May 17, 2012

MEMORANDUM

TO: File

FROM: Douglas A. Leeper, Chief Environmental Scientist, Resource Evaluation Section, Southwest Florida Water Management District

SUBJECT: Correspondence and other documents pertaining to stakeholder input and information requests associated with the Springs Coast Minimum Flows and Levels Public Workshop series

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This memorandum documents stakeholder input and information requests associated with the Springs Coast Minimum Flows and Levels Public Workshop series that was facilitated by the Southwest Florida Water Management District in 2011.

DAL
Attachments

Citrus County Chronicle
April 27, 2011

District Water Managers Mull Minimum Flows

Ruling would affect water withdrawals

By Amanda Mims

INVERNESS — How much pumping can local rivers withstand? That's a question the Southwest Florida Water Management District is attempting to answer.

The district is at least six months away from finalizing proposed minimum flows for the Chassahowitzka and Homosassa rivers, according to district Chief Environmental Scientist Doug Leeper, who made a presentation to the county commission on Tuesday.

The district is required to set minimum flows and levels (MFLs), the limits at which further water withdrawals in the surrounding areas will cause significant harm to the water resources of the area and the related natural environment. Lakes and aquifers have minimum levels and rivers and streams have minimum flows.

Local citizen organizations have objected to the minimum flows the district is proposing in Homosassa and Chassahowitzka and members have said the proposed levels won't do enough to protect the water bodies that have already suffered degradation in recent years.

District staff said the Chassahowitzka River can lose 11 percent of its water flow before it is significantly harmed. Staff is recommending a maximum of 5 percent reduction in flow for the Homosassa River. The district is also working to establish minimum flows for the Crystal River, the upper, middle and lower Withlacoochee River and the Rainbow River. Minimum levels have already been established for the main portions of the Tsala Apopka Chain of Lakes.

Commissioner Rebecca Bays asked questions about saltwater intrusion and the status of water in Hillsborough County and said the district should be careful when considering permits for large wells.
"I would urge you to be very cautious in permitting large well fields for the reduction of potable which could relieve all of north Florida of having to finance (desalination) plants," she said. "I can't say it loud enough. I don't want to see this area of Citrus County ... end up like Hillsborough County."

Commissioner Winn Webb asked what happens when water levels drop below the established minimum.

The minimum flows and levels are only meant to keep water use from significantly harming lakes and rivers, Leeper said.

"We make our best effort to identify thresholds where water use is going to impact the system," Leeper said. "That doesn't mean flows or water levels might not go below the minimum flow or level. They probably will, depending upon natural climatic cycles."

When water levels drop below the established minimum, the district has to develop a recovery strategy and implement it.

There are a number of water bodies within the district that are in recovery but none in Citrus County.

Several residents addressed the board after Leeper's presentation, including Ron Miller, vice-president of Save the Homosassa River Alliance, a citizen group established to protect the river. The group has been vocal in its opposition of allowing any reduction in flow to the river. For them, 5 percent is 5 percent too much.

Miller told commissioners a reduction in flow would be harmful to the populations of blue crab and bass.

"Homosassa is very sensitive to spring water flow reduction," he said. Miller said data from the district shows that a 1 percent loss of flow would result in a 15 percent loss of bass in the Homosassa.

"You cut 2 percent of the flow, you lose 15 percent of the blue crabs. If you cut the 5 percent that's recommended, you lose the bass and the blue crabs totally."

After the meeting, Leeper said the recommendation for the Homosassa River could change slightly before it goes to the district's governing board, which must approve the recommended MFLs.

The district is in the process of creating a group of stakeholders, which will be made up of members of citizen organizations and staff of government agencies. The group will have regular public meetings to discuss the proposed minimum flows and levels for the spring-dominated coastal systems, like the Chassahowitzka, Crystal and Homosassa rivers.

"Will have six meetings or so on a monthly basis. We'll identify issues that need to be addressed for these systems, have discussion and see if we can come up with solutions to some of the problems that have been identified."

Part of the process of establishing minimum flows and levels includes receiving input from the public. The district continues to accept written comments about minimum flows of the Homosassa and Chassahowitzka rivers. Comments can be submitted via mail or e-mail to Doug Leeper, chief environmental scientist, at 2379 Broad Street, Brooksville, FL 34604-6899 or Doug.Leeper@watermatters.org.

Reports containing information on the development of minimum flows and levels for the Homosassa and Chassahowitzka rivers are available on the district's website. To locate the reports, visit www.WaterMatters.org/mfl and click on the "MFL documents and reports" link.

Chronicle reporter Amanda Mims can be reached at (352) 564-2925 or amims@chronicleonline.com.

From:	Doug Leeper
To:	Marty Kelly
Subject:	Requested Letters
Date:	Tuesday, June 14, 2011 10:03:02 AM
Attachments:	MFL workshop announcement letter.pdf Draft Invitation Letter for Invitees 09may2011 with COM edits.doc

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Marty – attached is an Adobe PDF of the "announcement" letter that was sent to interested parties and a Microsoft Word version of the "invitation" letter that was sent to stakeholder representatives. The "invitation" letter was "tweaked" for individual recipients.

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

Southwest Florida Water Management District

2379 Broad Street, Brooksville, Florida 34604-6899
(352) 796-7211 or 1-800-423-1476 (FL only)
TDD only: 1-800-231-6103 (FL only)
On the Internet at *WaterMatters.org*

An Equal Opportunity Employer

Bartow Service Office
170 Century Boulevard
Bartow, Florida 33830-7700
(863) 534-1448 or
1-800-492-7862 (FL only)

Sarasota Service Office
6750 Fruitville Road
Sarasota, Florida 34240-9711
(941) 377-3722 or
1-800-320-3503 (FL only)

Tampa Service Office
7601 Highway 301 North
Tampa, Florida 33637-6759
(813) 985-7481 or
1-800-836-0797 (FL only)

May 23, 2011

Subject: Springs Coast Minimum Flows and Levels Public Workshops

Dear Sir or Madam:

I'm writing to inform you of the Southwest Florida Water Management District's plans for a series of public workshops on minimum flows for the Chassahowitzka, Crystal, Homosassa and Weeki Wachee river systems of the Springs Coast. The workshops will focus on existing data and minimum-flows methods, additional data collection or analyses that could be implemented to enhance minimum flows development, and minimum flows compliance for the four spring-dominated systems. As you know, minimum flows are limits at which further water withdrawals would cause significant harm to the water resources or ecology of the area, and are used in the District's permitting programs.

Representatives from governmental organizations and local stakeholder groups were invited to participate in the workshops. These meetings are open to the public and you are welcome to attend. To promote efficiency invited representatives will be given opportunities for interaction at each meeting. Input from other attendees will occur during a public comment period.

The first workshop is scheduled for June 8, 2011, beginning at 2 p.m., and will be held in room 166 at the Lecanto Government Services Building, 3600 West Sovereign Path, Lecanto, Florida 34461. The District encourages your attendance and participation at these meetings.

Please feel free to contact me if at 1-800-423-1476 or 352-796-7211, extension 4272, or by e-mail at doug.leeper@watermatters.org if you have any questions regarding the planned workshops. I can also tell you if any organizations to which you belong have been invited to participate in the process.

Sincerely,

Douglas A. Leeper
Chief Environmental Scientist
Resource Projects Department

DAL/brm
cc: Project File

DATE

NAME
ADDRESS
STREET ADDRESS
CITY, STATE ZIP CODE

Subject: Springs Coast Minimum Flows Public Workshops

Dear XXXX:

I'm writing to request your organization's participation in a planned series of public workshops to be hosted by the Southwest Florida Water Management District for discussion of minimum flows for the Chassahowitzka, Crystal, Homosassa and Weeki Wachee river systems of the Springs Coast. The workshops will focus on existing data and minimum-flows methods, additional data collection or analyses that could be implemented to enhance minimum flows development, and minimum flows compliance for the four spring-dominated systems.

Workshop participants will include invited representatives from governmental organizations and local stakeholder groups, as well as other interested individuals that choose to attend the publically noticed meetings. Invited representatives will be given ample opportunity for interaction at each meeting. To promote efficiency input from other attendees will occur during a public comment period.

The first workshop is scheduled for June 8, 2011, beginning at 2 p.m., and will be held in room 166 at the Lecanto Government Services Building, 3600 West Sovereign Path, Lecanto, Florida 34461. The District believes that your organization has much to offer to the workshop series and is requesting your participation or that of a designated representative at the first and subsequent meetings.

Please contact me with the name of your organization's representative by June 1. I can be reached at 1-800-423-1476 or 352-796-7211, extension 4272 or doug.leeper@ watermatters. org. I will be happy to answer any questions regarding the workshops.

Sincerely,

Douglas A. Leeper
Chief Environmental Scientist
Resource Projects Department

DAL/brm
cc: Project File

NAME	NAME	NAME
NAME	NAME	NAME
NAME	NAME	NAME

APR 28, 2011

MR. DOUG LEEPER
CHEIF ENVIRONMENTAL SCIENTIST
S.W. FLORIDA WATER MANAGEMENT DEPT.

DEAR MR. LEEPER,

I JUST READ THE STORY ON FRONT PAGE OF THE CITRUS COUNTY CHRONICLE, AND AM WRITING TO ENCOURAGE YOU TO CONTINUE YOUR EFFORTS TO ASSURE THE WATER QUALITY REMAINS AND EVEN IMPROVES! IT IS A TOUGH FIGHT AS YOU KNOW. IF I WERE A RESIDENT HERE FULL TIME, I WOULD MAKE AN EFFORT TO BE A MEMBER OF YOUR STAKEHOLDERS GROUP AND DO MY PART.

YOU MAY BE AWARE OF THE ISSUES FACING THE GREATEST BODY OF FRESH WATER IN THE COUNTRY THE GREAT LAKES. I HOPE THAT YOU WILL BE ABLE TO GATHER A DEDICATED AND STRONG GROUP TO HELP PRESERVE THE WATERS OF YOUR DISTRICT AND ESPECIALLY CITRUS COUNTY.

YOURS TRULY,
Vern. W. Stephan

FL. 3406 GLASBORO CT. UNIT 3-A HERNANDO, FL. 34442
WI. 818 HIGH ST. LAKE GENEVA, WI. 53147

From: Mark Hammond
To: Doug Leeper
Subject: FW: Misdirected letter
Date: Monday, May 09, 2011 2:35:35 PM
Attachments: CRRC Petition 2.pdf

From: Brad Rimbey@CRRC [mailto:BWR.CRRC@tampabay.rr.com]
Sent: Monday, May 09, 2011 2:34 PM
To: Dave Moore; Mitchell A. Newberger; Marty Kelly; Mark Hammond; Bruce Wirth; Cara S. Martin
Subject: Re: Misdirected letter

Mr. Moore,

All general correspondence which is intended for the current Chassahowitzka River Restoration Committee should be emailed to BWR.CRRC@tampabay.rr.com or mailed to my attention at 10028 S. Riviera Pt., Homosassa, FL 34448-5311. The street address given by Mr. Newberger is incorrect.

You may recall that on November 12, 2010, I emailed you a PDF copy of a petition with over 400 signatures opposing SWFWMD's MFL plan for the Chassahowitzka River. Attached is a PDF copy of the same petition with 165 additional opposition signatures.

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

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

From: Dave Moore
To: Mitchell A. Newberger ; Marty Kelly ; Mark Hammond ; Bruce Wirth ; Cara S. Martin
Cc: 'Brad Rimbey@CRRC'
Sent: Monday, May 09, 2011 9:12 AM
Subject: RE: Misdirected letter

Thanks – I will pass on to Marty Kelly, Mark Hammond, Bruce Wirth and Cara Martin to ensure future letters are properly addressed – appreciate your pointing this out to us.

From: Mitchell A. Newberger [mailto:mnewberger@verizon.net]
Sent: Sunday, May 08, 2011 5:21 PM
To: Dave Moore
Cc: 'Brad Rimbey@CRRC'
Subject: Misdirected letter

Dear Mr. Moore, On March 7,2011 I received a letter directed to the Chassahowitzka River Restoration Committee at 820 Newberger Road Lutz,Fla.
I am not affiliated with the present unincorporated committee . I formed and was resident agent for the Chassahowitzka River Restoration Committee Inc. during the procuring of the funds for sewer and water. That organization is now inactive.
Please forward any future communication to Brad Rimbey,10028 S. Riviera Dr. Homosassa, Fla. 34448-5331. Mr. Rimbey speaks for the present committee.
I have opened the letter and retained a copy with Mr. Rimbey's consent and will forward original to him.

Sincerely,

Mitchell A. Newberger
820 Newberger Road
Lutz, Florida 33549
Phone: (813) 949-1078
Cell: (813) 310-4147

Board meeting for Nov 16 Cancelled till Dec 14

Chassahowitzka River Restoration Committee

A Grass Roots Organization for the Protection of the Chassahowitzka River

e, the undersigned, recognize the importance of freshwater flow to the Chassahowitzka River and oppose SWFWMD's inimum Flows and Levels plan to allow an 11% reduction in freshwater flow to the Chassahowitzka River system.

Name (Print)	Address (Street, City, State, Zip Code)	Signature
JAMES BENNETT	8380 W. MILO CT, HOMOSASSA, FL 34448	J Bennett
LESIA BENNETT	8380 W. Milo Ct. Homosassa FL 34448	Lesia Bennett
ROY E. PHARR	8369 W. MILO CT. HOMOSASSA, FL 34448	Roy E. Pharr
PATRICIA H. ROGERS	8369 W MILO CT HOMOSASSA, FL 34448	Patricia H Rogers
Russell Rodgers	8405 W MILO CT Homosassa Fl 34448	Russell Rodgers
NORMA SALTER	8385 W. Milo Ct. Homosassa Fl. 34448	Norma Salter
T. J. SALTER	8385 W. MILO CT. HOMOSASSA, Fl. 34448	T. J. Salter
Don Therrien	8430 W. Milo Ct Homosassa, Fl. 34448	Donald Therrien
Lorraine Therrien	8430 W. Milo Ct Homossa Fl. 34448	Lorraine Therrien
RUSS DUNCAN	7447 W MISS MAGGIE HOMOSASSA F 34448	Russ Duncan
MARY DUNCAN	7447 W. MISS MAGGIE HOMOSASSA 34448	Mary J. Duncan
Michael McDowell	7703 W TWO CANAL LN 34446	[illegible]
[illegible] Hays	7465 W. Coachbrook Ln Homosassa Fl	[illegible] Hays
Wayne Branch	7402 West Tamarack court	Wayne Branch
Rebekah McGlothlin	8285 West Miss Maggie	Rebekah McGlothlin
Judy Leffreid	38140 Michael St	Judy Leffreid
Jimmy Leffreid	" " "	Jimmy Leffreid
Gloria E Riley	318 Hydrangia	Gloria Riley
Dennis Gulvin	" " "	Dennis Gulvin
Michelle Aines	318 Hydrangia St	Michelle Aines
David McGlothlin	8285 West Miss Maggie Drive	David McGlothlin
Jerry Perrella	9420 W Whisper Ridge Trail	Jerry Perrella

Chassahowitzka River Restoration Committee

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Name (Print)	Address (Street, City, State, Zip Code)	Signature
BARBARA LaMOUNTAIN	6330 N. KEEL DR. HERNANDO, FL. 34442	Barbara LaMountain
ARMAND LaMOUNTAIN	6330 N. KEEL DR. HERNANDO, FL. 34442	Armand LaMountain
VIOLET DAVY	4880 E. HARVARD DR. HERNANDO 34442	Violet Davy
CHARLES DAVY	4880 E. HARVARD DR HERNANDO 34442	Charles Davy
Vendy Covin	4885 E. Harvard Dr. Hernando, FL 34442	Vendy Covin
Mark LaMountain	4885 E. Harvard Dr. Hernando, FL 34442	
LONNIE B. MARTIN	4860 E. Harvard Dr Hernando Fl 34442	Lonnie B. Martin
DONNA M. BOWDEN	4860 E. Harvard Dr Hernando. FL 34442	Donna M. Bowden
Diane Hudson	4895 E. Harvard Dr. Hernando FL 34442	Diane Hudson
GWEN WEINBERGER	4775 E. SPRUCE DR., DUNNELLON, FL 34434	Gwen Weinberger
CCARIR MAYER	5925 G. ANNA Jd DR INVERNESS, FL. 34452	Clark Mayer
Martin Weinberger	4771 E. Spruce Dr. Dunnellon FL 34434	

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Name (Print)	Address (Street, City, State, Zip Code)	Signature
DONALD COLLINS	9920 YORK WAY HOMOSSASSA FL. 34448	
Dottie Clement	13318 Bruce DeLeon Blvd Brooksville 34601	
MARY WILLIAMS	3922 Poinsettia Dr St Pete Beach, FL	
Jane Rouse	11305 S. Lily Pad Pl Homosassa FL	
Michelle Hope	8272 48th Ave St. Pete	
Robert C Knapp	2780 W Glen St	
Wendy Markham	W Bounty Ct	
[illegible]	[illegible]	
[illegible]	10470 LeBaron Dr Homosassa FL	
Elizabeth Blasdell	PO Box 1511 Homosassa Springs, FL 34447	
Tabetha Harrison	1181 N. Conant Ave Crystal River FL	
Ronald Lesek Sr	1841 SE 48 Rd Centerhill FL	
William Lesek	1841 SE 48 Rd Centerhill FL	
[illegible]	[illegible]	
Leslie Wilson	10470 LeBaron Dr, Homosassa, Fla 34448	
Paul Hollis / Paul Hollis	8320 W Southampton Ct Homosassa, Fla 34448	
Vivian M. Carter	8500 W. Simril Ct. Homosassa Fl 34448	
WES PRICE	7038 S. GILBERT TERR, LECANTO, FL. 34461	
ROBERTA PRICE	7038 S. GILBERT TERR, LECANTO, FL. 34461	
Duane Baker	10362 S McClung loop Homosassa, Fl 34448	
Judith Bvice	8537 Peacock Ct.	
[illegible]	8537 Peacock Ct.	

Chassahowitzka River Restoration Committee

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Name (Print)	Address (Street, City, State, Zip Code)	Signature
John Zeto	8200 Miss Maggie Dr 34448	Zeto
Kerry Clark	8560 W. Miss Maggie dr Homosassa, FL 3444	Kerry V Clark
Harold M. Butler	7588 W. Turkeywick Ct Homosassa FL 3444	
JOVITE C. PALARDIS	9862 S. YORK WAY - HOMOSASSA, FLA 34448	Jovite C. Palardis
Amanda Geller	10480 S. McClung loop - Homosassa, FL 34448	
Deane Baker	10362 S McClung loop Homosassa, FL 34448	Deane Baker
Dean Wallace	14262 Citrus Way Brooksville	
MARK Johnson	15220 Tana Lake Ave Brooksville	
Ray Clemens	16143 Guptan St Brooksville	Ray Clemens
Chery L. BROOKS	4660 W Costello Ln Homosassa	
Carolyn Throckmorton	7782 W. Debra Ln. Homosassa	Carolyn Throckmorton
WINONA WHITAKAM	8478 W. MISS MAGGIE DR HOMOSASSA	
MIKE KNOX	10620 S. MANDELAY Loop Homosassa	
Kim Caldwell	10346 S. McClung Loop Homosassa	Kim Caldwell
Bob Caldwell	10346 S McClung Lp Homosassa	
Diana Williams	10346 S. McClung Lp Homosassa	Diana Williams
Terry Williams	10346 S. McClung Lp Homosassa	Terry Williams
Leona Hertzog	230 Yates Ln Denton NC	Leona Hertzog
PAUL JACKMAN	8492 W PEACOCK CT CHASSAHOWITZKA FL	
BRENT WHITLEY	CHASSAHOWITZKA RIVER	
JOE ABRAHAM	4802 BRAZIL	
DAVID HUNTER	717 S GREEN BAY DR BROOKSVILLE	

Chassahowitzka River Restoration Committee

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Name (Print)	Address (Street, City, State, Zip Code)	Signature
Stephen Schweitzer	10361 Chassahowitzka River	
Kevin WRYER	10249 S McClungoff Chaz	
SHARON HAMMAKER	10618 S. Pitch Pt - Homosassa FL 34446	
CHERYL SHAWHAN	7460 W CLEARBROOK LN	
RONALD BODINE	7460 W CLEARBROOK LN	
TIM [illegible]	7370 MED. CIR. WEEKI	
[illegible]	7370 MED CIR. WEEKI	
STAN LARSON	10381 S. WALDEN FOREST CIR - HOMOSASSA FL 34446	
DIANE LARSON	10381 S. WALDEN FOREST CIR HOMOSASSA FL 34446	
Robert Hanks	14197 Missouri Skylark Rd 34614	
Greg Schwerghart	9810 S. Goat Way Homosassa	
Sean Kinney	7805 W Missouri Skylark Dr	
TRULA R LATWINAS	18008 Retriever Rd Weeki Wachee FL 34614	
Tom LATWINAS	18005 Retriever Rd Weeki Wachee FL 34614	
Tracy Light	10 Pinewood Gardens Homosassa 34446	

Chassahowitzka River Restoration Committee

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Name (Print)	Address (Street, City, State, Zip Code)	Signature
William Barnes	12705 Forest Hills Dr. Tampa Fl. 33612	
Victoria Zavosky	12611 Forest Hills Dr. Tampa, FL 33612	Victoria Zavosky
Michael Zavosky	12611 Forest Hills Drive Tampa FL 33612	
Diana Wagner.	12705 Forest Hills Dr. Tampa, FL 33612.	Diana Wagner.
JAMES H BUZBEE	2002 CARRIAGE CT. PLANT CITY FL 33566	
Barbee Barbee	2002 Carriage Ct., Plant City, FL 33566	Barbee Boswell Barbee
Keith Leitz	1617 Magdalen Manor Dr. Tpa FL 33613	

Chassahowitzka River Restoration Committee

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	Name (Print)	Address (Street, City, State, Zip Code)	Signature
1	CHARLES TURNER	P.O. Box 67359 ST. PETE BEACH, FL 33736	
2	CINDY O'BRIEN	2700 DRIFTWOOD RD. So. ST. PETE 33705	
3	HELEN O'BRIEN	" " " " " "	
4	BOBBY O'BRIEN	2720 DRIFTWOOD Rd. S. ST. PETE FL 33705	
5	ABDUL TABAR	15-01 22nd Street N St Pete FL 33713	
6	AVIE J BAHLING	4540 53rd Av N St Petersburg, Fl 33714	
7	Angela Holmes	619 16th Ave So. St Petersburg FLA 33701	Angela Holmes
8	Connie O'Brien	5300 3rd Ave N. ST. Pete FL 33710	
9	Phyllis Cooper	1350 21st South St. Pete FL. 33712	Phyllis Cooper
10	Preston Spencer	801-37th Ave S	
11	Vincent Flournoy	2111 26 St S.	
12	THOMAS CHARK	1501 22nd N ST PETE FL 33713	
13	Billy BRANNON	1508 3E ST E PALMETTO FL 34221	
14	Mary Wiggins	2530 2nd ave N St Pete FL	Mary Wiggins
15	Barbara Moore	4540 53rd ave N St petersburg, Fl. 33714	
16	BARRY KIPPER Barry D Kipper	3813 Gulf Blvd APT 5L5	
17	BEVERLY THOMAS	8001 Sailboat Key #403 SP Beach 33707	
18	SUE GRIFFIN	6407 PELICAN DRIVE SOUTH, ST PETE FL 33707	
19	JOHN SACOS	448 39th Ave St Pete FL 33706	
20	MARYANN HIRSHON	9359 Blind Pass Rd # 305 St Pete Beach 33706	
21	KATIE HIRSHON	9359 BLIND PASS RD # 305 ST PETE BEACH 33706	Katie Hirshon
22	MERCIA WHITE	5220 BRITTANY DR S #1109 ST PETE, FL 33715	Mercia White

Chassahowitzka River Restoration Committee

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We, the undersigned, recognize the importance of freshwater flow to the Chassahowitzka River and oppose SWFWMD's Minimum Flows and Levels plan to allow an 11% reduction in freshwater flow to the Chassahowitzka River system.

	Name (Print)	Address (Street, City, State, Zip Code)	Signature
23	Bobbi Martin	6720 Dartmouth Ave. N. St. Petersburg, FL 33710	[signature]
24	Larry George	1324 Pasadena Blvd #607, South Pasadena	[signature]
25	Tina Burkhart	143 88th Ave, Treasure Isl. 33706	[signature]
26	Jay Salvin	8075 Gulf Blvd 33706	[signature]
27	Margaret Cunningham	6500 Sunset Way #214 St. Pete Beach, 33706	[signature]
28	Gloria Luddecke	7100 Sunset Way #308 " "	[signature]
29	[illegible]	570 80th Ave St Pete Bch Fl 33706	[signature]
~~30~~	~~[illegible]~~		
30	Carol Nicolay	11705 6th St E, Treasure Island 33706	[signature]
31	Tim Donian	132 Sun Isle Cir T.I. 33706	" "
32	Nancy Donian	132 Sun Isle Cr TI FL. 33706	[signature]
33	Kerry Rogers	411 68th Ave St. Pete Beach FL 33706	[signature]
34	Doug Smith	200 1st Ave [illegible]	[signature]
35	Sara Gallet	107 26th Ave. St. Pete Beach 33706	[signature]
36	Rosamund Wendt	6767 Sunset Way, St Pete Beach, FL 33706	[signature]
37	Betty Anderson	6218 Hampton Dr N St Pete 33710	[signature]
38	Doris Montgomery	6218 Hampton Dr N St Pete 33710	[signature]
39	P.J. Kokott	6279 Sun Blvd #505, St Pete 33715	[signature]
40	William D Rollins	501 Johns Pass Ave Madeira Beach	[signature]
41	Keith Lowndes	5701 [illegible] Circle St Petersburg	[signature]
42	Leslie T Wilson	548 72nd Ave St Pete Beach 33706	[signature]
43	Ronald Schmidt	2223 Flower Ct. Cin OH 45233	[signature]

Chassahowitzka River Restoration Committee

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	Name (Print)	Address (Street, City, State, Zip Code)	Signature
44	E Goldenberg	7882 Sailboat Key Blvd S. #201	E Goldenberg
45	Angela Dorn	9500 45th North St. Pete 33703	Angela Dorn
46	Jatinder Khanna	10355 Paradise Blvd. Treasure Island	Jatinder Khanna

Chassahowitzka River Restoration Committee

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Name (Print)	Address (Street, City, State, Zip Code)	Signature
Steve Lewis	12403 N. Florida Ave Tampa, FL 33612	
CAPT. Steve Betz	10913 N. EDISON AVE. TAMPA, FL. 33612	
Lynn R. Garcia	911 Lake Thomas Ln. Lutz, FL 33548	
Carl Plashic	2537. N. Habana Pl. Tpa Fla 33618	
Capt. John Gordon	5604 Milo, Chassahowitzka Fl, 34428	
Capt. Craig Weaver	2313 Windsor Oaks Lutz, FL 33549	
Capt. Clayton James	3046 Flat Rock Place LOL, FL. 34639	
Joseph L. Banks	14505 Embassy Ln. Tampa, FL 33613	
Casey Solano	4919 Teakwood Ct Tampa FL 33624	
William Sleese	8117 Albany Tampa FL 33604	
David C. McPhillips David C. McPhillips	12207 N. 53rd St TPA 33617	
Melissa Daigle	10087 Sokonnet River Drive #202, Tampa, FL 33615	
Dennis Ragano	18715 Phillips Rd Masaryktown, Fl. 34604	
David Mangrum	218 Wayne Lee Rd. Lucedale Ms 39452	
Rick Redd	12511-5T. Charlotte Dr. Tampa 33618	
Stewart Thompson	1517 W. Linebaugh Ave Tampa Fla 33612	
Randy Rines	6140 Oak Cluster Cir Tampa FL 33634	
Joseph David	3501 Land Oaks Dr. Tampa FL 33624	Joseph David
Trip Harrison	16311 N Florida Ave Lutz, FL 33549	

From:	Norman Hopkins
To:	Doug Leeper
Subject:	MFL
Date:	Tuesday, May 24, 2011 8:13:20 AM

Doug,

I have read your comments upon the downloaded document from our website and clarify as follows:

- Causseaux and Fretwell reported in two papers in 1983; I have copies and have read them.
- I appreciate Figure 3 is a snapshot. However it requires knowledge of local observations over the years which I will address for you separately. I refer to Figure 3 as locally illustrating one case in point.
- FGS input from their Bulletin 68 was communicated to the CHWRC-Task Force in the presence of TAG members on 14 March, 2011. FGS by their e-mail of 2/25/2011, had qualified the Klein report which had been supplied to us by UF in a sufficiently high resolution which was not available to us from elsewhere.
- Please give citation to your suggestion noted on our Page 27 that "Regional groundwater basin may be sub-divided into several groundwater basins".
- I will address separately my reference to tipping point which applies not only to the fresh water of the lens but to other factors affected by changes in saltiness.
- How sure are you that all withdrawals both current and potential are accurately recorded in the data you use in the models ?
- What are the parameters used in calculating the percentages quoted at the meeting on May 9th and also quoted in your e-mail?
- We have no knowledge of the HydroGeoLogic, Inc., 2008, modeling.
- Please note that I have been a stakeholder to these waters for almost seventeen years and have actively pursued research of science documentation at the District's invitation for more than twelve years and published results to the Foundation website since 2007. I represented a local stakeholder group at an early Stakeholders Conference .
- I note your words: "as appropriate forums for discussion of the technical issues that you've raised "; and, "could be used to approximate the thickness of the freshwater lens in Citrus County and nearby areas"; and, "Ron emphasizes that District staff recognizes the reason for concern over increasing salinity in the groundwater system of the Springs Coast area."

I hope this helps. I assume that I shall be allocated time to present results of our work at the June 8th workshop meeting. Meanwhile I will write again as soon I am able..

Sincerely , Norman Hopkins

From:	Doug Leeper
To:	"Norman Hopkins"
Bcc:	Marty Kelly; Sid Flannery; Mike Heyl; Xinjian Chen; Ron Basso; Mark Barcelo; Cara S. Martin; Veronica Craw; Gary E. Williams; Chris Zajac; Amy K. Harroun; Darcy A. Brune; Robyn O. Felix
Subject:	Response to Requests-Questions-Comments on MFLs
Date:	Wednesday, May 25, 2011 8:21:26 AM

Norman:

Seems that my recent e-mail to you has been helpful, based on the points included in your May 24th e-mail. Here are responses, prepared with assistance from Ron Basso, to the requests, questions and some of the comments included in your e-mail.

<><><><><><><><><>

Your request: *Please give citation to your suggestion noted on our Page 27 that "Regional groundwater basin may be sub-divided into several groundwater basins".*

Response: My suggestion was based on information presented by Lari. A., Knochenmus and Dann K. Yobbi, in the 2001 United States Geological Survey Water-Resources Investigations Report 01-4230, titled "Hydrology of the Coastal Springs Ground-Water Basin and Adjacent Parts of Pasco, Hernando, and Citrus Counties, Florida".

Your question: *How sure are you that all withdrawals both current and potential are accurately recorded in the data you use in the models ?*

Response: The District has a high level of confidence in the metered and estimated water use values used for evaluating effects of withdrawals on groundwater levels and discharge to spring-dominated rivers in the Northern District Model domain. Approximately 80 percent of water use is metered in Citrus and Hernando Counties. For water-use permitted wells, which account for 95 percent of water use in our Northern District model, locations are accurate and most locations are recorded using a Global Positioning System (GPS). Well construction information is required to be supplied to the District from the permit holder or the well construction contractor if it is a proposed well. This construction information, well diameter, casing depth, and total depth are the basis to assign the well withdrawal into the appropriate geologic layer in the computer-based flow model. Incidentally, a single well will often withdraw water from multiple layers within the model. Water use is estimated for household domestic and lawn irrigation wells based on county population not served by public supply and an average per capita use rate from public supply water use. This allows us to estimate total water use for domestic self-supply for each county. We then simply divide this total water use by the number of domestic wells in the county to get a water use per well quantity in the model. Water use estimated from domestic wells accounts for five percent of total groundwater withdrawn in the model.

We obviously have less confidence in projected withdrawal rates, but they are based on University of Florida's medium population projections by County, the assumption that groundwater will continue to be the primary water-supply for the region, and that conservation and other demand-reducing activities will continue at their current levels. Development of alternative supplies, increased effectiveness of conservation efforts or slower than expected population growth would, understandably, lead to reduced future demand. Modeling of future withdrawal scenarios is based

on the assumption that future water demand will be met through water withdrawals at existing well locations since it is generally unknown where wells will be drilled over the next 20 years. Development of new withdrawal locations within the model domain has, however, also been investigated for proposed wellfields that have been identified in the Withlacoochee Regional Water Supply Authority water supply plan.

Your question: *What are the parameters used in calculating the percentages quoted at the meeting on May 9th and also quoted in your e-mail?*
Response: The predicted approximate one percent flow reduction associated with groundwater withdrawals for calendar year 2005 is based on the difference in simulated springflow between non-pumping and 2005 conditions. In 2005, approximately 438 million gallons per day (mgd) of groundwater withdrawals occurred in the Northern District model domain.

Your comment: *We have no knowledge of the HydroGeoLogic, Inc., 2008, modeling.*
Response: I can appreciate your comment, based on review of the e-mail I sent to you this past February 11th. In that e-mail, I noted that I had posted an electronic version of a 2010 report by HydroGeoLogic, Inc. to our FTP site for your to retrieve. The file was apparently too large to send as an e-mail attachment, hence the need for distribution of the document via FTP. Hopefully you were able to download the 2010 document, which I should note is a follow-up to a 2008 report by HydroGeoLogic, Inc. Their earlier report addresses the initial development and use of the Northern District Model, which was subsequently revised and used for the work outlined in the 2010 report. To ensure that you have access to both the 2008 and 2010 HydroGeoLogic reports, I have posted a new zipped file containing the two documents on the District FTP site. The file is named **HGL_2008_10.ZIP** and is stored in the public-outgoing folder on the FTP site. A direct link to that folder is listed below.

http://ftp.swfwmd.state.fl.us/pub/out/

You should be able to save the file directly from this folder to your computer. If you have trouble retrieving the file, please contact me or direct your browser to the "How to Access our Anonymous FTP Server" page of the District web site at the link below.

http://www.swfwmd.state.fl.us/data/ftp/

Your comment: *I assume that I shall be allocated time to present results of our work at the June 8th workshop meeting.*
Response: Our current plan for the first Springs Coast Minimum Flows Public Workshop on June 8th involves identification of the goals for the workshop, a general discussion of the minimum flows and levels process, a status update on minimum flows development for spring-dominated tidal river systems of the Springs Coast, and identification of topics to be addressed at future workshops. We assume that there will be a great deal of input from both invited representatives and others regarding topics to be addressed at future workshops, and do not expect to devote a substantial amount of time to discussion of any single topic or topics.
<><><><><><><><><><><><><><><><><>

Thanks again for your interest in the development of minimum flows for the Crystal River/Kings Bay system.

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: Norman Hopkins [mailto:norman@amyhrf.org]
Sent: Tuesday, May 24, 2011 8:13 AM
To: Doug Leeper
Subject: MFL

Doug,

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- Causseaux and Fretwell reported in two papers in 1983; I have copies and have read them.
- I appreciate Figure 3 is a snapshot. However it requires knowledge of local observations over the years which I will address for you separately. I refer to Figure 3 as locally illustrating one case in point.
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- Please note that I have been a stakeholder to these waters for almost seventeen years and have actively pursued research of science documentation at the District's invitation for more than twelve years and published results to the Foundation website since 2007. I represented a local stakeholder group at an early Stakeholders Conference .

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I hope this helps. I assume that I shall be allocated time to present results of our work at the June 8th workshop meeting. Meanwhile I will write again as soon I am able..

Sincerely , Norman Hopkins

Chassahowitzka River Restoration Committee

A Grass Roots Organization for the Protection of the Chassahowitzka River

May 25, 2011

Mr. David Moore, Executive Director
Southwest Florida Water Management District
2379 Broad Street
Brooksville, Florida 34604-6899

RE: Springs Coast Minimum Flows Public Workshops

Dear Mr. Moore,

Last week I received a letter from Doug Leeper inviting the Chassahowitzka River Restoration Committee to participate in SWFWMD's Springs Coast Minimum Flows Public Workshops. I plan to attend on behalf of CRRC and thank the District for the invitation.

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

1) All public correspondence and comments and all District responses to public correspondence and comments regarding SWFWMD's proposed MFL for the Chassahowitzka River.
2) A copy of any reports commissioned by SWFWMD regarding the relationship between blue crab populations and freshwater flow.
3) Any records which establish the baseline ambient water quality of the Chassahowitzka on the day it was designated as an Outstanding Florida Water (January 5, 1993).
4) Any legal memorandum which indicates SWFWMD (or any water management agency) is permitted, under Florida law, to intentionally degrade the ambient water quality of an Outstanding Florida Water.
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.
6) Any calibration data or documents which support Ron Basso's contention that the Northern District Model (NDM) is accurate within 2%. Mr. Basso's 2% accuracy claim was made during the December 16, 2010 public workshop on the proposed MFL for Chassahowitzka.
7) Any documents which contain peer review comments regarding the accuracy of the NDM.
8) A copy of the User's Manual for the NDM or any other document which explains the proper use and functionality of the NDM.

9) Any documents which compare the predicted NDM flow rates for each of the springs in the Chassahowitzka Spring Group, on any given day, with actual measured flow rates for each of the springs in the Chassahowitzka Spring Group (Chass Main, Chass #1, Chass #2, Crab, Lettuce, Baird, Snapper Hole, Salt, Potter, Ruth, Johnson, Betty Jay, Rita Marie, Blue Run, Ryle, and Blind).
10) Any documents which compare the NDM predicted flow rates for each of the springs in the Chassahowitzka Springs Group with predicted flow rates from the current USGS ground water model.
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I would prefer to receive digital copies of these documents. If you post these documents on your ftp site I can simply download them. Thank you in advance for your assistance.

Brad W. Rimbey, P.E.
For the Committee

From:	Pam Gifford
To:	Marty Kelly; Doug Leeper; Bruce Wirth; Bill Bilenky; Mark Hammond; Cara S. Martin; Ron Basso; Mike Heyl
Cc:	Lou Kavouras; FootPrintsPRR
Subject:	Chassahowitzka River Restoration Committee Issue=4459
Date:	Thursday, May 26, 2011 11:33:37 AM
Attachments:	CRRC Records Request 5-25-11 .pdf

To All:

I have attached to this e-mail a public records request received from Brad W. Rimbey, P.E. on behalf of the Chassahowitzka River Restoration Committee. The request is for various reports, comments, correspondence, modeling information, peer review information on the model, etc.

Please review the request and provide me with any information you have in your possession, including any responsive e-mails (you may forward them to me) that you have by June 3rd. You may provide me with original documents, however, please put your name on the folder or box so that I may return them to you. If you need to provide me with electronic documents, please put them on a DVD or in my U drive.

Also, please look at the recipients of this e-mail and if you feel that it should go to any other staff members please feel free to forward this e-mail to them and cc me.

Lou, Hugh Gramling should get this request. Can you forward it to him?

Thank you,

Pamela A. Gifford, ACP
Advanced Certified Paralegal - Land Use
Southwest Florida Water Management District
2379 Broad Street
Brooksville, FL 34604
(352) 796-7211, Ext. 4156
(352) 754-6878 (FAX)
pamela.gifford@watermatters.org

Chassahowitzka River Restoration Committee

A Grass Roots Organization for the Protection of the Chassahowitzka River

May 25, 2011

Mr. David Moore, Executive Director
Southwest Florida Water Management District
2379 Broad Street
Brooksville, Florida 34604-6899

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I would prefer to receive digital copies of these documents. If you post these documents on your ftp site I can simply download them. Thank you in advance for your assistance.

Brad W. Rimbey, P.E.
For the Committee

Southwest Florida Water Management District
2379 Broad Street, Brooksville, Florida 34604-6899
(352) 796-7211 or 1-800-423-1476 (FL only)
TDD only 1-800-231-6103 (FL only)
On the Internet at: WaterMatters.org

An Equal Opportunity Employer

MEETING NOTICE

Springs Coast Minimum Flows and Levels Public Workshop Agenda

Wednesday, June 8, 2011
2:00 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. Workshop Initiation and Staff Introductions, Doug Leeper and other Staff (SWFWMD) ***(5 minutes)***

2. Introductory Presentation, Doug Leeper (SWFWMD) ***(15 minutes)***
   a. Purpose and Goals for the Workshop Series
   b. Minimum Flows and Levels Overview
   c. Status of Minimum Flows and Levels Development on the Springs Coast

4. Format for the Workshop Series, Doug Leeper (SWFWMD) and Stakeholder Representatives ***(10 minutes)***

5. Potential Workshop Topics, Doug Leeper (SWFWMD) and Stakeholder Representatives ***(30 minutes)***

6. Public Input ***(3 minutes per individual)***

7. Scheduling of Next Workshop and Identification of Topics ***(5 minutes)***

8. Adjournment

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

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

June 8, 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	rebecca.bays@bocc.citrus.fl
City of Brooksville	RICHARD RADACKY		rradacky@cibrooksville.us.
City of Crystal River	~~Andy Houston~~ Jim Farley		Jfarley682@aol.
0 City of Inverness			
0 City of Weeki Wachee			
Florida Department of Environmental Protection	Carolyn Voyles	Carolyn Voyles	carolyn.voyles@dep.state.fl.us
Florida Fish and Wildlife Conservation Commission	Bill Pouder	Bill Pouder	fwcconservationplanningservices@myfwc.com
Hernando County for Jim Adkins	ALYS Brockway	Alys Brockway	abrockway@co.hernando.fl.us
Stakeholder Representative	Brent Whitley		brentwhitley@sierra-properties.com
Save the Homosassa River Alliance	Ron Miller	R.M.	rmiller76@tampabay.rr.com
Save the Manatee Club	Helen Spivey	Helen Spivey	manatees@habitats.org
TOOFAR	Al Grubman	Al Grubman	grubman1@gmail.com
United Waterfowlers-Florida, Inc.	Dennis Dutcher	Dennis Dutcher	dennis3ds@aol.com
United State Fish and Wildlife Service	Boyd Bilhovde		boyd.biholvde@fws.gov
USGS	Richard Kane		rkane@usgs.gov
0 Withlacoochee Area Residents	Don Wright		2buntings@comcast.net
0 Withlacoochee Regional Water Supply Authority			

N=15

Southwest Florida Water Management District
Springs Coast Minimum Flows and Levels Public Workshop
June 8, 2011
Lecanto, Florida

Name	E-Mail	Other Contact Information
Dusty McDevitt	mcdevitt@usgs.gov	
Shelley Yaun	shelly.yaun@dep.state.fl.us	
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Mitchell A. Neuberger		
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Sally Smith-Adams	sally_smith_adams@hotmail.com	
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	MCORONA1@Tampabay.rr.com	
Andy Houston	ahouston@swfwmd.state.fl.us	
Jim Bitler	jbitler@tampabay.rr.com	
Emma Knight	eknight@wetlandsolutionsinc.com	

N=20

Southwest Florida Water Management District
Springs Coast Minimum Flows and Levels Public Workshop
June 8, 2011
Lecanto, Florida

Name	E-Mail	Other Contact Information
Ed CALL	MARVIN.CALL@myfwc.com (see card)	863-648-3202
Paul W. Thomas	paulw.thomas@myfwc.com	(863) 648-3200
Courtney Edwards	cedwards@savethemanatee.org	
Joyce Veree	PO Box 255 Homosassa FL	628-2261
Roger Cullen	" "	" "
Liz Parrow	eparrow@pjp2.net	464-3166
Mike Cerwinski	mcerwinski@mjcenvironmental.com	352 249-1012
Teddi Rusnak	tcrusnak@tampabay.rr.com	746-3006
Vince Cantero	vince.cantero@bcc.citrus.fl.us	
SKIP GANDY		204 W WOOD ST TAMPA 3525843084
Bernard Berauer	bfberauer@aol.com	352-610-6704

Florida Fish and Wildlife Conservation Commission
MyFWC.com

Ed Call
Freshwater Fisheries Biologist
(863) 647-4000, ext. 1156
(863) 701-1248, fax
3900 Drane Field Road
Lakeland, FL 33811
marvin.call@myfwc.com

N=11

Southwest Florida Water Management District
Springs Coast Minimum Flows and Levels Public Workshop
June 8, 2011
Lecanto, Florida

Name	E-Mail	Other Contact Information
~~Sandra Cleduces~~	~~sclecluces@aol.com~~	
Carol Matthai'	thebabesnimi@gmail.com	
M-Hhai?		
SWFWMD —	Doug Leeper	
	Marty Kelly	
	Mike Heyl	
	Amy Harrison	
	Darcy Brune	
	Cara Martin	
	Mark Hammond	
	Ron Basso	
	Vernica Caren	
	Chris Zajac	
	Gary Williams	
	Hugh Gramling	
	Barbara Mathews	

N = 2 + 13 SWFWMD (including 1 Board member)

Springs Coast Minimum Flows and Levels Public Workshop

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

June 8, 2011

Workshop Outline

- Purpose and goals for the workshop series
- Minimum flows and levels (MFLs) overview
- Status of MFLs development on the Springs Coast
- Format for the workshop series
- Potential workshop discussion topics
- Public input
- What's next

Purpose and Goals for the Workshop Series

Purpose and Goals

- Discuss existing data and methods that have been used or will be used to establish minimum flows for the Chassahowitzka, Crystal, Homosassa and Weeki Wachee River systems
- Discuss and identify additional data and/or methods that could be used to evaluate or reevaluate minimum flows for the systems
- Support decisions regarding timelines for adoption or reevaluation of minimum flows for the systems

Identified Issues

- Sea level rise
- Discharge measurement and reporting
- Groundwater and withdrawal impacts modeling
- Significant harm
- Modeling of salinity-based habitats
- Modeling of thermal refuges for manatees
- Modeling biological responses to flow changes
- Water quality issues

Minimum Flows and Levels Overview

Florida Statutes, Section 373.042
- Minimum Flows and Levels -

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.

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.

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

...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.

Regulatory Use of Minimum Flows and Levels

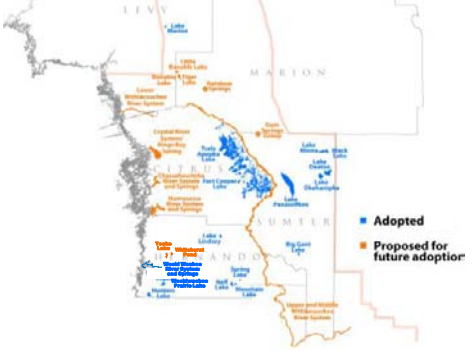
- Water Resource Planning
- Water-Use Permitting
- Environmental Resource Permitting

Process for Establishing Minimum Flows and Levels

- Priority List and Schedule developed and updated annually
- Methods, flows or levels developed and peer-reviewed
- Workshops held for public input
- Recovery or prevention strategies developed, as necessary
- Governing Board adopts minimum flows and levels into Chapter 40D-8, Florida Administrative Code
- Necessary recovery strategies included in Regional Water Supply Plan and in some cases adopted into Chapter 40D-80, Florida Administrative Code

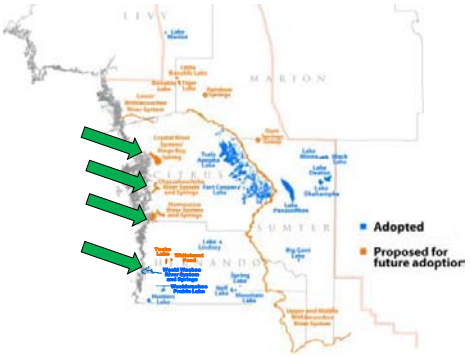
Status of Minimum Flows and Levels Development on the Springs Coast

Regional Minimum Flows and Levels



SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Focus for the Workshop Series



SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Workshop Format

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Typical Workshop Agenda

- Review of previous workshop discussions
- Discussion of specific topics by District staff and stakeholder representatives
- Public input
- Identification of topics to be discussed at subsequent workshops

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Potential Timeline

- First workshop – June 2011
- Additional monthly workshops
- Staff evaluation and recommendation(s) based on workshops – Fall/Winter 2011

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Information Exchange

- Web site
  - Dedicated workshop web page at: ***www.WaterMatters.org/SpringsCoastMFL*** or ***www.swfwmd.state.fl.us/projects/mfl/springs-coast-mfl.php***
  - Link to the page is listed under "Most Recent Web Sites" on the District's main page at: ***www.WaterMatters.org***
  - Related information posted on the existing minimum flows and levels page at: ***www.swfwmd.state.fl.us/projects/mfl/***
- Electronic mail
  - Doug Leeper's address: ***doug.leeper@watermatters.org***
  - Your address: please provide ***your e-mail address*** for workshop noticing and other correspondence

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Potential Workshop Discussion Topics

Identified Topics

- Sea level rise
- Discharge measurement and reporting
- Groundwater and withdrawal impacts modeling
- Significant harm
- Modeling of salinity-based habitats
- Modeling of thermal refuges for manatees
- Modeling biological responses to flow changes
- Water quality issues

Mean Sea Level Trend

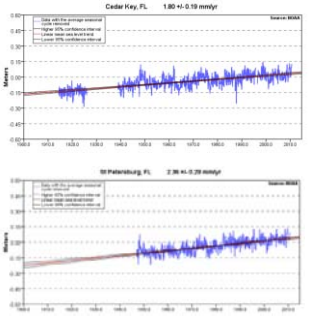
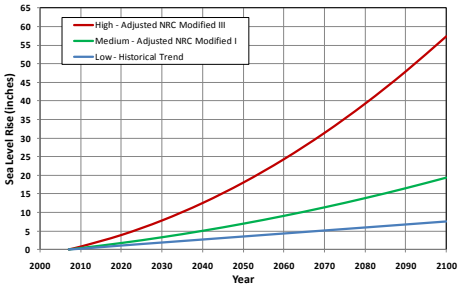


Image source: Mean Sea Level Trends for Stations in Florida page of the National Oceanic and Atmospheric Administration Tides and Currents web site at http://tidesandcurrents.noaa.gov/sltrends/sltrends_states.shtml?region=fl/

Sea Level Rise Projections Relative to 2007 Conditions



Based on U.S. Army Corps of Engineers method outlined in Circular No. 1165-2-211

Stakeholder Representatives Discussion of Potential Workshop Topics

Public Input on Workshop Topics

What's Next

- Next workshop date/location
- Topic(s) to be discussed – *to be determined*
- Information to be posted on the web site
- Workshop agenda and announcement to be distributed by e-mail

Contact Information

Name: Douglas A. Leeper

Title: Chief Environmental Scientist

Mail: Southwest Florida Water Mgmt. District
2379 Broad St.
Brooksville, FL 34604-6899

Phone: 1-800-423-1476 or 352-796-7211
Extension 4272

E-Mail: doug.leeper@watermatters.org

Web Site: watermatters.org or
http://www.swfwmd.state.fl.us/

MEETING NOTES

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

June 8, 2011

The first in a planned series of Springs Coast Minimum Flows and Levels Public Workshops was held at 2:00 p.m., June 8, 2011 at the Lecanto Government Services Building, Lecanto, Florida.

Stakeholder Representatives

Norman Hopkins, Amy H. Remley Foundation
Brad Rimbey, Chassahowitzka River Restoration Committee
Rebecca Bays, Citrus County
Richard Radacky, City of Brooksville*
Jim Farley, City of Crystal River
Carolyn Voyles, Florida Department of Environmental Protection
Bill Pouder, Florida Fish and Wildlife Conservation Commission
Alys Brockway, Hernando County
Ron Miller, Homosassa River Alliance
Helen Spivey, Save the Manatee Club
Brent Whitley, Stakeholder Representative
Al Grubman, TOOFAR
Dennis Dutcher, United Waterfowlers-Florida
Boyd Bilhovde**, United States Fish and Wildlife Service
Richard Kane, United States Geological Survey

SWFWMD Representatives

Ron Basso
Darcy Brune
Veronica Craw
Hugh Gramling
Mark Hammond
Amy Harroun
Mike Heyl
Marty Kelly
Doug Leeper
Car Martin
Barbara Matrone
Gary Williams
Chris Zajac

* *Bill Geiger (City of Brooksville) accompanied Richard Radacky.*
** *Boyd Bilhovde (United States Fish and Wildlife Service) participated in the meeting from the general audience seating area.*

A list of others present who signed the attendance roster is filed in the District's Springs Coast Minimum Flows and Levels files.

Workshop Initiation and Introductory Presentation

Doug Leeper convened the meeting at 2:00 p.m. Mr. Leeper provided a brief overview of the purpose and goals of the workshop series. He noted that the District has received substantial input regarding recently proposed Minimum Flows and Levels (MFLs) for the Chassahowitzka and Homosassa River systems, and has initiated the workshop series for discussion of existing and additional data and methods that have been used or will be used to establish or reevaluate MFLs for the Chassahowitzka, Homosassa, Crystal and Weeki Wachee River systems. Mr. Leeper also presented general background information on the development of MFLs and explained that state law requires the District or the Department of Environmental Protection to establish MFLs for priority water bodies. He explained the regulatory use of MFLs and the

District's process for establishing them. He also discussed the status of MFLs development on the Springs Coast.

Format for the Workshop Series and Stakeholder Introductions

Mr. Leeper indicated that the June 8th workshop should be considered the first in a series of meetings. He noted that the typical workshop format will include a review of previous workshop's discussions to tie up any loose ends. He also noted that the main focus for each meeting will be the exploration of data and methods that have been used to develop MFLs recommendations and to also identify additional data or approaches that could support MFLs development. He noted that the workshop series has been structured to facilitate extensive interaction between District staff and stakeholder group representatives, and that public input/comment would also be solicited at each workshop. Mr. Leeper then asked each of the stakeholder representatives to introduce themselves. He emphasized that the purpose of these meetings is to examine the District's existing approach to establishing MFLs for tidal, spring-dominated systems along the Springs Coast, and to determine whether the District should consider modifying the approach used for MFLs establishment. He further added that based on workshop discussions, the District expects to make decisions regarding moving forward with proposed or revised MFLs, or may elect to postpone development of some MFLs, where it is determined that there is a need to collect additional information. Mr. Leeper indicated that the District believes it should be possible to cover all identified topics during a few additional meetings. He also noted that the slide presentation used during the June 8th meeting and all subsequent meeting agendas and other relevant materials will be posted on the District website on a web page dedicated to the workshop series.

Potential workshop topics

Mr. Leeper identified several topics that will be discussed during future meetings. These topics include: sea level rise, discharge measurement and reporting, groundwater and withdrawal impacts modeling, significant harm, modeling of salinity-based habitats, modeling of thermal refuges for manatees, modeling biological responses to flow changes and water quality issues. Mr. Leeper also discussed the sea level rise projections for the Springs Coast area. He showed a graph which illustrated potential change in sea level relative to year 2007 through the end of the century. The graph depicted three sea level rise predictions, based on low, medium and high rates of sea level increase.

Stakeholder representatives and District staff discussed the merit of the identified workshop topics and discussed a number of additional topics (or sub-topics) that could be explored at future workshops. Discussed topics/sub-topics and associated questions included:

- details of groundwater flow model used for evaluating withdrawal impacts;
- the legal basis for establishing MFLs and the relation of MFLs law/rules to other environmental law;
- District water-use permitting, in general, and specifically how the competing withdrawals are permitted;
- the number of water-use permits issued by the District for the Springs Coast area;
- how sea level rise will be factored into the District's MFLs determinations;
- changes in the freshwater lens location/depth that may be associated with regional water use;
- identification and use of historical flow data;
- significant harm thresholds or definitions and their applicability across a range of habitats/systems;

- baseline conditions used for development of MFLs;
- karst effects on groundwater flow;
- monitoring plans to be implemented for MFLs reevaluations; and
- suitability of the percent-of-flow approach for MFLs development.

During the topics discussion, a request was made regarding the possibility of providing presentations and other material in advance of future workshops, to facilitate efficient discussion of agenda items.

Public Input

- Mr. Jim Bitter commented that he has been observing the Homosassa River for the 50 years it is been within the regulatory jurisdiction of the District. He stated that he has observed a steady and sometimes precipitous decline in the river. He noted that the Homosassa River is close to becoming a dead body of water. Mr. Bitter also stated that he is skeptic of District findings related to the development of MFLs and that is concerned with the District's approach for establishing MFLs, which, he believes will allow for a 15% degradation of the system
- Ms. Priscilla Watkins provided comments regarding the Homosassa River and the greater Springs Coast estuary. She stated that the Homosassa River is a commercial fish landing area and that there has similarly been a history of commercial fishing throughout the region. Ms. Watkins suggested that the District examine available oyster count/catch information when developing MFLs for the Homosassa and other Springs Coast systems. She noted that all of the rivers to be discussed in the workshop series feed the greater Springs Coast estuary, and the fisheries of this region have been a major income producer for state. Ms. Watkins further noted that historical flow records used for development of MFLs should be greater than 15 years in length. She also suggested that withdrawals which fall below the District's regulatory authority for issuance of water use permits may not be adequately address in modeling efforts directed towards understanding withdrawal impacts on spring discharge to Springs Coast river systems.
- Mr. Ed Call, with the Florida Fish and Wildlife Conservation Commission, noted that both Mr. Bitter's and Ms. Watkins' comments seemed to be related to biological components of the river system(s) and underscore the importance of further discussion of the modeling of biological responses when developing minimum flow recommendations.
- Mr. Whitey Markle asked how long the District has been studying MFLs and how long the requirement for development of MFLs has been a statute. Mr. Leeper indicated that the MFLs statute passed in 1972. Mr. Markle questioned when the District thought it would get around to establishing MFLs for all priority water bodies. Mr. Leeper noted that he didn't think the process of establishing MFLs would ever be fully completed, based on emergence of additional data and methods that may be used for reevaluation of established MFLs. Dr. Marty Kelly commented that Mr. Markle and other meeting attendees may want to review the Minimum Flows and Levels Priority List and Schedule that is posted on the District's web site, to gain some understanding of the effort the District has committed towards MFLs development. Dr. Kelly noted that almost 180 MFLs have been established for water bodies within the Water Management District. He stated that the current priority list identifies water bodies for which the District will establish MFLs through the year 2015, and includes every major river segment, a number of smaller tributaries to these river segments, every first magnitude spring and every second magnitude spring within the District. He indicated that the District maintains an aggressive schedule for development of MFLs. Dr. Kelly noted that there are more than 1,200 lakes within the District, and that the District anticipates potentially establishing MFLs on up to about one-third of these systems.

- Mr. Mike Czerwinski commented that he has been monitoring regional water-supply wellfields in the Tampa Bay region for a number of years and has also been involved in work supporting development of MFLs for the middle Peace River. He thanked the District for hosting the stakeholder workshop and for recognizing the importance of the Springs Coast area. He also thanked the representatives of the Fish and Game Commission, Department of Environmental Protection, and the U.S. Geological Survey for participating in the workshops. Mr. Czerwinski recommended that the Survey pursue funding for increased flow measurements in the Crystal and Homosassa River systems. He further stated that he would like to see additional doppler instrumentation installed in Halls River as well, so flow in this important tributary to the Homosassa River system can be evaluated during drought conditions. With regard to Kings Bay, he noted that it would be very valuable to monitor flows from the spring vents at Tarpon hole and Three Sisters Springs.

Scheduling of Next Workshop and Identification of Topics

Mr. Leeper stated that Stakeholder representative should give some thought to when it would be best to convene a second workshop. He suggested some dates for the next meeting, including July 1, 18, 19, 20, 25 – 29. Mr. Leeper also suggested that the next meeting be focused on hydrologic aspects of the river systems, with discussions of the stream flow measurement and groundwater flow and modeling. Stakeholder representatives indicated that these would be appropriate topics for the next workshop. They also agreed that it would be reasonable to use e-mail for future correspondence associated with the workshop series. The idea of rotating the meeting location between Brooksville and Lecanto was discussed, with most meeting attendees indicating a preference for the Lecanto location. Mr. Leeper adjourned the meeting at approximately 3:45 pm.

Citrus County Chronicle
June 8, 2011

Panel starts discussion on minimum flows, levels

By Abdon Sidibe
Wednesday, June 8, 2011 at 9:56 pm *(Updated: June 8, 9:57 pm)*

LECANTO — The Southwest Florida Water Management District (SWFWMD) convened Wednesday for the first of a series of workshops to flush out issues with stakeholders related to minimum flows and levels of area waterways.

Southwest Florida Water Management District

The session, however, generated more questions than answers, causing district officials to save most of their answers for the next input meeting.
The empaneled stakeholders included activists, officials from various government environmental agencies and politicians.
Doug Leeper, SWFWMD's chief environmental scientist, started the discussion by laying out the district's goals in seeking to set minimum flow standards.
"We decided to slow down the process and to continue in-depth discussion of issues related to minimum flows," Leeper said.
The district wants to set flow levels of the Homosassa and Chassahowitzka rivers at 85 and 95 percent of natural flow, respectively.
Leeper listed a number of factors he hopes get discussed in the workshops before moving forward. Among the issues where:

* Sea levels.
* Discharge measurement.
* Impact of groundwater withdrawal.
* Refuges for manatees.

He said input on those issues will factor into their recommendation to the district before the new rules are implemented.
Jim Bitter, who is president of Save the Homosassa River Alliance, a citizen group established to protect the river and is opposed to the proposed flows, lamented the state of the river today and warned of further degradation if flow levels are altered.
He noted he has watched the river for more than 50 years and has gradually seen its natural flow dwindle to practically a trickle.
People opposed to the proposed changes mostly took issue with amount of withdrawal from the aquifers for human use, a permitting process controlled by the district.
Officials said they will unveil a detailed breakdown of how that process works and other impact questions at the next workshop.
According to the SWFWMD web site, to help determine the amount of water which is available for human use from a particular source, the district must determine the water body's minimum flow or level (MFL). An MFL is the limit at which further water withdrawals will cause significant harm to the water resources of the area and the related natural environment.
Lakes and aquifers have minimum levels. Minimum flows are set for rivers and streams. The District uses this information, as well as other information particular to a proposed withdrawal, when determining how much water an applicant may be allowed to withdraw from the water body.
District official Leeper hopes to have at least two more of these workshops before submitting their recommendations to the district board.
The next meeting is tentatively set for sometime July, however, no date has been set.
For more information visit www.WaterMatters.org/mfl, or if you have suggestions, contact Doug Leeper at doug.leeper@swfwmd.state.fl.us.
Chronicle reporter A.B. Sidibe can be reached at (352) 564-2925 or at asidibe@chronicleonline.com.

From: Doug Leeper
To: "Alan Martyn Johnson"
Subject: RE: Workshop
Date: Friday, June 10, 2011 3:05:51 PM

Martyn:

We've set up a web page for the Spring Coast Minimum Flows and Levels Public Workshops at:

http://www.swfwmd.state.fl.us/projects/mfl/springs-coast-mfl.php

The agenda and the slides shown at the meeting are already posted on the page. A meeting summary will be posted next week.

Have a good weekend.

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: Sunday, June 05, 2011 12:34 PM
To: Doug Leeper
Subject: Workshop

Doug,
Just a quick note to say thank you for the invitation to the workshop. Unfortunately I will not be able to attend as I have firm commitments this next week in Atlanta.

I would appreciate if you could share the minutes or notes from the meeting.

Thanks,
Martyn

From:	Brent Whitley
To:	Doug Leeper
Subject:	FW: Lecanto meeting Wednesday June 8,2011 with newly appointed citizens panel
Date:	Tuesday, June 14, 2011 9:53:47 AM

Doug,

Here is the latest from Mickey which I got last night outlining his ongoing mantra. I will forward you a couple of earlier correspondences including one from Karen Lloyd to him for your review. I am not saying at all that I agree because quite frankly I do not have time to delve into the legal ramifications of the Clean Water Act. Surely there is some written basis for Karen's opinion if the District's stated position is they are exempt. One would also have to assume that the withdrawals are going to cause a degradation as the 15% implies which on the surface would seem to violate the CWA.

As I said on the phone, Mickey is very well versed as having spent 25 years in federal law and his opinions, legal or otherwise should not be discounted. I believe we as a group need to quickly breech this subject or we run the risk of alienating more than just Mickey (i.e., Ron Miller and others).

After you look these over, I would be more than happy to come by and talk to you personally about the issue and how we might address it. I might add that I completely disagree with Mickey's comment below that there will be no change to the original intent of the MFL proposal. As I said I trust and respect you guys to do the right thing and will defend that vehemently in front of the "natives".

I look forward to hearing back from you.

Brent

From: Mitchell A. Newberger [mailto:mnewberger@verizon.net]
Sent: Monday, June 13, 2011 5:37 PM
To: Allan Himes; ANTHONY P TRIPOLINO; Barry Bishop; Bob Carey; Brad Rimbey; Brent Whitley; Dale Griffin; David Strickland; Eddie Jones; Gene Long; George McElvy; Hugh Gramling; Jack Calbeck; 'jane shaw'; Jeff Hardeman; Jerry Stanley; Lou Buttitta; Pete Walker; Peter Hubbell; Richard Bryant; stanley_k@sao13th.com; Tom Greenhalgh; Tony D'Aquila
Subject: Lecanto meeting Wednesday June 8,2011 with newly appointed citizens panel

Hugh,
SWFWMD has spent well over a million dollars in taxpayer money on a proposed rule that is flawed by staff's on admission and would be a **final rule** if some of us had not spoke out.
The meeting on Wednesday June 8,2011 to appoint a citizen panel was an age old move by a government entity to lull citizens into thinking they are making a difference while behind the scenes the same end result with minor insignificant changes will generally occur.
How can SWFWMD continue incurring massive expense when they are unable or refuse to tell the public what exempts them from the CWA?
If they are exempt the public has a right to know by what statutory or case law authority such an

exemption exists.
If SWFWMD is found to be in conflict with the CWA the new board and more time and taxpayer time and money will be lost, not to mention a lot of upset panel members, the press and others.

The question is not difficult: **What statutory or case law authority exempts SWFWMD from the CWA when conducting a man induced Activity(controlling the issuing of permits for withdrawals from the Chass. Springshed that result in reduced stream flow, which results in physical, chemical , biological, or radiological change in the river system thus partially degrading the river by killing 15% of the system?**

It is apparent that SWFWMD legal disagrees with me on this. They should come forward and tell the public where I am wrong by quoting their authority, and you along with other board members have a duty to the public to be transparent in conducting the public's business by instructing legal to publish their authority or the lack of it otherwise you breach the public trust.
It is time to move to de-sal and reservoirs in lieu of destroying theWeekiwachee, Chassahowitzka, Homosassa and Crystal Rivers.
You are simply trying to take the cheapest way out at the public and environments expense.
An opinion from Florida Attorneys' General, although not binding on the EPA or the Federal court would be a start to determine if you are in conflict with the CWA by the activities you are conducting that degrades the river.
Federal law provides for civil and criminal penalties for knowingly and willfully violating the CWA. I have not found any law that exempts SWFWMD from the statutes. Please tell me if you know otherwise.

Mitchell A. Newberger
820 Newberger Road
Lutz, Florida 33549
Phone: (813) 949-1078
Cell: (813) 310-4147

From:	Brent Whitley
To:	Doug Leeper
Subject:	FW: Chass Management Plan
Date:	Tuesday, June 14, 2011 9:54:44 AM

From: Mitchell A. Newberger [mailto:mnewberger@verizon.net]
Sent: Thursday, January 20, 2011 6:20 PM
To: Brent Whitley
Cc: Brad Rimbey; Hugh Gramling; phubbell@wraconsultants.com; 'Dale W Griffin'; 'Greenhalgh, Tom'
Subject: RE: Chass Management Plan

Brent , I spent over l ½ hours with SWFMWD attorney Karen Lloyd today. The position is that they can issue WUP's in the springshed, conduct drilling activities and withdrawals that reduce the stream flow of the Chass. river resulting in an 11% or whatever they desire kill of the river over whatever period of time they desire and that salt is not a pollutant and that the CWA does not apply to withdrawals that degrade the river.

If she is correct and I disagree strongly although she is the lawyer SWFWMD can circumvent ,frustrate, impede and interfere the methods in which a federal statute was designed to reach a goal, further, they can successfully stand as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress. I don't believe it. The Congress made clear that the broad purpose in enacting the Clean Water Act was :TO RESTORE AND MAINTAIN THE CHEMICAL,PHYSICAL AND BIOLOGICAL INTEGRITY OF THE NATIONS WATERS. Swfwmd's position is nothing less than bizarre with an end result totally in conflict with CWA.

Mitchell A. Newberger
820 Newberger Road
Lutz, Florida 33549
Phone: (813) 949-1078
Cell: (813) 310-4147

From: Brent Whitley [mailto:BrentWhitley@Sierra-Properties.com]
Sent: Thursday, January 20, 2011 4:10 PM
To: phubbell@wraconsultants.com; mnewberger@verizon.net
Subject: Chass Management Plan

Pete and Mickey,

Attached are a few pages from the updated Chassahowitzka Management Plan Updated August 30, 2005. I have underlined a few interesting points. One most notable though is the fact that the Plan designates the entire 130 acres of the river run as a Special Protection Area.

It seems they are making a case in this document that is counter to what the MFL is proposing to cause/accept.

Any thoughts?

Brent Whitley
Office Tel: (813) 549-7716
Cell: (813) 484-2288
Fax: (813) 969-0128
www.Sierra-Properties.com

From:	Brent Whitley
To:	Doug Leeper
Subject:	FW: Meeting on Thursday 1/20/11 ref; MFL-WUP-CWA ect.
Date:	Tuesday, June 14, 2011 9:55:04 AM

From: Mitchell A. Newberger [mailto:mnewberger@verizon.net]
Sent: Sunday, January 23, 2011 3:59 PM
To: karen.lloyd@watermatters.org
Cc: dgriffin@usgs.gov; Brad Rimbey; Brent Whitley; Dewitt@sptimes.com; George McElvy; Hugh Gramling; Jerry Stanley; Pete Walker; Peter Hubbell; Tom
Subject: Meeting on Thursday 1/20/11 ref; MFL-WUP-CWA ect.

Ms Lloyd,

Thank you for taking the time to discuss the issue of MFL's, withdrawals, WUP's , stream flow reduction etc; as it effects the Chassahowitzka River .
As I understand your position:

1. SWFWMD can issue WUP's to conduct activities that result in the withdrawal of water from what SWFWMD has identified as the Chassahowitzka Springshed .
   This activity will knowingly reduce the flow of the Chassahowitzka River 11% over an unknown period of time resulting in an estimated 11% destruction of the river.

2. SWFWMD has also adopted a discretionary policy that a kill of 15% or below, i.e. 11% is not "significant harm" and that such policy is not supported by case law or EPA approval.

3. That you take the position that salt is not pollution or a pollutant.

4. That the Federal Clean Water Act is not applicable to the above stated activities.

I respectfully request that you and/or SWFWMD inform me if the above is not your position and if so clarify before I move forward.

It is my position that the Federal Clean Water Act provides the statutory basis for state water quality standards and are governed by 40 CFR 131. Please quote me the authority under which SWFWMD is exempted from the Federal Clean Water which includes the 1987 Antidegredation Amendment in relation to the above discussed issues; and the authority that allows "significant harm" to be set at 15%).

Mitchell A. Newberger
820 Newberger Road
Lutz, Florida 33549

Phone: (813) 949-1078
Cell: (813) 310-4147

From:	Brent Whitley
To:	Doug Leeper
Subject:	FW: Meeting on Thursday 1/20/11 ref; MFL-WUP-CWA ect.
Date:	Tuesday, June 14, 2011 9:55:40 AM

From: Mitchell A. Newberger [mailto:mnewberger@verizon.net]
Sent: Friday, February 04, 2011 5:01 PM
To: 'Karen Lloyd'
Subject: RE: Meeting on Thursday 1/20/11 ref; MFL-WUP-CWA ect.

Ms. Lloyd , It is common practice to confirm conversations whether one agrees or not. Unless you or someone at SWFWMD can respond and provide me with case law that exempts your pumping activities from the Clean Water Act Water quality Standards that apply to the Chassahowitzka River and the other simple and straight forward questions asked in the e-mail, I can only conclude that you will knowingly move forward without regard to the Federal Clean Water Act. If there is no law to support your claimed exemption from the CWA or if no one has ever questioned or tested Florida Water Allocation law when it collides with CWA Water Quality Standards, the latter being my position on the issue, an attempt should be made to reach a solution without litigation.

Mitchell A. Newberger
820 Newberger Road
Lutz, Florida 33549
Phone: (813) 949-1078
Cell: (813) 310-4147

From: Karen Lloyd [mailto:Karen.Lloyd@swfwmd.state.fl.us]
Sent: Thursday, February 03, 2011 11:15 AM
To: Mitchell A. Newberger
Cc: dgriffin@usgs.gov; Brad Rimbey; Brent Whitley; Dewitt@sptimes.com; George McElvy; Hugh Gramling; Jerry Stanley; Pete Walker; Peter Hubbell; Tom; Bruce Wirth; Marty Kelly; Mike Heyl; Bill Bilenky
Subject: RE: Meeting on Thursday 1/20/11 ref; MFL-WUP-CWA ect.

Mr. Newberger,

I'm glad that we were able to meet to discuss the proposed minimum flows for the Chassahowitzka River. It gave me a chance to hear your views of the law and your concerns about the River. We thoroughly discussed the issues that you have set forth below. At our meeting I explained the Clean Water Act to you and I also clearly described my interpretation of the applicable law. You completely disagreed with most everything I said. You have a different perspective from the District of the District's activities and you have your own interpretation of the law that is unchanged by our meeting. Continued debate on the issues and how you choose to frame them

will not change your perspective or interpretations. I appreciate your concern for the Chassahowitzka River and your desire to protect it from any further changes or use and your intent to use the Clean Water Act as the vehicle to do that. However, after giving careful thought to this, continuing the debate on these issues and how you choose to frame them will not change your perspective or interpretations and there are avenues available to you to test your interpretations of applicable law. So, as you and I agreed at the meeting, we will have to disagree on these issues.

Karen A. Lloyd
Assistant General Counsel
Southwest Florida Water Management District
2379 Broad Street, Brooksville, FL 34604-6899
800-423-1976, ext. 4651 or 352-796-7211, ext. 4651

From: Mitchell A. Newberger [mailto:mnewberger@verizon.net]
Sent: Sunday, January 23, 2011 3:59 PM
To: Karen Lloyd
Cc: dgriffin@usgs.gov; Brad Rimbey; Brent Whitley; Dewitt@sptimes.com; George McElvy; Hugh Gramling; Jerry Stanley; Pete Walker; Peter Hubbell; Tom
Subject: Meeting on Thursday 1/20/11 ref; MFL-WUP-CWA ect.

Ms Lloyd,

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I respectfully request that you and/or SWFWMD inform me if the above is not your position and if so clarify before I move forward.

It is my position that the Federal Clean Water Act provides the statutory basis for state water quality standards and are governed by 40 CFR 131. Please quote me the authority under which SWFWMD is exempted from the Federal Clean Water which includes the 1987 Antidegredation

Amendment in relation to the above discussed issues; and the authority that allows “significant harm” to be set at 15%).

Mitchell A. Newberger
820 Newberger Road
Lutz, Florida 33549
Phone: (813) 949-1078
Cell: (813) 310-4147

From:	Brent Whitley
To:	Doug Leeper
Subject:	FW: Info request
Date:	Tuesday, June 14, 2011 9:57:33 AM
Attachments:	scan0001.jpg

-----Original Message-----
From: Mitchell A. Newberger [mailto:mnewberger@verizon.net]
Sent: Wednesday, March 02, 2011 7:20 PM
To: 'Hugh Gramling'
Cc: ANTHONY P TRIPOLINO; Brad Rimbey; Brent Whitley; Dale Griffin; David Strickland; Eddie Jones; George McElvy; Jack Calbeck; Jeff Hardeman; Jerry Stanley; Lou Buttitta; Pete Walker; Peter Hubbell; Richard Bryant; Tom Greenhalgh; Tony D'Aquila
Subject: RE: Info request

Hugh, The response by Dave Moore is more of the same.SWFWMD refuses to answer the question and the CWA argument will not end until someone tells me where the authority is coming from. The public has a right to the specific statutory or case law that exempts SWFWMD from the CWA when partially degrading the river thru withdrawals in the springshed. READ THE FEBRUARY LETTER LAST 2 PAGES TO DAVE MOORE! ANSWER THE QUESTION ! Thank you very much.

Mitchell A. Newberger
820 Newberger Road
Lutz, Florida 33549
Phone: (813) 949-1078
Cell: (813) 310-4147

-----Original Message-----
From: Hugh Gramling [mailto:hgramling@tbwg.org]
Sent: Wednesday, March 02, 2011 4:37 PM
To: 'Mickey Newberger'
Cc: 'bette_petewalker@msn.com'
Subject: Info request

Thanks for copying me on your email to your group. Sorry to take so long to get back with you about your request from the district for information. I have been taking care of my paying job and it keeps me busy this time of year. I do know a letter has been drafted in response to yours. I have not seen it so I am unaware of the exact contents. I did check today and the letter was either put in the mail today or will be tomorrow.

Hugh M. Gramling
Executive Director
Tampa Bay Wholesale Growers, Iaa
(813) 655-1914
www.tbwg.org

From: Voyles, Carolyn
To: Greenwood, Kathleen; Yaun, Shelley
Cc: Doug Leeper; Marty Kelly
Subject: FW: Springs Coast Listed waterbodies
Date: Wednesday, June 15, 2011 10:16:07 AM

FYI. This is the first I heard about this.

Carolyn Voyles
(850) 245-8557

From: Brad Rimbey@CRRC [mailto:BWR.CRRC@tampabay.rr.com]
Sent: Wednesday, June 15, 2011 8:14 AM
To: Espy, Julie
Cc: Ron Miller; Kurisko, Paul; Voyles, Carolyn
Subject: Re: Springs Coast Listed waterbodies

Julie - Thanks for the info and the ftp link. I doubt I will be able to make the June 28 meeting in Pinellas Park. Any chance the meeting can (or will) be webcast?

As you may know, SWFWMD is currently holding public workshops for the Springs Coast MFL's. I think it is reasonable to assume that reducing the spring flows that feed our Springs Coast rivers (as SWFWMD is proposing) will increase the pollutants in our rivers since we will lose flushing action. Is anyone at DEP concerned about this?

Brad Rimbey

> ----- Original Message -----
> From: Espy, Julie
> To: Brad Rimbey@CRRC
> Cc: Ron Miller ; Kurisko, Paul
> Sent: Tuesday, June 14, 2011 1:04 PM
> Subject: RE: Springs Coast Listed waterbodies
>
> Mr. Rimbey,
> I'm sorry, but it is not an easy task to move a meeting. There are other folks who have already made arrangements and plans to attend the meeting in Pinellas Park. Additionally, it's not possible for us to move the upcoming meeting and perform our duties in the time allowed. These public meetings are required to be advertised through the Florida Administrative Weekly. These announcements must be received by the FAW office no later than noon 10 days before the notice is to be published; and the announcement must be published at least two weeks prior to the meeting. In other words, in order for us to move this meeting we would have to of had our notice to the FAW office by June 8th.
>
> I understand your concerns, but as I stated below this is the first of two meetings that will be held. The second meeting will be held in September in Citrus Co. This second meeting is actually much more important as we will be presenting the final assessments for the basin and asking for final comments on the assessments before we adopt them.
>
> If you have any questions or would like some additional information prior to the Sept. meeting, please do not hesitate to contact me. The materials for the meeting can be retrieved at this ftp site:
> http://publicfiles.dep.state.fl.us/DEAR/watershed/Watershed_Assessment_Program_Group_5_Cycle_2_Presentations/
>
> Julie Espy
> Environmental Administrator
> Watershed Assessment Section
> 2600 Blair Stone Rd. MS3555
> Tallahassee, FL 32399
> 850-245-8416
> julie.espy@dep.state.fl.us
>
> **From:** Brad Rimbey@CRRC [mailto:BWR.CRRC@tampabay.rr.com]
> **Sent:** Saturday, June 11, 2011 10:00 AM
> **To:** Espy, Julie

Cc: Ron Miller
Subject: Fw: Springs Coast Listed waterbodies

Julie - I hope you will consider moving the June 28 meeting on the Springs Coast Listed Waterbodies to somewhere more central to the Springs Coast. The Homosassa Springs State Park has been proposed and this makes sense to us.

Brad W. Rimbey
for the Chassahowitzka River Restoration Committee

----- Original Message -----
From: Ron Miller
To: Undisclosed Recipient
Sent: Friday, May 27, 2011 9:22 PM
Subject: Fw: Springs Coast Listed waterbodies

From: Espy, Julie
Sent: Friday, May 27, 2011 11:00 AM
To: Michael G. Czerwinski ; 'Paresh Desai' ; 'Corona' ; 'KC Nayfield' ; 'Ron Miller' ; 'Anngeolace Blue-McLean' ; 'Al Grubman' ; 'Eric Latimer' ; 'Andrew Houston' ; 'Meredith Linley' ; Dennis3ds@aol.com ; Dennis Damato ; 'Rebecca Bays' ; Vince.Cautero@bocc.citrus.fl.us ; janna1@tampabay.rr.com ; president@sugarmillcivic.org ; tcrusnak@tampabay.rr.com ; 'OEHMIG.JANET.S03'
Cc: Kurisko, Paul
Subject: RE: Springs Coast Listed waterbodies

It's great to see we have such an active group in this basin! I wanted to let you know that this is the first of 2 meetings planned for the Springs Coast basin. These lists are the first drafts based on available data through Feb. of this year. We will be revising these lists based on our final data retrieval in June. Many of the assessments in your area will not change, since they are based on algal mats or "other information" from our Groundwater Protection folks. We will finalize the assessments some time in Sept. and have another public meeting which we intend to hold in the northern portion of the basin.

I hope you can make it to the meeting this June in Tampa. I look forward to meeting you.

Julie Espy
Environmental Administrator
Watershed Assessment Section
2600 Blair Stone Rd. MS3555
Tallahassee, FL 32399
850-245-8416
julie.espy@dep.state.fl.us

From: Michael G. Czerwinski [mailto:mczerwinski@mgcenvironmental.com]
Sent: Friday, May 27, 2011 10:31 AM
To: 'Paresh Desai'; 'Corona'; 'KC Nayfield'; 'Ron Miller'; 'Anngeolace Blue-McLean'; 'Al Grubman'; 'Eric Latimer'; 'Andrew Houston'; 'Meredith Linley'; Dennis3ds@aol.com; Dennis Damato; 'Rebecca Bays'; Vince.Cautero@bocc.citrus.fl.us; janna1@tampabay.rr.com; president@sugarmillcivic.org; tcrusnak@tampabay.rr.com; 'OEHMIG.JANET.S03'
Cc: Espy, Julie
Subject: FW: Springs Coast Listed waterbodies

TO All interested parties:
FDEP is holding public hearings of the draft list of impaired water bodies (as well as delisting a smaller portion) in our region (part of the Springs Coast) Below is the announcement for all the meetings and attached are the pertinent documents for our area. You may have heard many scientists and agency folks at meetings discussing the "303d" list,which is the impaired waterbody listing and was last done in 1998. For more info see:
http://www.dep.state.fl.us/water/watersheds/assessment/303drule.htm

In summary: Portions of Chass, Homosassa and Crystal River (not always the entire water body, but in some just select reaches or springs) are proposed to be listed. Some smaller areas are proposed for "delisting" . This is a report that is required by the EPA, and if impaired, specific action plans must be identified to reach attainment. IN summary our region, in general, has been listed due to Mercury in fish tissue, low dissolved Oxygen in some of the springs, and "algal mats" (i.e. probably lyngyba issue/ loss of native grass beds). You will also note that based upon their testing our water bodies are generally not listed as impaired for Nutrients/ Nitrates, which meet standards. (This is why I believe our problems in

Kings Bay are strongly correlated with the "toxic" accumulation of sediments and restoration issues must be directed to removing them!)

Unfortunately the meeting is going to be held in Tampa on June 28 and NOT in our region I would voice my concern and ask that the FDEP hold a meeting for the northern portions of the Springs Coast in our area, perhaps at a county building or the armory. If not we all should try to attend or send a representative. We know many of our waters are impaired for the reasons mentioned, some of you may not know about the mercury in fish tissue. We must stay focused on our agencies to help us to RESTORE our impaired water bodies as well as let them know that we are a strong contingent and not just "those folks up in the Nature Coast". And we are long down on the current list! Our region of coastal Springs as well as our unconfined aquifer springshed characteristic is very different from the Pinellas Anclote region and I would suggest that we break out a "Northern Springs Coast Basin" for that reason.

Overall, this is a positive step provided that they list our water bodies as impaired. I have included a map of the impaired portions of Citrus from teh 1998 report and you will note that CHass and Kings Bay / Crystal River were not listed. all will agree allot has changed since 1998.

Please distribute as appropriate and stay informed.

Mike

Michael G. Czerwinski, P.A.
ENVIRONMENTAL CONSULTANTS MGC
Michael G. Czerwinski, P.G., P.W.S.
Senior Scientist, President
2716 South Lecanto Hwy
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From: Hansen, Terry [mailto:Terry.Hansen@dep.state.fl.us]
Sent: Friday, May 27, 2011 6:54 AM
To: Espy, Julie
Subject: Springs Coast Listed waterbodies

I To: INTERESTED STAKEHOLDERS

The Department announces the availability of draft Verified Impaired and Delist lists for stakeholder review and comments in the following Group 5 basin: Springs Coast. These documents may be found at http://www.dep.state.fl.us/water/watersheds/assessment/index.htm The public is invited to attend public meetings on these draft lists that will be held at the locations and times listed in the following notices. Written comments will be accepted beginning May 27, 2011 through July 1, 2011 and should be directed to: Julie.espy@dep.state.fl.us

Springs Coast

DEPARTMENT OF ENVIRONMENTAL PROTECTION

The Department of Environmental Protection announces a public meeting to which all persons are invited.

DATE AND TIME: Tuesday, June 28, 2011, 9:30 A.M to 12:00 P.M. (EDST)

PLACE: Tampa Bay Regional Planning Council

4000 Gateway Centre Boulevard, Suite 100, Pinellas Park, FL 33782

GENERAL SUBJECT MATTER TO BE CONSIDERED: This meeting is to present the draft lists of waterbodies and water segments within the Springs Coast basin verified as impaired pursuant to Chapter 62-303, Florida Administrative Code, and waters proposed for delisting from Florida's 303(d) list. The draft lists will be available on the Department's Watershed Assessment Program website (http://www.dep.state.fl.us/water/watersheds/assessment/index.htm) by May 27, 2011, and will be provided upon request to interested parties by mail or via e-mail distribution. The Department will accept written comments on the draft lists beginning May 27, 2011, and ending July 1, 2011.

Any and all written comments should be directed to Ms. Julie Espy, Watershed Assessment Section, Florida Department of Environmental Protection, 2600 Blair Stone Road, M.S. 3555, Tallahassee, Florida 32399-2400, or by e-mail at julie.espy@dep.state.fl.us. A copy of the agenda may be obtained by contacting: Ms. Renee Gray, Watershed Assessment Section, Florida Department of Environmental Protection, 2600 Blair Stone Road, MS 3555, Tallahassee, Florida 32399-2400, or by e-mail at renee.gray@dep.state.fl.us Pursuant to the provisions of the Americans with Disabilities Act, any person requiring special accommodations to participate in this workshop/meeting is asked to advise the agency at least 5 days before the workshop/meeting by contacting: Ms. Renee Gray at (850) 245- 8346. If you are hearing or speech impaired, please contact the agency using the Florida Relay Service, 1(800)955-8771 (TDD) or 1(800)955-8770 (Voice).

Terry J. Hansen, P.G.
Environmental Consultant
Florida Department of Environmental Protection
2600 Blair Stone Road, MS 3565
Tallahassee, FL 32399-2400
(850) 245-8561 or SunCom 205-8561
(850) 245-8434 or SunCom 205-8434 FAX
terry.hansen@dep.state.fl.us

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:	Marty Kelly
To:	Doug Leeper; Mike Heyl; Karen Lloyd; Ron Basso
Subject:	FW: Lecanto meeting Wednesday June 8,2011 with newly appointed citizens panel
Date:	Wednesday, June 15, 2011 2:43:18 PM

FYI – Hugh's response to Mr. Newberger

From: Hugh Gramling [mailto:hgramling@tbwg.org]
Sent: Wednesday, June 15, 2011 2:39 PM
To: Bruce Wirth; Bill Bilenky; Mark Hammond; Marty Kelly
Subject: FW: Lecanto meeting Wednesday June 8,2011 with newly appointed citizens panel

From: Hugh Gramling
Sent: Wednesday, June 15, 2011 2:37 PM
To: 'Mitchell A. Newberger'; 'Allan Himes'; 'ANTHONY P TRIPOLINO'; 'Barry Bishop'; 'Bob Carey'; 'Brad Rimbey'; 'Brent Whitley'; 'Dale Griffin'; 'David Strickland'; 'Eddie Jones'; 'Gene Long'; 'George McElvy'; 'Jack Calbeck'; 'jane shaw'; 'Jeff Hardeman'; 'Jerry Stanley'; 'Lou Buttitta'; 'Pete Walker'; 'Peter Hubbell'; 'Richard Bryant'; 'stanley_k@sao13th.com'; 'Tom Greenhalgh'; 'Tony D'Aquila'
Subject: RE: Lecanto meeting Wednesday June 8,2011 with newly appointed citizens panel

Mickey

I want to start by saying that I am not yet taking a position on the MFL the staff will be proposing. I simply want to give you my thoughts on the question you raised about the Clean Water Act. I understand fully you position on the Chazz and I understand you think the Clean Water Act applies to setting MFLs. I disagree with your assumptions and, obviously, so does the District's legal counsel.

You're asking for the exemptions which lets the District out but that assumes the District is covered under the Act and then excluded. I do not agree with that either.

Simply put, I don't think the Clean Water Act applies to setting Minimum Flows on Florida's streams. Therefore, you are asking staff to prove the negative which cannot be done. That is like being asked to prove you are not cheating. Can't do it no matter how much you aren't or how hard you try.

There obviously is nothing the District's staff or I can say which will satisfy you. We will continue to seek additional input in the upcoming meetings and then the District will proceed with setting the level with any changes they feel appropriate before taking it to the board for approval.

You are encouraged to participate in the ongoing process and, in the end, you must do what your conscience demands you do.

I believe you mentioned you asked EPA to give its opinion in this matter. I look forward to its answer but in the meantime I plan to continue listening until it is time to cast my vote. That will be based on staff recommendation; additional information

from the “useless” stakeholder meetings; what I believe is common sense; and my duty as a member of the Board of Governors.

Hugh
Executive Director
Tampa Bay Wholesale Growers, laa
(813) 655-1914
www.tbwg.org

From: Mitchell A. Newberger [mailto:mnewberger@verizon.net]
Sent: Monday, June 13, 2011 5:37 PM
To: Allan Himes; ANTHONY P TRIPOLINO; Barry Bishop; Bob Carey; Brad Rimbey; Brent Whitley; Dale Griffin; David Strickland; Eddie Jones; Gene Long; George McElvy; Hugh Gramling; Jack Calbeck; 'jane shaw'; Jeff Hardeman; Jerry Stanley; Lou Buttitta; Pete Walker; Peter Hubbell; Richard Bryant; stanley_k@sao13th.com; Tom Greenhalgh; Tony D'Aquila
Subject: Lecanto meeting Wednesday June 8,2011 with newly appointed citizens panel

Hugh,
SWFWMD has spent well over a million dollars in taxpayer money on a proposed rule that is flawed by staff’s on admission and would be a **final rule** if some of us had not spoke out.
The meeting on Wednesday June 8,2011 to appoint a citizen panel was an age old move by a government entity to lull citizens into thinking they are making a difference while behind the scenes the same end result with minor insignificant changes will generally occur.
How can SWFWMD continue incurring massive expense when they are unable or refuse to tell the public what exempts them from the CWA?
If they are exempt the public has a right to know by what statutory or case law authority such an exemption exists.
If SWFWMD is found to be in conflict with the CWA the new board and more time and taxpayer time and money will be lost, not to mention a lot of upset panel members, the press and others.

The question is not difficult: **What statutory or case law authority exempts SWFWMD from the CWA when conducting a man induced Activity(controlling the issuing of permits for withdrawals from the Chass. Springshed that result in reduced stream flow, which results in physical, chemical , biological, or radiological change in the river system thus partially degrading the river by killing 15% of the system?**

It is apparent that SWFWMD legal disagrees with me on this. They should come forward and tell the public where I am wrong by quoting their authority, and you along with other board members have a duty to the public to be transparent in conducting the public’s business by instructing legal to publish their authority or the lack of it otherwise you breach the public trust.
It is time to move to de-sal and reservoirs in lieu of destroying theWeekiwachee, Chassahowitzka, Homosassa and Crystal Rivers.
You are simply trying to take the cheapest way out at the public and environments expense.
An opinion from Florida Attorneys’ General, although not binding on the EPA or the Federal court would be a start to determine if you are in conflict with the CWA by the activities you are conducting that degrades the river.

Federal law provides for civil and criminal penalties for knowingly and willfully violating the CWA. I have not found any law that exempts SWFWMD from the statutes. Please tell me if you know otherwise.

Mitchell A. Newberger
820 Newberger Road
Lutz, Florida 33549
Phone: (813) 949-1078
Cell: (813) 310-4147

From:	Marty Kelly
To:	Mark Hammond
Cc:	Doug Leeper; Karen Lloyd; Cara S. Martin
Subject:	FW: Lecanto meeting Wednesday June 8,2011 with newly appointed citizens panel
Date:	Friday, June 17, 2011 7:52:36 AM

FYI

From: Hugh Gramling [mailto:hgramling@tbwg.org]
Sent: Friday, June 17, 2011 7:39 AM
To: Bruce Wirth; Bill Bilenky; Marty Kelly
Subject: Fw: Lecanto meeting Wednesday June 8,2011 with newly appointed citizens panel

No response planned on my part.

Hugh Gramling
Connected by DROID on Verizon Wireless

-----Original message-----
From: "Mitchell A. Newberger" <mnewberger@verizon.net>
To: Hugh Gramling <hgramling@tbwg.org>, 'Allan Himes' <Allan@ahelectrical.net>, 'ANTHONY P TRIPOLINO' <aptripolino@verizon.net>, 'Barry Bishop' <Barry_bishop@glic.com>, 'Bob Carey' <ajourney@tampabay.rr.com>, 'Brad Rimbey' <BWR.CRRC@tampabay.rr.com>, 'Brent Whitley' <BrentWhitley@Sierra-Properties.com>, 'Dale Griffin' <dgriffin@usgs.gov>, 'David Strickland' <DSTRICKLAND18@tampabay.rr.com>, 'Eddie Jones' <sjones9@tampabay.rr.com>, 'Gene Long' <eugenelong@verizon.net>, 'George McElvy' <classof47@Gmail.com>, 'Jack Calbeck' <JCalbeck1@embarqmail.com>, 'jane shaw' <jlshaw@cox.net>, 'Jeff Hardeman' <jhardeman@sprint.blackberry.net>, 'Jerry Stanley' <ghstanley3@verizon.net>, 'Lou Buttitta' <lbuttitta@tampabay.rr.com>, 'Pete Walker' <bette_petewalker@msn.com>, 'Peter Hubbell' <phubbell@wraconsultants.com>, 'Richard Bryant' <rangerrb@bellsouth.net>, "stanley_k@sao13th.com" <stanley_k@sao13th.com>, 'Tom Greenhalgh' <Tom.Greenhalgh@dep.state.fl.us>, 'Tony D'Aquila' <adaquila@tampabay.rr.com>
Sent: Thu, Jun 16, 2011 21:54:19 GMT+00:00
Subject: RE: Lecanto meeting Wednesday June 8,2011 with newly appointed citizens panel

Hugh,

FOR THE RECORD :

1. Several months ago Brent Whitley, Pete Hubbell and I met you for breakfast at Fred's in Plant City to discuss your position on the pending MFL that will kill 15% of the Chassahowitzka River system.
During this meeting I recall you clearly expressed to the three of us that you supported the staff recommendation, that you would vote for the rule , that you would make the motion, and that you would be the Chairman by then.

In your attached E-mail dated June 15,2011 you say; "I am not yet taking a position on the MFL the staff will be proposing".

2. Regarding the Term "EXEMPTION". Please do not try to spin this issue. During my meeting with Karen Lloyd of SWFWMD legal my position was and is that the ACTIVITY and ensuing results that will be controlled by SWFWMD if this MFL rule passed would conflict with the CWA. Karen Lloyd injected the term "EXEMPTION" not Mickey Newberger.
This position prompted my question as to what authority exempts SWFWMD. This is the question you will not answer.(See letter of FEB,11 2011 to former Director Moore)

3. I am more than bewildered at your analogy and understanding of the term" EXEMPTION".
In that your staff attorney invoked the term" EXEMPTION", SWFWMD took a legal position that has to be supported by some basis, grounds, empowerment or authority.
One cannot exempt themselves by saying the words "I AM EXEMPT".

4. I have never contended SWFWMD could not set an MFL. That is not even my argument. The argument is SWFWMD says they are exempt from the CWA while issuing and controlling an ACTIVITY that
results in a conflict with the CWA. Saying "I AM EXEMPT" just doesn't get it. You know better than that and so does your legal staff.

5. I have never taken the position my argument is the final word, only that SWFWMD provide proof of EXEMPTION.

6. I am not sure what you mean by "useless stakeholders meetings".

7. I firmly believe that MFL'S are intended to protect and maintain a body of water covered by the CWA not partially degrade or pollute same as SWFMD will do under this rule.

Mitchell A. Newberger
820 Newberger Road
Lutz, Florida 33549
Phone: (813) 949-1078
Cell: (813) 310-4147

From: Hugh Gramling [mailto:hgramling@tbwg.org]
Sent: Wednesday, June 15, 2011 2:37 PM

To: 'Mitchell A. Newberger'; 'Allan Himes'; 'ANTHONY P TRIPOLINO'; 'Barry Bishop'; 'Bob Carey'; 'Brad Rimbey'; 'Brent Whitley'; 'Dale Griffin'; 'David Strickland'; 'Eddie Jones'; 'Gene Long'; 'George McElvy'; 'Jack Calbeck'; 'jane shaw'; 'Jeff Hardeman'; 'Jerry Stanley'; 'Lou Buttitta'; 'Pete Walker'; 'Peter Hubbell'; 'Richard Bryant'; 'stanley_k@sao13th.com'; 'Tom Greenhalgh'; 'Tony D'Aquila'
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January 3, 2011

TO : Chassahowitzka River Restoration Committee c/o Mr. Brad Rimbey

FROM : Michael G. Heyl, Chief Environmental Scientist
Southwest Florida Water Management District

SUBJECT : Electronic Correspondence dated December 9, 2010 regarding proposed Minimum Flow and Level for Chassahowitzka River

Thank you for your comments dated December 9, 2010. With regard to the two legal issues that you raised (Outstanding Florida Water/ 62-302.700(1) F.A.C. and the statutory definition of "significant harm"), I have shared your additional comments with our legal staff who have advised me that the District is proceeding in accordance with the applicable law.

The District understands your point about using measured flow from nearby springs instead of water levels from wells, but other than sporadic measurements taken over decades and under variable climate conditions, measured daily discharge data simply does not exist. Even for those few days when we have concurrent manual measurements, the variation in flow from nearby

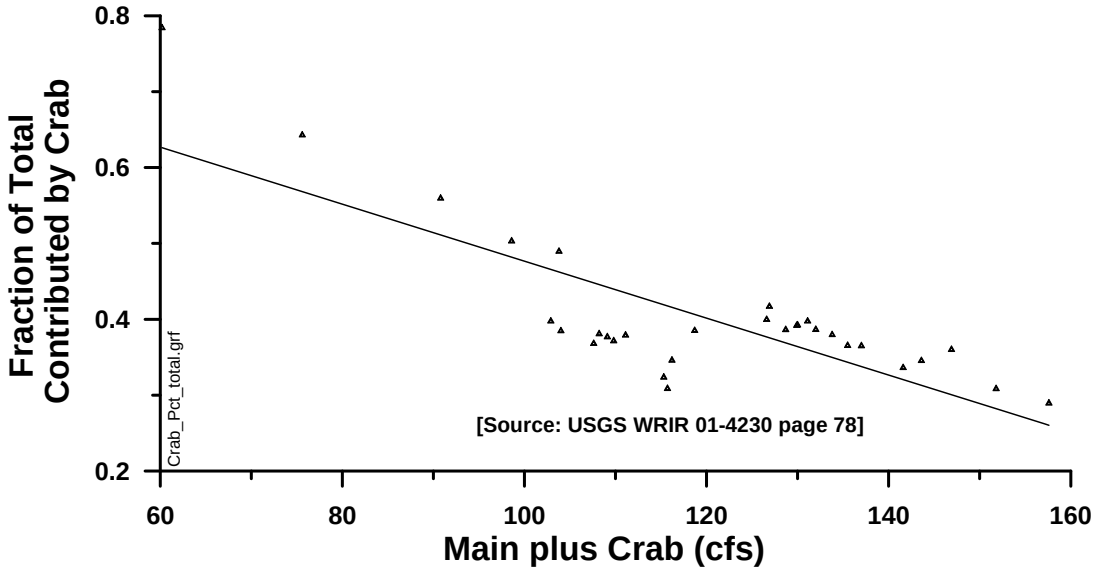

Figure 1. Fraction of flow contributed by Crab Creek to Main plus Crab Creek

springs can be significant. As you noted, there is a limited data set of overlapping Crab Creek flows and Crab plus Main flows, which suggests that on average, Crab constitutes about 40% of the combined flow. However, the range is rather large. Using the concurrent data available in Appendix B of WRIR 01-4230, Crab Creek flow ranges from 29-78% of the combined flow of Main plus Crab springs. As suggested, a constant percentage could have been estimated, but the percentage does not appear to be a constant as shown in Figure 1, which plots the

percentage of total flow (Crab plus Main) against flow from the Main spring. It should be noted that this amount of variation occurs within only four days of monitoring.

With regard to Figure 2-6 in the MFL report, these results were not generated by the Northern District Model (NDM), but rather were generated by hind casting from a regression developed from the flows that the USGS reported for the Main spring from 1997 – 2007. The regression is based on 3,260 values reported by the USGS and is included on page 18 of the November draft. (The basis of this approach is detailed in Appendix 10-1.). This regression was used to hind cast daily flows back to the beginning of the reported water levels in the Weeki Wachee well. The daily values were summarized to monthly values for Figure 2-5 and annual values for Figure 2-6. The purpose of this hind casting exercise was to develop a long-term median daily flow (63 cfs) and to provide estimates of discharge on days prior to 1997 when Mote Marine Laboratory was measuring salinity in the river. Once the median value was established and the salinity regression established, this historic flow record was not used to establish the MFL. However, it was used to establish a table of expected average five and ten-year low flows (Table 8-2) with the MFL fully used.

From a pragmatic standpoint, the salinity regression would produce the same results if Crab Creek were included, because the new regression would have coefficients reflecting the change in flow. The salinity regression used for evaluation of the biological components of the MFL was based on 493 individual measurements of salinity, coupled with river location and the daily average flow from Chassahowitzka Main. Those results are provided in line A in Table 1 below. To illustrate the point, I then added 48.7 cfs representing Crab Creek to each of the 463 Main flow readings and re-calculated the regression coefficients as indicated in row B. Note that the intercept term increased, but the coefficients for the flow term and the location term remain unchanged.

Finally, I proportionally increased the Main spring flow by 0.67 to reflect the assumption that Crab Creek represents 40% of the combined flow. In this example (Row C), the flow slope decreases proportionately. I then estimated the salinity at river kilometer 5 using each of the three forms. As you can see, the predicted salinity is the same for all three flows evaluated.

Table 1. Salinity regressions using Main spring flow, Main + 48.7 cfs and Main * 1.67

	Equation Description	bo	b1	b2	Q_{main}	Q used	R_{KM}	Salinity
A	**November Report, page 41**	29.375	-0.2838	-1.3678	63 =>	63	5	4.66
B	**Q_{main} + 48.7 cfs**	43.195	-0.2838	-1.3678	63 =>	111.7	5	4.66
C	**Q_{main} * 1.67**	29.375	-0.1699	-1.3678	63 =>	105.21	5	4.66
	Where Salinity = bo + b1*Flow + b2*River kilometer							

I would also like to point out that all of the fish regressions of abundance to flow developed by the Florida Fish and Wildlife Conservation Commission (FWC) for the MFL were based on the discharge from the Main spring as reported by USGS. (For details on the development of these response curves, please see Chapter 10.10 in the appendices.) Crab Creek flows were not included in the analysis by FWC because daily flows for Crab Creek are not available.

The NDM was not used to establish the MFL either. The NDM model was used solely to assess the impact of current withdrawals, which were reported for Chassahowitzka Main as 0.7 cfs. However, the NDM simulates Crab Creek and Potter Creek spring flows in addition to Chassahowitzka Main spring. We did not include those results in our analysis since the recommended MFL is referenced to discharge from the Main spring. The 2005 withdrawal impact results for all three springs are included below in Table 2.

Table 2. Groundwater impacts (2005) on spring discharges in the Chassahowitzka River

Spring Name	Discharge for No Pumping Scenario (cfs)	Discharge for 2005 Pumping Scenario (cfs)	Difference (cfs)	Percent Difference
Chassahowitzka 1 Spring	64.2	63.5	-0.7	-1.0
Crab Creek Spring	34.4	33.9	-0.5	-1.3
Potter's Creek Spring	13.8	13.7	-0.1	-0.9
Total	112.4	111.1	-1.3	-1.1

You inquired about the accuracy of the NDM results. The NDM is a regional groundwater flow model that is calibrated under 1995 steady-state and 1996 through 2002 transient conditions. Chassahowitzka Main spring was modeled within 1.5 percent of observed flow in the steady-state model. In the steady-state model, Chassahowitzka Springs Group (Main spring, Crab Creek, and Potter's Creek) was within two percent of flow reported by the USGS (Sepulveda, 2002[1]; the Sepulveda report provides estimates of springflow for all of the springs that are currently ungaged.) District staff uses the best information available at the time of minimum flow assessment to determine the level of existing impact to a water resource feature.

The NDM was calibrated by matching water levels from 295 wells within the model domain. Baseflow from major rivers and spring flow from 93 springs were also matched during the calibration process. The recharge applied in the NDM was also derived based on radar estimated rainfall, land use, soils, and depth to water table information. The NDM calibration report contains additional detailed information on the model calibration (Hydrogeologic, Inc., 2008).

[1] Sepulveda, N. 2002. Simulation of Ground-Water Flow in the Intermediate and Floridan Aquifer Systems in Peninsular Florida, U.S. Geological Survey WRI Report 02-4009, 130 p.

Numerical models are always refined as more data becomes available through time. There is currently sufficient information to properly conceptualize and simulate the groundwater system in Hernando and Citrus Counties in the groundwater flow model even as more information is added to the model in the future.

To clarify, a hydrodynamic model was used to establish the habitat (salinity and temperature) MFL metrics. The model used is supported by the United States Environmental Protection Agency (USEPA) and is a three-dimensional model named Environmental Fluid Dynamics Code, or EFDC for short. The model contains 6,556 volumetric cells and runs on a 5-second time step. USGS reported salinity, temperature and stage at 15 minute intervals, and daily discharge from the Main spring is input to the model along with constant discharge from the literature are input for Crab Creek (48.7 cfs), Baird (5.7 cfs), Potter (18.6 cfs), Beteejay(6.4 cfs) and Blue Run springs (6.6 cfs) (See Appendix 10.13 for additional details). The acute thermal refuge determined with the EFDC model was the most sensitive metric evaluated and is the basis for the proposed MFL.

With regard to your inquiry about the dates reported in Table 2.3, you are correct. Thank you for pointing this out. The table will be corrected in the final report.

As you pointed out, the District's 2010 Regional Water Supply Plan does identify a 7.5 mgd wellfield in southern Citrus County. The Withlacoochee Regional Water Supply Authority is considering a wellfield in southern Citrus County in the next 20 years. The planned wellfield in Citrus County is described in the "Withlacoochee Regional Water Supply Authority Phase II – Detailed Water Supply Feasibility Analyses" which was completed by Water Resource Associates, Inc. in 2010 for the Withlacoochee Regional Water Supply Authority. A water resource impact evaluation of this facility was completed by the consultant for the Authority and is included in the feasibility analyses report. As a reminder, any new use of groundwater that meets the Chapter 40D-2 F.A.C. thresholds requires a water use permit from the SWFWMD. The rules of issuance for water use permits must be met before approval of this facility can move forward.

From: Ron Basso
To: Mike Heyl; Doug Leeper
Subject: FW: Chass Springshed Groundwater Withdrawals and Well Permits
Date: Tuesday, June 21, 2011 1:13:40 PM

FYI – just wanted to keep you guys in the communication loop.

From: Brad Rimbey [mailto:brimbey3@gmail.com]
Sent: Monday, June 20, 2011 5:10 PM
To: Ron Basso
Subject: Re: Chass Springshed Groundwater Withdrawals and Well Permits

Ron - I'm on the road today but I'll be home tomorrow. I'll look for the ND Version 1 & 2 reports when I get back and give you a call after I find and review them. My understanding (or misunderstanding) is that the NDM is a "real-time" dynamic model that has been calibrated to predict spring discharge rates based on the measured groundwater level at a chosen monitoring well. It seems that it is not the case. Thanks for your patience. I'll try to call tomorrow.

Brad Rimbey

> ----- Original Message -----
> From: Ron Basso
> To: Brad Rimbey
> Sent: Monday, June 20, 2011 3:36 PM
> Subject: RE: Chass Springshed Groundwater Withdrawals and Well Permits
>
> Brad:
>
> I'm not sure we're communicating here. Why don't you call me and let's discuss. The NDM is calibrated to 1995 conditions (i.e. this is the table I sent you today from the ND Version 2.0 report). I sent you both version 1 and 2 reports (as pdf documents) in your public records request so you can access that table and the version 1 table which shows how well we matched the 1995 data. We don't simulate all the spring discharges in the NDM other than the ones I listed previously (Crab, Chassahowitzka Main, and Potter/Ruth) so there is no data for many of the small springs. I'm not sure what you mean when you say model the discharges presently. We have a transient simulation that we just updated through 2006 which runs on a monthly basis from 1996 through 2006. I have attached a figure showing you how the model performs matching historical data from Chassahowitzka main spring from 1996 – 2006 using the latest version (No. 3) of the model (report not finalized yet).
>
> Ron Basso, P.G.
> Senior Professional Geologist
> Hydrologic Evaluation Section
> Southwest Florida Water Management District
> ph 1-800-423-1476 (in state)
> ph 352-796-7211, ext. 4291 (outside state)
> FAX 352-797-5799

From: Brad Rimbey [mailto:brimbey3@gmail.com]
Sent: Monday, June 20, 2011 3:06 PM
To: Ron Basso
Subject: Re: Chass Springshed Groundwater Withdrawals and Well Permits

Thanks Ron but the table you attached is not really what I asked for. Can you generate a table which shows the present NDM simulated spring discharges from all the springs I listed in the Chassahowitzka Springs Group? Attached is a page from Mike Heyl's MFL report for the Chassahowitzka which shows most of the springs in the Chassahowitzka Group. Blind Spring and Snapper Hole are not shown but should be included in the Group.

I do not believe I have previously seen the table which you attached. Could you give me the name of the document that this table came from? Did you include this document in the material which you provided in response to my recent public records request? Is this document available online?

Brad Rimbey

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

From: Ron Basso
To: Brad Rimbey@CRRC
Sent: Monday, June 20, 2011 8:35 AM
Subject: RE: Chass Springshed Groundwater Withdrawals and Well Permits

Brad:

We actively simulate the Chassahowitzka Springs Group using drain cells for Chassahowitzka, Potter (which includes Ruth), and Crab springs. Attached are the calibration statistics for 1995 average annual flows from Version 2 of the NDM.

Ron Basso, P.G.
Senior Professional Geologist
Hydrologic Evaluation Section
Southwest Florida Water Management District
ph 1-800-423-1476 (in state)
ph 352-796-7211, ext. 4291 (outside state)
FAX 352-797-5799

From: Brad Rimbey@CRRC [mailto:BWR.CRRC@tampabay.rr.com]
Sent: Friday, June 17, 2011 5:28 PM
To: Ron Basso
Subject: Re: Chass Springshed Groundwater Withdrawals and Well Permits

Thanks Ron. Between what you supplied and WMIS, I should be able to find the information I requested.

I have one other request. As we discussed after the Springs Coast MFL workshop, I would like to know what the NDM presently predicts as the flow rate for each of the springs in the Chassahowitzka Springs Group (Chass Main, Chass #1, Chass #2, Crab, Lettuce, Baird, Snapper Hole, Salt, Potter, Ruth, Johnson, Betty Jay, Rita Marie, Blue Run, Ryle, and Blind). I would prefer to get the data as a pdf file. I think this is a simple request. Let me know if you believe otherwise.

Brad Rimbey
(813) 417-9453

----- Original Message -----
From: Ron Basso
To: Brad Rimbey@CRRC
Cc: Bill Bilenky ; Mike Kelley ; Pam Gifford ; Mark Barcelo ; Brent Whitley
Sent: Friday, June 17, 2011 10:03 AM
Subject: RE: Chass Springshed Groundwater Withdrawals and Well Permits

Brad:

We import an Arcmap GIS shapefile from a database of water use permitted wells into the GWVs model software. I've included the shapefile in the attached zip file. Since I doubt you have ESRI GIS software, you can open the *.dbf file in MS Excel. Once you do, you'll find our estimated and metered data (by well) for the WUPs. Most of the fields are self-explanatory except for the withdrawal point. Here is how that is deciphered:

For Example: SW0022240070005 Withdrawal Point (WUP Well)

'SW' 002224 = WATER USE PERMIT #; 007 = REVISION #; 0005 = WITHDRAWAL #

Here are some other field definitions:

N	line number
LONG	longitude, negative decimal degrees, NAD_1983_HARN_UTM_Zone_17N
LAT	latitude, decimal degrees, NAD_1983_HARN_UTM_Zone_17N
ID	concatenation of 'SW', Permit# (6 spaces) Revision# (3 spaces) and Withdrawal# (4 spaces)
W_TYPE	withdrawal type (G ground water or S surface water)
DIAMETER	diameter of withdrawal pipe in inches
CS_DEPTH	depth of well casing in feet below land surface elevation (~40% are estimated)
DEPTH	depth of well in feet below land surface elevation (~5% are estimated)
M_E	metered (M) or estimated (E) pumping rates

USETYPE	general use type (A agricultural, IC industrial/commercial, MD mining/dewatering, P public supply, R recreation)
USE_CODE	specific use types (a list of the 165 codes is available)
AVG_CFD	2006 permitted maximum average pumping for the withdrawal (annual) in cubic feet per day (CFD)
TOT_CFD	2006 permitted maximum average pumping for the permit (annual, all withdrawals) CFD
MAX_CFD	2006 permitted maximum pumping for the withdrawal (one day) CFD
Q92CFD-Q06CFD	average annual estimated/metered pumping, 1992-2006, negative indicates a withdrawal (CFD)
Q06MGD	2006 average annual estimated/metered pumping in MGD (for mapping)
NAME	permittee or project name
BUFF95	extraneous buffering column for map graphics

In response to an earlier request, I'm also sending you our internal memorandum on mining consumptive use and how these quantities were reduced in the model to account for consumptive use. In addition, I pulled the present day WUP information (by permit) for the Chassahowitzka springshed late last year for Mickey Newberger, which is included. Once you have the permit number, you can query our WMIS on our internet site for specific information regarding each permit.

Finally, I pulled the major public supply metered data in Citrus and Hernando Counties so that you can see the history of withdrawals and how they've changed since 2005. You'll see that these withdrawals are generally lower now in 2010 than they were in 2005.

Ron Basso, P.G.
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Hydrologic Evaluation Section
Southwest Florida Water Management District
ph 1-800-423-1476 (in state)
ph 352-796-7211, ext. 4291 (outside state)
FAX 352-797-5799

From: Brad Rimbey@CRRC [mailto:BWR.CRRC@tampabay.rr.com]
Sent: Wednesday, June 15, 2011 3:28 PM
To: Ron Basso
Cc: Bill Bilenky
Subject: Chass Springshed Groundwater Withdrawals and Well Permits

Ron,

It was a pleasure speaking with you after last week's Springs Coast MFL Workshop.

Attached is a pdf of a slide which you presented during the second Chassahowitzka MFL public workshop on December 16, 2010. I would like to receive tabular data related to the attached graphic. Specifically, I would like to know

1) What was the actual daily average groundwater withdrawal rate (in MGD) from each of the wells (dots) represented on the attached slide?
2) What was the maximum daily average of ground water (in MGD) which was permitted from each well (dot) represented on the attached slide?
3) What was the permit number for each well (dot) represented on the attached slide? (please identify each dot by permit number on a similar graphic)
4) What was the project site name for each well (dot) represented on the attached slide?
5) What the owner's name and who was the permittee for each well permit (dot) represented on the attached slide?
6) What was the issue date and what was the expiration date of each well permit (dot) represented on the attached slide?
7) What was the water use designation of each well permit (dot) represented on the attached slide?
8) What is the drought quantity, max quantity, and peak quantity, for each well permit (dot) on the attached slide?

Since the data on the attached slide was approximately 5 years old when it was presented to the public on December 16, 2010, I would like to see an updated version which reflects all of the requested information as of today's date (June 15, 2011). Please provide this information well in advance of your presentation at the next Springs Coast MFL workshop in late July.

Thank you.

Brad W. Rimbey, PE
Springs Coast MFL Panel Member representing the Chassahowitzka River Restoration Committee

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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:	Al Grubman (grubman1@gmail.com); 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); Helen Spivey (manatees@habitats.org); Hilliard, Dan (2buntings@comcast.net); Jim Farley (jfarley682@aol.com); Katie Tripp (ktripp@savethemanatee.org); Norman Hopkins (norman@amyhrf.org); Rebecca Bays (rebecca.bays@bocc.citrus.fl); Richard Kane (rkane@usgs.gov); Richard Radacky (rradacky@cityofbrooksville.us); Ron Miller (rmille76@tampabay.rr.com); Sarah Tenison (cityofweekiwachee@yahoo.com); Sulllivan, Jack (jsullivan@carltonfields.com); Voyles, Carolyn (Carolyn.Voyles@dep.state.fl.us)
Cc:	Amy K. Harroun; Barbara Matrone; Cara S. Martin; Chris Zajac; Darcy A. Brune; 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:	Springs Coast MFLs Public Workshop Announcement
Date:	Tuesday, June 21, 2011 3:52:00 PM

Greetings:

Thanks for your recent participation and/or interest in the Southwest Florida Water Management District's Springs Coast Minimum Flows and Levels Public Workshop series. The District has scheduled the next workshop for Monday, July 18, 2011 at 1:30 PM in Room 166 of the Lecanto Government Services Building. The building is located at 3600 West Sovereign Path in Lecanto, Florida.

An agenda for the upcoming workshop and relevant materials that may be reviewed prior to the event will be posted on the web page dedicated to the workshop series at the District web site. The page may be found at:

www.WaterMatters.org/SpringsCoastMFL

or

http://www.swfwmd.state.fl.us/projects/mfl/springs-coast-mfl.php

I look forward to seeing you at the July workshop. Please feel free to contact me with any questions or comments concerning the workshop, development of minimum flows and levels or other water management issues.

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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Fax: 352-754-6885
E-Mail: doug.leeper@watermatters.org
Web Site: watermatters.org

From: Doug Leeper

To: (janicehowie@aol.com); (priswat@tampabay.rr.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); Bob Knight (bknight@wetlandsolutionsinc.com); Brack Barker (brack154@msn.com); Carl Mattthai (thebabesmimi@gmail.com); Casey, Emily (fcnwr@atlantic.net); Charles Dean (dean.charles.web@flsenate.gov); Charles Stonerock (katcha.stonerock3@gmail.com); Chris Safos (chrissafos@embarqmail.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); Friends of Crystal River State Parks (cso@crystalriverstateparks.org); Friends of the Weeki Wachee Springs State Park (weekiwacheefriends@gmail.com); George Harbin (gharbin@tampabay.rr.com); George McClog (classof47@gmail.com); Gorgon O"Connor (gorgon_o@yahoo.com); Harry Steiner (harry109@aol.com); Hope Corona (hopecorona@tampabay.rr.com); Jack Calbeck (calbeckj@citrus.k12.fl.us); jane Perrin (jcsperrinmd@sbcglobal.net); Jerry Morton (JerrMorton@aol.com); Jessie Gourlie (gourliej@thirdplanetwind.com); Jim Collins (jimmiekey22@yahoo.com); Jimmie Smith (Jimmie.Smith@myfloridahouse.gov); Joe Calamari; John Lord (jclord109@yahoo.com); John Mayo (freedomway1@gmail.com); Karen Johnstone (kjohns213@sbcglobal.net); Kim Caldwell (caldwell.kimberly@yahoo.com); Kim Dinkins (kim.dinkins@marioncountyfl.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); Michael Lusk (Michael_Lusk@fws.gov); Mitchell Newberger (mnewberger@verizon.net); Paul Carpenter (paul.carp@verizon.net); Richard Bryant (rangerrb@bellsouth.net); Robert Keim (rbkeim@gmail.com); Rolf Auermann (rauerman@tampabay.rr.com); Sally Smith-Adams (sally_smith_adams@hotmail.com); Sandra Cleducuies (scleducies@aol.com); Teddi Rusnak (tcrusnak@tampabay.rr.com); Tom Overa (tovera1@tampabay.rr.com); Vince Cantero (vince.cantero@bocc.citrus.fl.us); Whitey Markle (whmarkle@gmail.com); Al Yerian (Al.Yerian@dep.state.fl.us); Andy Houston (ahouston@crystalriverfl.org); Bill Geiger (bgeiger@cityofbrooksville.us); 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); 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); Frank DiGiovanni (fdigiovanni@invernessfl.gov); Greenwood, Kathleen (Kathleen.Greenwood@dep.state.fl.us); Hoehn, Ted; J. J. Kenney (j.j.kenney@bocc.citrus.fl); Jennene Norman-Vacha (jnvacha@ci.brooksville.fl.us); Joyce_Kleen@fws.gov; Kandi Harper (kandi.harper@bocc.citrus.fl); Keith Ramos (Keith.Ramos@fws.gov); Kent Smith (kent.smith2@myfwc.com); Kevin Grimsely (kjgrims@usgs.gov); 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); Shelley Yaun (Shelley.Yaun@dep.state.fl.us); Toby Brewer (Toby.Brewer@dep.state.fl.us); Wallace, Traci

Cc: Marty Kelly; Barbara Matrone; Cara S. Martin; Amy K. Harroun

Subject: Springs Coast MFLs Public Workshop Announcement

Date: Tuesday, June 21, 2011 3:54:43 PM

Greetings:

Thanks for your recent participation and/or interest in the Southwest Florida Water Management District's Springs Coast Minimum Flows and Levels Public Workshop series. The District has scheduled the next workshop for Monday, July 18, 2011 at 1:30 PM in Room 166 of the Lecanto Government Services Building. The building is located at 3600 West Sovereign Path in Lecanto, Florida.

An agenda for the upcoming workshop and relevant materials that may be reviewed prior to the event will be posted on the web page dedicated to the workshop series at the District web site. The page may be found at:

www.WaterMatters.org/SpringsCoastMFL

or

http://www.swfwmd.state.fl.us/projects/mfl/springs-coast-mfl.php

I look forward to seeing you at the July workshop. Please feel free to contact me with any questions or comments concerning the workshop, development of minimum flows and levels or other water management issues.

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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MEETING NOTICE

Springs Coast Minimum Flows and Levels Public Workshop Agenda

Monday, July 18, 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. Sea level rise and minimum flows development, Doug Leeper (SWFWMD) (*20 minutes*)
3. Discharge measurement and use for minimum flows development, Kevin Grimsley (United States Geological Survey) and Doug Leeper (SWFWMD) *(20 minutes)*
4. Water Use Permitting Overview, Paul Williams (SWFWMD) *(20 minutes)*
5. Groundwater and withdrawal impact modeling, Ron Basso (SWFWMD) *(20 minutes)*
6. Public Input *(3 minutes per individual)*
7. Scheduling of Next Workshop and Identification of Topics *(5 minutes)*
8. Adjournment

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

Southwest Florida Water Management District
Springs Coast Minimum Flows and Levels Public Workshop
July 18, 2011
Lecanto, Florida

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

July 18, 2011
Lecanto, Florida

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

July 18, 2011
Lecanto, Florida

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- Ron Basso		
- Darcy Brace - Veronica Craw		
- Merle Hammond - Marty Kelly		
- Doug Leeper - Barbara Matrone		
- Gary Williams - Paul Williams		
- Cara Martin - Dave DeWitt		

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

July 18, 2011
Lecanto, Florida

Stakeholder Representatives

Stakeholder Group	Designated Representative	Signature	E-Mail
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Chassahowitzka River Restoration Committee	Brad Rimbey		BWR.CRRC@tampabay.rr.com
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SIERRA CLUB	WHITEY MARKLE		whmarkle@gmail.com

Springs Coast Minimum Flows and Levels Public Workshop

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

July 18, 2011

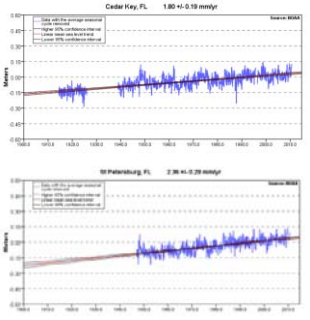
Workshop Outline

JULY 2011

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

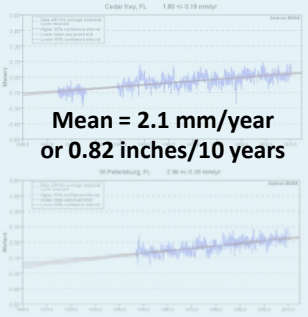
Sea Level Rise and Minimum Flows and Levels

Regional Sea Level Trend



Source of Images: Mean Sea Level Trends for Stations in Florida page of the National Oceanic and Atmospheric Administration Tides and Currents web site at http://tidesandcurrents.noaa.gov/sltrends/sltrends_states.shtml?region=fl/

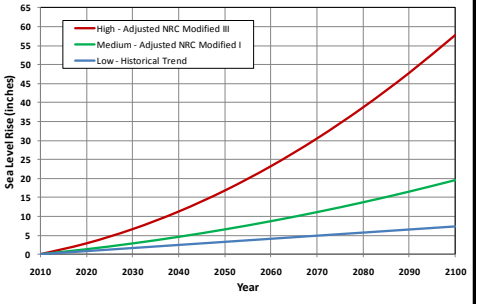
Mean Regional Sea Level Trend



Mean = 2.1 mm/year
or 0.82 inches/10 years

Source of Images: Mean Sea Level Trends for Stations in Florida page of the National Oceanic and Atmospheric Administration Tides and Currents web site at http://tidesandcurrents.noaa.gov/sltrends/sltrends_states.shtml?region=fl/

Sea Level Rise Projections Relative to Conditions in 2010

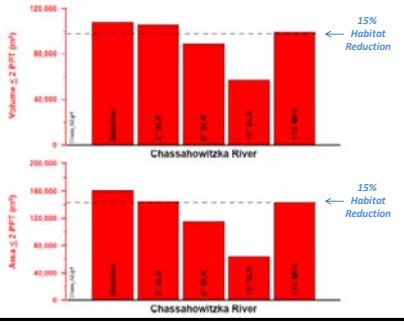


Based on soon to be released update to U.S. Army Corps of Engineers method outlined in Circular No. 1165-2-211

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

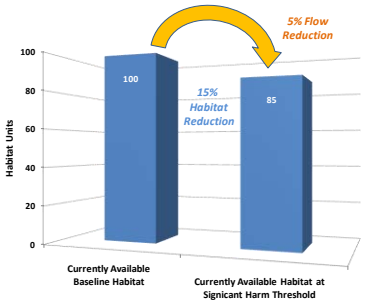
Example

- Chassahowitzka River Volume & Area Where Salinity <=2 -



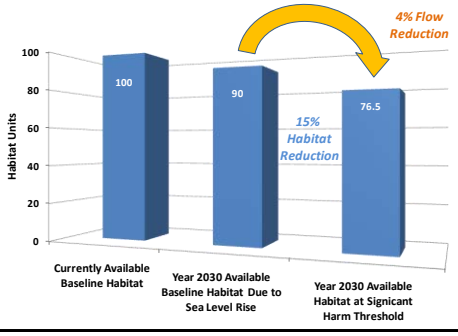
SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Conceptual Approach for Evaluating Sea Level Rise for Minimum Flows Development



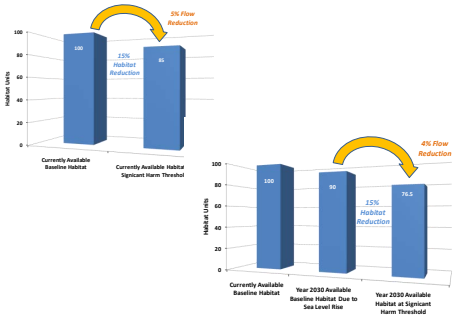
SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Conceptual Approach for Evaluating Sea



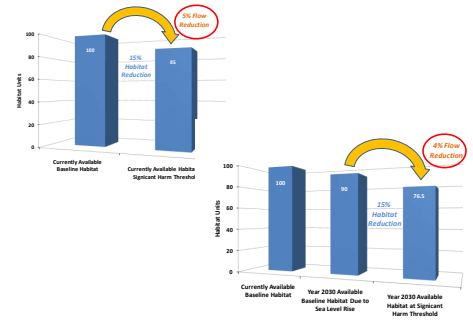
SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Conceptual Approach for Evaluating Sea Level Rise for Minimum Flows Development



SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Conceptual Approach for Evaluating Sea Level Rise for Minimum Flows Development



SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Discharge Measurement and Use

Use of Discharge Data

- Characterizing benchmark or baseline flows
- Evaluating existing and future withdrawal impacts on flows
- Model development (salinity models; thermal refuge models; groundwater flow models; biological response models)

Slides by Kevin Grimsley (USGS)

Water-Use Permitting Overview

Southwest Florida Water Management District

Overview of Water Use Permitting

Water Use Allocation Practices *Statutes/Rules*

- Ch. 373 F. S.: Enabling Legislation
- 40D-2 Rules: Consumptive Use of Water
- Basis of Review: Provides greater details (adopted by Rule)
- 40D-8 Rules: Water Levels And Rates of Flow
- 40D-80 Rules: Recovery and Prevention Strategies for Minimum Flows and Levels

Water Use Permitting Guiding Statute

- Ch. 373.223 Florida Statutes:
  "Three Prong Test" for issuing a permit.
  The use must:
  (1) **Be reasonable-beneficial**,
  (2) **Not Interfere with existing legal uses, and**
  (3) **Be consistent with the public interest.**

18

Water Use Permitting Reasonable-Beneficial

- "**Reasonable-beneficial use**" means the use of water in such quantity as is necessary for economic and efficient utilization for a purpose and in a manner which is both reasonable and consistent with the public interest.

Water Use Permitting Public Interest

- Includes items expressed in the public policies within Ch. 373 and Ch. 403, F.S., such as:
  - Water conservation
  - Sustainability
  - Preservation of natural resources
  - Development/use of alternative sources
  - Protection/improvement of water quality

Water Use Permitting Non-interference

- Impact of withdrawal on other legal uses
  - Permitted uses
  - Exempt uses (e.g., domestic wells)
  - The legal use must have preceded the new use to be afforded protection
- Uses protected include:
  - domestic wells
  - other permitted production wells
  - downstream withdrawals
  - ponds used for a purpose (e.g., aquaculture)

40D-2.301 Conditions for Issuance

(1) In order to obtain a Water Use Permit, an Applicant must demonstrate that the water use is reasonable and beneficial, is in the public interest, and will not interfere with any existing legal use of water, by providing reasonable assurances, on both an individual and a cumulative basis, that the water use:

(a) Is necessary to fulfill a certain reasonable demand;
(b) Will not cause quantity or quality changes that adversely impact the water resources, including both surface and ground waters;
(c) Will comply with the provisions of 4.2 of the Basis of Review incorporated by reference in Rule 40D-2.091 F.A.C., regarding adverse impacts to wetlands, lakes, streams, estuaries, fish and wildlife or other natural resources; (d) Will not interfere with a reservation of water as set forth in Rule 40D-2.302, F.A.C.
(d) Will not interfere with a reservation of water as set forth in Rule 40D-2.302, F.A.C.

40D-2.301 Conditions for Issuance

(e) Will comply with the provisions of 4.3 of the WUP Basis of Review, incorporated by reference in Rule 40D-2.091, F.A.C., regarding minimum flows and levels (MFLs).
(f) Will utilize the lowest water quality the Applicant has the ability to use, provided that its use does not interfere with the recovery of a water body to its established MFL and it is not a source that is either currently or projected to be adversely impacted.
(g) Will comply with the provisions of 4.5 of the WUP Basis of Review, incorporated by reference in Rule 40D-2.091, F.A.C., regarding saline water intrusion.
(h) Will not cause pollution of the aquifer.
(i) Will not adversely impact offsite land uses existing at the time of the application.

40D-2.301 Conditions for Issuance

(j) Will not adversely impact an existing legal withdrawal.
(k) Will incorporate water conservation measures.
(l) Will incorporate use of alternative water supplies to the greatest extent practicable.
(m) Will not cause water to go to waste.
(n) Will not otherwise be harmful to the water resources within the District.

WUP Conditions For Issuance Basis of Review

- Provides considerable detail on the items listed in the Conditions for Issuance
- In many cases, provides specific Performance Standards
- Enables applicants and their consultants to understand what is required to support an application
- Provides guidance and consistency for staff evaluators

Comparison of Demand Base

- Agriculture: Optimum Crop Growth
- Public Supply: Population and Per Capita Rate
- Mining/Industry: Extraction and/or Processing Needs
- Recreation: Landscape Irrigation

WUP Conditions For Issuance 40D-8 Rules

Minimum Flows and Levels prescribed in Chapter 40D-8, F.A.C., are used in water resource planning, as one of the criteria in evaluating applications for water use permits under Chapter 40D-2, F.A.C.

Minimum Flows and Levels are intended to prevent significant harm to the water resources or ecology of the area as provided in Section 373.042, F.S.

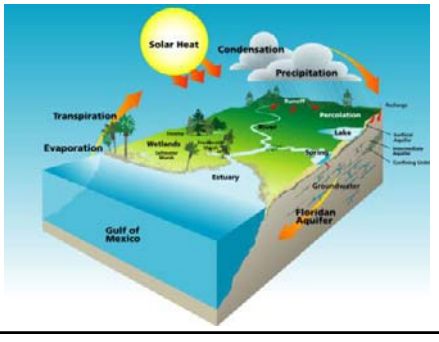
WUP Conditions For Issuance 40D-80 Rules

In areas where existing flows or levels are below, or projected to fall within 20 years below, the applicable Minimum Flow or Level, the District is expeditiously implementing a prevention or recovery strategy for those waters with the intent to prevent water flows and levels from falling below, or to achieve recovery to the established Minimum Flow or Level as soon as practicable, whichever is applicable.

Hydrologic Permitting Analysis Tools

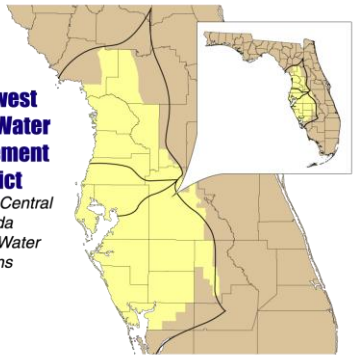
- District Wide Regulation Model: Digital Model to focus primarily on local evaluation
- Northern District Model: Digital Model to focus primarily on regional evaluation
- Hydrologic Investigation: Review District, USGS, MFL reports and other hydrologic data for analysis of conditions
- Field Inspections: Local conditions evaluation and monitoring locations.

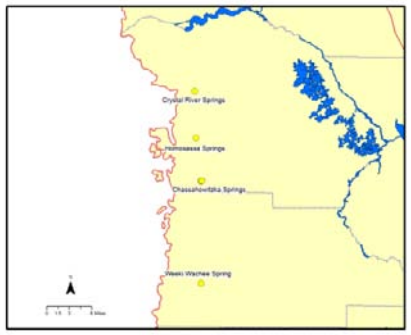
Groundwater Flow and Withdrawal Impact Modeling

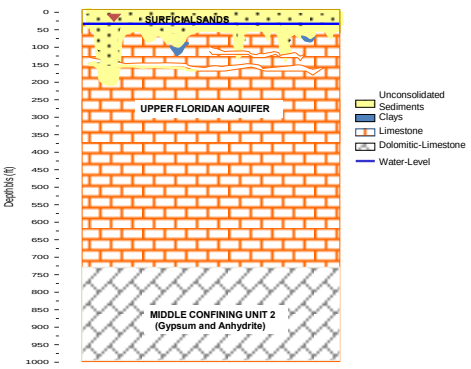


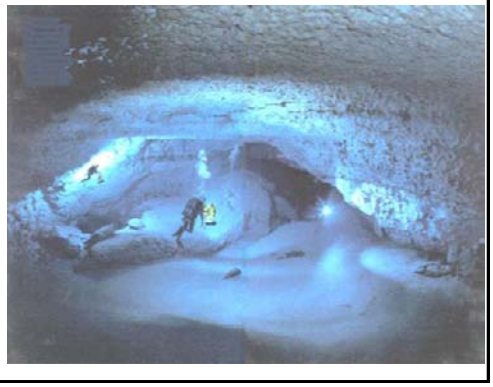
Southwest Florida Water Management District

with West-Central Florida Ground-Water Basins

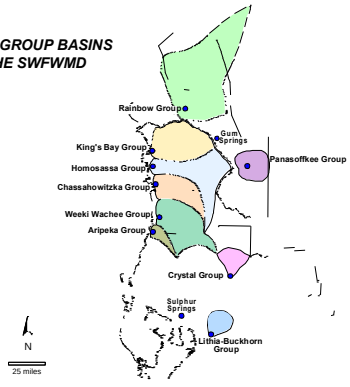




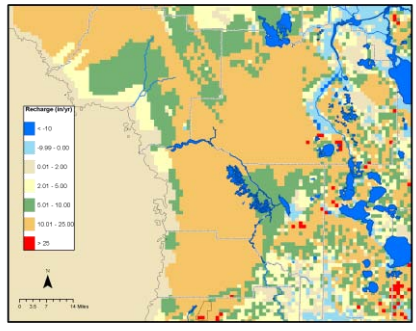


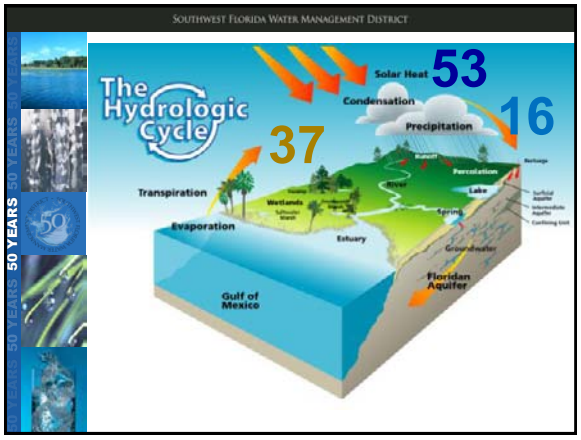


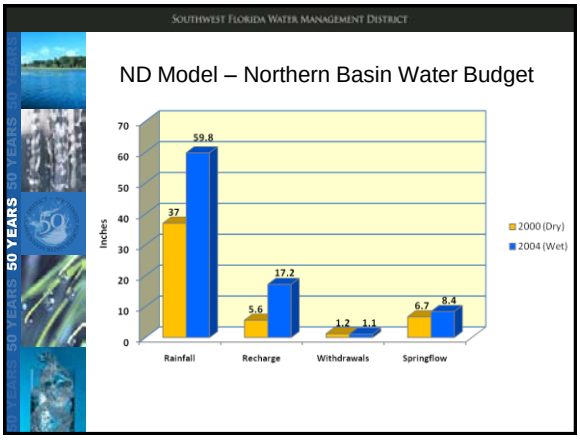
SPRING GROUP BASINS IN THE SWFWMD

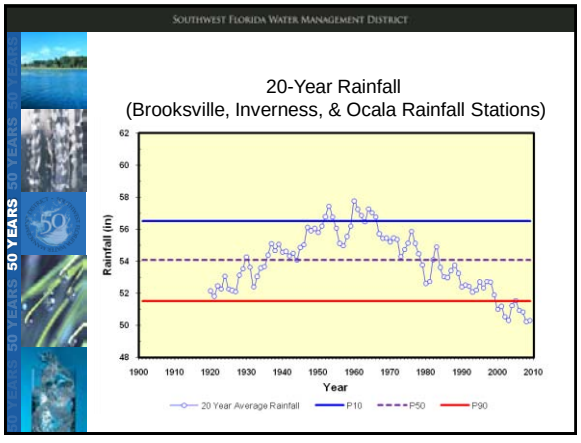


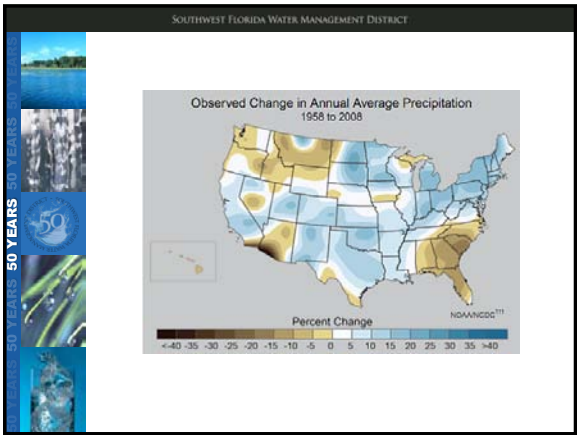
Recharge to the Upper Floridan Aquifer - USGS Mega Model (1993)

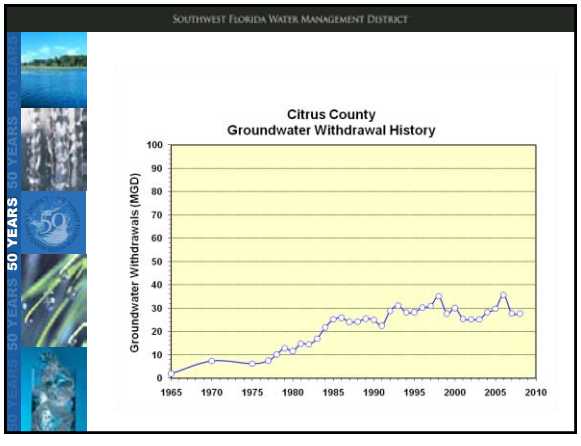


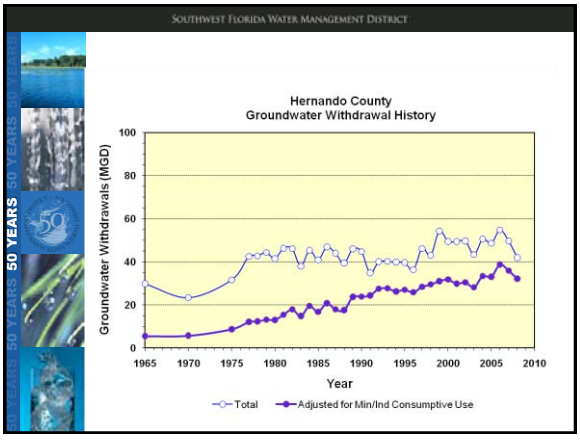

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
50 YEARS
The Hydrologic Cycle
Solar Heat
53
Condensation
Precipitation
16
37
Transpiration
Evaporation
Percolation
River
Lake
Spring
Estuary
Groundwater
Floridan Aquifer
Gulf of Mexico

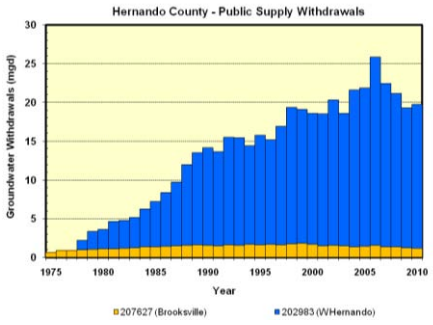

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
50 YEARS
ND Model – Northern Basin Water Budget
Inches
70
60
50
40
30
20
10
0
59.8
37
17.2
5.6
1.2
1.1
6.7
8.4
Rainfall
Recharge
Withdrawals
Springflow
2000 (Dry)
2004 (Wet)

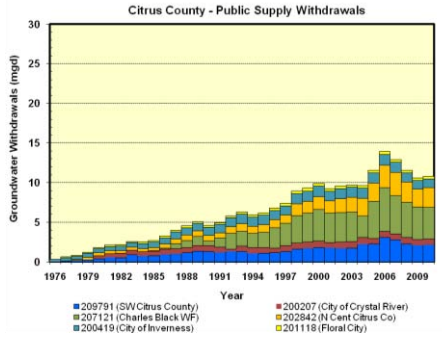

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
50 YEARS
20-Year Rainfall
(Brooksville, Inverness, & Ocala Rainfall Stations)
Rainfall (in)
62
60
58
56
54
52
50
48
1900
1910
1920
1930
1940
1950
1960
1970
1980
1990
2000
2010
Year
20 Year Average Rainfall
P10
P50
P90


SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
50 YEARS
Observed Change in Annual Average Precipitation
1958 to 2008
Percent Change
<-40 -35 -30 -25 -20 -15 -10 -5 0 5 10 15 20 25 30 35 >40
NOAA/NCDC

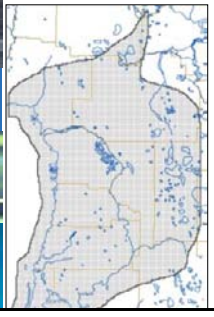

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
50 YEARS
Citrus County
Groundwater Withdrawal History
Groundwater Withdrawals (MGD)
100
90
80
70
60
50
40
30
20
10
0
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010


SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
50 YEARS
Hernando County
Groundwater Withdrawal History
Groundwater Withdrawals (MGD)
100
80
60
40
20
0
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
Year
Total
Adjusted for Min/Ind Consumptive Use

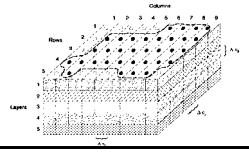




ND Model



- Layer 1 – Surficial Aquifer
- Layer 2 – Intermediate Confining Unit (Hawthorn)
- Layer 3 – Upper Floridan Aquifer (Suwanee)
- Layer 4 – Upper Floridan Aquifer (Ocala)
- Layer 5 – Upper Floridan Aquifer (Upper Avon Park)
- Layer 6 – Middle Confining Unit
- Layer 7 – Lower Floridan Aquifer (Lower Avon Park/Oldsmar)



ND Model Status

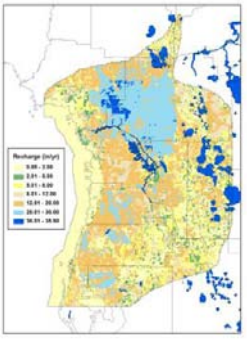
Calibrated to Average 1995 Conditions, 1996 through 2006

Version 1.0 Completed in 2008

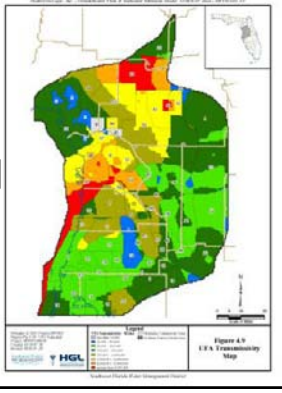
Version 2.0 Completed in 2010

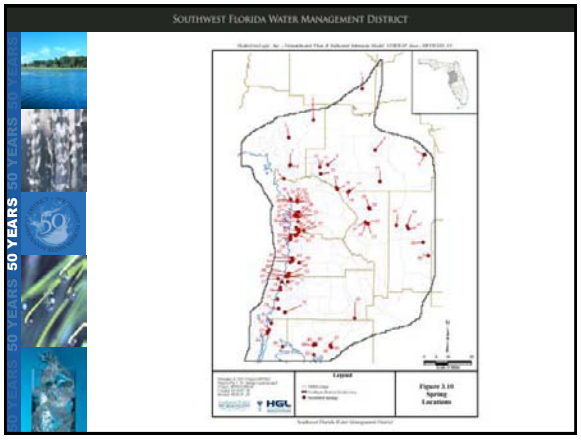
Version 3.0 August 2011

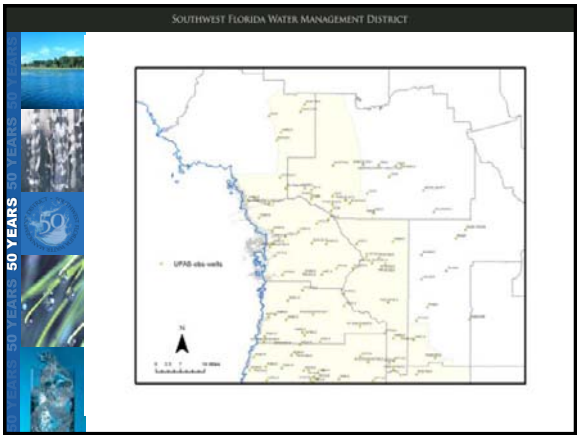
NDM Recharge

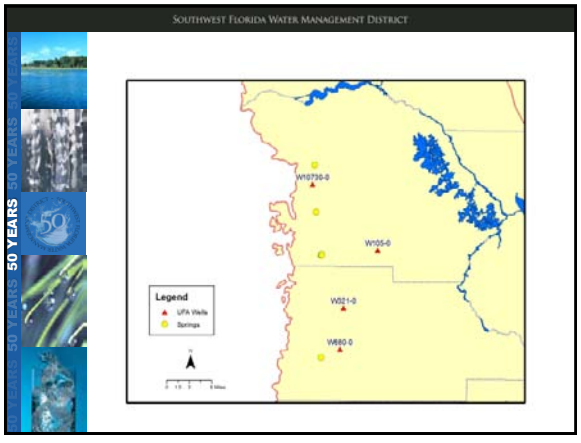


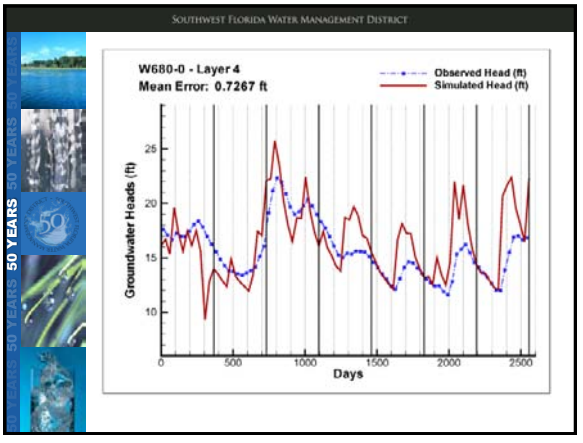
UFA Transmissivity

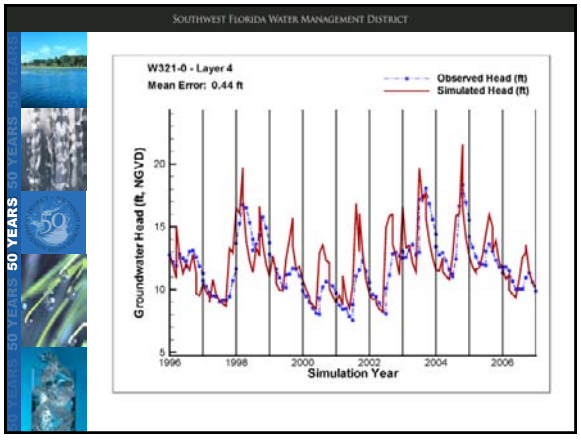


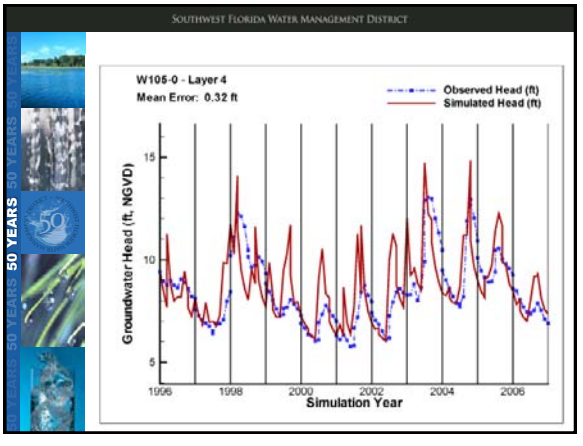

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
50 YEARS

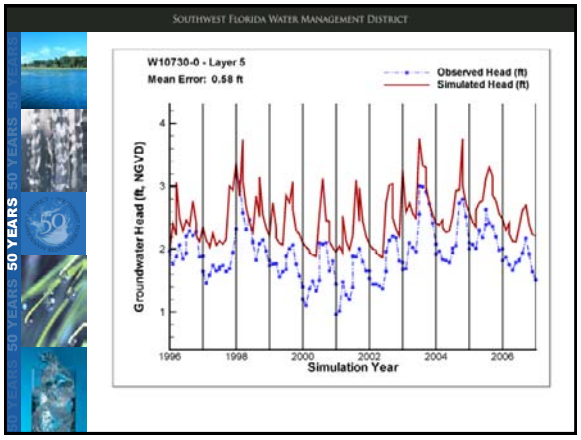

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
50 YEARS

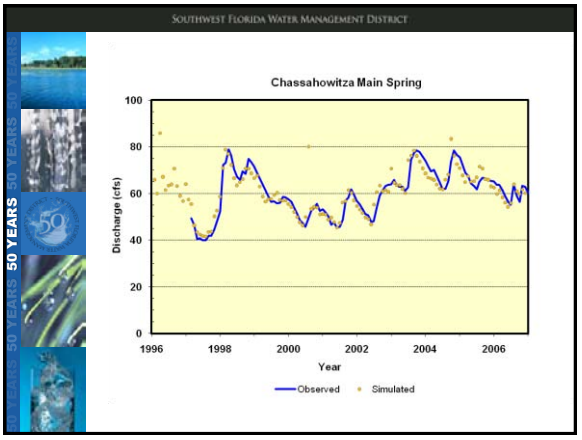

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
50 YEARS
W0730-0
W105-0
W321-0
W680-0
Legend
UFA Wells
Springs

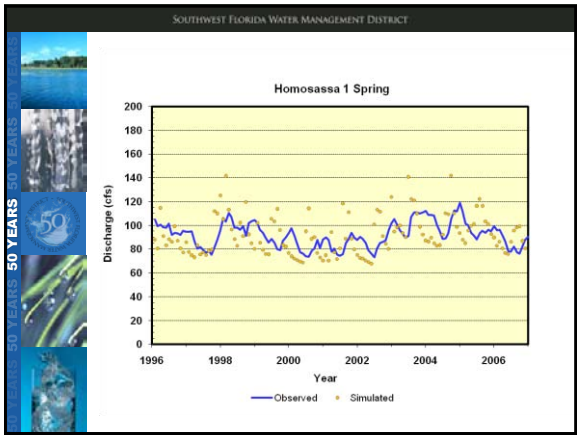

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
50 YEARS
W680-0 - Layer 4
Mean Error: 0.7267 ft
Observed Head (ft)
Simulated Head (ft)
Groundwater Heads (ft)
Days

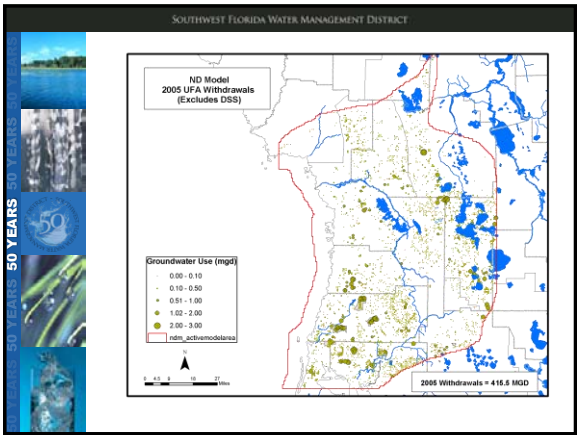

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
50 YEARS
W321-0 - Layer 4
Mean Error: 0.44 ft
Observed Head (ft)
Simulated Head (ft)
Groundwater Head (ft, NGVD)
Simulation Year

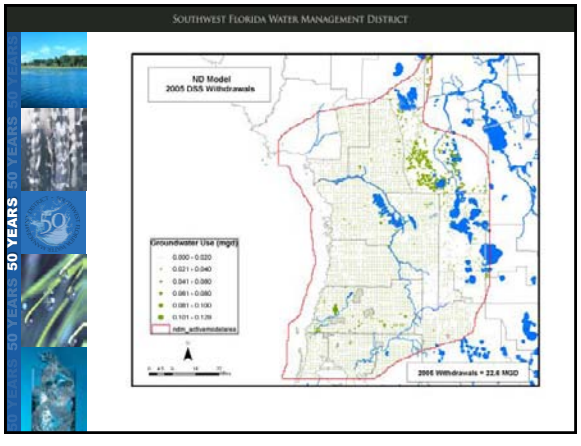

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
50 YEARS
W105-0 - Layer 4
Mean Error: 0.32 ft
Observed Head (ft)
Simulated Head (ft)
Groundwater Head (ft, NGVD)
Simulation Year

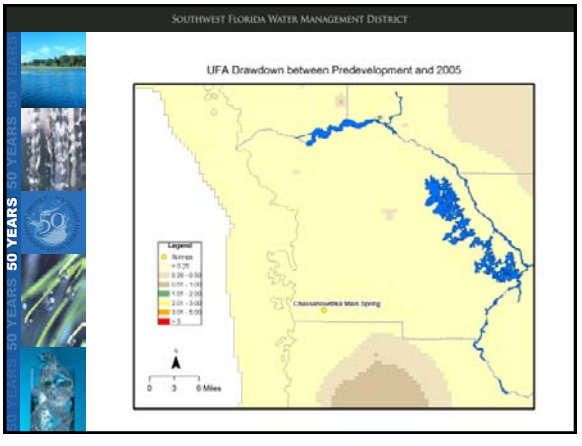

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
50 YEARS
W10730-0 - Layer 5
Mean Error: 0.58 ft
Observed Head (ft)
Simulated Head (ft)
Groundwater Head (ft, NGVD)
Simulation Year
1996
1998
2000
2002
2004
2006

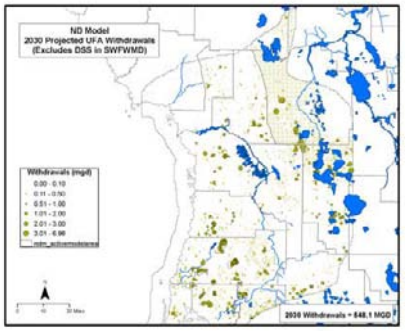

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
50 YEARS
Chassahowitza Main Spring
Discharge (cfs)
Year
Observed
Simulated

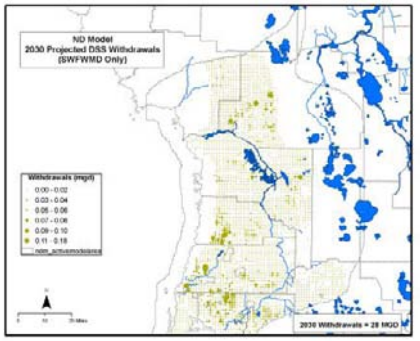

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
50 YEARS
Homosassa 1 Spring
Discharge (cfs)
Year
Observed
Simulated


SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
50 YEARS
ND Model
2005 UFA Withdrawals
(Excludes DSS)
Groundwater Use (mgd)
2005 Withdrawals = 415.5 MGD

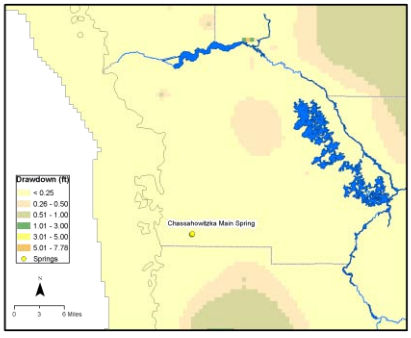

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
50 YEARS
ND Model
2005 DSS Withdrawals
Groundwater Use (mgd)


SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
50 YEARS
UFA Drawdown between Predevelopment and 2005
Legend
0 3 6 Miles



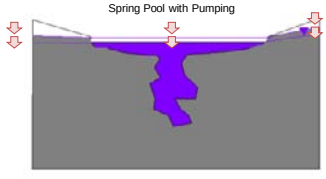


UFA Drawdown between Predevelopment and 2030



Spring Pool with No Pumping

Spring Pool with Pumping



Northern District Model Results

Simulated Change in Springflow due to 2005 and Projected 2030 Groundwater Use

Spring Name	Discharge for Non-Pumping Scenario (cfs)	Discharge for 2005 Pumping Scenario (cfs)	Difference (cfs)	Percent Difference	Discharge for 2030 Pumping Scenario (cfs)	Difference (cfs)	Percent Difference
Chassahowitzka 1	64.2	63.5	-0.7	**-1.0**	62.9	-1.3	**-2.0**
Crab Creek	34.4	33.9	-0.5	**-1.3**	33.5	-0.9	**-2.6**
Potter's Creek	13.8	13.7	-0.1	**-0.9**	13.6	-0.3	**-1.9**
Total	112.4	111.1	-1.3	**-1.1**	110.0	-2.5	**-2.2**

ND Model – Predicted changes in Discharge (Current)

Spring Name	Discharge for Non-Pumping Scenario (cfs)	Discharge for 2005 Pumping Scenario (cfs)	Difference (cfs)	Percent Difference
Abdoney Spring	4.98	4.93	-0.05	-0.9
Belcher Spring	4.98	4.89	-0.10	-2.0
Halls River 1 Spring	5.00	4.95	-0.05	-0.9
Halls River Head Main Spg	102.11	101.06	-1.05	-1.0
Hidden River Head Spring	6.61	6.35	-0.26	-4.0
Homosassa 1 Spring	71.65	70.98	-0.67	-0.9
Mcclain Spring	4.98	4.93	-0.05	-0.9
Pumphouse Spring	4.97	4.92	-0.05	-0.9
Trotter 1	4.97	4.93	-0.05	-0.9
Total	210.2	207.9	-2.31	-1.1

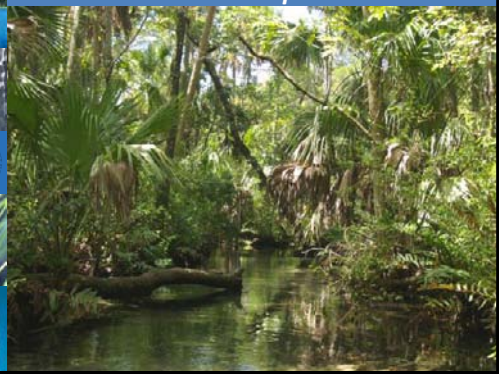
ND Model – Predicted changes in Discharge (2030)

Spring Name	Discharge for Non-Pumping Scenario (cfs)	Discharge for 2030 Pumping Scenario (cfs)	Difference (cfs)	Percent Difference
Abdoney Spring	4.98	4.87	-0.11	-2.1
Belcher Spring	4.98	4.77	-0.21	-4.3
Halls River 1 Spring	5.00	4.90	-0.10	-2.1
Halls River Head Main Spg	102.11	99.76	-2.35	-2.3
Hidden River Head Spring	6.61	6.05	-0.56	-8.5
Homosassa 1 Spring	71.65	70.16	-1.49	-2.1
Mcclain Spring	4.98	4.87	-0.11	-2.1
Pumphouse Spring	4.97	4.87	-0.10	-2.1
Trotter 1	4.97	4.87	-0.10	-2.0
Total	210.2	205.12	-5.13	-2.4

Nature Coast Springs - Impact Summary

High Recharge, Karst Geology
Long-term decline in Rainfall
Low magnitude withdrawals near springs
Groundwater Impacts to Springflow are very small

Public Input



What's Next

- Next workshop to be scheduled for August 2011 in Lecanto.
- Meeting information to be posted on the workshop web site.
- Workshop agenda and announcement also to be distributed by e-mail.

Next Workshop

- Tentative Agenda -

AUGUST 2011

- Significant harm
- Modeling of salinity-based habitats and thermal refuges for manatees
- Modeling other biological responses to flow changes
- Water quality issues
- Identification of follow-up District actions
- Public input

Contact Information

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Web Site: watermatters.org

From: Kevin J Grimsley
To: Doug Leeper
Cc: Richard L Kane
Subject: Re: Fw: Springs Coast MFLs Workshop Date & New Documents on Web Page
Date: Wednesday, August 10, 2011 2:36:10 PM

Hi Doug,

I'm still working on getting a detailed response ready for each of Mr Johnson's complaints, but I wanted to go ahead and get you a pdf of the presentation I made at the previous meeting. I had to pass it through our publications review which took a little while, but it's good to go now. Let me know if you have any problems getting it from our ftp site.

ftp://ftpint.usgs.gov/pub/er/fl/tampa/Grimsley/Springs.pdf

****
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813-498-5064
****

From: Richard L Kane/WRD/USGS/DOI
To: Kevin J Grimsley/WRD/USGS/DOI
Cc: doug.leeper@swfwmd.state.fl.us
Date: 08/08/2011 12:54 PM
Subject: Fw: Springs Coast MFLs Workshop Date & New Documents on Web Page

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Kevin please be send Doug the approved version of the PPT and rebuttal letter when you get back to Tampa. Thanks.

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----- Forwarded by Richard L Kane/WRD/USGS/DOI on 08/08/2011 12:53 PM -----

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Date: 08/08/2011 12:35 PM

Subject: Springs Coast MFLs Workshop Date & New Documents on Web Page

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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.

Douglas A. Leeper, Chief Environmental Scientist
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USGS and Discharge Computation at Springs in West-Central Florida

Outline

- History of USGS in Florida
- Discharge Measurements
- Computing continuous discharge
  - Stage – Discharge
  - Index Velocity
  - Spring Regressions
- Chassahowitzka River measurement locations
- Gage locations

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History of USGS in Florida

- The first discharge measurements made in Florida were by the USGS at Silver Springs near Ocala and Rainbow Springs near Dunellon in December, 1898.
  - Weeki Wachee - 02310500 – 1904
  - Chassahowitzka - 02310650 – 1930
  - Homosassa - 02310678 – 1930
  - Crystal River - 02310750 – 1964
- First office opened August 4, 1930, in Ocala

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Discharge Measurements

- Discharge measurements are routinely made on a bimonthly to quarterly schedule
  - High-intensity 12-25-hour measurements as needed
- Measurements are normally made using an Acoustic Doppler Current Profiler (ADCP)
  - uses sound waves like a sonar to measure water velocity
  - also produces a depth contour and calculates a cross-sectional area
- Discharge = Velocity × Area ($Q = V \times A$)

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Discharge Measurement

Making a traditional wading measurement

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ADCP Measurement

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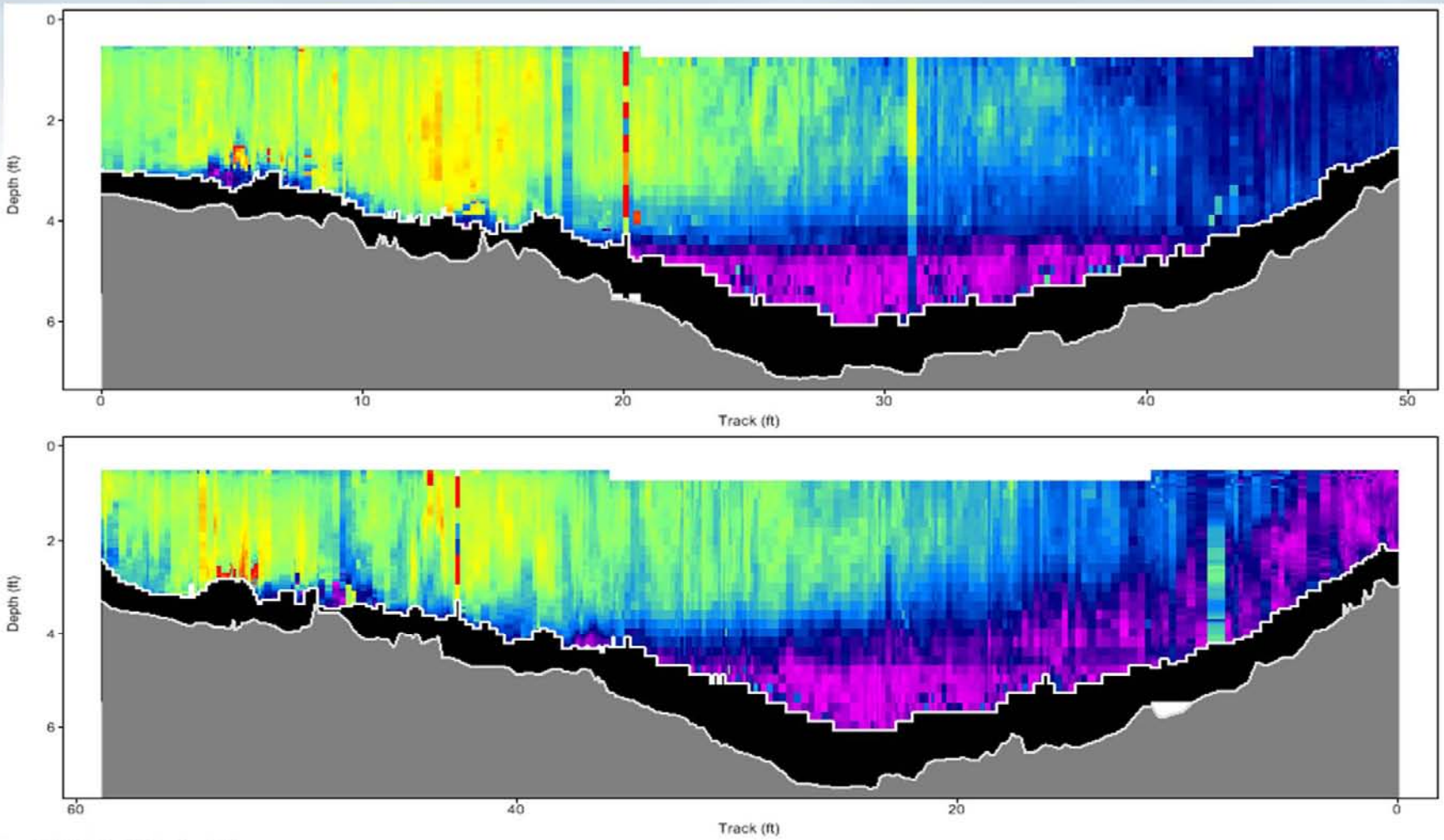
Making an ADCP measurement using a tethered boat

ADCP Measurement



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Output from ADCP where colors represent different water velocities - purple colors represent bidirectional (upstream) flow

Computing Continuous Discharge
Stage – Discharge Method

- Stage – Discharge is the “simplest” method
- Discharge measurements are plotted vs water level data to define a relationship curve (rating)
- Continuous water levels are recorded using float/encoder systems or pressure transducers
- The rating is used to compute discharge as a function of continuous water levels
  - Valid for approximately 90% of discharge gages
  - Cannot be used at stations with tidal influence

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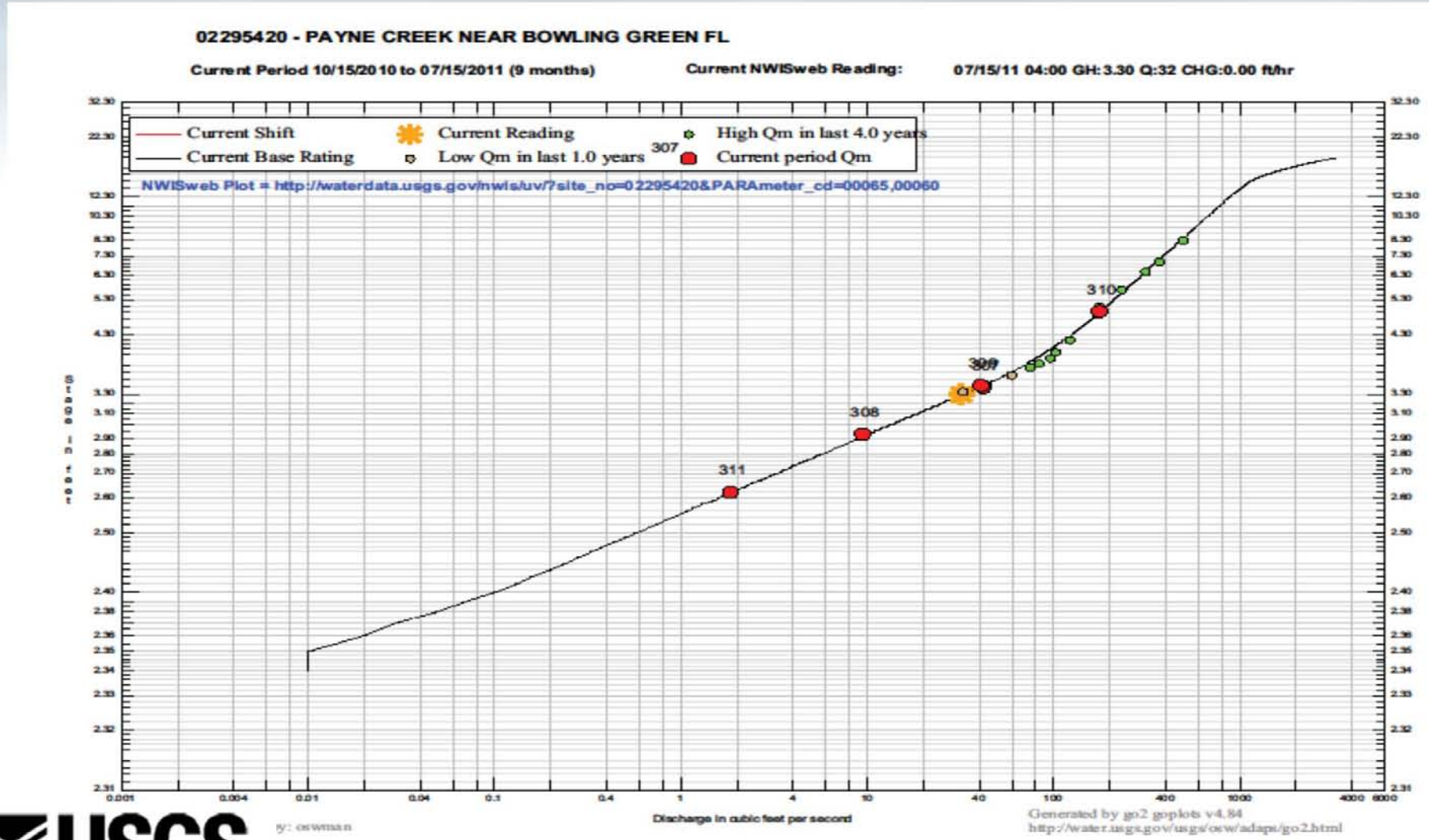
Stage – Discharge Rating Curve



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Continuous Discharge
Index Velocity

- Used at sites where flow is affected by tidal or other backwater influences
- Uses a velocity meter to directly measure velocity
  - Water level is used to calculate cross-sectional area
- Used at
  - 02310700 – Homosassa River @ Homosassa
  - 02310545 – Weeki Wachee nr Weeki Wachee Springs
  - 02310663 – Chassahowitzka River nr Chassahowitzka
  - 02310747 – Crystal River @ Bagley Cove

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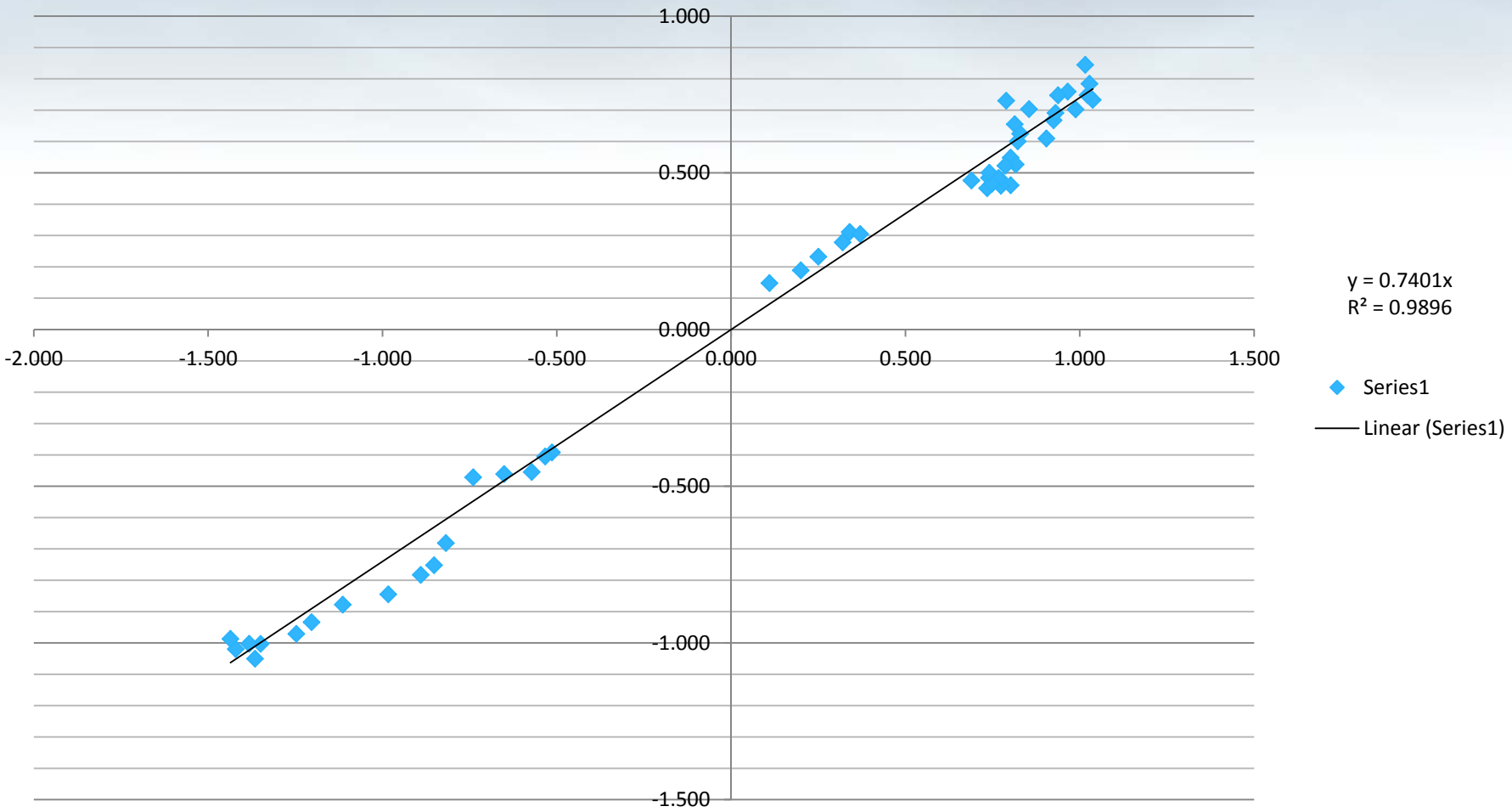
Index Velocity Rating



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Plot of mean stream velocity from measurements vs "index" velocity from the continuous recorder

Continuous Discharge
Spring Regressions

- Hybrid methodology
- Regression can be as simple as a single variable
  - For a spring, the dominant factor is groundwater level
  - 02310525 – Weeki Wachee River
- For springs where there is a tidal influence, the regressions require additional variables to account for water level changes caused by tides
  - 02310650 – Chassahowitzka River near Homosassa
  - 02310678 – Homosassa Springs
  - 02310688 – SE Fork Homosassa Springs

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Spring Regressions

- Discharge data from spring regressions were compared to discharge data from index-velocity computations
  - Homosassa spring compared within 5%
    - Index velocity data showed interference from manatees
  - At Chassahowitzka Spring, there was too much vegetation for the velocity meter to work properly
- There are preliminary plans to install velocity meters at SE Fork and Halls River next year
  - This will allow another comparison at SE Fork

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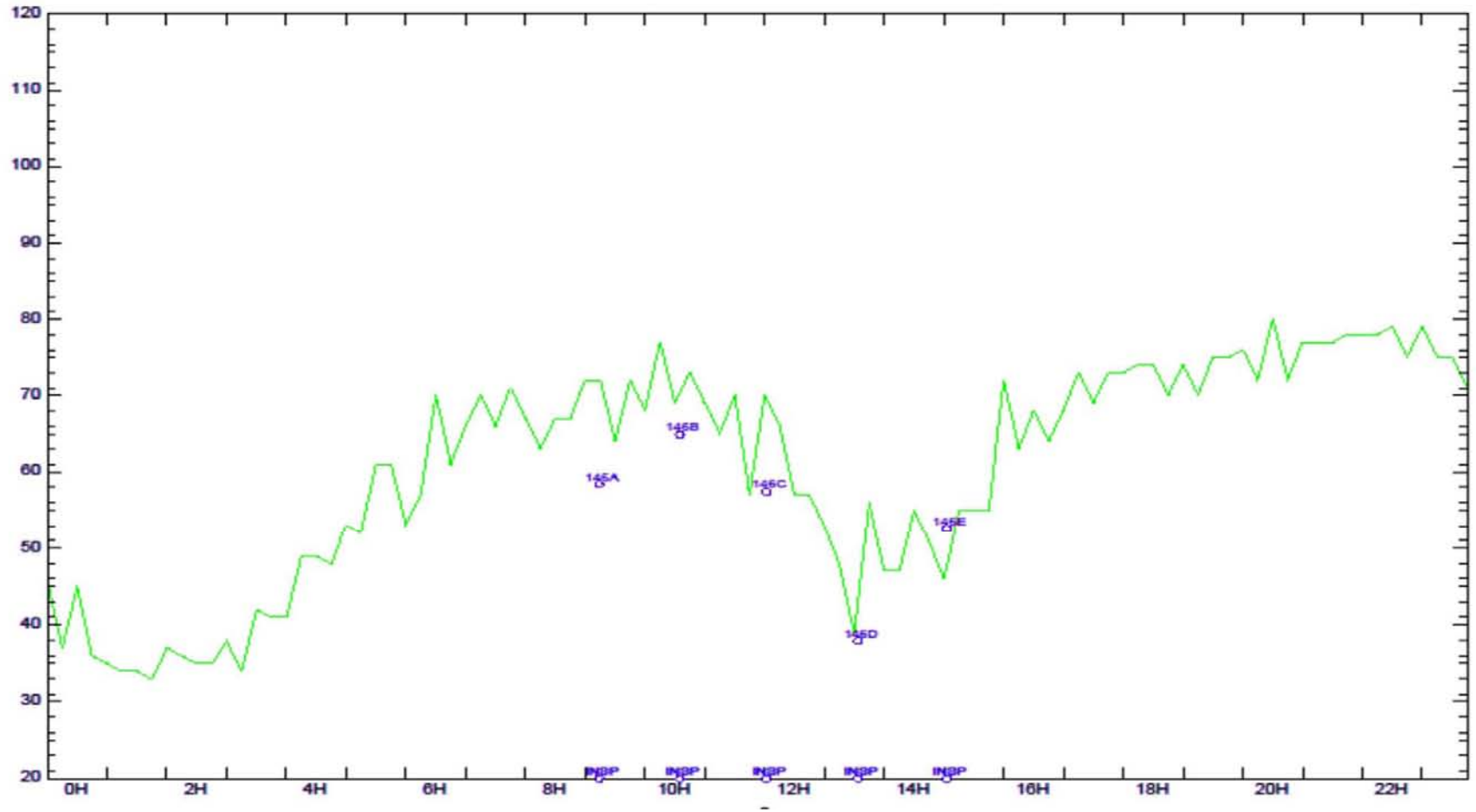
Comparison of Regression Discharge and Measurements



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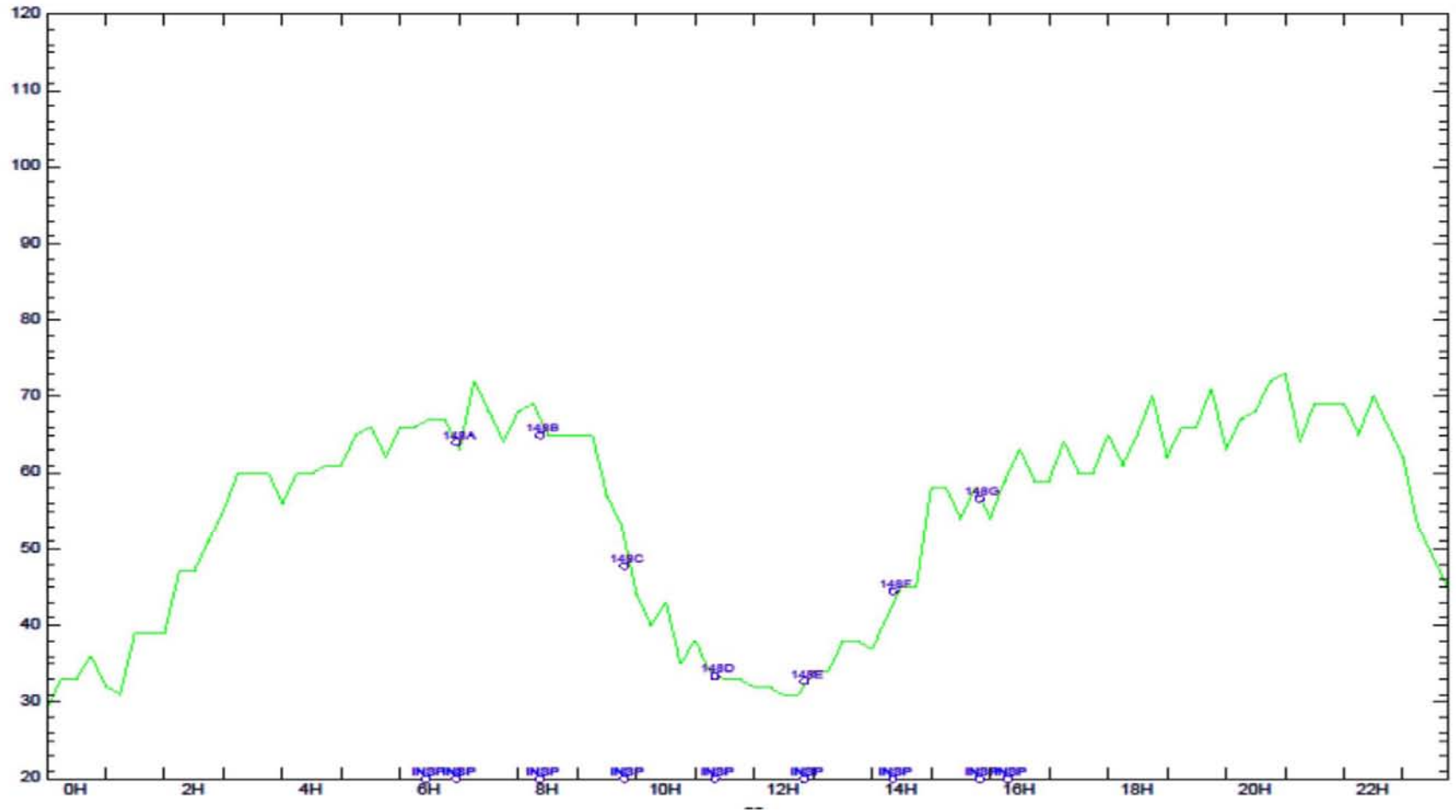
Comparison of computed discharge and discrete discharge measurements at Southeast Fork Homosassa Springs

Comparison of Regression Discharge and Measurements



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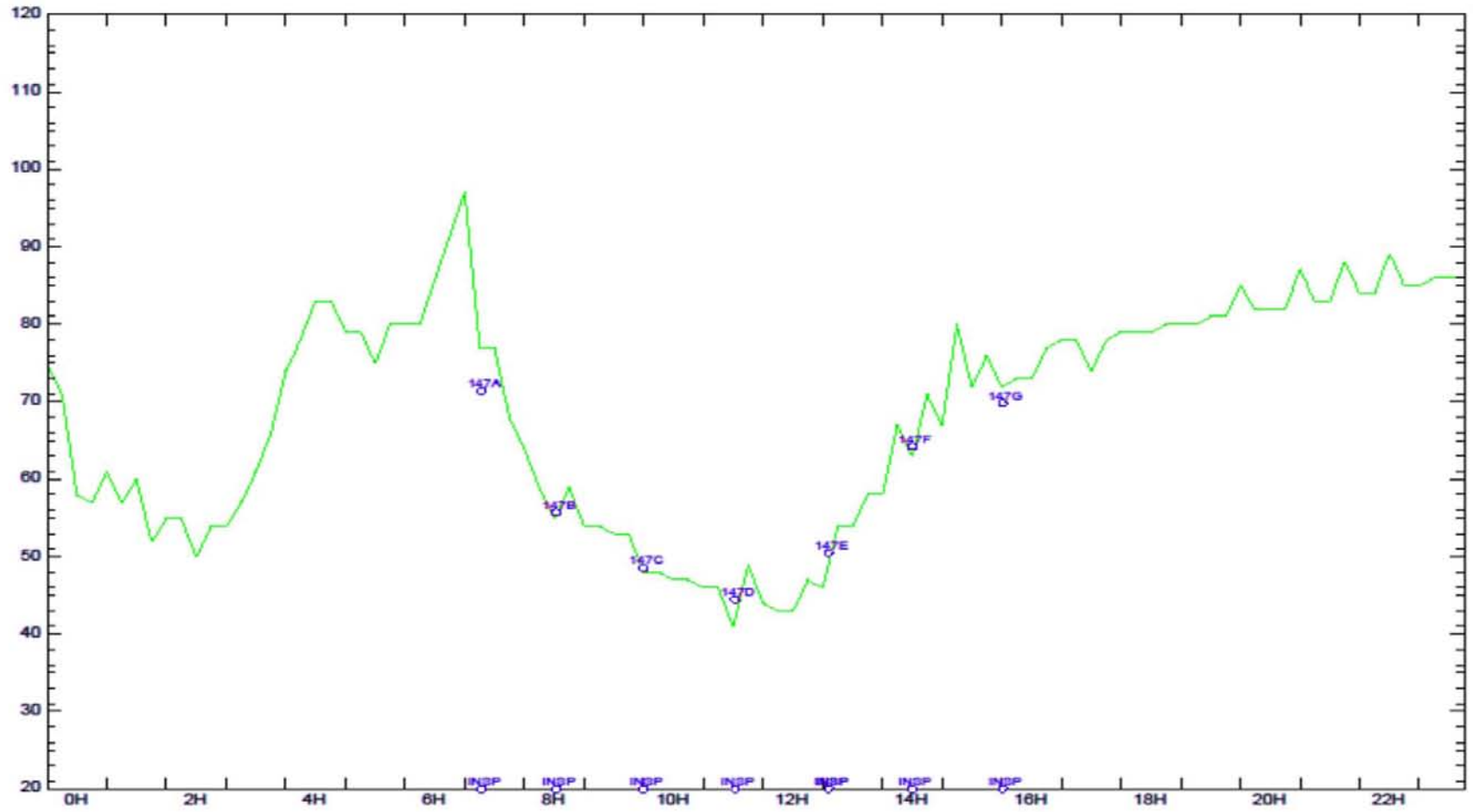
Comparison of computed discharge and discrete discharge measurements at Southeast Fork Homosassa Springs

Comparison of Regression Discharge and Measurements



USGS science for a changing world

Comparison of computed discharge and discrete discharge measurements at Southeast Fork Homosassa Springs

Chassahowitzka River Measurement Locations

- While entering historical paper written measurements into the database, we discovered that many older measurements had been made at a different location than is currently used
- The locations of measurements made between 1930 and 1988 varied between 2 cross-sections – above and below Crab Creek
- Measurements made after 1997 are all above Crab Creek

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Chassahowitzka River Measurement Locations

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Location of measurements varied between these two cross-sections prior to 1988

Florida Water Science Center

- Our data and publications are available online
  - http://fl.water.usgs.gov/
- USGS gage locations can be easily mapped using the NWIS Mapper web page
  - http://wdr.water.usgs.gov/nwisgmap/?state=fl

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For July 18, 2011 SWFWMD Workshop
Martyn Johnson

Unfortunately I am not able to attend the entire workshop as I am taking my 90 year old neighbor to his cardiologist. However, I would like to briefly address the following subjects:

1. Importance of accurate measurement of flows
2. Critical contribution of flow from the SE Fork and how it is changing.
3. Barnacle growth studies and observations.
4. Repeated use of questionable data.

Importance of accurate measurement of flows

I am sure Kevin Grimsley made a very interesting presentation regarding the flow measurements. However, I can only hope that he presented the questions that have been raised regarding the accuracy of some of the calculated flows.
I have raised a number of points about the flow from the South East Fork as this is the most critical source of good water into the Homosassa River. Flow measurements reported as Real Time Flows are in fact calculated figures from a formula. 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%. **Such changes in a 15 minute interval of spring discharge are just not realistic.**
The argument could be made that the changes are due to increases or decreases in the approximately 3 acre pool upstream of the gage site at the bridge on Fishbowl Drive. This argument does not hold as the cumulative water above or below average calculated flows would result in changes of level in the pool of over 1 foot greater than the tidal change during a tidal cycle. **Reality proves this is not so.**

I understand that an Acoustic Flow Measuring Device has been budgeted for this site. **This is long overdue as is a review of the equation in use.**

Some have argued that the daily average is still good...such thought is scientifically false; there is no way that you can get good data from bad data.

Questions have also been raised regarding measurements 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 (McRea's) is used to estimate flow from Halls River.
So, overall, there are some questions about the accuracy of flow measurements that need to be addressed. **A Flow Measurements Working Committee should be formed.**

Critical contribution of flow from the SE Fork and how it is changing.

Water quality from the South East Fork Springs is significantly better than from any of the other main springs and had been the major contributor to lower salinities in the upper reaches of the river. Carefully review of the chemical analyses indicates that there is deterioration. For example, 1997 study referenced in Water Resources Report 01-4230 page 31 linked on SWFWMD web page regarding this Workshop, the specific conductivity of water from the SE Fork is reported as: generally less than 500 microsiemens, current figures are typically 1100 microsiemens. That is significant change in 13 years. I could comment more about the other springs and combined effects, but time is limited here.

Barnacle Growth Studies and Observations

In the first public workshop regarding MFL for the Homosassa River extensive comment was made about deterioration of the river as evidenced by barnacle growth in the upper reaches which only a few years ago was unheard of. The idea of additional barnacle growth studies was acknowledged, but I have not heard anything since. The observations of long term residents are dismissed as hearsay or unscientific. This is disappointing. **Human observation regarding barnacle growth being a strong indicator of the deterioration of the river must not be ignored.**

Repeated use of Questionable data

There are numerous responses to questions by Doug Leeper and his staff, many are useful and show that our questions and concerns are not simply being ignored. But, I find it disturbing that data which has been shown to result from assumptions continues to be included in some answers. For example in a recent reply, posted as a link to this workshop on SWFMD's web site, Table 2 shows flow from each of the springs in the SE Fork, Abdoney, Belcher, McClain, Pumphouse and Trotter with equal flows 4.98 cfs. These figures are assumptions in the Model and not based on any empirical measurement. How many time do I need to mention this?
It also raises the question about how many other such assumptions are in the Northern District Model.
Similarly, I noted HSW Engineering continue to be awarded projects such as P.O. 11POSOW0482 which projects the effects of increase or decrease of sea level on the Homosassa River and uses the same flawed equation for the calculated flows from the SE Fork mentioned earlier. Interesting hypothetical study, but of no value. Changes have already been observed...barnacle growth within a few yards of the springs. **Salinity has arrived at the Homosassa Springs. Fact not fiction. Fact no assumption. Declines aquifer water levels, due most likely to excessive pumping are most likely the cause.**

USGS - SE For R - July 12-14, 20xx

Date / Time	Gage height, feet	Stream water level above NAVD 1988, feet	Dis-charge, ft3/s	Specif-ic conduc-tance, wat unf uS/cm @ 25 degC (near bottom)	Temper-ature, water, deg C (near bottom)	
07/12/2011 00:00 EST	0.72	0.1	62	990	24.3	
07/12/2011 00:15 EST	0.71	0.09	58	960	24.4	-7%
07/12/2011 00:30 EST	0.7	0.08	58	960	24.4	0%
07/12/2011 00:45 EST	0.7	0.08	54	960	24.4	-7%
07/12/2011 01:00 EST	0.72	0.1	45	960	24.4	-20%
07/12/2011 01:15 EST	0.75	0.13	41	960	24.3	-10%
07/12/2011 01:30 EST	0.78	0.16	41	950	24.3	0%
07/12/2011 01:45 EST	0.81	0.19	40	950	24.3	-3%
07/12/2011 02:00 EST	0.85	0.23	36	950	24.3	-11%
07/12/2011 02:15 EST	0.88	0.26	40	960	24.2	10%
07/12/2011 02:30 EST	0.92	0.3	35	950	24.2	-14%
07/12/2011 02:45 EST	0.96	0.34	35	950	24.2	0%
07/12/2011 03:00 EST	1	0.38	34	950	24.2	-3%
07/12/2011 03:15 EST	1.04	0.42	34	940	24.3	0%
07/12/2011 03:30 EST	1.08	0.46	33	940	24.3	-3%
07/12/2011 03:45 EST	1.11	0.49	37	940	24.2	11%

07/12/2011 04:00 EST	1.14	0.52	37	940	24.3	0%
07/12/2011 04:15 EST	1.16	0.54	41	940	24.3	10%
07/12/2011 04:30 EST	1.17	0.55	45	950	24.2	9%
07/12/2011 04:45 EST	1.17	0.55	49	950	24.2	8%
07/12/2011 05:00 EST	1.16	0.54	53	950	24.2	8%
07/12/2011 05:15 EST	1.14	0.52	58	950	24.1	9%
07/12/2011 05:30 EST	1.12	0.5	58	950	24.1	0%
07/12/2011 05:45 EST	1.1	0.48	58	960	24.1	0%
07/12/2011 06:00 EST	1.09	0.47	54	960	24.1	-7%
07/12/2011 06:15 EST	1.07	0.45	59	960	24.1	8%
07/12/2011 06:30 EST	1.05	0.43	59	960	24.1	0%
07/12/2011 06:45 EST	1.03	0.41	59	960	24.1	0%
07/12/2011 07:00 EST	1.01	0.39	59	960	24.1	0%
07/12/2011 07:15 EST	1	0.38	55	960	24.1	-7%
07/12/2011 07:30 EST	0.99	0.37	55	970	24.1	0%
07/12/2011 07:45 EST	0.98	0.36	55	970	24.2	0%
07/12/2011 08:00 EST	0.99	0.37	47	970	24.2	-17%
07/12/2011 08:15 EST	1	0.38	47	970	24.2	0%
07/12/2011 08:30 EST	1.03	0.41	38	970	24.2	-24%
07/12/2011 08:45 EST	1.06	0.44	38	970	24.3	0%
07/12/2011 09:00 EST	1.1	0.48	33	960	24.3	-15%
07/12/2011 09:15 EST	1.13	0.51	37	1,020	24.4	11%
07/12/2011 09:30 EST	1.17	0.55	33	970	24.3	-12%
07/12/2011 09:45 EST	1.22	0.6	28	980	24.5	-18%

07/12/2011 10:00 EST	1.26	0.64	32	980	24.6	13%
07/12/2011 10:15 EST	1.3	0.68	31	1,000	24.7	-3%
07/12/2011 10:30 EST	1.35	0.73	27	1,020	24.7	-15%
07/12/2011 10:45 EST	1.39	0.77	30	1,020	24.8	10%
07/12/2011 11:00 EST	1.44	0.82	26	1,080	24.6	-15%
07/12/2011 11:15 EST	1.48	0.86	29	1,090	24.6	10%
07/12/2011 11:30 EST	1.53	0.91	25	1,120	24.6	-16%
07/12/2011 11:45 EST	1.58	0.96	24	1,140	24.6	-4%
07/12/2011 12:00 EST	1.62	1	28	1,100	24.8	14%
07/12/2011 12:15 EST	1.67	1.05	23	1,140	24.8	-22%
07/12/2011 12:30 EST	1.72	1.1	23	1,170	24.6	0%
07/12/2011 12:45 EST	1.76	1.14	27	1,190	24.5	15%
07/12/2011 13:00 EST	1.81	1.19	22	1,170	24.6	-23%
07/12/2011 13:15 EST	1.85	1.23	26	1,170	24.8	15%
07/12/2011 13:30 EST	1.89	1.27	25	1,200	24.7	-4%
07/12/2011 13:45 EST	1.92	1.3	29	1,170	24.7	14%
07/12/2011 14:00 EST	1.95	1.33	29	1,260	24.8	0%
07/12/2011 14:15 EST	1.97	1.35	33	1,200	24.7	12%
07/12/2011 14:30 EST	1.99	1.37	33	1,190	24.8	0%
07/12/2011 14:45 EST	2	1.38	37	1,170	24.6	11%
07/12/2011 15:00 EST	2.01	1.39	37	1,210	24.6	0%
07/12/2011 15:15 EST	2.01	1.39	41	1,130	24.7	10%
07/12/2011 15:30 EST	2.01	1.39	41	1,090	24.9	0%
07/12/2011 15:45 EST	1.99	1.37	49	1,090	24.8	16%

07/12/2011 16:00 EST	1.97	1.35	50	1,090	25.1	2%
07/12/2011 16:15 EST	1.94	1.32	54	1,090	24.8	7%
07/12/2011 16:30 EST	1.92	1.3	50	1,110	24.6	-8%
07/12/2011 16:45 EST	1.9	1.28	50	1,120	24.6	0%
07/12/2011 17:00 EST	1.88	1.26	50	1,100	24.8	0%
07/12/2011 17:15 EST	1.86	1.24	51	1,100	24.8	2%
07/12/2011 17:30 EST	1.84	1.22	51	1,090	24.6	0%
07/12/2011 17:45 EST	1.82	1.2	51	1,090	24.6	0%
07/12/2011 18:00 EST	1.79	1.17	56	1,090	24.6	9%
07/12/2011 18:15 EST	1.76	1.14	56	1,090	24.4	0%
07/12/2011 18:30 EST	1.73	1.11	56	1,080	24.3	0%
07/12/2011 18:45 EST	1.72	1.1	48	1,090	24.1	-17%
07/12/2011 19:00 EST	1.69	1.07	57	1,080	24.2	16%
07/12/2011 19:15 EST	1.66	1.04	57	1,090	24	0%
07/12/2011 19:30 EST	1.64	1.02	53	1,080	24	-8%
07/12/2011 19:45 EST	1.61	0.99	57	1,100	23.8	7%
07/12/2011 20:00 EST	1.58	0.96	58	1,110	23.7	2%
07/12/2011 20:15 EST	1.55	0.93	58	1,090	23.8	0%
07/12/2011 20:30 EST	1.53	0.91	54	1,090	23.8	-7%
07/12/2011 20:45 EST	1.5	0.88	59	1,090	23.7	8%
07/12/2011 21:00 EST	1.47	0.85	59	1,100	23.6	0%
07/12/2011 21:15 EST	1.44	0.82	59	1,100	23.5	0%
07/12/2011 21:30 EST	1.42	0.8	55	1,100	23.6	-7%
07/12/2011 21:45 EST	1.39	0.77	60	1,100	23.5	8%

07/12/2011 22:00 EST	1.36	0.74	60	1,100	23.5	0%
07/12/2011 22:15 EST	1.33	0.71	60	1,100	23.6	0%
07/12/2011 22:30 EST	1.3	0.68	61	1,100	23.5	2%
07/12/2011 22:45 EST	1.27	0.65	61	1,100	23.5	0%
07/12/2011 23:00 EST	1.24	0.62	61	1,100	23.4	0%
07/12/2011 23:15 EST	1.21	0.59	62	1,100	23.5	2%
07/12/2011 23:30 EST	1.18	0.56	62	1,100	23.4	0%
07/12/2011 23:45 EST	1.15	0.53	62	1,100	23.4	0%
07/13/2011 00:00 EST	1.12	0.5	62	1,100	23.5	0%
07/13/2011 00:15 EST	1.09	0.47	63	1,100	23.5	2%
07/13/2011 00:30 EST	1.06	0.44	63	1,100	23.5	0%
07/13/2011 00:45 EST	1.04	0.42	59	1,100	23.4	-7%
07/13/2011 01:00 EST	1.02	0.4	59	1,100	23.4	0%
07/13/2011 01:15 EST	1	0.38	60	1,110	23.4	2%
07/13/2011 01:30 EST	1	0.38	51	1,100	23.4	-18%
07/13/2011 01:45 EST	1.02	0.4	43	1,090	23.5	-19%
07/13/2011 02:00 EST	1.05	0.43	38	1,090	23.4	-13%
07/13/2011 02:15 EST	1.09	0.47	33	1,090	23.5	-15%
07/13/2011 02:30 EST	1.12	0.5	37	1,090	23.4	11%
07/13/2011 02:45 EST	1.16	0.54	33	1,090	23.5	-12%
07/13/2011 03:00 EST	1.2	0.58	32	1,090	23.4	-3%
07/13/2011 03:15 EST	1.24	0.62	32	1,100	23.4	0%
07/13/2011 03:30 EST	1.29	0.67	27	1,100	23.4	-19%
07/13/2011 03:45 EST	1.32	0.7	35	1,150	23.4	23%

60-38 ? in 45 mins

07/13/2011 04:00 EST	1.36	0.74	31	1,100	23.4	-13%
07/13/2011 04:15 EST	1.39	0.77	35	1,100	23.4	11%
07/13/2011 04:30 EST	1.42	0.8	34	1,100	23.4	-3%
07/13/2011 04:45 EST	1.44	0.82	38	1,100	23.4	11%
07/13/2011 05:00 EST	1.46	0.84	38	1,100	23.4	0%
07/13/2011 05:15 EST	1.47	0.85	42	1,100	23.4	10%
07/13/2011 05:30 EST	1.46	0.84	51	1,100	23.5	18%
07/13/2011 05:45 EST	1.46	0.84	46	1,100	23.5	-11%
07/13/2011 06:00 EST	1.45	0.83	51	1,100	23.5	10%
07/13/2011 06:15 EST	1.43	0.81	55	1,100	23.5	7%
07/13/2011 06:30 EST	1.42	0.8	51	1,100	23.5	-8%
07/13/2011 06:45 EST	1.4	0.78	55	1,090	23.5	7%
07/13/2011 07:00 EST	1.38	0.76	56	1,090	23.5	2%
07/13/2011 07:15 EST	1.36	0.74	56	1,100	23.6	0%
07/13/2011 07:30 EST	1.35	0.73	52	1,090	23.6	-8%
07/13/2011 07:45 EST	1.33	0.71	56	1,090	23.6	7%
07/13/2011 08:00 EST	1.31	0.69	56	1,100	23.6	0%
07/13/2011 08:15 EST	1.29	0.67	57	1,090	23.6	2%
07/13/2011 08:30 EST	1.27	0.65	57	1,100	23.6	0%
07/13/2011 08:45 EST	1.26	0.64	53	1,100	23.7	-8%
07/13/2011 09:00 EST	1.25	0.63	53	1,090	24	0%
07/13/2011 09:15 EST	1.24	0.62	53	1,040	24.7	0%
07/13/2011 09:30 EST	1.24	0.62	49	980	25.4	-8%
07/13/2011 09:45 EST	1.25	0.63	44	980	25.7	-11%

07/13/2011 10:00 EST	1.27	0.65	40	970	25.6	-10%
07/13/2011 10:15 EST	1.3	0.68	36	970	25.6	-11%
07/13/2011 10:30 EST	1.33	0.71	35	970	25.6	-3%
07/13/2011 10:45 EST	1.38	0.76	26	990	25.3	-35%
07/13/2011 11:00 EST	1.4	0.78	39	1,010	25.1	33%
07/13/2011 11:15 EST	1.44	0.82	30	1,240	24.3	-30%
07/13/2011 11:30 EST	1.47	0.85	34	1,330	24.4	12%
07/13/2011 11:45 EST	1.52	0.9	25	1,310	24.4	-36%
07/13/2011 12:00 EST	1.56	0.94	29	1,390	24.4	14%
07/13/2011 12:15 EST	1.6	0.98	28	1,380	24.4	-4%
07/13/2011 12:30 EST	1.64	1.02	28	1,370	24.6	0%
07/13/2011 12:45 EST	1.69	1.07	23	1,620	24.5	-22%
07/13/2011 13:00 EST	1.74	1.12	23	1,530	24.5	0%
07/13/2011 13:15 EST	1.79	1.17	22	1,470	24.6	-5%
07/13/2011 13:30 EST	1.85	1.23	17	1,510	24.7	-29%
07/13/2011 13:45 EST	1.89	1.27	25	1,480	24.7	32%
07/13/2011 14:00 EST	1.94	1.32	21	1,450	24.7	-19%
07/13/2011 14:15 EST	1.97	1.35	29	1,450	24.7	28%
07/13/2011 14:30 EST	2.04	1.42	11	1,370	24.9	-164%
07/13/2011 14:45 EST	2.07	1.45	28	1,270	24.9	61%
07/13/2011 15:00 EST	2.11	1.49	23	1,250	24.9	-22%
07/13/2011 15:15 EST	2.14	1.52	27	1,110	24.9	15%
07/13/2011 15:30 EST	2.17	1.55	27	1,100	24.9	0%
07/13/2011 15:45 EST	2.18	1.56	35	1,090	24.9	23%

07/13/2011 16:00 EST	2.19	1.57	35	1,090	24.9	0%
07/13/2011 16:15 EST	2.19	1.57	39	1,090	24.9	10%
07/13/2011 16:30 EST	2.19	1.57	39	1,090	24.8	0%
07/13/2011 16:45 EST	2.18	1.56	43	1,090	24.7	9%
07/13/2011 17:00 EST	2.16	1.54	48	1,090	24.8	10%
07/13/2011 17:15 EST	2.13	1.51	52	1,100	24.6	8%
07/13/2011 17:30 EST	2.1	1.48	52	1,100	24.5	0%
07/13/2011 17:45 EST	2.08	1.46	48	1,100	24.5	-8%
07/13/2011 18:00 EST	2.05	1.43	53	1,100	24.5	9%
07/13/2011 18:15 EST	2.03	1.41	49	1,100	24.4	-8%
07/13/2011 18:30 EST	2.01	1.39	49	1,100	24.4	0%
07/13/2011 18:45 EST	1.99	1.37	49	1,100	24.3	0%
07/13/2011 19:00 EST	1.96	1.34	54	1,090	24.5	9%
07/13/2011 19:15 EST	1.94	1.32	50	1,090	24.5	-8%
07/13/2011 19:30 EST	1.91	1.29	54	1,070	24.6	7%
07/13/2011 19:45 EST	1.89	1.27	50	1,090	24.2	-8%
07/13/2011 20:00 EST	1.86	1.24	55	1,080	24.3	9%
07/13/2011 20:15 EST	1.83	1.21	55	1,080	24.4	0%
07/13/2011 20:30 EST	1.81	1.19	51	1,090	24.1	-8%
07/13/2011 20:45 EST	1.78	1.16	56	1,090	24.1	9%
07/13/2011 21:00 EST	1.76	1.14	52	1,090	24.2	-8%
07/13/2011 21:15 EST	1.73	1.11	56	1,090	24.1	7%
07/13/2011 21:30 EST	1.7	1.08	56	1,090	24.3	0%
07/13/2011 21:45 EST	1.67	1.05	57	1,080	24.3	2%

07/13/2011 22:00 EST	1.65	1.03	53	1,080	24.3	-8%
07/13/2011 22:15 EST	1.62	1	57	1,080	24.3	7%
07/13/2011 22:30 EST	1.59	0.97	58	1,080	24.4	2%
07/13/2011 22:45 EST	1.57	0.95	54	1,070	24.4	-7%
07/13/2011 23:00 EST	1.54	0.92	58	1,080	24.4	7%
07/13/2011 23:15 EST	1.51	0.89	58	1,070	24.4	0%
07/13/2011 23:30 EST	1.48	0.86	59	1,070	24.5	2%
07/13/2011 23:45 EST	1.45	0.83	59	1,070	24.5	0%
07/14/2011 00:00 EST	1.42	0.8	59	1,080	24.4	0%
07/14/2011 00:15 EST	1.4	0.78	55	1,070	24.5	-7%
07/14/2011 00:30 EST	1.37	0.75	60	1,070	24.5	8%
07/14/2011 00:45 EST	1.34	0.72	60	1,070	24.6	0%
07/14/2011 01:00 EST	1.32	0.7	56	1,070	24.6	-7%
07/14/2011 01:15 EST	1.29	0.67	61	1,070	24.7	8%
07/14/2011 01:30 EST	1.27	0.65	57	1,070	24.6	-7%
07/14/2011 01:45 EST	1.25	0.63	57	1,070	24.6	0%
07/14/2011 02:00 EST	1.24	0.62	53	1,070	24.8	-8%
07/14/2011 02:15 EST	1.24	0.62	49	1,070	24.6	-8%
07/14/2011 02:30 EST	1.24	0.62	49	1,070	24.6	0%
07/14/2011 02:45 EST	1.27	0.65	36	1,090	24.2	-36%
07/14/2011 03:00 EST	1.31	0.69	31	1,090	24	-16%
07/14/2011 03:15 EST	1.34	0.72	35	1,090	24	11%
07/14/2011 03:30 EST	1.37	0.75	35	1,100	23.9	0%
07/14/2011 03:45 EST	1.4	0.78	34	1,090	23.9	-3%

07/14/2011 04:00 EST	1.44	0.82	30	1,100	23.8	-13%
07/14/2011 04:15 EST	1.47	0.85	34	1,100	23.7	12%
07/14/2011 04:30 EST	1.5	0.88	33	1,100	23.6	-3%
07/14/2011 04:45 EST	1.53	0.91	33	1,100	23.6	0%
07/14/2011 05:00 EST	1.55	0.93	37	1,100	23.6	11%
07/14/2011 05:15 EST	1.57	0.95	37	1,100	23.6	0%
07/14/2011 05:30 EST	1.58	0.96	41	1,100	23.7	10%
07/14/2011 05:45 EST	1.58	0.96	45	1,100	23.7	9%
07/14/2011 06:00 EST	1.57	0.95	49	1,100	23.8	8%
07/14/2011 06:15 EST	1.56	0.94	50	1,090	23.9	2%
07/14/2011 06:30 EST	1.55	0.93	50	1,090	24.1	0%
07/14/2011 06:45 EST	1.53	0.91	54	1,090	24.1	7%
07/14/2011 07:00 EST	1.52	0.9	50	1,090	24.1	-8%
07/14/2011 07:15 EST	1.5	0.88	54	1,080	24.2	7%
07/14/2011 07:30 EST	1.49	0.87	50	1,080	24.2	-8%
07/14/2011 07:45 EST	1.47	0.85	55	1,090	24.1	9%
07/14/2011 08:00 EST	1.46	0.84	51	1,080	24.2	-8%
07/14/2011 08:15 EST	1.44	0.82	55	1,080	24.2	7%
07/14/2011 08:30 EST	1.41	0.79	59	1,080	24.4	7%
07/14/2011 08:45 EST	1.4	0.78	51	1,080	24.4	-16%
07/14/2011 09:00 EST	1.38	0.76	56	1,070	24.6	9%
07/14/2011 09:15 EST	1.36	0.74	56	1,070	24.6	0%
07/14/2011 09:30 EST	1.34	0.72	56	1,070	24.6	0%
07/14/2011 09:45 EST	1.34	0.72	48	1,070	24.7	-17%

07/14/2011 10:00 EST	1.33	0.71	52	1,070	24.7	8%
07/14/2011 10:15 EST	1.33	0.71	48	1,080	24.7	-8%
07/14/2011 10:30 EST	1.35	0.73	39	1,080	24.8	-23%
07/14/2011 10:45 EST	1.37	0.75	39	1,080	24.8	0%
07/14/2011 11:00 EST	1.4	0.78	34	1,090	24.7	-15%
07/14/2011 11:15 EST	1.42	0.8	38	1,090	24.7	11%
07/14/2011 11:30 EST	1.48	0.86	21	1,290	24.3	-81%
07/14/2011 11:45 EST	1.48	0.86	46	1,160	24.8	54%
07/14/2011 12:00 EST	1.51	0.89	33	1,130	24.7	-39%
07/14/2011 12:15 EST	1.55	0.93	29	1,320	24.5	-14%
07/14/2011 12:30 EST	1.59	0.97	28	1,290	24.6	-4%
07/14/2011 12:45 EST	1.64	1.02	24	1,320	24.6	-17%
07/14/2011 13:00 EST	1.69	1.07	23	1,330	24.7	-4%
07/14/2011 13:15 EST	1.74	1.12	23	1,300	24.7	0%
07/14/2011 13:30 EST	1.78	1.16	26	1,280	24.8	12%
07/14/2011 13:45 EST	1.85	1.23	13	1,230	24.8	-100%
07/14/2011 14:00 EST	1.89	1.27	25	1,220	24.8	48%
07/14/2011 14:15 EST	1.94	1.32	21	1,220	24.7	-19%
07/14/2011 14:30 EST	1.99	1.37	20	1,200	24.8	-5%
07/14/2011 14:45 EST	2.04	1.42	20	1,190	24.8	0%
07/14/2011 15:00 EST	2.09	1.47	19	1,140	24.8	-5%
07/14/2011 15:15 EST	2.13	1.51	23	1,120	24.8	17%
07/14/2011 15:30 EST	2.18	1.56	18	1,110	25	-28%
07/14/2011 15:45 EST	2.21	1.59	26	1,110	25	31%

07/14/2011 16:00 EST	2.24	1.62	26	1,100	25.1	0%
07/14/2011 16:15 EST	2.25	1.63	34	1,100	25.1	24%
07/14/2011 16:30 EST	2.27	1.65	30	1,080	25.2	-13%
07/14/2011 16:45 EST	2.27	1.65	38	1,090	25.3	21%
07/14/2011 17:00 EST	2.27	1.65	38	1,090	24.9	0%
07/14/2011 17:15 EST	2.25	1.63	47	1,090	24.8	19%
07/14/2011 20:30 EST	1.93	1.31	175	1,110	24.2	73%
07/14/2011 20:45 EST	1.91	1.29	50	1,110	24.1	-250%
07/14/2011 21:00 EST	1.88	1.26	55	1,110	24.2	9%
07/14/2011 21:15 EST	1.86	1.24	51	1,110	24.1	-8%
07/14/2011 21:30 EST	1.83	1.21	55	1,110	24.2	7%
07/14/2011 21:45 EST	1.8	1.18	55	1,110	24.1	0%
07/14/2011 22:00 EST	1.78	1.16	51	1,100	24.2	-8%
07/14/2011 22:15 EST	1.75	1.13	56	1,100	24.1	9%
07/14/2011 22:30 EST	1.72	1.1	56	1,100	24.2	0%
07/14/2011 22:45 EST	1.7	1.08	52	1,100	24.4	-8%
07/14/2011 23:00 EST	1.67	1.05	57	1,100	24.2	9%
07/14/2011 23:15 EST	1.64	1.02	57	1,100	24.2	0%
07/14/2011 23:30 EST	1.61	0.99	57	1,100	24.3	0%
07/14/2011 23:45 EST	1.58	0.96	58	1,100	24.4	2%

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MEETING NOTES

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

July 18, 2011

The second in a planned series of Springs Coast Minimum Flows and Levels Public Workshops was held between 1:30 and approximately 5:20 p.m. on July 18, 2011 at the Lecanto Government Services Building, Lecanto, Florida. Stakeholder representatives and Southwest Florida Water Management District staff that attended and contributed to the workshop are identified below. A listing 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
Hope Corona, Chassahowitzka River Restoration Committee
Bill Geiger, City of Brooksville
Kathleen Greenwood, Florida Department of Environmental Protection
Ted Hoehn, Florida Fish and Wildlife Conservation Commission
Brent Whitley, Stakeholder Representative
Ron Miller, Save the Homosassa River Alliance
Helen Spivey, 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 Craw
Mark Hammond
Marty Kelly
Doug Leeper
Cara Martin
Barbara Matrone
Gary Williams
Paul Williams

Summaries of topics and issues discussed during the workshop are grouped below, according to 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's Resource Projects Department, convened the meeting at 1:30 p.m. He briefly outlined the District's goal for the workshop series and the workshop format.

Sea Level Rise and Minimum Flows Development
Mr. Leeper began a discussion of sea level rise and how the phenomenon may be incorporated into the District's minimum flows and levels development process by noting that the discussion should be considered a continuation of the discussion on the same topic that was initiated during the June 2011 workshop. Mr. Leeper showed a graph illustrating recorded sea level trends for the past 100 or so years at two National Oceanic and Atmospheric Administration gaging stations – Cedar Key and St Petersburg. Mr. Leeper noted that the District is considering the adoption of an approach for minimum flows and levels development in which these sea level trends and other possible scenarios are evaluated and used for identifying potential minimum flow or level thresholds. Mr. Leeper indicated that the District has initiated these sea-level rise impact analyses for the Chassahowitzka and Homosassa River systems, and expects to complete similar work for the Crystal River system. Mr. Leeper showed a bar

graph of preliminary data for the Chassahowitzka system which indicates that sea level rise on the order of two to 12 inches may result in the reduction of some low-salinity habitats that are comparable to or greater than those associated with an 11 percent flow reduction, which is the currently proposed minimum flow recommendation for the river system. Mr. Leeper then proceeded to show several graphs that conceptually outlined a possible approach for incorporating sea level rise into the District's minimum flows and levels methodology. The approach involves continued use of a 15% change in habitat criterion for identification of significant harm thresholds. He noted that allowable changes in habitat to be assessed for Springs Coast systems would be evaluated relative to baseline conditions associated with current and future (year 2030) sea level conditions. Evaluation of changes from these two baseline conditions may be expected to yield two sets of flow reductions associated with no more than a 15% change in various salinity-based habitats (e.g., area where salinities are <=3; shoreline length where salinities are <=5, etc.). The most restrictive, i.e., the lowest flow reduction from these two baseline conditions could then be selected as a minimum flow recommendation. Mr. Leeper noted that this approach does not equate environmental change associated with sea level rise with that associated with withdrawals. It does, however, provide a means for accounting for environmental change caused by future sea level rise and determining whether flow reductions associated with allowable changes in habitat from some future condition may be less than those that would be allowable given current sea level conditions.

During the discussion associated with this agenda item, stakeholder representatives offered the following comments and questions.

- Hope Corona questioned whether the District's modeling of low salinity habitats in the Chassahowitzka River system includes forested wetland areas in addition to aquatic habitats.
  Response: Mr. Leeper noted that the District models salinities within model domains for the Springs Coast River system, and indicated that the model domains are typically restricted to the main river channel and some tributaries.

- Norman Hopkins questioned how changes in the freshwater lens underlying coastal spring systems will be addressed with the modeling of sea-level change impacts on river salinities.
  Response: Mr. Leeper noted that sea level rise modeling completed and to be conducted by the District has addressed and will address changes in tide stage and in some cases changes in flow, but may not be expected to address changes in the salinity of water discharged from spring vents.

- Helen Spivey questioned whether sea level increase will influence discharge out of spring vents along the Springs Coast.
  Response: Mr. Leeper noted that increased tide stage associated with increased sea level may result in decreased discharge from spring vents along the Springs Coast.

- Dan Hilliard asked whether impacts associated with sea level rise may be considered cumulative. He also asked whether the District is considering evaluating effects on spring discharge of sea level change and water withdrawals.
  Response: Mr. Leeper noted that the information shown for the Chassahowitzka River system addresses effects of sea level rise and effects associated with an 11 percent reduction in flows that could be associated with the currently recommended minimum flows for the system. He noted that the District has, and plans to continue evaluating cumulative environmental impacts of potentially allowable flow reductions and increased sea levels.

- Boyd Blihovde noted that environmental changes that may be associated with sea level rise have been observed along the Springs Coast.

- Dan Hilliard asked how much confidence should be assigned to the various sea level rise scenarios that the District is using for the minimum flow analyses.
  Response: Mr. Leeper noted that he has highest confidence in future sea level trends based on measured tide stage data presented by the National Oceanic and Atmospheric Administration. He also indicated that the sea level rise scenarios developed using United States Army Corps of Engineers procedures may also be reasonable, given that many climate scientists predict accelerated rates of sea level increase during the current century.

- Norman Hopkins indicated that he was averse to considering the District's conceptual presentation for a revised minimum flows methodology, as he was concerned that as presented, it may represent only a favorable perspective of the revised approach.
  Response: Mr. Leeper noted that the information presented during the workshop was designed to illustrate that the District is considering choosing the most conservative, i.e., the lowest, of two potentially allowable flow reductions for minimum flows development. The first potential flow reduction would be based on current sea level conditions, and the second would be based on sea level conditions in 2030. He noted that selection of the lower of the two potentially allowable flow reductions would be considered more protective of the environment.

- Boyd Blihovde suggested that as presented, the conceptual revised approach for minimum flows development implies that all habitats may be considered equally valuable.
  Response: Mr. Leeper noted that the District currently evaluates flow related changes to a variety of habitats (areas where salinities are <3, areas where salinities are <5, etc.) for minimum flows development, and typically selects the most restrictive flow reduction associated with no more than a 15% change in each of the habitats. Using this approach, habitats that are less sensitive to potential flow reductions are protected.

- Ron Miller noted that if future sea level rise reduces available habitat by ten percent, then withdrawal related flow reductions should be allowed to reduce habitat by only five percent, given that the District uses a fifteen percent habitat-change criterion for minimum flows development.
  Response: Mr. Leeper noted that the District views minimum flows development as the identification of flow thresholds associated with allowable environmental change, and does not consider sea level change to be a withdrawal related phenomenon.

- Hope Corona noted that the conceptual presentation on incorporating sea level rise into minimum flows development was useful but suggested that given the small spatial extent of low salinity habitats in Springs Coast systems, it may be reasonable to prepare spatial maps that depict changes in salinity-based habitats.
  Response: Mr. Leeper noted that the reports on modeling efforts for Springs Coast systems include isohaline locations reported relative to river kilometer and the reports also include figures depicting river kilometer locations within the systems.

- Al Grubman expressed concern about potential effects of water withdrawals in the groundwater basin and expressed interest in how water use permitting will proceed in the future, given expected sea level rise impacts.
  Response: Mr. Leeper noted that withdrawals throughout the contributing groundwater basin may be expected to influence discharge from spring along the Springs Coast.

- Boyd Blihovde suggested that it may be reasonable to consider using a habitat change criterion other that an allowable 15 percent change for establishment of minimum flows for Springs Coast systems.
  Response: Mr. Leeper indicated that the concept of significant change will likely be considered at a future workshop.

- Ted Hoehn noted that through efforts to model the environmental effects of sea level rise, the District should be able to characterize the general extent of habitat change associated with increased salinities, and may be able to identify compression of low salinity zones in regions of the Springs Coast rivers where seawalls or other human alterations of the landscape may limit upstream habitat expansion.
  Response: Mr. Leeper noted that future modeling scenarios for Springs Coast systems will include potential change in salinity habitats associated with sea level rise in conjunction with potential reductions in flows associated with water use.

- Norman Hopkins questioned whether minimum flows and levels determinations and assessments can be used to inform District policy and political decisions which govern actions by municipalities or county governments. He noted that there is currently a review concerning land development/management activities within the state.
  Response: Mr. Leeper indicated that it may be out of the realm of the workshop scope to discuss how minimum flows and levels decisions may be associated with governmental activities and decisions made outside of the realm of the District's regulatory authority.

- Following on Mr. Hopkins comments, Hope Corona questioned Representative Jimmie Smith regarding whether he had any news regarding current, state-level political actions related to growth management issues and protection of water resources and water supplies.
  Response: Representative Jimmie Smith indicated that growth management issues may be best addressed through interaction with local governmental representatives rather than through interaction with government representatives in Tallahassee.

- Kathleen Greenwood noted that the conceptual approach to incorporating sea level rise into minimum flows determinations presented during the workshop identifies a baseline condition for some future time (e.g., for year 2030) and is then based on evaluation of future flow reductions that would be associated with up to a fifteen percent change in the habitat that is available at that time. She questioned whether the District plans to evaluate whether a fifteen percent change in habitat from the future baseline conditions is still appropriate, given that environmental changes associated with potential rise in sea level, but not related to consumptive water use, may lead to significant harm occurring with less than a fifteen percent change in habitat.
  Response: Mr. Leeper noted that the District evaluates flow-related habitat change relative to current baseline conditions and plans to do the same for baseline conditions associated with sea level conditions in year 2030. He further noted that this type of evaluation should be considered within a sliding continuum of temporally-dependent environmental conditions. He suggested that if baseline conditions for the District's minimum flows efforts on the Springs Coast were defined as those that existed several decades in the past, much of that baseline habitat would likely not exist today, due to the rise in sea level that has occurred during the intervening time period. He added that the District understands that stakeholders will differ in their opinions regarding the definition of baseline conditions for minimum flows and levels development.

Discharge Measurement and Use for Minimum Flows Development

Doug Leeper initiated this discussion, noting that the District collaborates and depends on the United States Geological Survey for collection of discharge and other types of data at numerous gaging sites on the Springs Coast. He noted that the District uses discharge data collected by the Survey for the characterization of baseline or benchmark flows, evaluating withdrawal impacts, and development of a variety of models used for developing and assessing minimum flows and levels. Mr. Leeper then introduced Kevin Grimsley, a Supervisory Hydrologist with the United States Geological Survey's Florida Water Science Center, who provided a presentation on discharge measurement on the Springs Coast. Mr. Grimsley started his presentation with a brief discussion of the history of discharge measurement in Florida and along the Springs Coast. He discussed use of various instruments for measurement of stream velocities and emphasized the complexity of these types of measurements in river systems where freshwater flows may be moving in one direction while tidal flows may be moving in the opposite direction. Mr. Grimsley proceeded to discuss three approaches used for estimating discharge, including the development of stage-discharge relationships, the index velocity approach, and the use of regressions that incorporate local well water levels and/or tide stage information for discharge predictions. Mr. Grimsley noted that for a site within the Homosassa Main Springs run, discharge estimates from the regression approach were within five percent of estimates based on the index-velocity method. He attributed some of this minor variation in discharge to interference with velocity measurements associated with the presence of manatees. He noted that attempts to apply the index-velocity approach in the Chassahowitzka River system were unsuccessful, due to interference associated with dense vegetative growth. Mr. Grimsley noted that the District and the Survey have proposed the installation of stream velocity meters in the Southeast Fork of the Homosassa River system and also in Halls River. Mr. Grimsley next discussed issues associated with reported historical discharge measurements for a gage site in the Chassahowitzka system. The historical record currently includes discharge records based on measurements collected both up and downstream from Crab Creek, a major tributary to the Chassahowitzka River system. Mr. Grimsley concluded his presentation with a review of current Survey gage sites in the Weeki Wachee, Chassahowitzka, Homosassa and Crystal river system, and indicated that data and publications for these sites are available from the Survey on the internet at: http://fl.water.usgs.gov/.

During the discussion associated with this agenda item, stakeholder representatives offered the following comments and questions.

- Hope Corona suggested that it may be appropriate to install a new gage site in the Chassahowitzka River to evaluate contributions of Crab Creek to flows in the Chassahowitzka River system.
  Response: Mr. Grimsley indicated that the Survey is currently in the process of determining which historical flow measurements were made above or below the confluence of Crab Creek and the Chassahowitzka River. Mr. Kane noted that streamflow gage-site installation, maintenance and data recording are dependent upon funding from cooperators. Mr. Kane further noted that the Survey does have some discharge data for Crab Creek that was collected within the past few years.

- Ron Miller asked about the location of the well that is used for calculating discharge in the Homosassa River system.
  Response: Mr. Grimsley noted that the well used for estimating discharge at the United States Geological Survey Gage in the Homosassa Main Spring run is the Weeki Wachee Well in Hernando County.

- Helen Spivey asked whether the United States Geological Survey has used the data that area available from the United States Army Corps of Engineers for Crystal River.
  Response: Mr. Grimsley noted that the Survey does not store or distribute United States Corps of Engineers data.

- Hope Corona questioned whether the Survey has plans to measure discharge at Blind Springs, noting that discharge has apparently not been measured recently at the spring and that the spring does not appear to be flowing.
  Response: Mr. Basso noted that flows at Blind Spring were measured in 2003, and that tide stage influences discharge from the spring vent.

- Ted Hoehn asked whether the Survey used data infilling techniques to address gaps in discharge records and whether historical, instantaneous records are used along with daily records for development of summary statistics.
  Response: Mr. Grimsley noted that data infilling is not routinely completed by staff at the Survey's Tampa office. Mr. Leeper noted that for the Homosassa River system, the District used the relatively continuous daily discharge records for the system when conducting minimum flow analyses, but has also reviewed historical, instantaneous records. He further noted that compilation of these two data sets for the system does not substantially influence the values of descriptive summary statistics used for the minimum flow analyses.

Water Use Permitting Overview

Paul Williams, the Water Use Manager for the District's Brooksville Regulation Department provided a brief overview of water use permitting in the District and the interface between water use permitting and minimum flows and levels. Mr. Williams addressed sections of the Florida Statutes and District rules that pertain to water use permitting and minimum flows and levels. He noted that Section 373.223, Florida Statutes, identifies a 'three-pronged" test for issuance of a water use permit – the use must be reasonable and beneficial, must not interfere with an existing legal uses, and must be consistent with the public interest. Mr. Williams' discussed the conditions for issuance of a water use permit that are included in District rules, and noted that one condition requires that a proposed water use will comply with provisions concerning the violation of minimum flows and levels that are identified in the Water Use Permitting Basis of Review. Mr. Williams concluded his presentation with a discussion of the hydrologic analyses and tools that are used for evaluation of water use permit requests. He noted that the analyses/tools include the District-Wide Regulation model for evaluation of local withdrawal effects; the Northern District Model for evaluation of regional withdrawal effects; hydrologic and ecological reports or data completed or collected by the District and others, and field site inspections for evaluation and monitoring of local conditions.

During the discussion associated with this agenda item, stakeholder representatives offered the following comments and questions.

- Ron Miller asked how the State's impaired water list may factor into water use permitting decisions.
  Response: Mr. Williams indicated that if appropriate for a specific permit request, he would ask District environmental scientists to review impaired water list information to determine whether the requested water use would be expected to affect the impaired status of a water body.

- Boyd Blihovde asked what type of requested water use would require the Districts review or consideration of the water use permit condition which stipulates that a withdrawal not cause pollution of the aquifer.
  Response: Mr. Williams and Mr. Basso noted that this condition may be applicable to requested water use in coastal areas where saltwater intrusion could occur, or may be applicable for areas where groundwater contamination has been identified and a new withdrawal may be expected to cause migration of pollutants.

- Hope Corona asked whether the District has evaluated how much groundwater is available in the Citrus County area. She also noted that environmental damage has occurred in areas to the south, and is concerned that the District's water use permitting program has not been used to prevent environmental damage, including sinkhole formation, in the northern portion of the District, for example in Pasco County.
  Response: Mr. Williams indicated that the Northern District Model is used to examine the effects of water use and evaluate water availability for future demand scenarios. Mr. Basso added that minimum flows and levels can be used in conjunction with the model to assist in the identification of constraints or limits on water availability. Mr. Basso noted that many of the negative withdrawal impacts within southern parts of the District began or occurred prior to initiation of the District permitting programs, and added that the last major wellfield permit issued in the Pasco County region was issued in the 1980s.

- Dan Hilliard asked whether the District or others sample water quality at most monitoring wells within the District. He also noted that many systems in the Springs Coast are classified as Outstanding Florida Waters, and understood that a permit may not be issued that causes degradation of water quality.
  Response: Mr. Williams indicated that the District monitors water quality at a large number of District-maintained wells and that other agencies are also involved in the monitoring of groundwater quality. Kathleen Greenwood followed-up on Mr. Hilliard's comments concerning Outstanding Florida Waters, noting that as part of its Environmental Resource Permitting Program, the Florida Department of Environmental Protection will not issue a permit that will allow degradation of water quality from conditions that existed at the time the system was classified as an Outstanding Florida Water. Ms. Greenwood noted that the anti-degradation policy for Outstanding Florida Waters is not considered applicable for consumptive use permitting.

- Norman Hopkins questioned whether data included in a document associated with establishment of Crystal River/Kings Bay as an Outstanding Florida Water were likely considered by Florida Department of Environmental Protection staff charged with review of Environmental Resource Permits associated with the river/bay system.
  Response: Kathleen Greenwood indicted that she expects that documents associated with Outstanding Florida Water designations are reviewed by Department staff when reviewing Environmental Resource Permit requests.

- Brent Whitley asked about time-frame for review of District issued water use permits and asked whether currently applicable permit conditions may be included in existing permits.
  Response: Mr. Williams noted that current permit conditions, such as those requiring specific per capita water-use rates, are being used by the District to modify water use permits.

- Hope Corona asked whether District staff or Florida Department of Environmental Protection staff are involved in monitoring activities associated with water use and environmental

resource permits. She also noted that in the Springs Coast area she understands that there has not been much hydrogeological work completed.
Response: Mr. Williams noted that staff from the District or the Department typically complete site visits in association with permits issued by each respective agency. With regard to District permits, staff typically visit the site prior to permit issuance or renewal, and typically review monitoring reports or conduct additional site visits in association with permit renewals and permit-condition monitoring requirements.

Groundwater and Withdrawal Impact Modeling

Ron Basso, a Senior Professional Geologist/Engineer with the District's Resource Projects Department, led a discussion of Springs Coast geology, hydrology and the modeling efforts that have been undertaken to support minimum flows development and compliance evaluations. During his presentation, Mr. Basso identified the three major groundwater basins within the District, major spring complexes of the Springs Coast, and approximate springshed boundaries for the systems. He noted that groundwater basins are an appropriate scale for evaluation of withdrawal impacts on discharge and that springsheds may serve as appropriate boundaries for evaluation of water quality issues. He described the karst geology of the area and the influence of this type of geology on regional groundwater movement. Mr. Basso noted that the geology of the region leads to high recharge rates and that the rate of recharge and spring discharge are strongly influenced by rainfall, which has exhibited long-term declines in the region. He presented information of water use in Citrus and Hernando counties that indicated withdrawals in the region are relatively low. Mr. Basso also provided a description of the Northern District Model, which is a three-dimensional numerical model used to simulate hydrogeologic conditions over a large portion of west-central Florida, including the Springs Coast. Mr. Basso presented results from analyses completed with the model which indicate that recent withdrawals have reduced discharge in the Chassahowitzka and Homosassa River systems approximately one percent and are expected to potentially decrease discharge in these systems by approximately two to three percent in the year 2030.

- Hope Corona asked whether the northern groundwater basin water budget information shown at the workshop represented measured or modeled data.
  Response: Mr. Basso noted that the rainfall, recharge and withdrawal values shown during his presentation are input into the model, while the spring discharge data are derived from model output.

- Whitey Markle asked about reasons for recent declines in Citrus County water use and questioned whether reported water use includes all use types
  Response: Mr. Basso noted that watering restrictions, other conservation efforts, and the economy have likely contributed to recent water use patterns. He also noted that the estimates provided include all water use types.

- Hope Corona asked whether Hernando County implements a tiered rate structure for costs associated with water use.
  Response: Mr. Basso and other District staff members noted that the County does include a tiered cost-schedule for water use costs.

- Ron Miller asked whether the layers in the Northern District Model are of similar thickness.
  Response: Mr. Basso indicated that the thickness of the model layers is variable.

- Hope Corona asked what time-step can be modeled using the Northern District Model and wondered whether model predictions can be compared with measured data.

Response: Mr. Basso noted that model predictions are based on approximate monthly values and comparison of model predictions with measured values is an integral component of the model calibration process.

- Norman Hopkins noted that model calibration is strictly only applicable to the historic period of data that is used for model development and calibration. He also asked about the origin of the Northern District Model.
  Response: Mr. Basso noted that District staff worked with HydroGeologic, Inc. on development of the Northern District Model. He added that this model and other similar models are developed and calibrated using available data with the goal of evaluating how future changes to existing conditions may affect system responses.

- Hope Corona asked whether the Northern District Model includes a regional atmospheric component to account for rainfall/climate variation. She questioned whether use of the model for minimum flows and levels evaluations should account for worst case rainfall conditions.
  Response: Mr. Basso noted that for minimum flows analyses and other water resource planning efforts, the District tries to model a period of sufficient length to include periods of low and high rainfall. He noted that although the modeling for the Springs Coast region was completed for a relatively dry period, the modeled period did include some relatively wet years. He added that model runs may be completed for drought conditions by adjusting model-input recharge rates.

- Whitey Markle noted that the modeling completed with the Northern District Model is directed towards evaluating average conditions and should, instead, be used to evaluate extreme climatic conditions, when negative environmental impacts may be expected.
  Response: Mr. Basso noted that the model can be used to evaluate inter-annual variation in hydrologic outputs, but minimum flows and levels are typically developed for long-term conditions. In addition, he indicated that the District attempts to separate impacts associated with rainfall variation from those associated with water use; with a focus on water-use impacts associated with potential significant harm.

- Norman Hopkins noted that there appears to have been a major flow reduction in the Crystal River system, based on comparison of the historical discharge records reported for United States Geological Survey sites in the river and more recent measurements of discharge from spring vents in Kings Bay. He also noted that there appears to be a relationship between spring discharge and salinity in the Bay. In addition, he asked whether the Northern District Model may be used to evaluate saltwater intrusion.
  Response: Mr. Basso noted that measurement of discharge in Crystal River is relatively problematic and discharge may vary considerable in response to changes in rainfall. He noted that the District and others have been monitoring saltwater interface along the Springs Coast for about 20 years. He indicated the District currently has a saltwater intrusion model for the Springs Coast that is described in the model reports produced for the District HydroGeologic in 2008 and 2010. He noted that application of the model does not indicate significant saltwater intrusion in the region over the next 50 years.

- Hope Corona asked whether the saltwater intrusion modeling data may be reviewed during the workshop.
  Response: Mr. Basso reiterated that information on saltwater intrusion modeling for the Springs Coast is presented in the groundwater flow model reports prepared for the District by HydroGeologic. He noted that that results from the modeling analyses do not indicate

any substantial movement of the saltwater/freshwater interface over the next 50 years. Mr. Basso indicated that these modeling results could be presented at subsequent Springs Coast Minimum Flows workshops. He also noted that the District uses river-basin specific hydrodynamic models and/or regression models to show isohaline locations within individual river channels/model domains. The saltwater intrusion model is better used to locate the saltwater interface in the groundwater/aquifer system on a regional basis.

- Norman Hopkins asked whether individual geologic fracture sets are incorporated into the Northern District Model inputs.
  Response: Mr. Basso indicated that every specific fracture or other karst features is not included in the Northern District Model domain. These features are incorporated into the model domain by assigning relatively high transmissivity values to appropriate model cells on a cell-by-cell basis.

- Norman Hopkins questioned how the confidence level for the Northern District Model is determined.
  Response: Mr. Basso indicated that confidence in the use of the Northern District Model is determined through model calibration. He added that the data sets used to develop and calibrate the model are quite extensive.

- Hope Corona asked whether a model which includes land use/cover information and habitat is available for the Springs Coast river systems.
  Response: Mr. Basso indicated that land use/cover information is used to develop evapotranspiration values that are used for model input for the Northern District Model. He noted that integrated models are currently being developed which can be used to evaluate water flow between surface and groundwater systems, but noted that models of this type are not currently available for the northern portion of the District.

- Norman Hopkins noted that a ten-year calibration or model analysis period that may have been used for minimum flow analysis is, in his opinion, too short.

- Hope Corona questioned how calibration of the Northern District Model could be improved.
  Response: Mr. Basso noted that matching of measured and predicted well water levels is relatively difficult in most hydrogeologic modeling efforts, and the calibration results achieved for the Northern District Model may be considered “fairly good”.

- Whitey Markle asked about the cost associated with development of the Northern District Model.
  Response: Mr. Basso indicated that costs associated with development of the model were approximately $500,000.

- Norman Hopkins noted that in a 2004 Surface Water Improvement and Management (SWIM) report on Crystal River/Kings Bay, the District noted that some modeling for the system was very difficult, and wondered whether any additional work has been completed regarding improvement of modeling efforts.
  Response: Mr. Basso noted and Mr. Hopkins confirmed that during the workshop it could not be determined what type of model was discussed in the SWIM report, although it was hypothesized that the model may have been a surface water model. Mr. Basso noted that there is some difficulty in measuring discharge in the bay/river system and this logistic issue could account for the reported lack of fit between reported and model-predicted information.

- Norman Hopkins questioned whether wind information is typically integrated into the District's modeling of discharge for Springs Coast systems. He noted that winds can substantially influence water levels in Kings Bay.
  Response: Mr. Basso noted that information of wind magnitude and direction was not directly incorporated into the Northern District Model development.

- Dennis Dutcher noted that the currently recommended minimum flows for the Chassahowitzka River system allow for up to an eleven percent reduction in flows, while current impacts are on the order of one percent. He questioned whether this means that additional water may be withdrawn from the system.
  Response: Mr. Basso noted that predicted 2030 demand may be associated with an approximate two percent effect on discharge in the Chassahowitzka River system, so it is not anticipated that the proposed minimum flows would be violated over the next twenty years. Mr. Basso added that if a large withdrawal were proposed for the area in the future, the District would be expected to require additional modeling to evaluate any localized impacts associated with the proposed withdrawal.

- Hope Corona noted that modeling of future hydrologic impacts to Springs Coast rivers should account for vacant land that has been approved for development at some future date. Ms. Corona noted that she believed the purpose of the workshop and/or goal of minimum flows development on the Springs Coast is to support issuance of a water use permit in Hernando County.
  Response: Mr. Basso indicated that future water-demand scenarios are based on projected population growth and can be adjusted based on site-specific information associated with proposed, future withdrawals. Mr. Leeper noted that the District's goal for the Springs Coast Minimum Flows and Levels workshop series is to foster discussion on methods and data that may be used to enhance the development of minimum flows for tidal river systems of the region.

Public Input

The following comments and questions were provided by other meeting participants

- Mr. Al Kline commented on information contained in a permit application associated with a project he identified as the Floral City Water Association Expansion Project. Mr. Kline indicated that text in a permit application associated with the project suggests that the Florida Department of Environmental Protection plans to modify its water quality criterion for limiting trihalomethane concentrations in groundwater. He also indicated that based on discussions with various agency staff, this is apparently not the case. He further noted that he believes the permit that was issued to the association was based on potentially incorrect information associated with State water quality standards pertaining to trihalomethane concentrations, and considers the permit application text to be fraudulent. Mr. Kline noted that he believes the Association's distribution system allows for the genesis of trihalomethanes and indicated that he would be willing to supply data and state agency contact information for anyone interested in following up on this issue.

- Mr. Michael Czerwinski asked whether antecedent rainfall conditions were incorporated into District modeling associated with minimum flows development and the evaluation of withdrawal impacts on flows and water levels. He noted that there may be problems associated with using average conditions when conducting hydrologic analyses for minimum flows development, and suggested that drought conditions should be considered. Finally,

he asked whether the District has determined a “safe-yield” for the aquifer system in the Springs Coast region.
Response: Mr. Basso noted that 1995 recharge conditions, which may be considered to correspond with average rainfall, were used for model input in analyses completed with the Northern District Model. He added that the District has transient model runs for the period from 1996 through 2006, a period which includes dry years, and that information from these model runs could be reviewed to evaluate withdrawal impacts during dry periods. Mr. Basso noted that the concept of a “safe-yield” is considered to be a policy issue and is not currently used by the District.

- Ms. Kathy Harrelson, with the Gulf Restoration Network and the Suncoast Sierra Club provided several comments pertaining to minimum flows development. Comments and questions included or were associated with: the need for caution when using average values for analyses supporting minimum flows development; concern associated with calibration of the Northern District Model to only 1995 conditions for withdrawal impact assessments; the occurrence of significant environmental damage associated with recent sea level rise; problems with the typical obsolescence of sea level rise models shortly after their development; the nature and extent of District activities related to water conservation as compared to its water use permitting activities; the need for reductions in water use for residential lawn watering; and the effects of impermeable surfaces on hydrology. Ms. Harrelson indicated that the District should be exploring restoration of flows in Springs Coast systems rather than the development of minimum flows that will allow additional water withdrawals.

- Mr. Jim Bitter, with the Save the Homosassa River Alliance, questioned how the District reconciles allowing potential withdrawal-related flow reductions for Springs Coast systems through minimum flows development with the mandate to protect the systems from damage in accordance with their classification as Outstanding Florida Waters. Mr. Bitter indicted that he would like to discuss the District’s legal position regarding this issue. He also suggested that the topic of conservation should be addressed at a future Springs Coast Minimum Flows and Levels workshop.

Scheduling of Next Workshop and Identification of Topics

Mr. Leeper indicated that the District plans to schedule the next workshop for sometime late in August and noted that the workshop would likely be held in Lecanto in the same location as the workshop that was held today. Mr. Leeper identified several tentative topics for discussion at the next workshop, including: significant harm; modeling of salinity and thermally-based habitats; modeling of biological responses to flow changes; water quality issues; and identification of follow-up District actions associated with the workshop series.

Adjournment

Mr. Leeper adjourned the meeting at approximately 5:20 p.m.

From: chris safos
To: Doug Leeper
Subject: Re: Agenda for SWFWMD Minimum Flows Workshop
Date: Friday, July 01, 2011 3:40:21 PM

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thank you for the notice.i strongly oppose lowering water flows in our rivers.thank you,chris safos

> ----- Original Message -----
> From: Doug Leeper
> To: Al Yerian (Al.Yerian@dep.state.fl.us) ; Andy Houston (ahouston@crystalriverfl.org) ; Bill Geiger (bgeiger@cityofbrooksville.us) ; 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) ; 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) ; Frank DiGiovanni (fdigiovanni@invernessfl.gov) ; Greenwood, Kathleen (Kathleen.Greenwood@dep.state.fl.us) ; Hoehn, Ted ; 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) ; Keith Ramos (Keith.Ramos@fws.gov) ; Kent Smith (kent.smith2@myfwc.com) ; Kevin Grimsely (kjgrims@usgs.gov) ; 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) ; Shelley Yaun (Shelley.Yaun@dep.state.fl.us) ; Toby Brewer (Toby.Brewer@dep.state.fl.us) ; Wallace, Traci ; (priswat@tampabay.rr.com) ; Bob Knight (bknight@wetlandsolutionsinc.com) ; Boyd Blihovde (Boyd_Blihovde@fws.gov) ; Friends of Crystal River State Parks (cso@crystalriverstateparks.org) ; Friends of the Weeki Wachee Springs State Park (weekiwacheefriends@gmail.com) ; Mitchell Newberger (mnewberger@verizon.net) ; Paul Carpenter (paul.carp@verizon.net) ; Richard Bryant (rangerrb@bellsouth.net) ; Richard Radacky (rradacky@cityofbrooksville.us) ; Robert Keim (rbkeim@gmail.com) ; Rolf Auermann (rauerman@tampabay.rr.com) ; Ron Miller (rmille76@tampabay.rr.com) ; Sally Smith-Adams (sally_smith_adams@hotmail.com) ; Sandra Cleducuies (scleducies@aol.com) ; Teddi Rusnak (tcrusnak@tampabay.rr.com) ; Thomas Pierce (tpierce35@tampabay.rr.com) ; Tom Overa (tovera1@tampabay.rr.com) ; Vince Cantero (vince.cantero@bocc.citrus.fl.us) ; Amy K. Harroun ; Barbara Matrone ; Cara S. Martin ; Chris Zajac ; Darcy A. Brune ; 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 ; Al Grubman (grubman1@gmail.com) ; Bill Pouder (bill.pouder@myfwc.com) ; 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) ; Helen Spivey (manatees@habitats.org) ; Hilliard, Dan (2buntings@comcast.net) ; 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) ; Sarah Tenison (cityofweekiwachee@yahoo.com) ; Sulllivan, 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) ; Carl Mattthai (thebabesmimi@gmail.com) ; Casey, Emily (fcnwr@atlantic.net) ; Charles Dean (dean.charles.web@flsenate.gov) ; Charles Stonerock (katcha.stonerock3@gmail.com) ; Chris Safos (chrissafos@embarqmail.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) ; Hope Corona (hopecorona@tampabay.rr.com) ; Jack Calbeck (calbeckj@citrus.k12.fl.us) ; jane Perrin (jcsperrinmd@sbcglobal.net) ; Jerry Morton (JerrMorton@aol.com) ; Jessie Gourlie (gourliej@thirdplanetwind.com) ; Jim Collins (jimmiekey22@yahoo.com) ; Jimmie Smith (Jimmie.Smith@myfloridahouse.gov) ; Joe Calamari ; John Lord (jclord109@yahoo.com) ; John Mayo (freedomway1@gmail.com) ; Karen Johnstone (kjohns213@sbcglobal.net) ; Kim Caldwell (caldwell.kimberly@yahoo.com) ; Kim Dinkins (kim.dinkins@marioncountyfl.org) ; Linda Vanderveen (hernandoaudubon@yahoo.com) ; Mary Anne Lynn (mlynn1978@tampabay.rr.com) ; Matthew Corona (mcorona1@tampabay.rr.com) ; Max Rhinesmith (rhinesmith@webtv.net)
Sent: Friday, July 01, 2011 3:08 PM
Subject: Agenda for SWFWMD Minimum Flows Workshop

Greetings:

Thanks for your recent participation and/or interest in the Southwest Florida Water Management District's Springs Coast Minimum Flows and Levels Public Workshop series. Attached is the tentative agenda for the next workshop, which is scheduled for July 18, 2011.

I will be out of the office for the next two weeks, so I would appreciate your copying Barbara Matrone (barbara.matrone@watermatters.org) and Marty Kelly (marty.kelly@watermatters.org) on any e-mail correspondence you may send to me between today and the eighteenth. This will ensure that any pressing concerns you may have are addressed in a timely manner. If you would prefer to speak with Barbara or Marty, please call 1-800-423-1476. Barbara's extension is 4233 and Marty's is 4235.

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:	Ron Miller
To:	Doug Leeper; Barbara Matrone; Marty Kelly; Ron Basso
Cc:	Priscilla Watkins; Jim Bitter; Ron Schultz; Bill Garvin; Tom Clark; Brad Rimby; Brent Whitley; Rebecca Bays; Mike Cerwinski
Subject:	Springs Coast MFL Workshop
Date:	Friday, July 08, 2011 12:19:10 PM

Dear Mr. Leeper,

Here are some questions regarding the establishment of the Homosassa Springs and River Minimum Flows and Levels. The questions reference the items you have listed for the July 18th Springs Coast MFL Workshop. It would be helpful if answers to these questions would be posted on the Internet prior to July 18th.

Item 4 on the agenda --- Water Use Permitting

Please provide a table and map of all of the water withdrawal permits in the Homosassa Springs Springshed.

Item 5 on the Agenda --- Groundwater and Withdrawal Modeling

These questions are with regard to the the Northern District Model (NDM).

A. How does the model represent the underground flows including the fast flowing deep cracks and channels of the limestone foundation?

B. How is the interaction with the salt water interface modeled?

C. How is rainfall and water seepage from outside the area modeled?

D. How does the model account for the delay between the time of the increasing rain fall and the time of increased spring flow?

E. What are the model calibration methods and what data supports the agency claim of 2% prediction accuracy?

F. What are the actual measured and predicted flows for the Homosassa Springs Group flows for conditions that represent 1946, 1966, 1970, 1979, 1990, 2010 and 2030?

G. Does the model show that the drawdown of underground water alters the relative flows between the Weeki Wachee, Chassahowitzka, Homosassa and Crystal River Rivers?

H. Does the model show that you can control different percent flow draw downs independently across the four above mentioned springsheds?

I. What happens to the Homosassa Springs when the Chassahowitzka is drawn down by 11%?
J. What happens to the Bluebird Springs when the Chassahowitzka is drawn down by 11%.

Thank you,
Ron Miller
rmille76@tampabay.rr.com
352 628-6066

From:	Marty Kelly
To:	Doug Leeper; Mike Heyl
Subject:	FW: Chass Springshed Groundwater Withdrawals and Well Permits
Date:	Monday, July 11, 2011 12:41:18 PM

Just an FYI

From: Ron Basso
Sent: Monday, July 11, 2011 12:10 PM
To: Brad Rimbey
Cc: Marty Kelly; Dave Dewitt
Subject: RE: Chass Springshed Groundwater Withdrawals and Well Permits

Brad:

We simulate Blind Spring in the model. It's estimated flow rate is 43 cfs. In 1995, we simulated 43 cfs of flow for the spring. I have predictions for spring flow decline in 2005 and 2030 of 0.2 and 0.3%, respectively from non-pumping conditions. Blind Spring is a tidally-influenced spring where there are only a few reported discharge measurements. It may only flow intermittently depending on tidal conditions.

Ron Basso, P.G.
Senior Professional Geologist
Hydrologic Evaluation Section
Southwest Florida Water Management District
ph 1-800-423-1476 (in state)
ph 352-796-7211, ext. 4291 (outside state)
FAX 352-797-5799

From: Brad Rimbey [mailto:brimbey3@tampabay.rr.com]
Sent: Friday, July 01, 2011 8:33 AM
To: Ron Basso
Cc: Marty Kelly
Subject: Fw: Chass Springshed Groundwater Withdrawals and Well Permits

Ron,

Thanks for talking to me on Monday. I now have a much better understanding of the NDM and its limitations.

Wednesday I made a boat trip to the head spring of Blind Creek. This was my first trip to this remote spring. As you know, Blind Creek is included in the Chassahowitzka MFL. What I observed was, by all appearances, a dead spring. The water was turbid and saline. There was no discernable temperature difference between the surface water at the spring and the surface water 1/2 mile downstream in Blind Creek. The maximum depth reading at the spring was 56 feet. Clearly, this was once a large spring.

As indicated in the table I emailed to you last Friday (Flow Measurements in the Chassahowitzka

Spring Group), the flow from Blind Spring was measured by USGS in 1961 at 50.3 cfs. Sepulveda estimated the 1993-1994 flow from Blind Spring at 42.7 cfs (USGS WRI 02-4009). Table 4.7 of the NDM Version 2 report indicates a 0% error between the "observed" and NDM simulated flows for Blind Spring. According to Table 4.7, Blind Spring was the second largest spring in the Chassahowitzka Spring Group in 1993-1994.

Based on Table 4.7, the combined "Observed Flow" for the listed springs in the Chassahowitzka Spring Group was 180.4 cfs. Therefore, Blind Spring contributed over 23% of the "Observed Flow" used in the NDM version 2 calibration for the Chassahowitzka Spring Group. However, Blind Spring is not included in the spring flows which you simulate with the NDM. I do not understand how can you claim the NDM is accurate within 2% when you do not simulate a spring which contributed 23% of the "Observed Flow" used in the calibration of the NDM for the Chassahowitzka Spring Group.

I understand the NDM was used in the Chassahowitzka MFL process solely to evaluate human impact on spring flows. I also understand that the NDM predicts approximately a 1% flow reduction due to human impact on Chass Main, Crab, and Potter/Ruth springs. What would be the total human impact on the Chassahowitzka Spring Group if you included the collapse of Blind Spring? Do you have any reason to believe the collapse of Blind Spring was due to anything other than human impact from groundwater withdrawals?

Most people think the loss of a 2nd magnitude spring is a pretty big deal. The loss of Kissengen Spring in Polk County and White Sulphur Spring in Hamilton County certainly got allot of attention. Perhaps the loss of Blind Spring would receive more attention if we too were left with a hole in the ground instead of a spring pool filled with saltwater. However, this is nature of demise in our spring-fed coastal rivers.

If you have not seen it, Cynthia Barnett's recent article in the St. Pete Times on White Sulphur Springs is worth reading http://www.tampabay.com/blogs/alleyes/content/suwannee-river-drought .

I am copying Marty Kelly on this because it seems fundamental to the way the NDM was used in establishing the Chassahowitzka MFL. Thanks again for your time.

Brad W. Rimbey, PE

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

From: Brad Rimbey
To: Ron.Basso@swfwmd.state.fl.us
Sent: Friday, June 24, 2011 11:09 AM
Subject: Fw: Chass Springshed Groundwater Withdrawals and Well Permits

Ron,

I found the NDM Version 2 report on a DVD-R that Pam Gifford gave me. Thanks for providing it.

I looked up the source for the "Observed Flow" data in Table 4.7 which you provided via email. Are you aware that all of the 1993-1994 "observed" flows in Table 4.7 are actually 1993-1994 flow estimates for Chassahowitzka? The 1993-1994 flow estimates for Chassahowitzka were proffered in Table 12 and Appendix C of USGS WRI 02-4009 by Nicasio Sepulveda. The estimated flows for Chassahowitzka were supposedly 70% of the average measured flows reported in USGS WRI 92-4069 by Dan Yobbi. However, some of the estimated flows for Chassahowitzka are not 70% of Yobbi's 1988-1989 average measured flows. Sepulveda does not explain the rationale for estimating the 1993-1994 flows as 70% of Yobbi's 1988-1989 flow measurements.

Table 4.7 of the NDM Version 2 report takes the data which Sepulveda represents as "Measured or

Estimated Flow" and misrepresents it as "Observed Flow". Table 4.7 then shows only a 1% to 3% error between "observed flows" and "simulated flows" for Chassahowitzka. In reality, Table 4.7 is showing a 1% to 3% error between estimated flows and simulated flows in Chassahowitzka. From my perspective, this is meaningless.

The sparse spring flow measurements which Yobbi made in Chassahowitzka are now over 22 years old. They need to be updated. As we discussed after the June 8 workshop, I would be willing to volunteer my time to make periodic flow and conductivity measurements at Chassahowitzka's many springs. I recognize the need for accuracy in the NDM simulations and the NDM cannot be considered accurate without current and accurate data.

In 1992, Dan Yobbi succinctly stated "The coastal-springs area is a small but important segment of a large ground-water flow system. Results out of this study demonstrate that the chemical quality and flow rate of springs depend on the head in the Upper Floridan aquifer. Continued development of ground-water resources within the coastal-springs ground-water basin will modify flow and chemical characteristics of springs and downstream estuaries. Long-term monitoring at selected springs is needed to assess the long term effects of human activities."

I have attached a table which shows the average of flow measurements made by Yobbi in 1988-1989 and the estimated average flows which were represented as observed flows in the NDM Version 2 report. I'll call later today to discuss.

Brad W. Rimbey, PE

----- Original Message -----
From: Brad Rimbey
To: Ron Basso
Sent: Monday, June 20, 2011 5:10 PM
Subject: Re: Chass Springshed Groundwater Withdrawals and Well Permits

Ron - I'm on the road today but I'll be home tomorrow. I'll look for the ND Version 1 & 2 reports when I get back and give you a call after I find and review them. My understanding (or misunderstanding) is that the NDM is a "real-time" dynamic model that has been calibrated to predict spring discharge rates based on the measured groundwater level at a chosen monitoring well. It seems that it is not the case. Thanks for your patience. I'll try to call tomorrow.

Brad Rimbey

> ----- Original Message -----
> From: Ron Basso
> To: Brad Rimbey
> Sent: Monday, June 20, 2011 3:36 PM
> Subject: RE: Chass Springshed Groundwater Withdrawals and Well Permits
>
> Brad:
>
> I'm not sure we're communicating here. Why don't you call me and let's discuss. The NDM is calibrated to 1995 conditions (i.e. this is the table I sent you today from the ND Version 2.0 report). I sent you both version 1 and 2 reports (as pdf documents) in your public records request so you can access that table and the version 1 table which shows how well we matched the 1995 data. We don't simulate all the spring discharges in the NDM other than the ones I listed previously (Crab, Chassahowitzka Main, and Potter/Ruth) so there is no data for many of the small springs. I'm not sure what you mean when you say model the discharges presently. We have a transient simulation that we just updated through 2006 which runs on a monthly basis

from 1996 through 2006. I have attached a figure showing you how the model performs matching historical data from Chassahowitzka main spring from 1996 – 2006 using the latest version (No. 3) of the model (report not finalized yet).

Ron Basso, P.G.
Senior Professional Geologist
Hydrologic Evaluation Section
Southwest Florida Water Management District
ph 1-800-423-1476 (in state)
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FAX 352-797-5799

From: Brad Rimbey [mailto:brimbey3@gmail.com]
Sent: Monday, June 20, 2011 3:06 PM
To: Ron Basso
Subject: Re: Chass Springshed Groundwater Withdrawals and Well Permits

Thanks Ron but the table you attached is not really what I asked for. Can you generate a table which shows the present NDM simulated spring discharges from all the springs I listed in the Chassahowitzka Springs Group? Attached is a page from Mike Heyl's MFL report for the Chassahowitzka which shows most of the springs in the Chassahowitzka Group. Blind Spring and Snapper Hole are not shown but should be included in the Group.

I do not believe I have previously seen the table which you attached. Could you give me the name of the document that this table came from? Did you include this document in the material which you provided in response to my recent public records request? Is this document available online?

Brad Rimbey

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

From: Ron Basso
To: Brad Rimbey@CRRC
Sent: Monday, June 20, 2011 8:35 AM
Subject: RE: Chass Springshed Groundwater Withdrawals and Well Permits

Brad:

We actively simulate the Chassahowitzka Springs Group using drain cells for Chassahowitzka, Potter (which includes Ruth), and Crab springs. Attached are the calibration statistics for 1995 average annual flows from Version 2 of the NDM.

Ron Basso, P.G.
Senior Professional Geologist
Hydrologic Evaluation Section
Southwest Florida Water Management District
ph 1-800-423-1476 (in state)
ph 352-796-7211, ext. 4291 (outside state)
FAX 352-797-5799

From: Brad Rimbey@CRRC [mailto:BWR.CRRC@tampabay.rr.com]
Sent: Friday, June 17, 2011 5:28 PM
To: Ron Basso
Subject: Re: Chass Springshed Groundwater Withdrawals and Well Permits

Thanks Ron. Between what you supplied and WMIS, I should be able to find the information I requested.

I have one other request. As we discussed after the Springs Coast MFL workshop, I would like to know what the NDM presently predicts as the flow rate for each of the springs in the Chassahowitzka Springs Group (Chass Main, Chass #1, Chass #2, Crab, Lettuce, Baird, Snapper Hole, Salt, Potter, Ruth, Johnson, Betty Jay, Rita Marie, Blue Run, Ryle, and Blind). I would prefer to get the data as a pdf file. I think this is a simple request. Let me know if you believe otherwise.

Brad Rimbey
(813) 417-9453

> ----- Original Message -----
> From: Ron Basso
> To: Brad Rimbey@CRRC
> Cc: Bill Bilenky ; Mike Kelley ; Pam Gifford ; Mark Barcelo ; Brent Whitley
> Sent: Friday, June 17, 2011 10:03 AM
> Subject: RE: Chass Springshed Groundwater Withdrawals and Well Permits
>
> Brad:
>
> We import an Arcmap GIS shapefile from a database of water use permitted wells into the GWVs model software. I've included the shapefile in the attached zip file. Since I doubt you have ESRI GIS software, you can open the *.dbf file in MS Excel. Once you do, you'll find our estimated and metered data (by well) for the WUPs. Most of the fields are self-explanatory except for the withdrawal point. Here is how that is deciphered:
>
> For Example: SW0022240070005 Withdrawal Point (WUP Well)

'SW' 002224 = WATER USE PERMIT #; 007 = REVISION #; 0005 = WITHDRAWAL #

Here are some other field definitions:

N	line number
LONG	longitude, negative decimal degrees, NAD_1983_HARN_UTM_Zone_17N
LAT	latitude, decimal degrees, NAD_1983_HARN_UTM_Zone_17N
ID	concatenation of 'SW', Permit# (6 spaces) Revision# (3 spaces) and Withdrawal# (4 spaces)
W_TYPE	withdrawal type (G ground water or S surface water)
DIAMETER	diameter of withdrawal pipe in inches
CS_DEPTH	depth of well casing in feet below land surface elevation (~40% are estimated)
DEPTH	depth of well in feet below land surface elevation (~5% are estimated)
M_E	metered (M) or estimated (E) pumping rates
USETYPE	general use type (A agricultural, IC industrial/commercial, MD mining/dewatering, P public supply, R recreation)
USE_CODE	specific use types (a list of the 165 codes is available)
AVG_CFD	2006 permitted maximum average pumping for the withdrawal (annual) in cubic feet per day (CFD)
TOT_CFD	2006 permitted maximum average pumping for the permit (annual, all withdrawals) CFD
MAX_CFD	2006 permitted maximum pumping for the withdrawal (one day) CFD
Q92CFD-Q06CFD	average annual estimated/metered pumping, 1992-2006, negative indicates a withdrawal (CFD)
Q06MGD	2006 average annual estimated/metered pumping in MGD (for mapping)
NAME	permittee or project name
BUFF95	extraneous buffering column for map graphics

In response to an earlier request, I'm also sending you our internal memorandum on mining consumptive use and how these quantities were reduced in the model to account for consumptive use. In addition, I pulled the present day WUP information (by permit) for the Chassahowitzka springshed late last year for Mickey Newberger, which is included. Once you have the permit number, you can query our WMIS on our internet site for specific information regarding each permit.

Finally, I pulled the major public supply metered data in Citrus and Hernando Counties so that you can see the history of withdrawals and how they've changed since 2005. You'll see that these withdrawals are generally lower now in 2010 than they were in 2005.

Ron Basso, P.G.
Senior Professional Geologist
Hydrologic Evaluation Section
Southwest Florida Water Management District
ph 1-800-423-1476 (in state)
ph 352-796-7211, ext. 4291 (outside state)

FAX 352-797-5799

From: Brad Rimbey@CRRC [mailto:BWR.CRRC@tampabay.rr.com]
Sent: Wednesday, June 15, 2011 3:28 PM
To: Ron Basso
Cc: Bill Bilenky
Subject: Chass Springshed Groundwater Withdrawals and Well Permits

Ron,

It was a pleasure speaking with you after last week's Springs Coast MFL Workshop.

Attached is a pdf of a slide which you presented during the second Chassahowitzka MFL public workshop on December 16, 2010. I would like to receive tabular data related to the attached graphic. Specifically, I would like to know

1) What was the actual daily average groundwater withdrawal rate (in MGD) from each of the wells (dots) represented on the attached slide?
2) What was the maximum daily average of ground water (in MGD) which was permitted from each well (dot) represented on the attached slide?
3) What was the permit number for each well (dot) represented on the attached slide? (please identify each dot by permit number on a similar graphic)
4) What was the project site name for each well (dot) represented on the attached slide?
5) What the owner's name and who was the permittee for each well permit (dot) represented on the attached slide?
6) What was the issue date and what was the expiration date of each well permit (dot) represented on the attached slide?
7) What was the water use designation of each well permit (dot) represented on the attached slide?
8) What is the drought quantity, max quantity, and peak quantity, for each well permit (dot) on the attached slide?

Since the data on the attached slide was approximately 5 years old when it was presented to the public on December 16, 2010, I would like to see an updated version which reflects all of the requested information as of today's date (June 15, 2011). Please provide this information well in advance of your presentation at the next Springs Coast MFL workshop in late July.

Thank you.

Brad W. Rimbey, PE
Springs Coast MFL Panel Member representing the Chassahowitzka River Restoration Committee

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not allow use of District equipment and E-mail facilities for non-District business purposes.

From:	Ron Basso
To:	Ron Miller; Doug Leeper; Barbara Matrone; Marty Kelly
Cc:	Priscilla Watkins; Jim Bitter; Ron Schultz; Bill Garvin; Tom Clark; Brad Rimby; Brent Whitley; Rebecca Bays; Mike Cerwinski; Mark Barcelo; Paul Williams
Subject:	RE: Springs Coast MFL Workshop
Date:	Wednesday, July 13, 2011 2:12:18 PM
Attachments:	Response to Mr Miller.docx

Mr. Miller:

Please find attached my response to your email request sent on Friday of last week. I attempted to be brief recognizing that some of the technical issues are complex and may require further explanation. If you still have questions after review of this response please feel free to contact me directly or I can address any outstanding issues at the workshop on the 18th.

Ron Basso, P.G.
Senior Professional Geologist
Hydrologic Evaluation Section
Southwest Florida Water Management District
ph 1-800-423-1476 (in state)
ph 352-796-7211, ext. 4291 (outside state)
FAX 352-797-5799

From: Ron Miller [mailto:rmille76@tampabay.rr.com]
Sent: Friday, July 08, 2011 12:19 PM
To: Doug Leeper; Barbara Matrone; Marty Kelly; Ron Basso
Cc: Priscilla Watkins; Jim Bitter; Ron Schultz; Bill Garvin; Tom Clark; Brad Rimby; Brent Whitley; Rebecca Bays; Mike Cerwinski
Subject: Springs Coast MFL Workshop

Dear Mr. Leeper,

Here are some questions regarding the establishment of the Homosassa Springs and River Minimum Flows and Levels. The questions reference the items you have listed for the July 18th Springs Coast MFL Workshop. It would be helpful if answers to these questions would be posted on the Internet prior to July 18th.

Item 4 on the agenda --- Water Use Permitting

Please provide a table and map of all of the water withdrawal permits in the Homosassa Springs Springshed.

Item 5 on the Agenda --- Groundwater and Withdrawal Modeling

These questions are with regard to the the Northern District Model (NDM).

A. How does the model represent the underground flows including the fast flowing deep cracks and channels of the limestone foundation?

B. How is the interaction with the salt water interface modeled?

C. How is rainfall and water seepage from outside the area modeled?

D. How does the model account for the delay between the time of the increasing rain fall and the time of increased spring flow?

E. What are the model calibration methods and what data supports the agency claim of 2% prediction accuracy?

F. What are the actual measured and predicted flows for the Homosassa Springs Group flows for conditions that represent 1946, 1966, 1970, 1979, 1990, 2010 and 2030?

G. Does the model show that the drawdown of underground water alters the relative flows between the Weeki Wachee, Chassahowitzka, Homosassa and Crystal River Rivers?

H. Does the model show that you can control different percent flow draw downs independently across the four above mentioned springsheds?

I. What happens to the Homosassa Springs when the Chassahowitzka is drawn down by 11%?

J. What happens to the Bluebird Springs when the Chassahowitzka is drawn down by 11%.

Thank you,

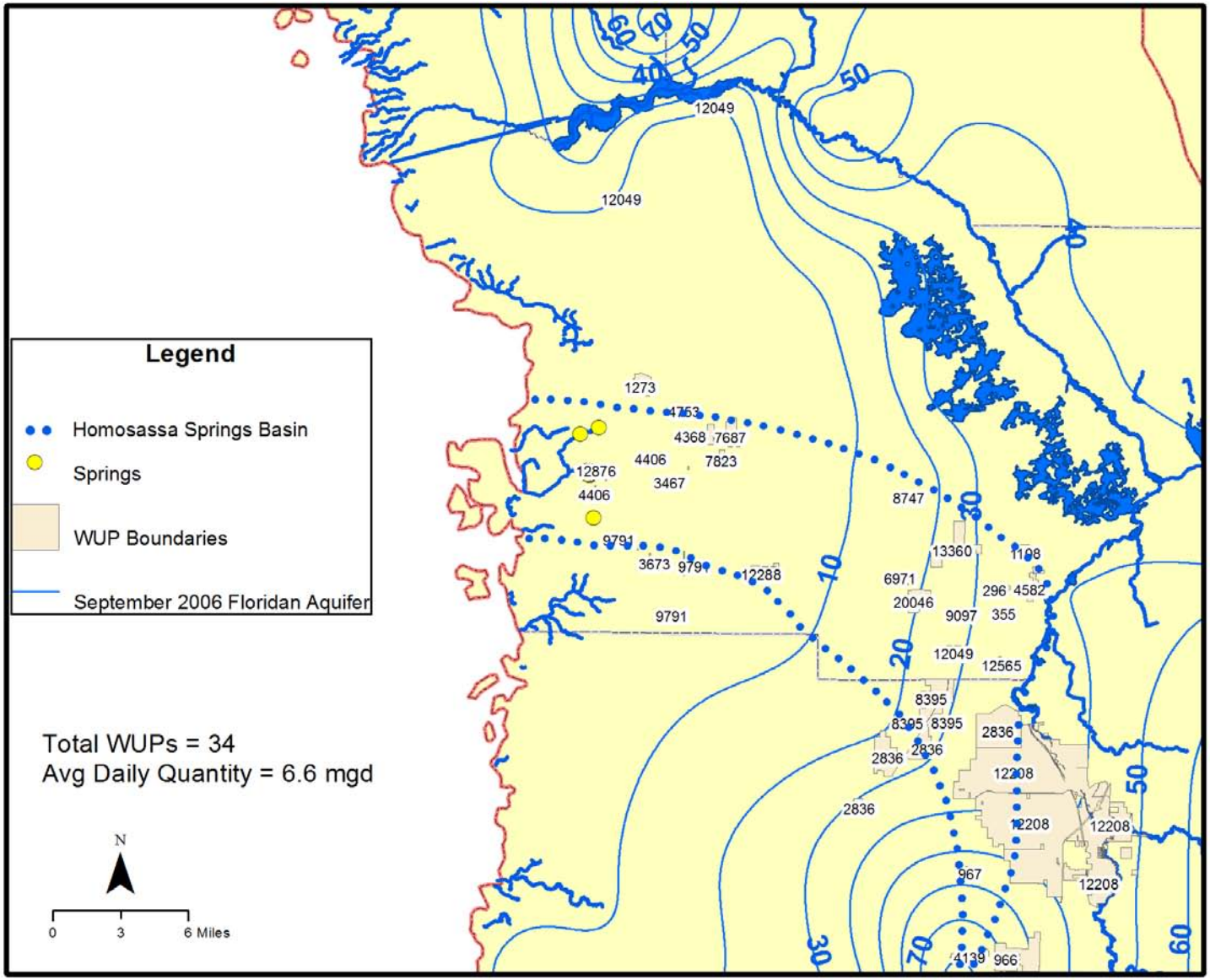
Ron Miller

rmille76@tampabay.rr.com

352 628-6066

Response to Mr. Miller's email request:

1. **Item 4 on the agenda --- Water Use Permitting**
   Please provide a table and map of all of the water withdrawal permits in the Homosassa Springs Springshed.



WUP_PERMIT	WUP_REVISI	PERMITTEE_	WATER_USE_	OWNED_PROP	AVG DAILY PERMITTED_GPD
296	2	Ray A Morris	AGRICULTURAL	37	11,100
355	2	L Norman And Linda L Adams	AGRICULTURAL	18	22,600
967	3	Hickory Hills Land Company, ATTN: Robert Thomas	AGRICULTURAL	93	68,100
1108	4	Z2F Citrus & Cattle LLC	AGRICULTURAL	105	99,000
1273	4	Post Oak Ranch LLC	AGRICULTURAL	533	61,500
2226	3	Edwin O'Neal	AGRICULTURAL	20	27,450
2836	3	United States Dept Of Agriculture	AGRICULTURAL	3817	21,400
4139	3	Aam Family Ltd Partnership	AGRICULTURAL	51	58,500
4582	2	Thomas W. & Mary L. Harrison	AGRICULTURAL	280	31,800
5091	3	Toby John & Joanna Caulfeild	AGRICULTURAL	20	300
6966	4	Larry W & Ruth A Davis	AGRICULTURAL	48	29,400
6971	2	John W & Margaret R White	AGRICULTURAL	51	30,900
7687	7	Crystal River Quarries Inc	AGRICULTURAL	460	62,050
8747	1	William Hunt	AGRICULTURAL	14	2,900
12146	1	Edwin E. and Barbara A. Harbour	AGRICULTURAL	20	9,280
12208	0	Board Of Trst'S Improv'T Tst Fnd Fdep-Div Of Rec & Parks Bureau	AGRICULTURAL	21639	143,400
12288	2	M & B Products	AGRICULTURAL	322	497,277
12565	0	Professional Horticultural Services	AGRICULTURAL	80	385,700
13360	0	Throgmartin-Henke Ranch &	AGRICULTURAL	0	231,500
20046	0	Pinewoods Plantation Nursery Inc	AGRICULTURAL	489	123,160
9115	1	Tru Gas Of Florida, Inc.	INDUSTRIAL AND COMMERCIAL	1	1,000
12049	1	Citrus Co Bocc	INDUSTRIAL AND COMMERCIAL	33	2,500
4368	2	Citrus County School Board	PUBLIC SUPPLY	160	161,000
4406	7	Homosassa Special Water District	PUBLIC SUPPLY	10	960,000
4753	3	Constate Utilities Inc	PUBLIC SUPPLY	1	81,200
7823	2	Central Florida Community College	PUBLIC SUPPLY	87	11,800
8395	3	Board Of Tst Internal Improv Tst Fund Of The State Of Florida	PUBLIC SUPPLY	1116	5,900
9097	2	Tarawood Utlities LLC	PUBLIC SUPPLY	5	99,600
9791	7	Citrus County Water Resources De c/o Robert Knight Director	PUBLIC SUPPLY	2	2,064,000
13290	0	Citrus Co Dept Of Public Works Glenn Mccracken Pe	PUBLIC SUPPLY	19	9,400
966	4	Hickory Hills LLC	RECREATION/AESTHETIC	2766	775,000
3467	2	Gibraltar Mausoleum Of Florida	RECREATION/AESTHETIC	40	45,400
3673	5	Suntacc & Company, Inc.	RECREATION/AESTHETIC	250	456,000
12876	1	Board Of Trustees Internal Imp & Homosassa Springs Wildlife Prk	RECREATION/AESTHETIC	203	12,600

Total: 6,602,717

There are a total of 34 water use permits within or near the Homosassa springshed as of December 2010. Total average daily permitted quantities for groundwater use is 6.6 mgd. They break down as follows:

WUP Type	No. of Permits	Avg Daily Quantity (mgd)
Agriculture	20	1.92
Industrial/Commercial	2	0.003
Mining	0	0
Public Supply	8	3.39
Recreation	4	1.29

There are 134 water use permitted wells within or near the Homosassa springshed. Total average daily permitted quantity from all 134 wells is 6.32 mgd. Slight differences in the total occur because some of the WUPs under the same permit number have parcels that are within and outside the springshed (i.e. 2836, 9791, 12049). A few of the permits include quantities outside the springshed and thus the permitted total is slightly higher than the sum of the wells.

Estimated and metered water use in the springshed for 2005 was 3.7 mgd from 143 wells.

2. **Item 5 on the Agenda --- Groundwater and Withdrawal Modeling**
These questions are with regard to the Northern District Model (NDM).

A. How does the model represent the underground flows including the fast flowing deep cracks and channels of the limestone foundation?

The NDM contains a finite-difference grid that consists of 182 columns and 275 rows of 2,500 ft uniformly spaced cells. The NDM is fully 3-Dimensional with top and bottom elevations specified for each model layer. Topographic elevations were assigned to the top of model layer 1 from a digital elevation model provided by SWFWMD, based on the USGS 30m National Elevation Dataset. The Florida Geological Survey supplied elevation data for all other layers in the model.

The NDM consists of seven layers that represent the primary geologic and hydrogeologic units including: 1. Surficial Sands; 2. Intermediate Confining Unit (ICU); 3. Suwannee Limestone; 4. Ocala Limestone; 5. upper Avon Park Formation; 6. Middle Confining Unit (MCU) I and MCU II; and 7. lower Avon Park Formation or Oldsmar Formation. The UFA is composed of the Suwannee Limestone, Ocala Limestone, and Upper Avon Park; the Lower Floridan aquifer (LFA) is composed of the permeable parts of both the lower Avon Park and the Oldsmar Formation. Due to the permeability contrasts between the units, each unit is simulated as a discrete model layer rather than using one model layer to represent a thick sequence of permeable units (e.g., UFA).

The NDM was calibrated to steady-state 1995 calendar year conditions and transient conditions from 1996 through 2002 using monthly stress periods. The model has recently been extended through 2006 (Version 3.0). This model is unique for west-central Florida in that it is the first regional flow model that represents the groundwater system as fully three-dimensional. Prior modeling efforts, notably Ryder (1985), Sepulveda (2002), and Knowles and others (2002), represented the groundwater system as quasi-three-dimensional.

The numerical model simulates hydrogeologic conditions through assignment of aquifer parameters that are based on aquifer performance testing, other hydraulic tests, prior knowledge, and geologic characteristics. A conceptual model of the system was developed prior to construction of the NDM whereby field data and other data from reports were analyzed to more fully understand the physical system. NDM parameters were adjusted within reasonable ranges based the hydrogeology of the system during the calibration process. Localized

karst features such as cracks, conduits, or channels in the subsurface are integrated in the model over a 2,500 ft cell size through equivalent porous media parameterization in the model.

B. How is the interaction with the salt water interface modeled?

The NDM simulates the fresh groundwater flow system within its domain. The potential movement of solutes (salts and minerals) can only be addressed through a transport model which is a completely different code. The District simulated the movement of the saline water interface in a separate saltwater intrusion model that is described at the end of the NDM report (Hydrogeologic, 2008). Detailed information on the model calibration is included in the 2008 report by Hydrogeologic, Inc., titled *Groundwater Flow and Saltwater Intrusion Model for the Northern District Water Resources Assessment Project Area, Version 1.0.* A subsequent version (2.0) was completed in 2010.

C. How is rainfall and water seepage from outside the area modeled?

The active domain of the 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.

Rainfall is converted to recharge in the model based on the following equation:

Rainfall – ET- Runoff = Recharge

Recharge is calculated outside the model based on radar-estimated rainfall, runoff, and evapotranspiration rates calculated based on land cover and water table depth. Once calculated, recharge is applied to layer 1 of the model. A detailed explanation is given in *Groundwater Flow and Saltwater Intrusion Model for the Northern District Water Resources Assessment Project Area, Version 1.0*, Hydrogeologic, Inc. 2008.

D. How does the model account for the delay between the time of the increasing rain fall and the time of increased spring flow?

The groundwater flow model simulates changes in aquifer levels, baseflow, and spring flow due to variations in stress. The principle stress components are recharge and pumping. The model is calibrated to the 1995 through 2006 period by matching well water levels and measured or estimated flows. Water budget values were calculated on a basin-wide basis for the 1995 steady-state and 1996-2006 transient models (Version 3.0). These values were generally consistent with empirical water budget estimates and previous models of the area. If the model simulates variations in aquifer head and flows consistent with observed values, then it provides confidence that the model is adequately accounting for variations in spring flow due to rainfall.

E. What are the model calibration methods and what data supports the agency claim of 2% prediction accuracy?

I'm not sure the agency claimed a "2% prediction accuracy", only that the model matches observed spring flows within two percent during the calibration period. The NDM calibration methods consisted of automatic and manual best-fit parameter adjustments to minimize aquifer head and flow error. General calibration statistics were to achieve a 10% or less match in observed versus simulated total flows for baseflow and spring flow. A mean error close to 0 ft and a mean absolute error of 4 ft were targeted for the Northern West-Central Florida Groundwater Basin observation wells in each aquifer.

In the 1995 steady-state model simulated flows for the Homosassa and Chassahowitzka group springs were generally within two percent of the observed (estimated) values. I've attached Table 4.7 from version 2.0 of the NDM that shows the difference between model simulated and observed flow rates for the nature coast

Table 4.7
Steady-State Simulated and Observed Spring Discharge Rates (cfs)

Spring	Magnitude	County	Group	Simulated Flow (cfs)	Observed Flow (cfs)	Residual (Observed-Simulated)	Percent Error
Magnesia Springs	3	Alachua	1	0.00	5.00	5.00	100
Crystal River Group	1	Citrus	22	330.35	350.00	19.65	6
Manatee Sanctuary Spring	1	Citrus	23	94.40	100.00	5.60	6
Halls River Head Main Spg	1	Citrus	30	99.24	102.00	2.76	3
Citrus Unnamed Spring	1	Citrus	51	98.03	100.00	1.97	2
Homosassa 1 Spring	2	Citrus	36	70.21	72.00	1.79	2
Se Fork Homosassa Spg	2	Citrus	37	41.93	43.00	1.07	2
Potters Creek Spring	2	Citrus	46	13.71	14.00	0.29	2
Crab Spring	2	Citrus	49	34.00	35.00	1.00	3
Chassahowitzka Main Spg	2	Citrus	50	63.70	65.00	1.30	2
Sulfur Springs	3	Citrus	13	0.00	5.00	5.00	100
Citrus-Blue Spring	3	Citrus	16	0.00	5.00	5.00	100
Tarpon Spring	3	Citrus	19	4.66	5.00	0.34	7
House Spring	3	Citrus	20	4.62	5.00	0.38	8
Hunters Spring	3	Citrus	21	0.00	5.00	5.00	100
Middle Springs	3	Citrus	24	0.00	5.00	5.00	100
Three Sisters Run Spg 2	3	Citrus	25	0.00	5.00	5.00	100
Three Sisters Run Spring	3	Citrus	26	0.00	5.00	5.00	100
Idiots Delight Spring	3	Citrus	27	0.00	5.00	5.00	100
Halls River 1 Spring	3	Citrus	31	4.88	5.00	0.12	2
Belcher Spring	3	Citrus	32	4.74	5.00	0.26	5
Abdoney Spring	3	Citrus	33	4.88	5.00	0.12	2
Mcclain Spring	3	Citrus	34	4.88	5.00	0.12	2
Trotter 1	3	Citrus	35	4.88	5.00	0.12	2
Pumphouse Spring	3	Citrus	38	4.88	5.00	0.12	2
Hidden River Head Spring	3	Citrus	39	6.26	7.00	0.74	11
Baird Spring	3	Citrus	52	2.95	3.00	0.05	2
Salt Creek Springs	4	Citrus	48	0.39	0.40	0.01	2
Weeki Wachee Spring	1	Hernando	65	137.61	148.00	10.39	7
Hernando Unnamed 10	2	Hernando	56	18.84	19.00	0.16	1
Blind Spring	2	Hernando	58	43.00	43.00	0.00	0
Mud Spring	2	Hernando	61	8.09	17.00	8.91	52
Salt Spring	2	Hernando	62	22.43	22.00	-0.43	-2
Jenkins Creek Spring	2	Hernando	64	15.06	15.00	-0.06	0
Betee Jay Spring	3	Hernando	53	6.95	7.00	0.05	1
Ryle Creek Spring	3	Hernando	54	7.95	8.00	0.05	1
Blue Run Spring	3	Hernando	55	4.96	5.00	0.04	1
Hernando Unnamed 08	3	Hernando	57	5.00	5.00	0.00	0
Hospital Hole	3	Hernando	63	5.04	5.00	-0.04	-1
Bobhill Spg Nr Aripeka	3	Hernando	68	2.04	2.00	-0.04	-2
Palm Island Spring	3	Hernando	69	5.00	5.00	0.00	0
Magnolia Spring	3	Hernando	70	1.01	1.00	-0.01	-1
Hernando Unnamed 02	4	Hernando	66	0.83	0.70	-0.13	-19
Boat Spring	4	Hernando	67	0.40	0.40	0.00	-1
Sulphur Spgs At Sul Spgs	2	Hillsborough	86	25.01	25.00	-0.01	0
Lettuce Lake Spring	3	Hillsborough	87	8.10	8.00	-0.10	-1
Six Mile Creek Spring	3	Hillsborough	88	1.01	1.00	-0.01	-1
Lowry Park Spring	3	Hillsborough	89	5.01	5.00	-0.01	0
Eureka Springs	3	Hillsborough	91	1.02	1.00	-0.02	-2

springs.

F. What are the actual measured and predicted flows for the Homosassa Springs Group flows for conditions that represent 1946, 1966, 1970, 1979, 1990, 2010 and 2030?

Flows are not measured for most of the springs within the Homosassa Springs Group. The NDM matches estimated or observed flows for 1995 and on a monthly basis from 1996 through 2006 for the Chassahowitzka main spring and Homosassa 1 spring (in Version 3.0). Once a model is calibrated, there are no further adjustments to aquifer parameters. Future scenarios are run by simply altering well withdrawals to fit a given condition (ex. 2030). There are no modeled flows outside the 1995-2006 period except for the non-pumping and 2030 prediction scenarios. Table 2 shows the predicted spring discharge rates in the 2030 simulation. Homosassa No. 1 spring's continuous discharge record starts in 1995. There are no continuously measured flows prior to 1995.

Table 2. Predicted Homosassa Spring group discharge under non-pumping and 2030 conditions.

Spring Name	Discharge for Non-Pumping Scenario (cfs)	Discharge for 2030 Pumping Scenario (cfs)	Difference (cfs)	Percent Difference
Abdoney Spring	4.98	4.87	-0.11	-2.13
Belcher Spring	4.98	4.77	-0.21	-4.29
Halls River 1 Spring	5.00	4.90	-0.10	-2.07
Halls River Head Main Spg	102.11	99.76	-2.35	-2.31
Hidden River Head Spring	6.61	6.05	-0.56	-8.47
Homosassa 1 Spring	71.65	70.16	-1.49	-2.07
Mcclain Spring	4.98	4.87	-0.11	-2.13
Pumphouse Spring	4.97	4.87	-0.10	-2.10
Trotter 1	4.97	4.87	-0.10	-2.02
Total	210.2	205.12	-5.13	-2.44

G. Does the model show that the drawdown of underground water alters the relative flows between the Weeki Wachee, Chassahowitzka, Homosassa and Crystal River Rivers?

The NDM is used as a predictive tool to model impact to all 93 springs in the domain. Groundwater withdrawn in the entire Northern West-Central groundwater Basin can impact spring discharge. However, the magnitude and proximity of withdrawals to the spring vent directly influences the potential impact to spring flow. The closer the withdrawal and greater the pumpage causes a larger decline in flow compared to a withdrawal much further away. Predicted impact to Weeki Wachee spring is much greater than the other springs due to relatively large groundwater withdrawals for Hernando County utilities and Cross Bar wellfield within the springshed. The drawdown in the Upper Floridan aquifer water level and spring discharges from 93 springs have been modeled for 2005 and 2030 conditions (when compared to a "pumps off" condition) to note change due to all withdrawals.

H. Does the model show that you can control different percent flow draw downs independently across the four above mentioned springsheds?

Not sure what you mean here. Predicted impacts vary amongst the four main spring groups due primarily to the proximity and magnitude of well withdrawals to each spring network, aquifer parameters near the springs, and variation in recharge to the Upper Floridan aquifer near each spring.

I. What happens to the Homosassa Springs when the Chassahowitzka is drawn down by 11%?

Since the allowable flow has been proposed at five percent for Homosassa Spring it is likely that this will limit groundwater withdrawals in the area so that impacts to Chassahowitzka will never reach 11%.

J. What happens to the Bluebird Springs when the Chassahowitzka is drawn down by 11%?

Bluebird springs is not actively simulated in the NDM. If Bluebird Springs is close to the Chassahowitzka Springs group, it's likely it'll be affected in a similar way.

From:	Marty Kelly
To:	Mike Heyl
Cc:	Doug Leeper
Subject:	FW: Chass Springshed Groundwater Withdrawals and Well Permits
Date:	Wednesday, July 13, 2011 3:59:32 PM

Mike,

FYI.

From: Brad Rimbey [mailto:brimbey3@gmail.com]
Sent: Wednesday, July 13, 2011 11:18 AM
To: Ron Basso
Cc: Marty Kelly; Dave Dewitt
Subject: Re: Chass Springshed Groundwater Withdrawals and Well Permits

Ron,

Thanks for getting back to me. So far as I know, the only actual flow measurement for Blind Spring was made in 1961. I understand the NDM predicts less than 1% flow reduction to Blind Spring due to groundwater pumping. Is the NDM prediction based on anything other than one 50 year old flow measurement and an assumption that Blind Spring and Chas Main will respond similarly to groundwater pumping?

I understand all of the springs in the Chas group are tidally influenced (including Blind Spring). When I return to FL, I will make another trip to Blind Spring and stay through a tide cycle to see if any spring flow is apparent. If the present flow from Blind Spring is anything less than 99.7% of the 1961 USGS measured flow of 50.3 cfs, would you attribute the decline to anything other than reduced rainfall over the past 50 years?

On a somewhat different topic, Brent Whitley recently told me that he thought we should see an increase in spring flow from Blind Spring within a few days of a 3 inch rain event in the springshed. This seems unrealistic based on my limited understanding of hydrology and what I have observed from the USGS gage at Chas Main. I know you have described the UFA as a rapid recharge system but the term rapid is relative. Do you have an opinion on how long it takes rainfall in the springshed to percolate and reach the springs in Chas (days, months, years)?

Brad Rimbey

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

From: Ron Basso
To: Brad Rimbey
Cc: Marty Kelly ; Dave Dewitt
Sent: Monday, July 11, 2011 12:10 PM
Subject: RE: Chass Springshed Groundwater Withdrawals and Well Permits

Brad:

We simulate Blind Spring in the model. It's estimated flow rate is 43 cfs. In 1995, we simulated 43 cfs of flow for the spring. I have predictions for spring flow decline in 2005 and 2030 of 0.2 and 0.3%, respectively from non-pumping conditions. Blind Spring is a tidally-influenced spring where there are only a few reported discharge measurements. It may only flow intermittently

depending on tidal conditions.

Ron Basso, P.G.
Senior Professional Geologist
Hydrologic Evaluation Section
Southwest Florida Water Management District
ph 1-800-423-1476 (in state)
ph 352-796-7211, ext. 4291 (outside state)
FAX 352-797-5799

From: Brad Rimbey [mailto:brimbey3@tampabay.rr.com]
Sent: Friday, July 01, 2011 8:33 AM
To: Ron Basso
Cc: Marty Kelly
Subject: Fw: Chass Springshed Groundwater Withdrawals and Well Permits

Ron,

Thanks for talking to me on Monday. I now have a much better understanding of the NDM and its limitations.

Wednesday I made a boat trip to the head spring of Blind Creek. This was my first trip to this remote spring. As you know, Blind Creek is included in the Chassahowitzka MFL. What I observed was, by all appearances, a dead spring. The water was turbid and saline. There was no discernable temperature difference between the surface water at the spring and the surface water 1/2 mile downstream in Blind Creek. The maximum depth reading at the spring was 56 feet. Clearly, this was once a large spring.

As indicated in the table I emailed to you last Friday (Flow Measurements in the Chassahowitzka Spring Group), the flow from Blind Spring was measured by USGS in 1961 at 50.3 cfs. Sepulveda estimated the 1993-1994 flow from Blind Spring at 42.7 cfs (USGS WRI 02-4009). Table 4.7 of the NDM Version 2 report indicates a 0% error between the "observed" and NDM simulated flows for Blind Spring. According to Table 4.7, Blind Spring was the second largest spring in the Chassahowitzka Spring Group in 1993-1994.

Based on Table 4.7, the combined "Observed Flow" for the listed springs in the Chassahowitzka Spring Group was 180.4 cfs. Therefore, Blind Spring contributed over 23% of the "Observed Flow" used in the NDM version 2 calibration for the Chassahowitzka Spring Group. However, Blind Spring is not included in the spring flows which you simulate with the NDM. I do not understand how can you claim the NDM is accurate within 2% when you do not simulate a spring which contributed 23% of the "Observed Flow" used in the calibration of the NDM for the Chassahowitzka Spring Group.

I understand the NDM was used in the Chassahowitzka MFL process solely to evaluate human impact on spring flows. I also understand that the NDM predicts approximately a 1% flow reduction due to human impact on Chass Main, Crab, and Potter/Ruth springs. What would be the total human impact on the Chassahowitzka Spring Group if you included the collapse of Blind Spring? Do you have any reason to believe the collapse of Blind Spring was due to anything other than human impact from groundwater withdrawals?

Most people think the loss of a 2nd magnitude spring is a pretty big deal. The loss of Kissengen

Spring in Polk County and White Sulphur Spring in Hamilton County certainly got allot of attention. Perhaps the loss of Blind Spring would receive more attention if we too were left with a hole in the ground instead of a spring pool filled with saltwater. However, this is nature of demise in our spring-fed coastal rivers.

If you have not seen it, Cynthia Barnett's recent article in the St. Pete Times on White Sulphur Springs is worth reading http://www.tampabay.com/blogs/alleyes/content/suwannee-river-drought .

I am copying Marty Kelly on this because it seems fundamental to the way the NDM was used in establishing the Chassahowitzka MFL. Thanks again for your time.

Brad W. Rimbey, PE

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

From: Brad Rimbey
To: Ron.Basso@swfwmd.state.fl.us
Sent: Friday, June 24, 2011 11:09 AM
Subject: Fw: Chass Springshed Groundwater Withdrawals and Well Permits

Ron,

I found the NDM Version 2 report on a DVD-R that Pam Gifford gave me. Thanks for providing it.

I looked up the source for the "Observed Flow" data in Table 4.7 which you provided via email. Are you aware that all of the 1993-1994 "observed" flows in Table 4.7 are actually 1993-1994 flow estimates for Chassahowitzka? The 1993-1994 flow estimates for Chassahowitzka were proffered in Table 12 and Appendix C of USGS WRI 02-4009 by Nicasio Sepulveda. The estimated flows for Chassahowitzka were supposedly 70% of the average measured flows reported in USGS WRI 92-4069 by Dan Yobbi. However, some of the estimated flows for Chassahowitzka are not 70% of Yobbi's 1988-1989 average measured flows. Sepulveda does not explain the rationale for estimating the 1993-1994 flows as 70% of Yobbi's 1988-1989 flow measurements.

Table 4.7 of the NDM Version 2 report takes the data which Sepulveda represents as "Measured or Estimated Flow" and misrepresents it as "Observed Flow". Table 4.7 then shows only a 1% to 3% error between "observed flows" and "simulated flows" for Chassahowitzka. In reality, Table 4.7 is showing a 1% to 3% error between estimated flows and simulated flows in Chassahowitzka. From my perspective, this is meaningless.

The sparse spring flow measurements which Yobbi made in Chassahowitzka are now over 22 years old. They need to be updated. As we discussed after the June 8 workshop, I would be willing to volunteer my time to make periodic flow and conductivity measurements at Chassahowitzka's many springs. I recognize the need for accuracy in the NDM simulations and the NDM cannot be considered accurate without current and accurate data.

In 1992, Dan Yobbi succinctly stated "The coastal-springs area is a small but important segment of a large ground-water flow system. Results out of this study demonstrate that the chemical quality and flow rate of springs depend on the head in the Upper Floridan aquifer. Continued development of ground-water resources within the coastal-springs ground-water basin will modify flow and chemical characteristics of springs and downstream estuaries. Long-term monitoring at selected springs is needed to assess the long term effects of human activities."

I have attached a table which shows the average of flow measurements made by Yobbi in 1988-1989 and the estimated average flows which were represented as observed flows in the NDM Version 2 report. I'll call later today to discuss.

Brad W. Rimbey, PE

----- Original Message -----
From: Brad Rimbey
To: Ron Basso
Sent: Monday, June 20, 2011 5:10 PM
Subject: Re: Chass Springshed Groundwater Withdrawals and Well Permits

Ron - I'm on the road today but I'll be home tomorrow. I'll look for the ND Version 1 & 2 reports when I get back and give you a call after I find and review them. My understanding (or misunderstanding) is that the NDM is a "real-time" dynamic model that has been calibrated to predict spring discharge rates based on the measured groundwater level at a chosen monitoring well. It seems that it is not the case. Thanks for your patience. I'll try to call tomorrow.

Brad Rimbey

----- Original Message -----
From: Ron Basso
To: Brad Rimbey
Sent: Monday, June 20, 2011 3:36 PM
Subject: RE: Chass Springshed Groundwater Withdrawals and Well Permits

Brad:

I'm not sure we're communicating here. Why don't you call me and let's discuss. The NDM is calibrated to 1995 conditions (i.e. this is the table I sent you today from the ND Version 2.0 report). I sent you both version 1 and 2 reports (as pdf documents) in your public records request so you can access that table and the version 1 table which shows how well we matched the 1995 data. We don't simulate all the spring discharges in the NDM other than the ones I listed previously (Crab, Chassahowitzka Main, and Potter/Ruth) so there is no data for many of the small springs. I'm not sure what you mean when you say model the discharges presently. We have a transient simulation that we just updated through 2006 which runs on a monthly basis from 1996 through 2006. I have attached a figure showing you how the model performs matching historical data from Chassahowitzka main spring from 1996 – 2006 using the latest version (No. 3) of the model (report not finalized yet).

Ron Basso, P.G.
Senior Professional Geologist
Hydrologic Evaluation Section
Southwest Florida Water Management District
ph 1-800-423-1476 (in state)
ph 352-796-7211, ext. 4291 (outside state)
FAX 352-797-5799

From: Brad Rimbey [mailto:brimbey3@gmail.com]
Sent: Monday, June 20, 2011 3:06 PM

To: Ron Basso
Subject: Re: Chass Springshed Groundwater Withdrawals and Well Permits

Thanks Ron but the table you attached is not really what I asked for. Can you generate a table which shows the present NDM simulated spring discharges from all the springs I listed in the Chassahowitzka Springs Group? Attached is a page from Mike Heyl's MFL report for the Chassahowitzka which shows most of the springs in the Chassahowitzka Group. Blind Spring and Snapper Hole are not shown but should be included in the Group.

I do not believe I have previously seen the table which you attached. Could you give me the name of the document that this table came from? Did you include this document in the material which you provided in response to my recent public records request? Is this document available online?

Brad Rimbey

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

From: Ron Basso
To: Brad Rimbey@CRRC
Sent: Monday, June 20, 2011 8:35 AM
Subject: RE: Chass Springshed Groundwater Withdrawals and Well Permits

Brad:

We actively simulate the Chassahowitzka Springs Group using drain cells for Chassahowitzka, Potter (which includes Ruth), and Crab springs. Attached are the calibration statistics for 1995 average annual flows from Version 2 of the NDM.

Ron Basso, P.G.
Senior Professional Geologist
Hydrologic Evaluation Section
Southwest Florida Water Management District
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ph 352-796-7211, ext. 4291 (outside state)
FAX 352-797-5799

From: Brad Rimbey@CRRC [mailto:BWR.CRRC@tampabay.rr.com]
Sent: Friday, June 17, 2011 5:28 PM
To: Ron Basso
Subject: Re: Chass Springshed Groundwater Withdrawals and Well Permits

Thanks Ron. Between what you supplied and WMIS, I should be able to find the information I requested.

I have one other request. As we discussed after the Springs Coast MFL workshop, I would like to know what the NDM presently predicts as the flow rate for each of the springs in the Chassahowitzka Springs Group (Chass Main, Chass #1, Chass #2, Crab, Lettuce, Baird, Snapper Hole, Salt, Potter, Ruth, Johnson, Betty Jay, Rita Marie, Blue Run, Ryle, and Blind). I would prefer to get the data as a pdf file. I think this is a simple request. Let me know if you believe otherwise.

Brad Rimbey
(813) 417-9453

----- Original Message -----
From: Ron Basso
To: Brad Rimbey@CRRC
Cc: Bill Bilenky ; Mike Kelley ; Pam Gifford ; Mark Barcelo ; Brent Whitley
Sent: Friday, June 17, 2011 10:03 AM
Subject: RE: Chass Springshed Groundwater Withdrawals and Well Permits

Brad:

We import an Arcmap GIS shapefile from a database of water use permitted wells into the GWVs model software. I've included the shapefile in the attached zip file. Since I doubt you have ESRI GIS software, you can open the *.dbf file in MS Excel. Once you do, you'll find our estimated and metered data (by well) for the WUPs. Most of the fields are self-explanatory except for the withdrawal point. Here is how that is deciphered:

For Example: SW0022240070005 Withdrawal Point (WUP Well)

'SW' 002224 = WATER USE PERMIT #; 007 = REVISION #; 0005 = WITHDRAWAL #

Here are some other field definitions:

N	line number
LONG	longitude, negative decimal degrees, NAD_1983_HARN_UTM_Zone_17N
LAT	latitude, decimal degrees, NAD_1983_HARN_UTM_Zone_17N
ID	concatenation of 'SW', Permit# (6 spaces) Revision# (3 spaces) and Withdrawal# (4 spaces)
W_TYPE	withdrawal type (G ground water or S surface water)
DIAMETER	diameter of withdrawal pipe in inches
CS_DEPTH	depth of well casing in feet below land surface elevation (~40% are estimated)
DEPTH	depth of well in feet below land surface elevation (~5% are estimated)
M_E	metered (M) or estimated (E) pumping rates
USETYPE	general use type (A agricultural, IC industrial/commercial, MD mining/dewatering, P public supply, R recreation)
USE_CODE	specific use types (a list of the 165 codes is available)
AVG_CFD	2006 permitted maximum average pumping for the withdrawal (annual) in

cubic feet per day (CFD)

TOT_CFD 2006 permitted maximum average pumping for the permit (annual, all withdrawals) CFD

MAX_CFD 2006 permitted maximum pumping for the withdrawal (one day) CFD

Q92CFD-Q06CFD average annual estimated/metered pumping, 1992-2006, negative indicates a withdrawal (CFD)

Q06MGD 2006 average annual estimated/metered pumping in MGD (for mapping)

NAME permittee or project name

BUFF95 extraneous buffering column for map graphics

In response to an earlier request, I'm also sending you our internal memorandum on mining consumptive use and how these quantities were reduced in the model to account for consumptive use. In addition, I pulled the present day WUP information (by permit) for the Chassahowitzka springshed late last year for Mickey Newberger, which is included. Once you have the permit number, you can query our WMIS on our internet site for specific information regarding each permit.

Finally, I pulled the major public supply metered data in Citrus and Hernando Counties so that you can see the history of withdrawals and how they've changed since 2005. You'll see that these withdrawals are generally lower now in 2010 than they were in 2005.

Ron Basso, P.G.
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ph 352-796-7211, ext. 4291 (outside state)
FAX 352-797-5799

From: Brad Rimbey@CRRC [mailto:BWR.CRRC@tampabay.rr.com]
Sent: Wednesday, June 15, 2011 3:28 PM
To: Ron Basso
Cc: Bill Bilenky
Subject: Chass Springshed Groundwater Withdrawals and Well Permits

Ron,

It was a pleasure speaking with you after last week's Springs Coast MFL Workshop.

Attached is a pdf of a slide which you presented during the second Chassahowitzka MFL public workshop on December 16, 2010. I would like to receive tabular data related to the attached graphic. Specifically, I would like to know

1) What was the actual daily average groundwater withdrawal rate (in MGD) from each of the wells (dots) represented on the attached slide?
2) What was the maximum daily average of ground water (in MGD) which was permitted from each well (dot) represented on the attached slide?

3) What was the permit number for each well (dot) represented on the attached slide? (please identify each dot by permit number on a similar graphic)
4) What was the project site name for each well (dot) represented on the attached slide?
5) What the owner's name and who was the permittee for each well permit (dot) represented on the attached slide?
6) What was the issue date and what was the expiration date of each well permit (dot) represented on the attached slide?
7) What was the water use designation of each well permit (dot) represented on the attached slide?
8) What is the drought quantity, max quantity, and peak quantity, for each well permit (dot) on the attached slide?

Since the data on the attached slide was approximately 5 years old when it was presented to the public on December 16, 2010, I would like to see an updated version which reflects all of the requested information as of today's date (June 15, 2011). Please provide this information well in advance of your presentation at the next Springs Coast MFL workshop in late July.

Thank you.

Brad W. Rimbey, PE
Springs Coast MFL Panel Member representing the Chassahowitzka River Restoration Committee

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From: Helen Spivey
To: Doug Leeper
Cc: Pat Rose (office); Katie Tripp
Subject: Question on salt water intrusion and spring flows
Date: Wednesday, July 13, 2011 5:07:01 PM

Hi Doug:
Sorry it has taken me awhile to put this question to e-mail, but have been working on what I don't understand to ask you so you all can give me an answer.

In the first place I heard a number of years ago and saw, but do not have the report, that one of the 2 spring vents flowing into the Fishbowl at Homosassa Springs Ellie Schiller State Wildlife Park was pumping salt water.

Secondly, I keep hearing about salt water intruding into Kings Bay, Crystal River, and I know of pilings and boats getting barnacles they have never had before. Some are attributing this to the drought years we have had. Others say it is the sea level rise. Some are saying it is both. And some say if we live like good citizens the sea level rise may halt. And if Mother Nature starts to curb our drought period we will be back to a natural system with the exception of how much freshwater is being mechanically pumped from the ground.

Now I am wondering, if pumping groundwater from cities, counties, agriculture, power plants, etc., could be allowing salt water from the wedge to also come up with the spring flow?

Is the freshwater column that's floating over the salt water wedge being reduced enough by inland groundwater pumping to allow some of the salt water wedge to come up in the springs with the freshwater?

If it is, can and will this be tolerated by Water Management?

Is the spring flow being tested for salt water content? And is any salt water showing up with the freshwater? And if so how much?

I have a definite interest in this because I have been working on a plan to utilize certain plants known to clear nutrients from waters like treated sewerage to experiment with them in Kings Bay. If the water system I want to clear is receiving salt water from the spring flow and people pumping is allowed to increase, (which is still the practice here as development needs more potable water,) then will the vegetation I want to use become ineffective because it is not "that" salt tolerant?

And if the salt water is happening with freshwater spring flow, will the temperature of the springs become colder? And if so how much colder? I am of course looking here at the warm water sanctuaries USFWS sets aside for manatees in the cold winter. Have been trying to get this answered for over 7 years.

Thanks very much for considering these and looking forward to the answers. See

you Monday.

Regards,
Helen Spivey

Marty Kelly

From: Helen Spivey [manatees2@gmail.com] on behalf of Helen Spivey [manatees@habitats.org]
Sent: Wednesday, July 13, 2011 7:46 PM
To: Marty Kelly
Subject: Fw: Question on salt water intrusion and spring flows

Doug knew I was going to ask the tough questions so he left town. LOL He said to send stuff on and you were the one I knew.
Helen

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

From: Helen Spivey
Date: 7/13/2011 5:07:40 PM
To: Doug.Leeper@swfwmd.state.fl.us
Cc: Pat Rose (office); Katie Tripp
Subject: Question on salt water intrusion and spring flows

Hi Doug:
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Thanks very much for considering these and looking forward to the answers. See you Monday.

Regards,
Helen Spivey

From: Marty Kelly
To: Helen Spivey
Cc: Ron Basso; Doug Leeper; Kevin J Grimsley
Subject: RE: Question on salt water intrusion and spring flows
Date: Thursday, July 14, 2011 10:47:23 AM

Helen,

Always a pleasure hearing from you. I think this can be addressed at least in part by Ron Basso's presentation on Monday. In the mean time, we are actually looking into the sea-level rise issue in more detail particularly in Chass and Homosassa; however, since we're building the estuarine model on Crystal River in-house, we will be looking into this also. I will need to follow up on the extent to which salinity is actually being measured coming out of spring vents. Our recorders on the river measure salinity, but this is not the same as measuring it at the spring vents themselves.

I will see you on Monday, and we will get your questions answered as best we can.

Marty

From: Helen Spivey [mailto:manatees2@gmail.com] **On Behalf Of** Helen Spivey
Sent: Wednesday, July 13, 2011 7:46 PM
To: Marty Kelly
Subject: Fw: Question on salt water intrusion and spring flows

Doug knew I was going to ask the tough questions so he left town. LOL He said to send stuff on and you were the one I knew.
Helen

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

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Date: 7/13/2011 5:07:40 PM
To: Doug.Leeper@swfwmd.state.fl.us
Cc: Pat Rose (office); Katie Tripp
Subject: Question on salt water intrusion and spring flows

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Thanks very much for considering these and looking forward to the answers. See you Monday.

Regards,
Helen Spivey

From:	Ron Miller
To:	Ron Basso; Doug Leeper; Barbara Matrone; Marty Kelly
Cc:	Priscilla Watkins; Jim Bitter; Ron Schultz; Bill Garvin; Tom Clark; Brad Rimby; Brent Whitley; Rebecca Bays; Mike Cerwinski; Mark Barcelo; Paul Williams
Subject:	Re: Springs Coast MFL Workshop
Date:	Thursday, July 14, 2011 9:16:59 PM

Dear Mr. Basso,

Thank you very much for your quick and detailed response to my questions. I'm sure you spent a good deal of thought on these items and I appreciate that.

I have a few comments/thoughts that you may want to discuss on Monday: A visualization of the aquifer karst features would be helpful to better understand the model. If the saltwater intrusion reference is on line please make that available. When do you plan to add the missing spring features such as the Bluebird Springs to the model? Bluebird is of interest in Citrus County since it is the site of a County Park.

Thanks again and I'll see you on Monday,
Ron Miller

From: Ron Basso
Sent: Wednesday, July 13, 2011 2:12 PM
To: Ron Miller ; Doug Leeper ; Barbara Matrone ; Marty Kelly
Cc: Priscilla Watkins ; Jim Bitter ; Ron Schultz ; Bill Garvin ; Tom Clark ; Brad Rimby ; Brent Whitley ; Rebecca Bays ; Mike Cerwinski ; Mark Barcelo ; Paul Williams
Subject: RE: Springs Coast MFL Workshop

Mr. Miller:

Please find attached my response to your email request sent on Friday of last week. I attempted to be brief recognizing that some of the technical issues are complex and may require further explanation. If you still have questions after review of this response please feel free to contact me directly or I can address any outstanding issues at the workshop on the 18th.

Ron Basso, P.G.
Senior Professional Geologist
Hydrologic Evaluation Section
Southwest Florida Water Management District
ph 1-800-423-1476 (in state)
ph 352-796-7211, ext. 4291 (outside state)
FAX 352-797-5799

From: Ron Miller [mailto:rmille76@tampabay.rr.com]

Sent: Friday, July 08, 2011 12:19 PM
To: Doug Leeper; Barbara Matrone; Marty Kelly; Ron Basso
Cc: Priscilla Watkins; Jim Bitter; Ron Schultz; Bill Garvin; Tom Clark; Brad Rimby; Brent Whitley; Rebecca Bays; Mike Cerwinski
Subject: Springs Coast MFL Workshop

Dear Mr. Leeper,

Here are some questions regarding the establishment of the Homosassa Springs and River Minimum Flows and Levels. The questions reference the items you have listed for the July 18th Springs Coast MFL Workshop. It would be helpful if answers to these questions would be posted on the Internet prior to July 18th.

Item 4 on the agenda --- Water Use Permitting
Please provide a table and map of all of the water withdrawal permits in the Homosassa Springs Springshed.

Item 5 on the Agenda --- Groundwater and Withdrawal Modeling
These questions are with regard to the the Northern District Model (NDM).

A. How does the model represent the underground flows including the fast flowing deep cracks and channels of the limestone foundation?
B. How is the interaction with the salt water interface modeled?
C. How is rainfall and water seepage from outside the area modeled?
D. How does the model account for the delay between the time of the increasing rain fall and the time of increased spring flow?

E. What are the model calibration methods and what data supports the agency claim of 2% prediction accuracy?

F. What are the actual measured and predicted flows for the Homosassa Springs Group flows for conditions that represent 1946, 1966, 1970, 1979, 1990, 2010 and 2030?

G. Does the model show that the drawdown of underground water alters the relative flows between the Weeki Wachee, Chassahowitzka, Homosassa and Crystal River Rivers?

H. Does the model show that you can control different percent flow

draw downs independently across the four above mentioned springsheds?

I. What happens to the Homosassa Springs when the Chassahowitzka is drawn down by 11%?

J. What happens to the Bluebird Springs when the Chassahowitzka is drawn down by 11%.

Thank you,

Ron Miller

rmille76@tampabay.rr.com

352 628-6066

From:	Brad Rimbey
To:	Ron Miller; Ron Basso; Doug Leeper; Barbara Matrone; Marty Kelly
Cc:	Priscilla Watkins; Jim Bitter; Ron Schultz; Bill Garvin; Tom Clark; Brent Whitley; Rebecca Bays; Mike Cerwinski; Mark Barcelo; Paul Williams
Subject:	Re: Springs Coast MFL Workshop
Date:	Friday, July 15, 2011 8:50:37 AM

Ron,

The NDM saltwater intrusion documents which Mr. Basso referenced are on the Records Request DVD-R that I gave you after the last public workshop. They are in the folder named "DVD-R Chassahowitzka PRR Rimbey 5-2011\Rimbey Request\Model Reports". They are too large to email.

Brad Rimbey

> ----- Original Message -----
> From: Ron Miller
> To: Ron Basso ; Doug Leeper ; Barbara Matrone ; Marty Kelly
> Cc: Priscilla Watkins ; Jim Bitter ; Ron Schultz ; Bill Garvin ; Tom Clark ; Brad Rimby ; Brent Whitley ; Rebecca Bays ; Mike Cerwinski ; Mark Barcelo ; Paul Williams
> Sent: Thursday, July 14, 2011 9:16 PM
> Subject: Re: Springs Coast MFL Workshop
>
> Dear Mr. Basso,
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> Thank you very much for your quick and detailed response to my questions. I'm sure you spent a good deal of thought on these items and I appreciate that.
>
> I have a few comments/thoughts that you may want to discuss on Monday: A visualization of the aquifer karst features would be helpful to better understand the model. If the saltwater intrusion reference is on line please make that available. When do you plan to add the missing spring features such as the Bluebird Springs to the model? Bluebird is of interest in Citrus County since it is the site of a County Park.
>
> Thanks again and I'll see you on Monday,
> Ron Miller
>
> **From:** Ron Basso
> **Sent:** Wednesday, July 13, 2011 2:12 PM
> **To:** Ron Miller ; Doug Leeper ; Barbara Matrone ; Marty Kelly
> **Cc:** Priscilla Watkins ; Jim Bitter ; Ron Schultz ; Bill Garvin ; Tom Clark ; Brad Rimby ; Brent Whitley ; Rebecca Bays ; Mike Cerwinski ; Mark Barcelo ; Paul Williams
> **Subject:** RE: Springs Coast MFL Workshop
>
> Mr. Miller:
>
> Please find attached my response to your email request sent on Friday of last week. I attempted to be brief recognizing that some of the technical issues are complex and may require further explanation. If you still have questions after review of this response please feel free to contact

me directly or I can address any outstanding issues at the workshop on the 18th.

Ron Basso, P.G.
Senior Professional Geologist
Hydrologic Evaluation Section
Southwest Florida Water Management District
ph 1-800-423-1476 (in state)
ph 352-796-7211, ext. 4291 (outside state)
FAX 352-797-5799

From: Ron Miller [mailto:rmille76@tampabay.rr.com]
Sent: Friday, July 08, 2011 12:19 PM
To: Doug Leeper; Barbara Matrone; Marty Kelly; Ron Basso
Cc: Priscilla Watkins; Jim Bitter; Ron Schultz; Bill Garvin; Tom Clark; Brad Rimby; Brent Whitley; Rebecca Bays; Mike Cerwinski
Subject: Springs Coast MFL Workshop

Dear Mr. Leeper,

Here are some questions regarding the establishment of the Homosassa Springs and River Minimum Flows and Levels. The questions reference the items you have listed for the July 18th Springs Coast MFL Workshop. It would be helpful if answers to these questions would be posted on the Internet prior to July 18th.

Item 4 on the agenda --- Water Use Permitting
Please provide a table and map of all of the water withdrawal permits in the Homosassa Springs Springshed.

Item 5 on the Agenda --- Groundwater and Withdrawal Modeling
These questions are with regard to the the Northern District Model (NDM).

A. How does the model represent the underground flows including the fast flowing deep cracks and channels of the limestone foundation?
B. How is the interaction with the salt water interface modeled?
C. How is rainfall and water seepage from outside the area modeled?
D. How does the model account for the delay between the time of the increasing rain fall and the time of increased spring flow?

E. What are the model calibration methods and what data supports the agency claim of 2% prediction accuracy?

F. What are the actual measured and predicted flows for the Homosassa Springs Group flows for conditions that represent 1946, 1966, 1970, 1979, 1990, 2010 and 2030?

G. Does the model show that the drawdown of underground water alters the relative flows between the Weeki Wachee, Chassahowitzka, Homosassa and Crystal River Rivers?

H. Does the model show that you can control different percent flow draw downs independently across the four above mentioned springsheds?

I. What happens to the Homosassa Springs when the Chassahowitzka is drawn down by 11%?

J. What happens to the Bluebird Springs when the Chassahowitzka is drawn down by 11%.

Thank you,

Ron Miller

rmille76@tampabay.rr.com

352 628-6066

From: Doug Leeper
To: "zanerisouth@yahoo.com"
Subject: Minimum Flows and Levels Links
Date: Monday, July 18, 2011 9:23:00 AM

Ms. Zaneri:

It was a pleasure to speak with you today regarding the development of minimum flows and levels for the Chassahowitzka River system.

Here are links to the Southwest Florida Water Management District web pages that we discussed this morning.

Web page for the Springs Coast Minimum Flows and Levels Workshop Series:
www.WaterMatters.org/SpringsCoastMFL

Web page for general information on minimum flows and levels:
http://www.swfwmd.state.fl.us/projects/mfl/

Web page for documents on specific minimum flows and levels:
http://www.swfwmd.state.fl.us/projects/mfl/mfl_reports.php

Link to a report on proposed minimum flows and levels for the Chassahowitzka River system:
http://www.swfwmd.state.fl.us/projects/mfl/reports/ChassMFL_2010_11_draft.pdf
Link to an independent scientific review of the proposed minimum flows for the Chassahowitzka River system:
http://www.swfwmd.state.fl.us/projects/mfl/reports/chassahowitzka_peer_review.pdf

Please feel free to contact me if you have any questions regarding minimum flows and levels development or other water management issues.

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:	Ron Basso
To:	Norm Hopkins (norman@amyhrf.org)
Cc:	Doug Leeper
Subject:	Cross-Section and Saltwater Interface Data
Date:	Tuesday, July 19, 2011 12:01:30 PM
Attachments:	ND Hydrogeology.ppt

Norm:

Attached is a powerpoint with assorted cross-sections and saltwater interface depths we discussed. There is also a cooperative project we did with the FGS where they constructed some cross-sections in Bulletin 68. It can be found here:

http://www.dep.state.fl.us/geology/programs/hydrogeology/hydro_framework.htm

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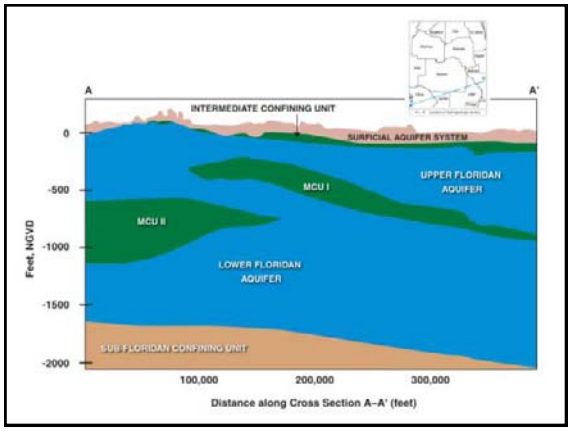

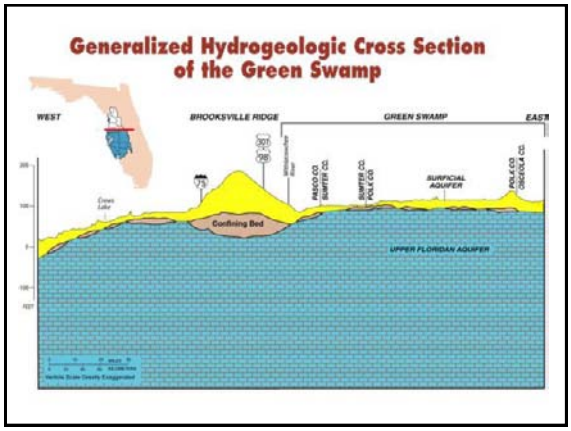

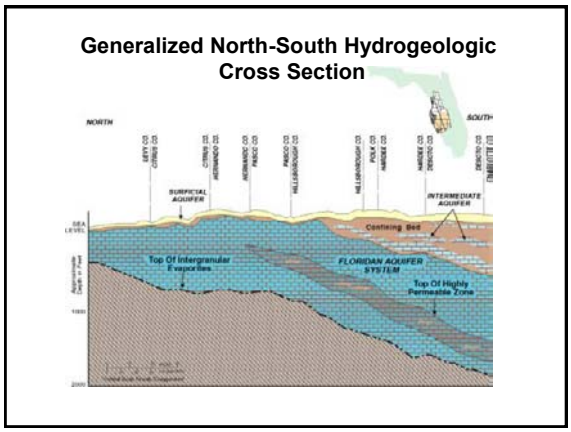

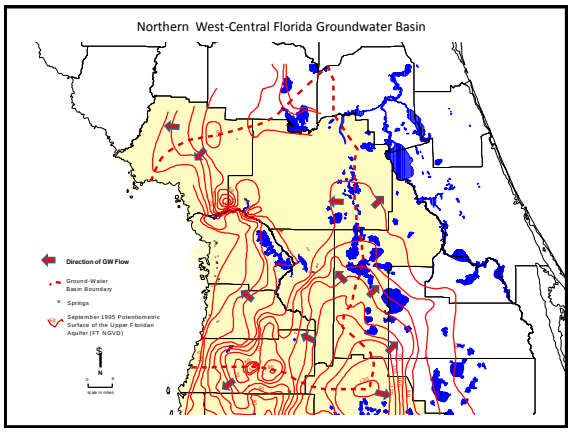

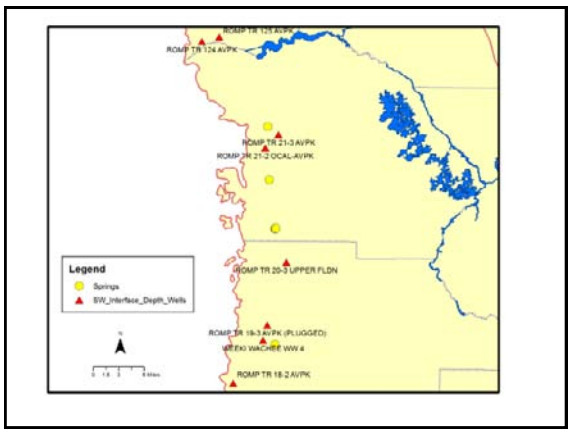

Site	Avg UFA Head (Ft NGVD)	Measured Depth to Interface* (ft)	Calculated GB Depth (ft)	Difference (ft)
TR18-2	7.96	514	318	-196
TR19-3	8.76	603	350	-253
WW-4	7.96	510	318	-192
TR20-3	6.11	531	244	-287
TR21-2	1.89	160	76	-84
TR21-3	3.26	300	130	-170
TR124	2.80	40	112	72
TR125	2.94	304	118	-186

* 1,000 ppm chloride concentration (top of interface)

From:	Ron Basso
To:	Doug Leeper
Subject:	FW: from Hope Fw: Declining rainfall trend map
Date:	Thursday, July 21, 2011 4:17:36 PM

FYI

From: Corona [mailto:mcorona1@tampabay.rr.com]
Sent: Thursday, July 21, 2011 3:35 PM
To: Ron Basso
Subject: from Hope Fw: Declining rainfall trend map

----- Original Message -----
From: Corona
To: Ron.Basso@swfwmd.state.fl.us
Sent: Tuesday, July 19, 2011 1:50 AM
Subject: Declining rainfall trend map

Hi Ron,

I searched and searched, and google just won't help me find that awesome rainfall/precipitation trend map you found for your slide presentation.

Could you send me the link? (the map really appeals to my autism, and scares the heck out of me...I need to look at it again, so I can start looking for the next place to live....ha, ha :)

Thanks, and sorry I'm such a pest. I'm sorry I upset Doug today. I didn't mean to. The autism makes me ask too many questions to teachers/instructors/presenters because my brain gets "stuck" at the point where I fail to understand, or where it needs a piece of a puzzle filled in, before it can "hear" and understand the next "piece."

When numeric data looks "neat" on paper, but anecdotal observations don't appear to match in "real life," it causes a similar "brain brake" for me. So at the end of the day, while low blood sugar, and admittedly "hormonally affected," my brain while digesting the presented numeric data, was having trouble processing the overarching logical conundrum of why an agency entrusted with resource protection is working so hard to cause 15% significant harm to one of Florida's last fairly pristine spring-fed natural systems on the Nature Coast.

So, my apologies; the part of my brain dealing with the overarching lack of logic (resource protector working diligently to harm same), must have a nearly instant communication path to my mouth, and audibly blurted out a possible "motivation" or "reason" for the incongruence problem (protector no longer working for resource; now working for "client"/developer?). Clearly, it was not the time to do

so. My apologies to Doug and to the rest of the crowd for whom my "way off topic" question must have seemed from left field. I really put the "dis" in disability this afternoon!

I want to believe that resource protection is still a priority for SWFWMD. I want to believe it; but, fond of scientific method, I have to consider "other factors," that could affect agency motivation, and the possibility that "client capture" may be a factor. I hope it is not.

I'm not an idiot. I do understand most of the data presented, and process it adequately. I do, however, think that numeric data needs "ground truthing," as field biologists call it, and that it can be somewhat misleading to represent 15% "significant harm" to living beings and to the habitats in which they live as only a benign change in the height of a line on a bar graph. Cleansed representation can be misleading, especially if it does not show other relevant data, like remaining contiguous available habitat.

The swath of fresh water habitat on our Nature Coast is so narrow when viewed aerially or "in real life," that is hard to imagine where 15% of displaced wildlife could find appropriate refugia, sufficient forage, and contiguous habitat once 15% is destroyed. The actual loss of species and habitat could be much greater than the "intended" 15%, if that initial 15% loss begins an erosion, saltwater intrusion, succession, migration and substitution of more saline-tolerant species and habitat cavalcade. More human-centered quantifiable losses may consequently also occur, including loss of the storm-surge-buffering coastal swamp and forested wetland canopy, loss of commercially and recreationally important species, loss of eco-tourism dollars. In "real life" it's much harder to predict what "real life" changes and *actual* loss of species and habitats are likely to occur in a complex diverse system like the Chassahowitzka. 15% is a big number, especially when numerating death and destruction. It does not seem a "reasonable" loss at all.

Again, the "logic" of setting a "goal" to intentionally destroy rare and imperiled habitat befuddles this otherwise mostly logical brain.

I cannot apologize to Doug more profusely for my verbal brain fart, and hope that he has the generosity of spirit to understand it was not my intention to offend him.

I sincerely hope, as more articulate, and well-mannered Boyd posed it, "we can bring that significant harm number down" to something that causes less harm.

In "real life," and logically, wouldn't it serve us all better to be discussing water resource options for humans that cause *no harm* at all to the fresh water biota and habitats that support us all? If the human population is becoming so high that the natural habitat, as it exists naturally, cannot support "us" without "significantly

harming" 15% of everything else, should we not be working harder to "invent" ways to capture and store rainfall for human use that does not "take" the water resource from resource-dependent "others?" I think that's what Kathleen (I think that was her name) from Gulf Coast Restoration (Gulf Coast Conservancy?) was suggesting. Why immediately continue to defend and promote the quick, cheap human-centered water supply option (ground water pumping), especially when it incidentally destroys 15% of everything else? Especially when the large-brained humans could easily (not saying "cheaply") adopt other options for water supply that would cause much less harm? Isn't it past time to do so? It is well within human technology and will to execute (design/build/maintain) a variety of water collection and conservation tools, devices, methods and practices (including, but not limited to roof-top rainwater collection systems, greywater reuse dual plumbing systems for residences and commercial building, cisterns, and other non-ground water options for water supply). Can't we put our valuable SWFWMD time and talent towards that more conscientious goal?

(Sorry I got "off subject" again).
Thanks for "listening," and for sending me the link to your great rainfall map.
the mildly autistic,
Hope (who, by the way, now sees and understands you better. Thank you for taking the time to talk to me after the meeting; I appreciate it).
hopecorona@tampabay.rr.com

From: Doug Leeper
To: Cara S. Martin
Cc: Marty Kelly
Subject: Inquiry from Brent Whitley
Date: Monday, July 25, 2011 9:37:00 AM

Cara - Brent Whitley called this morning and noted that he has received an e-mail or e-mails indicating that District staff has met recently with staff from the offices of some local, elected officials to discuss springs coast MFLs. I noted, based on a conversation we had last month, that the MFLs issue did come up during a routine meeting you attended with aides from our senators(?) office sometime in June. Because I did not know much more about the meeting, I indicated that I would ask you to give him a call to discuss the matter further . Brent can be reached at 813-484-2288.

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:	"brentwhitley@sierra-properties.com"; 10-00652
Cc:	Cara S. Martin; Marty Kelly; Barbara Matrone
Subject:	SWFWMD Spring MFLs Info Request
Date:	Monday, July 25, 2011 1:51:59 PM
Attachments:	image001.png image002.png image003.png

Brent:

Thanks for your call this morning. In response to your inquiry about a recent meeting between folks from our office and the staff of some of our elected representatives, Cara Martin asked that I forward the e-mail below to you -- hope that her comments adequately address your questions about this issue.

On another note, we were able to transfer the audio recording for the July 18th workshop onto a CD (or two). I'll mail the disc (or discs) to you at the following address:

27420 Hickory Hill Road
Brooksville, FL 34602

Please let Cara or me know if you have any further questions about the June 13th meeting or the July 18th workshop recording.

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: Cara S. Martin
Sent: Monday, July 25, 2011 1:35 PM
To: Doug Leeper; Marty Kelly
Subject: Please send

Doug-

Can you please forward this to Brent Whitley? I don't have his e-mail.

Thanks,
Cara

CARA MARTIN
MFL Review (6/13/11)
Cori Cutler and I met with Matt Mucci, regional director for Sen. Marco Rubio and Digna Alvarez,

regional director for Sen. Bill Nelson. Cori had arranged the meeting to introduce them to me and to discuss the proposed MFLs on the Homosassa and Chassahowitzka. We discussed the District's MFL process and the current status. Ms. Alvarez stated that she had been receiving letters and phone calls from concerned constituents, although Mr. Mucci stated that he had not received any. We discussed the Springs Coast MFL Workshop and I invited them to the July meeting.

Cara Martin
Community Affairs Manager
Hernando, Citrus, Sumter, Lake, Marion & Levy Counties
Southwest Florida Water Management District
2379 Broad Street
Brooksville, FL 34604
Office: (352) 796-7211 ext: 4636
Cell: (352) 410-0525
E-mail: cara.martin@watermatters.org

 *http://WaterMatters.org/twitter*  *http://WaterMatters.org/facebook*

From: Ron Basso
To: Corona
Cc: Doug Leeper
Subject: RE: Thanks for the link! Re: from Hope Fw: Declining rainfall trend map
Date: Tuesday, July 26, 2011 2:43:43 PM

Hope:

We view rainfall changes as constantly changing and future predictions are uncertain. As I have said before, we factor out drought impacts from pumping influences. We expect the pendulum to swing the other way toward increased rainfall at some point. You wouldn't want us to allow more water to be taken from these systems when that returns, so this is why we look at long-term average conditions. In addition, groundwater use is not practical to manage on drought cycles – you typically pump more when rainfall is low and river flows decline and pump less when rainfall is high. There are no plans to model anything beyond what we have done for the MFL groundwater impact evaluation. Doug will be presenting the results of the sea level change work on the river salinity regime at our next meeting.

Ron Basso, P.G.
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Hydrologic Evaluation Section
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ph 352-796-7211, ext. 4291 (outside state)
FAX 352-797-5799

From: Corona [mailto:mcorona1@tampabay.rr.com]
Sent: Monday, July 25, 2011 5:57 PM
To: Ron Basso
Subject: Thanks for the link! Re: from Hope Fw: Declining rainfall trend map

Hi Ron,

Thank you so much for the link.....I would never have found it without your help. I love Jeff Masters' WunderBlog; "favorite-ed" it today!

It's compelling, educational, and terrifying.

The "Projected Change in Precipitation by 2080-2099" as predicted by fifteen climate models, is also an extremely frightening prognostication of a protracted drought phase for Florida (one of the hatched areas of the map where "confidence is highest" in the prediction).
The "Observed Change in Annual Average Precipitation 1958 to 2008," along with the "Projected Change in Precipitation by 2080 -2090," emphasize "the

pronounced drying" (lessening in precipitation) over the Southeastern United States, including Florida, and would suggest that our State prudently adjust their "water budget" accordingly, in an effort to mitigate effects of the protracted drought on our life-giving natural systems (aquifers, rivers, estuaries).
Would this not suggest that the Chassahowitzka and Homosassa MFLs be adjusted, as aquifer recharge is likely to be less than originally estimated (assuming you trust the NOAA/NCDC Observed Change in Annual Average Precipitation, and agree with the 15 climate models used in the "Projected Change in Precipitation" simulations.

Can we get the simulation model that SWFWMD is presently using to factor in those NOAA and Projected Change in Precipitation models?

Thanks again for your kindness, and for your generous participation in the "continuing education of Hope."

Your neighbor at the North end of the State Lands (and wetlands) between us,
Hope

> ----- Original Message -----
> From: Ron Basso
> To: Corona
> Sent: Thursday, July 21, 2011 4:14 PM
> Subject: RE: from Hope Fw: Declining rainfall trend map
>
> Hope:
>
> The rainfall figure was Figure 7 on the June 14th blog from Dr. Jeff Masters. All his blog entries for June are here:
>
> http://www.wunderground.com/blog/JeffMasters/archive.html?year=2011&month=06
>
> You'll have to scroll down to the June 14th entry and you'll see the map. It was nice talking to you today.
>
> Ron Basso, P.G.
> Senior Professional Geologist
> Hydrologic Evaluation Section
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Sent: Thursday, July 21, 2011 3:35 PM
To: Ron Basso
Subject: from Hope Fw: Declining rainfall trend map

----- Original Message -----
From: Corona
To: Ron.Basso@swfwmd.state.fl.us
Sent: Tuesday, July 19, 2011 1:50 AM
Subject: Declining rainfall trend map

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Hope (who, by the way, now sees and understands you better. Thank you for taking the time to talk to me after the meeting; I appreciate it).
hopecorona@tampabay.rr.com

Citrus County Chronicle
July 19, 2011

Water district provides data for river flows, levels

By Mike Wright
Tuesday, July 19, 2011 at 12:00 am *(Updated: July 19, 12:01 am)*

LECANTO — Hope Corona heard the data but still didn't believe it.

She watched officials with the Southwest Florida Water Management District, called Swiftmud by some, explain charts and "models" showing the amount of groundwater withdrawal that could occur without hurting springs in the Chassahowitzka and Homosassa rivers.

Those officials are planning to set the standard, known as minimum flows and levels, as required by state law. The levels, also called MFLs, will determine the level of well permits that the district can issue in Citrus County.

Corona, with the Chassahowitzka River Restoration Committee, believes the data ignores significant growth components and relies on average rainfall from decades ago even though the state has experienced drought conditions more recently.

The district's initial findings show the Chassahowitzka River can lose 11 percent of its water flow before it is harmed. For the Homosassa River, it's 5 percent. The district is still calculating the Crystal River MFL.

Corona noted the district's proposed MFLs show a 15 percent reduction in habitat and wildlife in the Chassahowitzka region by 2030.

"Swiftmud continues to defend the 15 percent loss," Corona said. "The spring areas should be like a world treasure that's rare and should be preserved."

The district conducted its second workshop Monday afternoon with a stakeholder's group comprised of various environmental agencies and community groups.

Al Grubman, president of the water district watchdog group TOO FAR, said the workshops began when environmentalists were alarmed at the district's first MFL proposal that opponents believe would allow significant groundwater withdrawal at the detriment of coastal springs.

Doug Leeper, the district's chief environmental scientist, said the series of workshops are designed to help explain the methodology used in determining the minimum flows and levels, and for the district to receive questions and comments along the way.

"I think we had a pretty fair amount of discussion today," Leeper said at the conclusion of the nearly four-hour meeting at the Lecanto Government Building.

Leeper said he hopes to have the next workshop sometime in August.

Chronicle reporter Mike Wright can be reached at (352) 563-3228 or mwright@chronicleonline.com.

From: Brent Whitley
To: Doug Leeper
Subject: RE: SWFWMD Spring MFLs Info Request
Date: Wednesday, July 27, 2011 9:52:10 AM
Attachments: image001.png
image002.png
image003.png

Thanks, Doug.

I do not expect you to answer this now unless it is simple, but I am interested to see how the sea level rise fits into the equation as to what the MFL will be proposed at. It seemed to me that the acceptable level of significant harm you are sticking to is 15% whether by withdrawal or sea level rise. Is that accurate?

Brent

From: Doug Leeper [mailto:Doug.Leeper@swfwmd.state.fl.us]
Sent: Monday, July 25, 2011 1:52 PM
To: Brent Whitley; 10-00652
Cc: Cara S. Martin; Marty Kelly; Barbara Matrone
Subject: SWFWMD Spring MFLs Info Request

Brent:

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Brooksville, FL 34602

Please let Cara or me know if you have any further questions about the June 13th meeting or the July 18th workshop recording.

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: Cara S. Martin

Sent: Monday, July 25, 2011 1:35 PM
To: Doug Leeper; Marty Kelly
Subject: Please send

Doug-

Can you please forward this to Brent Whitley? I don't have his e-mail.

Thanks,
Cara

CARA MARTIN
MFL Review (6/13/11)
Cori Cutler and I met with Matt Mucci, regional director for Sen. Marco Rubio and Digna Alvarez, regional director for Sen. Bill Nelson. Cori had arranged the meeting to introduce them to me and to discuss the proposed MFLs on the Homosassa and Chassahowitzka. We discussed the District's MFL process and the current status. Ms. Alvarez stated that she had been receiving letters and phone calls from concerned constituents, although Mr. Mucci stated that he had not received any. We discussed the Springs Coast MFL Workshop and I invited them to the July meeting.

Cara Martin
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2379 Broad Street
Brooksville, FL 34604
Office: (352) 796-7211 ext: 4636
Cell: (352) 410-0525
E-mail: cara.martin@watermatters.org

 *http://WaterMatters.org/twitter*  *http://WaterMatters.org/facebook*

From: Doug Leeper
To: "Brent Whitley"
Cc: Marty Kelly; Mike Heyl; Ron Basso
Subject: RE: SWFWMD Spring MFLs Info Request
Date: Wednesday, July 27, 2011 2:28:00 PM
Attachments: image001.png
image002.png
image003.png

Brent:
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From: Brent Whitley [mailto:BrentWhitley@Sierra-Properties.com]
Sent: Wednesday, July 27, 2011 9:52 AM
To: Doug Leeper
Subject: RE: SWFWMD Spring MFLs Info Request

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From: Doug Leeper [mailto:Doug.Leeper@swfwmd.state.fl.us]
Sent: Monday, July 25, 2011 1:52 PM
To: Brent Whitley; 10-00652
Cc: Cara S. Martin; Marty Kelly; Barbara Matrone
Subject: SWFWMD Spring MFLs Info Request

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From:	Doug Leeper
To:	Norman Hopkins (norman@amyhrf.org); Brad Rimbey (BWR.CRRC@tampabay.rr.com); Hope Corona (hopecorona@tampabay.rr.com); Rebecca Bays (rebecca.bays@bocc.citrus.fl.us); Richard Radacky (rradacky@cityofbrooksville.us); Jim Farley (jfarley682@aol.com); Frank DiGiovanni (administration@inverness-fl.gov); Sarah Tenison (cityofweekiwachee@yahoo.com); Greenwood, Kathleen (Kathleen.Greenwood@dep.state.fl.us); Bill Pouder (bill.pouder@myfwc.com); Hoehn, Ted; Brockway, Alys (abrockway@co.hernando.fl.us); Brent Whitley (brentwhitley@sierra-properties.com); Ron Miller (rmille76@tampabay.rr.com); Helen Spivey (manatees@habitats.org); Al Grubman (grubman1@gmail.com); Dennis D. Dutcher (Dennis3ds@aol.com); Boyd Blihovde (Boyd_Blihovde@fws.gov); Richard Kane (rkane@usgs.gov); Hilliard, Dan (2buntings@comcast.net); Whitey Markle (whmarkle@gmail.com); "jsullivan@carltonfields.com"
Cc:	"martynellijay@hotmail.com"
Bcc:	Marty Kelly
Subject:	Public Input for Spring Workshop
Date:	Thursday, July 28, 2011 2:25:00 PM

Greetings:

At the Springs Coast Minimum Flows and Level workshop last week, several stakeholder representatives asked that I provide, via e-mail, copies of two documents submitted by Mr. Martyn Johnson for inclusion in the public input portion of the workshop.

The first of the documents is attached to this file. The second is too large to send via e-mail. I have posted scanned, electronic versions of both documents under the "Background Information and Reports" heading at the bottom of the Springs Coast MFL Working Group page of the District web site at:

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From: Brent Whitley
To: Doug Leeper
Cc: Marty Kelly; Mike Heyl; Ron Basso
Subject: RE: SWFWMD Spring MFLs Info Request
Date: Thursday, July 28, 2011 10:28:16 AM
Attachments: image001.png
image002.png
image003.png

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I would add one comment that I am surprised about. Given the sensitivity of the natural springs systems statewide, and the confluence of factors affecting a tidal springs system, I am still surprised that your team continues to support the 15% of significant harm to these systems as acceptable (or "defensible" as Hugh Gramling said to me in an outrageous statement). I just cannot get past the mindset to hold these bodies of water to the same standards as the upper Peace River for example.

I look forward to the next meeting. Do you anticipate that the agenda will include any discussion of the District's position on the legal questions posed by many citizens?

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From: Doug Leeper
To: "Brent Whitley"
Cc: Marty Kelly; Mike Heyl; Ron Basso
Subject: RE: Question about next workshop agenda
Date: Thursday, July 28, 2011 3:49:00 PM

Brent:

RE your question highlighted below – I hope that we will be able to address the legal questions posed during the last workshop. Will be working on the agenda next week…

Douglas A. Leeper, Chief Environmental Scientist
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From:	Alan Martyn Johnson
To:	Doug Leeper; norman@amyhrf.org; bwr.crrc@tampabay.rr.com; hopecorona@tampabay.rr.com; rebecca.bays@bocc.citrus.fl.us; rradacky@cityofbrooksville.us; jfarley682@aol.com; administration@inverness-fl.gov; cityofweekiwachee@yahoo.com; kathleen.greenwood@dep.state.fl.us; bill.pouder@myfwc.com; ted.hoehn@myfwc.com; abrockway@co.hernando.fl.us; brentwhitley@sierra-properties.com; Ron Miller; manatees@habitats.org; grubman1@gmail.com; dennis3ds@aol.com; boyd_blihovde@fws.gov; rkane; 2buntings@comcast.net; whmarkle@gmail.com; jsullivan@carltonfields.com
Subject:	RE: Public Input for Spring Workshop
Date:	Friday, July 29, 2011 8:26:41 AM

Doug,
Thanks for posting my public input comments on the web site. The comments would have taken about three minutes to make; the allotted public input time.

The second document which shows the USGS calculated flows for the SE Fork for a couple of days was intended for individual discussion, should someone have had questions or wanted hard data to understand my comments. The document is not easy to understand as a stand alone document and was never intended as such.

I will be happy to explain the numbers if someone is interested. But, may I suggest that such a mass of numbers serves little purpose on the web site and I would recommend that you remove it.

Do you intend to put Kevin's presentation on the web site?
Do you have any thoughts about the idea of a Flow Measurements Working Committee?
Do you have any update on the budget to install an acoustic flow measuring device at the SE Fork?

Martyn

From: Doug.Leeper@swfwmd.state.fl.us
To: norman@amyhrf.org; BWR.CRRC@tampabay.rr.com; hopecorona@tampabay.rr.com; rebecca.bays@bocc.citrus.fl.us; rradacky@cityofbrooksville.us; jfarley682@aol.com; administration@inverness-fl.gov; cityofweekiwachee@yahoo.com; Kathleen.Greenwood@dep.state.fl.us; bill.pouder@myfwc.com; ted.hoehn@MyFWC.com; abrockway@co.hernando.fl.us; brentwhitley@sierra-properties.com; rmille76@tampabay.rr.com; manatees@habitats.org; grubman1@gmail.com; Dennis3ds@aol.com; Boyd_Blihovde@fws.gov; rkane@usgs.gov; 2buntings@comcast.net; whmarkle@gmail.com; jsullivan@carltonfields.com
CC: martynellijay@hotmail.com
Date: Thu, 28 Jul 2011 14:25:24 -0400
Subject: Public Input for Spring Workshop

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From: Richard L Kane
To: Alan Martyn Johnson; Doug Leeper
Cc: Richard L Kane; Kevin J Grimsley
Subject: RE: Public Input for Spring Workshop
Date: Friday, July 29, 2011 8:59:08 AM

Doug we are planning to send you a rebuttal to Mr. Johnson's letter explaining why we feel that the discharge data is correct within the stated accuracy of the publish record. We would also like this posted on the web site. Also we are not interested in participating in another committee, on flow measurements. We would be happy to meet personally with Mr. Johnson and you, in our office in Tampa, where we can go over in depth all of our ratings and computation procedures.

_____
Richard L. Kane
Associate Center Director for Data
U. S. Geological Survey
Florida Water Science Center
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(813-498-5057)
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Date: 07/29/2011 08:26 AM
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From: Brent Whitley
To: Doug Leeper
Subject: RE: Attachment
Date: Friday, July 29, 2011 10:36:46 AM

Doug, just out of curiousity, isn't it possible that gauges in short term intervals like he described be influenced by boat traffic? I would think that in the situation at Chassahowitzka where the water in the vicinity of the measuring station is so shallow and the width of the stream at that point is very narrow that boats moving in and out even at idle speeds could impact the short intervals. For example, 3-4 consecutive vessels idling out and thus pushing water in must have some impact on flow measurement. Obviously I really do not know but long term data would overcome this concern he has.

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From: Doug Leeper [mailto:Doug.Leeper@swfwmd.state.fl.us]
Sent: Thursday, July 28, 2011 2:31 PM
To: Norman Hopkins; Brad Rimbey; Hope Corona; Rebecca Bays; Richard Radacky; Jim Farley; Frank DiGiovanni; Sarah Tenison; Greenwood, Kathleen; Bill Pouder; Hoehn, Ted; Brockway, Alys; Brent Whitley; Ron Miller; Helen Spivey; Al Grubman; Dennis D. Dutcher; Boyd Blihovde; Richard Kane; Hilliard, Dan; Whitey Markle; 'jsullivan@carltonfields.com'
Cc: martynellijay@hotmail.com
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Forgot the attachment – here it is.

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Subject:	RE: Attachment
Date:	Monday, August 01, 2011 10:56:00 AM

Brent –
Thanks for your comments. I've copied Richard Kane and Kevin Grimsley with the USGS, to see what they think about potential effects of boat traffic on river stage measurements. Seems like a reasonable effect to me, although there probably is not much boat traffic moving past the gage at the Fishbowl Drive Bridge (there is, however, often a lot of boating activity downstream from the gage site - perhaps boat wakes could propagate upstream??).

FYI - Richard and Kevin are currently working on a summary response to Mr. Johnson's submission.

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Sent: Thursday, July 28, 2011 2:31 PM
To: Norman Hopkins; Brad Rimbey; Hope Corona; Rebecca Bays; Richard Radacky; Jim Farley; Frank DiGiovanni; Sarah Tenison; Greenwood, Kathleen; Bill Pouder; Hoehn, Ted; Brockway, Alys; Brent Whitley; Ron Miller; Helen Spivey; Al Grubman; Dennis D. Dutcher; Boyd Blihovde; Richard Kane; Hilliard, Dan; Whitey Markle; 'jsullivan@carltonfields.com'
Cc: martynellijay@hotmail.com
Subject: Attachment

Forgot the attachment – here it is.

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: Richard L Kane
To: Doug Leeper; BrentWhitley@Sierra-Properties.com
Cc: Brent Whitley; Kevin Grimsely (kjgrims@usgs.gov); Marty Kelly; Mike Heyl; Ron Basso; Richard L Kane
Subject: RE: Attachment
Date: Monday, August 01, 2011 2:45:20 PM

Brent, I don't think that boat traffic affects the discharge at these sites. The gages are either in a stilling well (which is designed to dampen the affects of wave action) or a pressure transducer (PT) is attached to the gage. The PT records a pressure reading caused by the height (pressure head) of water over the PT. These reading are taken every 15 minutes and averaged for the entire day. Fluctuations in stage are normal for tidal affected sites like the springs. Fluctuations in stage can be caused by various environmental factors including rapidly changing tides, affects from larger and longer lasting waves and seawalls, variable pulsations in flow from the springs, seepage, debris in the water, rainfall runoff. Since the stage is an integral part of the equation it will also affect the discharge computation. These sites are not like traditional sites where water flows downhill and a fairly constant rate so fluctuations in stage are normal.

_____

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

From: Doug Leeper <Doug.Leeper@swfwmd.state.fl.us>
To: Brent Whitley <BrentWhitley@Sierra-Properties.com>
Cc: Marty Kelly <Marty.Kelly@swfwmd.state.fl.us>, Mike Heyl <Mike.Heyl@swfwmd.state.fl.us>, Ron Basso <Ron.Basso@swfwmd.state.fl.us>, "Richard Kane (rkane@usgs.gov)" <rkane@usgs.gov>, "Kevin Grimsely (kjgrims@usgs.gov)" <kjgrims@usgs.gov>
Date: 08/01/2011 10:56 AM
Subject: RE: Attachment

Brent –
Thanks for your comments. I've copied Richard Kane and Kevin Grimsley with the USGS, to see what they think about potential effects of boat traffic on river stage measurements. Seems like a reasonable effect to me, although there probably is not much boat traffic moving past the gage at the Fishbowl Drive Bridge (there is, however, often a lot of boating activity downstream from the gage site - perhaps boat wakes could propagate upstream??).

FYI - Richard and Kevin are currently working on a summary response to Mr. Johnson's submission.

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From: Brent Whitley [mailto:BrentWhitley@Sierra-Properties.com]
Sent: Friday, July 29, 2011 10:37 AM
To: Doug Leeper
Subject: RE: Attachment

Doug, just out of curiousity, isn't it possible that gauges in short term intervals like he described be influenced by boat traffic? I would think that in the situation at Chassahowitzka where the water in the vicinity of the measuring station is so shallow and the width of the stream at that point is very narrow that boats moving in and out even at idle speeds could impact the short intervals. For example, 3-4 consecutive vessels idling out and thus pushing water in must have some impact on flow measurement. Obviously I really do not know but long term data would overcome this concern he has.

Brent

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Sent: Thursday, July 28, 2011 2:31 PM
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From: Doug Leeper
To: "Alan Martyn Johnson"
Bcc: Marty Kelly; Mike Heyl; Ron Basso
Subject: RE: Public Input for Spring Workshop
Date: Monday, August 01, 2011 4:00:00 PM

Martyn:

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Here are brief responses to the comments/questions included in your July 29th e-mail.

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- I hope to put Kevin Grimsley's slide presentation on our web site – the USGS has policies regarding publication of materials – Richard, Kevin and I are awaiting approval for release of the slides file.
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Subject: RE: Public Input for Spring Workshop

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From: Doug.Leeper@swfwmd.state.fl.us
To: norman@amyhrf.org; BWR.CRRC@tampabay.rr.com; hopecorona@tampabay.rr.com; rebecca.bays@bocc.citrus.fl.us; rradacky@cityofbrooksville.us; jfarley682@aol.com; administration@inverness-fl.gov; cityofweekiwachee@yahoo.com; Kathleen.Greenwood@dep.state.fl.us; bill.pouder@myfwc.com; ted.hoehn@MyFWC.com; abrockway@co.hernando.fl.us; brentwhitley@sierra-properties.com; rmille76@tampabay.rr.com; manatees@habitats.org; grubman1@gmail.com; Dennis3ds@aol.com; Boyd_Blihovde@fws.gov; rkane@usgs.gov; 2buntings@comcast.net; whmarkle@gmail.com; jsullivan@carltonfields.com
CC: martynellijay@hotmail.com
Date: Thu, 28 Jul 2011 14:25:24 -0400
Subject: Public Input for Spring Workshop

Greetings:

At the Springs Coast Minimum Flows and Level workshop last week, several stakeholder representatives asked that I provide, via e-mail, copies of two documents submitted by Mr. Martyn Johnson for inclusion in the public input portion of the workshop.

The first of the documents is attached to this file. The second is too large to send via e-mail. I have posted scanned, electronic versions of both documents under the “Background Information and Reports” heading at the bottom of the Springs Coast MFL Working Group page of the District web site at:

http://www.WaterMatters.org/SpringsCoastMFL

The documents are identifies as follows:
Correspondence from Mr. Martyn Johnson; and
Second correspondence from Mr. Martyn Johnson.

Please let me know if you have any problems accessing the documents.

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Web Site: watermatters.org

From: Doug Leeper
To: "martynellijay@hotmail.com"
Bcc: Marty Kelly; Mike Heyl; Ron Basso
Subject: Correction for FY Funding Information
Date: Tuesday, August 02, 2011 7:35:00 AM

Martyn – here's a correction for the e-mail I sent yesterday.

- Funding for installation of new instrumentation at the USGS SE Fork site is still in the District's proposed FY2012 budget. The District Governing Board is expected to approve a final budget at their September meeting.

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Hernando Times - Opinion - Letter
July 27, 2011

River Flow Cuts Would Hurt Region

The state of Florida, through its acolyte agency Southwest Florida Water Management District, has proposed decreasing the flow rate of the Chassahowitzka River by 15 percent. Why would they do this and how? And what would the consequences be? These questions were asked at a public workshop held in Lecanto last week. The apparent answer is that the water is needed for new development along the Nature Coast. As water is withdrawn from the Floridan aquifer to supply the new development the flow of springs and rivers in the area is reduced. This includes Chassahowitzka, Homosassa, Crystal and Weeki Wachee rivers and the springs that supply them.

The consequences will be environmental damage on a scale not yet seen on the Nature Coast because, as the rivers' flow is decreased, salt water intrudes from the gulf, killing fresh and brackish water species.

Doug Leeper of Swiftmud verified what many local residents have seen: that encroaching sea water already has had this effect on the outer shores along the coast. Fishermen report palm trees dying at the mouth of the river. Doug showed a graph predicting a rise over the next 30 years of at least an additional 6 inches. Considering the destruction of habitat that is forecast due to increase in sea level, it seems, at the best, irresponsible to decrease the flow of these rivers even further by permitted pumping from the already stressed aquifer.

Russell J. Watrous, Land O'Lakes

Citrus County Chronicle
July 19, 2011

Water district provides data for river flows, levels

By Mike Wright
Tuesday, July 19, 2011 at 12:00 am *(Updated: July 19, 12:01 am)*

LECANTO — Hope Corona heard the data but still didn't believe it.

She watched officials with the Southwest Florida Water Management District, called Swiftmud by some, explain charts and "models" showing the amount of groundwater withdrawal that could occur without hurting springs in the Chassahowitzka and Homosassa rivers.

Those officials are planning to set the standard, known as minimum flows and levels, as required by state law. The levels, also called MFLs, will determine the level of well permits that the district can issue in Citrus County.

Corona, with the Chassahowitzka River Restoration Committee, believes the data ignores significant growth components and relies on average rainfall from decades ago even though the state has experienced drought conditions more recently.

The district's initial findings show the Chassahowitzka River can lose 11 percent of its water flow before it is harmed. For the Homosassa River, it's 5 percent. The district is still calculating the Crystal River MFL.

Corona noted the district's proposed MFLs show a 15 percent reduction in habitat and wildlife in the Chassahowitzka region by 2030.

"Swiftmud continues to defend the 15 percent loss," Corona said. "The spring areas should be like a world treasure that's rare and should be preserved."

The district conducted its second workshop Monday afternoon with a stakeholder's group comprised of various environmental agencies and community groups.

Al Grubman, president of the water district watchdog group TOO FAR, said the workshops began when environmentalists were alarmed at the district's first MFL proposal that opponents believe would allow significant groundwater withdrawal at the detriment of coastal springs.

Doug Leeper, the district's chief environmental scientist, said the series of workshops are designed to help explain the methodology used in determining the minimum flows and levels, and for the district to receive questions and comments along the way.

"I think we had a pretty fair amount of discussion today," Leeper said at the conclusion of the nearly four-hour meeting at the Lecanto Government Building.

Leeper said he hopes to have the next workshop sometime in August.

Chronicle reporter Mike Wright can be reached at (352) 563-3228 or mwright@chronicleonline.com.

From:	Alan Martyn Johnson
To:	Doug Leeper
Subject:	RE: Public Input for Spring Workshop
Date:	Tuesday, August 02, 2011 8:38:26 AM

Doug,
Was just reading your message from yesterday when your correction re 2012 v 2010 budget year arrived.

Thanks for the responses.

I have read Richards e-mail from last week. I would welcome the opportunity to meet, but possibly some response to my e-mails of Feb 16, 2011 re Homosassa River Flows, and Feb 19, 2011 re SE Fork Flows would be as productive as a starting point. I did note the March 1, 2011 info that you got from Kevin, but that did not answer the big questions in my mind.

If I am lucky enough to win big on the lottery I will personally rent a flow measuring device for USGS and yourselves to look at the flows from the SE Fork. Honestly, I would; two companies offered rental units when I was looking at these devices..not cheap.

Richard/USGS and/or SWFWMD may be able to find a suitable unit that is available short term. Surely somewhere there is a maintenance workshop that cleans/maintains the vast number of units that USGS has. Collecting flow data for say 3 months would help assure that this budgeted unit is a validated expenditure. The 3 month data would not have to be fed to the USGS Real Time Data system it could be collected using an on site recorder and reviewed say monthly. Just an idea to progress matters in an orderly constructive framework. Any thoughts from yourself or Richard regarding trying to find /install a 'test' unit would be appreciated.

I will be interested to see a rebuttal that explains how the flow measurements vary so dramatically and how good data can be made from bad.

At the risk of repeating myself again.....The flow data are the basis of all these studies and I am simply trying to assure that they are accurate. It is a long time since those 'regression' analyses were done and I still have questions about why the driving force is considered to be the Weeki Wachee Well some 18.7 miles away and not in the Homosassa Basin, when the Lecanto North Well some 9 miles away and at a much lower level was not used in the 'regression' analysis. Agreed the Lecanto Well is also not in the Homosassa Basin as drawn on the maps I have seen, but it is much closer to the basin. Just more food for thought. I will share some additional information on this later.

Doug,
A more general question about the working group panel, do they meet to discuss the issues. Or put another way what is their modus operendi other than attending the 'public' meetings?

Appreciate you keeping up with all the e-mails.
Thanks,
Martyn

From: Doug.Leeper@swfwmd.state.fl.us
To: martynellijay@hotmail.com
Date: Mon, 1 Aug 2011 16:00:07 -0400
Subject: RE: Public Input for Spring Workshop

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Bcc:	Marty Kelly; Mike Heyl; Ron Basso; Cara S. Martin; Darcy A. Brune; Jay Yingling; Yassert Gonzalez; Karen Lloyd; Richard Kane (rkane@usgs.gov); Kevin Grimsely (kjgrims@usgs.gov)
Subject:	RE: Public Input for Spring Workshop
Date:	Wednesday, August 03, 2011 10:20:16 AM
Attachments:	MJohnson_Portfolio1.pdf

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.

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Subject: RE: Public Input for Spring Workshop

Doug,
Thanks for posting my public input comments on the web site. The comments would have taken about three minutes to make; the allotted public input time.

The second document which shows the USGS calculated flows for the SE Fork for a couple of days was intended for individual discussion, should someone have had questions or wanted hard data to understand my comments. The document is not easy to understand as a stand alone document and was never intended as such.

I will be happy to explain the numbers if someone is interested. But, may I suggest that such a mass of numbers serves little purpose on the web site and I would recommend that you remove it.

Do you intend to put Kevin's presentation on the web site?
Do you have any thoughts about the idea of a Flow Measurements Working Committee?
Do you have any update on the budget to install an acoustic flow measuring device at the SE Fork?

Martyn

From: Doug.Leeper@swfwmd.state.fl.us
To: norman@amyhrf.org; BWR.CRRC@tampabay.rr.com; hopecorona@tampabay.rr.com; rebecca.bays@bocc.citrus.fl.us; rradacky@cityofbrooksville.us; jfarley682@aol.com; administration@inverness-fl.gov; cityofweekiwachee@yahoo.com; Kathleen.Greenwood@dep.state.fl.us; bill.pouder@myfwc.com; ted.hoehn@MyFWC.com; abrockway@co.hernando.fl.us; brentwhitley@sierra-properties.com; rmille76@tampabay.rr.com; manatees@habitats.org; grubman1@gmail.com; Dennis3ds@aol.com; Boyd_Blihovde@fws.gov; rkane@usgs.gov; 2buntings@comcast.net; whmarkle@gmail.com; jsullivan@carltonfields.com

CC: martynellijay@hotmail.com
Date: Thu, 28 Jul 2011 14:25:24 -0400
Subject: Public Input for Spring Workshop

Greetings:

At the Springs Coast Minimum Flows and Level workshop last week, several stakeholder representatives asked that I provide, via e-mail, copies of two documents submitted by Mr. Martyn Johnson for inclusion in the public input portion of the workshop.

The first of the documents is attached to this file. The second is too large to send via e-mail. I have posted scanned, electronic versions of both documents under the "Background Information and Reports" heading at the bottom of the Springs Coast MFL Working Group page of the District web site at:

http://www.WaterMatters.org/SpringsCoastMFL

The documents are identifies as follows:
Correspondence from Mr. Martyn Johnson; and
Second correspondence from Mr. Martyn Johnson.

Please let me know if you have any problems accessing the documents.

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From:	Alan Martyn Johnson
To:	Doug Leeper
Cc:	Kevin J Grimsley; rkane
Subject:	RE: Public Input for Spring Workshop
Date:	Thursday, August 04, 2011 8:54:58 AM
Attachments:	Weeki Wachee and Lecanto Wells Aug 4.xls Field Measurements Percent change Aug4.xls

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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 cullet 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.

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From:	Alan Martyn Johnson
To:	Doug Leeper; rkane; Kevin J Grimsley
Subject:	USGS Data
Date:	Saturday, August 06, 2011 10:16:57 AM
Attachments:	Specific Conductance Homosassa Sprngs Gage.htm

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.

Richard and Kevin,
Where will Real Time Data be available as Approved Data?

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.

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.

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?
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.

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

Martyn