

## Appendix IV. Calendar and Daily Graphs and Tables

### Note:

Each daily sheet has the maximum number of manatees in the Springs at one time listed below the graph.

In addition, the Table shows the number of manatees in the Springs at each half hour interval. The number in the Springs in the half hour interval is always greater than the maximum number at one time.

# December 2014

Crystal River, Florida, USA

Latitude, Longitude: 28 54.0' N, 82 35.8' W Time zone: -5:00 (Eastern) DST observance: North America

\* Study day

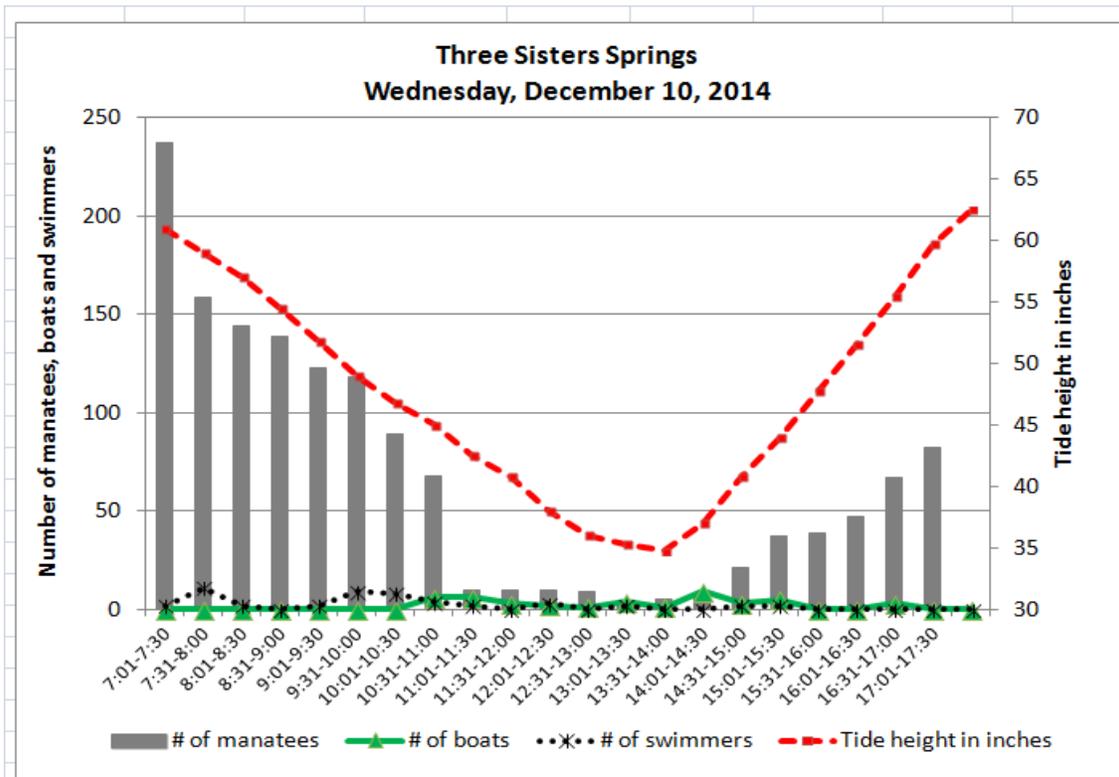
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1 Sunrise: 7:06am Sunset: 5:33pm	2 Sunrise: 7:07am Sunset: 5:32pm	3 Sunrise: 7:07am Sunset: 5:32pm	4 Sunrise: 7:08am Sunset: 5:33pm	5 Sunrise: 7:09am Sunset: 5:33pm	6 Sunrise: 7:10am Sunset: 5:33pm Full Moon: 7:28am
7 Sunrise: 7:10am Sunset: 5:33pm	8 Sunrise: 7:11am Sunset: 5:33pm	9 Hi 5:22 am Lo 12:41pm Hi 6:18 pm Sunrise: 7:12am Sunset: 5:33pm	10 Hi 6:03am * Lo 1:20pm Hi 6:18pm Sunrise: 7:13am Sunset: 5:33pm	11 Sunrise: 7:13am * Sunset: 5:34pm	12 Sunrise: 7:14am Sunset: 5:34pm	13 Hi 8:29am * Lo 3:30pm Hi 9:19pm Sunrise: 7:15am Sunset: 5:34pm
14 Hi 9:25am * Lo 4:22pm Hi 10:05pm Sunrise: 7:15am Sunset: 5:34pm	15 Lo 5:12am Hi 10:22am Lo 5:20pm Sunrise: 7:16am Sunset: 5:35pm	16 Lo 6:22am * Hi 11:25am Lo 6:18pm Sunrise: 7:16am Sunset: 5:35pm	17 Lo 7:22am * Hi 12:39pm Lo 7:09pm Sunrise: 7:17am Sunset: 5:35pm	18 Sunrise: 7:18am Sunset: 5:36pm	19 Sunrise: 7:18am Sunset: 5:36pm	20 Hi 4:45am * Lo 12:05pm Hi 5:48pm Sunrise: 7:19am Sunset: 5:37pm
21 Hi 3:12am * Lo 10:35am Hi 4:23pm Sunrise: 7:19am Sunset: 5:37pm New Moon: 8:37pm	22 Hi 3:58am Lo 11:21am Hi 5:06pm Sunrise: 7:20am Sunset: 5:38pm	23 Hi 4:45am * Lo 12:05pm Hi 5:48pm Sunrise: 7:20am Sunset: 5:38pm	24 Hi 5:31am Lo 12:48pm Hi 6:31pm Sunrise: 7:21am Sunset: 5:39pm	25 Hi 6:19 am * Lo 1:30 pm Hi 7:17 pm Sunrise: 7:21am Sunset: 5:39pm	26 Hi 7:11am * Lo 2:14pm Hi 8:05pm Sunrise: 7:22am Sunset: 5:40pm	27 Hi 8:08am * Lo 3:01pm Hi 8:55pm Sunrise: 7:22am Sunset: 5:40pm
28 Lo 3:35am * Hi 9:09am Lo 3:51pm Sunrise: 7:22am Sunset: 5:41pm First Qtr: 1:33pm	29 Lo 4:49am Hi 10:09am Lo 4:46pm Sunrise: 7:23am Sunset: 5:42pm	30 Lo 6:02am * Hi 11:13am Lo 5:46pm Sunrise: 7:23am Sunset: 5:42pm	31 Lo 7:06am * Hi 12:33pm Lo 6:44pm Sunrise: 7:23am Sunset: 5:43pm			

# January 2015

Crystal River, Florida, USA

Latitude, Longitude: 28 54.0' N, 82 35.8' W Time zone: -5:00 (Eastern) DST observance: North America

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1 Sunrise: 7:24a * Sunset: 5:44pm	2 Sunrise: 7:24am Sunset: 5:44pm	3 Sunrise: 7:24am Sunset: 5:45pm
4 Sunrise: 7:24am Sunset: 5:46pm Full Moon: 11:54pm	5 Sunrise: 7:25am Sunset: 5:46pm	6 Sunrise: 7:25am Sunset: 5:47pm	7 Hi: 5:07 am * Lo: 12:22 pm Hi: 5:55 pm Sunrise: 7:25am Sunset: 5:48pm	8 Hi: 5:47 am * Lo: 12:57 pm Hi: 6:23 pm Sunrise: 7:25am Sunset: 5:49pm	9 Hi: 6:28 am Lo: 1:32 pm Hi: 7:12 pm Sunrise: 7:25am Sunset: 5:49pm	10 Hi: 7:13 am * Lo: 2:07 pm Hi: 7:55 pm Sunrise: 7:25am Sunset: 5:50pm
11 Hi: 8:02 am * Lo: 2:45 pm Hi: 8:40 pm Sunrise: 7:25am Sunset: 5:51pm	12 Hi: 8:55 am Lo: 3:26 pm Hi: 9:26 pm Sunrise: 7:25am Sunset: 5:52pm	13 Lo: 4:23 am Hi: 9:50 am Lo: 4:15 pm Sunrise: 7:25am Sunset: 5:53pm Last Qtr: 4:48am	14 Lo: 5:38 am * Hi: 10:48 am Lo: 5:16 pm Sunrise: 7:25am Sunset: 5:53pm	15 Lo: 6:46 am * Hi: 11:58 am Lo: 6:24 pm Sunrise: 7:25am Sunset: 5:54pm	16 Lo: 7:43 am Hi: 1:18 pm Lo: 7:21 pm Sunrise: 7:25am Sunset: 5:55pm	17 Lo: 8:36 am * Hi: 2:26 pm Lo: 8:11 pm Sunrise: 7:25am Sunset: 5:56pm
18 Lo: 9:27 am * Hi: 3:20 pm Sunrise: 7:24am Sunset: 5:57pm	19 Hi: 2:47 am * Lo: 10:17 am Hi: 4:07 pm Sunrise: 7:24am Sunset: 5:58pm	20 Hi: 3:45 am Lo: 11:05 am Hi: 4:49 pm Sunrise: 7:24am Sunset: 5:58pm New Moon: 8:15am	21 Hi: 4:34 am Lo: 11:49 am Hi: 5:30 pm Sunrise: 7:24am Sunset: 5:59pm	22 Hi: 5:22 am Lo: 12:30 pm Hi: 6:10 pm Sunrise: 7:23am Sunset: 6:00pm	23 Hi: 6:10 am Lo: 1:09 pm Hi: 6:52 pm Sunrise: 7:23am Sunset: 6:01pm	24 Hi: 6:59 am * Lo: 1:49 pm Hi: 7:56 pm Sunrise: 7:23am Sunset: 6:02pm
25 Hi: 7:52 am * Lo: 2:29 pm Hi: 8:22 pm Sunrise: 7:22am Sunset: 6:03pm	26 Hi: 8:48 am Lo: 3:13 pm Hi: 9:10 pm Sunrise: 7:22am Sunset: 6:03pm First Qtr: 11:49pm	27 Hi: 9:44 am * Lo: 4:02 pm Sunrise: 7:22am Sunset: 6:04pm	28 Lo: 5:31 am * Hi: 10:41 am Lo: 5:02 pm Sunrise: 7:21am Sunset: 6:05pm	29 Lo: 6:41 am * Hi: 11:48 am Lo: 6:11 pm Sunrise: 7:21am Sunset: 6:06pm	30 Lo: 7:39 am Hi: 1:22 pm Lo: 7:12 pm Sunrise: 7:20am Sunset: 6:07pm	31 Lo: 8:30 am * Hi: 2:41 pm Lo: 8:05 pm Sunrise: 7:20am Sunset: 6:08pm

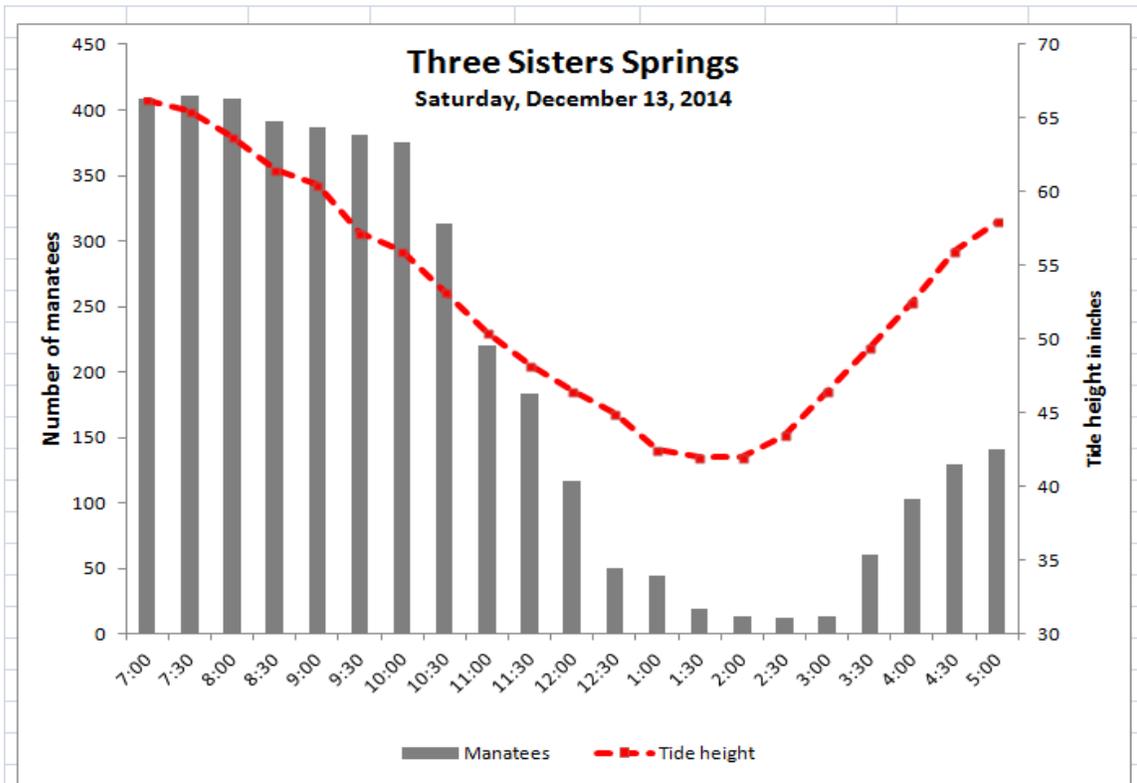


237 maximum number of manatees in the Springs at one time  
 33 swimmers this day  
 35 boats, 38 people and 3 dogs in boats this day

Total Number of manatee passages through Springs Run: 370  
 Total number all passages through Springs Run: 507

Temperatures at 7:00 AM                      Gulf water at Shell Island                      61° F  
 Ambient air at Springs                      39° F                      Water at mouth of Kings Bay                      65° F

Manatees swimming		Number in Springs at each half hour time interval				
In	Out	Time interval	# manatees	Tide height	# boats	# swimmers
0	78	7:01-7:30	237	61	0	2
0	15	7:31-8:00	159	59	0	11
0	5	8:01-8:30	144	57	0	2
0	16	8:31-9:00	139	55	0	0
0	14	9:01-9:30	123	52	0	2
1	22	9:31-10:00	118	49	0	9
1	43	10:01-10:30	89	47	0	8
3	41	10:31-11:00	68	45	6	4
2	0	11:01-11:30	10	43	6	2
0	0	11:31-12:00	10	41	3	0
0	1	12:01-12:30	10	38	2	3
0	5	12:31-13:00	9	36	1	0
0	0	13:01-13:30	4	35	4	2
0	0	13:31-14:00	5	35	1	0
2	2	14:01-14:30	6	37	9	0
19	4	14:31-15:00	21	41	3	2
17	5	15:01-15:30	37	44	5	2
10	4	15:31-16:00	39	48	0	0
12	1	16:01-16:30	47	52	0	0
21	6	16:31-17:00	67	56	3	0
20	1	17:01-17:30	82	60	0	0
108	263	Totals		4 manatees in Springs at 1:00 PM		



Springs closed due to cold temperatures

407 maximum number of manatees in Springs at one time

Total number of manatee passages in the Springs Run: 714

Temperatures at 7:00 AM

Gulf water at Shell Island

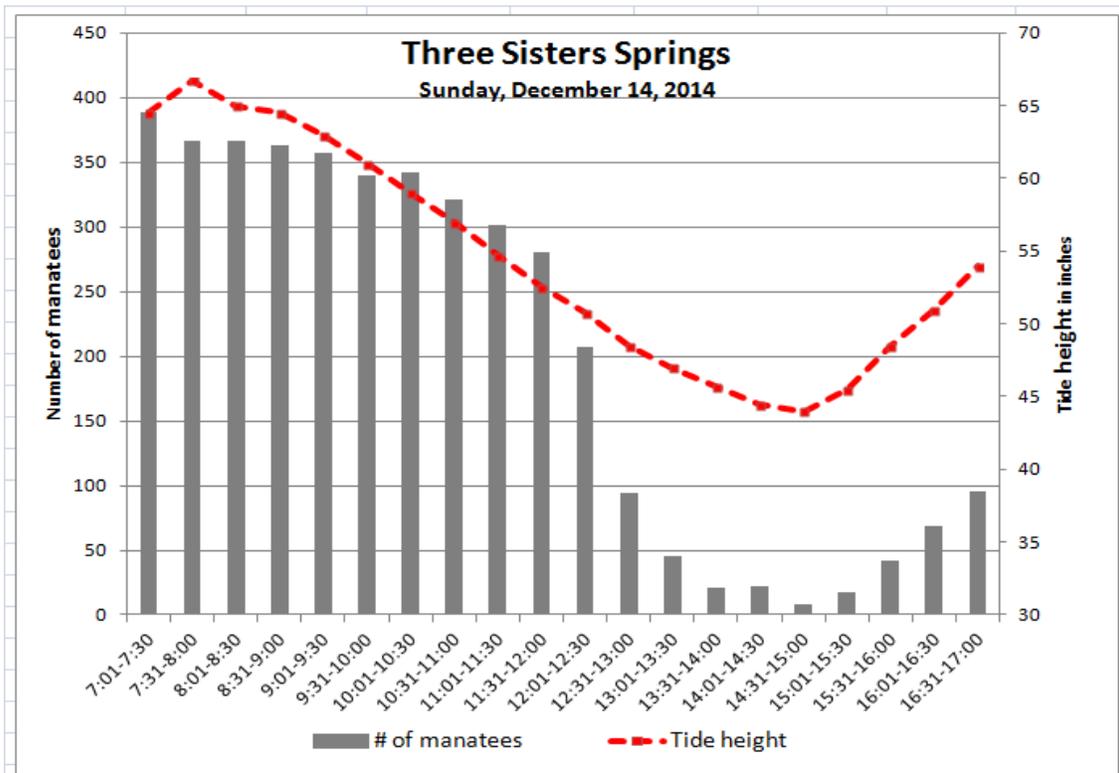
57° F

Ambient air at Springs 34° F

Water at mouth of Kings Bay

63° F

Manatees swimming		Number in Springs at each half hour time interval		
In	Out	Time interval	# manatees	Tide height
3	11	7:01-7:30	409	66
13	11	7:31-8:00	411	66
9	18	8:01-8:30	409	64
0	4	8:31-9:00	391	62
0	6	9:01-9:30	387	61
0	7	9:31-10:00	381	57
1	74	10:01-10:30	375	56
3	89	10:31-11:00	313	53
5	40	11:01-11:30	220	51
3	71	11:31-12:00	183	48
5	73	12:01-12:30	117	47
6	11	12:31-13:00	50	45
5	28	13:01-13:30	44	43
3	8	13:31-14:00	19	42
3	8	14:01-14:30	14	42
6	6	14:31-15:00	12	44
8	3	15:01-15:30	14	47
35	5	15:31-16:00	61	50
62	4	16:01-16:30	103	53
30	1	16:31-17:00	129	56
13	14	17:01-17:30	141	58
213	492	Totals	6 manatees in Springs at 3:00 PM	



Springs closed due to cold temperatures

373 maximum number of manatees in Springs at one time

Total number of manatee passages in the Springs Run: 711

Temperatures at 7:00 AM

Ambient air at Springs 36 ° F

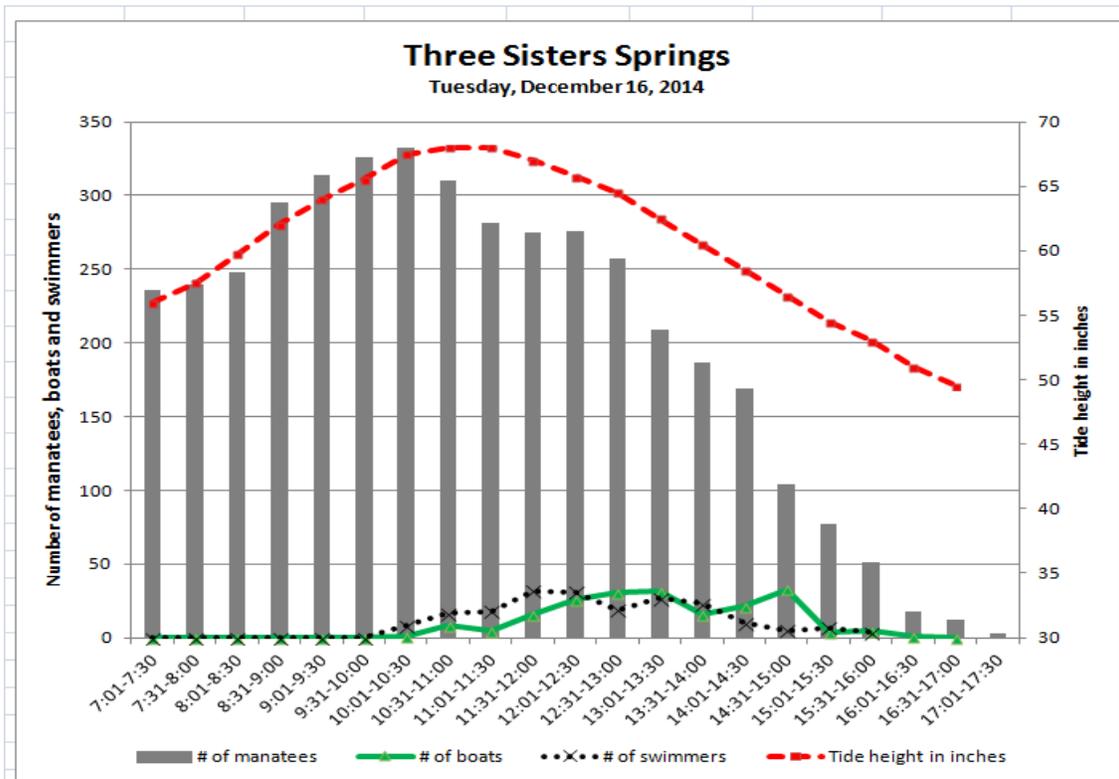
Gulf water at Shell Island

58 ° F

Water at mouth of Kings Bay

64 ° F

Manatees swimming		Number in Springs at each half hour time interval		
In	Out	Time interval	# manatees	Tide height
6	31	7:01-7:30	389	65
19	15	7:31-8:00	367	67
13	5	8:01-8:30	366	65
1	6	8:31-9:00	363	65
1	19	9:01-9:30	357	63
2	8	9:31-10:00	340	61
5	19	10:01-10:30	342	59
1	23	10:31-11:00	321	57
0	17	11:01-11:30	301	55
3	87	11:31-12:00	281	53
11	122	12:01-12:30	207	51
6	52	12:31-13:00	94	49
8	29	13:01-13:30	45	47
5	6	13:31-14:00	21	46
7	18	14:01-14:30	22	45
4	6	14:31-15:00	8	44
16	4	15:01-15:30	18	46
28	11	15:31-16:00	42	49
38	14	16:01-16:30	69	51
40	5	16:31-17:00	95	54
		17:01-17:30	90	57
214	497	Totals	2 manatees in Springs at 3:00 PM	



Springs closed until 10:00 AM due to cold temperatures

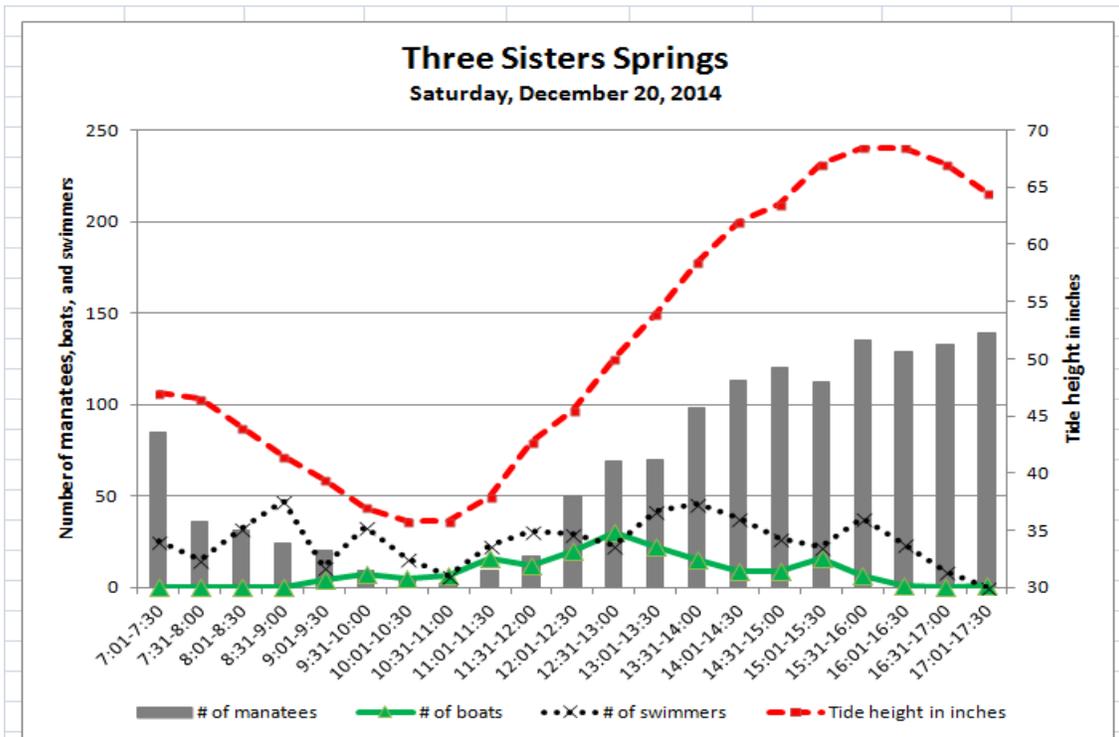
315 maximum number of manatees in the Springs at one time  
 96 swimmers this day  
 86 boats, 98 people and 2 dogs in boats this day

Total number of manatee passages in the Springs Run: 970  
 Total number all passages through Springs Run: 1334

Temperatures at 7:00 AM		Gulf water at Shell Island	60° F
Ambient air at Springs	52° F	Water at mouth of Kings Bay	66° F

Manatees swimming		Number in the Springs at each half hour time interval				
In	Out	Time interval	# manatees	Tide height	# boats	# swimmers
18	71	7:01-7:30	236	56	0	0
70	23	7:31-8:00	240	58	0	0
36	7	8:01-8:30	248	60	0	0
52	7	8:31-9:00	295	62	0	0
30	16	9:01-9:30	314	64	0	0
27	32	9:31-10:00	326	66	0	0
37	47	10:01-10:30	332	68	1	8
22	35	10:31-11:00	310	68	8	17
10	14	11:01-11:30	281	68	5	18
8	18	11:31-12:00	275	67	16	32
19	33	12:01-12:30	276	66	26	31
14	61	12:31-13:00	257	65	31	19
11	31	13:01-13:30	209	63	32	27
8	24	13:31-14:00	187	61	16	23
2	61	14:01-14:30	169	59	21	10
3	32	14:31-15:00	104	57	33	5
4	30	15:01-15:30	77	55	4	7
5	33	15:31-16:00	51	53	5	4
0	8	16:01-16:30	18	51	1	0
2	9	16:31-17:00	12	50	0	0
		17:01-17:30	3	48	0	0
360	521	Totals		3 manatees in the Springs at 5:00 PM		



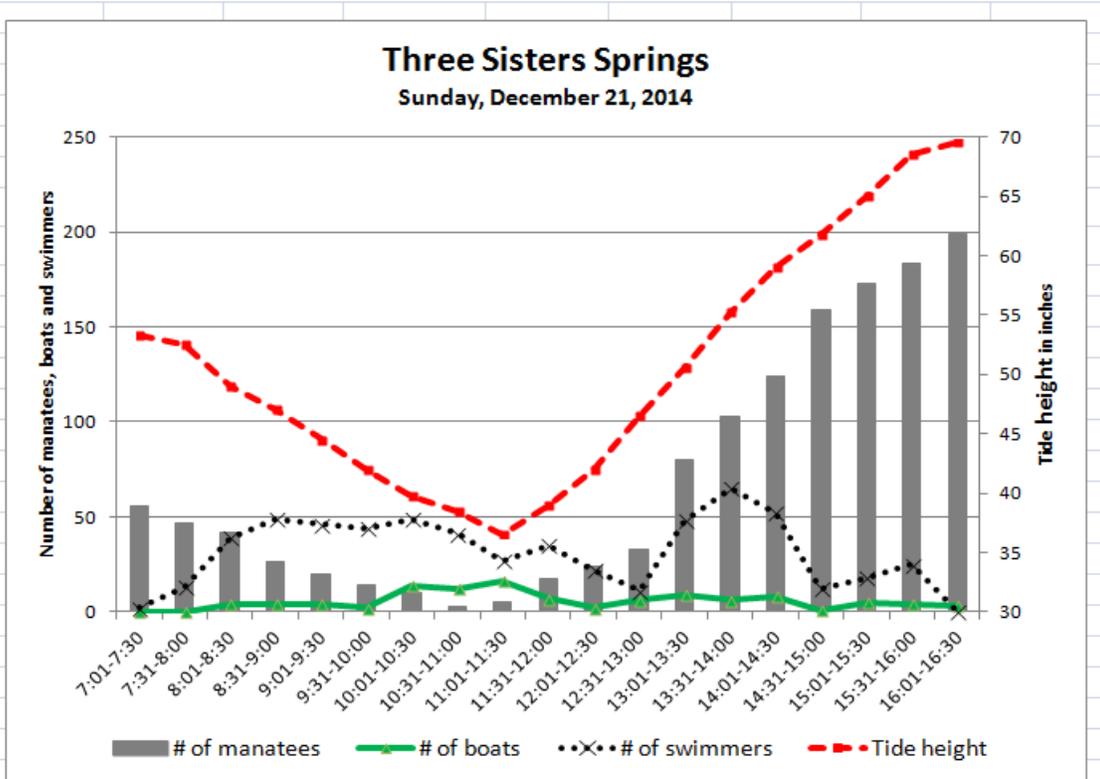


127 maximum number of manatees in Springs at one time  
250 swimmers this day  
98 boats, 133 people and 4 dogs in boats this day

Total number of manatee passages through Springs Run:                   475  
Total number all passages through Springs Run:                               1171

Temperatures at 7:00 AM	Gulf water at Shell Island	62° F
Ambient air at Springs	50° F	Water at mouth of Kings Bay
		67° F

Manatees swimming		Number in Springs at each half hour time interval				
In	Out	Time interval	# manatees	Tide height	# boats	# swimmers
4	54	7:01-7:30	85	47	0	25
4	6	7:31-8:00	36	47	0	15
1	6	8:01-8:30	31	44	0	32
0	6	8:31-9:00	24	42	0	47
1	12	9:01-9:30	20	40	4	11
1	3	9:31-10:00	9	37	7	33
0	3	10:01-10:30	5	36	5	16
0	0	10:31-11:00	2	36	6	6
7	1	11:01-11:30	9	38	16	23
11	6	11:31-12:00	17	43	12	31
40	9	12:01-12:30	50	46	20	29
20	12	12:31-13:00	69	50	30	23
18	5	13:01-13:30	70	54	22	42
35	5	13:31-14:00	98	59	15	46
18	5	14:01-14:30	113	62	9	38
6	9	14:31-15:00	120	64	9	27
10	11	15:01-15:30	112	67	16	22
27	15	15:31-16:00	135	69	6	38
13	12	16:01-16:30	129	69	1	24
15	5	16:31-17:00	133	67	0	9
12	47	17:01-17:30	139	65	1	0
243	232	Totals		2 manatees in Springs at 11:00 AM		



198 maximum number of manatees in Springs at one time

290 swimmers this day

62 boats with 82 people and no dogs in boats this day

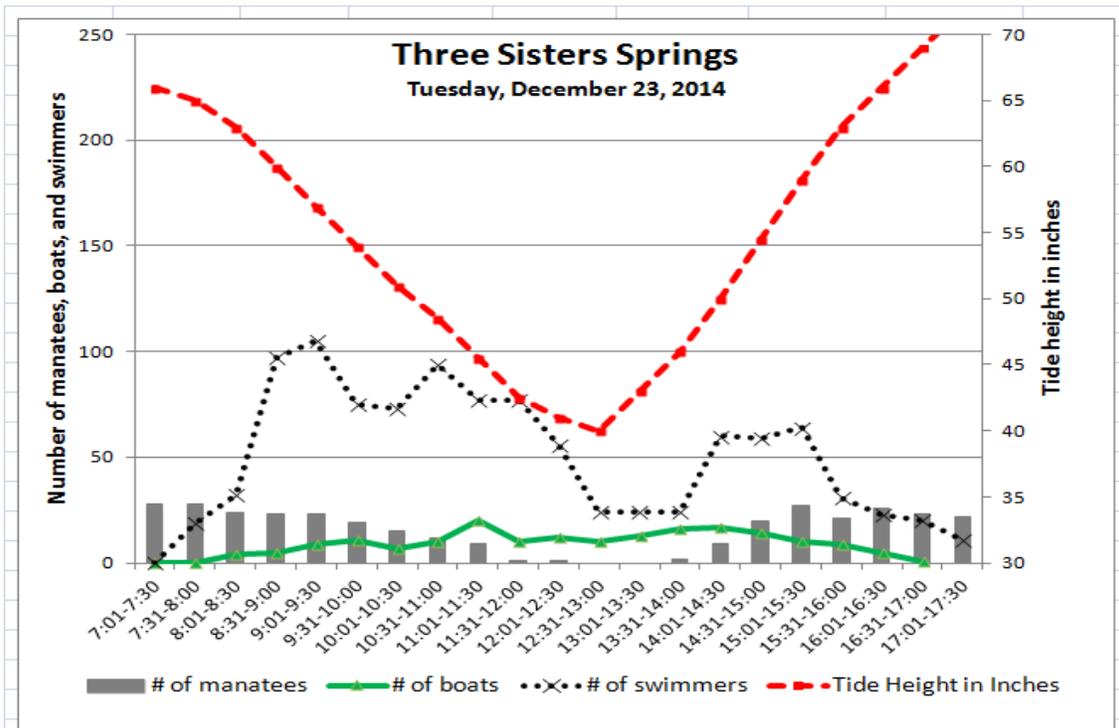
Total number of manatee passages through Springs Run: 380

Total number of all passages through Springs Run: 1084

Water temperature at 7:00 AM      Gulf water at Shell Island      63° F

Ambient air at Springs      60° F      Water at mouth of Kings Bay      68° F

Manatees swimming		Number in Springs at each half hour time interval				
in	out	Time interval	# manatees	Tide height	# boats	# swimmers
3	11	7:01-7:30	56	53	0	2
2	5	7:31-8:00	47	53	0	13
0	17	8:01-8:30	42	49	4	39
0	6	8:31-9:00	26	47	4	49
1	6	9:01-9:30	20	45	4	46
0	4	9:31-10:00	14	42	2	44
0	7	10:01-10:30	10	40	14	49
0	1	10:31-11:00	3	39	12	41
3	1	11:01-11:30	5	37	16	27
13	9	11:31-12:00	17	39	7	35
15	9	12:01-12:30	24	42	2	22
19	5	12:31-13:00	33	47	6	11
52	7	13:01-13:30	80	51	9	48
30	3	13:31-14:00	103	55	6	65
24	8	14:01-14:30	124	59	8	52
43	3	14:31-15:00	159	62	1	12
17	11	15:01-15:30	173	65	5	18
21	3	15:31-16:00	183	69	4	25
19	1	16:01-16:30	199	70	3	0
262	117	Totals		2 manatees in Springs at 11:00 AM		

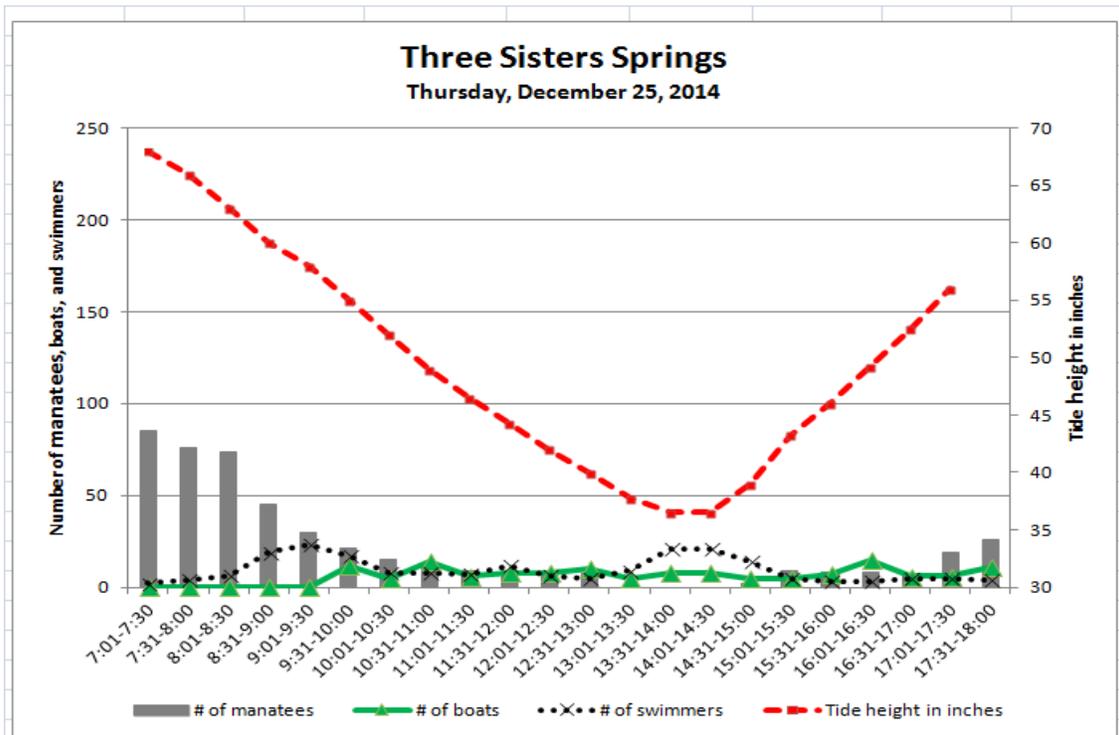


26 maximum number of manatees in the Springs at one time  
 530 swimmers this day  
 103 boats, 139 people and 2 dogs in boats this day

Total Number of manatee passages through Springs Run: 135  
 Total number all passages through Springs Run: 1347

Temperatures at 7:00 AM                      Gulf water at Shell Island                      65° F  
 Ambient air at Springs                      68° F                      Water at mouth of Kings Bay                      68° F

Manatees swimming		Number in Springs at each half hour time interval				
In	Out	Time interval	# manatees	Tide height	# boats	# swimmers
2	5	7:01-7:30	28	66	0	0
5	8	7:31-8:00	28	65	0	19
3	2	8:01-8:30	24	63	4	32
2	2	8:31-9:00	23	60	5	97
2	4	9:01-9:30	23	57	9	105
0	4	9:31-10:00	19	54	11	75
0	3	10:01-10:30	15	51	7	73
0	5	10:31-11:00	12	49	10	94
0	4	11:01-11:30	9	46	20	77
0	2	11:31-12:00	1	43	10	77
0	1	12:01-12:30	1	41	12	56
0	0	12:31-13:00	0	40	10	24
0	0	13:01-13:30	0	43	13	24
2	1	13:31-14:00	2	46	16	24
7	2	14:01-14:30	9	50	17	60
14	2	14:31-15:00	20	55	14	59
9	7	15:01-15:30	27	59	10	64
1	0	15:31-16:00	21	63	9	31
5	7	16:01-16:30	26	66	5	23
4	4	16:31-17:00	23	69	1	20
4	12	17:01-17:30	22	72	1	11
0	4	17:31-18:00	16	73	0	0
60	75	Totals		0 manatees in Springs at 1:00 PM		



80 maximum number of manatees in Springs at one time

106 swimmers this day

72 boats, 103 people and 2 dogs in boats this day

Total number of manatee passages through Springs Run: 185

Total number all passages through Springs Run: 541

Temperatures at 7:00 AM

Ambient air at Springs 58° F

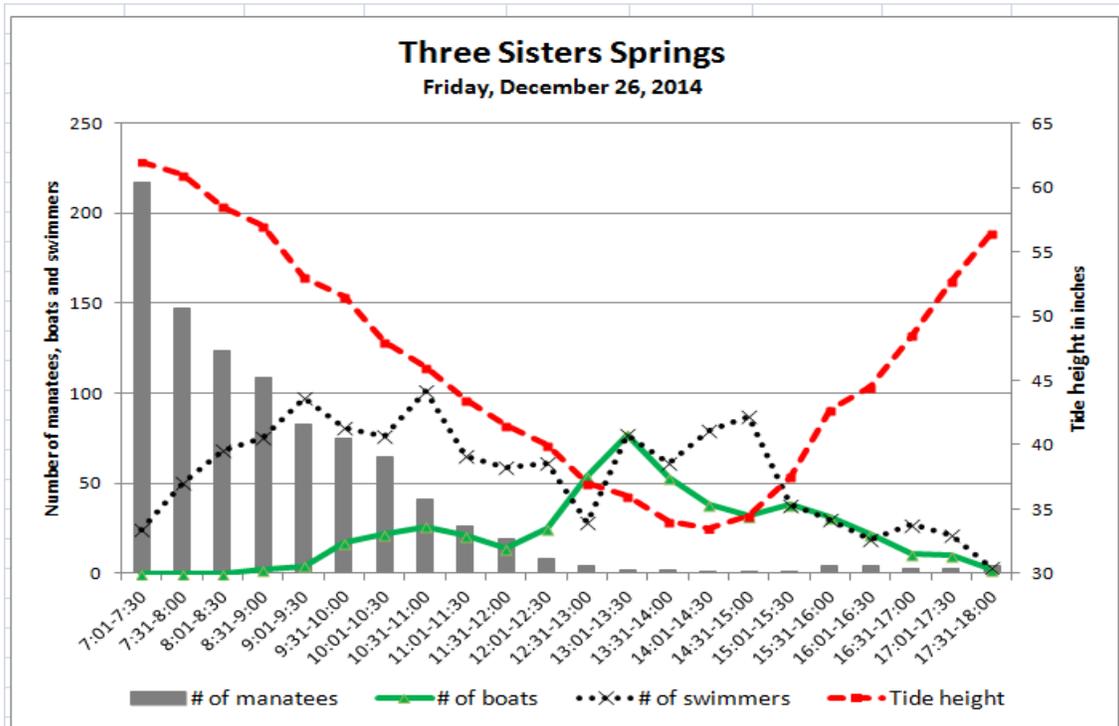
Gulf water at Shell Island

Water at mouth of Kings Bay

66° F

70° F

Manatees swimming		Number in Springs at each half hour time interval				
In	Out	Time interval	# manatees	Tide height	# boats	# swimmers
5	16	7:01-7:30	85	68	0	2
7	9	7:31-8:00	76	66	0	4
7	29	8:01-8:30	74	63	0	6
0	19	8:31-9:00	45	60	0	19
4	10	9:01-9:30	30	58	0	23
1	6	9:31-10:00	21	55	12	17
0	3	10:01-10:30	15	52	5	8
0	5	10:31-11:00	12	49	14	8
2	1	11:01-11:30	9	47	6	7
1	1	11:31-12:00	9	44	8	12
0	1	12:01-12:30	8	42	8	6
0	7	12:31-13:00	7	40	10	5
0	0	13:01-13:30	0	38	5	9
0	0	13:31-14:00	0	37	8	21
0	0	14:01-14:30	0	37	8	21
3	0	14:31-15:00	2	39	5	14
5	3	15:01-15:30	9	43	5	5
3	1	15:31-16:00	8	46	7	3
1	3	16:01-16:30	8	49	15	3
2	0	16:31-17:00	7	53	6	5
12	5	17:01-17:30	19	56	6	5
12	1	17:31-18:00	26	ND	11	4
65	120	Totals		0 manatees in Springs at 1:00 PM		



196 maximum number of manatees in Springs at one time

533 swimmers this day

237 boats, 302 people and 5 dogs in boats this day

Total number of manatee passages through Springs Run: 290

Total number all passages through Springs Run: 1830

Temperatures at 7:00 AM

Ambient air at Springs 44° F

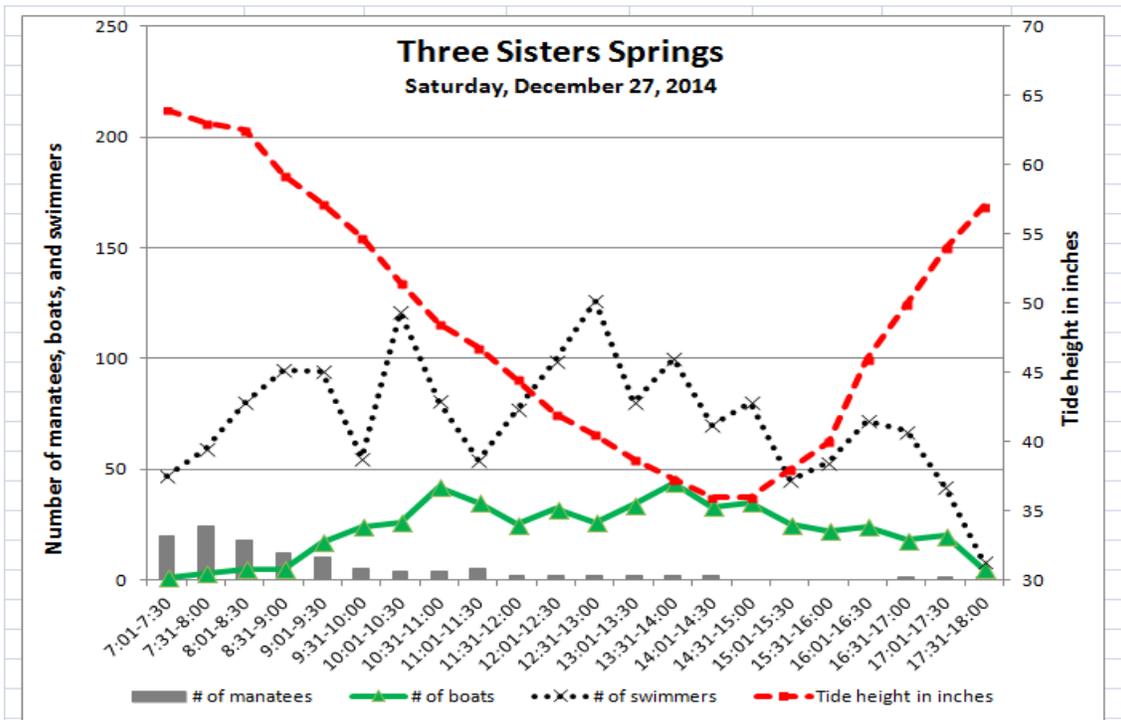
Gulf water at Shell Island

Water at mouth of Kings Bay

64° F

67° F

Manatees swimming		Number in Springs at each half hour time interval				
In	Out	Time interval	# manatees	Tide height	# boats	# swimmers
13	88	7:01-7:30	217	62	0	24
13	24	7:31-8:00	147	61	0	50
11	14	8:01-8:30	124	59	0	68
4	29	8:31-9:00	109	57	2	75
3	8	9:01-9:30	83	53	4	97
0	11	9:31-10:00	75	52	17	81
1	26	10:01-10:30	65	48	22	76
0	15	10:31-11:00	41	46	26	101
0	7	11:01-11:30	26	44	21	65
0	11	11:31-12:00	19	42	14	59
0	2	12:01-12:30	8	40	25	61
0	2	12:31-13:00	4	37	54	28
0	0	13:01-13:30	2	36	77	77
0	1	13:31-14:00	2	34	53	61
0	0	14:01-14:30	1	34	38	79
0	0	14:31-15:00	1	35	32	87
0	0	15:01-15:30	1	38	38	38
3	0	15:31-16:00	4	43	31	30
0	1	16:01-16:30	4	45	22	19
0	1	16:31-17:00	3	49	11	27
1	0	17:01-17:30	3	53	10	21
1	0	17:31-18:00	4	57	2	3
50	240	Totals		1 manatee in Springs at 2:12 PM		



20 maximum number of manatees in Springs at one time

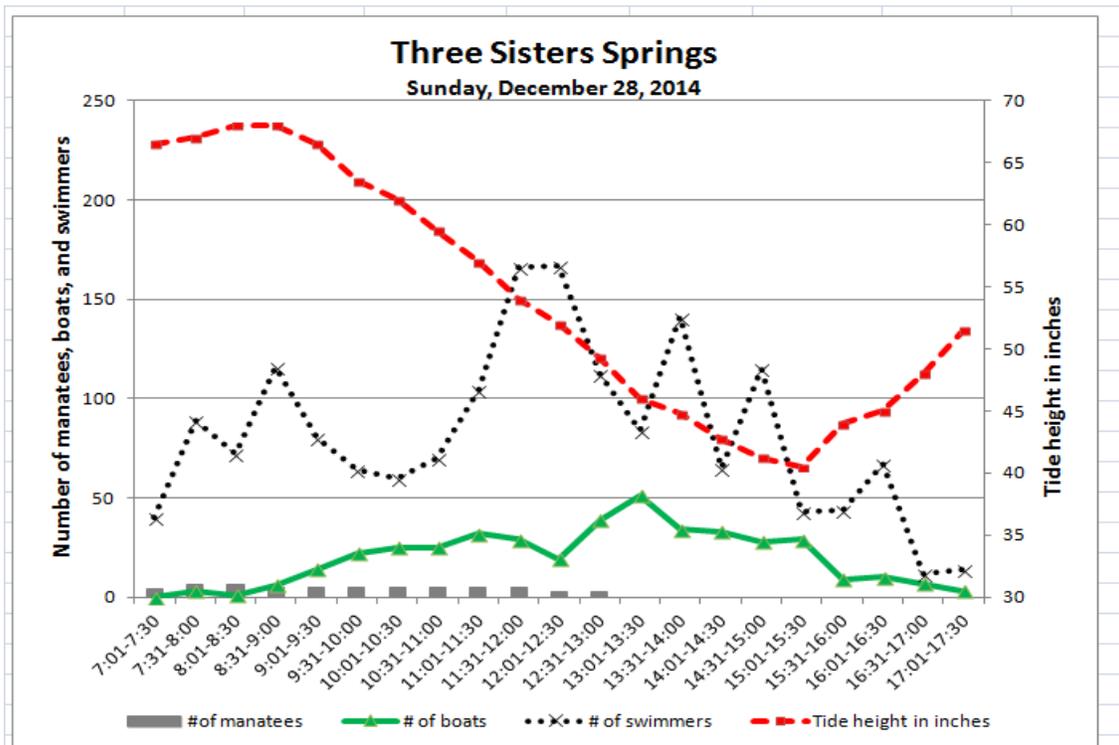
842 swimmers this day

304 boats, 410 people and 3 dogs in boats this day

Total number of manatee passages through Springs Run: 33  
 Total number all passages through Springs Run: 2325

Temperatures at 7:00 AM                      Gulf water at Shell Island                      64° F  
 Ambient air at Springs                      54° F                      Water at mouth of Kings Bay                      68° F

Manatees swimming		Number in Springs at each half hour time interval				
in	out	Time interval	# manatees	Tide height	# boats	# swimmers
0	1	7:01-7:30	20	64	1	47
5	7	7:31-8:00	24	63	3	59
0	5	8:01-8:30	18	63	5	80
0	2	8:31-9:00	12	59	5	95
0	5	9:01-9:30	10	57	17	94
0	1	9:31-10:00	5	55	24	55
0	0	10:01-10:30	4	52	26	121
0	0	10:31-11:00	4	49	42	81
1	3	11:01-11:30	5	47	35	54
0	0	11:31-12:00	2	45	25	77
0	0	12:01-12:30	2	42	32	99
0	0	12:31-13:00	2	41	26	126
0	0	13:01-13:30	2	39	34	80
0	0	13:31-14:00	2	37	44	100
0	2	14:01-14:30	2	36	33	70
0	0	14:31-15:00	0	36	35	80
0	0	15:01-15:30	0	38	25	45
0	0	15:31-16:00	0	40	22	53
0	0	16:01-16:30	0	46	24	72
1	0	16:31-17:00	1	50	18	67
0	0	17:01-17:30	1	54	20	42
7	26	17:31-18:00	1	57	5	8
14	52	Totals		0 manatees in Springs at 1:00 PM		



6 maximum number of manatees in the Springs at one time

845 swimmers this day

291 boats, 377 people and 5 dogs in boats this day

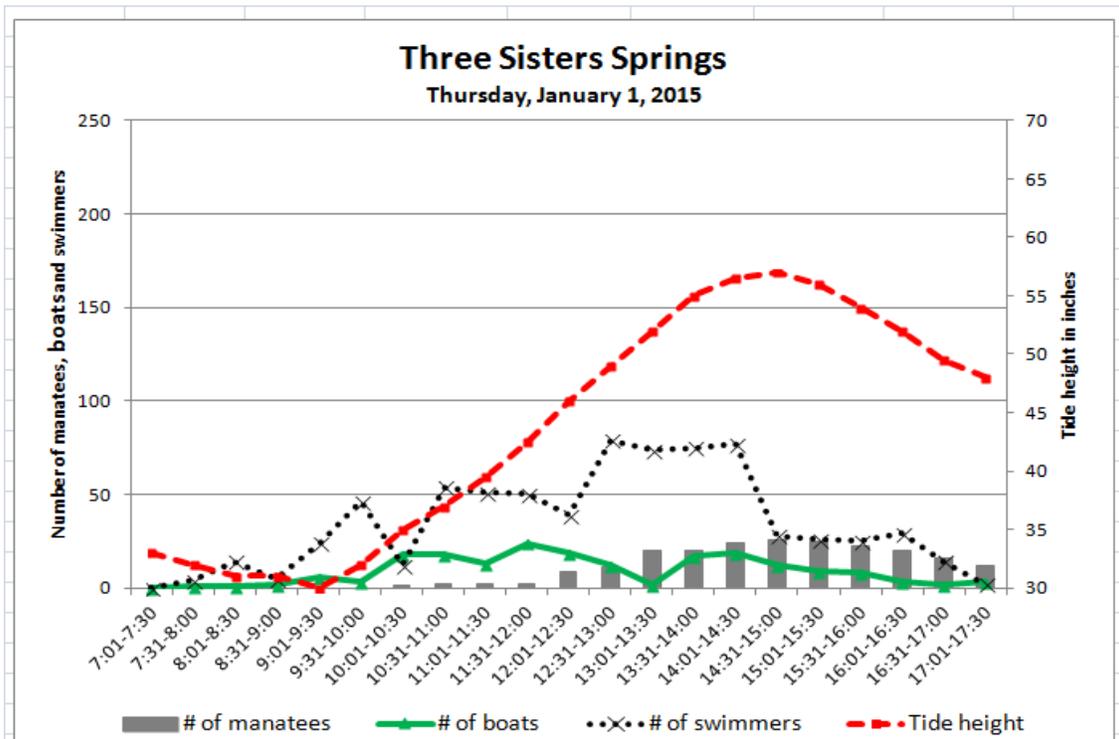
Total number of manatee passages through Springs Run:	10
Total number all passages through Springs Run:	2278

Temperatures at 7:00 AM	Gulf water at Shell Island	66° F	
Ambient air at Springs	64° F	Water at mouth of Kings Bay	70° F

Manatees swimming		Number in Springs at each half hour time interval				
In	Out	Time interval	# manatees	Tide Height	# boats	#swimmers
2	0	7:01-7:30	4	67	0	40
2	0	7:31-8:00	6	67	3	89
0	1	8:01-8:30	6	68	1	72
0	0	8:31-9:00	5	68	6	116
0	0	9:01-9:30	5	67	14	80
0	0	9:31-10:00	5	64	22	64
0	0	10:01-10:30	5	62	25	60
0	0	10:31-11:00	5	60	25	70
0	2	11:01-11:30	5	57	32	104
0	0	11:31-12:00	5	54	29	166
0	0	12:01-12:30	3	52	19	167
0	3	12:31-13:00	3	49	39	112
0	0	13:01-13:30	0	46	51	84
0	0	13:31-14:00	0	45	34	141
0	0	14:01-14:30	0	43	33	65
0	0	14:31-15:00	0	41	28	115
0	0	15:01-15:30	0	41	29	43
0	0	15:31-16:00	0	44	9	44
0	0	16:01-16:30	0	45	10	67
0	0	16:31-17:00	0	48	7	12
0	0	17:01-17:30	0	52	3	14
4	6	Totals		0 manatees in Springs at 1:00 PM		





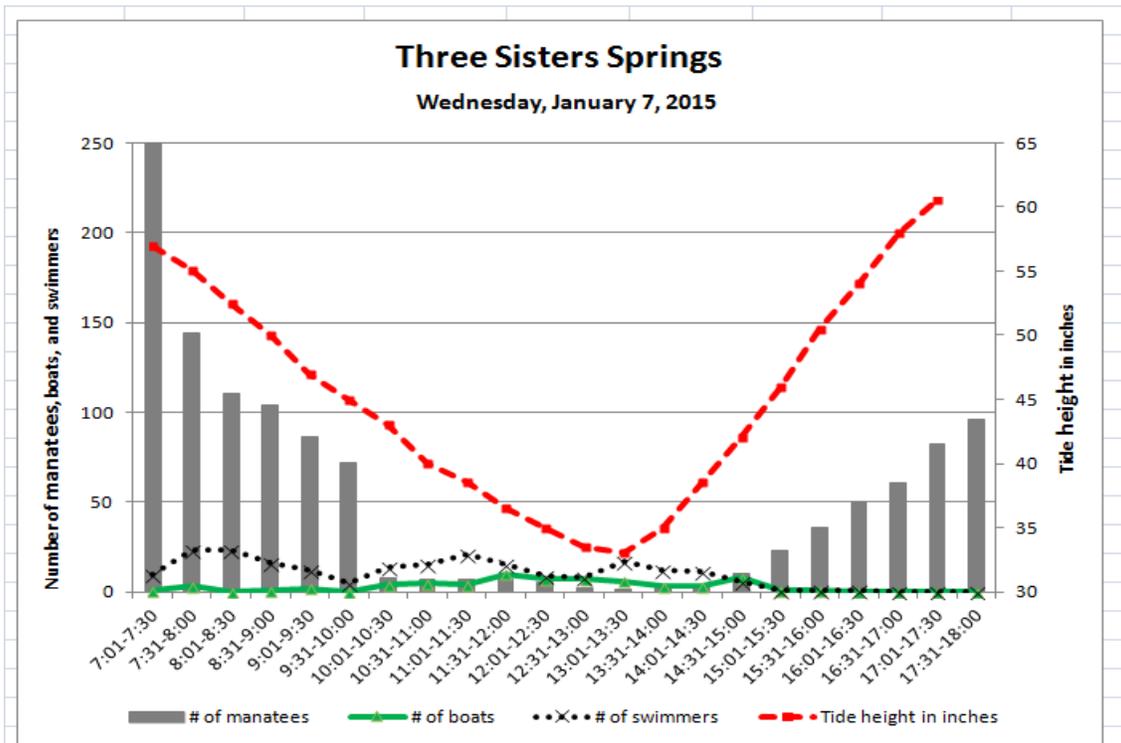


26 maximum number of manatees in Springs at one time  
 375 swimmers this day  
 133 boats, 191 people and 5 dogs in boats this day

Total number of manatee passages through Springs Run: 74  
 Total number all passages through Springs Run: 1090

Temperatures at 7:00 AM Gulf water at Shell Island 67° F  
 Ambient air at Springs 56° F Water at mouth of Kings Bay 69° F

Manatees swimming			Number in the Springs at each half hour time interval			
In	Out	Time interval	# manatees	Tide height	# boats	# swimmers
0	0	7:01-7:30	0	33	0	0
0	0	7:31-8:00	0	32	1	4
0	0	8:01-8:30	0	31	1	14
0	0	8:31-9:00	0	31	2	5
0	0	9:01-9:30	0	30	6	24
0	0	9:31-10:00	0	32	3	46
1	0	10:01-10:30	1	35	18	12
1	1	10:31-11:00	2	37	18	54
1	1	11:01-11:30	2	40	13	51
1	0	11:31-12:00	2	43	24	50
6	0	12:01-12:30	9	46	19	39
3	0	12:31-13:00	11	49	12	79
9	5	13:01-13:30	20	52	2	74
5	4	13:31-14:00	20	55	17	75
8	1	14:01-14:30	24	57	19	77
3	3	14:31-15:00	26	57	12	28
2	4	15:01-15:30	25	56	9	26
1	2	15:31-16:00	22	54	8	25
0	4	16:01-16:30	20	52	3	29
0	5	16:31-17:00	16	50	2	14
1	2	17:01-17:30	12	48	3	2
42	32	Totals		0 manatees in the Springs at 7:00 AM		



247 maximum number of manatees in Springs at one time

109 swimmers this day

41 boats, 50 people and 0 dogs in boats this day

Total number of manatee passages through Springs Run: 400

Total number all passages through Springs Run: 700

Temperatures at 7:00 AM

Gulf water at Shell Island

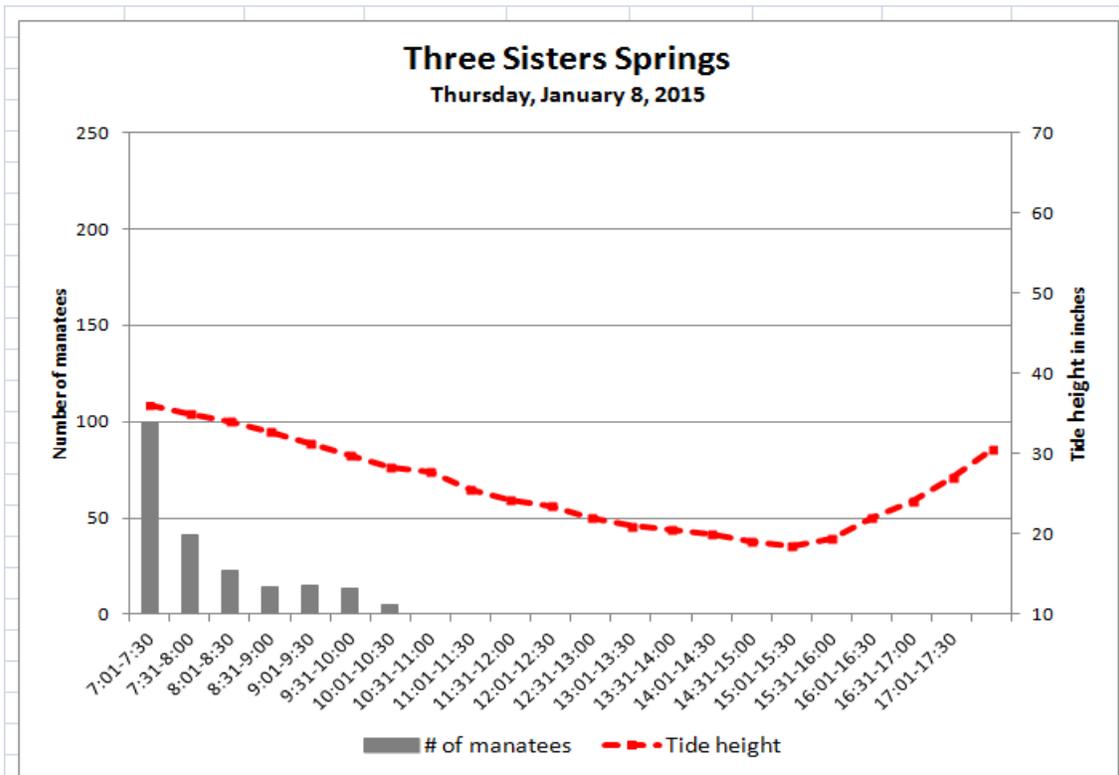
64° F

Ambient air at Springs 41° F

Water at mouth of Kings Bay

67° F

Manatees swimming		Number in Springs at each half hour time interval				
In	Out	Time interval	# manatees	Tide height	# boats	# swimmers
0	105	7:01-7:30	252	57	1	10
2	35	7:31-8:00	144	55	3	23
1	7	8:01-8:30	110	53	0	23
1	19	8:31-9:00	104	50	1	16
1	19	9:01-9:30	86	47	2	12
1	62	9:31-10:00	72	45	0	5
2	1	10:01-10:30	8	43	4	14
0	0	10:31-11:00	7	40	5	15
0	1	11:01-11:30	7	39	4	21
1	3	11:31-12:00	7	37	10	15
1	3	12:01-12:30	5	35	7	9
0	1	12:31-13:00	2	34	7	8
0	1	13:01-13:30	1	33	6	17
2	0	13:31-14:00	2	35	3	12
2	1	14:01-14:30	4	39	3	11
7	1	14:31-15:00	10	42	8	6
14	4	15:01-15:30	23	46	1	1
17	6	15:31-16:00	36	51	1	1
20	4	16:01-16:30	50	54	0	1
15	1	16:31-17:00	61	58	0	0
22	0	17:01-17:30	82	61	0	0
14	3	17:31-18:00	96	ND	0	0
123	277	Totals		1 manatee in Springs at 1:00 PM		



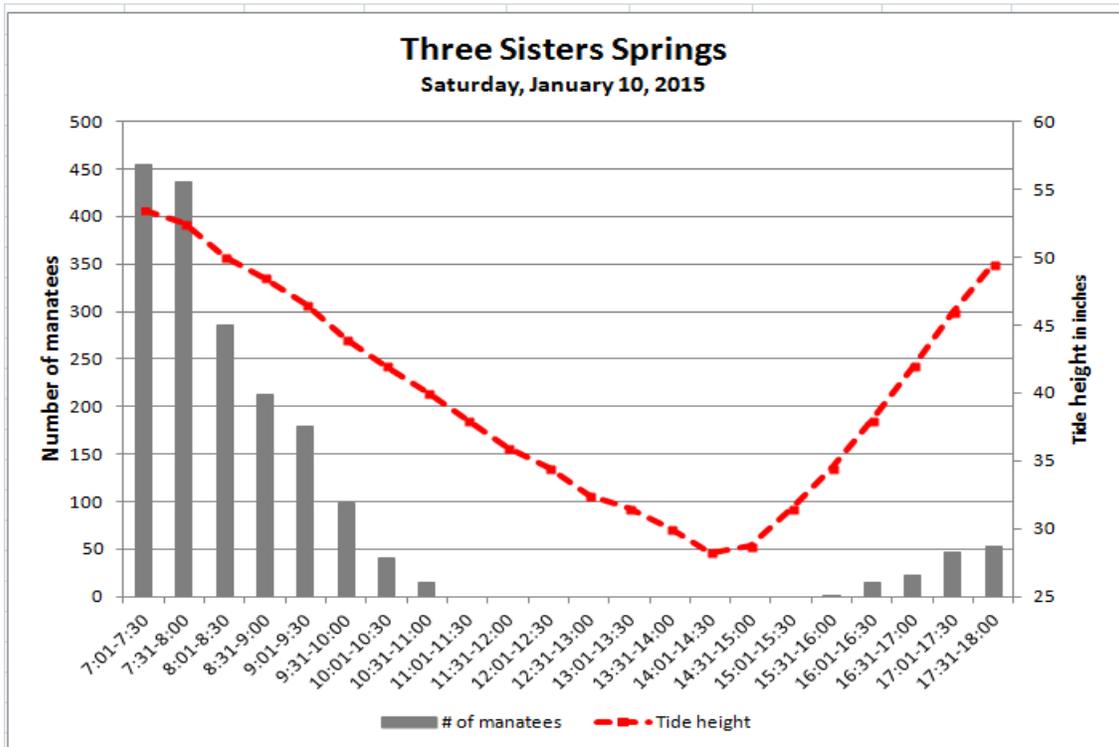
Springs closed due to cold temperatures

93 maximum number of manatees in Springs at one time

Total number of manatee passages in the Springs Run: 105

Temperatures at 7:00 AM	Gulf water at Shell Island	62 ° F	
Ambient air at Springs	32°F	Water at mouth of Kings Bay	66 ° F

Manatees swimming		Number in Springs at each half hour time interval		
In	Out	Time interval	# manatees	Tide height
2	56	7:01-7:30	100	36
2	22	7:31-8:00	41	35
1	6	8:01-8:30	23	34
0	0	8:31-9:00	14	33
1	2	9:01-9:30	15	31
0	8	9:31-10:00	13	30
0	5	10:01-10:30	5	28
0	0	10:31-11:00	0	28
0	0	11:01-11:30	0	26
0	0	11:31-12:00	0	24
0	0	12:01-12:30	0	24
0	0	12:31-13:00	0	22
0	0	13:01-13:30	0	21
0	0	13:31-14:00	0	21
0	0	14:01-14:30	0	20
0	0	14:31-15:00	0	19
0	0	15:01-15:30	0	19
0	0	15:31-16:00	0	20
0	0	16:01-16:30	0	22
0	0	16:31-17:00	0	24
0	0	17:01-17:30	0	27
6	99	totals		0 manatees in Springs at 5:00 PM



Springs closed due to cold temperatures.

446 maximum number of manatees in Springs at one time

Total number of manatee passages through Springs Run: 661

Temperatures at 7:00 AM

Ambient air at Springs 39°F

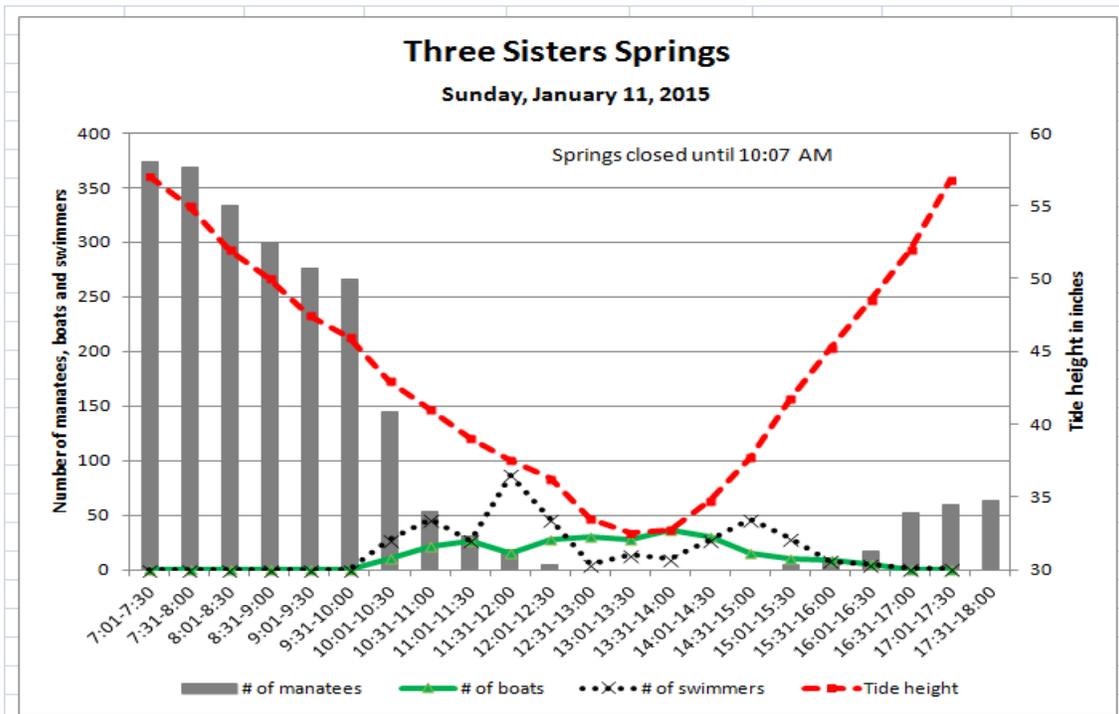
Gulf water at Shell Island

54° F

Water at mouth of Kings Bay

62° F

Manatees swimming		Number in Springs at each half hour time interval		
In	Out	Time interval	# manatees	Tide height
3	20	7:01-7:30	454	54
8	155	7:31-8:00	437	53
0	78	8:01-8:30	285	50
4	38	8:31-9:00	213	49
4	80	9:01-9:30	179	47
5	70	9:31-10:00	99	44
12	27	10:01-10:30	41	42
1	15	10:31-11:00	15	40
0	0	11:01-11:30	0	38
0	0	11:31-12:00	0	36
0	0	12:01-12:30	0	35
0	0	12:31-13:00	0	33
0	0	13:01-13:30	0	32
0	0	13:31-14:00	0	30
0	0	14:01-14:30	0	28
0	0	14:31-15:00	0	29
0	0	15:01-15:30	0	32
1	0	15:31-16:00	1	35
13	8	16:01-16:30	14	38
16	15	16:31-17:00	22	42
39	18	17:01-17:30	46	46
24	7	17:31-18:00	52	50
130	531	Totals		0 manatees in Springs at 11:00 AM



Springs closed until 10:00 AM due to cold temperatures

363 manatees in the Springs at 7:20 AM

164 swimmers this day

151 boats with 201 people and 1 dog this day

Total number of manatee passages through Springs Run: 648

Total number all passages through Springs Run: 1278

Temperatures at 7:00 AM

Gulf water at Shell Island

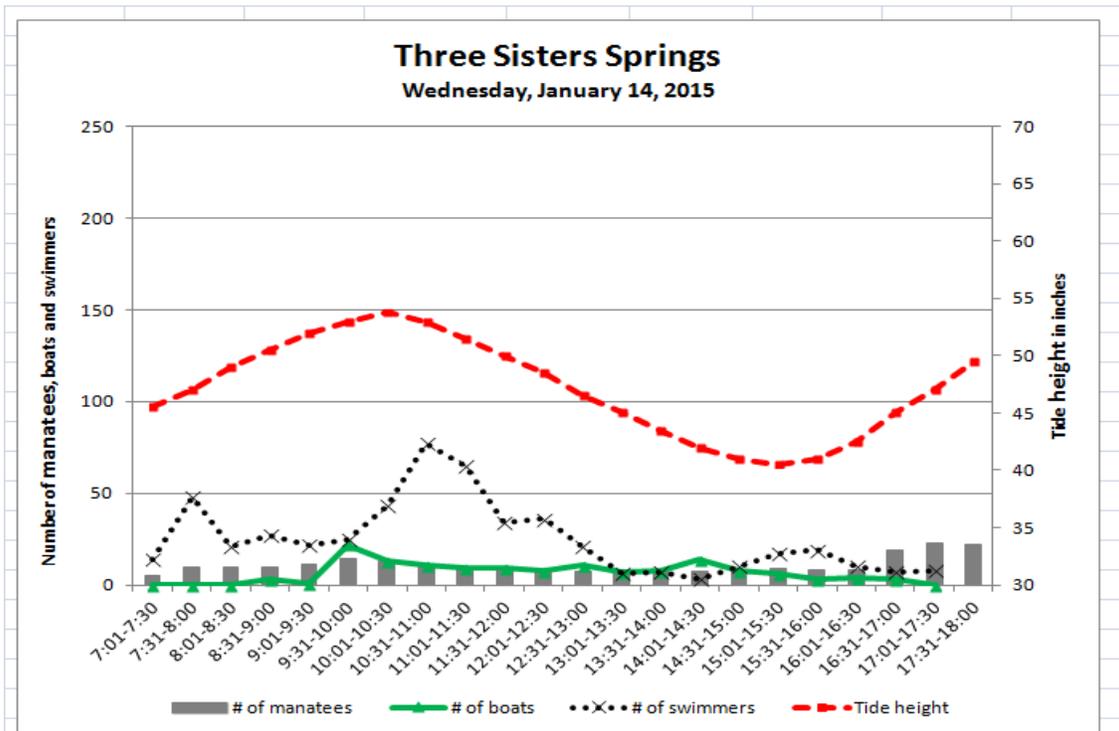
55° F

Ambient air at Springs 53° F

Water at mouth of Kings Bay

62° F

Manatees swimming		Number in the Springs at each half hour time interval				
In	Out	Time interval	# manatees	Tide height	# boats	# swimmers
10	17	7:01-7:30	374	57	0	0
14	42	7:31-8:00	368	55	0	0
6	44	8:01-8:30	334	52	0	0
12	27	8:31-9:00	300	50	0	0
2	25	9:01-9:30	276	48	0	0
13	124	9:31-10:00	266	46	0	0
1	96	10:01-10:30	145	43	10	28
5	23	10:31-11:00	53	41	22	46
4	15	11:01-11:30	31	39	27	27
3	14	11:31-12:00	18	38	15	87
0	4	12:01-12:30	4	36	28	46
0	0	12:31-13:00	0	34	30	5
0	0	13:01-13:30	0	33	28	14
0	0	13:31-14:00	0	33	36	10
0	0	14:01-14:30	0	35	30	28
4	0	14:31-15:00	0	38	15	46
6	1	15:01-15:30	4	42	10	29
3	5	15:31-16:00	9	45	9	8
9	5	16:01-16:30	17	49	5	5
35	18	16:31-17:00	52	52	0	1
32	10	17:01-17:30	60	57	0	1
13	6	17:31-18:00	63			
172	476	Totals				
				0 manatees in the Springs at 2:00 PM		



22 maximum number of manatees in Springs at one time

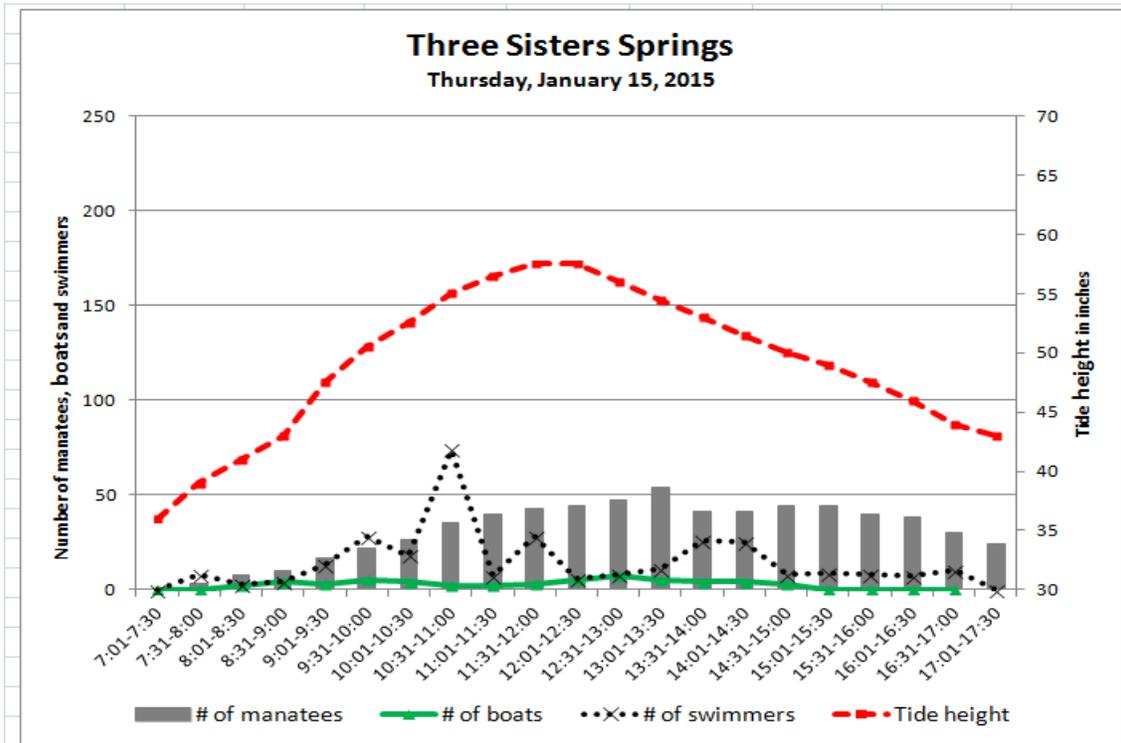
243 swimmers this day

94 boats, 101 people and 3 dogs in boats this day

Total number of manatee passages through Springs Run: 70  
 Total number all passages through Springs Run: 744

Temperatures at 7:00 AM                      Gulf water at Shell Island                      62° F  
 Ambient air at Springs                      30° F                      Water at mouth of Kings Bay                      70° F

Manatees swimming		Number in the Springs at each half hour time interval				
In	Out	Time interval	# manatees	Tide height	# boats	# swimmers
1	0	7:01-7:30	5	46	0	14
5	3	7:31-8:00	10	47	0	48
3	4	8:01-8:30	10	49	0	21
4	0	8:31-9:00	10	51	3	27
1	0	9:01-9:30	11	52	1	22
3	3	9:31-10:00	14	53	22	25
2	2	10:01-10:30	13	54	13	43
0	2	10:31-11:00	11	53	11	77
0	1	11:01-11:30	9	52	9	65
0	0	11:31-12:00	8	50	9	34
0	1	12:01-12:30	8	49	8	36
0	0	12:31-13:00	7	47	11	21
0	0	13:01-13:30	7	45	7	6
0	0	13:31-14:00	7	44	8	7
0	0	14:01-14:30	7	42	14	3
0	0	14:31-15:00	7	41	8	10
2	1	15:01-15:30	9	41	6	17
0	0	15:31-16:00	8	41	3	19
0	0	16:01-16:30	8	43	4	10
11	5	16:31-17:00	19	45	3	7
9	3	17:01-17:30	23	47	0	8
2	2	17:31-18:00	22	50	0	3
43	27	Totals		5 manatees in the Springs at 7:30 AM		



47 maximum number of manatees in the Springs at one time

162 swimmers this day

28 boats with 35 people and no dogs this day

Total number of manatee passages through Springs Run: 173

Total number all passages through Springs Run: 509

Temperatures at 7:00 AM

Gulf water at Shell Island

64° F

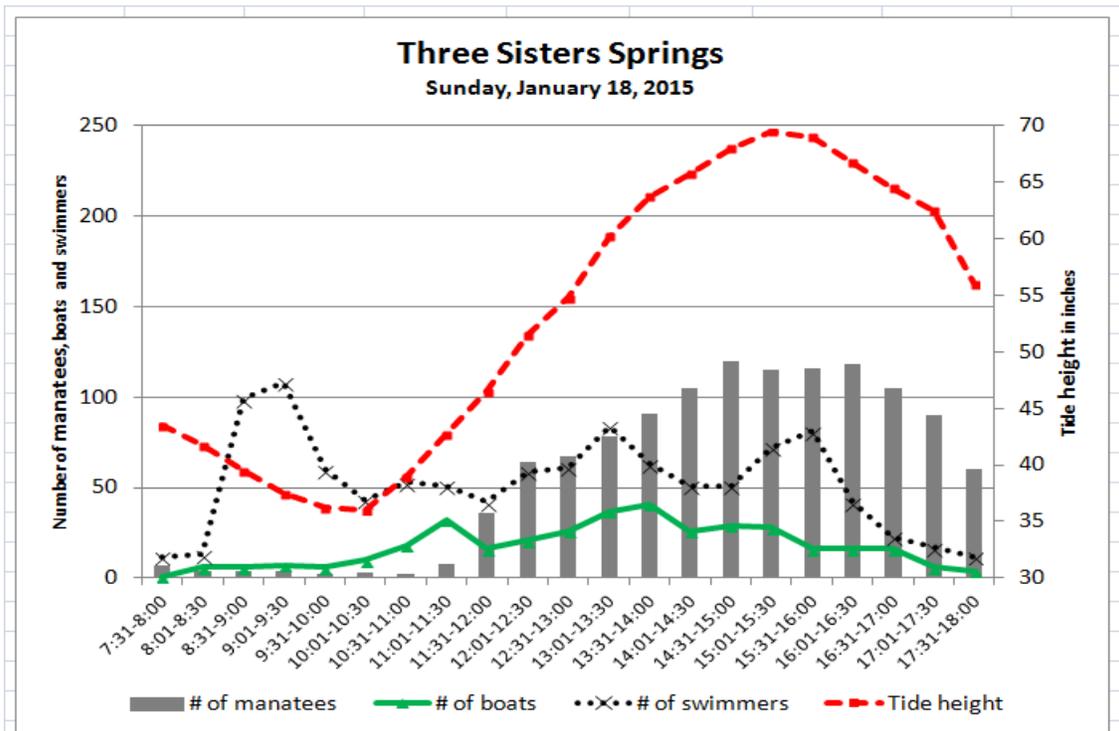
Ambient air at Springs NA

Water at mouth of Kings Bay

70° F

Manatees swimming			Number in the Springs at each half hour time interval			
In	Out		# manatees	Tide height	# boats	# swimmers
0	0	7:01-7:30	0	NA	0	0
3	1	7:31-8:00	3	36	0	8
6	1	8:01-8:30	8	39	0	3
3	1	8:31-9:00	10	41	2	4
8	3	9:01-9:30	17	43	4	13
8	3	9:31-10:00	22	48	3	28
5	0	10:01-10:30	26	51	5	18
10	4	10:31-11:00	35	53	4	74
10	1	11:01-11:30	40	55	2	7
4	7	11:31-12:00	43	57	2	28
8	2	12:01-12:30	44	58	3	6
5	3	12:31-13:00	47	58	5	8
10	16	13:01-13:30	54	56	7	11
2	1	13:31-14:00	41	55	5	26
2	1	14:01-14:30	41	53	4	25
4	4	14:31-15:00	44	52	4	8
4	7	15:01-15:30	44	50	3	9
3	2	15:31-16:00	40	49	0	8
0	8	16:01-16:30	38	48	0	7
0	6	16:31-17:00	30	46	0	10
0	6	17:01-17:30	24	44	0	0
0	1	17:31-18:00	18	43	0	2
95	78	Totals		0 manatees in the Springs at 7:00 AM		



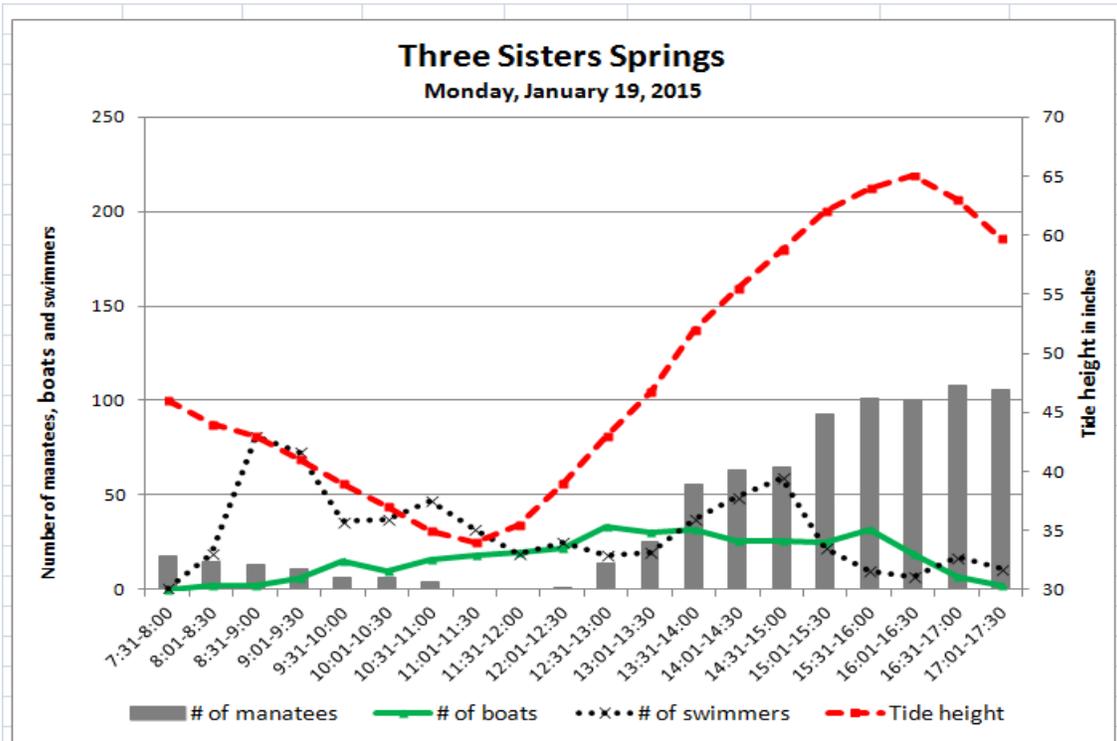


117 maximum number of manatees in the Springs at one time  
 239 swimmers this day  
 181 boats with 239 people and 4 dogs this day

Total number of manatee passages through Springs Run: 355  
 Total number all passages through Springs Run: 1195

Temperatures at 7:00 AM                      Gulf water at Shell Island                      61° F  
 Ambient air at Springs                      52° F                      Water at mouth of Kings Bay                      67° F

Manatees swimming		Number in the Springs at each half hour time interval				
In	Out	Time interval	# manatees	Tide height	# boats	# swimmers
1	5	7:01-7:30	9			2
3	3	7:31-8:00	7	44	1	12
0	0	8:01-8:30	4	42	6	13
0	0	8:31-9:00	4	40	6	99
0	2	9:01-9:30	4	38	7	108
0	0	9:31-10:00	2	36	6	60
1	1	10:01-10:30	3	36	10	43
0	0	10:31-11:00	2	39	18	53
6	2	11:01-11:30	8	43	32	51
26	5	11:31-12:00	36	47	16	42
37	17	12:01-12:30	64	52	21	59
20	0	12:31-13:00	67	55	26	61
11	1	13:01-13:30	78	60	37	84
14	3	13:31-14:00	91	64	41	63
17	3	14:01-14:30	105	66	26	51
18	6	14:31-15:00	120	68	29	51
1	11	15:01-15:30	115	70	28	72
12	7	15:31-16:00	116	69	16	81
6	18	16:01-16:30	118	67	16	42
8	26	16:31-17:00	105	65	16	23
11	37	17:01-17:30	90	63	6	17
7	9	17:31-18:00	60	56	4	12
199	156	Totals		2 manatees in the Springs at 11:00 AM		



103 maximum of manatees in the Springs at one time

318 swimmers this day

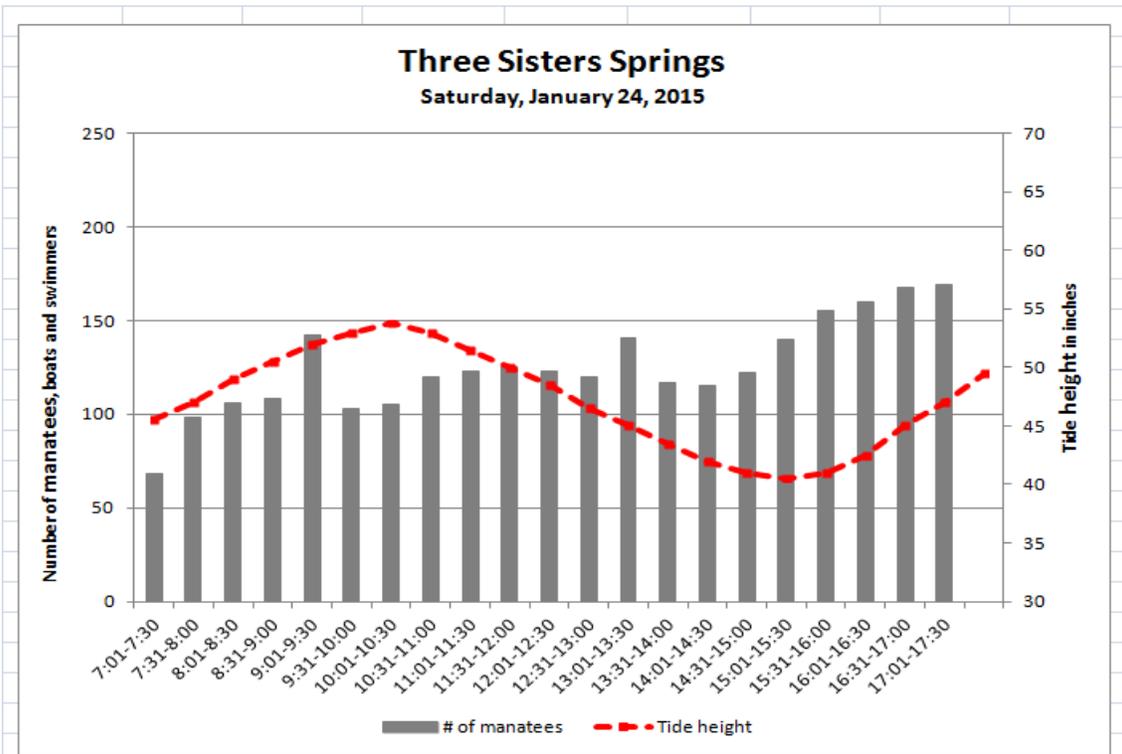
176 boats with 209 people and 1 dog this day

Total number of manatee passages through Springs Run: 279

Total number all passages through Springs Run: 1267

Temperatures at 7:00 AM		Gulf water at Shell Island	61° F
Ambient air at Springs	39° F	Water at mouth of Kings Bay	66° F

Manatees swimming		Number in Springs at each half hour time interval				
In	Out	Time interval	# manatees	Tide height	# boats	# swimmers
1	5	7:31-8:00	18	46	0	1
2	5	8:01-8:30	15	44	2	19
3	2	8:31-9:00	13	43	2	81
0	5	9:01-9:30	11	41	6	73
0	0	9:31-10:00	6	39	15	36
0	2	10:01-10:30	6	37	10	37
0	4	10:31-11:00	4	35	16	47
0	0	11:01-11:30	0	34	18	32
0	0	11:31-12:00	0	36	20	19
1	0	12:01-12:30	1	39	22	25
13	2	12:31-13:00	14	43	33	18
13	1	13:01-13:30	25	47	30	20
25	5	13:31-14:00	56	52	32	37
14	6	14:01-14:30	63	56	26	49
13	4	14:31-15:00	65	59	26	59
30	7	15:01-15:30	93	62	25	22
17	12	15:31-16:00	101	64	32	10
11	10	16:01-16:30	100	65	19	7
13	7	16:31-17:00	108	63	7	17
10	26	17:01-17:30	106	60	2	11
2	8	17:31-18:00	82		0	5
168	111	Totals		0 manatees in Springs at 11:00 AM		



Springs closed due to cold temperatures

169 maximum number of manatees in the Springs at one time

Total number of manatee passages through Springs Run: 616

Temperatures at 7:00 AM

Gulf water at Shell Island

65° F

Ambient air at Springs

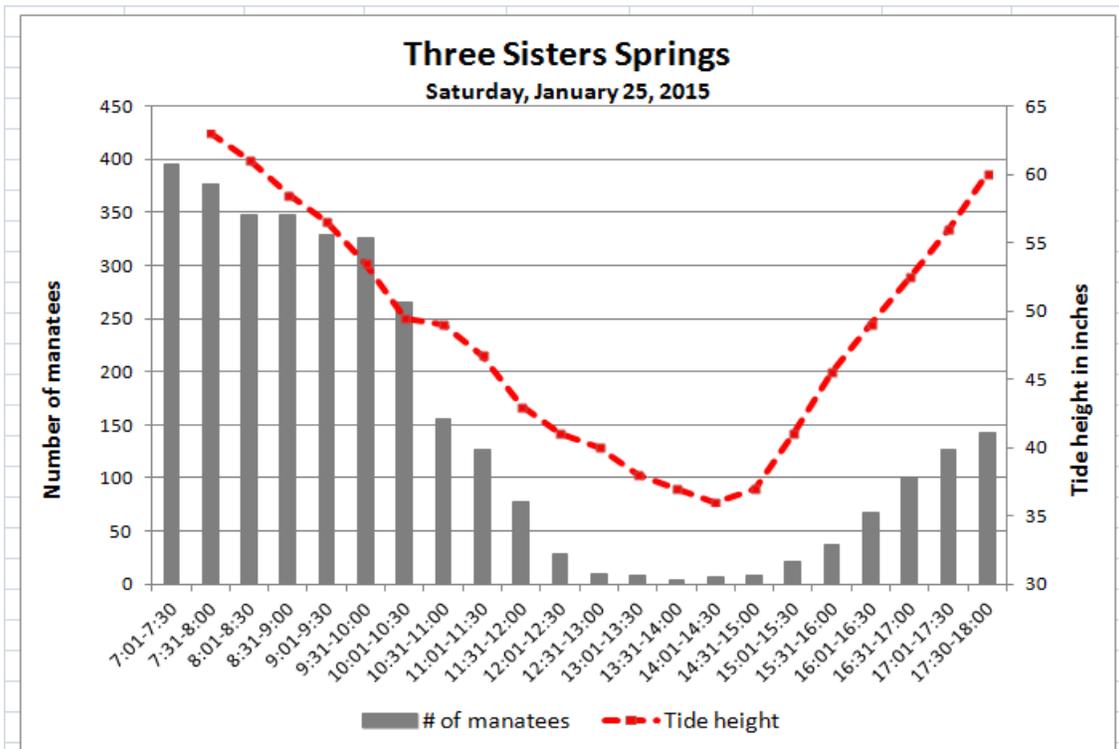
56° F\*

Water at mouth of Kings Bay

67° F

\*at 9:30 AM

Manatees swimming		Time interval	Number in Springs at each half hour time interval	
In	Out		# manatees	Tide height
		7:01-7:30	44	81
22	3	7:31-8:00	68	81
34	6	8:01-8:30	98	80
15	3	8:31-9:00	106	80
5	2	9:01-9:30	108	79
36	52	9:31-10:00	142	78
13	6	10:01-10:30	103	78
8	4	10:31-11:00	105	76
18	3	11:01-11:30	120	75
7	6	11:31-12:00	123	72
8	10	12:01-12:30	125	73
8	6	12:31-13:00	123	70
2	10	13:01-13:30	120	68
25	18	13:31-14:00	141	66
1	9	14:01-14:30	117	64
6	2	14:31-15:00	115	63
10	8	15:01-15:30	122	63
23	6	15:31-16:00	140	65
23	33	16:01-16:30	155	67
39	27	16:31-17:00	160	69
30	26	17:01-17:30	168	71
30	13	17:31-18:00	169	71
363	253	Totals	116 manatees in Springs at 2:00 PM	



Springs closed due to cold temperatures

393 maximum number of manatees in Springs at one time

Total number of manatee passages through Springs Run: 820

Temperatures at 7:00 AM

Gulf water at Shell Island

60 ° F

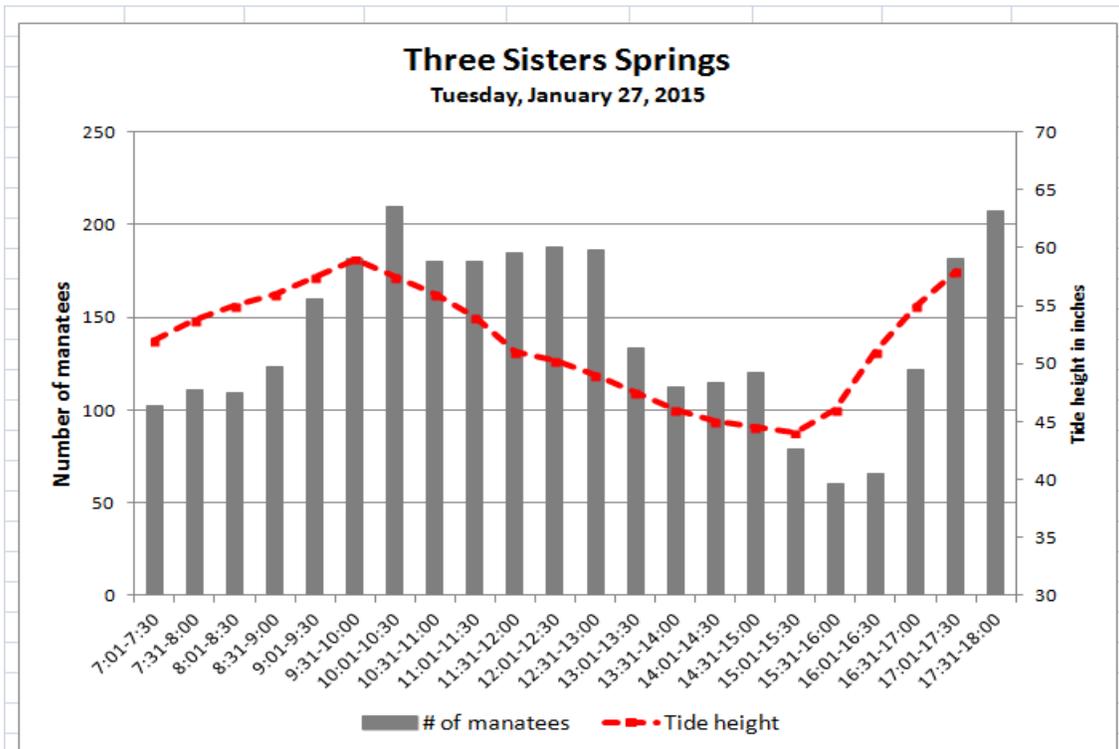
Ambient air at Springs

38° F

Water at mouth of Kings Bay

64 ° F

Manatees swimming		Number in the Springs at each half hour time interval		
In	Out	Time interval	# manatees	Tide height
2	21	7:01-7:30	395	
20	50	7:31-8:00	376	63
8	3	8:01-8:30	348	61
3	22	8:31-9:00	348	59
2	5	9:01-9:30	329	57
2	64	9:31-10:00	326	54
14	123	10:01-10:30	265	50
9	38	10:31-11:00	156	49
8	58	11:01-11:30	127	47
7	54	11:31-12:00	77	43
6	25	12:01-12:30	29	41
6	10	12:31-13:00	10	40
5	10	13:01-13:30	8	38
4	1	13:31-14:00	4	37
4	8	14:01-14:30	7	36
12	4	14:31-15:00	8	37
21	8	15:01-15:30	21	41
25	9	15:31-16:00	37	46
35	5	16:01-16:30	67	49
40	12	16:31-17:00	100	53
33	5	17:01-17:30	127	56
19	0	17:30-18:00	142	60
285	535	Totals		0 manatees in Springs at 2:31 PM



Springs closed due to cold temperatures

201 maximum number of manatees in Springs at one time

Total number of manatee passages in the Springs Run: **1144**

Temperatures at 7:00 AM

Gulf water at Shell Island

59 ° F

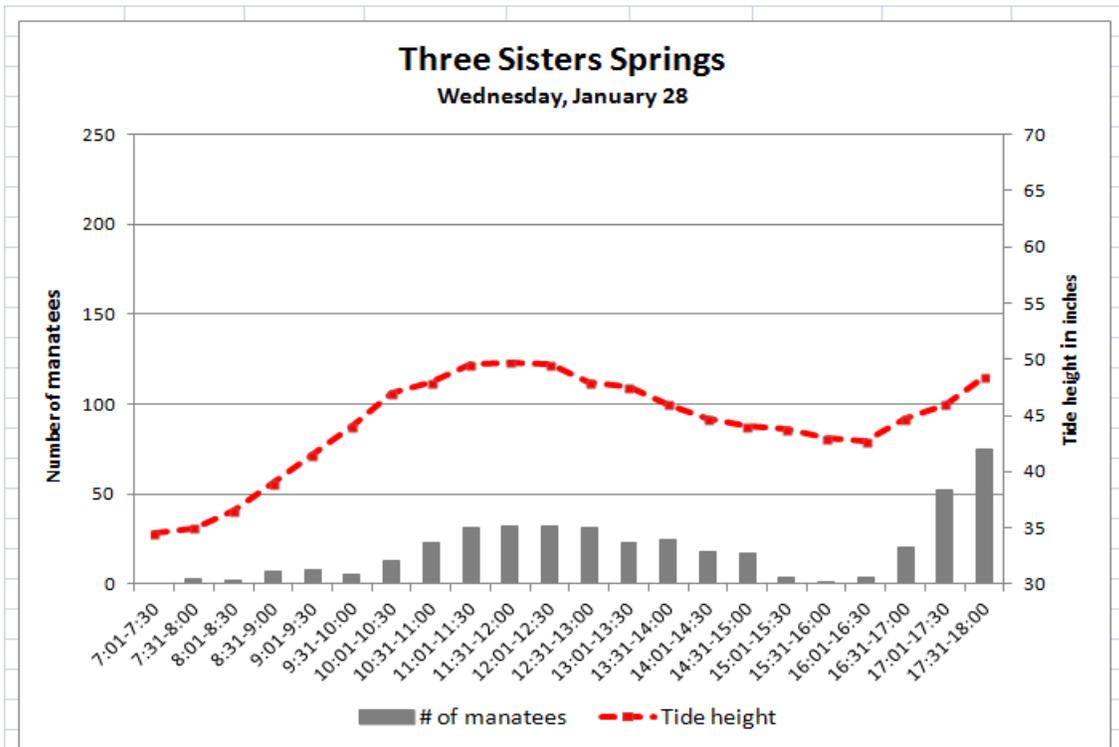
Ambient air at Springs 44° F

Water at mouth of Kings Bay

NA\*

\*NA not available due to USGS equipment failure

Manatees swimming		Time interval	Number in Springs at each half hour time interval	
In	Out		# manatees	Tide height
10	13	7:01-7:30	102	
22	29	7:31-8:00	111	52
23	16	8:01-8:30	109	54
34	7	8:31-9:00	123	55
44	14	9:01-9:30	160	56
36	16	9:31-10:00	182	58
44	57	10:01-10:30	210	59
27	26	10:31-11:00	180	58
26	8	11:01-11:30	180	56
13	14	11:31-12:00	185	54
15	10	12:01-12:30	188	51
10	95	12:31-13:00	186	50
42	52	13:01-13:30	133	49
31	9	13:31-14:00	112	48
12	10	14:01-14:30	115	46
15	67	14:31-15:00	120	45
25	28	15:01-15:30	79	45
9	11	15:31-16:00	60	44
20	7	16:01-16:30	66	46
63	10	16:31-17:00	123	51
69	13	17:01-17:30	182	55
37	5	17:31-18:00	207	58
<b>627</b>	<b>517</b>	<b>Totals</b>	<b>45 manatees in Springs at 3:15 PM</b>	



Springs closed due to cold temperatures

50 maximum number of manatees in Springs at one time

Total number of manatee passages in the Springs Run: 356

Temperatures at 7:00 AM

Gulf water at Shell Island

61 ° F

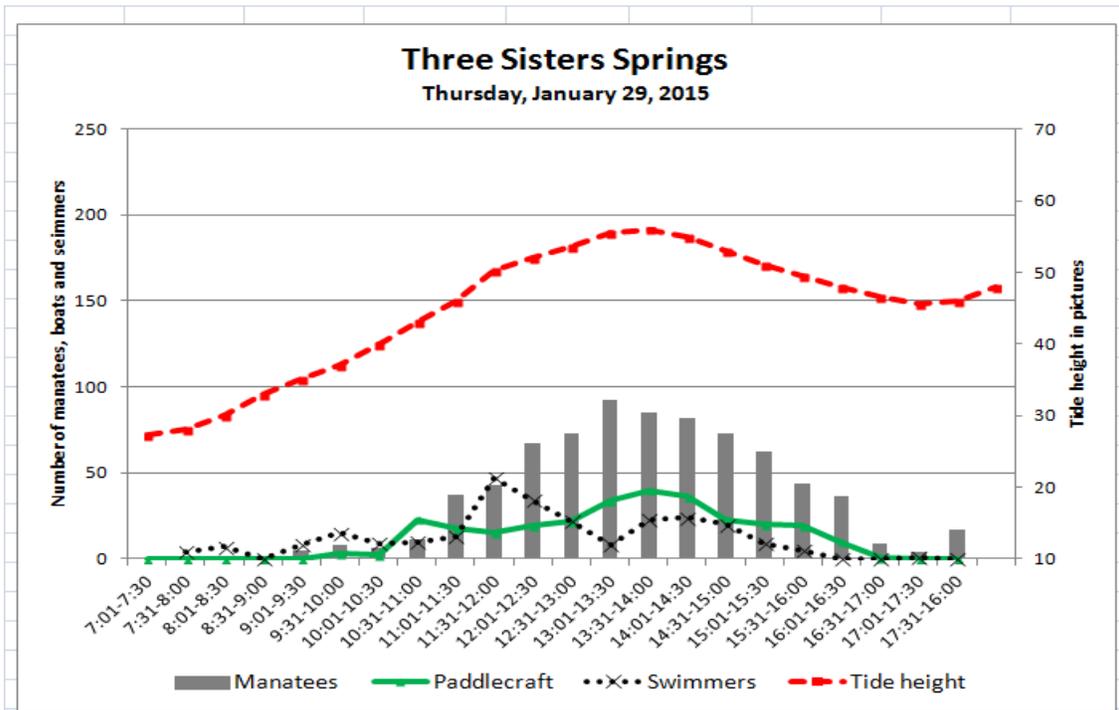
Ambient air at Springs 41°F

Water at mouth of Kings Bay

NA\*

\*NA not available due to USGS equipment failure

Manatees swimming		Number in Springs at each half hour time interval		
In	Out	Time interval	# manatees	Tide height
0	0	7:01-7:30	0	35
3	3	7:31-8:00	2	35
2	2	8:01-8:30	1	37
7	5	8:31-9:00	5	39
6	6	9:01-9:30	7	42
3	2	9:31-10:00	3	44
10	4	10:01-10:30	9	47
14	7	10:31-11:00	17	48
15	8	11:01-11:30	24	50
9	10	11:31-12:00	23	50
10	11	12:01-12:30	23	50
10	16	12:31-13:00	22	48
8	2	13:01-13:30	21	48
4	9	13:31-14:00	24	46
2	8	14:01-14:30	13	45
7	18	14:31-15:00	1	44
4	6	15:01-15:30	0	44
1	0	15:31-16:00	1	43
3	2	16:01-16:30	4	43
18	4	16:31-17:00	19	45
35	6	17:01-17:30	48	46
25	31	17:31-18:00	50	49
196	160	Totals		0 manatees in the Springs at 7:30 AM

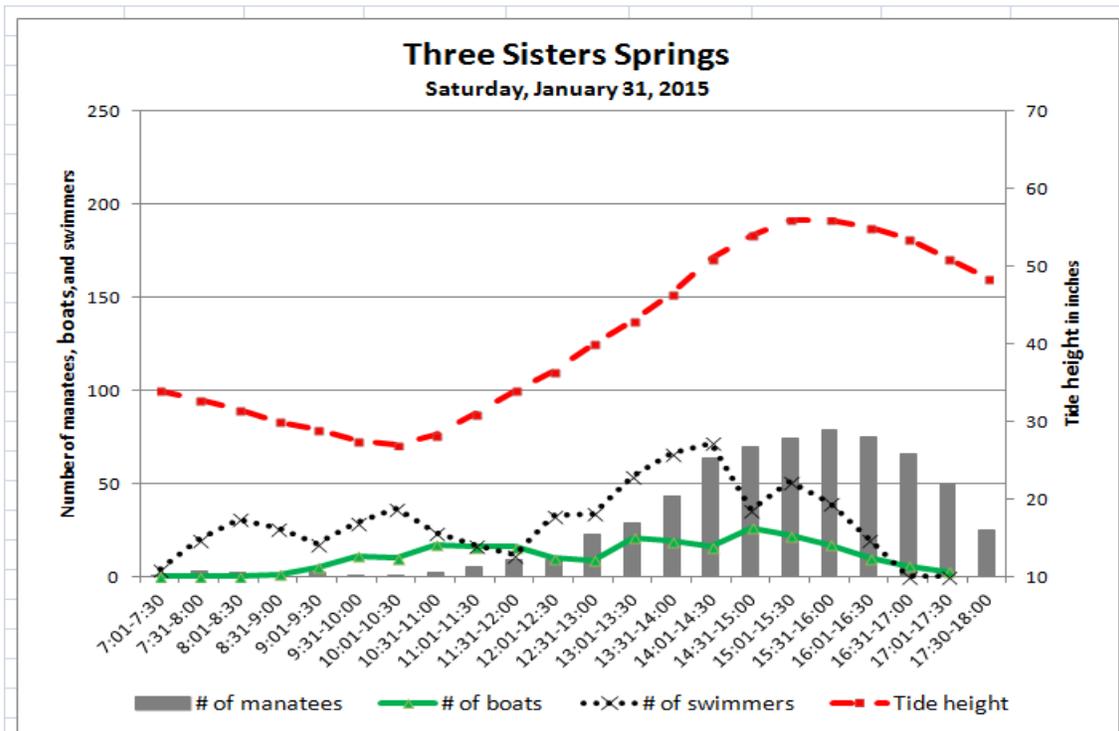


85 maximum number of manatees in the Springs at one time  
 143 swimmers this day  
 161 boats, 197 people and 3 dogs in boats this day

Total number of manatee passages through Springs Run: 334  
 Total number all passages through Springs Run: 942

Temperatures at 7:00 AM                      Gulf water at Shell Island                      61° F  
 Ambient air at Springs                      36° F                      Water at mouth of Kings Bay                      62° F\*  
 \* USGS temperature malfunctioned before 12:00 noon

Manatees swimming		Number in Springs at each half hour time interval				
in	out	Time interval	# manatees	Tide height	# boats	# swimmers
0	0	7:01-7:30	0	27	0	
0	0	7:31-8:00	0	28	0	4
0	0	8:01-8:30	0	30	0	7
0	0	8:31-9:00	0	33	0	0
5	4	9:01-9:30	5	35	0	8
7	5	9:31-10:00	8	37	3	15
3	1	10:01-10:30	6	40	2	9
6	6	10:31-11:00	11	43	23	10
27	7	11:01-11:30	32	46	18	13
18	8	11:31-12:00	44	50	15	47
31	14	12:01-12:30	66	52	19	34
21	6	12:31-13:00	75	54	22	22
23	5	13:01-13:30	90	56	34	8
0	5	13:31-14:00	85	56	40	23
2	10	14:01-14:30	82	55	36	24
1	14	14:31-15:00	73	53	23	20
3	19	15:01-15:30	63	51	20	9
1	11	15:31-16:00	47	50	19	5
3	34	16:01-16:30	36	48	10	0
2	9	16:31-17:00	9	47	1	0
2	3	17:01-17:30	3	46	0	1
17	1	17:31-16:00	17	46	0	0
172	162	Totals		0 manatees in Springs at 7:30 AM		



74 maximum number of manatees in Springs at one time

298 swimmers this day

139 boats, 182 people and 2 dogs in boats this day

Total number of manatee passages through Springs Run: 255

Total number all passages through Springs Run: 1129

Temperatures at 7:00 AM

Gulf water at Shell Island

63° F

Ambient air at Springs 40° F

Water at mouth of Kings Bay

67° F

Manatees swimming		Number in Springs at each half hour time interval				
In	Out	Time interval	# manatees	Tide height	# boats	# swimmers
0	0	7:01-7:30	1	34	0	4
2	1	7:31-8:00	3	33	0	20
0	1	8:01-8:30	2	32	0	31
0	0	8:31-9:00	1	30	1	26
1	1	9:01-9:30	2	29	5	18
0	0	9:31-10:00	1	28	11	29
0	0	10:01-10:30	1	27	10	37
1	1	10:31-11:00	2	28	17	24
4	1	11:01-11:30	5	31	16	17
5	2	11:31-12:00	9	34	16	12
2	1	12:01-12:30	9	37	10	33
15	4	12:31-13:00	23	40	9	34
10	3	13:01-13:30	29	43	21	54
17	5	13:31-14:00	43	47	19	66
26	8	14:01-14:30	64	51	16	72
14	10	14:31-15:00	70	54	26	36
14	5	15:01-15:30	74	56	22	51
10	12	15:31-16:00	79	56	17	40
8	11	16:01-16:30	75	55	10	20
2	16	16:31-17:00	66	54	6	0
0	28	17:01-17:30	50	51	3	0
3	11	17:30-18:00	25	49		3
134	121	Totals		1 manatee in Springs at 7:00 AM		