

Internal Only

Station Analysis View

Responsible Office
U.S. Geological Survey
Ft. Lauderdale Office
3110 SW 9th Ave
Ft. Lauderdale, FL 33315
954-377-5900

251032080473400 ALLIGATOR CREEK
NEAR GARFIELD BIGHT, FL

Most recent revision: 2/2/2011
Revised by: shuddle

LOCATION.--Lat 25°10'32", long 80°47'34" referenced to North American Datum of 1983, Miami-Dade County, FL, Hydrologic Unit 03090202, Northeast part of Garfield Bight, approximately 8.5 mi east northeast of the marina located in Flamingo. (Corrected)

SPECIAL NOTE (SANAL).--2010 Water Year:

Computed by: S. Huddleston Nov. 30, 2010 Checked by: M. Zucker and C. Adrianza Reviewed by: M. Zucker Jan. 24-25, 2011

Published Data Descriptors:

- 1 00065 Gage height Acoustic Stage NAVD 88 (ft)
2 00060 Discharge (cfs)
\* 1 00065 Gage height Acoustic Stage NAVD 88 (ft)
\* 3 00055 Stream velocity Sontek Velocity X, SL (ft/sec)

Diagnostic Descriptors

- 4 00055 Stream velocity SL Velocity Y (ft/sec)
5 00011 Temperature, water Sontek SL (deg F)
8 99905 Water Sci Cntr 99905 Pressure SL

EQUIPMENT.--A side-looking SonTek SL 1500 kHz acoustic Doppler velocity meter (ADVM) was installed on April 24, 2007. A Sutron SatLink II data recorder with GOES transmission capability was installed on April 23, 2009. Data necessary to calculate discharge including velocity and water level is stored in the data logger and transmitted hourly. As a backup, data is recorded internally within the ADVM and downloaded periodically during site visits. Water level is collected using an upward looking acoustic beam referenced to a tape down location using a conversion of input equation. A 26 amp hour battery, voltage regulator, and cables are stored in a NEMA shelter attached to two stainless steel pipes driven into the right bank approximately 15' from the bank near the ADVM. A solar panel is in place to continuously charge the battery. An outside staff referenced to NAVD '88 was installed next to the ADVM.

GAGE HEIGHT RECORD.--The acoustic stage sensor produced a complete gage height record for water year 2010 with the exception of Feb. 2 and Sept. 1. Site maintenance was conducted on both days resulting in record gaps; both days have been flagged as partial days of record.

VELOCITY RECORD.--Partial days of record were noted on Feb. 2 and Sept. 1 as a result of site maintenance. Beam checks were conducted on Oct. 8, Nov. 19, Feb. 2, April 8, July 1, Aug. 16, and Sept. 1.

GAGE HEIGHT CORRECTIONS.--Three gage height corrections were applied in water year 2010. Please refer to the ratings folder and station analysis report in the discharge record section for documentation regarding correction details.

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DATUM CORRECTIONS.--Datum of gage is North American Vertical Datum (NAVD) 1988.

Last set of levels were performed on July 22, 2008 by USGS Ft. Lauderdale staff.

No datum correction applied. RG (notch on outside staff support pipe) equals 1.461 ft. See level summary located at

Q:\NWIS\Station\_Information\SW\25xx\251032080473400\Levels Summary

RATING.--There is no definite relation between stage and discharge at this station as flow is primarily regulated by tidal fluctuation and wind patterns within the region. Flow reversals are common especially in the dry season. A velocity index was developed and utilized based on an area rating and a velocity rating for computation of stream discharge. A side looking ADVM has been deployed as the index velocity instrument from station construction on April 24, 2007 to current. Rating calibrations are performed with an acoustic Doppler current profiler (ADCP). The rating is discussed below.

AREA RATING.--The stage area rating (ID 0001) was developed using an ADCP measurement conducted on Sept. 18, 2008; transect 003r was used. The AreaComp program (version 1.1) was utilized to develop the cross-sectional rating. More information on the area rating can be found in the Florida Water Science Center data archive at.

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STATION:251032080473400 ALLIGATOR CREEK NEAR GARFIELD BIGHT, FL TYPE:STREAM AGENCY:USGS STATE:12 COUNTY:086
LATITUDE: 251032 LONGITUDE: 0804734 NAD83 DRAINAGE AREA: CONTRIBUTING DRAINAGE AREA: DATUM:
Date Processed: 2010-11-30 13:05 By shuddle
Rating for Discharge (cfs)
RATING ID: 0001 TYPE: stage-area EXPANSION: linear STATUS: approved
Created by shuddle on 09-24-2008 @ 13:18:20 EDT, Updated by mzucker on 05-14-2009 @ 09:36:57 EDT

RATING REMARKS: Acoustic Stage to Area

STREAM | STREAM | STREAM | STREAM | STREAM | STREAM |

CROSS -SEC.		CROSS -SEC.		CROSS -SEC.		CROSS -SEC.		CROSS -SEC.		CROSS -SEC.	
Gage height, feet	AREA IN SQ. FEET										
-3.00	57.261	-1.75	92.207	-0.50	127.17	0.75	162.15	2.00	197.13		
-2.75	64.241	-1.50	99.199	-0.25	134.17	1.00	169.15	2.25	204.13		
-2.50	71.232	-1.25	106.19	0.00	141.16	1.25	176.14	2.50	211.12		
-2.25	78.223	-1.00	113.18	0.25	148.16	1.50	183.14	2.75	218.12		
-2.00	85.215	-0.75	120.18	0.50	155.15	1.75	190.13	3.00	225.12		

Rating Type:			Rating Type: stage-area		
ID	Starting Date	Ending Date	A	Comments	
0001	04-24-2007 @ 15:30:00 EDT	04-24-2007 @ 23:59:59 EDT	W	Acoustic Stage to Area	
0001	04-25-2007 @ 00:00:00 EDT	10-08-2009 @ 23:59:59 EDT	A	Acoustic Stage to Area	
0001	10-09-2009 @ 00:00:00 EDT	02-01-2010 @ 23:59:59 EST	R	Acoustic Stage to Area	
0001	02-02-2010 @ 00:00:00 EST	-----	W	Acoustic Stage to Area	

**VELOCITY RATING:**--The computation of discharge in water year 2010 used index rating ID 0001. Velocity rating ID 0001 was developed using a SonTek SL 1500 kHz side-looking acoustic velocity meter (DD#3, Stream velocity SonTek Velocity X, SL ft/sec) and discharge (ADCP) measurement numbers 1-87 conducted on June 5, 2007, Oct. 5, 2007, July 22, 2008, and Aug. 28, 2008. Due to unstable flow conditions, each ADCP transect can be considered an independent measurement of discharge. A measured mean channel velocity range from -0.32 ft/s to 0.70 ft/s was observed during rating development. Further information regarding the index velocity rating can be found in the folder listed below.

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Discharge measurements were made on four days in water year 2010. Oct. 8 (6 transects), Nov. 19 (10 transects), July 1 (8 transects), and Sept. 1 (8 transects).

Velocity rating ID 001 Equation from ADAPS

STATION:251032080473400 ALLIGATOR CREEK NEAR GARFIELD BIGHT, FL TYPE:STREAM AGENCY:USGS STATE:12 COUNTY:086  
 LATITUDE: 251032 LONGITUDE: 0804734 NAD83 DRAINAGE AREA: CONTRIBUTING DRAINAGE AREA: DATUM:  
 Date Processed: 2010-11-30 13:09 By shuddle  
 Rating for Discharge (cfs)  
 RATING ID: 0001 TYPE: velocity EXPANSION: equation STATUS: approved  
 Created by shuddle on 09-29-2008 @ 11:07:56 EDT, Updated by mzucker on 05-14-2009 @ 09:37:03 EDT

RATING REMARKS: SL1500 Index Velocity to Measured Mean Channel Velocity

OUTPUT = .6116 \* (INPUT) + -.0104

Rating Type:			Rating Type: velocity		
ID	Starting Date	Ending Date	A	Comments	
0001	04-24-2007 @ 15:30:00 EDT	04-24-2007 @ 23:59:59 EDT	W	Index Velocity to Mean Channel Velocity	
0001	04-25-2007 @ 00:00:00 EDT	10-08-2009 @ 23:59:59 EDT	A	Index Velocity to Mean Channel Velocity	
0001	10-09-2009 @ 00:00:00 EDT	02-01-2010 @ 23:59:59 EST	R	Index Velocity to Mean Channel Velocity	
0001	02-02-2010 @ 00:00:00 EST	-----	W	Index Velocity to Mean Channel Velocity	

**DISCHARGE RECORD.**--Discharge was computed using programs in ADAPS. The primary descriptors used to store data, calculate and store discharge are shown below.

- 3 00055 Stream velocity SonTek Velocity X, SL (ft/sec)
- 1 00065 Gage height Acoustic Stage NAVD 88 (ft)
- 2 00060 Discharge (cfs)

velocity-discharge  
 251032080473400 Alligator Creek near Garfield Bight  
 DD#2 Discharge (cfs)

Processor Status: working  
 Created by: mzucker on: 07-25-2007 @ 09:03:21 EDT  
 Modified by: mzucker on: 07-25-2007 @ 09:13:10 EDT  
 SD - Starts on: 01-01-2007  
 ED - Ends on: 12-31-2382  
 RP - Default primary report type: Standard  
 GP - Unit values missing gap time: 120 (MINUTES)  
 DV - Compute DVs: MAXIMUM  
 MINIMUM  
 MEAN  
 IS - Stage gage: DD #01 Gage height Acoustic Stage N  
 IV - Velocity gage: DD #03 Stream velocity Sontek Veloc

UL - Upper gage height limit: Not specified  
 LL - Lower gage height limit: Not specified  
 EQ - Use mean-velocity equation: No  
 XC - Equation X coefficient: Not specified  
 YC - Equation Y coefficient: Not specified  
 EC - Equation constant: Not specified  
 HB - Base for extreme events: Not used  
 HP - Interval for extreme events: Not used

Data Descriptor For  
 251032080473400 Alligator Creek near Garfield Bight

DD ID 2  
 Created by: mzucker  
 Created on: 07-25-2007 13:02:35 UTC  
 Modified by: mzucker  
 Modified on: 07-25-2007 13:07:23 UTC  
 PC - Parameter: 00060 - Discharge (cfs)  
 LO - Location:  
 DS - DD Description:  
 SC - Unit values stat code: 00011 - Instantaneous for sensing period  
 PF - Primary/work data: Primary data  
 RN - Rounding codes: Standard for parameter: 2222233332  
 DT - DV table summary options: TOTAL, MEAN, MAXIMUM, MINIMUM  
 ACRE-FEET  
 Annual summary  
 Standard DV table is default

A complete record of discharge was produced for water year 2010 with the exception of Feb. 2 and Sept. 1 which have been flagged as partial days due to missing data as a result of site maintenance.

1 U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION:251032080473400 ALLIGATOR CREEK NEAR GARFIELD BIGHT, FL TYPE:STREAM AGENCY:USGS STATE:12 COUNTY:086  
 LATITUDE: 251032 LONGITUDE: 0804734 NAD83 DRAINAGE AREA: CONTRIBUTING DRAINAGE AREA: DATUM:  
 Date Processed: 2010-11-04 17:01 By shuddle  
 Station Analysis Report for Dates 10/01/2009 to 09/30/2010

Computation Type: velocity-discharge

CORRECTIONS (on Base Input DD):

DD 3 Stream velocity Sontek Velocity X, SL (ft/sec)

Correction set # 1

None

Correction set # 2

None

Correction set # 3

None

(Corrections on Auxiliary Input DD)

DD 1 Gage height Acoustic Stage NAVD 88 (ft)

Gage Height Corrections

Start Date / End Date / Comments	SET	Input	Corr	Input	Corr	Input	Corr	Aging Status
2009/10/08 @ 13:26:00 EDT ----/--/-- @ --:--:-- Remarks:	1	0.00	0.00					Approved
2009/11/19 @ 12:15:00 EST ----/--/-- @ --:--:-- Remarks:	1	0.00	0.08					in-Review
2010/02/02 @ 10:00:00 EST 2010/02/02 @ 10:01:00 EST Remarks:	1	0.00	0.00					Working
2010/04/08 @ 14:15:00 EDT ----/--/-- @ --:--:-- Remarks:	1	0.00	0.00					Working
2010/07/01 @ 10:31:00 EDT ----/--/-- @ --:--:-- Remarks:	1	0.00	0.08					Working
2010/07/01 @ 12:30:00 EDT ----/--/-- @ --:--:-- Remarks:	1	0.00	0.08					Working
2010/08/16 @ 10:45:00 EDT 2010/08/16 @ 10:46:00 EDT Remarks:	1	0.00	0.00					Working
2010/08/16 @ 12:00:00 EDT	1	0.00	0.00					

----/--/-- @ --:--:--

Working

Remarks:

2010/09/01 @ 11:30:00 EDT 1 0.00 0.07

2010/09/01 @ 11:31:00 EDT

Working

Remarks:

Datum Corrections from Levels

None

Other

None

RATINGS & SHIFTS (on Output DD):

DD 2 Discharge (cfs)

Rating ID: 0001 Type: STAR stage-area Rating Status: Approved Created 09/24/2008 by shuddle

Remarks: Acoustic Stage to Area

Rating ID: 0001 Type: VELO velocity Rating Status: Approved Created 09/29/2008 by shuddle

Remarks: SL1500 Index Velocity to Measured Mean Channel Velocity

Rating Dates:

stage-area

Rating ID: 0001 Date range: 2007-04-25 @ 00:00:00 EDT to 2009-10-08 @ 23:59:59 EDT Aging Status: Approved

Remarks: Acoustic Stage to Area

Rating ID: 0001 Date range: 2009-10-09 @ 00:00:00 EDT to 2010-02-01 @ 23:59:59 EST Aging Status: In-Review

Remarks: Acoustic Stage to Area

Rating ID: 0001 Date range: 2010-02-02 @ 00:00:00 EST to Future Aging Status: Working

Remarks: Acoustic Stage to Area

velocity

Rating ID: 0001 Date range: 2007-04-25 @ 00:00:00 EDT to 2009-10-08 @ 23:59:59 EDT Aging Status: Approved

Remarks: Index Velocity to Mean Channel Velocity

Rating ID: 0001 Date range: 2009-10-09 @ 00:00:00 EDT to 2010-02-01 @ 23:59:59 EST Aging Status: In-Review

Remarks: Index Velocity to Mean Channel Velocity

Rating ID: 0001 Date range: 2010-02-02 @ 00:00:00 EST to Future Aging Status: Working

Remarks: Index Velocity to Mean Channel Velocity

Shifts:

No shifts for Rating 0001

No shifts for Rating 0001

UNIT VALUES ERRONEOUS PERIODS (marked "X"):

(Base Input DD)

None

(Auxiliary Input DD)

None

PERIODS WITH UNIT VALUES MERGED FROM BACKUP SOURCES:

(Base Input DD)

- 2009/10/08 To 2010/02/02
- 2010/02/19 To 2010/02/19
- 2010/03/04 To 2010/03/04
- 2010/03/14 To 2010/03/14
- 2010/03/29 To 2010/03/29
- 2010/05/05 To 2010/05/05
- 2010/07/01 To 2010/07/01
- 2010/07/30 To 2010/07/30
- 2010/08/01 To 2010/08/01
- 2010/08/07 To 2010/08/07
- 2010/08/14 To 2010/08/14
- 2010/08/26 To 2010/08/26
- 2010/09/01 To 2010/09/02

(Auxiliary Input DD)

2009/10/08 To 2010/02/02

2010/03/04 To 2010/03/04  
 2010/03/14 To 2010/03/14  
 2010/03/29 To 2010/03/29  
 2010/07/01 To 2010/07/01  
 2010/07/30 To 2010/07/30  
 2010/08/01 To 2010/08/01  
 2010/08/07 To 2010/08/07  
 2010/08/14 To 2010/08/14  
 2010/08/25 To 2010/08/26  
 2010/09/01 To 2010/09/02

GAPS IN DAILY VALUES (Stat Code 00003)

Gaps in Record  
 02-02-2010 To 02-02-2010  
 09-01-2010 To 09-01-2010

Estimated Record  
 None

SITE VISIT SUMMARY REPORT

MEAS NO	DATE	TIME	STATUS	PARTY	STAGE	DISCHARGE	RATING	APPLIED	SHIFTED	RATED	CONTROL
								SHIFT	% DIFF		
Key carriage return to continue:											
122	10/08/2009	13:04:00	Locked	SH/AH	-0.26	62.3	0001		5.8	FAIR	
123	10/08/2009	13:05:45	Locked	SH/AH	-0.27	67.0	0001		11.5	POOR	
124	10/08/2009	13:07:00	Locked	SH/AH	-0.27	63.5	0001		-3.1	GOOD	
125	10/08/2009	13:08:00	Locked	SH/AH	-0.27	64.0	0001		-4.2	FAIR	
126	10/08/2009	13:09:30	Locked	SH/AH	-0.27	65.6	0001		9.2	FAIR	
127	10/08/2009	13:10:30	Locked	SH/AH	-0.27	65.1	0001		1.6	EXCL	
128	11/19/2009	11:32:04	Locked	SH/AH	-0.23	28.0	0001		4.1	EXCL	
129	11/19/2009	11:34:00	Locked	SH/AH	-0.23	30.3	0001		12.6	POOR	
130	11/19/2009	11:36:00	Locked	SH/AH	-0.24	29.0	0001		13.7	POOR	
131	11/19/2009	11:38:00	Locked	SH/AH	-0.23	30.3	0001		7.1	FAIR	
132	11/19/2009	11:40:00	Locked	SH/AH	-0.23	31.6	0001		23.4	POOR	
133	11/19/2009	11:41:00	Locked	SH/AH	-0.23	31.4	0001		22.7	POOR	
134	11/19/2009	11:43:00	Locked	SH/AH	-0.25	36.3	0001		23.1	POOR	
135	11/19/2009	11:44:00	Locked	SH/AH	-0.26	37.3	0001		26.4	POOR	
136	11/19/2009	11:46:00	Locked	SH/AH	-0.26	30.4	0001		-1.3	EXCL	
137	11/19/2009	11:48:00	Locked	SH/AH	-0.27	32.3	0001		5.2	GOOD	
138	07/01/2010	11:48:00	Locked	CA/SH	-0.55	-16.2	0001		28.6	POOR	
139	07/01/2010	11:50:00	Locked	CA/SH	-0.54	-16.4	0001		18.0	POOR	
140	07/01/2010	11:51:00	Locked	CA/SH	-0.54	-17.6	0001		26.6	POOR	
141	07/01/2010	11:53:00	Locked	CA/SH	-0.54	-19.2	0001		9.1	POOR	
142	07/01/2010	11:55:00	Locked	CA/SH	-0.54	-15.3	0001		10.1	POOR	
143	07/01/2010	11:57:00	Locked	CA/SH	-0.56	-12.4	0001		-10.1	POOR	
144	07/01/2010	11:59:00	Locked	CA/SH	-0.55	-14.8	0001		46.5	POOR	
145	07/01/2010	12:01:00	Locked	CA/SH	-0.56	-15.2	0001		21.6	POOR	
146	09/01/2010	14:28:27	Locked	CA/SH	-0.82	83.4	0001		17.6	POOR	
147	09/01/2010	14:30:32	Locked	CA/SH	-0.82	83.2	0001		15.4	POOR	
148	09/01/2010	14:32:23	Locked	CA/SH	-0.82	86.6	0001		12.8	POOR	
149	09/01/2010	14:34:24	Locked	CA/SH	-0.81	83.0	0001		34.7	POOR	
150	09/01/2010	14:36:57	Locked	CA/SH	-0.82	91.0	0001		28.3	POOR	
151	09/01/2010	14:38:52	Locked	CA/SH	-0.82	84.4	0001		25.2	POOR	
152	09/01/2010	14:40:42	Locked	CA/SH	-0.81	77.1	0001		10.3	POOR	
153	09/01/2010	14:42:24	Locked	CA/SH	-0.81	81.2	0001		18.2	POOR	

REMARKS (SANAL).--REMARKS:--Records and estimates are considered poor for water year 2010. Unit values are the primary product and are accessible via ADAPS. Public access to the unit value data will be provided on the South Florida Information Access (SOFIA) web page.

COMPUTATIONS AND ANALYSES BY: Stephen Huddleston  
 Completed: 11/30/2010  
 CHECKED BY:  
 REVIEWED BY:

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