help in a meeting with Richard and Kevin.

As you know I am a part time resident in Homosassa and will not be back there until early next month, according to present plans. As I mentioned in my e-mail some response to my e-mails of February would help prepare for a meeting.

In addition to those e-mails I have this morning updated an Excel spreadsheet that I had started back in March when I got your e-mail of March 1 with the graph from Kevin.

SE FORK HOMOSASSA FIELD MEASUREMENTS ANALYSIS

The file is attached.

As you will see I have primarily looked at the Field Measurements that are multiple measurements on the same day with the aim of getting an idea about how flows change in the SE Fork. The data in black is direct copy of the data from USGS. The blue data collates the various data from the same day and attempts to calculate the percentage changes of flow in a 15 minute interval in order to compare this to the variations in the calculated flows that I have generally questioned.

As can be seen in the red bordered section the percentage changes are generally gradual and in line with the Gage Height and Gage Height Changes i.e. logical.

Notes:

1. *The Gage Height Changes in Column M do not correspond to the changes in Column I; this is the data USGS has. Column T shows the changes as calculated from Column I.*
2. *I have highlighted the data for 2010-10-06 which looks suspect; may I suggest that someone recheck data entry for this date.*
3. *I have also highlighted the data for 2000-12-13. This data reports a gage change of 0.88 ft from 1:00 to 5:30 (assume this is am). This is an unusually high rate of change in four and half hours, with 0.74 ft change in just three hours from 1:00 to 4:00. I can only speculate that there must have been something special happening at this time to get someone out in the early hours, particularly as they had been there the day before. The low flow rates are logical for such a rapid rise in gage height.*
4. *All data is treated the same i.e. as if it were instantaneous data at the time the measurement is reported. I can only assume that the fact that Duration (Column N) of any individual measurement may have some influence; some measurements are 0.2 hrs some 0.5 hrs with a number of others in the mix e.g. for March 8, 2005 146A-E*

the figures are 0.7, 0.5, 0.45, 0.3, 0.3. Possibly the UNSP notation has some meaning here. You may recall a previous comment I made about reviewing the Standard Operating Procedures.

Bottom Line. This analysis of the field measurement data appears to support the questions I have raised about the 15 minute interval calculated data. Most of the changes in the field measurements are gradual and logical.

WELL LEVELS ANALYSIS AND WHICH IS THE DRIVING FORCE

Well Level Analysis file attached.

The other day I mentioned that out of curiosity I had taken a look at the well levels at Weeki Wachee and Lecanto North to try to understand a little more. As I mentioned I have long questioned why the Weeki Wachee Well level is used in the calculation of flows for the springs in Homosassa when it is not in the Homosassa Basin. Lecanto North is also not in the Homosassa Basin but much closer to the drawn boundary and half the distance from the Homosassa springs: Lecanto North is a long monitored well. As you can see on the graphs from the two wells, they react very similarly over the years to what I assume is rainfall/recharge although the pattern is hard to correlate when looking at the rainfall figures for Citrus and Hernando.

The number of data points in any year is not consistent so no time scale is shown on the graphs.

On the second sheet I culled the data to get matching (or closely matching) dates, and then looked at the deviations from average. It confirms what I have heard talk of Weeki Wachee Well is in serious decline and Lecanto North is not too far behind.

Taking these thoughts/observations to the flows in the SE Fork Homosassa it is concerning that the declines seen in the YELLOW BARS for Lecanto North have become strongly negative in about the same timeframe (starting about 2005) that residents have noted the changes re barnacle growth and nature of weed growth.

HOW DOES THE NORTHERN DISTRICT MODEL ACCOUNT FOR WATER FROM WEEKI WACHEE GETTING TO/INFLUENCING FLOWS IN THE HOMOSASSA SPRINGS, PARTICULARLY THE SE FORK?

More food for thought.

Martyn

From: Doug.Leeper@swfwmd.state.fl.us
To: martynellijay@hotmail.com
Date: Wed, 3 Aug 2011 10:20:19 -0400
Subject: RE: Public Input for Spring Workshop

Martyn:

I'd like to reiterate that I think it would be extremely useful to schedule a meeting with Richard Kane and Kevin Grimsley to discuss your concerns with flow measurement in the Homosassa River system. As indicated previously, I welcome the opportunity to participate in such a meeting. In support of this potential meeting I've compiled correspondence between you, Richard, Kevin and

me into three Adobe PDF portfolio documents, anticipating that it may be reasonable to review these correspondences prior to a face-to-face meeting. The first of the portfolio documents is attached to this e-mail. I'll send the other two as attachments to additional e-mails.

In response to your question about interactions between stakeholder representatives and others that participate in the District's Springs Coast Minimum Flows and Levels workshops, I would note that I have no specific information regarding interaction of these folks outside of the workshop setting. I assume, however, that workshop participants discuss minimum flows and levels issues outside of the scheduled workshop periods, based on e-mails that are sent to me and those that I am copied on.

Douglas A. Leeper, Chief Environmental Scientist
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Fax: 352-754-6885
E-Mail: doug.leeper@watermatters.org
Web Site: watermatters.org

From: [Hope](#)
To: [Doug Leeper](#)
Subject: Have you been out to see the progression of Salt intrusion in Chassahowitzka?
Date: Tuesday, August 09, 2011 5:10:02 PM

Hi Doug,

Have you (and other biological resource staff) been out to field - truth (we used to call it "ground truth") the current progression of salt water intrusion and effect on formerly freshwater habitats on the Chassahowitzka?

I was blown away by the visible changes along Potter Creek during a recent kayak trip (after a nearly 2 year absence from kayaking - during my husband's Dad's final illness when we spent so much time in St. Pete).

I know that the spring at the head of Potter accounts for a fairly high percentage of Chassahowitzka's over-all fresh water flow, and I'm curious as to whether the observed changes in Potter's vegetation are more due to loss of spring flow or salt intrusion or some combination?

Have you visited Potter annually for the past several years, and noticed the habitat change? What are your thoughts?

The same day we paddled to potter, we stopped to rest on the south side of the main river, east of the old trellis, and approximately even with the salt creek / shame hole ("N hole" on area maps) island area. There were barnacles on some of the semi-submerged snags there. How far east are you guys seeing the barnacles on your surveys?

Will the saltwater intrusion model be online in time for us to review it prior to the meeting? If so, could you send a link?

Thank you again Doug,
feeling hopeless,
Hope

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From: Doug Leeper
To: ["Hope"](#)
Bcc: [Mike Heyl](#); [Marty Kelly](#)
Subject: RE: Have you been out to see the progression of Salt intrusion in Chassahowitzka?
Date: Wednesday, August 10, 2011 2:48:00 PM

Hi Hope:

Thanks for the questions. I've tried to answer them below.

Douglas A. Leeper, Chief Environmental Scientist
Resource Projects Department, Southwest Florida Water Management District
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Telephone: 1-800-423-1476, ext. 4272 (FL only) or 352-796-7211, ext. 4272
Fax: 352-754-6885
E-Mail: doug.leeper@watermatters.org
Web Site: watermatters.org

From: Hope [<mailto:hopecorona@tampabay.rr.com>]
Sent: Monday, August 08, 2011 4:06 PM
To: Doug Leeper
Subject: Have you been out to see the progression of Salt intrusion in Chassahowitzka?

Hi Doug,

Have you (and other biological resource staff) been out to field - truth (we used to call it "ground truth") the current progression of salt water intrusion and effect on formerly freshwater habitats on the Chassahowitzka?

We are not currently monitoring changes in freshwater habitats in the Chassahowitzka River system. To support development of minimum flow recommendations for the river system, we did conduct extensive monitoring of longitudinal salinity gradients in the river. The District currently supports, in conjunction with the United States Geological Survey, the monitoring of specific conductance (which may be converted to salinity) at a number of sites in the Chassahowitzka system.

Here's a link to the Survey's web page for the Chassahowitzka River near Homosassa, FL gage site (USGS No. 02310650), which is upstream from the confluence of Potter Creek and the Chassahowitzka River:
http://waterdata.usgs.gov/fl/nwis/uv/?site_no=02310650&PARAMeter_cd=00065,00060

Here's a link to the Survey's web page for the Chassahowitzka River near Chassahowitzka, FL gage site (No. 02310663), which is downstream from Potter Creek:
http://waterdata.usgs.gov/nwis/dv/?site_no=02310663&agency_cd=USGS&referred_module=sw

Here's a link to the Survey's web page for the Chassahowitzka River at Dog Island near Chassahowitzka, FL gage site (No. 02310673):
http://waterdata.usgs.gov/fl/nwis/dv/?site_no=02310673&agency_cd=USGS&referred_module=sw

Here's a link to the Survey's web page for the Chassahowitzka River at Mouth near Chassahowitzka, FL gage site (No. 02310674):

http://waterdata.usgs.gov/nwis/dv/?site_no=02310674&agency_cd=USGS&referred_module=sw

I was blown away by the visible changes along Potter Creek during a recent kayak trip (after a nearly 2 year absence from kayaking - during my husband's Dad's final illness when we spent so much time in St. Pete).

I know that the spring at the head of Potter accounts for a fairly high percentage of Chassahowitzka's over-all fresh water flow, and I'm curious as to whether the observed changes in Potter's vegetation are more due to loss of spring flow or salt intrusion or some combination?

I surmise that changes in vegetation that you've observed may be related to changes in salinity. Of course, myriad factors, including changes in rainfall, changes in the quantity and chemical composition of spring discharge, plant pathogens and diseases, competition, and herbivory could affect the vegetation of the spring run.

Have you visited Potter annually for the past several years, and noticed the habitat change? What are your thoughts?

I have not routinely visited Potter Spring run or other components of the Chassahowitzka River system, so I cannot offer much insight regarding habitat changes that may have occurred in recent years.

The same day we paddled to potter, we stopped to rest on the south side of the main river, east of the old trellis, and approximately even with the salt creek / shame hole ("N hole" on area maps) island area. There were barnacles on some of the semi-submerged snags there. How far east are you guys seeing the barnacles on your surveys?

Unfortunately, I can't answer your question. We have not conducted any barnacle surveys of the Chassahowitzka River system. Our recent work on barnacle distributions was focused on the Homosassa River, Crystal River and lower Withlacoochee River.

Will the saltwater intrusion model be online in time for us to review it prior to the meeting? If so, could you send a link?

We had not planned on putting the saltwater intrusion model used for the Springs Coast on the workshop web page. An excerpt from a 2010 report prepared for the District by HydroGeoLogic, Inc., which summarizes the saltwater intrusion modeling that has been completed for the area, has been made available. Here's a link to the posted document.

http://www.swfwmd.state.fl.us/files/database/site_file_sets/1961/Excerpt_from_HydroGeoLogic_2010_-_Ground_water_flow_and_transport_model____.pdf

Thank you again Doug,
feeling hopeless,
Hope

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<http://www.pctools.com>
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From: [Alan Martyn Johnson](#)
To: [Doug Leeper](#); [rkane](#)
Subject: Homosassa River
Date: Wednesday, August 10, 2011 8:15:02 AM

Doug and Richard,
Just read your e-mails from Monday.
Thanks. I will reply later in the week when I am not as busy.

Quick question.
Are the velocity monitoring units in USGS or SWFWMD budget for 2011/2012.

Very brief...
Doug; Ron's answer did cover my question.
Richard; Reverse flow...no. I have idea of how to confirm baffle 12" x 2" by 4 ft.
temporarily installed. No time to explain now.
And the concrete bags are flow pattern concern. Reasonably sure I sent photographs earlier
in year.

Sorry I do not have more time right now.

Martyn

From: Doug Leeper
To: ["Alan Martyn Johnson"](#)
Bcc: [Marty Kelly](#); [Richard Kane \(rkane@usgs.gov\)](mailto:rkane@usgs.gov)
Subject: RE: Homosassa River
Date: Wednesday, August 10, 2011 3:57:00 PM

Martyn - Funds for SE Fork are in the proposed FY2012 District budget. USGS may also have funding in their budget, but I'm not sure how their budgeting process works.

Douglas A. Leeper, Chief Environmental Scientist
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Fax: 352-754-6885
E-Mail: doug.leeper@watermatters.org
Web Site: watermatters.org

From: Alan Martyn Johnson [<mailto:martynellijay@hotmail.com>]
Sent: Wednesday, August 10, 2011 8:15 AM
To: Doug Leeper; rkane
Subject: Homosassa River

Doug and Richard,
Just read your e-mails from Monday.
Thanks. I will reply later in the week when I am not as busy.

Quick question.
Are the velocity monitoring units in USGS or SWFWMD budget for 2011/2012.

Very brief...
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temporarily installed. No time to explain now.
And the concrete bags are flow pattern concern. Reasonably sure I sent photographs earlier
in year.

Sorry I do not have more time right now.

Martyn

From: Boyd_Blihovde@fws.gov
To: [Doug Leeper](#)
Subject: Re: Interest in Making a Presentation at the Next Spring MFLs Workshop
Date: Wednesday, August 10, 2011 8:30:43 PM

I would like to present on the vegetation changes we have witnessed along the Chassahowitzka River (within the Chass NWR). Please let me know if this is possible.

Thanks,

boyd blihovde
Deputy Refuge Manager
Chassahowitzka National Wildlife Refuge Complex
1502 SE Kings Bay Drive
Crystal River, FL 34429
(P) 352-563-2088
(F) 352-795-7961
▼ Doug Leeper <Doug.Leeper@swfwmd.state.fl.us>

Doug Leeper
<Doug.Leeper@swfwmd.state.fl.us>

08/08/2011 10:20 AM

To "Al Grubman (grubman1@gmail.com)" <grubman1@gmail.com>, "Bill Geiger (bgeiger@cityofbrooksville.us)" <bgeiger@cityofbrooksville.us>, "Bill Pouder (bill.pouder@myfwc.com)" <bill.pouder@myfwc.com>, "Boyd Blihovde (Boyd_Blihovde@fws.gov)" <Boyd_Blihovde@fws.gov>, "Brad Rimbey (BWR.CRRC@tampabay.rr.com)" <BWR.CRRC@tampabay.rr.com>, "Brent Whitley (brentwhitley@sierra-properties.com)" <brentwhitley@sierra-properties.com>, "Brockway, Alys (abrockway@co.hernando.fl.us)" <abrockway@co.hernando.fl.us>, "Dennis D. Dutcher (Dennis3ds@aol.com)" <Dennis3ds@aol.com>, "Frank DiGiovanni (administration@inverness-fl.gov)" <administration@inverness-fl.gov>, "Greenwood, Kathleen (Kathleen.Greenwood@dep.state.fl.us)" <Kathleen.Greenwood@dep.state.fl.us>, "Helen Spivey (manatees@habitats.org)" <manatees@habitats.org>, "Hilliard, Dan (2buntings@comcast.net)" <2buntings@comcast.net>, "Hoehn, Ted" <ted.hoehn@MyFWC.com>, "Hope Corona (hopecorona@tampabay.rr.com)" <hopecorona@tampabay.rr.com>, "Jim Farley (jfarley682@aol.com)" <jfarley682@aol.com>, "Katie Tripp (ktripp@savethemanatee.org)" <ktripp@savethemanatee.org>, "Norman Hopkins (norman@amyhrf.org)" <norman@amyhrf.org>, "Rebecca Bays (rebecca.bays@bocc.citrus.fl.us)" <rebecca.bays@bocc.citrus.fl.us>, "Richard Kane (rkane@usgs.gov)" <rkane@usgs.gov>, "Richard Radack (rradack@cityofbrooksville.us)" <rradack@cityofbrooksville.us>, "Ron Miller (rmille76@tampabay.rr.com)"

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<Carolyn.Voyles@dep.state.fl.us>,
"Whitey Markle (whmarkle@gmail.com)"
<whmarkle@gmail.com>

ccMarty Kelly
<Marty.Kelly@swfwmd.state.fl.us>, Mike
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Mark Hammond
<Mark.Hammond@swfwmd.state.fl.us>,
"Cara S. Martin"
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Mark Barcelo
<Mark.Barcelo@swfwmd.state.fl.us>

Subject Interest in Making a Presentation at the
Next Spring MFLs Workshop

Greetings:

District staff is working on a tentative agenda for the next Springs Coast Minimum Flows and Levels Public Workshop, and would like to know whether any stakeholder representatives are interested in making short (five or so minute) presentations on any of the potential agenda items listed below. Our expectation would be that the presentations will address data-related or methodological enhancements to the District's current approach to minimum flows development. Note that the workshop is scheduled for September 6, 2011 at 1:30 PM in Room 166 at the Lecanto Government Services Building.

Draft Agenda

Opening remarks, Doug Leeper (SWFWMD) (5 minutes)
Significant harm, Doug Leeper (SWFWMD) (20 minutes)
Modeling of salinity and thermal-based habitats, Doug Leeper (SWFWMD) (20 minutes)
Modeling of biological responses to flow changes, Doug Leeper (SWFWMD) (20 minutes)
Water quality issues, Doug Leeper (SWFWMD) (10 minutes)
Identification of follow-up District actions, Doug Leeper (SWFWMD) (10 minutes)
Public input (3 minutes per individual)
Adjournment, Doug Leeper (SWFWMD)

I would appreciate your contacting me by August 23rd if you are interested in making a presentation during the workshop.

Thanks,

Douglas A. Leeper, Chief Environmental Scientist
Resource Projects Department, Southwest Florida Water Management District
2379 Broad Street, Brooksville, FL 34604-6899
Telephone: 1-800-423-1476, ext. 4272 (FL only) or 352-796-7211, ext. 4272
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From: [Brad Rimbey@CRRC](mailto:Brad.Rimbey@CRRC)
To: [Doug Leeper](mailto:Doug.Leeper); grubman1@gmail.com; bgeiger@cityofbrooksville.us; bill.pouder@myfwc.com; [Boyd Blihovde](mailto:Boyd.Blihovde); [Brent Whitley](mailto:Brent.Whitley); abrockway@co.hernando.fl.us; [Dennis Dutcher](mailto:Dennis.Dutcher); administration@inverness-fl.gov; Kathleen.Greenwood@dep.state.fl.us; manatees@habitats.org; [Dan Hilliard](mailto:Dan.Hilliard); Hoehn.Ted; [Hope Corona](mailto:Hope.Corona); jfarley682@aol.com; ktripp@savethemanatee.org; norman@amyhrf.org; rebecca.bays@bocc.citrus.fl.us; rkane@usgs.gov; rradack@cityofbrooksville.us; [Ron Miller](mailto:Ron.Miller); cityofweekiwachee@yahoo.com; jsullivan@carltonfields.com; Carolyn.Voyles@dep.state.fl.us; whmarkle@gmail.com
Cc: [Marty Kelly](mailto:Marty.Kelly); [Mike Heyl](mailto:Mike.Heyl); [Mark Hammond](mailto:Mark.Hammond); [Cara S. Martin](mailto:Cara.S.Martin); [Darcy A. Brune](mailto:Darcy.A.Brune); [Robyn O. Felix](mailto:Robyn.O.Felix); [Ron Basso](mailto:Ron.Basso); [Dave Dewitt](mailto:Dave.Dewitt); [Veronica Craw](mailto:Veronica.Craw); [Chris Zajac](mailto:Chris.Zajac); [Gary E. Williams](mailto:Gary.E.Williams); [Barbara Matrone](mailto:Barbara.Matrone); [Mark Barcelo](mailto:Mark.Barcelo)
Subject: Re: Interest in Making a Presentation at the Next Spring MFLs Workshop
Date: Thursday, August 11, 2011 6:59:08 AM

Hi Doug,

Your offer to have Stakeholder representatives give a ~5 minute presentation on the listed agenda items has generated some interesting discussion amongst a few of the panel members. Those of us who have been "chatting" about this need some clarification. Are you proposing that each panel member would be allotted ~5 minutes to make a presentation on each of the proposed agenda items? I count 4 agenda items to potentially be discussed so that would be ~20 minutes total per panel member.

I think we have at least 15 stakeholder panel members so that would potentially be ~5 hours of presentation from Stakeholders.

A suggestion has been made that panel members who did not want to make an individual presentation could "pool" their presentation time and have a recognized expert give a presentation using the pooled time instead (i.e. not limited to ~ 5 minutes).

Another approach would be to just allow the District to finish "presenting its case" to the Stakeholder Panel in the September 6 workshop. The Stakeholder Panel and general public will ask the District staff questions about whatever the District presents during this meeting as they have in the previous meetings. In a fourth meeting, the Stakeholders Panel would invite outside experts to give presentations to the District on the topics which the District has identified as relevant to the MFL process. The District, Stakeholders Panel, and general public could then ask questions of these experts.

Let me know what you think. Thanks.

Brad W. Rimbey
for the Chassahowitzka River Restoration Committee

----- Original Message -----

From: [Doug Leeper](mailto:Doug.Leeper)
To: [Al Grubman \(grubman1@gmail.com\)](mailto:Al.Grubman); [Bill Geiger \(bgeiger@cityofbrooksville.us\)](mailto:Bill.Geiger); [Bill Pouder \(bill.pouder@myfwc.com\)](mailto:Bill.Pouder); [Boyd Blihovde \(Boyd_Blihovde@fws.gov\)](mailto:Boyd.Blihovde); [Brad Rimbey \(BWR.CRRC@tampabay.rr.com\)](mailto:Brad.Rimbey); [Brent Whitley \(brentwhitley@sierra-properties.com\)](mailto:Brent.Whitley); [Brockway Alys \(abrockway@co.hernando.fl.us\)](mailto:Brockway.Alys); [Dennis D. Dutcher \(Dennis3ds@aol.com\)](mailto:Dennis.D.Dutcher); [Frank DiGiovanni \(administration@inverness-fl.gov\)](mailto:Frank.DiGiovanni); [Greenwood, Kathleen \(Kathleen.Greenwood@dep.state.fl.us\)](mailto:Greenwood.Kathleen); [Helen Spivey \(manatees@habitats.org\)](mailto:Helen.Spivey); [Hilliard, Dan \(2buntings@comcast.net\)](mailto:Hilliard.Dan); [Hoehn, Ted](mailto:Hoehn.Ted); [Hope Corona \(hopecorona@tampabay.rr.com\)](mailto:Hope.Corona); [Jim Farley \(jfarley682@aol.com\)](mailto:Jim.Farley); [Katie Tripp \(ktripp@savethemanatee.org\)](mailto:Katie.Tripp); [Norman Hopkins \(norman@amyhrf.org\)](mailto:Norman.Hopkins); [Rebecca Bays \(rebecca.bays@bocc.citrus.fl.us\)](mailto:Rebecca.Bays); [Richard Kane \(rkane@usgs.gov\)](mailto:Richard.Kane); [Richard Radack \(rradack@cityofbrooksville.us\)](mailto:Richard.Radack); [Ron Miller \(rmille76@tampabay.rr.com\)](mailto:Ron.Miller); [Sarah Tenison \(cityofweekiwachee@yahoo.com\)](mailto:Sarah.Tenison); [Sullivan, Jack \(jsullivan@carltonfields.com\)](mailto:Sullivan.Jack); [Voyles, Carolyn \(Carolyn.Voyles@dep.state.fl.us\)](mailto:Voyles.Carolyn); [Whitey Markle \(whmarkle@gmail.com\)](mailto:Whitey.Markle)
Cc: [Marty Kelly](mailto:Marty.Kelly); [Mike Heyl](mailto:Mike.Heyl); [Mark Hammond](mailto:Mark.Hammond); [Cara S. Martin](mailto:Cara.S.Martin); [Darcy A. Brune](mailto:Darcy.A.Brune); [Robyn O. Felix](mailto:Robyn.O.Felix); [Ron Basso](mailto:Ron.Basso); [Dave Dewitt](mailto:Dave.Dewitt); [Veronica Craw](mailto:Veronica.Craw); [Chris Zajac](mailto:Chris.Zajac); [Gary E. Williams](mailto:Gary.E.Williams); [Barbara Matrone](mailto:Barbara.Matrone); [Mark Barcelo](mailto:Mark.Barcelo)

Sent: Monday, August 08, 2011 10:20 AM

Subject: Interest in Making a Presentation at the Next Spring MFLs Workshop

Greetings:

District staff is working on a tentative agenda for the next Springs Coast Minimum Flows and Levels Public Workshop, and would like to know whether any stakeholder representatives are interested in making short (five or so minute) presentations on any of the potential agenda items listed below. Our expectation would be that the presentations will address data-related or methodological enhancements to the District's current approach to minimum flows development. Note that the workshop is scheduled for September 6, 2011 at 1:30 PM in Room 166 at the Lecanto Government Services Building.

Draft Agenda

Opening remarks, Doug Leeper (SWFWMD) (*5 minutes*)

Significant harm, Doug Leeper (SWFWMD) (*20 minutes*)

Modeling of salinity and thermal-based habitats, Doug Leeper (SWFWMD) (*20 minutes*)

Modeling of biological responses to flow changes, Doug Leeper (SWFWMD) (*20 minutes*)

Water quality issues, Doug Leeper (SWFWMD) (*10 minutes*)

Identification of follow-up District actions, Doug Leeper (SWFWMD) (*10 minutes*)

Public input (*3 minutes per individual*)

Adjournment, Doug Leeper (SWFWMD)

I would appreciate your contacting me by August 23rd if you are interested in making a presentation during the workshop.

Thanks,

Douglas A. Leeper, Chief Environmental Scientist

Resource Projects Department, Southwest Florida Water Management District

2379 Broad Street, Brooksville, FL 34604-6899

Telephone: 1-800-423-1476, ext. 4272 (FL only) or 352-796-7211, ext. 4272

Fax: 352-754-6885

E-Mail: doug.leeper@watermatters.org

Web Site: watermatters.org

IMPORTANT NOTICE: All E-mail sent to or from this address are public record and archived. The Southwest Florida Water Management District does not allow use of District equipment and E-mail facilities for non-District business purposes.

From: [2buntings](#)
To: [Doug Leeper](#)
Cc: [Brad Rimbey@CRRC](#); [ron miller](#); [Cathy Harrelson](#); [Whitey Markle](#); [BrentWhitley@Sierra-Properties.com](#)
Subject: MFL Workshop presentations
Date: Friday, August 12, 2011 2:23:10 PM

Hi Doug,

Thanks for the offer of presentation time at the next workshop. To be candid it is not clear to us that lay presentation of 5 minutes by each stakeholder will prove to be of great benefit to the process being used by the District to gather public input.

It has been brought to my attention that about one half dozen stakeholders consider deferral of their time allocation to expert testimony. As such, impact on the presentation schedule would be neutral and it appears there may be benefit to the process insofar as legitimate qualified testimony would be presented.

Alternatively it may also serve the process well if an additional workshop were scheduled expressly for this purpose after the stakeholders have had the opportunity to examine the full scope of the District's presentations.

For your convenience and reference this email is copied to those stakeholders which I understand have an interest in pursuing such alternatives. This short list may not be all inclusive.

Thanks for your consideration,

Dan

--

Dan Hilliard
Director
Withlacoochee Area Residents, Inc.(501.C3)
352/447-5434
WWW.WARINCONLINE.COM

From: [Whitey Markle](#)
To: [2buntings](#)
Cc: [Doug Leeper](#); [Brad Rimbey@CRRC](#); [ron miller](#); [Cathy Harrelson](#); [BrentWhitley@sierra-properties.com](#)
Subject: Re: MFL Workshop presentations
Date: Sunday, August 14, 2011 9:05:09 AM

Amen!

Whitey Markle

On Fri, Aug 12, 2011 at 2:22 PM, 2buntings <2buntings@comcast.net> wrote:

> Hi Doug,
>
> Thanks for the offer of presentation time at the next workshop. To be
> candid it is not clear to us that lay presentation of 5 minutes by each
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> Thanks for your consideration,
>
> Dan
>
> --
> Dan Hilliard
> Director
> Withlacoochee Area Residents, Inc.(501.C3)
> 352/447-5434
> WWW.WARINCONLINE.COM
>
>
>
>
>

From: [Richard L Kane](#)
To: [Doug Leeper](#)
Subject: Fw: SPRINGS REPORTs
Date: Tuesday, August 16, 2011 9:42:57 AM
Attachments: [wrir_92_4069.djvu](#)

Doug you might want to add these reports to the Springs Website. You should be able to download these reports from the USGS Library.

Yobbi, D.K., 1992, Effects of tidal stage and ground-water levels on the discharge and water quality of springs in coastal Citrus and Hernando Counties, Florida: U.S. Geological Survey Water-Resources Investigations Report 92-4069, 44 p.

Yobbi, D.K., and Knochenmus, L.A., 1989, Salinity and flow relations and effects of reduced flow in the Chassahowitzka River and Homosassa River estuaries, southwest Florida: U.S. Geological Survey Water-Resources Investigations Report 88-4044, 38 p.

Yobbi, D.K., and Knochenmus, L.A., 1989, Effects of river discharge and high-tide stage on salinity intrusion in the Weeki Wachee, Crystal, and Withlacoochee River estuaries, southwest Florida: U.S. Geological Survey Water-Resources Investigations Report 88-4116, 63 p.

Yobbi, D.K., 1989, Simulation of steady-state ground water and spring flow in the upper Floridan aquifer of coastal Citrus and Hernando Counties, Florida: U.S. Geological Survey Water-Resources Investigations Report 88-4036, 33 p

Richard L. Kane
Associate Center Director for Data
U. S. Geological Survey
Florida Water Science Center
10500 University Center Dr., Suite 215
Tampa, Fl. 33612
rkane@usgs.gov
(813-498-5057)
FAX (813-498-5001)
Cell 813-918-1275

----- Forwarded by Richard L Kane/WRD/USGS/DOI on 08/16/2011 09:13 AM -----

From: DANN YOBBI <dyobbi@sbcglobal.net>
To: Richard L Kane <rkane@usgs.gov>
Cc: Kevin J Grimsley <kjgrims@usgs.gov>
Date: 08/15/2011 11:50 PM
Subject: MY SPRINGS REPORT

Richard/Kevin--Take a look at my springs report; particularly, the graph and regression equation relating specific conductance and stage at Homosassa Springs with tidal ground water levels. The report gives a basic discussion of the tide effects on salinity changes in the coastal springs.

From: [Cathy Harrelson](#)
To: [Brad Rimbey@CRRC](#)
Cc: [grubman1@gmail.com](#); [bgeiger@cityofbrooksville.us](#); [bill.pouder@myfwc.com](#); [abrockway@co.hernando.fl.us](#); [administration@inverness-fl.gov](#); [Kathleen.Greenwood@dep.state.fl.us](#); [manatees@habitats.org](#); [jfarley682@aol.com](#); [ktripp@savethemanatee.org](#); [norman@amyhrf.org](#); [rebecca.bays@bocc.citrus.fl.us](#); [rkane@usgs.gov](#); [rradack@cityofbrooksville.us](#); [cityofweekiwachee@yahoo.com](#); [jsullivan@carltonfields.com](#); [Carolyn.Voyles@dep.state.fl.us](#); [whmarkle@gmail.com](#); [Darden Rice](#); [Doug Leeper](#); [boyd_blihovde@fws.gov](#); [BrentWhitley@sierra-properties.com](#); [dennis3ds@aol.com](#); [2buntings@comcast.net](#); [ted.hoyne@myfwc.com](#); [hopecorona@tampabay.rr.com](#); [Marty Kelly](#); [Mike Heyl](#); [mark.hammon@swfwmd.state.fl.us](#); [Cara S. Martin](#); [rmille76@tampabay.rr.com](#); [Darcy A. Brune](#); [Robyn O. Felix](#); [Ron Basso](#); [Dave Dewitt](#); [Veronica Craw](#); [Chris Zajac](#); [Gary E. Williams](#); [Barbara Matrone](#); [Mark Barcelo](#)
Subject: Re: Interest in Making a Presentation at the Next Spring MFLs Workshop
Date: Tuesday, August 16, 2011 10:46:17 AM

Thanks Brad. It seems that the separate public input meeting as you've spelled out below could be a good idea but 1) it needs to be held at a time when more of the public can attend; and 2) I believe it should be open, i.e. the "experts" should be allowed to speak on anything relating to this entire topic, not be restricted by those the District thinks are relevant. Shouldn't we assume that all topics presented throughout these hearings are relevant?

Sincerely,

Cathy Harrelson
Florida Organizer
Gulf Restoration Network
cathy@healthygulf.org
727-415-8805

On Thu, Aug 11, 2011 at 7:55 AM, Brad Rimbey@CRRC
<BWR.CRRC@tampabay.rr.com> wrote:

Cathy, I don't see your name on Doug's email list and I meant for you to get my reply to Doug. Brad Rimbey

----- Original Message -----

From: [Brad Rimbey@CRRC](#)

To: [Doug Leeper](#); [grubman1@gmail.com](#); [bgeiger@cityofbrooksville.us](#); [bill.pouder@myfwc.com](#); [Boyd Blihovde](#); [Brent Whitley](#); [abrockway@co.hernando.fl.us](#); [Dennis Dutcher](#); [administration@inverness-fl.gov](#); [Kathleen.Greenwood@dep.state.fl.us](#); [manatees@habitats.org](#); [Dan Hilliard](#); [Hoehn, Ted](#); [Hope Corona](#); [jfarley682@aol.com](#); [ktripp@savethemanatee.org](#); [norman@amyhrf.org](#); [rebecca.bays@bocc.citrus.fl.us](#); [rkane@usgs.gov](#); [rradack@cityofbrooksville.us](#); [Ron Miller](#); [cityofweekiwachee@yahoo.com](#); [jsullivan@carltonfields.com](#); [Carolyn.Voyles@dep.state.fl.us](#); [whmarkle@gmail.com](#)

Cc: [Marty Kelly](#); [Mike Heyl](#); [Mark Hammond](#); [Cara S. Martin](#); [Darcy A. Brune](#); [Robyn O. Felix](#); [Ron Basso](#); [Dave Dewitt](#); [Veronica Craw](#); [Chris Zajac](#); [Gary E. Williams](#); [Barbara Matrone](#); [Mark Barcelo](#)

Sent: Thursday, August 11, 2011 6:59 AM

Subject: Re: Interest in Making a Presentation at the Next Spring MFLs Workshop

Hi Doug,

Your offer to have Stakeholder representatives give a ~5 minute presentation on the listed agenda items has generated some interesting discussion amongst a few of the panel members. Those of us who have been "chatting" about this need some clarification. Are you proposing that each panel member would be allotted ~5 minutes to make a presentation on each of the proposed agenda items? I count 4 agenda items to potentially be discussed so that would be ~20 minutes total per panel member.

I think we have at least 15 stakeholder panel members so that would potentially be ~5 hours of presentation from Stakeholders.

A suggestion has been made that panel members who did not want to make an individual presentation could "pool" their presentation time and have a recognized expert give a presentation using the pooled time instead (i.e. not limited to ~ 5 minutes).

Another approach would be to just allow the District to finish "presenting its case" to the Stakeholder Panel in the September 6 workshop. The Stakeholder Panel and general public will ask the District staff questions about whatever the District presents during this meeting as they have in the previous meetings. In a fourth meeting, the Stakeholders Panel would invite outside experts to give presentations to the District on the topics which the District has identified as relevant to the MFL process. The District, Stakeholders Panel, and general public could then ask questions of these experts.

Let me know what you think. Thanks.

Brad W. Rimbey
for the Chassahowitzka River Restoration Committee

----- Original Message -----

From: [Doug Leeper](#)

To: [Al Grubman \(grubman1@gmail.com\)](#) ; [Bill Geiger \(bgeiger@cityofbrooksville.us\)](#) ; [Bill Pouder \(bill.pouder@myfwc.com\)](#) ; [Boyd Blihovde \(Boyd_Blihovde@fws.gov\)](#) ; [Brad Rimbey \(BWR.CRRC@tampabay.rr.com\)](#) ; [Brent Whitley \(brentwhitley@sierra-properties.com\)](#) ; [Brockway Alys \(abrockway@co.hernando.fl.us\)](#) ; [Dennis D. Dutcher \(Dennis3ds@aol.com\)](#) ; [Frank DiGiovanni \(administration@inverness-fl.gov\)](#) ; [Greenwood, Kathleen \(Kathleen.Greenwood@dep.state.fl.us\)](#) ; [Helen Spivey \(manatees@habitats.org\)](#) ; [Hilliard, Dan \(2buntings@comcast.net\)](#) ; [Hoehn, Ted](#) ; [Hope Corona \(hopecorona@tampabay.rr.com\)](#) ; [Jim Farley \(jfarley682@aol.com\)](#) ; [Katie Tripp \(ktripp@savethemanatee.org\)](#) ; [Norman Hopkins \(norman@amyhrf.org\)](#) ; [Rebecca Bays \(rebecca.bays@bocc.citrus.fl.us\)](#) ; [Richard Kane \(rkane@usgs.gov\)](#) ; [Richard Radacky \(rradacky@cityofbrooksville.us\)](#) ; [Ron Miller \(rmille76@tampabay.rr.com\)](#) ; [Sarah Tenison \(cityofweekiwachee@yahoo.com\)](#) ; [Sullivan, Jack \(jsullivan@carltonfields.com\)](#) ; [Voyles, Carolyn \(Carolyn.Voyles@dep.state.fl.us\)](#) ; [Whitey Markle \(whmarkle@gmail.com\)](#)

Cc: [Marty Kelly](#) ; [Mike Heyl](#) ; [Mark Hammond](#) ; [Cara S. Martin](#) ; [Darcy A. Brune](#) ; [Robyn O. Felix](#) ; [Ron Basso](#) ; [Dave Dewitt](#) ; [Veronica Craw](#) ; [Chris Zajac](#) ; [Gary E. Williams](#) ; [Barbara Matrone](#) ; [Mark Barcelo](#)

Sent: Monday, August 08, 2011 10:20 AM

Subject: Interest in Making a Presentation at the Next Spring MFLs Workshop

Greetings:

District staff is working on a tentative agenda for the next Springs Coast Minimum Flows and Levels Public Workshop, and would like to know whether any stakeholder representatives are interested in making short (five or so minute) presentations on any of the potential agenda items listed below. Our expectation would be that the presentations will address data-related or methodological enhancements to the District's current approach to minimum flows development. Note that the workshop is scheduled for September 6, 2011 at 1:30 PM in Room 166 at the Lecanto Government Services Building.

Draft Agenda

Opening remarks, Doug Leeper (SWFWMD) (*5 minutes*)

Significant harm, Doug Leeper (SWFWMD) (*20 minutes*)

Modeling of salinity and thermal-based habitats, Doug Leeper (SWFWMD) (*20 minutes*)

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Identification of follow-up District actions, Doug Leeper (SWFWMD) (*10 minutes*)

Public input (*3 minutes per individual*)

Adjournment, Doug Leeper (SWFWMD)

I would appreciate your contacting me by August 23rd if you are interested in making a presentation during the workshop.

Thanks,

Douglas A. Leeper, Chief Environmental Scientist

Resource Projects Department, Southwest Florida Water Management District

2379 Broad Street, Brooksville, FL 34604-6899

Telephone: [1-800-423-1476, ext. 4272](tel:1-800-423-1476) (FL only) or [352-796-7211, ext. 4272](tel:352-796-7211)

Fax: [352-754-6885](tel:352-754-6885)

E-Mail: doug.leeper@watermatters.org

Web Site: watermatters.org

IMPORTANT NOTICE: All E-mail sent to or from this address are public record and archived. The Southwest Florida Water Management District does not allow use of District equipment and E-mail facilities for non-District business purposes.

--

Cathy Harrelson

Sustainable Communities Specialist

Farias Marketing Group

727-415-8805

From: Doug Leeper
To: [Al Grubman \(grubman1@gmail.com\)](mailto:Al_Grubman@gmail.com); [Bill Geiger \(bgeiger@cityofbrooksville.us\)](mailto:Bill_Geiger@cityofbrooksville.us); [Bill Pouder \(bill.pouder@myfwc.com\)](mailto:Bill_Pouder@myfwc.com); [Boyd Blihovde \(Boyd_Blihovde@fws.gov\)](mailto:Boyd_Blihovde@fws.gov); [Brad Rimbev \(BWR.CRRRC@tampabay.rr.com\)](mailto:Brad_Rimbev@BWR.CRRRC@tampabay.rr.com); [Brent Whitley \(brentwhitley@sierra-properties.com\)](mailto:Brent_Whitley@sierra-properties.com); [Brockway, Alys \(abrockway@co.hernando.fl.us\)](mailto:Brockway_Alys@abrockway.co.hernando.fl.us); [Dennis D. Dutcher \(Dennis3ds@aol.com\)](mailto:Dennis_D._Dutcher@Dennis3ds@aol.com); [Frank DiGiovanni \(administration@inverness-fl.gov\)](mailto:Frank_DiGiovanni@administration@inverness-fl.gov); [Greenwood, Kathleen \(Kathleen.Greenwood@dep.state.fl.us\)](mailto:Greenwood_Kathleen@dep.state.fl.us); [Helen Spivey \(manatees@habitats.org\)](mailto:Helen_Spivey@manatees@habitats.org); [Hilliard, Dan \(2buntings@comcast.net\)](mailto:Hilliard_Dan@2buntings@comcast.net); [Hoehn, Ted \(hopecorona@dep.state.fl.us\)](mailto:Hoehn_Ted@hopecorona@dep.state.fl.us); [Hope Corona \(hopecorona@tampabay.rr.com\)](mailto:Hope_Corona@hopecorona@tampabay.rr.com); [Jim Farley \(jfarley682@aol.com\)](mailto:Jim_Farley@jfarley682@aol.com); [Katie Tripp \(katripp@savethemanatee.org\)](mailto:Katie_Tripp@katripp@savethemanatee.org); [Norman Hopkins \(norman@amyhrf.org\)](mailto:Norman_Hopkins@norman@amyhrf.org); [Rebecca Bays \(rebecca.bays@bocc.citrus.fl.us\)](mailto:Rebecca_Bays@rebecca.bays@bocc.citrus.fl.us); [Richard Kane \(rkane@usgs.gov\)](mailto:Richard_Kane@rkane@usgs.gov); [Richard Radack \(rradack@cityofbrooksville.us\)](mailto:Richard_Radack@rradack@cityofbrooksville.us); [Ron Miller \(rmille76@tampabay.rr.com\)](mailto:Ron_Miller@rmille76@tampabay.rr.com); [Sarah Tenison \(cityofweekiwachee@yahoo.com\)](mailto:Sarah_Tenison@cityofweekiwachee@yahoo.com); [Sullivan, Jack \(jsullivan@carltonfields.com\)](mailto:Sullivan_Jack@jsullivan@carltonfields.com); [Voyles, Carolyn \(Carolyn.Voyles@dep.state.fl.us\)](mailto:Voyles_Carolyn@Carolyn.Voyles@dep.state.fl.us); [Whitey Markle \(whmarkle@gmail.com\)](mailto:Whitey_Markle@whmarkle@gmail.com)
Bcc: [Marty Kelly](#); [Mike Heyl](#); [Mark Hammond](#); [Cara S. Martin](#); [Darcy A. Brune](#); [Robyn O. Felix](#); [Ron Basso](#); [Mark Barcelo](#); [Dave Dewitt](#); [Veronica Crow](#); [Chris Zajac](#); [Gary E. Williams](#); [Barbara Matrone](#)
Subject: Clarification Regarding Stakeholder Rep Presentations
Date: Tuesday, August 16, 2011 12:16:00 PM

Greetings:

I'm writing to clarify the inquiry I made in a recent e-mail regarding whether any Springs Coast Minimum Flows and Levels Public Workshop stakeholder representatives would be interested in offering presentations at the planned September workshop. The purpose of my inquiry was to indicate the District's willingness to provide stakeholder representatives the opportunity to use visual aids during short (approximately five minute) presentations in support of recommendations concerning data-related or methodological enhancements to the District's current approach to minimum flows development for Springs Coast systems. Presentations by stakeholder representatives, like those made by District staff, would be expected to enhance discussion of agenda items among stakeholder representatives and staff during the workshop. The stakeholder representative presentations were not viewed as a replacement for this discussion; rather, they were envisioned as a means to advance interaction among workshop participants.

Please note that the identified approximate five minute time-frame for stakeholder representative presentations is intended to maintain a reasonable meeting schedule and to encourage presenters to focus their recommendations on enhancements to exiting minimum flows and levels methodologies. It may be expected that some presentations may be slightly longer than five minutes, but to allow time for constructive discussion, it is expected that the presentations will be relatively short.

Staff do not currently anticipate that each stakeholder representative will want to make a presentation on each of the tentative agenda items identified for the September workshop. This would, as Brad Rimbev has pointed out in a recent e-mail sent to stakeholder representatives and District staff, lead to a rather lengthy meeting.

We expect that relatively few stakeholder representatives will be interested in making "formal" presentations aided by visual aids (slides or other materials) during the workshop. To date, two stakeholder representatives have expressed interest in making presentations. Norman Hopkins has indicated that he would like to present information for the "Water Quality" agenda item and Boyd Blihovde has indicated that he would like to offer information on vegetation changes in the Chassahowitzka National Wildlife Refuge, presumably as part of the "Modeling of Biological Responses to Flow Changes" agenda item discussion. I plan to communicate further with Norman

and Boyd to discuss the nature of their planned presentations. A goal for these communications will be clarification of the District's desire that the presentations specifically address data and/or methodological approaches that can be quantitatively used to enhance the District approach to minimum flows and levels development. Please note that if a large number of stakeholder representatives express interest in making "formal" presentations on workshop agenda items, staff will attempt to work with the representatives to eliminate redundancy and potentially limit the number of visual-aid enhanced presentations.

I and other District staff believe the group of representatives that has been assembled for the workshop possess a broad range of expertise that has and will continue to be capably brought to bear in constructive discussions of enhancements to minimum flow methodologies. Stakeholder representatives include scientists and others with a high level of knowledge concerning the geology, water chemistry, manatees, fish, invertebrates, other wildlife, plants and the human communities of the Springs Coast.

To recap, District staff do not anticipate a great number of stakeholder representative presentations at the September workshop. We expect only a few such presentations, and hope that the presentations and ensuing discussions result in the identification of data/methodological enhancements that may be used for establishing minimum flows and levels along the Springs Coast.

Douglas A. Leeper, Chief Environmental Scientist
Resource Projects Department, Southwest Florida Water Management District
2379 Broad Street, Brooksville, FL 34604-6899
Telephone: 1-800-423-1476, ext. 4272 (FL only) or 352-796-7211, ext. 4272
Fax: 352-754-6885
E-Mail: doug.leeper@watermatters.org
Web Site: watermatters.org

From: Doug Leeper
To: ["Brad Rimbey@CRRC"](mailto:Brad.Rimbey@CRRC)
Bcc: [Marty Kelly](#); [Mike Heyl](#); [Mark Hammond](#); [Cara S. Martin](#); [Darcy A. Brune](#); [Robyn O. Felix](#); [Ron Basso](#); [Mark Barcelo](#); [Dave Dewitt](#); [Veronica Craw](#); [Chris Zajac](#); [Gary E. Williams](#); [Barbara Matrone](#)
Subject: RE: Interest in Making a Presentation at the Next Spring MFLs Workshop
Date: Tuesday, August 16, 2011 12:28:00 PM

Brad:

Thanks for your comments and suggestions. As outlined in an e-mail that was just distributed to all Springs Coast Minimum Flows and Levels Public Workshop stakeholder representatives, our plan is to facilitate a limited (hopefully) number of presentations by stakeholder reps at the next workshop. Detailed responses to the points raised in your recent e-mail are provided below.

Douglas A. Leeper, Chief Environmental Scientist
Resource Projects Department, Southwest Florida Water Management District
2379 Broad Street, Brooksville, FL 34604-6899
Telephone: 1-800-423-1476, ext. 4272 (FL only) or 352-796-7211, ext. 4272
Fax: 352-754-6885
E-Mail: doug.leeper@watermatters.org
Web Site: watermatters.org

From: Brad Rimbey@CRRC [mailto:BWR.CRRC@tampabay.rr.com]
Sent: Thursday, August 11, 2011 6:59 AM
To: Doug Leeper; grubman1@gmail.com; bgeiger@cityofbrooksville.us; bill.pouder@myfwc.com; Boyd Blihovde; Brent Whitley; abrockway@co.hernando.fl.us; Dennis Dutcher; administration@inverness-fl.gov; Kathleen.Greenwood@dep.state.fl.us; manatees@habitats.org; Dan Hilliard; Hoehn, Ted; Hope Corona; jfarley682@aol.com; ktripp@savethemanatee.org; norman@amyhrf.org; rebecca.bays@bocc.citrus.fl.us; rkane@usgs.gov; rradacky@cityofbrooksville.us; Ron Miller; cityofweekiwachee@yahoo.com; jsullivan@carltonfields.com; Carolyn.Voyles@dep.state.fl.us; whmarkle@gmail.com
Cc: Marty Kelly; Mike Heyl; Mark Hammond; Cara S. Martin; Darcy A. Brune; Robyn O. Felix; Ron Basso; Dave Dewitt; Veronica Craw; Chris Zajac; Gary E. Williams; Barbara Matrone; Mark Barcelo
Subject: Re: Interest in Making a Presentation at the Next Spring MFLs Workshop

Hi Doug,

Your offer to have Stakeholder representatives give a ~5 minute presentation on the listed agenda items has generated some interesting discussion amongst a few of the panel members. Those of us who have been "chatting" about this need some clarification. Are you proposing that each panel member would be allotted ~5 minutes to make a presentation on each of the proposed agenda items? I count 4 agenda items to potentially be discussed so that would be ~20 minutes total per panel member.

I think we have at least 15 stakeholder panel members so that would potentially be ~5 hours of presentation from Stakeholders.

The purpose of my recent inquiry to stakeholder representatives was to indicate the District's willingness to provide stakeholder representatives the opportunity to use visual aids during short (approximately five minute) presentations in support of recommendations concerning data-related or methodological enhancements to the District's current approach to minimum flows development for Springs Coast systems. Presentations by stakeholder representatives, like those made by District

staff, would be expected to enhance discussion of agenda items among stakeholder representatives and staff during the workshop. The stakeholder representative presentations were not viewed as a replacement for this discussion; rather, they were envisioned as a means to advance interaction among workshop participants.

We do not anticipate that each stakeholder representative will want to make a presentation on each of the tentative agenda items identified for the September workshop. If this situation arises, we will work with stakeholder representatives to eliminate redundancy and potentially limit the number of "formal" visual-aid enhanced presentations.

A suggestion has been made that panel members who did not want to make an individual presentation could "pool" their presentation time and have a recognized expert give a presentation using the pooled time instead (i.e. not limited to ~ 5 minutes).

Staff do not consider the concept of pooling allotted five-minute presentation times to be appropriate for the workshop forum. Please note that the identified approximate five minute time-frame for stakeholder representative presentations is intended to maintain a reasonable meeting schedule and to encourage presenters to focus their recommendations on enhancements to existing minimum flows and levels methodologies. It may be expected that some presentations may be slightly longer than five minutes, but to allow time for constructive discussion, it is expected that the presentations will be relatively short.

Another approach would be to just allow the District to finish "presenting its case" to the Stakeholder Panel in the September 6 workshop. The Stakeholder Panel and general public will ask the District staff questions about whatever the District presents during this meeting as they have in the previous meetings. In a fourth meeting, the Stakeholders Panel would invite outside experts to give presentations to the District on the topics which the District has identified as relevant to the MFL process. The District, Stakeholders Panel, and general public could then ask questions of these experts.

Our plan is to try to minimize the District "presenting its case" with the assumption that those interested in the minimum flows and levels process are generally familiar with the District's methodologies. We think that allowing time for and encouraging stakeholder presentations on methodological and data collection enhancements is in the best interest of the District's Minimum Flows and Levels Program, as outlined in my response to your first suggestion above. To this end, we believe the group of representatives that has been assembled for the workshop possess a broad range of expertise that has and will continue to be capably brought to bear in constructive discussions of enhancements to minimum flow methodologies. As you know, stakeholder representatives include scientists and others with a high level of knowledge concerning the geology, water chemistry, manatees, fish, invertebrates, other wildlife and the human communities of the Springs Coast.

Let me know what you think. Thanks.

Brad W. Rimbey
for the Chassahowitzka River Restoration Committee

----- Original Message -----

From: [Doug Leeper](#)

To: Al Grubman (grubman1@gmail.com) ; Bill Geiger (bgeiger@cityofbrooksville.us) ; Bill Pouder (bill.pouder@myfwc.com) ; Boyd Blihovde (Boyd_Blihovde@fws.gov) ; Brad Rimbey (BWR.CRRC@tampabay.rr.com) ; Brent Whitley (brentwhitley@sierra-properties.com) ; Brockway Alys (abrockway@co.hernando.fl.us) ; Dennis D. Dutcher (Dennis3ds@aol.com) ; Frank DiGiovanni (administration@inverness-fl.gov) ; Greenwood, Kathleen (Kathleen.Greenwood@dep.state.fl.us) ; Helen Spivey (manatees@habitats.org) ; Hilliard, Dan (2buntings@comcast.net) ; Hoehn, Ted ; Hope Corona (hopecorona@tampabay.rr.com) ; Jim Farley (jfarley682@aol.com) ; Katie Tripp (ktripp@savethemanatee.org) ; Norman Hopkins (norman@amyhrf.org) ; Rebecca Bays (rebecca.bays@bocc.citrus.fl.us) ; Richard Kane (rkane@usgs.gov) ; Richard Radack (rradack@cityofbrooksville.us) ; Ron Miller (rmille76@tampabay.rr.com) ; Sarah Tenison (cityofweekiwachee@yahoo.com) ; Sullivan, Jack (jsullivan@carltonfields.com) ; Voyles, Carolyn (Carolyn.Voyles@dep.state.fl.us) ; Whitey Markle (whmarkle@gmail.com)

Cc: Marty Kelly ; Mike Heyl ; Mark Hammond ; Cara S. Martin ; Darcy A. Brune ; Robyn O. Felix ; Ron Basso ; Dave Dewitt ; Veronica Craw ; Chris Zajac ; Gary E. Williams ; Barbara Matrone ; Mark Barcelo

Sent: Monday, August 08, 2011 10:20 AM

Subject: Interest in Making a Presentation at the Next Spring MFLs Workshop

Greetings:

District staff is working on a tentative agenda for the next Springs Coast Minimum Flows and Levels Public Workshop, and would like to know whether any stakeholder representatives are interested in making short (five or so minute) presentations on any of the potential agenda items listed below. Our expectation would be that the presentations will address data-related or methodological enhancements to the District's current approach to minimum flows development. Note that the workshop is scheduled for September 6, 2011 at 1:30 PM in Room 166 at the Lecanto Government Services Building.

Draft Agenda

Opening remarks, Doug Leeper (SWFWMD) (5 minutes)
Significant harm, Doug Leeper (SWFWMD) (20 minutes)
Modeling of salinity and thermal-based habitats, Doug Leeper (SWFWMD) (20 minutes)
Modeling of biological responses to flow changes, Doug Leeper (SWFWMD) (20 minutes)
Water quality issues, Doug Leeper (SWFWMD) (10 minutes)
Identification of follow-up District actions, Doug Leeper (SWFWMD) (10 minutes)
Public input (3 minutes per individual)
Adjournment, Doug Leeper (SWFWMD)

I would appreciate your contacting me by August 23rd if you are interested in making a presentation during the workshop.

Thanks,

Douglas A. Leeper, Chief Environmental Scientist
Resource Projects Department, Southwest Florida Water Management District
2379 Broad Street, Brooksville, FL 34604-6899
Telephone: 1-800-423-1476, ext. 4272 (FL only) or 352-796-7211, ext. 4272
Fax: 352-754-6885
E-Mail: doug.leeper@watermatters.org
Web Site: watermatters.org

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From: [Brent Whitley](#)
To: [Doug Leeper](#)
Subject: RE: Clarification Regarding Stakeholder Rep Presentations
Date: Tuesday, August 16, 2011 12:30:47 PM

Doug,

The one question that I do not see that you address here is if the stakeholders wish to solicit an outside expert to make a presentation in their stead. Do you think this is reasonable?

Brent

From: Doug Leeper [mailto:Doug.Leeper@swfwmd.state.fl.us]
Sent: Tuesday, August 16, 2011 12:17 PM
To: Al Grubman (grubman1@gmail.com); Bill Geiger (bgeiger@cityofbrooksville.us); Bill Pouder (bill.pouder@myfwc.com); Boyd Blihovde (Boyd_Blihovde@fws.gov); Brad Rimbey (BWR.CRRC@tampabay.rr.com); Brent Whitley; Brockway, Alys (abrockway@co.hernando.fl.us); Dennis D. Dutcher (Dennis3ds@aol.com); Frank DiGiovanni (administration@inverness-fl.gov); Greenwood, Kathleen (Kathleen.Greenwood@dep.state.fl.us); Helen Spivey (manatees@habitats.org); Hilliard, Dan (2buntings@comcast.net); Hoehn, Ted; Hope Corona (hopecorona@tampabay.rr.com); Jim Farley (jfarley682@aol.com); Katie Tripp (ktripp@savethemanatee.org); Norman Hopkins (norman@amyhrf.org); Rebecca Bays (rebecca.bays@bocc.citrus.fl.us); Richard Kane (rkane@usgs.gov); Richard Radacky (rradacky@cityofbrooksville.us); Ron Miller (rmille76@tampabay.rr.com); Sarah Tenison (cityofweekiwachee@yahoo.com); Sullivan, Jack (jsullivan@carltonfields.com); Voyles, Carolyn (Carolyn.Voyles@dep.state.fl.us); Whitey Markle (whmarkle@gmail.com)
Subject: Clarification Regarding Stakeholder Rep Presentations

Greetings:

I'm writing to clarify the inquiry I made in a recent e-mail regarding whether any Springs Coast Minimum Flows and Levels Public Workshop stakeholder representatives would be interested in offering presentations at the planned September workshop. The purpose of my inquiry was to indicate the District's willingness to provide stakeholder representatives the opportunity to use visual aids during short (approximately five minute) presentations in support of recommendations concerning data-related or methodological enhancements to the District's current approach to minimum flows development for Springs Coast systems. Presentations by stakeholder representatives, like those made by District staff, would be expected to enhance discussion of agenda items among stakeholder representatives and staff during the workshop. The stakeholder representative presentations were not viewed as a replacement for this discussion; rather, they were envisioned as a means to advance interaction among workshop participants.

Please note that the identified approximate five minute time-frame for stakeholder representative presentations is intended to maintain a reasonable meeting schedule and to encourage presenters to focus their recommendations on enhancements to exiting minimum flows and levels methodologies. It may be expected that some presentations may be slightly longer than five minutes, but to allow time for constructive discussion, it is expected that the presentations will be relatively short.

Staff do not currently anticipate that each stakeholder representative will want to make a

presentation on each of the tentative agenda items identified for the September workshop. This would, as Brad Rimbeby has pointed out in a recent e-mail sent to stakeholder representatives and District staff, lead to a rather lengthy meeting.

We expect that relatively few stakeholder representatives will be interested in making “formal” presentations aided by visual aids (slides or other materials) during the workshop. To date, two stakeholder representatives have expressed interest in making presentations. Norman Hopkins has indicated that he would like to present information for the “Water Quality” agenda item and Boyd Blihovde has indicated that he would like to offer information on vegetation changes in the Chassahowitzka National Wildlife Refuge, presumably as part of the “Modeling of Biological Responses to Flow Changes” agenda item discussion. I plan to communicate further with Norman and Boyd to discuss the nature of their planned presentations. A goal for these communications will be clarification of the District’s desire that the presentations specifically address data and/or methodological approaches that can be quantitatively used to enhance the District approach to minimum flows and levels development. Please note that if a large number of stakeholder representatives express interest in making “formal” presentations on workshop agenda items, staff will attempt to work with the representatives to eliminate redundancy and potentially limit the number of visual-aid enhanced presentations.

I and other District staff believe the group of representatives that has been assembled for the workshop possess a broad range of expertise that has and will continue to be capably brought to bear in constructive discussions of enhancements to minimum flow methodologies. Stakeholder representatives include scientists and others with a high level of knowledge concerning the geology, water chemistry, manatees, fish, invertebrates, other wildlife, plants and the human communities of the Springs Coast.

To recap, District staff do not anticipate a great number of stakeholder representative presentations at the September workshop. We expect only a few such presentations, and hope that the presentations and ensuing discussions result in the identification of data/methodological enhancements that may be used for establishing minimum flows and levels along the Springs Coast.

Douglas A. Leeper, Chief Environmental Scientist
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From: [Voyles, Carolyn](#)
To: [Doug Leeper](#)
Cc: [Marty Kelly](#); [Llewellyn, Janet](#)
Subject: Springs Coast Telecon
Date: Thursday, August 18, 2011 5:28:07 PM

Hi Doug,

Janet Llewellyn and I would like to meet with Marty and you (and whomever else you wish) by teleconference before the September 6 Springs Coast meeting to discuss the following issues:

- 1) how to consider climate change in setting the MFL, and
- 2) where the District sees this process going with the stakeholders.

We're thinking that this discussion will take no more than an hour (probably less). Below are time blocks that we are free next week. Please check your calendars to see if any of these times will work for you, or propose alternate dates/times, and email me back.

- Tuesday, August 23, from 11:30a-5p
- Wednesday, August 24, from 9:30a-2:30p
- Thursday, August 25, from 9:30-11a and 1:30-5p
- Friday, August 26, from 9:30a-5p

Also, please note that our office has moved, My new address and phone number are below.

Thanks, Doug.

Carolyn Voyles
Office of Water Policy
FL Dept. of Environmental Protection
3900 Commonwealth Blvd., MS 46
Tallahassee, FL 32399-3000
(850) 245-3150 (office)

The Department of Environmental Protection values your feedback as a customer. DEP Secretary Herschel T. Vinyard Jr. is committed to continuously assessing and improving the level and quality of services provided to you. Please take a few minutes to comment on the quality of service you received. Simply click on [this link to the DEP Customer Survey](#). Thank you in advance for completing the survey.

From: Doug Leeper
To: ["Norman Hopkins"](#)
Subject: RE: Topic MFLs
Date: Friday, August 19, 2011 10:36:00 AM

Thanks Norman – what do you think about time? 10 minutes?

Douglas A. Leeper, Chief Environmental Scientist
Resource Projects Department, Southwest Florida Water Management District
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Telephone: 1-800-423-1476, ext. 4272 (FL only) or 352-796-7211, ext. 4272
Fax: 352-754-6885
E-Mail: doug.leeper@watermatters.org
Web Site: watermatters.org

From: Norman Hopkins [<mailto:norman@amyhrf.org>]
Sent: Friday, August 19, 2011 10:36 AM
To: Doug Leeper
Subject: Topic MFLs

Doug,

The Foundation's website www.amyhrf.org/ in its rightmost pane carries a News Item dated 14 August, 2011, of the text from an article published in the Citrus County Chronicle.

I shall use it as the frame for any presentation I shall give at the 6 September meeting.

Norm

From: [Norman Hopkins](#)
To: [Doug Leeper](#)
Subject: Re: Topic MFLs
Date: Friday, August 19, 2011 10:53:56 AM

In ten minutes it would probably sound like my ideas, I could employ two or three slides to root it in science in 16 minutes, although if questions are stimulated I could use the slides in answers. However, its up to you really and how much concentration upon the Nitrogen and saltiness you would want to entertain. Norm

On 8/19/2011 10:36 AM, Doug Leeper wrote:

Thanks Norman – what do you think about time? 10 minutes?

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From: Norman Hopkins [<mailto:norman@amyhrf.org>]
Sent: Friday, August 19, 2011 10:36 AM
To: Doug Leeper
Subject: Topic MFLs

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From: Doug Leeper
To: [Al Grubman \(grubman1@gmail.com\)](mailto:Al_Grubman1@gmail.com); [Bill Geiger \(bgeiger@cityofbrooksville.us\)](mailto:Bgeiger@cityofbrooksville.us); [Bill Pouder \(bill.pouder@myfwc.com\)](mailto:bill.pouder@myfwc.com); [Boyd Blihovde \(Boyd_Blihovde@fws.gov\)](mailto:Boyd_Blihovde@fws.gov); [Brad Rimbe \(BWR.CRRRC@tampabay.rr.com\)](mailto:Brad_Rimbe@BWR.CRRRC@tampabay.rr.com); [Brent Whitley \(brentwhitley@sierra-properties.com\)](mailto:Brentwhitley@sierra-properties.com); [Brockway, Alys \(abrockway@co.hernando.fl.us\)](mailto:Brockway_Alys@abrockway@co.hernando.fl.us); [Dennis D. Dutcher \(Dennis3ds@aol.com\)](mailto:Dennis3ds@aol.com); [Frank DiGiovanni \(administration@inverness-fl.gov\)](mailto:FrankDiGiovanni@administration@inverness-fl.gov); [Greenwood, Kathleen \(Kathleen.Greenwood@dep.state.fl.us\)](mailto:Kathleen.Greenwood@dep.state.fl.us); [Helen Spivey \(manatees@habitats.org\)](mailto:Helen.Spivey@manatees@habitats.org); [Hilliard, Dan \(2buntings@comcast.net\)](mailto:Hilliard_Dan@2buntings@comcast.net); [Hoehn, Ted; Hope Corona \(hopecorona@tampabay.rr.com\)](mailto:Hoehn_Ted@hopecorona@tampabay.rr.com); [Jim Farley \(jfarley682@aol.com\)](mailto:Jim.Farley@jfarley682@aol.com); [Katie Tripp \(ktripp@savethemanatee.org\)](mailto:Katie.Tripp@savethemanatee.org); [Norman Hopkins \(norman@amyhrf.org\)](mailto:Norman.Hopkins@norman@amyhrf.org); [Rebecca Bays \(rebecca.bays@bocc.citrus.fl.us\)](mailto:Rebecca.Bays@bocc.citrus.fl.us); [Richard Kane \(rkane@usgs.gov\)](mailto:Richard.Kane@rkane@usgs.gov); [Richard Radack \(rradack@cityofbrooksville.us\)](mailto:Richard.Radack@rradack@cityofbrooksville.us); [Ron Miller \(rmille76@tampabay.rr.com\)](mailto:Ron.Miller@rmille76@tampabay.rr.com); [Sarah Tenison \(cityofweekiwachee@yahoo.com\)](mailto:Sarah.Tenison@cityofweekiwachee@yahoo.com); [Sullivan, Jack \(jsullivan@carltonfields.com\)](mailto:jsullivan@carltonfields.com); [Voyles, Carolyn \(Carolyn.Voyles@dep.state.fl.us\)](mailto:Carolyn.Voyles@dep.state.fl.us); [Whitey Markle \(whmarkle@gmail.com\)](mailto:whmarkle@gmail.com)
Bcc: [Barbara Matrone](#); [Cara S. Martin](#); [Chris Zajac](#); [Darcy A. Brune](#); [Dave Dewitt](#); [Doug Leeper](#); [Gary E. Williams](#); [Jay Yingling](#); [Karen Lloyd](#); [Ken Weber](#); [Lou Kavouras](#); [Mark Barcelo](#); [Mark Hammond](#); [Marty Kelly](#); [Mike Heyl](#); [Paul Williams](#); [Robyn O. Felix](#); [Ron Basso](#); [Sid Flannery](#); [Veronica Craw](#); [Xinjian Chen](#); [Yassert Gonzalez](#)
Subject: Another Inquiry Regarding the Sep 6 MFLs Workshop
Date: Friday, August 19, 2011 1:47:00 PM

Greetings:

I'm writing again about the agenda for the upcoming Springs Coast Minimum Flows and Levels Public Workshop. As noted in my previous communications, the District's goal for the September workshop is to work through the following agenda items:

Agenda Items

Opening remarks, Doug Leeper (SWFWMD) (5 minutes)
Significant harm, Doug Leeper (SWFWMD) (20 minutes)
Modeling of salinity and thermal-based habitats, Doug Leeper (SWFWMD) (20 minutes)
Modeling of biological responses to flow changes, Doug Leeper (SWFWMD) (20 minutes)
Water quality issues, Doug Leeper (SWFWMD) (10 minutes)
Identification of follow-up District actions, Doug Leeper (SWFWMD) (10 minutes)
Public input (3 minutes per individual)
Adjournment, Doug Leeper (SWFWMD)

Although I'm listed as the presenter for each agenda item (except public input), it is my intention to minimize the number of slides that I will present for each item to allow stakeholder representatives ample time to present and discuss data-related and methodological concerns and recommendations directed towards enhancing the establishment of minimum flows.

So far, three stakeholder representatives have indicated that they or a colleague of theirs would be interested in making presentations during the workshop. Norman Hopkins, with the Amy H. Remley Foundation, has indicated that he would like to make an approximate 16 minute presentation concerning nitrogen loading and minimum flows for Kings Bay. Boyd Blihovde and his colleague, Joyce Kleen, who also works for the U.S. Fish and Wildlife Service, have indicated they may be interested in making an approximate 10 minute presentation addressing recent changes in the vegetation of the Chassahowitzka River system, how blue crab population information may be relevant to minimum flows development, and how the Service monitors manatee populations. Brad Rimbe, with the Chassahowitzka River Restoration Committee, has indicated he would like to make an approximate 5-10 minute presentation on significant harm.

Several stakeholder representatives have expressed interest in bringing in an "outside" expert to discuss data/methodological issues related to minimum flows development. If possible, I would

appreciate hearing from any or all of you regarding who you may have in mind, what the topic(s) of discussion would be, and how much time would be needed for the planned presentation(s). My goals for this inquiry are to gain a better understanding of the concepts that are of concern to stakeholders, to see if it may be possible to accommodate all requested presentations during the September 6th workshop, and if possible to include the presentations on the agenda. The presentations may possibly be “shoe-horned” into the existing agenda items or added as separate items.

Thanks,

Douglas A. Leeper, Chief Environmental Scientist
Resource Projects Department, Southwest Florida Water Management District
2379 Broad Street, Brooksville, FL 34604-6899
Telephone: 1-800-423-1476, ext. 4272 (FL only) or 352-796-7211, ext. 4272
Fax: 352-754-6885
E-Mail: doug.leeper@watermatters.org
Web Site: watermatters.org

From: Doug Leeper
To: ["Brent Whitley"](#)
Subject: RE: Clarification Regarding Stakeholder Rep Presentations
Date: Friday, August 19, 2011 1:59:00 PM

Brent:

Hope our recent phone conversation and the e-mail I just sent out to all stakeholder reps helps answer your question. We're interested in hearing any and all suggestions regarding enhancements to the minimum flows program. It's not only reasonable, it's the right thing to do.

Douglas A. Leeper, Chief Environmental Scientist
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Fax: 352-754-6885
E-Mail: doug.leeper@watermatters.org
Web Site: watermatters.org

From: Brent Whitley [<mailto:BrentWhitley@Sierra-Properties.com>]
Sent: Tuesday, August 16, 2011 12:33 PM
To: Doug Leeper
Subject: RE: Clarification Regarding Stakeholder Rep Presentations

Doug,

The one question that I do not see that you address here is if the stakeholders wish to solicit an outside expert to make a presentation in their stead. Do you think this is reasonable?

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From: Doug Leeper [<mailto:Doug.Leeper@swfwmd.state.fl.us>]
Sent: Tuesday, August 16, 2011 12:17 PM
To: Al Grubman (grubman1@gmail.com); Bill Geiger (bgeiger@cityofbrooksville.us); Bill Pouder (bill.pouder@myfwc.com); Boyd Blihovde (Boyd_Blihovde@fws.gov); Brad Rimbey (BWR.CRRC@tampabay.rr.com); Brent Whitley; Brockway, Alys (abrockway@co.hernando.fl.us); Dennis D. Dutcher (Dennis3ds@aol.com); Frank DiGiovanni (administration@inverness-fl.gov); Greenwood, Kathleen (Kathleen.Greenwood@dep.state.fl.us); Helen Spivey (manatees@habitats.org); Hilliard, Dan (2buntings@comcast.net); Hoehn, Ted; Hope Corona (hopecorona@tampabay.rr.com); Jim Farley (jfarley682@aol.com); Katie Tripp (ktripp@savethemanatee.org); Norman Hopkins (norman@amyhrf.org); Rebecca Bays (rebecca.bays@bocc.citrus.fl.us); Richard Kane (rkane@usgs.gov); Richard Radacky (rradacky@cityofbrooksville.us); Ron Miller (rmille76@tampabay.rr.com); Sarah Tenison (cityofweekiwachee@yahoo.com); Sullivan, Jack (jsullivan@carltonfields.com); Voyles, Carolyn (Carolyn.Voyles@dep.state.fl.us); Whitey Markle (whmarkle@gmail.com)
Subject: Clarification Regarding Stakeholder Rep Presentations

Greetings:

I'm writing to clarify the inquiry I made in a recent e-mail regarding whether any Springs Coast Minimum Flows and Levels Public Workshop stakeholder representatives would be interested in offering presentations at the planned September workshop. The purpose of my inquiry was to

indicate the District's willingness to provide stakeholder representatives the opportunity to use visual aids during short (approximately five minute) presentations in support of recommendations concerning data-related or methodological enhancements to the District's current approach to minimum flows development for Springs Coast systems. Presentations by stakeholder representatives, like those made by District staff, would be expected to enhance discussion of agenda items among stakeholder representatives and staff during the workshop. The stakeholder representative presentations were not viewed as a replacement for this discussion; rather, they were envisioned as a means to advance interaction among workshop participants.

Please note that the identified approximate five minute time-frame for stakeholder representative presentations is intended to maintain a reasonable meeting schedule and to encourage presenters to focus their recommendations on enhancements to existing minimum flows and levels methodologies. It may be expected that some presentations may be slightly longer than five minutes, but to allow time for constructive discussion, it is expected that the presentations will be relatively short.

Staff do not currently anticipate that each stakeholder representative will want to make a presentation on each of the tentative agenda items identified for the September workshop. This would, as Brad Rimbey has pointed out in a recent e-mail sent to stakeholder representatives and District staff, lead to a rather lengthy meeting.

We expect that relatively few stakeholder representatives will be interested in making "formal" presentations aided by visual aids (slides or other materials) during the workshop. To date, two stakeholder representatives have expressed interest in making presentations. Norman Hopkins has indicated that he would like to present information for the "Water Quality" agenda item and Boyd Blihovde has indicated that he would like to offer information on vegetation changes in the Chassahowitzka National Wildlife Refuge, presumably as part of the "Modeling of Biological Responses to Flow Changes" agenda item discussion. I plan to communicate further with Norman and Boyd to discuss the nature of their planned presentations. A goal for these communications will be clarification of the District's desire that the presentations specifically address data and/or methodological approaches that can be quantitatively used to enhance the District approach to minimum flows and levels development. Please note that if a large number of stakeholder representatives express interest in making "formal" presentations on workshop agenda items, staff will attempt to work with the representatives to eliminate redundancy and potentially limit the number of visual-aid enhanced presentations.

I and other District staff believe the group of representatives that has been assembled for the workshop possess a broad range of expertise that has and will continue to be capably brought to bear in constructive discussions of enhancements to minimum flow methodologies. Stakeholder representatives include scientists and others with a high level of knowledge concerning the geology, water chemistry, manatees, fish, invertebrates, other wildlife, plants and the human communities of the Springs Coast.

To recap, District staff do not anticipate a great number of stakeholder representative presentations at the September workshop. We expect only a few such presentations, and hope

that the presentations and ensuing discussions result in the identification of data/methodological enhancements that may be used for establishing minimum flows and levels along the Springs Coast.

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From: Doug Leeper
To: ["2buntings"](#)
Bcc: [Marty Kelly](#)
Subject: RE: MFL Workshop presentations
Date: Friday, August 19, 2011 2:09:00 PM

Dan: Thanks for your recent e-mail. Sorry it has taken me so long to respond. Hope the e-mail I just sent out to all stakeholder reps helps address your suggestions. We're interested in hearing any and all recommendations regarding the enhancement of our minimum flows and levels program.

Douglas A. Leeper, Chief Environmental Scientist
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E-Mail: doug.leeper@watermatters.org
Web Site: watermatters.org

-----Original Message-----

From: 2buntings [<mailto:2buntings@comcast.net>]
Sent: Friday, August 12, 2011 2:23 PM
To: Doug Leeper
Cc: Brad Rimbey@CRRC; ron miller; Cathy Harrelson; Whitey Markle; BrentWhitley@Sierra-Properties.com
Subject: MFL Workshop presentations

Hi Doug,

Thanks for the offer of presentation time at the next workshop. To be candid it is not clear to us that lay presentation of 5 minutes by each stakeholder will prove to be of great benefit to the process being used by the District to gather public input.

It has been brought to my attention that about one half dozen stakeholders consider deferral of their time allocation to expert testimony. As such, impact on the presentation schedule would be neutral and it appears there may be benefit to the process insofar as legitimate qualified testimony would be presented.

Alternatively it may also serve the process well if an additional workshop were scheduled expressly for this purpose after the stakeholders have had the opportunity to examine the full scope of the District's presentations.

For your convenience and reference this email is copied to those stakeholders which I understand have an interest in pursuing such alternatives. This short list may not be all inclusive.

Thanks for your consideration,

Dan

--

Dan Hilliard
Director
Withlacoochee Area Residents, Inc.(501.C3)
352/447-5434
WWW.WARINCONLINE.COM

From: [Whitey Markle](#)
To: [Doug Leeper](#)
Subject: Re: Another Inquiry Regarding the Sep 6 MFLs Workshop
Date: Friday, August 19, 2011 3:09:38 PM

Douglas:

Seriously, can't you just make it a longer workshop? Or is that too expensive? Or what? It shouldn't be an "Us vs. Them" workshop. We would like for you guys to work with us as we work with you.

Whitey Markle
SSJ Sierra Club

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Agenda Items

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Identification of follow-up District actions, Doug Leeper (SWFWMD) (*10 minutes*)

Public input (*3 minutes per individual*)

Adjournment, Doug Leeper (SWFWMD)

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Thanks,

Douglas A. Leeper, Chief Environmental Scientist

Resource Projects Department, Southwest Florida Water Management District

2379 Broad Street, Brooksville, FL 34604-6899

Telephone: [1-800-423-1476, ext. 4272](tel:1-800-423-1476) (FL only) or [352-796-7211, ext. 4272](tel:352-796-7211)

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Web Site: watermatters.org

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From: Doug Leeper
To: ["Whitey Markle"](#)
Bcc: [Marty Kelly](#)
Subject: RE: Another Inquiry Regarding the Sep 6 MFLs Workshop
Date: Friday, August 19, 2011 3:18:00 PM

Whitey:

Seems I am having some difficulty communicating with the large number of individuals associated with the springs workshop series ----

The workshop is slated to start at 1:30 PM, and our Citrus County hosts have indicated that we can stay at the Government Center up to 7:00 PM. Wouldn't want to push past that time and infringe upon their hospitality.

Douglas A. Leeper, Chief Environmental Scientist
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From: Whitey Markle [<mailto:whmarkle@gmail.com>]
Sent: Friday, August 19, 2011 3:11 PM
To: Doug Leeper
Cc: Al Grubman (grubman1@gmail.com); Bill Geiger (bgeiger@cityofbrooksville.us); Bill Pouder (bill.pouder@myfwc.com); Boyd Blihovde (Boyd_Blihovde@fws.gov); Brad Rimbey (BWR.CRRC@tampabay.rr.com); Brent Whitley (brentwhitley@sierra-properties.com); Brockway, Alys (abrockway@co.hernando.fl.us); Dennis D. Dutcher (Dennis3ds@aol.com); Frank DiGiovanni (administration@inverness-fl.gov); Greenwood, Kathleen (Kathleen.Greenwood@dep.state.fl.us); Helen Spivey (manatees@habitats.org); Hilliard, Dan (2buntings@comcast.net); Hoehn, Ted; Hope Corona (hopecorona@tampabay.rr.com); Jim Farley (jfarley682@aol.com); Katie Tripp (ktripp@savethemanatee.org); Norman Hopkins (norman@amyhrf.org); Rebecca Bays (rebecca.bays@bocc.citrus.fl.us); Richard Kane (rkane@usgs.gov); Richard Radack (rradack@cityofbrooksville.us); Ron Miller (rmille76@tampabay.rr.com); Sarah Tenison (cityofweekiwachee@yahoo.com); Sullivan, Jack (jsullivan@carltonfields.com); Voyles, Carolyn (Carolyn.Voyles@dep.state.fl.us)
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business purposes.

From: [Brent Whitley](#)
To: [whmarkle@gmail.com](#); [Doug Leeper](#)
Cc: [grubman1@gmail.com](#); [bgeiger@cityofbrooksville.us](#); [bill.pouder@myfwc.com](#); [Boyd_Blihovde@fws.gov](#); [BWR.CRRC@tampabay.rr.com](#); [abrockway@co.hernando.fl.us](#); [Dennis3ds@aol.com](#); [administration@inverness-fl.gov](#); [Kathleen.Greenwood@dep.state.fl.us](#); [manatees@habitats.org](#); [2buntings@comcast.net](#); [ted.hoehn@myfwc.com](#); [hopecorona@tampabay.rr.com](#); [jfarley682@aol.com](#); [ktripp@savethemanatee.org](#); [norman@amyhrf.org](#); [rebecca.bays@bocc.citrus.fl.us](#); [rkane@usgs.gov](#); [rradacky@cityofbrooksville.us](#); [rmille76@tampabay.rr.com](#); [cityofweekiwachee@yahoo.com](#); [jsullivan@carltonfields.com](#); [Carolyn.Voyles@dep.state.fl.us](#)
Subject: Re: Another Inquiry Regarding the Sep 6 MFLs Workshop
Date: Friday, August 19, 2011 3:46:08 PM

I am sorry and maybe naïve, but I did not see anything in Doug's email that indicates an "us vs. Them", implication, Mr. Markle. Can you elaborate please. As I said earlier, it may need to be longer or involve a second meeting, but to my understanding that is his question.

Humbly,

Brent

Sent using BlackBerry

-----Original Message-----

From: Whitey Markle <whmarkle@gmail.com>
To: Doug Leeper <Doug.Leeper@swfwmd.state.fl.us>
CC: Al Grubman (grubman1@gmail.com) <grubman1@gmail.com>; Bill Geiger (bgeiger@cityofbrooksville.us) <bgeiger@cityofbrooksville.us>; Bill Pouder (bill.pouder@myfwc.com) <bill.pouder@myfwc.com>; Boyd Blihovde (Boyd_Blihovde@fws.gov) <Boyd_Blihovde@fws.gov>; Brad Rimbey (BWR.CRRC@tampabay.rr.com) <BWR.CRRC@tampabay.rr.com>; Brent Whitley; Brockway, Alys (abrockway@co.hernando.fl.us) <abrockway@co.hernando.fl.us>; Dennis D. Dutcher (Dennis3ds@aol.com) <Dennis3ds@aol.com>; Frank DiGiovanni (administration@inverness-fl.gov) <administration@inverness-fl.gov>; Greenwood, Kathleen (Kathleen.Greenwood@dep.state.fl.us) <Kathleen.Greenwood@dep.state.fl.us>; Helen Spivey (manatees@habitats.org) <manatees@habitats.org>; Hilliard, Dan (2buntings@comcast.net) <2buntings@comcast.net>; Hoehn, Ted <ted.hoehn@myfwc.com>; Hope Corona (hopecorona@tampabay.rr.com) <hopecorona@tampabay.rr.com>; Jim Farley (jfarley682@aol.com) <jfarley682@aol.com>; Katie Tripp (ktripp@savethemanatee.org) <ktripp@savethemanatee.org>; Norman Hopkins (norman@amyhrf.org) <norman@amyhrf.org>; Rebecca Bays (rebecca.bays@bocc.citrus.fl.us) <rebecca.bays@bocc.citrus.fl.us>; Richard Kane (rkane@usgs.gov) <rkane@usgs.gov>; Richard Radacky (rradacky@cityofbrooksville.us) <rradacky@cityofbrooksville.us>; Ron Miller (rmille76@tampabay.rr.com) <rmille76@tampabay.rr.com>; Sarah Tenison (cityofweekiwachee@yahoo.com) <cityofweekiwachee@yahoo.com>; Sullivan, Jack (jsullivan@carltonfields.com) <jsullivan@carltonfields.com>; Voyles, Carolyn (Carolyn.Voyles@dep.state.fl.us) <Carolyn.Voyles@dep.state.fl.us>
Sent: Fri Aug 19 15:11:15 2011
Subject: Re: Another Inquiry Regarding the Sep 6 MFLs Workshop

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From: [Brent Whitley](#)
To: [Doug Leeper](#)
Subject: Re: Clarification Regarding Stakeholder Rep Presentations
Date: Friday, August 19, 2011 3:59:32 PM

IMO, you could not have sent a better email. Whitey is out of line!

Sent using BlackBerry

-----Original Message-----

From: Doug Leeper <Doug.Leeper@swfwmd.state.fl.us>
To: Brent Whitley
Sent: Fri Aug 19 13:59:28 2011
Subject: RE: Clarification Regarding Stakeholder Rep Presentations

Brent:

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From: Brent Whitley [<mailto:BrentWhitley@Sierra-Properties.com>]
Sent: Tuesday, August 16, 2011 12:33 PM
To: Doug Leeper
Subject: RE: Clarification Regarding Stakeholder Rep Presentations

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Brent

From: Doug Leeper [<mailto:Doug.Leeper@swfwmd.state.fl.us>]

Sent: Tuesday, August 16, 2011 12:17 PM

To: Al Grubman (grubman1@gmail.com); Bill Geiger (bgeiger@cityofbrooksville.us); Bill Pouder (bill.pouder@myfwc.com); Boyd Blihovde (Boyd_Blihovde@fws.gov); Brad Rimbey (BWR.CRRC@tampabay.rr.com); Brent Whitley; Brockway, Alys (abrockway@co.hernando.fl.us); Dennis D. Dutcher (Dennis3ds@aol.com); Frank DiGiovanni (administration@inverness-fl.gov); Greenwood, Kathleen (Kathleen.Greenwood@dep.state.fl.us); Helen Spivey (manatees@habitats.org); Hilliard, Dan (2buntings@comcast.net); Hoehn, Ted; Hope Corona (hopecorona@tampabay.rr.com); Jim Farley (jfarley682@aol.com); Katie Tripp (ktripp@savethemanatee.org); Norman Hopkins (norman@amyhrf.org); Rebecca Bays (rebecca.bays@bocc.citrus.fl.us); Richard Kane (rkane@usgs.gov); Richard Radacky (rradacky@cityofbrooksville.us); Ron Miller (rmille76@tampabay.rr.com); Sarah Tenison (cityofweekiwachee@yahoo.com); Sullivan, Jack (jsullivan@carltonfields.com); Voyles, Carolyn (Carolyn.Voyles@dep.state.fl.us); Whitey Markle (whmarkle@gmail.com)

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Please note that the identified approximate five minute time-frame for stakeholder representative presentations is intended to maintain a reasonable meeting schedule and to encourage presenters to focus their recommendations on enhancements to exiting minimum flows and levels methodologies. It may be expected that some presentations may be slightly longer than five minutes, but to allow time for constructive discussion, it is expected that the presentations will be relatively short.

Staff do not currently anticipate that each stakeholder representative will want to make a presentation on each of the tentative agenda items identified for the September workshop. This would, as Brad Rimbey has pointed out in a recent e-mail sent to stakeholder representatives and District staff, lead to a rather lengthy meeting.

We expect that relatively few stakeholder representatives will be interested in making "formal" presentations aided by visual aids (slides or other materials) during the workshop. To date, two stakeholder representatives have expressed interest in making presentations. Norman Hopkins has indicated that he would like to present information for the "Water Quality" agenda item and Boyd Blihovde has indicated that he would like to offer information on vegetation changes in the Chassahowitzka National Wildlife Refuge, presumably as part of the "Modeling of Biological Responses to Flow Changes" agenda item discussion. I plan to communicate further with Norman and Boyd to discuss the nature of their planned presentations. A goal for these communications will be clarification

of the District's desire that the presentations specifically address data and/or methodological approaches that can be quantitatively used to enhance the District approach to minimum flows and levels development. Please note that if a large number of stakeholder representatives express interest in making "formal" presentations on workshop agenda items, staff will attempt to work with the representatives to eliminate redundancy and potentially limit the number of visual-aid enhanced presentations.

I and other District staff believe the group of representatives that has been assembled for the workshop possess a broad range of expertise that has and will continue to be capably brought to bear in constructive discussions of enhancements to minimum flow methodologies. Stakeholder representatives include scientists and others with a high level of knowledge concerning the geology, water chemistry, manatees, fish, invertebrates, other wildlife, plants and the human communities of the Springs Coast.

To recap, District staff do not anticipate a great number of stakeholder representative presentations at the September workshop. We expect only a few such presentations, and hope that the presentations and ensuing discussions result in the identification of data/methodological enhancements that may be used for establishing minimum flows and levels along the Springs Coast.

Douglas A. Leeper, Chief Environmental Scientist

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From: [Brent Whitley](#)
To: [Doug Leeper](#)
Subject: Re: Clarification Regarding Stakeholder Rep Presentations
Date: Friday, August 19, 2011 4:18:08 PM

Given his recent dialogue, I sent him an email asking if he was going to make a presentation, what subject and what data. If he is going to complain about the process, I would think he would want to be involved!. So far, he has ignored me. Shocking!

Sent using BlackBerry

-----Original Message-----

From: Doug Leeper <Doug.Leeper@swfwmd.state.fl.us>
To: Brent Whitley
Sent: Fri Aug 19 16:07:56 2011
Subject: RE: Clarification Regarding Stakeholder Rep Presentations

Thanks for the comments. I sent Whitey an e-mail indicating that we can stay at the Lecanto Government Services Building until 7 PM if we need to.

Douglas A. Leeper, Chief Environmental Scientist

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To recap, District staff do not anticipate a great number of stakeholder representative presentations at the September workshop. We expect only a few such presentations, and hope that the presentations

and ensuing discussions result in the identification of data/methodological enhancements that may be used for establishing minimum flows and levels along the Springs Coast.

Douglas A. Leeper, Chief Environmental Scientist

Resource Projects Department, Southwest Florida Water Management District

2379 Broad Street, Brooksville, FL 34604-6899

Telephone: 1-800-423-1476, ext. 4272 (FL only) or 352-796-7211, ext. 4272

Fax: 352-754-6885

E-Mail: doug.leeper@watermatters.org

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From: Doug Leeper
To: ["Brent Whitley"](#)
Subject: RE: Clarification Regarding Stakeholder Rep Presentations
Date: Friday, August 19, 2011 4:07:00 PM

Thanks for the comments. I sent Whitey an e-mail indicating that we can stay at the Lecanto Government Services Building until 7 PM if we need to.

Douglas A. Leeper, Chief Environmental Scientist
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From: Brent Whitley [<mailto:BrentWhitley@Sierra-Properties.com>]
Sent: Friday, August 19, 2011 3:59 PM
To: Doug Leeper
Subject: Re: Clarification Regarding Stakeholder Rep Presentations

IMO, you could not have sent a better email. Whitey is out of line!

Sent using BlackBerry

-----Original Message-----

From: Doug Leeper <Doug.Leeper@swfwmd.state.fl.us>
To: Brent Whitley
Sent: Fri Aug 19 13:59:28 2011
Subject: RE: Clarification Regarding Stakeholder Rep Presentations

Brent:

Hope our recent phone conversation and the e-mail I just sent out to all stakeholder reps helps answer your question. We're interested in hearing any and all suggestions regarding enhancements to the minimum flows program. It's not only reasonable, it's the right thing to do.

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From: Brent Whitley [<mailto:BrentWhitley@Sierra-Properties.com>]
Sent: Tuesday, August 16, 2011 12:33 PM
To: Doug Leeper
Subject: RE: Clarification Regarding Stakeholder Rep Presentations

Doug,

The one question that I do not see that you address here is if the stakeholders wish to solicit an outside expert to make a presentation in their stead. Do you think this is reasonable?

Brent

From: Doug Leeper [<mailto:Doug.Leeper@swfwmd.state.fl.us>]
Sent: Tuesday, August 16, 2011 12:17 PM
To: Al Grubman (grubman1@gmail.com); Bill Geiger (bgeiger@cityofbrooksville.us); Bill Pouder (bill.pouder@myfwc.com); Boyd Blihovde (Boyd_Blihovde@fws.gov); Brad Rimbey (BWR.CRRRC@tampabay.rr.com); Brent Whitley; Brockway, Alys (abrockway@co.hernando.fl.us); Dennis D. Dutcher (Dennis3ds@aol.com); Frank DiGiovanni (administration@inverness-fl.gov); Greenwood, Kathleen (Kathleen.Greenwood@dep.state.fl.us); Helen Spivey (manatees@habitats.org); Hilliard, Dan (2buntings@comcast.net); Hoehn, Ted; Hope Corona (hopecorona@tampabay.rr.com); Jim Farley (jfarley682@aol.com); Katie Tripp (ktripp@savethemanatee.org); Norman Hopkins (norman@amyhrf.org); Rebecca Bays (rebecca.bays@bocc.citrus.fl.us); Richard Kane (rkane@usgs.gov); Richard Radack (rradack@cityofbrooksville.us); Ron Miller (rmille76@tampabay.rr.com); Sarah Tenison (cityofweekiwachee@yahoo.com); Sullivan, Jack (jsullivan@carltonfields.com); Voyles, Carolyn (Carolyn.Voyles@dep.state.fl.us); Whitey Markle (whmarkle@gmail.com)
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From: [Whitey Markle](#)
To: [Brent Whitley](#)
Cc: [Doug Leeper](#); [grubman1@gmail.com](#); [bgeiger@cityofbrooksville.us](#); [bill.pouder@myfwc.com](#); [Boyd_Blihovde@fws.gov](#); [BWR.CRRC@tampabay.rr.com](#); [abrockway@co.hernando.fl.us](#); [Dennis3ds@aol.com](#); [administration@inverness-fl.gov](#); [Kathleen.Greenwood@dep.state.fl.us](#); [manatees@habitats.org](#); [2buntings@comcast.net](#); [ted.hoehn@myfwc.com](#); [hopecorona@tampabay.rr.com](#); [jfarley682@aol.com](#); [ktripp@savethemanatee.org](#); [norman@amyhrf.org](#); [rebecca.bays@bocc.citrus.fl.us](#); [rkane@usgs.gov](#); [rradacky@cityofbrooksville.us](#); [rmille76@tampabay.rr.com](#); [cityofweekiwachee@yahoo.com](#); [jsullivan@carltonfields.com](#); [Carolyn.Voyles@dep.state.fl.us](#)
Subject: Re: Another Inquiry Regarding the Sep 6 MFLs Workshop
Date: Friday, August 19, 2011 9:09:41 PM

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Also, I just got an email from Doug Leeper, saying the next meeting could go to 7 PM, the first I've heard that. Is somebody in a hurry? If so, it's about time. The MFL law has been on the books for decades.

Hope this answers your curiosity. I'm sure I'll hear more..I hope so.

Whitey Markle

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Humbly,

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CC: Al Grubman (grubman1@gmail.com) <grubman1@gmail.com>; Bill Geiger (bgeiger@cityofbrooksville.us) <bgeiger@cityofbrooksville.us>; Bill Pouder (bill.pouder@myfwc.com) <bill.pouder@myfwc.com>; Boyd Blihovde (Boyd_Blihovde@fws.gov) <Boyd_Blihovde@fws.gov>; Brad Rimbey (BWR.CRRC@tampabay.rr.com) <BWR.CRRC@tampabay.rr.com>; Brent Whitley; Brockway, Alys (abrockway@co.hernando.fl.us) <abrockway@co.hernando.fl.us>; Dennis D. Dutcher (Dennis3ds@aol.com) <Dennis3ds@aol.com>; Frank DiGiovanni (administration@inverness-fl.gov) <administration@inverness-fl.gov>; Greenwood, Kathleen (Kathleen.Greenwood@dep.state.fl.us) <Kathleen.Greenwood@dep.state.fl.us>; Hilliard, Dan (2buntings@comcast.net) <2buntings@comcast.net>; Hope Corona (hopecorona@tampabay.rr.com) <hopecorona@tampabay.rr.com>; Jim Farley (jfarley682@aol.com) <jfarley682@aol.com>; Katie

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Sent: Fri Aug 19 15:11:15 2011

Subject: Re: Another Inquiry Regarding the Sep 6 MFLs Workshop

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Subject: Re: Another Inquiry Regarding the Sep 6 MFLs Workshop
Date: Saturday, August 20, 2011 8:43:15 AM

Whitey,

I would hope that our interests can be served by our technical and intellectual skills rather than reading between the lines to invent problems. You have rejected making a presentation when the 5 to 10 min. suggestion was made. You promptly selected the 5 min. number to reject the entire idea as not long enough. Much can be communicated in 10 minutes if you know what you are talking about and keep the BS out.

If it still isn't enough you might try to follow Norm Hopkins' example. Norm told Doug that he needed 16 minutes and Doug said O. K. To me that seems more effective than reading between the lines, minimizing the offer and whining.

Please help us get everything we can rather than attacking. I would hate to have the Governor decide. We need to convince the technical guys (who live here too) to present our vision to the Governing Board. And if we have to help convince the Governing Board, statements are normally limited to 3 minutes.

AI

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From: [Brent Whitley](#)
To: [whmarkle@gmail.com](#)
Cc: [Doug Leeper](#); [grubman1@gmail.com](#); [bgeiger@cityofbrooksville.us](#); [bill.pouder@myfwc.com](#); [Boyd_Blihovde@fws.gov](#); [BWR.CRRC@tampabay.rr.com](#); [abrockway@co.hernando.fl.us](#); [Dennis3ds@aol.com](#); [administration@inverness-fl.gov](#); [Kathleen.Greenwood@dep.state.fl.us](#); [manatees@habitats.org](#); [2buntings@comcast.net](#); [ted.hoehn@myfwc.com](#); [hopecorona@tampabay.rr.com](#); [jfarley682@aol.com](#); [ktripp@savethemanatee.org](#); [norman@amyhrf.org](#); [rebecca.bays@bocc.citrus.fl.us](#); [rkane@usgs.gov](#); [rradack@cityofbrooksville.us](#); [rmille76@tampabay.rr.com](#); [cityofweekiwachee@yahoo.com](#); [jsullivan@carltonfields.com](#); [Carolyn.Voyles@dep.state.fl.us](#)
Subject: Re: Another Inquiry Regarding the Sep 6 MFLs Workshop
Date: Saturday, August 20, 2011 11:37:01 AM

No, Whitey, you answered my question entirely. I see where the "us vs. them" comes from and I understand that you wish to offer no public presentation in support of protecting against the degradation of the rivers.

Thank you.

Brent

PS: Dan Dewitt and the Times is a great way to get an objective opinion of someone, what they stand for and what they do. I will be sure to introduce myself at the workshop and hopefully give you an opportunity to form your own opinion!

Sent using BlackBerry

-----Original Message-----

From: Whitey Markle <whmarkle@gmail.com>
To: Brent Whitley
CC: Doug.Leeper@swfwmd.state.fl.us <Doug.Leeper@swfwmd.state.fl.us>; grubman1@gmail.com <grubman1@gmail.com>; bgeiger@cityofbrooksville.us <bgeiger@cityofbrooksville.us>; bill.pouder@myfwc.com <bill.pouder@myfwc.com>; Boyd_Blihovde@fws.gov <Boyd_Blihovde@fws.gov>; BWR.CRRC@tampabay.rr.com <BWR.CRRC@tampabay.rr.com>; abrockway@co.hernando.fl.us <abrockway@co.hernando.fl.us>; Dennis3ds@aol.com <Dennis3ds@aol.com>; administration@inverness-fl.gov <administration@inverness-fl.gov>; Kathleen.Greenwood@dep.state.fl.us <Kathleen.Greenwood@dep.state.fl.us>; manatees@habitats.org <manatees@habitats.org>; 2buntings@comcast.net <2buntings@comcast.net>; ted.hoehn@myfwc.com <ted.hoehn@myfwc.com>; hopecorona@tampabay.rr.com <hopecorona@tampabay.rr.com>; jfarley682@aol.com <jfarley682@aol.com>; ktripp@savethemanatee.org <ktripp@savethemanatee.org>; norman@amyhrf.org <norman@amyhrf.org>; rebecca.bays@bocc.citrus.fl.us <rebecca.bays@bocc.citrus.fl.us>; rkane@usgs.gov <rkane@usgs.gov>; rradack@cityofbrooksville.us <rradack@cityofbrooksville.us>; rmille76@tampabay.rr.com <rmille76@tampabay.rr.com>; cityofweekiwachee@yahoo.com <cityofweekiwachee@yahoo.com>; jsullivan@carltonfields.com <jsullivan@carltonfields.com>; Carolyn.Voyles@dep.state.fl.us <Carolyn.Voyles@dep.state.fl.us>
Sent: Fri Aug 19 21:09:35 2011
Subject: Re: Another Inquiry Regarding the Sep 6 MFLs Workshop

Brent:

From what I can gather between the lines, you don't work for the State. In fact, it looks like you sell real estate and/or golf courses. The way we see it out here looking in, "Us" is the District(s) and its bureaucratic and Interest group allies, and "them" is us laymen, volunteers, and environmentalists who are opposed to further development/destruction of the remaining land and wetlands in Florida..

As you must be aware, there is no way to make a presentation in 5 or 10 minutes.

In answer to your investigation: I have no interest in making a 5 minute "presentation".

Also, I just got an email from Doug Leeper, saying the next meeting could go to 7 PM, the first I've heard that. Is somebody in a hurry? If so, it's about time. The MFL law has been on the books for decades.

Hope this answers your curiosity. I'm sure I'll hear more..I hope so.
Whitey Markle

On Fri, Aug 19, 2011 at 3:45 PM, Brent Whitley <BrentWhitley@sierra-properties.com> wrote:

I am sorry and maybe naïve, but I did not see anything in Doug's email that indicates an "us vs. Them", implication, Mr. Markle. Can you elaborate please. As I said earlier, it may need to be longer or involve a second meeting, but to my understanding that is his question.

Humbly,

Brent

Sent using BlackBerry

-----Original Message-----

From: Whitey Markle <whmarkle@gmail.com>
To: Doug Leeper <Doug.Leeper@swfwmd.state.fl.us>
CC: Al Grubman (grubman1@gmail.com) <grubman1@gmail.com>; Bill Geiger (bgeiger@cityofbrooksville.us) <bgeiger@cityofbrooksville.us>; Bill Pouder (bill.pouder@myfwc.com) <bill.pouder@myfwc.com>; Boyd Blihovde (Boyd_Blihovde@fws.gov) <Boyd_Blihovde@fws.gov>; Brad Rimbey (BWR.CRRC@tampabay.rr.com) <BWR.CRRC@tampabay.rr.com>; Brent Whitley; Brockway, Alys (abrockway@co.hernando.fl.us) <abrockway@co.hernando.fl.us>; Dennis D. Dutcher (Dennis3ds@aol.com) <Dennis3ds@aol.com>; Frank DiGiovanni (administration@inverness-fl.gov) <administration@inverness-fl.gov>; Greenwood, Kathleen (Kathleen.Greenwood@dep.state.fl.us) <Kathleen.Greenwood@dep.state.fl.us>; Helen Spivey (manatees@habitats.org) <manatees@habitats.org>; Hilliard, Dan (2buntings@comcast.net) <2buntings@comcast.net>; Hoehn, Ted <ted.hoehn@myfwc.com>; Hope Corona (hopecorona@tampabay.rr.com) <hopecorona@tampabay.rr.com>; Jim Farley (jfarley682@aol.com) <jfarley682@aol.com>; Katie Tripp (ktripp@savethemanatee.org) <ktripp@savethemanatee.org>; Norman Hopkins (norman@amyhrf.org) <norman@amyhrf.org>; Rebecca Bays (rebecca.bays@bocc.citrus.fl.us) <rebecca.bays@bocc.citrus.fl.us>; Richard Kane (rkane@usgs.gov) <rkane@usgs.gov>; Richard Radacky (rradacky@cityofbrooksville.us) <rradacky@cityofbrooksville.us>; Ron Miller (rmille76@tampabay.rr.com) <rmille76@tampabay.rr.com>; Sarah Tenison (cityofweekiwachee@yahoo.com) <cityofweekiwachee@yahoo.com>; Sullivan, Jack (jsullivan@carltonfields.com) <jsullivan@carltonfields.com>; Voyles, Carolyn (Carolyn.Voyles@dep.state.fl.us) <Carolyn.Voyles@dep.state.fl.us>

Sent: Fri Aug 19 15:11:15 2011

Subject: Re: Another Inquiry Regarding the Sep 6 MFLs Workshop

Douglas:

Seriously, can't you just make it a longer workshop? Or is that too expensive? Or what? It shouldn't be an "Us vs. Them" workshop. We would like for you guys to work with us as we work with you.

Whitey Markle
SSJ Sierra Club

On Fri, Aug 19, 2011 at 1:47 PM, Doug Leeper <Doug.Leeper@swfwmd.state.fl.us> wrote:

Greetings:

I'm writing again about the agenda for the upcoming Springs Coast Minimum Flows and Levels Public Workshop. As noted in my previous communications, the District's goal for the September workshop is to work through the following agenda items:

Agenda Items

Opening remarks, Doug Leeper (SWFWMD) (5 minutes)

Significant harm, Doug Leeper (SWFWMD) (20 minutes)

Modeling of salinity and thermal-based habitats, Doug Leeper (SWFWMD) (20 minutes)

Modeling of biological responses to flow changes, Doug Leeper (SWFWMD) (20 minutes)

Water quality issues, Doug Leeper (SWFWMD) (10 minutes)

Identification of follow-up District actions, Doug Leeper (SWFWMD) (10 minutes)

Public input (3 minutes per individual)

Adjournment, Doug Leeper (SWFWMD)

Although I'm listed as the presenter for each agenda item (except public input), it is my intention to minimize the number of slides that I will present for each item to allow stakeholder representatives ample time to present and discuss data-related and methodological concerns and recommendations directed towards enhancing the establishment of minimum flows.

So far, three stakeholder representatives have indicated that they or a colleague of theirs would be interested in making presentations during the workshop. Norman Hopkins, with the Amy H. Remley Foundation, has indicated that he would like to make an approximate 16 minute presentation concerning nitrogen loading and minimum flows for Kings Bay. Boyd Blihovde and his colleague, Joyce Kleen, who also works for the U.S. Fish and Wildlife Service, have indicated they may be interested in making an approximate 10 minute presentation addressing recent changes in the vegetation of the Chassahowitzka River system, how blue crab population information may be relevant to minimum flows development, and how the Service monitors manatee populations. Brad Rimbey, with the Chassahowitzka River Restoration Committee, has indicated he would like to make an approximate 5-10 minute presentation on significant harm.

Several stakeholder representatives have expressed interest in bringing in an "outside" expert to discuss data/methodological issues related to minimum flows development. If possible, I would appreciate hearing from any or all of you regarding who you may have in mind, what the topic(s) of discussion would be, and how much time would be needed for the planned presentation(s). My goals for this inquiry are to gain a better understanding of the concepts that are of concern to stakeholders, to see if it may be possible to accommodate all requested presentations during the September 6th workshop, and if possible to include the presentations on the agenda. The presentations may possibly be "shoe-horned" into the existing agenda items or added as separate items.

Thanks,

Douglas A. Leeper, Chief Environmental Scientist

Resource Projects Department, Southwest Florida Water Management District

2379 Broad Street, Brooksville, FL 34604-6899

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E-Mail: doug.leeper@watermatters.org

Web Site: watermatters.org <<http://watermatters.org/>> <<http://watermatters.org/>>

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facilities for non-District business purposes.

From: [Pam Gifford](#)
To: BWR.CRRC@tampabay.rr.com
Cc: [Doug Leeper](#)
Subject: Public Records Request; E-mail to Doug Leeper
Date: Monday, August 22, 2011 11:28:03 AM

Mr. Rimbey:

You requested the following:

(4) Any legal memorandum which indicates SWFWMD (or any other water management agency) is permitted, under Florida law, to intentionally degrade the ambient water quality of an Outstanding Florida Water.

DISTRICT RESPONSE: District is not aware that a legal memorandum has been prepared addressing this question.

(5) Any legal memorandum which indicates SWFWMD (or any water management agency) is exempt from maintaining the baseline ambient water quality of an Outstanding Florida Water when establishing minimum flows and levels.

DISTRICT RESPONSE: District is not aware that a legal memorandum has been prepared addressing this question.

If you require any further information, please do not hesitate to call me.

Thank you,

Pamela A. Gifford, ACP
Advanced Certified Paralegal - Land Use
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(352) 796-7211, Ext. 4156
(352) 754-6878 (FAX)
pamela.gifford@watermatters.org

From: Doug Leeper
To: [Al Grubman \(grubman1@gmail.com\)](mailto:Al_Grubman@grubman1@gmail.com); [Bill Geiger \(bgeiger@cityofbrooksville.us\)](mailto:Bill_Geiger@cityofbrooksville.us); [Bill Pouder \(bill.pouder@myfwc.com\)](mailto:Bill_Pouder@myfwc.com); [Boyd Blihovde \(Boyd_Blihovde@fws.gov\)](mailto:Boyd_Blihovde@fws.gov); [Brad Rimbev \(BWR.CRRRC@tampabay.rr.com\)](mailto:Brad_Rimbev@BWR.CRRRC@tampabay.rr.com); [Brent Whitley \(brentwhitley@sierra-properties.com\)](mailto:Brent_Whitley@sierra-properties.com); [Brockway, Alys \(abrockway@co.hernando.fl.us\)](mailto:Brockway_Alys@abrockway@co.hernando.fl.us); [Dennis D. 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Cc: \[Barbara Matrone\]\(mailto:Barbara_Matrone@Barbara.Matrone@fws.gov\); \[Cara S. Martin\]\(mailto:Cara_S._Martin@Cara.S.Martin@fws.gov\); \[Chris Zajac\]\(mailto:Chris_Zajac@Chris.Zajac@fws.gov\); \[Darcy A. Brune\]\(mailto:Darcy_A._Brune@Darcy.A.Brune@fws.gov\); \[Dave Dewitt\]\(mailto:Dave_Dewitt@Dave.Dewitt@fws.gov\); \[Doug Leeper\]\(mailto:Doug_Leeper@Doug.Leeper@fws.gov\); \[Gary E. Williams\]\(mailto:Gary_E._Williams@Gary.E.Williams@fws.gov\); \[Jay Yingling\]\(mailto:Jay_Yingling@Jay.Yingling@fws.gov\); \[Karen Lloyd\]\(mailto:Karen_Lloyd@Karen.Lloyd@fws.gov\); \[Ken Weber\]\(mailto:Ken_Weber@Ken.Weber@fws.gov\); \[Lou Kavouras\]\(mailto:Lou_Kavouras@Lou.Kavouras@fws.gov\); \[Mark Barcelo\]\(mailto:Mark_Barcelo@Mark.Barcelo@fws.gov\); \[Mark Hammond\]\(mailto:Mark_Hammond@Mark.Hammond@fws.gov\); \[Marty Kelly\]\(mailto:Marty_Kelly@Marty.Kelly@fws.gov\); \[Mike Heyl\]\(mailto:Mike_Heyl@Mike.Heyl@fws.gov\); \[Paul Williams\]\(mailto:Paul_Williams@Paul.Williams@fws.gov\); \[Robyn O. Felix\]\(mailto:Robyn_O._Felix@Robyn.O.Felix@fws.gov\); \[Ron Basso\]\(mailto:Ron_Basso@Ron.Basso@fws.gov\); \[Sid Flannery\]\(mailto:Sid_Flannery@Sid.Flannery@fws.gov\); \[Veronica Craw\]\(mailto:Veronica_Craw@Veronica.Craw@fws.gov\); \[Xinjian Chen\]\(mailto:Xinjian_Chen@Xinjian.Chen@fws.gov\); \[Yasser Gonzalez\]\(mailto:Yasser_Gonzalez@Yasser.Gonzalez@fws.gov\)
Subject: Posting of USGS Reports on Springs Coast MFLs Workshop Web Page
Date: Monday, August 22, 2011 11:53:00 AM](mailto:Wallace_Traci@Adkins_Jim@Bitter_Jim@Bryant_Richard@Cantero_Vince@Carpenter_Paul@Daniels_Chase@Dueker_Duane@Gramling_Hugh@Harrelson_Cathy@Hubbell_Pete@Johnson_Eric@Johnson_Martyn@Keim_Robert@Kline_Allen@Knight_Bob@Knight_Robert@Knudson_Ross@Overa_Tom@Owen_Rick@Parrow_Liz@Rolf_Auermann@rauerman@tampabay.rr.com@Rusnak_Teddi@Watkins_Priscilla@Watrous_Russell)

Greetings:

In response to a suggestion from Richard Kane, the stakeholder representative from the United States Geological Survey, the District has added four reports containing information on discharge in several Springs Coast rivers to the Springs Coast Minimum Flows and Levels Public Workshop web page. The reports listed below are posted under the "Background Information and Reports" heading at the bottom of the page. The reports should not be considered "required reading" for workshop participants, but they do contain a great deal of useful information.

Yobbi, D.K., 1989, Simulation of steady-state ground water and spring flow in the upper Floridan aquifer of coastal Citrus and Hernando Counties, Florida: U.S. Geological Survey Water-Resources Investigations Report 88-4036.

Yobbi, D.K., 1992, Effects of tidal stage and ground-water levels on the discharge

and water quality of springs in coastal Citrus and Hernando Counties, Florida: U.S. Geological Survey Water-Resources Investigations Report 92-4069.

Yobbi, D.K., and Knochenmus, L.A., 1989, Salinity and flow relations and effects of reduced flow in the Chassahowitzka River and Homosassa River estuaries, southwest Florida: U.S. Geological Survey Water-Resources Investigations Report 88-4044.

Yobbi, D.K., and Knochenmus, L.A., 1989, Effects of river discharge and high-tide stage on salinity intrusion in the Weeki Wachee, Crystal, and Withlacoochee River estuaries, southwest Florida: U.S. Geological Survey Water-Resources Investigations Report 88-4116.

Here's a link to the workshop web page:

<http://www.WaterMatters.org/SpringsCoastMFL>

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E-Mail: doug.leeper@watermatters.org
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From: Doug Leeper
To: [Hope Corona \(hopecorona@tampabay.rr.com\)](mailto:HopeCorona@hopecorona@tampabay.rr.com)
Bcc: [Mike Heyl](#); [Marty Kelly](#)
Subject: Follow-Up to Our Phone Conversation
Date: Monday, August 22, 2011 2:51:56 PM
Attachments: [image001.png](#)
[image002.png](#)
[Isohaline_Locations_from_MHeyl_22aug2011.xls](#)

Hope:

Following up on our telephone conversation from this morning, I'd like to offer some information on a few of the items we discussed.

1. After we spoke, I reviewed Figure 2-4 in the District's minimum flows 2010 report titled *Chassahowitzka River Recommended Minimum Flows and Levels November 2010 Draft Prepared Pursuant to 373.042 F.S.* The figure shows spring locations and the river kilometer system for the Chassahowitzka, in 100 m intervals from river kilometer 0 to river kilometer 9. Turns out that the problems we were having interpreting the image during our phone conversation are related to the quality of the reproduced figure. The labels, especially those for river kilometers 5 and 6, are not printed very clearly. The labels should represent a sequence from 0 at the downstream end of the river to 9 at the upstream end.

2. Per our discussion, I've excerpted an image of the Chassahowitzka River system hydrodynamic model domain from the 2009 report by Dynamic Solutions, LLC., titled *Impact of Withdrawals on the Chassahowitzka River System*. Note that this report is incorporated in the District's minimum flows report as Appendix 13 and includes a number of figures depicting predicting vs. modeled environmental conditions (calibration information). Here's a link to the full report/appendix on the District's Minimum Flows and Levels (Environmental Flows) Documents and Reports page.
http://www.swfwmd.state.fl.us/projects/mfl/reports/Chass_Appendices-section13.pdf

3. I spoke with Mike Heyl regarding isohaline locations in the river and he provided the attached Excel file, which includes daily mean locations of the 2, 5, 10 and 15 part per thousand (ppt) isohalines predicted for the period from January 2004 through December 2006 using the Chassahowitzka River hydrodynamic model. The spreadsheet also includes isohaline locations for potential sea level rise scenarios of 2, 6 and 12 inches. As we discussed, the isohaline location values can be used along with Figure 4.1 from the minimum flows report to locate the isohalines in geographic space.

4. To support development of minimum flows for the Chassahowitzka River system, the District has also developed regression models for relating flows to salinities. This information is discussed on pages 39 through 41 in the 2010 minimum flows report for the Chassahowitzka River. Based on the longitudinal salinity data we discussed during our phone conversation, the following model was developed to predict salinity as a function of flow and river kilometer location.

$$\text{Salinity} = 29.3749 - 0.2838 * \text{Flow} - 1.3678 * \text{Rkm}$$

In this equation, salinity is expressed as ppt, flow is the discharge (in cubic feet per second) at the United States Geological Survey main spring gage (Chassahowitzka River near Homosassa, FL; Site No. 02310650), and Rkm is the river kilometer.

The equation above may be rearranged to predict the river kilometer location for a particular salinity based on an identified flow, as follows.

$$\text{Rkm} = (\text{Salinity} - 29.3749 + 0.2838 * \text{Flow}) / -1.3678$$

Note that these regression equations were not used to assess salinity habitats in the minimum flows analysis for the Chassahowitzka system, but were used in attempts to relate biological data and salinities. Mike Heyl provided the figure below, which shows regression-predicted salinities locations associated with a flow of 63 cubic feet per second. Mike indicated that the figure was included in the slide presentations made at the Chassahowitzka minimum flows public workshops held in October and December of last year. It may be the one you mentioned during our phone conversation this morning.

I hope you find this information useful. Please feel free to contact me if you have additional questions.

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Web Site: watermatters.org

From: [Ron Miller](#)
To: [Doug Leeper](#)
Subject: Questions for the Sept 6 Workshop.
Date: Monday, August 22, 2011 7:00:20 PM

Hi Doug,

Here are some questions for the Sept 6th Homosassa MFL Workshop. It would be helpful to have this information posted prior to the meeting.

Water Use Permits

Please provide a table and map of all of the water withdrawal permits in Citrus County similar to that provided for the Homosassa Springshed.

Homosassa Main Spring and SE Fork Flow Measurement.

1. Please provide a map showing the Weeki Wachee and the Lecanto Well sites and their relationship to the Homosassa Springshed.
2. There has been a lot of discussion about the calculations regarding the flow measurements at the Homosassa Main Spring and the Southeast Fork of the Homosassa. Obviously the accuracy and dependability of these measurements is critical to the Homosassa MFL analysis and the proposed enforcement scheme. Would you please provide your view of the deviations in question and how they might affect the accuracy and usefulness of these flow measurements.

Missing springs in the Northern District Model

There are significant springs in Citrus County that are not represented in the Northern District Model. For example the Bluebird Spring. When do you plan to incorporate these springs in the model?

Best regards,
Ron

From: [Brad Rimbey@CRRC](mailto:Brad.Rimbey@CRRC)
To: mark.hammon@swfwmd.state.fl.us
Cc: [Doug Leeper](mailto:Doug.Leeper); grubman1@gmail.com; bgeiger@cityofbrooksville.us; bill.pouder@myfwc.com; [Boyd Blihovde@fws.gov](mailto:Boyd_Blihovde@fws.gov); brentwhitley@sierra-properties.com; abrockway@co.hernando.fl.us; Dennis3ds@aol.com; administration@inverness-fl.gov; Kathleen.Greenwood@dep.state.fl.us; manatees@habitats.org; 2buntings@comcast.net; Hoehn.Ted; hopecorona@tampabay.rr.com; whmarkle@gmail.com; jfarley682@aol.com; ktripp@savethemanatee.org; norman@amyhrf.org; rebecca.bays@bocc.citrus.fl.us; rkane@usgs.gov; rradacky@cityofbrooksville.us; rmille76@tampabay.rr.com; cityofweekiwachee@yahoo.com; jsullivan@carltonfields.com; Carolyn.Voyles@dep.state.fl.us
Subject: Re: Clarification Regarding Stakeholder Rep Presentations
Date: Tuesday, August 23, 2011 12:47:16 PM

Mark,

It was a pleasure speaking with you yesterday afternoon. As per our telephone conversation, I understand SWFWMD is now willing to go forward with a forth Springs Coast MFL workshop. The purpose of the forth workshop would be to allow Springs Coast MFL panel members the opportunity to invite outside experts to make presentations to the panel, SWFWMD staff, and the public without the time limits imposed, by necessity, in the third workshop. I would expect the presentations would be more on the order of 20-30 minutes each. We expect the outside experts will bring new data, information and a fresh perspective to the table that would assist SWFWMD staff in refining their MFL proposals. The MFL topics to be discussed would be similar to the MFL topics which SWFWMD has already identified.

It is my understanding that the District will assist in making a room available for the forth workshop. Please confirm that my understanding of our conversation is correct so that we can begin making arrangements with outside experts.

Thank you and all of SWFWMD's staff for your hard work and continued focus on these difficult issues.

Brad W. Rimbey, PE
for the Chassahowitzka River Restoration Committee

----- Original Message -----

From: [Doug Leeper](mailto:Doug.Leeper)
To: [Al Grubman \(grubman1@gmail.com\)](mailto:Al.Grubman) ; [Bill Geiger \(bgeiger@cityofbrooksville.us\)](mailto:Bill.Geiger) ; [Bill Pouder \(bill.pouder@myfwc.com\)](mailto:Bill.Pouder) ; [Boyd Blihovde \(Boyd_Blihovde@fws.gov\)](mailto:Boyd.Blihovde) ; [Brad Rimbey \(BWR.CRRC@tampabay.rr.com\)](mailto:Brad.Rimbey) ; [Brent Whitley \(brentwhitley@sierra-properties.com\)](mailto:Brent.Whitley) ; [Brockway Alys \(abrockway@co.hernando.fl.us\)](mailto:Brockway.Alys) ; [Dennis D. Dutcher \(Dennis3ds@aol.com\)](mailto:Dennis.D.Dutcher) ; [Frank DiGiovanni \(administration@inverness-fl.gov\)](mailto:Frank.DiGiovanni) ; [Greenwood, Kathleen \(Kathleen.Greenwood@dep.state.fl.us\)](mailto:Greenwood.Kathleen) ; [Helen Spivey \(manatees@habitats.org\)](mailto:Helen.Spivey) ; [Hilliard, Dan \(2buntings@comcast.net\)](mailto:Hilliard.Dan) ; [Hoehn, Ted](mailto:Hoehn.Ted) ; [Hope Corona \(hopecorona@tampabay.rr.com\)](mailto:Hope.Corona) ; [Jim Farley \(jfarley682@aol.com\)](mailto:Jim.Farley) ; [Katie Tripp \(ktripp@savethemanatee.org\)](mailto:Katie.Tripp) ; [Norman Hopkins \(norman@amyhrf.org\)](mailto:Norman.Hopkins) ; [Rebecca Bays \(rebecca.bays@bocc.citrus.fl.us\)](mailto:Rebecca.Bays) ; [Richard Kane \(rkane@usgs.gov\)](mailto:Richard.Kane) ; [Richard Radackey \(rradacky@cityofbrooksville.us\)](mailto:Richard.Radackey) ; [Ron Miller \(rmille76@tampabay.rr.com\)](mailto:Ron.Miller) ; [Sarah Tenison \(cityofweekiwachee@yahoo.com\)](mailto:Sarah.Tenison) ; [Sullivan, Jack \(jsullivan@carltonfields.com\)](mailto:Sullivan.Jack) ; [Voyles, Carolyn \(Carolyn.Voyles@dep.state.fl.us\)](mailto:Voyles.Carolyn) ; [Whitey Markle \(whmarkle@gmail.com\)](mailto:Whitey.Markle)
Sent: Tuesday, August 16, 2011 12:16 PM
Subject: Clarification Regarding Stakeholder Rep Presentations

Greetings:

I'm writing to clarify the inquiry I made in a recent e-mail regarding whether any Springs Coast Minimum Flows and Levels Public Workshop stakeholder representatives would be interested in

offering presentations at the planned September workshop. The purpose of my inquiry was to indicate the District's willingness to provide stakeholder representatives the opportunity to use visual aids during short (approximately five minute) presentations in support of recommendations concerning data-related or methodological enhancements to the District's current approach to minimum flows development for Springs Coast systems. Presentations by stakeholder representatives, like those made by District staff, would be expected to enhance discussion of agenda items among stakeholder representatives and staff during the workshop. The stakeholder representative presentations were not viewed as a replacement for this discussion; rather, they were envisioned as a means to advance interaction among workshop participants.

Please note that the identified approximate five minute time-frame for stakeholder representative presentations is intended to maintain a reasonable meeting schedule and to encourage presenters to focus their recommendations on enhancements to existing minimum flows and levels methodologies. It may be expected that some presentations may be slightly longer than five minutes, but to allow time for constructive discussion, it is expected that the presentations will be relatively short.

Staff do not currently anticipate that each stakeholder representative will want to make a presentation on each of the tentative agenda items identified for the September workshop. This would, as Brad Rimbey has pointed out in a recent e-mail sent to stakeholder representatives and District staff, lead to a rather lengthy meeting.

We expect that relatively few stakeholder representatives will be interested in making "formal" presentations aided by visual aids (slides or other materials) during the workshop. To date, two stakeholder representatives have expressed interest in making presentations. Norman Hopkins has indicated that he would like to present information for the "Water Quality" agenda item and Boyd Blihovde has indicated that he would like to offer information on vegetation changes in the Chassahowitzka National Wildlife Refuge, presumably as part of the "Modeling of Biological Responses to Flow Changes" agenda item discussion. I plan to communicate further with Norman and Boyd to discuss the nature of their planned presentations. A goal for these communications will be clarification of the District's desire that the presentations specifically address data and/or methodological approaches that can be quantitatively used to enhance the District approach to minimum flows and levels development. Please note that if a large number of stakeholder representatives express interest in making "formal" presentations on workshop agenda items, staff will attempt to work with the representatives to eliminate redundancy and potentially limit the number of visual-aid enhanced presentations.

I and other District staff believe the group of representatives that has been assembled for the workshop possess a broad range of expertise that has and will continue to be capably brought to bear in constructive discussions of enhancements to minimum flow methodologies. Stakeholder representatives include scientists and others with a high level of knowledge concerning the geology, water chemistry, manatees, fish, invertebrates, other wildlife, plants and the human communities of the Springs Coast.

To recap, District staff do not anticipate a great number of stakeholder representative presentations at the September workshop. We expect only a few such presentations, and hope that the presentations and ensuing discussions result in the identification of data/methodological enhancements that may be used for establishing minimum flows and levels along the Springs Coast.

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From: Doug Leeper
To: [Ron Miller \(rmille76@tampabay.rr.com\)](mailto:Ron_Miller_(rmille76@tampabay.rr.com))
Bcc: [Ron Basso](#); [Marty Kelly](#)
Subject: RE: Questions for the Sept 6 Workshop.
Date: Tuesday, August 23, 2011 4:14:39 PM
Attachments: [image001.png](#)
[image002.png](#)
[image004.png](#)
[image005.png](#)

Ron:

Thanks for the questions concerning water use, estimation of flows in the Homosassa River system, and the Northern District Model. Responses to your inquiries are imbedded in the body of your August 22nd e-mail below. I will plan on posting this e-mail to the workshop web site.

Douglas A. Leeper, Chief Environmental Scientist
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From: Ron Miller [<mailto:rmille76@tampabay.rr.com>]
Sent: Monday, August 22, 2011 7:01 PM
To: Doug Leeper
Subject: Questions for the Sept 6 Workshop.

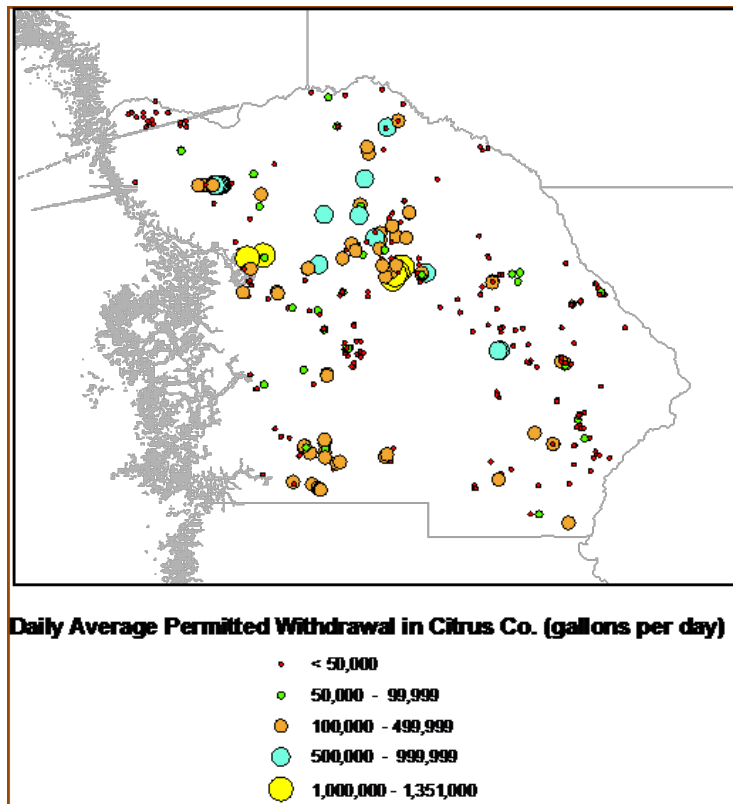
Hi Doug,

Here are some questions for the Sept 6th Homosassa MFL Workshop. It would be helpful to have this information posted prior to the meeting.

Water Use Permits

Please provide a table and map of all of the water withdrawal permits in Citrus County similar to that provided for the Homosassa Springshed.

The figure below shows withdrawal and monitoring well sites (and a few associated environmental monitoring sites) included in the District's current Permitted Water Use Permit Withdrawal Point Layer (a Geographic Information System Database/File). The figure was prepared specifically for this e-mail on August 23, 2011.



The table below includes permit information associated with the points shown in the figure above. The column on the far right lists average daily permitted withdrawal amounts expressed in gallons per day.

WUP_PERMIT	WUP_REVISION	WITHDRAWAL ID	PERMITTEE	WITHDRAW_2	WITHDRAW_4	MONITOR_1	MONITOR_2	WATER_USE1	PERM_AVG_DAILY_GPD
199	6	15	Brooksville Quarry LLC	Capped	Withdrawal of Groundwater			MINING AND DEWATERING	0
208	14	2	G. William Wilde	Capped	Withdrawal of Groundwater			AGRICULTURAL	0
208	14	10	G. William Wilde	Existing	Withdrawal of Groundwater			AGRICULTURAL	1000
419	10	4	City Of Inverness	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	6250
419	10	5	City Of Inverness	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	6250
729	3	5	Citrus County Water Resources De c/o Robert Knight Director	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	80000
1108	4	1	Z2F Citrus & Cattle LLC	Existing	Withdrawal of Groundwater			AGRICULTURAL	25420
2842	9	10	Citrus County Water Resources De c/o Robert Knight Director	Plugged	Withdrawal of Groundwater			PUBLIC SUPPLY	0
2851	4	5	Seven Rivers Golf & Country Club Inc	Existing	Surface Withdrawal			RECREATION/AESTHETIC	213500
3228	7	5	Citrus Hills Investment Prop Inc	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	3000
3672	1	8	Florida Power Corp DbA Progress	Existing	Monitor	MONITOR WELL	AQUIFER LEVELS	INDUSTRIAL AND COMMERCIAL	0
3672	1	16	Florida Power Corp DbA Progress	Existing	Withdrawal of Groundwater			INDUSTRIAL AND COMMERCIAL	551520
4153	10	6	Rolling Oaks Utilities Inc	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	162000

4368	2	1	Citrus County School Board	Capped	Withdrawal of Groundwater			AGRICULTURAL	0
4368	2	4	Citrus County School Board	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	18000
4368	2	5	Citrus County School Board	Existing	Withdrawal of Groundwater			AGRICULTURAL	41000
4368	2	5	Citrus County School Board	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	41000
4368	2	7	Citrus County School Board	Existing	Withdrawal of Groundwater			AGRICULTURAL	21000
4695	4	4	Florida Power Corp Db Progress	Existing	Withdrawal of Groundwater			INDUSTRIAL AND COMMERCIAL	285000
4975	2	3	Van Ness Groves	Proposed	Surface Withdrawal			AGRICULTURAL	89400
5091	3	1	Toby John & Joanna Caulfeild	Existing	Withdrawal of Groundwater			AGRICULTURAL	300
6691	6	3	Gulf Highway Land Corporation	Plugged	Monitor	MONITOR WELL	AQUIFER LEVELS	PUBLIC SUPPLY	0
6691	6	4	Gulf Highway Land Corporation	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	73000
7121	5	10	Citrus County & Withlacoochee Regional Water Supply Auth	Existing	Monitor	MONITOR WELL	WETLAND WATER LEVEL	PUBLIC SUPPLY	0
7687	7	6	Crystal River Quarries Inc	Plugged	Monitor	MONITOR WELL	AQUIFER LEVELS	AGRICULTURAL	0
7687	7	9	Crystal River Quarries Inc	Existing	Withdrawal of Groundwater			AGRICULTURAL	3000
7805	10	2	Hampton Hills Partnership	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	78600
7805	10	5	Hampton Hills Partnership	Capped	Monitor	MONITOR WELL	UNKNOWN AS OF CONVERSION	RECREATION/AESTHETIC	0
7805	10	12	Hampton Hills Partnership	Existing	Surface Withdrawal			RECREATION/AESTHETIC	397200
7805	10	15	Hampton Hills Partnership	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	20200
7819	9	58	Citrus Mining and Timber Inc.	Proposed	Surface Withdrawal	STAFF GAGE	NO FURTHER INFO NECESSARY	MINING AND DEWATERING	0
7819	9	61	Citrus Mining and Timber Inc.	Existing	Monitor	MONITOR WELL	AQUIFER LEVELS	MINING AND DEWATERING	0
8147	1	2	Oak Pond LLC A Florida LLC	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	500
8627	1	1	Charles D. Tuttle	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	1900
8627	1	1	Charles D. Tuttle	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	1900
8747	1	3	William Hunt	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	900
8747	1	3	William Hunt	Existing	Withdrawal of Groundwater			AGRICULTURAL	900
8785	9	4	Escalante-Black Diamond Golf Club LLC	Existing	Surface Withdrawal			RECREATION/AESTHETIC	339930
8785	9	12	Escalante-Black Diamond Golf Club LLC	Existing	Monitor	STAFF GAGE	WETLAND WATER LEVEL	RECREATION/AESTHETIC	0
8834	1	1	Ronnie D. Cannon & Edsel Rowan, Trustee	Existing	Withdrawal of Groundwater			AGRICULTURAL	71900
8894	2	1	Cmc Real Estate Program 1988-1	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	4600
8970	3	3	Scout Plantation Owner LLC	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	43600
9791	7	7	Citrus County Water Resources De c/o Robert Knight Director	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	215000
			Pine Ridge Community Golf and Country Club,		Withdrawal of				

9964	2	4	LLC	Existing	Groundwater			RECREATION/AESTHETIC	11600
10306	1	1	Timothy E and Julie E Moffitt	Existing	Withdrawal of Groundwater			AGRICULTURAL	15600
10306	1	2	Timothy E and Julie E Moffitt	Existing	Withdrawal of Groundwater			AGRICULTURAL	15600
10404	2	2	Flovicc & Company, Inc.	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	7000
10966	0	2	South Dunnellon Water Asso Inc	Plugged	Withdrawal of Groundwater			PUBLIC SUPPLY	48120
11281	4	5	Metal Industries Inc Howard Loy	Existing	Withdrawal of Groundwater			INDUSTRIAL AND COMMERCIAL	64000
11801	1	50	United State of America, US Fish & Wildlife Services	Existing	Monitor	STAFF GAGE	LAKE WATER LEVEL	INDUSTRIAL AND COMMERCIAL	0
11801	1	58	United State of America, US Fish & Wildlife Services	Existing	Monitor	ENVIRONMENTAL MONITOR SITE	WATER QUALITY	INDUSTRIAL AND COMMERCIAL	0
11839	6	4	Walden Woods Ltd	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	109000
11931	1	1	Citrus Hills Investment Prop Inc	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	33300
12059	2	1	Moorings At Point O Woods Hoa & Gary F Queen Trstee- Trst 031997	Existing	Surface Withdrawal			RECREATION/AESTHETIC	4680
12059	2	3	Moorings At Point O Woods Hoa & Gary F Queen Trstee- Trst 031997	Proposed	Surface Withdrawal			RECREATION/AESTHETIC	9360
12059	2	4	Moorings At Point O Woods Hoa & Gary F Queen Trstee- Trst 031997	Proposed	Withdrawal of Groundwater			RECREATION/AESTHETIC	28000
12506	0	1	Ellie Schiller & Fdep Office Of Greenways & Trails	Proposed	Withdrawal of Groundwater			PUBLIC SUPPLY	3900
204	2	1	Evn Road LLC	Capped	Withdrawal of Groundwater			AGRICULTURAL	0
207	6	3	City Of Crystal River	Capped	Withdrawal of Groundwater			PUBLIC SUPPLY	0
207	6	4	City Of Crystal River	Plugged	Withdrawal of Groundwater			PUBLIC SUPPLY	0
208	14	13	G. William Wilde	Existing	Withdrawal of Groundwater			AGRICULTURAL	46380
296	2	1	Ray A Morris	Existing	Withdrawal of Groundwater			AGRICULTURAL	11100
419	10	6	City Of Inverness	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	6250
419	10	11	City Of Inverness	Proposed	Withdrawal of Groundwater			RECREATION/AESTHETIC	3125
1273	4	2	Post Oak Ranch LLC	Existing	Withdrawal of Groundwater			AGRICULTURAL	1800
1345	2	4	Royal Oaks Of Citrus Hoa Inc	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	6760
1928	6	2	Brassboys Enterprises Inc	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	130000
2842	9	5	Citrus County Water Resources De c/o Robert Knight Director	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	202056
2842	9	16	Citrus County Water Resources De c/o Robert Knight Director	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	893709
3228	7	12	Citrus Hills Investment Prop Inc	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	1000
3672	1	2	Florida Power Corp DbA Progress	Existing	Withdrawal of Groundwater			INDUSTRIAL AND COMMERCIAL	250000
			Florida Power Corp DbA		Withdrawal of			INDUSTRIAL AND	

3672	1	3	Progress	Existing	Groundwater			COMMERCIAL	250000
3672	1	5	Florida Power Corp Db Progress	Existing	Withdrawal of Groundwater			INDUSTRIAL AND COMMERCIAL	551520
3672	1	15	Florida Power Corp Db Progress	Existing	Withdrawal of Groundwater			INDUSTRIAL AND COMMERCIAL	551520
3673	5	3	Suntacc & Company, Inc.	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	65000
3673	5	7	Suntacc & Company, Inc.	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	191000
4153	10	7	Rolling Oaks Utilities Inc	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	325000
4153	10	8	Rolling Oaks Utilities Inc	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	575000
4368	2	2	Citrus County School Board	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	80500
4406	7	1	Homosassa Special Water District	Plugged	Withdrawal of Groundwater			PUBLIC SUPPLY	0
4406	7	2	Homosassa Special Water District	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	90000
4406	7	3	Homosassa Special Water District	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	90000
4695	4	7	Florida Power Corp Db Progress	Existing	Monitor	MONITOR WELL	NO FURTHER INFO NECESSARY	INDUSTRIAL AND COMMERCIAL	0
4975	2	1	Van Ness Groves	Existing	Withdrawal of Groundwater			AGRICULTURAL	89400
6291	2	4	Citrus County Water Resources De c/o Robert Knight Director	Plugged	Withdrawal of Groundwater			RECREATION/AESTHETIC	0
6691	6	1	Gulf Highway Land Corporation	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	38000
6691	6	5	Gulf Highway Land Corporation	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	74000
6965	3	2	Joane H Miller	Capped	Withdrawal of Groundwater			AGRICULTURAL	0
7121	5	3	Citrus County & Withlacoochee Regional Water Supply Auth	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	1000000
7121	5	7	Citrus County & Withlacoochee Regional Water Supply Auth	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	1351000
7662	2	1	Champs Software Inc	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	30000
7687	7	3	Crystal River Quarries Inc	Existing	Withdrawal of Groundwater			AGRICULTURAL	3000
7687	7	8	Crystal River Quarries Inc	Existing	Withdrawal of Groundwater			MINING AND DEWATERING	1600
7805	10	18	Hampton Hills Partnership	Existing	Surface Withdrawal			RECREATION/AESTHETIC	42400
7819	9	2	Citrus Mining and Timber Inc.	Existing	Withdrawal of Groundwater			MINING AND DEWATERING	0
7819	9	5	Citrus Mining and Timber Inc.	Existing	Withdrawal of Groundwater			MINING AND DEWATERING	300
8147	1	1	Oak Pond LLC A Florida LLC	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	11100
8849	1	1	Citrus Co Engineering	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	24000
8970	3	2	Scout Plantation Owner LLC	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	38000
8997	8	1	Inverness Golf & Country Club	Capped	Withdrawal of Groundwater			RECREATION/AESTHETIC	0
8997	8	5	Inverness Golf & Country Club	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	119000
8997	8	6	Inverness Golf & Country Club	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	120000
			Steve D & Kathie L		Withdrawal of				

9222	2	1	Atkinson	Existing	Groundwater			AGRICULTURAL	200
9329	3	1	Inergy Propane, LLC	Existing	Withdrawal of Groundwater			INDUSTRIAL AND COMMERCIAL	1000
9574	1	1	Twisted Oaks Golf Course LLC	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	312100
9574	1	2	Twisted Oaks Golf Course LLC	Existing	Surface Withdrawal			RECREATION/AESTHETIC	312100
9791	7	51	Citrus County Water Resources De c/o Robert Knight Director	Existing	Monitor	MONITOR WELL	WATER QUALITY	PUBLIC SUPPLY	0
9791	7	52	Citrus County Water Resources De c/o Robert Knight Director	Existing	Monitor	STAFF GAGE	WETLAND WATER LEVEL	PUBLIC SUPPLY	0
9791	7	53	Citrus County Water Resources De c/o Robert Knight Director	Existing	Monitor	PIEZOMETER	WETLAND WATER LEVEL	PUBLIC SUPPLY	0
9791	7	54	Citrus County Water Resources De c/o Robert Knight Director	Existing	Monitor	STAFF GAGE	WETLAND WATER LEVEL	PUBLIC SUPPLY	0
10260	0	1	Brassboys Enterprises, Inc Dba Citrus Springs Golf & Cc	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	111000
11281	4	2	Metal Industries Inc Howard Loy	Existing	Withdrawal of Groundwater			INDUSTRIAL AND COMMERCIAL	0
11801	1	52	United State of America, US Fish & Wildlife Services	Existing	Monitor	FLOW METER	STREAM FLOW	INDUSTRIAL AND COMMERCIAL	0
11801	1	61	United State of America, US Fish & Wildlife Services	Existing	Monitor	ENVIRONMENTAL MONITOR SITE	WATER QUALITY	INDUSTRIAL AND COMMERCIAL	0
11801	1	62	United State of America, US Fish & Wildlife Services	Existing	Monitor	ENVIRONMENTAL MONITOR SITE	TEMPERATURE OF AIR	INDUSTRIAL AND COMMERCIAL	0
12049	1	3	Citrus Co Bocc	Existing	Withdrawal of Groundwater			INDUSTRIAL AND COMMERCIAL	500
12059	2	2	Moorings At Point O Woods Hoa & Gary F Queen Trstee- Trst 031997	Existing	Surface Withdrawal			RECREATION/AESTHETIC	9360
12288	2	5	M & B Products	Existing	Surface Withdrawal			AGRICULTURAL	114223
12431	1	1	Brentwood Farms Ltd Partnership	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	16680
12565	0	2	Professional Horticultural Services	Existing	Withdrawal of Groundwater			AGRICULTURAL	2400
12876	1	3	Board Of Trustees Internal Imp & Homosassa Springs Wildlife Prk	Proposed	Withdrawal of Groundwater			RECREATION/AESTHETIC	300
12974	0	1	Donna Miller Trustee	Existing	Withdrawal of Groundwater			AGRICULTURAL	19700
13103	1	4	Deltona Corporation	Plugged	Withdrawal of Groundwater			RECREATION/AESTHETIC	0
13360	0	1	Throgmartin-Henke Ranch &	Existing	Withdrawal of Groundwater			AGRICULTURAL	231500
20072	0	1	Florida Gas Transmission Company	Proposed	Surface Withdrawal			INDUSTRIAL AND COMMERCIAL	18500
199	6	16	Brooksville Quarry LLC	Capped	Withdrawal of Groundwater			MINING AND DEWATERING	0
204	2	2	Evn Road LLC	Existing	Withdrawal of Groundwater			AGRICULTURAL	38600
			City Of Crystal		Withdrawal of				

207	6	2	River	Existing	Groundwater			PUBLIC SUPPLY	1070000
208	14	6	G. William Wilde	Existing	Withdrawal of Groundwater			AGRICULTURAL	30590
419	10	3	City Of Inverness	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	503333
419	10	5	City Of Inverness	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	6250
729	3	2	Citrus County Water Resources De c/o Robert Knight Director	Plugged	Withdrawal of Groundwater			PUBLIC SUPPLY	0
872	3	1	Inverness Village Condominium Association	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	18200
872	3	1	Inverness Village Condominium Association	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	18200
872	3	2	Inverness Village Condominium Association	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	18200
1108	4	3	ZZF Citrus & Cattle LLC	Existing	Withdrawal of Groundwater			AGRICULTURAL	73580
1118	5	2	Floral City Water Association Inc	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	415000
1272	2	1	C and E Landholdings and Citrus LLC	Existing	Withdrawal of Groundwater			AGRICULTURAL	53720
1345	2	3	Royal Oaks Of Citrus Hoa Inc	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	6770
2842	9	1	Citrus County Water Resources De c/o Robert Knight Director	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	31086
2851	4	4	Seven Rivers Golf & Country Club Inc	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	1000
3228	7	6	Citrus Hills Investment Prop Inc	Capped	Withdrawal of Groundwater			RECREATION/AESTHETIC	0
3228	7	10	Citrus Hills Investment Prop Inc	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	553400
3228	7	11	Citrus Hills Investment Prop Inc	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	1000
3672	1	1	Florida Power Corp DbA Progress	Existing	Withdrawal of Groundwater			INDUSTRIAL AND COMMERCIAL	250000
3672	1	10	Florida Power Corp DbA Progress	Existing	Monitor	MONITOR WELL	AQUIFER LEVELS	INDUSTRIAL AND COMMERCIAL	0
3672	1	14	Florida Power Corp DbA Progress	Existing	Withdrawal of Groundwater			INDUSTRIAL AND COMMERCIAL	551520
4008	4	2	David L, Holly A, James L &	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	20000
4368	2	1	Citrus County School Board	Capped	Withdrawal of Groundwater			PUBLIC SUPPLY	0
4368	2	3	Citrus County School Board	Existing	Withdrawal of Groundwater			AGRICULTURAL	80500
4368	2	3	Citrus County School Board	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	80500
4368	2	7	Citrus County School Board	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	21000
4853	3	2	City Of Crystal River	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	4900
6291	2	3	Citrus County Water Resources De c/o Robert Knight Director	Plugged	Withdrawal of Groundwater			PUBLIC SUPPLY	0
7121	5	9	Citrus County & Withlacoochee Regional Water Supply Auth	Plugged	Withdrawal of Groundwater			PUBLIC SUPPLY	0

7687	7	1	Crystal River Quarries Inc	Existing	Withdrawal of Groundwater			MINING AND DEWATERING	25225
7687	7	1	Crystal River Quarries Inc	Existing	Withdrawal of Groundwater			AGRICULTURAL	25225
7687	7	5	Crystal River Quarries Inc	Capped	Withdrawal of Groundwater			AGRICULTURAL	0
7687	7	5	Crystal River Quarries Inc	Capped	Withdrawal of Groundwater			MINING AND DEWATERING	0
7784	3	1	Citrus County Board of County Commissioners	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	20300
7805	10	9	Hampton Hills Partnership	Plugged	Withdrawal of Groundwater			RECREATION/AESTHETIC	0
7805	10	14	Hampton Hills Partnership	Existing	Surface Withdrawal			RECREATION/AESTHETIC	60600
7819	9	53	Citrus Mining and Timber Inc.	Existing	Monitor	MONITOR WELL		MINING AND DEWATERING	0
7819	9	59	Citrus Mining and Timber Inc.	Existing	Monitor	MONITOR WELL	AQUIFER LEVELS	MINING AND DEWATERING	0
7823	2	3	Central Florida Community College	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	1000
7823	2	4	Central Florida Community College	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	3500
7823	2	5	Central Florida Community College	Plugged	Withdrawal of Groundwater			PUBLIC SUPPLY	0
8758	2	1	Diocese Of St Petersburg	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	14000
9115	1	1	Tru Gas Of Florida, Inc.	Existing	Withdrawal of Groundwater			INDUSTRIAL AND COMMERCIAL	1000
9574	1	3	Twisted Oaks Golf Course LLC	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	10000
9791	7	3	Citrus County Water Resources De c/o Robert Knight Director	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	80000
9791	7	12	Citrus County Water Resources De c/o Robert Knight Director	Proposed	Withdrawal of Groundwater			PUBLIC SUPPLY	260000
9791	7	55	Citrus County Water Resources De c/o Robert Knight Director	Existing	Monitor	PIEZOMETER	WETLAND WATER LEVEL	PUBLIC SUPPLY	0
9791	7	59	Citrus County Water Resources De c/o Robert Knight Director	Existing	Monitor	PIEZOMETER	WETLAND WATER LEVEL	PUBLIC SUPPLY	0
10192	0	1	Hollinswood Tree Nurseries	Existing	Withdrawal of Groundwater			AGRICULTURAL	98000
10404	2	1	Flovicc & Company, Inc.	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	254000
10842	0	1	Citrus Co Bocc & Dept Of Public	Existing	Withdrawal of Groundwater			AGRICULTURAL	6100
10937	0	1	Gulf To Lakes Associates Ltd	Proposed	Withdrawal of Groundwater			RECREATION/AESTHETIC	72800
11281	4	3	Metal Industries Inc Howard Loy	Existing	Withdrawal of Groundwater			INDUSTRIAL AND COMMERCIAL	23000
11801	1	51	United State of America, US Fish & Wildlife Services	Existing	Monitor	STAFF GAGE	LAKE WATER LEVEL	INDUSTRIAL AND COMMERCIAL	0
11839	6	3	Walden Woods Ltd	Capped	Withdrawal of Groundwater			PUBLIC SUPPLY	0
12049	1	5	Citrus Co Bocc	Existing	Withdrawal of Groundwater			INDUSTRIAL AND COMMERCIAL	500
12431	1	6	Brentwood Farms Ltd Partnership	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	2380
12865	2	1	Anthony L Russ	Existing	Withdrawal of Groundwater			AGRICULTURAL	600
12974	0	2	Donna Miller Trustee	Existing	Withdrawal of Groundwater			AGRICULTURAL	19700

13103	1	2	Deltona Corporation	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	137000
13290	0	1	Citrus Co Dept Of Public Works Glenn Mccracken Pe	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	9400
20046	0	2	Pinewoods Plantation Nursery Inc	Existing	Withdrawal of Groundwater			AGRICULTURAL	300
20046	0	3	Pinewoods Plantation Nursery Inc	Existing	Withdrawal of Groundwater			AGRICULTURAL	300
191	2	1	Howard B. Banes	Existing	Withdrawal of Groundwater			AGRICULTURAL	14300
207	6	1	City Of Crystal River	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	1070000
208	14	5	G. William Wilde	Existing	Withdrawal of Groundwater			AGRICULTURAL	48100
208	14	11	G. William Wilde	Existing	Withdrawal of Groundwater			AGRICULTURAL	99660
419	10	1	City Of Inverness	Capped	Withdrawal of Groundwater			RECREATION/AESTHETIC	0
419	10	8	City Of Inverness	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	503333
419	10	9	City Of Inverness	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	503334
419	10	11	City Of Inverness	Proposed	Withdrawal of Groundwater			PUBLIC SUPPLY	3125
729	3	4	Citrus County Water Resources De c/o Robert Knight Director	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	80000
1118	5	3	Floral City Water Association Inc	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	30000
1345	2	1	Royal Oaks Of Citrus Hoa Inc	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	23900
1928	6	5	Brassboys Enterprises Inc	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	130000
2708	3	1	Citrus County Fair Association	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	2800
2842	9	3	Citrus County Water Resources De c/o Robert Knight Director	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	777000
2842	9	15	Citrus County Water Resources De c/o Robert Knight Director	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	505140
3467	2	1	Gibraltar Mausoleum Of Florida	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	22700
3467	2	2	Gibraltar Mausoleum Of Florida	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	22700
3672	1	12	Florida Power Corp DbA Progress	Existing	Monitor	MONITOR WELL	AQUIFER LEVELS	INDUSTRIAL AND COMMERCIAL	0
3672	1	13	Florida Power Corp DbA Progress	Existing	Monitor	MONITOR WELL	AQUIFER LEVELS	INDUSTRIAL AND COMMERCIAL	0
4153	10	2	Rolling Oaks Utilities Inc	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	250000
4153	10	4	Rolling Oaks Utilities Inc	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	175000
4368	2	4	Citrus County School Board	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	18000
4368	2	5	Citrus County School Board	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	41000
4368	2	7	Citrus County School Board	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	21000
4582	2	3	Thomas W. & Mary L. Harrison	Existing	Withdrawal of Groundwater			AGRICULTURAL	700
4695	4	1	Florida Power Corp DbA Progress	Existing	Withdrawal of Groundwater			INDUSTRIAL AND COMMERCIAL	25000
			Citrus County &						

7121	5	4	Withlacoochee Regional Water Supply Auth	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	1000000
7662	2	2	Champs Software Inc	Capped	Withdrawal of Groundwater			RECREATION/AESTHETIC	0
7662	2	3	Champs Software Inc	Existing	Surface Withdrawal			RECREATION/AESTHETIC	1000
7687	7	4	Crystal River Quarries Inc	Capped	Withdrawal of Groundwater			MINING AND DEWATERING	0
7805	10	3	Hampton Hills Partnership	Capped	Withdrawal of Groundwater			RECREATION/AESTHETIC	0
7819	9	7	Citrus Mining and Timber Inc.	Existing	Surface Withdrawal			MINING AND DEWATERING	38137
7819	9	52	Citrus Mining and Timber Inc.	Existing	Monitor	MONITOR WELL		MINING AND DEWATERING	0
7879	3	1	Citrus Co Bocc	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	73200
8623	3	3	River Lodge Resort LLC	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	19532
8623	3	4	River Lodge Resort LLC	Proposed	Withdrawal of Groundwater			PUBLIC SUPPLY	7980
8627	1	2	Charles D. Tuttle	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	27600
8747	1	2	William Hunt	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	1000
8785	9	7	Escalante-Black Diamond Golf Club LLC	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	1000
8785	9	9	Escalante-Black Diamond Golf Club LLC	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	4000
8785	9	10	Escalante-Black Diamond Golf Club LLC	Capped	Withdrawal of Groundwater			RECREATION/AESTHETIC	0
8874	2	1	GTE Federal Credit Union/Stephen A Foster	Existing	Withdrawal of Groundwater			INDUSTRIAL AND COMMERCIAL	1700
8997	8	3	Inverness Golf & Country Club	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	4000
9532	2	1	Greenbriar Of Citrus Hills	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	31430
9791	7	1	Citrus County Water Resources De c/o Robert Knight Director	Plugged	Withdrawal of Groundwater			PUBLIC SUPPLY	0
9791	7	8	Citrus County Water Resources De c/o Robert Knight Director	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	215000
9791	7	56	Citrus County Water Resources De c/o Robert Knight Director	Existing	Monitor	STAFF GAGE	WETLAND WATER LEVEL	PUBLIC SUPPLY	0
10166	1	1	Simon Property Group LP	Existing	Surface Withdrawal			INDUSTRIAL AND COMMERCIAL	8500
10370	1	1	Beverly Hills Memorial Gardens, Inc. ATTN: SCI Management, LP	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	47600
10404	2	3	Flovicc & Company, Inc.	Existing	Surface Withdrawal			RECREATION/AESTHETIC	254000
10544	2	2	Ruth B. Hooper	Capped	Withdrawal of Groundwater			RECREATION/AESTHETIC	0
11281	4	1	Metal Industries Inc Howard Loy	Existing	Withdrawal of Groundwater			INDUSTRIAL AND COMMERCIAL	23000
11281	4	4	Metal Industries Inc Howard Loy	Existing	Withdrawal of Groundwater			INDUSTRIAL AND COMMERCIAL	90000
11746	0	1	Citrus Co Bocc	Existing	Withdrawal of Groundwater			AGRICULTURAL	13500
11801	1	56	United State of America, US Fish & Wildlife Services	Existing	Monitor	ENVIRONMENTAL MONITOR SITE	WATER QUALITY	INDUSTRIAL AND COMMERCIAL	0

12049	1	2	Citrus Co Bocc	Existing	Withdrawal of Groundwater			INDUSTRIAL AND COMMERCIAL	500
12049	1	4	Citrus Co Bocc	Existing	Withdrawal of Groundwater			INDUSTRIAL AND COMMERCIAL	500
12058	1	1	Crystal River Quarries Inc	Existing	Surface Withdrawal			MINING AND DEWATERING	55300
12059	2	53	Moorings At Point O Woods Hoa & Gary F Queen Trstee-Trst 031997	Existing	Monitor	STAFF GAGE	LAKE WATER LEVEL	RECREATION/AESTHETIC	0
12431	1	3	Brentwood Farms Ltd Partnership	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	16240
12431	1	5	Brentwood Farms Ltd Partnership	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	29860
12506	0	25	Ellie Schiller & Fdep Office Of Greenways & Trails	Existing	Monitor	MONITOR WELL	AQUIFER LEVELS	PUBLIC SUPPLY	0
12876	1	1	Board Of Trustees Internal Imp & Homosassa Springs Wildlife Prk	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	11900
13290	0	1	Citrus Co Dept Of Public Works Glenn Mccracken Pe	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	9400
199	6	13	Brooksville Quarry LLC	Dismantled	Surface Withdrawal			MINING AND DEWATERING	0
207	6	6	City Of Crystal River	Proposed	Withdrawal of Groundwater			PUBLIC SUPPLY	19200
208	14	9	G. William Wilde	Existing	Withdrawal of Groundwater			AGRICULTURAL	1200
208	14	12	G. William Wilde	Existing	Withdrawal of Groundwater			AGRICULTURAL	21850
419	10	2	City Of Inverness	Capped	Withdrawal of Groundwater			PUBLIC SUPPLY	0
419	10	6	City Of Inverness	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	6250
729	3	1	Citrus County Water Resources De c/o Robert Knight Director	Plugged	Withdrawal of Groundwater			PUBLIC SUPPLY	0
729	3	3	Citrus County Water Resources De c/o Robert Knight Director	Plugged	Withdrawal of Groundwater			PUBLIC SUPPLY	0
1273	4	1	Post Oak Ranch LLC	Existing	Withdrawal of Groundwater			AGRICULTURAL	59700
1345	2	5	Royal Oaks Of Citrus Hoa Inc	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	6770
2842	9	4	Citrus County Water Resources De c/o Robert Knight Director	Capped	Withdrawal of Groundwater			PUBLIC SUPPLY	0
2842	9	17	Citrus County Water Resources De c/o Robert Knight Director	Proposed	Withdrawal of Groundwater			PUBLIC SUPPLY	559539
3673	5	4	Suntacc & Company, Inc.	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	200000
4153	10	1	Rolling Oaks Utilities Inc	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	275000
4153	10	9	Rolling Oaks Utilities Inc	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	358000
4406	7	4	Homosassa Special Water District	Plugged	Withdrawal of Groundwater			PUBLIC SUPPLY	0
4406	7	5	Homosassa Special Water District	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	390000
4695	4	2	Florida Power Corp DbA Progress	Existing	Withdrawal of Groundwater			INDUSTRIAL AND COMMERCIAL	25000
			Constate		Withdrawal of				

4753	3	3	Utilities Inc	Existing	Groundwater			PUBLIC SUPPLY	81200
4853	3	1	City Of Crystal River	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	9700
6291	2	1	Citrus County Water Resources De c/o Robert Knight Director	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	52000
6291	2	1	Citrus County Water Resources De c/o Robert Knight Director	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	52000
6291	2	2	Citrus County Water Resources De c/o Robert Knight Director	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	52000
6798	2	4	Gerrits Citrus Inc	Existing	Withdrawal of Groundwater			AGRICULTURAL	264052
6965	3	3	Joane H Miller	Existing	Withdrawal of Groundwater			AGRICULTURAL	64100
7121	5	2	Citrus County & Withlacoochee Regional Water Supply Auth	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	285000
7352	1	1	Kelly Gardiner	Existing	Withdrawal of Groundwater			INDUSTRIAL AND COMMERCIAL	2600
7662	2	1	Champs Software Inc	Existing	Withdrawal of Groundwater			INDUSTRIAL AND COMMERCIAL	30000
7662	2	3	Champs Software Inc	Existing	Surface Withdrawal			INDUSTRIAL AND COMMERCIAL	1000
7687	7	3	Crystal River Quarries Inc	Existing	Withdrawal of Groundwater			MINING AND DEWATERING	3000
7687	7	9	Crystal River Quarries Inc	Existing	Withdrawal of Groundwater			MINING AND DEWATERING	3000
7805	10	6	Hampton Hills Partnership	Capped	Monitor	MONITOR WELL	UNKNOWN AS OF CONVERSION	RECREATION/AESTHETIC	0
7805	10	8	Hampton Hills Partnership	Plugged	Withdrawal of Groundwater			RECREATION/AESTHETIC	0
7819	9	1	Citrus Mining and Timber Inc.	Existing	Monitor	MONITOR WELL		MINING AND DEWATERING	0
7819	9	60	Citrus Mining and Timber Inc.	Existing	Monitor	MONITOR WELL	AQUIFER LEVELS	MINING AND DEWATERING	0
7823	2	2	Central Florida Community College	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	7300
8747	1	1	William Hunt	Existing	Withdrawal of Groundwater			AGRICULTURAL	1000
8747	1	1	William Hunt	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	1000
8785	9	11	Escalante-Black Diamond Golf Club LLC	Proposed	Alternative Use			RECREATION/AESTHETIC	200000
8970	3	4	Scout Plantation Owner LLC	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	43600
8997	8	4	Inverness Golf & Country Club	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	3000
8997	8	7	Inverness Golf & Country Club	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	4000
9791	7	4	Citrus County Water Resources De c/o Robert Knight Director	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	80000
9791	7	57	Citrus County Water Resources De c/o Robert Knight Director	Existing	Monitor	PIEZOMETER	WETLAND WATER LEVEL	PUBLIC SUPPLY	0
9791	7	58	Citrus County Water Resources De c/o Robert Knight Director	Existing	Monitor	STAFF GAGE	WETLAND WATER LEVEL	PUBLIC SUPPLY	0
			Pine Ridge Community Golf and Country Club,		Withdrawal of				

9964	2	1	LLC	Existing	Groundwater			RECREATION/AESTHETIC	132800
9964	2	2	Pine Ridge Community Golf and Country Club, LLC	Capped	Withdrawal of Groundwater			RECREATION/AESTHETIC	0
10192	0	2	Hollinswood Tree Nurseries	Existing	Withdrawal of Groundwater			AGRICULTURAL	98000
10260	0	2	Brassboys Enterprises, Inc Dba Citrus Springs Golf & Cc	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	111000
11801	1	55	United State of America, US Fish & Wildlife Services	Existing	Monitor	ENVIRONMENTAL MONITOR SITE	WATER QUALITY	INDUSTRIAL AND COMMERCIAL	0
11801	1	59	United State of America, US Fish & Wildlife Services	Existing	Monitor	ENVIRONMENTAL MONITOR SITE	WATER QUALITY	INDUSTRIAL AND COMMERCIAL	0
11839	6	6	Walden Woods Ltd	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	108900
12049	1	1	Citrus Co Bocc	Existing	Withdrawal of Groundwater			INDUSTRIAL AND COMMERCIAL	500
12058	1	3	Crystal River Quarries Inc	Plugged	Withdrawal of Groundwater			MINING AND DEWATERING	0
12059	2	52	Moorings At Point O Woods Hoa & Gary F Queen Trstee-Trst 031997	Existing	Monitor	STAFF GAGE	LAKE WATER LEVEL	RECREATION/AESTHETIC	0
12149	1	2	Donna G Miller, Trustee	Existing	Withdrawal of Groundwater			AGRICULTURAL	0
12149	1	4	Donna G Miller, Trustee	Existing	Withdrawal of Groundwater			AGRICULTURAL	11100
12288	2	4	M & B Products	Existing	Withdrawal of Groundwater			AGRICULTURAL	19368
12390	0	1	Greenbrier Two Condominium Owners Assoc	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	26900
12431	1	2	Brentwood Farms Ltd Partnership	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	16240
12633	0	1	Randy & Sara Wirkus	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	67100
12901	0	2	William M & Rhonda J Scheiterle li	Existing	Withdrawal of Groundwater			AGRICULTURAL	200
206	2	2	Robert E. Scott- Etal (Bar S.F. Ranch)	Proposed	Surface Withdrawal			AGRICULTURAL	300
207	6	5	City Of Crystal River	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	700
208	14	1	G. William Wilde	Existing	Withdrawal of Groundwater			AGRICULTURAL	1000
419	10	2	City Of Inverness	Capped	Withdrawal of Groundwater			RECREATION/AESTHETIC	0
419	10	10	City Of Inverness	Proposed	Withdrawal of Groundwater			PUBLIC SUPPLY	3125
419	10	10	City Of Inverness	Proposed	Withdrawal of Groundwater			RECREATION/AESTHETIC	3125
872	3	2	Inverness Village Condominium Association	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	18200
1118	5	7	Floral City Water Association Inc	Capped	Withdrawal of Groundwater			PUBLIC SUPPLY	0
1267	3	1	Estate Of Clinton E Marsh James E Marsh- Personal Rep	Existing	Withdrawal of Groundwater			AGRICULTURAL	30800
2226	3	1	Edwin O'Neal	Existing	Withdrawal of Groundwater			AGRICULTURAL	27300
3228	7	1	Citrus Hills Investment Prop Inc	Capped	Withdrawal of Groundwater			RECREATION/AESTHETIC	0
3228	7	3	Citrus Hills Investment Prop Inc	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	303000

3672	1	7	Florida Power Corp Db Progress	Existing	Withdrawal of Groundwater			INDUSTRIAL AND COMMERCIAL	551520
3673	5	18	Suntacc & Company, Inc.	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	200000
4153	10	5	Rolling Oaks Utilities Inc	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	30000
4368	2	2	Citrus County School Board	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	80500
4368	2	4	Citrus County School Board	Existing	Withdrawal of Groundwater			AGRICULTURAL	18000
4368	2	6	Citrus County School Board	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	500
4368	2	6	Citrus County School Board	Existing	Withdrawal of Groundwater			AGRICULTURAL	500
4406	7	6	Homosassa Special Water District	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	390000
4582	2	2	Thomas W. & Mary L. Harrison	Existing	Withdrawal of Groundwater			AGRICULTURAL	900
4695	4	3	Florida Power Corp Db Progress	Existing	Withdrawal of Groundwater			INDUSTRIAL AND COMMERCIAL	380000
4695	4	5	Florida Power Corp Db Progress	Existing	Withdrawal of Groundwater			INDUSTRIAL AND COMMERCIAL	285000
4975	2	2	Van Ness Groves	Proposed	Surface Withdrawal			AGRICULTURAL	89400
6291	2	2	Citrus County Water Resources De c/o Robert Knight Director	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	52000
6291	2	4	Citrus County Water Resources De c/o Robert Knight Director	Plugged	Withdrawal of Groundwater			PUBLIC SUPPLY	0
6965	3	1	Joane H Miller	Capped	Withdrawal of Groundwater			AGRICULTURAL	0
7121	5	1	Citrus County & Withlacoochee Regional Water Supply Auth	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	285000
7121	5	5	Citrus County & Withlacoochee Regional Water Supply Auth	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	1000000
7121	5	6	Citrus County & Withlacoochee Regional Water Supply Auth	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	1351000
7687	7	4	Crystal River Quarries Inc	Capped	Withdrawal of Groundwater			AGRICULTURAL	0
7805	10	10	Hampton Hills Partnership	Plugged	Withdrawal of Groundwater			RECREATION/AESTHETIC	0
7805	10	17	Hampton Hills Partnership	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	42400
7819	9	62	Citrus Mining and Timber Inc.	Existing	Monitor	MONITOR WELL	AQUIFER LEVELS	MINING AND DEWATERING	0
7826	1	3	Citrus County Utilities Division	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	38400
8562	2	1	Gulf To Lakes Associates Limited	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	36100
8627	1	2	Charles D. Tuttle	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	27600
8747	1	2	William Hunt	Existing	Withdrawal of Groundwater			AGRICULTURAL	1000
8785	9	5	Escalante-Black Diamond Golf Club LLC	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	11634
9097	2	1	Tarawood Utilities LLC	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	49800
			Ralph		Withdrawal of				

9370	1	1	Windham Jr	Existing	Groundwater			AGRICULTURAL	1200
9791	7	5	Citrus County Water Resources De c/o Robert Knight Director	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	200000
9791	7	6	Citrus County Water Resources De c/o Robert Knight Director	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	200000
10247	0	1	Citrus Co Engineering	Existing	Withdrawal of Groundwater			INDUSTRIAL AND COMMERCIAL	1000
10370	1	2	Beverly Hills Memorial Gardens, Inc. ATTN: SCI Management, LP	Capped	Withdrawal of Groundwater			RECREATION/AESTHETIC	0
11746	0	3	Citrus Co Bocc	Existing	Withdrawal of Groundwater			AGRICULTURAL	500
11801	1	57	United State of America, US Fish & Wildlife Services	Existing	Monitor	ENVIRONMENTAL MONITOR SITE	WATER QUALITY	INDUSTRIAL AND COMMERCIAL	0
11801	1	60	United State of America, US Fish & Wildlife Services	Existing	Monitor	ENVIRONMENTAL MONITOR SITE	WATER QUALITY	INDUSTRIAL AND COMMERCIAL	0
11839	6	2	Walden Woods Ltd	Plugged	Withdrawal of Groundwater			PUBLIC SUPPLY	0
12058	1	50	Crystal River Quarries Inc	Existing	Monitor	STAFF GAGE	MINE PIT WATER LEVEL	MINING AND DEWATERING	0
12059	2	6	Moorings At Point O Woods Hoa & Gary F Queen Trstee-Trst 031997	Proposed	Surface Withdrawal			RECREATION/AESTHETIC	2300
12059	2	50	Moorings At Point O Woods Hoa & Gary F Queen Trstee-Trst 031997	Existing	Monitor	STAFF GAGE	LAKE WATER LEVEL	RECREATION/AESTHETIC	0
12288	2	3	M & B Products	Existing	Withdrawal of Groundwater			AGRICULTURAL	19369
12431	1	4	Brentwood Farms Ltd Partnership	Existing	Surface Withdrawal			PUBLIC SUPPLY	2380
12506	0	27	Ellie Schiller & Fdep Office Of Greenways & Trails	Existing	Monitor	MONITOR WELL	AQUIFER LEVELS	PUBLIC SUPPLY	0
12876	1	2	Board Of Trustees Internal Imp & Homosassa Springs Wildlife Prk	Proposed	Withdrawal of Groundwater			RECREATION/AESTHETIC	400
12901	0	1	William M & Rhonda J Scheiterle li	Existing	Withdrawal of Groundwater			AGRICULTURAL	19000
13103	1	1	Deltona Corporation	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	137000
13103	1	3	Deltona Corporation	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	5000
13252	0	1	David Tomczak	Existing	Withdrawal of Groundwater			AGRICULTURAL	18400
355	2	1	L Norman And Linda L Adams	Existing	Withdrawal of Groundwater			AGRICULTURAL	22600
419	10	3	City Of Inverness	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	503333
419	10	4	City Of Inverness	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	6250
1118	5	1	Floral City Water Association Inc	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	100000
1118	5	5	Floral City Water Association Inc	Capped	Withdrawal of Groundwater			PUBLIC SUPPLY	0
1345	2	2	Royal Oaks Of Citrus Hoa Inc	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	23800
			Seven Rivers Golf & Country		Withdrawal of				

2851	4	1	Club Inc	Existing	Groundwater			RECREATION/AESTHETIC	212500
3228	7	4	Citrus Hills Investment Prop Inc	Capped	Withdrawal of Groundwater			RECREATION/AESTHETIC	0
3228	7	8	Citrus Hills Investment Prop Inc	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	303000
3672	1	6	Florida Power Corp Db	Existing	Withdrawal of Groundwater			INDUSTRIAL AND COMMERCIAL	551520
4368	2	2	Citrus County School Board	Existing	Withdrawal of Groundwater			AGRICULTURAL	80500
4368	2	3	Citrus County School Board	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	80500
4368	2	6	Citrus County School Board	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	500
4582	2	1	Thomas W. & Mary L. Harrison	Existing	Withdrawal of Groundwater			AGRICULTURAL	30200
4753	3	2	Constate Utilities Inc	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	81200
6291	2	3	Citrus County Water Resources De c/o Robert Knight Director	Plugged	Withdrawal of Groundwater			RECREATION/AESTHETIC	0
6798	2	2	Gerrits Citrus Inc	Existing	Withdrawal of Groundwater			AGRICULTURAL	88188
7662	2	2	Champs Software Inc	Capped	Withdrawal of Groundwater			INDUSTRIAL AND COMMERCIAL	0
7687	7	2	Crystal River Quarries Inc	Existing	Withdrawal of Groundwater			AGRICULTURAL	25225
7687	7	2	Crystal River Quarries Inc	Existing	Withdrawal of Groundwater			MINING AND DEWATERING	25225
7687	7	7	Crystal River Quarries Inc	Plugged	Withdrawal of Groundwater			AGRICULTURAL	0
7805	10	7	Hampton Hills Partnership	Capped	Monitor	MONITOR WELL	UNKNOWN AS OF CONVERSION	RECREATION/AESTHETIC	0
7805	10	13	Hampton Hills Partnership	Existing	Surface Withdrawal			RECREATION/AESTHETIC	13900
7805	10	16	Hampton Hills Partnership	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	192900
7805	10	19	Hampton Hills Partnership	Proposed	Withdrawal of Groundwater			RECREATION/AESTHETIC	245000
7819	9	3	Citrus Mining and Timber Inc.	Existing	Surface Withdrawal			MINING AND DEWATERING	38137
7819	9	6	Citrus Mining and Timber Inc.	Capped	Withdrawal of Groundwater			MINING AND DEWATERING	0
7819	9	57	Citrus Mining and Timber Inc.	Existing	Monitor	STAFF GAGE	UNKNOWN AS OF CONVERSION	MINING AND DEWATERING	0
7823	2	1	Central Florida Community College	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	7300
7879	3	2	Citrus Co Bocc	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	73200
8623	3	1	River Lodge Resort LLC	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	19533
8623	3	2	River Lodge Resort LLC	Capped	Withdrawal of Groundwater			PUBLIC SUPPLY	0
8785	9	2	Escalante-Black Diamond Golf Club LLC	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	40123
8785	9	3	Escalante-Black Diamond Golf Club LLC	Capped	Withdrawal of Groundwater			RECREATION/AESTHETIC	0
8785	9	6	Escalante-Black Diamond Golf Club LLC	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	40123
8785	9	13	Escalante-Black Diamond Golf Club LLC	Existing	Monitor	STAFF GAGE	WETLAND WATER LEVEL	RECREATION/AESTHETIC	0
8874	2	1	GTE Federal Credit Union/Stephen A Foster	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	1700
8970	3	1	Scout Plantation Owner LLC	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	30300
8970	3	7	Scout Plantation Owner LLC	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	100

9204	2	1	George W & Sheila A Sikes	Existing	Withdrawal of Groundwater			AGRICULTURAL	4800
9791	7	10	Citrus County Water Resources De c/o Robert Knight Director	Proposed	Withdrawal of Groundwater			PUBLIC SUPPLY	259000
9791	7	11	Citrus County Water Resources De c/o Robert Knight Director	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	260000
9964	2	3	Pine Ridge Community Golf and Country Club, LLC	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	79200
10260	0	3	Brassboys Enterprises, Inc Dba Citrus Springs Golf & Cc	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	111000
10306	1	3	Timothy E and Julie E Moffitt	Existing	Withdrawal of Groundwater			AGRICULTURAL	6600
10544	2	1	Ruth B. Hooper	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	4600
11801	1	1	United State of America, US Fish & Wildlife Services	Proposed	Surface Withdrawal			INDUSTRIAL AND COMMERCIAL	224000
12059	2	5	Moorings At Point O Woods Hoa & Gary F Queen Trstee-Trst 031997	Proposed	Surface Withdrawal			RECREATION/AESTHETIC	2300
12288	2	2	M & B Products	Existing	Withdrawal of Groundwater			AGRICULTURAL	458540
12506	0	1	Ellie Schiller & Fdep Office Of Greenways & Trails	Proposed	Withdrawal of Groundwater			RECREATION/AESTHETIC	3900
12506	0	26	Ellie Schiller & Fdep Office Of Greenways & Trails	Existing	Monitor	MONITOR WELL	AQUIFER LEVELS	PUBLIC SUPPLY	0
12565	0	3	Professional Horticultural Services	Existing	Withdrawal of Groundwater			AGRICULTURAL	300
20046	0	1	Pinewoods Plantation Nursery Inc	Existing	Withdrawal of Groundwater			AGRICULTURAL	122560
199	6	14	Brooksville Quarry LLC	Capped	Withdrawal of Groundwater			MINING AND DEWATERING	0
206	2	1	Robert E. Scott-Etal (Bar S.F. Ranch)	Existing	Withdrawal of Groundwater			AGRICULTURAL	20800
208	14	3	G. William Wilde	Existing	Withdrawal of Groundwater			AGRICULTURAL	48100
419	10	1	City Of Inverness	Capped	Withdrawal of Groundwater			PUBLIC SUPPLY	0
419	10	8	City Of Inverness	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	503333
419	10	9	City Of Inverness	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	503334
1118	5	4	Floral City Water Association Inc	Capped	Withdrawal of Groundwater			PUBLIC SUPPLY	0
1118	5	6	Floral City Water Association Inc	Capped	Withdrawal of Groundwater			PUBLIC SUPPLY	0
1928	6	4	Brassboys Enterprises Inc	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	3000
2842	9	2	Citrus County Water Resources De c/o Robert Knight Director	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	23314
2842	9	6	Citrus County Water Resources De c/o Robert Knight Director	Plugged	Withdrawal of Groundwater			PUBLIC SUPPLY	0
			Citrus County Water						

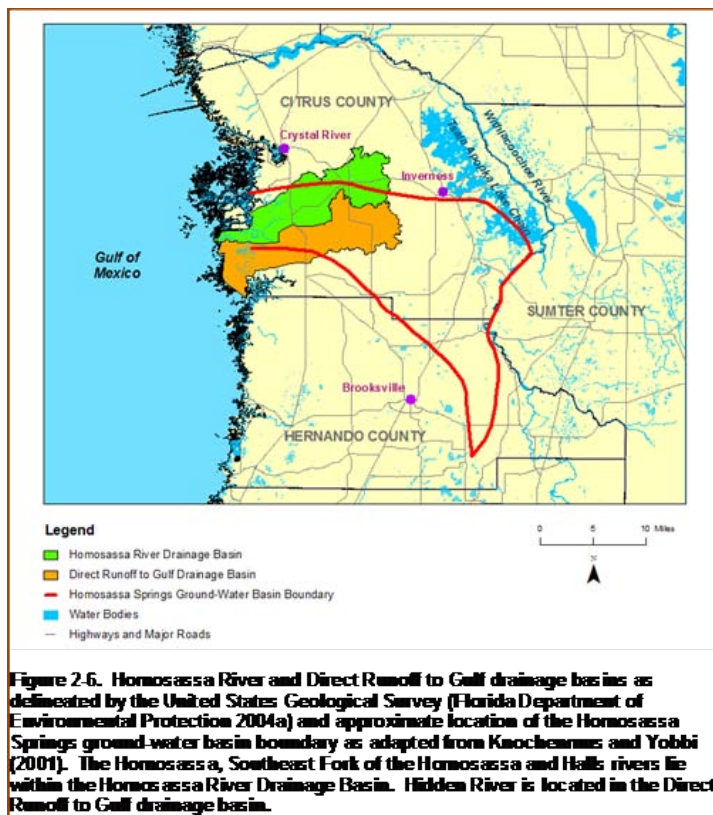
2842	9	13	Resources De c/o Robert Knight Director	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	660567
3228	7	2	Citrus Hills Investment Prop Inc	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	55500
3672	1	4	Florida Power Corp DbA Progress	Existing	Withdrawal of Groundwater			INDUSTRIAL AND COMMERCIAL	250000
3672	1	9	Florida Power Corp DbA Progress	Existing	Monitor	MONITOR WELL	AQUIFER LEVELS	INDUSTRIAL AND COMMERCIAL	0
3672	1	11	Florida Power Corp DbA Progress	Existing	Monitor	MONITOR WELL	AQUIFER LEVELS	INDUSTRIAL AND COMMERCIAL	0
4008	4	1	David L, Holly A, James L &	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	20000
4153	10	10	Rolling Oaks Utilities Inc	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	350000
4368	2	1	Citrus County School Board	Capped	Withdrawal of Groundwater			RECREATION/AESTHETIC	0
4753	3	1	Constate Utilities Inc	Capped	Withdrawal of Groundwater			PUBLIC SUPPLY	0
6691	6	2	Gulf Highway Land Corporation	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	38000
6971	2	1	John W & Margaret R White	Existing	Withdrawal of Groundwater			AGRICULTURAL	30900
7295	1	1	Citrus County Utilities Division	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	5000
7295	1	2	Citrus County Utilities Division	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	22000
7687	7	6	Crystal River Quarries Inc	Plugged	Monitor	MONITOR WELL	AQUIFER LEVELS	MINING AND DEWATERING	0
7687	7	7	Crystal River Quarries Inc	Plugged	Withdrawal of Groundwater			MINING AND DEWATERING	0
7687	7	8	Crystal River Quarries Inc	Existing	Withdrawal of Groundwater			AGRICULTURAL	1600
7784	3	2	Citrus County Board of County Commissioners	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	20200
7805	10	1	Hampton Hills Partnership	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	178500
7805	10	11	Hampton Hills Partnership	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	471700
7819	9	50	Citrus Mining and Timber Inc.	Existing	Monitor	MONITOR WELL		MINING AND DEWATERING	0
8785	9	1	Escalante- Black Diamond Golf Club LLC	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	410658
8785	9	8	Escalante- Black Diamond Golf Club LLC	Existing	Surface Withdrawal			RECREATION/AESTHETIC	121270
8849	1	2	Citrus Co Engineering	Plugged	Withdrawal of Groundwater			PUBLIC SUPPLY	0
8970	3	5	Scout Plantation Owner LLC	Existing	Surface Withdrawal			RECREATION/AESTHETIC	270000
8970	3	6	Scout Plantation Owner LLC	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	18000
8970	3	8	Scout Plantation Owner LLC	Capped	Withdrawal of Groundwater			RECREATION/AESTHETIC	0
8997	8	2	Inverness Golf & Country Club	Existing	Withdrawal of Groundwater			RECREATION/AESTHETIC	4000
9097	2	2	Tarawood Utilities LLC	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	49800
9532	2	2	Greenbriar Of Citrus Hills	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	31430
9791	7	2	Citrus County Water Resources De c/o Robert Knight Director	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	80000
			Citrus County Water Resources De c/o Robert		Withdrawal of				

9791	7	9	Knight Director	Existing	Groundwater			PUBLIC SUPPLY	215000
9791	7	50	Citrus County Water Resources De c/o Robert Knight Director	Existing	Monitor	MONITOR WELL	WETLAND WATER LEVEL	PUBLIC SUPPLY	0
10621	0	1	Snell A. Mills, Jr.	Proposed	Surface Withdrawal			AGRICULTURAL	23800
10842	0	1	Citrus Co Bocc & Dept Of Public	Existing	Withdrawal of Groundwater			INDUSTRIAL AND COMMERCIAL	6100
10966	0	1	South Dunnellon Water Asso Inc	Plugged	Withdrawal of Groundwater			PUBLIC SUPPLY	48120
11746	0	2	Citrus Co Bocc	Capped	Withdrawal of Groundwater			AGRICULTURAL	0
11801	1	53	United State of America, US Fish & Wildlife Services	Existing	Monitor	ENVIRONMENTAL MONITOR SITE	WATER QUALITY	INDUSTRIAL AND COMMERCIAL	0
11801	1	54	United State of America, US Fish & Wildlife Services	Existing	Monitor	ENVIRONMENTAL MONITOR SITE	WATER QUALITY	INDUSTRIAL AND COMMERCIAL	0
11839	6	1	Walden Woods Ltd	Plugged	Withdrawal of Groundwater			PUBLIC SUPPLY	0
12058	1	4	Crystal River Quarries Inc	Existing	Surface Withdrawal			MINING AND DEWATERING	12000
12059	2	51	Moorings At Point O Woods Hoa & Gary F Queen Trstee- Trst 031997	Existing	Monitor	STAFF GAGE	LAKE WATER LEVEL	RECREATION/AESTHETIC	0
12059	2	54	Moorings At Point O Woods Hoa & Gary F Queen Trstee- Trst 031997	Existing	Monitor	STAFF GAGE	LAKE WATER LEVEL	RECREATION/AESTHETIC	0
12149	1	1	Donna G Miller, Trustee	Existing	Withdrawal of Groundwater			AGRICULTURAL	0
12506	0	25	Ellie Schiller & Fdep Office Of Greenways & Trails	Existing	Monitor	MONITOR WELL	AQUIFER LEVELS	RECREATION/AESTHETIC	0
12506	0	26	Ellie Schiller & Fdep Office Of Greenways & Trails	Existing	Monitor	MONITOR WELL	AQUIFER LEVELS	RECREATION/AESTHETIC	0
12506	0	27	Ellie Schiller & Fdep Office Of Greenways & Trails	Existing	Monitor	MONITOR WELL	AQUIFER LEVELS	RECREATION/AESTHETIC	0
12565	0	1	Professional Horticultural Services	Existing	Withdrawal of Groundwater			AGRICULTURAL	383000
12865	2	2	Anthony L Russ	Existing	Withdrawal of Groundwater			AGRICULTURAL	22700
12865	2	3	Anthony L Russ	Existing	Withdrawal of Groundwater			AGRICULTURAL	55100
13122	0	1	Christ Way Fellowship	Existing	Withdrawal of Groundwater			PUBLIC SUPPLY	120
13136	0	1	Brian Busby	Existing	Withdrawal of Groundwater			AGRICULTURAL	22700

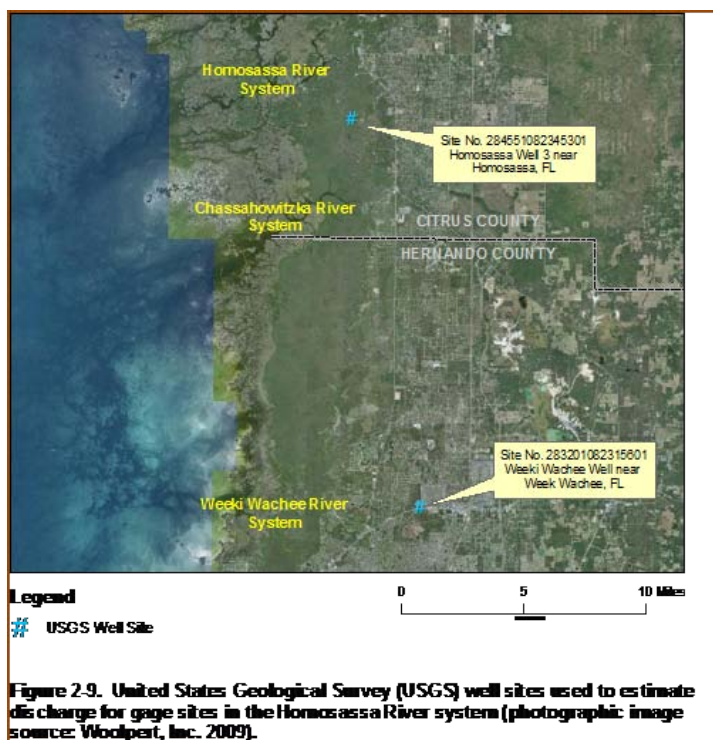
Homosassa Main Spring and SE Fork Flow Measurement.

1. Please provide a map showing the Weeki Wachee and the Lecanto Well sites and their relationship to the Homosassa Springshed.

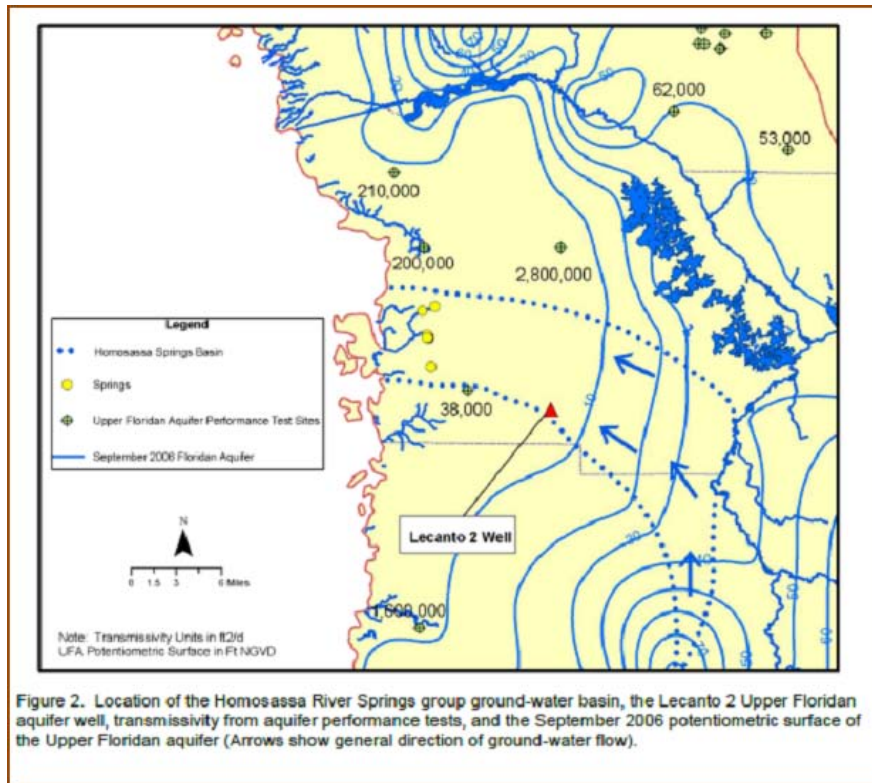
The figure below, which was prepared for potential inclusion in a revised report on proposed minimum flows for the Homosassa River system, that shows the approximate boundary of the Homosassa system springshed.



Here's a figure prepared for potential inclusion in a revised report on proposed minimum flows for the Homosassa River system, that shows the locations of the United States Geological Survey's Weeki Wachee well. The Homosassa Well 3 location is also depicted in the figure.



Here's a figure from a 2010 technical memorandum prepared by Ron Basso, that shows the location of the Lecanto 2 Upper Floridan Aquifer Well.



2. There has been a lot of discussion about the calculations regarding the flow measurements at the Homosassa Main Spring and the Southeast Fork of the Homosassa. Obviously the accuracy and dependability of these measurements is critical to the Homosassa MFL analysis and the proposed enforcement scheme. Would you please provide your view of the deviations in question and how they might affect the accuracy and usefulness of these flow measurements.

The District has confidence in the discharge data for the Homosassa River system that are collected and maintained by the United States Geological Survey. These data are useful for evaluating current and historical flows within the river system, for use in the development and application of models used for minimum flows and levels development, for water-use planning and for other water management and scientific activities.

Missing springs in the Northern District Model

There are significant springs in Citrus County that are not represented in the Northern District Model. For example the Bluebird Spring. When do you plan to incorporate these springs in the model?

The District does not necessarily plan to include Bluebird Springs and many of the other springs not currently within the model in future versions of the Northern District Model. We assume that responses of these spring to withdrawals will be similar to those modeled for nearby springs that are included in the model.

Best regards,
Ron

From: [Mark Hammond](#)
To: [Brad Rimbey@CRRC](mailto:Brad.Rimbey@CRRC)
Cc: [Doug Leeper](#); [Marty Kelly](#); [Cara S. Martin](#)
Subject: RE: Clarification Regarding Stakeholder Rep Presentations
Date: Tuesday, August 23, 2011 4:39:43 PM

Brad,

As we discussed, several Springs Coast MFL stakeholder representatives have requested another meeting be held to provide an opportunity for the stakeholders to invite and organize outside experts to make presentations regarding data and/or methods to enhance the District's approach to developing minimum flows for the Springs Coast systems. The District is willing to assist in making a room available for the meeting. This is our confirmation.

We appreciate yours and the stakeholders efforts to enhance the District's development of minimum flows for the Springs Coast systems.

Thanks.

Mark

Mark A. Hammond, P.E.
Director, Resource Projects Department
Southwest Florida Water Management District
352-796-7211, ext 4226

From: Brad Rimbey@CRRC [mailto:BWR.CRRC@tampabay.rr.com]
Sent: Tuesday, August 23, 2011 12:55 PM
To: Mark Hammond
Subject: Fw: Clarification Regarding Stakeholder Rep Presentations

Mark - I left the "d" of your email name so this bounced. Resending. Brad

----- Original Message -----

From: [Brad Rimbey@CRRC](mailto:Brad.Rimbey@CRRC)
To: mark.hammon@swfwmd.state.fl.us
Cc: [Doug Leeper](#) ; grubman1@gmail.com ; bgeiger@cityofbrooksville.us ; bill.pouder@myfwc.com ; Boyd_Blihovde@fws.gov ; brentwhitley@sierra-properties.com ; abrockway@co.hernando.fl.us ; Dennis3ds@aol.com ; administration@inverness-fl.gov ; Kathleen.Greenwood@dep.state.fl.us ; manatees@habitats.org ; 2buntings@comcast.net ; [Hoehn, Ted](#) ; hopecorona@tampabay.rr.com ; whmarkle@gmail.com ; jfarley682@aol.com ; ktripp@savethemanatee.org ; norman@amyhrf.org ; rebecca.bays@bocc.citrus.fl.us ; rkane@usgs.gov ; rradacky@cityofbrooksville.us ; rmille76@tampabay.rr.com ; cityofweekiwachee@yahoo.com ; jsullivan@carltonfields.com ; Carolyn.Voyles@dep.state.fl.us
Sent: Tuesday, August 23, 2011 12:47 PM
Subject: Re: Clarification Regarding Stakeholder Rep Presentations

Mark,

It was a pleasure speaking with you yesterday afternoon. As per our telephone conversation, I understand SWFWMD is now willing to go forward with a forth Springs Coast MFL workshop.

The purpose of the forth workshop would be to allow Springs Coast MFL panel members the opportunity to invite outside experts to make presentations to the panel, SWFWMD staff, and the public without the time limits imposed, by necessity, in the third workshop. I would expect the presentations would be more on the order of 20-30 minutes each. We expect the outside experts will bring new data, information and a fresh perspective to the table that would assist SWFWMD staff in refining their MFL proposals. The MFL topics to be discussed would be similar to the MFL topics which SWFWMD has already identified.

It is my understanding that the District will assist in making a room available for the forth workshop. Please confirm that my understanding of our conversation is correct so that we can begin making arrangements with outside experts.

Thank you and all of SWFWMD's staff for your hard work and continued focus on these difficult issues.

Brad W. Rimbey, PE
for the Chassahowitzka River Restoration Committee

----- Original Message -----

From: [Doug Leeper](#)

To: [Al Grubman \(grubman1@gmail.com\)](#) ; [Bill Geiger \(bgeiger@cityofbrooksville.us\)](#) ; [Bill Pouder \(bill.pouder@myfwc.com\)](#) ; [Boyd Blihovde \(Boyd_Blihovde@fws.gov\)](#) ; [Brad Rimbey \(BWR.CRRC@tampabay.rr.com\)](#) ; [Brent Whitley \(brentwhitley@sierra-properties.com\)](#) ; [Brockway, Alys \(abrockway@co.hernando.fl.us\)](#) ; [Dennis D. Dutcher \(Dennis3ds@aol.com\)](#) ; [Frank DiGiovanni \(administration@inverness-fl.gov\)](#) ; [Greenwood, Kathleen \(Kathleen.Greenwood@dep.state.fl.us\)](#) ; [Helen Spivey \(manatees@habitats.org\)](#) ; [Hilliard, Dan \(2buntings@comcast.net\)](#) ; [Hoehn, Ted](#) ; [Hope Corona \(hopecorona@tampabay.rr.com\)](#) ; [Jim Farley \(jfarley682@aol.com\)](#) ; [Katie Tripp \(ktripp@savethemanatee.org\)](#) ; [Norman Hopkins \(norman@amyhrf.org\)](#) ; [Rebecca Bays \(rebecca.bays@bocc.citrus.fl.us\)](#) ; [Richard Kane \(rkane@usgs.gov\)](#) ; [Richard Radack \(rradack@cityofbrooksville.us\)](#) ; [Ron Miller \(rmiller76@tampabay.rr.com\)](#) ; [Sarah Tenison \(cityofweekiwachee@yahoo.com\)](#) ; [Sullivan, Jack \(jsullivan@carltonfields.com\)](#) ; [Voyles, Carolyn \(Carolyn.Voyles@dep.state.fl.us\)](#) ; [Whitey Markle \(whmarkle@gmail.com\)](#)

Sent: Tuesday, August 16, 2011 12:16 PM

Subject: Clarification Regarding Stakeholder Rep Presentations

Greetings:

I'm writing to clarify the inquiry I made in a recent e-mail regarding whether any Springs Coast Minimum Flows and Levels Public Workshop stakeholder representatives would be interested in offering presentations at the planned September workshop. The purpose of my inquiry was to indicate the District's willingness to provide stakeholder representatives the opportunity to use visual aids during short (approximately five minute) presentations in support of recommendations concerning data-related or methodological enhancements to the District's current approach to minimum flows development for Springs Coast systems. Presentations by stakeholder representatives, like those made by District staff, would be expected to enhance discussion of agenda items among stakeholder representatives and staff during the workshop. The stakeholder representative presentations were not viewed as a replacement for this discussion; rather, they were envisioned as a means to advance interaction among workshop participants.

Please note that the identified approximate five minute time-frame for stakeholder

representative presentations is intended to maintain a reasonable meeting schedule and to encourage presenters to focus their recommendations on enhancements to existing minimum flows and levels methodologies. It may be expected that some presentations may be slightly longer than five minutes, but to allow time for constructive discussion, it is expected that the presentations will be relatively short.

Staff do not currently anticipate that each stakeholder representative will want to make a presentation on each of the tentative agenda items identified for the September workshop. This would, as Brad Rimbey has pointed out in a recent e-mail sent to stakeholder representatives and District staff, lead to a rather lengthy meeting.

We expect that relatively few stakeholder representatives will be interested in making "formal" presentations aided by visual aids (slides or other materials) during the workshop. To date, two stakeholder representatives have expressed interest in making presentations. Norman Hopkins has indicated that he would like to present information for the "Water Quality" agenda item and Boyd Blihovde has indicated that he would like to offer information on vegetation changes in the Chassahowitzka National Wildlife Refuge, presumably as part of the "Modeling of Biological Responses to Flow Changes" agenda item discussion. I plan to communicate further with Norman and Boyd to discuss the nature of their planned presentations. A goal for these communications will be clarification of the District's desire that the presentations specifically address data and/or methodological approaches that can be quantitatively used to enhance the District approach to minimum flows and levels development. Please note that if a large number of stakeholder representatives express interest in making "formal" presentations on workshop agenda items, staff will attempt to work with the representatives to eliminate redundancy and potentially limit the number of visual-aid enhanced presentations.

I and other District staff believe the group of representatives that has been assembled for the workshop possess a broad range of expertise that has and will continue to be capably brought to bear in constructive discussions of enhancements to minimum flow methodologies. Stakeholder representatives include scientists and others with a high level of knowledge concerning the geology, water chemistry, manatees, fish, invertebrates, other wildlife, plants and the human communities of the Springs Coast.

To recap, District staff do not anticipate a great number of stakeholder representative presentations at the September workshop. We expect only a few such presentations, and hope that the presentations and ensuing discussions result in the identification of data/methodological enhancements that may be used for establishing minimum flows and levels along the Springs Coast.

Douglas A. Leeper, Chief Environmental Scientist
Resource Projects Department, Southwest Florida Water Management District
2379 Broad Street, Brooksville, FL 34604-6899
Telephone: 1-800-423-1476, ext. 4272 (FL only) or 352-796-7211, ext. 4272
Fax: 352-754-6885
E-Mail: doug.leeper@watermatters.org

Web Site: watermatters.org

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From: [Richard L Kane](#)
To: [Doug Leeper](#)
Cc: [Kevin Grimsley](#); [Richard L Kane](#)
Subject: MFL workshops
Date: Tuesday, August 23, 2011 4:59:24 PM

Doug we are bringing Dan Yobbi to the next meeting. He will be in the crowd but available to answer any specific questions about USGS research and data collection should it come up. If we are no longer needed after meeting 3 we would want to sit out of future meetings. USGS is a non regulatory agency and it looks like the workshops are headed more in the direction of regulation of the springs, something we should not participate in as it could jeopardize our status of providing unbiased data.

Richard Kane
Associate Center Director, Data
FLWSC
10500 University Center Dr., Suite 215
813-498-5057 w
813-918-1275 c

From: Doug Leeper
To: ["Richard L Kane"](#)
Cc: [Marty Kelly](#)
Subject: RE: MFL workshops
Date: Wednesday, August 24, 2011 8:14:00 AM

Richard:

Thanks for the update. I imagine that questions about flow measurement may come up at the September 6th workshop.

Incidentally, I recently received an e-mail containing a series of questions from Ron Miller, with the Save the Homosassa River Alliance group, and one of the questions pertained to flow measurement in the Homosassa River system. Ron asked that the questions be answered prior to the September 6th workshop, and I have sent him an e-mail response and will post the e-mail to the workshop web page. In advance of the posting of my e-mail, I thought I'd provide you with Ron's question and my response regarding the Homosassa flow data ---

Question from Ron Miller:

2. There has been a lot of discussion about the calculations regarding the flow measurements at the Homosassa Main Spring and the Southeast Fork of the Homosassa. Obviously the accuracy and dependability of these measurements is critical to the Homosassa MFL analysis and the proposed enforcement scheme. Would you please provide your view of the deviations in question and how they might affect the accuracy and usefulness of these flow measurements.

My Response:

The District has confidence in the discharge data for the Homosassa River system that are collected and maintained by the United States Geological Survey. These data are useful for evaluating current and historical flows within the river system, for use in the development and application of models used for minimum flows and levels development, for water-use planning and for other water management and scientific activities.

Douglas A. Leeper, Chief Environmental Scientist
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Fax: 352-754-6885
E-Mail: doug.leeper@watermatters.org
Web Site: watermatters.org

-----Original Message-----

From: Richard L Kane [<mailto:rkane@usgs.gov>]
Sent: Tuesday, August 23, 2011 4:53 PM
To: Doug Leeper
Cc: Kevin Grimsley; Richard L Kane
Subject: MFL workshops

Doug we are bringing Dan Yobbi to the next meeting. He will be in the crowd but available to answer any specific questions about USGS research and data collection should it come up. If we are no longer needed after meeting 3 we would want to sit out of future meetings. USGS is a non regulatory agency and it looks like the workshops are headed more in the direction of regulation of the springs, something we should not participate in as it could jeopardize our status of providing unbiased data.

Richard Kane
Associate Center Director, Data
FLWSC
10500 University Center Dr., Suite 215
813-498-5057 w
813-918-1275 c

From: [Bob Knight](#)
To: ["Mark Hammon"](#)
Cc: [Doug Leeper](#); ["2buntings"](#); ["Brad Rimbey@CRRC"](#); ["Emma Knight"](#)
Subject: Springs Coast Minimum Flows and Levels Workshop
Date: Tuesday, August 23, 2011 5:55:05 PM

Mark

On behalf of the Howard T. Odum Florida Springs Institute I would appreciate an opportunity to make a presentation to the working group led by Doug Leper. I saw Brad Rimbey's recent email indicating that since there will not be time to present significant comments at the upcoming meeting on September 6 in Lecanto, that you are planning a fourth meeting with more time for public comments. As you know, I have conducted research in a variety of springs and have some knowledge of their ecology and responses to chronic reductions in discharge. I have recently been working on springs restoration issues at several springs and would be happy to share insights from that work with yourself and your staff as well as the interested stakeholders. I would appreciate at least 30 minutes for my presentation, if time allows.

Best wishes,

Bob

Robert L. Knight, Ph.D.
Director
Howard T. Odum Florida Springs Institute
5302 NW 156 Avenue
Gainesville, Florida 32653
www.floridaspringsinstitute.org
352-538-6620 cell
386-462-1003 office

From: [Brad Rimbey](#)
To: [Doug Leeper](#)
Subject: Re: June 18 workshop CD
Date: Wednesday, August 24, 2011 1:45:08 PM

Thanks Doug.

----- Original Message -----

From: [Doug Leeper](#)
To: [Brad Rimbey](#)
Cc: [Martyn Johnson \(martynellijay@hotmail.com\)](mailto:martynellijay@hotmail.com)
Sent: Wednesday, August 24, 2011 12:54 PM
Subject: RE: June 18 workshop CD

Brad:

I'll send an CD containing audio recordings from the July 18th workshop to you via the U.S. Mail.
I'll check with Martyn to see where he wants the CD sent.

Douglas A. Leeper, Chief Environmental Scientist
Resource Projects Department, Southwest Florida Water Management District
2379 Broad Street, Brooksville, FL 34604-6899
Telephone: 1-800-423-1476, ext. 4272 (FL only) or 352-796-7211, ext. 4272
Fax: 352-754-6885
E-Mail: doug.leeper@watermatters.org
Web Site: watermatters.org

From: Brad Rimbey [<mailto:brimbey3@tampabay.rr.com>]
Sent: Wednesday, August 24, 2011 11:53 AM
To: Doug Leeper
Cc: Brent Whitley; martynellijay@hotmail.com
Subject: June 18 workshop CD

Doug,

Brent Whitley told me that you mailed him a CD (audio I assume) of the June 18 workshop. Could you snail mail a copy to me? I know Martyn Johnson wants a copy too so you might want to burn two CDs while you're at it.

My snail mail address is

10028 S Riviera Pt
Homosassa, FL 34448-5311

Thanks,

Brad Rimbey

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From: [Alan Martyn Johnson](#)
To: [Doug Leeper](#)
Subject: RE: Audio CD from July Workshop
Date: Thursday, August 25, 2011 7:32:06 AM

Doug,

That was kind of Brad to pass on my interest and equally kind of you to offer to send me a copy of the CD.

Please send to my Georgia address so I will be able to listen to it before the meeting on the 6th.

A. M. Johnson
3231 Cobbs Farm Trail
Marietta, GA 30064

Thanks,
Martyn

From: Doug.Leeper@swfwmd.state.fl.us
To: martynellijay@hotmail.com
Date: Wed, 24 Aug 2011 12:54:25 -0400
Subject: Audio CD from July Workshop

Martyn – Brad Rimbey has indicated that you are interested in receiving an audio CD of the July 19th workshop. Should I send it to your Homosassa address or a Georgia address?

Homosassa address in my records: 4381 South Blue Water Point, Homosassa, FL 34448

Douglas A. Leeper, Chief Environmental Scientist
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Telephone: 1-800-423-1476, ext. 4272 (FL only) or 352-796-7211, ext. 4272
Fax: 352-754-6885
E-Mail: doug.leeper@watermatters.org
Web Site: watermatters.org

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From: ktripp@savethemanatee.org
To: [Doug Leeper](#)
Cc: ktripp@savethemanatee.org
Subject: Springs Coast MFLs
Date: Thursday, August 25, 2011 12:15:47 PM

Hi Doug,

2 quick questions for you:

I know that this Springs Coast MFL working group has been discussing the Chazz, Homosassa, and Weeki Wachee Rivers, but do the jurisdictional boundaries of this MFL effort extend beyond that- i.e. what are the watershed boundaries?

Also, I'd like some clarification on when I would be able to give a presentation on manatee warm water habitat now that an additional meeting has been proposed.

Thanks!

Katie Tripp, Ph.D.
Director of Science and Conservation
Save the Manatee Club
500 N. Maitland Ave.
Maitland, FL 32751
Phone: 407-539-0990
Fax: 407-539-0871
E-mail: ktripp@savethemanatee.org

From: Doug Leeper
To: ["ktripp@savethemanatee.org"](mailto:ktripp@savethemanatee.org)
Bcc: [Marty Kelly](#); [Cara S. Martin](#); [Darcy A. Brune](#); [Mark Hammond](#)
Subject: RE: Springs Coast MFLs
Date: Thursday, August 25, 2011 1:01:00 PM

Katie:

In response to your first question, I would note that we are not restricting data/methodological discussions at the Springs Coast Minimum Flows and Levels Public Workshops to a specific watershed area. However, the workshop series was set up to discuss minimum flows data/methods for the Chassahowitzka, Crystal, Homosassa and Weeki Wachee River systems, so it is assumed that workshop discussions will be applicable to these systems. The identified water bodies are being discussed because we have already established (Weeki Wachee) or are planning to set (the other three) minimum flows for the four spring-dominated systems along the Springs Coast.

You are welcome to provide a presentation on manatee warm water habitat at the September 6th workshop. I am planning to discuss the District's approach to thermal-habitat modeling at the meeting, so your presentation would certainly be appropriate on that date. I know that Brad Rimbey and other stakeholder representatives are currently contacting subject matter experts for possible presentations at a soon-to-be-scheduled fourth workshop. I can't speak for Brad and the others, but it may be possible that your presentation could be included in the planned fourth workshop if you determine that the September 6th date won't work for you. Note that the District has agreed to assist in making a room available for the planned workshop and I expect we will bring a computer/projector for slide presentations. I'm assuming the planned workshop will be held in late September or early October, but I don't really have any information regarding a schedule for the event.

If you are interested in making a presentation at the District's September 6th workshop, I would appreciate hearing back from you regarding the content, time-needed and any requests regarding presentation equipment. If you can provide your presentation materials in advance of the workshop that would certainly be appreciated. Note that I will have my laptop and a District projector at the meeting – I typically project Microsoft PowerPoint Version 7 slides and can also display Adobe PDF and presumably any other file type that will open on my computer.

Look forward to hearing back from you.

Douglas A. Leeper, Chief Environmental Scientist
Resource Projects Department, Southwest Florida Water Management District
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Telephone: 1-800-423-1476, ext. 4272 (FL only) or 352-796-7211, ext. 4272
Fax: 352-754-6885
E-Mail: doug.leeper@watermatters.org
Web Site: watermatters.org

From: ktripp@savethemanatee.org [mailto:ktripp@savethemanatee.org]
Sent: Thursday, August 25, 2011 12:30 PM
To: Doug Leeper
Cc: ktripp@savethemanatee.org
Subject: Springs Coast MFLs

Hi Doug,

2 quick questions for you:

I know that this Springs Coast MFL working group has been discussing the Chazz, Homosassa, and Weeki Wachee Rivers, but do the jurisdictional boundaries of this MFL effort extend beyond that- i.e. what are the watershed boundaries?

Also, I'd like some clarification on when I would be able to give a presentation on manatee warm water habitat now that an additional meeting has been proposed.

Thanks!

Katie Tripp, Ph.D.
Director of Science and Conservation
Save the Manatee Club
500 N. Maitland Ave.
Maitland, FL 32751
Phone: 407-539-0990
Fax: 407-539-0871
E-mail: ktripp@savethemanatee.org

From: Doug Leeper
To: ["Alan Martyn Johnson"](#)
Bcc: [Marty Kelly](#); [Richard Kane \(rkane@usgs.gov\)](mailto:rkane@usgs.gov); [Kevin Grimsely \(kjgrims@usgs.gov\)](mailto:kjgrims@usgs.gov)
Subject: RE: Input on Hydrologic Data & Question about the Northern District Model
Date: Thursday, August 25, 2011 3:23:00 PM

Martyn:

Here are answers to the questions raised in your August 13th e-mail.

1. You wrote: *As I pointed out in the data I sent you there is some connection which derives from similar rainfall patterns in the relatively close locations. I also understand that the Weeki Wachee Well was a convenient choice for those persons studying the hydrology of the area some years ago. But I think it has out lived its usefulness in the equation. I honestly believe that its use causing errors in the data which at this juncture need to be minimized.*

Are there alternatives? I am not in a position to evaluate the other wells that are within the Homosassa Basin such as; Lecanto Well 1, Holder Mine, Perryman, ROMP or Highlands. I guess that all these suffer from the fact that they are not fed directly into the USGS by satellite connection.

I will take this matter up again with USGS, but as the data is only provisional until 'vetted and reviewed' the urgency factor for satellite direct connection may not be as critical as accuracy.

My response: Your inquiry about alternative wells seem appropriate for the planned discussion of streamflow/water quality measurement with United States Geological Survey staff. One alternative to the use of the Weeki Wachee well for estimating discharge in Springs Coast rivers would involve installation of equipment for use of the index-velocity method. As discussed previously, we are hopeful that the District will be able to fund some additional streamflow gauging work directed towards this effort in the Southeast Fork and in Halls River.

2. You wrote: *Oh, did anyone comment about the missing weed in the river this year. I am no weed expert, but there is a distinct difference to the weed a couple of years ago.*

My response: Boyd Blihovde and others, noted that there have been changes in the vegetation in the Chassahowitzka Wildlife refuge in recent years. In subsequent discussions, Boyd has indicated that he would like to address this issue at the upcoming September workshop.

3. You wrote: *Are there any updates available on the chemical analysis; the latest data in what you sent me was mid 2009? Is it available on the web?*

My response: The District maintains water quality data in its Water Management Information System (WMIS), and these data can be downloaded from the District's "Hydrologic Data and Water Quality Data" web page at:

<http://www.swfwmd.state.fl.us/data/wmdbweb/disclaimer.htm>

If this link does not work the web page may be found by browsing to the District web site, pointing to "Data & Maps" in the vertically arranged list at the left side of the page, and clicking on "Hydrologic Data".

I ran through a data download for a site yesterday morning and will use this experience to provide some guidance for retrieving data. Note that the "Hydrologic Data and Water Quality Data" page includes a "Frequently Asked Questions" document that may provide additional guidance regarding data retrieval. Anyway, here are my recommended steps that should (hopefully) work...

- Step 1. Click on the "View Hydrologic and water quality data" link on the "Hydrologic Data and Water Quality Data" page. This will open the main WMIS page.
- Step 2. Enter a site identification number for a single site or for multiple sites. When entering multiple sites, separate the SIDs with a comma. Site identification numbers for the sites in the Homosassa system are included in the spreadsheet I sent to you this past January.
- Step 3. Hit the Search button in the lower right portion of the WMIS page. This will open a WMIS page with information about the selected (input) sites.
- Step 4. In the centrally located results section of the window, click on the empty white box for each site, or simply click the empty white box at the top of the results window to select all listed sites.
- Step 5. Click on the "Add Parameters" button.
- Step 6. Choose the parameters of interest (or all) from the menu.
- Step 7. Specify data collection dates, if desired (I believe the default is period of record).
- Step 8. Enter an e-mail address.
- Step 9. Check the "Combine Download Site" if you want data for multiple sites to be combined.
- Step 10. Click on the "Download Data" button. The WMIS system will send an e-mail to the address you have provided, indicating the data have been downloaded to a server for review and/or retrieval.
- Step 11. Follow the link in the e-mail to review and/or download the requested data.

Hope you find this information to be useful.

As an aside, the workshop audio CD is on its way to you in Georgia.

Douglas A. Leeper, Chief Environmental Scientist
Resource Projects Department, Southwest Florida Water Management District
2379 Broad Street, Brooksville, FL 34604-6899
Telephone: 1-800-423-1476, ext. 4272 (FL only) or 352-796-7211, ext. 4272
Fax: 352-754-6885
E-Mail: doug.leeper@watermatters.org
Web Site: watermatters.org

From: Alan Martyn Johnson [<mailto:martynellijay@hotmail.com>]
Sent: Saturday, August 13, 2011 7:12 PM
To: Doug Leeper
Subject: RE: Input on Hydrologic Data & Question about the Northern District Model

Doug,

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Some days I wish I could be looking at this more, but I doubt all my questions would keep you from other important matters.

NOTE: Remainder of e-mail string deleted by Doug Leeper

From: [Richard L Kane](#)
To: [Doug Leeper](#)
Cc: [Kevin Grimsley](#); [Richard L Kane](#)
Subject: Re: Input on Hydrologic Data & Question about the Northern District Model
Date: Thursday, August 25, 2011 4:17:15 PM

Doug the WW well is a great well for the springs equations. What Dann Yobbi was looking for was a well that could be used for most of the springs and had a good representation of the Floridan Aquifer. He didn't want to use a well too close to the springs as it could have been influenced by salt water intrusion and tidal affect. Also the equations were developed for a project and over several years. So if you started over again with another well we would need to propose a new project and spend some time, possibly several years, in developing new equations. We are hopeful that the IV method will work but it will take us some time, at least a year to get a rating. Each year will see improvement on the rating as we are able to make new measurements in variable hydraulic situations. If the weeds at Chass. River have diminished then we may be able to use an IV sensor at that site also. We were not very successful in 2003 due to heavy vegetation in the channel.

Richard Kane
Associate Center Director, Data
FLWSC
10500 University Center Dr., Suite 215
813-498-5057 w
813-918-1275 c

On Aug 25, 2011, at 3:23 PM, "Doug Leeper" <Doug.Leeper@swfwmd.state.fl.us> wrote:

Martyn:

Here are answers to the questions raised in your August 13th e-mail.

1. You wrote: *As I pointed out in the data I sent you there is some connection which derives from similar rainfall patterns in the relatively close locations. I also understand that the Weeki Wachee Well was a convenient choice for those persons studying the hydrology of the area some years ago. But I think it has out lived its usefulness in the equation. I honestly believe that its use causing errors in the data which at this juncture need to be minimized.*

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My response: Your inquiry about alternative wells seem appropriate for the planned discussion of streamflow/water quality measurement with United States Geological Survey staff. One alternative to the use of the Weeki Wachee well for estimating discharge in Springs Coast rivers would involve installation of equipment for use of the index-velocity method. As discussed previously, we are hopeful that the District will be able to fund some additional streamflow gauging work directed towards this effort in the Southeast Fork and in Halls River.

2. You wrote: *Oh, did anyone comment about the missing weed in the river this year. I am no weed expert, but there is a distinct difference to the weed a couple of years ago.*

My response: Boyd Blihovde and others, noted that there have been changes in the vegetation in the Chassahowitzka Wildlife refuge in recent years. In subsequent discussions, Boyd has indicated that he would like to address this issue at the upcoming September workshop.

3. You wrote: *Are there any updates available on the chemical analysis; the latest data in what you sent me was mid 2009? Is it available on the web?*

My response: The District maintains water quality data in its Water Management Information System (WMIS), and these data can be downloaded from the District's "Hydrologic Data and Water Quality Data" web page at:

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I ran through a data download for a site yesterday morning and will use this experience to provide some guidance for retrieving data. Note that the “Hydrologic Data and Water Quality Data” page includes a “Frequently Asked Questions” document that may provide additional guidance regarding data retrieval. Anyway, here are my recommended steps that should (hopefully) work...

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From: Alan Martyn Johnson [mailto:martynellijay@hotmail.com]

Sent: Saturday, August 13, 2011 7:12 PM

To: Doug Leeper

Subject: RE: Input on Hydrologic Data & Question about the Northern District Model

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<mime.htm>

From: [Alan Martyn Johnson](#)
To: [Doug Leeper](#)
Cc: [Ron Miller](#)
Subject: RE: Input on Hydrologic Data & Question about the Northern District Model
Date: Friday, August 26, 2011 7:10:05 AM

Doug,
Very much appreciate your reply.

Your comment about Halls River was almost ESP.....yesterday when I was thinking about questions for USGS I looked at some old notes and a Halls River flow question was there. I will see if I can quickly address it in a few minutes.

Regarding the chemical analysis data I had tried looking on the WMIS site, but there was obviously a skills gap. I will try over the weekend with your step by step instructions next to me. Thanks.

Not aware of who Boyd Blihovde is, but pleased he is going to discuss observations/changes in vegetation. It was my wife that brought my attention to the weed growth change noting that we had not seen the 'weed machine' removing weed this year and could not recall if the County did it last year.

Martyn

From: Doug.Leeper@swfwmd.state.fl.us
To: martynellijay@hotmail.com
Date: Thu, 25 Aug 2011 15:23:29 -0400
Subject: RE: Input on Hydrologic Data & Question about the Northern District Model

Martyn:

Here are answers to the questions raised in your August 13th e-mail.

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Web Site: watermatters.org

From: Alan Martyn Johnson [mailto:martynellijay@hotmail.com]

Sent: Saturday, August 13, 2011 7:12 PM

To: Doug Leeper

Subject: RE: Input on Hydrologic Data & Question about the Northern District Model

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From: [Rafael W. Rodriguez](#)
To: [Doug Leeper](#)
Cc: [Richard L. Kane](#); [Kevin J. Grimsley](#)
Subject: USGS Response
Date: Friday, August 26, 2011 4:48:30 PM
Attachments: [D.Leeper-SWFWMD-rwr-82311.pdf](#)

Dear Mr. Leeper,
Attached please find our response to the correspondence by Mr. Martyn Johnson posted on the Springs Coast MFL Working Group website hosted by SWFWMD.

Rafael W. Rodriguez
Director
USGS Florida Water Science Center
10500 University Center Drive, Suite 215
Tampa, FL 33612
Phone: (813) 498-5024
Cell: (813) 463-3660
Fax: (813) 498-5003
rrodrigu@usgs.gov
<http://fl.water.usgs.gov>



United States Department of the Interior

U.S. GEOLOGICAL SURVEY
Florida Water Science Center
10500 University Center Drive, Suite 215
Tampa, Florida 33612-6490
Tel. (813)975-8620
Fax (813) 975-0839

August 23, 2011

Douglas Leeper, Chief Environmental Scientist
Resource Projects Department,
Southwest Florida Water Management District
2379 Broad Street
Brooksville, FL 34604

Mr. Leeper:

This letter is in response to the correspondence by Mr. Martyn Johnson posted on the Springs Coast MFL Working Group website hosted by Southwest Florida Water Management District (SWFWMD).

The USGS has been measuring discharge from springs throughout Florida for over 100 years using the most advanced equipment and techniques available. Coastal springs that are tidally affected, such as Homosassa Springs, are among the most complex in the country, because they have so many different factors influencing the flow.

Hydrologists from the USGS office in Tampa have been corresponding with Mr. Johnson since November, 2010, and have attempted to address his numerous questions about flows in the Homosassa River area. Because of the complexity of these tidal springs, however, it can be difficult to explain the intricacies of the data computation and analysis to a layperson even with some fundamental experience in stream gaging. Our hydrologists spend years building experience before they work on complex systems such as these.

Each one of Mr. Johnson's concerns regarding USGS data has been investigated and the USGS strongly refutes Mr. Johnson's claims that our data is inaccurate or biased.

Manual discharge measurements are made quarterly at these gages in order to continuously assess the accuracy of the discharge algorithms. It is standard practice that if the measurements display a deviation from the algorithm, then a new one is developed to match the manual measurements. The USGS data and its associated discharge algorithms in this area were reviewed again even, though they had already been through a rigorous review process when they were developed and yearly thereafter. The algorithms were found to be performing as intended and no change was made.

It would be improper to assume that this data (or any other) is without error, however. Some of the limiting factors of discharge computations at tidal springs include equipment, environmental factors, and stability of the algorithms. The inherent error in a discharge measurement for a natural river environment is estimated to range between 2% and 10% depending on the conditions. Inaccuracies inherent in the algorithm used to compute spring discharge could also lead to errors, but we have done our best to minimize these errors. These are the best methods and equipment available. There simply is no better alternative.

The USGS has allocated partial funding and have requested some additional funding from SWFWMD for equipment that would measure continuous velocity and provide an alternate method of computing discharge for comparison with the existing method at the Southeast Fork Homosassa Spring gage. We have made comparisons between these methods before and do not believe this will change the discharge significantly, but it would bring a further measure of confidence to the discharge values.

The USGS has no current involvement in the Minimum Flows process beyond providing high quality data from our streamgages. Although we have done studies that investigated factors affecting spring flow and quality in the past, we have not been asked to perform any new investigation into what might be responsible for an increase in salinity at the springs as Mr. Johnson has observed, so we cannot say whether the primary factor might be drought, pumping, sea-level rise or some other factor. A new study might be possible if problems are ongoing and funding can be arranged. We look forward to continuing our participation in the Springs Coast MFL Working Group and hope that we can further the public's understanding of these complex hydrologic systems.

Sincerely,

A handwritten signature in black ink, reading "Rafael W. Rodriguez". The signature is fluid and cursive, with a long horizontal flourish extending to the right.

Rafael W. Rodriguez, Director
Florida Water Science Center

From: [Alan Martyn Johnson](#)
To: [Kevin J Grimsley](#)
Cc: [Doug Leeper](#); [rkane](#); [Marty Kelly](#)
Subject: RE: Tidally Adjusted Flow at 02310700
Date: Saturday, August 27, 2011 8:00:39 AM

Sorry if my question was not clear.

'How' was intended to convey **What is the equation/mathematical formula used to make this calculation?**

I realize the tidally adjusted figure is not reported in the 15 minute data, but I do see it in the Approved Daily Data as exemplified in my e-mail.

Martyn

P.S.

My interest in this stems from the January 6 Lecanto Workshop. A question/comment made by a gentleman sitting front left as Doug/Ron were viewing the audience. Sorry but I did not get his name.

Summarizing:

He said that he did not think the flow figures from Halls River springs were anywhere near the reported figures. He said that he had patrolled the river for many years and had seen deterioration.

I did touch on this in an e-mail January 10 to Doug and Ron, but did not specifically include the comment about Halls River Flow.

Doug and Ron,

I would like to follow up on a few points from last Thursday evenings workshop in Lecanto. But, first a Thank You to both of you for a good professional job in front of an audience who are deeply concerned by the deterioration they have witnessed in the Homosassa River over the years.

Skeptical audience

Notable were comments from long time residents who have seen the river on a daily basis for over 50 years and those from former government employees who patrolled the waterways for over 20 years. They stated that the river has changed/deteriorated; flows have reduced, vegetation has changed, fish and wildlife have changed. They and others frequently mentioned recent and major barnacle growths where they were never seen before. There is clear observed evidence of salt water intrusion/salinity increases and the associated negative impact on this unique river.

I also generally noted Halls River flow in correspondence in 2010; *I appreciate that there are thoughts to monitoring flow from Halls River* November 15, 2010

From: kjgrims@usgs.gov
Subject: Re: Tidally Adjusted Flow at 02310700
CC: doug.leeper@swfwmd.state.fl.us; rkane@usgs.gov; marty.kelly@swfwmd.state.fl.us
To: martynellijay@hotmail.com
Date: Fri, 26 Aug 2011 10:49:08 -0400

A tidal filter is applied to discharge from the 02310700 (as well as many of our other tidally influenced discharge stations) in order to remove the cyclical tidal signature from the discharge data. This is useful for evaluating changes in the net flow without the "noise" from the tidal changes.

This filter is not applied in real-time. It is applied on a yearly basis as part of our Annual Data Report covering data from Oct. 1 through Sept. 30. It is also expected that the filtered values would be different

from non-filtered, or else why would we apply a tidal filter at all.

On Aug 26, 2011, at 7:27 AM, "Alan Martyn Johnson" <martynellijay@hotmail.com> wrote:

Doug, Richard, Kevin,

Hopefully this is an easy question for someone to answer.

How is Tidally Adjusted Discharge calculated for the Homosassa River at Homosassa Gage Site 02310700?

This question relates to a flow issue I touched on after the first Lecanto meeting; flow from Halls River.

In the July 12, 2010 Draft Reports the following Table is shown on Page 50. I could not get to grips with the Halls River figures. When I looked at the daily data from the Gage Site 02310700 that only resulted in more questions. And I noted that the tidally adjusted discharge has not been reported since October 1, 2010.

Martyn

Table 2-3. Summary statistics for mean daily discharge records approved by the United States Geological Survey for Homosassa River system gage sites. Values are expressed as cubic feet per second (cfs) unless specified. Periods of record for approved data are listed by gage site in Table 2-2.

Statistic (cfs or N)	Homosassa Springs at Homosassa Springs FL	SE Fork Homosassa Spring at Homosassa Springs FL	Combined Springs^a	Halls River^b	Homosassa River at Homosassa FL (tidally filtered)	Hidden River near Homosassa FL
Maximum	141	100	240	1,995	2,090	25.0
75th Percentile	98	68	165	200	350	11
Median	88	60	147	108	251	8.0
25th Percentile	79	53	131	28	167	4.6
Minimum	34	23	57	-765	-636	1.3
Mean	89	61	149	129	272	8.0
Standard Deviation	14	11	26	181	183	4.4
Number (N) of daily Records	4,975	3,123	3,102	1,662	1,774	2,063

^a Combined Springs discharge determined as the sum of the Homosassa Springs at Homosassa FL and SE Fork Homosassa

Spring at Homosassa Springs FL discharge for days when records were available for both sites.

^b Halls River discharge estimated by subtracting combined springs discharge from tidally filtered Homosassa River at Homosassa

FL discharge for days when records were available for the two spring sites and the Homosassa River site.

This is an extract from the on-line records; note the differences between the filtered and non filtered figures.

Date	Dis-charge, ft3/s, not filtrd. for tide (Mean)	Dis-charge, tidally filtrd, ft3/s, RESIDUAL (Mean)	Not Filtered- Filtered
6/10/2010	145 ^A	128 ^A	17
6/11/2010	103 ^A	77 ^A	26
6/12/2010	149 ^A	129 ^A	20
6/13/2010	211 ^A	230 ^A	-19
6/14/2010	139 ^A	190 ^A	-51
6/15/2010	158 ^A	234 ^A	-76
6/16/2010	308 ^A	218 ^A	90
6/17/2010	284 ^A	239 ^A	45
6/18/2010	277 ^A	225 ^A	52
6/19/2010	336 ^A	250 ^A	86
6/20/2010	290 ^A	275 ^A	15
6/21/2010	285 ^A	164 ^A	121
6/22/2010	263 ^A	235 ^A	28
6/23/2010	232 ^A	262 ^A	-30
6/24/2010	185 ^A	255 ^A	-70
6/25/2010	135 ^A	201 ^A	-66
6/26/2010	125 ^A	154 ^A	-29
6/27/2010	99 ^A	140 ^A	-41
6/28/2010	135 ^A	151 ^A	-16
6/29/2010	228 ^A	269 ^A	-41
6/30/2010	200 ^A	231 ^A	-31
7/1/2010	285 ^A	261 ^A	24
7/2/2010	292 ^A	254 ^A	38
7/3/2010	195 ^A	190 ^A	5
7/4/2010	170 ^A	163 ^A	7
7/5/2010	255 ^A	220 ^A	35
7/6/2010	319 ^A	285 ^A	34
7/7/2010	351 ^A	278 ^A	73
7/8/2010	191 ^A	194 ^A	-3
7/9/2010	127 ^A	158 ^A	-31
7/10/2010	87 ^A	P	0

7/11/2010	P	P	0
7/12/2010	P	P	0
7/13/2010	P	P	0
7/14/2010	P	P	0
7/15/2010	235 ^A	P	0
7/16/2010	197 ^A	P	0
7/17/2010	209 ^A	200 ^A	9
7/18/2010	243 ^A	222 ^A	21
7/19/2010	277 ^A	212 ^A	65
7/20/2010	221 ^A	202 ^A	19
7/21/2010	197 ^A	185 ^A	12
7/22/2010	129 ^A	175 ^A	-46
7/23/2010	198 ^A	185 ^A	13
7/24/2010	-74 ^A	31 ^A	-105
7/25/2010	140 ^A	117 ^A	23
7/26/2010	168 ^A	209 ^A	-41
7/27/2010	177 ^A	203 ^A	-26
7/28/2010	194 ^A	192 ^A	2
7/29/2010	188 ^A	192 ^A	-4
7/30/2010	167 ^A	180 ^A	-13
7/31/2010	222 ^A	213 ^A	9
8/1/2010	245 ^A	216 ^A	29
8/2/2010	244 ^A	214 ^A	30
8/3/2010	228 ^A	200 ^A	28
8/4/2010	194 ^A	150 ^A	44
8/5/2010	173 ^A	125 ^A	48
8/6/2010	91 ^A	126 ^A	-35
8/7/2010	246 ^A	243 ^A	3
8/8/2010	356 ^A	395 ^A	-39
8/9/2010	367 ^A	420 ^A	-53
8/10/2010	247 ^A	258 ^A	-11

<mime.htm>

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Cc: Barbara Matrone; Cara S. Martin; Chris Zajac; Darcy A. Brune; Dave Dewitt; Doug Leeper; Gary E. Williams; Jay Yingling; Karen Lloyd; Ken Weber; Lou Kavouras; Mark Barcelo; Mark Hammond; Marty Kelly; Mike Heyl; Paul Williams; Robyn O. Felix; Ron Basso; Sid Flannery; Veronica Craw; Xinjian Chen; Yassert Gonzalez
Subject: Two New Docs on Springs Coast MFLs Workshop Web Page
Date: Tuesday, August 30, 2011 2:35:00 PM

Greetings:

I'm writing today to make you aware of two documents that were recently posted to the Springs Coast Minimum Flows and Levels Public Workshop web page (link to the page is provided below).

<http://www.WaterMatters.org/SpringsCoastMFL>

The first document is an e-mail I sent to Mr. Ron Miller, the Stakeholder Representative for the Save the Homosassa River Alliance, in response to some questions concerning water use, flow estimation and the Northern District model that he submitted and asked be answered and posted prior to the September 6th workshop.

The second document is an electronic version of a letter from Mr. Rafael Rodriguez, the Director of the United States Geological Survey Florida Water Science Center. Mr. Rodriguez's letter was submitted in response to a written statement/correspondence from Mr. Martyn Johnson that was posted on the workshop series web page shortly after our July 18th meeting.

Please let me know if you have any problems accessing either of the recently posted documents.

I look forward to seeing you next week.

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Subject: Agenda for Spring MFLs Workshop and Link to Env Flows Paper
Date: Thursday, September 01, 2011 4:08:00 PM

Greetings:

I'm writing today to let you know that an agenda for the September 6th Springs Coast Minimum Flows and Levels Public Workshop is now posted on the District's workshop web page at:

<http://www.WaterMatters.org/SpringsCoastMFL>

I'd also like to take this opportunity to provide links for an interesting new article that may be useful for our discussions on minimum flows development on the Springs Coast. The paper is titled *A Presumptive Standard for Environmental Flow Protection*, and was authored by Brian Richter and several of his colleagues with The Nature Conservancy. The paper outlines information on protective flow standards based on what Richter has termed a "Sustainable Boundary Approach",

which is a percentage-of-flow based environmental flows methodology. The article is to be published in the scientific journal, River Research and Applications, and is currently posted/available from the Wiley Online Library in advance of its publication in the printed journal. Here's a link to the article abstract that is posted on the Wiley Online Library web page.

<http://onlinelibrary.wiley.com/doi/10.1002/rra.1511/abstract>

An Adobe PDF version of the pre-print version of the full article is currently posted on the web site of the Southeast Aquatic Resources Partnership at the following uniform resource locator (URL).

<http://southeastaquatics.net/uploads/category/Richter%20et%20al%202011.pdf>

I hope you enjoy this article, and I look forward to seeing you next week.

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Springs Coast Minimum Flows and Levels Public Workshop Agenda

**Tuesday, September 6, 2011
1:30 p.m**

**Lecanto Government Building
3600 West Sovereign Path, Room 166
Lecanto, Florida 34461**

******All workshops are open to the public******

SWFWMD – Southwest Florida Water Management District

1. Opening remarks
Doug Leeper (SWFWMD) (5 minutes)
2. Significant harm
Doug Leeper (SWFWMD) (10 minutes)
Brad Rimbey (Chassahowitzka River Restoration Committee) (10 minutes)
3. Modeling of salinity and thermal-based habitats
Doug Leeper (SWFWMD) (10 minutes)
Katie Tripp (Save the Manatee Club) (10 minutes)
4. Modeling of biological responses to flow changes
Doug Leeper (SWFWMD) (10 minutes)
Boyd Blihovde and Joyce Kleen (U.S. Fish and Wildlife Service) (10 minutes)
5. Water quality issues
Doug Leeper (SWFWMD) (10 minutes)
Norm Hopkins (The Amy H. Remley Foundation) (16 minutes)
6. Identification of follow-up District actions
Doug Leeper (SWFWMD) (5 minutes)
7. Public input (3 minutes per individual)
8. Adjournment
Doug Leeper (SWFWMD) (1 minute)

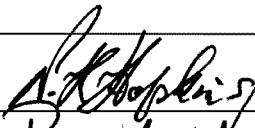
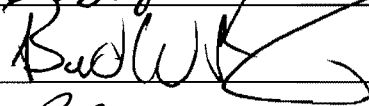
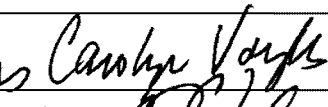
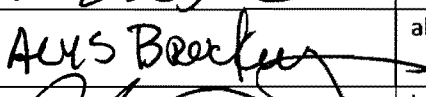
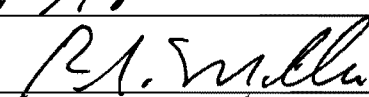
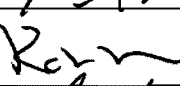
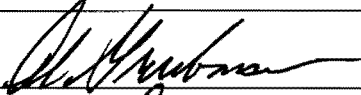
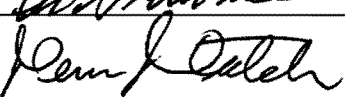
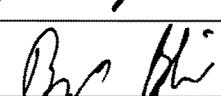
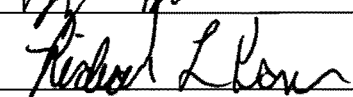
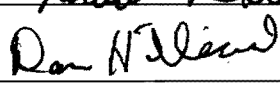
*If you have any questions concerning this meeting, please call
1-352-796-7211 or 1-800-423-1476 (Florida only), extension 4272.*

MEETING NOTICE

Southwest Florida Water Management District Springs Coast Minimum Flows and Levels Public Workshop

September 6, 2011
Lecanto, Florida

Stakeholder Representatives

Stakeholder Group	Designated Representative	Signature	E-Mail
Amy H. Remley Foundation	Norman Hopkins		norman@amyhrf.org
Chassahowitzka River Restoration Committee	Brad Rimbey		BWR.CRRC@tampabay.rr.com
Citrus County	Rebecca Bays		rebecca.bays@bocc.citrus.fl.us
City of Brooksville	Richard Radack		rradack@cityofbrooksville.us
City of Crystal River	Jim Farley		Jfarley682@aol.com
City of Inverness	Frank DiGiovanni		administration@inverness-fl.gov
City of Weeki Wachee	Sara Tenison		cityofweekiwachee@yahoo.com
Florida Department of Environmental Protection	Kathleen Greenwood Carolyn Voyles		Kathleen.greenwood@dep.state.fl.us
Florida Fish and Wildlife Conservation Commission	Bill Pouder Ted Hochman		fwcconservationplanningservices@myfwc.com
Hernando County	Alys Brockway		abrockway@co.hernando.fl.us
Stakeholder Representative	Brent Whitley		brentwhitley@sierra-properties.com
Save the Homosassa River Alliance	Ron Miller		rmille76@tampabay.rr.com
Save the Manatee Club	Helen Spivey Kate Tripp		manatees@habitat.org KTripp@savethemanatee.org
TOOFAR	Al Grubman		grubman1@gmail.com
United Waterfowlers-Florida, Inc.	Dennis Dutcher		dennis3ds@aol.com
United State Fish and Wildlife Service	Boyd Bilhovde		boyd.biholvde@fws.gov
USGS	Richard Kane		rkane@usgs.gov
Withlacoochee Area Residents	Dan Hilliard		2buntings@comcast.net
Withlacoochee Regional Water Supply Authority	Jack Sullivan		jsullivan@carltonfields.com

Whitney Markle
Sierra Club

Whitney Markle

whmarkle@gmail.com

• = "new" attendees

Southwest Florida Water Management District Springs Coast Minimum Flows and Levels Public Workshop

September 6, 2011
Lecanto, Florida

Name	E-Mail	Other Contact Information
Jan. Day		SWFWMD
Marcy Kelly	marcy.kelly@swfwmd.state.fl.us	
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Veronica Crow		
Cara Martin		
Dave DeWalt		
Dennis Duxter	Dennis3ds@aol.com	
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Simone T. Smith	Simone.Smith@myfloridachoice.gov	State Rep.
Martyn Johnson	martynelli.jay@hotmail.com	
Kevin Grimley	kjgrim@usgs.gov	USGS
Darrell Snedcor	darrell@Snedcor's.com	CC Audubon Soc
Mike Czerwinski	MCzerwinski@mgcenviromental.com	

September 6, 2011
Lecanto, Florida

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Lecanto, Florida

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Lecanto, Florida

September 6, 2011
Lecanto, Florida

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

**Springs Coast
Minimum Flows and
Levels Public Workshop**

Lecanto Government Services Building
3600 West Sovereign Path, Room 166
Lecanto, Florida 34462

September 6, 2011

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Previous Workshop Outlines

JUNE 2011

- Workshop Initiation and Introductions
- Introduction to Minimum Flows and Levels
- Format of Workshop Series
- Potential Workshop Topics
- Public input

JULY 2011

- Opening Remarks
- Sea Level Rise and Minimum Flows and Levels
- Discharge Measurement and Use for Minimum Flows Development
- Water-Use Permitting Overview
- Groundwater and Withdrawal Impact Modeling
- Public input

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Today's Agenda

SEPTEMBER 2011

- Opening remarks
(Doug Leeper)
- Significant harm
(Doug Leeper, Brad Rimbey)
- Salinity and thermal-based habitat modeling
(Doug Leeper, Katie Tripp)
- Modeling other biological responses to flow changes
(Doug Leeper, Boyd Blihovde, Joyce Kleen)
- Water quality issues
(Doug Leeper, Norm Hopkins)
- Identification of follow-up District actions
(Doug Leeper)
- Public input
- Adjournment

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Significant Harm



SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Florida Statutes, Section 373.042
- Minimum Flows and Levels -

(1) Within each section or the water management Districts as a whole, the department or the governing board shall establish the following:

(a) Minimum flows for all watercourses in the area. The minimum flow for a given watercourse shall be the limit at which further withdrawals would be **significantly harmful** to the water resources or ecology of the area.

(b) Minimum water level. The minimum water level shall be the level of groundwater in an aquifer and the level of surface water at which further withdrawals would be **significantly harmful** to the water resources of the area.

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

**Florida Administrative Code,
Chapter 62-40.473**
- Minimum Flows and Levels -

(1) In establishing minimum flows and levels pursuant to Sections 373.042 and 373.0421, F.S., consideration shall be given natural seasonal fluctuations in water flows or levels, nonconsumptive uses, and environmental values associated with coastal, estuarine, riverine, spring, aquatic, and wetland ecology, including:

- (a) Recreation in and on the water;
- (b) Fish and wildlife habitats and the passage of fish;
- (c) Estuarine resources;
- (d) Transfer of detrital material;
- (e) Maintenance of freshwater storage and supply;
- (f) Aesthetic and scenic attributes;
- (g) Filtration and absorption of nutrients and other pollutants;
- (h) Sediment loads;
- (i) Water quality; and
- (j) Navigation

What is Significant Harm?

- Not defined by state law
- Defined or implicit in District standards or thresholds used to establish minimum flows and levels
- Standards or thresholds are specific to water resource type and value

Examples

- Preventing cypress wetland degradation in lake basins
- Preventing or slowing rate of saltwater intrusion into aquifers
- Preventing more than a 15% decrease in habitat availability in river segments

Allowable Percent of Flow Reductions Associated with Minimum Flows for Springs Coast Systems

System	% Flow Reduction
Weeki Wachee River (adopted)	10
Chassahowitzka River (proposed)	11
Homosassa River (proposed)	5
Crystal River/Kings Bay	To be Developed

Presumptive Percent of Flow Reductions for Environmental Flow Protection

"We suggest that a high level of ecological protection will be provided when daily flow alterations are no greater than 10%; a high level of protection means that the natural structure and function of the riverine ecosystem will be maintained with minimal changes. A moderate level of protection is provided when flows are altered by 11–20%; a moderate level of protection means that there may be measurable changes in structure and minimal changes in ecosystem functions. Alterations greater than 20% will likely result in moderate to major changes in natural structure and ecosystem functions, with greater risk associated with greater levels of alteration in daily flows.

Source: B.D. Richter, M.M. Davis, C. Apse, and C. Konrad. 2011. A Presumptive Standard for Environmental Flow Protection. River Research and Applications. doi: 10.1002/rra.1511

Peer-Review Comments 15% Change Criteria

- Upper Peace River -

"In general, instream flow analysts consider a loss of more than 15% habitat, as compared to undisturbed or current conditions, to be a significant impact on that population or assemblage".

Source: J. A. Gore, C. Dahm and C. Klimas. 2002. A Review of "Upper Peace River: An Analysis of Minimum Flows and Levels" August 26, 2002 Draft.

Peer-Review Comments 15% Change Criteria

- Homosassa River System -

"Question #1 - Is the District's threshold of a maximum 15% change of resource within the system a reasonable approach? Yes, while it may be somewhat arbitrary, setting a quantifiable threshold provides a means to evaluate the impact that reductions in discharge would have on fish and invertebrates, salinity-based habitats, and the extent of thermal refuge for the Florida manatee".

"There is the potential, however, that this standard might over-emphasize what are essentially very small changes when the initial habitat or resource is small".

Source: G.T. Hackney, M.S. Peterson and L.H. Matz. 2010. Scientific Review of the Recommended Minimum Flows for the Homosassa River System. Scientific Peer Review Report. October 17, 2010.

Peer-Review Comments 15% Change Criteria

- Chassahowitzka River System -

"While the use of 15% as a constraint in the MFL [Minimum Flows and Levels] analysis is a more or less arbitrary management decision, the Panel agrees that it is a reasonable approach for avoiding the most serious negative impacts, particularly where the ecosystem has not been as well studied and has little historical data available on its essential parts".

Source: G.L. Powell, B.H. Johnson and G.T. Hackney. 2010. Scientific Review of the Chassahowitzka River System Recommended Minimum Flows and Levels. Scientific Peer Review Report. June 30, 2010.

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Peer-Review Comments - 15% Change Criteria - Weeki Wachee River System -

"Rivers and estuaries exist in a continuum from fresh water to marine habitats; alteration of inflow causes spatial shifts in salinity relative to existing habitat. This fact implies that in order to determine the limit at which further withdrawals would be significantly harmful to the ecology of the area, the District must make a policy decision about what is an acceptable loss of habitat (or resources) from further withdrawals. Choosing 15% as an allowable level of resource loss is such a public policy decision. More importantly, the percent-of-flow reduction approach ensures that historical hydrological regimes will be maintained, albeit with some reductions in flow".

"A standard of no more than a 15% change in any biological relevant resource, as compared to the estuary's baseline (i.e., naturalized flow) condition, was used as the threshold for "significant harm." While some may argue that the use of 15% as a threshold is a more or less arbitrary management decision, the Panel agrees that, in the absence of specific physiological or ecological thresholds which might reflect significant harm to the living resources, this is a reasonable approach for avoiding the more serious negative impacts on the ecosystem".

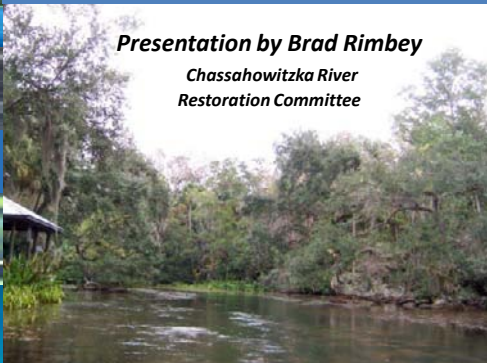
Source: G.L. Powell, J.N. Boyer, B.H. Johnson and S.B. Upchurch 2008. Scientific Peer Review of the Proposed Minimum Flows and Levels for the Weeki Wachee River System.

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Significant Harm

Presentation by Brad Rimbey

Chassahowitzka River Restoration Committee



SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Salinity & Thermal-Based Habitat Modeling



SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Salinity-Based Habitat Modeling

- Biologically Relevant Salinity Criteria -

Water volume, bottom area and shoreline length associated with salinities that characterize or affect:

- availability of fish habitat
- availability of invertebrate habitat
- the extent and/or type of aquatic and shoreline vegetation
- other, undefined system components and processes




Fish image source: D. Rome Peebles; MyFWC.com

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Salinity-Based Habitat Modeling

- Hydrodynamic Models - Homosassa Model Domain Example -

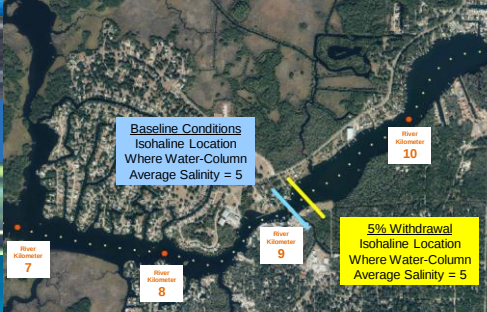


Image source: HSW Engineering, Inc. 2011. A Modeling Study of the Relationships of Freshwater Flow with the Salinity and Thermal Characteristics of the Homosassa River

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Salinity-Based Habitat Modeling

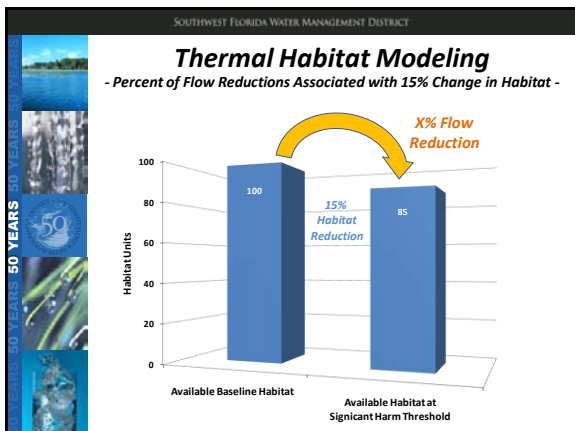
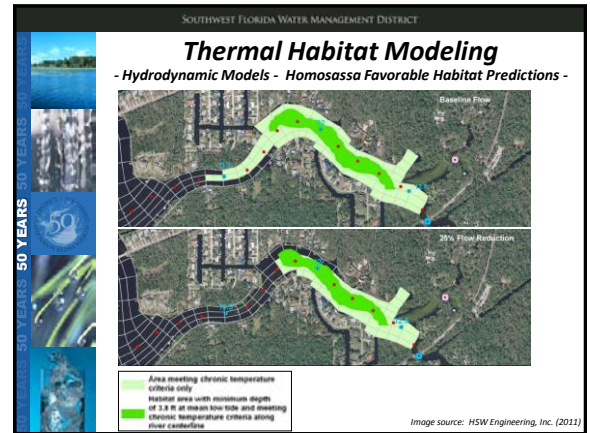
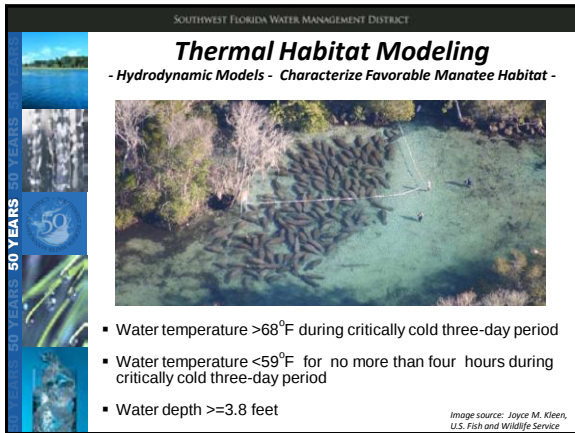
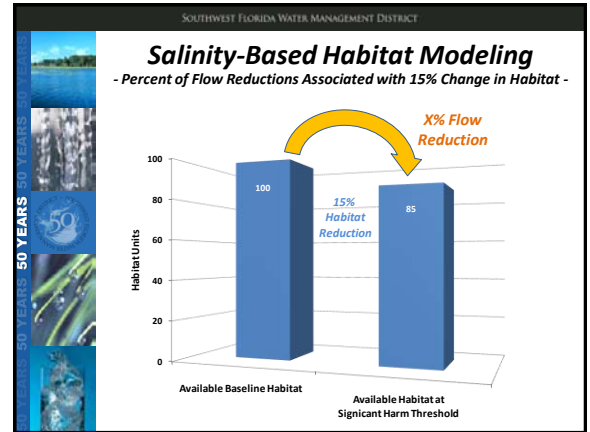
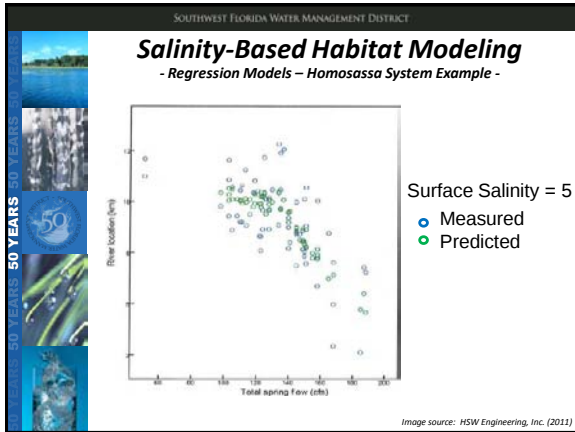
- Hydrodynamic Models - Homosassa Isohaline Prediction Example -

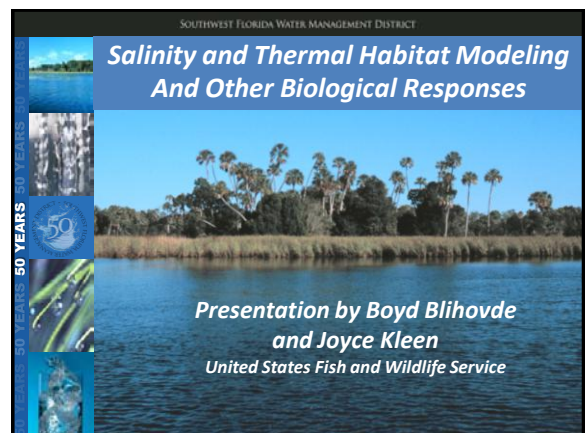
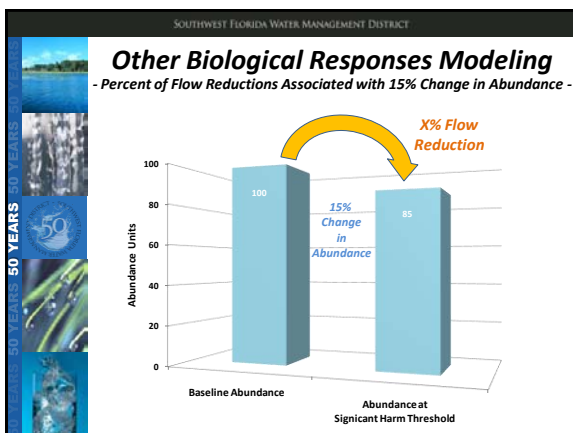
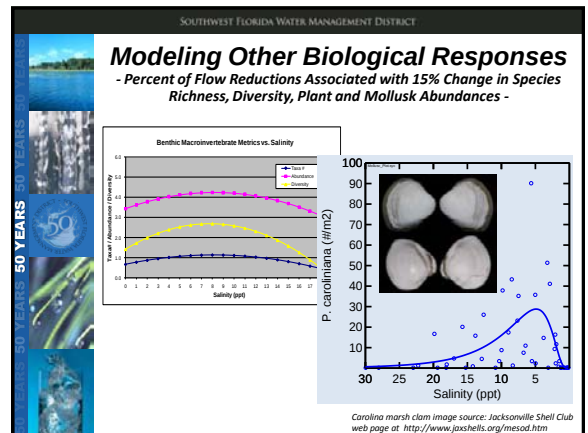
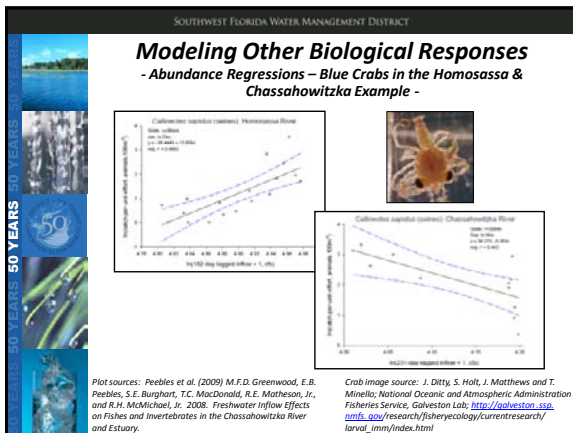
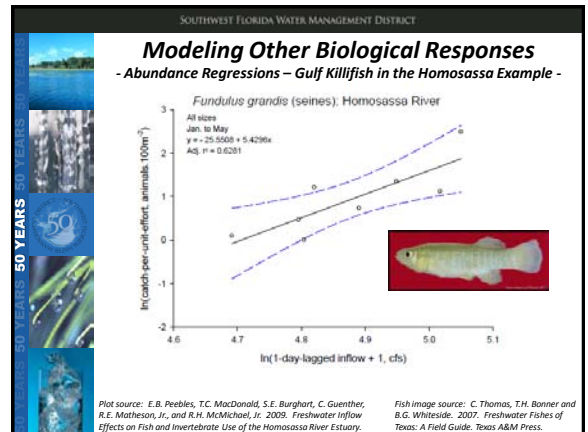
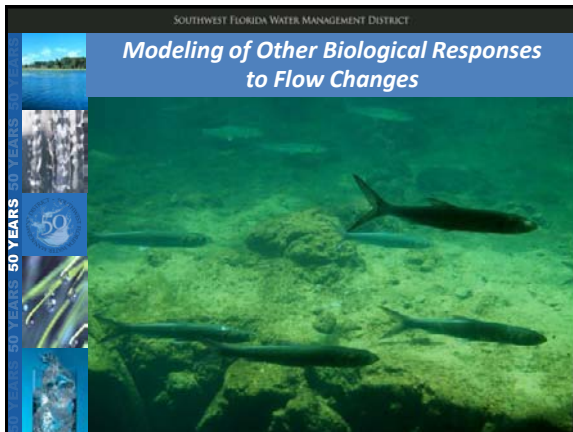


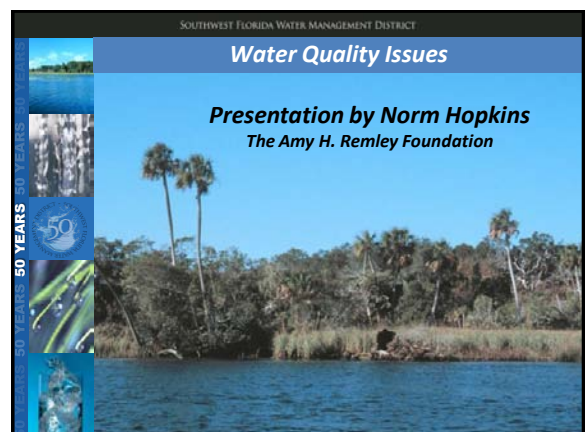
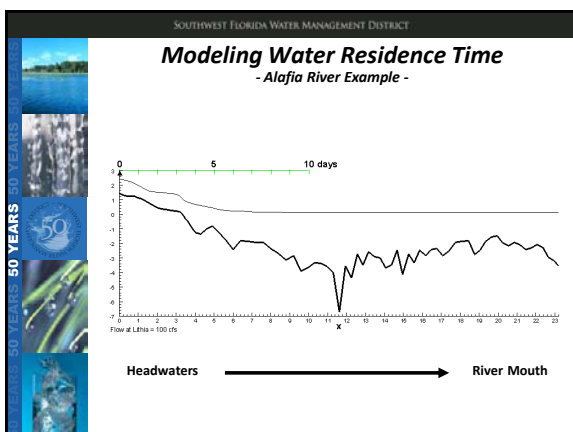
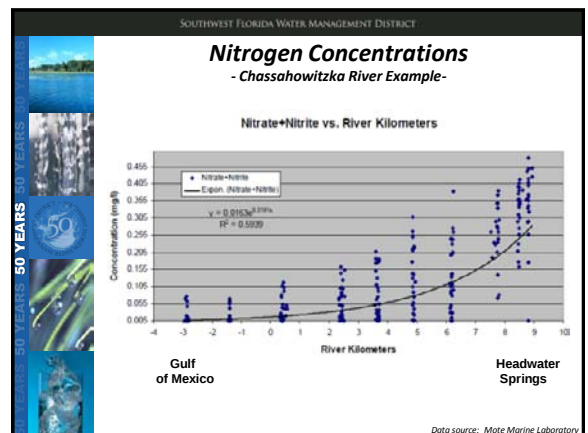
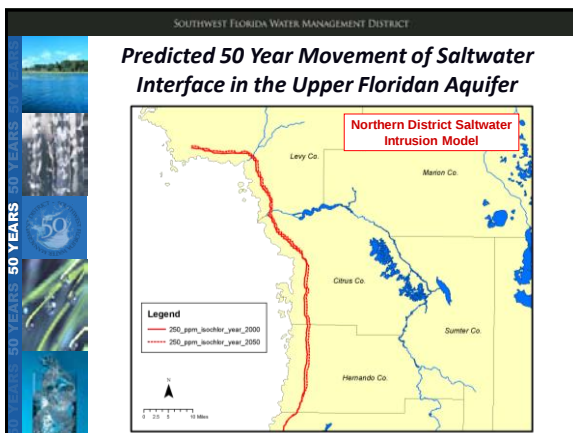
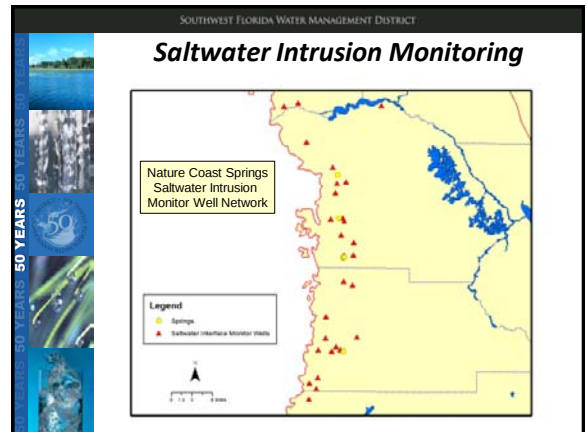
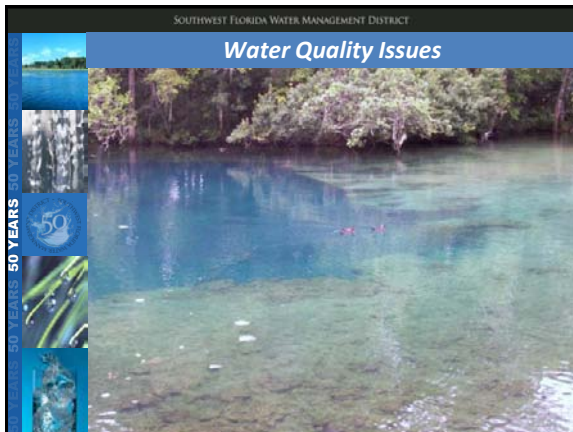
Baseline Conditions
Isohaline Location
Where Water-Column
Average Salinity = 5

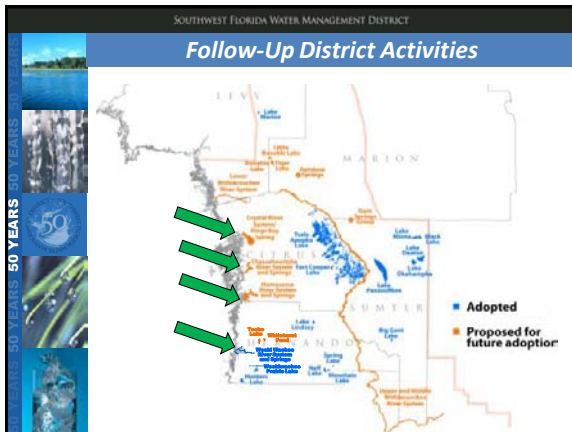
5% Withdrawal
Isohaline Location
Where Water-Column
Average Salinity = 5

10% Withdrawal
Isohaline Location
Where Water-Column
Average Salinity = 5









SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

District Activities

- Assist stakeholder representatives with a planned meeting for additional discussion of minimum flows methods and data

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

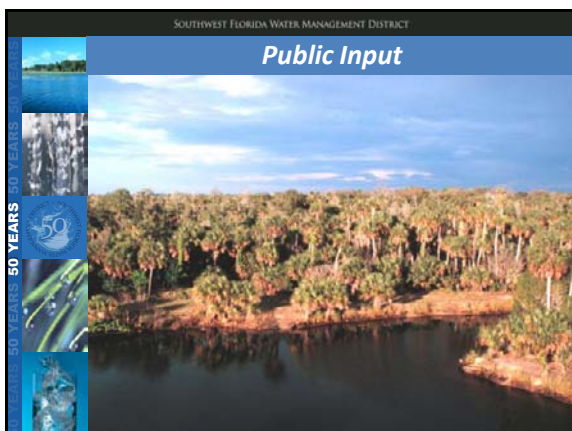
District Activities

- Continue to monitor or support measurement of water levels, flows and water quality parameters
- Review workshop input on data and methodological enhancements to minimum flows development
- Review results from ongoing sea level rise analyses
- Revise minimum flow recommendations, as necessary, and present draft rules to Governing Board for approval by the end of 2011
- Develop and present minimum flow rules for Crystal River/Kings Bay in 2012

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

District Activities

- Monitor minimum flows compliance on an annual basis
- Conduct as needed analyses for water use permit requests and water supply planning purposes
- Periodically reevaluate adopted minimum flows and revise, as needed



SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

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Extension 4272

E-Mail: doug.leeper@watermatters.org

Web Site: watermatters.org

SIGNIFICANT HARM

PRESENTED SEPTEMBER 6, 2011 AT THE SWFWMD SPRINGS COAST MFL WORKSHOP
BRAD W. RIMBEY, PE

SWFWMD'S DEFINITION OF SIGNIFICANT HARM



LESS THAN 15% DESTRUCTION IS INSIGNIFICANT

Florida Law Review

Founded 1948
Formerly
University of Florida Law Review

VOLUME 61

JULY 2009

NUMBER 3

MODERNIZING WATER LAW: THE EXAMPLE OF FLORIDA

Christine A. Klein, Mary Jane Angelo,
** and Richard Hamann****

3. Into the Future: Modernizing Florida Law

The fundamental purpose of an MFL is to prevent withdrawals from causing “significant harm” to the water resource values set forth in the Water Resource Implementation Rule. The water management districts must determine the point at which harm becomes “significant.” The Water Resource Implementation Rule provides no guidance for this decision. There has been debate over whether the determination of significant harm should be a purely scientific endeavor, i.e. based on an evaluation of impacts to ecological functions or other aspects of water resources, or should also consider balancing other demands for water resources, economic impacts, and similar factors in determining whether harm is significant. The South Florida Water Management District has determined that harm is “significant” if it takes more than two

years of average conditions for the system to recover—a scientifically-based criterion. One administrative law judge has ruled that the determination must include a “balancing of societal interest[s]” to determine if harm is significant. It is virtually impossible in most cases to determine the extent to which “societal interests” have influenced the determination of significant harm. The better interpretation would be to define “significant harm” as meaning more than a *de minimis* or theoretical impact. Water quantity would thus have a nondegradation standard similar to that which protects water quality. Whether the MFL is attainable could then be determined through the recovery plan. If a balancing approach is used, the context for harm should also be considered. If the affected land is a park, wildlife refuge, aquatic preserve, or other protected land classification, a lesser degree of harm should be considered significant.

SOCIETAL INTERESTS MUST BE CONSIDERED

In 1997, **Charlotte County v. SWFWMD**, CASE NO. 94-5742RP, Administrative Law Judge J. Stephen Menton ruled, in part

“The establishment of minimum flows and levels does not have to be based on precise historical averages. The statute seeks to prevent "significant" harm to the water resources. Preventing any and all measurable impact to the water resources is not the stated legislative goal and some impact is an unavoidable element of achieving beneficial use of the water resources for human activity. Thus, the establishment of MFLs is highly infused with policy considerations and requires a balancing of societal interest in order to decide what impacts are significant.”

WHAT SOCIETAL INTERESTS WERE CONSIDERED?

- 1) The right of future generations to enjoy what we enjoy? No**
- 2) The obligation to protect these unique ecosystems? No**
- 3) The requirement to protect the National Wildlife Refuge? No**
- 4) The requirement to protect the Whooping Cranes? No**
- 5) The requirement to protect OFWs? No**
- 6) The need to protect valuable productive estuarial habitat? No**
- 7) The need to protect Springs Coast tourism businesses? No**
- 8) The need to protect the commercial blue crab industry? No**

62-302.700, F.A.C. Special Protection, Outstanding Florida Waters, Outstanding National Resource Waters.

(1) It shall be the Department (DEP) policy to afford the highest protection to Outstanding Florida Waters and Outstanding National Resource Waters. No degradation of water quality, other than that allowed in subsections 62-4.242(2) and (3), F.A.C., is to be permitted in Outstanding Florida Waters and Outstanding National Resource Waters, respectively, notwithstanding any other Department rules that allow water quality lowering.

When a water body is designated an Outstanding Florida Water, the ambient water quality at the time of designation becomes the baseline and that water quality cannot be degraded.

SPRINGS COAST OUTSTANDING FLORIDA WATERS

Designated Baseline

- 1) Crystal River, including Kings Bay: 2-1-83**
- 2) Chassahowitzka National Wildlife Refuge: 5-14-86, 4-19-88**
- 3) Withlacoochee Riverine and Lake System: 4-10-89**
- 4) Chassahowitzka River System: 1-5-93**
- 5) Homosassa River System: 1-5-93**
- 6) Weeki Wachee Riverine and Spring System: 12-11-03**

PUBLIC RECORDS REQUEST MAY 25, 2011

In preparation for the upcoming workshops, I would like to request the following public records pursuant to Florida Statute Chapter 119 “Public Records.”

(4) Any legal memorandum which indicates SWFWMD (or any other water management agency) is permitted, under Florida law, to intentionally degrade the ambient water quality of an Outstanding Florida Water.

DISTRICT RESPONSE: District is not aware that a legal memorandum has been prepared addressing this question.

(5) Any legal memorandum which indicates SWFWMD (or any water management agency) is exempt from maintaining the baseline ambient water quality of an Outstanding Florida Water when establishing minimum flows and levels.

DISTRICT RESPONSE: District is not aware that a legal memorandum has been prepared addressing this question.

Has the ambient water quality of all the Springs Coast Rivers degraded from their baselines? **Yes**

Will reducing the spring flow to the Springs Coast Rivers further degrade their ambient water quality? **Yes**

WATER QUANTITY VERSUS WATER QUALITY

In 1994, Jefferson County et al. v. Washington Department of Ecology et al., Case No. 92-1911, the Supreme Court of the United States ruled, in part that

“Petitioners' assertion that the Clean Water Act is only concerned with water quality, not quantity, makes an artificial distinction, since a sufficient lowering of quantity could destroy all of a river's designated uses, and since the Act recognizes that reduced stream flow can constitute water pollution.”

WHEN A WATER BODY IS DESIGNATED AS AN OFW,
WHAT IS THE LEGISLATIVE INTENT?

SWFWMD



FL DEP



PROTECT THE RESOURCE!

IS CHANGING FRESHWATER TO SALTWATER POLLUTION?



REDUCED FLOW TURNS COASTAL SPRINGS TO **SALTWATER**

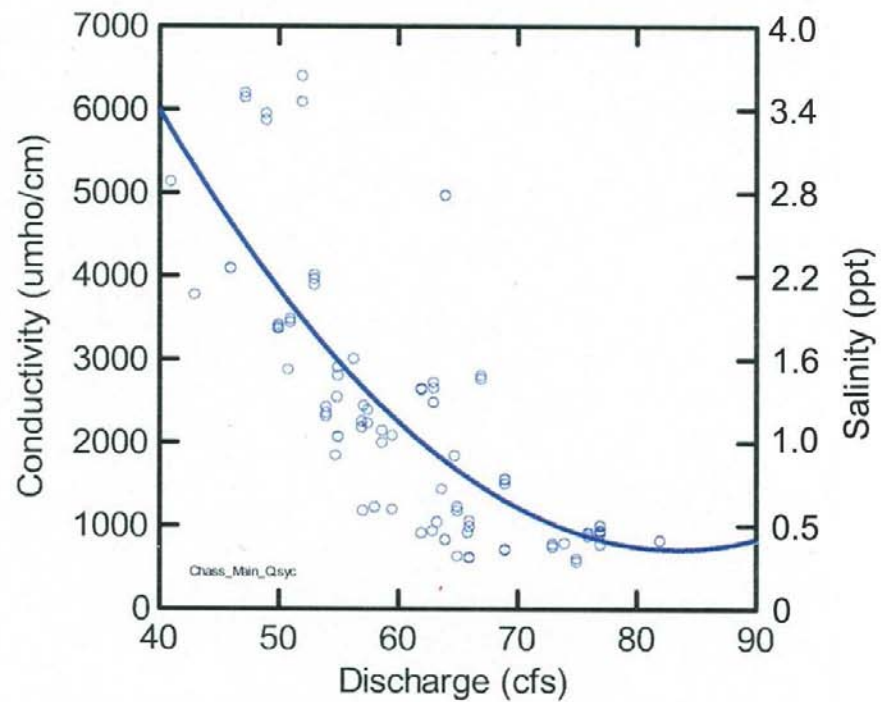


Figure 1. Chassahowitzka Main – Conductivity vs. Discharge

THE MFL PROGRAM – AUTHORIZED DESTRUCTION **OF THE SPRINGS AND RIVERS**

“It is not an unreasonable expectation, based upon this state’s history, that if an MFL for the Chassahowitzka will allow a reduction of 11% percent of its current flow, inevitably groundwater pumping will be permitted from the springsheds that will permanently reduce the river to that level. In other words, the District is setting the stage for groundwater withdrawals that will permanently lower the river’s flow to this level and the projected 15% reduction in habitat will no longer be scientific theory but permanent fact in perpetuity.”

Sonny Vergara, Executive Director, SWFWMD 1997-2003.

Springs Coast MFL- Manatee Habitat Considerations

Katie Tripp, Ph.D.

Director of Science and Conservation

Save the Manatee Club

Our MFL Philosophy

- Important to know levels of reduced flow at which ecosystems would experience significant harm
- Do NOT support managing systems at their MFL
 - Insufficient to protect important ecosystems
- Do NOT support new GW or SW withdrawals
 - FL doesn't have a water supply problem, it has a water use problem
 - Water doesn't obey boundaries



Manatees and Springs

- FWC to WMD: "Warm-water habitat is... the limiting factor for the manatee population in Florida... natural spring systems... critical to the recovery of this species... FWC... does not support a loss of warm-water habitat."
- Protect, enhance- don't compromise
- Manatees are experts at finding warm water- small springs also important- need to monitor. Get close to spring even if can't reach vent.
 - Historically 3SS at low tide (& sanctuaries outside)
 - Applicable to Chass. model claiming no habitat <3.8 ft depth- can use shallower



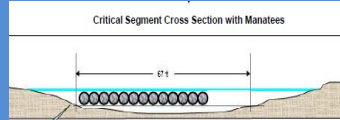
Secondary Thermal Refuges

- Passive refuges dependent on salt water: fresh water relationship
 - Partially saline spring water more dense than fresh water- settle into pockets outside main spring → 2ndary refuge
 - Shallow areas benefit from solar gain – surface rest
- Colder, denser Gulf water intrusion can wash out both types of 2ndary refuges- sea level rise or reduced fresh water flows could affect



Overall Concerns

- Do "District defined manatee refuge protection criteria" meet actual manatee protection criteria?
- 15% habitat net loss allowable threshold- arbitrary
- Cumulative impacts: flow reduction + sea level rise + nutrient pollution- put it all together for future scenario
- Model based on "manatee packing density", "manatees / foot"- no accounting for habitat preference, other behavior
 - Blue Spring- documented use surpassed modeled use (monitoring reqt.- absent here)
 - MFL set '06 (157-133 cfs) → 157 cfs by 2024
 - Local govts. balking against AWS, want to reduce MFL



Weeki Wachee

- Disagree with 1,776 or 1,363 manatee k figure
 - Not based on actual behavior
- Low flow condition: 15% habitat change threshold occurs at some flow reduction less than the minimum of 5% examined
 - 2, 3 day periods- refuge vols., surf. areas < 85% low flow baseline
 - Because worst- case scenario, 5% flow reduction scenario may be considered as the most maximum reduction while still maintaining habitat reduction of 15% or less for **ALMOST** all of the time
 - Not worst case- seen more severe weather since (2010, 2011)
- Given real world conditions, cumulative impacts, growing population, & unreliable nature of artificial warm water to the South, will manatees be left at risk from Cold Stress Syndrome here?
 - Don't always move- learn use of specific habitat from mother
 - Can die waiting for warm water



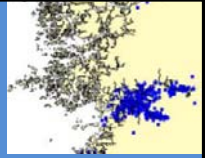
Chassahowitzka

- Only main spring flow continuously recorded- discrete measurement @ 6 others- not Snapper Cove
 - Old flow ('88-'89), salinity ('93-'97) data
- W/o permitted ↓, river already challenged by ↓ flows, nutrients
- Manatee season modeled 11/1/06-2/28/07 (air temp. from St. Pete)
 - Much available modeled habitat- 25 mph channel- no manatees
 - Not all grid cells created equal
- 2001-'02 season = worst case (1/4-6) – been surpassed
 - From 11/1/01-2/28/02, 10 CSS deaths statewide
 - 1/02- 6 statewide CSS deaths, only 1 in select time frame
 - 11/1/09-2/28/10 = 193 CSS deaths, 245+ for year statewide
 - 108 statewide CSS deaths in 2011



Chassahowitzka

- Concerned with est. "low" use
 - Aerial surveys don't cover, no data collection effort, "too shallow" invalid
- Modeled 2002 → no chronic condn. habitat
 - Know manatees there, persisted in severe years
 - Model not capturing all available / used habitat – lost w/ flow ↓?
 - Agree that need finer spatial resolution in upper reaches
- SAV change- concern (salinity, WQ, *Lyngbya*)
- Important despite lack of sanctuaries, speed zones & presence of winter vegetation spraying – more use if protected / enhanced
 - Use likely ↑ as pop. recovers
- Moving away from FWC/FWS goal- protect natural manatee habitat



Homosassa

- Fence - boil & run now open in winter- additional gate being installed
- Estimated k of 9,000-23,000 unrealistic- how is habitat really used?
- Multiple species impacts documented at 5% flow reduction- lesser reductions (i.e. 2.5%) not modeled <5% reduction (possibly recovery?) needed
- Based on avg. 2007 flows, sea level rise would decrease spring flows at Homosassa Spring and SE Fork by 3-25%.... figure in to cumulative impacts



Crystal River

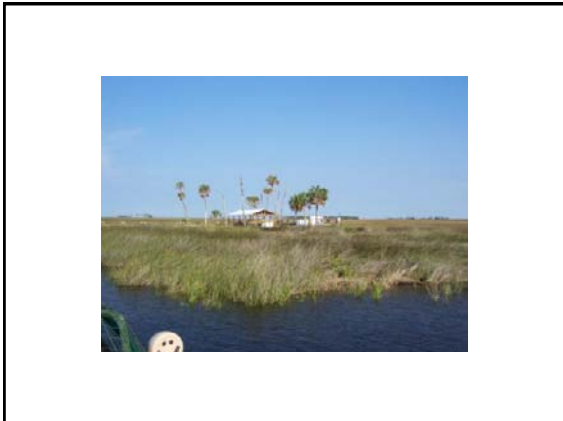
- Multiple springs in system
- Most important winter habitat on Springs Coast
- Record numbers of manatees w/ extreme cold last 2 winters
- Need protective MFL for growing population
 - Important to local economy



Questions or Discussion?



Slides presented by B. Blihovde,
USFWS





Crystal River NWR

- Established in 1983 for the protection of the endangered manatee
- Located in Kings Bay (headwaters to the Crystal River)
- 80 acres of islands, water bottoms, and seven manatee sanctuaries
- Provides critical habitat for more than 500 manatees during the winter.



West Indian manatee-Endangered species

- Recovery Plan-one for every endangered/threatened species
- Tasks identified within plan to eventually "recover" the species
- Certain criteria must be met to downlist the species to threatened
- Additional criteria must be met to eventually delist the species
- Species that have been delisted recently include the bald eagle, peregrine falcon, etc.

Task-Monitor Abundance and Distribution of manatees

- Achieved by conducting aerial manatee surveys
- Surveys are conducted throughout Florida
- Surveys for Crystal River NWR
 - Winter surveys-Citrus County waters
 - Summer surveys & statewide survey - Suwannee River to Weeki Wachee River

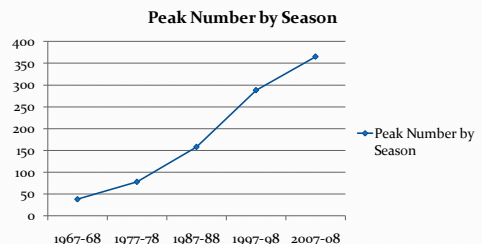
Aerial Surveys

- Conducted every other week, year-round
- Altitude of 1000'
- Fly at a speed of 80 knots
- Areas are divided into segments
- Manatee locations are recorded on a series of maps
- Areas with large concentrations are circled numerous times
- If the number continues to increase, keep circling
- When number levels off, assume complete count

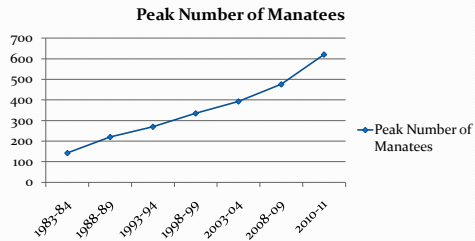
Aerial Manatee Survey Data

- Data is entered into a Geographical Information System computer program
 - Data from 1983-August 2009 has been entered
- Data is used to establish:
 - Manatee sanctuaries (closed to all public use)
 - Manatee boating speed zones (idle/slow)
 - Manatee refuges (certain uses may be permitted)

Peak manatee numbers-Kings Bay/Crystal River



Peak Counts-Citrus County Waters

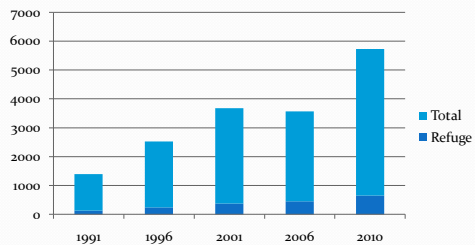


Aerial Survey Monitoring

- State-wide aerial surveys are conducted annually in a partnership with FFWCC, USFWS, NPS, and universities.
- A total of 5,077 manatees were counted in Florida waters in 2010.



Statewide Aerial Surveys



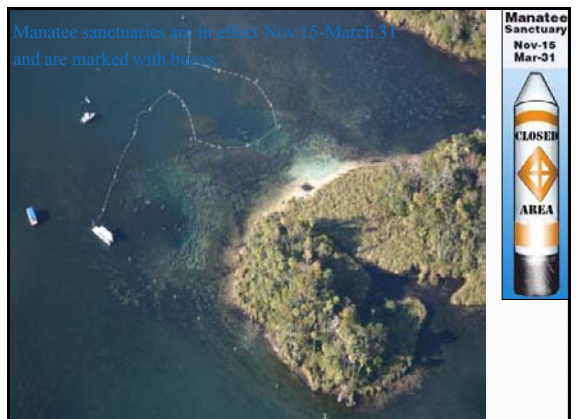
Use of aerial survey data

- Monitor the changes in distribution and abundance of manatees
- Establish idle and slow boating speed zones
 - Resting sites-warm water areas
 - Feeding sites-abundant submerged aquatic vegetation
- Establish manatee refuge designation

- Speed restrictions for Kings Bay are in effect from September 1-April 30.
- Operate boats at idle and slow speed where posted speed zones are in effect.



Manatee sanctuaries are in effect Nov.15-March 31 and are marked with buoys.



"Manatee Manners"

- Do not enter designated manatee sanctuaries for any reason (\$100 fine).
- Sanctuaries are in effect from Nov. 15-March 31.
- Manatees utilize sanctuaries to rest undisturbed from humans and boats during the winter months.



- Manatees are marine mammals able to live in salt or fresh water
- Like us, they are susceptible to cold and hypothermia and can't survive for extended periods in water below 68°F
- Warm water springs are essential to their survival



- U.S. Fish and Wildlife Service is working to reach a balance between people and manatees. At Crystal River, you can swim with manatees, but it is illegal to harass a manatee.



- **Harassment** is defined as any behavior that changes or alters the natural behavior of an animal.

- Avoid excessive noise and splashing and **DO NOT** feed manatees or give them water.
- This alters their normal behavior and may bring manatees close to boats or docks where they may become injured.



- Never ride, chase, poke or surround manatees-let them approach you.
- Manatees are unique individuals and need to be treated with respect.



- Observe manatees from the surface of the water and at a distance.
- Do not disturb manatees on the bottom which are likely to be resting or feeding.



- Finally, never separate a mother and her calf or another individual from a group.
- Calves are dependant on their mothers for 2-3 years while nursing and will learn how to feed and when and where to migrate.



Kings Bay Manatee Refuge

- Emergency rule in effect from November 15, 2010- March 15, 2011 (120 days)
- Manatee viewing guidelines for Kings Bay and Crystal River are now formal, legal prohibitions and are no longer voluntary guidelines.
- Violation of these prohibitions can result in fines or imprisonment under the Endangered Species Act.



Manatee Viewing Prohibitions for Kings Bay

- Chasing or pursuing manatee(s).
- Disturbing or touching resting or feeding manatee(s).
- Diving from the surface on to resting or feeding manatee(s).
- Cornering or surrounding or attempting to corner or surround a manatee(s).
- Riding, holding, grabbing, or pinching or attempting to ride, hold, grab, or pinch manatee(s).
- Poking, prodding, or stabbing, or attempting to poke, prod, or stab manatee(s) with anything, including your hands and feet.

Manatee Viewing Prohibitions (cont.)

- Standing on or attempting to stand on manatee(s).
- Separating manatee(s) from a group or attempting to separate manatee(s) from a group.
- Giving manatee(s) anything to eat or drink or attempting to give manatee(s) anything to eat or drink.
- Actively initiating contact with belted and/or tagged manatee(s) and associated gear, including any belts, harnesses, tracking devices, and antennae.

Additional prohibitions within Three Sisters Springs

- Scuba diving
- Fishing, including with hook and line, by cast net, or spear



Kings Bay Manatee Refuge

- The current rule is an emergency rule and in effect for 120 days (until March 15).
- This rule will become a permanent rule most likely for the 2011-12 season.
- Four public meetings were held concerning the refuge designation.
- Questions from the public were addressed.
- Comments will be solicited from the public concerning the permanent rule.



Order Sirenia



Fate of the Steller's Sea Cow

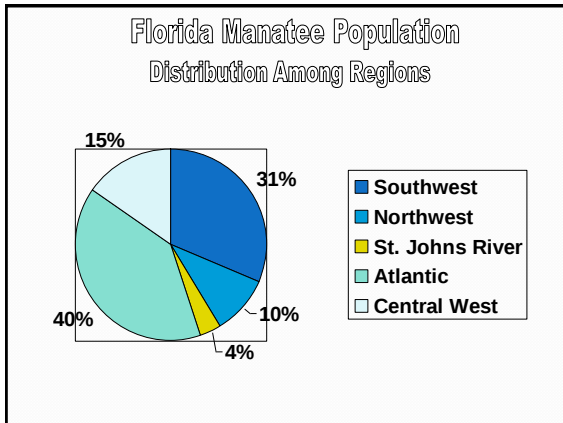
- In the 1700's, Russian sailors discovered the Steller's sea cow in the Alaska Bering Straight in cold waters.
- Largest of the Sirenians-4 times the size of a manatee
- On a fishing trip, the Russians got caught in the Alaskan ice and killed these docile giants to live through the winter
- Once home, they told how these immense sea cows could be hunted with such little effort.
- It only took **27 years** to hunt them to extinction.



West Indian Manatee

- Fortunately there are still at least 3,000 manatees in Florida waters today.
- Statewide aerial survey conducted by state and federal agencies in 2006 counted over 2800 manatees.





- Like humans, the manatee is an air breather.
- They surface to breathe on average every 3-5 minutes, but when resting they can stay under for up to 20 minutes.
- They have hair on their bodies.

- They nurse their young with mammary glands located under the mother's flippers (armpit area).

- Manatees have toe nails and rough skin.
- What land animal does it remind you of?

Manatee's Closest Relative

- Like the elephant, manatees use their upper lips like a trunk to grasp food and draw it into their mouths.
- Manatees will use their mouths to touch as they are very curious.



- Calves usually spend 2-3 years with mothers.
- Females breed by 5-8 years old and bear young every 2-4 years.
- Gestation period: 13 months.
- Calves weigh ~60-70 lbs at birth.



Adult Manatees

- Quite large with an average length 8-10 ft.
- Average weight 800-1200 lbs.
- Life span potentially to 60-70 years old (a manatee in captivity is over 50 years old).



- Manatees are vegetarians and they consume 10% of their body weight in aquatic plants each day.
- They spend 5-8 hours a day feeding.



- The rest of their day is spent resting and socializing.



Which is which?

- Female



- Male



Skeletal System

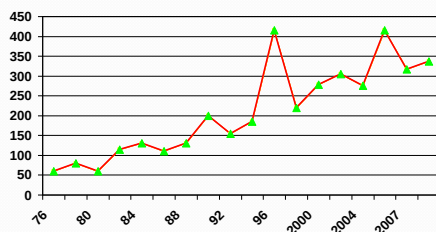


Most manatee deaths are human-related, caused by boats and barges!

- Due to:
 - 1) Propeller strikes
 - 2) Impacts with boat hulls which break the animals ribs and puncture its lungs.
- Boat collisions generally occur in areas of poor depth perception and where slow moving manatees, who cruise at speeds of 2-6 mph, are located.

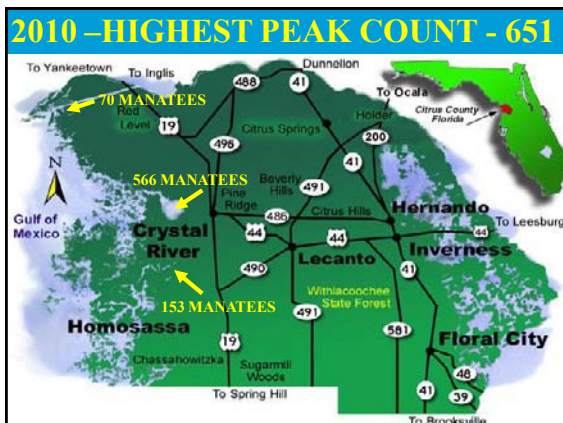
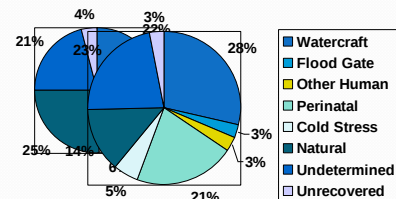


Florida Manatee Deaths
Total, 1976-2008



Manatee Mortality in Florida- comparing years 2000 and 2007 (Re: FFWCC, Marine Mammal Pathobiology Lab)

2000 2007



Irony Importance of Scars

- Most manatees you see in the wild have scars from boat propellers.
- The USGS Sirenia Lab in Gainesville has identified and computerized over 1200 individual manatees from their distinctive scar patterns.
- Some manatees survive their injuries and live with mutilating scars.





Manatee Rescue Team

- Made up of refuge staff, volunteers, local veterinarians, local dive shops, and staff from Homosassa Springs Wildlife State Park.
- After an injured manatee is reported to the refuge and is located in the field, the rescue team captures the animal.
- Who to call to report an injured manatee in West Central Florida?
 - Crystal River NWR (352-563-2088)
 - Florida Fish and Wildlife Conservation Commission (formerly FMP) 1-888-404-3922 (1-888-404-FWCC)

What's Involved in a Manatee Rescue?

Manatee Rescue Trailer



Manatee Rescue Boat



- Once rescued, the manatee is transported to a rehabilitation center such as Sea World in Orlando or Lowry Park Zoo in Tampa.

- At the rehab center, manatees are weighed and examined by trained veterinarians and kept there until they recover and can be released back into the wild.



Release of Mullet

- On December 5, 2000, with the help of refuge staff, volunteers, and staff from Lowry Park Zoo in Tampa, a manatee named Mullet was released back into the Crystal River National Wildlife Refuge.



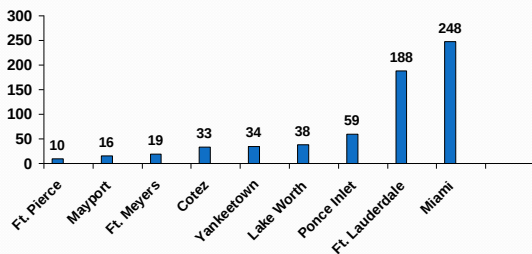
- Manatees have been in Florida for 5 million years and humans only about 100 years in great numbers.
- Manatees are competing for space as 700-900 people a day move to Florida.



- Law enforcement officers from the USFWS, FFWCC, USCG, and local Sheriff's Dept. help to enforce the speed regulations.



Number of Tickets issued per station by USCG for violations of manatee speed zones during 2000.
Total: 645 tickets



Importance of Education

- We are trying to raise public awareness through:
 - 1) Programs presented to civic associations and school groups.



- 2) Educational information at local events and festivals.



- 3) Manatee Watch Program.
 - Began in 1983
 - Very important aspect of our education and outreach.
 - Focuses on providing information to boaters, snorkelers, divers, and fishermen about the refuge, the manatee sanctuaries, speed zones and the proper way to interact with manatees.



Let's not let the manatee go the way of the Steller's sea cow and do what we can to protect this precious natural resource



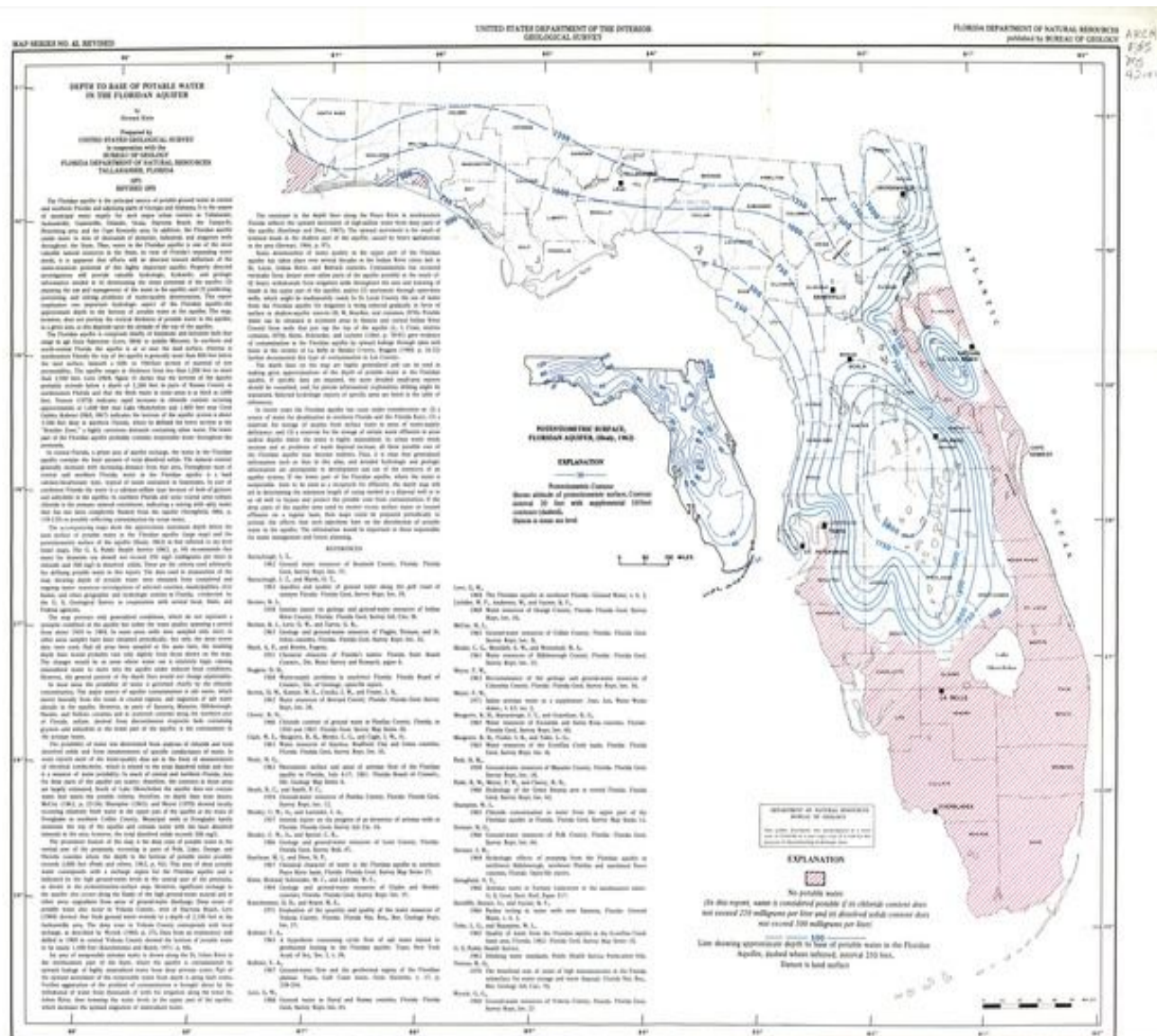
Without dealing with the balance of Nitrogen to match the reduced rates of spring discharge, messing with biotic systems in Kings Bay would not be sustainable longer term.

- As early as 1989 an FDER report said, "In order to restore Kings Bay to its natural vegetative patterns, it will be necessary to effect reductions in both point and non-point nutrient loads. Calculations indicate that upgrading the City of Crystal River STP ... would reduce nitrogen and phosphorus loadings by 72 and 78 per cent respectively.
- The Crystal River/ Kings Bay Surface Water Improvement and Management (SWIM) – Final Approved Plan of July 10, 2000, on page 46, records a total spring flow into Kings Bay of 975 cfs or 630 million gallons a day (mgd).
- The same SWIM report describes how residence times of nutrients increase as flow rates decrease magnifying their impact upon biota of all kinds growing in the waters.
- Kings Bay springs have had their water flow reduced by one third over the past two decades, to 410 mgd measured by a scientific study published in 2010. The source of the degradation is thus in plain sight and all around us. A recent Florida Geographical Survey report authored by Rick Copeland and a team of scientists also concludes with this same truth as due to drought and over pumping.
- As water flow rates have receded unfortunately the chief polluting culprit – Nitrogen – has not. For example, concentration of nitrogen in Hunter spring discharges from the early 1990s to current dates rose from 0.2 - 0.3 mg/L to 0.58 mg/L.
- More than 600 tons of manufactured Nitrogen fertilizers are applied annually to Citrus County's domestic land surfaces, golf courses, employed in agriculture and from spreading sewage effluent onto the land.
- Nitrogen delivered directly underground from the totality of the thousands of on site wastewater treatment systems (OWTS or septic systems) throughout Citrus County exceeds 212 tons of Nitrates a year. The scientific report published in 1994, from which these figures are taken, highlights the priority capture and treatment of this source of nitrates.
- Technological advances since 1994, allow methane from the anaerobic digester gas (ADG) to be the fuel in fuel cell systems to provide electrical power to operate the wastewater treatment facility (automatically switching to natural gas fuel when necessary) with high energy, process and economic efficiencies.
- Not only would such a development reduce the nitrate content of spring discharges and assist recovery of water quality in our coastal river systems, but using the reclaimed water in place of pumping prime water from the aquifer will help sustain our fresh water supplies for our children. Should we fail to do so we stand to forfeit our fresh water "lens" as has happened on Florida's east coast.



Figure 4, is an historic view of the fresh water "Lens" system and shows how over-pumping has reduced its depth and mass to allow upwelling of saltier water from lower levels to fatally compromise water quality. Saltier more mineralized water is held to greater depths by weight of a "lens" of fresh water above. FGS cautions that lens depths have diminished since Klein's work (c.1960/70s).

Figure 4.

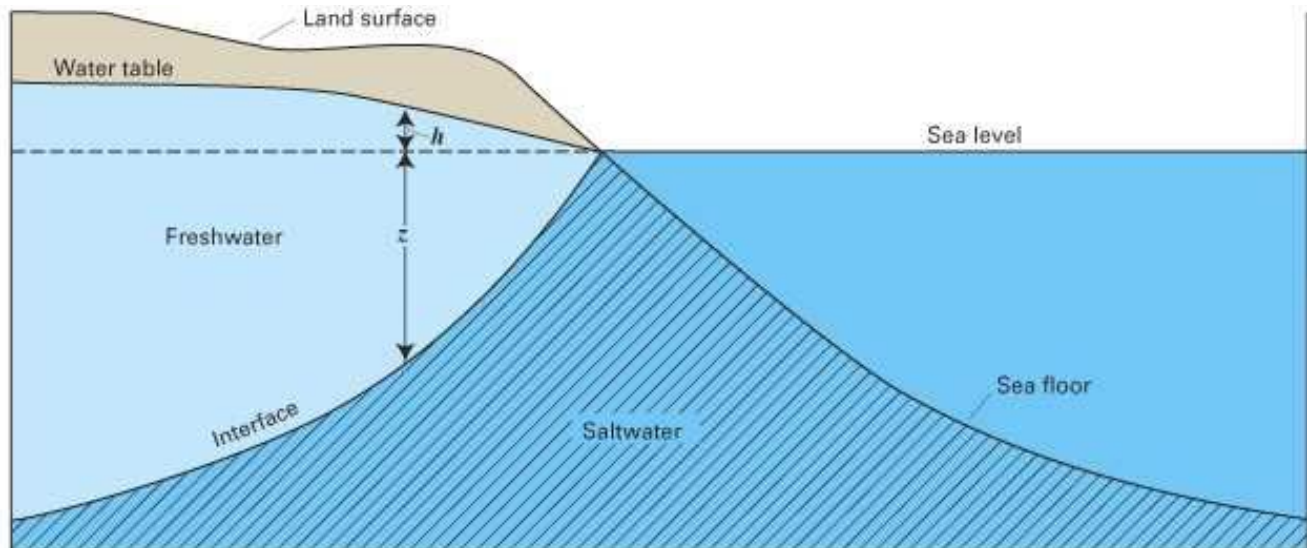


"Potable water" defined by Howard Klein et al. 1975, as chlorides less than or equal to 250 mg/L, and dissolved solids less than or equal to 500 mg/L. Depths of lens given in feet relative to land surface datum. Klein attributes loss of potable water along Florida's east coast to pumping activities. Drought periods and pumping over the years have reduced aquifer levels and depth of the fresh water "lens". The reduced mass of the lens allows saltier water to well up from deeper down.

The flow of saltwater inland happens in the coastal areas. Further inland, the freshwater column is higher due to the increasing altitude of the land and enables the relative fresh and salt water pressures to equalize and stabilize the salt water intrusion.

The higher water levels inland have another effect of causing water to flow seaward, as freshwater flows out, in the lower parts saltwater flows in.

The Ghyben-Herzberg relation (Diagram from Wikipedia)



In the equation, $z = (\rho_f / (\rho_s - \rho_f))h$ where the thickness of the freshwater zone above sea level is represented as h and that below sea level is represented as z . The two thicknesses h and z , are related by ρ_f and ρ_s where ρ_f is the density of freshwater and ρ_s is the density of saltwater.

Freshwater has a density of about 1.000 grams per cubic centimeter (g/cm³) at 20 °C, whereas that of seawater is about 1.025 g/cm³. The equation can be simplified to $z = 40h$.

Thus the Ghyben-Herzberg ratio states, for every foot of fresh water in an unconfined aquifer above sea level, there will be forty feet of fresh water in the aquifer below sea level.

Environmentally, these Ghyben-Herzberg "lens" systems are crucially important not only to healthy stream flows and the biotic health of the protected waterways but also to the region's potable water supply.

The "lens" system assures the freshwater supply only so long as its lens' mass remains sufficient to inhibit mixing of non-potable water from lower aquifer systems.

Florida Geological Survey have advised that the lens' depths have reduced since last being surveyed by Howard Klein et. al., in 1975, but is not due to be determined again for some time to come. Klein reported upon areas of the east coastal and southern regions of Florida which had become completely denuded of the potable water lens due to over-pumping.

Moreover, the 2010 report to SWFWMD by Vanasse Hengen Brustlin, Inc. graphically illustrates the discharge of non-potable water from spring vents fed from a contaminated lens system co-located with an underground tributary into the southern section of Kings Bay.

Periods of drought, returns to the atmosphere, high rates of pumping, and lateral underground infusions from the Gulf of Mexico (Fretwell and Causseaux, 1983), seek to reduce the mass and precipitate the mixing.

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Dutcher \(Dennis3ds@aol.com\)](#); [Frank DiGiovanni \(administration@inverness-fl.gov\)](#); [Greenwood, Kathleen \(Kathleen.Greenwood@dep.state.fl.us\)](#); [Helen Spivey \(manatees@habitats.org\)](#); [Hilliard, Dan \(2buntings@comcast.net\)](#); [Hoehn, Ted](#); [Hope Corona \(hopecorona@tampabay.rr.com\)](#); [Jim Farley \(jfarley682@aol.com\)](#); [Katie Tripp \(ktripp@savethemanatee.org\)](#); [Norman Hopkins \(norman@amyhrf.org\)](#); [Rebecca Bays \(rebecca.bays@bocc.citrus.fl.us\)](#); [Richard Kane \(rkane@usgs.gov\)](#); [Richard Radacky \(rradacky@cityofbrooksville.us\)](#); [Ron Miller \(rmille76@tampabay.rr.com\)](#); [Sarah Tenison \(cityofweekiwachee@yahoo.com\)](#); [Sullivan, Jack \(jsullivan@carltonfields.com\)](#); [Voyles, Carolyn \(Carolyn.Voyles@dep.state.fl.us\)](#); [Whitey Markle \(whmarkle@gmail.com\)](#); [\(janicehowie@aol.com\)](#); [Abdon Sidibie \(asidibie@chronicle.online.com\)](#); [Alex McPherson \(aamcpherson@msn.com\)](#); [Ann - 2 Hodgson \(ahodgson@gmail.com\)](#); [Ann Hodgson \(ahodgson@audubon.org\)](#); [Bernard Berauer \(bfberauer@aol.com\)](#); [Beverly Overa \(boverly@tampabay.rr.com\)](#); [Bill Garvin \(wgarvin@tampabay.rr.com\)](#); [Bob Caldwell \(Bobcaldwell51@yahoo.com\)](#); [Brack Barker \(brack154@msn.com\)](#); [Brad Rimbey \(BWR.CRRRC@tampabay.rr.com\)](#); [Carl Matthai \(thebabesmimi@gmail.com\)](#); [Casey, Emily \(fcnwr@atlantic.net\)](#); [Charles Dean \(dean.charles.web@flsenate.gov\)](#); [Charles Stonerock \(katcha.stonerock3@gmail.com\)](#); [Chris Safos \(chrissafos@embargo.com\)](#); [Czerwinski, Mike \(mczerwin@tampabay.rr.com\)](#); [Darlene Herth \(2cetechnology21@gmail.com\)](#); [Darrell Snedecor \(president@citruscountyaudubon.com\)](#); [Don Hiers \(dhiers3@gmail.com\)](#); [Douglas Dame \(doug_dame@yahoo.com\)](#); [Elaine Luther \(barneyandcap@hotmail.com\)](#); [Emily Casey \(ecasey21@hotmail.com\)](#); [Emma Knight \(eknight@wetlandsolutionsinc.com\)](#); [George Harbin \(gharbin@tampabay.rr.com\)](#); [George McClog \(classof47@gmail.com\)](#); [Gorgon O'Connor \(gorgon_o@yahoo.com\)](#); [Harry Steiner \(harry109@aol.com\)](#); [Helen Spivey \(manatees@habitats.org\)](#); [Jack Calbeck \(calbeckj@citrus.k12.fl.us\)](#); [Jane Perrin \(jcsperinmd@sbcglobal.net\)](#); [Janet Garvin \(wgarvin@tampabay.rr.com\)](#); [Jerry Morton \(JerrMorton@aol.com\)](#); [Jessie Gourlie \(gourliej@thirdplanetwind.com\)](#); [Jim Collins \(jimmiekey22@yahoo.com\)](#); [Jimmie Smith \(Jimmie.Smith@myfloridahouse.gov\)](#); [Joe Calamari](#); [John Howie \(janicehowie@aol.com\)](#); [John Lord \(jlord109@yahoo.com\)](#); [John Mayo \(freedomway1@gmail.com\)](#); [Karen Johnstone \(kjohns213@sbcglobal.net\)](#); [Kim Caldwell \(caldwell.kimberly@yahoo.com\)](#); [Kim Dinkins \(kim.dinkins@marioncountvfl.org\)](#); [Linda Pierce \(tpierce35@tampabay.rr.com\)](#); [Linda Vanderveen \(hernandoaudubon@yahoo.com\)](#); [Mary Anne Lynn \(mlynn1978@tampabay.rr.com\)](#); [Matthew Corona \(mcorona1@tampabay.rr.com\)](#); [Max Rhinesmith \(rhinesmith@webtv.net\)](#); [Art Yerian \(Al.Yerian@dep.state.fl.us\)](#); [Amber Breland \(ahouston@crystalriverfl.org\)](#); [Ben Weiss](#); [Beth Holind](#); [Brad Thorpe \(brad.thorpe@bocc.citrus.fl.us\)](#); [Courtney Edwards \(cedwards@savethemanatee.org\)](#); [Dale Jones \(Jones@MyFWC.com\)](#); [Dana Bryan \(dana.bryan@dep.state.fl.us\)](#); [Darrell Snedecor](#); [David Hamilton \(countyadministrator@hernandocounty.us\)](#); [David Hankla \(david_hankla@fws.gov\)](#); [Don Wright \(wright@sura.org\)](#); [Dusty McDevitt \(mcdevitt@usgs.gov\)](#); [Ed Call \(marvin.call@MyFWC.com\)](#); [Eric Nagid \(eric.nagid@MyFWC.com\)](#); [FFWCC MFLs Review E-Mail Address \(fwcconservationplanningservices@myfwc.com\)](#); [J. J. Kenney \(jj.kenney@bocc.citrus.fl.us\)](#); [Jennene Norman-Vacha \(jnvacha@ci.brooksville.fl.us\)](#); [Joyce Kleen@fws.gov](#); [Kandi Harper \(kandi.harper@bocc.citrus.fl.us\)](#); [Keith Ramos \(Keith.Ramos@fws.gov\)](#); [Kent Smith \(kent.smith2@myfwc.com\)](#); [Kevin Grimsley \(kigrims@usgs.gov\)](#); [Michael Lusk \(Michael_Lusk@fws.gov\)](#); [Mitchell Newberger \(mnewberger@verizon.net\)](#); [Nick Robbins \(Nick.Robbins@dep.state.fl.us\)](#); [Nicole Adimey \(Nicole_Adimey@fws.gov\)](#); [Paul Thomas \(paulw.thomas@MyFWC.com\)](#); [Ron Mezich \(ron.mezich@MyFWC.com\)](#); [Shelly Yaun \(shelly.yaun@dep.state.fl.us\)](#); [Toby Brewer \(Toby.Brewer@dep.state.fl.us\)](#); [Tracy Colson](#); [Wallace, Traci](#); [Adkins, Jim](#); [Bitter, Jim](#); [Bryant, Richard](#); [Calbeck, Jack](#); [Cantero, Vince](#); [Carpenter, Paul](#); [Daniels, Chase](#); [Darlene Herth \(2cetechnology21@gmail.com\)](#); [Dueker, Duane](#); [Gramling, Hugh](#); [Harrelson, Cathy](#); [Hubbell, Pete](#); [Johnson, Eric](#); [Johnson, Martyn](#); [Keim, Robert](#); [Kline, Allen](#); [Knight, Bob](#); [Knight, Robert](#); [Knudson, Ross](#); [Overa, Tom](#); [Owen, Rick](#); [Parrow, Liz](#); [Pierce, Thomas](#); [Rolf Auermann \(rauerman@tampabay.rr.com\)](#); [Rusnak, Teddi](#); [Watkins, Priscilla](#); [Watrous, Russell](#)
Cc: [Barbara Matrone](#); [Cara S. Martin](#); [Chris Zajac](#); [Darcy A. Brune](#); [Dave Dewitt](#); [Doug Leeper](#); [Gary E. Williams](#); [Jay Yingling](#); [Karen Lloyd](#); [Ken Weber](#); [Lou Kavouras](#); [Mark Barcelo](#); [Mark Hammond](#); [Marty Kelly](#); [Mike Heyl](#); [Paul Williams](#); [Robyn O. Felix](#); [Ron Basso](#); [Sid Flannery](#); [Veronica Crow](#); [Xinjian Chen](#); [Yassert Gonzalez](#)
Subject: MFLs Workshop Presentations and Chloride Conc File Posted on Web Site
Date: Friday, September 09, 2011 2:38:00 PM

Greetings:

I'm writing today to let you know that electronic versions of the slides shown be me and several stakeholder representatives at the September 6th Springs Coast Minimum Flows and Levels Public Workshop are now posted on the District's workshop web page at:

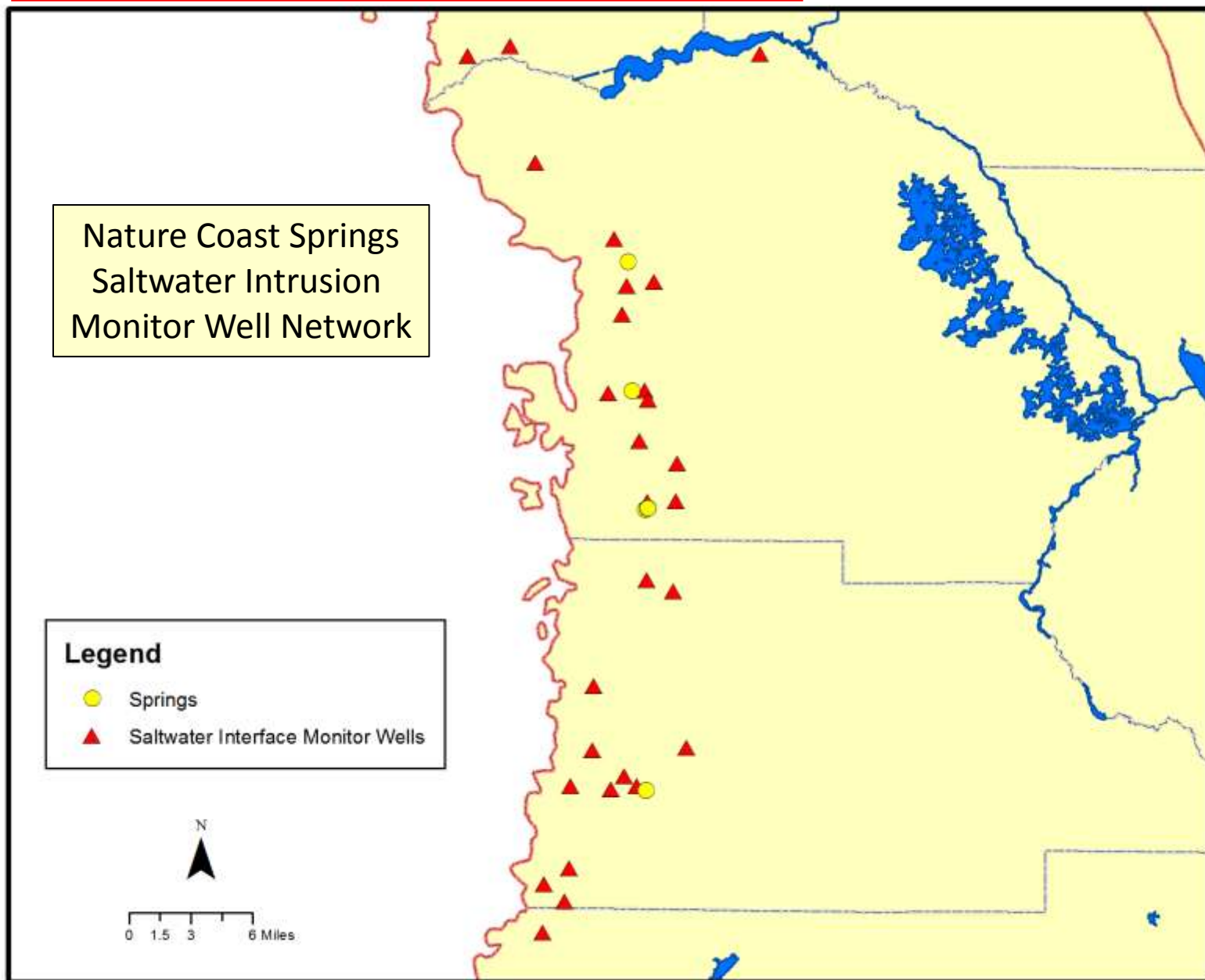
<http://www.WaterMatters.org/SpringsCoastMFL>

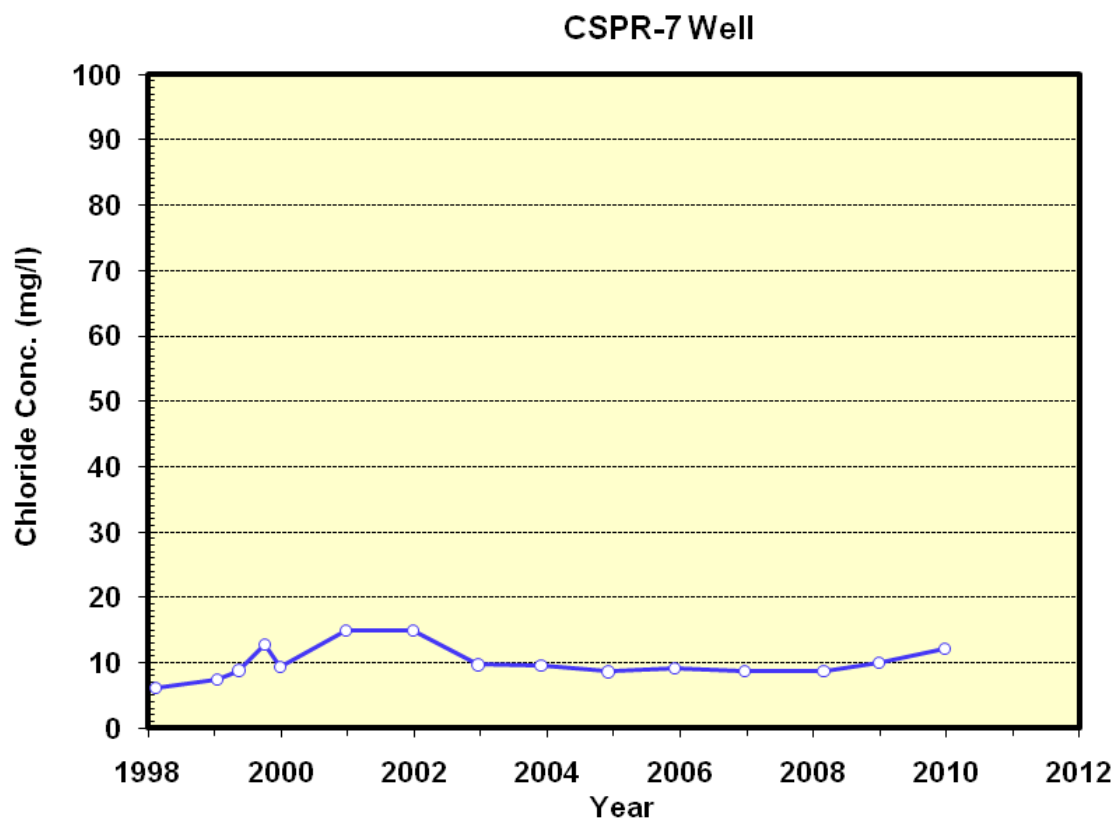
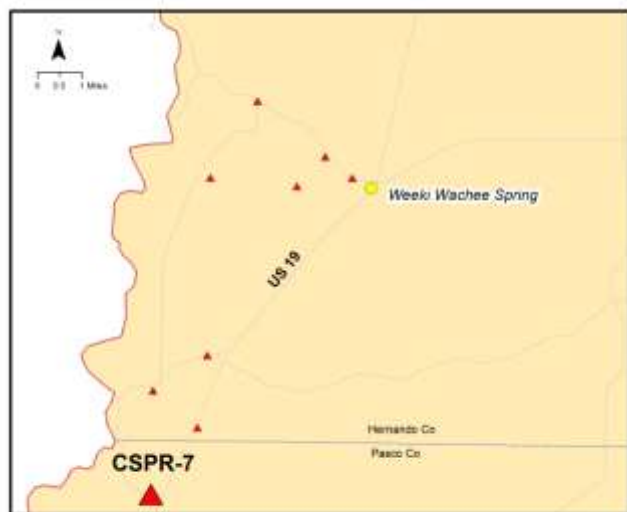
A meeting notes file to accompany these presentations will, hopefully, be posted sometime soon.

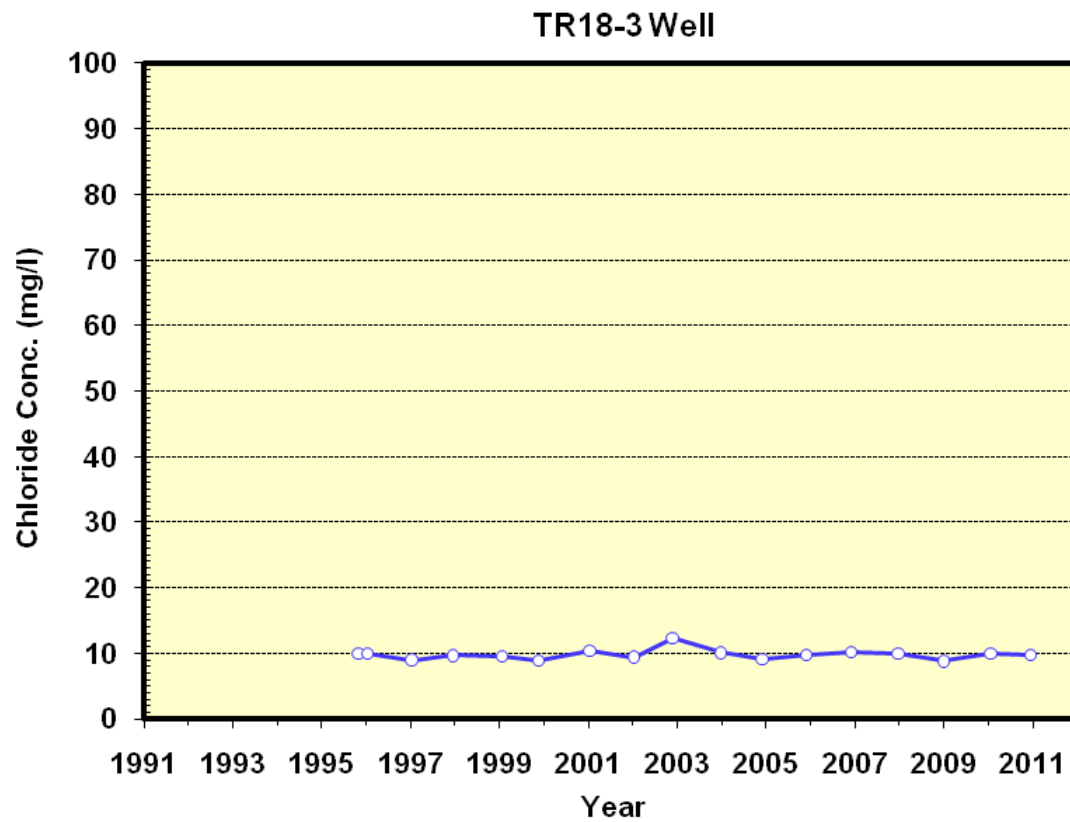
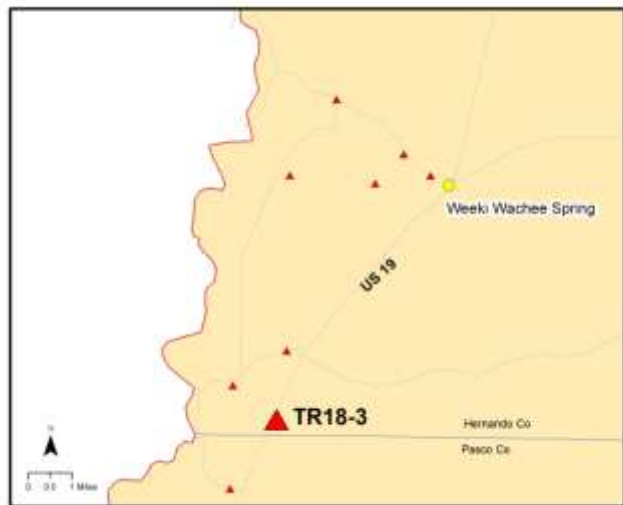
As promised during the workshop, a file showing time-series plots of chloride concentrations at a number of monitoring wells and springs along the Springs Coast is also now posted on the web page. The file is named *Coastal Chloride History* and is stored under the *Background Information and Reports* heading.

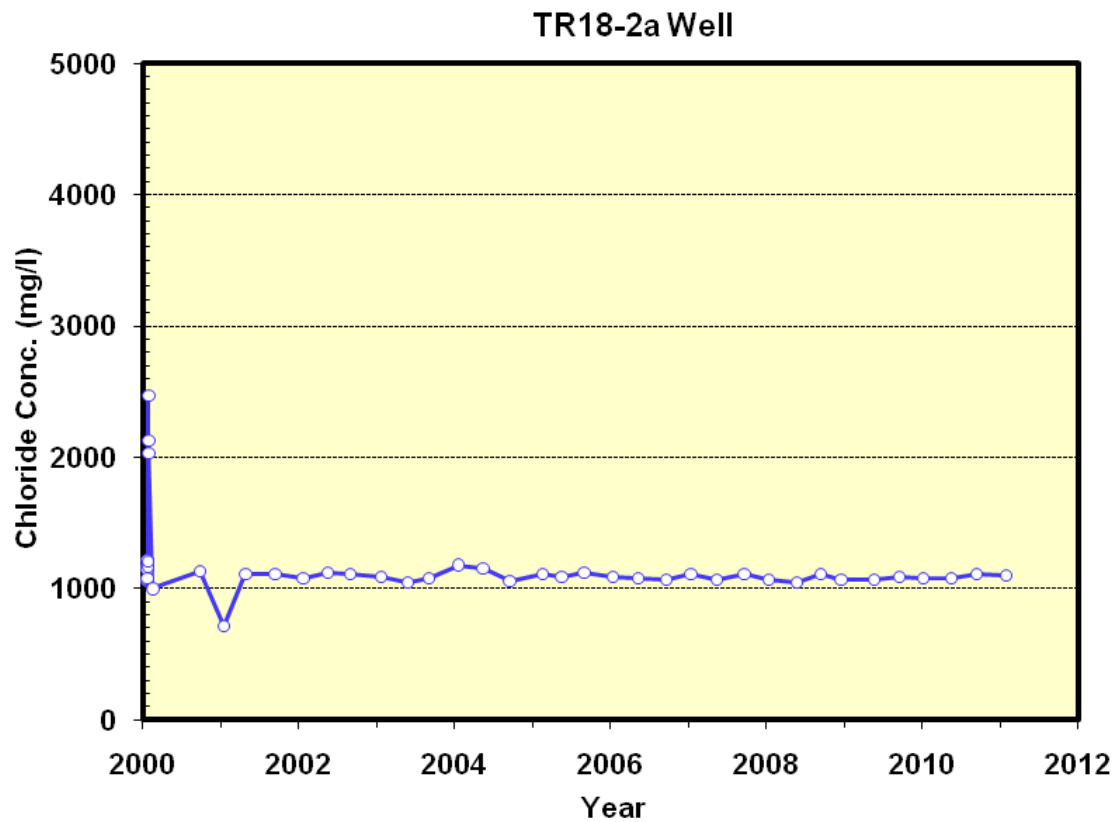
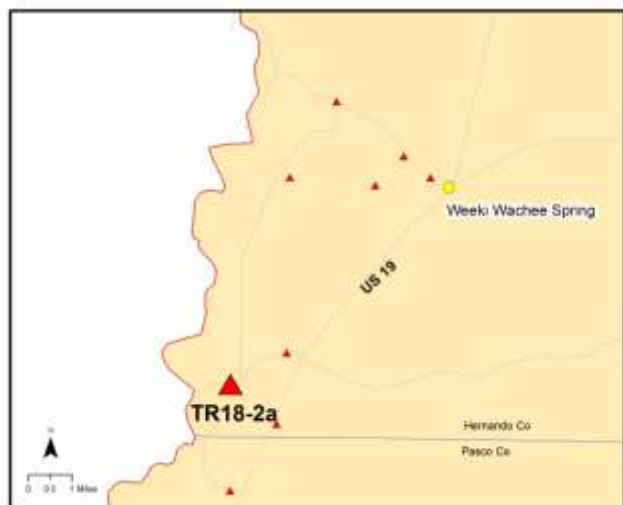
Thanks again for your contributions to the workshop and your interest in minimum flows and levels on the Springs Coast.

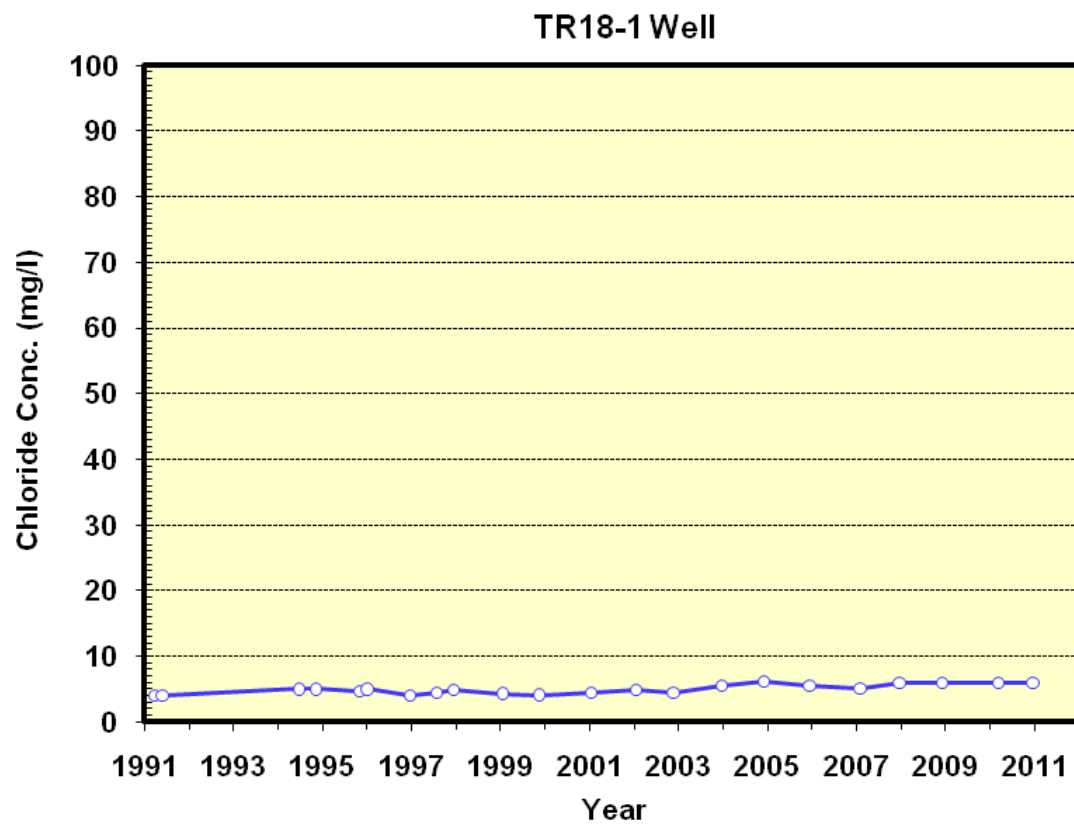
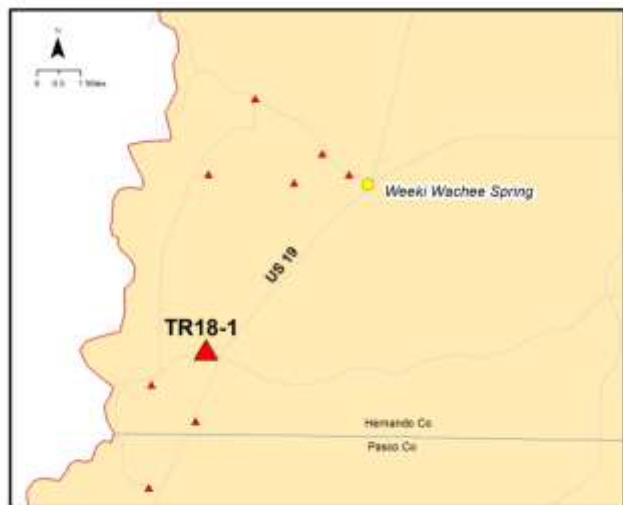
Douglas A. Leeper, Chief Environmental Scientist
Resource Projects Department, Southwest Florida Water Management District
2379 Broad Street, Brooksville, FL 34604-6899
Telephone: 1-800-423-1476, ext. 4272 (FL only) or 352-796-7211, ext. 4272
Fax: 352-754-6885
E-Mail: doug.leeper@watermatters.org
Web Site: watermatters.org

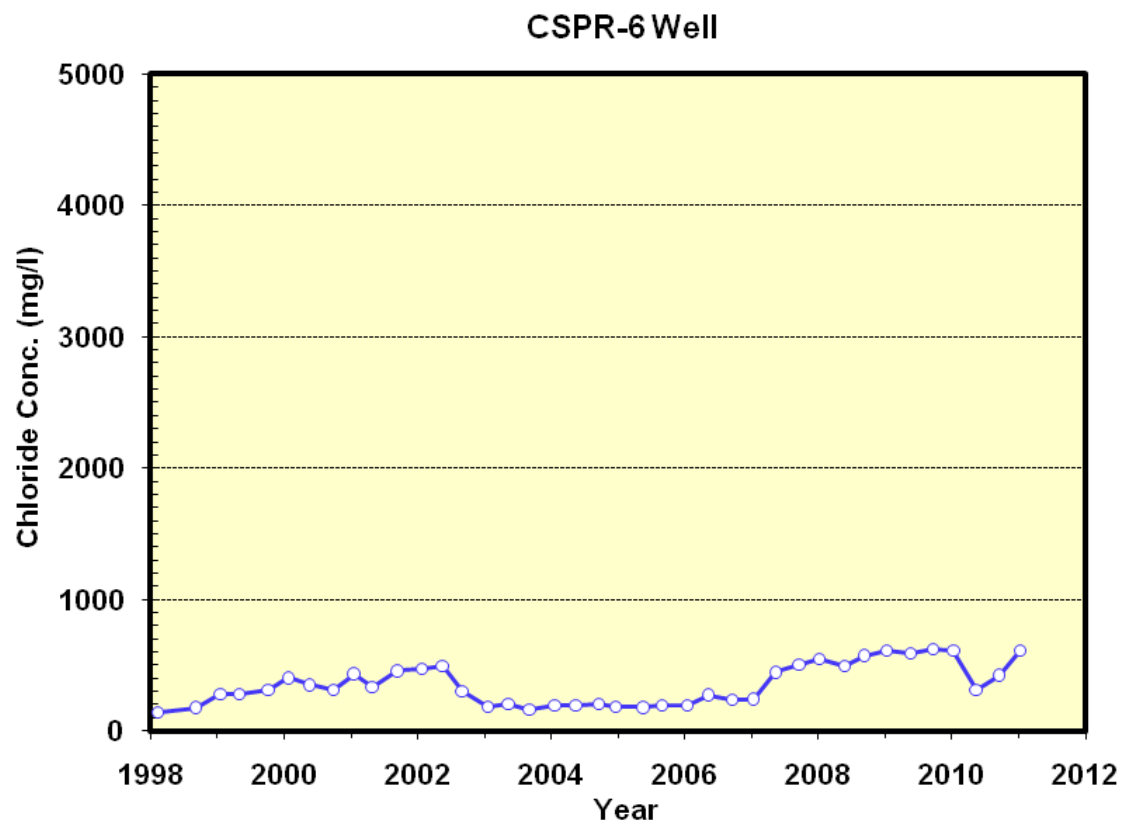
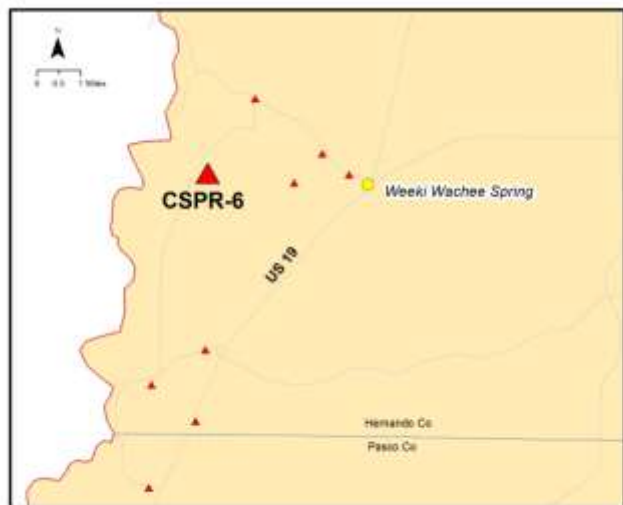


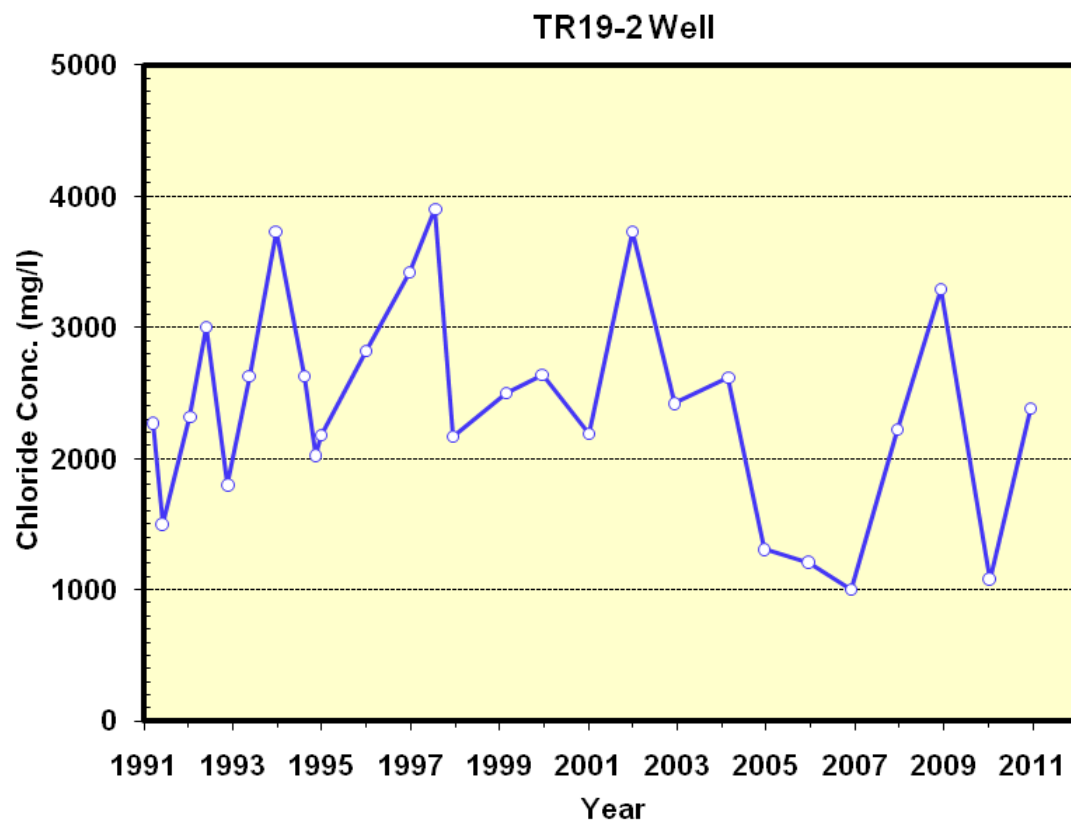
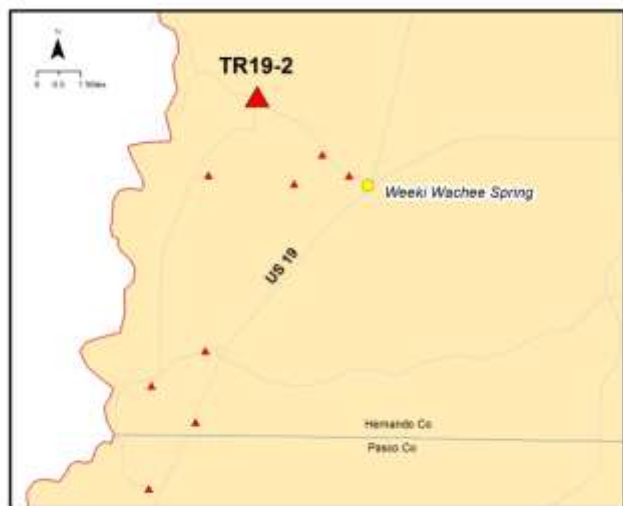


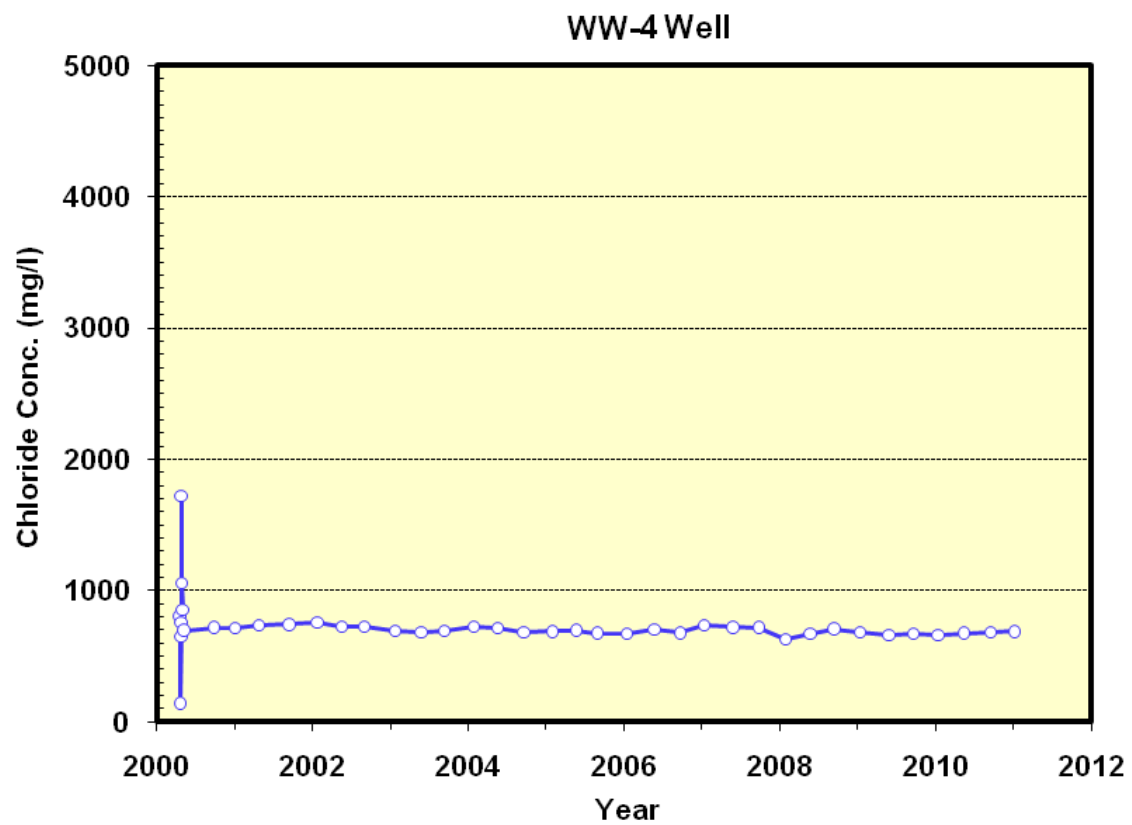
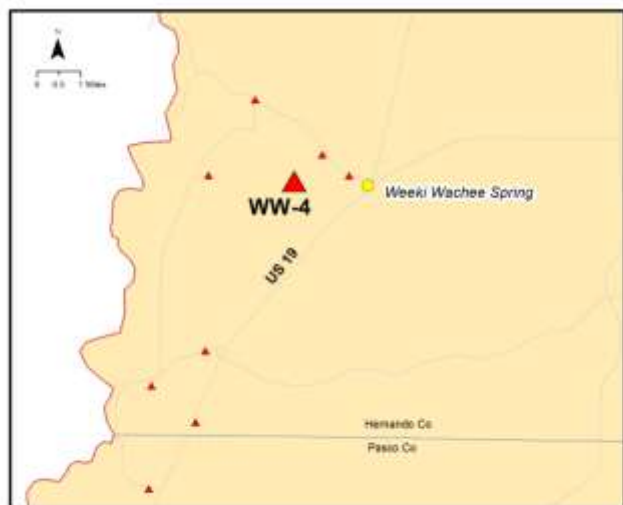


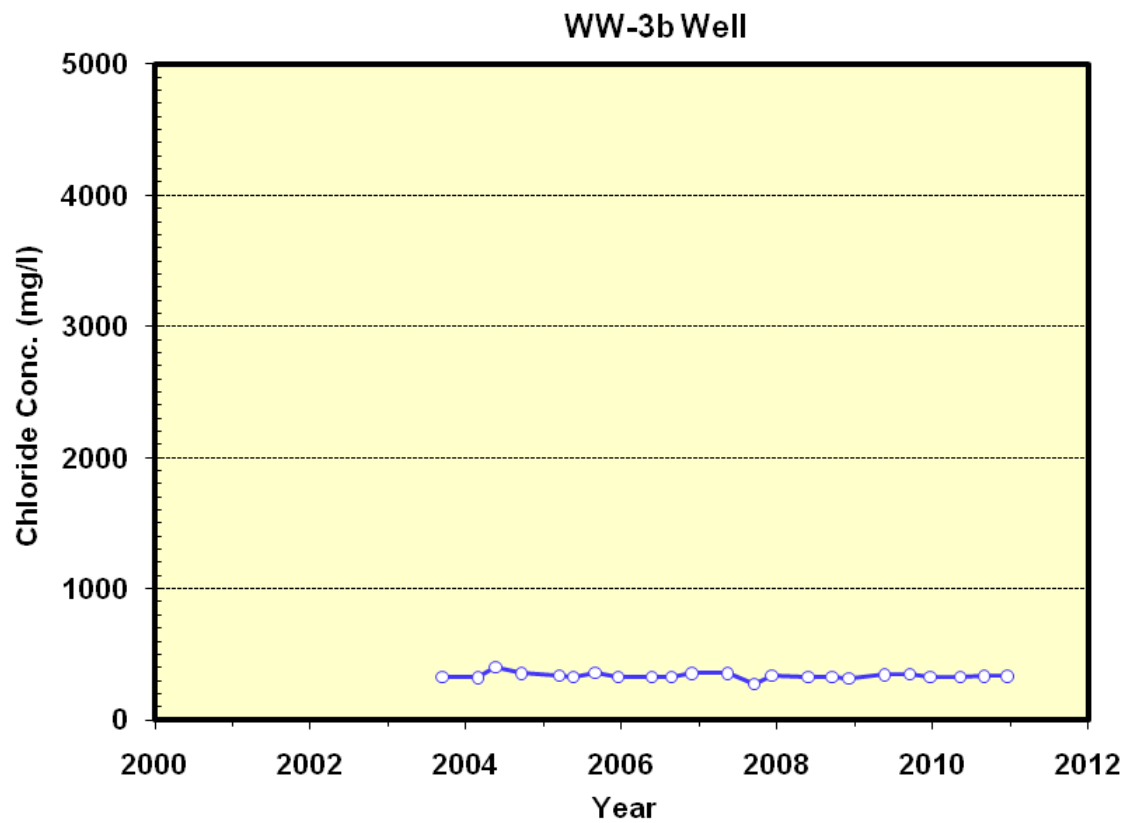
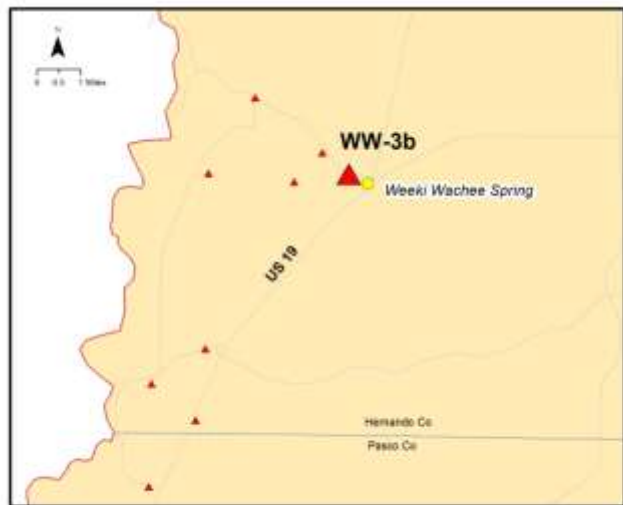


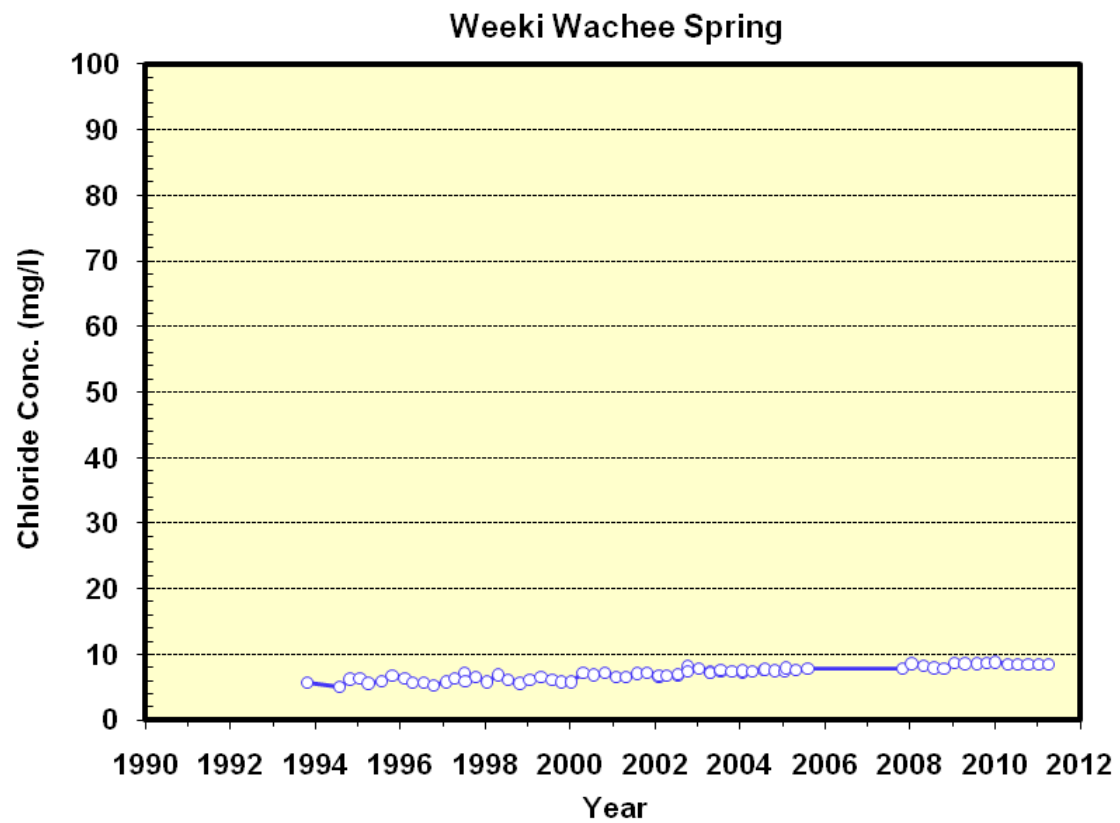
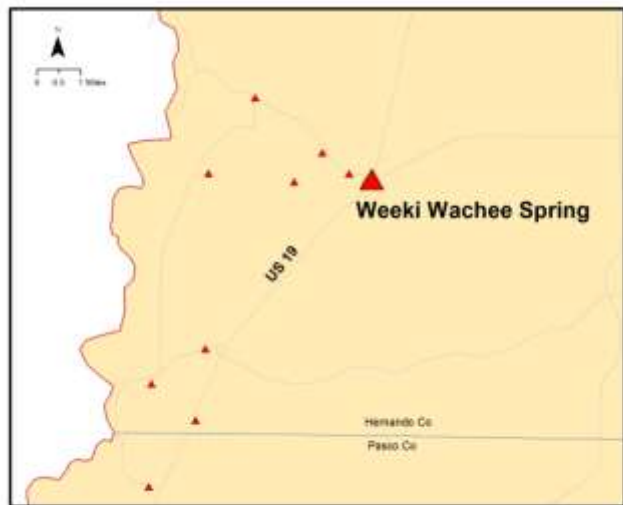


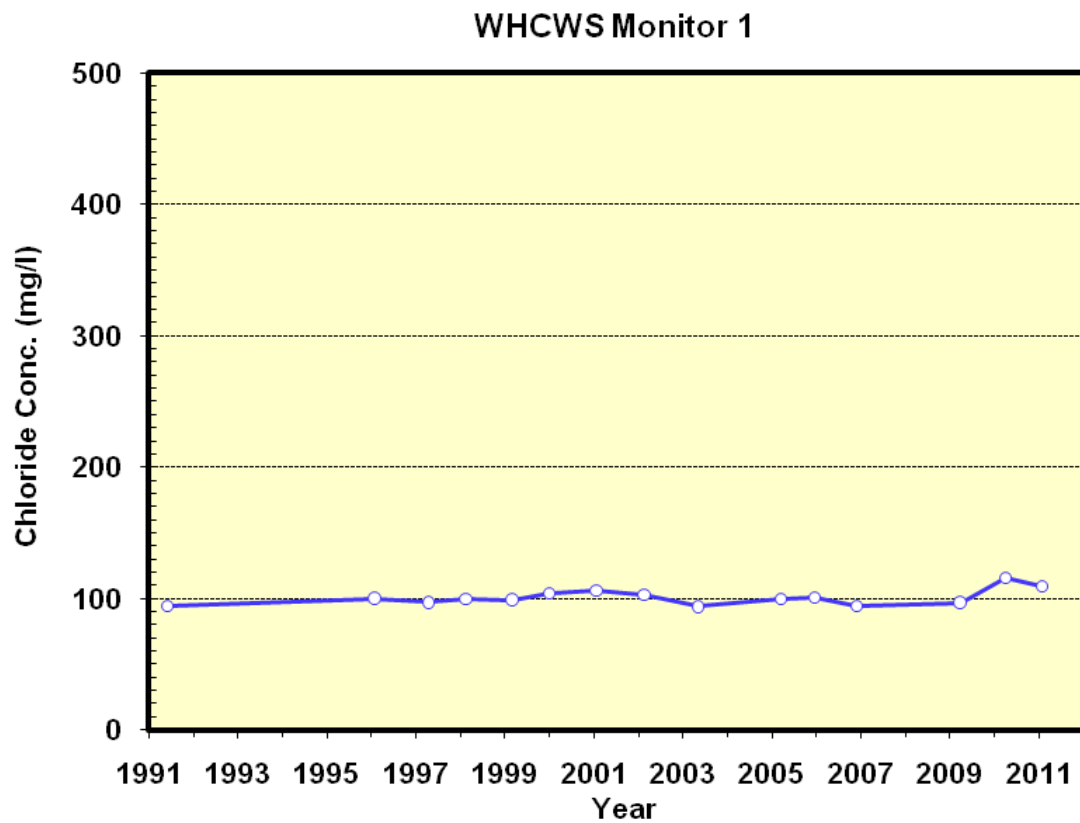
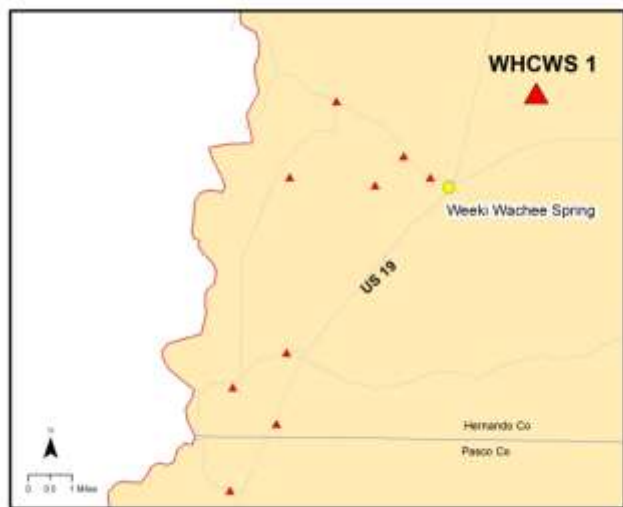


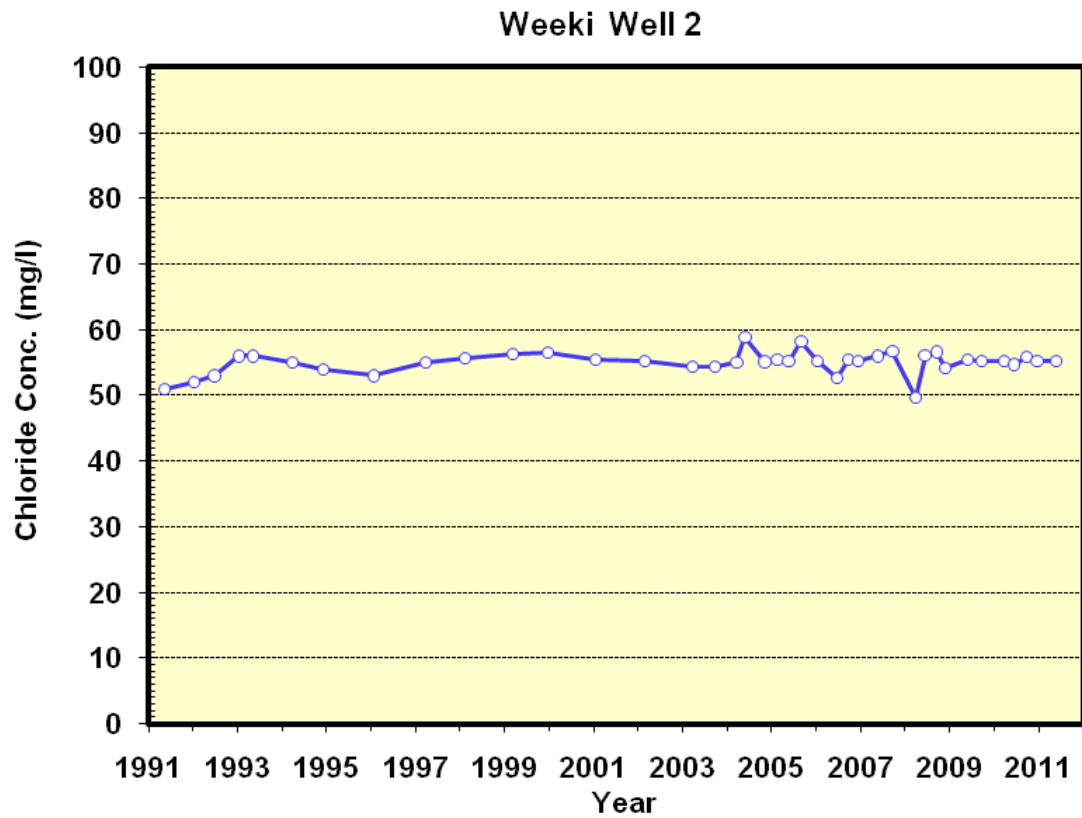
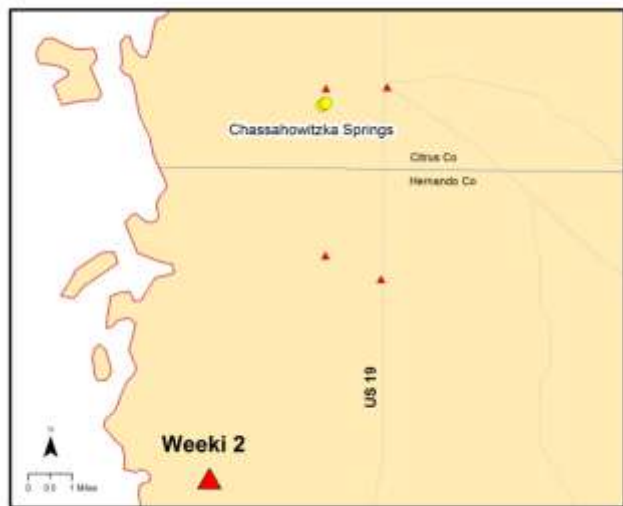


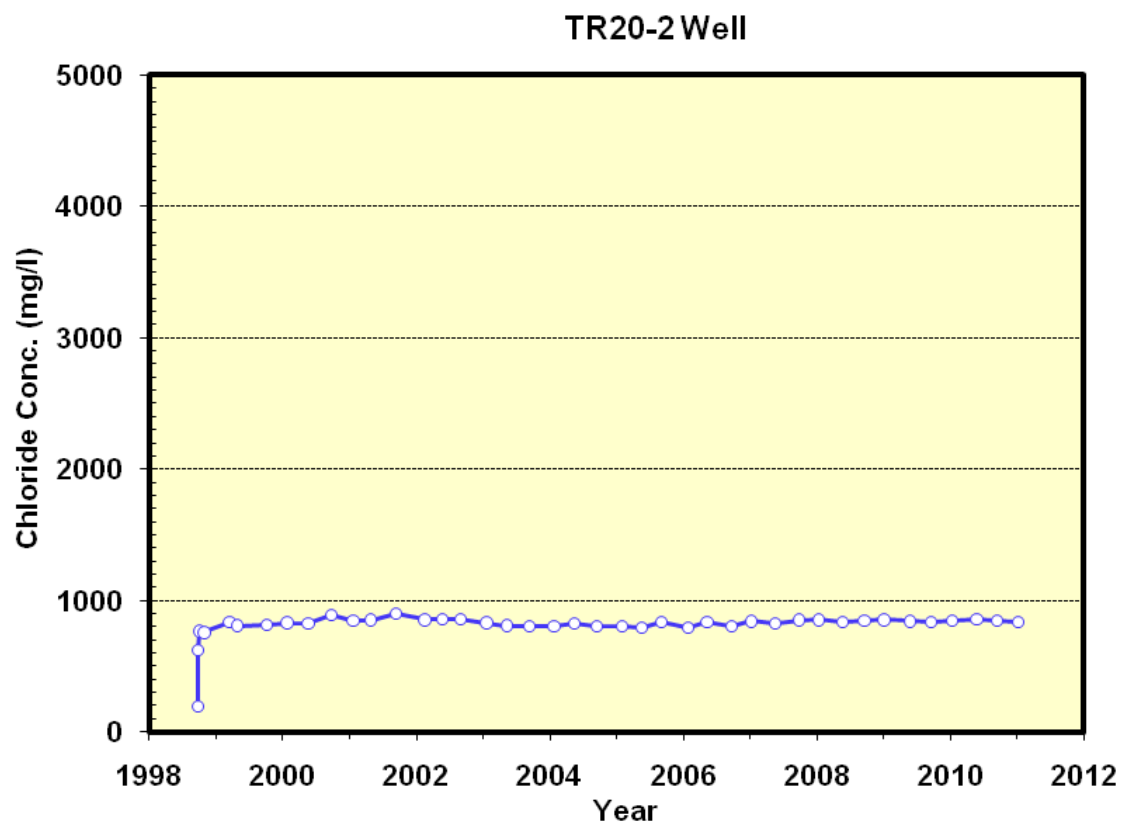
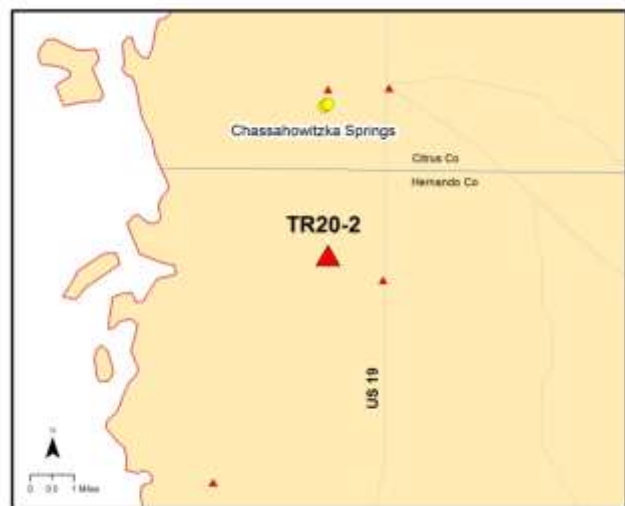


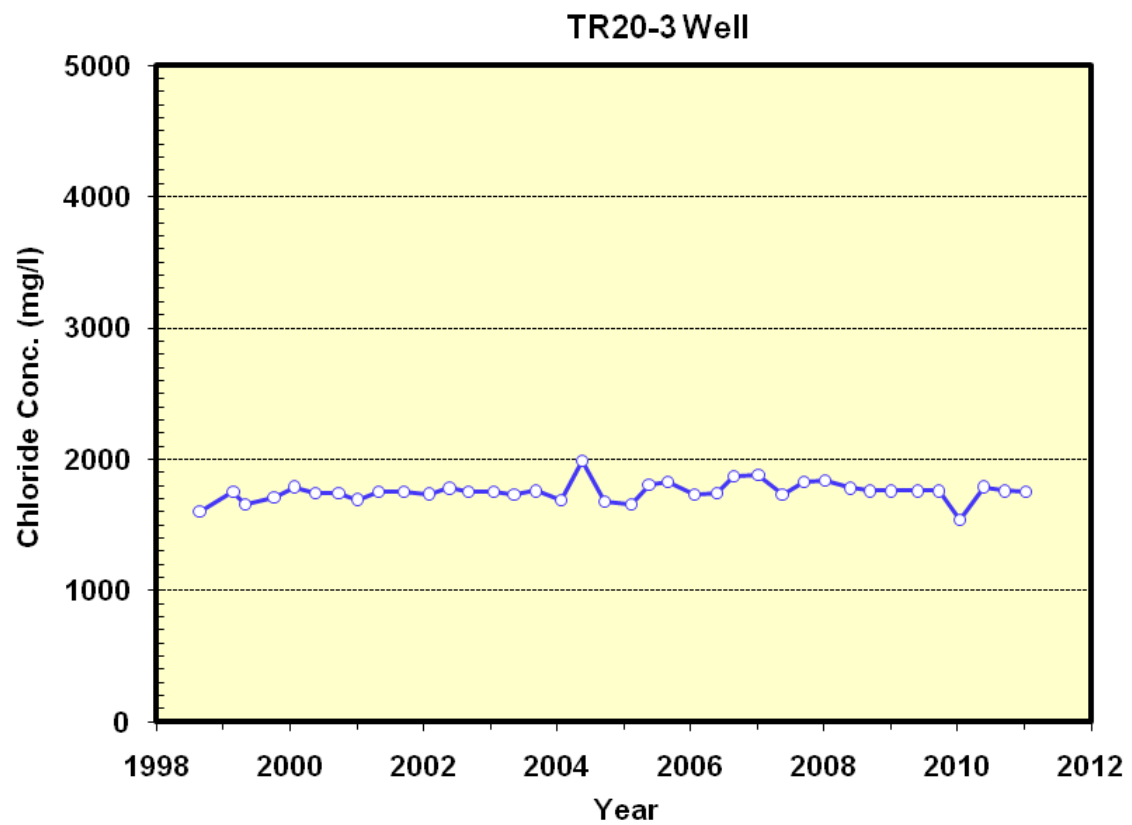
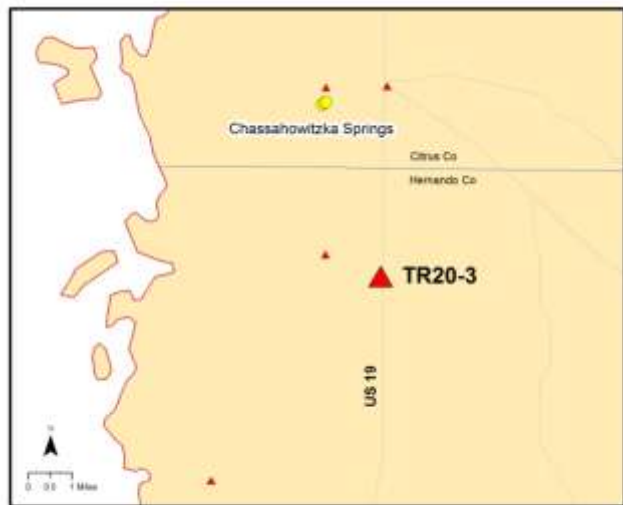


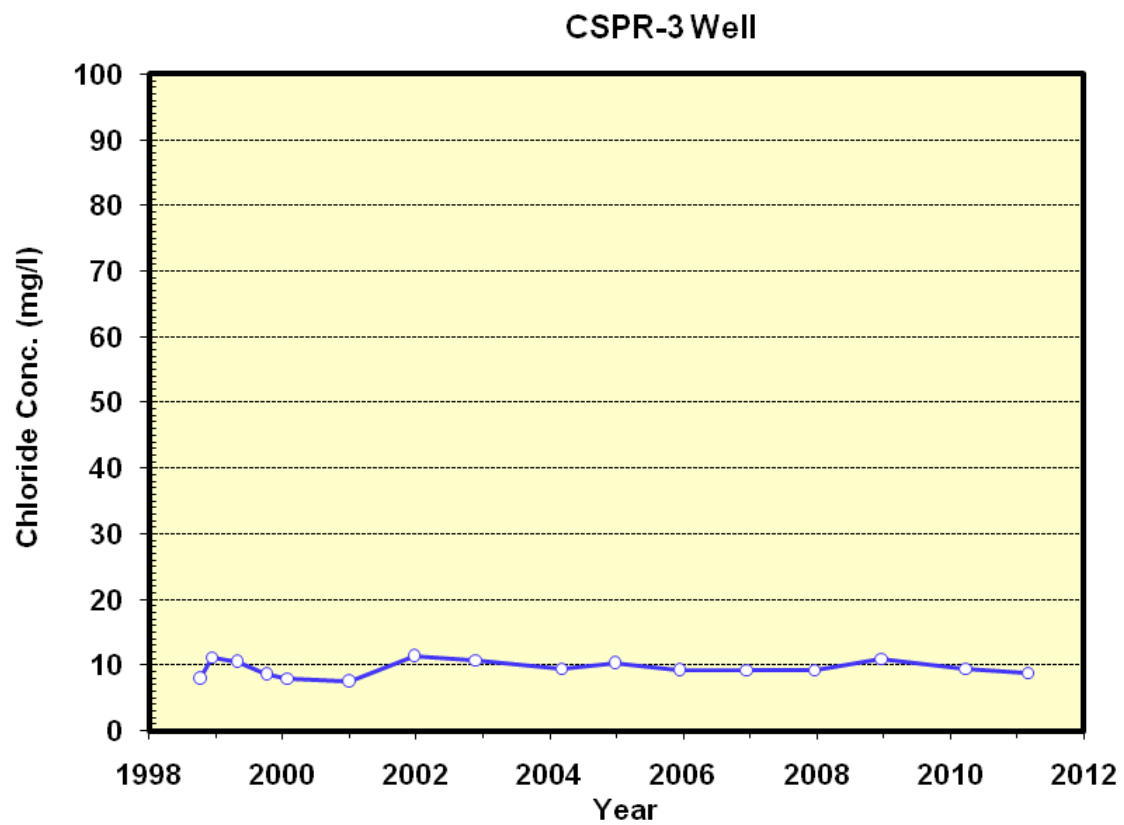
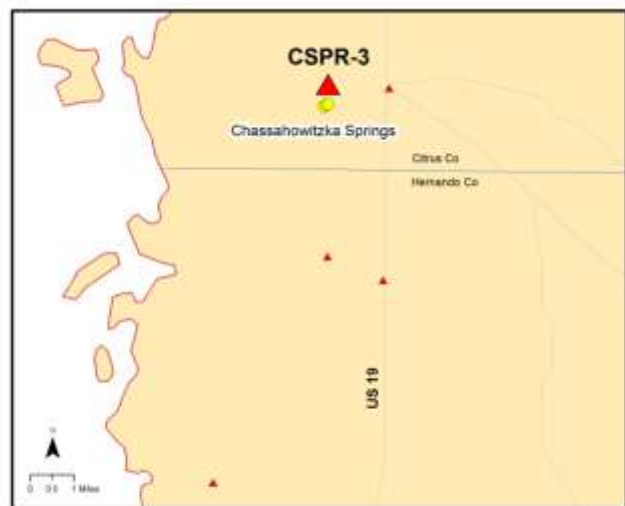


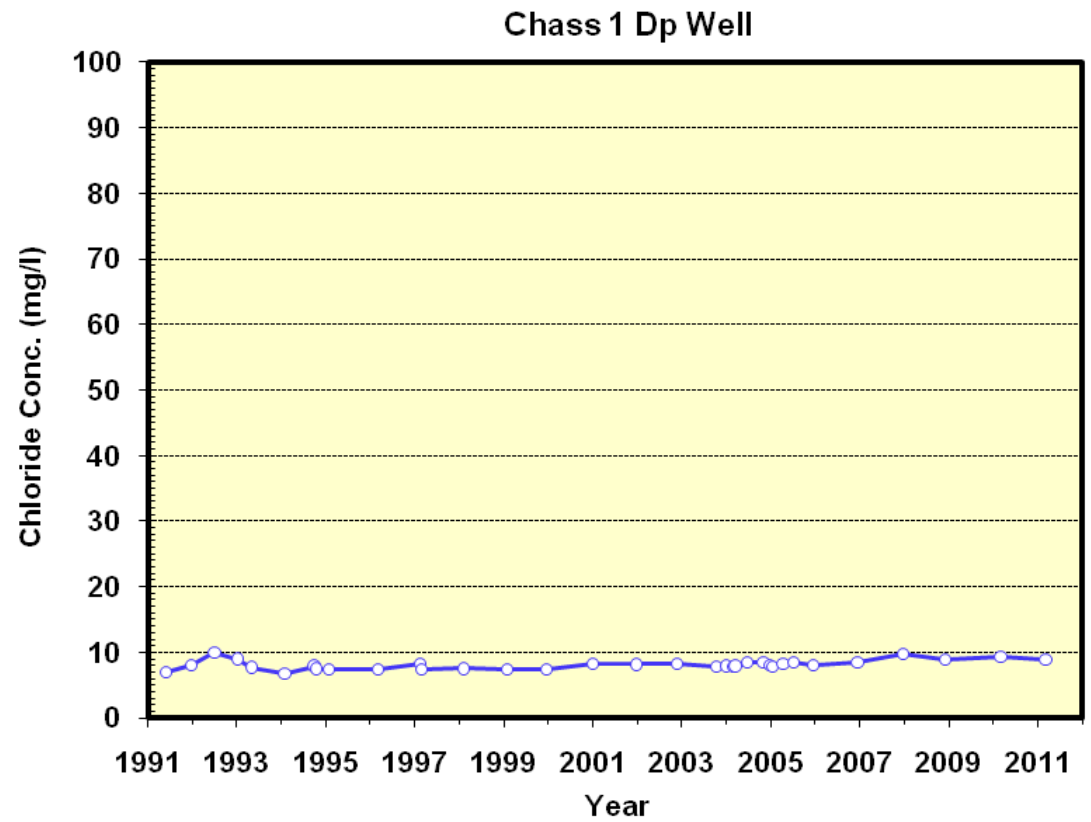


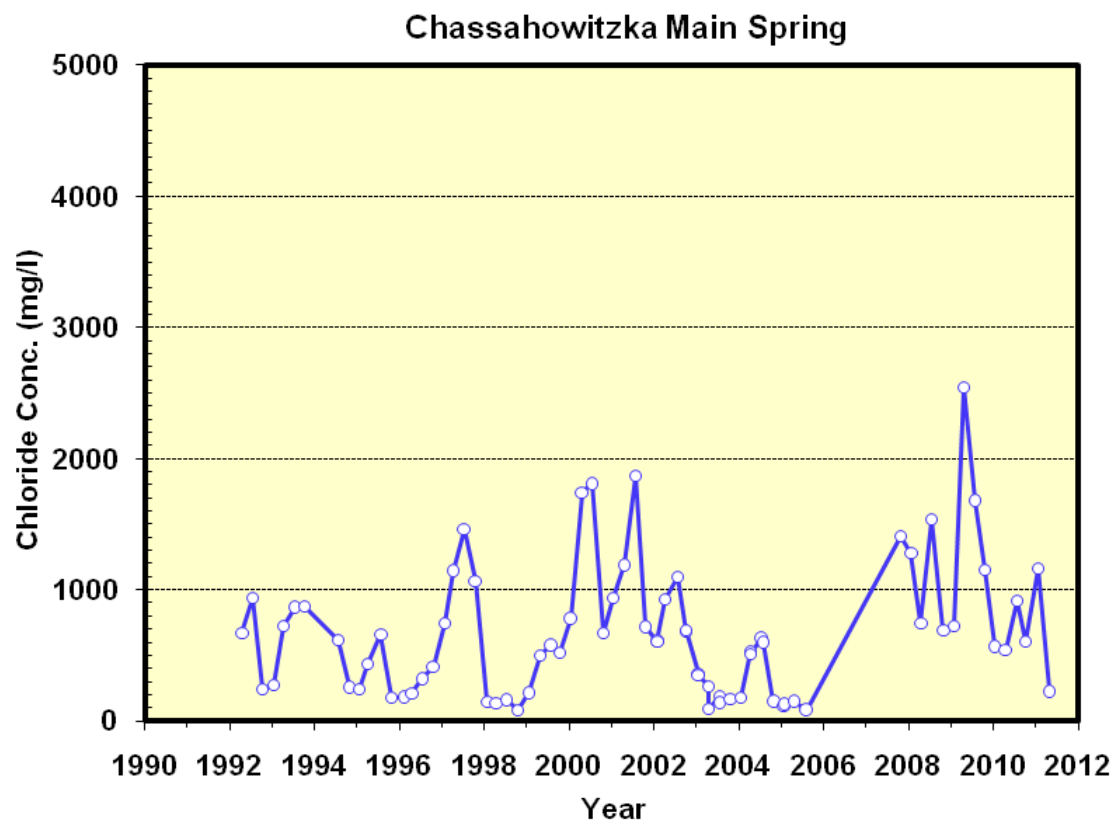
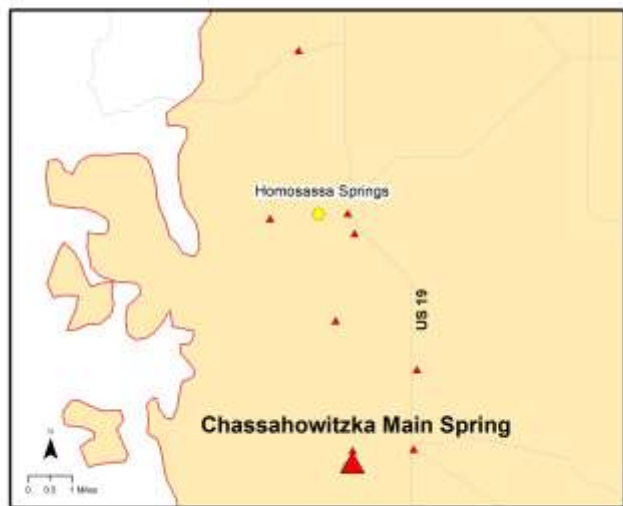


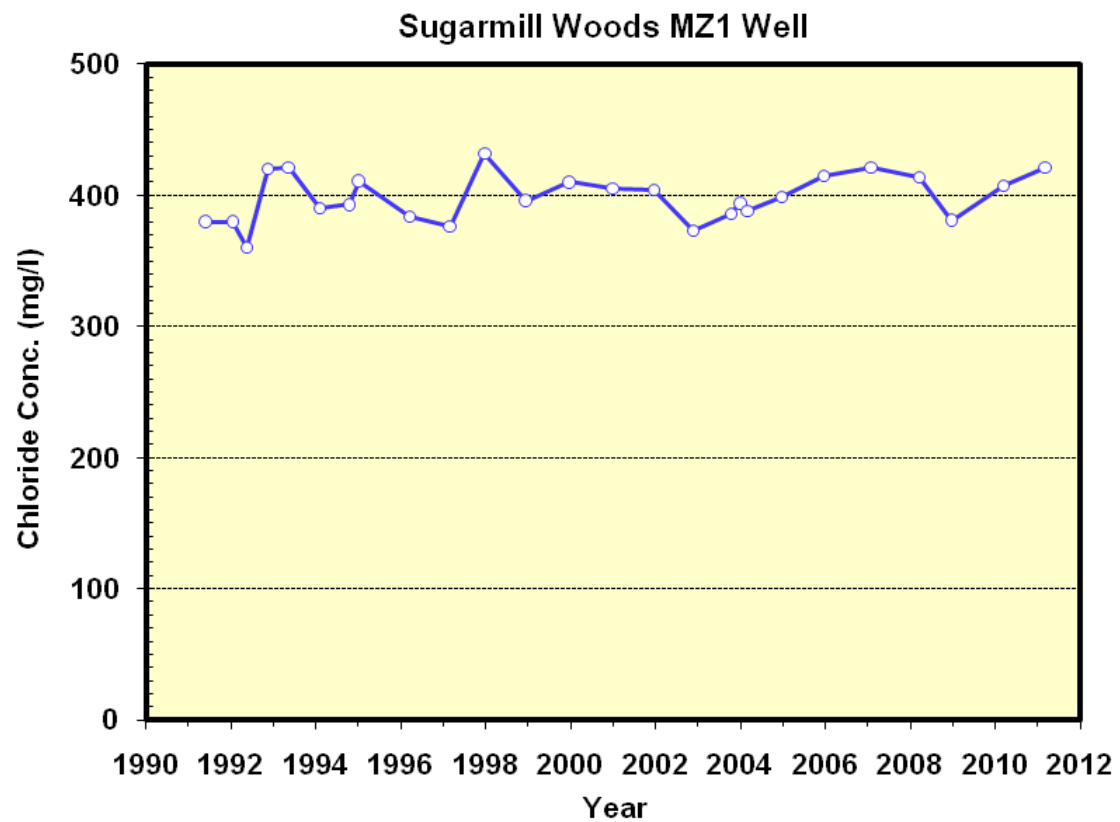
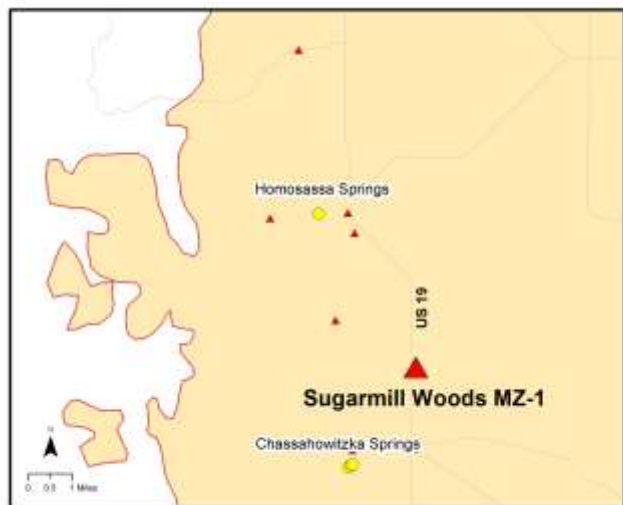


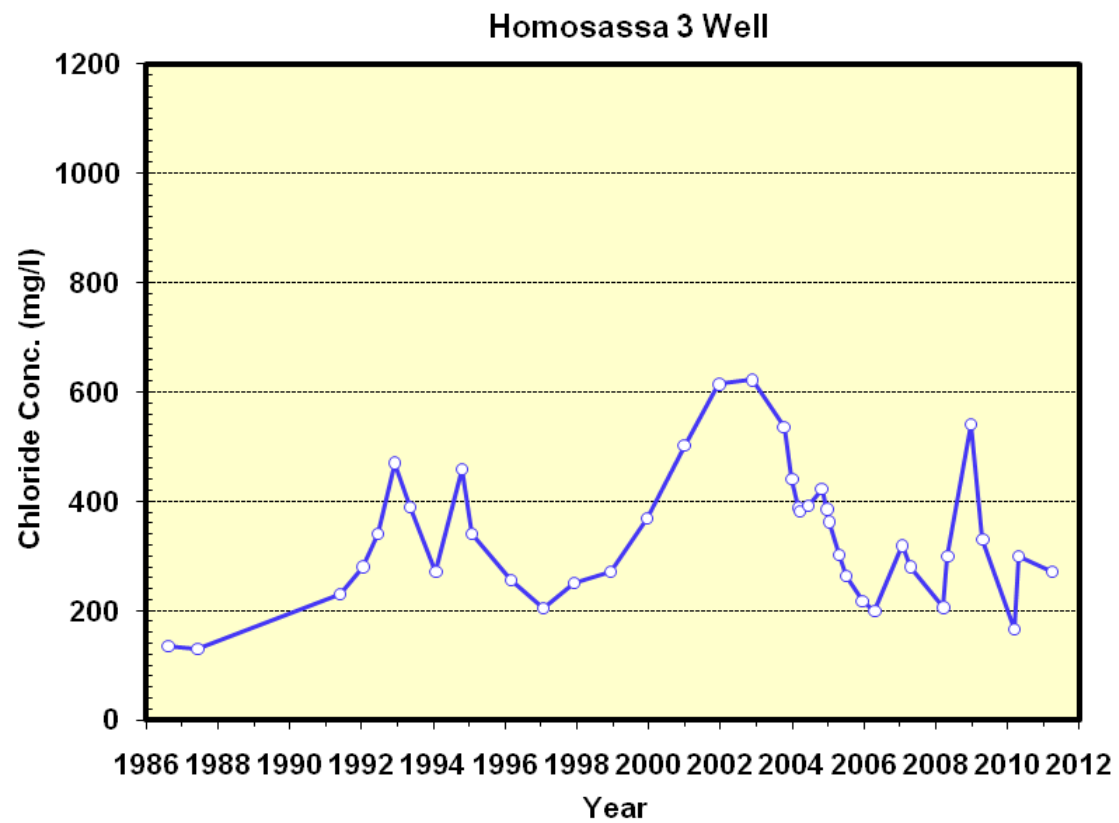
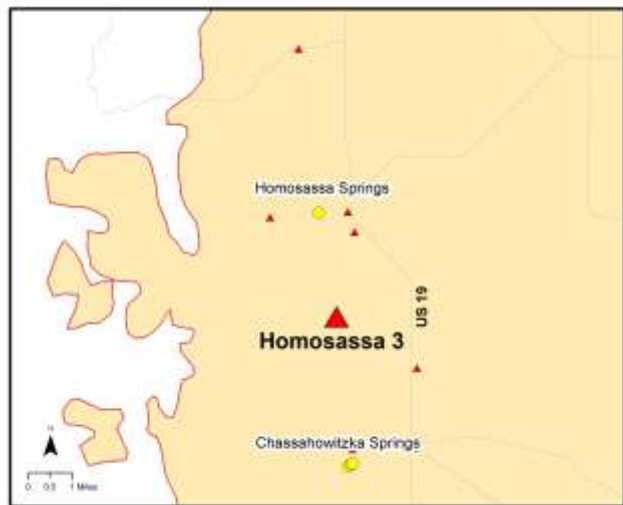


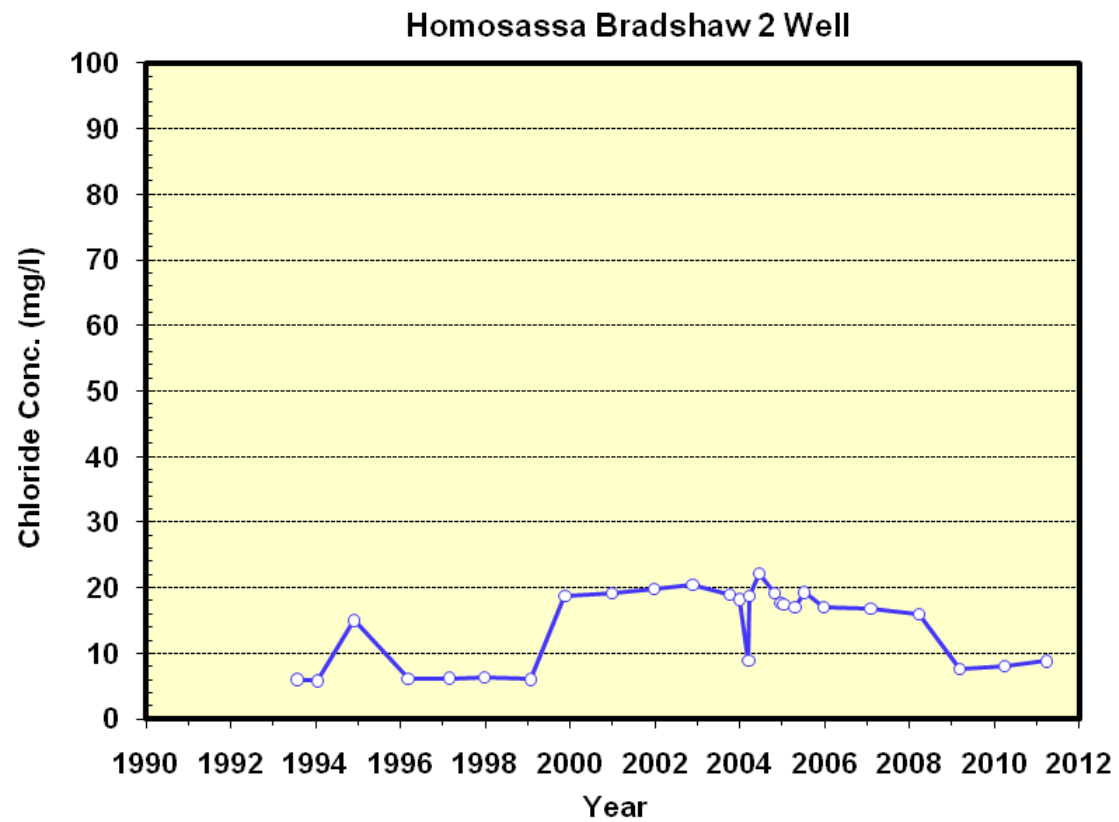


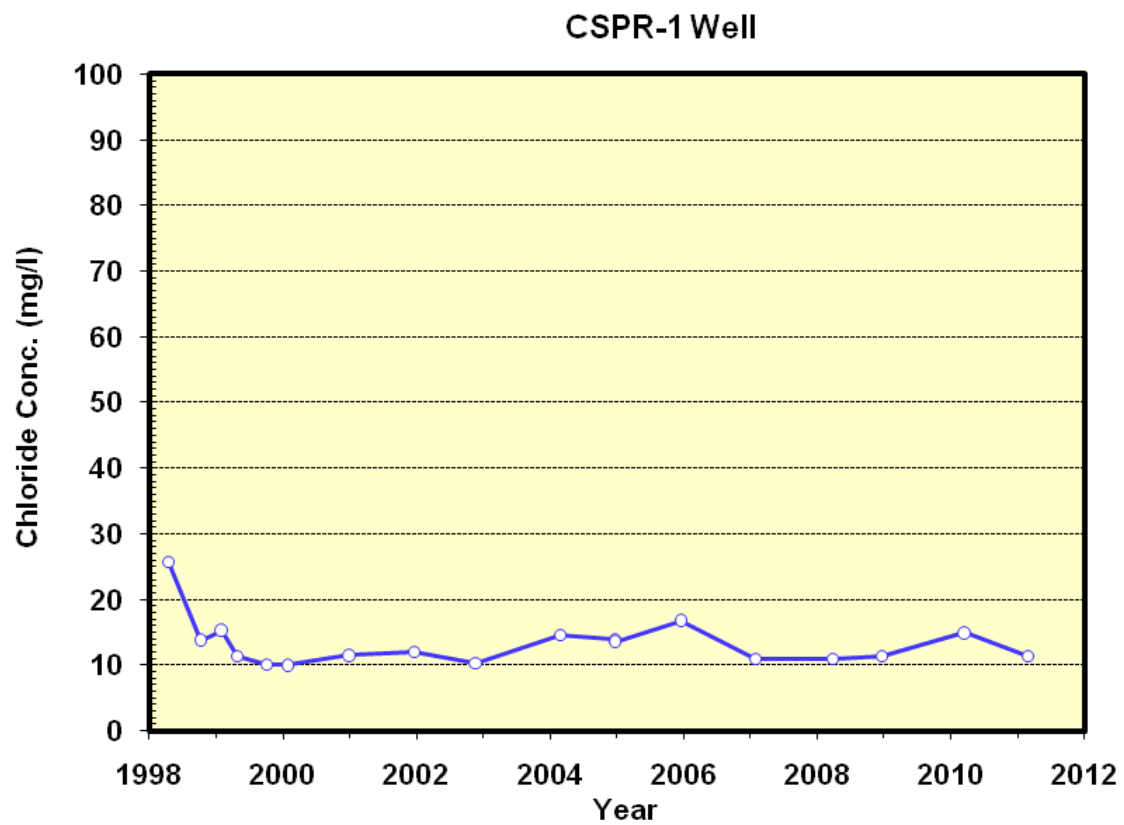
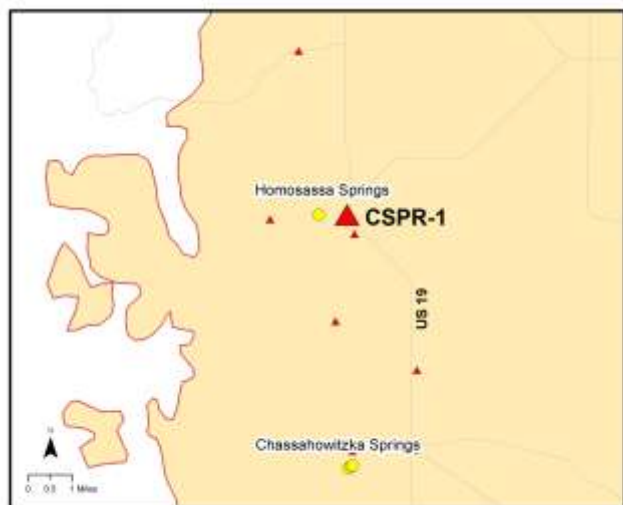


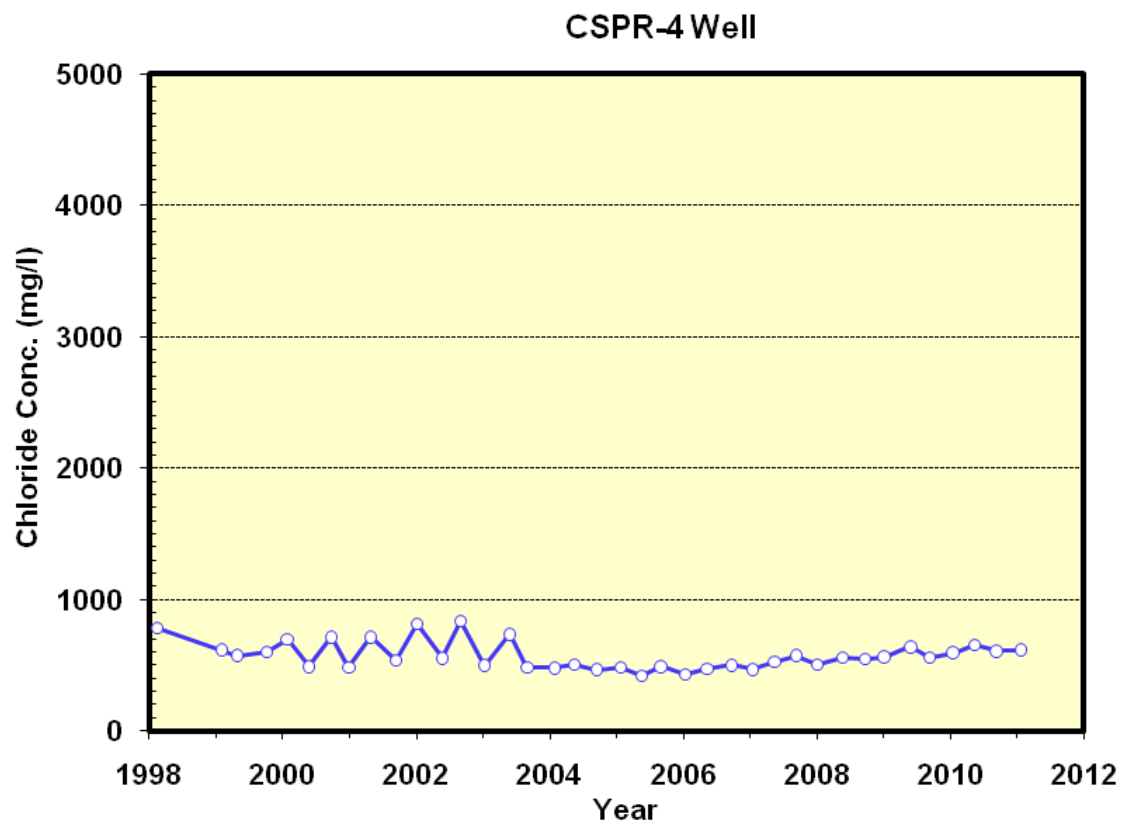
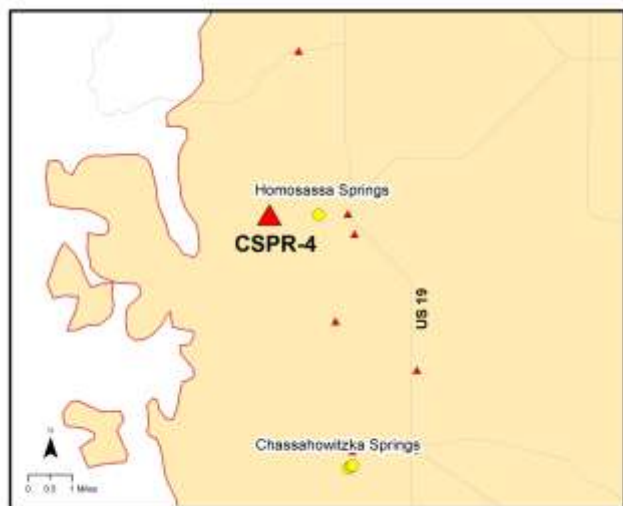


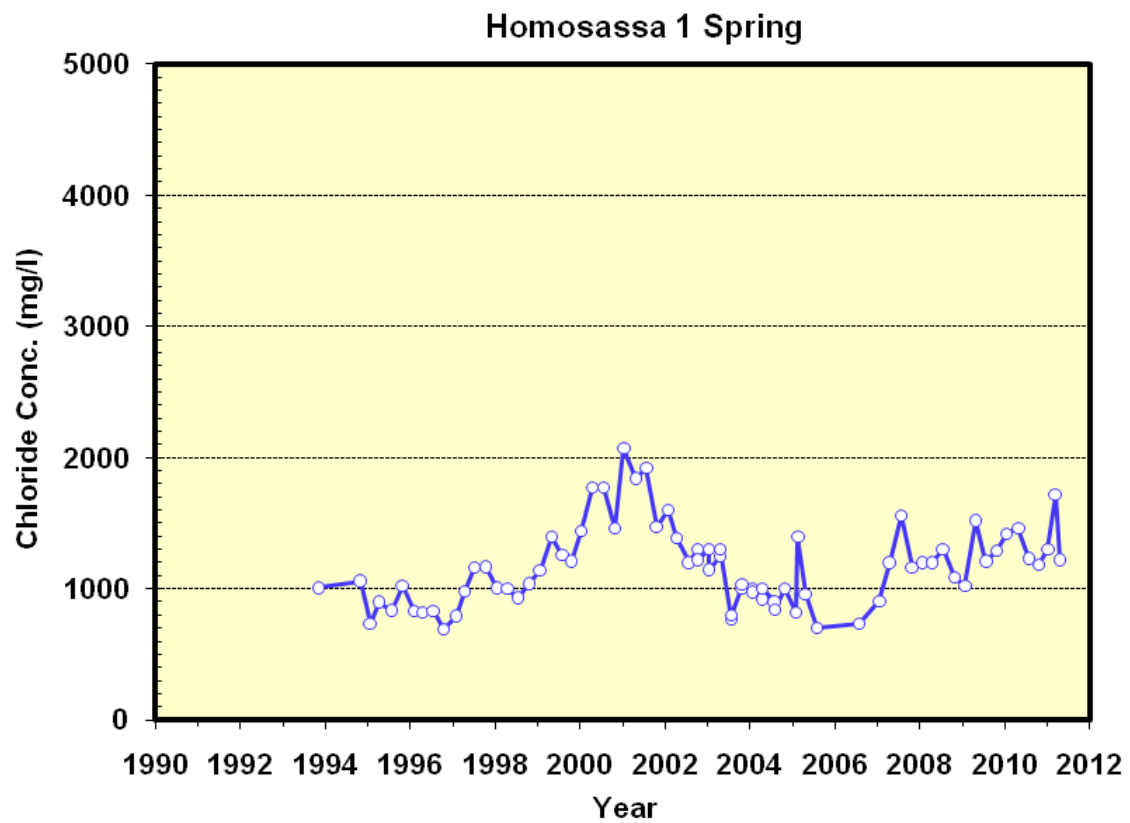


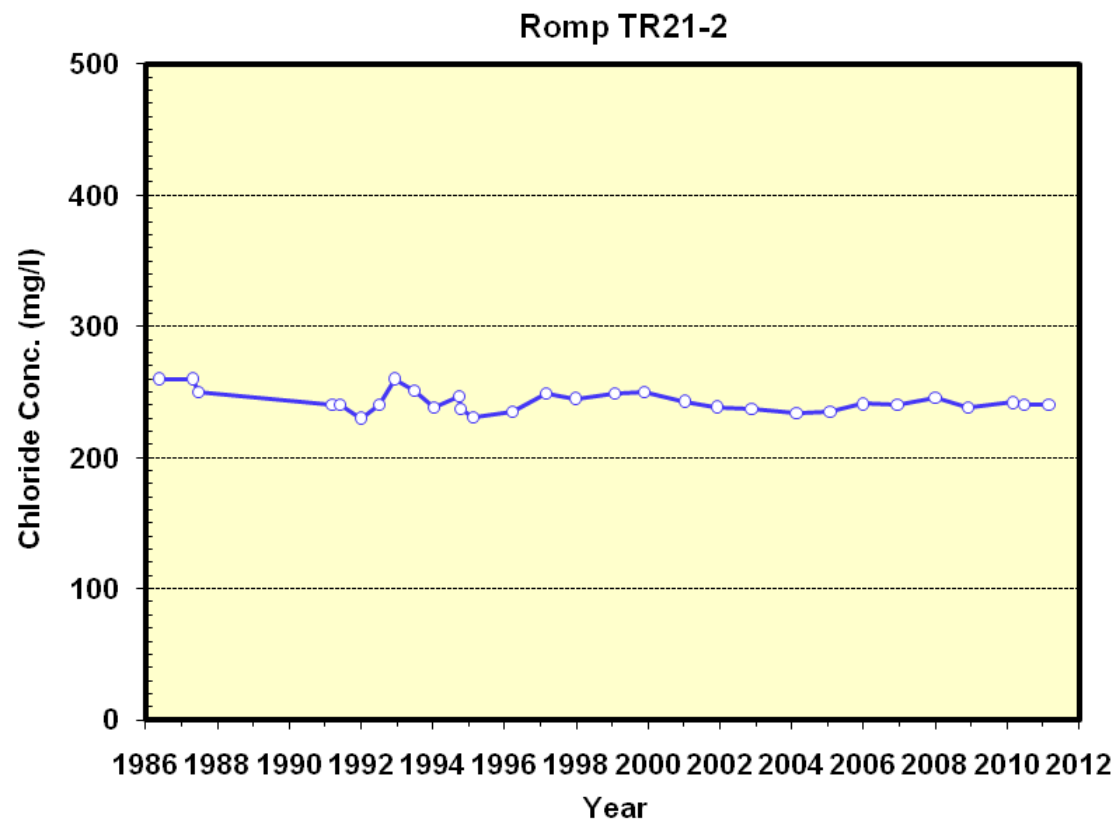
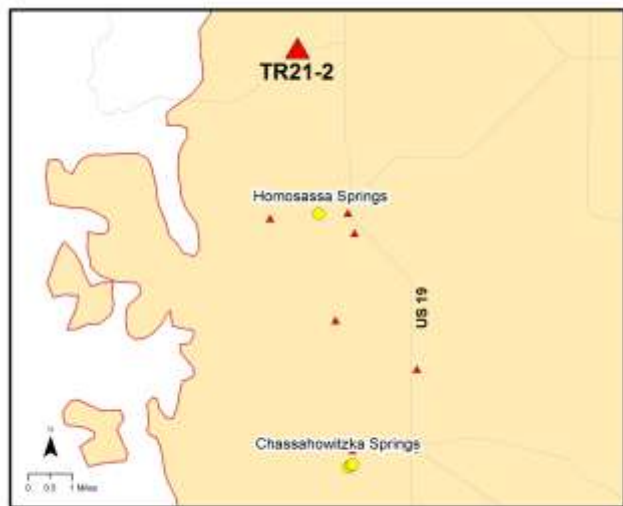


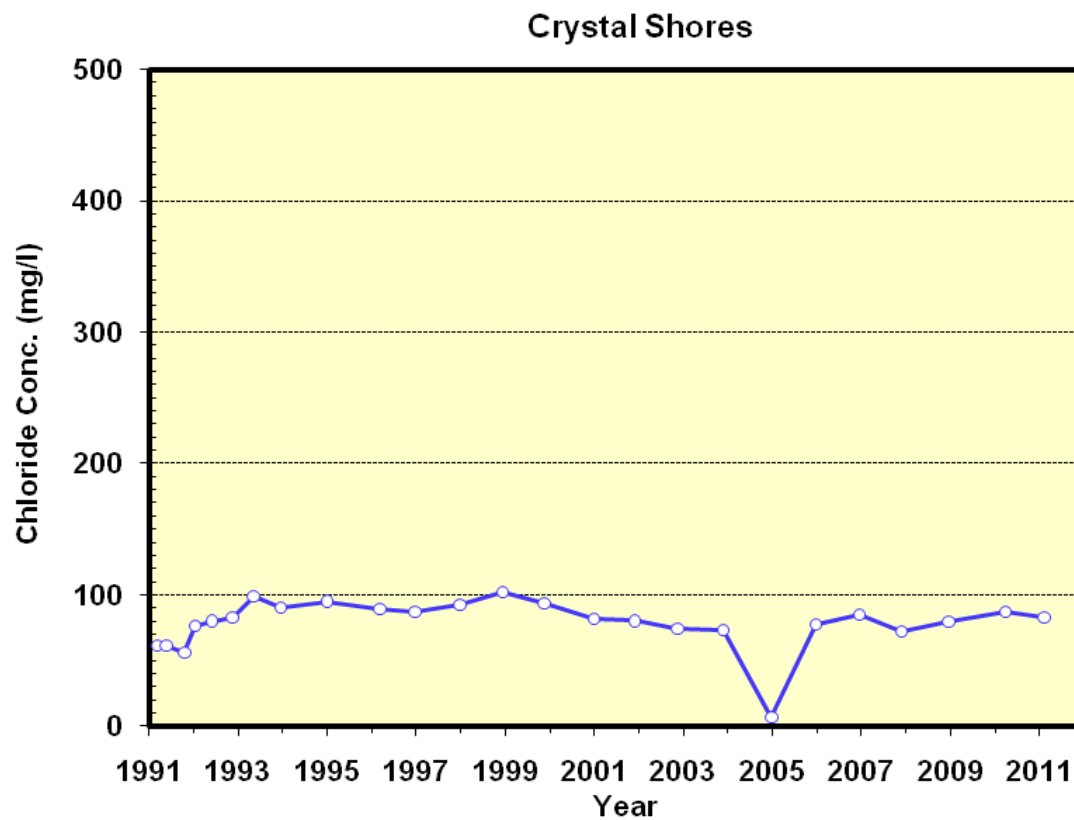
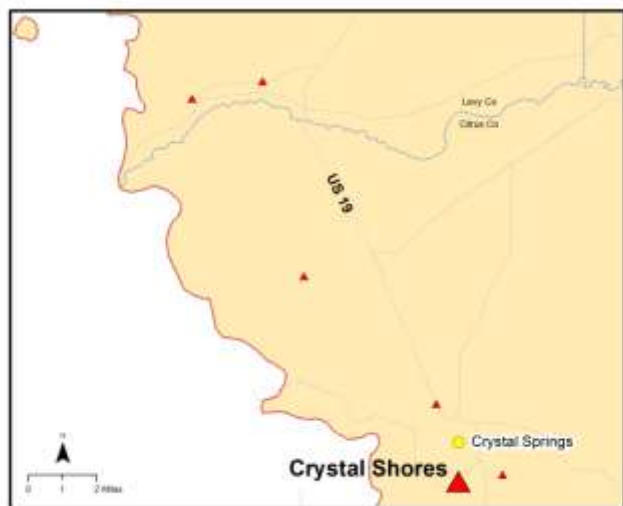


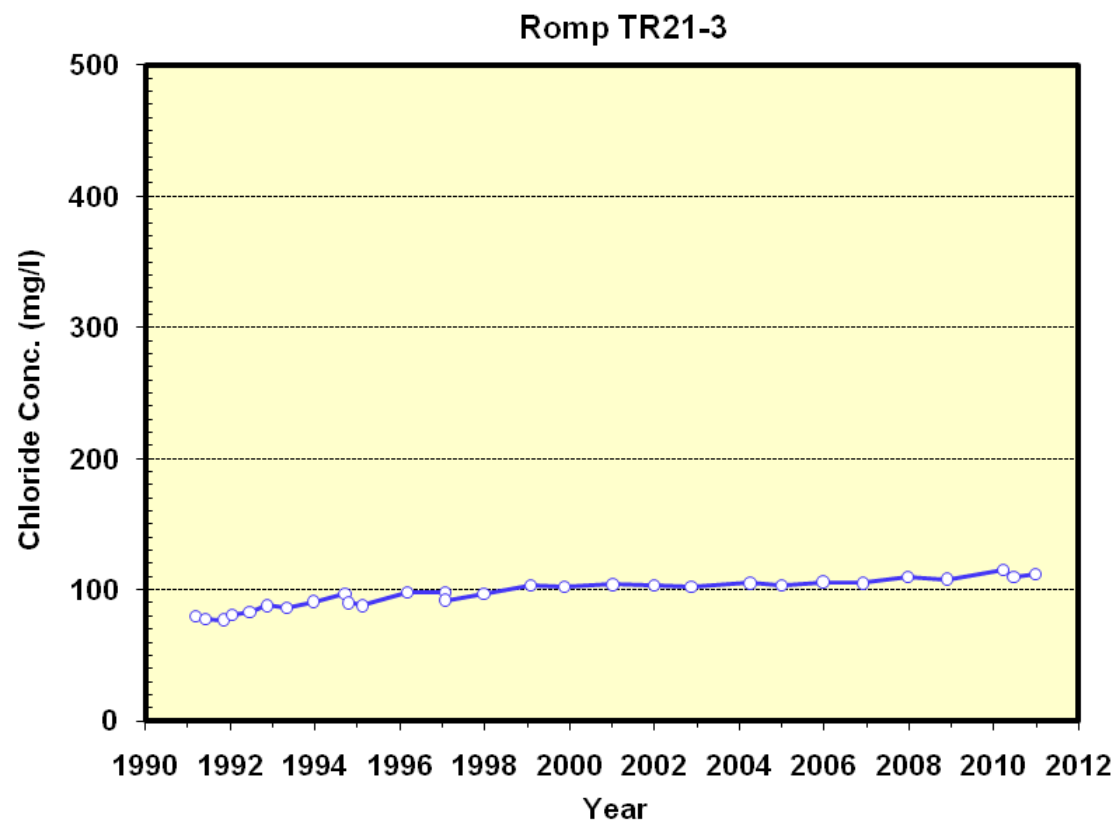
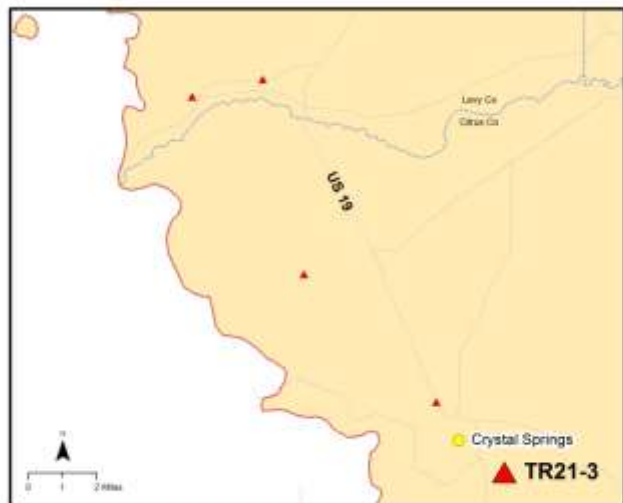


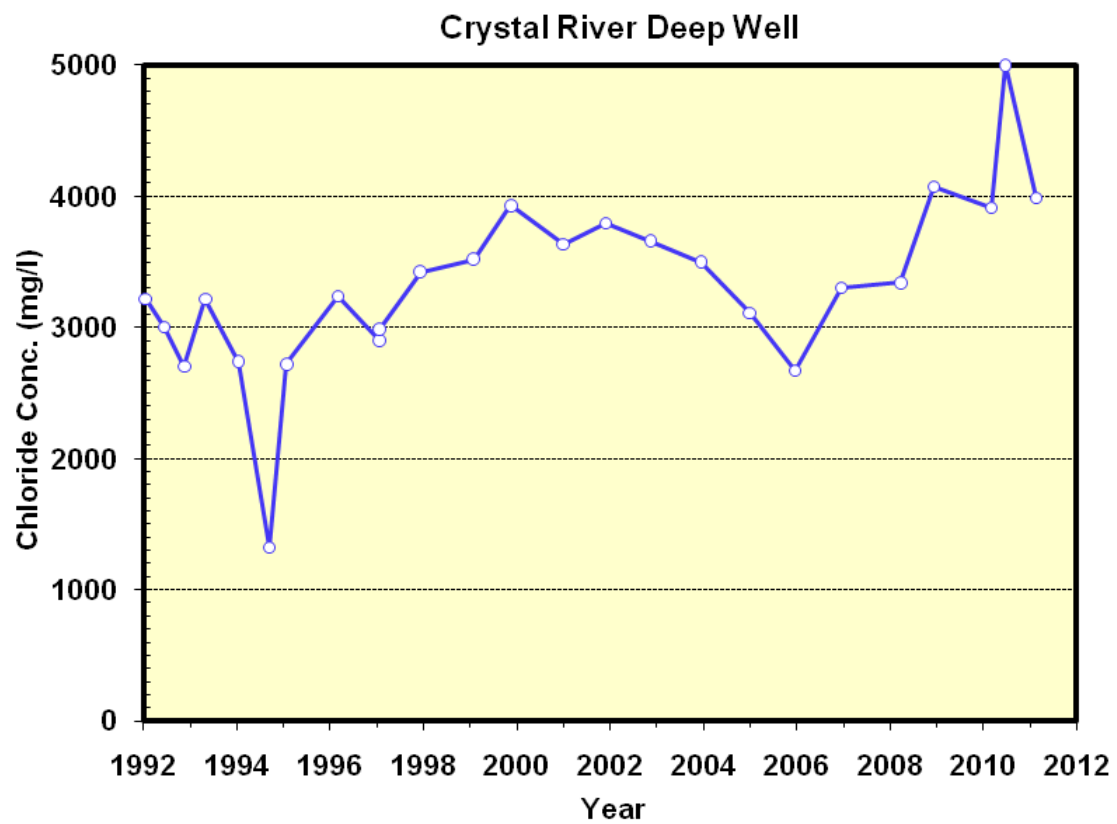
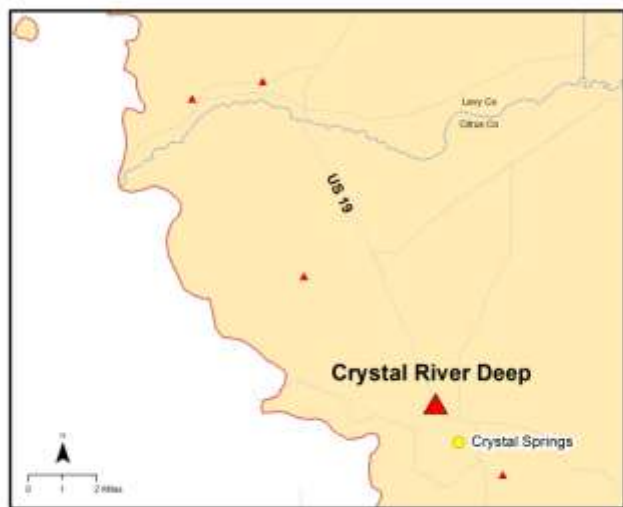


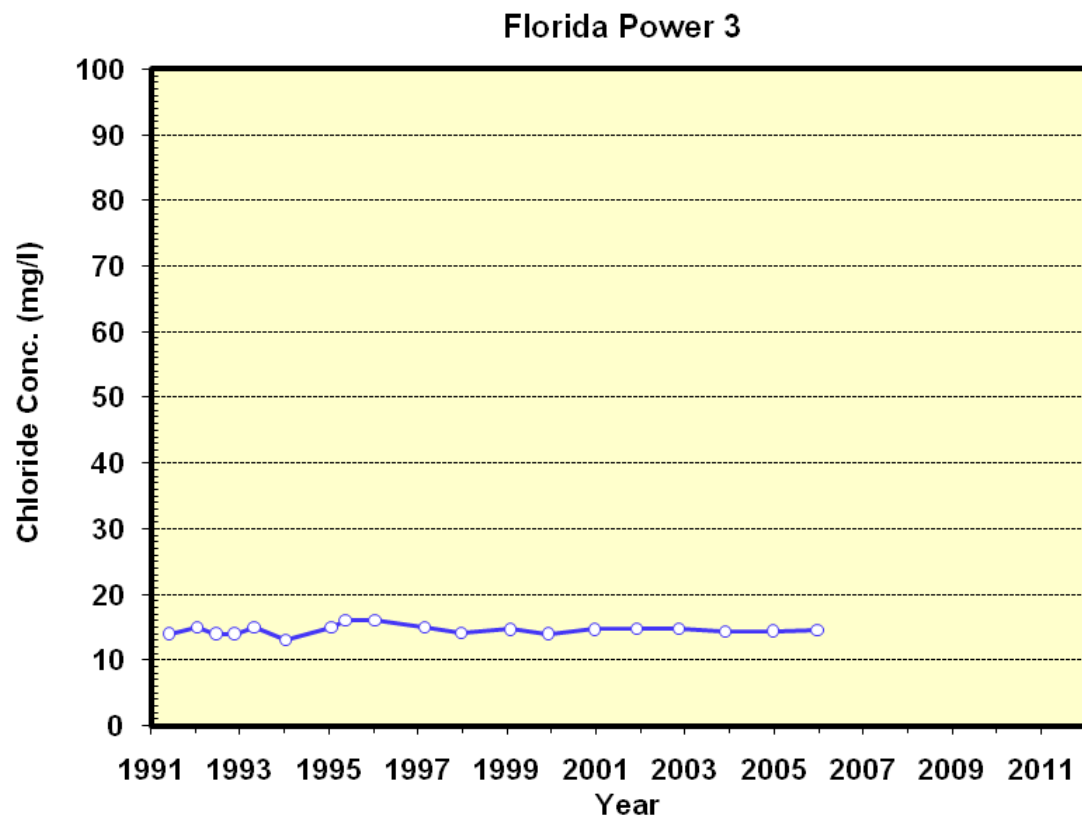
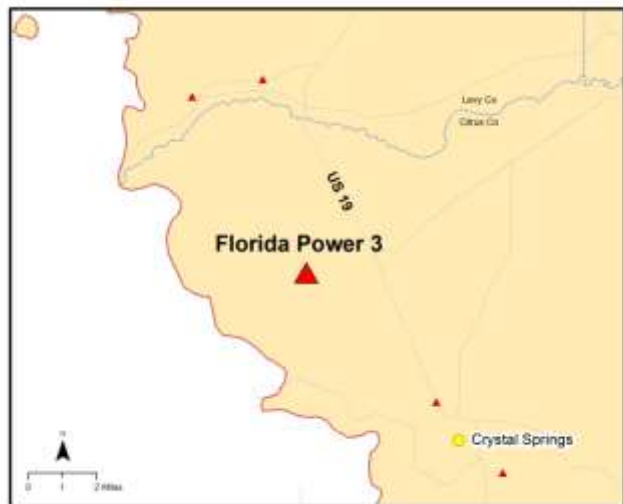


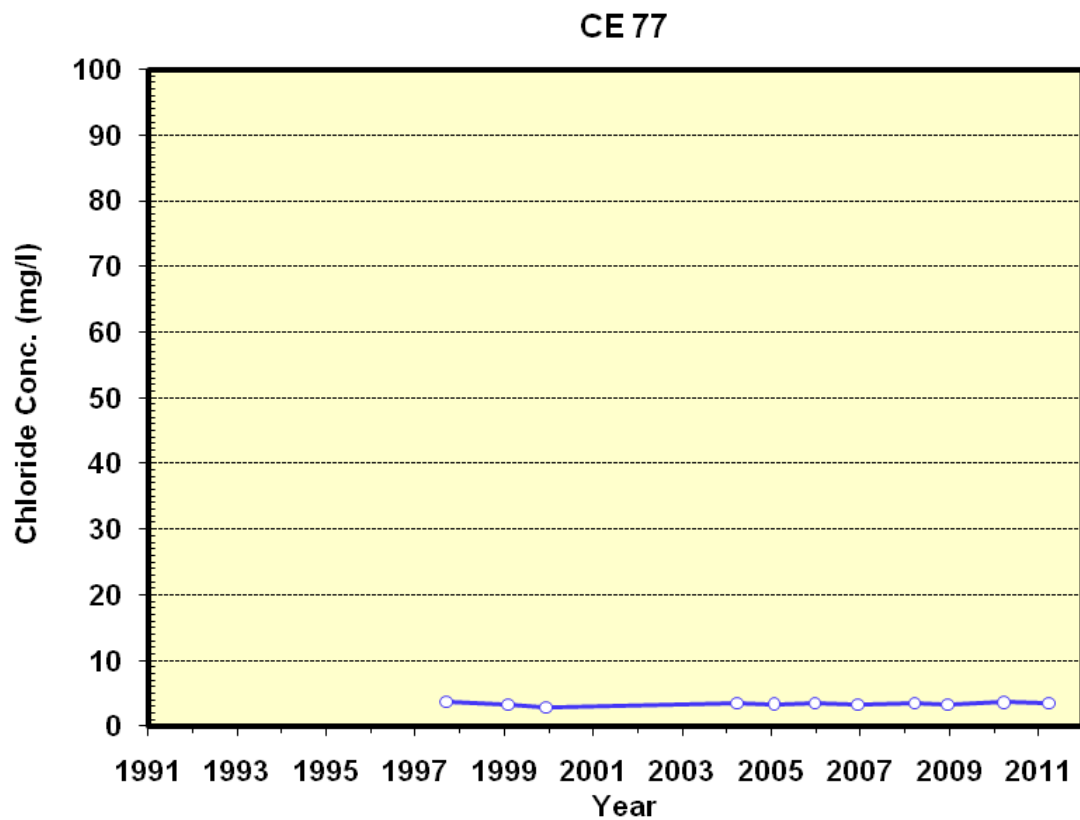
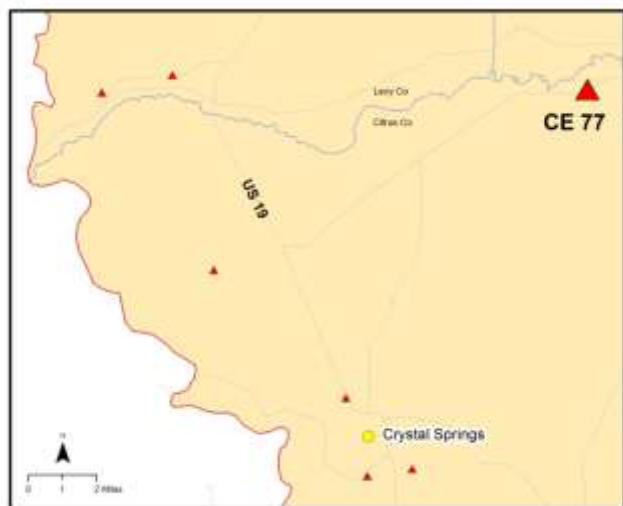


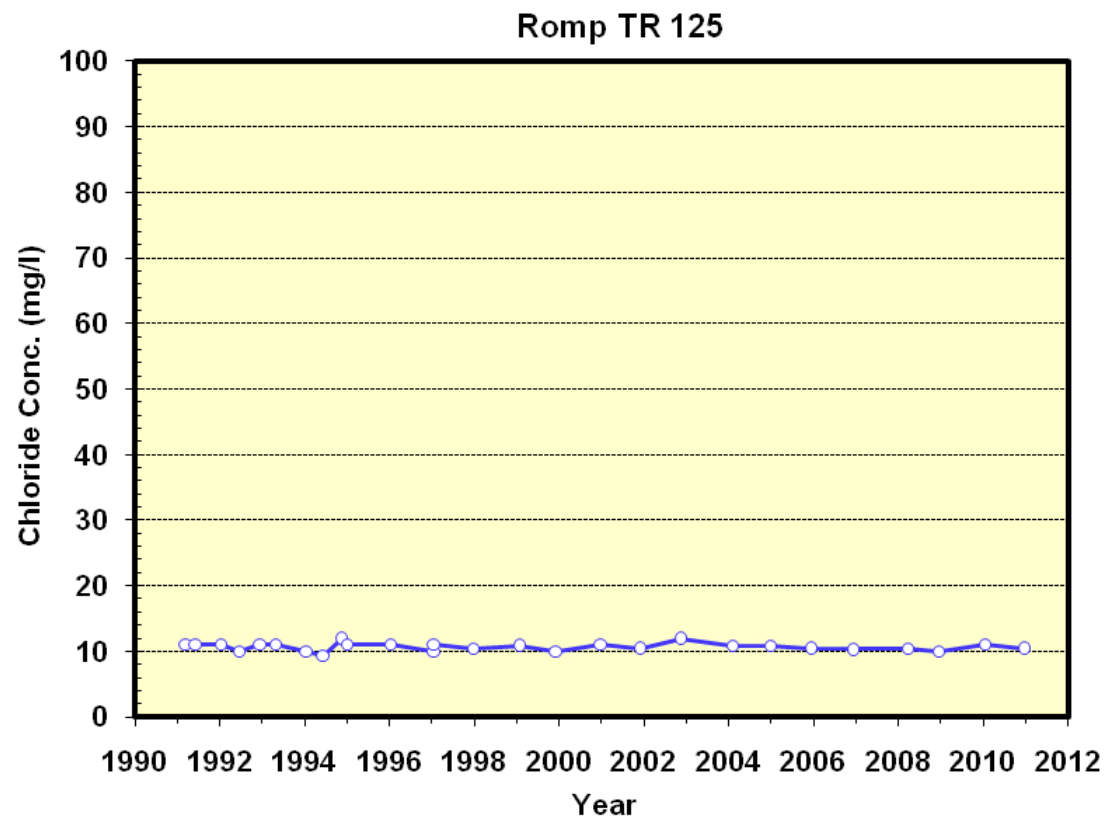
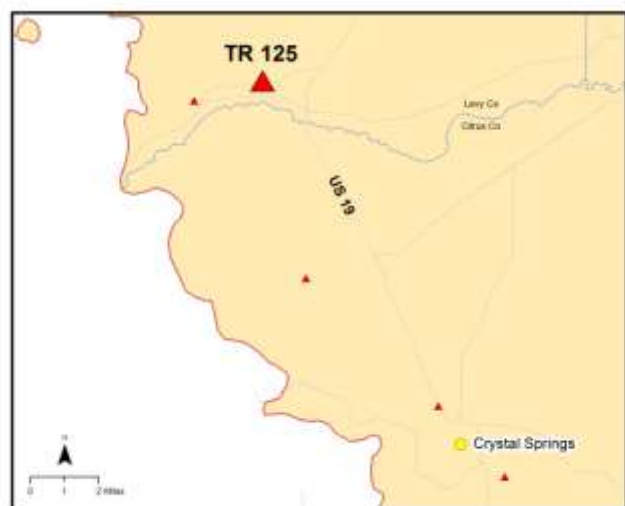


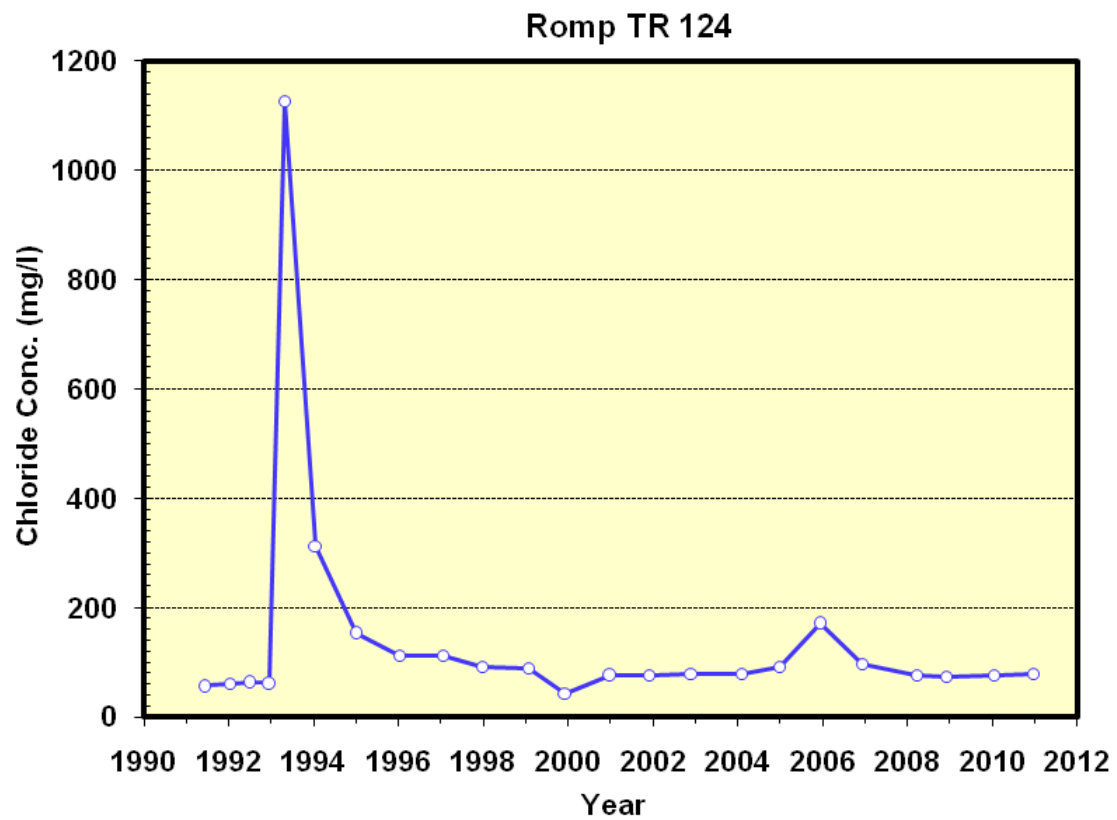
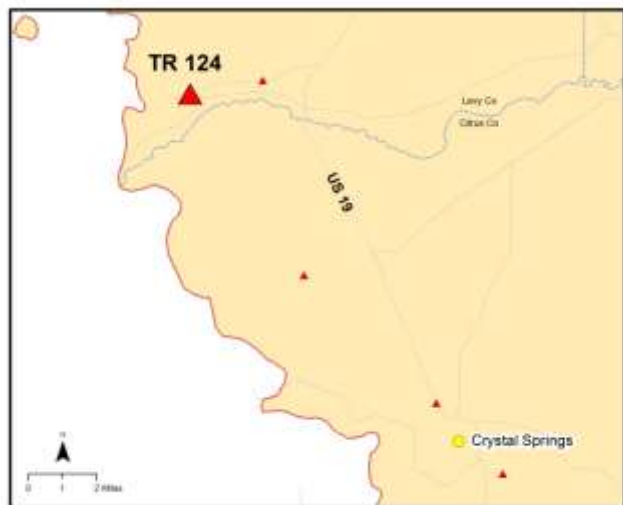












MEETING NOTES

Southwest Florida Water Management District Springs Coast Minimum Flows and Levels Public Workshop

September 6, 2011

The third in a series of Springs Coast Minimum Flows and Levels Public Workshops was held between 1:30 and approximately 4:45 p.m. on September 6, 2011 in Room 166 at Citrus County's Lecanto Government Services Building in Lecanto, Florida. Stakeholder representatives, Southwest Florida Water Management District staff and a Governing Board member that attended and contributed to the workshop are identified below. A list of others meeting participants who signed an attendance roster is included in the District's Springs Coast Minimum Flows and Levels files.

Stakeholder Representatives

Norman Hopkins, Amy H. Remley Foundation
Brad Rimbey, Chassahowitzka River Restoration Committee
Rebecca Bays, Citrus County
Carolyn Voyles, Florida Department of Environmental
Ted Hoehn, Florida Fish and Wildlife Conservation Commission
Alys Brockway, Hernando County
Brent Whitley, Stakeholder Representative
Ron Miller, Save the Homosassa River Alliance
Katie Tripp, Save the Manatee Club
Al Grubman, TOOFAR
Dennis Dutcher, United Waterfowlers-Florida
Boyd Blihovde, United States Fish and Wildlife Service
Richard Kane, United States Geological Survey
Dan Hilliard, Withlacoochee Area Residents
Whitey Markle, Sierra Club

District Representatives

Ron Basso
Darcy Brune
Veronica Crow
Dave DeWitt
Sid Flannery
Hugh Gramling
Mark Hammond
Mike Heyl
Marty Kelly
Doug Leeper
Cara Martin
Barbara Matrone
Gary Williams

Summaries of topics and issues discussed during the workshop are grouped below by agenda item. A copy of the agenda for the workshop is on file in the District's Springs Coast Minimum Flows and Levels files.

Opening Remarks

Doug Leeper, a Chief Environmental Scientist with the District, convened the meeting at approximately 1:40 p.m. Following the introduction of District Governing Board member Hugh Gramling and State Representative Jimmie Smith, Mr. Leeper asked Dr. Katie Tripp, a stakeholder representative for the Save the Manatee Club who had not previously participated in the workshop series, to introduce herself. Ms. Alys Brockway, a stakeholder representative for Hernando County subsequently addressed meeting participants regarding the County's planned 2012 Water Awareness seminar series. Ms. Brockway noted that Mr. Leeper and Dr. Marty Kelly, the District's Minimum Flows and Levels Program Director, would be making the inaugural series presentation on Friday October 7, 2011, with a discussion of Springs Coast minimum flows and levels. Following Ms. Brockway's announcements, Mr. Leeper outlined the topics discussed at previous Springs Coast Minimum Flows and Level Public Workshops, and presented the agenda for the current workshop.

Significant Harm

Mr. Leeper began the discussion of significant harm with a slide presentation, noting the relevance of this topic to the groups' discussion of methods and data used for development of minimum flows and levels. Mr. Leeper discussed language from the portion of the Florida Statutes dealing with minimum flows and levels, noting that the terms "significant harm" or "significantly harmful" are not defined in the statutes. Mr. Leeper provided information from the Florida Department of Environmental Protection's rules identifying factors to be considered when developing minimum flows and levels. He then proceeded to note that significant harm thresholds are defined or implicit in the District's minimum flows and levels rules or documents supporting minimum flows and levels development, and that the thresholds or standards may vary depending on water body type. Mr. Leeper emphasized that standards related to a potential fifteen percent change in resource value are commonly used by the District for establishing minimum flows.

Mr. Leeper proceeded to note that the use of fifteen percent change standards for development of minimum flow recommendations for Springs Coast systems has yielded recommendations that would allow between five and eleven percent reductions in natural flows, i.e., reductions in baseline flows not impacted by water withdrawals. Mr. Leeper then contrasted these potential flow reductions with recent presumptive environmental flow reductions recommended in a recent scientific article authored by several Nature Conservancy scientists.

Mr. Leeper subsequently discussed the origin of the District's development of significant change standards that are based on allowable percentage changes in resource values, including habitat and organism abundances. He further noted that the District's use of a fifteen percent change standard has been reviewed and supported by a number of independent peer-review panels, including those convened to review proposed minimum flows for the Chassahowitzka, Homosassa and Weeki Wachee River systems.

Following Mr. Leeper's presentation stakeholder representatives offered the following comments and questions.

- Mr. Dan Hilliard, the stakeholder representative for the Withlacoochee Area Residents, indicated that as part of the ongoing development of numerical criteria for state water quality standards, it has been noted that "one size doesn't fit all" in the rules proposed for these standards. He indicated that he thought this was rational, and questioned whether it is rational to universally apply a fifteen percent change standard when developing minimum flow recommendations.

Response: Mr. Leeper noted that in his opinion, the District's application of consistent significant change thresholds implies that there is substantial value in each of the water bodies for which minimum flows have been developed.

- Mr. Boyd Blihovde, the stakeholder representative for the United States Fish and Wildlife Service, asked for an update on development of minimum flows for the Kings Bay / Crystal River system.

Response: Mr. Leeper noted that development of minimum flows for the system was scheduled to occur this year but will be delayed until 2012 due to staff workloads.

Mr. Brad Rimbey, the stakeholder representative for the Chassahowitzka River Restoration Committee presented a series of slides on the subject of significant harm. He noted that much of the information in his presentation was related to legal case law relevant to the issue. Mr. Rimbey initiated his presentation by showing a map of the United States with several states shaded in black; noting that the area of these states accounted for fifteen percent of the U.S., and that the loss of this land mass, like the potential loss of habitat in riverine systems associated with implementation of minimum flows, would likely be considered significant by many individuals. Mr. Rimbey then proceeded to discuss a 2009 article by Christine Klein, Mary Jane Angelo and Richard Hamann that was published in the University of Florida Law Review. Summarizing a portion of this document, Mr. Rimbey noted that the authors of the article write that an administrative law judge has ruled that societal interests should be factored into minimum flow determinations. He further noted that that he supports the assertions of the law review article authors that a non-degradation standard similar to that used for some water quality assessments should be applicable to water quantity determinations such as the development of minimum flows, and that more stringent harm standards should be applied to water bodies with special designations. Mr. Rimbey noted that the case law pertaining to “societal interests” referenced in the law review article was from a 1997 case involving the District and he subsequently provided a listing of a number of societal interests that he believes were not considered by the District when developing minimum flow recommendations for the Springs Coast. Next Mr. Rimbey discussed state rules associated with degradation of water quality in Outstanding Florida Waters, and suggested that baseline conditions for most Springs Coast systems should be established for periods some “twenty or so years” back in the past. Mr. Rimbey noted that as part of recent public records request he asked District staff whether they were aware of any legal documents that granted the state water management districts authority to “intentionally degrade the ambient water quality of an Outstanding Florida Water” or exempt itself from “maintaining the baseline ambient water quality of an Outstanding Florida Water when establishing minimum flows and levels”. He noted that the District response to these questions was that it was not aware of any such documents. On the topic of water quality, Mr. Rimbey also noted that ambient water quality in Springs Coast systems has been degraded from baseline conditions and that reduction in discharge to these systems may be expected to further degrade water quality. Mr. Rimbey asserted that the District and the Department of Environmental Protection appear to be “two agencies pointing their fingers at each other” with regard to protection of Springs Coast systems, and that the systems are not being appropriately protected. Mr. Rimbey also noted that he is of the opinion that salt water, i.e., saline coastal water, may be considered a pollutant.

Mr. Rimbey then presented a plot showing the relationship between specific conductance, salinity and discharge in the Chassahowitzka River based on a figure produced by Mr. Mike Heyl, a Chief Environmental Scientist with the District. Mr. Rimbey suggested that this relationship has not been adequately explored by the District in evaluations supporting minimum flow recommendations for the river system. Mr. Rimbey ended his presentation with quoted text from Sonny Vergera, the Executive Director of the District from 1997 through 2003. The text indicated that established minimum flows and levels will be used to guide future water use permitting, and may, in fact, be used to characterize future hydrologic regimes associated with anticipated water withdrawals.

Following Mr. Rimbey’s presentation stakeholder representatives offered the following comments and questions.

- Mr. Ron Miller, the stakeholder representative for the Save the Homosassa River Alliance, noted that water bodies were afforded special protection when they were established as

Outstanding Florida Waters and that these protections should be considered when developing minimum flows. A recommendation based on this premise would be that the fifteen percent change criteria applied throughout the District when developing minimum flows should potentially be modified when developing minimum flows or levels for Outstanding Florida Waters.

Response: Mr. Leeper noted that the District supports all laws and rules governing management and regulatory authority associated with Outstanding Florida Waters, and does not see a conflict with these legal requirements and use of fifteen percent change criteria for development of minimum flows or levels for Outstanding Florida Waters. He noted, however, that the recommendation that alternative percentage change criteria be evaluated for minimum flows development will be considered by the District.

- Mr. Al Grubman, the stakeholder representative for TOOFAR, noted that all withdrawals in the region have the potential to reduce discharge from springs along the Springs Coast and increase salinities. This necessarily leads to potential conflicts associated with the need for human use of water resources and the needs of the environment and those that value natural resources.

Response: Mr. Leeper agreed, noting that the discussion held at the workshop was useful in identifying differences in opinion regarding what amount of change to the Springs Coast systems may be deemed acceptable.

- Mr. Whitey Markle, the stakeholder representative for the Sierra Club, questioned how long the issue of significant harm will be debated. In addition he noted that the Sierra Club supports no additional withdrawals that may be expected to reduce flows in Springs Coast systems.

Response: Mr. Leeper noted that he believed that water managers and others may possibly continue the debate about what constitutes significant harm forever. He noted that in the meantime, the state water management Districts will continue to set minimum flows and levels to prevent significant harm based on a definition or set of definitions of significant harm.

- Mr. Rimbey questioned whether the District has the authority to establish minimum flows and levels based on not allowing any change from a baseline condition, in a manner similar to that applied to non-degradation of water quality conditions in Outstanding Florida Waters.

Response: Mr. Leeper noted that staff is charged with developing and presenting minimum flow and level recommendations to the District Governing Board, and that the Board is given latitude in its decisions regarding whether or not to follow staff recommendations or pursue other options when approving rules associated with minimum flows and levels.

Modeling of Salinity and Thermal-Based Habitats

To initiate discussion for this agenda item, Mr. Leeper noted that when developing minimum flow recommendations for estuarine river systems, the District typically evaluates potential withdrawal-induced changes to salinity and thermal-based habitats as a means of evaluating significant harm. Mr. Leeper noted that a variety of salinity-based habitats are evaluated to address the range of biological, physical and chemical processes and structure associated with the range of naturally occurring salinities. He indicated that thermal-characteristics of the river

systems and changes associated with flow reductions are evaluated based on the use of these systems as thermal refuges by manatees during critically cold periods. Mr. Leeper presented a series of slides that summarized the modeling approaches currently used by the District to evaluate salinity and thermal-based habitats, including hydrodynamic modeling and regression modeling. He discussed how these modeling approaches are used to identify significant harm thresholds associated with fifteen percent reductions in available salinity-based and thermally-favorable habitats.

Dr. Katie Tripp, the stakeholder representative for the Save the Manatee Club, then presented a series of slides on habitat considerations associated with manatees and the development of minimum flows along the Springs Coast. Dr. Tripp began her presentation by noting that although it is important to identify thresholds at which significant harm may occur, the Save the Manatee Club does not support management of water bodies at their respective minimum flows or levels. Similarly, the organization does not support any of the new groundwater or surface water withdrawals discussed during the workshop series. She noted that the District should be protecting and enhancing manatee warm-water habitat rather than compromising these habitats.

Addressing manatee habitat, Dr. Tripp noted that manatees will seek out warm-water habitat wherever it is available. She noted that manatees will seek warm-waters in areas where depths may be less than the 3.8 foot threshold used in the District's modeling of thermally-favorable habitat. Dr. Tripp also addressed manatee use of secondary thermal refuges, i.e., areas where warm spring water may settle in portions of the river channel separated from the main spring run, and how intrusion of colder, denser water from the Gulf may flush these secondary refuges, rendering them unsuitable for manatee use during cold periods. Additional concerns associated with cumulative effects of flow reductions, sea level rise and increasing nutrient concentrations were also addressed.

Dr. Tripp discussed minimum flows determination made by the St. Johns Water Management District for Blue Springs, noting that this early work served as the basis for the more recent efforts used by the Southwest Florida Water Management District along the Springs Coast. With regard to minimum flows set or proposed for the Springs Coast, Dr. Tripp noted that the Save the Manatee Club has concerns regarding the carrying capacity estimates developed based on thermal-model results. For the Weeki Wachee River system, she noted that the District determined there were instances when a five percent flow reduction, which was the lowest modeled flow reduction, resulted in violation of the fifteen percent change in thermally-favorable habitat criteria. She further noted that the modeling effort for this river system was completed prior to the recent, more severe winters of 2010 and 2011 and that river systems like the Weeki Wachee may attract additional animals in the future based on increasing population size and a lack of suitable habitat in areas to the south. Concerns associated with modeling of thermal habitat in the Chassahowitzka system outlined by Dr. Tripp included: a lack of accounting for a portion of the system known as Snapper Cove; a lack of modeling for the recent cold winters; identification of thermally-favorable habitat in area of boat traffic, which could influence the suitability of these areas as manatee refuges; poor estimation of the number of manatees using the river system; adequacy of model domain and predictions concerning habitat availability; and observed and potential changes in submersed aquatic vegetation. With regard to the Homosassa system, Dr. Tripp noted that carrying capacity estimates for the system may be unrealistic, additional areas of the main spring run are now available for wild manatees, biological impacts unrelated to manatee thermal habitat have been predicted for relatively low flow reductions, and the effects of sea level rise may be expected to spring discharge to the system. Dr. Tripp ended her presentation by indicating a very protective minimum flow is

needed to protect the Crystal River system, based on the importance of this system to a large number of manatees and the local economy.

Following Dr. Tripp's presentation, stakeholder representatives offered the following comments and questions.

- Mr. Dennis Dutcher, the stakeholder representative for United Waterfowlers-Florida, asked about minimum water depths that manatees may utilize. He noted that he has seen individuals grazing lawn grasses adjacent to canals in south Florida.

Response: Dr. Tripp noted that manatees may move into waters only a few inches deep if they are foraging or seeking a sunny spot, and may at times temporarily strand themselves.

- Mr. Rimbey questioned whether the District is modeling potential reductions in spring discharge that may occur as a result of sea level rise.

Response: Mr. Leeper noted that initial work on sea level rise for the Homosassa River included scenarios with increased tide stage resulting from sea level rise and decreased spring flow predicted based on increased tide stage. He added that the ongoing sea level rise modeling for year 2030 conditions for the Chassahowitzka and Homosassa River systems is expected to include only a tide stage increase and not a predicted decrease in spring discharge associated with the increased tide signal. The rationale for not incorporating flow changes into the models is associated with uncertainty regarding the effects of predicted tide stage increases on flows. It may be expected that the increased tide stages associated with sea level rise will lead to increased storage of fresh water in the aquifer system underlying peninsular Florida and this increased storage may offset the increased pressure against spring discharge associated with higher tide stages.

Mr. Leeper closed discussion of the thermal and salinity-habitat modeling agenda item by noting that he believed Dr. Tripp had made a recommendation that the modeling of thermally-favorable habitat could be improved by evaluating areas where water depths are less than the threshold of 3.8 feet currently used by the District. Dr. Tripp confirmed that this was a recommendation from the Save the Manatee Club.

Modeling of Biological Responses to Flow Changes

To initiate discussion for this agenda item, Mr. Leeper noted that when developing minimum flow recommendations for estuarine river systems, the District also evaluates expected responses of a variety of organisms to flow changes by modeling relationships between organism abundances and flows. Mr. Leeper showed a series of slides depicting modeled relationships between flows and abundances of several fish and invertebrate species that have been developed for Springs Coast systems. He noted that the District uses these models when they are considered valid but in many cases has found relatively low utility for these models. Reasons for low confidence in many of the models that have been developed are based on the rather limited range of flows used for model development; serial correlation in the data sets and observations that suggest both positive and negative changes in abundance for single species as a function of decreasing flows. Mr. Leeper concluded his introductory presentation by noting that in some instances appropriate models can be developed and they may be used to identify significant harm thresholds associated with flow-related fifteen percent reductions in organism abundances.

Mr. Boyd Blihovde, the stakeholder representative for the United States Fish and Wildlife Service's Crystal River National Wildlife Refuge Complex then provided a brief presentation addressing observed changes in the refuge. He noted that there have been significant changes or potential significant harm to portions of the refuge over the past fifty to seventy years, and because much of the refuge lies between the Chassahowitzka and Homosassa Rivers, reductions in flows in the rivers may be expected to further impact refuge habitat. He showed a series of photographs depicting changes in vegetation that have occurred within the refuge likely as a result of sea level rise, increasing salinities, hurricanes and other storms. Mr. Blihovde noted that these changes have been occurring for some time in the refuge area, but appear to have accelerated in the past few decades. He concluded his presentation noting that waterfowl are virtually absent in the refuge, but were previously quite abundant.

Ms. Joyce Kleen, a Refuge Biologist with the Crystal River National Wildlife Refuge Complex then proceeded to present information pertaining to aerial surveys used to evaluate manatee abundances along the Springs Coast. Ms. Kleen noted that the aerial surveys are conducted in accordance with the recovery plan for the manatee, which is an endangered species. She noted that abundances of manatees in the refuge and Citrus County areas have been increasing in recent years and on an annual basis have accounted for up to twenty percent of the total statewide population.

The ensuing discussion among stakeholder representatives included the following questions and comments.

- Mr. Dutcher asked about other species of birds, in addition to waterfowl, that have exhibited reduced abundances in recent years.

Response: Ms. Kleen noted that she has observed substantial declines in waterfowl and coots, but has not noted declines in other species, with the exception of little blue herons. She noted that declines in little blue heron abundances have been reported throughout the state and not just within the refuge.

- Ms. Kleen noted that the Chassahowitzka River is considered summer habitat for manatees in the Fish and Wildlife Service's manatee recovery plan. The area is however, currently being used by a number of animals during winter months, so the Service is considering implementing winter surveys in this vicinity of the river.
- Mr. Rimbey noted that it may be difficult to conduct aerial surveys in the Chassahowitzka River area due to the tree canopy, but added that this may not be a problem in the future if trees continue to die. He noted that the area referred to as Snapper Hole appears to be an important manatee refuge area during cold periods.
- Mr. Ted Hoehn, the stakeholder representative for the Florida Fish and Wildlife Conservation Commission, noted that Commission staff that have worked on sampling of fish and invertebrates to support development of predictive flow-abundance models have sampled the systems based on the life histories and seasonality of these organisms within the respective rivers. He added that the investigators acknowledge limitations is some of the relationships but caution that some of the models should not reasonably be used to predict the repeated extirpation of selected species, given the seasonality of the organisms use of the habitats or areas of the river systems that were sampled.

- Mr. Rimbey commented that it is critical to understand the life history requirements of all of the species, including blue crabs, that are sampled in the river systems. Of particular importance are the freshwater and saltwater tolerances or requirements of various species and how these tolerances may change through the life cycle of individual taxa.
- Mr. Leeper noted that to learn more about recent and expected changes in vegetation along the Springs Coast, interested individuals may want to read a recent scientific article by Laura Geselbracht and several of her colleagues at the Nature Conservancy that addresses impacts to vegetation along the Big Bend area resulting from sea level rise.

NOTE: Although not provided at the workshop, the following citation information may be useful for obtaining the paper mentioned by Mr. Leeper.

Geselbracht, L., Freeman, K., Kelly, E., Gordon, D.R. and Putz, F.E. 2011. Retrospective and prospective model simulations of sea level rise impacts on Gulf of Mexico coastal marshes and forests in Waccasassa Bay, Florida. Climate Change 107: 35-57.

- Mr. Rimbey noted that he had recently read a paper on predicting rainfall patterns in which the authors noted that it may not be reasonable to expect future rainfall to mimic that which has occurred during the past century. He wondered how this type of uncertainty may be incorporated into modeling efforts used for water management activities.

Water Quality Issues

NOTE: The audio recording of workshop discussions was inadvertently discontinued approximately one minute after the initiation of the discussion for this agenda item, so meeting notes for this and subsequent agenda items may be less comprehensive than those for previous agenda items.

Mr. Leeper provided a brief summary of water quality issues related to minimum flows development. He began by presenting slides on saltwater intrusion along the Springs Coast, noting that existing modeling predicts little movement in the saltwater interface in the Upper Floridan Aquifer during the coming fifty year period. He noted that Ron Basso, a Senior Professional Geologist/Engineer with the District, has prepared a series of plots showing chloride concentrations in wells and springs of the area and that this information would be posted on the workshop web site. Mr. Leeper followed with a discussion of nitrogen levels in the Springs Coast systems, noting that longitudinal trends in nutrients such as nitrogen are evident in the rivers, and concentrations of various nitrogenous compounds are high in headwater areas, presumably as a result of discharge of nitrogen-containing groundwater. He noted that long-term increases in nitrogen concentrations have been documented for numerous springs within the state. He suggested that examining water residence time may be useful for evaluating water quality issues such as high nutrient concentrations in some Springs Coast systems, including Kings Bay.

Following Mr. Leeper's presentation, Mr. Norm Hopkins, the stakeholder representative for the Amy H. Remley Foundation presented information on spring discharge and nutrient concentrations in Kings Bay. Mr. Hopkins noted that recent spring discharge into the bay is insufficient, or too low, given the amount of nitrogen that is being introduced to the bay through spring discharge. He noted that recent spring discharge is approximately one third lower than that which occurred some twenty years in the past and that nitrate-nitrite concentrations have been increasing in water discharged from area spring vents. He indicated that it will be

important to examine water residence times when developing minimum flows for the Kings Bay / Crystal River system. Mr. Hopkins also noted that it is important to continue work associated with reduction of nitrogen loading within the contributing groundwater basins of the Springs Coast systems. Mr. Hopkins expressed concern that groundwater use in the Springs Coast area may lead to a “tipping point” that if crossed will result in reduction of the freshwater lens in the aquifer system and lead to saltwater intrusion. He noted that based on an apparent one-third reduction in spring discharge into Kings Bay, potential flow-related changes in salinity, residence time and saltwater intrusion must be well studied as part of the minimum flows and levels determinations for the Kings Bay/Crystal River system.

During the discussion that followed the presentations by Mr. Leeper and Mr. Hopkins, the following questions and comments were discussed.

- The accuracy of discharge measurements for Crystal River was discussed, with Mr. Ron Basso noting that reported values do not correspond well with modeling efforts and expectations for discharge based on the groundwater basin size. Mr. Leeper noted that the United States Geological Survey is currently reviewing reported discharge values for the gage site located in the river at Bagley Cove, and anticipates publishing revised discharge values for the site at some point in the future.
- Mr. Miller asked whether modeling of Springs Coast systems has involved evaluation of historical time periods. This question was coupled with a question concerning how “impaired waters” listing based on non-compliance with state water quality standards is factored into minimum flows and levels determinations

Response: Mr. Leeper indicated that an impaired classification for a water body is not necessarily a factor that is considered when developing minimum flow recommendations.

Identification of Follow-Up District Actions

Mr. Leeper began discussion of this agenda item by noting that the District believes that during the preceding portions of the current workshop and at previous workshops, all topics identified for consideration during the workshop series have been discussed. He noted that some stakeholder representatives have begun organizing an additional meeting for further discussion of relevant topics and that the District has agreed to support this effort. Mr. Rimbey noted that he is currently organizing this planned event and expects that it will occur sometime in October.

Mr. Leeper then proceeded to outline additional activities relevant to minimum flows for Springs Coast systems that the District will be pursuing. Identified activities included: continuing to monitor or support the monitoring of water levels, flows and water quality parameters for each system; review of workshop input on data and methodological enhancements to minimum flows development; review of the results from ongoing sea level rise analyses; revision of minimum flow recommendations, as necessary based on workshop input and additional analyses; dissemination of information associated with revised minimum flow recommendations via e-mail and the District’s web site; development of draft rules associated with minimum flow recommendations for the Chassahowitzka and Homosassa River systems and presentation of these rules to the District Governing Board for approval in December 2011; and development and Board adoption of minimum flows for the Kings Bay / Crystal River system in 2012.

Following Mr. Leeper’s presentation, stakeholder representatives offered the following questions and comments.

- Mr. Grubman offered thanks to the District, stakeholder representatives and others who contributed to the workshop series.
- Mr. Hopkins questioned whether it was appropriate to establish minimum flows for the Chassahowitzka and Homosassa River systems prior to establishing minimum flows for the Kings Bay / Crystal River system.

Response: Mr. Leeper noted that because all of the Springs Coast systems share a common groundwater basin, it may be appropriate to consider the most restrictive minimum flows as potentially being the limiting factor for withdrawals that may affect any or all of the systems. He noted that minimum flows have previously been adopted for the Weeki Wachee River system, and that these minimum flows in combination with minimum flows adopted for all of the Springs Coast systems will serve as a comprehensive component of the factors to be evaluated in response to future requests for area water use.

- Mr. Markle questioned whether or not the District has a definition of significant harm.

Public Input

The following comments and questions were contributed by other meeting participants.

- Mr. Bill Garvin noted that significant harm has already occurred in the Homosassa River system and that further flow reductions should not be considered.
- Ms. Beth Hovind noted that the minimum flows and levels statute addresses the need for protection and recovery of minimum flows or levels, and the recovery of flows in systems along the Springs Coast should be the focus of water management in this region.
- Ms. Tracy Colson, who operates a “nature tour” type of business, stated that in her opinion Crystal River has already been significantly harmed. She noted that of the sixty or more spring vents in Kings Bay, only two are currently discharging fresh water. Ms. Colson added that water levels in the Chassahowitzka River system are too low during winter months to permit guided access to upstream areas.
- Mr. Ben Berauer expressed that it was not clear whether the District was considering less than a fifteen percent change in habitat to be a significant harm threshold for the Springs Coast systems. He added that a “one-size-fits-all” approach to minimum flows development is not appropriate for these systems.
- Mr. Martyn Johnson asked whether all meeting participants agreed that some deterioration has occurred in the Springs Coast systems that were being discussed in the workshop series. He followed with a question regarding the cause of this deterioration, adding that he is not comfortable or convinced that the data being used for the minimum flow analyses are sufficient to support claims regarding the influence of the various factors that may be associated with observed environmental deterioration. He proposed that the District consider a five-year moratorium on the issuance of water use permits that may impact flows in Springs Coast systems.

- Mr. Jim Bitter noted that all of the systems discussed during the workshop series are under extreme stress and that the factors exacerbating this stress cannot be solved by a single local, state or federal agency. He added that the designation of the Springs Coast systems as Outstanding Florida Waters and the protection afforded by these classifications has not been adequately addressed in the District's minimum flows determinations.

Following the public input period, Mr. Grubman expressed concern regarding the application of a "one-size-fits-all" approach to minimum flows development for systems along the Springs Coast. He added that it is not clear to him that nutrient loading is or should be a primary factor to be considered when developing minimum flows and levels.

Adjournment

Mr. Leeper adjourned the meeting at approximately 4:45 p.m.

From: [Alan Martyn Johnson](#)
To: [Doug Leeper](#); rrodrigu@usgs.gov; jdweaver@usgs.gov
Cc: grubman1@gmail.com; [Brent Whitley](#); [Ron Miller](#); [rkane](#); [Kevin J Grimsley](#); [Dana Bryan](#); [Marty Kelly](#)
Subject: RE: Two New Docs on Springs Coast MFLs Workshop Web Page
Date: Wednesday, August 31, 2011 7:23:55 PM

Doug, Rafel and Jess,

After just now reading Rafel's letter posted on the Working Group web site I was tempted to send this reply to Doug's complete copy list.

I trust that Mr. Rodriguez has taken some time to review some of the questions that I have asked before implying that I fall into the category of a layperson.

Mr. Rodriguez had best consider a written apology be posted on the web site and sent to me personally. Alternatively, he could consider requesting that the letter be removed from the web site and rewrite his 'rebuttal' with some facts..

In my public input statement for the last meeting I commented about the importance of accurate measurement. For the SE fork of the Homosassa River I wrote

Quote

The calculated flow for many 15 minute intervals frequently change by plus or minus 20% from the previous interval and it is not unusual to see changes over 40%.

End Quote

Does Mr. Rodriguez think this statement is incorrect?

Regarding the Homosassa River I commented

Quote

at the Homosassa River Gage, there is a bias in the inflow versus outflow due to the equation used. No explanation to support the equation has been offered. Homosassa River Gage flow CMcRea's) is used to estimate flow from Halls River.

Unquote

I did not say the data was BIASED I said there is a bias due to the equation used. The equation is in the Appendices to the MFL Report equation B4:

$$V_m = 0.00902154 + 0.9019V_i + 0.12138V_i^2 + 0.045375(GH)$$

Sorry. that does not copy well, but my point is regarding the highlighted component V_i squared. When V_i becomes negative the second component is negative but the third component remains positive. When V_i is positive both V_i components are positive. I shared numerical and graphic representations of this. Would Mr. Rodriguez like to take time to explain why this does not result in a bias.

On the point about stability of the algorithm (sixth paragraph second sentence). Sorry, but you are going to have to explain how an algorithm can be unstable.

For the SE Fork I understand that the algorithm/equation has not changed since

unit data collection of Gage Height started in 2002-10-01. All those annual reviews and no one questioned how Dann Yobbi came up with the equation which is different to what he reported in Report 01-4230. I must agree that natural log equation in the report was possibly a stretch.

Further, did anyone think to question that a regression analysis done with Weeki Wachee Well levels as they were when those 124 data points in Report 01-4230 were collected, may no longer be as valid. Take a look they are in Appendix B as I recall.

Regular Field Measurements these are generally spot checks. For 48 Field Measurements I have been able to review since 2004 sixteen(16) have differences greater than 15%. There are a couple of good sets that I do not have the calculated discharge figures for; 2000-12- 12 and 13, also 2003-06-17 and 18. Maybe you can bring those figures with you to Lecanto. On the audio recording of the last meeting at Lecanto (just finished listening to some of it) someone at hour 1:09 into the recording said that it was important to do measurements throughout the cycle. I agree; a few full cycles is worth a lot of spot checks given the complexity of the SE Fork and Homosassa Springs with its three vents.

Finally, on the correspondence from 12/16/2010 I have received 6 e-mails from Richard Kane. Only the ones from 8/08/2011 and 8/14/2011 have any scientific commentary, but almost discount all that Specific Conductance Data USGS have collected for years from the Homosassa Springs 02310678; stratification take a look. I am sure Richard will share the e-mails. Honestly, it may have been Kevin Grimsley who used stratification. Kevin has sent 14 e-mails 11/15/2010 thru 8/22/2011, Kevin has been more helpful e.g. the Stage Area Equation for the Homosassa River Site which was missing from the Appendices mentioned earlier, but I still do not agree regarding bi-directional flow at the SE Fork.

Rafel,

Hope to meet you at the Lecanto Meeting. Maybe you can bring some scientific input instead being just a Director. Arrive couple of hours early and I will take you on a personal tour of the SE Fork so you can see it firsthand and understand that there is no bi-directional flow even at the left bank. Check it out. It is poor location of the instrument site...not very poor just poor.

Have you heard about prodding the bear?

Martyn

Date: Tue, 30 Aug 2011 14:35:15 -0400

Subject: Two New Docs on Springs Coast MFLs Workshop Web Page

Greetings:

I'm writing today to make you aware of two documents that were recently posted to the Springs Coast Minimum Flows and Levels Public Workshop web page (link to the page is provided below).

<http://www.WaterMatters.org/SpringsCoastMFL>

The first document is an e-mail I sent to Mr. Ron Miller, the Stakeholder Representative for the Save the Homosassa River Alliance, in response to some questions concerning water use, flow estimation and the Northern District model that he submitted and asked be answered and posted prior to the September 6th workshop.

The second document is an electronic version of a letter from Mr. Rafael Rodriguez, the Director of the United States Geological Survey Florida Water Science Center. Mr. Rodriguez's letter was submitted in response to a written statement/correspondence from Mr. Martyn Johnson that was posted on the workshop series web page shortly after our July 18th meeting.

Please let me know if you have any problems accessing either of the recently posted documents.

I look forward to seeing you next week.

Douglas A. Leeper, Chief Environmental Scientist
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From: [Alan Martyn Johnson](#)
To: rrodrigu@usgs.gov; [rkane](#)
Cc: grubman1@gmail.com; [Brent Whitley](#); [Ron Miller](#); [Kevin J Grimsley](#); [Dana Bryan](#); [Marty Kelly](#); jdweaver@usgs.gov; [Doug Leeper](#)
Subject: Homosassa MFL and Discharge Concerns
Date: Thursday, September 01, 2011 8:05:20 AM

Gentleman,

I have just completed a powerpoint file that includes just about all my concerns and the rationale behind these for Homosassa discharges. I was intending to share this to allow preparation for the meeting in Lecanto and possible follow up, if necessary, in Tampa. Sorry I did not get this completed last week. I know there are other that are interested and will be in Lecanto.

However, reflecting on how the Director Mr. Rodriguez, as representative of USGS, considers that lay people, such as long term local residents do not know what they have observed, it may be inappropriate to post on a 'publicly accessible' web site such detailed requests for explanation and evidence of concerns. **We can do that in person, in Lecanto. I am prepared to stay late.**

Some of the key points were briefly touched on in my earlier e-mail:

- Large changes from one 15 minute calculated discharge to the next, SE Fork
- dS/dt component in the equation balancing out over 24 hour SE Fork
- Weeki Wachee Well levels regarding when equations (algorithms) were developed versus recent
- Cyclic pattern of Specific Conductance Homosassa Main Spring
- Weeki Wachee ΔP
- Squared component in the Homosassa River equation
- Tidal Filtering of Homosassa River Discharge

Please, facts pertaining to the specific issue, not general statements.

I know USGS wish to provide the very best data possible, but to do that requires some thinking outside your present comfort zone and being open to outside input. Such as installing a temporary ADCP at the SE Fork to confirm that this is a valid long term expenditure. I am happy to be proven off the mark; I do not like wasting tax payer money. How about using a velocity meter (pearce) to confirm bi-directional flow/or a Specific Conductance monitor for a few days to see if my observations about the thin film along the concrete wall at the SE Fork are true: I am not the type of person that says this without good foundation.

.I would appreciate your bringing to the meeting the following:

- Unit Discharge data for 2000-12-12 and 13
- Unit Discharge data for 2003-06-17 and 18. Would be good to have these for each of the Field Measurements on those dates.
- Explanation (mathematical) of tidal filtering for Homosassa River
- Current equation for computation of Chassahowitzka discharge and any dates it has changed
- Data set used to develop current SE Fork equation and the date this equation was first

used

- Data/observations indicating bi-directional flow at the SE Fork

I know that is a lot to ask.

But when the inherent error in a discharge measurement is between 2% and 10% it would be good to know where in that range the Homosassa measurements are when we are all trying to assure that the "Outstanding Florida Water" remains as such. Flow reductions of 5% are, according to studies done using UGGS data, likely to result in 15% reduction in critical ecological issues that constitute SIGNIFICANT HARM. Get it wrong and we finish up with the same problems that we all see south of us. USGS data is critical in the modeling and monitoring of this endeavor.

Martyn

Martyn



November 4th, 2010

Michael G. Heyl
Southwest Florida Water Management District
7601 Highway 301 North
Tampa, Florida 33637-6759

RE: Chassahowitzka River Recommended Minimum Flows and Levels

Dear Mr. Heyl,

Chassahowitzka National Wildlife Refuge once thrived in winter months with over wintering migratory waterfowl. If you were to research this you would find that the area was originally set aside by Congress as a **waterfowl** area - 6 days after the attack on Pearl Harbor. Waterfowl have specific habitat needs including clean fresh water to drink and brackish water for the SAV that feeds them. The refuge used to contain much more of each than it does now. In the 70's the refuge held more than 25,000 migrating ducks and 30,000 coots then the waterfowl mysteriously declined until there were only about 3700 ducks using the area and no coots by the mid 80's according to the refuge staff. Those numbers now are so low that the refuge staff members no longer spend much time searching for ducks that over-winter on the refuge. Waterfowl do still move thru the area but no longer winter in the refuge or much along the Nature Coast. You may wonder why when the topic is MFL's came up, that I banter on about the ducks. Waterfowl are like the "canary in the coal mine" at the Chassahowitzka NWR.

The Chassahowitzka River, designated as an "Out Standing Waterway" the fresh water flowing from the 1st magnitude springs is the life blood of the refuge, its declining flow from the parched aquifer is now understood to be the reason for the loss of overwintering waterfowl at the refuge. The time line of the decline of ducks on the refuge follows **exactly** the increase of ground water withdrawals from the Pasco, Hernando, and Citrus County

region. Within the USGS Water Sources Investigations Report 01-4230 : Hydrology of the Coastal Springs Ground Water Basin and Adjacent Parts of Pasco, Hernando, and Citrus Counties, Florida on page 33 the Combined Ground Water Withdrawals graph clearly show as the trend line rose the duck numbers using the refuge declined exponentially. Clearly proving the withdrawals were too high by the mid 80's and has been detrimental to the ecology of the refuge and surrounding coastal wetlands.

Many now believe that these withdrawals not only have resulted in a decreased flow from the river but also have affected the upwelling of springs in the near shore of the Chassahowitzka bay; fresh water that use to waft up in the estuary and provided additional fresh water to the barrier regions in the refuge. These zones with their fresh and brackish water created a unique environment and maintain the balance in the estuary that was the attraction for ducks and many shorebirds, snipe, and species of rail. In order for this estuary to function as it did naturally requires that it receive fresh water from a fully saturated aquifer; its seepage and flows from the river providing the brackish "edge" necessary for the proper aquatic vegetation the ducks need to flourish and have a successful migration. Any additional losses of fresh water would make recovery of the native ecology even more difficult.

To conclude my comments; additional reductions in the MFL's for the Chassahowitzka River would cause great and irreparable harm to the ecology of the river's coastal wetlands and further degrade the boundary regions of the area. Water with higher salinity will fill in further degrading the boundary regions of the estuary and the river quality as well.

Please consider United Waterfowlers-Florida's comments against lowering the MFL's of the Chassahowitzka River.

Highest Regards,

Dennis Dutcher
Board Member
United Waterfowlers-Florida, Inc.
137 John Carroll Road East
Lakeland, Fl 33801

Cc: John Hitchcock
President United Waterfowlers-Florida

From: [Alan Martyn Johnson](#)
To: [Kevin J Grimsley](#)
Cc: [jdweaver@usgs.gov](#); [rrodrigu@usgs.gov](#); [grubman1@gmail.com](#); [Doug Leeper](#); [Ron Miller](#); [Brent Whitley](#); [rkane](#)
Subject: FW: Tidally Adjusted Flow at 02310700
Date: Monday, September 05, 2011 7:00:29 PM

Kevin,

The way I have previously looked at the tidal filtered data is the tidal filtered data reported on a daily basis is related to the daily mean discharge. There is no indication that some other timeframe is considered.

Following your last e-mail, I looked at the tidal filtered data in light of this being developed by trying to eliminate the extraneous noise (using the principal of a Godin style low pass filtering technique) in the 24 hour daily mean figures. This approach appears to develop a filter using many daily means (raw data for the analysis) and then applies the developed function equally to all individual raw data points. I think such an approach assumes that each piece of raw data has equal 'merit', however in reality this appears not to be true as the raw data used in the analysis misses an important cyclic factor: **the natural cycle interval is 24.84 hours.**

A notation regarding the "astronomical" tidal cycle is shown with many of the data sets on the USGS web site.

When you get a chance it may be worth asking if this natural cycle was considered when developing this tidal filtering methodology.

Add this to the questions about the square function in the equation to obtain V_m from V_i and it is easier to understand why the data regarding flow/discharge from Halls River is so difficult to make sense of. A number of times in SWFWMD MFL reports and the appendices questions/commentary is made about the discharge data from Halls River being difficult to 'understd' my word, but I could quote some actual wording.

Please confirm if the astrological tidal cycle is used in 'calculating/computing the tidal filtered number that are reported for each day. I did include some actual figures in an earlier e-mai from the usgs record as example.

Do you recall the e-mails we exchanged about considering the null flow intervals (intervals between when the stream velocity was zero)? I will revisit that idea using the V_i and stage height data when I get a chance.

I may be wrong but it strikes me that tidal filtering can't be done effectively if the astrological tidal cycle is not included in the thought process.

Martyn

From: martynellijay@hotmail.com
To: kjgrims@usgs.gov

CC: doug.leeper@swfwmd.state.fl.us; marty.kelly@swfwmd.state.fl.us; rkane@usgs.gov;
rrodrigu@usgs.gov
Subject: RE: Tidally Adjusted Flow at 02310700
Date: Sun, 4 Sep 2011 09:15:01 -0400

Kevin,
Thanks for the info.
I will be in Lecanto at least one hour before the start of the Working Group Meeting,
if early is better than late.
Martyn

To: martynellijay@hotmail.com
CC: doug.leeper@swfwmd.state.fl.us; marty.kelly@swfwmd.state.fl.us; rkane@usgs.gov;
rrodrigu@usgs.gov
Subject: RE: Tidally Adjusted Flow at 02310700
From: kjgrims@usgs.gov
Date: Fri, 2 Sep 2011 14:01:41 -0400

We use a Godin low-pass filter to remove the tidal signatures at gages such as 02310700. Information on the use of such filters is publically available.

Richard and I will not be able to stay after the workshop meeting next Tuesday to meet with you due to time constraints, but Dann Yobbi has agreed to stay after the meeting. Richard and I are still available to meet with you the following day during normal business hours at our office. We also need to ask that you direct future questions about our data and/or procedures through our official data inquiry webpage (<http://waterdata.usgs.gov/fl/nwis/feedback/?to=Florida> Water Data Inquiries). Thank you for your cooperation.

Kevin Grimsley, P.E.
Supervisory Hydrologist
USGS, Florida Water Science Center
10500 University Center Drive, Suite 215
Tampa, FL 33612
kjgrims@usgs.gov
813-498-5064

From: Alan Martyn Johnson <martynellijay@hotmail.com>
To: Kevin J Grimsley <kjgrims@usgs.gov>
Cc: Doug Leeper <doug.leeper@swfwmd.state.fl.us>, rkane <rkane@usgs.gov>, <marty.kelly@swfwmd.state.fl.us>
Date: 08/27/2011 08:00 AM
Subject: RE: Tidally Adjusted Flow at 02310700

Sorry if my question was not clear.

'How' was intended to convey **What is the equation/mathmatical formula used to make this calculation?**

I realize the tidally adjusted figure is not reported in the 15 minute data, but I do see it in the Approved Daily Data as exempld in my e-mail.

Martyn

P.S.

My interest in this stems from the January 6 Lecanto Workshop. A question/comment made by a gentleman sitting front left as Doug/Ron were viewing the audience. Sorry but I did not get his name.

Summarizing:

He said that he did not think the flow figures from Halls River springs were anywhere near the reported figures. He said that he had patrolled the river for many years and had seen deterioration.

I did touch on this in an e-mail January 10 to Doug and Ron, but did not specifically include the comment about Halls River Flow.

Doug and Ron,

I would like to follow up on a few points from last Thursday evenings workshop in Lecanto. But, first a Thank You to both of you for a good professional job in front of an audience who are deeply concerned by the deterioration they have witnessed in the Homosassa River over the years.

Skeptical audience

Notable were comments from long time residents who have seen the river on a daily basis for over 50 years and those from former government employees who patrolled the waterways for over 20 years. They stated that the river has changed/deteriorated; flows have reduced, vegetation has changed, fish and wildlife have changed. They and others frequently mentioned recent and major barnacle growths where they were never seen before. There is clear observed evidence of salt water intrusion/salinity increases and the associated negative impact on this unique river.

I also generally noted Halls River flow in correspondence in 2010; *I appreciate that there are thoughts to monitoring flow from Halls River* November 15, 2010

From: kjgrims@usgs.gov
Subject: Re: Tidally Adjusted Flow at 02310700
CC: doug.leeper@swfwmd.state.fl.us; rkane@usgs.gov; marty.kelly@swfwmd.state.fl.us
To: martynellijay@hotmail.com
Date: Fri, 26 Aug 2011 10:49:08 -0400

A tidal filter is applied to discharge from the 02310700 (as well as many of our other tidally influenced discharge stations) in order to remove the cyclical tidal signature from the discharge data. This is useful for evaluating changes in the net flow without the "noise" from the tidal changes.

This filter is not applied in real-time. It is applied on a yearly basis as part of our Annual Data Report covering data from Oct. 1 through Sept. 30. It is also expected that the filtered values would be different from non-filtered, or else why would we apply a tidal filter at all.

On Aug 26, 2011, at 7:27 AM, "Alan Martyn Johnson" <martynellijay@hotmail.com> wrote:

Doug, Richard, Kevin,

Hopefully this is an easy question for someone to answer.

How is Tidally Adjusted Discharge calculated for the Homosassa River at Homosassa Gage Site 02310700?

This question relates to a flow issue I touched on after the first Lecanto meeting; flow from Halls River.

In the July 12, 2010 Draft Reports the following Table is shown on Page 50. I could not get to grips with the Halls River figures. When I looked at the daily data from the Gage Site 02310700 that only resulted in more questions. And I noted that the tidally adjusted discharge has not been reported since October 1, 2010.

Martyn

Table 2-3. Summary statistics for mean daily discharge records approved by the United States Geological Survey for Homosassa River system gage sites. Values are expressed as cubic feet per second (cfs) unless specified. Periods of record for approved data are listed by gage site in Table 2-2.

Statistic (cfs or N)	Homosassa Springs at Homosassa Springs FL	SE Fork Homosassa Spring at Homosassa Springs FL	Combined Springs^a	Halls River^b	Homosassa River at Homosassa FL (tidally filtered)	Hidden River near Homosassa FL
Maximum	141	100	240	1,995	2,090	25.0
75th Percentile	98	68	165	200	350	11
Median	88	60	147	108	251	8.0
25th Percentile	79	53	131	28	167	4.6
Minimum	34	23	57	-765	-636	1.3
Mean	89	61	149	129	272	8.0
Standard Deviation	14	11	26	181	183	4.4
Number (N) of daily Records	4,975	3,123	3,102	1,662	1,774	2,063

^a Combined Springs discharge determined as the sum of the Homosassa Springs at Homosassa FL and SE Fork Homosassa Spring at Homosassa Springs FL discharge for days when records were available for both sites.

^b Halls River discharge estimated by subtracting combined springs discharge from tidally filtered Homosassa River at Homosassa FL discharge for days when records were available for the two spring sites and the Homosassa River site.

This is an extract from the on-line records; note the differences between the filtered and non filtered figures.

Date				
		Dis-		
		charge,		
	Dis-	tidally		
	charge,	fltrd,		
	ft3 /s,	ft3 /s,		
	not	RESIDUAL		
	fltrd.	(Mean)		
	for			
	tide			Not Filtered-Filtered
	(Mean)			
6/10/2010	145 ^A	128 ^A		17
6/11/2010	103 ^A	77 ^A		26
6/12/2010	149 ^A	129 ^A		20
6/13/2010	211 ^A	230 ^A		-19
6/14/2010	139 ^A	190 ^A		-51
6/15/2010	158 ^A	234 ^A		-76
6/16/2010	308 ^A	218 ^A		90
6/17/2010	284 ^A	239 ^A		45
6/18/2010	277 ^A	225 ^A		52
6/19/2010	336 ^A	250 ^A		86
6/20/2010	290 ^A	275 ^A		15
6/21/2010	285 ^A	164 ^A		121
6/22/2010	263 ^A	235 ^A		28
6/23/2010	232 ^A	262 ^A		-30
6/24/2010	185 ^A	255 ^A		-70
6/25/2010	135 ^A	201 ^A		-66
6/26/2010	125 ^A	154 ^A		-29
6/27/2010	99 ^A	140 ^A		-41
6/28/2010	135 ^A	151 ^A		-16
6/29/2010	228 ^A	269 ^A		-41
6/30/2010	200 ^A	231 ^A		-31
7/1/2010	285 ^A	261 ^A		24
7/2/2010	292 ^A	254 ^A		38
7/3/2010	195 ^A	190 ^A		5
7/4/2010	170 ^A	163 ^A		7
7/5/2010	255 ^A	220 ^A		35
	A	A		

7/6/2010	319	285		34
7/7/2010	351 ^A	278 ^A		73
7/8/2010	191 ^A	194 ^A		-3
7/9/2010	127 ^A	158 ^A		-31
7/10/2010	87 ^A	P		0
7/11/2010	P	P		0
7/12/2010	P	P		0
7/13/2010	P	P		0
7/14/2010	P	P		0
7/15/2010	235 ^A	P		0
7/16/2010	197 ^A	P		0
7/17/2010	209 ^A	200 ^A		9
7/18/2010	243 ^A	222 ^A		21
7/19/2010	277 ^A	212 ^A		65
7/20/2010	221 ^A	202 ^A		19
7/21/2010	197 ^A	185 ^A		12
7/22/2010	129 ^A	175 ^A		-46
7/23/2010	198 ^A	185 ^A		13
7/24/2010	-74 ^A	31 ^A		-105
7/25/2010	140 ^A	117 ^A		23
7/26/2010	168 ^A	209 ^A		-41
7/27/2010	177 ^A	203 ^A		-26
7/28/2010	194 ^A	192 ^A		2
7/29/2010	188 ^A	192 ^A		-4
7/30/2010	167 ^A	180 ^A		-13
7/31/2010	222 ^A	213 ^A		9
8/1/2010	245 ^A	216 ^A		29
8/2/2010	244 ^A	214 ^A		30
8/3/2010	228 ^A	200 ^A		28
8/4/2010	194 ^A	150 ^A		44
8/5/2010	173 ^A	125 ^A		48
8/6/2010	91 ^A	126 ^A		-35
8/7/2010	246 ^A	243 ^A		3
8/8/2010	356 ^A	395 ^A		-39
8/9/2010	367 ^A	420 ^A		-53
8/10/2010	247 ^A	258 ^A		-11

<mime.htm>

From: [Alan Martyn Johnson](#)
To: [Kevin J Grimsley](#); [rkane](#); [Ron Basso](#)
Cc: [grubman1@gmail.com](#); [Doug Leeper](#); [Ron Miller](#)
Subject: Homosassa River
Date: Wednesday, September 07, 2011 10:37:47 AM

Ron,

I do not have Dann's e-mail, so have shared this with you to pass on as he said he may stop be your office today. Thanks.

Kevin, Richard and Dann,

Thank you for taking the time yesterday to meet with me regarding the various concerns I have on the measurement of discharge from the springs that feed the Homosassa River. These discharge measurements are the foundation of many of the studies and rationale that SWFWMD use to develop the MFL's for this Outstanding Florida Water.

While the discussion lacked a structured progression as we kept jumping from one point to another it was very useful and informative. I trust that some of my comments and thought gave you food for thought as you drove home/back to Tampa. I certainly reflected on our discussion and would briefly like to touch on a few points.

1. I understand and appreciate that USGS are tasked only with supplying data and that it is SWFWMD's role to use/interpret the data for the purposes of MFL development. I have understood this, but not until our discussion did I appreciate how USGS is 'commissioned' by SWFWMD regarding what data is to be developed.
2. Tidal filtering. Kevin explained that the filtering is performed on the 15 minute interval data so this should overcome the concern expressed in an e-mail that the 24.84 hour cycle was not included. As I said this 15 minute data has all these erratic changes in it that make filtering more complex. I agree with Dann that the generation of this filtered data is essentially not worth the effort. When we look at the resulting output it is difficult if not impossible to put this to any meaningful use with a meaningful level of confidence.
3. The unit discharge data was not available yesterday for the two sets of field measurements 2000-12-12/13 and 2003-06-17/18. As I recall Dann said he would look these up and share them. Alternatively, I could pick these up at the Tampa office along with any other information requested in my 8/31/2011 e-mail that you can share. I will look towards a date next week and contact you to find a convenient time.
4. Specific Conductance Homosassa Springs. I tried hard to comprehend the logic of the lag explanation for this cyclic specific conductance (although not discussed as such I assume the measurements done across the channel have resulted in discounting the stratification thought). I would certainly be interest if you can share the results of the cross channel measurements that Kevin mentioned.
When I try to comprehend the lag hypothesis I just can not find a logical explanation of where six hours worth of discharge water is held (scratch pad over dinner last night that is 1.5 million cubic feet of water lag). Sorry but the logic is not there.
However, the logic does hold with my hypothesis:
The three vents are always discharging some water at the point they combine (60 feet down or thereabouts).

The flow from each of the vents varies with stage height.

Then given the chemical analyses over many years from the peristaltic sampling from each of the vents is: Homosassa Springs 1 in the chemical analyses data set Vent 1 highest TDS, Homosassa Springs 2 Vent 2 mid level TDS and Homosassa Springs 3 Vent 3 lowest TDS.

When Vent 3 is at its highest flow the TDS of the combined flows will be the lowest. THINK ABOUT IT CHEW THE CUD FOR A WHILE AND ASK YOURSELVES WHEN IN THE STAGE CYCLE IS VENT 3, the lowest TDS vent, LIKELY TO HAVE THE HIGHEST FLOW?

My hypothesis does not have to find an explanation for where is the 1.5 million cubic feet of water (80cfs for 6 hours, average high low cycle). And I maintain it is very difficult to logically explain reverse flow at this location. **SWFWMD could easily initiate hourly sampling from the vents via the peristaltic sampling pumps for a 12 or 24 hour period. Specific Conductance only. I am even prepared to volunteer my time to do this.**

I will be in touch, but thanks again I really appreciate your time, and specifically I would like to thanks to Kevin for staying on after the working group meeting. That demonstrated both personal commitment and professionalism to assure continuity of involvement by the Tampa Office. Thanks Dann for taking Kevin home!

Dann, thank you for your thought about monitoring the various small springs for the earliest signs of 'impending problems'. The thought had not so clearly crossed my mind that the smaller springs are more likely to give the earlier warning signs than the changes in the main flows. I had been focusing my interest on the SE Fork as it is the major source of the highest quality water to the river. Good point to be even more focused on each of the small springs including Bluebird Springs, which is not 'featured' in the main discussion.

Martyn

P.S.

Kevin,

I am sure you have but just in case; have you thought about placing the ADCP for the SE Fork just upstream of the bridge. At this location it would still be convenient to the transmission station- recorder location, AND MOST IMPORTANTLY LESS PRONE TO human interference. Few 'swimmers' hang out that side of the bridge.

From: ktripp@savethemanatee.org
To: [Doug Leeper](#)
Cc: ktripp@savethemanatee.org; joyce_kleen@fws.gov
Subject: Fwd: RE: Chassahowitzka Manatees
Date: Wednesday, September 07, 2011 1:54:10 PM
Attachments: [FWC Tagging Bout Summary for TTB060.docx](#)
[Manatee Telemetry PTT RFI Metadata 2009-06-26.htm](#)
[ttb060_rachel_ptt_lc2-3_all.jpg](#)
[ttb060_rachel_ptt_lc2-3_chassahowitzka.jpg](#)
[ttb060_rachel_ptt_lc2-3_fwc_geo.dbf](#)
[ttb060_rachel_ptt_lc2-3_fwc_geo.sbn](#)
[ttb060_rachel_ptt_lc2-3_fwc_geo.sbx](#)
[ttb060_rachel_ptt_lc2-3_fwc_geo.shp](#)
[ttb060_rachel_ptt_lc2-3_fwc_geo.shx](#)

Hi Doug,

Here are some of the telemetry data I referenced in my presentation yesterday. These folks would have the GIS data if the WMD wished to look at actual habitat utilized by a manatee in this system.

Thanks again for the opportunity to address the group.

Best,

Katie

Katie Tripp, Ph.D.
Director of Science and Conservation
Save the Manatee Club
500 N. Maitland Ave.
Maitland, FL 32751
Phone: 407-539-0990
Fax: 407-539-0871
E-mail: ktripp@savethemanatee.org

----- Original Message -----

From: "Deutsch, Chip" Chip.Deutsch@MyFWC.com
To: "ktripp@savethemanatee.org" ktripp@savethemanatee.org
Sent: Thu 01/09/11 6:42 PM
Subject: Fwd: RE: Chassahowitzka Manatees

Dear Katie,

We have satellite telemetry data for one tagged manatee that used the Chassahowitzka River: TTB060, "Rachel". Attached are the following files:

1. Tagging summary from 1997-1999 for FWC tags. Note that the tags came on and off over this period; and that the animal was captured and relocated twice: once from Homosassa to Chassahowitzka; and once from Chassahowitzka to Crystal River; she later made it back to Chassahowitzka on her own by 1999.
2. GIS shapefile of PTT data (location classes 2 and 3); datum = NAD-83; unprojected lat/long coordinates; 290 dates with PTT locations, 126 of which were in the Chassahowitzka River system.

3. Metadata for the PTT dataset
4. 2 maps which were just screen shots to show you the overall distribution of the data. Note that these are not map products, as there is no legend or other cartographic information; I just exported the jpgs quickly for you. You will need to make proper maps in GIS.

Our notes indicate that USGS tagged TTB060 in spring 1999 (see tagging summary), so you should contact Jim Reid or Dan Slone at USGS Sirenia Project for those data. Please let me know if you have any questions.

Regards,
Chip

Chip Deutsch, Ph.D.
Associate Research Scientist
Florida Fish and Wildlife Conservation Commission
Fish and Wildlife Research Institute
<http://research.myfwc.com/>

Contact Information:

Wildlife Research Laboratory
1105 SW Williston Rd.
Gainesville, FL 32601

PH: 352-955-2081 x 109
FAX: (352) 955-2183
E-mail: Chip.Deutsch@MyFWC.com

From: Dennis3ds@aol.com
To: [Doug Leeper](#)
Cc: Dennis3ds@aol.com
Subject: Waterfowl Population Trends
Date: Thursday, September 08, 2011 6:08:36 AM

Mr. Leeper,

The evidence as to why migratory waterfowl is not utilizing the Chassahowitzka NWR, and the Springs Coast Region of the Eastern Gulf of Mexico appears to point to the disappearance of consistent fresh water flowing and seeping into the coastal region that creates the perfect brackish and freshwater mix, required to produce habitat that waterfowl utilize; exacerbated as we now understand by sea level rise. Your contention that production of waterfowl is a contributing factor cannot be substantiated, even if waterfowl numbers were down there would still be waterfowl utilizing healthy habitat albeit in lesser numbers. As you heard from the staff at the Chassahowitzka NWR the habitat has been in decline for some time and has gone unrecognized until recently pointed out by stakeholders. I made the point in my letter to The District that the decline of the ducks utilizing the area had followed the opposite trend line as permits were approved by The District for ground water withdrawals from the Region. Almost exactly as the pumping increased the over wintering waterfowl numbers on the refuge went down, suggesting that there is some correlation between the local waterfowl habitat and a fully saturated aquifer.

For your own edification and information I recommend for your review **USFWS Administrative Report dated July 1, 2011. "Trends in Duck Breeding Populations, 1955-2011"**

<http://www.fws.gov/migratorybirds/NewReportsPublications/2011Trends%20in%20Breeding%20Duck%20Populations.pdf>

This is not a long document only 26 pages, on page 1 you will find the numbers and Long Term Averages (LTA) for the various species of hunted waterfowl.

A steep decline in waterfowl over wintering at Chassahowitzka NWR and the Springs Coast Region does not appear to be an isolated issue in Florida. Gulf Island National Sea Shore seems to have a similar issue as Perdido Bay's salinity levels have increased, Ten Thousand Island NWR has had a decline in the number of waterfowl that stay on the refuge and also Merritt Island NWR which in the past has been a top 10 waterfowling destination has experienced declines and would likely be in worse condition if not for the mosquito control impoundments creating man made habitat and the manipulated impoundment at Black Point within Merritt Island NWR. The presents of waterfowl are an indicator of the overall health of an ecosystem, with that said it is easy to conclude that there have been significant changes in the coastal wetlands of Florida and in particular the Springs Coast.

Warmest Regards,

Dennis

Dennis D. Dutcher
United Waterfowlers - Florida, Inc.
South West Region Director / Board Member
863.667.1833 / 863.602.0113
www.uw-f.org

From: Doug Leeper
To: "Dennis3ds@aol.com"
Cc: Marty Kelly; Mike Heyl
Subject: RE: Waterfowl Population Trends
Date: Thursday, September 08, 2011 8:02:00 AM

Dennis,

Thanks for the comments and the link to the waterfowl/habitat report by Zimpfer and others. I have looked at the report and found it to be useful.

Again, I appreciate your contributing to the Springs Coast minimum flows workshops and taking the time to offer information on waterfowl abundances on the Springs Coast and elsewhere in Florida.

Douglas A. Leeper, Chief Environmental Scientist
Resource Projects Department, Southwest Florida Water Management District
2379 Broad Street, Brooksville, FL 34604-6899
Telephone: 1-800-423-1476, ext. 4272 (FL only) or 352-796-7211, ext. 4272
Fax: 352-754-6885
E-Mail: doug.leeper@watermatters.org
Web Site: watermatters.org

From: Dennis3ds@aol.com [mailto:Dennis3ds@aol.com]
Sent: Thursday, September 08, 2011 6:08 AM
To: Doug Leeper
Cc: Dennis3ds@aol.com
Subject: Waterfowl Population Trends

Mr. Leeper,

The evidence as to why migratory waterfowl is not utilizing the Chassahowitzka NWR, and the Springs Coast Region of the Eastern Gulf of Mexico appears to point to the disappearance of consistent fresh water flowing and seeping into the coastal region that creates the perfect brackish and freshwater mix, required to produce habitat that waterfowl utilize; exacerbated as we now understand by sea level rise. Your contention that production of waterfowl is a contributing factor cannot be substantiated, even if waterfowl numbers were down there would still be waterfowl utilizing healthy habitat albeit in lesser numbers. As you heard from the staff at the Chassahowitzka NWR the habitat has been in decline for some time and has gone unrecognized until recently pointed out by stakeholders. I made the point in my letter to The District that the decline of the ducks utilizing the area had followed the opposite trend line as permits were approved by The District for ground water withdrawals from the Region. Almost exactly as the pumping increased the over wintering waterfowl numbers on the refuge went down, suggesting that there is some correlation between the local waterfowl habitat and a fully saturated aquifer.

For your own edification and information I recommend for your review **USFWS Administrative Report dated July 1, 2011. "Trends in Duck Breeding Populations, 1955-2011"**

<http://www.fws.gov/migratorybirds/NewReportsPublications/2011Trends%20in%20Breeding%20Duck%20Populations.pdf>

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Dennis

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www.uw-f.org

From: [Bryan, Dana](#)
To: [Doug Leeper](#)
Subject: theoretical questions
Date: Thursday, September 08, 2011 11:22:47 AM

Hi, Doug! I have a series of theoretical questions I would like to pose to you. I am asking how water management districts interpret the MFL statute and rule.

Suppose there is a spring (let's say Leeper Spring) and its discharge creates a river.

Let's then stipulate that the period-of-record of that spring discharge and river flow is determined from valid data that are not disputed in any way.

Let's then suppose that the discharge and flow have declined over the period-of-record in a linear fashion from the earliest data to the most recent data.

Let's also suppose that the manatee population in that river has also experienced a linear decline over the period-of-record.

a) What does MFL statute and rule imply is the relevance of that decline in now setting the MFL? Is it proper to only consider current discharge/flow, or does the statute/rule imply that documented historical loss must be factored into the MFL?

b) WMDs seem to usually calculate a single statistic to characterize the period-of-record, like a median flow. The MFL is then set at some discharge value below that based on avoiding significant harm from the current condition. So a further loss of the manatee population is avoided, but the previous decline is not relevant. Is that accurate philosophically?

c) Is the cause of the decline in discharge/flow relevant?

Let's stipulate that we know that the decline is caused by 3 factors – multi-decadal oscillations, 5-year drought and consumptive use permitting - and we know the proportion of decline attributable to each.

d) Is the decline caused by consumptive use permitting the only proportion considered relevant?

I hope you're willing to take a crack at these questions. It will help me understand MFL strategies all around the state. Thanks - DCB

Dana C. Bryan
Environmental Policy Coordinator
Office of the Director
Florida Park Service
Florida Department of Environmental Protection
Douglas Building - MS 500
3900 Commonwealth Blvd.
Tallahassee, FL 32399-3000
850-245-3029; inter. ext. 53511; dana.bryan@dep.state.fl.us

Visit *The Real Florida*sm at <http://www.floridastateparks.org>



Please take a few minutes to share your comments on the service you received from the department by clicking on this link [DEP Customer Survey](#).

From: Doug Leeper
To: ["Bryan, Dana"](#)
Bcc: [Marty Kelly](#); [Mike Heyl](#)
Subject: RE: theoretical questions
Date: Friday, September 09, 2011 1:25:22 PM

Dana:

Thanks for the questions. My responses are embedded (in brown text) in you reproduced e-mail below.

Douglas A. Leeper, Chief Environmental Scientist
Resource Projects Department, Southwest Florida Water Management District
2379 Broad Street, Brooksville, FL 34604-6899
Telephone: 1-800-423-1476, ext. 4272 (FL only) or 352-796-7211, ext. 4272
Fax: 352-754-6885
E-Mail: doug.leeper@watermatters.org
Web Site: watermatters.org

From: Bryan, Dana [<mailto:Dana.Bryan@dep.state.fl.us>]
Sent: Thursday, September 08, 2011 11:23 AM
To: Doug Leeper
Subject: theoretical questions

Hi, Doug! I have a series of theoretical questions I would like to pose to you. I am asking how water management districts interpret the MFL statute and rule.

RESPONSE: Let me qualify that the answers I am providing here reflect my opinions and perhaps those of some others at the Southwest Florida Water Management District. I can't, of course, address how the staff at other Districts would answer your questions.

Suppose there is a spring (let's say Leeper Spring) and its discharge creates a river.

RESPONSE: Your buttering me up by naming a spring after me.

Let's then stipulate that the period-of-record of that spring discharge and river flow is determined from valid data that are not disputed in any way.

Let's then suppose that the discharge and flow have declined over the period-of-record in a linear fashion from the earliest data to the most recent data.

Let's also suppose that the manatee population in that river has also experienced a linear decline over the period-of-record.

a) What does MFL statute and rule imply is the relevance of that decline in now setting the MFL? Is it proper to only consider current discharge/flow, or does the statute/rule imply that documented historical loss must be factored into the MFL?

RESPONSE: For development of this response, I'm assuming that your question refers to the flow trend for the period of record. --- When establishing minimum flows or levels we try to use a long-term measured or synthetic hydrologic record to account for natural

variation associated with climatic variation. This allows us to develop significant harm thresholds that incorporate or address expected natural variation in flows or levels. In developing these hydrologic records and the minimum flows or levels derived from them, we are guided by statutory language that directs us or the Department of Environmental Protection to develop minimum flows and levels to prevent significant harm associated with further water withdrawals. Statutory language also directs us to consider changes and structural alterations to watersheds, etc., and hydrologic effects of these alterations. We interpret the statutory language to mean that a historical loss or decline in flows or levels does not need to be accounted for (e.g., added back into a flow or water level record) if it is not related to water use. We do, however, try to take into account natural flow or level variation when identifying significant harm thresholds used for minimum flow recommendations. With regard to structural alterations and changes, we interpret the statute to mean that we do not necessarily have to adjust a long-term hydrologic record based on hydrologic effects associated with the alterations and changes. In some cases the structural alterations or changes may render portions of an available "historic" flow or water level record inappropriate for consideration when establishing minimum flows or levels.

b) WMDs seem to usually calculate a single statistic to characterize the period-of-record, like a median flow. The MFL is then set at some discharge value below that based on avoiding significant harm from the current condition. So a further loss of the manatee population is avoided, but the previous decline is not relevant. Is that accurate philosophically?

RESPONSE: Significant change thresholds are developed based on comparison of conditions associated with baseline flow or water level conditions that reflect the absence of withdrawal effects. Any trends or other changes in response variables not related to withdrawals or structural alterations are considered to be variation associated with factors not governed by the requirement for development of minimum flows and levels. Notwithstanding this position, note that we have not and do not plan to set a minimum flow based on a loss or reduction in manatee populations or sub-populations. Criteria associated with manatees that have been used to support minimum flows development are based on maintaining at least 85% of the thermally-favorable habitat available to these animals during critically cold periods under flow conditions reflecting the absence of withdrawal impacts. Please also note that we have not determined that availability of thermally-favorable habitat under recommended minimum flow scenarios would be expected to limit the populations of manatees using any of the river-spring systems we have evaluated along the Springs Coast.

c) Is the cause of the decline in discharge/flow relevant?

RESPONSE: Assuming relevance to the development of minimum flows and levels, the cause of a decline in flows or levels is absolutely relevant if it is related to water withdrawals or structural alterations. Natural variability in flows or levels may also be relevant to minimum flow or levels establishment, as we can incorporate this variability into the development of significant change standards by evaluating effects of incremental flow reductions on parameters of interest over the range of expected natural variation in the hydrologic regime. If a flow reduction is caused by structural alterations or changes to a watershed or water body, it is also relevant for minimum flows and levels development, as the District Governing Board can consider these alterations when approving a minimum flow or level.

Let's stipulate that we know that the decline is caused by 3 factors – multi-decadal oscillations, 5-year drought and consumptive use permitting - and we know the proportion of decline attributable to each.

d) Is the decline caused by consumptive use permitting the only proportion considered relevant?

RESPONSE: I believe I answered this question in my response to your question (c) above, by addressing the relevance of water use and natural flow or level variation (which would integrate droughts and multi-decadal oscillations in rainfall) for minimum flows and levels development.

I hope you're willing to take a crack at these questions. It will help me understand MFL strategies all around the state. Thanks - DCB

Dana C. Bryan
Environmental Policy Coordinator
Office of the Director
Florida Park Service
Florida Department of Environmental Protection
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Tallahassee, FL 32399-3000
850-245-3029; inter. ext. 53511; dana.bryan@dep.state.fl.us

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From: [Alan Martyn Johnson](#)
To: rrodrigu@usgs.gov
Cc: [rkane](#); [Marty Kelly](#); [Doug Leeper](#); jdweaver@usgs.gov
Subject: E-mail 8-31-2011
Date: Wednesday, September 14, 2011 1:36:25 PM

Mr. Rodriguez.

I think you have had time to read and think about the e-mail I sent August 31.

I would appreciate your confirming that the statement I made regarding the changes in flow from one 15 minute reported discharge is correct or incorrect.

Additionally, I look forward to you explaining the rationale behind the equation mentioned in the e-mail.

Martyn

From: [Alan Martyn Johnson](#)
To: [Kevin J Grimsley](#)
Cc: [rkane](#); [Doug Leeper](#)
Subject: RE: Homosassa River
Date: Wednesday, September 14, 2011 1:43:04 PM

Kevin,
I will order the data.
Please confirm what equation was in use for the 2000-12-12 discharge data. I believe this was prior to gage height being available.

Would also appreciate your advising the equation in use for the Chassahowitzka site. This is not, as far as I can see in the MFL Draft Report by SWFWMD.
The equation in Dann Yobbi's paper does not appear agree with current discharge data. It is close but not 100% from what I have looked at.

Martyn

To: martynellijay@hotmail.com
CC: rkane@usgs.gov
Subject: Re: Homosassa River
From: kjgrims@usgs.gov
Date: Thu, 8 Sep 2011 10:17:25 -0400

Martyn,

It was good to meet with you again Tuesday. I need to ask again that you send any data requests (such as #3 below) through our official request website at <http://waterdata.usgs.gov/fl/nwis/feedback/?to=Florida> Water Data Inquiries. Thanks.

Kevin Grimsley, P.E.
Supervisory Hydrologist
USGS, Florida Water Science Center
10500 University Center Drive, Suite 215
Tampa, FL 33612
kjgrims@usgs.gov
813-498-5064

From: Alan Martyn Johnson <martynellijay@hotmail.com>
To: Kevin J Grimsley <kjgrims@usgs.gov>, rkane <rkane@usgs.gov>, Ron Basso <ron.basso@swfwmd.state.fl.us>
Cc: <grubman1@gmail.com>, Doug Leeper <doug.leeper@swfwmd.state.fl.us>, Ron Miller <rmille76@tampabay.rr.com>
Date: 09/07/2011 10:38 AM
Subject: Homosassa River

Ron,
I do not have Dann's e-mail, so have shared this with you to pass on as he said he may stop be your office today. Thanks.

Kevin, Richard and Dann,

Thank you for taking the time yesterday to meet with me regarding the various concerns I have on the measurement of discharge from the springs that feed the Homosassa River.

These discharge measurements are the foundation of many of the studies and rationale that SWFWMD use to develop the MFL's for this Outstanding Florida Water.

While the discussion lacked a structured progression as we kept jumping from one point to another it was very useful and informative. I trust that some of my comments and thought gave you food for thought as you drove home/back to Tampa. I certainly reflected on our discussion and would briefly like to touch on a few points.

1. I understand and appreciate that USGS are tasked only with supplying data and that it is SWFWMD's role to use/interpret the data for the purposes of MFL development. I have understood this, but not until our discussion did I appreciate how USGS is 'commissioned' by SWFWMD regarding what data is to be developed.

2. Tidal filtering. Kevin explained that the filtering is performed on the 15 minute interval data so this should overcome the concern expressed in an e-mail that the 24.84 hour cycle was not included. As I said this 15 minute data has all these erratic changes in it that make filtering more complex. I agree with Dann that the generation of this filtered data is essentially not worth the effort. When we look at the resulting output it is difficult if not impossible to put this to any meaningful use with a meaningful level of confidence.

3. The unit discharge data was not available yesterday for the two sets of field measurements 2000-12-12/13 and 2003-06-17/18. As I recall Dann said he would look these up and share them. Alternatively, I could pick these up at the Tampa office along with any other information requested in my 8/31/2011 e-mail that you can share. I will look towards a date next week and contact you to find a convenient time.

4. Specific Conductance Homosassa Springs. I tried hard to comprehend the logic of the lag explanation for this cyclic specific conductance (although not discussed as such I assume the measurements done across the channel have resulted in discounting the stratification thought). I would certainly be interest if you can share the results of the cross channel measurements that Kevin mentioned.

When I try to comprehend the lag hypothesis I just can not find a logical explanation of where six hours worth of discharge water is held (scratch pad over dinner last night that is 1.5 million cubic feet of water lag). Sorry but the logic is not there.

However, the logic does hold with my hypothesis:

The three vents are always discharging some water at the point they combine (60 feet down or thereabouts).

The flow from each of the vents varies with stage height.

Then given the chemical analyses over many years from the peristaltic sampling from each of the vents is: Homosassa Springs 1 in the chemical analyses data set Vent 1 highest TDS, Homosassa Springs 2 Vent 2 mid level TDS and Homosassa Springs 3 Vent 3 lowest TDS.

When Vent 3 is at its highest flow the TDS of the combined flows will be the lowest.

THINK ABOUT IT CHEW THE CUD FOR A WHILE AND ASK YOURSELVES WHEN IN THE STAGE CYCLE IS VENT 3, the lowest TDS vent, LIKELY TO HAVE THE HIGHEST FLOW?

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sampling from the vents via the peristaltic sampling pumps for a 12 or 24 hour period.
Specific Conductance only. I am even prepared to volunteer my time to do this.

I will be in touch, but thanks again I really appreciate your time, and specifically I would like to thanks to Kevin for staying on after the working group meeting. That demonstrated both personal commitment and professionalism to assure continuity of involvement by the Tampa Office. Thanks Dann for taking Kevin home!

Dann, thank you for your thought about monitoring the various small springs for the earliest signs of 'impending problems'. The thought had not so clearly crossed my mind that the smaller springs are more likely to give the earlier warning signs than the changes in the main flows. I had been focusing my interest on the SE Fork as it is the major source of the highest quality water to the river. Good point to be even more focused on each of the small springs including Bluebird Springs, which is not 'featured' in the main discussion.

Martyn

P.S.

Kevin,

I am sure you have but just in case; have you thought about placing the ADCP for the SE Fork just upstream of the bridge. At this location it would still be convenient to the transmission station- recorder location, AND MOST IMPORTANTLY LESS PRONE TO human interference. Few 'swimmers' hang out that side of the bridge.

From: [Kevin J Grimsley](#)
To: [Alan Martyn Johnson](#)
Cc: [Doug Leeper](#); [rkane](#)
Subject: RE: Homosassa River
Date: Monday, September 19, 2011 4:33:20 PM

Martyn,

It is our long standing policy that we do not release our rating equations to the public except where they may be published as part of an investigations report (as was the case with the regressions in Dann's report). Therefore, I cannot elaborate further than what is already provided in the report on specific equations.

You seem to be inferring that because gage height data is not available on the web for that period, that none was collected. That is not the case. Gage height data was collected under the project section at this time and it is common practice, especially in other parts of the country, to only publish the final product which is discharge.

I got your voicemail this morning and we truly appreciate you looking after our equipment. As you know, we've had vandalism issues before and hopefully once everyone gets used to seeing this new equipment they'll leave it alone. Everything still seems to be working fine for now, but we'll pass by the site to make sure. Thanks again.

Kevin Grimsley, P.E.
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kjgrims@usgs.gov
813-498-5064

From: Alan Martyn Johnson <martynellijay@hotmail.com>
To: Kevin J Grimsley <kjgrims@usgs.gov>
Cc: rkane@usgs.gov; Doug Leeper <doug.leeper@swfwmd.state.fl.us>
Date: 09/14/2011 01:43 PM
Subject: RE: Homosassa River

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Martyn

To: martynellijay@hotmail.com
CC: rkane@usgs.gov
Subject: Re: Homosassa River
From: kjgrims@usgs.gov
Date: Thu, 8 Sep 2011 10:17:25 -0400

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To: Kevin J Grimsley <kjgrims@usgs.gov>, rkane <rkane@usgs.gov>, Ron Basso <ron.basso@swfwmd.state.fl.us>
Cc: <grubman1@gmail.com>, Doug Leeper <doug.leeper@swfwmd.state.fl.us>, Ron Miller <rmille76@tampabay.rr.com>
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From: [Alan Martyn Johnson](#)
To: [Kevin J Grimsley](#)
Cc: [Doug Leeper](#); [rkane](#); [Brad Rimbey](#); [Ron Miller](#)
Subject: RE: Homosassa River
Date: Wednesday, September 21, 2011 3:20:46 PM

Kevin,

Pleased you got my voicemail which I left in rather a hurry as we were preparing to leave Homosassa due to news from Atlanta.

There are a number of boats with 100+HP motors that pass under the bridge and could possibly lift/damage the ADCP cable when the water is lower.

Before the installation, I thought you would possibly use a side looking (if that is the correct term) unit for exactly the reason of potential damage mid stream. Have no idea about how sturdy the casing is, but a big prop even at idle speed is likely to inflict a strong blow on the casing, let alone the 'lenses'.

Regarding the data/rating equations; I understand your position that you are subject to all those rules/regulations/policies. We will follow up, particularly the Chassahowitska equation, with a request through the bureaucracy of the Freedom of Information Act.

On the question of Gage Height at the SE Fork my 'inference' was based on the information on the web site:

Data Type	Begin Date	End Date	Count
Real-time	-- Previous 120 days --		
Daily Data			
Temperature, water, degrees Celsius -- near bottom	2006-05-03	2011-09-20	3855
Discharge, cubic feet per second	2000-10-01	2011-09-19	3824
Gage height, feet	2002-10-01	2011-09-20	8359

I figured the dates may be right even if the count numbers are difficult to understand; not that they need to be explained.

Thanks for the info I will ask for this gage height data on the official data request form.

Martyn

To: martynellijay@hotmail.com
CC: doug.leeper@swfwmd.state.fl.us; rkane@usgs.gov
Subject: RE: Homosassa River
From: kjgrims@usgs.gov
Date: Mon, 19 Sep 2011 16:33:48 -0400

Martyn,

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Dann's report). Therefore, I cannot elaborate further than what is already provided in the report on specific equations.

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kjgrims@usgs.gov
813-498-5064

From: Alan Martyn Johnson <martynellijay@hotmail.com>
To: Kevin J Grimsley <kjgrims@usgs.gov>
Cc: rkane <rkane@usgs.gov>, Doug Leeper <doug.leeper@swfwmd.state.fl.us>
Date: 09/14/2011 01:43 PM
Subject: RE: Homosassa River

Kevin,
I will order the data.
Please confirm what equation was in use for the 2000-12-12 discharge data. I believe this was prior to gage height being available.

Would also appreciate your advising the equation in use for the Chassahowitzka site. This is not, as far as I can see in the MFL Draft Report by SWFWMD.
The equation in Dann Yobbi's paper does not appear agree with current discharge data. It is close but not 100% from what I have looked at.

Martyn

To: martynellijay@hotmail.com
CC: rkane@usgs.gov
Subject: Re: Homosassa River
From: kjgrims@usgs.gov
Date: Thu, 8 Sep 2011 10:17:25 -0400

Martyn,

It was good to meet with you again Tuesday. I need to ask again that you send any data requests (such as #3 below) through our official request website at <http://waterdata.usgs.gov/fl/nwis/feedback/?to=Florida> Water Data Inquiries. Thanks.

Kevin Grimsley, P.E.
Supervisory Hydrologist
USGS, Florida Water Science Center
10500 University Center Drive, Suite 215
Tampa, FL 33612
kjgrims@usgs.gov
813-498-5064

From: Alan Martyn Johnson <martynellijay@hotmail.com>
To: Kevin J Grimsley <kjgrims@usgs.gov>, rkane <rkane@usgs.gov>, Ron Basso <ron.basso@swfwmd.state.fl.us>
Cc: <grubman1@gmail.com>, Doug Leeper <doug.leeper@swfwmd.state.fl.us>, Ron Miller <rmille76@tampabay.rr.com>
Date: 09/07/2011 10:38 AM
Subject: Homosassa River

Ron,

I do not have Dann's e-mail, so have shared this with you to pass on as he said he may stop by your office today. Thanks.

Kevin, Richard and Dann,

Thank you for taking the time yesterday to meet with me regarding the various concerns I have on the measurement of discharge from the springs that feed the Homosassa River.

These discharge measurements are the foundation of many of the studies and rationale that SWFWMD use to develop the MFL's for this Outstanding Florida Water.

While the discussion lacked a structured progression as we kept jumping from one point to another it was very useful and informative. I trust that some of my comments and thought gave you food for thought as you drove home/back to Tampa. I certainly reflected on our discussion and would briefly like to touch on a few points.

1. I understand and appreciate that USGS are tasked only with supplying data and that it is SWFWMD's role to use/interpret the data for the purposes of MFL development. I have understood this, but not until our discussion did I appreciate how USGS is 'commissioned' by SWFWMD regarding what data is to be developed.
2. Tidal filtering. Kevin explained that the filtering is performed on the 15 minute interval data so this should overcome the concern expressed in an e-mail that the 24.84 hour cycle was not included. As I said this 15 minute data has all these erratic changes in it that make filtering more complex. I agree with Dann that the generation of this filtered data is essentially not worth the effort. When we look at the resulting output it is difficult if not impossible to put this to any meaningful use with a meaningful level of confidence.
3. The unit discharge data was not available yesterday for the two sets of field measurements 2000-12-12/13 and 2003-06-17/18. As I recall Dann said he would look these up and share them. Alternatively, I could pick these up at the Tampa office along with any other information requested in my 8/31/2011 e-mail that you can share. I will look towards a date next week and contact you to find a convenient time.

4. Specific Conductance Homosassa Springs. I tried hard to comprehend the logic of the lag explanation for this cyclic specific conductance (although not discussed as such I assume the measurements done across the channel have resulted in discounting the stratification thought). I would certainly be interest if you can share the results of the cross channel measurements that Kevin mentioned.

When I try to comprehend the lag hypothesis I just can not find a logical explanation of where six hours worth of discharge water is held (scratch pad over dinner last night that is 1.5 million cubic feet of water lag). Sorry but the logic is not there.

However, the logic does hold with my hypothesis:

The three vents are always discharging some water at the point they combine (60 feet down or thereabouts).

The flow from each of the vents varies with stage height.

Then given the chemical analyses over many years from the peristaltic sampling from each of the vents is: Homosassa Springs 1 in the chemical analyses data set Vent 1 highest TDS, Homosassa Springs 2 Vent 2 mid level TDS and Homosassa Springs 3 Vent 3 lowest TDS.

When Vent 3 is at its highest flow the TDS of the combined flows will be the lowest.

THINK ABOUT IT CHEW THE CUD FOR A WHILE AND ASK YOURSELVES WHEN IN THE STAGE CYCLE IS VENT 3, the lowest TDS vent, LIKELY TO HAVE THE HIGHEST FLOW?

My hypothesis does not have to find an explanation for where is the 1.5 million cubic feet of water (80cfs for 6 hours, average high low cycle). And I maintain it is very difficult to logically explain reverse flow at this location. **SWFWMD could easily initiate hourly sampling from the vents via the peristaltic sampling pumps for a 12 or 24 hour period. Specific Conductance only. I am even prepared to volunteer my time to do this.**

I will be in touch, but thanks again I really appreciate your time, and specifically I would like to thanks to Kevin for staying on after the working group meeting. That demonstrated both personal commitment and professionalism to assure continuity of involvement by the Tampa Office. Thanks Dann for taking Kevin home!

Dann, thank you for your thought about monitoring the various small springs for the earliest signs of 'impending problems'. The thought had not so clearly crossed my mind that the smaller springs are more likely to give the earlier warning signs than the changes in the main flows. I had been focusing my interest on the SE Fork as it is the major source of the highest quality water to the river. Good point to be even more focused on each of the small springs including Bluebird Springs, which is not 'featured' in the main discussion.

Martyn

P.S.

Kevin,

I am sure you have but just in case; have you thought about placing the ADCP for the SE Fork just upstream of the bridge. At this location it would still be convenient to the transmission station- recorder location, AND MOST IMPORTANTLY LESS PRONE TO human interference. Few 'swimmers' hang out that side of the bridge.

From: [Robert Knight](#)
To: [Doug Leeper](#)
Cc: [Gary Maidhof](#)
Subject: Re: MFLs Workshop Presentations and Chloride Conc File Posted on Web Site
Date: Friday, September 23, 2011 5:04:44 PM

Doug - some question? Has rising ocean levels been used as a criteria anywhere else by SWFWMD? If so, where? If not, are there any plans to go back to previously approved MFL's and redetermine them with the rising sea levels in consideration?

>>> Doug Leeper <Doug.Leeper@swfwmd.state.fl.us> 9/12/2011 5:51 AM >>>

Greetings:

I'm writing today to let you know that electronic versions of the slides shown be me and several stakeholder representatives at the September 6th Springs Coast Minimum Flows and Levels Public Workshop are now posted on the District's workshop web page at:

<http://www.WaterMatters.org/SpringsCoastMFL>

A meeting notes file to accompany these presentations will, hopefully, be posted sometime soon.

As promised during the workshop, a file showing time-series plots of chloride concentrations at a number of monitoring wells and springs along the Springs Coast is also now posted on the web page. The file is named *Coastal Chloride History* and is stored under the *Background Information and Reports* heading.

Thanks again for your contributions to the workshop and your interest in minimum flows and levels on the Springs Coast.

Douglas A. Leeper, Chief Environmental Scientist

Resource Projects Department, Southwest Florida Water Management District

2379 Broad Street, Brooksville, FL 34604-6899

Telephone: 1-800-423-1476, ext. 4272 (FL only) or 352-796-7211, ext. 4272

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E-Mail: doug.leeper@watermatters.org

Web Site: watermatters.org

IMPORTANT NOTICE: All E-mail sent to or from this address are public record and archived. The Southwest Florida Water Management District does not allow use of District equipment and E-mail facilities for non-District business purposes.

From: Doug Leeper
To: ["Robert Knight"](#)
Cc: [Marty Kelly](#); [Mike Heyl](#)
Subject: RE: MFLs Workshop Presentations and Chloride Conc File Posted on Web Site
Date: Monday, September 26, 2011 8:58:00 AM

Hi Bob -- Here are some brief responses to your questions.

We have not previously used sea level rise information in our minimum flows and levels evaluations. We are currently trying to figure out how to work it into our ongoing minimum flows efforts for the Braden, Chassahowitzka, Crystal, Homosassa, Manatee and Withlacoochee River systems.

We don't have any current plans to revisit established minimum flows and levels based on sea level rise considerations.

Douglas A. Leeper, Chief Environmental Scientist
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Fax: 352-754-6885
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Web Site: watermatters.org

From: Robert Knight [mailto:Robert.Knight@bocc.citrus.fl.us]
Sent: Friday, September 23, 2011 5:05 PM
To: Doug Leeper
Cc: Gary Maidhof
Subject: Re: MFLs Workshop Presentations and Chloride Conc File Posted on Web Site

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NOTE: remainder of e-mail string deleted by Doug Leeper

Save Our Waters Week 2011: The MFL program: authorized destruction

"It is not an unreasonable expectation based upon this state's history that if an MFL for the Chassahowitzka will allow a reduction of 11 percent of its current flow, inevitably groundwater pumping will be permitted from the springsheds that will permanently reduce the river to that level. In other words, the District is setting the stage for groundwater withdrawals that will permanently lower the river's flow to this level and the projected 15 percent reduction in habitat will no longer be scientific theory but permanent fact in perpetuity."

— Sonny Vergara

Although the above quote by Sonny Vergara, executive director of the Southwest Florida Water Management District from 1997-2003, was referring to the Chassahowitza, his statement is appropriate for all of the coastal springs and rivers.

The Minimum Flows and Levels program (MFL) is a legislative directive to the water management districts to define how much water can be taken from a water body before incurring significant harm to the water resources or the ecology of the area. The Southwest Florida Water Management District, commonly called Swiftmud, has arbitrarily, in my opinion, defined significant harm as a 15 percent destruction of species or habitat.

Once viewed as protective of water resources, the MFL has evolved into setting consumptive objectives: 11 percent for the Chassahowitzka River; 5 percent for the Homosassa River; and a yet-to-be-determined percentage for the Crystal and Withlacoochee rivers.

If you look at the big picture, the MFL program is, in reality, a statewide project to create a map of water sources available for developments. In Citrus County, planners and engineers have already defined where the first well fields will be for "regional distribution" of the Homosassa and Chassahowitzka waters. The MFL program can and I believe will, if unchanged, lead to the destruction of our unique, fragile and already impacted coastal springs and rivers.

Once in place, it will be a litmus test. There will be no contesting the taking of water up to the MFL percentage. For Citrus County, the catch is that once wells are in place, the sky is the limit. There is no way of measuring if the MFL is being exceeded on the coastal springs and rivers. You cannot put a specific level or flow on a tidal river. If you say the river cannot go below a certain level, it assuredly will when the tides and winds push the waters out of the rivers, especially during a drought. Therefore, all regulatory controls will depend upon aquifer models, which will be found inadequate.

Freshwater flow effects in a spring-fed estuary environment are very complex. Swiftmud scientists did a good job when evaluating the Homosassa. It is not just a water level but also the interaction of the fresh spring water and the gulf saltwater. A very sensitive, low-salinity zone exists near the Homosassa Springs that is fundamental to the web of life. Reducing spring flow allows the water salinity to increase, eventually destroying this zone and the many species that depend on it.

Swiftmud studies show the Homosassa to be very sensitive to the spring flow. If you cut the flow 1 percent, you will lose 15 percent of the bass. Cut flow 2 percent, you will lose 15 percent of the blue crabs. Cut a little more and the bass and blue crabs are history.

In the Homosassa area, barnacles are showing up on pilings near the springs. This has happened quickly and has come as a shock to local river observers. In the Chassahowitzka area, essentially all of the hydric hardwoods near the riverbank and the edge of the hammock have died for a distance of over a quarter mile from the coastal hammock's western edge. Aquatic vegetation has become seriously degraded and is disappearing.

Consistent with the water management studies, residents have concluded that this is the result of a rise in the river's salinity and reduced flows from the springs. In other words, the rivers are already in significant decline. Yet Swiftmud now is proposing an MFL that will allow additional groundwater withdrawals, which will further diminish the spring flows. This begs the question: Why would it want to do this?

To its credit, Swiftmud is currently conducting a series of public workshops to search for new ideas to improve the current MFL program. And some interesting items have come forth.

One such item is the Outstanding Florida Waterways (OFW) law which states, "Outstanding Florida Waters shall be worthy of special protection because of their natural attributes. Projects regulated by the Water Management District that are proposed within an OFW must not lower existing ambient water quality, which is defined as the water quality at the time of OFW designation."

As of 1993, all these coastal rivers were designated as Outstanding Florida Waterways. It is well documented that the flows of these rivers have already decreased substantially since 1993. The MFL, therefore, doesn't have to result in a 15 percent destruction of habitat and the decline of the springs, since that time should be taken into account.

Another item is that the water management program has not incorporated information from the Impaired Waters program as defined by the Florida Department of Environmental Protection (DEP). All of the coastal rivers are already in serious stress and are on the DEP Impaired Waters list.

An idea brought forth by the Withlacoochee Area Residents is to use the Cross Florida Barge Canal to impound fresh water for restoration and future water supply. This would provide a high volume of fresh water with little impact on the springs and rivers.

Finally, Swiftmud refuses to consider the hundreds of millions of dollars spent to establish the Coastal Springs Greenway, the Chassahowitzka National Wildlife Refuge, the state wildlife management areas, the Crystal River Buffer Preserve, the Ellie Schiller Homosassa Springs Wildlife State Park or the St. Martins Aquatic Preserves. All were established to protect these coastal resources.

There are choices to be made. Clearly Swiftmud can choose to bring some of these alternatives into the MFL program, or it can choose to authorize the destruction of our coastal springs and rivers.

Ron Miller is vice president of the Homosassa River Alliance.

Salty flow into Chassahowitzka and Homosassa rivers blamed on sea level rise, not overpumping

By Craig Pittman, Times Staff Writer

Swiftmud says the Chassahowitzka and Homosassa are affected by rising sea level. Others blame overpumping.

The folks who live along the Chassahowitzka and Homosassa rivers have noticed a lot of changes lately. Saltwater fish swimming in what used to be mostly freshwater, as freshwater fish disappear. Trees on the riverbanks toppling over, killed by an increase in salt. Barnacles growing where they never did before.

To them, the cause seems obvious: pumping too much freshwater out of the underground aquifer so people can keep their St. Augustine grass green. Overpumping cuts the flow of freshwater from the local springs into the rivers, allowing salty water from the Gulf of Mexico to begin pushing upstream.

So they were outraged when they found out the Southwest Florida Water Management District may let pumping cut back the rivers' flow even more. According to the agency commonly known as Swiftmud, the Homosassa's flow can be cut by another 5 percent and the Chassahowitzka by 11 percent before causing any "significant harm" to the environment.

"Our position is that you shouldn't take anything away from these rivers," said Brad W. Rimbey, an engineer who has lived near the Chassahowitzka for five years.

The clash turns on an unusual argument. Swiftmud's experts say the increased saltiness of the rivers is not due to overpumping. They contend it's due to climate change. That means it's not a sufficient reason to block more pumping.

"The increased salinity that has occurred is partly the result of sea level rise, and partly due to recent drought conditions that caused the flow to decline," said Marty Kelly, who is in charge of the river flow project for Swiftmud.

Droughts come and go, Kelly pointed out. As for sea level rise, "it's going to increase," Kelly said. "But sea level rise - it's naturally occurring. The basic premise of our definition of 'significant harm' is due to groundwater withdrawals."

Still, he said, Swiftmud is now trying to run computer models to add in calculations for the continuing impact of sea level rise over the next 20 years. Those figures may eventually lead to changes in how much reduced flow Swiftmud believes the Chassahowitzka and Homosassa can stand.

Among the critics of Swiftmud's position is its former executive director, Emilio "Sonny" Vergara, who was in charge from 1997 to 2003. Cutting the two Citrus County rivers' flow "doesn't make a lot of sense," he said, "but it does allow you to withdraw a lot more water."

Swiftmud and the other four water districts are setting what are called "minimum flows and levels" for Florida's major waterways. The idea is to figure out how much more those rivers, springs and lakes can be drained for water supply purposes before causing environmental problems.

In some instances - along Central Florida's upper Peace River, for instance - that point has already been passed. Swiftmud is now trying to turn a lake near Bartow into a reservoir to hold extra water that can be dumped into the river the next time it threatens to dry up.

Swiftmud's proposed levels for the Chassahowitzka and Homosassa rivers have made residents skeptical about the whole minimum-flow program. In a recent newsletter, Ron Miller, vice president of the Homosassa River Alliance, labeled it "a statewide project to create a map of water sources available for development" that will "lead to the destruction of our already impacted springs, rivers and lakes."

Kelly said that's the opposite of what's intended. Swiftmud's experts ran computer models to check how various levels of pumping would affect the rivers as habitat for manatees, fish, birds and other flora and fauna.

Ultimately, they concluded that a 15 percent reduction in the wildlife habitat would constitute the vaguely defined standard of "significant harm." Then they calculated how much water could be taken out without hitting that 15 percent mark.

"We're protecting 85 percent of the habitat," Kelly said.

Vergara called Swiftmud's computer modeling "iffy" and questioned the experts' ability to measure the flow of tidally influenced, spring-fed rivers so accurately as to avoid hitting the "significant harm" point.

"Holy smokes, that's an awful fine point to make," he said. "And if they set that point wrong, it's going be wrong in perpetuity."

Kelly conceded that the law on setting minimum flows doesn't provide for any guard against gradual damage from increased pumping: "You're either significantly harmed or you're not."

Public workshops on Swiftmud's proposal have turned out to be "pretty feisty," said Rimbey, a forensic engineer who is with the Chassahowitzka River Restoration Committee. The next one, slated for October, promises to be no love-in. Rimbey said he's got a springs expert lined up to testify against the proposed flow levels, and he's trying to get a climatologist who will testify that there are likely to be more and longer droughts.

As far as he's concerned, Swiftmud "should be thinking about everybody having brown lawns in the Chassahowitzka springs shed before you desecrate this river."

Craig Pittman can be reached at craig@sptimes.com.

From: [Norman Hopkins](#)
To: [Alan Martyn Johnson](#)
Cc: [Doug Leeper](#); [R Rodriguez](#); [J Weaver](#); [Marty Kelly](#); [Dana Bryan](#); [Al Grubman](#); [Ron Miller](#); [Brad Rimbey](#); [Brent Whitley](#)
Subject: Re: Crystal River Spring Discharge
Date: Tuesday, September 27, 2011 11:59:47 AM

Martyn, You are clearly being very thorough and we thank you for that, sincerely. I have tried to base my research on published science documentation and note your quoting from some of the same. I support your conclusions and look forward to the October 4, meeting.

I liked Doug's comment at the last meeting concerning negative MFL values. When MFL were first postulated in 2000 (I think) I attended presentations by FDEP at which no mention was made of any withdrawals when levels exceeded the MFL. I did not record the name of the lady who read from that statute on September 6. I do recall being alarmed at meetings of the WRWSA when their (ex SWFWMD) consultant first spoke of permitted withdrawals above the MFL. He also spoke of storing withdrawals in surface reservoirs which would accelerate evaporation rates markedly beyond those when leaving the water underground. That "bad joke" has turned seriously sour.

Perhaps Doug could cite the original statute together with any modification which speak specifically of withdrawals when levels are above the MFL setting and from where such withdrawals may be taken and how such withdrawals may be calculated with respect to tidally influence systems.

Norman

On 9/27/2011 9:48 AM, Alan Martyn Johnson wrote:

The September 6 meeting in Lecanto sparked my interest in flows for Crystal River. You may recall my question about the 975 cfs versus the 410 cfs as mentioned in Norman Hopkins presentation.

Such a difference was worth some investigation.

Over the last few days I have been reviewing past and present information. 1977 Rosenau gave 916 cfs for an 11 year period 1964-75
1989 Yobbi & Knochenmus gave 975 cfs for a 13 year period 1965-77
I also reviewed the VHB report from 2010 which measured each individual spring.

I could not find the base data for 916 cfs or the 975 cfs but both referenced measurement 3 miles downstream.

So I started looking at the USGS Gage Site at Bagley Cove 02310747.

The graph of stream velocity for the period of record on the web site 2002 to present quickly revealed a declining trend.

Digging deeper into the daily data shows a distinct trend to significantly lower stream velocities at this site, which I think clearly translates to lower flows.

THE STREAM VELOCITY DECREASES IN LESS THAN 10 YEAR ARE NOT JUST WORRYING THEY ARE ALARMING.

Background

There is no tidally filtered discharge data for this site and daily data going back to late 2002 reports average daily stream velocities.

Stream velocity at this site does not appear to be subject to the same/similar V_i to V_m mathematical equation as is the case for the Homosassa River MacRea's. A number of velocity measurements at the same Gage Height have been checked and irrespective of the direction of flow the stage area at that gage height came out very close to 5170 sq ft

I took the daily velocity data and averaged them over a month. As far as I can see such averaging is valid to get a month average.

The data is summarized in the attached word document. I have not shown all months as the graph became more difficult to follow.

I have also added the rainfall data for Citrus County so that you can see if you think this may be rainfall driven either annually or from one/two/three months prior to the velocity figures.

May be someone from SWFWMD or USGS would like to comment as to why I should not be alarmed by this data.

To me it is more evidence that the harm to the rivers in this part of Florida has already been done and I reiterate what I said at the September 6 meeting. There should be a moratorium on any further water permits.

I have also been looking at some of the well data resulting from Ron Millers questions, but will save that for another day.

Martyn

P.S. For USGS; Is there some reason the velocity data for 02310747 going back to 2002 remains Provisional?. Only Specific Conductance shows as Approved.

From: Doug Leeper
To: "Norman Hopkins"
Cc: [Martyn Johnson \(martynellijay@hotmail.com\)](mailto:Martyn.Johnson@martynellijay@hotmail.com)
Bcc: [Marty Kelly](#); [Paul Williams](#)
Subject: RE: Crystal River Spring Discharge
Date: Tuesday, September 27, 2011 1:31:22 PM
Attachments: [Munson et. al 2005 - Determining Minimum Flows and Levels - The Florida Experience.pdf](#)

Norman:

I saw some requests directed toward me in your recent e-mail to Martyn Johnson ---

"Perhaps Doug could cite the original statute together with any modification which speak specifically of withdrawals when levels are above the MFL setting and from where such withdrawals may be taken and how such withdrawals may be calculated with respect to tidally influence systems".

As I began pondering your questions I immediately thought about the presentation on water use permitting that Paul Williams made at the July Springs Coast Minimum Flows and Levels Public Workshop. Perhaps you may find your questions addressed in his slides, which are included in the larger District presentation posted on the workshop web site at:

http://www.swfwmd.state.fl.us/files/database/site_file_sets/1968/SWFWMD_SLIDES_SHOWN_AT_MEETING_-_Springs_Coast_MFLs_Publ_Wrkshp_18jul2011.pdf

In addition, specific references to the portions of the Florida Statutes pertaining to water use permitting may be found in the references or footnotes included in the various District rules associated with the consumptive use of water. Here's a link to our primary water use permitting rules (Chapter 40D-8, Florida Administrative Code):

<https://www.flrules.org/gateway/ChapterHome.asp?Chapter=40d-2>

As an aside, note that conditions for issuance of permits identified in rule 40D-2.301 refer to the Basis of Review, which is incorporated into the rule by reference. The basis of review includes a section (4.3) which specifies that minimum flows and levels are one criterion used for evaluating requests for issuance of water use permits. Here's a link to the Water Use Permit Information Manual Part B – Basis of Review:

http://www.swfwmd.state.fl.us/files/database/site_file_sets/17/erp_basis_of_review.pdf

Hope this information adequately addresses your concerns. I'm sure that the information gained from reviewing District rules and the portion of the Florida Statutes pertaining to water resources can be easily supplemented by any number of scholarly articles that address consumptive water use in Florida and which are readily available on the internet. I've attached one such article authored by two of my colleagues and myself that provides a brief history of the legal and societal changes that have been associated with the evolution of minimum flows and levels development in our state – hope you enjoy it.

Douglas A. Leeper, Chief Environmental Scientist
Resource Projects Department, Southwest Florida Water Management District
2379 Broad Street, Brooksville, FL 34604-6899
Telephone: 1-800-423-1476, ext. 4272 (FL only) or 352-796-7211, ext. 4272
Fax: 352-754-6885
E-Mail: doug.leeper@watermatters.org

From: Norman Hopkins [mailto:norman@amyhrf.org]

Sent: Tuesday, September 27, 2011 12:01 PM

To: Alan Martyn Johnson

Cc: Doug Leeper; R Rodriguez; J Weaver; Marty Kelly; Dana Bryan; Al Grubman; Ron Miller; Brad Rimbe; Brent Whitley

Subject: Re: Crystal River Spring Discharge

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From: Ron Miller
To: Doug Leeper; Al Grubman; Alan Martyn Johnson; Bill Garvin; Brad Rimby; Brent Whitley; Dan Hilliard; Emily Casey; Jim Bitter; Mike Cerwinski; Norm Hopkins; Priscilla Watkins; Ron Schultz; Teddy Rusnak; Tom Clark
Subject: Citrus County WUPs
Date: Wednesday, September 28, 2011 1:50:50 PM
Attachments: Ranking Citrus Co Water Use Permits2.xls

Hi All,

Last month SWFWMD provided the MFL Workshop with a list of all water use permits in Citrus County. I found their list hard to digest so I combined all permits under the same "Permittee" and then stacked them according to permitted volume. I thought you might find the stack up list interesting.

A total of 41.9 Million gallons per day is permitted to be taken from the Citrus County aquifer. Citrus County (government??) shows up with several different names and is by far the biggest user of the water.

Ron

CITRUS COUNTY WATER USE PERMITS

withdrawal amounts expressed in gallons per day.

PERM_AVG_DAILY_GPD	PERMITTEE	WATER_USE1
6,272,000	Citrus County & Withlacoochee Regional Water Supply Auth	PUBLIC SUPPLY
6,084,411	Citrus County Water Resources De c/o Robert Knight Director	PUBLIC SUPPLY
5,309,120	Florida Power Corp Db a Progress	INDUSTRIAL AND COMMERCIAL
3,070,000	City Of Inverness	PUBLIC SUPPLY
2,500,000	Rolling Oaks Utilities Inc	PUBLIC SUPPLY
2,174,500	City Of Crystal River	PUBLIC SUPPLY
1,743,400	Hampton Hills Partnership	RECREATION/AESTHETIC
1,253,200	Citrus Hills Investment Prop Inc	RECREATION/AESTHETIC
1,168,738	Escalante-Black Diamond Golf Club LLC	RECREATION/AESTHETIC
960,000	Homosassa Special Water District	PUBLIC SUPPLY
724,500	Citrus County School Board	PUBLIC SUPPLY
656,000	Suntacc & Company, Inc.	RECREATION/AESTHETIC
634,200	Twisted Oaks Golf Course LLC	RECREATION/AESTHETIC
611,500	M & B Products	AGRICULTURAL
596,000	Brassboys Enterprises, Inc Db a Citrus Springs Golf & Cc	RECREATION/AESTHETIC
545,000	Floral City Water Association Inc	PUBLIC SUPPLY
515,000	Flovicc & Company, Inc.	RECREATION/AESTHETIC
443,600	Scout Plantation Owner LLC	RECREATION/AESTHETIC
427,000	Seven Rivers Golf & Country Club Inc	RECREATION/AESTHETIC
385,700	Professional Horticultural Services	AGRICULTURAL
352,240	Gerrits Citrus Inc	AGRICULTURAL
297,880	G. William Wilde	AGRICULTURAL
279,000	Deltona Corporation	RECREATION/AESTHETIC
268,200	Van Ness Groves	AGRICULTURAL
254,000	Inverness Golf & Country Club	RECREATION/AESTHETIC
231,500	Throgmartin-Henke Ranch &	AGRICULTURAL
224,000	United State of America, US Fish & Wildlife Services	INDUSTRIAL AND COMMERCIAL
223,600	Pine Ridge Community Golf and Country Club, LLC	RECREATION/AESTHETIC
223,000	Gulf Highway Land Corporation	PUBLIC SUPPLY
217,900	Walden Woods Ltd	PUBLIC SUPPLY
203,400	Citrus Co Bocc	INDUSTRIAL AND COMMERCIAL
200,000	Metal Industries Inc Howard Loy	INDUSTRIAL AND COMMERCIAL
196,000	Hollinswood Tree Nurseries	AGRICULTURAL
183,400	Crystal River Quarries Inc	MINING AND DEWATERING & AGRICULTURE

162,400	Constate Utilities Inc	PUBLIC SUPPLY
123,160	Pinewoods Plantation Nursery Inc	AGRICULTURAL
108,900	Gulf To Lakes Associates Limited	RECREATION/AESTHETIC
99,600	Tarawood Utilities LLC	PUBLIC SUPPLY
99,000	Z2F Citrus & Cattle LLC	AGRICULTURAL
96,240	South Dunnellon Water Asso Inc	PUBLIC SUPPLY
83,780	Brentwood Farms Ltd Partnership	PUBLIC SUPPLY
78,400	Anthony L Russ	AGRICULTURAL
76,574	Citrus Mining and Timber Inc.	MINING AND DEWATERING
72,800	Inverness Village Condominium Association	PUBLIC SUPPLY
71,900	Ronnie D. Cannon & Edsel Rowan, Trustee	AGRICULTURAL
68,000	Royal Oaks Of Citrus Hoa Inc	PUBLIC SUPPLY
67,100	Randy & Sara Wirkus	RECREATION/AESTHETIC
65,400	Citrus County Utilities Division	PUBLIC SUPPLY
64,100	Joane H Miller	AGRICULTURAL
62,860	Greenbriar Of Citrus Hills	PUBLIC SUPPLY
62,000	Champs Software Inc	RECREATION/AESTHETIC
61,500	Post Oak Ranch LLC	AGRICULTURAL
59,000	Charles D. Tuttle	PUBLIC SUPPLY
56,000	Moorings At Point O Woods Hoa & Gary F Queen Trstee-Trst 031997	RECREATION/AESTHETIC
53,720	C and E Landholdings and Citrus LLC	AGRICULTURAL
50,500	Donna G Miller, Trustee	AGRICULTURAL
47,600	Beverly Hills Memorial Gardens, Inc. ATTN: SCI Management, LP	RECREATION/AESTHETIC
47,045	River Lodge Resort LLC	PUBLIC SUPPLY
45,400	Gibraltar Mausoleum Of Florida	RECREATION/AESTHETIC
40,000	David L, Holly A, James L &	PUBLIC SUPPLY
38,600	Evn Road LLC	AGRICULTURAL
37,800	Timothy E and Julie E Moffitt	AGRICULTURAL
31,800	Thomas W. & Mary L. Harrison	AGRICULTURAL
30,900	John W & Margaret R White	AGRICULTURAL
30,800	Estate Of Clinton E Marsh James E Marsh-Personal Rep	AGRICULTURAL
27,300	Edwin O'Neal	AGRICULTURAL
26,900	Greenbrier Two Condominium Owners Assoc	RECREATION/AESTHETIC
25,000	Citrus Co Engineering	PUBLIC SUPPLY
23,800	Snell A. Mills, Jr.	AGRICULTURAL
22,700	Brian Busby	AGRICULTURAL
22,600	L Norman And Linda L Adams	AGRICULTURAL
21,100	Robert E. Scott-Etal (Bar S.F. Ranch)	AGRICULTURAL
19,200	William M & Rhonda J Scheiterle li	AGRICULTURAL
19,100	Central Florida Community College	PUBLIC SUPPLY
18,800	Citrus Co Dept Of Public Works Glenn Mccracken Pe	RECREATION/AESTHETIC
18,500	Florida Gas Transmission Company	INDUSTRIAL AND COMMERCIAL
18,400	David Tomczak	AGRICULTURAL
14,300	Howard B. Banes	AGRICULTURAL
14,000	Diocese Of St Petersburg	RECREATION/AESTHETIC
12,600	Board Of Trustees Internal Imp & Homosassa Springs Wildlife Prk	RECREATION/AESTHETIC
12,200	Citrus Co Bocc & Dept Of Public	AGRICULTURAL

11,600	Oak Pond LLC A Florida LLC	PUBLIC SUPPLY
11,100	Ray A Morris	AGRICULTURAL
8,500	Simon Property Group LP	INDUSTRIAL AND COMMERCIAL
7,800	Ellie Schiller & Fdep Office Of Greenways & Trails	PUBLIC SUPPLY
5,800	William Hunt	PUBLIC SUPPLY
4,800	George W & Sheila A Sikes	AGRICULTURAL
4,600	Cmc Real Estate Program 1988-1	RECREATION/AESTHETIC
4,600	Ruth B. Hooper	RECREATION/AESTHETIC
3,400	GTE Federal Credit Union/Stephen A Foster	INDUSTRIAL AND COMMERCIAL
2,800	Citrus County Fair Association	PUBLIC SUPPLY
2,600	Kelly Gardiner	INDUSTRIAL AND COMMERCIAL
1,200	Ralph Windham Jr	AGRICULTURAL
1,000	Inergy Propane, LLC	INDUSTRIAL AND COMMERCIAL
1,000	Tru Gas Of Florida, Inc.	INDUSTRIAL AND COMMERCIAL
300	Toby John & Joanna Caulfeild	AGRICULTURAL
200	Steve D & Kathie L Atkinson	AGRICULTURAL
120	Christ Way Fellowship	PUBLIC SUPPLY
0	Brooksville Quarry LLC	MINING AND DEWATERING

41,908,788 TOTAL

Authorized waterways destruction

Saturday, October 1, 2011 at 12:00 am (Updated: October 1, 12:16 am)

By the Chronicle Editorial Board

THE ISSUE:

Minimum flows and levels proposals.

OUR OPINION:

A blueprint for
irreversible harm.

How's this for a plan:

1. Focus on your most precious asset, one that others covet, too.
2. Determine a level of damage to it that would produce "significant harm."
3. Assume that the "significant harm" level will be status quo in the future.

Are you happy with that? Doubtful. But it's a scenario that's playing out here, with the precious asset being our water resources and the "others who covet it" being development-oriented folks throughout the region.

Predictably, those who focus on preserving our waters are unhappy with the current Southwest Florida Water Management District (SWFWMD) plan regarding the "minimum flows and levels" for the Homosassa and Chassahowitzka river systems. SWFWMD has been conducting public workshops and this newspaper has printed a number of articles about it, especially during the recent Save Our Waters Week observances. But it's still a fuzzy area for many residents.

The Minimum Flows and Levels (MFL) program originally was meant to safeguard waters, including our fragile and sensitive coastal springs. The idea was to use science to identify areas in need of preservation and even recovery.

However, the current version of the program is viewed more as a way to legitimize the taking of our waters to benefit others, a step that will irreversibly damage our rivers and coastal areas.

SWFWMD has defined "significant harm" to a water body as a 15 percent loss of habitat or other resources. So, the thinking goes, activities such as increased pumping and regional distribution of our water are fine as long as the "significant harm" threshold is not exceeded.

The current SWFWMD plan would allow an 11 percent reduction in flow for the Chassahowitzka River and a 5 percent reduction in flow for the Homosassa River, a plan with which former SWFWMD executive director Sonny Vergara and Homosassa River Alliance representative Ron Miller strongly disagree.

Miller put it in very practical terms in a recent column: If the spring flow to the Homosassa River is cut by 1 percent, "you will lose 15 percent of the bass. Cut flow 2 percent, you lose 15 percent of the blue crabs. Cut a little more and the bass and blue crabs are history." Our river systems have long been designated Outstanding Florida Waters, defined as a "special category of waterbodies ... which shall be worthy of special protection because of their natural attributes." Refuges and preserves were established to protect these coastal resources. Additionally, our river systems are on the state's Impaired Waters list, which means they're already in serious stress.

But the official attitude these days is that it's OK to crowd the definition of what's allowable, in service to meeting the needs of other, more powerful and development-oriented entities elsewhere.

All this is emblematic of the difference in thinking between our local community and the new leadership in Tallahassee. It's clear that what we consider a resource, they consider a commodity. We support the dedicated and tireless community members who continue to shine the light on bureaucratic finagling and to hold the regulators accountable.

St. Petersburg Times - Opinion - Letter
Oct. 4, 2011

Stop the Overuse of Springs

Hope for springs eternal | Sept. 25

It was interesting to read about the efforts to restore once-beautiful springs that had been killed by overpumping.

The same week, the Southwest Florida Water Management District announced its intention to raise the amounts permitted to be pumped that will affect the Chassahowitzka and Homosassa rivers — both spring-created. Both of these rivers, as well as Crystal River, now have much greater saltwater intrusion due to reduced spring flow and lower water levels.

I wholly support restoration of springs lost but, even more, would like to prevent creating the necessity to do so. Overbuilt and overpopulated areas should not have the right to demand resources from areas where those resources support the local populations.

E.V. Myers, Crystal River