

TABLE 1

Watershed and Hydrology Data 2004

Green Harbor River, Marshfield, MA

Drainage area 1	3.92 square miles
* Water level (Webster Street)	0 feet
* Water level (Route 139)	-3.7 feet
Change in elevation	3.7feet
River miles (Webster Street to Route 139)	4.5 miles
Gradient	0.8 feet/mile

* Information taken from U.S. Army Corps of Engineers Green Harbor River Flooding Impact Investigation (1993)

Green Harbor River (by dike)

Table 2

Date (Location 1)	Time	Water Level (ft)	Air Temp (°F)	Water Temp surface (°F)	Salinity (surface) (ppt)	Salinity 1 meter (ppt)	Secchi Disk (m)	Diss. O ₂ (ppm)	Surface pH	pH 1 m
5/25/2004	9:15 AM	-1.9	55	54	6		1.5	8	7.2	
6/23/2004	11:30 AM	-1	84	64	33	30	1.75	9	7.8	8
7/7/2004	10:15 AM	-3.1	74	71	14	28	0.6	7	6.4	7.3
7/15/2004	10:00 AM	-2	70	64	25	31	0.7	7.5	7.9	8.2
7/21/2004	7:30-10:40 AM	-2.3	76	72	19	28	0.9	8	7.3	8.1
7/29/2004	8:45 AM	-3	71	66	28	28	1.1	7.5	8.2	8.1
8/4/2004	7:50 AM	-3	73	71	24	26	1.5	7-7.5	8.3	8.4
8/12/2004	9-12:15 AM	-2.3	78	72	29	31	1.4	7	8.1	8.1
8/17/2004	10:15 AM	-2.3	74	68	3	21	1.2	7	6	7.2
8/26/2004	9:50 AM	-1.1	72	64	28	29	1.1	8	8.1	8.2
9/6/2004	1:25 PM	-2.8	68	65	29	29	0.9	8	8	
10/9/2004	11:00 AM	-2.75	72	60	18				7.4	

Table 3 Green Harbor River

Date Location	Time	Water Level (ft)	Air Temp (°F)	Water Temp surface (°F)	Water Temp 1 meter (°F)	Salinity surface (ppt)	Salinity 1 meter (ppt)	Secchi Disk (m)	Diss. O ₂ (ppm)	Surface pH	pH 1 m
7/7/04	10:45 AM		74	66	7	25	0.7			6.2	7.
7/21/04	8:00 AM	-2.5	80	68	14	27	0.8			7.2	7.
7/29/04	9:15 AM	-2	74	68	18	27	1	7.7		7.6	7.
8/4/04	8:20 AM	-3.1	76		24	27	1.2	7-7.5		8.3	8.
8/12/04	9:30 AM	-2.1	80		29		1.25		7	8	
8/17/04	10:45 AM	-2	77	68	1	13	0.75		7	6.2	6.
8/26/04	10:20 AM	-1			28				8	8.1	

Table 4

Date	Time	Water level (ft)	Moon Phase	Last Tide (Ocean)	Comments
7/10/2003	11:00 AM	-2	1 d past 1/4	High 8:38 AM	at highest pt today
7/17/2003	10:25 AM	-2	full moon	Low 8:38 AM	Tide cg 10:50
7/25/2003	10:35 AM	-1.5	8 d past 1/4	High 9:17 AM	Incoming 1.25 highest 12:35 PM
7/29/2003	10:00 AM	-1.5	2 d bf full	Low 6:06 AM	Incoming
7/31/2003	9:45 AM	-3	Full Moon	Low 7:30 AM	Slight incoming
8/8/2003	11:00 AM	-0.5	1 d past 3/4	High 8:25 AM	3-5" rain 1st 24 hr
8/11/2003	1:25 PM	-0.7	5 d bf new	High 11:22 AM	Slight incoming
8/15/2003	9:50 AM	-2.5	1 d bf new	Low 8:08 AM	At lowest for day
8/22/2003	8:30 AM	-1	1 d bf 1/4	High 7:43 AM	slight inflow
9/1/2003	2:15 PM	-2	2 d past full	Low 9:19 AM	incoming fast
9/7/2003	2:25 PM	-1.5	1 d after 3/4	High 9:20 AM	Outgoing fast after big rain
10/11/2003	10:45 AM	-2	3 d bf new moon	Low 6:27 AM	Incoming tide fast 2 d ago
10/25/2003	5:45 PM	-2.5	3 d bf full moon	Low 5:46 PM	water rushing out harbor side stream
10/28/2003	7:00 AM	-3	Full Moon	Low 6:42 AM	
11/30/2003	2:40 PM	-2	4 d bf 3/4	Low 10:10 AM	Tide entering
12/2/2003	6:15 AM	-2	3 d before 3/4	High 6:14 AM	Tide entering
12/10/2003	6:00 AM	-1.1	2 d before new	Low 5:46 AM	Noreaster 6 & 7th
12/10/2003	4:30 PM	-1	2 d before new	High 11:56 AM	Bit after peak
12/11/2003	6:30 AM	-1.5	1 d bf new	High 12:36 AM	
12/12/2003	6:30 AM	-1	New Moon	High 1:16 AM	
12/12/2003	4:10 PM	-0.6	New Moon	High 1:16 PM	should be about highest
12/13/2003	10:50 AM	-1.4	1 d after new	Low 7:51 AM	slack tide
12/16/2003	6:00 AM	-0.3	2 d before 1/4	High 4:18 AM	Heavy rain 14th
12/16/2003	4:30 PM	-1	2 d before 1/4	High 4:31 PM	
12/17/2003	6:00 AM	-0.7	1 d bf 1/4	High 5:10 AM	
12/18/2003	6:00 AM	-0.5	1/4	High 6:03 AM	Tide enetering moderately
12/19/2003	6:00 AM	-1.5	1 d past 1/4	Low 12:42 AM	
12/23/2003	6:15 AM	-2.9	5 d after 1/4	Low 4:19 AM	
12/29/2003	6:00 AM	-2	3 d after full	High 3:42 AM	
12/30/2003	4:30 PM	-2	4 d past full	Low 10:41 AM	

12/31/2003	6:00 AM	-2	5 d past full	High 5:31 AM
12/31/2003	4:30 PM	-2.6	5 d past full	Low 11:41 AM
1/6/2004	6:00 AM	-2	1 d bf full	Low 4:01 AM
1/6/2004	5:00 PM	-2	1 d bf full	Low 4:41 PM
1/7/2004	6:00 AM	-2	full moon	Low 4:42 AM
1/8/2004	6:00 AM	-2.9	1 d past full	Low 5:23 AM
1/9/2004	6:00 AM	-2.9	2 d past full	Low 6:03 AM
1/9/2004	5:00 PM	-1.6	2 d past full	High 12:15 PM
1/13/2004	6:00 AM	-2	2 d before 3/4	High 2:55 AM
1/14/2004	6:00 AM	-2	1 d before 3/4	High 3:42 AM
1/15/2004	5:00 PM	-3	4-Mar	High 4:59 PM
1/16/2004	6:00 AM	-2	1 d past 3/4	High 5:26 AM
1/20/2004	6:00 AM	-3	1 d bf new	Low 3:06 AM
1/20/2004	5:00 PM	-3	1 d bf new	Low 3:53 PM
1/21/2004	6:00 AM	-3	New Moon	Low 4:02 AM
1/22/2004	6:00 AM	-3.2	1 d past new	Low 4:56 AM
1/23/2004	6:00 AM	-2.9	2 d past new	Low 5:48 AM
1/26/2004	6:00 AM	-2	3 d bf 1/4	High 2:17 AM
1/27/2004	6:00 AM	-1.3	2 d bf 1/4	High 3:04 AM
1/28/2004	6:00 AM	-1.3	1 d bf 1/4	High 3:52 AM
1/29/2004	6:00 AM	-1.3	1/4	High 4:42 AM
1/30/2004	6:00 AM	-2	1 d past 1/4	High 5:34 AM
2/3/2004	6:00 AM	-2.3	3 d bf full	Low 2:47 AM
2/4/2004	6:00 AM	-1.5	2 d bf full	Low 3:33 AM
2/5/2004	6:00 AM	-3	1 d bf full	Low 4:17 AM
2/6/2004	6:00 AM	-3.4	full moon	Low 4:59 AM
2/7/2004	10:10 AM	-1.8	1 d past full	Low 5:40 AM
2/10/2004	6:00 AM	-1.6	3 d bf 1/4	High 1:42 AM
2/11/2004	6:00 AM	-1.4	2 d bf 1/4	High 2:25 AM
2/12/2004	5:00 PM	-2	1 d bf 1/4	High 3:39 PM
2/20/2004	7:45 AM	-2.5	New Moon	Low 4:43 AM

Very Low

Incoming very slowly
out fast 6"

Tide entering slightly

2/20/2004	8:30 AM	-2.5	New Moon	Low 4:43 AM	Starting to come in moderately
2/20/2004	10:00 AM	-2.5	New Moon	Low 4:43 AM	
3/14/2004	12:50 PM	-3	d past 3/4	Low 11:14 AM	
4/12/2004	4:20 PM	-2	third 1/4	Low 11:59 AM	
4/14/2004	2:10 PM	-0.7	2d past 3rd 1/4	Low 2:11 PM	After huge rain storms no tidal movement
4/20/2004	1:45 PM	-2	1 d past new	High 12:51 PM	
4/21/2004	3:20 PM	-1.9	2 d past new	High 1:30 PM	
4/30/2004	6:30 PM	-2.5	3 d past 1st 1/4	Low 2:29 PM	Tide entering
5/6/2004	4:00 PM	-2.5	2 d after full	High 1:14 PM	Tide entering light
5/7/2004	2:00 PM	-1.5	3 d after full	Low 7:52 AM	
5/10/2004	4:15 PM	-1.5	d bf 3/4	Low 10:40 AM	
5/15/2004	12 NOON	-2.7	4 d bf 1/4	High 9:30 AM	
5/25/2004	8:00 AM	-1.7	2 d bf 1/4	High 3:58 AM	
5/25/2004	10:15 AM	-2	2 d bf 1/4	High 3:58 AM	
5/25/2004	3:15 PM	-2	2 d bf 1/4	Low 10:24 AM	
5/28/2004	3:00 PM	-1.75	d after 1/4	Low 12:55 PM	
5/30/2004	11:35 AM	-1.5	4 d bf full	High 8:26 AM	Slack
5/31/2004	11:00 AM	-2	3 d bf full	High 9:21 AM	No movement
6/2/2004	1:45 PM	-2	d bf full	High 11:09 AM	
6/5/2004	10:30 AM	-3	2 d after full	Low 7:36 AM	Slack
6/5/2004	12:30 PM	-3	2 d after full	Low 7:36 AM	Slack incoming
6/7/2004	1:45 PM	-2.2	4 d past full	Low 9:25 AM	
6/9/2004	1:45 PM	-2.2	third 1/4	Low 11:19 AM	
6/12/2004	1:45 PM	-2.2	5 d bf new	High 8:04 AM	
6/15/2004	1:45 PM	-2.2	2 d bf new	high 10:42 AM	
6/16/2004	10:35 AM	-2.5	1 d bf new	Low 5:11 AM	Slack
Average TD		-1.98			
6/23/2004	11:30 AM	-1	2 d bf 1/4	Low 9:54 AM	
6/25/2004	6:10 PM	-0.5	first 1/4	High 5:43 PM	
6/27/2004 PM		-0.3	2 d past 1/4		
Ave level - tidegate out		-0.6			

7/2/2004	1:30 PM	-2.8	full moon	High 11:45 AM	
7/6/2004	10:15 AM	-3.25	3 d bf 3/4	Low 9:04 AM	
7/7/2004	10:15 AM	-3.1	2 d bf 3/4	Low 9:57 AM	
7/15/2004	10:30 AM	-2	2 d bf new moon	Low 4:46 AM	
7/17/2004	8:15 PM	-2.5	New Moon	Low 6:10 PM	
7/21/2004	7:45 AM	-2.2	4 d before 1/4	High 2:23 AM	slack tide
7/21/2004	8:00 AM	-2.5	4 d before 1/4	High 2:23 AM	
7/22/2004	12:30 PM	-2.5	3 d before 1/4	Low 9:23 AM	
7/24/2004	9:05 AM	-2.5	1 d before 1/4	High 4:39 AM	
7/29/2004	8:45 AM	-3	2 d before full	Low 3:22 AM	
7/31/2004	no time	-2.9	Full Moon		
8/3/2004	10:30 AM	-3.3	3 d past full	Low 7:50 AM	
8/4/2004	7:50 AM	-3	3 d before 3/4	High 2:22 AM	
8/5/2004	8:00 AM	-2.5	2 d before 3/4	High 3:14 AM	
8/6/2004	10:00 AM	-2.5	1 d before 3/4	High 4:06 AM	
8/8/2004	no time	-2.5	1 d past 3/4		
8/10/2004	8:00 AM	-2.6	3 d past 3/4	High 7:52 AM	
8/12/2004	9:00 AM	-2.3	4 d before new	Low 3:29 AM	
8/12/2004	12:15 PM	-2.1	4 d before new	High 9:44 AM	
8/14/2004	3:00 PM	-2	2 d before new	High 11:15 AM	
8/16/2004	8:00 AM	-2.3	New Moon	Low 6:18 AM	
Ave summer level -1/2 drainag		-2.59			
8/17/2004	10:15 AM	-2.3	1 d past new	Low 6:55 AM	outgoing, recently switched
8/22/2004	10:20 AM	-1.7	1 d before 1/4	Low 10:23 AM	
8/23/2004	7:26 AM	-0.7	1/4 Moon	High 5:09 AM	
8/24/2004	2:45 PM	-1.6	1 d past 1/4	Low 12:13 PM	
8/26/2004	10:00 AM	-1.1	4 d before full	High 8:18 AM	
8/26/2004	11:30 AM	-1	4 d before full	High 8:18 AM	high tide for AM
8/26/2004	1:45 PM	-1.5	4 d before full	High 8:18 AM	
8/29/2004	12:18 PM	-1.2	1 d before full	High 11:15 AM	flowing in
Ave level - gate chained open		-1.39			

9/5/2004	4:30 PM	-3	1 d before 3/4	Low 10:24 AM
9/6/2004	1:25 PM	-2.8		
9/12/2004	12:11 PM	-2.2	2 d before new	High 10:40 AM
9/13/2004	3:00 PM	-2.5	1 d before new	High 11:19 AM
10/9/2004	11:00 AM	-2.75		
11/14/2004	3:15 PM	-2.7		
3/3/2005	3:00 PM	-3.2		
3/30/2005	3:45 PM	-3.4		
Ave since 9/5/03		-2.82		

flowing out, slow and murky