APPENDICES

LIST OF FIGURES

LIST OF TABLES

APPENDIX A. HIGH-WATER SHORELINE POSITION CHANGE

The following data tables provide shoreline position (UTM-x, UTM-y) and change statistics for the coast of New Jersey from Manasquan Inlet to Hereford Inlet at a 50-m longshore spacing. Transect 1 is located just south of Manasquan Inlet. Cumulative and incremental change rates are provided on the left half of the table, and shoreline position for each transect is listed on the right side of the table. All length measurements are recorded in meters.

High-Water Shoreline Position Change Rate

Transect #	1839/42 to 1864/86 (m/yr)	1839/42 to 1899 (m/yr)	1839/42 to 1932 (m/yr)	1839/42 to 1950/51 (m/yr)	1839/42 to 1977 (m/yr)	1864/86 to 1899 (m/yr)	1864/86 to 1932 (m/yr)	1864/86 to 1950/51 (m/yr)	1864/86 to 1977 (m/yr)	1899 to 1932 (m/yr)	1899 to 1950/51 (m/yr)	1899 to 1977 (m/yr)	1932 to 1950/51 (m/yr)	1932 to 1977 (m/yr)	1950/51 to 1977 (m/yr)
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20	-2.1		0.1	0.3	1.2		1.4	1.4	2.3				1.5	3.4	4.8
21	-1.9		-0.1	0.2	1.0		1.0	1.1	2.0				1.5	3.4	4.7
22	-1.9		-0.3	0.0	0.8		0.6	0.9	1.8				1.8	3.3	4.3
23	-1.6		-0.4	0.1	0.8		0.3	0.8	1.6				2.3	3.2	3.9
24	-1.3		-0.4	0.2	0.8		0.2	0.8	1.5				2.8	3.3	3.6
25	-1.4		-0.5	0.1	0.7		0.1	0.8	1.4				2.9	3.1	3.3
26	-1.6		-0.6	0.0	0.6		0.1	0.8	1.3				3.1	3.0	3.0
27	-1.7		-0.6	0.0	0.5		0.1	0.7	1.3				2.8	2.8	2.8
28	-1.8		-0.6	-0.1	0.5		0.0	0.7	1.2				2.9	2.7	2.6
29	-1.6		-0.6	-0.1	0.4		-0.1	0.6	1.1				2.5	2.6	2.7
30	-1.8		-0.7	-0.2	0.3		-0.1	0.5	1.0				2.2	2.5	2.7
31	-2.0		-0.8	-0.3	0.2		0.0	0.5	1.0				2.3	2.3	2.3
32	-2.3	-1.1	-0.9	-0.4	0.1	0.5	-0.1	0.5	0.9	-0.5	0.4	1.1	2.0	2.2	2.4
33	-2.6	-1.2	-1.0	-0.5	0.1	0.7	-0.1	0.4	1.0	-0.7	0.2	1.0	1.8	2.3	2.6
34	-2.5	-1.2	-1.0	-0.5	0.0	0.5	0.0	0.5	0.9	-0.5	0.4	1.0	2.0	2.1	2.1
35	-2.7	-1.4	-1.0	-0.6	-0.1	0.5	0.0	0.4	0.8	-0.3	0.4	0.9	1.6	1.8	1.9
36	-2.6	-1.5	-1.0	-0.6	-0.1	0.1	-0.1	0.3	0.7	-0.3	0.4	0.9	1.6	1.7	1.9
37	-2.5	-1.5	-1.1	-0.6	-0.2	-0.1	-0.2	0.3	0.6	-0.4	0.4	0.8	1.8	1.7	1.7
38	-2.6	-1.5	-1.1	-0.7	-0.2	0.2	-0.2	0.2	0.6	-0.6	0.3	0.7	1.7	1.7	1.6
39	-2.5	-1.3	-1.1	-0.6	-0.2	0.3	-0.3	0.3	0.6	-0.7	0.3	0.6	2.0	1.6	1.4
40	-2.5	-1.3	-1.1	-0.6	-0.2	0.3	-0.3	0.3	0.5	-0.7	0.2	0.6	2.0	1.5	1.2
41	-2.7	-1.5	-1.2	-0.7	-0.3	0.2	-0.3	0.2	0.5	-0.6	0.2	0.6	1.6	1.4	1.3
42	-3.1	-1.7	-1.3	-0.9	-0.4	0.3	-0.2	0.1	0.5	-0.6	0.1	0.6	1.3	1.4	1.5
43	-3.0	-1.7	-1.3	-0.8	-0.4	0.3	-0.3	0.2	0.4	-0.7	0.1	0.5	1.5	1.4	1.2
44	-3.2	-1.8	-1.4	-0.9	-0.5	0.3	-0.2	0.1	0.4	-0.7	0.1	0.5	1.4	1.3	1.2
45	-3.3	-2.0	-1.4	-1.0	-0.6	0.0	-0.2	0.1	0.4	-0.4	0.1	0.5	0.9	1.2	1.3
46	-3.4	-2.0	-1.4	-1.1	-0.6	-0.2	-0.2	0.0	0.3	-0.3	0.0	0.5	0.6	1.1	1.4
47	-3.5	-2.1	-1.4	-1.1	-0.7	-0.1	-0.2	0.0	0.3	-0.3	0.0	0.4	0.7	1.0	1.2
48	-3.6	-2.1	-1.5	-1.1	-0.7	0.0	-0.2	0.0	0.3	-0.4	0.0	0.4	0.8	0.9	1.0
49	-3.6	-2.1	-1.5	-1.2	-0.7	0.1	-0.3	-0.1	0.2	-0.5	-0.1	0.3	0.6	0.9	1.1
50	-3.7	-2.1	-1.5	-1.2	-0.8	0.2	-0.2	0.0	0.2	-0.4	-0.1	0.3	0.6	0.8	0.9
51	-4.0	-2.2	-1.6	-1.2	-0.8	0.4	-0.1	0.1	0.3	-0.4	0.0	0.3	0.6	0.7	0.8
52	-4.1	-2.3	-1.6	-1.2	-0.8	0.3	-0.1	0.1	0.3	-0.4	-0.1	0.3	0.4	0.7	0.9
53	-4.0	-2.2	-1.5	-1.2	-0.8	0.3	0.0	0.0	0.3	-0.2	-0.1	0.3	0.0	0.6	1.0
54	-3.9	-2.1	-1.5	-1.2	-0.8	0.3	-0.1	0.1	0.3	-0.4	-0.1	0.3	0.4	0.7	0.9
55	-3.6	-2.0	-1.5	-1.1	-0.7	0.2	-0.1	0.1	0.2	-0.4	0.0	0.2	0.6	0.7	0.7
56	-3.8	-2.2	-1.5	-1.2	-0.8	0.1	-0.1	0.0	0.2	-0.3	0.0	0.2	0.5	0.6	0.7
57	-3.8	-2.2	-1.5	-1.2	-0.8	0.0	-0.2	0.0	0.2	-0.3	-0.1	0.2	0.4	0.6	0.8
58	-4.0	-2.3	-1.6	-1.3	-0.9	0.0	-0.2	-0.1	0.2	-0.3	-0.1	0.2	0.3	0.6	0.8
59	-4.0	-2.3	-1.6	-1.3	-0.9	0.1	-0.1	0.0	0.2	-0.3	-0.1	0.2	0.2	0.6	0.9
60	-4.1	-2.3	-1.7	-1.3	-0.9	0.2	-0.2	0.0	0.2	-0.5	-0.1	0.2	0.5	0.7	0.8
61	-4.0	-2.2	-1.6	-1.2	-0.8	0.2	-0.1	0.0	0.2	-0.4	0.0	0.2	0.6	0.7	0.8
62	-4.2	-2.3	-1.6	-1.3	-0.9	0.3	-0.1	0.0	0.2	-0.5	-0.1	0.2	0.4	0.7	0.9
63	-4.1	-2.2	-1.6	-1.3	-0.9	0.4	-0.1	0.0	0.2	-0.5	-0.2	0.2	0.3	0.6	0.9
64	-3.8	-2.1	-1.6	-1.2	-0.9	0.2	-0.2	0.0	0.2	-0.5	-0.1	0.1	0.6	0.6	0.6
65	-3.7	-2.1	-1.6	-1.2	-0.9	0.2	-0.3	-0.1	0.1	-0.6	-0.3	0.1	0.3	0.6	0.8
66	-3.7	-2.1	-1.6	-1.3	-0.9	0.3	-0.3	-0.2	0.1	-0.7	-0.4	0.0	0.2	0.6	0.9
67	-3.6	-1.9	-1.5	-1.2	-0.8	0.3	-0.3	-0.1	0.1	-0.7	-0.4	0.1	0.2	0.6	0.9
68	-3.4	-1.9	-1.5	-1.2	-0.8	0.1	-0.3	-0.2	0.1	-0.7	-0.3	0.1	0.2	0.7	1.0
69	-3.2	-1.9	-1.4	-1.2	-0.8	-0.2	-0.3	-0.3	0.1	-0.5	-0.4	0.1	-0.3	0.6	1.2
70	-3.0	-1.9	-1.4	-1.2	-0.7	-0.3	-0.5	-0.3	0.0	-0.6	-0.4	0.1	0.0	0.7	1.1
71	-3.0	-1.8	-1.4	-1.2	-0.7	-0.2	-0.5	-0.4	0.0	-0.8	-0.5	0.1	0.0	0.7	1.2
72	-2.7	-1.7	-1.3	-1.1	-0.7	-0.2	-0.5	-0.4	0.0	-0.8	-0.5	0.1	-0.1	0.7	1.2
73	-2.9	-1.8	-1.4	-1.2	-0.7	-0.3	-0.5	-0.4	0.0	-0.7	-0.5	0.1	-0.3	0.6	1.3
74	-3.0	-1.9	-1.5	-1.2	-0.8	-0.4	-0.6	-0.4	0.0	-0.8	-0.4	0.1	0.2	0.8	1.2
75	-2.8	-1.8	-1.5	-1.1	-0.7	-0.3	-0.6	-0.4	0.0	-0.9	-0.4	0.1	0.5	0.8	1.1
76	-2.8	-1.8	-1.5	-1.1	-0.7	-0.3	-0.7	-0.4	0.0	-0.9	-0.4	0.1	0.4	0.9	1.3
77	-2.8	-1.8	-1.5	-1.1	-0.7	-0.3	-0.6	-0.4	0.1	-0.9	-0.4	0.2	0.5	1.0	1.4
78	-2.8	-1.7	-1.4	-1.1	-0.6	-0.3	-0.6	-0.4	0.1	-0.8	-0.4	0.2	0.3	1.0	1.5
79	-2.6	-1.7	-1.4	-1.1	-0.6	-0.3	-0.7	-0.5	0.1	-0.9	-0.5	0.2	0.1	1.0	1.8
80	-2.6	-1.7	-1.3	-1.2	-0.6	-0.4	-0.6	-0.5	0.0	-0.7	-0.6	0.2	-0.2	0.8	1.6
81	-2.7	-1.7	-1.4	-1.2	-0.7	-0.3	-0.6	-0.5	0.0	-0.8	-0.6	0.1	-0.2	0.8	1.5

High-Water Shoreline Position (UTM Zone 18, NAD 1983)

Transect #	1839/42 UTM-x (m)	1839/42 UTM-y (m)	1864/86 UTM-x (m)	1864/86 UTM-y (m)	1899 UTM-x (m)	1899 UTM-y (m)	1932 UTM-x (m)	1932 UTM-y (m)	1950/51 UTM-x (m)	1950/51 UTM-y (m)	1977 UTM-x (m)	1977 UTM-y (m)
1			4440312	582437.1								
2			4440260	582449.1								
3			4440210	582448.9								
4			4440160	582445.6								
5			4440110	582442.4								
6			4440060	582438.2								
7			4440010	582438.4								
8			4439959	582439.2								
9			4439909	582434.1								
10			4439860	582429.1								
11			4439810	582418.5								
12			4439761	582408.5								
13			4439713	582390.9								
14			4439665	582372.9								
15			4439616	582361.8								
16			4439567	582352.6								
17			4439517	582347.3								
18			4439468	582338.7								
19			4439419	582328.8								
20	4439361	582388.9	4439370	582315.4			4439360	582397.1	4439356	582425.9	4439340	582550.6
21	4439312	582372.8	4439321	582305.4			4439313	582364.0	4439310	582392.0	4439294	582514.5
22	4439263	582367.7	4439271	582302.8			4439267	582336.0	4439262	582370.4	4439248	582482.1
23	4439214	582352.7	4439221	582297.6			4439219	582316.0	4439213	582359.2	4439201	582459.4
24	4439166	582332.3	4439172	582288.4			4439171	582297.8	4439164	582349.8	4439152	582444.1
25	4439116	582327.3	4439123	582277.5			4439122	582283.7	4439115	582337.3	4439104	582423.3
26	4439067	582322.4	4439074	582266.5			4439073	582269.5	4439066	582327.2	4439056	582404.1
27	4439017	582316.5	4439025	582256.4			4439024	582260.2	4439017	582313.6	4439008	582386.4
28	4438968	582307.3	4438975	582246.5			4438975	582247.9	4438968	582301.8	4438960	582369.5
29	4438919	582294.7	4438926	582239.2			4438927	582234.9	4438921	582281.6	4438912	582350.4
30	4438869	582290.8	4438877	582227.8			4438878	582223.4	4438872	582264.7	4438864	582333.9
31	4438819	582286.9	4438828	582215.9			4438828	582214.6	4438823	582257.6	4438815	582317.4
32	4438769	582282.8	4438779	582203.6	4438778	582217.1	4438780	582200.3	4438775	582237.9	4438767	582300.2
33	4438719	582278.5	4438731	582189.8	4438728	582208.0	4438731	582185.5	4438727	582219.7	4438718	582286.9
34	4438670	582266.7	4438681	582180.1	4438680	582193.3	4438682	582177.6	4438677	582214.5	4438670	582269.2
35	4438620	582264.3	4438632	582171.8	4438631	582183.4	4438632	582172.7	4438628	582202.7	4438622	582252.8
36	4438571	582254.4	4438583	582164.2	4438582	582167.8	4438583	582158.3	4438580	582187.5	4438574	582235.8
37	4438522	582243.1	4438533	582157.5	4438533	582156.0	4438535	582143.2	4438531	582177.1	4438525	582220.5
38	4438473	582236.4	4438484	582145.4	4438484	582149.9	4438486	582131.8	4438482	582164.3	4438477	582206.3
39	4438424	582222.4	4438435	582134.8	4438434	582142.7	4438437	582118.9	4438433	582155.9	4438428	582191.3
40	4438375	582210.9	4438386	582124.6	4438385	582132.5	4438388	582108.6	4438383	582145.2	4438379	582177.6
41	4438325	582209.2	4438337	582114.9	4438336	582119.2	4438339	582098.8	4438335	582128.6	4438331	582163.1
42	4438275	582208.7	4438288	582102.5	4438287	582109.1	4438290	582089.4	4438287	582113.3	4438282	582151.7
43	4438226	582198.3	4438239	582093.2	4438238	582099.8	4438241	582077.7	4438237	582105.9	4438233	582138.2
44	4438176	582194.5	4438190	582082.7	4438189	582089.7	4438192	582068.4	4438188	582093.9	4438184	582124.8
45	4438126	582190.9	4438140	582075.1	4438140	582074.3	4438142	582062.4	4438140	582079.6	4438135	582114.1
46	4438076	582184.9	4438091	582067.7	4438091	582063.1	4438093	582053.4	4438091	582064.3	4438087	582100.5
47	4438026	582179.1	4438042	582059.0	4438042	582055.7	4438043	582045.4	4438042	582058.1	4438038	582088.2
48	4437977	582172.9	4437993	582047.5	4437993	582047.3	4437994	582033.9	4437992	582049.2	4437989	582074.9
49	4437928	582163.5	4437943	582037.7	4437943	582039.1	4437945	582022.3	4437944	582033.8	4437940	582062.0
50	4437878	582155.4	4437895	582025.6	4437894	582029.4	4437896	582014.7	4437895	582026.3	4437892	582049.7
51	4437829	582149.6	4437846	582010.3	4437845	582019.6	4437847	582006.6	4437845	582017.6	4437842	582039.6
52	4437779	582143.7	4437797	582001.0	4437796	582009.5	4437797	581997.4	4437796	582005.0	4437793	582029.1
53	4437730	582129.9	4437748	581991.8	4437747	581998.7	4437748	581992.5	4437748	581992.7	4437744	582019.1
54	4437682	582116.6	4437699	581981.5	4437698	581989.9	4437699	581978.4	4437698	581985.7	4437695	582009.6
55	4437633	582102.6	4437649	581976.1	4437648	581981.6	4437650	581968.8	4437648	581981.0	4437646	582000.2
56	4437582	582103.2	4437599	581970.7	4437599	581972.7	4437600	581963.0	4437599	581972.1	4437597	581991.2
57	4437533	582097.5	4437549	581964.9	4437549	581965.1	4437551	581955.3	4437550	581962.6	4437547	581982.5
58	4437483	582095.1	4437500	581956.3	4437500	581956.1	4437501	581947.4	4437501	581952.2	4437498	581973.0
59	4437434	582084.1	4437451	581944.3	4437451	581946.9	4437452	581936.2	4437452	581940.8	4437449	581962.8
60	4437384	582076.1	4437402	581933.7	4437402	581938.3	4437404	581923.2	4437402	581932.9	4437400	581952.9
61	4437336	582061.1	4437353	581921.7	4437353	581927.7	4437354	581913.8	4437353	581925.2	4437350	581944.9
62	4437286	582056.0	4437304	581910.9	4437303	581919.5	4437305	581904.0	4437304	581911.9	4437301	581935.2
63	4437237	582043.9	4437255	581903.0	4437254	581912.8	4437256	581895.7	4437255	581900.9	4437252	581924.4
64	4437188	582030.3	4437205	581897.5	4437204	581903.4	4437207	581886.4	4437205	581897.0	4437203	581913.7
65	4437139	582022.1	4437155	581893.1	4437155	581898.8	4437157	581878.5	4437156	581884.3	4437154	581905.6
66	4437089	582016.2	4437106	581886.5	4437105	581893.7	4437108	581870.6	4437107	581873.8	4437105	581896.6
67	4437041	582001.8	4437056	581878.2	4437056	581885.8	4437058	581862.9	4437058	581867.6	4437055	581890.3
68	4436992	581991.6	4437007	581873.2	4437006	581875.9	4437009	581854.6	4437009	581858.8	4437005	581884.2
69	4436943	581981.4	4436957	581869.8	4436957	581865.7	4436959	581850.4	4436960	581845.6	4436956	581877.0
70	4436893	581972.7	4436907	581867.9	4436907	581861.6	4436910	581841.9	4436910	581841.7	4436906	581870.9
71	4436844	581965.4	4436857	581862.3	4436857	581858.1	4436861	581833.2	4436861	581833.5	4436857	581864.0
72	4436796	581948.2	4436807	581855.0	4436808	581850.0	4436811	581825.3	4436811	581822.9	4436807	581855.1
73	4436745	581947.4	4436758	581845.9	4436759	581839.5	4436762	581817.6	4436762	581811.8	4436758	581846.0
74	4436695	581943.6	4436709	581839.6	4436710	581830.4	4436713	581804.7	4436712	581808.4	4436709	581839.0
75	4436647	581930.8	4436659	581832.2	4436660	581823.9	4436664	581795.5	4436663	581804.7	4436659	581832.8
76	4436597	581921.4	4436610	581825.3	4436611	581816.7	4436614	581787.2	4436613	581795.2	4436609	581828.2
77	4436548	581913.8	4436560	581815.4	4436561	581808.5	4436565	581778.2	4436564	581787.6	4436559	581824.2
78	4436499	581903.1	4436511	581807.4	4436512	581799.4	4436515	581772.5	4436515	581778.4	4436510	581818.3
79	4436450	581890.2	4436462	581799.8	4436463	581791.2	4436466	581762.3	4436466	581763.4	4436460	581808.8
80	4436400	581884.7	4436412	581793.9	4436413	581785.0	4436416	581760.7	4436417	581756.3	4436411	581798.3
81	4436351	581881.1	4436362	581788.9	4436363	581782.1	4436367	581754.6	4436367	581750.3	4436362	581788.3

						High-Water Shoreline Position Change Rate								
	1839/42 to	1839/42 to	1839/42 to	1839/42 to	1839/42 to	1864/86 to	1864/86 to	1864/86 to	1864/86 to	1899 to	1899 to	1899 to	1932 to	1932 to	1950/51 to
Transect #	1864/86 (m/yr)	1899 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1899 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1977 (m/yr)
82	-2.6	-1.7	-1.4	-1.2	-0.7	-0.5	-0.6	-0.6	0.0	-0.8	-0.6	0.1	-0.3	0.8	1.5
83	-2.4	-1.6	-1.3	-1.1	-0.6	-0.6	-0.7	-0.5	0.0	-0.8	-0.4	0.2	0.1	0.8	1.4
84	-2.2	-1.5	-1.2	-1.0	-0.5	-0.5	-0.7	-0.5	0.1	-0.8	-0.4	0.2	0.2	1.0	1.6
85	-2.1	-1.4	-1.2	-1.0	-0.6	-0.4	-0.7	-0.5	0.0	-0.9	-0.6	0.1	-0.1	0.8	1.5
86	-2.3	-1.5	-1.3	-1.0	-0.6	-0.5	-0.7	-0.5	0.0	-0.8	-0.5	0.1	0.1	0.8	1.3
87	-2.2	-1.4	-1.2	-1.0	-0.5	-0.3	-0.6	-0.5	0.0	-0.9	-0.5	0.1	0.1	0.9	1.5
88	-2.4	-1.5	-1.3	-1.0	-0.5	-0.4	-0.7	-0.4	0.2	-0.9	-0.4	0.4	0.3	1.2	1.9
89	-2.5	-1.7	-1.3	-1.1	-0.5	-0.5	-0.6	-0.4	0.1	-0.7	-0.4	0.3	0.2	1.1	1.7
90	-2.4	-1.7	-1.2	-1.0	-0.6	-0.7	-0.6	-0.4	0.1	-0.5	-0.3	0.3	0.0	0.8	1.4
91	-2.5	-1.7	-1.3	-1.0	-0.6	-0.5	-0.6	-0.3	0.0	-0.6	-0.2	0.2	0.4	0.8	1.2
92	-2.3	-1.5	-1.2	-0.9	-0.4	-0.5	-0.5	-0.3	0.2	-0.5	-0.2	0.5	0.3	1.2	1.8
93	-2.4	-1.7	-1.2	-1.0	-0.5	-0.5	-0.5	-0.3	0.2	-0.4	-0.2	0.5	0.2	1.1	1.7
94	-2.5	-1.6	-1.2	-1.0	-0.5	-0.4	-0.5	-0.3	0.2	-0.5	-0.3	0.4	0.1	1.1	1.8
95	-2.4	-1.6	-1.1	-1.0	-0.4	-0.4	-0.4	-0.4	0.3	-0.4	-0.3	0.5	-0.3	1.1	2.1
96	-2.3	-1.4	-1.1	-0.9	-0.4	-0.2	-0.4	-0.3	0.2	-0.5	-0.4	0.3	-0.1	1.0	1.8
97	-2.0	-1.2	-1.0	-0.8	-0.4	-0.2	-0.4	-0.3	0.2	-0.6	-0.3	0.3	0.1	1.0	1.6
98	-1.8	-1.2	-1.0	-0.8	-0.3	-0.4	-0.5	-0.4	0.2	-0.6	-0.4	0.4	-0.1	1.1	1.9
99	-1.7	-1.2	-0.9	-0.8	-0.2	-0.4	-0.4	-0.3	0.3	-0.4	-0.3	0.5	-0.1	1.1	2.0
100	-1.7	-1.1	-0.9	-0.7	-0.3	-0.3	-0.4	-0.3	0.2	-0.5	-0.3	0.4	0.1	1.0	1.7
101	-1.7	-1.0	-0.9	-0.8	-0.3	-0.2	-0.5	-0.4	0.1	-0.7	-0.4	0.3	0.0	0.9	1.7
102	-1.7	-1.0	-0.9	-0.7	-0.3	0.1	-0.4	-0.2	0.2	-0.8	-0.4	0.2	0.2	0.9	1.4
103	-1.6	-0.9	-0.9	-0.7	-0.3	0.1	-0.4	-0.3	0.1	-0.8	-0.5	0.1	0.1	0.8	1.3
104	-1.6	-1.0	-0.9	-0.8	-0.4	-0.1	-0.5	-0.4	0.0	-0.8	-0.5	0.0	0.0	0.6	1.1
105	-1.2	-1.0	-0.9	-0.8	-0.4	-0.6	-0.7	-0.6	-0.2	-0.8	-0.5	0.0	-0.1	0.6	1.1
106	-0.9	-0.9	-0.9	-0.7	-0.4	-1.0	-0.9	-0.7	-0.2	-0.8	-0.5	0.0	0.0	0.6	1.1
107	-0.9	-1.0	-0.8	-0.7	-0.4	-1.1	-0.7	-0.6	-0.2	-0.4	-0.3	0.1	-0.1	0.5	0.9
108	-0.9	-1.0	-0.8	-0.7	-0.4	-1.0	-0.6	-0.6	-0.2	-0.3	-0.4	0.1	-0.5	0.5	1.1
109	-1.1	-1.0	-0.8	-0.8	-0.4	-0.8	-0.6	-0.6	-0.1	-0.5	-0.5	0.1	-0.7	0.5	1.4
110	-1.4	-1.1	-1.0	-0.8	-0.4	-0.6	-0.7	-0.6	-0.1	-0.8	-0.6	0.0	-0.3	0.6	1.3
111	-1.3	-1.0	-0.9	-0.8	-0.4	-0.5	-0.6	-0.5	-0.1	-0.7	-0.6	0.0	-0.3	0.5	1.2
112	-1.3	-1.0	-0.9	-0.8	-0.4	-0.6	-0.7	-0.5	-0.1	-0.7	-0.5	0.0	-0.2	0.5	1.1
113	-1.1	-0.9	-0.8	-0.7	-0.4	-0.6	-0.7	-0.6	-0.1	-0.8	-0.6	0.0	-0.2	0.6	1.2
114	-0.8	-0.8	-0.9	-0.7	-0.3	-0.8	-0.9	-0.6	-0.2	-0.9	-0.5	0.1	0.2	0.8	1.2
115	-0.6	-0.7	-0.8	-0.6	-0.3	-1.0	-0.9	-0.7	-0.2	-0.9	-0.5	0.0	0.2	0.8	1.1
116	-0.6	-0.7	-0.7	-0.6	-0.3	-0.8	-0.8	-0.6	-0.2	-0.7	-0.5	0.0	-0.1	0.6	1.1
117	-0.6	-0.7	-0.7	-0.7	-0.3	-0.8	-0.8	-0.7	-0.2	-0.8	-0.7	0.0	-0.4	0.7	1.4
118	-0.7	-0.7	-0.8	-0.7	-0.2	-0.7	-0.8	-0.7	-0.1	-0.9	-0.8	0.1	-0.4	0.8	1.8
119	-0.7	-0.7	-0.8	-0.7	-0.3	-0.8	-0.9	-0.8	-0.1	-1.0	-0.7	0.1	-0.3	0.9	1.8
120	-0.6	-0.7	-0.8	-0.6	-0.2	-0.9	-0.9	-0.7	-0.1	-0.9	-0.5	0.1	0.1	0.9	1.4
121	-0.5	-0.7	-0.7	-0.6	-0.2	-1.1	-0.9	-0.7	-0.1	-0.7	-0.5	0.2	0.0	0.8	1.4
122	-0.3	-0.6	-0.7	-0.5	-0.2	-1.1	-0.9	-0.6	-0.1	-0.8	-0.4	0.2	0.3	0.9	1.3
123	-0.3	-0.6	-0.7	-0.6	-0.2	-1.1	-0.9	-0.7	-0.1	-0.7	-0.5	0.2	-0.1	0.8	1.5
124	-0.5	-0.7	-0.7	-0.6	-0.2	-1.0	-0.8	-0.7	-0.1	-0.6	-0.5	0.2	-0.3	0.7	1.5
125	-0.6	-0.7	-0.7	-0.6	-0.2	-0.7	-0.7	-0.6	-0.1	-0.6	-0.5	0.1	-0.2	0.7	1.3
126	-0.8	-0.6	-0.6	-0.5	-0.2	-0.5	-0.5	-0.4	0.0	-0.6	-0.4	0.1	0.0	0.6	1.1
127	-1.0	-0.7	-0.6	-0.6	-0.2	-0.2	-0.4	-0.4	0.0	-0.5	-0.5	0.1	-0.5	0.6	1.4
128	-1.2	-0.7	-0.6	-0.6	-0.3	0.0	-0.2	-0.4	0.0	-0.4	-0.6	0.1	-0.8	0.4	1.3
129	-1.0	-0.5	-0.5	-0.5	-0.2	0.2	-0.2	-0.3	0.0	-0.4	-0.5	0.0	-0.6	0.3	1.0
130	-1.1	-0.5	-0.5	-0.5	-0.2	0.3	-0.2	-0.2	0.1	-0.5	-0.5	0.0	-0.5	0.4	1.0
131	-1.2	-0.5	-0.6	-0.6	-0.2	0.3	-0.2	-0.3	0.1	-0.6	-0.6	0.0	-0.6	0.4	1.2
132	-1.2	-0.5	-0.6	-0.6	-0.2	0.4	-0.3	-0.3	0.1	-0.7	-0.7	0.0	-0.6	0.5	1.3
133	-1.2	-0.6	-0.7	-0.7	-0.3	0.2	-0.5	-0.4	0.0	-0.9	-0.7	0.0	-0.4	0.7	1.5
134	-1.0	-0.6	-0.7	-0.6	-0.3	0.0	-0.5	-0.5	0.0	-0.9	-0.7	0.0	-0.4	0.6	1.3
135	-1.0	-0.5	-0.6	-0.6	-0.3	0.2	-0.4	-0.4	0.0	-0.9	-0.8	-0.1	-0.4	0.5	1.2
136	-0.8	-0.3	-0.5	-0.6	-0.2	0.4	-0.3	-0.5	0.0	-0.8	-0.9	-0.1	-1.0	0.4	1.4
137	-0.8	-0.3	-0.5	-0.5	-0.2	0.5	-0.3	-0.4	0.0	-0.8	-0.9	-0.1	-1.0	0.4	1.4
138	-0.8	-0.2	-0.4	-0.5	-0.2	0.6	-0.2	-0.3	0.1	-0.8	-0.8	-0.1	-0.9	0.3	1.2
139	-1.0	-0.3	-0.5	-0.5	-0.2	0.7	-0.1	-0.3	0.1	-0.8	-0.7	-0.1	-0.6	0.3	1.0
140	-1.4	-0.6	-0.6	-0.6	-0.3	0.6	-0.2	-0.3	0.0	-0.7	-0.7	-0.1	-0.5	0.3	0.9
141	-1.4	-0.6	-0.6	-0.7	-0.3	0.4	-0.2	-0.3	0.0	-0.7	-0.7	-0.1	-0.8	0.3	1.1
142	-1.5	-0.7	-0.7	-0.6	-0.4	0.4	-0.2	-0.2	0.0	-0.6	-0.5	-0.1	-0.4	0.3	0.8
143	-1.7	-0.8	-0.7	-0.7	-0.4	0.3	-0.1	-0.3	0.0	-0.5	-0.6	-0.1	-0.8	0.2	1.0
144	-1.5	-0.7	-0.7	-0.7	-0.3	0.4	-0.2	-0.3	0.0	-0.6	-0.7	-0.1	-0.8	0.3	1.1
145	-1.5	-0.7	-0.7	-0.6	-0.4	0.3	-0.3	-0.3	0.0	-0.7	-0.6	-0.1	-0.3	0.4	0.9
146	-1.1	-0.5	-0.6	-0.5	-0.3	0.4	-0.4	-0.3	0.0	-0.9	-0.6	-0.1	0.1	0.4	0.7
147	-0.9	-0.5	-0.6	-0.5	-0.3	0.2	-0.4	-0.3	-0.1	-0.9	-0.5	-0.1	0.1	0.4	0.7
148	-1.0	-0.5	-0.7	-0.6	-0.3	0.3	-0.5	-0.4	0.0	-1.0	-0.7	-0.1	-0.1	0.5	1.0
149	-1.0	-0.5	-0.7	-0.6	-0.3	0.3	-0.6	-0.4	0.0	-1.3	-0.8	-0.1	0.1	0.7	1.1
150	-1.1	-0.5	-0.7	-0.5	-0.3	0.5	-0.5	-0.3	0.0	-1.2	-0.6	-0.1	0.5	0.7	0.8
151	-1.2	-0.5	-0.6	-0.5	-0.3	0.5	-0.2	-0.2	0.0	-0.8	-0.6	-0.1	-0.2	0.3	0.7
152	-1.6	-0.7	-0.7	-0.7	-0.4	0.5	-0.1	-0.3	0.0	-0.5	-0.6	-0.1	-0.8	0.2	0.9
153	-1.6	-0.7	-0.7	-0.7	-0.4	0.4	-0.1	-0.3	0.0	-0.5	-0.7	-0.1	-1.1	0.2	1.1
154	-1.3	-0.7	-0.6	-0.7	-0.3	0.3	-0.1	-0.3	0.0	-0.3	-0.6	-0.1	-1.1	0.1	1.0
155	-1.0	-0.6	-0.4	-0.5	-0.3	0.0	-0.1	-0.3	0.0	-0.1	-0.4	0.0	-0.9	0.0	0.7
156	-0.9	-0.6	-0.4	-0.5	-0.3	-0.1	-0.1	-0.3	-0.1	-0.2	-0.3	-0.1	-0.6	0.0	0.5
157	-1.0	-0.5	-0.4	-0.4	-0.3	0.2	-0.1	-0.2	0.0	-0.4	-0.4	-0.1	-0.4	0.1	0.5
158	-1.1	-0.5	-0.5	-0.5	-0.3	0.4	-0.1	-0.3	0.0	-0.5	-0.6	-0.1	-0.8	0.1	0.8
159	-1.3	-0.6	-0.5	-0.6	-0.3	0.5	0.0	-0.2	0.0	-0.4	-0.6	-0.1	-0.8	0.2	0.9
160	-1.2	-0.6	-0.5	-0.5	-0.3	0.2	-0.1	-0.3	0.0	-0.3	-0.4	0.0	-0.7	0.2	0.9
161	-1.2	-0.7	-0.6	-0.5	-0.3	0.1	-0.2	-0.2	0.0	-0.4	-0.3	0.0	-0.3	0.3	0.7
162	-1.3	-0.7	-0.5	-0.5	-0.3	0.3	-0.1	-0.1	0.1	-0.4	-0.3	0.0	-0.1	0.3	0.6

					High-Water Shoreline Position (UTM Zone 18, NAD 1983)							
		1839/42		1864/86		1899		1932		1950/51		1977
Transect #	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)
82	4436301	581871.1	4436313	581782.4	4436314	581770.7	4436317	581745.6	4436318	581740.1	4436313	581779.1
83	4436252	581859.9	4436263	581778.2	4436265	581763.1	4436268	581738.5	4436268	581740.3	4436263	581775.4
84	4436204	581847.8	4436213	581772.0	4436215	581759.3	4436218	581733.4	4436217	581737.4	4436212	581778.1
85	4436154	581839.8	4436164	581765.6	4436165	581754.7	4436169	581726.0	4436169	581724.7	4436164	581763.7
86	4436104	581834.9	4436114	581756.2	4436116	581744.8	4436119	581718.3	4436119	581720.4	4436115	581754.2
87	4436055	581824.4	4436065	581748.1	4436066	581740.4	4436070	581711.5	4436069	581712.7	4436065	581750.6
88	4436005	581821.5	4436016	581739.7	4436017	581730.0	4436020	581701.9	4436020	581707.6	4436013	581757.1
89	4435955	581817.5	4435966	581731.9	4435968	581718.3	4435971	581695.0	4435970	581698.0	4435965	581743.2
90	4435906	581806.7	4435917	581723.8	4435919	581707.3	4435921	581691.8	4435921	581691.8	4435916	581729.1
91	4435857	581801.0	4435868	581715.3	4435869	581702.1	4435872	581683.4	4435871	581690.2	4435867	581720.1
92	4435808	581785.8	4435818	581706.2	4435820	581693.9	4435822	581677.2	4435821	581682.9	4435815	581729.4
93	4435758	581781.5	4435769	581696.7	4435771	581683.3	4435772	581669.8	4435772	581673.9	4435766	581718.1
94	4435709	581775.2	4435720	581689.0	4435721	581678.5	4435723	581662.0	4435723	581663.1	4435717	581709.0
95	4435660	581764.4	4435670	581680.9	4435672	581670.8	4435673	581658.9	4435674	581653.8	4435667	581708.2
96	4435611	581751.5	4435621	581671.4	4435622	581667.2	4435624	581650.5	4435624	581648.8	4435618	581694.2
97	4435563	581734.2	4435571	581666.3	4435572	581660.3	4435574	581642.0	4435574	581643.2	4435569	581684.5
98	4435514	581725.0	4435521	581661.9	4435523	581651.4	4435525	581633.0	4435525	581631.8	4435519	581681.3
99	4435465	581709.0	4435473	581649.9	4435474	581640.3	4435475	581627.3	4435476	581625.4	4435469	581676.0
100	4435416	581699.3	4435423	581640.1	4435424	581632.0	4435427	581614.8	4435426	581617.4	4435421	581661.0
101	4435367	581689.8	4435374	581632.5	4435375	581627.6	4435377	581605.5	4435377	581605.0	4435372	581647.7
102	4435318	581679.9	4435325	581620.3	4435325	581622.9	4435328	581598.3	4435328	581601.6	4435323	581637.2
103	4435268	581670.7	4435275	581614.7	4435275	581617.8	4435278	581591.3	4435278	581593.6	4435274	581626.8
104	4435218	581671.7	4435225	581615.2	4435225	581611.5	4435229	581586.0	4435229	581586.0	4435225	581614.3
105	4435168	581664.4	4435174	581621.5	4435176	581605.6	4435179	581579.2	4435179	581577.4	4435176	581604.7
106	4435120	581650.0	4435124	581619.2	4435127	581595.2	4435130	581569.7	4435130	581569.3	4435126	581597.9
107	4435071	581639.0	4435075	581606.8	4435078	581580.4	4435080	581565.9	4435080	581564.2	4435077	581588.2
108	4435021	581631.3	4435026	581598.4	4435029	581572.4	4435030	581561.1	4435031	581552.3	4435028	581581.8
109	4434972	581627.0	4434976	581588.2	4434979	581568.3	4434981	581552.3	4434982	581540.0	4434978	581575.9
110	4434921	581628.0	4434927	581580.8	4434929	581565.0	4434932	581540.1	4434933	581533.8	4434929	581567.2
111	4434872	581617.1	4434878	581572.3	4434879	581560.0	4434882	581537.1	4434883	581531.2	4434879	581561.2
112	4434822	581610.4	4434828	581566.3	4434830	581551.3	4434833	581528.5	4434833	581525.2	4434830	581552.7
113	4434774	581597.2	4434778	581560.7	4434780	581546.3	4434783	581520.3	4434784	581517.4	4434780	581547.2
114	4434725	581586.8	4434728	581557.7	4434731	581537.8	4434735	581508.3	4434734	581512.0	4434730	581542.0
115	4434676	581573.3	4434678	581554.1	4434681	581530.2	4434685	581499.8	4434685	581504.4	4434681	581533.6
116	4434627	581561.4	4434629	581541.8	4434632	581522.1	4434635	581498.4	4434635	581496.1	4434632	581524.0
117	4434578	581552.0	4434580	581531.9	4434583	581513.0	4434586	581485.9	4434587	581478.0	4434582	581514.9
118	4434528	581544.0	4434531	581521.3	4434534	581503.7	4434537	581472.6	4434538	581464.9	4434533	581510.4
119	4434479	581539.3	4434481	581516.5	4434484	581495.5	4434488	581463.3	4434489	581457.8	4434483	581503.6
120	4434429	581529.3	4434432	581509.2	4434435	581486.2	4434439	581457.6	4434438	581458.8	4434434	581496.3
121	4434380	581518.7	4434382	581502.5	4434386	581475.6	4434389	581451.3	4434389	581451.7	4434384	581489.2
122	4434332	581505.0	4434333	581494.3	4434337	581467.2	4434340	581440.2	4434339	581445.6	4434335	581479.8
123	4434282	581496.2	4434284	581484.8	4434287	581457.8	4434290	581433.5	4434291	581431.6	4434286	581471.2
124	4434232	581493.9	4434235	581474.8	4434238	581449.4	4434241	581429.0	4434241	581424.0	4434236	581462.3
125	4434183	581483.9	4434186	581461.8	4434188	581443.6	4434191	581423.3	4434191	581418.8	4434187	581453.0
126	4434134	581475.1	4434137	581448.4	4434139	581437.2	4434141	581418.0	4434141	581417.7	4434138	581445.6
127	4434084	581469.1	4434089	581433.8	4434089	581428.3	4434092	581411.8	4434093	581401.6	4434088	581437.4
128	4434035	581463.5	4434040	581423.3	4434040	581422.8	4434041	581409.0	4434043	581394.0	4434039	581428.1
129	4433986	581447.7	4433991	581412.4	4433990	581416.4	4433992	581401.8	4433993	581390.6	4433990	581416.9
130	4433937	581435.4	4433942	581398.8	4433941	581407.4	4433943	581390.1	4433944	581380.3	4433941	581407.4
131	4433888	581428.8	4433893	581387.7	4433892	581396.2	4433894	581377.7	4433896	581365.6	4433892	581397.0
132	4433838	581421.5	4433844	581380.2	4433842	581389.3	4433845	581364.8	4433847	581354.0	4433842	581388.7
133	4433789	581414.9	4433794	581374.9	4433793	581379.2	4433797	581348.2	4433798	581341.4	4433793	581379.4
134	4433740	581405.7	4433744	581371.3	4433744	581371.7	4433748	581341.9	4433748	581335.3	4433744	581368.9
135	4433690	581395.7	4433695	581362.3	4433694	581367.7	4433698	581337.4	4433699	581329.0	4433695	581360.7
136	4433642	581381.4	4433646	581352.0	4433644	581360.9	4433648	581333.7	4433650	581315.3	4433646	581351.4
137	4433593	581368.2	4433596	581341.6	4433595	581352.8	4433598	581326.1	4433601	581307.4	4433596	581343.9
138	4433544	581357.2	4433548	581328.3	4433546	581344.3	4433549	581318.7	4433551	581302.7	4433547	581334.0
139	4433494	581353.1	4433499	581318.8	4433496	581335.6	4433500	581311.0	4433501	581299.2	4433498	581325.4
140	4433443	581359.5	4433449	581311.2	4433447	581326.5	4433450	581302.4	4433451	581292.2	4433448	581316.3
141	4433393	581353.3	4433399	581305.6	4433398	581316.2	4433401	581294.8	4433403	581280.6	4433399	581309.3
142	4433344	581349.0	4433350	581295.2	4433349	581306.1	4433352	581285.7	4433353	581277.9	4433350	581299.6
143	4433293	581347.5	4433301	581289.4	4433300	581297.2	4433302	581281.8	4433303	581267.0	4433300	581292.4
144	4433245	581332.4	4433251	581280.8	4433250	581289.6	4433253	581270.0	4433255	581255.5	4433251	581284.6
145	4433195	581325.4	4433202	581275.1	4433201	581283.2	4433204	581259.2	4433204	581253.8	4433201	581276.4
146	4433147	581306.8	4433152	581268.3	4433151	581277.7	4433155	581247.9	4433155	581249.2	4433152	581266.7
147	4433098	581298.0	4433102	581265.2	4433101	581270.3	4433105	581241.4	4433105	581242.4	4433103	581259.8
148	4433049	581289.8	4433053	581255.2	4433052	581262.8	4433056	581228.5	4433057	581226.6	4433053	581251.6
149	4432999	581280.9	4433004	581245.0	4433003	581253.6	4433008	581212.6	4433008	581214.7	4433004	581243.5
150	4432950	581272.1	4432955	581232.6	4432954	581244.1	4432959	581203.9	4432957	581213.3	4432955	581234.0
151	4432901	581264.7	4432906	581223.8	4432904	581236.4	4432907	581211.1	4432908	581207.9	4432906	581225.3
152	4432850	581268.5	4432857	581214.0	4432855	581225.5	4432857	581208.1	4432859	581192.8	4432856	581216.2
153	4432800	581260.3	4432807	581205.4	4432806	581215.9	4432808	581199.2	4432811	581179.4	4432807	581208.3
154	4432752	581245.0	4432758	581198.4	4432757	581205.3	4432758	581194.0	4432761	581172.5	4432758	581198.3
155	4432704	581228.8	4432708	581193.4	4432708	581194.4	4432708	581190.2	4432711	581173.2	4432708	581191.4
156	4432654	581218.2	4432658	581187.0	4432659	581184.9	4432659	581179.7	4432661	581167.7	4432659	581180.6
157	4432605	581209.0	4432609	581175.4	4432609	581180.4	4432610	581168.0	4432611	581160.2	4432610	581172.0
158	4432556	581201.3	4432561	581162.2	4432559	581172.2	4432561	581157.4	4432563	581141.8	4432561	581162.6
159	4432506	581193.1	4432512	581148.4	4432511	581159.9	4432512	581145.6	4432514	581131.4	4432511	581153.4
160	4432458	581181.6	4432463	581141.0	4432462	581144.8	4432463	581135.6	4432465	581121.8	4432462	581143.8
161	4432408	581174.2	4432413	581132.0	4432413	581135.2	4432415	581122.0	4432415	581117.2	4432413	581135.5
162	4432359	581164.2	4432365	581118.8	4432364	581125.3	4432365	581113.7	4432365	581112.4	4432363	581129.0

High-Water Shoreline Position Change Rate

Transect #	1839/42 to 1864/86 (m/yr)	1839/42 to 1899 (m/yr)	1839/42 to 1932 (m/yr)	1839/42 to 1950/51 (m/yr)	1839/42 to 1977 (m/yr)	1864/86 to 1899 (m/yr)	1864/86 to 1932 (m/yr)	1864/86 to 1950/51 (m/yr)	1864/86 to 1977 (m/yr)	1899 to 1932 (m/yr)	1899 to 1950/51 (m/yr)	1899 to 1977 (m/yr)	1932 to 1950/51 (m/yr)	1932 to 1977 (m/yr)	1950/51 to 1977 (m/yr)
163	-1.5	-0.7	-0.6	-0.4	-0.3	0.3	0.0	0.1	0.1	-0.3	0.0	0.1	0.5	0.3	0.2
164	-1.7	-0.8	-0.5	-0.4	-0.3	0.4	0.2	0.1	0.2	-0.1	0.0	0.1	0.0	0.2	0.4
165	-1.8	-0.9	-0.6	-0.6	-0.3	0.5	0.2	0.0	0.2	-0.1	-0.2	0.1	-0.5	0.2	0.7
166	-1.7	-0.9	-0.5	-0.6	-0.3	0.3	0.2	-0.1	0.2	0.2	-0.3	0.2	-1.1	0.2	1.1
167	-1.8	-1.0	-0.6	-0.7	-0.3	0.2	0.1	-0.2	0.2	0.1	-0.4	0.2	-1.1	0.3	1.4
168	-1.7	-0.9	-0.5	-0.7	-0.3	0.3	0.2	-0.2	0.2	0.1	-0.4	0.2	-1.4	0.2	1.4
169	-1.7	-0.9	-0.5	-0.6	-0.3	0.2	0.2	-0.1	0.2	0.1	-0.2	0.2	-0.9	0.3	1.1
170	-1.6	-0.7	-0.5	-0.5	-0.2	0.4	0.1	0.0	0.2	-0.1	-0.1	0.2	-0.1	0.4	0.8
171	-1.6	-0.8	-0.7	-0.5	-0.3	0.3	-0.1	0.0	0.2	-0.3	-0.2	0.2	0.2	0.6	0.9
172	-1.5	-0.8	-0.6	-0.7	-0.3	0.2	-0.1	-0.3	0.2	-0.4	-0.5	0.1	-0.8	0.5	1.5
173	-1.5	-0.7	-0.6	-0.7	-0.3	0.4	-0.1	-0.4	0.1	-0.5	-0.7	0.1	-1.1	0.5	1.6
174	-1.3	-0.6	-0.5	-0.6	-0.2	0.5	-0.1	-0.2	0.1	-0.5	-0.5	0.0	-0.6	0.4	1.2
175	-1.3	-0.6	-0.5	-0.5	-0.2	0.5	0.0	-0.2	0.2	-0.4	-0.5	0.0	-0.6	0.4	1.1
176	-1.4	-0.6	-0.5	-0.5	-0.2	0.6	0.1	-0.1	0.2	-0.3	-0.4	0.1	-0.6	0.3	1.0
177	-1.4	-0.5	-0.4	-0.5	-0.2	0.6	0.2	-0.1	0.2	-0.2	-0.4	0.1	-0.7	0.2	0.9
178	-1.6	-0.7	-0.6	-0.6	-0.3	0.6	0.1	-0.1	0.2	-0.4	-0.5	0.1	-0.7	0.4	1.2
179	-1.4	-0.6	-0.5	-0.6	-0.2	0.6	0.0	-0.2	0.2	-0.4	-0.5	0.1	-0.7	0.5	1.3
180	-1.4	-0.7	-0.6	-0.5	-0.2	0.3	-0.1	-0.1	0.2	-0.4	-0.3	0.2	-0.2	0.6	1.2
181	-1.7	-0.9	-0.7	-0.6	-0.3	0.2	-0.1	-0.1	0.2	-0.3	-0.3	0.2	-0.3	0.6	1.2
182	-1.5	-0.8	-0.6	-0.6	-0.3	0.1	0.0	-0.2	0.2	-0.2	-0.4	0.2	-0.8	0.4	1.3
183	-1.6	-0.9	-0.6	-0.6	-0.3	0.1	0.0	-0.2	0.2	-0.1	-0.4	0.2	-0.9	0.3	1.2
184	-1.9	-1.0	-0.7	-0.6	-0.3	0.2	0.0	-0.1	0.2	-0.1	-0.2	0.2	-0.3	0.4	0.9
185	-1.9	-1.1	-0.8	-0.7	-0.4	0.2	-0.1	-0.1	0.2	-0.2	-0.2	0.2	-0.3	0.5	1.0
186	-1.7	-1.0	-0.7	-0.7	-0.3	0.1	-0.1	-0.3	0.1	-0.3	-0.4	0.2	-0.7	0.5	1.4
187	-1.5	-0.9	-0.7	-0.7	-0.3	0.1	-0.2	-0.4	0.1	-0.4	-0.6	0.1	-0.9	0.5	1.4
188	-1.4	-0.8	-0.7	-0.7	-0.3	0.0	-0.3	-0.4	0.1	-0.5	-0.6	0.1	-0.9	0.6	1.7
189	-1.3	-0.7	-0.7	-0.7	-0.3	0.1	-0.3	-0.5	0.1	-0.6	-0.7	0.1	-0.9	0.6	1.7
190	-1.2	-0.7	-0.6	-0.6	-0.2	0.0	-0.2	-0.4	0.1	-0.4	-0.6	0.1	-0.8	0.5	1.5
191	-1.1	-0.6	-0.6	-0.5	-0.2	0.1	-0.3	-0.2	0.1	-0.5	-0.4	0.1	-0.1	0.6	1.0
192	-0.9	-0.6	-0.5	-0.4	-0.2	0.0	-0.2	-0.1	0.1	-0.3	-0.1	0.1	0.3	0.5	0.7
193	-0.9	-0.6	-0.4	-0.4	-0.2	-0.3	-0.2	-0.1	0.1	-0.2	-0.1	0.2	0.0	0.4	0.7
194	-1.0	-0.7	-0.5	-0.5	-0.2	-0.2	-0.2	-0.2	0.1	-0.2	-0.3	0.2	-0.4	0.5	1.1
195	-1.2	-0.7	-0.6	-0.5	-0.2	0.0	-0.2	-0.2	0.1	-0.4	-0.3	0.2	-0.3	0.6	1.2
196	-1.2	-0.6	-0.6	-0.6	-0.2	0.2	-0.2	-0.3	0.1	-0.5	-0.6	0.1	-0.7	0.6	1.5
197	-1.2	-0.6	-0.6	-0.6	-0.2	0.3	-0.2	-0.3	0.1	-0.6	-0.7	0.1	-0.8	0.5	1.5
198	-1.0	-0.5	-0.4	-0.5	-0.2	0.1	-0.1	-0.2	0.1	-0.3	-0.4	0.1	-0.6	0.4	1.1
199	-1.3	-0.8	-0.6	-0.5	-0.3	0.0	-0.1	-0.2	0.1	-0.3	-0.2	0.1	-0.2	0.4	0.9
200	-1.1	-0.7	-0.6	-0.4	-0.2	0.0	-0.2	-0.1	0.1	-0.4	-0.1	0.1	0.4	0.5	0.6
201	-0.9	-0.5	-0.4	-0.4	-0.1	0.1	-0.1	-0.1	0.1	-0.4	-0.2	0.1	0.1	0.5	0.9
202	-0.8	-0.5	-0.4	-0.4	-0.1	0.0	-0.2	-0.2	0.1	-0.3	-0.3	0.1	-0.3	0.5	1.0
203	-0.9	-0.5	-0.4	-0.4	-0.1	0.0	-0.1	-0.1	0.1	-0.2	-0.2	0.2	-0.3	0.4	0.9
204	-1.0	-0.5	-0.4	-0.5	-0.1	0.1	0.0	-0.2	0.2	-0.1	-0.4	0.2	-0.8	0.4	1.2
205	-1.0	-0.5	-0.4	-0.5	-0.1	0.4	0.0	-0.3	0.2	-0.3	-0.6	0.1	-1.1	0.4	1.6
206	-1.5	-0.7	-0.6	-0.6	-0.2	0.4	0.0	-0.3	0.2	-0.3	-0.6	0.2	-1.1	0.5	1.7
207	-1.3	-0.7	-0.5	-0.5	-0.2	0.3	0.0	-0.2	0.2	-0.3	-0.4	0.2	-0.7	0.6	1.4
208	-1.3	-0.6	-0.5	-0.5	-0.2	0.4	0.0	-0.1	0.2	-0.3	-0.4	0.2	-0.5	0.6	1.3
209	-1.4	-0.6	-0.6	-0.5	-0.2	0.4	-0.1	-0.1	0.2	-0.5	-0.4	0.2	-0.1	0.7	1.3
210	-1.4	-0.5	-0.7	-0.4	-0.1	0.8	-0.2	0.0	0.3	-0.9	-0.3	0.1	0.6	0.9	1.1
211	-1.4	-0.4	-0.7	-0.4	-0.1	1.0	-0.2	0.0	0.3	-1.1	-0.4	0.1	0.7	1.0	1.2
212	-1.6	-0.5	-0.6	-0.5	-0.1	1.2	-0.1	0.0	0.4	-1.0	-0.6	0.1	0.2	1.0	1.5
213	-1.5	-0.5	-0.6	-0.5	-0.1	0.9	-0.1	0.0	0.4	-0.8	-0.5	0.2	0.2	0.9	1.5
214	-1.2	-0.4	-0.6	-0.4	-0.1	0.7	-0.2	0.0	0.3	-0.8	-0.3	0.2	0.5	0.9	1.1
215	-1.0	-0.3	-0.6	-0.3	-0.1	0.7	-0.4	0.0	0.3	-1.2	-0.3	0.1	1.1	1.1	1.0
216	-1.3	-0.4	-0.8	-0.4	-0.1	0.9	-0.5	0.0	0.3	-1.5	-0.4	0.1	1.6	1.3	1.0
217	-1.5	-0.4	-0.8	-0.5	-0.1	1.1	-0.4	0.0	0.3	-1.5	-0.5	0.1	1.1	1.2	1.3
218	-1.5	-0.5	-0.8	-0.6	-0.1	1.0	-0.3	-0.2	0.3	-1.3	-0.7	0.1	0.4	1.2	1.7
219	-1.5	-0.5	-0.8	-0.6	-0.1	1.0	-0.4	-0.2	0.3	-1.4	-0.8	0.1	0.3	1.2	1.9
220	-1.6	-0.5	-0.9	-0.7	-0.2	0.9	-0.4	-0.3	0.3	-1.5	-0.9	0.1	0.1	1.2	2.0
221	-1.1	-0.4	-0.8	-0.7	-0.2	0.6	-0.6	-0.5	0.2	-1.6	-1.0	0.0	-0.1	1.2	2.1
222	-1.0	-0.4	-0.8	-0.7	-0.2	0.5	-0.7	-0.5	0.1	-1.7	-1.0	0.0	0.1	1.3	2.1
223	-1.0	-0.5	-0.9	-0.7	-0.2	0.4	-0.8	-0.5	0.1	-1.6	-0.9	0.1	0.3	1.3	2.1
224	-1.3	-0.6	-0.9	-0.7	-0.2	0.5	-0.7	-0.4	0.1	-1.5	-0.8	0.0	0.4	1.2	1.8
225	-1.4	-0.6	-0.9	-0.6	-0.3	0.4	-0.6	-0.3	0.1	-1.4	-0.6	0.0	0.7	1.1	1.3
226	-1.0	-0.4	-0.7	-0.5	-0.2	0.4	-0.5	-0.3	0.1	-1.2	-0.6	0.0	0.4	1.0	1.3
227	-0.5	-0.2	-0.5	-0.4	-0.1	0.3	-0.5	-0.4	0.1	-1.1	-0.7	0.1	0.2	0.9	1.5
228	-0.5	-0.2	-0.6	-0.4	-0.1	0.1	-0.6	-0.3	0.1	-1.2	-0.6	0.1	0.5	1.0	1.3
229	-0.6	-0.2	-0.6	-0.3	-0.1	0.3	-0.6	-0.2	0.1	-1.3	-0.5	0.1	1.1	1.1	1.1
230	-0.5	-0.1	-0.6	-0.3	-0.1	0.4	-0.7	-0.1	0.1	-1.5	-0.4	0.0	1.5	1.1	0.8
231	-0.7	-0.1	-0.6	-0.3	-0.1	0.8	-0.6	-0.2	0.2	-1.6	-0.6	0.0	1.1	1.1	1.1
232	-0.9	-0.1	-0.6	-0.5	-0.1	1.0	-0.5	-0.2	0.2	-1.6	-0.8	-0.1	0.5	1.0	1.5
233	-0.9	-0.2	-0.6	-0.5	-0.1	0.8	-0.4	-0.3	0.2	-1.4	-0.8	0.0	0.3	1.0	1.5
234	-0.8	-0.1	-0.5	-0.4	-0.1	0.8	-0.4	-0.3	0.2	-1.3	-0.8	0.0	0.2	0.9	1.5
235	-0.7	-0.1	-0.5	-0.4	0.0	0.7	-0.4	-0.2	0.2	-1.2	-0.7	0.0	0.3	0.9	1.4
236	-0.6	-0.1	-0.4	-0.3	0.0	0.7	-0.3	-0.1	0.2	-1.1	-0.6	0.0	0.5	0.9	1.2
237	-0.5	0.1	-0.3	-0.3	0.1	0.9	-0.2	-0.2	0.3	-1.0	-0.7	0.0	-0.1	0.8	1.5
238	-0.3	0.2	-0.2	-0.2	0.1	1.0	-0.1	-0.1	0.2	-0.8	-0.6	0.0	-0.2	0.6	1.2
239	-0.5	0.2	-0.1	-0.1	0.1	1.0	0.1	0.0	0.3	-0.6	-0.4	0.0	-0.2	0.5	1.0
240	-0.7	0.1	-0.2	-0.1	0.1	1.2	0.2	0.1	0.3	-0.6	-0.4	0.1	0.1	0.6	0.9
241	-0.8	0.0	-0.1	-0.1	0.1	1.2	0.3	0.2	0.4	-0.5	-0.3	0.1	0.0	0.5	0.8
242	-0.9	-0.1	-0.2	-0.1	0.0	1.0	0.2	0.2	0.3	-0.3	-0.1	0.2	0.2	0.5	0.7
243	-0.7	-0.2	-0.2	-0.1	0.1	0.6	0.1	0.2	0.3	-0.2	0.1	0.2	0.6	0.5	0.5

High-Water Shoreline Position (UTM Zone 18, NAD 1983)

Transect #	1839/42 UTM-x (m)	1839/42 UTM-y (m)	1864/86 UTM-x (m)	1864/86 UTM-y (m)	1899 UTM-x (m)	1899 UTM-y (m)	1932 UTM-x (m)	1932 UTM-y (m)	1950/51 UTM-x (m)	1950/51 UTM-y (m)	1977 UTM-x (m)	1977 UTM-y (m)
163	4432309	581156.7	4432316	581106.3	4432315	581113.9	4432316	581104.2	4432315	581113.8	4432314	581119.8
164	4432260	581150.0	4432267	581092.3	4432266	581102.6	4432266	581100.9	4432266	581100.3	4432265	581111.0
165	4432210	581144.5	4432218	581081.5	4432217	581093.3	4432217	581091.3	4432218	581082.2	4432216	581100.5
166	4432161	581135.0	4432169	581075.0	4432168	581082.6	4432167	581087.6	4432170	581066.4	4432166	581095.3
167	4432111	581130.5	4432119	581068.0	4432119	581071.9	4432118	581075.0	4432121	581053.6	4432116	581089.0
168	4432062	581117.9	4432070	581058.4	4432069	581065.7	4432068	581070.2	4432072	581044.7	4432067	581080.8
169	4432013	581108.2	4432021	581048.6	4432020	581054.3	4432019	581058.6	4432022	581042.0	4432018	581070.4
170	4431965	581089.6	4431972	581034.6	4431971	581045.0	4431971	581040.2	4431972	581038.2	4431969	581057.9
171	4431915	581084.6	4431923	581027.6	4431922	581035.0	4431923	581023.6	4431923	581026.7	4431920	581048.9
172	4431866	581076.8	4431872	581025.3	4431872	581030.8	4431873	581018.5	4431875	581003.0	4431870	581041.8
173	4431817	581068.5	4431823	581017.4	4431822	581027.0	4431824	581010.9	4431827	580990.1	4431821	581032.4
174	4431768	581052.7	4431774	581007.2	4431773	581018.6	4431774	581003.2	4431776	580991.2	4431772	581022.1
175	4431719	581042.0	4431725	580996.7	4431723	581008.9	4431725	580996.0	4431726	580984.4	4431723	581012.4
176	4431670	581034.1	4431676	580985.0	4431674	580999.3	4431675	580989.8	4431677	580977.7	4431674	581003.6
177	4431621	581020.5	4431627	580972.4	4431625	580988.4	4431626	580982.2	4431628	580968.3	4431625	580992.8
178	4431571	581017.0	4431578	580961.2	4431576	580977.2	4431578	580965.4	4431579	580952.2	4431576	580982.5
179	4431523	581001.4	4431529	580951.2	4431527	580965.3	4431529	580952.9	4431531	580939.5	4431526	580973.4
180	4431473	580993.9	4431479	580945.2	4431479	580952.3	4431480	580938.9	4431481	580935.5	4431477	580966.1
181	4431423	580995.4	4431430	580936.8	4431429	580941.6	4431431	580931.1	4431432	580925.5	4431428	580955.9
182	4431374	580981.7	4431381	580929.4	4431380	580932.8	4431381	580927.8	4431383	580912.6	4431378	580946.7
183	4431324	580976.1	4431331	580920.2	4431331	580923.5	4431331	580921.1	4431333	580905.1	4431329	580936.7
184	4431274	580973.8	4431283	580907.7	4431282	580912.5	4431282	580909.0	4431283	580902.7	4431280	580926.9
185	4431225	580967.6	4431233	580900.0	4431233	580903.8	4431234	580896.6	4431234	580891.2	4431231	580917.7
186	4431176	580954.2	4431184	580894.1	4431183	580896.9	4431184	580887.6	4431186	580874.0	4431182	580909.2
187	4431127	580941.3	4431134	580887.8	4431134	580890.1	4431135	580878.3	4431137	580861.0	4431133	580898.5
188	4431078	580930.2	4431084	580882.0	4431084	580882.4	4431086	580866.4	4431088	580849.0	4431083	580892.0
189	4431029	580917.3	4431035	580873.7	4431035	580875.0	4431037	580856.4	4431039	580839.2	4431034	580882.7
190	4430981	580904.6	4430986	580863.8	4430986	580864.4	4430987	580850.0	4430989	580834.6	4430984	580874.1
191	4430931	580896.0	4430936	580856.3	4430936	580857.8	4430938	580840.0	4430938	580839.1	4430935	580865.6
192	4430883	580881.7	4430887	580849.1	4430887	580848.2	4430888	580836.8	4430888	580841.7	4430886	580858.5
193	4430833	580873.9	4430837	580844.2	4430838	580837.9	4430838	580832.7	4430838	580833.2	4430836	580851.3
194	4430784	580868.9	4430788	580832.7	4430789	580828.7	4430789	580822.6	4430790	580814.8	4430787	580842.3
195	4430734	580861.9	4430739	580820.4	4430739	580820.9	4430741	580809.0	4430741	580803.3	4430737	580834.2
196	4430685	580852.9	4430690	580809.9	4430689	580815.5	4430691	580799.4	4430693	580786.0	4430688	580825.2
197	4430636	580843.5	4430641	580802.9	4430640	580809.9	4430642	580791.0	4430644	580776.2	4430639	580813.8
198	4430587	580829.4	4430591	580795.0	4430591	580798.4	4430592	580788.5	4430593	580777.8	4430590	580805.1
199	4430536	580831.7	4430542	580786.8	4430542	580786.6	4430543	580778.3	4430543	580774.9	4430541	580797.3
200	4430488	580816.7	4430493	580777.2	4430493	580777.8	4430494	580764.8	4430493	580771.7	4430491	580788.5
201	4430440	580797.1	4430444	580765.2	4430443	580768.8	4430445	580757.0	4430445	580758.1	4430442	580780.2
202	4430391	580787.7	4430394	580761.4	4430394	580760.4	4430395	580750.3	4430396	580744.9	4430393	580771.8
203	4430341	580782.6	4430345	580751.4	4430345	580751.2	4430345	580746.1	4430346	580740.4	4430343	580763.7
204	4430292	580773.6	4430296	580739.8	4430295	580742.7	4430296	580738.1	4430298	580723.0	4430294	580755.3
205	4430242	580764.8	4430247	580728.8	4430246	580737.5	4430247	580727.3	4430250	580706.4	4430245	580747.1
206	4430192	580766.7	4430198	580715.9	4430197	580724.6	4430198	580715.4	4430201	580695.4	4430195	580738.8
207	4430143	580752.1	4430149	580705.3	4430148	580712.5	4430149	580704.0	4430151	580691.5	4430146	580728.9
208	4430094	580740.3	4430100	580695.3	4430099	580704.8	4430100	580693.8	4430101	580685.3	4430097	580719.2
209	4430044	580735.1	4430051	580685.9	4430049	580696.9	4430051	580680.5	4430052	580678.7	4430047	580711.2
210	4429996	580721.0	4430002	580671.6	4430000	580690.4	4430003	580660.6	4430002	580672.6	4429998	580701.4
211	4429947	580707.4	4429953	580657.8	4429950	580683.7	4429955	580647.2	4429953	580661.3	4429949	580691.8
212	4429898	580698.9	4429905	580642.9	4429901	580671.7	4429905	580639.3	4429905	580643.1	4429900	580682.4
213	4429849	580688.4	4429855	580636.5	4429852	580659.6	4429856	580632.4	4429855	580635.4	4429851	580674.4
214	4429800	580677.8	4429805	580634.6	4429803	580651.6	4429806	580625.4	4429805	580634.7	4429801	580664.1
215	4429751	580664.3	4429756	580627.9	4429753	580645.8	4429758	580606.9	4429756	580628.1	4429752	580654.5
216	4429701	580662.1	4429707	580617.5	4429704	580638.8	4429710	580589.6	4429706	580619.8	4429703	580645.6
217	4429652	580653.9	4429658	580603.4	4429655	580630.2	4429661	580580.7	4429658	580602.3	4429654	580635.9
218	4429602	580646.9	4429609	580593.8	4429606	580618.8	4429611	580574.9	4429610	580582.3	4429604	580627.2
219	4429553	580637.1	4429560	580583.8	4429556	580609.6	4429562	580563.2	4429561	580568.9	4429555	580616.8
220	4429503	580633.7	4429510	580579.2	4429507	580602.7	4429513	580554.1	4429513	580555.5	4429506	580608.1
221	4429454	580619.9	4429459	580580.4	4429457	580595.7	4429464	580544.4	4429464	580543.4	4429457	580597.8
222	4429405	580608.6	4429410	580573.7	4429408	580585.8	4429415	580531.7	4429415	580533.2	4429408	580587.9
223	4429356	580600.6	4429360	580564.2	4429359	580573.5	4429366	580520.2	4429365	580525.3	4429359	580579.0
224	4429306	580598.8	4429311	580554.1	4429310	580565.7	4429316	580515.3	4429315	580522.1	4429310	580568.5
225	4429256	580593.6	4429262	580545.6	4429261	580556.5	4429266	580512.1	4429265	580524.9	4429260	580559.3
226	4429208	580571.1	4429213	580537.4	4429211	580546.9	4429217	580506.3	4429216	580514.7	4429211	580549.6
227	4429161	580548.4	4429163	580530.1	4429162	580536.3	4429167	580498.8	4429167	580502.2	4429162	580540.4
228	4429112	580539.3	4429114	580522.8	4429113	580525.7	4429118	580487.5	4429117	580497.1	4429113	580530.9
229	4429062	580530.1	4429065	580509.9	4429064	580516.5	4429070	580472.6	4429067	580492.6	4429064	580520.3
230	4429013	580518.7	4429016	580499.8	4429015	580510.0	4429021	580461.2	4429017	580488.7	4429014	580510.4
231	4428964	580508.4	4428967	580484.7	4428965	580503.6	4428971	580451.9	4428969	580472.4	4428965	580500.9
232	4428915	580503.1	4428919	580470.2	4428916	580494.8	4428922	580443.6	4428921	580452.2	4428916	580490.3
233	4428865	580494.5	4428869	580462.9	4428867	580483.3	4428872	580437.6	4428872	580442.5	4428867	580480.4
234	4428817	580480.9	4428820	580454.4	4428818	580473.5	4428823	580430.2	4428822	580434.7	4428818	580472.3
235	4428768	580468.9	4428771	580445.6	4428769	580462.3	4428774	580422.7	4428773	580427.8	4428768	580463.4
236	4428719	580455.3	4428722	580433.6	4428719	580452.0	4428724	580414.7	4428723	580423.6	4428719	580455.6
237	4428671	580438.0	4428673	580419.8	4428670	580442.8	4428674	580409.2	4428675	580408.0	4428670	580446.4
238	4428623	580418.3	4428624	580406.9	4428621	580430.7	4428625	580403.4	4428625	580399.4	4428621	580431.2
239	4428574	580409.6	4428576	580393.1	4428573	580418.6	4428575	580398.5	4428575	580395.5	4428572	580421.6
240	4428524	580400.2	4428527	580376.4	4428524	580406.7	4428526	580386.2	4428526	580387.8	4428523	580412.0
241	4428475	580393.4	4428478	580365.1	4428475	580394.9	4428477	580379.9	4428477	580380.2	4428474	580402.0
242	4428425	580388.5	4428429	580358.9	4428426	580382.6	4428427	580372.4	4428427	580376.2	4428424	580394.1
243	4428376	580380.1	4428379	580356.6	4428377	580371.0	4428378	580363.4	4428377	580374.0	4428375	580387.5

	High-Water Shoreline Position Change Rate														
Transect #	1839/42 to 1864/86 (m/yr)	1839/42 to 1899 (m/yr)	1839/42 to 1932 (m/yr)	1839/42 to 1950/51 (m/yr)	1839/42 to 1977 (m/yr)	1864/86 to 1899 (m/yr)	1864/86 to 1932 (m/yr)	1864/86 to 1950/51 (m/yr)	1864/86 to 1977 (m/yr)	1899 to 1932 (m/yr)	1899 to 1950/51 (m/yr)	1899 to 1977 (m/yr)	1932 to 1950/51 (m/yr)	1932 to 1977 (m/yr)	1950/51 to 1977 (m/yr)
244	-0.4	-0.1	-0.1	0.0	0.1	0.3	0.0	0.2	0.3	-0.2	0.1	0.3	0.7	0.6	0.6
245	-0.5	-0.2	-0.2	0.0	0.1	0.1	-0.1	0.2	0.3	-0.2	0.2	0.3	0.9	0.8	0.6
246	-0.4	-0.2	-0.2	-0.1	0.1	0.1	-0.1	0.0	0.3	-0.3	0.0	0.4	0.6	0.9	1.1
247	-0.5	-0.4	-0.3	-0.2	0.1	-0.3	-0.2	0.0	0.3	-0.2	0.1	0.5	0.5	0.9	1.2
248	-0.5	-0.4	-0.3	-0.1	0.1	-0.3	-0.1	0.1	0.3	0.0	0.3	0.5	0.7	0.8	0.9
249	-0.4	-0.3	-0.2	-0.1	0.1	-0.2	-0.1	0.1	0.3	-0.1	0.2	0.4	0.8	0.8	0.8
250	-0.5	-0.3	-0.3	-0.1	0.1	-0.1	-0.2	0.1	0.3	-0.3	0.2	0.4	1.2	0.9	0.7
251	-0.5	-0.3	-0.3	-0.1	0.1	0.1	-0.2	0.0	0.3	-0.4	0.0	0.3	0.6	0.8	0.9
252	-0.8	-0.4	-0.4	-0.3	0.0	0.3	-0.2	0.0	0.3	-0.5	-0.1	0.3	0.6	0.8	1.1
253	-0.9	-0.4	-0.4	-0.3	0.0	0.2	-0.1	-0.1	0.3	-0.3	-0.2	0.3	0.0	0.8	1.3
254	-0.9	-0.5	-0.4	-0.3	0.0	0.1	-0.1	-0.1	0.3	-0.3	-0.1	0.3	0.2	0.8	1.2
255	-0.8	-0.4	-0.4	-0.2	0.0	0.1	-0.1	0.0	0.3	-0.3	-0.1	0.4	0.3	0.8	1.2
256	-0.7	-0.4	-0.4	-0.2	0.0	0.1	-0.2	0.0	0.3	-0.4	0.0	0.4	0.5	0.9	1.2
257	-0.6	-0.3	-0.3	-0.2	0.1	0.2	-0.1	0.0	0.3	-0.4	-0.1	0.3	0.4	0.9	1.2
258	-0.5	-0.2	-0.3	-0.1	0.1	0.1	-0.2	0.0	0.3	-0.4	0.0	0.4	0.6	0.9	1.2
259	-0.4	-0.1	-0.2	-0.1	0.1	0.3	-0.1	0.0	0.3	-0.3	-0.1	0.3	0.3	0.8	1.2
260	-0.4	-0.1	-0.1	-0.1	0.1	0.5	0.1	0.1	0.3	-0.2	-0.1	0.3	0.2	0.7	1.0
261	-0.4	0.1	-0.1	0.0	0.2	0.7	0.1	0.2	0.3	-0.3	-0.1	0.2	0.4	0.6	0.8
262	-0.4	0.1	0.0	0.0	0.2	0.9	0.2	0.2	0.3	-0.4	-0.1	0.2	0.4	0.6	0.7
263	-0.2	0.3	-0.1	0.1	0.2	0.9	0.0	0.3	0.3	-0.6	0.0	0.2	1.0	0.8	0.6
264	-0.1	0.3	-0.1	0.1	0.2	0.9	-0.1	0.2	0.3	-0.8	-0.1	0.2	1.2	0.9	0.7
265	-0.1	0.2	-0.2	0.0	0.2	0.6	-0.2	0.1	0.3	-0.8	-0.1	0.2	1.1	0.9	0.8
266	-0.1	0.1	-0.2	0.0	0.2	0.4	-0.3	0.1	0.3	-0.8	-0.1	0.2	1.1	0.9	0.8
267	0.3	0.3	-0.1	0.1	0.2	0.3	-0.3	0.0	0.2	-0.8	-0.1	0.2	1.2	0.9	0.7
268	0.4	0.2	-0.1	0.1	0.2	0.0	-0.4	0.0	0.2	-0.7	-0.1	0.2	1.0	0.9	0.8
269	0.2	0.2	-0.1	0.0	0.2	0.2	-0.3	-0.1	0.2	-0.6	-0.2	0.2	0.5	0.8	1.0
270	-0.1	0.1	-0.2	-0.1	0.1	0.3	-0.2	-0.1	0.2	-0.6	-0.3	0.2	0.4	0.8	1.1
271	-0.4	0.0	-0.3	-0.1	0.1	0.6	-0.2	0.0	0.3	-0.7	-0.3	0.2	0.6	0.8	1.0
272	-0.6	0.0	-0.3	-0.1	0.1	0.7	-0.1	0.1	0.3	-0.7	-0.2	0.1	0.5	0.7	0.9
273	-0.4	0.1	-0.2	-0.1	0.1	0.8	-0.1	0.1	0.3	-0.7	-0.2	0.1	0.6	0.8	0.9
274	-0.1	0.2	-0.2	0.0	0.1	0.7	-0.2	0.0	0.2	-1.0	-0.3	0.1	0.9	0.8	0.8
275	0.3	0.4	-0.1	0.1	0.2	0.4	-0.4	0.0	0.2	-1.1	-0.2	0.1	1.4	0.9	0.6
276	0.4	0.4	-0.1	0.1	0.2	0.3	-0.4	0.0	0.2	-1.0	-0.2	0.1	1.3	0.9	0.7
277	0.3	0.3	-0.1	0.1	0.2	0.2	-0.4	0.1	0.2	-0.9	0.0	0.2	1.5	0.9	0.5
278	0.5	0.3	-0.1	0.2	0.2	0.1	-0.4	0.0	0.1	-0.8	0.0	0.2	1.5	0.9	0.5
279	0.6	0.3	-0.1	0.1	0.2	0.0	-0.5	-0.1	0.1	-0.9	-0.1	0.1	1.2	0.9	0.7
280	0.7	0.4	-0.1	0.1	0.2	0.0	-0.5	-0.2	0.1	-0.9	-0.3	0.1	0.8	0.8	0.8
281	0.9	0.5	0.0	0.1	0.3	-0.1	-0.6	-0.3	0.0	-1.0	-0.4	0.1	0.7	0.8	0.9
282	0.9	0.6	0.0	0.1	0.3	0.1	-0.5	-0.3	0.1	-1.0	-0.4	0.0	0.6	0.8	1.0
283	0.8	0.6	0.0	0.1	0.3	0.4	-0.5	-0.2	0.1	-1.2	-0.4	0.0	0.9	0.9	0.9
284	0.8	0.6	0.0	0.1	0.2	0.4	-0.5	-0.2	0.1	-1.2	-0.5	-0.1	0.7	0.8	0.8
285	0.9	0.8	0.1	0.2	0.3	0.7	-0.3	-0.2	0.1	-1.1	-0.6	-0.1	0.4	0.7	0.9
286	0.8	0.8	0.1	0.2	0.3	0.8	-0.3	-0.1	0.1	-1.1	-0.5	-0.1	0.5	0.6	0.7
287	0.9	0.8	0.2	0.3	0.3	0.7	-0.3	0.0	0.1	-1.0	-0.4	-0.1	0.6	0.6	0.6
288	0.8	0.8	0.1	0.3	0.3	0.6	-0.3	0.0	0.1	-1.0	-0.3	-0.1	0.8	0.6	0.4
289	0.9	0.8	0.1	0.3	0.3	0.6	-0.4	0.0	0.1	-1.2	-0.3	-0.1	1.2	0.8	0.5
290	1.0	0.8	0.1	0.2	0.3	0.5	-0.5	-0.2	0.1	-1.2	-0.5	-0.1	0.7	0.8	0.8
291	0.9	0.9	0.1	0.2	0.3	0.8	-0.3	-0.1	0.1	-1.2	-0.6	-0.1	0.5	0.7	0.8
292	1.0	0.9	0.1	0.3	0.3	0.8	-0.4	0.0	0.1	-1.4	-0.5	-0.2	1.2	0.7	0.4
293	1.1	0.9	0.1	0.3	0.3	0.6	-0.5	0.0	0.0	-1.3	-0.4	-0.2	1.3	0.6	0.1
294	1.0	0.9	0.1	0.2	0.3	0.7	-0.4	-0.2	0.0	-1.2	-0.6	-0.2	0.6	0.6	0.6
295	1.3	1.0	0.2	0.3	0.4	0.5	-0.4	-0.2	0.1	-1.1	-0.6	-0.1	0.4	0.7	0.9
296	1.2	0.9	0.1	0.2	0.4	0.5	-0.5	-0.2	0.1	-1.3	-0.6	0.0	0.7	0.9	1.0
297	1.3	1.0	0.2	0.2	0.4	0.6	-0.4	-0.3	0.2	-1.3	-0.7	0.0	0.2	0.9	1.4
298	1.0	0.8	0.1	0.0	0.4	0.7	-0.5	-0.4	0.2	-1.4	-0.9	0.0	0.0	1.1	1.8
299	0.9	0.9	0.1	0.1	0.4	0.8	-0.5	-0.3	0.2	-1.4	-0.8	0.0	0.3	1.1	1.6
300	0.9	0.9	0.1	0.1	0.4	0.9	-0.4	-0.2	0.2	-1.4	-0.7	0.0	0.5	0.9	1.2
301	0.8	0.8	0.1	0.1	0.3	0.9	-0.4	-0.2	0.2	-1.4	-0.7	-0.1	0.6	0.9	1.1
302	0.7	0.8	0.1	0.1	0.3	1.0	-0.3	-0.1	0.2	-1.3	-0.7	-0.1	0.5	0.8	1.0
303	1.0	1.0	0.1	0.2	0.4	1.0	-0.4	-0.2	0.2	-1.5	-0.7	-0.1	0.6	1.0	1.2
304	1.1	1.1	0.2	0.2	0.4	1.0	-0.4	-0.2	0.1	-1.4	-0.8	-0.1	0.2	0.8	1.2
305	0.8	0.9	0.1	0.1	0.3	0.9	-0.4	-0.2	0.1	-1.4	-0.7	-0.2	0.4	0.7	1.0
306	0.8	0.8	0.1	0.1	0.3	0.8	-0.4	-0.2	0.1	-1.3	-0.7	-0.2	0.4	0.7	0.8
307	0.8	0.9	0.1	0.2	0.3	0.9	-0.3	-0.1	0.1	-1.3	-0.6	-0.1	0.4	0.7	0.9
308	0.4	0.7	0.0	0.1	0.3	1.1	-0.2	0.0	0.3	-1.2	-0.5	0.0	0.7	0.8	1.0
309	0.3	0.6	0.1	0.1	0.3	1.2	0.0	0.1	0.3	-0.9	-0.4	0.0	0.4	0.7	0.9
310	0.3	0.6	0.1	0.1	0.3	1.1	0.0	0.1	0.2	-0.9	-0.5	0.0	0.3	0.6	0.8
311	0.2	0.6	0.1	0.2	0.2	1.1	0.1	0.1	0.2	-0.7	-0.3	0.0	0.4	0.5	0.5
312	0.2	0.5	0.1	0.0	0.2	1.0	0.0	0.0	0.2	-0.7	-0.5	0.0	-0.2	0.5	1.0
313	-0.1	0.3	0.0	-0.1	0.2	0.9	0.1	-0.1	0.3	-0.6	-0.6	0.1	-0.6	0.6	1.5
314	0.0	0.3	0.0	-0.1	0.2	0.9	0.0	-0.1	0.3	-0.7	-0.6	0.1	-0.4	0.6	1.4
315	0.2	0.6	0.1	0.1	0.3	1.0	0.0	0.0	0.3	-0.7	-0.5	0.1	-0.1	0.6	1.1
316	0.2	0.4	0.1	0.1	0.2	0.8	0.0	0.1	0.2	-0.6	-0.3	0.0	0.3	0.5	0.7
317	0.4	0.5	0.1	0.2	0.2	0.6	-0.1	0.0	0.1	-0.7	-0.2	0.0	0.6	0.5	0.5
318	0.7	0.5	0.1	0.1	0.3	0.4	-0.2	-0.1	0.2	-0.7	-0.3	0.1	0.3	0.6	0.8
319	0.9	0.6	0.2	0.1	0.3	0.2	-0.3	-0.2	0.1	-0.6	-0.4	0.1	-0.1	0.6	1.2
320	1.2	0.8	0.3	0.2	0.4	0.2	-0.2	-0.2	0.1	-0.6	-0.4	0.1	-0.1	0.6	1.1
321	1.3	0.9	0.3	0.2	0.4	0.2	-0.3	-0.3	0.1	-0.7	-0.5	0.0	-0.3	0.5	1.2
322	1.4	0.9	0.4	0.3	0.4	0.2	-0.3	-0.3	0.0	-0.7	-0.5	0.0	-0.2	0.4	0.8
323	1.4	0.9	0.3	0.3	0.4	0.3	-0.3	-0.2	0.1	-0.8	-0.4	0.0	0.3	0.6	0.9
324	1.4	0.9	0.3	0.3	0.4	0.2	-0.4	-0.2	0.1	-0.8	-0.3	0.0	0.5	0.6	0.7

	High-Water Shoreline Position (UTM Zone 18, NAD 1983)											
	1839/42		1864/86		1899		1932		1950/51		1977	
Transect #	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)
244	4428327	580365.9	4428329	580353.4	4428328	580360.4	4428329	580352.5	4428327	580365.2	4428325	580381.0
245	4428277	580363.8	4428279	580346.7	4428279	580349.1	4428280	580342.2	4428278	580359.5	4428275	580376.0
246	4428228	580352.0	4428230	580339.3	4428230	580341.1	4428231	580330.8	4428229	580341.7	4428226	580369.4
247	4428178	580349.9	4428180	580333.6	4428181	580327.3	4428182	580321.2	4428180	580330.8	4428176	580362.6
248	4428128	580343.4	4428131	580325.8	4428132	580318.9	4428131	580319.5	4428130	580333.3	4428127	580356.0
249	4428079	580333.1	4428081	580318.0	4428082	580313.3	4428082	580311.2	4428080	580325.9	4428078	580347.0
250	4428030	580325.2	4428032	580308.1	4428032	580306.2	4428034	580295.6	4428031	580317.9	4428028	580337.0
251	4427981	580317.3	4427983	580298.4	4427982	580302.0	4427984	580289.6	4427982	580301.7	4427979	580325.6
252	4427930	580319.3	4427934	580290.2	4427933	580296.8	4427935	580280.9	4427933	580291.5	4427930	580318.7
253	4427880	580314.5	4427884	580283.3	4427883	580288.7	4427885	580277.5	4427885	580277.4	4427881	580311.0
254	4427831	580305.5	4427835	580275.7	4427834	580278.4	4427836	580268.1	4427835	580271.5	4427831	580303.1
255	4427782	580292.2	4427785	580265.8	4427785	580268.6	4427786	580259.3	4427786	580264.8	4427782	580296.3
256	4427733	580281.4	4427736	580256.4	4427736	580259.6	4427737	580247.6	4427736	580257.1	4427732	580286.9
257	4427684	580268.6	4427687	580246.9	4427686	580252.2	4427688	580239.7	4427687	580247.6	4427683	580278.6
258	4427636	580255.2	4427638	580237.9	4427637	580241.6	4427639	580228.5	4427638	580239.3	4427634	580269.5
259	4427587	580241.1	4427589	580226.7	4427588	580233.4	4427589	580222.3	4427589	580228.6	4427585	580258.6
260	4427538	580232.3	4427540	580216.9	4427538	580228.6	4427539	580220.6	4427539	580224.8	4427535	580250.8
261	4427489	580219.7	4427491	580206.7	4427488	580224.5	4427490	580213.2	4427489	580220.7	4427486	580241.4
262	4427440	580210.8	4427441	580197.3	4427439	580218.9	4427440	580206.6	4427439	580214.4	4427437	580232.5
263	4427391	580196.2	4427392	580189.6	4427389	580211.3	4427392	580190.4	4427389	580208.8	4427387	580225.3
264	4427342	580186.3	4427343	580181.2	4427340	580202.6	4427343	580175.4	4427340	580198.7	4427338	580216.6
265	4427292	580184.6	4427292	580179.8	4427291	580194.0	4427294	580166.8	4427291	580186.8	4427289	580207.4
266	4427242	580176.9	4427243	580173.3	4427241	580184.3	4427245	580158.2	4427242	580179.3	4427239	580199.5
267	4427194	580156.5	4427193	580167.2	4427192	580175.4	4427196	580148.3	4427193	580170.5	4427190	580188.6
268	4427145	580149.9	4427143	580162.6	4427143	580162.9	4427146	580140.5	4427144	580160.0	4427141	580180.5
269	4427095	580143.0	4427094	580150.3	4427094	580154.4	4427096	580135.5	4427095	580144.4	4427092	580170.0
270	4427045	580144.3	4427045	580139.7	4427044	580148.0	4427047	580127.4	4427046	580134.0	4427042	580162.9
271	4426995	580140.5	4426997	580125.5	4426995	580140.3	4426998	580115.7	4426997	580126.6	4426993	580153.0
272	4426945	580134.9	4426948	580115.3	4426946	580132.1	4426948	580110.5	4426947	580120.3	4426944	580142.7
273	4426897	580119.2	4426898	580106.7	4426896	580125.8	4426899	580101.5	4426898	580113.5	4426895	580136.0
274	4426848	580107.5	4426848	580103.5	4426846	580121.4	4426850	580090.2	4426848	580107.1	4426845	580126.7
275	4426800	580089.9	4426798	580100.8	4426797	580111.3	4426801	580076.5	4426798	580102.0	4426796	580118.2
276	4426751	580078.5	4426749	580093.0	4426748	580101.4	4426752	580068.5	4426749	580092.3	4426747	580109.7
277	4426701	580072.5	4426700	580084.3	4426699	580090.2	4426703	580059.9	4426699	580088.2	4426697	580102.1
278	4426652	580060.9	4426650	580077.1	4426650	580078.8	4426653	580051.3	4426650	580080.0	4426648	580091.7
279	4426603	580052.5	4426600	580072.2	4426600	580072.3	4426604	580042.8	4426601	580065.9	4426599	580083.6
280	4426554	580041.5	4426551	580066.2	4426551	580066.0	4426555	580036.0	4426553	580050.9	4426550	580072.6
281	4426505	580031.1	4426501	580063.8	4426501	580060.8	4426505	580028.2	4426503	580042.2	4426500	580065.6
282	4426456	580016.8	4426452	580049.7	4426452	580052.4	4426456	580020.1	4426454	580030.4	4426451	580055.2
283	4426407	580009.6	4426403	580036.0	4426402	580045.4	4426407	580007.3	4426405	580024.4	4426402	580046.5
284	4426357	580003.1	4426354	580030.2	4426352	580040.8	4426357	580001.3	4426356	580015.2	4426353	580036.2
285	4426309	579987.9	4426305	580019.9	4426303	580036.4	4426307	579999.9	4426306	580007.1	4426303	580030.9
286	4426259	579981.0	4426255	580010.3	4426253	580029.2	4426258	579993.2	4426256	580003.1	4426254	580021.3
287	4426210	579971.8	4426206	580002.3	4426204	580019.8	4426208	579987.9	4426206	579999.8	4426204	580014.6
288	4426160	579965.6	4426157	579994.9	4426155	580010.8	4426159	579979.2	4426157	579994.7	4426155	580006.0
289	4426111	579954.3	4426107	579987.1	4426105	580003.0	4426110	579964.3	4426107	579986.3	4426106	579999.1
290	4426062	579947.4	4426057	579982.0	4426056	579995.2	4426061	579955.5	4426059	579969.3	4426056	579990.7
291	4426013	579938.0	4426009	579968.8	4426006	579988.7	4426011	579950.7	4426010	579960.3	4426007	579980.2
292	4425963	579927.9	4425959	579961.6	4425957	579982.3	4425962	579936.2	4425960	579958.4	4425958	579968.3
293	4425914	579918.5	4425909	579957.3	4425907	579972.4	4425913	579930.4	4425910	579954.1	4425909	579956.8
294	4425864	579914.0	4425860	579950.3	4425858	579966.8	4425863	579927.3	4425861	579938.2	4425859	579953.6
295	4425816	579897.8	4425810	579943.8	4425809	579956.9	4425813	579920.1	4425812	579927.2	4425809	579951.2
296	4425766	579894.7	4425761	579935.7	4425759	579948.6	4425764	579907.3	4425763	579919.9	4425759	579946.5
297	4425717	579883.1	4425711	579928.1	4425709	579943.7	4425715	579902.7	4425714	579907.0	4425709	579943.5
298	4425666	579889.0	4425662	579922.7	4425660	579939.2	4425665	579893.9	4425665	579893.8	4425659	579941.0
299	4425617	579880.9	4425613	579912.0	4425610	579931.8	4425616	579885.9	4425615	579891.8	4425610	579933.6
300	4425567	579873.6	4425563	579903.9	4425561	579925.0	4425566	579879.8	4425565	579889.7	4425561	579921.6
301	4425517	579867.6	4425514	579895.1	4425511	579917.5	4425517	579873.1	4425515	579883.5	4425512	579911.9
302	4425468	579862.2	4425465	579885.5	4425462	579910.1	4425467	579866.9	4425466	579876.3	4425463	579902.5
303	4425420	579844.9	4425415	579879.7	4425412	579904.0	4425418	579854.8	4425417	579865.6	4425413	579897.3
304	4425371	579833.8	4425366	579873.4	4425362	579897.8	4425368	579853.0	4425368	579856.4	4425364	579886.7
305	4425320	579836.1	4425316	579864.4	4425313	579887.7	4425319	579843.4	4425318	579850.9	4425315	579875.8
306	4425270	579831.7	4425267	579859.5	4425264	579880.1	4425269	579837.0	4425268	579845.3	4425266	579866.4
307	4425221	579821.6	4425217	579849.4	4425214	579872.8	4425220	579831.4	4425219	579839.7	4425216	579863.9
308	4425170	579823.6	4425169	579836.4	4425165	579864.3	4425170	579826.0	4425168	579838.6	4425165	579863.9
309	4425121	579817.4	4425119	579826.7	4425116	579855.4	4425120	579824.5	4425119	579832.3	4425116	579854.4
310	4425071	579809.3	4425070	579818.2	4425067	579846.2	4425070	579816.6	4425070	579822.8	4425067	579843.5
311	4425022	579802.7	4425021	579810.4	4425017	579837.5	4425020	579814.2	4425019	579821.0	4425018	579834.6
312	4424972	579799.5	4424971	579805.7	4424968	579830.6	4424971	579806.2	4424971	579802.5	4424968	579828.4
313	4424921	579802.6	4424921	579800.0	4424918	579822.7	4424921	579804.1	4424922	579793.4	4424917	579831.3
314	4424871	579796.6	4424871	579795.3	4424869	579816.5	4424872	579794.3	4424872	579787.3	4424868	579822.7
315	4424823	579778.5	4424822	579787.0	4424819	579811.4	4424822	579787.3	4424822	579786.3	4424818	579815.9
316	4424773	579777.9	4424772	579784.3	4424769	579804.4	4424772	579783.7	4424771	579789.6	4424769	579806.8
317	4424724	579769.5	4424722	579783.8	4424720	579797.9	4424723	579776.4	4424721	579787.0	4424720	579798.7
318	4424674	579759.8	4424671	579782.4	4424670	579792.1	4424673	579769.7	4424672	579776.2	4424669	579798.1
319	4424626	579745.1	4424622	579777.8	4424621	579783.0	4424624	579762.5	4424624	579761.2	4424620	579791.3
320	4424577	579728.9	4424572	579770.3	4424571	579776.2	4424574	579756.5	4424574	579754.1	4424571	579781.4
321	4424528	579720.7	4424522	579766.7	4424522	579772.0	4424524	579750.4	4424525	579744.2	4424521	579774.2
322	4424479	579713.8	4424472	579762.9	4424472	579768.5	4424474	579746.7	4424475	579742.9	4424472	579764.7
323	4424429	579710.6	4424423	579758.2	4424422	579765.2	4424425	579739.1	4424424	579744.2	4424422	579766.4
324	4424379	579706.1	4424372	579755.6	4424372	579759.6	4424375	579733.3	4424374	579742.5	4424372	579761.7

High-Water Shoreline Position Change Rate

Transect #	1839/42 to 1864/86 (m/yr)	1839/42 to 1899 (m/yr)	1839/42 to 1932 (m/yr)	1839/42 to 1950/51 (m/yr)	1839/42 to 1977 (m/yr)	1864/86 to 1899 (m/yr)	1864/86 to 1932 (m/yr)	1864/86 to 1950/51 (m/yr)	1864/86 to 1977 (m/yr)	1899 to 1932 (m/yr)	1899 to 1950/51 (m/yr)	1899 to 1977 (m/yr)	1932 to 1950/51 (m/yr)	1932 to 1977 (m/yr)	1950/51 to 1977 (m/yr)
325	1.4	0.8	0.3	0.4	0.4	0.0	-0.4	-0.1	0.1	-0.7	-0.1	0.1	0.9	0.7	0.6
326	1.7	0.9	0.4	0.4	0.5	-0.3	-0.4	-0.2	0.1	-0.4	-0.2	0.2	0.2	0.6	1.0
327	1.8	0.9	0.4	0.3	0.5	-0.4	-0.4	-0.4	0.1	-0.4	-0.4	0.2	-0.3	0.7	1.4
328	1.8	0.9	0.4	0.2	0.5	-0.4	-0.4	-0.5	0.1	-0.5	-0.5	0.2	-0.5	0.8	1.7
329	1.9	1.0	0.5	0.4	0.5	-0.4	-0.4	-0.4	0.1	-0.5	-0.3	0.2	-0.1	0.7	1.3
330	2.0	1.0	0.4	0.4	0.5	-0.4	-0.5	-0.3	0.0	-0.7	-0.3	0.2	0.3	0.8	1.1
331	2.2	1.0	0.5	0.5	0.5	-0.6	-0.6	-0.3	0.0	-0.6	-0.2	0.1	0.6	0.7	0.8
332	2.5	1.1	0.5	0.5	0.6	-0.9	-0.7	-0.4	-0.1	-0.5	-0.2	0.2	0.3	0.6	0.9
333	2.8	1.2	0.6	0.5	0.6	-1.1	-0.8	-0.6	-0.1	-0.6	-0.3	0.2	0.0	0.7	1.3
334	2.8	1.3	0.6	0.5	0.6	-0.9	-0.7	-0.6	-0.1	-0.6	-0.5	0.2	-0.3	0.7	1.4
335	2.9	1.3	0.6	0.5	0.7	-0.9	-0.8	-0.6	-0.1	-0.7	-0.4	0.1	0.0	0.8	1.3
336	3.1	1.5	0.7	0.6	0.7	-0.8	-0.7	-0.5	-0.1	-0.7	-0.3	0.1	0.4	0.7	0.9
337	2.9	1.4	0.6	0.7	0.7	-0.6	-0.7	-0.3	-0.1	-0.8	-0.2	0.1	0.8	0.8	0.7
338	2.7	1.5	0.7	0.7	0.7	-0.2	-0.5	-0.2	0.0	-0.8	-0.1	0.1	1.0	0.7	0.5
339	3.0	1.5	0.8	0.8	0.7	-0.6	-0.6	-0.3	-0.1	-0.6	-0.1	0.1	0.7	0.6	0.5
340	3.0	1.6	0.9	0.7	0.8	-0.3	-0.4	-0.4	0.0	-0.5	-0.5	0.1	-0.4	0.5	1.2
341	2.9	1.6	0.8	0.6	0.7	-0.3	-0.4	-0.5	0.0	-0.5	-0.6	0.1	-0.7	0.6	1.5
342	2.9	1.6	0.8	0.6	0.8	-0.3	-0.5	-0.4	0.0	-0.6	-0.5	0.1	-0.3	0.6	1.3
343	2.9	1.7	0.9	0.7	0.8	0.0	-0.3	-0.2	0.1	-0.4	-0.3	0.2	-0.2	0.6	1.2
344	2.9	1.7	0.9	0.8	0.9	0.1	-0.3	-0.1	0.2	-0.7	-0.2	0.2	0.6	0.8	1.0
345	3.2	1.9	1.0	1.0	0.9	0.1	-0.4	0.0	0.2	-0.8	-0.1	0.2	1.0	0.8	0.7
346	3.3	1.9	1.0	1.0	0.9	-0.1	-0.5	-0.1	0.1	-0.7	-0.1	0.1	1.0	0.8	0.6
347	3.1	1.9	0.9	0.8	0.9	0.2	-0.4	-0.2	0.1	-0.8	-0.4	0.1	0.2	0.7	1.1
348	3.4	2.1	1.0	0.8	0.9	0.4	-0.4	-0.3	0.1	-1.1	-0.7	0.0	0.0	0.8	1.3
349	3.4	2.2	1.1	0.9	0.9	0.6	-0.3	-0.2	0.1	-1.0	-0.6	0.0	0.2	0.7	1.0
350	3.2	2.2	1.1	1.0	0.9	0.7	-0.2	0.0	0.1	-0.9	-0.4	-0.1	0.5	0.5	0.6
351	3.3	2.2	1.1	1.0	0.9	0.6	-0.2	-0.1	0.1	-0.8	-0.4	-0.1	0.3	0.4	0.6
352	3.4	2.1	1.2	0.9	0.9	0.5	-0.2	-0.2	0.0	-0.6	-0.5	-0.1	-0.3	0.3	0.8
353	3.2	2.0	1.0	0.8	0.8	0.2	-0.3	-0.3	0.0	-0.6	-0.6	0.0	-0.4	0.5	1.1
354	3.2	1.9	1.0	0.8	0.8	0.1	-0.3	-0.3	0.0	-0.6	-0.4	0.0	-0.1	0.5	0.9
355	3.4	2.0	1.0	0.9	0.9	0.0	-0.4	-0.2	0.0	-0.7	-0.3	0.1	0.4	0.6	0.8
356	3.4	1.9	1.0	1.0	0.9	-0.1	-0.4	-0.1	0.1	-0.6	-0.1	0.1	0.7	0.6	0.6
357	3.1	1.8	1.0	0.9	0.9	-0.1	-0.3	-0.1	0.1	-0.5	-0.1	0.1	0.8	0.6	0.5
358	3.1	1.7	1.0	0.9	0.9	-0.2	-0.3	-0.1	0.1	-0.4	0.0	0.2	0.8	0.7	0.6
359	3.0	1.6	0.9	0.9	0.9	-0.2	-0.3	0.0	0.1	-0.4	0.2	0.3	1.2	0.8	0.4
360	2.7	1.5	0.8	0.9	0.8	0.0	-0.3	0.1	0.2	-0.4	0.1	0.3	1.1	0.8	0.6
361	2.6	1.5	0.9	0.8	0.8	0.0	-0.2	0.0	0.2	-0.4	0.0	0.3	0.5	0.8	1.0
362	2.5	1.5	0.9	0.8	0.8	0.2	-0.1	0.0	0.3	-0.3	-0.1	0.3	0.2	0.8	1.2
363	2.3	1.5	0.9	0.7	0.8	0.3	0.1	0.0	0.3	-0.1	-0.2	0.3	-0.4	0.7	1.4
364						0.3	0.1	0.1	0.3	0.0	-0.1	0.4	-0.2	0.6	1.2
365						0.2	0.1	0.1	0.3	0.1	0.0	0.4	0.0	0.6	1.0
366						0.1	0.1	0.1	0.3	0.2	0.1	0.4	0.0	0.5	0.9
367						-0.1	0.2	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5
368						0.0	0.2	0.4	0.3	0.4	0.6	0.4	0.9	0.5	0.2
369						0.1	0.3	0.2	0.4	0.4	0.3	0.5	0.0	0.5	0.8
370						0.0	0.2	0.1	0.4	0.3	0.1	0.5	-0.2	0.6	1.2
371						-0.1	0.2	0.1	0.4	0.4	0.1	0.6	-0.3	0.6	1.4
372						-0.2	0.2	0.1	0.4	0.6	0.2	0.6	-0.4	0.6	1.3
373						-0.2	0.3	0.1	0.4	0.7	0.2	0.6	-0.5	0.6	1.5
374						0.0	0.4	0.4	0.5	0.7	0.6	0.7	0.3	0.7	1.0
375						0.1	0.4	0.4	0.8	0.7	0.5	1.1	0.2	1.4	2.2
376						0.1	0.4	0.4	1.0	0.7	0.5	1.3	0.3	1.7	2.7
377						0.1	0.4	0.4	1.0	0.7	0.6	1.3	0.4	1.7	2.7
378						0.2	0.4	0.5	0.9	0.5	0.6	1.1	0.7	1.5	2.1
379						0.1	0.3	0.5	0.8	0.5	0.7	1.0	1.0	1.4	1.7
380						0.0	0.3	0.5	0.7	0.5	0.7	0.9	0.9	1.2	1.5
381						0.1	0.3	0.5	0.7	0.5	0.6	0.9	0.8	1.2	1.4
382						0.1	0.3	0.4	0.7	0.4	0.5	0.9	0.6	1.2	1.7
383						0.3	0.4	0.3	0.7	0.4	0.3	0.8	0.3	1.1	1.7
384						0.1	0.5	0.3	0.6	0.7	0.4	0.8	-0.1	0.9	1.6
385						-0.1	0.5	0.4	0.6	1.0	0.6	0.8	0.0	0.7	1.2
386						0.1	0.6	0.6	0.6	0.9	0.8	0.8	0.6	0.6	0.7
387						0.2	0.6	0.7	0.6	1.0	0.9	0.7	0.8	0.6	0.4
388						0.3	0.7	0.6	0.6	0.9	0.7	0.7	0.3	0.5	0.7
389						0.3	0.6	0.5	0.6	0.9	0.6	0.7	0.2	0.6	0.8
390						0.4	0.8	0.5	0.6	1.1	0.6	0.7	-0.4	0.4	1.0
391						0.4	0.8	0.5	0.6	1.2	0.6	0.7	-0.4	0.4	0.9
392						0.3	0.7	0.5	0.6	1.0	0.6	0.7	-0.2	0.5	0.9
393						0.2	0.7	0.5	0.6	1.0	0.6	0.7	0.0	0.6	1.0
394						0.3	0.7	0.5	0.6	1.1	0.6	0.8	-0.2	0.5	1.1
395						0.4	0.8	0.6	0.7	1.0	0.7	0.8	0.2	0.6	0.8
396						0.4	0.7	0.7	0.7	1.0	0.8	0.8	0.4	0.7	0.9
397						0.3	0.6	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8
398						0.2	0.5	0.7	0.7	0.8	0.9	0.9	1.1	0.9	0.8
399						0.0	0.6	0.7	0.7	1.0	1.1	0.9	1.3	0.8	0.4
400						0.0	0.6	0.8	0.7	1.1	1.2	0.9	1.3	0.7	0.4
401						-0.1	0.6	0.8	0.6	1.1	1.2	0.9	1.5	0.7	0.2
402						-0.3	0.5	0.6	0.6	1.1	1.1	0.9	1.0	0.7	0.5
403						-0.3	0.6	0.6	0.6	1.2	1.0	0.9	0.5	0.6	0.6
404						-0.2	0.6	0.5	0.6	1.2	0.9	0.9	0.3	0.6	0.8
405						-0.1	0.5	0.6	0.6	1.1	0.9	0.9	0.6	0.7	0.8

High-Water Shoreline Position (UTM Zone 18, NAD 1983)

Transect #	1839/42 UTM-x (m)	1839/42 UTM-y (m)	1864/86 UTM-x (m)	1864/86 UTM-y (m)	1899 UTM-x (m)	1899 UTM-y (m)	1932 UTM-x (m)	1932 UTM-y (m)	1950/51 UTM-x (m)	1950/51 UTM-y (m)	1977 UTM-x (m)	1977 UTM-y (m)
325	4424329	579704.2	4424322	579754.1	4424322	579753.2	4424325	579729.4	4424323	579745.6	4424321	579760.6
326	4424280	579693.1	4424272	579751.2	4424273	579744.4	4424275	579729.7	4424274	579734.0	4424271	579758.6
327	4424230	579687.0	4424222	579748.7	4424223	579739.2	4424225	579724.7	4424226	579719.4	4424221	579755.5
328	4424180	579684.3	4424172	579746.3	4424173	579736.8	4424175	579721.4	4424176	579711.4	4424171	579755.4
329	4424130	579676.7	4424122	579743.8	4424123	579734.8	4424125	579718.5	4424125	579716.9	4424121	579750.0
330	4424081	579671.3	4424072	579742.0	4424073	579732.2	4424076	579710.8	4424075	579716.4	4424071	579744.5
331	4424031	579665.2	4424021	579741.5	4424023	579727.6	4424026	579707.0	4424024	579717.7	4424022	579738.3
332	4423982	579656.5	4423971	579743.5	4423974	579721.8	4423976	579705.5	4423975	579710.3	4423972	579733.7
333	4423933	579646.3	4423920	579743.3	4423924	579716.4	4423926	579697.6	4423926	579698.5	4423922	579730.9
334	4423884	579636.7	4423871	579734.3	4423874	579712.3	4423876	579694.1	4423877	579688.9	4423872	579725.2
335	4423834	579628.8	4423821	579730.3	4423824	579708.3	4423827	579685.7	4423827	579686.6	4423823	579719.7
336	4423785	579618.3	4423772	579725.6	4423774	579704.9	4423777	579682.4	4423776	579690.0	4423773	579714.0
337	4423735	579616.4	4423722	579717.9	4423724	579702.0	4423727	579675.4	4423725	579691.4	4423723	579709.7
338	4423685	579610.9	4423673	579705.3	4423674	579699.5	4423677	579674.5	4423675	579692.5	4423673	579704.6
339	4423636	579604.7	4423622	579710.6	4423624	579695.9	4423627	579675.5	4423625	579688.8	4423623	579703.0
340	4423586	579596.2	4423573	579700.9	4423574	579692.3	4423576	579675.8	4423577	579668.4	4423573	579699.1
341	4423536	579594.2	4423523	579694.9	4423524	579687.7	4423526	579670.5	4423528	579658.2	4423523	579695.7
342	4423487	579587.2	4423474	579688.4	4423475	579681.5	4423477	579662.1	4423478	579657.2	4423474	579690.3
343	4423438	579575.7	4423425	579676.8	4423425	579676.9	4423427	579662.4	4423427	579658.9	4423423	579690.0
344	4423388	579570.7	4423375	579670.8	4423375	579674.2	4423378	579651.0	4423376	579661.3	4423373	579688.3
345	4423339	579558.0	4423325	579668.5	4423325	579671.4	4423328	579646.5	4423325	579666.1	4423323	579684.3
346	4423290	579551.5	4423275	579667.7	4423275	579665.3	4423278	579641.7	4423276	579660.3	4423274	579676.2
347	4423239	579550.0	4423226	579658.8	4423225	579664.2	4423228	579637.5	4423228	579641.2	4423224	579670.1
348	4423190	579539.6	4423175	579658.0	4423174	579667.3	4423179	579632.3	4423179	579631.9	4423174	579666.1
349	4423141	579532.9	4423126	579650.6	4423124	579665.6	4423128	579631.8	4423128	579635.6	4423124	579662.6
350	4423090	579532.8	4423076	579644.6	4423074	579662.0	4423078	579632.4	4423077	579641.2	4423075	579656.0
351	4423041	579526.4	4423026	579641.1	4423024	579655.1	4423028	579630.6	4423027	579635.8	4423025	579650.4
352	4422991	579519.4	4422976	579635.7	4422975	579647.1	4422978	579626.6	4422978	579620.3	4422976	579640.2
353	4422941	579521.7	4422926	579633.0	4422926	579638.0	4422928	579616.8	4422930	579608.7	4422926	579637.6
354	4422891	579515.0	4422877	579627.3	4422877	579628.8	4422879	579609.2	4422879	579607.4	4422876	579631.3
355	4422842	579503.1	4422827	579620.4	4422827	579619.6	4422830	579596.4	4422829	579603.9	4422827	579623.8
356	4422793	579494.2	4422778	579611.6	4422778	579610.1	4422781	579590.5	4422779	579602.7	4422777	579617.8
357	4422742	579493.4	4422729	579601.7	4422729	579600.5	4422731	579583.2	4422729	579597.7	4422728	579610.1
358	4422693	579488.2	4422679	579595.2	4422680	579590.7	4422682	579576.1	4422680	579591.1	4422678	579606.7
359	4422643	579484.7	4422630	579587.3	4422630	579582.2	4422632	579568.1	4422629	579590.1	4422628	579601.6
360	4422593	579482.5	4422581	579575.5	4422581	579574.4	4422583	579560.9	4422580	579580.8	4422578	579596.5
361	4422543	579475.8	4422532	579567.5	4422532	579567.5	4422533	579555.9	4422532	579565.8	4422529	579590.4
362	4422493	579470.2	4422483	579555.4	4422482	579560.3	4422483	579550.7	4422483	579554.2	4422479	579585.3
363	4422444	579465.4	4422434	579544.8	4422433	579552.5	4422433	579549.3	4422434	579542.6	4422429	579578.4
364			4422384	579537.5	4422383	579545.0	4422383	579545.6	4422384	579541.7	4422380	579572.1
365			4422335	579529.1	4422334	579535.2	4422334	579537.3	4422334	579536.9	4422330	579563.6
366			4422285	579524.7	4422285	579526.2	4422284	579532.9	4422284	579533.7	4422281	579555.8
367			4422235	579521.7	4422235	579519.2	4422234	579530.7	4422233	579540.9	4422231	579552.8
368			4422186	579510.0	4422186	579510.9	4422184	579523.6	4422182	579540.8	4422182	579545.3
369			4422137	579500.5	4422137	579502.6	4422135	579515.2	4422135	579515.8	4422132	579537.7
370			4422087	579494.1	4422087	579494.1	4422086	579504.8	4422086	579500.5	4422083	579531.4
371			4422038	579487.8	4422038	579485.0	4422036	579499.1	4422037	579492.7	4422033	579527.7
372			4421988	579481.9	4421989	579475.9	4421986	579495.3	4421987	579487.6	4421983	579521.1
373			4421939	579471.4	4421939	579466.9	4421937	579488.8	4421938	579478.9	4421933	579516.9
374			4421890	579458.5	4421890	579458.0	4421887	579481.0	4421886	579487.4	4421883	579513.4
375			4421841	579447.0	4421841	579449.1	4421838	579472.3	4421837	579476.8	4421830	579533.3
376			4421792	579437.3	4421792	579440.1	4421789	579462.5	4421788	579468.2	4421779	579538.6
377			4421742	579430.4	4421742	579432.7	4421739	579454.4	4421739	579461.1	4421730	579529.7
378			4421693	579423.5	4421692	579427.6	4421690	579445.4	4421689	579458.9	4421682	579513.4
379			4421643	579418.7	4421643	579420.1	4421641	579436.1	4421639	579454.3	4421633	579499.5
380			4421594	579410.8	4421594	579411.8	4421591	579429.5	4421589	579447.0	4421584	579484.7
381			4421545	579400.2	4421544	579402.7	4421542	579420.2	4421540	579435.3	4421536	579471.9
382			4421496	579389.8	4421495	579392.6	4421494	579405.7	4421492	579417.1	4421487	579460.5
383			4421447	579379.1	4421446	579387.4	4421444	579399.3	4421443	579404.8	4421438	579449.9
384			4421397	579374.8	4421396	579378.0	4421393	579401.1	4421394	579399.9	4421388	579441.0
385			4421347	579370.8	4421347	579368.7	4421343	579400.9	4421343	579400.4	4421339	579431.9
386			4421298	579359.4	4421297	579362.8	4421294	579392.5	4421292	579404.0	4421290	579421.5
387			4421249	579348.3	4421248	579353.5	4421244	579384.6	4421242	579399.4	4421241	579410.7
388			4421200	579338.4	4421199	579346.3	4421195	579377.1	4421194	579383.5	4421192	579400.6
389			4421150	579329.6	4421150	579337.2	4421146	579366.5	4421145	579370.1	4421143	579391.9
390			4421101	579318.7	4421100	579329.5	4421095	579366.2	4421096	579357.9	4421093	579382.6
391			4421052	579310.2	4421051	579319.5	4421046	579358.6	4421047	579351.5	4421044	579375.3
392			4421003	579302.9	4421002	579309.5	4420998	579342.7	4420998	579339.7	4420995	579364.2
393			4420953	579293.7	4420953	579299.8	4420949	579331.5	4420949	579330.9	4420945	579357.6
394			4420904	579282.4	4420903	579290.0	4420899	579325.0	4420900	579320.7	4420896	579348.7
395			4420856	579269.3	4420854	579279.7	4420850	579313.9	4420850	579317.1	4420847	579338.9
396			4420807	579258.7	4420805	579269.4	4420801	579301.0	4420800	579308.6	4420797	579331.4
397			4420757	579251.3	4420756	579259.3	4420753	579286.8	4420751	579302.0	4420748	579322.3
398			4420708	579245.0	4420707	579249.1	4420704	579275.1	4420701	579295.5	4420699	579315.1
399			4420658	579238.7	4420658	579237.6	4420654	579270.3	4420651	579295.0	4420650	579305.6
400			4420609	579227.4	4420609	579226.7	4420604	579263.2	4420601	579287.0	4420600	579296.1
401			4420559	579221.7	4420560	579218.8	4420555	579253.6	4420552	579281.7	4420551	579286.7
402			4420509	579218.8	4420510	579211.0	4420506	579248.2	4420503	579267.8	4420502	579279.6
403			4420460	579211.6	4420461	579204.8	4420456	579245.5	4420454	579255.4	4420452	579271.6
404			4420411	579202.8	4420411	579197.8	4420406	579236.6	4420406	579242.4	4420403	579264.0
405			4420361	579193.3	4420362	579189.8	4420357	579224.2	4420356	579235.6	4420353	579256.8

High-Water Shoreline Position Change Rate

Transect #	1839/42 to 1864/86 (m/yr)	1839/42 to 1899 (m/yr)	1839/42 to 1932 (m/yr)	1839/42 to 1950/51 (m/yr)	1839/42 to 1977 (m/yr)	1864/86 to 1899 (m/yr)	1864/86 to 1932 (m/yr)	1864/86 to 1950/51 (m/yr)	1864/86 to 1977 (m/yr)	1899 to 1932 (m/yr)	1899 to 1950/51 (m/yr)	1899 to 1977 (m/yr)	1932 to 1950/51 (m/yr)	1932 to 1977 (m/yr)	1950/51 to 1977 (m/yr)
406						-0.1	0.5	0.5	0.6	1.0	0.9	0.9	0.7	0.8	0.8
407						-0.2	0.5	0.6	0.6	1.0	1.0	0.9	1.0	0.8	0.6
408						0.0	0.6	0.7	0.7	1.2	1.0	0.9	0.7	0.7	0.7
409						0.0	0.7	0.6	0.7	1.3	0.9	0.9	0.4	0.7	0.9
410						0.1	0.7	0.6	0.7	1.2	0.9	0.9	0.2	0.7	1.1
411						0.1	0.8	0.5	0.7	1.3	0.7	0.9	-0.2	0.6	1.2
412						0.2	0.8	0.5	0.7	1.3	0.6	0.9	-0.6	0.6	1.4
413						0.2	0.8	0.5	0.7	1.4	0.6	0.8	-0.8	0.5	1.4
414						0.1	0.7	0.5	0.6	1.2	0.7	0.8	-0.1	0.6	1.0
415						-0.4	0.5	0.4	0.5	1.2	0.8	0.8	-0.1	0.4	0.8
416						-0.9	0.3	0.2	0.3	1.2	0.8	0.8	0.1	0.4	0.7
417						-0.9	0.3	0.3	0.4	1.3	0.9	0.8	0.2	0.4	0.6
418						-0.5	0.4	0.4	0.5	1.0	0.8	0.8	0.4	0.6	0.7
419						-0.2	0.5	0.5	0.5	1.0	0.8	0.7	0.5	0.5	0.6
420						0.1	0.5	0.5	0.5	0.8	0.7	0.7	0.5	0.6	0.7
421						0.1	0.4	0.5	0.5	0.7	0.6	0.6	0.5	0.6	0.6
422						0.0	0.4	0.5	0.5	0.7	0.7	0.6	0.7	0.6	0.5
423						0.1	0.5	0.6	0.5	0.7	0.8	0.7	0.8	0.6	0.5
424						0.0	0.5	0.5	0.3	0.8	0.8	0.4	0.7	0.0	-0.4
425						-0.1	0.4	0.4	0.2	0.9	0.7	0.3	0.4	-0.1	-0.4
426						-0.4	0.4	0.4	0.1	0.9	0.7	0.3	0.3	-0.2	-0.5
427						-0.5	0.3	0.3	0.2	0.9	0.7	0.4	0.4	0.0	-0.4
428						-0.4	0.4	0.4	0.2	0.9	0.7	0.4	0.5	0.1	-0.2
429						-0.1	0.4	0.4	0.3	0.8	0.7	0.4	0.4	0.1	-0.1
430						0.0	0.4	0.5	0.4	0.7	0.7	0.5	0.7	0.3	0.0
431						0.1	0.4	0.4	0.4	0.7	0.6	0.5	0.4	0.3	0.2
432						0.2	0.5	0.4	0.4	0.7	0.6	0.4	0.4	0.3	0.2
433						0.1	0.4	0.4	0.3	0.6	0.5	0.4	0.2	0.3	0.3
434						-0.1	0.3	0.3	0.3	0.6	0.4	0.4	0.1	0.2	0.3
435						-0.4	0.3	0.3	0.2	0.8	0.6	0.4	0.3	0.1	0.0
436						-0.6	0.3	0.3	0.2	1.0	0.7	0.4	0.2	0.1	0.0
437	-3.0	-2.0	-1.0	-0.8	-0.7	-0.6	0.2	0.3	0.1	0.9	0.7	0.4	0.4	0.0	-0.3
438	-2.9	-2.0	-1.0	-0.7	-0.7	-0.6	0.1	0.2	0.1	0.7	0.6	0.3	0.6	0.0	-0.5
439	-2.7	-1.9	-1.0	-0.7	-0.7	-0.8	0.0	0.2	0.0	0.7	0.6	0.3	0.5	0.0	-0.4
440	-2.5	-1.9	-1.0	-0.7	-0.7	-0.9	-0.1	0.1	0.0	0.6	0.5	0.3	0.4	0.0	-0.3
441	-2.7	-1.9	-1.0	-0.8	-0.7	-0.8	-0.1	0.0	0.0	0.5	0.4	0.2	0.3	0.0	-0.2
442	-2.7	-1.8	-1.0	-0.8	-0.7	-0.7	0.0	0.1	0.0	0.5	0.4	0.3	0.3	0.1	-0.1
443	-3.1	-2.0	-1.1	-0.9	-0.7	-0.5	0.1	0.1	0.1	0.5	0.4	0.2	0.3	0.1	-0.1
444	-3.3	-2.1	-1.1	-0.9	-0.8	-0.5	0.2	0.1	0.1	0.7	0.4	0.2	0.0	0.0	-0.1
445	-3.3	-2.1	-1.1	-0.9	-0.8	-0.4	0.2	0.2	0.1	0.7	0.5	0.2	0.1	-0.1	-0.3
446	-3.6	-2.2	-1.2	-1.0	-0.8	-0.3	0.3	0.2	0.1	0.8	0.5	0.2	-0.1	-0.2	-0.3
447	-3.3	-2.2	-1.1	-1.0	-0.8	-0.6	0.2	0.1	0.0	0.9	0.4	0.2	-0.4	-0.2	-0.1
448	-3.5	-2.3	-1.2	-1.0	-0.8	-0.5	0.2	0.1	0.1	0.8	0.4	0.3	-0.4	-0.1	0.1
449	-3.7	-2.4	-1.2	-1.1	-0.8	-0.7	0.2	0.1	0.1	0.9	0.5	0.4	-0.4	-0.1	0.1
450	-3.9	-2.5	-1.3	-1.1	-0.9	-0.6	0.3	0.1	0.2	0.9	0.5	0.4	-0.2	0.0	0.2
451	-3.9	-2.5	-1.3	-1.1	-0.9	-0.6	0.2	0.2	0.1	0.9	0.6	0.4	-0.1	0.0	0.1
452	-4.2	-2.7	-1.4	-1.2	-1.0	-0.6	0.3	0.2	0.1	1.0	0.6	0.4	-0.1	-0.1	0.0
453	-4.4	-2.8	-1.4	-1.2	-1.0	-0.5	0.3	0.3	0.2	1.0	0.7	0.4	0.1	0.0	-0.2
454	-4.3	-2.8	-1.4	-1.2	-0.9	-0.6	0.3	0.2	0.3	1.0	0.7	0.6	0.0	0.3	0.5
455	-4.3	-2.8	-1.4	-1.2	-1.0	-0.7	0.3	0.2	0.2	1.1	0.7	0.5	-0.2	0.0	0.2
456	-4.4	-2.9	-1.5	-1.3	-1.1	-0.8	0.2	0.2	0.1	1.0	0.6	0.4	-0.1	-0.1	-0.2
457	-4.0	-2.8	-1.5	-1.2	-1.0	-1.0	0.1	0.0	0.1	0.9	0.5	0.4	-0.1	0.1	0.2
458	-3.9	-2.7	-1.5	-1.3	-0.9	-1.1	-0.1	-0.1	0.1	0.7	0.3	0.5	-0.3	0.4	0.9
459	-3.9	-2.8	-1.6	-1.4	-0.9	-1.1	-0.1	-0.2	0.1	0.7	0.2	0.5	-0.5	0.5	1.1
460	-4.0	-2.7	-1.5	-1.3	-0.9	-1.0	0.0	-0.1	0.2	0.8	0.4	0.6	-0.3	0.4	0.9
461	-3.9	-2.7	-1.5	-1.2	-0.8	-1.1	0.0	0.0	0.2	0.8	0.6	0.6	0.1	0.5	0.7
462	-3.9	-2.7	-1.5	-1.2	-0.8	-1.1	0.0	0.0	0.2	0.8	0.6	0.7	0.2	0.6	0.9
463	-3.7	-2.6	-1.4	-1.1	-0.8	-1.1	0.0	0.1	0.2	0.8	0.6	0.7	0.5	0.6	0.7
464	-3.4	-2.5	-1.3	-1.0	-0.7	-1.1	0.0	0.0	0.3	0.8	0.6	0.7	0.2	0.6	0.9
465	-3.7	-2.6	-1.4	-1.2	-0.7	-1.1	-0.1	-0.1	0.2	0.8	0.4	0.7	-0.1	0.6	1.2
466	-3.7	-2.7	-1.4	-1.3	-0.8	-1.3	-0.1	-0.2	0.2	0.8	0.4	0.6	-0.4	0.5	1.2
467	-3.6	-2.7	-1.4	-1.2	-0.8	-1.3	-0.1	-0.2	0.2	0.8	0.4	0.6	-0.4	0.5	1.1
468	-3.6	-2.6	-1.4	-1.2	-0.8	-1.2	0.0	-0.1	0.1	0.9	0.4	0.6	-0.4	0.4	1.0
469	-3.9	-2.7	-1.4	-1.3	-0.9	-1.1	0.1	-0.1	0.1	0.9	0.4	0.5	-0.6	0.2	0.8
470	-3.9	-2.6	-1.4	-1.3	-0.9	-0.9	0.1	-0.1	0.1	1.0	0.3	0.5	-0.8	0.1	0.7
471	-3.6	-2.6	-1.4	-1.2	-0.9	-1.2	0.0	-0.2	0.0	0.9	0.3	0.4	-0.6	0.1	0.6
472	-3.7	-2.6	-1.4	-1.2	-0.9	-1.1	0.0	-0.1	0.1	0.8	0.4	0.4	-0.3	0.1	0.5
473	-3.6	-2.7	-1.5	-1.2	-0.9	-1.6	-0.2	-0.2	0.0	0.8	0.5	0.4	0.0	0.2	0.3
474	-3.9	-2.9	-1.6	-1.4	-1.0	-1.5	-0.2	-0.2	0.0	0.7	0.4	0.4	-0.1	0.2	0.4
475	-4.2	-3.1	-1.7	-1.4	-1.1	-1.6	-0.3	-0.2	0.0	0.7	0.5	0.5	0.2	0.3	0.3
476	-4.4	-3.3	-1.9	-1.5	-1.2	-1.7	-0.4	-0.2	-0.1	0.6	0.5	0.4	0.3	0.3	0.4
477	-4.6	-3.4	-2.0	-1.7	-1.2	-1.7	-0.4	-0.3	-0.1	0.6	0.3	0.4	-0.1	0.3	0.6
478	-4.6	-3.3	-1.9	-1.7	-1.2	-1.5	-0.3	-0.4	0.0	0.6	0.2	0.4	-0.5	0.3	1.0
479	-4.4	-3.2	-1.9	-1.7	-1.2	-1.6	-0.4	-0.4	-0.1	0.5	0.1	0.4	-0.6	0.3	1.0
480	-4.2	-3.1	-1.9	-1.6	-1.2	-1.6	-0.5	-0.4	-0.1	0.4	0.1	0.3	-0.3	0.3	0.8
481	-4.1	-3.1	-1.9	-1.6	-1.2	-1.8	-0.6	-0.5	-0.2	0.2	0.1	0.2	-0.3	0.3	0.6
482	-4.0	-3.1	-2.0	-1.6	-1.2	-2.0	-0.8	-0.6	-0.3	0.1	0.1	0.2	0.2	0.4	0.4
483	-4.1	-3.2	-2.0	-1.6	-1.2	-2.0	-0.7	-0.5	-0.3	0.3	0.2	0.3	0.1	0.3	0.4
484	-3.9	-3.2	-2.0	-1.7	-1.2	-2.2	-0.8	-0.7	-0.3	0.3	0.1	0.3	-0.3	0.3	0.8
485	-3.7	-3.2	-2.0	-1.7	-1.2	-2.4	-0.9	-0.8	-0.4	0.2	0.0	0.3	-0.3	0.4	0.9
486	-3.5	-3.2	-2.0	-1.7	-1.2	-2.7	-1.1	-0.9	-0.4	0.2	0.0	0.3	-0.2	0.4	0.9

High-Water Shoreline Position (UTM Zone 18, NAD 1983)

Transect #	1839/42 UTM-x (m)	1839/42 UTM-y (m)	1864/86 UTM-x (m)	1864/86 UTM-y (m)	1899 UTM-x (m)	1899 UTM-y (m)	1932 UTM-x (m)	1932 UTM-y (m)	1950/51 UTM-x (m)	1950/51 UTM-y (m)	1977 UTM-x (m)	1977 UTM-y (m)
406			4420312	579184.9	4420312	579181.7	4420308	579213.7	4420307	579226.3	4420304	579247.9
407			4420263	579177.4	4420263	579173.5	4420259	579205.7	4420257	579224.1	4420255	579240.8
408			4420214	579165.4	4420214	579164.5	4420209	579202.5	4420207	579215.9	4420205	579233.2
409			4420164	579155.8	4420165	579155.5	4420159	579196.8	4420158	579203.7	4420156	579226.0
410			4420115	579145.4	4420115	579147.0	4420110	579186.9	4420110	579191.2	4420106	579219.3
411			4420066	579135.9	4420066	579138.8	4420061	579180.9	4420061	579177.0	4420057	579208.9
412			4420017	579126.1	4420016	579131.0	4420011	579173.4	4420012	579162.3	4420008	579199.6
413			4419967	579120.3	4419967	579124.6	4419961	579169.1	4419963	579154.9	4419959	579190.3
414			4419918	579115.8	4419917	579118.2	4419912	579156.2	4419913	579154.6	4419909	579180.8
415			4419866	579122.1	4419868	579111.4	4419863	579151.5	4419863	579150.2	4419860	579170.0
416			4419816	579125.0	4419819	579101.5	4419814	579141.4	4419813	579143.1	4419811	579160.3
417			4419767	579113.6	4419769	579091.6	4419764	579132.8	4419764	579136.1	4419762	579151.2
418			4419718	579098.2	4419720	579085.8	4419716	579119.3	4419715	579126.0	4419712	579144.5
419			4419669	579085.2	4419670	579081.0	4419666	579113.9	4419665	579122.8	4419663	579137.1
420			4419620	579075.6	4419620	579077.7	4419617	579103.2	4419616	579111.7	4419614	579128.7
421			4419571	579068.6	4419570	579070.8	4419568	579093.4	4419566	579103.0	4419564	579118.0
422			4419521	579061.7	4419521	579061.9	4419518	579084.3	4419517	579096.9	4419515	579109.8
423			4419472	579050.2	4419472	579053.0	4419469	579077.3	4419467	579092.7	4419465	579105.6
424			4419423	579040.6	4419423	579040.8	4419420	579068.5	4419418	579081.6	4419419	579070.6
425			4419374	579033.0	4419374	579029.6	4419370	579058.8	4419369	579066.5	4419371	579055.8
426			4419324	579030.6	4419325	579021.2	4419321	579051.9	4419320	579058.3	4419322	579044.6
427			4419274	579025.8	4419275	579013.4	4419272	579043.5	4419270	579051.8	4419272	579042.3
428			4419225	579014.7	4419226	579005.4	4419222	579034.9	4419221	579043.4	4419222	579037.5
429			4419176	579002.5	4419176	578999.4	4419173	579026.2	4419172	579033.8	4419172	579031.9
430			4419127	578992.9	4419127	578993.9	4419124	579017.2	4419122	579029.6	4419122	579028.8
431			4419077	578984.6	4419077	578987.7	4419074	579009.9	4419073	579017.6	4419072	579023.6
432			4419028	578976.7	4419027	578981.5	4419025	579002.8	4419024	579010.6	4419023	579016.0
433			4418978	578971.5	4418978	578974.8	4418975	578994.0	4418975	578998.7	4418974	579006.1
434			4418928	578967.0	4418929	578965.7	4418926	578985.0	4418926	578987.4	4418925	578994.0
435			4418878	578963.0	4418880	578953.4	4418876	578979.2	4418876	578985.3	4418876	578985.3
436			4418829	578956.9	4418831	578941.3	4418827	578973.2	4418826	578976.7	4418827	578975.5
437	4418766	579056.1	4418779	578952.8	4418781	578936.8	4418777	578965.3	4418777	578972.4	4418778	578964.0
438	4418716	579050.6	4418729	578949.3	4418731	578934.5	4418728	578956.7	4418727	578967.9	4418728	578955.4
439	4418667	579039.5	4418679	578946.5	4418681	578926.9	4418679	578948.3	4418678	578957.9	4418679	578946.9
440	4418618	579030.2	4418629	578941.7	4418632	578919.3	4418630	578938.7	4418629	578947.1	4418629	578940.1
441	4418568	579027.3	4418580	578935.3	4418582	578914.7	4418580	578932.3	4418579	578937.4	4418580	578932.6
442	4418519	579016.4	4418531	578923.8	4418533	578907.2	4418531	578922.8	4418530	578928.4	4418530	578926.9
443	4418468	579018.8	4418482	578911.7	4418483	578899.2	4418481	578915.3	4418481	578920.4	4418481	578918.5
444	4418418	579015.1	4418433	578901.1	4418434	578889.7	4418431	578911.0	4418432	578910.5	4418432	578908.8
445	4418369	579005.9	4418384	578890.4	4418385	578879.6	4418382	578903.7	4418382	578905.7	4418383	578897.6
446	4418319	579004.9	4418335	578878.3	4418336	578871.7	4418332	578898.3	4418333	578896.6	4418333	578889.8
447	4418270	578995.1	4418284	578880.5	4418286	578866.0	4418282	578893.9	4418283	578887.1	4418284	578884.2
448	4418219	578994.5	4418235	578872.4	4418236	578859.9	4418233	578886.1	4418234	578878.4	4418234	578880.7
449	4418169	578993.0	4418185	578865.5	4418187	578849.4	4418183	578879.8	4418184	578873.2	4418184	578877.0
450	4418119	578992.7	4418136	578858.0	4418138	578842.4	4418134	578872.7	4418134	578869.0	4418134	578873.6
451	4418069	578987.3	4418086	578852.0	4418088	578836.0	4418084	578865.7	4418085	578864.6	4418084	578867.0
452	4418018	578989.8	4418037	578844.2	4418039	578829.0	4418035	578861.8	4418035	578859.5	4418035	578858.9
453	4417968	578986.7	4417987	578835.3	4417989	578822.0	4417985	578853.7	4417985	578856.4	4417985	578852.1
454	4417919	578980.5	4417938	578830.8	4417940	578815.0	4417935	578848.5	4417935	578848.5	4417934	578861.4
455	4417869	578976.8	4417888	578826.4	4417890	578808.7	4417885	578845.3	4417886	578842.4	4417885	578846.6
456	4417819	578975.6	4417838	578822.2	4417840	578803.4	4417836	578836.3	4417836	578834.5	4417837	578830.4
457	4417770	578962.2	4417788	578822.3	4417791	578798.0	4417787	578826.2	4417787	578824.1	4417787	578830.2
458	4417720	578954.3	4417737	578819.8	4417741	578792.0	4417738	578815.8	4417739	578809.5	4417736	578833.4
459	4417670	578951.1	4417688	578814.1	4417691	578785.8	4417689	578807.8	4417690	578798.4	4417686	578827.9
460	4417621	578941.3	4417639	578803.5	4417642	578778.3	4417639	578804.6	4417639	578798.2	4417636	578822.3
461	4417572	578931.9	4417589	578797.7	4417592	578770.8	4417589	578797.7	4417589	578799.7	4417587	578817.8
462	4417522	578926.6	4417539	578792.2	4417543	578764.3	4417540	578790.2	4417539	578794.8	4417536	578817.1
463	4417474	578914.2	4417490	578786.0	4417493	578758.9	4417490	578783.6	4417489	578792.0	4417487	578810.1
464	4417425	578900.3	4417440	578780.7	4417443	578753.4	4417440	578779.3	4417440	578783.8	4417437	578806.9
465	4417374	578903.2	4417390	578776.3	4417394	578747.8	4417391	578772.9	4417391	578770.2	4417387	578801.1
466	4417324	578900.2	4417340	578773.3	4417344	578742.2	4417341	578767.8	4417342	578760.3	4417338	578791.9
467	4417274	578894.5	4417290	578768.4	4417294	578736.3	4417291	578764.0	4417292	578756.4	4417288	578784.7
468	4417225	578884.8	4417241	578760.0	4417245	578730.3	4417241	578758.6	4417242	578750.5	4417239	578775.2
469	4417175	578885.5	4417192	578751.4	4417195	578724.3	4417191	578754.9	4417193	578744.3	4417190	578765.1
470	4417125	578878.2	4417142	578744.0	4417145	578720.5	4417141	578752.4	4417143	578738.2	4417141	578756.4
471	4417076	578873.1	4417091	578748.9	4417095	578718.1	4417091	578746.9	4417093	578735.6	4417091	578750.7
472	4417026	578867.5	4417042	578740.6	4417045	578712.9	4417042	578739.7	4417043	578734.3	4417041	578746.1
473	4416975	578868.7	4416991	578744.9	4416996	578705.9	4416993	578731.0	4416993	578731.9	4416991	578740.7
474	4416924	578872.9	4416941	578737.5	4416946	578700.6	4416943	578724.9	4416943	578722.9	4416942	578734.2
475	4416873	578879.1	4416891	578734.6	4416896	578695.0	4416894	578717.9	4416893	578721.8	4416893	578730.4
476	4416822	578885.3	4416841	578733.3	4416847	578691.2	4416844	578710.6	4416843	578716.2	4416842	578725.3
477	4416771	578890.2	4416791	578729.3	4416797	578688.2	4416794	578707.0	4416794	578704.8	4416793	578719.8
478	4416722	578879.6	4416742	578720.7	4416747	578683.5	4416744	578703.2	4416745	578693.3	4416742	578718.3
479	4416673	578869.1	4416692	578717.8	4416697	578678.8	4416695	578696.0	4416696	578684.8	4416693	578711.6
480	4416623	578863.8	4416642	578717.8	4416647	578677.3	4416645	578689.5	4416646	578683.7	4416643	578703.3
481	4416573	578859.8	4416591	578718.2	4416597	578674.7	4416596	578682.3	4416596	578677.2	4416594	578693.5
482	4416523	578858.5	4416541	578719.7	4416547	578671.1	4416546	578673.1	4416546	578677.5	4416544	578688.8
483	4416473	578858.4	4416491	578716.2	4416497	578665.5	4416496	578676.0	4416496	578677.2	4416494	578687.5
484	4416423	578851.0	4416440	578713.8	4416447	578659.4	4416446	578670.3	4416447	578663.8	4416444	578683.6
485	4416374	578844.2	4416390	578714.3	4416398	578654.2	4416397	578660.4	4416398	578654.4	4416395	578678.2
486	4416324	578837.4	4416339	578715.7	4416348	578649.3	4416347	578654.4	4416348	578650.1	4416345	578672.9

	High-Water Shoreline Position Change Rate														
	1839/42 to	1839/42 to	1839/42 to	1839/42 to	1839/42 to	1864/86 to	1864/86 to	1864/86 to	1864/86 to	1899 to	1899 to	1899 to	1932 to	1932 to	1950/51 to
Transect #	1864/86 (m/yr)	1899 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1899 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1977 (m/yr)
487	-3.5	-3.2	-2.0	-1.7	-1.2	-2.7	-1.1	-0.8	-0.5	0.1	0.1	0.2	-0.1	0.3	0.6
488	-3.8	-3.2	-2.1	-1.7	-1.3	-2.5	-1.1	-0.7	-0.5	0.0	0.1	0.2	0.3	0.3	0.3
489	-4.3	-3.6	-2.3	-1.9	-1.5	-2.5	-1.1	-0.8	-0.5	0.0	0.1	0.1	0.3	0.2	0.2
490	-4.7	-3.7	-2.4	-2.0	-1.6	-2.5	-1.1	-0.8	-0.5	0.0	0.0	0.1	0.2	0.2	0.2
491	-4.6	-3.7	-2.4	-2.0	-1.6	-2.4	-1.1	-0.8	-0.6	-0.1	0.0	0.0	0.1	0.1	0.1
492	-4.0	-3.4	-2.2	-1.8	-1.5	-2.5	-1.2	-0.8	-0.6	-0.1	0.0	0.0	0.3	0.1	0.0
493	-3.7	-3.1	-2.1	-1.7	-1.3	-2.3	-1.1	-0.8	-0.6	-0.3	0.0	0.0	0.4	0.2	0.0
494	-3.6	-3.0	-2.1	-1.6	-1.3	-2.2	-1.1	-0.7	-0.5	-0.3	0.0	0.0	0.6	0.3	0.1
495	-3.6	-3.0	-2.1	-1.6	-1.3	-2.1	-1.1	-0.7	-0.5	-0.4	0.0	0.0	0.7	0.3	0.0
496	-4.0	-3.1	-2.2	-1.7	-1.4	-1.9	-1.1	-0.6	-0.5	-0.4	0.0	0.0	0.8	0.3	-0.1
497	-4.0	-3.1	-2.2	-1.7	-1.3	-1.9	-1.2	-0.6	-0.4	-0.6	0.0	0.1	1.0	0.6	0.2
498	-4.0	-3.2	-2.3	-1.8	-1.3	-2.2	-1.3	-0.7	-0.4	-0.6	0.0	0.2	0.9	0.7	0.6
499	-4.0	-3.3	-2.4	-1.9	-1.4	-2.3	-1.3	-0.9	-0.5	-0.6	-0.2	0.2	0.6	0.7	0.8
500	-4.0	-3.3	-2.4	-1.9	-1.4	-2.5	-1.4	-0.9	-0.5	-0.6	-0.1	0.1	0.6	0.6	0.5
501	-4.0	-3.4	-2.4	-1.9	-1.4	-2.4	-1.4	-0.9	-0.6	-0.5	-0.1	0.0	0.6	0.4	0.3
502	-3.7	-3.2	-2.3	-1.8	-1.4	-2.5	-1.4	-0.9	-0.6	-0.6	-0.2	0.0	0.5	0.4	0.3
503	-3.5	-3.1	-2.3	-1.7	-1.4	-2.5	-1.5	-0.9	-0.6	-0.7	-0.1	0.0	0.9	0.5	0.1
504	-3.7	-3.2	-2.3	-1.7	-1.4	-2.5	-1.5	-0.8	-0.6	-0.7	0.0	0.0	1.1	0.5	0.1
505	-3.8	-3.2	-2.3	-1.8	-1.4	-2.4	-1.3	-0.8	-0.5	-0.5	-0.1	0.1	0.7	0.5	0.4
506	-3.7	-3.1	-2.2	-1.7	-1.3	-2.2	-1.2	-0.7	-0.5	-0.5	0.0	0.1	0.8	0.5	0.4
507	-3.6	-3.0	-2.1	-1.6	-1.2	-2.1	-1.1	-0.7	-0.4	-0.4	-0.1	0.1	0.5	0.4	0.4
508	-3.3	-2.7	-1.9	-1.5	-1.2	-1.9	-1.0	-0.6	-0.4	-0.3	-0.1	0.0	0.4	0.3	0.1
509	-3.2	-2.6	-1.8	-1.4	-1.1	-1.7	-0.9	-0.5	-0.4	-0.3	0.1	0.0	0.8	0.2	-0.2
510	-3.1	-2.5	-1.7	-1.3	-1.1	-1.8	-0.9	-0.5	-0.5	-0.3	0.2	0.0	1.0	0.2	-0.4
511	-2.6	-2.3	-1.5	-1.1	-1.0	-1.8	-0.9	-0.4	-0.5	-0.2	0.3	0.0	1.0	0.1	-0.6
512	-2.3	-2.1	-1.4	-1.0	-1.0	-1.9	-0.8	-0.4	-0.5	0.0	0.3	-0.1	0.9	-0.1	-0.8
513	-3.0	-2.5	-1.5	-1.2	-1.1	-1.7	-0.6	-0.4	-0.5	0.2	0.3	-0.1	0.5	-0.2	-0.8
514	-3.6	-2.8	-1.7	-1.3	-1.3	-1.7	-0.6	-0.3	-0.5	0.3	0.3	-0.1	0.4	-0.3	-0.8
515	-4.3	-3.2	-2.0	-1.6	-1.4	-1.7	-0.6	-0.3	-0.4	0.3	0.3	0.0	0.4	-0.2	-0.7
516	-4.7	-3.4	-2.1	-1.6	-1.4	-1.7	-0.5	-0.2	-0.3	0.3	0.4	0.1	0.7	0.0	-0.6
517	-4.5	-3.3	-2.0	-1.6	-1.3	-1.6	-0.5	-0.2	-0.2	0.4	0.5	0.2	0.7	0.1	-0.4
518	-4.6	-3.3	-2.0	-1.6	-1.3	-1.5	-0.5	-0.2	-0.2	0.3	0.4	0.3	0.6	0.2	-0.1
519	-5.0	-3.5	-2.1	-1.6	-1.3	-1.4	-0.5	-0.1	-0.1	0.3	0.5	0.3	1.0	0.3	-0.2
520	-5.3	-3.6	-2.3	-1.7	-1.4	-1.4	-0.5	-0.1	0.0	0.2	0.5	0.4	1.1	0.5	0.1
521	-5.1	-3.6	-2.2	-1.6	-1.3	-1.3	-0.4	0.0	0.0	0.3	0.6	0.4	1.1	0.4	0.0
522	-5.1	-3.5	-2.2	-1.6	-1.3	-1.3	-0.4	0.0	0.0	0.3	0.5	0.4	1.0	0.4	0.0
523	-5.0	-3.4	-2.1	-1.6	-1.3	-1.2	-0.4	0.0	0.0	0.2	0.6	0.4	1.2	0.5	0.0
524	-4.7	-3.2	-2.0	-1.5	-1.1	-1.1	-0.3	0.0	0.1	0.3	0.5	0.4	0.8	0.5	0.4
525	-4.4	-3.0	-1.8	-1.5	-1.1	-1.0	-0.2	-0.1	0.1	0.4	0.3	0.4	0.0	0.4	0.7
526	-4.5	-3.0	-1.8	-1.5	-1.1	-1.0	-0.2	-0.2	0.0	0.3	0.2	0.3	0.0	0.3	0.5
527	-4.8	-3.2	-2.0	-1.5	-1.3	-1.0	-0.3	-0.1	-0.1	0.2	0.4	0.2	0.7	0.2	-0.1
528	-5.1	-3.4	-2.1	-1.6	-1.4	-1.0	-0.3	0.0	-0.1	0.2	0.4	0.1	0.8	0.1	-0.5
529	-5.7	-3.7	-2.3	-1.7	-1.6	-0.9	-0.3	0.1	-0.2	0.1	0.5	0.1	1.3	0.0	-0.9
530	-6.1	-3.8	-2.4	-1.8	-1.6	-0.6	-0.3	0.2	-0.1	0.0	0.6	0.1	1.6	0.2	-0.8
531	-6.1	-3.8	-2.5	-1.8	-1.6	-0.6	-0.3	0.2	0.0	0.0	0.6	0.1	1.6	0.2	-0.7
532	-6.2	-3.8	-2.5	-1.8	-1.5	-0.4	-0.2	0.2	0.1	0.0	0.4	0.2	1.3	0.4	-0.3
533	-6.3	-3.9	-2.6	-1.9	-1.5	-0.4	-0.3	0.0	0.1	-0.2	0.3	0.3	1.1	0.7	0.4
534	-6.3	-3.9	-2.6	-2.0	-1.4	-0.5	-0.4	0.0	0.2	-0.4	0.2	0.4	1.1	1.0	1.0
535	-6.1	-3.7	-2.6	-2.0	-1.4	-0.5	-0.5	-0.1	0.2	-0.6	0.0	0.4	1.1	1.2	1.2
536	-5.7	-3.4	-2.4	-1.9	-1.3	-0.2	-0.5	-0.2	0.2	-0.7	-0.1	0.3	0.9	1.1	1.2
537	-5.9	-3.4	-2.5	-1.9	-1.4	0.0	-0.4	-0.1	0.2	-0.8	-0.2	0.2	0.8	0.9	1.0
538	-6.0	-3.5	-2.5	-2.0	-1.4	0.1	-0.4	-0.1	0.1	-0.7	-0.2	0.1	0.7	0.8	0.8
539	-6.0	-3.7	-2.5	-2.0	-1.6	-0.3	-0.3	-0.1	-0.1	-0.3	0.0	0.0	0.6	0.2	0.0
540	-6.0	-3.7	-2.4	-1.9	-1.5	-0.5	-0.2	-0.1	0.0	0.0	0.2	0.1	0.4	0.2	0.0
541	-6.1	-3.7	-2.4	-1.9	-1.5	-0.4	-0.2	0.0	0.0	-0.1	0.1	0.1	0.5	0.3	0.1
542	-6.4	-3.8	-2.5	-2.0	-1.6	-0.1	-0.1	0.1	0.1	-0.1	0.1	0.1	0.5	0.3	0.1
543	-6.6	-3.8	-2.6	-1.9	-1.6	0.2	-0.1	0.2	0.0	-0.3	0.2	0.0	1.1	0.3	-0.3
544	-6.6	-3.7	-2.5	-1.8	-1.7	0.3	-0.1	0.3	0.0	-0.3	0.4	-0.1	1.5	0.1	-0.9
545	-6.3	-3.5	-2.4	-1.7	-1.6	0.3	0.0	0.4	0.0	-0.3	0.4	-0.1	1.5	0.0	-1.1
546	-6.1	-3.5	-2.4	-1.7	-1.6	0.1	-0.1	0.3	-0.1	-0.2	0.5	-0.1	1.7	0.0	-1.3
547	-5.9	-3.6	-2.3	-1.7	-1.6	-0.3	-0.2	0.2	-0.1	-0.1	0.4	-0.1	1.4	0.0	-1.0
548	-5.7	-3.5	-2.2	-1.6	-1.5	-0.3	-0.1	0.2	0.0	0.0	0.5	0.0	1.2	0.1	-0.8
549	-5.4	-3.2	-2.0	-1.5	-1.4	-0.2	0.0	0.3	0.0	0.1	0.5	0.1	1.1	0.0	-0.7
550	-6.0	-3.6	-2.2	-1.7	-1.5	-0.1	0.1	0.3	0.0	0.2	0.5	0.1	0.8	0.0	-0.6
551	-6.8	-4.1	-2.5	-2.0	-1.7	-0.3	0.1	0.2	0.0	0.4	0.4	0.1	0.5	-0.1	-0.6
552	-7.0	-4.1	-2.5	-2.0	-1.7	-0.1	0.2	0.3	0.1	0.5	0.5	0.1	0.7	-0.1	-0.7
553	-6.9	-4.0	-2.4	-1.9	-1.7	0.0	0.4	0.4	0.1	0.6	0.6	0.2	0.6	-0.2	-0.8
554	-6.8	-4.0	-2.3	-1.8	-1.6	-0.2	0.3	0.4	0.1	0.7	0.7	0.2	0.7	-0.2	-0.9
555	-6.8	-4.0	-2.3	-1.8	-1.7	-0.1	0.4	0.5	0.1	0.8	0.8	0.1	0.6	-0.4	-1.1
556	-6.9	-4.1	-2.4	-1.8	-1.7	0.0	0.4	0.5	0.1	0.7	0.7	0.1	0.7	-0.4	-1.2
557	-6.8	-4.1	-2.3	-1.8	-1.7	-0.2	0.5	0.5	0.0	1.0	0.8	0.1	0.5	-0.6	-1.4
558	-6.5	-4.0	-2.2	-1.7	-1.7	-0.5	0.4	0.5	0.0	1.1	1.0	0.1	0.8	-0.6	-1.6
559	-6.1	-3.9	-2.1	-1.6	-1.6	-0.9	0.3	0.4	-0.1	1.1	1.0	0.2	0.9	-0.5	-1.6
560	-6.0	-3.9	-2.1	-1.6	-1.6	-1.0	0.2	0.4	-0.1	1.1	1.0	0.2	0.8	-0.5	-1.4
561	-6.0	-4.0	-2.2	-1.7	-1.6	-1.3	0.1	0.3	-0.1	1.1	1.0	0.3	0.9	-0.3	-1.1
562	-6.0	-4.1	-2.4	-1.8	-1.6	-1.4	-0.2	0.2	0.0	0.8	0.9	0.4	1.2	0.1	-0.6
563	-6.4	-4.2	-2.5	-1.9	-1.6	-1.3	-0.2	0.1	0.1	0.7	0.8	0.5	1.0	0.3	-0.2
564	-6.4	-4.2	-2.5	-1.9	-1.6	-1.2	-0.1	0.2	0.1	0.6	0.8	0.5	1.2	0.4	-0.2
565	-6.4	-4.2	-2.5	-1.8	-1.5	-1.0	-0.1	0.3	0.2	0.5	0.9	0.5	1.5	0.5	-0.2
566	-6.4	-4.1	-2.5	-1.8	-1.4	-0.8	-0.1	0.3	0.2	0.4	0.8	0.6	1.5	0.7	0.1
567	-6.3	-4.0	-2.5	-1.8	-1.4	-0.7	-0.1	0.3	0.2	0.3	0.8	0.5	1.7	0.6	-0.1

	High-Water Shoreline Position (UTM Zone 18, NAD 1983)											
	1839/42		1864/86		1899		1932		1950/51		1977	
Transect #	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)
487	4416274	578832.9	4416290	578710.9	4416298	578644.9	4416298	578648.9	4416298	578647.8	4416296	578664.1
488	4416224	578833.1	4416240	578702.6	4416248	578640.8	4416248	578640.8	4416247	578646.1	4416246	578653.8
489	4416171	578848.6	4416190	578698.8	4416198	578636.2	4416198	578635.2	4416198	578640.3	4416197	578646.0
490	4416120	578855.2	4416141	578693.4	4416148	578632.4	4416149	578630.8	4416148	578634.1	4416148	578638.7
491	4416071	578846.6	4416091	578688.5	4416098	578628.6	4416099	578626.6	4416098	578629.0	4416098	578631.2
492	4416023	578825.0	4416041	578687.6	4416049	578624.6	4416049	578620.3	4416049	578625.0	4416049	578624.9
493	4415976	578804.3	4415992	578677.2	4415999	578620.4	4416000	578612.0	4415999	578619.0	4415999	578619.6
494	4415926	578796.3	4415942	578670.4	4415949	578616.1	4415950	578605.2	4415949	578616.6	4415948	578619.8
495	4415877	578790.0	4415893	578663.3	4415899	578611.9	4415901	578599.9	4415899	578613.4	4415899	578614.6
496	4415825	578795.8	4415843	578656.6	4415849	578608.9	4415851	578594.8	4415849	578609.9	4415849	578608.3
497	4415776	578791.3	4415793	578653.7	4415799	578605.9	4415801	578586.8	4415799	578606.4	4415798	578612.4
498	4415725	578794.2	4415742	578654.9	4415749	578600.8	4415752	578582.5	4415749	578598.8	4415748	578613.2
499	4415674	578796.2	4415692	578655.9	4415699	578597.9	4415702	578578.4	4415700	578590.1	4415698	578609.9
500	4415624	578793.7	4415642	578655.4	4415649	578594.3	4415652	578574.9	4415650	578587.1	4415648	578600.7
501	4415574	578791.0	4415592	578651.0	4415599	578590.3	4415601	578573.3	4415600	578583.9	4415599	578592.9
502	4415525	578777.0	4415542	578647.0	4415549	578586.2	4415552	578566.9	4415551	578576.5	4415550	578584.5
503	4415476	578766.7	4415492	578644.4	4415500	578581.4	4415503	578558.2	4415500	578575.4	4415500	578578.9
504	4415426	578768.4	4415442	578638.9	4415450	578576.1	4415453	578554.5	4415450	578574.2	4415450	578576.4
505	4415376	578761.8	4415393	578629.4	4415400	578570.8	4415402	578553.3	4415401	578567.2	4415399	578577.0
506	4415327	578751.3	4415343	578621.8	4415350	578566.4	4415352	578551.7	4415350	578565.8	4415349	578575.6
507	4415278	578740.1	4415294	578615.7	4415300	578563.7	4415302	578549.9	4415301	578560.0	4415300	578569.9
508	4415230	578723.3	4415244	578607.2	4415250	578560.9	4415252	578550.3	4415251	578557.8	4415250	578561.5
509	4415181	578711.0	4415195	578599.3	4415200	578557.8	4415202	578546.4	4415200	578560.8	4415201	578555.8
510	4415132	578702.3	4415145	578595.7	4415151	578552.1	4415152	578542.2	4415149	578561.2	4415151	578549.7
511	4415084	578680.7	4415095	578592.1	4415101	578546.5	4415102	578540.7	4415099	578559.8	4415101	578543.3
512	4415035	578668.1	4415045	578587.7	4415051	578541.4	4415051	578541.9	4415049	578557.9	4415052	578536.0
513	4414983	578682.6	4414996	578579.1	4415001	578536.2	4415001	578542.7	4415000	578551.4	4415002	578531.9
514	4414931	578696.9	4414946	578573.3	4414952	578531.0	4414951	578539.7	4414950	578547.4	4414952	578525.5
515	4414878	578718.7	4414897	578568.3	4414902	578525.5	4414901	578535.1	4414900	578543.3	4414902	578525.7
516	4414827	578723.7	4414847	578561.5	4414852	578520.1	4414851	578530.7	4414849	578543.0	4414851	578528.6
517	4414778	578712.6	4414797	578555.4	4414802	578515.4	4414801	578527.2	4414799	578540.1	4414800	578531.0
518	4414728	578707.2	4414748	578549.1	4414753	578511.4	4414751	578521.7	4414750	578533.0	4414750	578531.5
519	4414677	578714.0	4414698	578542.0	4414703	578507.4	4414702	578515.8	4414699	578535.2	4414700	578531.3
520	4414626	578719.3	4414649	578536.7	4414653	578503.2	4414652	578510.0	4414649	578531.2	4414649	578532.9
521	4414576	578709.9	4414599	578531.3	4414603	578498.2	4414602	578508.7	4414599	578528.8	4414599	578528.7
522	4414527	578702.9	4414549	578524.5	4414553	578493.3	4414552	578501.9	4414550	578521.1	4414550	578520.9
523	4414478	578692.0	4414500	578519.1	4414503	578488.9	4414502	578496.8	4414500	578519.7	4414500	578519.0
524	4414430	578675.0	4414450	578512.0	4414454	578484.8	4414452	578494.5	4414450	578509.1	4414449	578518.2
525	4414381	578659.0	4414400	578505.8	4414404	578480.5	4414402	578494.4	4414402	578495.2	4414400	578512.6
526	4414331	578654.9	4414351	578500.3	4414354	578475.7	4414353	578486.0	4414353	578485.4	4414351	578499.2
527	4414280	578660.2	4414301	578494.6	4414304	578470.9	4414303	578477.0	4414302	578489.7	4414302	578487.0
528	4414229	578667.8	4414251	578490.8	4414254	578466.2	4414253	578472.8	4414251	578488.7	4414253	578475.7
529	4414177	578681.0	4414202	578484.8	4414204	578462.8	4414204	578466.5	4414201	578490.9	4414204	578468.1
530	4414126	578685.2	4414152	578474.8	4414154	578459.3	4414154	578459.4	4414151	578488.9	4414153	578467.3
531	4414076	578681.8	4414103	578469.5	4414104	578455.4	4414105	578454.7	4414101	578484.6	4414103	578465.3
532	4414026	578677.8	4414053	578461.8	4414055	578451.5	4414055	578450.6	4414052	578474.3	4414053	578467.5
533	4413976	578677.1	4414003	578458.5	4414005	578447.7	4414006	578440.4	4414003	578461.1	4414002	578472.0
534	4413926	578673.9	4413953	578456.0	4413955	578443.9	4413956	578432.0	4413954	578453.1	4413950	578478.1
535	4413877	578664.1	4413903	578453.7	4413905	578442.5	4413907	578424.0	4413904	578444.9	4413900	578476.6
536	4413828	578645.7	4413853	578448.8	4413854	578443.0	4413857	578419.9	4413855	578437.1	4413851	578468.1
537	4413778	578643.2	4413804	578439.9	4413804	578439.7	4413807	578414.3	4413805	578429.9	4413802	578456.4
538	4413728	578642.1	4413755	578432.7	4413754	578435.1	4413757	578411.1	4413756	578423.7	4413753	578445.5
539	4413678	578639.0	4413705	578429.0	4413706	578421.1	4413707	578411.0	4413706	578421.7	4413706	578420.8
540	4413629	578627.1	4413655	578419.3	4413657	578406.8	4413657	578407.2	4413656	578415.5	4413656	578415.2
541	4413579	578621.8	4413606	578411.5	4413607	578401.4	4413608	578399.5	4413606	578408.8	4413606	578410.9
542	4413529	578624.2	4413557	578401.0	4413557	578398.9	4413558	578395.1	4413556	578405.4	4413556	578407.9
543	4413479	578622.2	4413508	578392.7	4413507	578397.6	4413508	578386.4	4413506	578406.4	4413507	578397.6
544	4413429	578615.3	4413458	578387.5	4413457	578394.8	4413458	578384.6	4413455	578413.0	4413458	578389.3
545	4413381	578600.9	4413408	578383.3	4413407	578390.6	4413408	578381.6	4413405	578410.6	4413408	578382.9
546	4413331	578596.4	4413358	578383.1	4413357	578385.1	4413358	578378.3	4413354	578409.8	4413358	578377.4
547	4413281	578591.3	4413307	578385.8	4413308	578378.8	4413308	578375.0	4413305	578401.4	4413308	578374.7
548	4413232	578577.5	4413257	578378.8	4413258	578371.0	4413258	578372.2	4413255	578394.5	4413258	578374.5
549	4413185	578556.0	4413208	578368.2	4413209	578364.3	4413208	578368.1	4413206	578389.2	4413208	578370.0
550	4413132	578569.8	4413159	578360.4	4413159	578357.6	4413158	578365.2	4413156	578380.8	4413158	578364.5
551	4413079	578596.3	4413109	578359.3	4413109	578352.8	4413108	578366.2	4413107	578375.9	4413108	578361.7
552	4413029	578593.0	4413059	578350.6	4413060	578348.3	4413058	578363.3	4413056	578376.3	4413058	578359.3
553	4412980	578580.9	4413010	578341.5	4413010	578342.6	4413007	578363.5	4413006	578374.9	4413008	578354.8
554	4412930	578575.1	4412960	578339.6	4412961	578335.3	4412958	578358.9	4412956	578372.6	4412959	578349.9
555	4412880	578570.2	4412910	578332.6	4412911	578330.4	4412907	578358.0	4412906	578369.0	4412909	578341.7
556	4412830	578567.7	4412861	578326.4	4412861	578326.1	4412858	578349.8	4412856	578363.8	4412860	578332.6
557	4412781	578559.0	4412811	578321.8	4412812	578317.0	4412808	578348.5	4412806	578358.8	4412811	578322.1
558	4412732	578546.1	4412761	578320.4	4412762	578308.1	4412758	578343.7	4412756	578359.3	4412761	578318.5
559	4412683	578537.7	4412710	578325.2	4412712	578303.9	4412708	578339.7	4412706	578356.5	4412711	578315.7
560	4412633	578533.2	4412660	578323.7	4412663	578298.8	4412658	578335.9	4412656	578350.9	4412661	578314.9
561	4412583	578533.9	4412609	578326.6	4412613	578293.6	4412608	578330.8	4412606	578346.7	4412610	578318.5
562	4412532	578537.9	4412558	578328.0	4412563	578293.3	4412559	578318.8	4412557	578340.9	4412559	578324.6
563	4412480	578544.7	4412508	578324.0	4412512	578293.0	4412510	578314.8	4412507	578334.0	4412508	578329.6
564	4412430	578542.1	4412458	578321.0	4412462	578291.6	4412459	578312.8	4412457	578335.0	4412457	578329.1
565	4412381	578536.5	4412409	578313.8	4412412	578289.4	4412410	578307.0	4412406	578335.0	4412407	578329.9
566	4412331	578528.2	4412359	578306.0	4412362	578286.2	4412360	578300.3	4412357	578328.1	4412356	578331.0
567	4412282	578520.0	4412310	578301.1	4412312	578283.7	4412311	578293.7	4412307	578325.4	4412307	578321.9

High-Water Shoreline Position Change Rate

Transect #	1839/42 to 1864/86 (m/yr)	1839/42 to 1899 (m/yr)	1839/42 to 1932 (m/yr)	1839/42 to 1950/51 (m/yr)	1839/42 to 1977 (m/yr)	1864/86 to 1899 (m/yr)	1864/86 to 1932 (m/yr)	1864/86 to 1950/51 (m/yr)	1864/86 to 1977 (m/yr)	1899 to 1932 (m/yr)	1899 to 1950/51 (m/yr)	1899 to 1977 (m/yr)	1932 to 1950/51 (m/yr)	1932 to 1977 (m/yr)	1950/51 to 1977 (m/yr)
568	-6.3	-3.9	-2.5	-1.8	-1.5	-0.6	-0.2	0.3	0.1	0.2	0.8	0.4	1.8	0.5	-0.4
569	-6.2	-3.9	-2.5	-1.8	-1.5	-0.7	-0.2	0.2	0.1	0.1	0.7	0.3	1.6	0.4	-0.4
570	-6.2	-4.0	-2.5	-1.8	-1.5	-0.9	-0.2	0.3	0.1	0.3	0.8	0.4	1.7	0.4	-0.5
571	-5.9	-3.9	-2.4	-1.7	-1.5	-1.1	-0.2	0.2	0.0	0.4	0.9	0.4	1.6	0.4	-0.5
572	-5.9	-4.0	-2.4	-1.8	-1.5	-1.4	-0.3	0.1	0.0	0.6	0.8	0.5	1.3	0.4	-0.2
573	-5.9	-4.0	-2.4	-1.8	-1.4	-1.4	-0.3	0.0	0.1	0.5	0.7	0.5	1.0	0.5	0.2
574	-6.1	-4.1	-2.5	-1.9	-1.5	-1.4	-0.4	0.0	0.1	0.5	0.7	0.6	1.0	0.7	0.4
575	-5.9	-4.2	-2.5	-1.9	-1.5	-1.8	-0.4	-0.1	0.0	0.6	0.7	0.5	0.8	0.5	0.3
576	-5.7	-4.2	-2.5	-1.9	-1.6	-2.2	-0.6	-0.3	-0.2	0.7	0.7	0.5	0.7	0.3	0.0
577	-5.5	-4.2	-2.4	-1.9	-1.6	-2.4	-0.5	-0.3	-0.3	0.9	0.7	0.4	0.4	0.0	-0.3
578	-5.5	-4.3	-2.5	-2.0	-1.7	-2.6	-0.7	-0.4	-0.3	0.8	0.7	0.4	0.5	0.1	-0.2
579	-5.9	-4.4	-2.5	-2.0	-1.7	-2.3	-0.5	-0.2	-0.2	0.8	0.8	0.4	0.7	0.1	-0.3
580	-6.0	-4.4	-2.6	-2.0	-1.7	-2.1	-0.5	-0.2	-0.2	0.8	0.8	0.4	0.8	0.1	-0.4
581	-5.8	-4.2	-2.5	-1.9	-1.6	-1.9	-0.4	-0.2	-0.2	0.7	0.7	0.4	0.6	0.2	-0.2
582	-5.7	-4.1	-2.4	-1.9	-1.3	-1.8	-0.4	-0.1	0.2	0.6	0.7	0.8	0.9	1.0	1.1
583	-5.7	-4.1	-2.5	-1.8	-1.3	-1.9	-0.6	-0.1	0.2	0.4	0.8	0.9	1.5	1.2	1.0
584	-5.6	-4.1	-2.5	-1.8	-1.3	-2.0	-0.6	-0.1	0.2	0.4	0.9	0.9	1.6	1.2	1.0
585	-5.4	-4.0	-2.4	-1.8	-1.2	-2.0	-0.6	-0.1	0.2	0.5	0.8	0.9	1.4	1.1	1.0
586	-5.2	-3.9	-2.4	-1.7	-1.2	-2.1	-0.6	-0.1	0.1	0.5	0.8	0.8	1.5	1.1	0.8
587	-5.4	-4.0	-2.4	-1.8	-1.3	-2.1	-0.7	-0.2	0.1	0.5	0.7	0.8	1.1	1.0	0.9
588	-5.7	-4.0	-2.5	-2.0	-1.4	-1.6	-0.6	-0.3	0.1	0.1	0.3	0.6	0.7	1.0	1.2
589	-6.3	-4.2	-2.7	-2.2	-1.5	-1.2	-0.5	-0.3	0.1	0.0	0.2	0.5	0.5	0.9	1.2
590	-6.4	-4.2	-2.7	-2.2	-1.5	-1.1	-0.5	-0.2	0.1	0.0	0.2	0.5	0.5	0.9	1.2
591	-6.5	-4.2	-2.7	-2.2	-1.6	-1.1	-0.4	-0.2	0.1	0.1	0.2	0.5	0.2	0.8	1.2
592	-6.4	-4.3	-2.7	-2.2	-1.5	-1.3	-0.5	-0.3	0.1	0.2	0.2	0.5	0.4	0.8	1.1
593	-6.0	-4.2	-2.6	-2.1	-1.5	-1.6	-0.5	-0.3	0.1	0.3	0.4	0.6	0.5	0.8	1.0
594	-5.9	-4.1	-2.5	-2.1	-1.4	-1.7	-0.5	-0.3	0.1	0.4	0.3	0.6	0.2	0.8	1.2
595	-5.8	-4.0	-2.5	-2.0	-1.4	-1.5	-0.5	-0.3	0.1	0.3	0.3	0.6	0.1	0.8	1.2
596	-5.7	-3.9	-2.4	-2.0	-1.4	-1.4	-0.5	-0.3	0.1	0.3	0.2	0.6	0.1	0.8	1.3
597	-5.6	-3.8	-2.4	-1.9	-1.4	-1.3	-0.4	-0.3	0.1	0.2	0.2	0.5	0.2	0.7	1.1
598	-5.7	-3.9	-2.4	-2.0	-1.4	-1.3	-0.4	-0.3	0.1	0.4	0.3	0.5	0.1	0.6	1.0
599	-6.0	-4.1	-2.5	-2.0	-1.5	-1.5	-0.4	-0.2	0.1	0.5	0.4	0.5	0.2	0.6	0.9
600	-6.2	-4.2	-2.5	-2.1	-1.5	-1.5	-0.3	-0.2	0.0	0.6	0.5	0.5	0.3	0.5	0.7
601	-6.2	-4.2	-2.5	-2.0	-1.5	-1.4	-0.3	-0.1	0.1	0.6	0.5	0.5	0.3	0.5	0.6
602	-6.4	-4.2	-2.5	-2.0	-1.5	-1.3	-0.1	-0.1	0.1	0.8	0.5	0.6	-0.1	0.4	0.7
603	-6.5	-4.2	-2.4	-2.0	-1.5	-1.1	0.0	0.0	0.2	0.8	0.5	0.5	0.0	0.3	0.6
604	-6.5	-4.3	-2.5	-2.0	-1.6	-1.2	0.0	0.0	0.1	0.8	0.5	0.5	0.1	0.3	0.5
605	-6.3	-4.2	-2.4	-2.1	-1.6	-1.2	-0.1	-0.1	0.1	0.7	0.4	0.4	-0.1	0.2	0.5
606	-6.2	-4.1	-2.4	-2.0	-1.5	-1.1	-0.1	0.0	0.0	0.7	0.5	0.4	0.2	0.2	0.2
607	-6.3	-4.2	-2.5	-2.0	-1.6	-1.2	-0.2	0.0	0.0	0.6	0.6	0.4	0.4	0.2	0.0
608	-5.9	-4.1	-2.4	-1.9	-1.5	-1.6	-0.3	-0.1	-0.1	0.7	0.6	0.4	0.5	0.2	0.0
609	-5.2	-3.8	-2.2	-1.7	-1.4	-2.0	-0.4	-0.2	-0.2	0.8	0.7	0.4	0.4	0.1	-0.1
610	-4.9	-3.8	-2.1	-1.7	-1.4	-2.2	-0.5	-0.3	-0.2	0.9	0.7	0.5	0.4	0.3	0.2
611	-5.2	-3.9	-2.2	-1.8	-1.4	-2.1	-0.4	-0.3	-0.1	0.9	0.6	0.5	0.2	0.3	0.3
612	-5.5	-4.1	-2.3	-1.9	-1.5	-2.2	-0.4	-0.2	-0.1	1.0	0.7	0.6	0.2	0.3	0.3
613	-5.7	-4.3	-2.4	-1.9	-1.5	-2.3	-0.4	-0.2	-0.1	1.1	0.9	0.6	0.4	0.3	0.2
614	-5.8	-4.3	-2.4	-1.9	-1.5	-2.3	-0.3	-0.1	-0.1	1.2	1.0	0.6	0.5	0.2	0.0
615	-6.0	-4.4	-2.4	-1.9	-1.6	-2.2	-0.2	-0.1	-0.1	1.2	0.9	0.6	0.3	0.2	0.0
616	-5.8	-4.3	-2.3	-1.9	-1.5	-2.1	-0.2	-0.2	0.0	1.2	0.8	0.7	-0.1	0.2	0.4
617	-5.6	-4.1	-2.3	-1.9	-1.5	-2.1	-0.2	-0.2	0.0	1.2	0.7	0.6	-0.2	0.2	0.5
618	-5.6	-4.2	-2.3	-1.9	-1.5	-2.2	-0.3	-0.3	-0.1	1.1	0.7	0.6	-0.1	0.2	0.4
619	-5.5	-4.2	-2.3	-1.9	-1.5	-2.5	-0.4	-0.3	-0.2	1.3	0.8	0.6	0.0	0.1	0.2
620	-5.3	-4.2	-2.2	-1.8	-1.5	-2.6	-0.4	-0.2	-0.2	1.3	0.9	0.6	0.2	0.1	0.0
621	-5.3	-4.1	-2.2	-1.8	-1.5	-2.6	-0.4	-0.2	-0.2	1.2	1.0	0.6	0.5	0.1	-0.2
622	-5.5	-4.3	-2.3	-1.8	-1.5	-2.5	-0.4	-0.2	-0.2	1.2	1.0	0.6	0.6	0.1	-0.3
623	-5.6	-4.3	-2.3	-1.8	-1.6	-2.5	-0.4	-0.1	-0.2	1.2	1.0	0.5	0.8	0.1	-0.4
624	-5.6	-4.3	-2.4	-1.9	-1.6	-2.4	-0.4	-0.1	-0.2	1.1	1.0	0.5	0.7	0.1	-0.4
625	-5.7	-4.2	-2.4	-1.9	-1.6	-2.2	-0.4	-0.2	-0.2	1.0	0.8	0.5	0.4	0.1	-0.1
626	-5.6	-4.1	-2.3	-1.9	-1.5	-1.9	-0.3	-0.2	-0.1	0.9	0.6	0.5	0.1	0.2	0.2
627	-5.8	-4.1	-2.4	-2.0	-1.5	-1.9	-0.4	-0.2	-0.1	0.8	0.6	0.4	0.1	0.2	0.2
628	-5.8	-4.1	-2.4	-2.0	-1.6	-1.8	-0.4	-0.3	-0.1	0.7	0.5	0.4	0.1	0.2	0.3
629	-5.7	-4.1	-2.4	-2.0	-1.6	-1.9	-0.4	-0.3	-0.2	0.8	0.5	0.4	-0.1	0.1	0.3
630	-5.7	-4.1	-2.4	-1.9	-1.5	-1.9	-0.4	-0.2	-0.1	0.8	0.6	0.5	0.2	0.2	0.2
631	-5.7	-4.1	-2.3	-1.9	-1.5	-1.8	-0.3	-0.1	-0.1	0.9	0.6	0.5	0.3	0.1	0.1
632	-5.6	-4.1	-2.3	-1.9	-1.5	-2.0	-0.4	-0.2	-0.2	0.8	0.7	0.4	0.4	0.2	0.0
633	-5.5	-4.0	-2.2	-1.8	-1.5	-1.9	-0.2	-0.1	-0.1	1.0	0.8	0.5	0.3	0.1	-0.1
634	-5.5	-3.9	-2.1	-1.7	-1.4	-1.7	-0.1	0.0	-0.1	1.1	0.9	0.5	0.4	0.0	-0.3
635	-5.5	-3.9	-2.1	-1.7	-1.4	-1.6	0.0	0.1	0.0	1.2	0.9	0.5	0.3	0.0	-0.3
636	-5.4	-3.8	-2.0	-1.6	-1.3	-1.4	0.1	0.2	0.1	1.3	0.9	0.5	0.2	-0.1	-0.2
637	-5.2	-3.6	-1.8	-1.5	-1.2	-1.3	0.2	0.2	0.1	1.4	0.9	0.6	0.0	0.0	-0.1
638	-5.0	-3.4	-1.7	-1.5	-1.2	-1.1	0.3	0.1	0.1	1.3	0.7	0.5	-0.5	-0.1	0.2
639	-5.1	-3.3	-1.7	-1.5	-1.2	-0.9	0.3	0.1	0.1	1.2	0.5	0.5	-0.6	-0.1	0.3
640	-4.8	-3.2	-1.6	-1.5	-1.1	-1.0	0.3	0.0	0.1	1.2	0.5	0.4	-0.7	-0.1	0.3
641	-4.5	-3.1	-1.6	-1.3	-1.1	-1.1	0.2	0.1	0.1	1.1	0.6	0.5	-0.2	0.0	0.2
642	-4.4	-3.1	-1.6	-1.3	-1.1	-1.3	0.1	0.1	0.1	1.1	0.7	0.5	0.0	0.0	0.1
643	-4.5	-3.2	-1.7	-1.4	-1.1	-1.3	0.1	0.0	0.1	1.2	0.7	0.5	-0.1	0.0	0.2
644	-4.8	-3.3	-1.7	-1.5	-1.2	-1.3	0.1	0.0	0.1	1.2	0.6	0.5	-0.3	0.0	0.2
645	-4.9	-3.4	-1.8	-1.6	-1.2	-1.3	0.1	0.0	0.0	1.1	0.6	0.4	-0.5	-0.1	0.2
646	-5.1	-3.4	-1.8	-1.6	-1.2	-1.1	0.1	0.0	0.1	1.1	0.6	0.5	-0.3	0.0	0.3
647	-5.2	-3.5	-1.8	-1.6	-1.2	-1.0	0.3	0.1	0.1	1.2	0.6	0.5	-0.5	-0.1	0.2
648	-5.5	-3.6	-2.0	-1.7	-1.3	-0.9	0.2	0.1	0.1	1.0	0.5	0.4	-0.2	0.0	0.2

High-Water Shoreline Position (UTM Zone 18, NAD 1983)

Transect #	1839/42 UTM-x (m)	1839/42 UTM-y (m)	1864/86 UTM-x (m)	1864/86 UTM-y (m)	1899 UTM-x (m)	1899 UTM-y (m)	1932 UTM-x (m)	1932 UTM-y (m)	1950/51 UTM-x (m)	1950/51 UTM-y (m)	1977 UTM-x (m)	1977 UTM-y (m)
568	4412232	578515.5	4412260	578295.1	4412262	578280.6	4412261	578286.4	4412257	578319.3	4412258	578309.9
569	4412183	578507.3	4412210	578292.4	4412212	578275.7	4412211	578280.6	4412208	578310.3	4412209	578299.1
570	4412133	578502.9	4412160	578287.9	4412163	578266.7	4412162	578275.4	4412158	578308.2	4412159	578294.3
571	4412084	578491.5	4412110	578286.3	4412114	578257.8	4412112	578272.3	4412108	578302.3	4412110	578288.5
572	4412034	578489.6	4412060	578286.4	4412064	578251.9	4412062	578270.0	4412059	578294.3	4412059	578289.0
573	4411984	578486.2	4412010	578282.6	4412014	578247.1	4412012	578264.5	4412009	578284.0	4412009	578288.6
574	4411933	578486.9	4411960	578276.3	4411965	578240.7	4411963	578255.8	4411960	578275.1	4411959	578285.3
575	4411884	578482.1	4411909	578277.8	4411915	578233.7	4411913	578253.0	4411911	578267.3	4411910	578274.9
576	4411834	578479.1	4411858	578282.3	4411865	578226.8	4411863	578249.8	4411861	578262.8	4411861	578263.4
577	4411784	578474.5	4411808	578283.0	4411816	578222.3	4411812	578251.9	4411811	578258.9	4411812	578252.2
578	4411734	578472.2	4411758	578280.1	4411766	578216.4	4411763	578242.1	4411762	578251.2	4411762	578245.3
579	4411683	578475.7	4411709	578271.4	4411716	578214.3	4411712	578241.3	4411711	578254.0	4411712	578246.5
580	4411632	578476.4	4411659	578268.3	4411665	578215.0	4411662	578240.2	4411660	578255.9	4411662	578244.4
581	4411583	578464.2	4411609	578261.7	4411615	578213.4	4411612	578236.3	4411611	578249.1	4411611	578243.7
582	4411534	578453.9	4411559	578255.3	4411565	578209.4	4411563	578229.7	4411561	578246.8	4411557	578274.7
583	4411485	578447.3	4411510	578251.0	4411516	578203.6	4411514	578216.9	4411510	578244.5	4411507	578269.5
584	4411435	578440.3	4411460	578246.8	4411466	578197.7	4411464	578210.7	4411460	578241.5	4411457	578266.4
585	4411386	578429.8	4411410	578243.4	4411416	578193.5	4411414	578208.8	4411411	578234.9	4411408	578259.8
586	4411337	578423.2	4411359	578242.7	4411366	578191.4	4411364	578206.2	4411361	578234.5	4411358	578256.1
587	4411285	578431.3	4411309	578243.5	4411316	578190.5	4411314	578205.4	4411311	578226.0	4411308	578249.9
588	4411234	578436.7	4411259	578238.9	4411264	578199.4	4411264	578203.6	4411262	578217.1	4411258	578247.9
589	4411182	578449.7	4411210	578231.3	4411213	578201.6	4411214	578201.2	4411212	578210.7	4411208	578241.8
590	4411132	578447.5	4411160	578224.1	4411164	578197.3	4411164	578196.3	4411163	578205.4	4411159	578237.1
591	4411082	578445.6	4411110	578219.7	4411114	578193.2	4411113	578198.0	4411113	578201.5	4411109	578232.6
592	4411032	578440.5	4411060	578218.8	4411064	578187.1	4411063	578192.6	4411063	578199.5	4411059	578228.6
593	4410983	578426.6	4411010	578218.1	4411015	578179.0	4411013	578189.2	4411012	578198.0	4411009	578224.8
594	4410934	578420.2	4410960	578215.7	4410965	578174.5	4410963	578188.1	4410963	578191.7	4410959	578222.1
595	4410885	578409.5	4410910	578209.4	4410915	578171.0	4410914	578182.2	4410913	578184.2	4410909	578215.8
596	4410836	578399.7	4410861	578202.4	4410865	578168.0	4410864	578176.3	4410864	578178.1	4410860	578210.8
597	4410786	578391.3	4410811	578196.3	4410815	578164.4	4410814	578172.3	4410814	578175.9	4410810	578204.2
598	4410736	578389.2	4410761	578192.2	4410765	578159.2	4410764	578170.9	4410764	578172.2	4410760	578198.4
599	4410685	578395.3	4410711	578187.5	4410716	578150.7	4410714	578166.5	4410714	578169.7	4410711	578193.1
600	4410635	578395.1	4410662	578181.1	4410666	578143.7	4410664	578162.3	4410663	578167.3	4410661	578186.1
601	4410585	578388.4	4410612	578173.0	4410617	578137.5	4410614	578158.2	4410614	578163.2	4410611	578180.0
602	4410535	578384.2	4410563	578163.2	4410567	578131.9	4410564	578158.0	4410564	578156.7	4410562	578176.0
603	4410485	578379.7	4410514	578154.4	4410517	578128.1	4410514	578154.5	4410514	578155.0	4410512	578169.8
604	4410435	578378.9	4410464	578153.1	4410467	578124.6	4410464	578151.0	4410464	578152.2	4410462	578165.1
605	4410386	578371.7	4410413	578151.3	4410417	578122.4	4410414	578146.2	4410414	578143.5	4410413	578156.8
606	4410336	578364.4	4410363	578148.7	4410367	578120.2	4410364	578143.0	4410364	578146.2	4410363	578152.3
607	4410285	578368.0	4410313	578148.1	4410317	578118.2	4410314	578138.8	4410313	578147.0	4410313	578147.9
608	4410237	578353.3	4410262	578150.1	4410267	578111.6	4410264	578134.0	4410263	578143.8	4410263	578143.4
609	4410189	578332.8	4410212	578153.7	4410218	578104.6	4410214	578131.5	4410213	578139.3	4410214	578135.9
610	4410140	578324.4	4410161	578154.4	4410168	578099.0	4410165	578127.1	4410164	578134.8	4410163	578138.6
611	4410089	578328.6	4410112	578147.2	4410118	578095.7	4410115	578123.6	4410114	578127.8	4410113	578135.5
612	4410038	578333.0	4410062	578141.5	4410069	578087.5	4410064	578121.3	4410064	578125.2	4410063	578133.6
613	4409987	578336.6	4410012	578137.6	4410019	578080.2	4410015	578117.0	4410014	578125.3	4410013	578129.4
614	4409937	578333.3	4409962	578132.6	4409970	578074.7	4409965	578113.9	4409963	578123.7	4409963	578123.3
615	4409887	578333.0	4409913	578125.5	4409920	578070.4	4409915	578111.2	4409914	578117.1	4409914	578118.4
616	4409838	578320.9	4409863	578117.9	4409870	578066.8	4409865	578107.5	4409865	578105.7	4409863	578117.1
617	4409788	578311.8	4409813	578117.3	4409820	578065.2	4409815	578104.2	4409815	578100.5	4409814	578112.8
618	4409738	578313.5	4409763	578117.9	4409769	578063.1	4409765	578100.3	4409765	578097.7	4409764	578107.2
619	4409688	578308.4	4409712	578119.1	4409720	578056.5	4409715	578097.9	4409715	578097.9	4409714	578102.2
620	4409639	578300.4	4409662	578115.2	4409670	578050.4	4409665	578093.5	4409664	578097.9	4409664	578096.9
621	4409589	578292.7	4409612	578109.6	4409620	578046.4	4409615	578087.1	4409614	578097.0	4409615	578090.5
622	4409539	578294.3	4409563	578104.4	4409571	578041.2	4409566	578081.3	4409564	578092.4	4409565	578084.2
623	4409489	578291.8	4409513	578099.0	4409521	578037.4	4409516	578075.1	4409514	578089.6	4409515	578079.6
624	4409438	578291.2	4409463	578096.6	4409470	578036.9	4409466	578073.0	4409464	578085.8	4409466	578075.3
625	4409388	578290.4	4409413	578092.8	4409420	578039.2	4409416	578070.7	4409415	578078.8	4409415	578076.3
626	4409338	578285.2	4409363	578089.2	4409369	578042.4	4409365	578071.0	4409365	578072.9	4409364	578077.7
627	4409288	578286.9	4409313	578086.9	4409319	578040.7	4409315	578066.8	4409315	578069.0	4409314	578075.3
628	4409237	578286.7	4409263	578085.8	4409268	578040.1	4409265	578063.4	4409265	578065.4	4409264	578072.9
629	4409188	578280.1	4409213	578083.0	4409218	578036.1	4409215	578061.4	4409215	578060.4	4409215	578067.6
630	4409138	578275.4	4409163	578078.1	4409169	578031.0	4409165	578057.2	4409165	578060.2	4409164	578066.3
631	4409088	578269.3	4409113	578070.7	4409119	578026.5	4409115	578054.8	4409115	578059.6	4409115	578061.4
632	4409038	578265.9	4409063	578072.3	4409069	578022.8	4409066	578049.9	4409065	578057.9	4409065	578056.9
633	4408989	578257.6	4409013	578065.8	4409019	578018.5	4409015	578052.5	4409014	578058.9	4409014	578055.5
634	4408940	578248.1	4408964	578055.7	4408969	578013.6	4408965	578051.1	4408964	578058.1	4408965	578050.2
635	4408890	578239.3	4408915	578048.1	4408920	578008.1	4408915	578047.6	4408914	578053.1	4408915	578046.4
636	4408842	578226.2	4408866	578037.1	4408870	578002.5	4408865	578045.7	4408864	578048.5	4408865	578042.6
637	4408793	578211.0	4408816	578029.7	4408820	577997.7	4408815	578042.3	4408814	578042.8	4408815	578040.7
638	4408745	578195.6	4408767	578023.2	4408770	577996.2	4408764	578039.9	4408766	578029.9	4408765	578034.4
639	4408695	578194.4	4408717	578018.0	4408720	577995.8	4408715	578035.7	4408716	578023.9	4408715	578032.0
640	4408646	578183.1	4408666	578017.8	4408670	577993.5	4408665	578032.8	4408666	578020.2	4408665	578027.5
641	4408596	578172.9	4408616	578017.5	4408620	577990.2	4408615	578027.1	4408615	578023.4	4408615	578027.3
642	4408546	578169.7	4408566	578017.5	4408570	577986.2	4408565	578023.9	4408565	578023.6	4408565	578025.3
643	4408496	578172.3	4408516	578014.6	4408520	577981.8	4408515	578020.0	4408515	578017.9	4408515	578022.1
644	4408445	578176.9	4408466	578010.7	4408470	577978.6	4408465	578017.5	4408466	578011.3	4408465	578015.9
645	4408394	578177.6	4408416	578007.7	4408420	577976.4	4408415	578013.6	4408416	578005.0	4408415	578010.3
646	4408344	578176.3	4408366	578000.0	4408370	577973.2	4408365	578008.2	4408366	578002.3	4408365	578009.3
647	4408294	578175.0	4408317	577993.4	4408320	577968.4	4408315	578008.8	4408316	577999.6	4408315	578005.1
648	4408243	578181.3	4408267	577990.9	4408269	577968.5	4408265	578000.4	4408266	577996.4	4408265	578001.1

High-Water Shoreline Position Change Rate

Transect #	1839/42 to 1864/86 (m/yr)	1839/42 to 1899 (m/yr)	1839/42 to 1932 (m/yr)	1839/42 to 1950/51 (m/yr)	1839/42 to 1977 (m/yr)	1864/86 to 1899 (m/yr)	1864/86 to 1932 (m/yr)	1864/86 to 1950/51 (m/yr)	1864/86 to 1977 (m/yr)	1899 to 1932 (m/yr)	1899 to 1950/51 (m/yr)	1899 to 1977 (m/yr)	1932 to 1950/51 (m/yr)	1932 to 1977 (m/yr)	1950/51 to 1977 (m/yr)
649	-6.2	-3.9	-2.2	-1.9	-1.5	-0.6	0.2	0.1	0.1	0.8	0.5	0.4	-0.1	0.0	0.1
650	-6.7	-4.1	-2.4	-2.0	-1.6	-0.5	0.2	0.1	0.1	0.6	0.4	0.3	-0.1	0.1	0.2
651	-6.9	-4.2	-2.5	-2.1	-1.7	-0.5	0.1	0.1	0.1	0.5	0.4	0.3	0.1	0.2	0.2
652	-6.4	-4.1	-2.4	-2.0	-1.6	-0.7	0.0	0.0	0.0	0.5	0.3	0.3	0.1	0.1	0.2
653	-6.2	-4.0	-2.4	-2.0	-1.6	-0.9	-0.1	-0.1	0.0	0.5	0.2	0.3	-0.2	0.2	0.4
654	-5.9	-3.8	-2.3	-1.9	-1.5	-1.0	-0.2	-0.1	-0.1	0.3	0.3	0.2	0.1	0.2	0.2
655	-5.5	-3.7	-2.2	-1.9	-1.5	-1.1	-0.3	-0.2	-0.1	0.3	0.2	0.2	0.0	0.0	0.0
656	-5.5	-3.7	-2.3	-1.8	-1.5	-1.2	-0.3	-0.2	-0.2	0.4	0.3	0.2	0.1	0.0	-0.1
657	-5.3	-3.6	-2.2	-1.8	-1.4	-1.2	-0.3	-0.2	-0.1	0.4	0.3	0.2	0.1	0.1	0.1
658	-5.2	-3.4	-2.1	-1.7	-1.4	-1.0	-0.2	-0.2	-0.1	0.4	0.3	0.2	0.0	0.0	0.0
659	-5.0	-3.3	-2.0	-1.7	-1.3	-0.9	-0.1	-0.2	-0.1	0.5	0.2	0.2	-0.3	0.0	0.2
660	-4.9	-3.2	-1.8	-1.7	-1.3	-0.9	0.0	-0.2	0.0	0.7	0.1	0.2	-0.8	-0.1	0.4
661	-4.9	-3.2	-1.8	-1.7	-1.3	-0.8	0.1	-0.2	0.0	0.7	0.0	0.2	-1.2	-0.2	0.6
662	-5.0	-3.2	-1.8	-1.7	-1.3	-0.6	0.1	-0.2	0.0	0.7	-0.1	0.2	-1.4	-0.2	0.7
663	-5.2	-3.2	-1.8	-1.7	-1.3	-0.3	0.2	-0.2	0.0	0.7	-0.1	0.1	-1.4	-0.3	0.5
664	-5.3	-3.2	-1.9	-1.7	-1.3	-0.2	0.2	0.0	0.0	0.5	0.0	0.1	-0.8	-0.3	0.2
665	-5.4	-3.2	-1.9	-1.7	-1.4	-0.2	0.2	0.0	0.0	0.5	0.1	0.1	-0.6	-0.3	0.0
666	-5.8	-3.4	-2.0	-1.8	-1.5	-0.1	0.3	0.0	0.0	0.5	0.1	0.0	-0.7	-0.4	-0.1
667	-6.1	-3.5	-2.1	-1.9	-1.5	0.1	0.4	0.1	0.0	0.5	0.0	0.0	-0.8	-0.4	0.0
668	-6.2	-3.5	-2.0	-1.9	-1.5	0.2	0.4	0.1	0.0	0.6	0.0	0.0	-1.0	-0.5	-0.1
669	-6.0	-3.5	-2.1	-1.9	-1.5	0.0	0.3	0.0	0.0	0.6	0.0	0.0	-1.1	-0.4	0.1
670	-6.1	-3.5	-2.1	-1.9	-1.5	0.1	0.3	0.0	0.0	0.5	0.0	0.0	-0.8	-0.3	0.1
671	-5.8	-3.3	-2.0	-1.8	-1.4	0.1	0.3	0.0	0.0	0.4	0.0	0.0	-0.8	-0.3	0.1
672	-5.3	-3.2	-2.0	-1.7	-1.4	-0.2	0.0	-0.1	0.0	0.2	0.0	0.0	-0.5	-0.2	0.1
673	-5.1	-3.3	-2.1	-1.8	-1.4	-0.7	-0.3	-0.3	-0.2	0.1	-0.1	0.0	-0.5	-0.1	0.2
674	-4.5	-3.1	-2.0	-1.7	-1.4	-1.2	-0.6	-0.5	-0.3	-0.1	-0.1	-0.1	-0.1	0.0	0.0
675	-4.2	-3.1	-2.0	-1.7	-1.4	-1.5	-0.7	-0.6	-0.4	-0.2	-0.1	-0.1	0.0	0.0	0.0
676	-3.7	-2.8	-1.9	-1.6	-1.3	-1.5	-0.8	-0.6	-0.5	-0.3	-0.2	-0.1	0.1	0.0	-0.1
677	-3.7	-2.8	-1.9	-1.7	-1.3	-1.5	-0.8	-0.7	-0.5	-0.3	-0.3	-0.1	-0.3	0.0	0.3
678	-3.5	-2.6	-1.8	-1.6	-1.3	-1.5	-0.8	-0.8	-0.5	-0.3	-0.4	-0.2	-0.7	-0.1	0.3
679	-3.5	-2.7	-1.9	-1.6	-1.3	-1.5	-0.9	-0.8	-0.5	-0.4	-0.4	-0.2	-0.5	0.0	0.3
680	-3.5	-2.7	-1.9	-1.6	-1.3	-1.6	-0.9	-0.8	-0.5	-0.5	-0.5	-0.2	-0.4	0.0	0.3
681	-3.0	-2.4	-1.8	-1.5	-1.2	-1.6	-1.0	-0.8	-0.6	-0.5	-0.4	-0.2	-0.2	0.0	0.1
682	-2.9	-2.4	-1.8	-1.5	-1.2	-1.7	-1.1	-0.8	-0.6	-0.7	-0.4	-0.2	0.0	0.1	0.1
683	-2.8	-2.4	-1.8	-1.5	-1.2	-1.7	-1.1	-0.8	-0.6	-0.6	-0.4	-0.2	0.0	0.1	0.1
684	-2.9	-2.4	-1.7	-1.5	-1.2	-1.8	-1.0	-0.9	-0.6	-0.5	-0.4	-0.2	-0.3	-0.1	0.1
685	-2.9	-2.4	-1.7	-1.5	-1.2	-1.8	-0.9	-0.9	-0.6	-0.3	-0.4	-0.2	-0.6	-0.2	0.1
686	-2.9	-2.5	-1.6	-1.5	-1.2	-1.8	-0.9	-0.8	-0.6	-0.2	-0.3	-0.2	-0.5	-0.2	0.0
687	-3.0	-2.4	-1.6	-1.4	-1.2	-1.6	-0.7	-0.7	-0.6	0.0	-0.2	-0.2	-0.7	-0.4	-0.2
688	-3.1	-2.5	-1.6	-1.5	-1.2	-1.6	-0.8	-0.7	-0.6	-0.1	-0.3	-0.2	-0.6	-0.3	-0.1
689	-3.4	-2.6	-1.8	-1.6	-1.3	-1.6	-0.8	-0.8	-0.6	-0.2	-0.4	-0.3	-0.7	-0.3	-0.1
690	-3.6	-2.7	-1.9	-1.7	-1.4	-1.5	-0.8	-0.8	-0.6	-0.3	-0.5	-0.3	-0.8	-0.3	0.1
691	-3.8	-2.9	-1.9	-1.8	-1.4	-1.5	-0.7	-0.8	-0.6	-0.1	-0.5	-0.3	-1.1	-0.4	0.1
692	-3.8	-3.0	-1.9	-1.8	-1.4	-1.9	-0.8	-0.9	-0.6	0.1	-0.5	-0.3	-1.5	-0.5	0.2
693	-3.6	-3.0	-1.9	-1.8	-1.4	-2.3	-0.9	-1.0	-0.7	0.1	-0.5	-0.2	-1.5	-0.5	0.3
694	-3.3	-3.0	-1.9	-1.8	-1.4	-2.6	-1.0	-1.2	-0.8	0.2	-0.5	-0.2	-1.7	-0.6	0.3
695	-3.2	-3.0	-1.9	-1.8	-1.4	-2.7	-1.1	-1.2	-0.8	0.2	-0.5	-0.2	-1.7	-0.6	0.2
696	-3.0	-2.8	-1.8	-1.7	-1.4	-2.5	-1.1	-1.1	-0.9	0.0	-0.5	-0.3	-1.3	-0.6	-0.1
697	-3.2	-2.7	-1.8	-1.7	-1.4	-2.1	-1.0	-1.0	-0.8	-0.2	-0.5	-0.4	-1.1	-0.6	-0.3
698	-3.2	-2.6	-1.9	-1.7	-1.4	-1.9	-1.1	-1.0	-0.8	-0.4	-0.5	-0.5	-0.7	-0.6	-0.5
699	-3.0	-2.5	-1.8	-1.6	-1.4	-1.8	-1.1	-1.0	-0.9	-0.5	-0.6	-0.6	-0.9	-0.6	-0.5
700	-2.9	-2.4	-1.8	-1.6	-1.4	-1.7	-1.0	-1.0	-0.9	-0.5	-0.6	-0.6	-0.8	-0.6	-0.5
701	-3.2	-2.5	-1.8	-1.7	-1.4	-1.5	-0.9	-1.0	-0.8	-0.5	-0.8	-0.6	-1.3	-0.6	-0.1
702	-3.3	-2.5	-1.8	-1.8	-1.4	-1.3	-0.8	-1.0	-0.8	-0.5	-0.9	-0.7	-1.6	-0.8	-0.1
703	-3.1	-2.3	-1.7	-1.7	-1.4	-1.2	-0.8	-1.0	-0.8	-0.6	-1.0	-0.7	-1.6	-0.8	-0.1
704	-2.9	-2.2	-1.6	-1.6	-1.4	-1.2	-0.8	-1.0	-0.8	-0.5	-0.9	-0.7	-1.6	-0.9	-0.3
705	-2.8	-2.1	-1.6	-1.5	-1.3	-1.1	-0.9	-0.9	-0.8	-0.7	-0.9	-0.8	-1.2	-0.8	-0.6
706	-2.1	-1.7	-1.4	-1.3	-1.2	-1.0	-1.0	-0.9	-0.9	-0.9	-0.9	-0.8	-0.8	-0.7	-0.7
707	-2.0	-1.6	-1.4	-1.3	-1.2	-1.0	-1.1	-1.0	-0.9	-1.2	-1.0	-0.8	-0.6	-0.6	-0.6
708	-1.7	-1.4	-1.3	-1.2	-1.1	-1.0	-1.1	-1.0	-0.9	-1.2	-1.0	-0.9	-0.7	-0.7	-0.6
709	-1.4	-1.3	-1.3	-1.2	-1.1	-1.1	-1.2	-1.1	-1.0	-1.2	-1.1	-0.9	-1.0	-0.7	-0.5
710	-1.3	-1.3	-1.2	-1.3	-1.1	-1.2	-1.1	-1.3	-1.0	-1.1	-1.3	-0.9	-1.7	-0.8	-0.2
711	-0.9	-1.0	-1.0	-1.2	-1.0	-1.3	-1.1	-1.4	-1.0	-1.0	-1.4	-0.9	-2.1	-0.9	0.0
712	-0.1	-0.6	-0.8	-1.0	-0.8	-1.4	-1.3	-1.5	-1.1	-1.2	-1.5	-1.0	-2.1	-0.9	0.0
713	0.4	-0.4	-0.7	-0.9	-0.7	-1.6	-1.4	-1.5	-1.1	-1.2	-1.5	-1.0	-2.0	-0.8	0.1
714	0.7	-0.3	-0.6	-0.8	-0.7	-1.8	-1.5	-1.5	-1.2	-1.2	-1.4	-1.1	-1.8	-0.9	-0.3
715	1.1	-0.1	-0.5	-0.8	-0.7	-1.9	-1.5	-1.6	-1.3	-1.3	-1.4	-1.1	-1.8	-1.0	-0.4
716	1.4	0.0	-0.5	-0.7	-0.7	-2.0	-1.7	-1.7	-1.4	-1.4	-1.5	-1.2	-1.7	-1.0	-0.5
717	1.6	0.1	-0.5	-0.7	-0.7	-2.1	-1.7	-1.7	-1.4	-1.4	-1.6	-1.2	-1.8	-1.1	-0.5
718	2.2	0.3	-0.3	-0.5	-0.6	-2.2	-1.7	-1.7	-1.5	-1.4	-1.5	-1.2	-1.7	-1.2	-0.8
719	2.5	0.5	-0.2	-0.4	-0.5	-2.3	-1.8	-1.7	-1.5	-1.3	-1.4	-1.3	-1.6	-1.2	-1.0
720	2.8	0.6	-0.1	-0.4	-0.5	-2.4	-1.8	-1.8	-1.6	-1.3	-1.5	-1.3	-1.8	-1.3	-1.0
721	3.2	0.9	0.0	-0.3	-0.4	-2.4	-1.9	-1.9	-1.7	-1.5	-1.6	-1.4	-1.9	-1.3	-1.0
722	3.4	1.1	0.1	-0.3	-0.3	-2.2	-2.0	-2.0	-1.6	-1.8	-1.9	-1.4	-2.2	-1.1	-0.3
723	3.8	1.3	0.2	-0.2	-0.2	-2.2	-2.0	-2.0	-1.5	-1.9	-2.0	-1.4	-2.1	-1.0	-0.1
724	3.7	1.3	0.2	-0.2	-0.2	-2.0	-2.0	-1.9	-1.5	-2.0	-1.9	-1.3	-1.7	-0.8	-0.2
725	4.4	1.8	0.4	0.1	0.0	-1.9	-2.0	-1.8	-1.5	-2.1	-1.8	-1.3	-1.3	-0.8	-0.4
726	4.8	2.0	0.5	0.3	0.1	-1.8	-2.1	-1.8	-1.5	-2.3	-1.8	-1.4	-0.8	-0.8	-0.8
727	5.2	2.2	0.6	0.4	0.1	-1.9	-2.2	-1.8	-1.6	-2.4	-1.8	-1.5	-0.5	-0.8	-1.0
728	5.6	2.4	0.6	0.4	0.1	-2.1	-2.4	-1.9	-1.7	-2.6	-1.8	-1.6	-0.3	-0.8	-1.2
729	6.1	2.6	0.6	0.6	0.2	-2.4	-2.8	-2.0	-1.8	-3.0	-1.7	-1.6	0.5	-0.6	-1.3

High-Water Shoreline Position (UTM Zone 18, NAD 1983)

Transect #	1839/42 UTM-x (m)	1839/42 UTM-y (m)	1864/86 UTM-x (m)	1864/86 UTM-y (m)	1899 UTM-x (m)	1899 UTM-y (m)	1932 UTM-x (m)	1932 UTM-y (m)	1950/51 UTM-x (m)	1950/51 UTM-y (m)	1977 UTM-x (m)	1977 UTM-y (m)
649	4408190	578200.3	4408217	577984.0	4408219	577969.0	4408216	577995.9	4408216	577994.8	4408216	577996.9
650	4408138	578213.1	4408167	577984.7	4408169	577969.3	4408166	577990.2	4408166	577989.0	4408166	577993.3
651	4408087	578219.6	4408117	577980.4	4408118	577968.4	4408116	577984.4	4408116	577987.1	4408115	577993.0
652	4408038	578207.2	4408066	577984.3	4408068	577965.9	4408066	577981.9	4408066	577983.2	4408065	577987.9
653	4407988	578200.2	4408015	577985.2	4408018	577962.6	4408016	577978.2	4408017	577975.4	4408015	577985.2
654	4407940	578186.9	4407965	577983.4	4407968	577959.2	4407967	577970.3	4407967	577972.3	4407966	577977.0
655	4407891	578173.7	4407915	577982.8	4407918	577955.5	4407917	577966.8	4407917	577967.8	4407917	577968.3
656	4407841	578170.6	4407865	577980.9	4407869	577950.7	4407867	577962.7	4407867	577965.4	4407867	577962.4
657	4407792	578158.9	4407815	577975.2	4407819	577946.4	4407817	577958.4	4407817	577959.4	4407817	577960.8
658	4407743	578147.6	4407766	577967.9	4407769	577942.5	4407767	577956.3	4407767	577956.5	4407767	577957.0
659	4407694	578135.3	4407716	577961.9	4407719	577938.8	4407717	577955.2	4407717	577949.9	4407717	577954.4
660	4407645	578125.5	4407666	577957.1	4407669	577935.1	4407666	577956.4	4407668	577941.3	4407667	577952.5
661	4407595	578122.0	4407616	577952.4	4407619	577933.7	4407616	577956.4	4407619	577934.3	4407617	577949.5
662	4407545	578120.7	4407567	577946.7	4407568	577932.4	4407566	577955.3	4407569	577929.1	4407567	577946.0
663	4407494	578119.9	4407517	577939.5	4407518	577931.1	4407516	577952.7	4407519	577926.1	4407517	577940.3
664	4407445	578115.6	4407468	577932.5	4407468	577927.3	4407466	577944.6	4407468	577928.7	4407468	577933.3
665	4407394	578116.5	4407418	577928.2	4407418	577923.1	4407416	577939.8	4407418	577928.2	4407418	577927.3
666	4407343	578122.3	4407368	577922.1	4407368	577920.2	4407366	577936.8	4407368	577922.9	4407368	577920.8
667	4407292	578125.3	4407319	577913.9	4407318	577916.6	4407316	577934.2	4407318	577918.7	4407318	577917.8
668	4407242	578122.0	4407269	577908.3	4407269	577912.4	4407266	577933.5	4407268	577914.8	4407269	577911.5
669	4407192	578116.8	4407219	577909.3	4407219	577908.3	4407216	577927.4	4407219	577906.2	4407219	577907.8
670	4407142	578113.9	4407169	577903.3	4407169	577905.2	4407167	577921.9	4407169	577906.3	4407168	577908.0
671	4407093	578103.1	4407119	577901.1	4407119	577903.8	4407117	577917.1	4407119	577903.0	4407118	577905.2
672	4407044	578090.9	4407068	577905.3	4407069	577900.3	4407068	577908.1	4407069	577899.3	4407069	577900.7
673	4406994	578089.7	4407017	577913.0	4407019	577895.9	4407018	577897.9	4407020	577888.8	4407019	577893.7
674	4406946	578076.5	4406965	577921.6	4406969	577891.7	4406969	577888.1	4406970	577885.4	4406970	577886.1
675	4406896	578069.3	4406914	577923.8	4406919	577887.8	4406920	577881.6	4406920	577881.6	4406920	577880.6
676	4406848	578052.6	4406864	577923.0	4406869	577885.3	4406870	577874.5	4406870	577875.9	4406870	577874.3
677	4406798	578048.3	4406814	577919.7	4406819	577881.5	4406820	577871.2	4406821	577864.8	4406820	577871.6
678	4406749	578035.1	4406764	577914.1	4406769	577877.4	4406770	577867.6	4406772	577854.8	4406771	577863.3
679	4406699	578029.4	4406715	577908.3	4406719	577871.0	4406721	577857.8	4406722	577848.8	4406721	577857.4
680	4406650	578025.5	4406665	577905.1	4406670	577866.4	4406672	577851.0	4406673	577843.2	4406672	577851.4
681	4406601	578007.2	4406615	577902.6	4406620	577862.0	4406622	577845.8	4406622	577842.2	4406622	577845.9
682	4406552	578002.0	4406564	577901.1	4406570	577859.4	4406573	577836.9	4406573	577837.4	4406572	577840.8
683	4406502	577997.4	4406514	577898.7	4406520	577855.5	4406523	577834.4	4406522	577834.6	4406522	577836.9
684	4406452	577993.8	4406465	577893.7	4406470	577849.3	4406472	577834.3	4406473	577828.0	4406473	577830.3
685	4406402	577987.5	4406415	577888.1	4406421	577843.0	4406422	577834.4	4406423	577823.2	4406423	577825.6
686	4406352	577984.7	4406365	577882.9	4406371	577838.8	4406371	577833.8	4406373	577823.5	4406373	577824.1
687	4406303	577980.1	4406316	577876.0	4406321	577835.2	4406321	577834.9	4406322	577822.7	4406323	577818.6
688	4406252	577980.3	4406266	577872.6	4406271	577832.2	4406271	577828.4	4406273	577817.2	4406273	577814.2
689	4406201	577986.7	4406216	577870.1	4406221	577830.3	4406222	577823.2	4406223	577810.8	4406223	577809.0
690	4406150	577989.9	4406166	577864.5	4406170	577828.3	4406172	577818.4	4406174	577802.7	4406174	577804.4
691	4406099	577994.1	4406116	577861.9	4406121	577823.5	4406121	577820.5	4406124	577799.1	4406124	577800.7
692	4406049	577995.1	4406065	577864.0	4406071	577817.9	4406071	577819.7	4406074	577791.9	4406074	577797.9
693	4405999	577992.9	4406014	577868.4	4406021	577812.5	4406021	577817.0	4406024	577788.4	4406024	577795.0
694	4405949	577987.3	4405963	577872.8	4405971	577808.2	4405971	577815.3	4405975	577784.1	4405974	577790.6
695	4405899	577983.0	4405913	577873.5	4405921	577805.8	4405921	577812.2	4405924	577781.1	4405924	577786.7
696	4405850	577972.9	4405863	577867.2	4405871	577806.2	4405871	577806.3	4405874	577782.2	4405874	577780.0
697	4405800	577968.2	4405814	577858.8	4405820	577806.9	4405821	577801.0	4405824	577780.8	4405825	577773.6
698	4405750	577964.1	4405764	577853.0	4405770	577806.6	4405772	577792.6	4405774	577778.8	4405775	577767.0
699	4405701	577951.6	4405715	577847.5	4405720	577801.8	4405722	577786.4	4405724	577769.6	4405726	577757.7
700	4405652	577943.1	4405665	577841.1	4405670	577798.2	4405673	577780.8	4405674	577765.7	4405676	577752.3
701	4405602	577942.2	4405616	577832.6	4405620	577796.1	4405622	577778.6	4405625	577755.0	4405626	577751.9
702	4405551	577941.8	4405566	577825.8	4405570	577794.1	4405572	577777.4	4405576	577746.6	4405576	577743.5
703	4405502	577930.2	4405516	577820.9	4405520	577790.6	4405522	577772.4	4405526	577741.5	4405527	577738.7
704	4405454	577914.9	4405467	577815.4	4405470	577786.8	4405472	577769.2	4405476	577738.3	4405477	577730.1
705	4405405	577905.6	4405417	577809.8	4405420	577783.6	4405423	577760.6	4405426	577738.8	4405428	577724.4
706	4405358	577879.5	4405367	577806.2	4405370	577781.2	4405374	577750.2	4405376	577734.8	4405378	577717.9
707	4405308	577871.0	4405317	577803.0	4405320	577778.3	4405325	577739.8	4405326	577727.8	4405328	577713.1
708	4405259	577859.3	4405267	577799.7	4405270	577773.8	4405275	577735.3	4405277	577722.1	4405279	577705.5
709	4405210	577848.0	4405217	577798.5	4405220	577771.1	4405225	577731.0	4405228	577713.1	4405229	577699.8
710	4405161	577843.3	4405167	577796.8	4405170	577768.0	4405175	577731.8	4405179	577700.0	4405179	577695.6
711	4405112	577826.8	4405116	577795.7	4405120	577764.5	4405125	577730.3	4405130	577690.9	4405129	577691.9
712	4405065	577798.8	4405066	577795.5	4405070	577761.2	4405075	577723.1	4405080	577683.4	4405080	577684.6
713	4405017	577780.8	4405015	577796.3	4405020	577757.5	4405025	577718.1	4405030	577679.7	4405030	577681.0
714	4404968	577770.7	4404965	577796.4	4404970	577752.9	4404976	577712.6	4404980	577678.3	4404981	577671.3
715	4404920	577757.0	4404915	577795.3	4404921	577748.4	4404926	577706.6	4404930	577673.8	4404932	577662.4
716	4404871	577744.6	4404864	577794.4	4404871	577744.7	4404876	577699.1	4404880	577667.6	4404882	577654.9
717	4404821	577739.2	4404814	577794.3	4404821	577742.4	4404826	577696.8	4404831	577662.2	4404832	577648.9
718	4404773	577719.7	4404764	577794.5	4404771	577739.1	4404776	577694.6	4404780	577663.2	4404783	577642.6
719	4404724	577708.1	4404713	577793.8	4404721	577735.9	4404726	577691.8	4404730	577662.2	4404733	577636.8
720	4404675	577698.1	4404663	577794.0	4404671	577733.5	4404676	577689.6	4404680	577655.7	4404684	577629.8
721	4404627	577683.0	4404613	577794.2	4404620	577733.9	4404626	577685.2	4404631	577650.1	4404634	577625.3
722	4404577	577674.2	4404562	577793.5	4404569	577737.9	4404576	577680.6	4404582	577638.5	4404583	577631.0
723	4404529	577659.4	4404512	577789.7	4404519	577736.1	4404527	577674.7	4404532	577634.6	4404532	577631.4
724	4404479	577652.5	4404463	577782.0	4404469	577732.0	4404477	577667.3	4404481	577635.0	4404482	577629.9
725	4404432	577625.5	4404413	577777.7	4404419	577730.3	4404428	577661.6	4404431	577636.8	4404432	577626.9
726	4404384	577608.9	4404363	577775.9	4404369	577730.5	4404378	577654.3	4404380	577639.1	4404383	577619.2
727	4404335	577597.4	4404312	577777.9	4404318	577730.6	4404328	577650.6	4404330	577640.3	4404333	577614.4
728	4404286	577587.6	4404261	577781.4	4404268	577729.5	4404279	577643.1	4404280	577637.3	4404283	577607.6
729	4404237	577574.5	4404210	577787.0	4404218	577726.6	4404230	577628.4	4404229	577637.1	4404233	577602.9

						High-Water Shoreline Position Change Rate									
	1839/42 to	1839/42 to	1839/42 to	1839/42 to	1839/42 to	1864/86 to	1864/86 to	1864/86 to	1864/86 to	1899 to	1899 to	1899 to	1932 to	1932 to	1950/51 to
Transect #	1864/86 (m/yr)	1899 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1899 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1977 (m/yr)
730	6.7	2.8	0.6	0.6	0.3	-2.8	-3.1	-2.1	-1.9	-3.3	-1.8	-1.6	0.9	-0.3	-1.3
731	7.7	3.2	0.8	0.8	0.5	-3.2	-3.3	-2.3	-2.0	-3.4	-1.8	-1.6	1.0	-0.3	-1.1
732	8.5	3.4	1.0	1.0	0.6	-3.6	-3.6	-2.4	-2.1	-3.5	-1.8	-1.6	1.2	-0.2	-1.2
733	9.1	3.7	1.2	1.1	0.7	-3.8	-3.6	-2.6	-2.1	-3.4	-2.0	-1.6	0.4	-0.3	-0.8
734	10.4	4.4	1.7	1.4	1.0	-3.9	-3.5	-2.8	-2.2	-3.2	-2.2	-1.6	-0.3	-0.4	-0.5
735	11.8	5.2	2.2	1.7	1.3	-4.0	-3.6	-2.9	-2.2	-3.3	-2.4	-1.6	-0.9	-0.4	-0.1
736	13.0	5.9	2.6	2.0	1.6	-4.0	-3.6	-3.0	-2.3	-3.4	-2.5	-1.7	-1.1	-0.5	-0.1
737	19.4	9.7	5.0	4.1	3.2	-3.8	-3.6	-2.9	-2.2	-3.5	-2.5	-1.7	-0.7	-0.4	-0.3
738	21.7	11.2	6.0	4.9	3.9	-3.4	-3.5	-2.7	-2.2	-3.5	-2.4	-1.8	-0.4	-0.5	-0.6
739						-3.3	-3.4	-2.6	-2.2	-3.5	-2.3	-1.8	-0.1	-0.6	-0.9
740						-2.8	-3.2	-2.3	-2.1	-3.5	-2.1	-1.8	0.3	-0.6	-1.2
741						-2.3	-3.0	-2.2	-1.9	-3.6	-2.1	-1.8	0.4	-0.5	-1.3
742						-1.4	-2.6	-1.9	-1.7	-3.6	-2.1	-1.8	0.6	-0.5	-1.3
743						-0.3	-2.0	-1.4	-1.4	-3.4	-2.0	-1.8	0.4	-0.6	-1.4
744						0.8	-1.4	-1.0	-1.1	-3.0	-1.9	-1.7	0.2	-0.7	-1.4
745						1.5	-0.8	-0.7	-0.9	-2.5	-1.8	-1.6	-0.5	-1.0	-1.3
746						2.5	-0.3	-0.3	-0.6	-2.4	-1.7	-1.6	-0.5	-1.0	-1.3
747						3.8	0.1	0.2	-0.2	-2.8	-1.6	-1.5	0.5	-0.5	-1.3
748						5.5	0.6	0.9	0.3	-3.0	-1.3	-1.4	1.7	-0.2	-1.5
749						7.1	1.4	1.6	0.8	-2.9	-1.0	-1.2	2.2	0.0	-1.6
750						10.6	3.3	3.0	1.8	-2.2	-0.7	-1.0	2.0	-0.2	-1.7
751										-1.7	-0.3	-0.8	2.1	-0.1	-1.7
752										-1.3	0.3	-0.4	3.1	0.2	-1.8
753										0.0	1.4	0.3	3.9	0.5	-1.9
754													4.1	0.7	-1.8
755													3.5	0.5	-1.6
756													2.7	0.3	-1.4
757													2.0	0.1	-1.3
758													2.4	0.3	-1.2
759													4.1	1.0	-1.2
760													5.2	1.6	-1.1
761													6.0	2.0	-0.9
762													7.1	2.6	-0.7
763													8.1	3.0	-0.6
764													9.3	3.5	-0.7
765													12.3	4.8	-0.6
766													15.1	6.0	-0.5
767													16.9	7.0	-0.3
768													19.4	8.1	-0.1
769													24.2	10.3	0.3
770															0.7
771															1.3
772															2.3
773															
Barnegat Inlet															
774															
775															
776															
777															
778															
779															
780															
781															
782															
783															
784															
785															
786	-8.3	-9.8				-11.5									
787	-7.4	-8.5				-9.8									
788	-6.5	-8.0				-9.8									
789	-5.5	-7.5		-6.5	-3.3	-9.9		-6.9	-2.6		-5.3	-0.1			9.8
790	-4.2	-6.5		-6.0	-3.0	-9.2		-6.7	-2.6		-5.4	-0.4			9.1
791	-3.0	-5.8	-7.6	-5.6	-3.0	-9.1	-10.1	-6.7	-3.0	-11.0	-5.5	-0.9	4.6	6.5	7.8
792	-2.4	-5.4	-6.9	-5.4	-3.1	-9.0	-9.3	-6.6	-3.3	-9.5	-5.3	-1.3	2.3	4.7	6.2
793	-2.0	-5.0	-6.3	-5.0	-3.1	-8.5	-8.6	-6.2	-3.5	-8.7	-5.0	-1.7	1.8	3.4	4.5
794	-1.5	-4.4	-5.9	-4.5	-3.1	-7.8	-8.3	-5.8	-3.6	-8.6	-4.7	-2.1	2.6	2.6	2.6
795	-1.3	-3.6	-5.5	-4.0	-3.1	-6.4	-7.7	-5.1	-3.6	-8.9	-4.4	-2.6	3.6	2.0	0.8
796	-1.5	-2.8	-4.8	-3.6	-3.0	-4.3	-6.6	-4.5	-3.5	-8.5	-4.6	-3.2	2.4	0.6	-0.6
797	-1.8	-2.0	-4.1	-3.3	-2.9	-2.3	-5.3	-3.9	-3.2	-7.6	-4.8	-3.6	0.5	-0.6	-1.3
798	-2.3	-1.5	-1.2	-3.1	-2.8	-0.6	-0.7	-3.5	-3.0	-0.7	-5.0	-3.8	-12.8	-6.1	-1.5
799	-2.5	-1.3	-0.9	-2.8	-2.5	0.0	-0.1	-2.9	-2.5	-0.3	-4.5	-3.3	-12.2	-5.6	-1.2
800	-3.0	-1.5	-1.0	-2.5	-2.3	0.4	0.1	-2.3	-2.1	0.0	-3.7	-2.9	-10.4	-5.0	-1.4
801	-3.4	-1.7	-0.8	-2.1	-2.0	0.4	0.6	-1.6	-1.6	0.7	-2.7	-2.3	-8.9	-4.5	-1.6
802	-3.9	-2.1	-0.8	-1.6	-1.8	0.1	0.9	-0.6	-1.2	1.6	-1.0	-1.7	-5.6	-4.1	-3.0
803	-3.8	-2.1	-0.7	-0.7	-0.9	-0.1	1.0	0.5	0.0	1.9	0.8	0.1	-1.2	-1.3	-1.3
804	-4.1	-2.2	-0.6	-0.9	-0.8	0.1	1.3	0.4	0.2	2.3	0.5	0.2	-2.6	-1.2	-0.3
805	-4.8	-2.5	-0.7	-1.0	-0.8	0.2	1.5	0.5	0.4	2.6	0.7	0.5	-2.9	-1.1	0.2
806	-5.2	-2.9	-0.7	-1.1	-0.7	0.0	1.7	0.6	0.7	3.0	1.0	0.9	-2.8	-0.7	0.8
807	-5.7	-3.2	-0.9	-1.1	-0.6	-0.2	1.6	0.8	1.0	3.1	1.4	1.4	-1.7	0.1	1.3
808	-6.3	-3.5	-1.3	-1.2	-0.4	-0.2	1.4	0.9	1.3	2.7	1.5	1.9	-0.8	1.3	2.7

				High-Water Shoreline Position (UTM Zone 18, NAD 1983)								
		1839/42		1864/86		1899		1932		1950/51		1977
Transect #	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)
730	4404189	577558.9	4404159	577792.3	4404168	577722.6	4404182	577613.6	4404180	577631.0	4404184	577598.1
731	4404142	577526.3	4404108	577795.1	4404119	577714.8	4404133	577602.4	4404130	577620.6	4404134	577590.9
732	4404095	577502.0	4404058	577795.5	4404069	577705.3	4404084	577590.3	4404081	577612.8	4404085	577582.6
733	4404048	577475.8	4404008	577792.0	4404020	577697.2	4404034	577587.2	4404033	577594.3	4404035	577574.5
734	4404004	577426.6	4403958	577787.2	4403971	577689.3	4403984	577583.0	4403985	577577.3	4403986	577565.5
735	4403960	577373.6	4403908	577782.0	4403921	577682.4	4403935	577575.7	4403937	577559.5	4403937	577557.1
736	4403916	577325.1	4403859	577777.0	4403871	577677.7	4403885	577567.9	4403888	577547.9	4403888	577546.5
737	4403895	577094.3	4403810	577766.4	4403821	577672.8	4403836	577557.8	4403838	577545.3	4403839	577537.8
738	4403856	576999.1	4403761	577751.3	4403772	577667.8	4403786	577551.7	4403787	577544.4	4403789	577529.1
739			4403712	577745.1	4403722	577662.0	4403737	577547.5	4403737	577546.0	4403740	577522.3
740			4403663	577727.7	4403672	577657.5	4403687	577542.3	4403686	577548.4	4403690	577516.8
741			4403615	577708.6	4403622	577652.7	4403637	577535.3	4403636	577543.7	4403640	577511.2
742			4403569	577680.2	4403573	577645.7	4403588	577528.4	4403586	577538.8	4403591	577504.3
743			4403523	577642.2	4403524	577635.8	4403538	577525.7	4403537	577533.4	4403541	577497.4
744			4403477	577604.1	4403475	577623.0	4403488	577523.5	4403487	577526.4	4403492	577490.1
745			4403431	577572.1	4403426	577610.2	4403437	577527.3	4403438	577517.0	4403442	577483.2
746			4403385	577534.2	4403378	577596.2	4403387	577518.8	4403389	577508.8	4403393	577476.2
747			4403341	577488.1	4403329	577583.4	4403340	577492.9	4403339	577502.5	4403343	577469.0
748			4403297	577432.6	4403280	577568.6	4403293	577468.9	4403289	577499.9	4403294	577462.1
749			4403254	577374.8	4403232	577550.5	4403244	577456.7	4403239	577497.5	4403244	577457.2
750			4403217	577267.8	4403184	577531.1	4403193	577459.4	4403189	577496.1	4403194	577451.9
751					4403137	577506.2	4403144	577451.0	4403139	577489.7	4403144	577446.9
752					4403090	577475.3	4403096	577431.3	4403089	577489.0	4403095	577441.5
753					4403048	577413.5	4403048	577413.5	4403039	577486.6	4403045	577437.4
754							4402999	577401.4	4402989	577478.5	4402995	577432.0
755							4402948	577402.6	4402940	577467.3	4402946	577424.9
756							4402898	577404.7	4402891	577455.3	4402896	577418.4
757							4402847	577407.3	4402842	577445.4	4402846	577412.4
758							4402798	577392.8	4402793	577438.7	4402797	577407.3
759							4402753	577357.1	4402743	577434.2	4402747	577403.8
760							4402705	577332.0	4402693	577428.9	4402697	577401.6
761							4402658	577308.3	4402644	577421.7	4402647	577398.3
762							4402611	577282.1	4402594	577415.3	4402596	577396.9
763							4402564	577257.2	4402545	577408.5	4402547	577392.0
764							4402517	577230.7	4402494	577405.6	4402497	577387.2
765							4402474	577167.6	4402445	577398.5	4402447	577383.0
766							4402431	577110.9	4402395	577393.8	4402397	577380.1
767							4402386	577066.1	4402346	577383.7	4402347	577376.4
768							4402342	577014.7	4402296	577378.5	4402297	577376.0
769							4402305	576914.0	4402247	577368.0	4402246	577374.6
770									4402198	577358.4	4402196	577377.7
771									4402150	577343.1	4402145	577375.7
772									4402103	577315.6	4402095	577374.7
773											4402044	577377.8
774	4402479	577419.4										
775	4402400	577455.7										
776	4402331	577474.2										
777	4402275	577470.7										
778	4402228	577452.0										
779	4402178	577438.0										
780	4402133	577416.6										
781	4402082	577405.7										
782	4402033	577390.1										
783	4401979	577382.9										
784	4401926	577374.7										
785	4401875	577362.7	4402020	577115.3								
786	4401825	577349.4	4401960	577118.9	4402117	576850.2						
787	4401779	577328.3	4401899	577123.6	4402033	576895.5						
788	4401732	577310.2	4401837	577131.5	4401970	576903.4						
789	4401686	577289.9	4401775	577138.2	4401910	576907.0			4402047	576674.0	4401913	576902.2
790	4401640	577269.0	4401709	577152.0	4401835	576937.0			4401973	576701.4	4401848	576913.2
791	4401593	577250.4	4401641	577168.9	4401765	576956.7	4401948	576644.8	4401906	576716.9	4401800	576897.8
792	4401542	577239.3	4401581	577172.8	4401703	576963.5	4401861	576693.9	4401840	576729.6	4401755	576874.6
793	4401494	577222.0	4401527	577166.0	4401642	576968.6	4401788	576719.8	4401772	576747.5	4401710	576852.7
794	4401447	577202.4	4401471	577161.2	4401578	576979.4	4401722	576733.7	4401698	576774.3	4401662	576835.6
795	4401402	577181.2	4401423	577144.9	4401510	576996.1	4401658	576743.9	4401625	576800.6	4401613	576819.8
796	4401356	577159.8	4401381	577118.3	4401439	577019.0	4401581	576776.9	4401558	576814.9	4401566	576802.1
797	4401310	577140.5	4401339	577090.8	4401371	577036.2	4401498	576818.7	4401493	576826.8	4401511	576797.1
798	4401259	577128.7	4401296	577064.9	4401305	577050.0	4401316	577030.9	4401433	576831.9	4401454	576795.9
799	4401214	577105.8	4401254	577038.1	4401253	577039.1	4401258	577031.6	4401368	576842.8	4401384	576815.6
800	4401164	577092.8	4401212	577009.9	4401208	577018.2	4401208	577016.9	4401303	576855.4	4401322	576822.4
801	4401117	577073.2	4401172	576979.0	4401168	576987.2	4401156	577007.9	4401237	576869.5	4401259	576831.4
802	4401069	577057.2	4401131	576950.8	4401130	576952.5	4401104	576997.1	4401155	576909.7	4401196	576839.8
803	4401025	577032.5	4401086	576928.6	4401087	576927.3	4401056	576980.4	4401067	576961.6	4401084	576931.8
804	4400980	577011.3	4401046	576898.8	4401044	576901.0	4401006	576965.9	4401030	576924.9	4401035	576917.4
805	4400929	576999.0	4401006	576867.9	4401004	576871.6	4400960	576946.0	4400987	576900.7	4400984	576904.6
806	4400882	576980.6	4400967	576836.0	4400967	576835.5	4400916	576922.0	4400942	576877.9	4400931	576895.9
807	4400834	576962.7	4400926	576806.5	4400929	576801.3	4400878	576889.1	4400893	576863.0	4400875	576893.9
808	4400782	576953.3	4400884	576779.7	4400887	576774.7	4400842	576850.8	4400849	576838.5	4400813	576901.1

High-Water Shoreline Position Change Rate

	1839/42 to	1839/42 to	1839/42 to	1839/42 to	1839/42 to	1864/86 to	1864/86 to	1864/86 to	1864/86 to	1899 to	1899 to	1899 to	1932 to	1932 to	1950/51 to
Transect #	1864/86 (m/yr)	1899 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1899 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1977 (m/yr)
809	-6.9	-3.8	-1.5	-1.4	-0.3	-0.1	1.4	0.9	1.7	2.7	1.4	2.3	-0.8	2.0	3.9
810	-7.2	-3.9	-1.6	-1.4	-0.3	0.0	1.4	1.0	1.8	2.6	1.5	2.5	-0.4	2.4	4.3
811	-7.1	-4.0	-1.6	-1.4	0.1	-0.3	1.4	0.9	2.3	2.7	1.6	3.1	-0.6	3.4	6.1
812						-0.3	1.5	1.0	2.3	3.0	1.7	3.2	-0.8	3.3	6.0
813						-0.2	1.8	1.1	2.2	3.4	1.8	3.1	-1.2	2.9	5.6
814						-0.4	2.0	1.2	2.1	4.0	2.0	3.0	-1.6	2.3	4.9
815						-0.6	2.0	1.2	2.0	4.1	2.1	2.8	-1.6	1.9	4.2
816						-0.6	2.0	1.2	1.8	4.1	2.2	2.7	-1.4	1.6	3.6
817						-0.6	1.8	1.2	1.6	3.8	2.2	2.4	-0.9	1.4	2.9
818						-0.7	1.6	1.2	1.5	3.5	2.1	2.2	-0.3	1.3	2.4
819						-0.8	1.5	0.5	1.3	3.3	1.2	2.1	-2.6	1.1	3.6
820						-1.0	1.4	0.4	1.1	3.4	1.2	1.9	-2.8	0.8	3.2
821						-1.1	1.4	0.4	1.0	3.4	1.2	1.7	-2.8	0.5	2.8
822	-8.1	-5.0	-2.0	-2.1	-1.2	-1.2	1.3	0.3	0.9	3.4	1.1	1.6	-2.9	0.3	2.4
823	-8.1	-5.0	-2.1	-2.2	-1.3	-1.2	1.2	0.2	0.7	3.1	1.0	1.4	-2.9	0.1	2.1
824	-7.9	-5.0	-2.1	-2.2	-1.4	-1.7	1.0	0.2	0.6	3.2	1.1	1.3	-2.6	0.0	1.7
825	-8.2	-5.2	-2.2	-2.3	-1.5	-1.7	1.0	0.1	0.5	3.2	1.0	1.2	-3.0	-0.2	1.6
826	-8.0	-5.1	-2.2	-2.3	-1.6	-1.7	0.9	0.0	0.4	3.1	1.0	1.1	-3.0	-0.4	1.3
827	-7.9	-5.1	-2.2	-2.3	-1.6	-1.8	0.8	0.0	0.3	2.9	1.0	1.0	-2.6	-0.4	1.1
828	-7.9	-5.0	-2.3	-2.3	-1.7	-1.6	0.7	0.0	0.2	2.6	0.8	0.8	-2.3	-0.5	0.7
829	-8.0	-5.1	-2.4	-2.3	-1.8	-1.8	0.6	0.0	0.1	2.5	0.9	0.7	-1.9	-0.6	0.3
830	-8.1	-5.3	-2.5	-2.3	-1.9	-2.0	0.5	0.1	0.0	2.6	1.2	0.7	-1.2	-0.7	-0.3
831	-8.1	-5.4	-2.6	-2.4	-2.0	-2.2	0.4	-0.1	-0.1	2.5	1.1	0.7	-1.5	-0.7	-0.1
832	-8.0	-5.4	-2.6	-2.3	-1.9	-2.2	0.3	0.0	-0.1	2.4	1.1	0.7	-1.2	-0.6	-0.1
833	-7.7	-5.3	-2.6	-2.3	-1.9	-2.3	0.1	-0.1	-0.1	2.1	1.1	0.7	-0.9	-0.3	0.1
834	-7.7	-5.1	-2.6	-2.3	-1.8	-2.1	0.1	-0.1	-0.1	1.9	0.9	0.6	-1.1	-0.3	0.1
835	-7.8	-5.2	-2.6	-2.4	-1.9	-2.1	0.2	-0.2	-0.1	2.0	0.8	0.5	-1.5	-0.6	0.1
836	-7.7	-5.1	-2.6	-2.4	-2.0	-2.1	0.1	-0.3	-0.2	1.9	0.7	0.4	-1.5	-0.6	0.0
837	-7.4	-5.0	-2.6	-2.3	-1.9	-2.1	-0.1	-0.3	-0.2	1.6	0.7	0.4	-0.9	-0.4	-0.1
838	-7.2	-4.8	-2.6	-2.2	-1.9	-2.1	-0.2	-0.2	-0.2	1.4	0.8	0.4	-0.3	-0.3	-0.3
839	-7.4	-5.0	-2.8	-2.3	-1.9	-2.2	-0.3	-0.3	-0.2	1.2	0.8	0.4	-0.1	-0.1	-0.2
840	-7.1	-5.0	-2.7	-2.3	-1.9	-2.4	-0.4	-0.4	-0.3	1.2	0.7	0.4	-0.3	-0.1	0.0
841	-7.0	-4.9	-2.7	-2.4	-1.9	-2.5	-0.4	-0.5	-0.3	1.3	0.5	0.4	-0.9	-0.3	0.2
842	-7.1	-4.9	-2.7	-2.4	-1.9	-2.4	-0.4	-0.5	-0.3	1.2	0.5	0.4	-1.0	-0.2	0.3
843	-6.9	-4.9	-2.7	-2.4	-1.9	-2.5	-0.5	-0.5	-0.3	1.1	0.5	0.4	-0.7	0.0	0.4
844	-6.8	-4.8	-2.7	-2.3	-1.8	-2.5	-0.6	-0.5	-0.3	1.0	0.6	0.5	-0.2	0.1	0.3
845	-6.7	-4.8	-2.7	-2.3	-1.8	-2.7	-0.6	-0.5	-0.3	1.0	0.7	0.6	0.1	0.2	0.3
846	-6.6	-4.8	-2.7	-2.2	-1.8	-2.8	-0.6	-0.5	-0.3	1.1	0.7	0.5	0.1	0.1	0.0
847	-6.4	-4.8	-2.7	-2.2	-1.8	-2.9	-0.7	-0.5	-0.4	1.1	0.8	0.5	0.2	0.0	-0.1
848	-6.3	-4.8	-2.7	-2.2	-1.8	-3.1	-0.8	-0.5	-0.5	1.1	0.8	0.5	0.3	0.0	-0.2
849	-6.0	-4.7	-2.7	-2.1	-1.7	-3.2	-0.9	-0.5	-0.4	1.0	0.9	0.5	0.7	0.2	-0.2
850	-5.7	-4.6	-2.6	-2.1	-1.7	-3.3	-1.0	-0.6	-0.5	0.9	0.8	0.5	0.7	0.2	-0.2
851	-5.5	-4.6	-2.6	-2.1	-1.7	-3.5	-1.0	-0.7	-0.6	0.9	0.8	0.4	0.6	0.0	-0.3
852	-5.2	-4.4	-2.5	-2.0	-1.7	-3.5	-1.1	-0.7	-0.6	0.9	0.8	0.4	0.6	0.0	-0.4
853	-4.9	-4.3	-2.5	-2.0	-1.6	-3.5	-1.1	-0.7	-0.6	0.8	0.7	0.3	0.6	0.0	-0.4
854	-4.7	-4.1	-2.4	-1.9	-1.6	-3.5	-1.1	-0.7	-0.6	0.8	0.7	0.3	0.6	0.0	-0.4
855	-4.4	-4.0	-2.3	-1.8	-1.5	-3.6	-1.1	-0.7	-0.6	0.8	0.7	0.4	0.6	0.1	-0.2
856	-4.3	-3.9	-2.2	-1.8	-1.5	-3.5	-1.2	-0.8	-0.6	0.8	0.7	0.4	0.6	0.1	-0.3
857	-4.3	-3.9	-2.2	-1.8	-1.5	-3.5	-1.1	-0.8	-0.7	0.9	0.7	0.3	0.5	0.0	-0.4
858	-4.3	-3.9	-2.2	-1.8	-1.5	-3.5	-1.0	-0.8	-0.7	1.0	0.7	0.3	0.1	-0.2	-0.4
859	-4.0	-3.7	-2.0	-1.7	-1.4	-3.3	-0.9	-0.7	-0.6	1.2	0.7	0.3	-0.3	-0.3	-0.3
860	-4.2	-3.7	-2.0	-1.7	-1.4	-3.1	-0.9	-0.7	-0.6	1.0	0.6	0.3	-0.2	-0.2	-0.2
861	-4.3	-3.6	-2.0	-1.7	-1.4	-2.7	-0.8	-0.6	-0.5	0.7	0.4	0.2	-0.1	-0.1	-0.2
862	-4.5	-3.5	-2.0	-1.7	-1.4	-2.4	-0.7	-0.6	-0.5	0.7	0.3	0.1	-0.3	-0.3	-0.3
863	-4.3	-3.4	-1.9	-1.7	-1.4	-2.3	-0.7	-0.7	-0.5	0.6	0.2	0.1	-0.5	-0.2	-0.1
864	-4.0	-3.4	-2.0	-1.7	-1.3	-2.5	-0.9	-0.8	-0.5	0.5	0.1	0.2	-0.5	0.0	0.2
865	-3.5	-3.3	-2.0	-1.7	-1.3	-3.0	-1.1	-0.9	-0.6	0.4	0.2	0.2	-0.3	0.1	0.3
866	-3.1	-3.1	-2.0	-1.7	-1.3	-3.1	-1.3	-1.1	-0.7	0.1	0.0	0.1	-0.1	0.1	0.2
867	-2.9	-2.9	-1.9	-1.6	-1.3	-3.0	-1.3	-1.1	-0.8	0.0	-0.1	0.0	-0.4	0.0	0.2
868	-2.9	-2.9	-1.8	-1.6	-1.3	-2.9	-1.3	-1.1	-0.8	0.0	-0.2	0.0	-0.7	-0.1	0.3
869	-3.0	-2.9	-1.7	-1.7	-1.2	-2.7	-1.0	-1.1	-0.7	0.4	-0.3	0.0	-1.5	-0.3	0.6
870	-2.9	-2.8	-1.6	-1.6	-1.2	-2.7	-0.9	-1.1	-0.7	0.6	-0.3	0.1	-1.9	-0.4	0.7
871	-3.1	-2.8	-1.6	-1.6	-1.2	-2.5	-0.8	-1.0	-0.6	0.6	-0.2	0.0	-1.7	-0.4	0.4
872	-3.3	-2.8	-1.6	-1.5	-1.2	-2.1	-0.7	-0.8	-0.6	0.5	-0.1	0.0	-1.2	-0.4	0.1
873	-3.4	-2.6	-1.6	-1.5	-1.2	-1.8	-0.6	-0.7	-0.5	0.3	-0.2	0.0	-1.0	-0.3	0.2
874	-3.5	-2.6	-1.6	-1.5	-1.1	-1.6	-0.6	-0.7	-0.4	0.1	-0.3	0.0	-1.1	-0.1	0.6
875	-3.5	-2.5	-1.6	-1.5	-1.1	-1.4	-0.6	-0.7	-0.4	0.0	-0.3	-0.1	-1.0	-0.2	0.4
876	-3.6	-2.5	-1.6	-1.5	-1.2	-1.3	-0.6	-0.6	-0.5	0.0	-0.3	-0.2	-0.8	-0.4	-0.1
877	-3.4	-2.5	-1.7	-1.5	-1.2	-1.5	-0.8	-0.8	-0.6	-0.2	-0.4	-0.3	-0.9	-0.3	0.0
878	-3.1	-2.4	-1.7	-1.5	-1.2	-1.6	-0.9	-0.9	-0.6	-0.4	-0.5	-0.3	-0.7	-0.2	0.1
879	-3.3	-2.6	-1.8	-1.6	-1.3	-1.7	-0.9	-0.9	-0.6	-0.3	-0.5	-0.3	-0.9	-0.2	0.2
880	-3.8	-2.8	-1.9	-1.8	-1.4	-1.5	-0.9	-0.9	-0.6	-0.3	-0.6	-0.3	-1.2	-0.3	0.2
881	-4.0	-2.8	-1.9	-1.8	-1.4	-1.4	-0.8	-0.9	-0.7	-0.3	-0.7	-0.4	-1.4	-0.5	0.1
882	-4.0	-2.7	-1.9	-1.8	-1.4	-1.2	-0.7	-0.9	-0.7	-0.3	-0.8	-0.5	-1.6	-0.6	0.1
883	-4.1	-2.6	-1.8	-1.8	-1.4	-0.9	-0.6	-0.9	-0.6	-0.4	-0.9	-0.5	-1.9	-0.5	0.4
884	-4.3	-2.6	-1.8	-1.8	-1.4	-0.7	-0.5	-0.8	-0.5	-0.4	-0.9	-0.4	-1.7	-0.4	0.5
885	-4.6	-2.7	-1.97	-1.9	-1.4	-0.5	-0.5	-0.8	-0.4	-0.5	-1.0	-0.4	-1.9	-0.3	0.7
886	-4.6	-2.6	-1.9	-1.9	-1.4	-0.3	-0.5	-0.7	-0.4	-0.6	-1.0	-0.5	-1.6	-0.4	0.4
887	-4.7	-2.7	-2.0	-1.8	-1.5	-0.2	-0.5	-0.7	-0.5	-0.8	-0.9	-0.6	-1.1	-0.4	0.1
888	-4.6	-2.7	-2.0	-1.9	-1.5	-0.5	-0.7	-0.7	-0.5	-0.8	-0.9	-0.6	-1.0	-0.4	0.0
889	-4.8	-2.9	-2.2	-1.9	-1.5	-0.7	-0.8	-0.8	-0.5	-0.8	-0.8	-0.4	-0.7	-0.2	0.2

High-Water Shoreline Position (UTM Zone 18, NAD 1983)

	1839/42		1864/86		1899		1932		1950/51		1977	
Transect #	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)
809	4400729	576944.3	4400841	576752.8	4400842	576751.0	4400798	576826.9	4400805	576814.7	4400753	576904.6
810	4400682	576925.7	4400799	576727.0	4400799	576726.0	4400756	576799.9	4400760	576793.5	4400701	576892.9
811	4400639	576899.8	4400754	576704.6	4400757	576698.3	4400712	576776.4	4400717	576767.1	4400634	576909.5
812			4400710	576679.9	4400715	576672.3	4400664	576758.8	4400672	576745.7	4400590	576885.4
813			4400667	576654.2	4400670	576649.3	4400613	576746.9	4400624	576728.3	4400548	576857.7
814			4400624	576628.9	4400630	576619.0	4400563	576733.3	4400578	576708.3	4400512	576821.4
815			4400581	576603.4	4400589	576590.3	4400520	576708.3	4400535	576683.2	4400478	576780.4
816			4400539	576577.2	4400547	576563.5	4400478	576681.4	4400490	576659.9	4400442	576742.8
817			4400496	576551.8	4400503	576538.7	4400440	576646.7	4400448	576633.4	4400409	576700.3
818			4400452	576526.6	4400461	576511.3	4400403	576610.5	4400406	576605.2	4400373	576661.8
819			4400410	576500.8	4400420	576483.0	4400364	576577.9	4400388	576537.0	4400339	576621.8
820			4400365	576477.4	4400379	576453.4	4400322	576551.3	4400348	576507.4	4400304	576581.5
821			4400322	576451.8	4400338	576426.0	4400281	576522.8	4400306	576479.1	4400269	576543.3
822	4400148	576651.1	4400279	576426.9	4400296	576398.5	4400240	576493.9	4400266	576448.5	4400233	576504.8
823	4400105	576625.6	4400236	576402.3	4400252	576373.3	4400200	576462.5	4400226	576418.0	4400198	576467.2
824	4400063	576597.4	4400191	576380.0	4400213	576341.2	4400160	576432.6	4400184	576391.8	4400160	576432.0
825	4400015	576580.8	4400148	576354.7	4400170	576316.2	4400117	576406.5	4400144	576360.5	4400122	576397.9
826	4399973	576554.2	4400102	576333.7	4400125	576294.2	4400074	576382.1	4400100	576336.8	4400083	576365.5
827	4399929	576529.6	4400057	576310.8	4400081	576269.7	4400033	576352.2	4400057	576312.1	4400042	576337.7
828	4399884	576508.3	4400012	576289.0	4400033	576252.6	4399991	576325.4	4400012	576289.8	4400002	576305.5
829	4399839	576485.9	4399968	576266.2	4399992	576224.8	4399950	576295.8	4399968	576265.7	4399964	576273.1
830	4399793	576465.0	4399924	576241.6	4399951	576195.8	4399908	576268.7	4399919	576250.5	4399924	576242.4
831	4399746	576446.6	4399878	576222.1	4399908	576169.8	4399866	576242.6	4399880	576217.9	4399881	576216.1
832	4399705	576418.3	4399834	576198.1	4399864	576145.9	4399824	576214.4	4399835	576195.3	4399837	576192.9
833	4399662	576391.8	4399787	576178.1	4399819	576124.3	4399784	576184.5	4399792	576170.7	4399790	576172.9
834	4399621	576363.5	4399745	576152.0	4399773	576103.5	4399741	576158.8	4399750	576142.3	4399748	576145.7
835	4399575	576343.1	4399701	576127.8	4399729	576080.0	4399696	576136.7	4399708	576113.3	4399708	576115.3
836	4399531	576318.4	4399656	576105.3	4399684	576057.0	4399653	576110.3	4399667	576086.8	4399667	576087.0
837	4399491	576287.8	4399611	576084.2	4399639	576035.6	4399613	576080.8	4399621	576066.7	4399622	576064.3
838	4399449	576261.5	4399565	576062.8	4399593	576015.0	4399570	576053.8	4399573	576048.7	4399578	576041.2
839	4399399	576247.5	4399519	576042.5	4399549	575991.1	4399529	576026.0	4399529	576025.1	4399532	576020.6
840	4399358	576219.5	4399473	576023.1	4399505	575967.4	4399485	576001.8	4399488	575997.3	4399488	575996.3
841	4399314	576195.6	4399427	576002.1	4399461	575944.0	4399439	575980.8	4399448	575966.6	4399445	575970.8
842	4399269	576172.5	4399383	575977.3	4399416	575921.3	4399396	575956.2	4399405	575941.1	4399401	575948.1
843	4399226	576147.6	4399338	575956.2	4399371	575899.1	4399353	575930.3	4399359	575919.8	4399354	575928.7
844	4399182	576123.7	4399292	575936.3	4399326	575877.4	4399309	575905.8	4399311	575902.7	4399307	575909.6
845	4399137	576101.9	4399244	575918.1	4399281	575855.9	4399263	575885.5	4399263	575886.5	4399259	575893.0
846	4399091	576081.1	4399197	575900.1	4399235	575835.6	4399216	575867.1	4399216	575868.1	4399215	575869.2
847	4399045	576061.1	4399148	575883.9	4399188	575815.7	4399171	575846.1	4399169	575849.4	4399170	575846.8
848	4398999	576040.6	4399100	575867.6	4399142	575795.7	4399123	575827.7	4399121	575832.3	4399124	575826.6
849	4398955	576016.3	4399053	575849.3	4399096	575775.8	4399079	575804.1	4399073	575814.7	4399076	575810.4
850	4398912	575990.1	4399005	575832.2	4399050	575755.8	4399035	575781.4	4399028	575792.9	4399031	575787.7
851	4398868	575967.6	4398956	575816.3	4399003	575735.8	4398988	575762.4	4398982	575772.2	4398987	575764.3
852	4398824	575942.9	4398909	575798.3	4398957	575716.5	4398942	575741.4	4398936	575751.5	4398941	575742.7
853	4398781	575917.5	4398861	575781.4	4398909	575699.6	4398895	575722.5	4398890	575731.7	4398895	575722.9
854	4398738	575892.4	4398814	575762.8	4398861	575682.0	4398848	575705.0	4398842	575714.4	4398847	575705.2
855	4398695	575866.8	4398766	575745.8	4398814	575662.9	4398800	575686.6	4398795	575695.5	4398797	575691.7
856	4398651	575843.6	4398719	575725.9	4398768	575643.3	4398754	575666.3	4398749	575675.0	4398753	575668.8
857	4398605	575823.2	4398673	575705.5	4398722	575623.2	4398707	575647.6	4398703	575654.9	4398708	575645.8
858	4398558	575803.2	4398627	575685.5	4398675	575603.8	4398658	575632.5	4398658	575633.6	4398662	575625.4
859	4398516	575775.8	4398582	575664.5	4398627	575587.0	4398608	575620.1	4398610	575616.1	4398614	575608.6
860	4398468	575759.9	4398536	575643.1	4398579	575570.5	4398563	575598.2	4398564	575594.9	4398568	575591.0
861	4398424	575735.5	4398494	575616.6	4398530	575554.3	4398518	575575.0	4398519	575574.0	4398521	575569.4
862	4398377	575716.9	4398450	575593.2	4398483	575536.7	4398471	575556.4	4398474	575552.0	4398477	575545.7
863	4398335	575690.0	4398404	575572.4	4398435	575518.7	4398425	575535.5	4398430	575527.8	4398431	575525.9
864	4398288	575671.0	4398354	575559.3	4398388	575500.2	4398380	575513.4	4398385	575506.3	4398381	575512.1
865	4398243	575648.6	4398301	575550.6	4398341	575481.5	4398335	575492.7	4398337	575488.7	4398333	575496.1
866	4398200	575623.9	4398250	575537.3	4398293	575465.2	4398291	575468.4	4398292	575466.7	4398289	575472.4
867	4398156	575599.2	4398203	575519.6	4398244	575449.5	4398244	575449.8	4398247	575443.8	4398244	575449.0
868	4398110	575579.0	4398157	575499.4	4398196	575432.3	4398195	575433.5	4398201	575423.1	4398198	575429.1
869	4398063	575560.8	4398112	575477.5	4398149	575413.9	4398142	575425.4	4398156	575402.2	4398148	575415.4
870	4398019	575536.9	4398065	575457.4	4398103	575394.2	4398092	575411.8	4398110	575382.3	4398100	575398.2
871	4397971	575519.1	4398022	575432.9	4398056	575375.2	4398046	575391.8	4398062	575365.2	4398056	575375.4
872	4397926	575498.5	4397979	575406.9	4398008	575357.6	4398000	575371.3	4398011	575353.0	4398010	575354.9
873	4397881	575476.1	4397935	575382.8	4397959	575341.7	4397955	575349.6	4397964	575333.5	4397961	575339.1
874	4397832	575460.3	4397889	575362.8	4397911	575326.3	4397908	575330.1	4397918	575313.5	4397910	575326.7
875	4397787	575438.1	4397844	575341.5	4397862	575309.8	4397862	575310.2	4397871	575295.3	4397865	575304.2
876	4397739	575421.3	4397797	575322.3	4397814	575292.9	4397814	575293.5	4397821	575281.3	4397823	575278.3
877	4397692	575403.1	4397746	575310.3	4397766	575275.6	4397770	575269.8	4397778	575256.2	4397777	575256.9
878	4397645	575383.1	4397695	575298.3	4397717	575261.0	4397724	575249.3	4397730	575238.4	4397729	575239.8
879	4397593	575374.0	4397647	575281.6	4397670	575243.0	4397675	575233.6	4397683	575219.8	4397680	575224.5
880	4397539	575366.2	4397601	575261.0	4397622	575226.1	4397627	575216.9	4397638	575198.1	4397635	575203.8
881	4397490	575351.5	4397555	575241.5	4397573	575209.5	4397578	575200.8	4397591	575179.1	4397590	575180.3
882	4397444	575330.9	4397509	575219.7	4397525	575192.7	4397531	575183.3	4397545	575158.7	4397544	575160.5
883	4397399	575309.2	4397465	575196.3	4397477	575175.8	4397483	575165.0	4397500	575136.0	4397495	575144.7
884	4397351	575292.4	4397420	575174.0	4397429	575158.8	4397437	575146.1	4397452	575119.1	4397445	575131.4
885	4397301	575279.2	4397374	575153.3	4397381	575141.6	4397390	575127.4	4397407	575098.5	4397397	575114.7
886	4397254	575259.5	4397328	575132.9	4397333	575125.7	4397343	575108.6	4397357	575083.4	4397352	575093.0
887	4397206	575243.7	4397281	575114.2	4397285	575108.8	4397297	575087.2	4397308	575069.3	4397307	575071.3
888	4397155	575230.5	4397231	575102.1	4397237	575091.0	4397250	575068.1	4397259	575052.9	4397259	575053.9
889	4397103	575221.2	4397180	575089.1	4397190	575072.2	4397204	575049.1	4397210	575037.7	4397208	575041.9

	High-Water Shoreline Position Change Rate														
	1839/42 to	1839/42 to	1839/42 to	1839/42 to	1839/42 to	1864/86 to	1864/86 to	1864/86 to	1864/86 to	1899 to	1899 to	1899 to	1932 to	1932 to	1950/51 to
Transect #	1864/86 (m/yr)	1899 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1899 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1977 (m/yr)
890	-4.5	-3.0	-2.2	-2.0	-1.5	-1.3	-1.0	-1.0	-0.6	-0.8	-0.9	-0.4	-1.0	0.0	0.6
891	-3.6	-2.8	-2.1	-1.9	-1.4	-2.0	-1.3	-1.3	-0.8	-0.8	-0.9	-0.4	-1.2	-0.1	0.6
892	-3.7	-3.0	-2.1	-2.0	-1.5	-2.1	-1.3	-1.4	-0.9	-0.6	-1.0	-0.5	-1.6	-0.3	0.6
893	-3.7	-3.0	-2.2	-2.1	-1.6	-2.3	-1.4	-1.5	-0.9	-0.6	-1.1	-0.5	-1.8	-0.4	0.6
894	-3.7	-3.1	-2.2	-2.1	-1.6	-2.3	-1.4	-1.5	-0.9	-0.7	-1.0	-0.5	-1.7	-0.3	0.5
895	-3.9	-3.1	-2.2	-2.1	-1.6	-2.2	-1.3	-1.4	-0.9	-0.7	-1.0	-0.5	-1.7	-0.3	0.6
896	-3.8	-3.0	-2.2	-2.1	-1.6	-2.0	-1.3	-1.4	-0.9	-0.7	-1.0	-0.5	-1.5	-0.3	0.5
897	-4.0	-3.1	-2.2	-2.1	-1.6	-2.0	-1.3	-1.3	-0.9	-0.7	-1.0	-0.5	-1.6	-0.4	0.5
898	-4.0	-3.1	-2.2	-2.1	-1.6	-2.0	-1.2	-1.3	-0.9	-0.6	-0.9	-0.5	-1.6	-0.5	0.3
899	-3.8	-3.0	-2.1	-2.0	-1.6	-2.0	-1.1	-1.3	-0.9	-0.5	-0.9	-0.5	-1.6	-0.6	0.2
900	-4.0	-3.0	-2.1	-2.0	-1.6	-1.8	-1.1	-1.2	-0.9	-0.4	-0.9	-0.5	-1.6	-0.6	0.1
901	-4.4	-3.2	-2.2	-2.1	-1.7	-1.6	-1.0	-1.1	-0.8	-0.4	-0.8	-0.6	-1.5	-0.7	-0.1
902	-4.4	-3.2	-2.2	-2.1	-1.7	-1.7	-0.9	-1.1	-0.9	-0.3	-0.8	-0.6	-1.7	-0.8	-0.2
903	-4.6	-3.3	-2.2	-2.1	-1.8	-1.8	-1.0	-1.1	-0.9	-0.3	-0.8	-0.6	-1.7	-0.9	-0.3
904	-4.4	-3.2	-2.2	-2.1	-1.7	-1.9	-1.0	-1.2	-0.9	-0.3	-0.8	-0.6	-1.9	-0.9	-0.2
905	-4.0	-3.2	-2.2	-2.1	-1.7	-2.2	-1.3	-1.3	-1.0	-0.5	-0.8	-0.6	-1.4	-0.7	-0.2
906	-3.5	-3.1	-2.2	-2.1	-1.6	-2.6	-1.5	-1.5	-1.0	-0.6	-0.9	-0.5	-1.4	-0.5	0.2
907	-3.4	-3.0	-2.2	-2.1	-1.7	-2.6	-1.5	-1.5	-1.1	-0.6	-0.9	-0.6	-1.5	-0.6	0.0
908	-3.6	-3.0	-2.1	-2.0	-1.7	-2.2	-1.3	-1.4	-1.1	-0.6	-0.9	-0.7	-1.5	-0.7	-0.2
909	-3.7	-3.1	-2.2	-2.1	-1.7	-2.3	-1.4	-1.4	-1.1	-0.6	-0.9	-0.7	-1.5	-0.7	-0.2
910	-4.1	-3.1	-2.2	-2.0	-1.7	-1.9	-1.2	-1.2	-1.0	-0.6	-0.8	-0.7	-1.3	-0.7	-0.3
911	-4.3	-3.0	-2.1	-2.0	-1.6	-1.4	-1.0	-1.0	-0.8	-0.6	-0.8	-0.6	-1.1	-0.6	-0.3
912	-4.5	-3.0	-2.2	-2.0	-1.7	-1.2	-1.0	-0.9	-0.8	-0.7	-0.8	-0.7	-0.9	-0.6	-0.5
913	-4.6	-3.0	-2.2	-2.0	-1.7	-1.1	-0.9	-0.9	-0.8	-0.8	-0.8	-0.7	-0.8	-0.6	-0.5
914	-4.6	-3.0	-2.2	-2.0	-1.7	-1.1	-0.9	-1.0	-0.8	-0.8	-0.9	-0.6	-1.1	-0.5	-0.2
915	-4.5	-3.0	-2.2	-2.0	-1.6	-1.3	-1.0	-1.0	-0.7	-0.9	-0.9	-0.5	-1.0	-0.2	0.3
916	-4.2	-3.0	-2.3	-2.1	-1.5	-1.7	-1.3	-1.2	-0.7	-1.0	-1.0	-0.4	-1.0	0.0	0.7
917	-3.9	-3.0	-2.3	-2.1	-1.6	-2.0	-1.5	-1.3	-0.9	-1.1	-1.0	-0.5	-0.6	0.0	0.5
918	-3.5	-3.0	-2.3	-2.1	-1.6	-2.4	-1.7	-1.5	-1.0	-1.2	-1.1	-0.5	-0.8	0.0	0.5
919	-3.4	-3.0	-2.3	-2.1	-1.6	-2.5	-1.8	-1.6	-1.0	-1.2	-1.2	-0.5	-1.0	0.0	0.8
920	-3.3	-2.9	-2.4	-2.2	-1.5	-2.5	-1.9	-1.7	-0.9	-1.4	-1.3	-0.4	-1.2	0.3	1.3
921	-3.3	-2.9	-2.4	-2.2	-1.5	-2.3	-1.9	-1.7	-0.9	-1.5	-1.4	-0.4	-1.2	0.4	1.5
922	-3.6	-2.9	-2.4	-2.2	-1.5	-2.1	-1.8	-1.6	-0.9	-1.6	-1.4	-0.5	-1.1	0.3	1.1
923	-3.9	-2.9	-2.5	-2.3	-1.7	-1.8	-1.7	-1.6	-1.0	-1.7	-1.5	-0.7	-1.3	0.0	0.9
924	-4.3	-3.1	-2.5	-2.4	-1.8	-1.8	-1.6	-1.7	-1.0	-1.4	-1.6	-0.8	-1.9	-0.3	0.7
925	-4.3	-3.2	-2.6	-2.5	-1.8	-1.9	-1.7	-1.7	-1.0	-1.6	-1.6	-0.7	-1.7	-0.1	0.9
926	-4.6	-3.3	-2.7	-2.5	-1.8	-1.9	-1.8	-1.7	-1.0	-1.7	-1.6	-0.7	-1.4	0.1	1.1
927	-4.3	-3.2	-2.7	-2.5	-1.7	-1.8	-1.8	-1.7	-0.9	-1.7	-1.6	-0.6	-1.5	0.3	1.5
928	-4.3	-3.1	-2.7	-2.5	-1.7	-1.7	-1.8	-1.7	-0.9	-1.9	-1.8	-0.7	-1.6	0.2	1.4
929	-4.3	-3.1	-2.8	-2.5	-1.8	-1.7	-1.9	-1.8	-1.0	-2.2	-1.8	-0.8	-1.2	0.3	1.3
930	-4.4	-3.1	-2.8	-2.5	-1.8	-1.5	-1.9	-1.8	-1.0	-2.3	-1.9	-0.8	-1.2	0.2	1.2
931	-4.4	-3.1	-2.8	-2.6	-1.9	-1.6	-1.9	-1.8	-1.1	-2.2	-1.9	-0.9	-1.5	0.0	1.0
932	-4.2	-3.1	-2.7	-2.6	-1.8	-1.9	-1.8	-1.9	-1.1	-1.8	-1.9	-0.8	-2.0	0.0	1.3
933	-4.0	-3.2	-2.6	-2.5	-1.7	-2.2	-1.8	-1.9	-1.0	-1.5	-1.7	-0.6	-2.0	0.1	1.4
934	-3.9	-3.3	-2.6	-2.5	-1.8	-2.6	-1.9	-1.9	-1.1	-1.4	-1.5	-0.6	-1.7	0.0	1.1
935	-4.0	-3.4	-2.7	-2.4	-1.8	-2.7	-2.0	-1.8	-1.2	-1.3	-1.2	-0.6	-1.1	-0.1	0.5
936	-4.2	-3.5	-2.7	-2.4	-1.9	-2.7	-1.9	-1.7	-1.2	-1.3	-1.1	-0.7	-0.9	-0.2	0.2
937	-4.0	-3.5	-2.7	-2.4	-1.9	-2.8	-2.0	-1.7	-1.2	-1.4	-1.1	-0.6	-0.6	-0.1	0.2
938	-3.8	-3.3	-2.7	-2.4	-1.7	-2.8	-2.1	-1.8	-1.1	-1.5	-1.3	-0.5	-1.1	0.2	1.0
939	-3.5	-3.2	-2.5	-2.4	-1.7	-2.8	-2.0	-1.9	-1.1	-1.4	-1.5	-0.5	-1.7	0.1	1.3
940	-3.5	-3.2	-2.5	-2.4	-1.7	-2.8	-2.0	-1.9	-1.2	-1.3	-1.4	-0.6	-1.5	-0.1	0.9
941	-3.5	-3.2	-2.5	-2.3	-1.7	-2.7	-2.0	-1.8	-1.2	-1.4	-1.3	-0.7	-1.1	-0.1	0.5
942	-3.5	-3.1	-2.5	-2.3	-1.7	-2.6	-2.0	-1.8	-1.2	-1.5	-1.3	-0.7	-1.1	-0.2	0.5
943	-3.4	-3.0	-2.4	-2.2	-1.6	-2.6	-1.9	-1.8	-1.1	-1.4	-1.3	-0.6	-1.2	0.0	0.8
944	-3.4	-3.1	-2.5	-2.3	-1.6	-2.7	-2.0	-1.8	-1.1	-1.5	-1.3	-0.5	-1.1	0.2	1.0
945	-3.2	-3.1	-2.5	-2.3	-1.7	-2.9	-2.1	-1.9	-1.2	-1.4	-1.3	-0.6	-1.2	0.0	0.8
946	-3.3	-3.1	-2.5	-2.3	-1.7	-2.9	-2.1	-1.9	-1.2	-1.4	-1.4	-0.7	-1.2	-0.1	0.7
947	-3.5	-3.2	-2.6	-2.4	-1.8	-2.8	-2.1	-1.9	-1.2	-1.4	-1.4	-0.7	-1.3	-0.1	0.7
948	-3.7	-3.2	-2.6	-2.4	-1.7	-2.7	-2.0	-1.9	-1.2	-1.4	-1.4	-0.6	-1.4	0.0	0.9
949	-3.9	-3.2	-2.6	-2.4	-1.7	-2.2	-1.8	-1.7	-1.0	-1.5	-1.5	-0.6	-1.5	0.0	1.0
950	-4.2	-3.1	-2.6	-2.4	-1.8	-1.8	-1.7	-1.6	-1.0	-1.7	-1.5	-0.7	-1.2	0.0	0.8
951	-4.3	-3.1	-2.5	-2.3	-1.8	-1.6	-1.6	-1.5	-1.0	-1.6	-1.5	-0.8	-1.4	-0.3	0.5
952	-4.5	-3.0	-2.5	-2.3	-1.8	-1.3	-1.4	-1.4	-1.0	-1.5	-1.5	-0.9	-1.4	-0.4	0.2
953	-4.3	-3.0	-2.4	-2.2	-1.8	-1.3	-1.3	-1.4	-1.0	-1.3	-1.4	-0.8	-1.5	-0.5	0.2
954	-4.3	-3.1	-2.4	-2.2	-1.7	-1.6	-1.4	-1.4	-1.0	-1.2	-1.3	-0.7	-1.4	-0.4	0.3
955	-4.3	-3.2	-2.5	-2.2	-1.7	-1.8	-1.5	-1.3	-0.9	-1.2	-1.1	-0.6	-0.8	-0.2	0.2
956	-4.5	-3.3	-2.6	-2.2	-1.8	-1.9	-1.5	-1.2	-1.0	-1.3	-0.9	-0.6	-0.2	-0.2	-0.2
957	-4.6	-3.4	-2.7	-2.2	-1.8	-1.9	-1.6	-1.2	-1.0	-1.4	-0.9	-0.7	0.0	-0.1	-0.2
958	-4.7	-3.4	-2.7	-2.3	-1.9	-1.8	-1.7	-1.3	-1.0	-1.6	-1.1	-0.7	-0.2	-0.1	0.0
959	-4.9	-3.3	-2.8	-2.4	-1.8	-1.5	-1.6	-1.3	-0.9	-1.7	-1.2	-0.7	-0.4	0.1	0.4
960	-4.9	-3.3	-2.8	-2.4	-1.8	-1.4	-1.7	-1.4	-0.8	-1.9	-1.5	-0.7	-0.7	0.2	0.8
961	-4.8	-3.3	-2.8	-2.5	-1.8	-1.6	-1.7	-1.6	-0.9	-1.8	-1.7	-0.7	-1.4	0.1	1.1
962	-4.8	-3.4	-2.8	-2.6	-1.9	-1.7	-1.8	-1.7	-1.0	-1.9	-1.8	-0.8	-1.5	0.0	1.1
963	-5.0	-3.4	-2.9	-2.6	-1.9	-1.5	-1.8	-1.7	-1.0	-2.0	-1.7	-0.8	-1.2	0.1	1.0
964	-5.4	-3.5	-3.0	-2.7	-2.0	-1.3	-1.8	-1.6	-0.9	-2.1	-1.7	-0.8	-1.1	0.1	0.9
965	-5.6	-3.6	-3.0	-2.7	-2.0	-1.3	-1.7	-1.6	-0.9	-2.0	-1.7	-0.7	-1.2	0.1	1.0
966	-5.5	-3.7	-3.1	-2.8	-2.0	-1.5	-1.7	-1.6	-0.9	-1.9	-1.7	-0.7	-1.2	0.3	1.2
967	-5.5	-3.7	-3.1	-2.8	-2.0	-1.6	-1.8	-1.7	-0.9	-1.9	-1.7	-0.7	-1.4	0.2	1.2
968	-5.5	-3.8	-3.1	-2.8	-2.0	-1.7	-1.8	-1.7	-1.0	-1.9	-1.6	-0.7	-1.2	0.1	1.0
969	-6.0	-4.0	-3.2	-2.9	-2.1	-1.6	-1.7	-1.6	-1.0	-1.7	-1.6	-0.8	-1.4	0.0	0.9
970	-6.3	-4.1	-3.2	-2.9	-2.2	-1.3	-1.5	-1.5	-0.9	-1.7	-1.6	-0.8	-1.4	-0.1	0.8

	High-Water Shoreline Position (UTM Zone 18, NAD 1983)											
	1839/42		1864/86		1899		1932		1950/51		1977	
Transect #	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)
890	4397053	575207.3	4397125	575083.8	4397143	575053.7	4397157	575029.9	4397166	575014.6	4397157	575029.4
891	4397011	575180.2	4397069	575081.5	4397096	575035.6	4397108	575013.8	4397119	574995.9	4397111	575008.9
892	4396960	575167.7	4397020	575066.5	4397048	575017.5	4397059	574999.3	4397074	574973.8	4397066	574987.2
893	4396911	575153.9	4396970	575052.8	4397001	574999.6	4397011	574981.6	4397028	574953.0	4397020	574967.0
894	4396861	575138.7	4396922	575035.5	4396953	574981.8	4396964	574962.9	4396980	574937.1	4396972	574949.7
895	4396814	575121.2	4396876	575014.7	4396906	574964.5	4396917	574945.2	4396932	574919.3	4396923	574934.0
896	4396768	575100.4	4396830	574994.1	4396858	574946.9	4396870	574925.7	4396884	574902.0	4396877	574914.2
897	4396720	575083.7	4396784	574974.4	4396811	574927.9	4396822	574909.2	4396837	574883.8	4396830	574894.8
898	4396673	575065.2	4396737	574954.9	4396764	574908.8	4396774	574893.1	4396788	574867.7	4396784	574875.0
899	4396629	575041.5	4396691	574935.8	4396718	574889.6	4396725	574876.5	4396740	574851.3	4396738	574855.0
900	4396580	575025.2	4396645	574914.2	4396670	574871.2	4396678	574859.2	4396692	574833.8	4396691	574835.4
901	4396529	575014.5	4396600	574892.0	4396623	574853.7	4396630	574841.4	4396644	574817.4	4396645	574815.6
902	4396481	574996.5	4396553	574874.3	4396576	574835.0	4396581	574825.4	4396597	574799.4	4396600	574793.8
903	4396431	574984.1	4396505	574857.4	4396529	574815.7	4396534	574807.8	4396550	574780.7	4396554	574773.7
904	4396385	574962.9	4396456	574841.8	4396481	574798.4	4396486	574790.4	4396503	574761.0	4396505	574757.3
905	4396339	574943.0	4396403	574833.7	4396433	574781.6	4396441	574768.3	4396454	574746.4	4396457	574741.5
906	4396293	574922.5	4396350	574824.7	4396385	574765.2	4396395	574748.6	4396407	574726.7	4396405	574730.9
907	4396246	574904.3	4396301	574809.5	4396336	574749.4	4396347	574731.0	4396361	574707.7	4396360	574708.8
908	4396199	574884.5	4396258	574784.6	4396288	574733.0	4396298	574715.2	4396312	574691.4	4396314	574687.7
909	4396149	574871.4	4396208	574770.1	4396240	574715.7	4396250	574698.4	4396264	574675.1	4396266	574670.9
910	4396100	574856.1	4396167	574742.2	4396192	574698.6	4396202	574682.1	4396214	574662.0	4396218	574654.8
911	4396054	574834.9	4396124	574715.6	4396144	574681.9	4396154	574664.5	4396164	574647.0	4396168	574640.2
912	4396006	574818.3	4396079	574694.2	4396096	574665.3	4396108	574645.1	4396116	574631.5	4396122	574620.5
913	4395958	574801.5	4396033	574674.0	4396048	574648.7	4396061	574625.3	4396069	574612.7	4396076	574600.4
914	4395910	574784.0	4395984	574658.1	4396000	574631.4	4396012	574609.6	4396022	574593.2	4396025	574588.3
915	4395863	574765.5	4395936	574641.8	4395953	574612.6	4395967	574587.5	4395977	574571.3	4395972	574579.4
916	4395816	574747.3	4395883	574632.7	4395906	574594.2	4395922	574566.4	4395931	574551.2	4395921	574567.8
917	4395769	574728.9	4395831	574621.9	4395858	574576.2	4395877	574543.8	4395883	574534.0	4395877	574544.6
918	4395722	574709.8	4395778	574613.7	4395811	574558.5	4395830	574525.0	4395838	574512.2	4395831	574523.6
919	4395675	574691.9	4395729	574598.4	4395763	574541.2	4395783	574506.2	4395793	574490.1	4395782	574507.9
920	4395627	574673.7	4395681	574582.5	4395714	574524.9	4395737	574485.9	4395748	574467.2	4395730	574498.6
921	4395580	574655.3	4395634	574563.9	4395665	574509.7	4395691	574466.1	4395702	574447.9	4395681	574483.0
922	4395530	574641.3	4395588	574542.6	4395616	574494.4	4395643	574448.3	4395653	574431.8	4395637	574458.4
923	4395480	574628.9	4395542	574521.9	4395567	574479.6	4395595	574432.2	4395606	574412.4	4395595	574432.3
924	4395427	574620.2	4395496	574502.8	4395520	574460.8	4395544	574419.9	4395561	574391.1	4395551	574408.5
925	4395378	574604.1	4395448	574485.6	4395473	574441.6	4395500	574396.7	4395515	574370.4	4395503	574391.9
926	4395327	574593.2	4395400	574467.6	4395426	574424.4	4395455	574375.0	4395467	574353.2	4395452	574378.6
927	4395283	574569.3	4395353	574449.5	4395377	574407.7	4395407	574358.0	4395420	574335.1	4395400	574369.4
928	4395235	574551.2	4395306	574431.4	4395329	574391.1	4395360	574338.0	4395374	574313.8	4395355	574347.3
929	4395188	574532.5	4395258	574413.4	4395281	574374.6	4395317	574313.1	4395328	574294.0	4395311	574323.7
930	4395142	574513.6	4395212	574392.9	4395233	574357.7	4395271	574292.3	4395282	574274.4	4395266	574301.4
931	4395092	574499.3	4395164	574376.9	4395185	574340.5	4395221	574278.9	4395235	574255.7	4395220	574280.0
932	4395046	574479.3	4395114	574362.3	4395140	574318.4	4395170	574267.9	4395188	574236.4	4395171	574266.3
933	4395000	574458.6	4395065	574348.3	4395095	574296.0	4395120	574252.9	4395139	574221.9	4395119	574255.0
934	4394951	574442.6	4395015	574333.6	4395050	574273.5	4395073	574234.6	4395089	574208.0	4395074	574233.6
935	4394903	574426.3	4394968	574314.8	4395006	574251.1	4395028	574213.2	4395037	574196.7	4395031	574207.9
936	4394855	574409.7	4394922	574295.0	4394959	574231.0	4394981	574194.8	4394989	574180.4	4394986	574185.4
937	4394810	574387.3	4394874	574277.2	4394913	574211.4	4394936	574172.9	4394941	574163.6	4394938	574168.2
938	4394766	574362.7	4394828	574258.2	4394866	574193.1	4394890	574151.1	4394900	574134.8	4394887	574157.6
939	4394724	574336.9	4394781	574239.6	4394819	574174.4	4394842	574135.3	4394857	574109.7	4394839	574139.7
940	4394678	574315.2	4394736	574217.4	4394773	574153.3	4394796	574115.0	4394810	574091.0	4394797	574111.9
941	4394634	574291.5	4394691	574193.9	4394729	574129.8	4394752	574090.9	4394762	574073.7	4394755	574085.4
942	4394590	574268.4	4394646	574173.0	4394682	574111.5	4394706	574069.6	4394716	574052.2	4394710	574063.7
943	4394548	574241.1	4394602	574148.4	4394638	574087.6	4394660	574048.9	4394671	574030.2	4394661	574048.3
944	4394502	574221.2	4394556	574128.2	4394593	574065.4	4394617	574024.0	4394627	574006.6	4394613	574030.7
945	4394456	574200.9	4394507	574112.3	4394547	574045.0	4394571	574004.5	4394581	573985.9	4394570	574005.7
946	4394408	574183.4	4394461	574092.2	4394501	574024.6	4394525	573984.0	4394536	573965.1	4394527	573980.4
947	4394360	574166.3	4394416	574070.1	4394455	574004.3	4394478	573963.9	4394491	573942.9	4394482	573958.5
948	4394312	574148.7	4394372	574047.2	4394408	573985.0	4394432	573943.7	4394445	573922.0	4394433	573942.8
949	4394267	574126.6	4394331	574017.8	4394361	573966.1	4394386	573923.3	4394400	573900.6	4394386	573924.7
950	4394220	574107.6	4394289	573990.4	4394314	573947.9	4394342	573900.8	4394353	573881.9	4394342	573899.5
951	4394176	574084.3	4394246	573965.0	4394267	573928.8	4394294	573883.4	4394306	573861.9	4394300	573872.9
952	4394131	574063.1	4394204	573938.7	4394221	573908.8	4394246	573866.6	4394259	573844.2	4394256	573849.9
953	4394088	574036.7	4394158	573916.7	4394176	573886.3	4394198	573849.4	4394212	573825.4	4394209	573829.9
954	4394041	574018.0	4394110	573900.4	4394132	573862.4	4394152	573829.6	4394165	573807.2	4394161	573813.8
955	4393994	573999.8	4394064	573880.5	4394089	573837.6	4394109	573803.7	4394116	573791.1	4394113	573796.1
956	4393947	573981.0	4394020	573856.7	4394045	573813.3	4394066	573777.0	4394069	573773.4	4394071	573769.6
957	4393901	573961.1	4393975	573833.7	4394001	573789.5	4394025	573747.9	4394025	573749.6	4394028	573744.3
958	4393855	573940.5	4393931	573810.0	4393955	573769.0	4393982	573724.1	4393983	573721.8	4393983	573721.1
959	4393809	573919.2	4393889	573783.7	4393909	573749.8	4393937	573700.3	4393941	573694.9	4393936	573703.1
960	4393764	573897.0	4393843	573762.5	4393862	573730.7	4393893	573677.0	4393899	573666.4	4393888	573685.7
961	4393719	573875.0	4393796	573743.6	4393818	573707.3	4393848	573655.6	4393860	573634.2	4393846	573659.3
962	4393673	573855.1	4393750	573723.7	4393773	573684.4	4393804	573631.1	4393818	573607.1	4393803	573632.8
963	4393626	573837.1	4393707	573698.0	4393728	573663.0	4393761	573605.2	4393773	573586.0	4393759	573609.6
964	4393577	573821.9	4393664	573672.4	4393682	573641.4	4393717	573581.7	4393727	573565.1	4393714	573586.9
965	4393529	573804.3	4393619	573650.2	4393637	573619.5	4393670	573563.7	4393681	573544.8	4393667	573569.1
966	4393484	573782.6	4393573	573630.0	4393594	573594.7	4393626	573539.5	4393637	573521.6	4393620	573550.1
967	4393439	573759.8	4393528	573607.8	4393550	573570.0	4393581	573517.0	4393594	573495.9	4393577	573524.2
968	4393394	573737.8	4393483	573585.3	4393507	573545.4	4393538	573492.6	4393549	573473.3	4393535	573497.1
969	4393344	573723.9	4393441	573558.4	4393463	573521.0	4393492	573472.1	4393505	573449.8	4393493	573470.2
970	4393299	573703.0	4393401	573527.7	4393420	573496.4	4393448	573447.8	4393461	573425.9	4393450	573444.9

	High-Water Shoreline Position Change Rate														
	1839/42 to	1839/42 to	1839/42 to	1839/42 to	1839/42 to	1864/86 to	1864/86 to	1864/86 to	1864/86 to	1899 to	1899 to	1899 to	1932 to	1932 to	1950/51 to
Transect #	1864/86 (m/yr)	1899 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1899 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1977 (m/yr)
971	-6.4	-4.1	-3.2	-2.9	-2.1	-1.3	-1.5	-1.5	-0.8	-1.7	-1.6	-0.7	-1.5	0.1	1.1
972	-6.5	-4.1	-3.2	-3.0	-2.1	-1.4	-1.5	-1.5	-0.8	-1.5	-1.6	-0.6	-1.6	0.1	1.3
973	-6.5	-4.2	-3.2	-2.9	-2.1	-1.5	-1.4	-1.5	-0.8	-1.4	-1.4	-0.6	-1.6	0.0	1.1
974	-6.8	-4.5	-3.3	-3.0	-2.2	-1.7	-1.4	-1.5	-0.8	-1.2	-1.4	-0.5	-1.7	0.0	1.1
975	-7.0	-4.6	-3.4	-3.1	-2.3	-1.8	-1.5	-1.5	-0.9	-1.2	-1.3	-0.6	-1.4	-0.1	0.8
976	-7.3	-4.9	-3.6	-3.2	-2.4	-1.9	-1.5	-1.5	-0.9	-1.2	-1.2	-0.5	-1.2	0.0	0.7
977	-7.4	-5.0	-3.6	-3.2	-2.4	-2.0	-1.5	-1.5	-0.9	-1.0	-1.2	-0.5	-1.4	-0.1	0.8
978	-7.3	-4.9	-3.5	-3.2	-2.4	-2.1	-1.5	-1.5	-0.9	-1.0	-1.2	-0.5	-1.5	0.0	0.9
979	-7.5	-5.0	-3.6	-3.3	-2.4	-1.9	-1.5	-1.5	-0.9	-1.2	-1.4	-0.5	-1.7	0.0	1.1
980	-7.7	-5.0	-3.6	-3.3	-2.5	-1.8	-1.4	-1.5	-0.9	-1.1	-1.4	-0.5	-1.9	-0.1	1.1
981	-7.9	-5.1	-3.7	-3.4	-2.5	-1.8	-1.4	-1.6	-0.9	-1.1	-1.5	-0.6	-2.1	-0.1	1.2
982	-7.9	-5.2	-3.8	-3.4	-2.5	-2.0	-1.6	-1.6	-0.9	-1.2	-1.4	-0.5	-1.7	-0.1	1.0
983	-8.0	-5.2	-3.8	-3.4	-2.5	-2.0	-1.6	-1.6	-0.9	-1.3	-1.3	-0.5	-1.4	0.1	1.1
984	-8.2	-5.3	-3.9	-3.4	-2.5	-1.8	-1.6	-1.5	-0.8	-1.5	-1.3	-0.4	-1.0	0.3	1.2
985	-8.4	-5.3	-4.0	-3.4	-2.6	-1.8	-1.6	-1.4	-0.8	-1.5	-1.2	-0.4	-0.5	0.4	0.9
986	-8.4	-5.5	-4.0	-3.4	-2.6	-2.0	-1.7	-1.4	-0.8	-1.5	-1.0	-0.4	-0.2	0.4	0.8
987	-8.4	-5.5	-4.1	-3.4	-2.6	-2.1	-1.8	-1.4	-0.9	-1.6	-0.9	-0.4	0.2	0.4	0.6
988	-8.3	-5.5	-4.2	-3.4	-2.6	-2.3	-2.0	-1.4	-0.9	-1.8	-0.9	-0.4	0.8	0.6	0.4
989	-8.4	-5.6	-4.3	-3.5	-2.7	-2.3	-2.1	-1.4	-0.9	-1.9	-0.9	-0.4	0.8	0.6	0.6
990	-8.7	-5.7	-4.4	-3.5	-2.7	-2.2	-2.0	-1.4	-0.9	-1.9	-1.0	-0.5	0.7	0.5	0.5
991	-9.0	-5.9	-4.4	-3.6	-2.8	-2.3	-2.0	-1.5	-0.9	-1.9	-1.0	-0.5	0.4	0.6	0.6
992	-9.1	-6.0	-4.5	-3.7	-2.8	-2.3	-2.0	-1.5	-0.9	-1.7	-1.0	-0.4	0.2	0.6	0.9
993	-8.7	-5.8	-4.3	-3.6	-2.7	-2.5	-2.0	-1.5	-0.9	-1.6	-1.0	-0.3	0.1	0.6	1.0
994	-8.9	-6.0	-4.4	-3.6	-2.7	-2.5	-1.9	-1.5	-0.8	-1.5	-1.0	-0.2	-0.1	0.6	1.1
995	-9.3	-6.2	-4.5	-3.8	-2.8	-2.6	-1.9	-1.5	-0.8	-1.3	-0.9	-0.2	-0.1	0.6	1.1
996	-9.2	-6.2	-4.4	-3.7	-2.8	-2.6	-1.8	-1.5	-0.8	-1.2	-0.9	-0.2	-0.4	0.5	1.1
997	-9.1	-6.0	-4.2	-3.6	-2.7	-2.5	-1.7	-1.4	-0.8	-1.0	-0.9	-0.2	-0.7	0.4	1.1
998	-9.0	-6.0	-4.1	-3.6	-2.7	-2.3	-1.6	-1.4	-0.8	-0.9	-0.9	-0.2	-0.8	0.3	1.1
999	-9.2	-6.0	-4.1	-3.6	-2.7	-2.2	-1.5	-1.3	-0.7	-0.9	-0.9	-0.2	-1.0	0.3	1.2
1000	-9.4	-6.0	-4.2	-3.6	-2.7	-2.0	-1.4	-1.3	-0.7	-0.9	-0.8	-0.2	-0.8	0.3	1.1
1001	-9.5	-6.1	-4.2	-3.7	-2.7	-2.1	-1.4	-1.3	-0.7	-0.8	-0.8	-0.2	-1.0	0.2	1.0
1002	-9.3	-6.1	-4.3	-3.7	-2.8	-2.4	-1.6	-1.3	-0.8	-1.0	-0.8	-0.2	-0.3	0.4	0.9
1003	-9.2	-6.1	-4.3	-3.6	-2.7	-2.4	-1.6	-1.3	-0.8	-1.0	-0.7	-0.2	-0.2	0.4	0.8
1004	-8.9	-5.9	-4.2	-3.5	-2.7	-2.4	-1.6	-1.3	-0.8	-1.1	-0.7	-0.3	-0.1	0.3	0.6
1005	-8.9	-5.9	-4.2	-3.5	-2.8	-2.4	-1.7	-1.3	-0.9	-1.2	-0.8	-0.4	0.1	0.2	0.3
1006	-9.0	-6.0	-4.4	-3.6	-2.8	-2.4	-1.9	-1.3	-1.0	-1.5	-0.8	-0.5	0.5	0.3	0.1
1007	-9.1	-6.0	-4.4	-3.6	-2.8	-2.3	-1.9	-1.3	-0.9	-1.5	-0.8	-0.5	0.4	0.3	0.2
1008	-9.1	-5.9	-4.3	-3.6	-2.8	-2.2	-1.7	-1.4	-0.9	-1.3	-0.9	-0.5	-0.2	0.2	0.4
1009	-8.7	-5.7	-4.1	-3.5	-2.7	-2.1	-1.7	-1.3	-0.9	-1.3	-0.9	-0.5	-0.1	0.2	0.3
1010	-8.6	-5.6	-4.0	-3.4	-2.7	-2.1	-1.6	-1.3	-0.9	-1.2	-0.8	-0.5	-0.1	0.0	0.1
1011	-8.7	-5.6	-4.0	-3.3	-2.6	-1.9	-1.5	-1.2	-0.8	-1.1	-0.7	-0.4	-0.1	0.1	0.3
1012	-8.9	-5.7	-4.0	-3.4	-2.6	-1.8	-1.5	-1.2	-0.7	-1.2	-0.8	-0.3	-0.1	0.3	0.6
1013	-9.0	-5.7	-4.0	-3.4	-2.6	-1.8	-1.4	-1.1	-0.7	-1.1	-0.8	-0.3	-0.3	0.3	0.8
1014	-8.9	-5.6	-4.0	-3.4	-2.6	-1.7	-1.3	-1.1	-0.6	-1.0	-0.8	-0.3	-0.3	0.3	0.7
1015	-8.6	-5.4	-3.9	-3.3	-2.5	-1.6	-1.4	-1.1	-0.6	-1.2	-0.8	-0.3	0.0	0.3	0.6
1016	-8.5	-5.3	-3.8	-3.1	-2.5	-1.5	-1.3	-0.9	-0.6	-1.2	-0.6	-0.3	0.4	0.3	0.3
1017	-8.6	-5.4	-3.9	-3.1	-2.5	-1.5	-1.3	-0.9	-0.6	-1.2	-0.6	-0.3	0.6	0.4	0.3
1018	-8.7	-5.5	-4.0	-3.2	-2.5	-1.7	-1.5	-0.9	-0.6	-1.3	-0.5	-0.2	0.9	0.6	0.4
1019	-9.0	-5.6	-4.1	-3.2	-2.5	-1.6	-1.5	-0.9	-0.5	-1.4	-0.5	-0.1	1.1	0.8	0.6
1020	-9.3	-5.8	-4.2	-3.3	-2.5	-1.6	-1.4	-0.9	-0.4	-1.2	-0.5	0.0	0.9	1.0	1.0
1021	-9.6	-5.9	-4.2	-3.4	-2.5	-1.6	-1.3	-0.8	-0.4	-1.2	-0.4	0.0	0.9	0.9	0.9
1022	-9.5	-5.8	-4.2	-3.3	-2.5	-1.5	-1.4	-0.8	-0.4	-1.3	-0.5	0.0	1.1	0.9	0.8
1023	-9.3	-5.6	-4.1	-3.3	-2.5	-1.3	-1.4	-0.8	-0.4	-1.5	-0.5	-0.1	1.2	0.9	0.7
1024	-9.0	-5.5	-4.0	-3.2	-2.5	-1.3	-1.4	-0.8	-0.5	-1.5	-0.6	-0.2	1.1	0.7	0.5
1025	-8.6	-5.3	-3.9	-3.1	-2.4	-1.4	-1.5	-0.9	-0.5	-1.5	-0.6	-0.2	1.1	0.7	0.5
1026	-8.3	-5.2	-3.9	-3.0	-2.3	-1.5	-1.5	-0.9	-0.5	-1.6	-0.5	-0.1	1.3	1.0	0.8
1027	-8.2	-5.1	-3.8	-3.0	-2.2	-1.5	-1.5	-0.8	-0.4	-1.5	-0.5	0.0	1.3	1.1	0.9
1028	-8.1	-5.0	-3.7	-2.9	-2.2	-1.3	-1.3	-0.7	-0.4	-1.3	-0.4	0.0	1.2	0.9	0.7
1029	-8.1	-4.9	-3.6	-2.8	-2.1	-1.1	-1.2	-0.6	-0.3	-1.2	-0.3	-0.1	1.3	0.8	0.4
1030	-8.4	-5.0	-3.6	-2.8	-2.2	-0.9	-1.1	-0.5	-0.3	-1.2	-0.3	-0.1	1.2	0.7	0.3
1031	-8.7	-5.1	-3.7	-2.9	-2.3	-1.0	-1.0	-0.6	-0.4	-1.0	-0.4	-0.2	0.8	0.5	0.2
1032	-9.1	-5.3	-3.7	-3.0	-2.4	-0.7	-0.8	-0.5	-0.3	-0.9	-0.4	-0.2	0.5	0.3	0.2
1033	-9.4	-5.3	-3.7	-3.1	-2.3	-0.5	-0.7	-0.5	-0.2	-0.9	-0.4	0.0	0.4	0.6	0.7
1034	-9.1	-5.3	-3.6	-3.1	-2.2	-0.7	-0.8	-0.6	-0.2	-0.8	-0.5	0.0	0.0	0.6	1.1
1035	-8.9	-5.1	-3.5	-3.0	-2.2	-0.7	-0.7	-0.6	-0.2	-0.7	-0.6	0.0	-0.5	0.5	1.1
1036	-8.9	-5.1	-3.5	-3.0	-2.2	-0.6	-0.7	-0.6	-0.2	-0.7	-0.6	-0.1	-0.3	0.5	1.0
1037	-8.9	-5.1	-3.6	-3.0	-2.3	-0.6	-0.7	-0.5	-0.2	-0.8	-0.5	-0.1	0.1	0.4	0.7
1038	-8.9	-5.0	-3.5	-2.9	-2.3	-0.4	-0.7	-0.5	-0.3	-0.8	-0.5	-0.2	0.1	0.3	0.4
1039	-8.6	-4.8	-3.4	-2.8	-2.2	-0.4	-0.7	-0.5	-0.3	-0.9	-0.5	-0.3	0.2	0.2	0.3
1040	-8.3	-4.7	-3.3	-2.7	-2.0	-0.4	-0.6	-0.5	-0.1	-0.8	-0.5	0.0	0.1	0.6	0.8
1041	-8.4	-4.7	-3.3	-2.8	-2.1	-0.5	-0.7	-0.5	-0.2	-0.8	-0.5	-0.1	0.1	0.5	0.7
1042	-8.6	-4.9	-3.4	-2.9	-2.2	-0.4	-0.7	-0.5	-0.2	-0.9	-0.6	-0.1	0.0	0.4	0.8
1043	-8.6	-4.8	-3.5	-2.9	-2.1	-0.3	-0.7	-0.6	-0.2	-1.0	-0.7	-0.1	0.0	0.5	0.9
1044	-8.3	-4.7	-3.4	-2.9	-2.1	-0.5	-0.9	-0.6	-0.2	-1.2	-0.7	-0.1	0.2	0.6	0.9
1045	-7.9	-4.6	-3.4	-2.8	-2.2	-0.6	-0.9	-0.7	-0.4	-1.2	-0.7	-0.3	0.3	0.3	0.3
1046	-7.6	-4.5	-3.3	-2.7	-2.0	-0.7	-1.0	-0.7	-0.3	-1.2	-0.7	-0.2	0.2	0.6	0.8
1047	-7.8	-4.5	-3.3	-2.7	-2.0	-0.7	-0.9	-0.7	-0.3	-1.1	-0.7	-0.1	0.0	0.5	0.9
1048	-7.9	-4.7	-3.3	-2.8	-2.1	-0.9	-0.9	-0.7	-0.4	-0.9	-0.6	-0.2	0.0	0.3	0.5
1049	-8.0	-4.7	-3.3	-2.7	-2.2	-0.8	-0.8	-0.6	-0.4	-0.8	-0.4	-0.2	0.2	0.2	0.2
1050	-7.9	-4.7	-3.3	-2.7	-2.1	-0.9	-0.8	-0.5	-0.3	-0.7	-0.3	-0.2	0.4	0.2	0.1
1051	-8.0	-4.8	-3.3	-2.7	-2.1	-1.0	-0.8	-0.5	-0.3	-0.7	-0.2	-0.1	0.5	0.4	0.3

	High-Water Shoreline Position (UTM Zone 18, NAD 1983)											
	1839/42		1864/86		1899		1932		1950/51		1977	
Transect #	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)
971	4393255	573677.9	4393359	573500.9	4393377	573470.4	4393405	573421.6	4393419	573398.0	4393404	573424.4
972	4393211	573654.9	4393316	573476.2	4393334	573444.4	4393360	573400.3	4393375	573374.9	4393357	573404.5
973	4393165	573634.3	4393271	573453.6	4393291	573418.5	4393314	573379.6	4393328	573355.1	4393313	573381.4
974	4393116	573619.7	4393226	573431.7	4393248	573392.8	4393269	573357.8	4393284	573331.8	4393270	573356.7
975	4393067	573603.5	4393180	573410.2	4393205	573368.0	4393225	573333.8	4393238	573312.3	4393227	573330.7
976	4393017	573590.2	4393135	573387.9	4393162	573342.8	4393182	573308.2	4393193	573290.3	4393183	573306.3
977	4392971	573569.3	4393091	573364.7	4393119	573316.9	4393136	573287.5	4393149	573265.1	4393138	573284.0
978	4392927	573545.1	4393046	573342.3	4393075	573293.6	4393092	573263.8	4393106	573240.4	4393093	573262.0
979	4392881	573525.4	4393003	573317.1	4393029	573273.0	4393048	573239.9	4393064	573213.5	4393049	573238.5
980	4392835	573505.2	4392960	573291.3	4392984	573250.0	4393003	573217.5	4393021	573187.9	4393006	573213.4
981	4392788	573486.9	4392916	573268.4	4392941	573225.7	4392959	573193.8	4392979	573161.1	4392963	573188.1
982	4392742	573465.2	4392870	573248.3	4392897	573201.3	4392917	573166.5	4392933	573140.0	4392919	573164.4
983	4392697	573444.0	4392827	573222.4	4392853	573176.9	4392875	573139.6	4392888	573118.1	4392873	573143.1
984	4392652	573421.8	4392785	573194.9	4392810	573152.0	4392835	573109.9	4392843	573095.0	4392827	573122.5
985	4392607	573399.4	4392743	573167.9	4392767	573127.1	4392792	573084.1	4392796	573076.3	4392784	573097.9
986	4392561	573379.4	4392697	573147.8	4392724	573101.2	4392749	573058.9	4392750	573056.3	4392739	573074.7
987	4392516	573357.6	4392651	573126.0	4392681	573076.2	4392707	573031.8	4392705	573034.7	4392697	573047.9
988	4392471	573335.3	4392605	573106.5	4392636	573052.9	4392666	573001.9	4392659	573013.6	4392653	573023.9
989	4392424	573315.9	4392560	573083.4	4392592	573029.7	4392623	572976.2	4392616	572988.3	4392609	573001.4
990	4392377	573298.3	4392517	573058.0	4392548	573006.2	4392579	572952.8	4392573	572963.4	4392567	572973.9
991	4392329	573280.5	4392474	573032.9	4392505	572980.2	4392536	572927.5	4392532	572934.4	4392523	572949.0
992	4392284	573259.0	4392431	573007.8	4392463	572953.8	4392491	572904.6	4392489	572907.9	4392477	572928.5
993	4392247	573223.7	4392386	572984.8	4392421	572926.5	4392447	572881.0	4392446	572882.7	4392433	572905.7
994	4392200	573204.0	4392344	572958.9	4392378	572899.8	4392403	572858.4	4392403	572857.6	4392388	572883.3
995	4392150	573190.2	4392300	572934.8	4392336	572873.3	4392358	572835.0	4392359	572834.0	4392344	572859.4
996	4392109	573161.0	4392258	572907.5	4392293	572846.8	4392313	572813.8	4392316	572807.7	4392301	572833.9
997	4392070	573128.9	4392217	572878.9	4392250	572821.6	4392267	572793.1	4392273	572782.8	4392258	572807.9
998	4392029	573099.9	4392175	572851.1	4392207	572796.7	4392222	572770.7	4392230	572757.9	4392215	572783.0
999	4391986	573074.8	4392135	572821.3	4392164	572771.1	4392179	572746.2	4392187	572731.4	4392171	572759.3
1000	4391942	573050.3	4392094	572791.8	4392122	572744.5	4392136	572720.2	4392143	572707.2	4392128	572732.8
1001	4391897	573029.7	4392051	572766.4	4392079	572718.0	4392092	572696.4	4392101	572681.2	4392087	572705.5
1002	4391853	573005.0	4392004	572748.2	4392036	572692.1	4392053	572663.4	4392056	572658.1	4392044	572678.3
1003	4391812	572975.7	4391961	572722.5	4391993	572666.7	4392010	572637.4	4392012	572635.0	4392002	572652.7
1004	4391774	572942.9	4391918	572696.8	4391950	572642.0	4391968	572611.5	4391969	572609.6	4391961	572623.8
1005	4391729	572919.5	4391873	572674.2	4391906	572618.7	4391926	572583.8	4391925	572585.6	4391920	572593.4
1006	4391684	572898.7	4391828	572651.4	4391862	572594.7	4391886	572553.3	4391881	572561.6	4391879	572564.3
1007	4391639	572876.2	4391787	572624.0	4391818	572569.9	4391843	572528.1	4391839	572534.9	4391836	572539.4
1008	4391598	572847.4	4391744	572597.6	4391774	572546.1	4391797	572508.1	4391798	572505.5	4391793	572514.7
1009	4391561	572811.3	4391701	572571.9	4391730	572522.6	4391753	572484.3	4391754	572482.0	4391749	572490.1
1010	4391520	572781.8	4391659	572545.3	4391688	572496.3	4391707	572462.4	4391708	572461.0	4391707	572462.3
1011	4391478	572755.1	4391619	572515.1	4391645	572469.9	4391664	572438.1	4391664	572437.2	4391661	572443.1
1012	4391433	572733.6	4391576	572488.4	4391601	572445.7	4391621	572412.7	4391622	572410.6	4391613	572425.3
1013	4391388	572711.0	4391534	572462.1	4391558	572421.2	4391576	572390.1	4391579	572385.2	4391568	572403.2
1014	4391347	572682.1	4391491	572436.6	4391514	572396.4	4391531	572367.2	4391534	572362.2	4391525	572377.9
1015	4391310	572645.9	4391449	572408.2	4391471	572371.8	4391490	572338.2	4391491	572337.4	4391482	572351.7
1016	4391269	572616.5	4391407	572381.0	4391427	572346.8	4391447	572313.0	4391444	572318.9	4391440	572325.6
1017	4391225	572593.1	4391364	572355.8	4391385	572320.3	4391405	572286.1	4391400	572295.4	4391396	572302.0
1018	4391179	572573.2	4391319	572333.7	4391343	572293.8	4391364	572257.9	4391355	572272.6	4391350	572281.9
1019	4391131	572556.0	4391277	572306.6	4391299	572270.0	4391321	572231.5	4391311	572248.6	4391303	572262.7
1020	4391085	572536.2	4391235	572280.2	4391257	572241.8	4391278	572206.3	4391269	572220.9	4391256	572243.3
1021	4391039	572515.7	4391194	572251.5	4391215	572215.2	4391234	572182.3	4391225	572196.9	4391213	572217.8
1022	4390998	572486.3	4391151	572224.8	4391171	572191.0	4391193	572153.8	4391183	572171.0	4391171	572190.2
1023	4390958	572455.8	4391108	572200.3	4391126	572169.4	4391150	572127.3	4391140	572145.3	4391130	572161.2
1024	4390918	572424.3	4391063	572176.8	4391081	572146.3	4391106	572103.7	4391096	572120.6	4391089	572132.3
1025	4390880	572391.7	4391018	572154.8	4391037	572122.7	4391062	572079.7	4391052	572097.1	4391046	572108.0
1026	4390840	572360.5	4390974	572130.8	4390995	572096.1	4391021	572051.8	4391009	572072.1	4390998	572089.9
1027	4390800	572330.1	4390932	572103.9	4390952	572069.5	4390977	572027.8	4390965	572048.8	4390953	572069.3
1028	4390762	572296.0	4390892	572073.1	4390910	572042.4	4390933	572004.2	4390922	572022.9	4390912	572040.0
1029	4390723	572264.1	4390853	572040.8	4390868	572015.2	4390889	571980.4	4390877	572000.8	4390871	572010.4
1030	4390677	572242.6	4390813	572011.2	4390826	571989.2	4390845	571956.3	4390834	571974.7	4390830	571982.0
1031	4390630	572224.8	4390770	571985.9	4390783	571963.2	4390800	571933.9	4390793	571946.7	4390790	571951.8
1032	4390583	572205.1	4390730	571953.8	4390740	571937.4	4390755	571911.4	4390751	571919.0	4390748	571924.5
1033	4390539	572182.6	4390690	571923.4	4390697	571911.6	4390712	571886.8	4390709	571892.3	4390698	571909.5
1034	4390497	572154.1	4390644	571903.5	4390654	571886.5	4390667	571864.6	4390667	571864.5	4390652	571889.2
1035	4390458	572122.3	4390602	571877.0	4390611	571861.5	4390622	571842.2	4390626	571834.9	4390611	571860.8
1036	4390416	572094.3	4390560	571848.6	4390568	571835.4	4390580	571814.2	4390584	571808.8	4390570	571831.7
1037	4390373	572068.8	4390518	571821.9	4390526	571808.7	4390539	571786.0	4390538	571787.2	4390529	571802.8
1038	4390331	572041.6	4390475	571796.2	4390481	571786.2	4390495	571762.5	4390494	571764.6	4390488	571773.4
1039	4390292	572009.3	4390431	571772.8	4390436	571763.8	4390452	571737.4	4390450	571740.7	4390446	571746.7
1040	4390254	571975.5	4390388	571747.3	4390394	571737.1	4390407	571713.9	4390406	571716.1	4390395	571735.3
1041	4390210	571952.2	4390345	571721.2	4390351	571710.7	4390365	571687.6	4390364	571689.1	4390355	571705.3
1042	4390164	571931.8	4390303	571694.0	4390309	571684.8	4390323	571659.7	4390324	571658.9	4390313	571676.7
1043	4390122	571903.8	4390262	571665.9	4390266	571658.3	4390283	571629.1	4390283	571628.7	4390271	571650.3
1044	4390084	571870.9	4390218	571642.4	4390224	571631.7	4390244	571597.6	4390242	571600.0	4390230	571621.8
1045	4390046	571836.9	4390174	571618.2	4390181	571605.2	4390202	571569.8	4390200	571574.0	4390195	571581.7
1046	4390006	571805.0	4390130	571594.3	4390139	571578.5	4390159	571545.0	4390157	571548.0	4390146	571567.2
1047	4389961	571782.8	4390087	571568.3	4390097	571551.5	4390114	571521.6	4390114	571521.9	4390102	571542.3
1048	4389915	571762.4	4390043	571545.2	4390055	571524.3	4390069	571499.8	4390069	571499.5	4390063	571510.0
1049	4389872	571737.8	4390002	571515.8	4390013	571496.8	4390026	571475.0	4390024	571478.0	4390022	571481.6
1050	4389831	571707.9	4389959	571489.4	4389972	571468.3	4389984	571448.3	4389980	571454.5	4389978	571457.8
1051	4389788	571683.8	4389917	571462.9	4389931	571439.0	4389942	571420.5	4389937	571428.1	4389933	571435.3

						High-Water Shoreline Position Change Rate									
	1839/42 to	1839/42 to	1839/42 to	1839/42 to	1839/42 to	1864/86 to	1864/86 to	1864/86 to	1864/86 to	1899 to	1899 to	1899 to	1932 to	1932 to	1950/51 to
Transect #	1864/86 (m/yr)	1899 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1899 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1977 (m/yr)
1052	-8.4	-5.1	-3.4	-2.8	-2.2	-1.2	-0.7	-0.5	-0.3	-0.4	-0.2	0.0	0.3	0.3	0.3
1053	-8.7	-5.3	-3.5	-2.9	-2.1	-1.3	-0.7	-0.5	-0.1	-0.2	-0.1	0.3	0.2	0.6	0.9
1054	-8.9	-5.5	-3.5	-2.9	-2.2	-1.4	-0.7	-0.5	-0.2	0.0	0.0	0.3	0.2	0.5	0.8
1055	-8.8	-5.6	-3.6	-3.0	-2.3	-1.7	-0.8	-0.6	-0.3	0.0	0.0	0.2	0.2	0.4	0.6
1056	-8.9	-5.7	-3.6	-3.0	-2.3	-1.9	-0.9	-0.6	-0.3	-0.1	0.0	0.2	0.2	0.4	0.5
1057	-9.0	-5.7	-3.7	-3.0	-2.4	-1.7	-0.8	-0.6	-0.3	-0.1	0.0	0.1	0.2	0.3	0.4
1058	-8.6	-5.5	-3.6	-3.0	-2.3	-1.9	-1.0	-0.7	-0.4	-0.2	-0.1	0.1	0.0	0.3	0.5
1059	-8.5	-5.4	-3.6	-3.0	-2.3	-1.7	-0.9	-0.8	-0.4	-0.3	-0.3	0.0	-0.1	0.3	0.6
1060	-8.5	-5.3	-3.5	-3.0	-2.2	-1.4	-0.8	-0.7	-0.3	-0.4	-0.3	0.1	-0.2	0.4	0.8
1061	-8.6	-5.3	-3.5	-3.0	-2.3	-1.4	-0.8	-0.7	-0.4	-0.4	-0.3	0.0	-0.1	0.3	0.5
1062	-8.4	-5.2	-3.5	-2.9	-2.2	-1.3	-0.8	-0.7	-0.3	-0.4	-0.3	0.1	-0.1	0.4	0.8
1063	-8.0	-4.9	-3.4	-2.8	-2.1	-1.3	-0.8	-0.6	-0.3	-0.5	-0.3	0.1	0.1	0.5	0.8
1064	-7.5	-4.6	-3.2	-2.6	-1.9	-1.2	-0.9	-0.6	-0.3	-0.6	-0.3	0.1	0.3	0.5	0.7
1065	-7.9	-4.8	-3.3	-2.7	-2.0	-1.2	-0.8	-0.6	-0.3	-0.5	-0.2	0.0	0.3	0.5	0.6
1066	-8.8	-5.3	-3.6	-2.9	-2.2	-1.2	-0.8	-0.6	-0.1	-0.6	-0.2	0.2	0.4	0.8	1.1
1067	-8.6	-5.1	-3.5	-2.9	-2.1	-1.1	-0.8	-0.5	-0.1	-0.6	-0.3	0.2	0.3	0.7	1.0
1068	-8.4	-5.0	-3.5	-2.8	-2.1	-1.0	-0.8	-0.5	-0.2	-0.7	-0.3	0.1	0.5	0.7	0.8
1069	-8.2	-4.9	-3.4	-2.8	-2.1	-1.1	-0.9	-0.5	-0.2	-0.7	-0.2	0.1	0.7	0.6	0.6
1070	-8.0	-4.9	-3.4	-2.7	-2.1	-1.2	-1.0	-0.5	-0.3	-0.8	-0.1	0.0	1.2	0.5	0.1
1071	-7.3	-4.6	-3.2	-2.5	-2.1	-1.4	-1.0	-0.6	-0.4	-0.7	-0.1	-0.1	1.1	0.3	-0.1
1072	-7.2	-4.7	-3.2	-2.5	-2.0	-1.7	-1.1	-0.6	-0.4	-0.5	0.0	0.0	0.8	0.4	0.2
1073	-7.2	-4.8	-3.3	-2.6	-2.0	-1.8	-1.1	-0.7	-0.3	-0.6	-0.1	0.2	0.8	0.7	0.6
1074	-7.3	-4.8	-3.3	-2.7	-2.0	-1.9	-1.2	-0.8	-0.3	-0.6	-0.2	0.2	0.7	0.8	0.9
1075	-7.5	-4.9	-3.3	-2.7	-1.9	-1.8	-1.0	-0.7	-0.2	-0.4	-0.2	0.3	0.3	0.8	1.2
1076	-7.7	-5.0	-3.3	-2.7	-2.0	-1.8	-1.0	-0.7	-0.2	-0.4	-0.1	0.3	0.4	0.9	1.2
1077	-7.4	-5.0	-3.3	-2.7	-2.0	-2.1	-1.1	-0.8	-0.3	-0.3	-0.1	0.3	0.2	0.8	1.2
1078	-7.4	-5.0	-3.3	-2.7	-2.0	-2.2	-1.1	-0.8	-0.3	-0.2	-0.1	0.3	0.2	0.8	1.1
1079	-7.6	-5.1	-3.3	-2.7	-2.0	-2.1	-1.1	-0.8	-0.3	-0.2	0.0	0.4	0.2	0.8	1.1
1080	-7.8	-5.2	-3.4	-2.8	-2.0	-2.1	-1.0	-0.8	-0.3	-0.1	0.0	0.4	0.1	0.7	1.1
1081	-7.7	-5.1	-3.4	-2.8	-2.0	-2.1	-1.1	-0.8	-0.3	-0.2	-0.1	0.3	0.2	0.8	1.2
1082	-7.6	-5.0	-3.3	-2.8	-2.0	-1.9	-1.0	-0.8	-0.3	-0.2	-0.2	0.3	0.0	0.7	1.2
1083	-7.7	-5.0	-3.3	-2.7	-2.0	-1.8	-0.9	-0.7	-0.2	-0.2	-0.1	0.3	0.0	0.6	1.1
1084	-7.7	-5.0	-3.2	-2.7	-2.0	-1.7	-0.8	-0.7	-0.3	-0.1	-0.2	0.2	-0.3	0.5	1.0
1085	-7.1	-4.7	-3.0	-2.6	-1.9	-1.8	-0.8	-0.8	-0.2	0.0	-0.2	0.3	-0.6	0.5	1.3
1086	-6.8	-4.7	-3.0	-2.6	-1.9	-2.3	-1.0	-0.8	-0.4	0.0	-0.1	0.3	-0.2	0.5	0.9
1087	-7.2	-4.9	-3.1	-2.7	-2.0	-2.3	-1.0	-0.8	-0.4	0.1	0.0	0.3	-0.3	0.4	0.9
1088	-7.4	-5.1	-3.2	-2.7	-2.0	-2.4	-1.0	-0.8	-0.4	0.1	0.1	0.3	0.0	0.4	0.7
1089	-7.2	-5.0	-3.2	-2.7	-2.0	-2.4	-1.0	-0.8	-0.4	0.1	0.0	0.3	-0.2	0.4	0.8
1090	-7.0	-5.0	-3.1	-2.7	-2.0	-2.6	-1.1	-0.9	-0.5	0.2	-0.1	0.3	-0.5	0.3	0.8
1091	-6.9	-5.0	-3.1	-2.7	-1.9	-2.7	-1.0	-0.9	-0.4	0.3	0.0	0.3	-0.7	0.3	1.0
1092	-6.8	-4.9	-3.0	-2.6	-1.8	-2.6	-1.0	-0.9	-0.3	0.3	0.0	0.5	-0.6	0.7	1.5
1093	-6.2	-4.5	-2.8	-2.4	-1.6	-2.6	-1.0	-0.9	-0.2	0.3	0.1	0.6	-0.5	0.7	1.5
1094	-6.2	-4.5	-2.8	-2.4	-1.6	-2.6	-1.0	-0.8	-0.2	0.4	0.1	0.6	-0.3	0.8	1.5
1095	-6.5	-4.7	-2.9	-2.5	-1.7	-2.6	-1.0	-0.8	-0.2	0.3	0.1	0.6	-0.2	0.8	1.5
1096	-6.6	-4.8	-3.0	-2.5	-1.7	-2.7	-1.1	-0.8	-0.2	0.2	0.1	0.6	0.0	0.9	1.5
1097	-6.5	-4.8	-3.0	-2.5	-1.8	-2.7	-1.1	-0.8	-0.3	0.2	0.2	0.5	0.4	0.7	1.0
1098	-6.3	-4.7	-3.0	-2.4	-1.7	-2.8	-1.2	-0.8	-0.4	0.1	0.2	0.5	0.5	0.8	1.0
1099	-6.1	-4.5	-2.8	-2.4	-1.7	-2.5	-1.1	-0.8	-0.4	0.0	0.1	0.4	0.1	0.6	1.0
1100	-6.0	-4.4	-2.8	-2.4	-1.7	-2.4	-1.1	-0.9	-0.4	0.0	-0.1	0.3	-0.2	0.5	1.0
1101	-5.9	-4.4	-2.8	-2.5	-1.8	-2.7	-1.2	-1.0	-0.6	0.0	-0.2	0.1	-0.5	0.2	0.7
1102	-5.8	-4.4	-2.8	-2.4	-1.9	-2.6	-1.2	-1.1	-0.6	0.1	-0.2	0.0	-0.7	0.0	0.5
1103	-5.7	-4.2	-2.7	-2.4	-1.8	-2.5	-1.1	-1.0	-0.6	0.1	-0.3	0.0	-1.0	0.0	0.7
1104	-5.4	-4.0	-2.5	-2.3	-1.5	-2.2	-1.0	-1.0	-0.3	0.1	-0.4	0.4	-1.3	0.6	1.8
1105	-5.3	-3.8	-2.5	-2.2	-1.6	-1.9	-1.0	-1.0	-0.4	-0.2	-0.5	0.1	-1.1	0.3	1.2
1106	-5.2	-3.6	-2.4	-2.2	-1.6	-1.7	-0.9	-1.0	-0.4	-0.3	-0.6	0.0	-1.1	0.2	1.1
1107	-5.2	-3.6	-2.4	-2.2	-1.6	-1.7	-0.9	-1.0	-0.5	-0.3	-0.7	-0.1	-1.4	0.0	1.0
1108	-5.2	-3.6	-2.4	-2.2	-1.6	-1.7	-0.9	-1.0	-0.5	-0.3	-0.7	-0.1	-1.4	0.1	1.0
1109	-5.0	-3.5	-2.4	-2.2	-1.5	-1.7	-1.0	-1.1	-0.5	-0.4	-0.7	0.0	-1.3	0.2	1.2
1110	-5.0	-3.6	-2.5	-2.2	-1.5	-1.8	-1.1	-1.1	-0.5	-0.5	-0.7	0.0	-1.1	0.4	1.4
1111	-4.9	-3.4	-2.4	-2.1	-1.5	-1.7	-1.1	-1.0	-0.4	-0.6	-0.6	0.0	-0.5	0.4	1.1
1112	-4.6	-3.3	-2.3	-2.0	-1.4	-1.8	-1.1	-0.9	-0.4	-0.5	-0.4	0.0	-0.4	0.4	0.9
1113	-4.5	-3.3	-2.2	-1.9	-1.3	-1.8	-1.0	-0.8	-0.3	-0.3	-0.2	0.2	0.0	0.6	1.0
1114	-4.3	-3.1	-2.1	-1.7	-1.1	-1.7	-1.0	-0.6	-0.2	-0.4	0.0	0.4	0.8	0.9	1.0
1115	-4.3	-3.1	-2.1	-1.7	-1.1	-1.6	-0.9	-0.6	-0.1	-0.2	0.0	0.4	0.4	0.9	1.2
1116	-4.5	-3.2	-2.1	-1.8	-1.1	-1.7	-0.9	-0.7	-0.1	-0.2	-0.2	0.4	-0.1	0.8	1.5
1117	-4.4	-3.2	-2.2	-1.9	-1.2	-1.8	-1.0	-0.9	-0.2	-0.3	-0.4	0.3	-0.4	0.8	1.6
1118	-4.4	-3.1	-2.2	-1.9	-1.2	-1.6	-1.0	-0.9	-0.2	-0.5	-0.5	0.3	-0.4	0.8	1.6
1119	-4.5	-3.2	-2.3	-1.9	-1.2	-1.5	-1.0	-0.9	-0.2	-0.6	-0.5	0.2	-0.3	0.9	1.6
1120	-4.6	-3.2	-2.3	-2.0	-1.3	-1.5	-1.1	-0.9	-0.3	-0.7	-0.6	0.2	-0.4	0.8	1.6
1121	-4.5	-3.1	-2.3	-2.0	-1.3	-1.4	-1.1	-0.9	-0.3	-0.9	-0.7	0.1	-0.1	0.8	1.4
1122	-4.3	-3.0	-2.3	-2.0	-1.3	-1.4	-1.2	-1.0	-0.4	-1.0	-0.8	0.0	-0.2	0.8	1.4
1123	-4.1	-2.8	-2.2	-1.9	-1.2	-1.4	-1.2	-1.0	-0.4	-1.1	-0.8	0.0	-0.2	0.8	1.4
1124	-3.8	-2.7	-2.1	-1.8	-1.2	-1.3	-1.2	-1.0	-0.4	-1.2	-0.8	0.0	-0.3	0.8	1.6
1125	-4.0	-2.7	-2.1	-1.8	-1.2	-1.1	-1.1	-0.9	-0.3	-1.0	-0.8	0.0	-0.5	0.7	1.5
1126	-3.8	-2.5	-2.0	-1.7	-1.2	-1.0	-1.0	-0.9	-0.3	-0.9	-0.8	-0.1	-0.5	0.5	1.1
1127	-3.6	-2.3	-1.9	-1.6	-1.1	-0.9	-1.1	-0.8	-0.4	-1.2	-0.8	-0.2	-0.1	0.5	0.9
1128	-3.3	-2.2	-1.9	-1.6	-1.1	-1.0	-1.1	-0.9	-0.4	-1.3	-0.9	-0.2	-0.1	0.5	0.9
1129	-3.1	-2.1	-1.8	-1.6	-1.1	-0.8	-1.2	-0.9	-0.4	-1.4	-0.9	-0.3	-0.1	0.5	0.9
1130	-3.1	-2.0	-1.8	-1.5	-1.1	-0.8	-1.1	-0.9	-0.5	-1.4	-1.0	-0.4	-0.2	0.4	0.8
1131	-3.1	-2.0	-1.8	-1.5	-1.1	-0.7	-1.1	-0.9	-0.5	-1.4	-1.0	-0.5	-0.3	0.3	0.6
1132	-3.0	-2.0	-1.8	-1.5	-1.1	-0.8	-1.1	-0.9	-0.5	-1.4	-0.9	-0.5	0.1	0.3	0.4

				High-Water Shoreline Position (UTM Zone 18, NAD 1983)								
		1839/42		1864/86		1899		1932		1950/51		1977
Transect #	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)
1052	4389739	571667.4	4389876	571434.8	4389891	571407.9	4389898	571397.1	4389895	571401.1	4389891	571407.6
1053	4389692	571648.7	4389833	571407.8	4389851	571377.0	4389854	571372.3	4389853	571374.7	4389840	571396.8
1054	4389648	571625.4	4389792	571380.2	4389811	571347.3	4389812	571345.9	4389810	571348.4	4389800	571366.1
1055	4389604	571602.2	4389746	571359.1	4389769	571319.5	4389770	571318.3	4389768	571321.0	4389760	571335.7
1056	4389558	571581.2	4389701	571336.8	4389727	571293.0	4389728	571291.6	4389726	571294.6	4389719	571305.8
1057	4389515	571555.4	4389660	571307.4	4389684	571267.1	4389686	571263.9	4389684	571266.8	4389678	571276.7
1058	4389476	571523.3	4389616	571285.1	4389641	571241.8	4389645	571235.3	4389644	571236.0	4389637	571248.2
1059	4389437	571491.1	4389575	571255.7	4389598	571216.4	4389604	571206.7	4389604	571205.3	4389596	571219.6
1060	4389398	571459.0	4389536	571223.2	4389555	571190.8	4389561	571179.6	4389563	571177.0	4389553	571194.5
1061	4389355	571432.5	4389494	571195.6	4389513	571163.9	4389520	571151.8	4389521	571150.0	4389513	571162.8
1062	4389316	571400.9	4389452	571168.3	4389471	571136.8	4389477	571125.4	4389479	571123.2	4389468	571141.4
1063	4389280	571364.0	4389410	571141.8	4389427	571112.1	4389435	571097.9	4389435	571098.8	4389424	571117.9
1064	4389246	571322.1	4389367	571116.0	4389384	571087.3	4389393	571071.2	4389391	571075.5	4389381	571092.1
1065	4389197	571306.5	4389324	571089.7	4389340	571062.6	4389349	571047.5	4389347	571051.9	4389339	571065.2
1066	4389139	571306.8	4389281	571064.8	4389297	571037.9	4389306	571021.8	4389303	571027.5	4389288	571052.7
1067	4389100	571274.3	4389239	571037.3	4389254	571012.5	4389263	570996.3	4389261	571000.7	4389247	571024.2
1068	4389061	571243.1	4389197	571010.7	4389211	570986.4	4389222	570967.0	4389218	570974.9	4389207	570994.1
1069	4389021	571212.1	4389153	570986.7	4389168	570960.6	4389181	570939.6	4389174	570950.5	4389166	570964.4
1070	4388980	571183.4	4389109	570962.8	4389125	570934.7	4389139	570911.1	4389128	570930.4	4389127	570932.3
1071	4388946	571141.3	4389065	570939.2	4389084	570906.6	4389096	570885.8	4389087	570902.1	4389089	570898.7
1072	4388904	571114.1	4389021	570915.8	4389044	570875.4	4389053	570860.8	4389045	570873.4	4389043	570877.5
1073	4388860	571091.4	4388977	570891.9	4389002	570849.4	4389011	570833.2	4389004	570845.5	4388995	570860.4
1074	4388816	571068.0	4388933	570866.8	4388959	570823.3	4388970	570804.8	4388964	570815.3	4388952	570835.8
1075	4388771	571045.6	4388893	570837.6	4388917	570795.9	4388924	570783.6	4388921	570788.9	4388905	570815.7
1076	4388727	571021.6	4388851	570810.0	4388876	570767.8	4388882	570756.2	4388879	570762.3	4388862	570791.1
1077	4388685	570994.8	4388805	570789.6	4388833	570740.7	4388838	570732.3	4388836	570736.0	4388820	570763.0
1078	4388642	570969.1	4388761	570764.8	4388791	570713.5	4388795	570706.9	4388793	570710.6	4388778	570736.4
1079	4388597	570945.9	4388720	570736.2	4388749	570686.3	4388752	570681.7	4388750	570685.0	4388735	570711.0
1080	4388552	570924.2	4388678	570709.1	4388707	570660.0	4388709	570657.2	4388708	570658.4	4388692	570684.7
1081	4388510	570897.8	4388634	570685.7	4388663	570636.2	4388667	570629.3	4388666	570631.6	4388650	570658.4
1082	4388469	570868.5	4388592	570657.6	4388619	570612.2	4388623	570605.4	4388623	570605.1	4388607	570632.4
1083	4388426	570842.0	4388551	570629.1	4388575	570588.0	4388579	570581.9	4388579	570581.9	4388564	570606.9
1084	4388385	570814.6	4388510	570600.8	4388533	570562.0	4388534	570559.0	4388537	570554.8	4388523	570577.4
1085	4388350	570774.7	4388465	570578.1	4388490	570535.1	4388490	570535.1	4388496	570525.9	4388478	570556.0
1086	4388308	570747.9	4388418	570559.6	4388449	570507.1	4388448	570508.1	4388450	570504.6	4388438	570526.2
1087	4388261	570729.4	4388376	570531.7	4388408	570477.5	4388406	570481.4	4388409	570476.8	4388396	570498.8
1088	4388214	570709.6	4388333	570506.3	4388365	570451.6	4388364	570454.2	4388364	570453.9	4388354	570471.3
1089	4388171	570683.7	4388288	570484.3	4388321	570428.5	4388320	570430.6	4388322	570427.6	4388311	570445.7
1090	4388130	570656.1	4388242	570463.9	4388278	570402.8	4388275	570408.7	4388280	570400.3	4388268	570419.9
1091	4388089	570626.8	4388200	570437.6	4388237	570374.8	4388231	570384.4	4388237	570373.7	4388223	570397.5
1092	4388048	570598.0	4388158	570410.8	4388193	570349.9	4388188	570358.5	4388194	570348.7	4388173	570384.5
1093	4388015	570555.8	4388115	570385.0	4388150	570325.1	4388144	570334.9	4388148	570327.5	4388128	570362.9
1094	4387973	570527.1	4388073	570357.1	4388108	570297.2	4388102	570307.2	4388105	570302.1	4388084	570337.8
1095	4387925	570510.2	4388031	570330.5	4388066	570269.6	4388061	570279.0	4388063	570275.5	4388042	570311.3
1096	4387880	570489.0	4387987	570306.6	4388023	570244.4	4388020	570249.9	4388020	570250.1	4387999	570285.6
1097	4387836	570464.4	4387942	570284.8	4387979	570220.8	4387976	570225.7	4387973	570231.6	4387960	570254.1
1098	4387794	570437.7	4387895	570264.8	4387934	570199.5	4387933	570201.4	4387928	570209.4	4387914	570233.0
1099	4387754	570406.8	4387853	570238.7	4387887	570179.6	4387887	570180.8	4387886	570182.2	4387873	570204.8
1100	4387713	570378.7	4387809	570214.0	4387843	570156.9	4387843	570156.6	4387844	570153.9	4387831	570176.3
1101	4387666	570359.4	4387762	570196.2	4387799	570133.2	4387798	570134.1	4387803	570126.1	4387793	570142.1
1102	4387624	570331.7	4387718	570171.4	4387754	570109.8	4387753	570111.3	4387760	570100.3	4387753	570112.7
1103	4387584	570300.9	4387676	570144.8	4387710	570086.7	4387708	570089.7	4387717	570074.2	4387708	570089.9
1104	4387546	570267.3	4387634	570117.0	4387664	570066.2	4387663	570067.7	4387675	570048.0	4387650	570090.2
1105	4387506	570237.3	4387592	570090.3	4387618	570045.8	4387621	570041.0	4387630	570024.6	4387614	570053.4
1106	4387464	570209.7	4387548	570065.9	4387572	570025.7	4387577	570017.5	4387587	570000.5	4387572	570025.8
1107	4387420	570186.2	4387504	570043.3	4387526	570004.2	4387531	569997.1	4387543	569975.5	4387530	569998.2
1108	4387375	570163.3	4387459	570020.8	4387482	569980.8	4387487	569972.9	4387500	569950.6	4387486	569975.0
1109	4387333	570136.7	4387414	569997.9	4387438	569957.4	4387444	569946.7	4387456	569925.9	4387440	569954.7
1110	4387288	570115.2	4387369	569976.2	4387394	569934.0	4387402	569919.4	4387412	569902.3	4387394	569934.4
1111	4387247	570086.2	4387326	569950.3	4387349	569910.7	4387360	569892.7	4387365	569884.3	4387350	569909.9
1112	4387207	570054.7	4387282	569927.0	4387306	569885.4	4387315	569871.3	4387318	569865.6	4387305	569887.3
1113	4387166	570026.8	4387239	569901.4	4387263	569859.9	4387269	569850.2	4387269	569850.3	4387256	569872.9
1114	4387127	569993.5	4387197	569874.6	4387220	569834.3	4387226	569824.3	4387219	569836.0	4387205	569860.0
1115	4387085	569966.4	4387155	569847.5	4387177	569809.2	4387181	569803.3	4387177	569809.2	4387160	569837.6
1116	4387039	569946.4	4387111	569823.0	4387134	569784.4	4387137	569778.3	4387138	569776.6	4387118	569810.7
1117	4386994	569924.8	4387064	569803.7	4387089	569762.5	4387094	569752.7	4387098	569746.3	4387076	569783.7
1118	4386951	569899.3	4387021	569778.6	4387043	569740.7	4387052	569725.7	4387056	569719.9	4387034	569757.6
1119	4386905	569877.8	4386979	569752.6	4387000	569716.6	4387010	569698.5	4387013	569694.0	4386991	569731.7
1120	4386861	569854.5	4386936	569726.7	4386956	569692.7	4386968	569671.5	4386972	569665.3	4386949	569703.5
1121	4386818	569828.8	4386891	569704.6	4386910	569672.3	4386925	569645.5	4386927	569643.2	4386907	569676.6
1122	4386775	569802.9	4386845	569683.9	4386864	569650.7	4386882	569620.8	4386884	569617.3	4386864	569650.5
1123	4386736	569771.1	4386801	569659.2	4386820	569627.1	4386839	569594.6	4386841	569591.7	4386821	569625.2
1124	4386696	569739.8	4386758	569634.4	4386776	569603.2	4386796	569570.2	4386798	569566.2	4386777	569602.4
1125	4386653	569714.4	4386717	569605.0	4386733	569578.3	4386750	569548.6	4386755	569541.3	4386734	569576.9
1126	4386613	569683.8	4386675	569578.9	4386689	569555.1	4386704	569528.7	4386709	569520.8	4386693	569547.5
1127	4386572	569654.8	4386630	569556.8	4386642	569535.2	4386662	569501.9	4386663	569500.2	4386650	569522.2
1128	4386530	569627.4	4386583	569537.6	4386596	569515.4	4386617	569479.7	4386618	569478.0	4386605	569499.4
1129	4386488	569601.2	4386538	569514.7	4386550	569495.6	4386573	569454.8	4386574	569453.9	4386561	569475.6
1130	4386444	569577.4	4386494	569492.4	4386504	569474.6	4386527	569434.5	4386529	569431.2	4386519	569448.9
1131	4386400	569554.0	4386449	569469.7	4386458	569453.3	4386482	569413.3	4386484	569408.9	4386476	569423.0
1132	4386356	569529.8	4386404	569447.5	4386415	569429.4	4386439	569388.3	4386438	569390.0	4386433	569398.6

High-Water Shoreline Position Change Rate

Transect #	1839/42 to 1864/86 (m/yr)	1839/42 to 1899 (m/yr)	1839/42 to 1932 (m/yr)	1839/42 to 1950/51 (m/yr)	1839/42 to 1977 (m/yr)	1864/86 to 1899 (m/yr)	1864/86 to 1932 (m/yr)	1864/86 to 1950/51 (m/yr)	1864/86 to 1977 (m/yr)	1899 to 1932 (m/yr)	1899 to 1950/51 (m/yr)	1899 to 1977 (m/yr)	1932 to 1950/51 (m/yr)	1932 to 1977 (m/yr)	1950/51 to 1977 (m/yr)
1133	-2.8	-1.9	-1.7	-1.4	-1.1	-0.8	-1.2	-0.8	-0.5	-1.5	-0.8	-0.4	0.3	0.3	0.3
1134	-2.8	-1.8	-1.7	-1.3	-1.0	-0.7	-1.1	-0.7	-0.5	-1.5	-0.8	-0.4	0.5	0.4	0.3
1135	-2.5	-1.7	-1.6	-1.2	-1.0	-0.8	-1.2	-0.7	-0.5	-1.4	-0.7	-0.4	0.7	0.3	0.1
1136	-2.3	-1.7	-1.6	-1.2	-1.0	-0.9	-1.2	-0.7	-0.5	-1.4	-0.6	-0.4	0.8	0.3	0.0
1137	-1.9	-1.4	-1.4	-1.0	-0.8	-0.9	-1.2	-0.7	-0.5	-1.4	-0.6	-0.4	0.9	0.3	-0.1
1138	-1.6	-1.3	-1.3	-1.0	-0.7	-0.9	-1.2	-0.7	-0.5	-1.4	-0.6	-0.3	1.0	0.5	0.1
1139	-1.5	-1.2	-1.2	-1.0	-0.7	-0.8	-1.1	-0.8	-0.5	-1.3	-0.8	-0.4	0.3	0.4	0.4
1140	-1.3	-1.1	-1.1	-1.0	-0.7	-0.8	-1.1	-0.9	-0.5	-1.2	-0.9	-0.4	-0.3	0.3	0.6
1141	-1.2	-0.9	-1.0	-1.0	-0.6	-0.6	-1.0	-0.9	-0.5	-1.2	-1.0	-0.4	-0.6	0.2	0.8
1142	-1.2	-0.9	-1.0	-0.9	-0.6	-0.6	-0.9	-0.8	-0.4	-1.1	-0.9	-0.4	-0.6	0.2	0.7
1143	-1.1	-0.9	-0.9	-0.9	-0.5	-0.6	-0.8	-0.7	-0.4	-1.0	-0.8	-0.3	-0.5	0.2	0.7
1144	-1.2	-0.9	-0.9	-0.8	-0.6	-0.6	-0.7	-0.7	-0.4	-0.9	-0.8	-0.3	-0.6	0.1	0.6
1145	-1.1	-1.0	-0.8	-0.8	-0.5	-0.8	-0.6	-0.7	-0.4	-0.5	-0.6	-0.2	-0.7	0.0	0.4
1146	-1.1	-1.0	-0.8	-0.7	-0.5	-0.9	-0.6	-0.6	-0.3	-0.3	-0.4	-0.1	-0.7	0.1	0.6
1147	-1.2	-1.1	-0.7	-0.7	-0.4	-1.0	-0.4	-0.5	-0.2	0.0	-0.2	0.1	-0.6	0.1	0.6
1148	-1.2	-1.1	-0.6	-0.6	-0.4	-0.9	-0.4	-0.4	-0.1	0.1	-0.1	0.1	-0.4	0.2	0.6
1149	-1.0	-1.0	-0.6	-0.5	-0.3	-1.1	-0.4	-0.4	-0.1	0.2	0.0	0.2	-0.3	0.1	0.5
1150	-0.9	-1.0	-0.5	-0.5	-0.3	-1.1	-0.4	-0.4	-0.1	0.2	0.0	0.2	-0.4	0.1	0.5
1151	-1.0	-1.0	-0.5	-0.5	-0.3	-0.9	-0.3	-0.3	-0.1	0.2	0.0	0.2	-0.3	0.1	0.4
1152	-1.2	-1.0	-0.6	-0.5	-0.3	-0.7	-0.3	-0.2	-0.1	0.1	0.0	0.2	-0.1	0.2	0.4
1153	-1.3	-0.9	-0.6	-0.5	-0.3	-0.5	-0.3	-0.2	0.0	0.0	0.0	0.1	0.1	0.2	0.3
1154	-1.3	-0.9	-0.6	-0.5	-0.3	-0.4	-0.2	-0.2	0.0	0.0	0.0	0.1	0.1	0.2	0.2
1155	-1.4	-1.0	-0.7	-0.5	-0.4	-0.5	-0.3	-0.2	-0.1	-0.2	0.0	0.1	0.4	0.3	0.3
1156	-1.4	-1.0	-0.7	-0.5	-0.4	-0.6	-0.4	-0.2	-0.1	-0.1	0.0	0.1	0.3	0.3	0.3
1157	-1.2	-0.9	-0.7	-0.5	-0.4	-0.5	-0.4	-0.2	-0.1	-0.2	-0.1	0.0	0.2	0.2	0.2
1158	-1.1	-0.8	-0.6	-0.5	-0.3	-0.5	-0.4	-0.2	-0.1	-0.3	-0.1	0.1	0.2	0.3	0.4
1159	-0.8	-0.7	-0.6	-0.4	-0.3	-0.6	-0.4	-0.1	-0.1	-0.3	0.1	0.1	0.7	0.4	0.2
1160	-0.4	-0.5	-0.4	-0.2	-0.1	-0.6	-0.3	-0.1	0.0	-0.2	0.2	0.2	0.8	0.4	0.1
1161	-0.1	-0.4	-0.3	-0.1	0.0	-0.6	-0.4	-0.1	0.0	-0.2	0.2	0.2	0.9	0.5	0.2
1162	-0.2	-0.4	-0.3	-0.1	-0.1	-0.6	-0.4	-0.1	0.0	-0.2	0.2	0.2	0.8	0.4	0.2
1163	-0.4	-0.4	-0.3	-0.2	-0.1	-0.4	-0.3	-0.1	0.0	-0.2	0.0	0.1	0.5	0.4	0.3
1164	-0.6	-0.5	-0.4	-0.3	-0.1	-0.4	-0.3	-0.1	0.0	-0.2	0.0	0.2	0.5	0.4	0.4
1165	-0.8	-0.6	-0.5	-0.3	-0.1	-0.4	-0.3	0.0	0.1	-0.2	0.1	0.2	0.8	0.5	0.4
1166	-0.9	-0.7	-0.5	-0.3	-0.1	-0.4	-0.2	0.0	0.1	-0.1	0.2	0.3	0.7	0.6	0.5
1167	-0.6	-0.5	-0.3	-0.2	0.0	-0.3	-0.2	0.0	0.2	-0.1	0.2	0.4	0.8	0.8	0.7
1168	-0.2	-0.3	-0.2	-0.1	0.1	-0.4	-0.3	0.0	0.2	-0.2	0.2	0.4	0.7	0.8	0.8
1169	0.2	-0.1	-0.1	0.0	0.2	-0.4	-0.3	-0.1	0.2	-0.2	0.1	0.4	0.6	0.8	0.9
1170	0.3	0.0	0.0	0.0	0.2	-0.3	-0.2	-0.1	0.2	-0.1	0.0	0.4	0.2	0.7	1.0
1171	0.0	-0.1	-0.1	0.0	0.2	-0.2	-0.2	-0.1	0.2	-0.1	0.0	0.4	0.2	0.7	1.1
1172	-0.2	-0.2	-0.2	-0.1	0.1	-0.1	-0.1	0.0	0.3	-0.1	0.1	0.4	0.3	0.7	1.0
1173	-0.6	-0.3	-0.2	-0.2	0.1	0.1	0.0	0.0	0.3	-0.1	-0.1	0.4	-0.1	0.7	1.3
1174	-0.7	-0.3	-0.3	-0.2	0.1	0.2	-0.1	0.0	0.3	-0.3	-0.2	0.3	0.1	0.8	1.3
1175	-0.8	-0.3	-0.4	-0.2	0.1	0.2	-0.1	0.0	0.3	-0.4	-0.1	0.4	0.3	0.9	1.3
1176	-0.8	-0.4	-0.3	-0.2	0.1	0.2	-0.1	0.0	0.3	-0.3	-0.1	0.4	0.3	0.9	1.3
1177	-0.7	-0.2	-0.3	-0.2	0.1	0.3	-0.1	0.0	0.3	-0.4	-0.1	0.3	0.4	0.9	1.2
1178	-0.5	-0.2	-0.3	-0.1	0.1	0.3	-0.1	0.0	0.3	-0.4	-0.1	0.2	0.5	0.7	0.9
1179	-0.4	-0.1	-0.2	-0.1	0.1	0.3	-0.1	0.0	0.2	-0.5	-0.2	0.2	0.4	0.7	0.9
1180	-0.3	-0.1	-0.2	-0.1	0.1	0.3	-0.2	-0.1	0.2	-0.6	-0.2	0.1	0.4	0.6	0.8
1181	-0.2	0.0	-0.2	-0.1	0.1	0.3	-0.3	-0.1	0.2	-0.7	-0.3	0.1	0.5	0.7	0.9
1182	-0.1	0.1	-0.2	-0.1	0.2	0.3	-0.2	-0.1	0.2	-0.7	-0.3	0.2	0.4	0.9	1.2
1183	0.0	0.2	-0.1	0.0		0.5	-0.1	0.0		-0.7	-0.3		0.3		
1184	0.1	0.4	-0.1	0.0		0.7	-0.1	0.0		-0.8	-0.4		0.3		
1185	0.2	0.5	0.0	0.0		0.8	-0.2	-0.1		-1.0	-0.5		0.2		
1186	0.1	0.4	-0.1	0.0		0.8	-0.2	-0.1		-1.0	-0.6		0.3		
1187	0.0	0.4	-0.2	-0.1		0.8	-0.3	-0.1		-1.1	-0.6		0.3		
1188	0.2	0.4	-0.1	-0.1		0.7	-0.3	-0.1		-1.1	-0.6		0.4		
1189	0.4	0.5	0.0	0.0		0.7	-0.3	-0.1		-1.0	-0.5		0.5		
1190	0.7	0.6	0.1	0.1		0.6	-0.2	-0.1		-0.9	-0.5		0.3		
1191	1.0	0.7	0.2	0.1	0.3	0.4	-0.2	-0.2	0.1	-0.8	-0.6	0.0	-0.2	0.6	1.1
1192	1.4	0.8	0.3	0.2	0.3	0.2	-0.3	-0.3	0.0	-0.7	-0.6	-0.1	-0.3	0.3	0.7
1193	1.2	0.8	0.3	0.2	0.3	0.2	-0.2	-0.3	0.0	-0.6	-0.5	-0.1	-0.4	0.3	0.7
1194	0.7	0.6	0.2	0.1	0.3	0.4	-0.1	-0.2	0.2	-0.6	-0.5	0.1	-0.4	0.6	1.3
1195	0.4	0.4	0.1	0.0	0.2	0.5	-0.1	-0.1	0.2	-0.6	-0.5	0.1	-0.3	0.6	1.2
1196	0.2	0.3	0.0	0.0	0.2	0.3	-0.1	-0.1	0.2	-0.5	-0.3	0.1	0.0	0.6	1.0
1197	0.1	0.2	-0.1	0.0	0.2	0.3	-0.1	-0.1	0.2	-0.5	-0.3	0.2	0.2	0.7	1.1
1198	-0.1	0.1	-0.1	-0.1	0.1	0.4	-0.1	0.0	0.2	-0.5	-0.3	0.1	0.1	0.6	0.9
1199	-0.1	0.1	-0.1	0.0	0.1	0.4	-0.1	0.0	0.2	-0.4	-0.2	0.1	0.1	0.5	0.8
1200	0.0	0.1	0.0	0.0	0.1	0.2	-0.1	0.0	0.1	-0.3	-0.1	0.0	0.4	0.3	0.3
1201	0.2	0.1	0.0	0.1	0.0	0.0	-0.2	0.0	0.0	-0.3	0.0	-0.1	0.7	0.2	-0.2
1202	0.2	0.1	0.0	0.2	0.0	0.0	-0.1	0.2	-0.1	-0.2	0.2	-0.1	1.0	0.0	-0.7
1203	0.2	0.1	0.1	0.3	0.0	0.0	0.0	0.3	-0.1	0.0	0.5	-0.1	1.3	-0.1	-1.1
1204	0.1	0.1	0.0	0.2	0.1	0.1	0.0	0.3	0.2	-0.1	0.4	0.2	1.2	0.4	-0.2
1205	0.2	0.1	0.0	0.1	0.1	0.0	-0.1	0.1	0.0	-0.2	0.2	0.0	0.8	0.2	-0.3
1206	0.4	0.1	0.1	0.1	0.0	-0.2	-0.1	-0.1	-0.1	-0.1	0.0	0.0	0.2	0.0	-0.1
1207	0.3	0.1	0.1	0.0	0.0	0.0	0.0	-0.1	-0.1	0.0	-0.1	-0.2	-0.2	-0.3	-0.3
1208	0.4	0.3	0.2	0.0	0.0	0.0	0.0	-0.1	-0.2	0.0	-0.2	-0.2	-0.6	-0.4	-0.3
1209	0.7	0.4	0.3	0.0	0.0	0.1	0.0	-0.3	-0.2	0.0	-0.4	-0.3	-1.2	-0.5	0.0
1210	0.9	0.5	0.3	0.0	0.1	0.1	0.1	-0.4	-0.2	0.0	-0.7	-0.3	-2.0	-0.5	0.5
1211	0.8	0.5	0.3	-0.1	0.2	0.3	0.1	-0.4	0.1	0.0	-0.8	0.0	-2.2	0.1	1.5
1212	0.7	0.5	0.3	-0.1	0.3	0.3	0.1	-0.4	0.1	-0.1	-0.8	0.1	-2.1	0.2	1.7
1213	0.7	0.5	0.3	-0.1	0.3	0.2	0.1	-0.5	0.1	0.1	-0.8	0.1	-2.4	0.1	1.8

High-Water Shoreline Position (UTM Zone 18, NAD 1983)

Transect #	1839/42 UTM-x (m)	1839/42 UTM-y (m)	1864/86 UTM-x (m)	1864/86 UTM-y (m)	1899 UTM-x (m)	1899 UTM-y (m)	1932 UTM-x (m)	1932 UTM-y (m)	1950/51 UTM-x (m)	1950/51 UTM-y (m)	1977 UTM-x (m)	1977 UTM-y (m)
1133	4386314	569502.6	4386360	569424.1	4386371	569405.4	4386395	569363.8	4386392	569369.3	4386388	569376.1
1134	4386273	569473.6	4386317	569397.3	4386327	569381.3	4386351	569339.6	4386347	569347.3	4386343	569354.1
1135	4386232	569444.7	4386272	569376.2	4386283	569356.6	4386307	569315.9	4386300	569327.3	4386299	569329.3
1136	4386190	569416.6	4386227	569353.1	4386240	569331.9	4386263	569292.4	4386255	569305.3	4386256	569304.3
1137	4386153	569380.7	4386184	569328.3	4386196	569307.3	4386220	569267.6	4386211	569282.1	4386212	569280.7
1138	4386114	569348.4	4386140	569304.1	4386152	569283.4	4386176	569242.4	4386168	569257.3	4386166	569260.7
1139	4386073	569320.8	4386097	569279.0	4386108	569260.4	4386130	569222.9	4386127	569227.3	4386122	569236.7
1140	4386030	569294.1	4386051	569257.9	4386063	569238.6	4386083	569203.2	4386086	569199.2	4386078	569213.3
1141	4385989	569266.2	4386008	569233.0	4386017	569217.9	4386037	569182.9	4386043	569172.9	4386032	569191.5
1142	4385946	569239.3	4385966	569206.4	4385974	569192.9	4385992	569161.9	4385998	569151.9	4385987	569169.3
1143	4385904	569213.6	4385922	569182.0	4385931	569167.5	4385947	569139.7	4385952	569131.6	4385941	569148.9
1144	4385860	569188.4	4385879	569156.0	4385887	569142.8	4385901	569118.5	4385907	569109.1	4385899	569122.2
1145	4385817	569164.0	4385834	569133.8	4385845	569115.0	4385854	569100.4	4385860	569090.0	4385854	569100.3
1146	4385773	569139.5	4385791	569109.2	4385804	569087.2	4385808	569079.7	4385814	569069.5	4385806	569083.5
1147	4385730	569113.9	4385749	569082.1	4385762	569059.5	4385761	569060.4	4385767	569051.1	4385759	569064.1
1148	4385688	569087.5	4385707	569054.7	4385719	569033.4	4385718	569036.2	4385721	569030.4	4385713	569043.4
1149	4385646	569060.2	4385661	569033.3	4385676	569008.2	4385672	569014.6	4385675	569009.6	4385669	569020.3
1150	4385603	569033.6	4385618	569009.4	4385632	568984.0	4385629	568990.5	4385632	568984.9	4385625	568996.0
1151	4385559	569010.8	4385575	568982.2	4385588	568961.1	4385584	568967.3	4385587	568962.5	4385582	568971.8
1152	4385514	568989.0	4385533	568956.2	4385543	568939.0	4385540	568943.1	4385542	568941.0	4385536	568951.1
1153	4385469	568966.0	4385490	568931.1	4385497	568918.7	4385497	568917.9	4385496	568920.0	4385492	568927.3
1154	4385424	568944.1	4385445	568907.4	4385451	568897.2	4385452	568895.8	4385451	568897.3	4385448	568902.9
1155	4385377	568925.1	4385400	568886.7	4385407	568874.2	4385409	568869.9	4385406	568875.8	4385403	568881.8
1156	4385332	568903.5	4385354	568866.1	4385362	568851.2	4385365	568847.3	4385362	568852.7	4385357	568860.3
1157	4385289	568878.5	4385308	568844.7	4385315	568832.8	4385319	568826.5	4385317	568829.7	4385314	568834.5
1158	4385246	568852.0	4385265	568820.6	4385271	568809.5	4385275	568802.3	4385273	568805.7	4385268	568814.0
1159	4385206	568821.3	4385220	568797.8	4385228	568784.5	4385232	568776.9	4385226	568788.0	4385223	568791.7
1160	4385169	568785.7	4385176	568774.6	4385183	568761.2	4385186	568756.6	4385179	568768.8	4385177	568771.8
1161	4385128	568756.5	4385130	568752.8	4385139	568738.3	4385142	568733.5	4385134	568746.9	4385131	568751.2
1162	4385083	568734.8	4385086	568729.7	4385094	568716.4	4385097	568711.3	4385089	568724.2	4385087	568728.4
1163	4385037	568714.4	4385043	568704.2	4385049	568694.6	4385053	568687.5	4385048	568695.4	4385043	568703.3
1164	4384991	568694.8	4385000	568678.6	4385005	568669.3	4385009	568663.1	4385005	568670.6	4384999	568680.2
1165	4384944	568675.4	4384957	568652.6	4384963	568643.5	4384966	568638.0	4384959	568649.8	4384954	568658.8
1166	4384899	568653.6	4384913	568628.5	4384918	568620.3	4384921	568616.2	4384914	568627.5	4384907	568640.2
1167	4384860	568621.4	4384869	568605.5	4384873	568597.8	4384876	568593.8	4384868	568606.6	4384859	568623.0
1168	4384820	568589.6	4384824	568584.0	4384829	568575.5	4384831	568570.7	4384825	568582.2	4384814	568600.4
1169	4384781	568557.9	4384778	568563.4	4384783	568554.5	4384787	568548.4	4384781	568557.3	4384768	568579.3
1170	4384737	568533.4	4384733	568541.5	4384737	568533.5	4384739	568530.4	4384737	568533.7	4384723	568557.4
1171	4384690	568515.3	4384690	568515.5	4384693	568509.7	4384695	568507.1	4384693	568510.9	4384678	568535.4
1172	4384643	568496.1	4384647	568489.3	4384649	568486.0	4384651	568483.7	4384648	568488.3	4384634	568512.7
1173	4384596	568478.1	4384605	568462.5	4384604	568464.2	4384606	568461.3	4384606	568460.2	4384589	568489.9
1174	4384550	568457.6	4384562	568437.1	4384559	568442.0	4384564	568434.2	4384563	568435.4	4384545	568465.5
1175	4384505	568435.9	4384518	568413.6	4384515	568418.3	4384521	568407.8	4384519	568412.2	4384501	568442.6
1176	4384460	568412.8	4384473	568390.6	4384471	568394.9	4384477	568385.2	4384473	568390.6	4384456	568420.0
1177	4384418	568386.2	4384429	568367.9	4384425	568374.1	4384431	568363.3	4384428	568369.6	4384412	568396.4
1178	4384375	568360.6	4384384	568345.9	4384380	568352.6	4384387	568340.7	4384382	568348.0	4384370	568368.9
1179	4384332	568335.4	4384338	568324.1	4384335	568330.7	4384343	568316.9	4384339	568323.0	4384327	568343.7
1180	4384288	568311.5	4384293	568302.9	4384290	568308.8	4384299	568292.7	4384295	568299.4	4384284	568317.6
1181	4384244	568286.8	4384248	568280.8	4384244	568286.8	4384256	568267.9	4384251	568275.2	4384239	568296.1
1182	4384203	568258.2	4384205	568255.7	4384200	568263.6	4384212	568244.0	4384208	568250.8	4384192	568278.1
1183	4384162	568229.1	4384163	568228.0	4384156	568240.3	4384168	568220.3	4384165	568225.4		
1184	4384121	568201.4	4384119	568203.9	4384109	568220.5	4384124	568196.3	4384121	568200.8		
1185	4384078	568176.0	4384075	568181.2	4384064	568199.8	4384080	568172.3	4384077	568176.1		
1186	4384031	568155.7	4384029	568159.5	4384019	568177.1	4384036	568147.5	4384034	568151.6		
1187	4383986	568134.9	4383985	568135.6	4383974	568154.2	4383993	568122.4	4383990	568127.3		
1188	4383942	568110.1	4383940	568114.6	4383930	568131.0	4383949	568099.4	4383945	568105.2		
1189	4383903	568078.4	4383897	568089.1	4383888	568104.4	4383905	568074.9	4383901	568082.1		
1190	4383864	568045.1	4383854	568063.8	4383846	568077.5	4383861	568051.2	4383858	568055.7		
1191	4383824	568015.6	4383808	568042.1	4383802	568052.2	4383815	568029.8	4383817	568027.0	4383803	568051.6
1192	4383785	567982.2	4383763	568020.2	4383761	568024.7	4383772	568004.5	4383775	567999.7	4383765	568016.4
1193	4383741	567959.6	4383721	567993.3	4383718	567998.3	4383728	567980.8	4383732	567974.9	4383722	567991.4
1194	4383693	567941.6	4383682	567961.4	4383676	567971.1	4383685	567955.0	4383689	567948.5	4383672	567978.3
1195	4383646	567923.6	4383639	567935.2	4383633	567946.4	4383642	567929.8	4383645	567925.1	4383629	567953.0
1196	4383598	567905.8	4383594	567912.6	4383590	567920.1	4383598	567906.5	4383598	567907.2	4383584	567929.9
1197	4383552	567885.3	4383551	567887.6	4383547	567895.1	4383555	567880.5	4383554	567883.1	4383539	567907.6
1198	4383508	567862.8	4383509	567860.9	4383503	567870.2	4383511	567856.8	4383511	567857.9	4383498	567879.9
1199	4383464	567838.6	4383465	567835.9	4383460	567845.2	4383467	567833.4	4383466	567835.0	4383455	567854.4
1200	4383420	567814.0	4383420	567815.1	4383417	567819.8	4383423	567810.2	4383419	567816.3	4383415	567823.0
1201	4383378	567788.3	4383375	567793.3	4383374	567794.3	4383379	567785.1	4383373	567795.6	4383376	567790.9
1202	4383335	567762.7	4383331	567768.6	4383331	567768.8	4383334	567762.7	4383325	567778.6	4383335	567761.8
1203	4383291	567737.6	4383288	567743.8	4383288	567743.3	4383288	567742.9	4383276	567763.8	4383291	567738.4
1204	4383247	567714.1	4383246	567715.9	4383245	567718.4	4383246	567716.8	4383234	567736.0	4383237	567730.6
1205	4383204	567689.1	4383201	567694.4	4383201	567694.1	4383204	567689.2	4383196	567702.4	4383200	567696.0
1206	4383161	567663.5	4383154	567674.6	4383157	567669.8	4383158	567667.8	4383157	567670.9	4383158	567667.6
1207	4383118	567638.4	4383113	567646.0	4383113	567645.5	4383114	567644.8	4383115	567642.1	4383120	567634.9
1208	4383077	567608.8	4383070	567620.7	4383069	567621.8	4383070	567621.6	4383075	567612.6	4383079	567605.3
1209	4383037	567577.7	4383026	567597.7	4383025	567599.2	4383025	567598.9	4383036	567579.9	4383036	567579.9
1210	4382996	567549.8	4382982	567573.6	4382980	567576.6	4382980	567576.8	4382998	567545.9	4382991	567557.5
1211	4382951	567526.7	4382939	567548.1	4382935	567554.1	4382936	567553.1	4382955	567519.7	4382935	567555.3
1212	4382907	567503.4	4382896	567522.8	4382892	567529.4	4382893	567527.5	4382912	567494.7	4382888	567535.2
1213	4382863	567479.9	4382851	567499.4	4382849	567503.6	4382848	567505.6	4382869	567469.0	4382845	567509.9

						High-Water Shoreline Position Change Rate									
	1839/42 to	1839/42 to	1839/42 to	1839/42 to	1839/42 to	1864/86 to	1864/86 to	1864/86 to	1864/86 to	1899 to	1899 to	1899 to	1932 to	1932 to	1950/51 to
Transect #	1864/86 (m/yr)	1899 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1899 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1977 (m/yr)
1214	0.7	0.4	0.3	-0.1	0.2	0.0	0.1	-0.4	0.0	0.2	-0.7	0.0	-2.1	-0.1	1.2
1215	0.7	0.4	0.3	-0.1	0.1	0.1	0.1	-0.4	-0.1	0.1	-0.6	-0.2	-2.0	-0.4	0.6
1216	0.7	0.5	0.4	0.0	0.1	0.1	0.2	-0.3	-0.1	0.2	-0.6	-0.2	-2.1	-0.4	0.7
1217	0.8	0.5	0.3	0.0	0.1	0.2	0.1	-0.3	-0.1	0.1	-0.6	-0.2	-1.8	-0.5	0.4
1218	0.9	0.5	0.3	0.0	0.1	0.0	0.0	-0.4	-0.2	0.0	-0.6	-0.2	-1.6	-0.4	0.4
1219	1.0	0.4	0.3	0.0	0.1	-0.3	-0.1	-0.4	-0.2	0.0	-0.4	-0.2	-1.3	-0.3	0.3
1220	1.0	0.4	0.3	0.1	0.1	-0.4	-0.2	-0.3	-0.2	0.1	-0.2	-0.1	-0.7	-0.2	0.1
1221	0.9	0.3	0.3	0.1	0.1	-0.4	-0.1	-0.2	-0.2	0.2	-0.1	-0.1	-0.6	-0.3	0.0
1222	0.6	0.2	0.2	0.1	0.1	-0.3	0.0	0.0	0.0	0.2	0.1	0.1	0.0	0.0	0.1
1223	0.5	0.1	0.2	0.2	0.1	-0.4	0.0	0.1	0.0	0.2	0.3	0.1	0.3	0.0	-0.2
1224	0.6	0.1	0.1	0.3	0.1	-0.5	-0.1	0.1	0.0	0.2	0.4	0.2	0.9	0.1	-0.4
1225	0.8	0.1	0.1	0.3	0.2	-0.7	-0.2	0.1	0.0	0.2	0.5	0.2	1.0	0.2	-0.4
1226	1.1	0.2	0.2	0.3	0.2	-0.8	-0.2	0.0	0.0	0.2	0.4	0.2	0.6	0.2	0.0
1227	1.3	0.4	0.3	0.3	0.3	-0.7	-0.2	-0.1	0.0	0.2	0.2	0.2	0.4	0.3	0.2
1228	1.4	0.5	0.4	0.4	0.3	-0.5	-0.2	-0.1	0.0	0.1	0.2	0.2	0.4	0.3	0.2
1229	1.5	0.6	0.3	0.4	0.3	-0.4	-0.3	-0.1	0.0	-0.1	0.2	0.1	0.6	0.2	0.0
1230	1.7	0.7	0.4	0.5	0.3	-0.6	-0.3	-0.1	-0.1	0.0	0.2	0.1	0.7	0.2	-0.2
1231	2.1	0.8	0.5	0.5	0.3	-0.8	-0.4	-0.1	-0.2	0.0	0.2	0.0	0.6	0.0	-0.3
1232	2.4	0.8	0.6	0.6	0.4	-1.0	-0.4	-0.2	-0.2	0.1	0.3	0.1	0.7	0.1	-0.2
1233	2.5	0.9	0.6	0.6	0.5	-1.1	-0.4	-0.2	-0.2	0.1	0.3	0.2	0.6	0.2	-0.1
1234	2.6	0.8	0.6	0.6	0.5	-1.3	-0.5	-0.2	-0.2	0.2	0.3	0.2	0.6	0.2	0.0
1235	2.6	0.8	0.6	0.6	0.5	-1.4	-0.5	-0.3	-0.1	0.3	0.3	0.3	0.4	0.3	0.2
1236	2.6	0.8	0.6	0.6	0.5	-1.4	-0.5	-0.3	-0.1	0.3	0.3	0.3	0.4	0.3	0.2
1237	2.6	0.8	0.6	0.6	0.5	-1.4	-0.5	-0.3	-0.1	0.3	0.3	0.3	0.3	0.3	0.3
1238	2.7	0.8	0.6	0.6	0.6	-1.4	-0.5	-0.3	0.0	0.3	0.3	0.5	0.4	0.6	0.7
1239	2.6	0.8	0.7	0.6	0.6	-1.3	-0.4	-0.2	0.0	0.4	0.4	0.5	0.4	0.6	0.7
1240	2.6	0.8	0.7	0.7	0.6	-1.3	-0.3	-0.1	0.0	0.5	0.5	0.5	0.4	0.5	0.5
1241	2.6	0.8	0.8	0.7	0.6	-1.3	-0.2	-0.1	0.0	0.7	0.5	0.5	0.1	0.4	0.5
1242	2.6	0.8	0.8	0.6	0.7	-1.3	-0.2	-0.2	0.1	0.7	0.4	0.6	-0.1	0.4	0.8
1243	2.7	0.9	0.9	0.7	0.7	-1.3	-0.1	-0.1	0.1	0.9	0.5	0.6	-0.3	0.3	0.7
1244	2.8	0.9	0.9	0.7	0.7	-1.3	0.0	-0.1	0.1	1.0	0.5	0.5	-0.4	0.2	0.6
1245	2.8	0.9	0.9	0.7	0.7	-1.3	-0.1	-0.1	0.0	0.8	0.5	0.5	0.0	0.2	0.4
1246	2.7	0.9	0.9	0.7	0.7	-1.2	0.0	-0.1	0.0	0.9	0.5	0.5	-0.4	0.1	0.5
1247	2.8	0.9	0.9	0.7	0.7	-1.3	0.0	-0.1	0.0	1.0	0.4	0.5	-0.5	0.1	0.5
1248	2.8	0.9	0.9	0.7	0.7	-1.4	-0.2	-0.2	0.0	0.8	0.5	0.5	-0.2	0.3	0.6
1249	2.8	0.9	0.9	0.8	0.7	-1.4	-0.2	-0.1	0.0	0.8	0.6	0.5	0.2	0.3	0.4
1250	2.8	0.9	0.9	0.8	0.7	-1.3	-0.2	-0.1	0.1	0.7	0.6	0.5	0.3	0.3	0.4
1251	2.7	1.0	0.9	0.8	0.7	-1.0	0.0	0.0	0.1	0.8	0.6	0.5	0.2	0.3	0.3
1252	2.6	1.0	0.9	0.8	0.7	-0.9	0.0	0.0	0.1	0.7	0.5	0.4	0.1	0.3	0.4
1253	2.6	1.0	0.9	0.8	0.7	-0.8	0.0	0.0	0.1	0.7	0.5	0.4	0.2	0.3	0.4
1254	2.7	1.1	1.0	0.8	0.7	-0.8	0.1	0.0	0.1	0.8	0.5	0.4	-0.1	0.2	0.3
1255	2.7	1.1	1.0	0.8	0.7	-0.7	0.1	0.1	0.2	0.8	0.5	0.4	0.0	0.2	0.3
1256	3.0	1.4	1.1	0.9	0.8	-0.6	0.1	0.1	0.2	0.6	0.4	0.4	0.1	0.3	0.4
1257	3.4	1.5	1.1	1.0	0.8	-0.7	-0.1	0.0	0.1	0.4	0.4	0.4	0.3	0.3	0.3
1258	3.5	1.6	1.1	1.0	0.8	-0.7	-0.1	0.0	0.0	0.4	0.4	0.3	0.5	0.3	0.1
1259	3.6	1.6	1.1	1.1	0.9	-0.8	-0.2	0.0	0.0	0.3	0.4	0.3	0.6	0.3	0.0
1260	3.8	1.6	1.2	1.1	0.9	-0.9	-0.1	-0.1	0.0	0.5	0.4	0.3	0.2	0.1	0.1
1261	3.9	1.7	1.3	1.1	0.9	-1.0	-0.1	-0.1	0.0	0.6	0.3	0.4	-0.1	0.2	0.4
1262	4.1	1.7	1.3	1.0	0.9	-1.1	-0.2	-0.2	0.0	0.5	0.3	0.3	-0.2	0.2	0.5
1263	4.3	1.6	1.2	1.1	0.9	-1.5	-0.4	-0.2	-0.1	0.5	0.4	0.3	0.2	0.2	0.1
1264	4.4	1.7	1.3	1.1	0.9	-1.5	-0.4	-0.3	-0.2	0.5	0.3	0.2	0.0	0.0	0.0
1265	4.4	1.7	1.3	1.1	0.9	-1.4	-0.4	-0.3	-0.2	0.4	0.4	0.2	0.3	0.1	0.0
1266	4.4	1.8	1.3	1.2	0.9	-1.3	-0.4	-0.2	-0.1	0.4	0.4	0.3	0.5	0.2	-0.1
1267	4.4	1.8	1.4	1.2	1.0	-1.3	-0.3	-0.1	0.0	0.6	0.5	0.4	0.5	0.3	0.1
1268	4.4	1.8	1.3	1.2	1.0	-1.3	-0.3	-0.1	0.0	0.5	0.5	0.4	0.6	0.3	0.2
1269	4.3	1.8	1.4	1.2	1.0	-1.2	-0.2	-0.1	0.0	0.7	0.5	0.4	0.3	0.1	0.1
1270	4.3	1.8	1.4	1.3	1.0	-1.1	-0.1	0.0	-0.1	0.7	0.6	0.3	0.5	0.1	-0.2
1271	4.1	1.9	1.5	1.3	0.9	-0.8	0.0	0.1	0.0	0.7	0.6	0.2	0.4	-0.2	-0.5
1272	4.1	1.9	1.5	1.3	0.9	-0.6	0.2	0.1	0.0	0.8	0.6	0.2	0.1	-0.3	-0.5
1273	4.0	1.9	1.6	1.3	1.0	-0.5	0.3	0.2	0.0	1.0	0.6	0.2	-0.1	-0.4	-0.5
1274	4.0	2.0	1.6	1.3	1.0	-0.4	0.3	0.2	0.1	0.9	0.5	0.3	-0.1	-0.1	-0.2
1275	4.1	2.0	1.6	1.3	1.1	-0.3	0.3	0.2	0.2	0.9	0.5	0.4	-0.3	0.1	0.4
1276	4.3	2.2	1.7	1.4	1.1	-0.3	0.3	0.2	0.2	0.8	0.4	0.3	-0.3	0.0	0.2
1277	4.6	2.3	1.8	1.4	1.1	-0.3	0.3	0.2	0.1	0.8	0.4	0.2	-0.3	-0.2	-0.1
1278	4.7	2.4	1.8	1.5	1.1	-0.5	0.3	0.2	0.0	0.9	0.5	0.2	-0.1	-0.3	-0.5
1279	4.9	2.3	1.9	1.5	1.1	-0.7	0.3	0.1	0.0	1.0	0.6	0.2	-0.2	-0.4	-0.5
1280	5.1	2.3	1.9	1.6	1.2	-0.9	0.3	0.2	0.0	1.3	0.7	0.4	-0.2	-0.3	-0.4
1281	5.0	2.2	1.9	1.6	1.3	-1.1	0.3	0.2	0.2	1.4	0.9	0.7	-0.2	0.1	0.2
1282	4.7	2.0	1.9	1.6	1.2	-1.1	0.3	0.3	0.2	1.6	1.0	0.6	0.0	0.0	-0.1
1283	4.6	2.0	1.9	1.6	1.2	-1.2	0.4	0.4	0.2	1.7	1.2	0.6	0.1	-0.2	-0.4
1284	4.6	1.9	1.8	1.6	1.1	-1.3	0.4	0.4	0.1	1.8	1.2	0.6	0.2	-0.3	-0.7
1285	4.7	1.9	1.8	1.6	1.1	-1.5	0.3	0.3	0.0	1.8	1.3	0.6	0.4	-0.3	-0.9
1286	5.0	2.0	1.9	1.6	1.2	-1.5	0.2	0.3	0.0	1.7	1.2	0.5	0.4	-0.3	-0.8
1287	5.4	2.1	2.0	1.6	1.3	-1.7	0.2	0.1	0.1	1.7	1.1	0.7	-0.1	-0.1	-0.1
1288	5.5	2.2	2.0	1.6	1.3	-1.9	0.0	0.0	0.0	1.6	1.1	0.7	0.1	0.0	0.0
1289	5.6	2.2	1.9	1.6	1.3	-1.9	-0.1	0.0	-0.1	1.4	1.0	0.6	0.4	-0.1	-0.3
1290	5.5	2.1	1.8	1.6	1.2	-1.8	-0.1	0.0	-0.1	1.3	1.0	0.5	0.5	-0.1	-0.5
1291	5.3	2.1	1.8	1.6	1.1	-1.7	-0.1	0.0	-0.1	1.3	0.9	0.4	0.4	-0.2	-0.6
1292	5.1	2.1	1.8	1.5	1.1	-1.5	0.0	0.1	-0.1	1.2	0.9	0.3	0.3	-0.3	-0.7
1293	4.8	2.0	1.7	1.5	1.0	-1.3	0.0	0.1	-0.1	1.1	0.8	0.3	0.3	-0.3	-0.7
1294	4.6	2.0	1.7	1.4	1.1	-1.1	0.1	0.1	0.0	1.1	0.8	0.3	0.2	-0.2	-0.4

					High-Water Shoreline Position (UTM Zone 18, NAD 1983)							
		1839/42		1864/86		1899		1932		1950/51		1977
Transect #	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)
1214	4382818	567456.7	4382807	567476.7	4382806	567477.8	4382804	567482.2	4382823	567449.2	4382806	567477.7
1215	4382775	567432.7	4382763	567452.7	4382762	567454.3	4382760	567458.2	4382778	567427.3	4382769	567441.7
1216	4382731	567407.9	4382719	567428.4	4382717	567431.7	4382714	567437.8	4382732	567405.7	4382723	567421.1
1217	4382688	567383.0	4382675	567405.2	4382673	567409.1	4382672	567410.7	4382688	567383.3	4382682	567392.3
1218	4382643	567359.7	4382629	567385.2	4382629	567385.2	4382629	567385.1	4382643	567360.2	4382638	567369.7
1219	4382599	567336.8	4382583	567364.4	4382586	567358.3	4382586	567358.8	4382597	567339.3	4382593	567347.1
1220	4382555	567313.5	4382538	567341.8	4382544	567331.4	4382543	567333.8	4382549	567322.5	4382548	567324.7
1221	4382510	567290.1	4382496	567313.9	4382502	567304.8	4382499	567310.2	4382504	567300.6	4382505	567299.6
1222	4382465	567269.0	4382455	567285.4	4382459	567278.5	4382457	567283.0	4382457	567282.8	4382456	567284.2
1223	4382420	567246.9	4382412	567260.8	4382417	567252.2	4382413	567259.2	4382410	567264.2	4382413	567259.1
1224	4382376	567223.0	4382366	567239.2	4382373	567227.2	4382370	567233.6	4382362	567247.0	4382367	567238.6
1225	4382333	567197.7	4382320	567218.8	4382330	567202.9	4382326	567208.9	4382317	567223.9	4382322	567215.4
1226	4382293	567166.2	4382275	567196.8	4382286	567178.6	4382282	567185.3	4382277	567194.2	4382278	567193.1
1227	4382254	567134.2	4382232	567171.5	4382242	567155.4	4382239	567159.9	4382235	567166.0	4382233	567170.1
1228	4382213	567105.8	4382190	567145.1	4382197	567132.9	4382196	567134.5	4382192	567141.0	4382190	567144.8
1229	4382170	567080.1	4382146	567120.4	4382152	567110.3	4382154	567107.4	4382148	567116.9	4382149	567116.0
1230	4382130	567049.8	4382102	567097.4	4382110	567083.9	4382110	567083.0	4382104	567093.3	4382107	567089.2
1231	4382090	567019.0	4382056	567076.7	4382067	567057.6	4382067	567058.5	4382061	567067.9	4382066	567059.8
1232	4382049	566989.9	4382010	567055.4	4382024	567032.0	4382023	567034.4	4382017	567044.9	4382019	567040.0
1233	4382006	566963.8	4381965	567033.8	4381981	567007.1	4381979	567010.8	4381973	567019.8	4381974	567018.1
1234	4381963	566939.4	4381920	567012.3	4381937	566982.2	4381934	566988.0	4381929	566997.3	4381928	566997.6
1235	4381917	566917.7	4381875	566990.3	4381894	566957.9	4381889	566966.2	4381886	566971.8	4381883	566976.9
1236	4381873	566895.0	4381831	566966.3	4381850	566934.2	4381845	566942.1	4381841	566948.5	4381838	566953.6
1237	4381829	566870.2	4381786	566943.2	4381806	566910.5	4381801	566919.1	4381798	566924.1	4381793	566931.3
1238	4381786	566844.7	4381743	566918.8	4381762	566886.4	4381757	566893.8	4381754	566900.5	4381744	566917.1
1239	4381743	566819.0	4381701	566891.8	4381719	566860.6	4381713	566871.5	4381709	566878.4	4381700	566893.7
1240	4381701	566792.9	4381659	566864.1	4381676	566834.8	4381667	566849.7	4381664	566855.4	4381657	566867.6
1241	4381657	566767.9	4381615	566839.4	4381633	566809.7	4381622	566828.7	4381621	566830.4	4381613	566842.8
1242	4381614	566742.8	4381572	566814.6	4381589	566785.2	4381578	566805.2	4381578	566804.3	4381567	566822.6
1243	4381572	566716.0	4381528	566791.0	4381546	566760.8	4381530	566787.4	4381533	566782.7	4381524	566798.3
1244	4381528	566691.6	4381483	566768.2	4381501	566737.5	4381484	566766.7	4381488	566760.0	4381480	566774.3
1245	4381484	566668.6	4381439	566744.6	4381457	566714.9	4381443	566738.1	4381443	566737.7	4381438	566747.3
1246	4381440	566644.9	4381396	566719.2	4381412	566691.6	4381397	566718.1	4381400	566711.9	4381394	566723.0
1247	4381396	566620.9	4381351	566697.2	4381368	566667.9	4381352	566695.3	4381357	566687.2	4381350	566699.1
1248	4381351	566599.2	4381305	566677.6	4381324	566645.1	4381310	566669.1	4381311	566666.4	4381304	566679.5
1249	4381306	566576.3	4381260	566654.6	4381279	566622.9	4381265	566646.1	4381263	566648.9	4381258	566658.0
1250	4381262	566552.0	4381217	566629.4	4381234	566600.1	4381222	566620.7	4381219	566625.4	4381214	566633.9
1251	4381219	566526.6	4381176	566601.1	4381190	566577.3	4381177	566599.0	4381175	566601.8	4381171	566609.2
1252	4381175	566504.0	4381132	566575.8	4381145	566554.7	4381133	566574.3	4381132	566576.3	4381127	566584.8
1253	4381131	566479.7	4381089	566551.4	4381100	566532.2	4381089	566550.9	4381088	566553.3	4381083	566561.8
1254	4381087	566455.2	4381043	566529.9	4381055	566510.4	4381041	566534.2	4381042	566532.2	4381037	566540.2
1255	4381044	566430.3	4381001	566503.9	4381010	566488.7	4380996	566511.2	4380997	566510.9	4380992	566518.6
1256	4381005	566397.6	4380957	566479.8	4380964	566467.0	4380954	566484.6	4380954	566485.6	4380948	566494.6
1257	4380964	566368.2	4380910	566461.1	4380919	566444.8	4380912	566457.5	4380909	566462.3	4380906	566468.5
1258	4380922	566342.0	4380865	566438.2	4380875	566421.5	4380869	566432.1	4380864	566440.5	4380863	566442.3
1259	4380878	566317.2	4380820	566417.2	4380831	566398.8	4380825	566408.0	4380819	566418.0	4380819	566418.5
1260	4380834	566293.1	4380773	566397.2	4380786	566376.2	4380777	566390.9	4380776	566393.5	4380774	566395.8
1261	4380790	566269.7	4380727	566377.9	4380740	566354.9	4380731	566370.9	4380731	566370.0	4380726	566378.7
1262	4380745	566248.2	4380679	566360.1	4380695	566333.4	4380687	566347.7	4380688	566345.2	4380682	566356.1
1263	4380700	566225.9	4380631	566343.3	4380651	566309.1	4380642	566324.4	4380640	566328.0	4380638	566331.2
1264	4380655	566203.4	4380584	566324.7	4380605	566289.4	4380597	566303.5	4380596	566304.0	4380596	566305.0
1265	4380611	566179.5	4380540	566301.4	4380559	566268.4	4380552	566280.3	4380550	566284.5	4380550	566283.9
1266	4380568	566154.7	4380496	566277.4	4380514	566246.8	4380507	566258.3	4380503	566266.2	4380504	566264.4
1267	4380523	566133.1	4380451	566254.7	4380469	566224.3	4380460	566240.5	4380455	566247.9	4380453	566251.2
1268	4380479	566109.1	4380407	566231.2	4380425	566201.5	4380416	566215.7	4380411	566225.4	4380409	566228.9
1269	4380434	566086.8	4380364	566206.8	4380380	566178.8	4380368	566198.4	4380366	566202.8	4380365	566204.1
1270	4380389	566064.0	4380320	566182.2	4380335	566156.8	4380324	566175.5	4380319	566183.1	4380323	566177.5
1271	4380345	566039.9	4380278	566154.2	4380290	566134.9	4380277	566156.1	4380274	566161.8	4380281	566150.2
1272	4380302	566014.6	4380237	566126.6	4380245	566112.1	4380232	566134.5	4380231	566136.4	4380238	566123.7
1273	4380259	565989.8	4380194	566100.8	4380201	566088.7	4380185	566116.4	4380186	566114.4	4380193	566102.6
1274	4380215	565965.8	4380150	566076.3	4380156	566067.1	4380141	566091.8	4380142	566089.8	4380145	566086.0
1275	4380171	565942.0	4380105	566054.0	4380110	566046.2	4380096	566070.8	4380098	566066.1	4380093	566074.5
1276	4380130	565913.5	4380060	566032.7	4380064	566025.1	4380051	566048.6	4380054	566043.5	4380051	566047.3
1277	4380088	565885.4	4380014	566011.7	4380019	566003.8	4380006	566026.2	4380008	566021.8	4380009	566020.1
1278	4380046	565858.8	4379969	565990.0	4379976	565978.8	4379961	566003.4	4379962	566001.8	4379968	565991.3
1279	4380003	565832.7	4379924	565967.4	4379934	565950.9	4379917	565980.4	4379919	565976.9	4379925	565965.7
1280	4379962	565804.6	4379880	565944.0	4379892	565922.8	4379871	565958.9	4379873	565955.2	4379878	565947.0
1281	4379917	565781.9	4379836	565919.7	4379851	565894.0	4379827	565934.9	4379829	565932.6	4379825	565938.4
1282	4379871	565761.2	4379795	565892.0	4379810	565865.3	4379784	565909.9	4379784	565910.6	4379785	565908.4
1283	4379828	565736.7	4379753	565864.9	4379769	565837.5	4379740	565886.4	4379739	565888.5	4379744	565879.6
1284	4379783	565714.8	4379709	565840.9	4379727	565809.6	4379697	565860.6	4379695	565864.4	4379704	565849.1
1285	4379739	565689.8	4379663	565819.3	4379683	565785.4	4379654	565836.0	4379650	565842.8	4379661	565822.5
1286	4379697	565663.3	4379615	565802.3	4379636	565766.6	4379609	565813.6	4379605	565819.6	4379616	565801.5
1287	4379653	565638.9	4379566	565787.6	4379589	565747.7	4379561	565796.6	4379562	565795.0	4379562	565793.7
1288	4379609	565615.2	4379519	565768.3	4379545	565724.7	4379518	565770.7	4379518	565771.5	4379518	565771.1
1289	4379565	565591.4	4379474	565746.2	4379500	565701.7	4379477	565741.8	4379474	565747.4	4379478	565739.4
1290	4379520	565568.8	4379432	565719.7	4379457	565676.8	4379435	565713.8	4379431	565721.4	4379438	565708.9
1291	4379476	565545.1	4379391	565691.6	4379414	565651.3	4379393	565687.2	4379390	565692.9	4379398	565678.9
1292	4379432	565521.2	4379350	565661.1	4379371	565625.9	4379351	565660.6	4379348	565665.8	4379350	565648.9
1293	4379388	565498.2	4379310	565631.5	4379327	565602.1	4379308	565633.9	4379306	565637.9	4379316	565621.0
1294	4379344	565474.9	4379269	565602.9	4379283	565578.4	4379265	565609.4	4379263	565612.1	4379269	565601.8

High-Water Shoreline Position Change Rate

Transect #	1839/42 to 1864/86 (m/yr)	1839/42 to 1899 (m/yr)	1839/42 to 1932 (m/yr)	1839/42 to 1950/51 (m/yr)	1839/42 to 1977 (m/yr)	1864/86 to 1899 (m/yr)	1864/86 to 1932 (m/yr)	1864/86 to 1950/51 (m/yr)	1864/86 to 1977 (m/yr)	1899 to 1932 (m/yr)	1899 to 1950/51 (m/yr)	1899 to 1977 (m/yr)	1932 to 1950/51 (m/yr)	1932 to 1977 (m/yr)	1950/51 to 1977 (m/yr)
1295	4.5	2.0	1.6	1.4	1.2	-0.9	0.1	0.2	0.2	0.9	0.7	0.6	0.4	0.4	0.4
1296	4.4	2.0	1.5	1.4	1.2	-0.7	0.0	0.2	0.2	0.6	0.6	0.5	0.7	0.3	0.1
1297	4.4	2.0	1.5	1.4	1.1	-0.8	0.0	0.2	0.1	0.7	0.7	0.4	0.8	0.2	-0.2
1298	4.6	2.0	1.6	1.4	1.1	-1.0	0.0	0.2	0.0	0.7	0.7	0.3	0.8	0.0	-0.5
1299	4.9	2.2	1.6	1.5	1.1	-0.9	-0.2	0.1	-0.1	0.4	0.6	0.2	1.1	0.0	-0.6
1300	5.0	2.3	1.6	1.5	1.1	-0.8	-0.3	0.0	-0.2	0.1	0.5	0.1	1.1	0.0	-0.6
1301	5.2	2.4	1.5	1.4	1.1	-0.9	-0.4	-0.1	-0.2	0.0	0.3	0.1	0.9	0.1	-0.4
1302	5.5	2.4	1.5	1.4	1.2	-1.2	-0.6	-0.2	-0.1	-0.1	0.2	0.3	0.8	0.5	0.3
1303	5.6	2.3	1.5	1.4	1.1	-1.6	-0.7	-0.4	-0.3	-0.1	0.3	0.2	0.8	0.4	0.0
1304	5.8	2.2	1.4	1.3	1.0	-2.0	-1.0	-0.5	-0.5	-0.1	0.2	0.1	0.9	0.2	-0.2
1305	5.8	2.2	1.3	1.3	0.9	-2.1	-1.1	-0.6	-0.6	-0.4	0.2	-0.1	1.1	0.1	-0.5
1306	5.7	2.2	1.2	1.2	0.8	-2.0	-1.2	-0.7	-0.7	-0.6	0.0	-0.2	1.2	0.1	-0.7
1307	5.8	2.2	1.2	1.2	0.8	-2.1	-1.3	-0.8	-0.7	-0.6	-0.1	-0.3	1.0	0.0	-0.7
1308	5.8	2.1	1.0	1.1	0.8	-2.3	-1.5	-0.8	-0.7	-0.8	0.1	-0.1	1.7	0.4	-0.6
1309	5.9	1.9	0.9	0.8	0.7	-2.7	-1.8	-1.2	-0.9	-1.0	-0.4	-0.2	0.6	0.3	0.2
1310	5.9	1.8	0.8	0.7	0.6	-3.0	-2.0	-1.4	-1.1	-1.2	-0.5	-0.4	0.6	0.2	-0.1
1311	5.9	1.7	0.7	0.6	0.5	-3.3	-2.1	-1.5	-1.2	-1.1	-0.6	-0.5	0.3	0.0	-0.3
1312	6.1	1.7	0.6	0.6	0.4	-3.5	-2.3	-1.7	-1.3	-1.3	-0.7	-0.6	0.5	-0.1	-0.4
1313	6.2	1.7	0.6	0.6	0.3	-3.7	-2.4	-1.7	-1.5	-1.4	-0.6	-0.7	0.8	-0.1	-0.7
1314	6.3	1.6	0.5	0.7	0.3	-3.9	-2.5	-1.7	-1.5	-1.4	-0.5	-0.7	1.3	-0.2	-1.2
1315	6.5	1.6	0.5	0.7	0.3	-4.1	-2.6	-1.6	-1.6	-1.4	-0.3	-0.7	1.6	-0.2	-1.4
1316	6.6	1.6	0.2	0.8	0.3	-4.4	-3.2	-1.6	-1.6	-2.3	-0.2	-0.7	3.7	0.5	-1.6
1317	7.0	1.7	-0.1	-0.2	0.2	-4.6	-3.9	-3.2	-1.9	-3.3	-2.5	-1.0	-0.9	0.7	1.8
1318	6.8	1.5	-0.4	-0.5	0.0	-4.7	-4.2	-3.4	-2.1	-3.8	-2.8	-1.2	-0.9	0.7	1.8
1319	6.8	1.5	-0.5	-0.5	-0.2	-4.8	-4.4	-3.6	-2.3	-4.1	-2.9	-1.4	-0.8	0.5	1.4
1320	6.7	1.5	-0.7	-0.8	-0.3	-4.7	-4.7	-3.8	-2.4	-4.7	-3.4	-1.7	-1.0	0.5	1.6
1321	6.7	1.5	-0.9	-1.0	-0.4	-4.5	-4.9	-4.1	-2.6	-5.2	-3.9	-1.9	-1.4	0.5	1.7
1322	6.7	1.6	-1.1	-1.1	-0.6	-4.4	-5.3	-4.3	-2.8	-6.0	-4.3	-2.2	-1.1	0.5	1.6
1323	6.8	1.7	-1.2	-1.2	-0.7	-4.4	-5.5	-4.5	-2.9	-6.5	-4.6	-2.4	-1.2	0.6	1.7
1324	6.8	1.7	-1.4	-1.4	-0.7	-4.5	-5.8	-4.7	-3.0	-6.9	-4.9	-2.5	-1.2	0.8	2.1
1325	6.9	1.6	-1.5	-1.5	-0.8	-4.6	-6.0	-4.9	-3.1	-7.2	-5.1	-2.6	-1.3	0.7	2.1
1326	6.9	1.6	-1.6	-1.6	-0.9	-4.8	-6.2	-5.1	-3.3	-7.3	-5.3	-2.8	-1.7	0.5	1.9
1327	7.0	1.5	-1.7	-1.7	-1.1	-5.0	-6.3	-5.3	-3.5	-7.4	-5.4	-3.0	-1.7	0.2	1.4
1328	7.0	1.5	-1.9	-1.8	-1.2	-5.0	-6.6	-5.4	-3.6	-7.8	-5.5	-3.2	-1.3	0.2	1.3
1329	6.9	1.4	-2.0	-1.9	-1.3	-5.1	-6.8	-5.4	-3.8	-8.1	-5.6	-3.3	-1.0	0.2	1.0
1330	6.5	1.1	-2.3	-2.0	-1.4	-5.2	-7.0	-5.4	-3.8	-8.4	-5.5	-3.3	-0.3	0.4	0.8
1331	6.1	0.9	-2.5	-2.1	-1.5	-5.3	-7.1	-5.5	-3.9	-8.5	-5.6	-3.3	-0.4	0.4	1.0
1332	5.9	0.7	-2.6	-2.3	-1.6	-5.5	-7.2	-5.6	-3.9	-8.6	-5.7	-3.4	-0.5	0.4	1.0
1333	5.8	0.6	-2.7	-2.4	-1.8	-5.5	-7.2	-5.7	-4.1	-8.5	-5.9	-3.6	-1.0	0.0	0.8
1334	5.7	0.5	-2.7	-2.5	-1.9	-5.6	-7.2	-5.9	-4.2	-8.5	-6.0	-3.7	-1.4	-0.1	0.7
1335	5.7	0.4	-2.8	-2.6	-2.0	-5.8	-7.4	-6.1	-4.3	-8.7	-6.2	-3.8	-1.6	-0.1	0.8
1336	5.7	0.4	-2.9	-2.7	-2.0	-6.0	-7.5	-6.2	-4.4	-8.8	-6.3	-3.8	-1.7	-0.2	0.8
1337	5.6	0.3	-3.0	-2.8	-2.1	-6.1	-7.5	-6.3	-4.5	-8.7	-6.4	-3.9	-2.2	-0.4	0.8
1338	5.4	0.2	-3.1	-3.1	-2.3	-6.0	-7.6	-6.5	-4.6	-8.9	-6.8	-4.1	-2.9	-0.6	0.9
1339	4.9	-0.1	-3.2	-3.3	-2.5	-6.1	-7.6	-6.7	-4.7	-8.8	-7.0	-4.2	-3.8	-0.9	1.1
1340	4.5	-0.4	-3.4	-3.5	-2.6	-6.2	-7.6	-6.8	-4.7	-8.7	-7.1	-4.2	-4.0	-0.9	1.1
1341	4.0	-0.7	-3.5	-3.6	-2.7	-6.2	-7.5	-6.7	-4.8	-8.6	-7.0	-4.3	-4.0	-1.1	0.9
1342	3.7	-0.9	-3.6	-3.7	-2.8	-6.3	-7.5	-6.7	-4.8	-8.5	-7.0	-4.3	-4.2	-1.3	0.7
1343	3.5	-1.0	-3.7	-3.8	-2.9	-6.3	-7.5	-6.7	-4.8	-8.5	-7.0	-4.3	-4.2	-1.3	0.6
1344	3.0	-1.2	-3.9	-3.9	-3.0	-6.2	-7.6	-6.7	-4.8	-8.7	-7.0	-4.4	-3.8	-1.2	0.6
1345	2.8	-1.3	-4.0	-3.9	-3.1	-6.0	-7.6	-6.7	-4.9	-8.9	-7.0	-4.5	-3.5	-1.2	0.4
1346	2.9	-1.2	-4.1	-3.9	-3.1	-6.1	-7.8	-6.7	-5.0	-9.1	-7.1	-4.6	-3.3	-1.2	0.1
1347	3.2	-1.3	-4.1	-4.0	-3.2	-6.7	-8.0	-6.9	-5.2	-9.1	-7.1	-4.6	-3.3	-1.3	0.0
1348	3.5	-1.5	-4.2	-4.0	-3.3	-7.3	-8.2	-7.0	-5.3	-9.0	-6.9	-4.6	-3.2	-1.5	-0.4
1349	3.6	-1.6	-4.2	-4.0	-3.3	-7.8	-8.4	-7.2	-5.4	-8.9	-6.8	-4.6	-3.0	-1.5	-0.5
1350	3.5	-1.7	-4.2	-4.1	-3.4	-7.9	-8.3	-7.2	-5.6	-8.7	-6.8	-4.7	-3.3	-1.8	-0.9
1351	3.1	-1.8	-4.3	-4.2	-3.5	-7.6	-8.3	-7.1	-5.6	-8.8	-6.9	-4.8	-3.3	-1.9	-1.0
1352	2.9	-1.7	-4.4	-4.2	-3.6	-7.2	-8.3	-7.1	-5.6	-9.1	-7.0	-5.0	-3.1	-1.9	-1.2
1353	3.0	-1.6	-4.5	-4.2	-3.7	-7.1	-8.5	-7.2	-5.7	-9.6	-7.3	-5.2	-3.0	-2.0	-1.3
1354	3.0	-1.5	-4.6	-4.3	-3.7	-6.9	-8.6	-7.3	-5.7	-10.1	-7.5	-5.4	-2.7	-1.9	-1.3
1355	3.0	-1.5	-4.7	-4.4	-3.7	-6.7	-8.7	-7.4	-5.8	-10.4	-7.7	-5.4	-2.7	-1.8	-1.1
1356	3.0	-1.4	-4.7	-4.5	-3.8	-6.6	-8.7	-7.5	-5.8	-10.5	-8.0	-5.5	-3.4	-1.9	-0.9
1357	2.8	-1.5	-4.6	-4.5	-3.8	-6.6	-8.6	-7.5	-5.8	-10.2	-8.0	-5.5	-3.9	-2.1	-0.9
1358	2.7	-1.6	-4.7	-4.5	-3.8	-6.6	-8.6	-7.4	-5.8	-10.3	-7.9	-5.6	-3.6	-2.1	-1.1
1359	2.6	-1.7	-4.9	-4.5	-3.9	-6.8	-8.9	-7.4	-5.9	-10.7	-7.8	-5.6	-2.5	-1.8	-1.4
1360	2.5	-1.8	-5.2	-4.6	-3.9	-7.0	-9.3	-7.5	-5.9	-11.3	-7.8	-5.5	-1.4	-1.3	-1.2
1361	2.5	-1.9	-5.4	-4.6	-4.0	-7.3	-9.7	-7.6	-5.9	-11.7	-7.8	-5.5	-0.6	-0.9	-1.2
1362	2.6	-2.1	-5.6	-4.7	-4.0	-7.6	-10.0	-7.7	-6.0	-11.9	-7.8	-5.5	-0.2	-0.7	-1.1
1363	2.4	-2.3	-5.9	-4.8	-4.1	-7.9	-10.3	-7.8	-6.0	-12.3	-7.8	-5.4	0.4	-0.4	-0.9
1364	2.3	-2.5	-6.0	-5.0	-4.1	-8.2	-10.4	-7.9	-6.1	-12.2	-7.8	-5.3	0.4	-0.2	-0.7
1365	2.1	-2.7	-6.0	-5.0	-4.1	-8.3	-10.3	-7.9	-5.9	-12.0	-7.7	-5.1	0.3	0.0	-0.3
1366	1.9	-2.8	-6.1	-5.0	-4.2	-8.4	-10.3	-7.9	-6.0	-11.9	-7.6	-5.2	0.2	-0.3	-0.7
1367	1.8	-3.0	-6.1	-5.0	-4.2	-8.6	-10.3	-7.8	-6.1	-11.7	-7.4	-5.2	0.5	-0.4	-1.0
1368	1.7	-3.1	-6.2	-5.0	-4.3	-8.8	-10.4	-7.7	-6.1	-11.7	-7.1	-5.1	1.5	-0.3	-1.4
1369	1.6	-3.2	-6.3	-4.9	-4.2	-8.9	-10.5	-7.6	-5.9	-11.8	-6.8	-4.9	2.3	0.2	-1.1
1370	1.5	-3.4	-6.3	-5.4	-4.4	-9.1	-10.5	-8.3	-6.2	-11.6	-7.9	-5.2	-1.1	-0.6	-0.3
1371	1.5	-3.4	-6.4	-5.6	-4.6	-9.3	-10.6	-8.5	-6.4	-11.7	-8.0	-5.4	-1.3	-0.9	-0.6
1372	1.7	-3.5	-6.5	-5.6	-4.7	-9.6	-10.9	-8.6	-6.6	-12.0	-8.0	-5.6	-0.7	-0.9	-1.0
1373	1.5	-3.6	-6.8	-5.6	-4.8	-9.5	-11.2	-8.5	-6.7	-12.5	-8.0	-5.7	0.3	-0.7	-1.3
1374	1.5	-3.6	-7.0	-5.7	-4.8	-9.6	-11.5	-8.6	-6.7	-13.0	-8.1	-5.7	1.0	-0.4	-1.3
1375	1.5	-3.7	-7.1	-5.7	-5.5	-9.8	-11.7	-8.6	-7.7	-13.3	-8.0	-6.9	1.7	-2.2	-4.8

High-Water Shoreline Position (UTM Zone 18, NAD 1983)

Transect #	1839/42 UTM-x (m)	1839/42 UTM-y (m)	1864/86 UTM-x (m)	1864/86 UTM-y (m)	1899 UTM-x (m)	1899 UTM-y (m)	1932 UTM-x (m)	1932 UTM-y (m)	1950/51 UTM-x (m)	1950/51 UTM-y (m)	1977 UTM-x (m)	1977 UTM-y (m)
1295	4379299	565451.5	4379227	565575.1	4379239	565555.0	4379224	565579.8	4379221	565585.9	4379216	565594.2
1296	4379256	565427.4	4379185	565548.5	4379194	565531.6	4379184	565549.8	4379178	565560.0	4379176	565563.3
1297	4379212	565402.2	4379141	565523.9	4379153	565504.1	4379141	565524.6	4379133	565536.9	4379136	565531.7
1298	4379170	565375.1	4379097	565500.8	4379110	565478.4	4379098	565498.4	4379091	565511.2	4379097	565499.4
1299	4379130	565344.4	4379052	565478.5	4379065	565456.6	4379058	565468.4	4379048	565484.8	4379057	565470.0
1300	4379088	565318.0	4379007	565456.1	4379018	565437.4	4379016	565441.1	4379006	565457.4	4379015	565442.4
1301	4379045	565291.9	4378961	565435.8	4378974	565414.1	4378974	565413.4	4378966	565427.6	4378971	565419.1
1302	4379003	565265.1	4378915	565415.6	4378931	565388.5	4378931	565387.0	4378924	565399.5	4378919	565407.6
1303	4378959	565241.7	4378867	565397.7	4378889	565361.3	4378890	565359.6	4378882	565372.6	4378881	565373.5
1304	4378913	565220.0	4378819	565381.2	4378846	565334.3	4378849	565330.6	4378841	565344.5	4378844	565339.3
1305	4378868	565198.7	4378774	565359.6	4378802	565311.8	4378808	565301.4	4378798	565318.5	4378805	565306.7
1306	4378822	565178.4	4378730	565335.8	4378757	565289.4	4378767	565272.0	4378756	565290.6	4378766	565274.3
1307	4378777	565156.6	4378682	565317.7	4378711	565269.0	4378722	565250.6	4378712	565266.4	4378721	565250.9
1308	4378729	565140.0	4378635	565299.4	4378667	565244.7	4378681	565221.4	4378665	565248.0	4378673	565235.1
1309	4378683	565119.1	4378588	565281.1	4378625	565218.3	4378641	565190.3	4378636	565199.4	4378633	565203.6
1310	4378636	565099.4	4378541	565261.8	4378582	565191.9	4378601	565159.1	4378596	565168.6	4378597	565165.9
1311	4378591	565078.1	4378495	565242.1	4378539	565166.0	4378558	565134.6	4378555	565138.9	4378559	565133.0
1312	4378547	565054.0	4378449	565222.3	4378497	565140.1	4378518	565103.4	4378514	565110.9	4378520	565100.6
1313	4378504	565028.3	4378404	565199.8	4378454	565113.2	4378478	565073.4	4378471	565085.2	4378481	565067.8
1314	4378461	565002.4	4378359	565176.9	4378412	565086.1	4378436	565045.5	4378425	565065.2	4378441	565037.3
1315	4378418	564976.9	4378314	565155.8	4378370	565059.3	4378393	565019.8	4378379	565045.0	4378398	565011.3
1316	4378375	564951.3	4378268	565134.7	4378328	565032.4	4378366	564967.3	4378332	565024.8	4378354	564988.0
1317	4378334	564922.8	4378222	565114.8	4378285	565007.2	4378340	564913.0	4378348	564899.3	4378323	564941.2
1318	4378286	564906.3	4378175	565095.2	4378240	564985.0	4378303	564876.9	4378311	564863.3	4378287	564904.7
1319	4378240	564886.6	4378129	565075.5	4378194	564964.2	4378263	564847.1	4378270	564834.9	4378251	564867.6
1320	4378191	564869.9	4378083	565055.0	4378147	564946.0	4378225	564812.6	4378234	564797.2	4378213	564833.5
1321	4378144	564851.7	4378036	565036.3	4378098	564930.5	4378185	564782.1	4378198	564760.2	4378175	564799.7
1322	4378098	564831.6	4377989	565017.4	4378049	564914.3	4378149	564743.9	4378159	564726.8	4378137	564764.2
1323	4378053	564810.0	4377943	564997.0	4378003	564895.2	4378111	564711.2	4378121	564693.0	4378098	564733.2
1324	4378008	564787.7	4377897	564976.2	4377958	564872.1	4378073	564676.8	4378084	564658.2	4378055	564706.3
1325	4377963	564765.9	4377851	564956.3	4377914	564848.5	4378034	564644.6	4378046	564623.8	4378017	564672.6
1326	4377916	564745.6	4377804	564937.3	4377870	564825.5	4377991	564618.6	4378006	564592.6	4377980	564637.3
1327	4377870	564726.3	4377757	564919.3	4377824	564803.8	4377949	564591.7	4377964	564565.9	4377944	564599.6
1328	4377822	564709.0	4377709	564901.4	4377778	564784.0	4377908	564561.8	4377920	564541.0	4377903	564570.9
1329	4377774	564692.5	4377663	564882.4	4377732	564763.2	4377868	564531.6	4377877	564516.5	4377863	564540.8
1330	4377723	564680.3	4377618	564858.8	4377690	564736.7	4377830	564497.8	4377832	564493.3	4377821	564512.7
1331	4377673	564666.9	4377574	564836.3	4377646	564712.5	4377788	564470.8	4377792	564464.0	4377778	564487.1
1332	4377624	564651.5	4377528	564815.2	4377603	564688.0	4377745	564444.2	4377750	564436.0	4377737	564458.8
1333	4377576	564635.0	4377482	564795.0	4377558	564665.8	4377699	564424.5	4377708	564408.2	4377698	564426.4
1334	4377528	564617.7	4377436	564774.9	4377513	564643.5	4377655	564401.3	4377667	564379.3	4377658	564396.1
1335	4377481	564598.8	4377389	564755.8	4377468	564621.2	4377613	564372.8	4377628	564348.2	4377617	564367.2
1336	4377434	564580.8	4377341	564738.0	4377423	564599.0	4377570	564348.2	4377585	564321.6	4377574	564341.1
1337	4377385	564564.5	4377294	564720.5	4377377	564578.4	4377523	564329.7	4377543	564295.3	4377532	564313.4
1338	4377334	564552.8	4377247	564700.9	4377329	564560.8	4377478	564307.0	4377504	564262.3	4377492	564283.0
1339	4377281	564544.2	4377201	564680.6	4377284	564539.5	4377431	564288.3	4377465	564229.8	4377451	564254.3
1340	4377228	564535.9	4377156	564659.8	4377240	564515.4	4377385	564267.3	4377422	564204.7	4377407	564231.1
1341	4377176	564526.0	4377111	564636.4	4377196	564491.4	4377340	564245.8	4377377	564182.9	4377365	564203.3
1342	4377126	564511.9	4377067	564613.2	4377152	564467.3	4377294	564225.1	4377333	564159.4	4377323	564175.8
1343	4377078	564495.2	4377022	564590.5	4377108	564443.5	4377250	564201.7	4377288	564136.3	4377279	564151.4
1344	4377028	564482.4	4376979	564564.9	4377064	564419.6	4377209	564173.0	4377244	564113.6	4377236	564126.4
1345	4376981	564463.4	4376936	564539.6	4377018	564399.7	4377167	564146.2	4377199	564091.4	4377194	564100.1
1346	4376936	564441.8	4376889	564521.3	4376972	564379.7	4377124	564119.8	4377154	564068.5	4377152	564071.4
1347	4376889	564421.8	4376838	564509.8	4376929	564353.8	4377081	564095.0	4377111	564043.3	4377111	564043.0
1348	4376842	564402.9	4376787	564498.2	4376886	564328.2	4377036	564073.1	4377064	564024.1	4377069	564015.9
1349	4376795	564384.4	4376737	564484.5	4376843	564303.2	4376992	564049.3	4377019	564003.0	4377025	563991.6
1350	4376747	564367.4	4376691	564463.9	4376799	564279.2	4376944	564031.7	4376974	563981.0	4376985	563961.0
1351	4376699	564351.6	4376648	564438.3	4376752	564260.7	4376899	564009.5	4376929	563957.6	4376943	563934.5
1352	4376651	564333.4	4376604	564414.5	4376703	564245.7	4376855	563985.2	4376883	563937.6	4376899	563910.4
1353	4376606	564312.3	4376557	564394.9	4376654	564230.6	4376814	563956.6	4376841	563910.6	4376859	563880.1
1354	4376559	564293.3	4376510	564376.1	4376604	564215.6	4376773	563928.5	4376798	563885.9	4376815	563855.5
1355	4376512	564274.1	4376465	564355.5	4376557	564198.5	4376730	563902.7	4376755	563860.2	4376770	563834.0
1356	4376466	564254.1	4376418	564335.8	4376509	564181.2	4376683	563883.3	4376714	563830.3	4376726	563810.4
1357	4376420	564234.1	4376374	564312.6	4376464	564158.1	4376635	563866.3	4376670	563806.4	4376683	563784.7
1358	4376374	564213.8	4376331	564287.3	4376420	564134.6	4376592	563841.5	4376624	563785.9	4376639	563760.2
1359	4376325	564198.2	4376283	564269.0	4376376	564111.1	4376554	563806.7	4376577	563768.4	4376596	563735.9
1360	4376277	564181.3	4376237	564250.1	4376332	564087.6	4376520	563767.0	4376532	563745.9	4376549	563717.2
1361	4376230	564163.1	4376188	564233.4	4376287	564064.3	4376482	563731.9	4376487	563723.0	4376503	563696.1
1362	4376181	564147.3	4376139	564218.0	4376243	564040.7	4376442	563702.2	4376443	563699.3	4376458	563673.5
1363	4376131	564133.1	4376093	564199.2	4376200	564016.1	4376404	563667.0	4376401	563673.3	4376413	563652.0
1364	4376081	564120.4	4376044	564182.7	4376156	563991.6	4376360	563642.9	4376356	563649.7	4376366	563633.4
1365	4376033	564103.3	4375999	564161.2	4376112	563967.9	4376313	563625.6	4376310	563630.6	4376314	563623.9
1366	4375984	564087.5	4375953	564140.9	4376068	563944.9	4376266	563606.5	4376264	563610.0	4376274	563593.4
1367	4375936	564071.3	4375907	564120.7	4376025	563919.4	4376219	563587.6	4376215	563594.8	4376228	563571.6
1368	4375887	564054.7	4375861	564100.6	4375981	563894.8	4376176	563561.3	4376163	563584.2	4376182	563551.3
1369	4375839	564037.7	4375814	564081.7	4375936	563873.4	4376133	563536.8	4376112	563572.5	4376127	563546.2
1370	4375790	564022.8	4375766	564064.6	4375890	563852.1	4376083	563522.8	4376093	563506.1	4376097	563498.9
1371	4375742	564005.4	4375718	564048.0	4375845	563830.5	4376039	563498.7	4376051	563477.9	4376059	563464.2
1372	4375695	563986.7	4375669	564032.5	4375800	563809.0	4376000	563466.8	4376007	563455.3	4376021	563431.2
1373	4375648	563968.3	4375625	564008.8	4375754	563787.2	4375964	563430.0	4375961	563435.2	4375979	563404.6
1374	4375602	563949.1	4375578	563990.3	4375709	563765.5	4375926	563395.6	4375917	563411.1	4375935	563380.4
1375	4375555	563929.1	4375531	563971.0	4375664	563743.0	4375887	563363.3	4375872	563389.3	4375937	563277.4

High-Water Shoreline Position Change Rate

Transect #	1839/42 to 1864/86 (m/yr)	1839/42 to 1899 (m/yr)	1839/42 to 1932 (m/yr)	1839/42 to 1950/51 (m/yr)	1839/42 to 1977 (m/yr)	1864/86 to 1899 (m/yr)	1864/86 to 1932 (m/yr)	1864/86 to 1950/51 (m/yr)	1864/86 to 1977 (m/yr)	1899 to 1932 (m/yr)	1899 to 1950/51 (m/yr)	1899 to 1977 (m/yr)	1932 to 1950/51 (m/yr)	1932 to 1977 (m/yr)	1950/51 to 1977 (m/yr)
1376	1.4	-3.8	-7.3	-5.7	-5.7	-9.9	-12.0	-8.7	-7.8	-13.6	-8.0	-7.1	2.2	-2.3	-5.3
1377	1.5	-3.8	-7.4	-5.7	-5.8	-10.2	-12.1	-8.7	-8.1	-13.7	-7.9	-7.3	2.5	-2.7	-6.2
1378	1.4	-3.9	-7.5	-5.7	-6.0	-10.2	-12.2	-8.7	-8.2	-13.9	-7.9	-7.5	3.1	-2.9	-6.9
1379	1.6	-3.8	-7.5	-5.7	-6.0	-10.1	-12.3	-8.7	-8.4	-14.1	-7.9	-7.7	3.4	-3.1	-7.4
1380	1.8	-3.7	-7.4	-5.7	-6.1	-10.2	-12.3	-8.8	-8.5	-14.1	-8.0	-7.9	3.2	-3.3	-7.7
1381	2.1	-3.7	-7.4	-5.7	-6.1	-10.5	-12.5	-8.9	-8.6	-14.1	-8.0	-8.0	3.1	-3.5	-7.8
1382	2.6	-3.5	-7.3	-5.6	-6.1	-10.8	-12.6	-9.0	-8.7	-14.0	-8.1	-8.0	2.8	-3.7	-7.9
1383	3.1	-3.3	-7.2	-5.6	-6.0	-11.0	-12.7	-9.1	-8.8	-14.1	-8.1	-8.1	2.8	-3.7	-8.0
1384	4.0	-2.8	-7.1	-5.3	-5.9	-11.0	-13.0	-9.2	-9.0	-14.6	-8.2	-8.2	3.5	-3.6	-8.3
1385	5.4	-2.1	-6.9	-5.0	-5.7	-11.1	-13.4	-9.3	-9.1	-15.4	-8.3	-8.4	4.6	-3.2	-8.5
1386						-10.9	-13.9	-9.2	-9.1	-16.3	-8.2	-8.5	6.6	-2.8	-9.0
1387						-11.0	-14.4	-9.1	-9.2	-17.2	-8.2	-8.6	8.4	-2.3	-9.4
1388						-11.2	-15.0	-9.1	-9.3	-18.1	-8.1	-8.7	10.3	-1.8	-9.8
1389						-11.5	-15.6	-9.2	-9.4	-18.9	-8.0	-8.7	12.0	-1.3	-10.1
1390						-11.8	-16.2	-9.4	-9.5	-19.7	-8.1	-8.8	13.3	-0.7	-10.1
1391						-11.8	-16.7	-9.5	-9.6	-20.6	-8.3	-8.9	14.3	-0.2	-9.9
1392						-12.1	-17.2	-9.6	-9.7	-21.3	-8.3	-8.8	15.5	0.4	-9.7
1393						-12.5		-9.9	-9.7		-8.5	-8.7			-9.1
1394						-13.0		-10.1	-9.7		-8.5	-8.6			-8.6
1395						-13.5		-10.2	-9.7		-8.5	-8.4			-8.3
1396						-13.8		-10.3	-9.7		-8.4	-8.3			-8.1
1397						-14.2		-10.3	-9.7		-8.3	-8.2			-8.1
1398						-14.4		-10.4	-9.8		-8.2	-8.1			-8.0
1399						-14.6		-10.4	-9.7		-8.2	-8.1			-7.9
1400						-14.9		-10.4	-9.7		-8.1	-7.9			-7.7
1401						-15.1		-10.5	-9.7		-8.0	-7.8			-7.4
1402						-15.1		-10.6	-9.6		-8.2	-7.7			-6.9
1403						-15.0		-10.7	-9.6		-8.5	-7.7			-6.1
1404						-15.0		-10.9	-9.5		-8.8	-7.6			-5.3
1405						-15.0		-11.1	-9.4		-9.0	-7.4			-4.3
1406						-15.0		-11.3	-9.3		-9.3	-7.4			-3.7
1407						-15.2		-11.5	-9.4		-9.5	-7.4			-3.4
1408						-15.3		-11.5	-9.4		-9.5	-7.4			-3.4
1409						-15.2		-11.4	-9.5		-9.4	-7.5			-3.8
1410						-14.9		-11.3	-9.5		-9.4	-7.6			-4.3
1411						-14.7		-11.3	-9.5		-9.5	-7.7			-4.4
1412						-14.5		-11.4	-9.5		-9.8	-7.8			-4.0
1413						-14.4		-11.6	-9.5		-10.1	-7.8			-3.3
1414						-14.3	-28.6	-11.8	-9.5	-40.3	-10.6	-7.8	44.0	16.0	-2.6
1415						-14.3	-27.9	-12.0	-9.5	-39.1	-10.8	-7.9	40.9	15.0	-2.3
1416						-14.4	-24.6	-12.2	-9.6	-33.1	-11.1	-7.9	29.1	10.5	-1.9
1417						-14.4	-24.0	-12.6	-9.6	-31.9	-11.6	-7.9	25.6	9.6	-1.0
1418						-14.3	-23.2	-13.1	-9.6	-30.5	-12.4	-7.9	20.8	8.6	0.5
1419						-14.4	-22.5	-13.5	-9.5	-29.2	-13.0	-7.9	16.8	7.8	1.8
1420						-14.5	-21.9	-13.8	-9.5	-27.9	-13.5	-7.8	13.0	6.9	2.9
1421						-14.8	-21.4	-14.6	-9.6	-26.8	-14.6	-7.8	7.9	6.2	5.1
1422						-15.0	-20.7		-9.6	-25.4		-7.8		5.1	
1423	40.3	14.9	1.5		2.0	-15.3	-19.3		-9.7	-22.5		-7.7		3.1	
1424	39.1	14.0	1.2		1.6	-15.6	-19.0		-9.8	-21.8		-7.7		2.6	
1425	34.3	11.3	-0.4		0.5	-15.8	-18.8		-9.8	-21.3		-7.7		2.2	
1426	31.9	10.0	-1.0		-0.1	-16.0	-18.6		-9.9	-20.8		-7.8		1.7	
1427	30.5	9.2	-1.4		-0.5	-16.1	-18.4		-10.0	-20.3		-7.8		1.3	
1428	29.4	8.5	-1.6		-0.8	-16.2	-18.1		-10.0	-19.7		-7.9		0.8	
1429	28.5	8.0	-1.8		-1.0	-16.3	-18.0		-10.0	-19.5		-7.9		0.6	
1430	27.9	7.6	-2.0		-1.2	-16.3	-18.0		-10.0	-19.3		-7.9		0.6	
1431	27.0	7.1	-2.3		-1.4	-16.4	-18.0		-10.1	-19.3		-7.9		0.4	
1432	26.0	6.6	-2.6		-1.7	-16.5	-17.9		-10.1	-19.1		-7.9		0.4	
1433	24.6	5.8	-3.0		-2.0	-16.4	-17.7		-10.0	-18.8		-7.9		0.2	
1434	23.1	5.1	-3.4		-2.3	-16.1	-17.5		-10.0	-18.6		-7.8		0.1	
1435	21.6	4.4	-3.8		-2.6	-15.9	-17.3		-9.9	-18.5		-7.9		-0.1	
1436	20.4	3.9	-4.1		-2.9	-15.6	-17.2		-10.0	-18.5		-8.1		-0.4	
1437	19.8	3.7	-4.2		-3.1	-15.4	-17.0		-10.0	-18.3		-8.2		-0.8	
1438	19.4	3.6	-4.2		-3.2	-15.1	-16.8		-10.1	-18.2		-8.4		-1.2	
1439	19.6	3.8	-4.0		-3.2	-14.8	-16.6		-10.2	-18.1		-8.6		-1.6	
1440	20.1	4.3	-3.7		-3.2	-14.4	-16.4		-10.2	-18.1		-8.8		-2.0	
1441	20.7	4.8	-3.4		-3.1	-14.0	-16.3		-10.3	-18.1		-9.0		-2.3	
1442	21.0	5.1	-3.2		-3.0	-13.7	-16.2		-10.3	-18.2		-9.2		-2.6	
1443	21.2	5.4	-3.1		-3.0	-13.3	-16.0		-10.4	-18.2		-9.4		-3.0	
1444	20.9	5.7	-2.9		-3.1	-12.3	-15.6		-10.4	-18.4		-9.8		-3.5	
1445	19.3	6.0	-2.8		-3.3	-9.9	-14.6		-10.2	-18.5		-10.3		-4.3	
1446	19.2	6.3	-2.7		-3.8	-9.1	-14.5		-10.9	-18.8		-11.5		-6.1	
1447	19.4	6.7	-2.6			-8.5	-14.3			-19.1					
1448	19.5	6.9	-2.5			-8.0	-14.2			-19.3					
1449	18.7	7.2	-2.4			-6.5	-13.7			-19.5					
1450	18.0	7.3	-2.3			-5.3	-13.1			-19.5					
1451	17.1	7.4	-2.2			-4.1	-12.6			-19.5					
1452	16.4	7.5	-2.4			-3.1	-12.4			-19.9					
1453	15.5	7.6	-2.7			-1.8	-12.4			-21.1					
1454	14.4	7.6	-2.9			-0.4	-12.0			-21.6					
1455	13.2	7.6	-3.1			1.0	-11.7			-22.1					
1456	11.8	7.6	-3.7			2.6	-12.0			-24.0					

High-Water Shoreline Position (UTM Zone 18, NAD 1983)

Transect #	1839/42 UTM-x (m)	1839/42 UTM-y (m)	1864/86 UTM-x (m)	1864/86 UTM-y (m)	1899 UTM-x (m)	1899 UTM-y (m)	1932 UTM-x (m)	1932 UTM-y (m)	1950/51 UTM-x (m)	1950/51 UTM-y (m)	1977 UTM-x (m)	1977 UTM-y (m)
1376	4375509	563909.6	4375486	563949.0	4375621	563717.4	4375848	563329.9	4375828	563364.0	4375901	563240.9
1377	4375464	563886.9	4375440	563928.7	4375579	563691.8	4375806	563303.0	4375783	563342.0	4375868	563197.3
1378	4375419	563865.7	4375395	563905.6	4375534	563668.7	4375766	563273.3	4375738	563320.9	4375832	563160.6
1379	4375376	563840.1	4375350	563883.9	4375488	563647.8	4375723	563247.7	4375692	563300.3	4375793	563127.3
1380	4375333	563814.8	4375304	563863.9	4375444	563625.3	4375678	563225.2	4375649	563274.9	4375754	563096.1
1381	4375290	563788.6	4375257	563845.8	4375400	563600.9	4375634	563200.8	4375606	563248.6	4375713	563065.8
1382	4375252	563754.4	4375210	563826.6	4375358	563574.4	4375591	563176.6	4375565	563219.5	4375674	563034.4
1383	4375215	563719.6	4375164	563805.0	4375314	563549.9	4375549	563148.4	4375523	563192.3	4375633	563004.8
1384	4375184	563672.8	4375119	563784.5	4375269	563527.8	4375512	563112.3	4375480	563166.7	4375594	562973.4
1385	4375160	563614.8	4375073	563763.6	4375224	563506.1	4375480	563068.3	4375438	563140.2	4375553	562943.2
1386			4375029	563740.4	4375178	563485.5	4375450	563020.7	4375390	563123.7	4375513	562913.3
1387			4374982	563720.1	4375132	563464.0	4375419	562974.2	4375343	563104.3	4375472	562884.7
1388			4374936	563700.8	4375088	563440.5	4375389	562926.5	4375296	563086.2	4375430	562856.9
1389			4374887	563685.5	4375043	563418.1	4375359	562880.0	4375249	563066.8	4375387	562831.2
1390			4374838	563670.8	4374998	563396.5	4375327	562834.5	4375206	563041.5	4375344	562805.6
1391			4374790	563653.1	4374951	563377.7	4375295	562790.6	4375165	563013.1	4375300	562781.8
1392			4374744	563633.0	4374909	563350.3	4375265	562743.3	4375124	562983.7	4375256	562758.0
1393			4374700	563609.1	4374870	563318.7			4375089	562945.2	4375214	562732.0
1394			4374656	563585.1	4374834	563281.8			4375054	562906.0	4375172	562704.7
1395			4374612	563561.8	4374796	563247.0			4375014	562874.2	4375127	562681.3
1396			4374568	563537.8	4374756	563216.1			4374974	562844.8	4375084	562657.0
1397			4374523	563515.6	4374716	563185.2			4374930	562820.1	4375040	562632.3
1398			4374478	563493.0	4374675	563157.2			4374887	562795.1	4374996	562609.1
1399			4374435	563468.0	4374633	563128.8			4374844	562769.5	4374952	562585.3
1400			4374391	563443.4	4374594	563097.3			4374802	562741.9	4374907	562562.7
1401			4374348	563418.5	4374554	563067.3			4374760	562715.2	4374861	562541.9
1402			4374304	563393.7	4374510	563042.9			4374721	562682.3	4374815	562521.7
1403			4374261	563368.3	4374466	563018.6			4374685	562644.9	4374768	562502.6
1404			4374219	563341.7	4374424	562991.2			4374650	562606.1	4374722	562482.4
1405			4374179	563311.7	4374384	562961.8			4374616	562564.8	4374675	562463.7
1406			4374136	563285.7	4374340	562936.8			4374581	562526.5	4374631	562440.3
1407			4374092	563262.0	4374299	562909.0			4374543	562491.3	4374589	562412.8
1408			4374049	563236.2	4374257	562880.4			4374502	562463.7	4374548	562384.4
1409			4374009	563205.7	4374216	562852.6			4374459	562437.2	4374511	562347.9
1410			4373971	563171.9	4374174	562824.7			4374417	562410.3	4374476	562309.9
1411			4373932	563138.7	4374133	562796.4			4374378	562377.3	4374438	562275.8
1412			4373893	563107.4	4374090	562769.7			4374342	562340.1	4374396	562247.4
1413			4373852	563078.7	4374047	562744.3			4374309	562298.2	4374354	562220.8
1414			4373811	563048.7	4374006	562716.6	4374678	561568.1	4374278	562251.3	4374314	562190.3
1415			4373769	563021.4	4373965	562687.8	4374617	561574.7	4374244	562210.6	4374275	562157.3
1416			4373728	562993.3	4373924	562658.8	4374475	561717.7	4374210	562169.7	4374236	562126.3
1417			4373686	562965.7	4373883	562629.2	4374415	561721.7	4374182	562118.9	4374196	562094.9
1418			4373648	562931.9	4373843	562597.9	4374352	561730.2	4374162	562053.3	4374156	562065.0
1419			4373609	562899.5	4373806	562563.1	4374292	561732.5	4374140	561992.9	4374116	562034.4
1420			4373570	562866.2	4373769	562527.3	4374234	561732.9	4374116	561934.6	4374077	562001.5
1421			4373531	562834.1	4373733	562490.4	4374180	561725.9	4374109	561848.6	4374039	561966.7
1422			4373492	562802.8	4373696	562453.5	4374119	561731.5			4374003	561930.3
1423	4374104	561658.7	4373452	562772.3	4373661	562415.2	4374036	561773.8			4373966	561894.1
1424	4374043	561663.2	4373412	562741.5	4373625	562377.5	4373988	561756.9			4373930	561856.7
1425	4373926	561764.2	4373372	562710.3	4373588	562341.7	4373943	561736.1			4373893	561820.4
1426	4373848	561798.4	4373332	562679.0	4373551	562306.3	4373897	561715.3			4373858	561781.3
1427	4373787	561804.7	4373293	562647.9	4373513	562272.0	4373851	561694.4			4373822	561744.6
1428	4373729	561804.4	4373253	562616.8	4373474	562238.7	4373803	561677.8			4373784	561710.1
1429	4373674	561799.1	4373213	562586.6	4373435	562207.0	4373760	561652.9			4373745	561677.7
1430	4373623	561786.5	4373173	562555.9	4373396	562175.0	4373718	561624.6			4373706	561646.1
1431	4373570	561779.1	4373133	562525.1	4373357	562143.0	4373678	561594.7			4373668	561611.8
1432	4373513	561777.0	4373093	562494.2	4373318	562110.6	4373636	561567.1			4373628	561581.0
1433	4373453	561780.2	4373056	562458.8	4373279	562077.6	4373593	561541.6			4373589	561548.8
1434	4373393	561783.6	4373020	562420.2	4373241	562044.3	4373551	561514.2			4373550	561516.4
1435	4373334	561786.3	4372985	562381.5	4373202	562011.4	4373511	561483.6			4373513	561480.7
1436	4373280	561779.6	4372949	562343.8	4373162	561980.1	4373470	561454.2			4373480	561438.1
1437	4373235	561757.4	4372915	562304.1	4373125	561945.6	4373429	561425.2			4373448	561393.9
1438	4373193	561729.5	4372879	562265.2	4373085	561913.6	4373389	561395.3			4373415	561350.1
1439	4373160	561688.0	4372843	562227.8	4373045	561882.8	4373347	561367.4			4373385	561303.9
1440	4373133	561634.9	4372808	562188.8	4373005	561852.4	4373306	561338.4			4373352	561260.4
1441	4373108	561578.3	4372774	562148.5	4372966	561821.3	4373267	561307.0			4373319	561217.1
1442	4373079	561528.0	4372739	562108.8	4372926	561789.6	4373229	561272.2			4373288	561171.4
1443	4373048	561482.3	4372705	562068.5	4372886	561758.7	4373190	561239.8			4373259	561123.0
1444	4373016	561438.0	4372679	562014.4	4372846	561728.8	4373152	561206.0			4373231	561070.8
1445	4372983	561395.5	4372671	561928.8	4372806	561698.9	4373115	561170.7			4373213	561003.5
1446	4372951	561352.3	4372639	561883.4	4372764	561670.8	4373078	561134.2			4373217	560898.0
1447	4372921	561303.9	4372607	561840.3	4372723	561642.5	4373041	561098.6				
1448	4372888	561260.7	4372573	561799.2	4372682	561613.7	4373004	561063.2				
1449	4372854	561219.7	4372552	561736.6	4372641	561584.4	4372966	561029.6				
1450	4372818	561183.2	4372527	561679.7	4372600	561555.2	4372926	560999.3				
1451	4372780	561149.0	4372503	561622.1	4372559	561525.7	4372884	560971.5				
1452	4372740	561117.5	4372475	561570.7	4372517	561498.7	4372850	560930.8				
1453	4372701	561085.7	4372451	561513.5	4372475	561471.8	4372826	560872.2				
1454	4372661	561055.2	4372429	561451.5	4372434	561442.8	4372794	560828.3				
1455	4372621	561025.3	4372407	561389.7	4372393	561413.6	4372763	560783.0				
1456	4372580	560995.9	4372388	561322.8	4372353	561383.4	4372754	560699.2				

	High-Water Shoreline Position Change Rate														
	1839/42 to	1839/42 to	1839/42 to	1839/42 to	1839/42 to	1864/86 to	1864/86 to	1864/86 to	1864/86 to	1899 to	1899 to	1899 to	1932 to	1932 to	1950/51 to
Transect #	1864/86 (m/yr)	1899 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1899 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1977 (m/yr)
1457	10.4	7.6				4.4									
1458	8.3	7.6				6.7									
1459	5.2	7.5				10.3									
1460		7.4													
1461		7.2													
1462		7.0													
1463		7.0													
1464		7.0													
1465		7.0													
1466		6.8													
1467		6.9													
1468		6.9													
1469		6.7													
1470		6.4													
1471		6.1													
1472		5.8													
1473		5.6													
1474		5.4													
1475		5.2													
1476		4.9													
1477		4.4													
1478		4.1													
1479		3.8													
1480		3.5													
1481		3.0													
1482		2.4													
1483		1.4													
1484		0.8													
1485		-0.7													
1486		-2.1													
1487		-2.8													
1488		-3.5													
1489		-3.8													
1490		-4.8													
1491		-6.2													
Brigantine Inlet															
1492															
1493															
1494															
1495															
1496															
1497															
1498															
1499															
1500															
1501		-7.3			-4.3							-2.1			
1502		-6.4			-3.8							-1.9			
1503		-5.1			-3.4							-2.1			
1504		-3.8			-2.4							-1.4			
1505		-12.8			-1.9							6.2			
1506		-13.4			-1.1							8.1			
1507		-0.3			-0.9							-1.4			
1508		-0.2			-0.8							-1.2			
1509	-27.3	0.0			-0.5	17.8			4.9			-0.9			
1510	-22.0	0.0			-0.2	14.5			4.2			-0.4			
1511	-19.9	0.0			-0.2	13.1			3.8			-0.4			
1512	-17.4	-0.2	-10.4	-7.5	-0.3	11.2	-8.1	-4.9	3.2	-28.5	-15.9	-0.4	7.0	20.2	28.9
1513	-10.4	-0.3	-9.2	-7.1	-0.3	6.3	-8.8	-6.3	1.7	-24.7	-14.9	-0.3	3.2	17.6	27.1
1514	-9.6	-0.4	-7.4	-6.6	-0.3	5.7	-6.6	-5.8	1.6	-19.7	-13.7	-0.3	-2.8	14.0	25.1
1515	-9.4	-0.5	-6.1	-6.2	-0.4	5.3	-4.9	-5.3	1.4	-15.8	-12.7	-0.3	-6.9	11.1	23.0
1516	-10.3	-0.6	-5.3	-5.6	-0.4	5.8	-3.7	-4.4	1.6	-13.7	-11.4	-0.3	-7.2	9.5	20.6
1517	-10.5	-0.7	-4.8	-5.0	-0.5	5.8	-2.9	-3.6	1.5	-12.2	-10.0	-0.4	-5.9	8.2	17.6
1518	-9.8	-0.8	-4.6	-4.5	-0.6	5.2	-2.8	-3.0	1.3	-11.3	-8.7	-0.5	-3.8	7.5	15.0
1519	-9.6	-0.9	-4.4	-3.8	-0.6	4.8	-2.6	-2.3	1.2	-10.5	-7.2	-0.5	-1.2	6.9	12.2
1520	-9.4	-1.1	-4.2	-3.5	-0.7	4.4	-2.5	-1.9	1.0	-9.7	-6.1	-0.5	0.4	6.3	10.3
1521	-9.6	-1.4	-4.2	-3.2	-0.8	4.0	-2.3	-1.5	0.9	-9.0	-5.3	-0.4	1.5	5.9	8.8
1522	-9.4	-1.6	-4.1	-3.0	-0.9	3.6	-2.3	-1.3	0.8	-8.5	-4.7	-0.4	2.2	5.5	7.7
1523	-9.2	-1.6	-3.8	-2.8	-0.9	3.3	-2.0	-1.1	0.8	-7.7	-4.2	-0.4	2.4	5.0	6.7
1524	-9.1	-1.8	-3.7	-2.7	-1.0	2.9	-1.9	-1.0	0.7	-7.1	-3.7	-0.3	2.6	4.6	6.0
1525	-9.8	-2.4	-3.8	-2.7	-1.2	2.5	-1.8	-0.8	0.6	-6.4	-3.1	-0.3	3.0	4.2	5.1
1526	-10.6	-2.9	-4.0	-2.8	-1.4	2.2	-1.8	-0.7	0.5	-5.9	-2.6	-0.3	3.4	3.9	4.2
1527	-11.0	-3.3	-4.1	-2.8	-1.6	1.8	-1.8	-0.6	0.3	-5.5	-2.3	-0.3	3.6	3.5	3.5
1528	-11.2	-3.6	-4.1	-2.8	-1.7	1.5	-1.7	-0.6	0.2	-5.0	-1.9	-0.3	3.7	3.2	2.8
1529	-11.5	-3.8	-4.1	-2.8	-1.8	1.2	-1.6	-0.5	0.2	-4.6	-1.6	-0.2	3.8	3.0	2.4
1530	-11.5	-4.1	-4.2	-2.8	-1.9	0.7	-1.7	-0.5	0.1	-4.3	-1.3	-0.2	4.1	2.8	1.9
1531	-11.5	-4.3	-4.2	-2.8	-1.9	0.4	-1.7	-0.5	0.0	-4.0	-1.2	-0.2	4.0	2.6	1.7
1532	-11.4	-4.5	-4.2	-2.9	-2.0	0.0	-1.8	-0.6	-0.1	-3.8	-1.0	-0.2	4.1	2.5	1.4
1533	-11.1	-4.7	-4.3	-2.9	-2.1	-0.5	-2.0	-0.7	-0.3	-3.6	-0.8	-0.2	4.2	2.3	1.1
1534	-11.3	-4.9	-4.3	-3.0	-2.2	-0.7	-2.0	-0.8	-0.3	-3.4	-0.8	-0.2	3.8	2.2	1.1
1535	-11.2	-5.0	-4.4	-3.1	-2.2	-1.0	-2.1	-0.9	-0.4	-3.3	-0.9	-0.1	3.6	2.2	1.3

	High-Water Shoreline Position (UTM Zone 18, NAD 1983)											
		1839/42		1864/86		1899		1932		1950/51		1977
Transect #	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)
1457	4372541	560962.9	4372374	561248.9	4372314	561350.5						
1458	4372501	560932.5	4372367	561161.8	4372276	561317.5						
1459	4372459	560905.3	4372375	561049.6	4372234	561288.8						
1460	4372416	560879.4			4372197	561254.2						
1461	4372374	560853.0			4372159	561219.6						
1462	4372330	560829.6			4372120	561187.5						
1463	4372289	560800.3			4372080	561157.1						
1464	4372249	560769.1			4372041	561125.1						
1465	4372210	560737.4			4372002	561092.1						
1466	4372168	560709.3			4371964	561057.7						
1467	4372129	560676.9			4371923	561029.6						
1468	4372089	560647.2			4371883	560997.9						
1469	4372044	560624.3			4371844	560965.5						
1470	4371998	560604.5			4371806	560932.7						
1471	4371951	560586.1			4371768	560898.7						
1472	4371903	560569.0			4371730	560863.2						
1473	4371862	560540.6			4371693	560827.8						
1474	4371817	560517.0			4371656	560792.3						
1475	4371773	560494.7			4371618	560758.3						
1476	4371729	560469.7			4371583	560719.8						
1477	4371683	560450.4			4371550	560676.8						
1478	4371639	560426.0			4371516	560635.1						
1479	4371594	560403.3			4371482	560594.9						
1480	4371551	560377.4			4371448	560554.4						
1481	4371504	560359.5			4371415	560512.2						
1482	4371455	560344.9			4371382	560468.3						
1483	4371392	560352.1			4371352	560421.5						
1484	4371347	560330.2			4371322	560373.0						
1485	4371272	560360.2			4371294	560322.1						
1486	4371207	560371.5			4371269	560266.4						
1487	4371166	560343.7			4371248	560202.7						
1488	4371122	560318.6			4371227	560140.2						
1489	4371092	560271.9			4371205	560078.5						
1490	4371049	560246.5			4371191	560003.0						
1491	4371007	560218.4			4371193	559900.4						
1492	4366364	558316.3										
1493	4366320	558291.3										
1494	4366276	558266.2										
1495	4366233	558240.5										
1496	4366190	558214.1										
1497	4366146	558189.1										
1498	4366104	558161.9										
1499	4366061	558135.4										
1500	4366019	558108.1										
1501	4365979	558077.2			4366240	557746.4					4366340	557619.5
1502	4365941	558045.8			4366170	557754.8					4366261	557638.9
1503	4365897	558020.8			4366078	557790.7					4366179	557662.1
1504	4365850	557999.1			4365986	557826.0					4366054	557740.7
1505	4365802	557979.5			4366261	557396.8					4365960	557778.4
1506	4365755	557957.6			4366238	557345.2					4365847	557841.0
1507	4365708	557937.5			4365718	557924.1					4365784	557840.4
1508	4365660	557917.5			4365666	557909.1					4365723	557837.0
1509	4365614	557894.4	4366002	557402.1	4365616	557892.8					4365659	557837.6
1510	4365568	557872.6	4365881	557475.2	4365567	557873.8					4365586	557849.9
1511	4365522	557850.5	4365805	557491.2	4365521	557851.4					4365542	557824.0
1512	4365475	557829.3	4365722	557514.9	4365480	557822.2	4366061	557084.7	4365983	557183.5	4365500	557797.4
1513	4365428	557806.9	4365577	557618.6	4365441	557791.4	4365946	557150.7	4365910	557196.0	4365457	557771.1
1514	4365384	557782.5	4365521	557608.8	4365398	557764.7	4365800	557254.5	4365831	557215.6	4365411	557748.6
1515	4365337	557761.8	4365470	557592.8	4365355	557738.9	4365678	557328.7	4365755	557231.6	4365370	557719.9
1516	4365290	557740.0	4365437	557554.2	4365311	557713.7	4365591	557357.8	4365671	557256.7	4365328	557692.5
1517	4365243	557719.3	4365392	557530.5	4365267	557688.7	4365516	557373.3	4365581	557290.1	4365287	557663.3
1518	4365198	557694.9	4365339	557517.0	4365225	557660.8	4365457	557367.3	4365499	557313.5	4365248	557631.7
1519	4365154	557670.3	4365290	557497.8	4365186	557630.2	4365400	557359.0	4365413	557342.4	4365209	557601.2
1520	4365109	557646.7	4365243	557476.6	4365148	557597.0	4365347	557345.2	4365342	557350.8	4365170	557569.1
1521	4365063	557624.6	4365199	557451.9	4365113	557561.7	4365297	557327.4	4365280	557349.3	4365133	557536.0
1522	4365019	557599.5	4365153	557429.7	4365075	557528.3	4365249	557308.2	4365224	557339.2	4365095	557502.5
1523	4364980	557568.9	4365111	557402.4	4365038	557494.4	4365196	557294.4	4365169	557328.1	4365057	557470.5
1524	4364936	557543.5	4365066	557378.4	4365002	557459.4	4365147	557275.8	4365118	557312.3	4365018	557438.9
1525	4364884	557528.8	4365023	557352.3	4364969	557421.2	4365099	557255.2	4365066	557297.0	4364982	557404.7
1526	4364829	557518.1	4364980	557325.9	4364933	557385.3	4365054	557231.7	4365017	557279.2	4364946	557369.3
1527	4364778	557500.9	4364935	557302.3	4364896	557351.1	4365010	557207.6	4364969	557259.2	4364911	557332.5
1528	4364733	557477.2	4364893	557274.9	4364861	557315.0	4364964	557185.2	4364922	557237.6	4364875	557297.0
1529	4364689	557453.2	4364852	557246.3	4364827	557278.1	4364921	557159.1	4364878	557212.7	4364838	557263.5
1530	4364645	557427.6	4364809	557220.1	4364793	557240.7	4364880	557130.2	4364834	557188.2	4364802	557228.4
1531	4364603	557400.2	4364766	557193.2	4364758	557203.9	4364839	557100.8	4364795	557156.8	4364767	557192.5
1532	4364560	557373.9	4364723	557167.8	4364722	557168.4	4364799	557070.5	4364754	557128.3	4364731	557157.4
1533	4364518	557347.0	4364676	557145.8	4364687	557132.3	4364760	557039.9	4364713	557098.8	4364695	557122.3
1534	4364474	557321.9	4364635	557117.9	4364649	557099.4	4364718	557012.1	4364676	557066.0	4364658	557088.5
1535	4364432	557294.4	4364591	557092.0	4364613	557065.1	4364680	556979.0	4364641	557029.5	4364619	557057.1

High-Water Shoreline Position Change Rate

Transect #	1839/42 to 1864/86 (m/yr)	1839/42 to 1899 (m/yr)	1839/42 to 1932 (m/yr)	1839/42 to 1950/51 (m/yr)	1839/42 to 1977 (m/yr)	1864/86 to 1899 (m/yr)	1864/86 to 1932 (m/yr)	1864/86 to 1950/51 (m/yr)	1864/86 to 1977 (m/yr)	1899 to 1932 (m/yr)	1899 to 1950/51 (m/yr)	1899 to 1977 (m/yr)	1932 to 1950/51 (m/yr)	1932 to 1977 (m/yr)	1950/51 to 1977 (m/yr)
1536	-11.2	-5.2	-4.4	-3.2	-2.2	-1.3	-2.2	-1.0	-0.4	-3.1	-0.9	0.0	3.2	2.2	1.5
1537	-11.3	-5.4	-4.5	-3.3	-2.3	-1.6	-2.2	-1.2	-0.5	-2.9	-0.9	0.0	2.8	2.2	1.8
1538	-11.4	-5.7	-4.5	-3.4	-2.4	-1.9	-2.2	-1.2	-0.6	-2.6	-0.8	0.1	2.5	2.0	1.7
1539	-11.3	-5.8	-4.6	-3.5	-2.5	-2.2	-2.3	-1.4	-0.7	-2.5	-0.9	0.0	2.1	1.8	1.7
1540	-11.2	-5.9	-4.6	-3.6	-2.5	-2.4	-2.4	-1.5	-0.8	-2.4	-0.9	0.0	1.9	1.8	1.7
1541	-11.1	-6.0	-4.7	-3.6	-2.6	-2.6	-2.5	-1.6	-0.8	-2.4	-0.9	-0.1	1.8	1.7	1.6
1542	-10.8	-5.9	-4.7	-3.6	-2.6	-2.7	-2.6	-1.7	-0.9	-2.6	-1.0	-0.1	1.8	1.8	1.7
1543	-10.2	-5.7	-4.6	-3.6	-2.5	-2.8	-2.7	-1.8	-0.9	-2.7	-1.2	-0.1	1.7	1.8	1.8
1544	-9.3	-5.5	-4.4	-3.5	-2.4	-2.9	-2.8	-1.9	-1.0	-2.6	-1.3	-0.2	1.2	1.6	1.9
1545	-9.0	-5.4	-4.4	-3.5	-2.4	-3.0	-2.9	-2.1	-1.1	-2.7	-1.4	-0.2	1.0	1.6	1.9
1546	-8.3	-5.3	-4.4	-3.5	-2.4	-3.4	-3.0	-2.2	-1.2	-2.7	-1.5	-0.3	0.8	1.5	2.0
1547	-7.6	-5.2	-4.3	-3.5	-2.4	-3.7	-3.2	-2.4	-1.3	-2.7	-1.6	-0.3	0.5	1.5	2.1
1548	-6.9	-5.1	-4.3	-3.5	-2.4	-4.0	-3.4	-2.6	-1.5	-2.8	-1.7	-0.3	0.4	1.5	2.2
1549	-6.2	-5.0	-4.2	-3.5	-2.3	-4.2	-3.5	-2.8	-1.6	-2.8	-1.9	-0.4	-0.1	1.4	2.5
1550	-5.6	-4.9	-4.1	-3.5	-2.3	-4.4	-3.6	-3.0	-1.6	-2.8	-2.0	-0.4	-0.6	1.3	2.6
1551	-5.1	-4.8	-4.0	-3.5	-2.3	-4.6	-3.6	-3.1	-1.7	-2.6	-2.0	-0.5	-1.0	1.1	2.5
1552	-4.6	-4.6	-3.9	-3.5	-2.3	-4.7	-3.7	-3.2	-1.8	-2.6	-2.2	-0.5	-1.4	1.0	2.6
1553	-4.1	-4.5	-3.8	-3.5	-2.3	-4.8	-3.7	-3.3	-1.9	-2.6	-2.3	-0.6	-1.7	0.9	2.6
1554	-3.6	-4.5	-3.8	-3.5	-2.2	-5.1	-3.9	-3.5	-2.0	-2.5	-2.4	-0.6	-2.1	0.9	2.9
1555	-3.2	-4.6	-3.8	-3.6	-2.3	-5.5	-4.0	-3.6	-2.1	-2.3	-2.3	-0.5	-2.4	0.8	3.0
1556	-3.1	-4.7	-3.8	-3.6	-2.3	-5.7	-4.0	-3.8	-2.1	-2.3	-2.5	-0.5	-2.8	0.8	3.1
1557	-2.7	-4.6	-3.7	-3.7	-2.3	-5.8	-4.1	-3.9	-2.2	-2.2	-2.6	-0.6	-3.4	0.6	3.2
1558	-2.4	-4.5	-3.7	-3.7	-2.3	-6.0	-4.2	-4.1	-2.3	-2.2	-2.7	-0.6	-3.7	0.6	3.4
1559	-2.0	-4.5	-3.7	-3.7	-2.3	-6.2	-4.2	-4.2	-2.3	-2.2	-2.8	-0.6	-3.9	0.5	3.5
1560	-1.7	-4.5	-3.7	-3.7	-2.2	-6.4	-4.3	-4.3	-2.4	-2.2	-2.9	-0.6	-4.1	0.6	3.8
1561	-1.2	-4.5	-3.6	-3.7	-2.2	-6.6	-4.4	-4.4	-2.4	-2.1	-2.9	-0.5	-4.2	0.6	3.9
1562	-0.9	-4.4	-3.6	-3.7	-2.2	-6.7	-4.5	-4.5	-2.5	-2.1	-2.9	-0.6	-4.4	0.5	3.8
1563	-0.4	-4.4	-3.5	-3.7	-2.2	-6.9	-4.5	-4.5	-2.6	-2.0	-2.9	-0.6	-4.6	0.4	3.7
1564	-0.1	-4.3	-3.4	-3.6	-2.2	-7.2	-4.6	-4.6	-2.6	-1.8	-2.8	-0.6	-4.7	0.3	3.7
1565	0.4	-4.3	-3.4	-3.5	-2.1	-7.3	-4.6	-4.6	-2.7	-1.8	-2.7	-0.6	-4.4	0.3	3.5
1566	0.9	-4.1	-3.3	-3.4	-2.1	-7.4	-4.7	-4.6	-2.7	-1.8	-2.6	-0.6	-4.0	0.3	3.1
1567	1.5	-4.0	-3.2	-3.3	-2.1	-7.6	-4.8	-4.6	-2.8	-1.8	-2.5	-0.7	-3.8	0.2	2.9
1568	2.2	-3.9	-3.1	-3.2	-2.1	-7.9	-4.9	-4.6	-2.9	-1.7	-2.4	-0.7	-3.7	0.1	2.6
1569	2.8	-3.9	-3.0	-3.0	-2.0	-8.3	-5.0	-4.6	-3.0	-1.5	-2.0	-0.7	-3.0	-0.1	1.8
1570	3.5	-3.8	-2.9	-2.9	-2.0	-8.5	-5.0	-4.6	-3.1	-1.3	-1.9	-0.7	-2.9	-0.2	1.6
1571	4.2	-3.6	-2.8	-2.7	-2.0	-8.6	-5.1	-4.6	-3.2	-1.4	-1.8	-0.8	-2.5	-0.3	1.1
1572	4.9	-3.3	-2.7	-2.6	-1.9	-8.7	-5.3	-4.6	-3.3	-1.6	-1.7	-0.8	-1.9	-0.3	0.8
1573	5.8	-3.0	-2.6	-2.4	-1.8	-8.8	-5.4	-4.6	-3.3	-1.7	-1.7	-0.8	-1.5	-0.1	0.8
1574	6.5	-2.8	-2.5	-2.4	-1.6	-8.9	-5.5	-4.7	-3.3	-2.0	-1.9	-0.8	-1.7	0.1	1.2
1575	7.1	-2.5	-2.4	-2.3	-1.6	-8.9	-5.6	-4.9	-3.3	-2.1	-2.1	-0.8	-2.0	0.1	1.5
1576	7.9	-2.3	-2.3	-2.2	-1.5	-8.9	-5.7	-4.9	-3.3	-2.3	-2.1	-0.9	-1.7	0.2	1.5
1577	8.6	-1.9	-2.1	-2.0	-1.3	-8.8	-5.8	-4.8	-3.4	-2.5	-2.0	-0.9	-1.1	0.3	1.2
1578	9.2	-1.6	-2.1	-1.8	-1.2	-8.8	-5.9	-4.8	-3.3	-2.9	-2.0	-0.9	-0.5	0.6	1.3
1579	10.0	-1.3	-1.9	-1.6	-1.0	-8.8	-5.9	-4.7	-3.3	-2.9	-1.9	-0.8	0.0	0.7	1.2
1580	10.8	-1.1	-1.7	-1.5	-0.9	-8.9	-6.0	-4.8	-3.3	-2.9	-2.0	-0.8	-0.4	0.7	1.4
1581	11.5	-0.7	-1.5	-1.4	-0.8	-8.8	-5.9	-4.9	-3.3	-2.8	-2.2	-0.9	-1.1	0.5	1.5
1582	11.9	-0.4	-1.2	-1.3	-0.7	-8.5	-5.6	-4.8	-3.3	-2.6	-2.3	-1.0	-1.7	0.2	1.5
1583	12.5	-0.1	-1.0	-1.2	-0.7	-8.3	-5.6	-4.8	-3.3	-2.7	-2.5	-1.1	-2.1	0.1	1.5
1584	12.7	0.3	-0.9	-1.1	-0.6	-7.9	-5.5	-4.8	-3.3	-2.9	-2.6	-1.3	-2.1	-0.1	1.2
1585	13.1	0.4	-0.8	-1.0	-0.6	-7.9	-5.5	-4.8	-3.4	-2.9	-2.6	-1.3	-1.9	-0.1	1.1
1586	13.0	0.6	-0.7	-0.9	-0.6	-7.6	-5.3	-4.6	-3.3	-2.9	-2.6	-1.4	-1.9	-0.2	0.9
1587	13.0	0.8	-0.6	-0.8	-0.5	-7.2	-5.2	-4.5	-3.2	-3.2	-2.6	-1.5	-1.7	-0.2	0.8
1588	12.8	1.1	-0.5	-0.7	-0.4	-6.6	-5.0	-4.3	-3.1	-3.3	-2.7	-1.6	-1.8	-0.3	0.6
1589	12.5	1.4	-0.4	-0.6	-0.4	-5.9	-4.7	-4.1	-3.0	-3.5	-2.8	-1.6	-1.6	-0.3	0.6
1590	12.1	1.7	-0.2	-0.6	-0.3	-5.2	-4.4	-4.0	-2.8	-3.5	-3.1	-1.8	-2.5	-0.5	0.7
1591	11.8	2.0	-0.1	-0.4	-0.2	-4.5	-4.1	-3.7	-2.7	-3.6	-3.1	-1.8	-2.2	-0.5	0.6
1592	11.4	2.2	0.0	-0.3	-0.1	-3.8	-3.8	-3.5	-2.5	-3.8	-3.2	-1.9	-2.2	-0.5	0.6
1593	11.1	2.5	0.1	-0.2	0.0	-3.1	-3.6	-3.3	-2.3	-4.0	-3.3	-1.9	-2.1	-0.4	0.7
1594	11.1	2.8	0.2	-0.1	0.1	-2.7	-3.4	-3.0	-2.1	-4.2	-3.3	-1.9	-1.5	-0.2	0.6
1595	10.9	3.0	0.4	0.1	0.2	-2.2	-3.1	-2.8	-2.0	-4.2	-3.2	-1.9	-1.4	-0.3	0.4
1596	10.9	3.3	0.6	0.3	0.3	-1.8	-2.9	-2.6	-1.9	-4.1	-3.1	-2.0	-1.3	-0.4	0.2
1597	10.8	3.6	0.6	0.5	0.4	-1.2	-2.8	-2.3	-1.8	-4.5	-3.1	-2.0	-0.5	-0.2	-0.1
1598	10.4	3.9	0.7	0.7	0.5	-0.4	-2.6	-2.0	-1.6	-5.0	-3.1	-2.1	0.5	0.0	-0.3
1599	10.2	4.3	0.8	0.8	0.6	0.4	-2.4	-1.7	-1.3	-5.4	-3.2	-2.1	0.8	0.3	-0.1
1600	10.1	4.6	0.9	0.9	0.7	0.9	-2.3	-1.5	-1.2	-5.6	-3.2	-2.1	1.2	0.4	-0.2
1601	10.0	4.8	1.0	1.0	0.8	1.4	-2.1	-1.3	-1.1	-5.8	-3.2	-2.2	1.4	0.4	-0.3
1602	9.6	5.0	1.1	1.1	0.8	1.9	-1.8	-1.2	-1.0	-5.8	-3.3	-2.3	1.3	0.3	-0.3
1603	9.6	5.2	1.2	1.3	0.9	2.3	-1.7	-1.0	-0.9	-5.9	-3.2	-2.3	1.6	0.3	-0.6
1604	9.8	5.5	1.3	1.4	1.0	2.7	-1.5	-0.9	-0.8	-5.9	-3.3	-2.4	1.6	0.3	-0.6
1605	9.9	5.7	1.5	1.5	1.1	2.9	-1.3	-0.7	-0.7	-5.8	-3.2	-2.3	1.5	0.3	-0.5
1606	9.8	5.7	1.6	1.5	1.2	3.1	-1.2	-0.7	-0.6	-5.8	-3.3	-2.2	1.3	0.3	-0.3
1607	9.5	5.8	1.6	1.5	1.2	3.4	-1.0	-0.6	-0.5	-5.7	-3.4	-2.2	1.0	0.4	0.0
1608	9.2	5.9	1.7	1.6	1.3	3.8	-0.9	-0.5	-0.3	-5.7	-3.4	-2.1	1.0	0.5	0.2
1609	8.9	6.1	1.8	1.7	1.5	4.3	-0.6	-0.3	-0.1	-5.8	-3.4	-2.0	1.1	0.8	0.6
1610	8.6	6.3	1.8	1.8	1.6	4.8	-0.4	-0.1	0.2	-5.9	-3.4	-1.9	1.3	1.1	0.9
1611	8.1	6.4	2.0	1.8	1.6	5.2	-0.1	0.1	0.2	-5.8	-3.4	-2.0	1.2	0.8	0.6
1612	7.3	6.5	2.0	1.9	1.6	6.0	0.2	0.5	0.4	-5.8	-3.3	-2.1	1.3	0.7	0.3
1613	7.4	6.6	2.2	2.0	1.6	6.1	0.4	0.5	0.5	-5.6	-3.3	-2.1	0.8	0.5	0.3
1614	7.8	6.8	2.3	2.1	1.7	6.1	0.5	0.6	0.5	-5.5	-3.3	-2.1	0.8	0.4	0.1
1615	8.1	7.0	2.6	2.3	1.8	6.3	0.7	0.7	0.5	-5.3	-3.2	-2.1	0.8	0.3	0.0
1616	8.5	7.2	2.8	2.3	1.9	6.4	0.8	0.7	0.6	-5.1	-3.3	-2.0	0.0	0.2	0.4

High-Water Shoreline Position (UTM Zone 18, NAD 1983)

Transect #	1839/42 UTM-x (m)	1839/42 UTM-y (m)	1864/86 UTM-x (m)	1864/86 UTM-y (m)	1899 UTM-x (m)	1899 UTM-y (m)	1932 UTM-x (m)	1932 UTM-y (m)	1950/51 UTM-x (m)	1950/51 UTM-y (m)	1977 UTM-x (m)	1977 UTM-y (m)
1536	4364391	557265.9	4364550	557064.4	4364578	557028.5	4364641	556948.6	4364605	556994.4	4364580	557026.3
1537	4364349	557238.4	4364509	557035.2	4364544	556990.9	4364602	556916.5	4364572	556955.4	4364541	556993.9
1538	4364306	557212.1	4364468	557006.3	4364509	556954.0	4364562	556887.2	4364534	556922.0	4364507	556957.4
1539	4364265	557183.6	4364425	556979.5	4364473	556919.3	4364523	556855.6	4364500	556885.3	4364472	556920.9
1540	4364224	557154.4	4364383	556952.0	4364436	556885.6	4364485	556822.8	4364464	556849.3	4364436	556884.9
1541	4364185	557123.5	4364343	556922.7	4364399	556851.6	4364449	556788.6	4364429	556813.9	4364402	556848.2
1542	4364148	557089.5	4364302	556894.0	4364360	556820.3	4364412	556753.7	4364392	556779.7	4364363	556816.7
1543	4364114	557051.4	4364259	556867.1	4364319	556791.1	4364375	556720.8	4364356	556744.7	4364325	556783.3
1544	4364083	557009.6	4364216	556841.2	4364280	556760.4	4364333	556692.4	4364320	556709.5	4364288	556750.4
1545	4364047	556974.8	4364175	556813.0	4364241	556729.2	4364295	556660.5	4364284	556674.1	4364252	556715.4
1546	4364011	556940.5	4364129	556789.7	4364202	556697.6	4364258	556626.9	4364249	556637.8	4364215	556680.7
1547	4363975	556904.4	4364083	556767.5	4364163	556665.9	4364219	556595.8	4364213	556603.3	4364177	556648.3
1548	4363940	556868.0	4364038	556744.0	4364124	556634.4	4364182	556561.8	4364178	556567.0	4364140	556614.3
1549	4363906	556830.5	4363994	556719.0	4364085	556603.5	4364143	556530.2	4364144	556528.5	4364103	556580.7
1550	4363871	556794.5	4363951	556693.3	4364046	556572.8	4364102	556501.0	4364109	556492.7	4364066	556547.3
1551	4363837	556756.9	4363909	556665.6	4364008	556539.4	4364061	556472.6	4364072	556458.4	4364031	556511.1
1552	4363802	556720.1	4363868	556637.1	4363969	556508.8	4364021	556441.9	4364037	556422.0	4363994	556477.2
1553	4363766	556684.8	4363824	556611.4	4363929	556479.1	4363982	556411.6	4364000	556387.8	4363956	556443.8
1554	4363728	556653.2	4363779	556588.6	4363890	556447.5	4363941	556382.7	4363964	556352.9	4363916	556413.8
1555	4363688	556622.7	4363734	556564.1	4363854	556411.8	4363901	556352.3	4363928	556317.8	4363879	556380.8
1556	4363647	556594.2	4363691	556538.0	4363814	556381.8	4363861	556322.3	4363892	556282.6	4363840	556349.2
1557	4363608	556562.7	4363647	556513.4	4363773	556353.1	4363818	556296.1	4363856	556248.5	4363802	556317.0
1558	4363569	556531.3	4363603	556488.6	4363732	556324.0	4363778	556266.8	4363819	556214.4	4363761	556287.5
1559	4363530	556499.7	4363559	556463.3	4363693	556293.9	4363738	556236.6	4363781	556181.3	4363722	556256.0
1560	4363492	556468.1	4363515	556438.1	4363653	556263.1	4363698	556206.6	4363743	556148.8	4363681	556228.4
1561	4363454	556434.6	4363472	556412.1	4363614	556231.6	4363658	556176.1	4363705	556116.8	4363640	556198.5
1562	4363417	556400.8	4363430	556384.9	4363575	556200.1	4363618	556146.2	4363667	556084.2	4363603	556164.7
1563	4363380	556367.2	4363386	556359.1	4363537	556168.4	4363577	556116.8	4363628	556052.4	4363566	556131.0
1564	4363343	556333.9	4363343	556333.0	4363499	556135.9	4363536	556088.7	4363588	556022.4	4363527	556100.6
1565	4363307	556299.0	4363301	556306.2	4363460	556104.6	4363497	556057.8	4363546	555995.4	4363487	556069.4
1566	4363271	556263.1	4363258	556280.0	4363419	556075.3	4363457	556027.8	4363501	555971.6	4363449	556037.2
1567	4363236	556227.1	4363214	556254.2	4363378	556046.4	4363415	555999.3	4363458	555945.1	4363410	556005.8
1568	4363200	556191.3	4363169	556231.4	4363340	556013.7	4363375	555969.9	4363416	555917.5	4363373	555971.8
1569	4363165	556155.6	4363125	556206.6	4363304	555978.7	4363335	555939.9	4363368	555897.8	4363337	555936.9
1570	4363131	556117.7	4363082	556180.3	4363266	555946.8	4363293	555911.8	4363326	555870.3	4363299	555904.8
1571	4363098	556078.4	4363039	556153.6	4363226	555916.1	4363255	555879.6	4363283	555844.7	4363264	555868.4
1572	4363067	556037.0	4362997	556126.4	4363186	555885.9	4363219	555844.6	4363240	555817.4	4363227	555834.9
1573	4363038	555993.5	4362955	556098.4	4363147	555855.5	4363182	555810.2	4363199	555789.2	4363186	555805.7
1574	4363007	555951.4	4362914	556069.5	4363107	555825.2	4363148	555773.7	4363166	555749.7	4363146	555775.6
1575	4362975	555911.4	4362874	556040.5	4363067	555795.3	4363110	555740.5	4363132	555712.8	4363107	555745.0
1576	4362944	555870.3	4362832	556012.2	4363025	555767.5	4363072	555707.9	4363091	555683.9	4363066	555715.4
1577	4362914	555828.0	4362792	555983.1	4362983	555739.8	4363035	555674.5	4363047	555659.3	4363026	555685.1
1578	4362883	555786.3	4362752	555953.0	4362941	555712.2	4363000	555638.1	4363005	555631.6	4362983	555659.7
1579	4362852	555745.0	4362710	555925.3	4362900	555683.6	4362959	555609.0	4362959	555608.6	4362939	555633.9
1580	4362822	555702.7	4362668	555897.9	4362859	555654.6	4362918	555579.8	4362923	555574.6	4362900	555603.3
1581	4362792	555659.2	4362629	555866.7	4362819	555625.1	4362876	555552.4	4362888	555537.5	4362863	555569.6
1582	4362764	555614.3	4362595	555828.5	4362779	555595.6	4362832	555527.6	4362851	555503.9	4362826	555535.3
1583	4362735	555570.6	4362557	555796.0	4362737	555568.1	4362792	555497.6	4362815	555468.6	4362790	555500.4
1584	4362703	555530.3	4362522	555759.5	4362693	555542.1	4362752	555467.6	4362775	555438.3	4362755	555464.6
1585	4362669	555492.8	4362482	555729.3	4362654	555511.7	4362714	555435.6	4362735	555408.1	4362717	555431.9
1586	4362634	555456.3	4362449	555690.9	4362614	555481.4	4362674	555405.3	4362696	555377.8	4362680	555397.5
1587	4362601	555417.6	4362416	555651.5	4362572	555453.4	4362637	555371.2	4362656	555347.4	4362643	555364.4
1588	4362568	555377.6	4362386	555608.7	4362530	555426.2	4362597	555341.5	4362617	555316.3	4362606	555329.6
1589	4362537	555337.3	4362359	555562.6	4362487	555399.8	4362558	555309.8	4362576	555286.8	4362567	555299.0
1590	4362505	555296.9	4362332	555516.1	4362444	555373.5	4362515	555283.6	4362543	555248.9	4362530	555264.6
1591	4362473	555256.4	4362305	555469.2	4362402	555346.0	4362476	555252.3	4362500	555221.6	4362491	555233.3
1592	4362441	555215.8	4362278	555422.4	4362361	555317.9	4362439	555218.8	4362463	555188.1	4362453	555200.6
1593	4362410	555174.4	4362253	555374.6	4362321	555288.3	4362403	555183.8	4362426	555154.2	4362414	555170.0
1594	4362380	555131.8	4362223	555331.5	4362281	555258.1	4362367	555149.1	4362384	555127.4	4362373	555140.9
1595	4362350	555089.8	4362194	555286.8	4362241	555227.2	4362327	555119.0	4362342	555098.9	4362335	555108.2
1596	4362318	555048.7	4362163	555246.0	4362201	555197.6	4362286	555090.3	4362300	555071.7	4362296	555076.9
1597	4362287	555007.3	4362134	555202.5	4362159	555169.9	4362251	555053.6	4362257	555046.2	4362258	555044.9
1598	4362255	554966.9	4362107	555155.7	4362115	555145.5	4362217	555016.1	4362211	555023.1	4362217	555016.2
1599	4362224	554926.0	4362079	555110.0	4362071	555119.9	4362181	554980.4	4362172	554992.1	4362174	554990.2
1600	4362194	554883.0	4362050	555065.7	4362031	555090.3	4362145	554945.6	4362132	554962.6	4362134	554958.9
1601	4362163	554841.6	4362021	555021.6	4361991	555059.9	4362109	554910.9	4362093	554930.4	4362098	554924.3
1602	4362130	554803.4	4361993	554976.6	4361951	555029.7	4362070	554879.5	4362055	554897.8	4362061	554890.5
1603	4362099	554761.5	4361962	554935.2	4361912	554999.4	4362032	554847.1	4362014	554869.8	4362023	554857.9
1604	4362069	554719.2	4361930	554895.7	4361872	554969.2	4361993	554815.4	4361975	554837.9	4361985	554825.2
1605	4362038	554677.3	4361897	554856.1	4361835	554934.9	4361954	554784.5	4361937	554805.7	4361945	554794.9
1606	4362005	554639.0	4361866	554815.6	4361799	554900.2	4361917	554750.7	4361902	554768.7	4361907	554762.8
1607	4361971	554600.8	4361836	554772.8	4361762	554865.6	4361879	554717.3	4361868	554731.2	4361868	554732.2
1608	4361938	554561.8	4361807	554728.1	4361726	554831.5	4361843	554682.5	4361832	554697.0	4361828	554701.8
1609	4361907	554520.4	4361780	554681.7	4361688	554798.9	4361807	554647.7	4361794	554663.8	4361784	554676.2
1610	4361875	554481.0	4361753	554635.6	4361650	554766.3	4361771	554612.9	4361756	554631.4	4361741	554650.4
1611	4361841	554442.6	4361725	554589.7	4361612	554733.3	4361731	554582.1	4361718	554599.0	4361708	554611.4
1612	4361808	554404.4	4361704	554536.3	4361575	554700.0	4361694	554549.1	4361680	554566.9	4361674	554573.7
1613	4361775	554365.3	4361669	554499.2	4361537	554666.9	4361651	554522.0	4361642	554533.4	4361637	554540.0
1614	4361743	554324.7	4361633	554464.8	4361499	554633.8	4361611	554492.3	4361603	554502.9	4361600	554506.1
1615	4361715	554279.1	4361599	554426.3	4361463	554599.8	4361571	554462.0	4361562	554473.3	4361563	554472.3
1616	4361687	554234.0	4361567	554387.0	4361427	554564.1	4361532	554431.4	4361531	554431.6	4361525	554439.3

High-Water Shoreline Position Change Rate

Transect #	1839/42 to 1864/86 (m/yr)	1839/42 to 1899 (m/yr)	1839/42 to 1932 (m/yr)	1839/42 to 1950/51 (m/yr)	1839/42 to 1977 (m/yr)	1864/86 to 1899 (m/yr)	1864/86 to 1932 (m/yr)	1864/86 to 1950/51 (m/yr)	1864/86 to 1977 (m/yr)	1899 to 1932 (m/yr)	1899 to 1950/51 (m/yr)	1899 to 1977 (m/yr)	1932 to 1950/51 (m/yr)	1932 to 1977 (m/yr)	1950/51 to 1977 (m/yr)
1617	8.6	7.3	2.9	2.3	2.0	6.5	1.0	0.6	0.7	-4.9	-3.4	-1.9	-0.7	0.2	0.8
1618	8.8	7.5	3.1	2.4	2.2	6.6	1.2	0.7	0.8	-4.5	-3.4	-1.8	-1.4	0.2	1.3
1619	9.1	7.5	3.4	2.5	2.3	6.5	1.4	0.7	0.9	-3.9	-3.3	-1.5	-2.1	0.2	1.7
1620	9.3	7.5	3.5	2.6	2.4	6.4	1.6	0.8	1.0	-3.4	-3.0	-1.4	-2.4	0.1	1.8
1621	9.4	7.6	3.7	2.7	2.5	6.4	1.8	0.9	1.1	-3.1	-2.8	-1.3	-2.3	0.1	1.6
1622	9.5	7.7	3.9	2.9	2.6	6.5	2.0	1.1	1.2	-2.7	-2.6	-1.2	-2.4	-0.1	1.5
1623	9.6	7.8	4.1	3.1	2.7	6.6	2.3	1.3	1.3	-2.4	-2.3	-1.1	-2.3	-0.2	1.3
1624	9.7	7.9	4.3	3.2	2.8	6.6	2.4	1.5	1.4	-2.1	-2.1	-1.0	-2.1	-0.3	1.0
1625	9.7	7.8	4.4	3.2	2.8	6.7	2.6	1.4	1.4	-1.7	-2.1	-0.9	-3.0	-0.4	1.4
1626	9.5	7.8	4.6	3.2	2.9	6.7	3.0	1.5	1.5	-1.0	-2.1	-0.8	-4.0	-0.7	1.5
1627	9.2	7.8	4.7	3.3	2.9	6.8	3.1	1.7	1.7	-0.8	-1.9	-0.7	-3.8	-0.6	1.6
1628	9.8	7.8	4.8	3.3	3.0	6.5	3.1	1.5	1.6	-0.5	-1.8	-0.6	-4.3	-0.6	1.8
1629	10.0	7.7	4.8	3.3	3.1	6.2	3.0	1.5	1.7	-0.3	-1.8	-0.4	-4.4	-0.4	2.3
1630	10.0	7.7	4.7	3.3	3.1	6.2	3.0	1.5	1.7	-0.4	-1.7	-0.3	-3.9	-0.2	2.3
1631	10.0	7.6	4.7	3.3	3.0	6.1	2.9	1.6	1.6	-0.5	-1.5	-0.4	-3.4	-0.3	1.8
1632	10.1	7.6	4.6	3.4	3.0	6.0	2.8	1.7	1.6	-0.6	-1.3	-0.4	-2.7	-0.3	1.3
1633	10.1	7.7	4.6	3.4	3.0	6.0	2.7	1.6	1.5	-0.9	-1.4	-0.5	-2.3	-0.2	1.3
1634	10.0	7.5	4.6	3.4	3.0	5.8	2.8	1.7	1.5	-0.3	-1.1	-0.4	-2.6	-0.4	1.0
1635	9.9	7.2	4.6	3.5	2.9	5.5	2.8	1.7	1.5	-0.1	-0.9	-0.3	-2.3	-0.4	0.9
1636	9.6	6.9	4.6	3.3	2.9	5.2	2.9	1.6	1.6	0.4	-0.8	-0.1	-3.1	-0.4	1.4
1637	9.4	6.5	4.5	3.3	2.9	4.6	2.8	1.6	1.6	1.0	-0.4	0.2	-2.9	-0.3	1.5
1638	9.2	6.2	4.5	3.3	2.9	4.2	2.8	1.7	1.7	1.4	0.0	0.5	-2.5	-0.1	1.4
1639	8.9	5.8	4.4	3.3	2.9	3.8	2.9	1.8	1.7	2.0	0.4	0.8	-2.5	-0.1	1.5
1640	8.4	5.4	4.4	3.2	2.9	3.3	3.1	1.8	1.7	2.8	0.8	1.0	-2.8	-0.2	1.5
1641	7.2	5.0	4.4	3.2	2.9	3.5	3.4	2.2	2.0	3.3	1.2	1.3	-2.7	-0.2	1.5
1642	6.1	4.7	4.4	3.2	2.9	3.7	3.8	2.4	2.2	3.9	1.4	1.5	-3.2	-0.3	1.6
1643	4.8	4.3	4.4	3.1	2.8	3.9	4.3	2.6	2.4	4.7	1.8	1.8	-3.6	-0.4	1.7
1644	3.0	3.9	4.4	3.1	2.8	4.6	4.9	3.1	2.8	5.2	2.1	2.0	-3.7	-0.3	1.9
1645		3.6	4.3	3.0	2.8					5.6	2.3	2.3	-3.9	-0.2	2.3
1646		3.2	4.1	2.9	2.8					5.7	2.5	2.5	-3.3	0.2	2.5
1647		2.8	3.9	2.7	2.7					5.9	2.6	2.6	-3.4	0.2	2.6
1648		2.4	3.7	2.6	2.6					6.0	2.8	2.8	-3.1	0.4	2.8
1649		2.0	3.6	2.6	2.5					6.4	3.2	2.9	-2.6	0.3	2.3
1650		1.7	3.5	2.6	2.4					6.8	3.6	3.0	-2.2	0.3	1.9
1651		1.3	3.4	2.5	2.4					7.0	3.8	3.1	-2.2	0.3	2.0
1652		1.0	3.3	2.3	2.3					7.3	3.8	3.2	-2.5	0.2	2.0
1653	2.9	0.7	3.1	2.2	2.2	-0.7	3.2	2.0	2.0	7.3	4.0	3.3	-2.2	0.3	1.9
1654	3.8	0.4	2.9	2.1	2.1	-1.9	2.6	1.7	1.8	7.3	4.1	3.4	-1.7	0.5	1.9
1655	3.6	0.1	2.7	2.0	2.0	-2.2	2.4	1.6	1.7	7.3	4.2	3.5	-1.6	0.7	2.3
1656	2.7	-0.2	2.4	1.7	1.9	-2.1	2.4	1.4	1.8	7.1	3.8	3.5	-2.2	1.0	3.1
1657	2.0		2.2	1.5	1.8		2.2	1.3	1.8				-2.2	1.2	3.4
1658	1.6		2.0	1.4	1.8		2.1	1.3	1.8				-1.6	1.4	3.4
1659	1.4		1.7	1.3	1.7		1.9	1.3	1.8				-0.9	1.7	3.4
1660	1.0		1.6	1.2	1.6		1.7	1.2	1.7				-0.9	1.7	3.5
1661	0.8		1.4	1.0	1.6		1.6	1.1	1.7				-1.0	1.8	3.7
1662	0.4		1.3	0.9	1.5		1.6	1.0	1.7				-1.1	1.9	4.0
1663	0.1		1.1	0.6	1.4		1.5	0.8	1.7				-2.1	2.0	4.8
1664	-0.2		0.9	0.4	1.3		1.3	0.5	1.7				-2.4	2.2	5.2
1665	-0.5		0.7	0.2	1.3		1.1	0.4	1.6				-2.4	2.4	5.6
1666	-0.8		0.4	0.1	1.2		0.8	0.3	1.6				-1.7	2.8	5.7
1667	-1.2		0.1	0.0	1.1		0.6	0.3	1.6				-0.8	3.1	5.7
1668	-1.5		-0.2	-0.4	1.0		0.3	-0.1	1.6				-1.7	3.5	6.9
1669	-1.9		-0.6	-0.9	0.9		-0.1	-0.6	1.5				-2.2	4.0	8.1
1670	-2.3		-1.0	-1.1	0.8		-0.5	-0.8	1.5				-1.5	4.5	8.5
1671	-2.8		-1.3	-1.3	0.7		-0.8	-0.8	1.4				-1.1	4.7	8.5
1672	-3.3		-1.6	-1.4	0.6		-1.0	-0.8	1.4				-0.3	4.9	8.4
1673	-4.0		-2.0	-2.2	0.5		-1.3	-1.7	1.4				-3.3	5.4	11.2
1674	-4.7		-2.4	-2.5	0.4		-1.5	-2.0	1.4				-3.5	5.9	12.1
1675	-5.3		-2.8	-2.9	0.3		-2.0	-2.2	1.4				-3.1	6.6	13.0
1676	-5.7		-3.2	-3.1	0.2		-2.4	-2.5	1.4				-2.7	7.2	13.8
1677	-5.9		-3.5	-3.4	0.2		-2.7	-2.7	1.4				-2.7	7.6	14.5
1678	-6.3		-3.7	-3.6	0.1		-2.9	-2.9	1.4				-3.1	7.8	15.1
1679	-6.8		-4.0	-3.9	0.1		-3.0	-3.1	1.5				-3.1	8.3	15.8
1680	-7.5		-4.3	-4.1	0.0		-3.2	-3.2	1.5				-3.5	8.5	16.5
1681	-8.3		-4.5	-4.4	-0.3		-3.3	-3.4	1.4				-3.8	8.4	16.5
1682	-8.9		-4.8	-4.6	-0.4		-3.4	-3.5	1.3				-3.7	8.5	16.5
1683	-9.2		-5.0	-4.7	-0.5		-3.6	-3.5	1.3				-3.3	8.7	16.7
1684	-9.8		-5.2	-4.8	-0.5		-3.6	-3.5	1.4				-3.2	8.9	16.9
1685	-10.6		-5.4	-5.1	-0.8		-3.7	-3.7	1.3				-3.7	8.7	17.0
1686	-11.4		-5.7	-5.5			-3.7	-3.9					-4.4		
1687	-12.2		-5.9	-5.7			-3.7	-3.9					-4.6		
1688	-13.2		-6.1	-5.9			-3.7	-3.9					-4.9		
1689	-14.1		-6.3	-6.1			-3.6	-4.0					-5.2		
1690	-15.3		-6.5	-6.5			-3.5	-4.2					-6.8		
1691	-16.4		-6.7	-6.8			-3.4	-4.3					-7.5		
1692	-17.0		-6.9	-7.1			-3.5	-4.4					-7.9		
1693	-17.7		-7.0	-7.3			-3.4	-4.5					-8.6		
1694	-18.4		-7.2	-7.5			-3.4	-4.6					-9.2		
1695	-19.1		-7.3	-7.8			-3.3	-4.8					-10.5		
1696	-19.6		-7.4	-8.1			-3.3	-5.0					-11.6		
1697	-20.1		-7.5	-8.3			-3.2	-5.1					-12.4		

High-Water Shoreline Position (UTM Zone 18, NAD 1983)

Transect #	1839/42 UTM-x (m)	1839/42 UTM-y (m)	1864/86 UTM-x (m)	1864/86 UTM-y (m)	1899 UTM-x (m)	1899 UTM-y (m)	1932 UTM-x (m)	1932 UTM-y (m)	1950/51 UTM-x (m)	1950/51 UTM-y (m)	1977 UTM-x (m)	1977 UTM-y (m)
1617	4361658	554190.8	4361535	554346.4	4361395	554523.9	4361494	554398.0	4361502	554388.3	4361488	554405.7
1618	4361631	554143.9	4361505	554303.5	4361363	554484.1	4361455	554367.3	4361470	554347.7	4361449	554374.5
1619	4361604	554097.7	4361474	554261.7	4361335	554439.1	4361415	554337.5	4361438	554307.9	4361409	554344.7
1620	4361576	554051.8	4361444	554219.1	4361306	554394.1	4361376	554305.5	4361403	554272.0	4361372	554310.7
1621	4361550	554004.5	4361416	554174.3	4361277	554350.5	4361341	554269.1	4361367	554236.8	4361339	554271.8
1622	4361523	553958.3	4361388	554129.3	4361246	554309.0	4361302	554238.3	4361328	554204.6	4361303	554236.4
1623	4361495	553912.6	4361358	554086.3	4361215	554267.9	4361263	554206.6	4361289	554174.2	4361268	554200.9
1624	4361466	553868.6	4361327	554044.5	4361183	554227.2	4361226	554173.4	4361249	554143.8	4361233	554164.3
1625	4361436	553825.6	4361299	553999.9	4361155	554182.7	4361188	554139.9	4361222	554097.4	4361199	554126.4
1626	4361406	553783.5	4361271	553954.6	4361125	554139.1	4361146	554112.7	4361190	554056.6	4361165	554089.1
1627	4361375	553741.3	4361244	553908.3	4361096	554096.1	4361112	554075.6	4361155	554021.3	4361127	554055.9
1628	4361344	553699.6	4361205	553876.1	4361066	554053.5	4361075	554041.8	4361123	553980.6	4361093	554018.9
1629	4361313	553658.4	4361170	553839.5	4361035	554010.9	4361042	554002.3	4361091	553940.4	4361053	553989.2
1630	4361281	553618.3	4361139	553798.5	4361005	553968.4	4361014	553957.1	4361057	553902.3	4361019	553950.8
1631	4361249	553578.2	4361107	553758.1	4360976	553925.2	4360986	553911.9	4361024	553863.3	4360994	553902.5
1632	4361217	553538.0	4361074	553719.7	4360944	553885.1	4360955	553870.1	4360986	553831.2	4360965	553858.4
1633	4361185	553498.5	4361040	553681.4	4360910	553847.5	4360928	553824.2	4360954	553791.1	4360933	553818.0
1634	4361151	553461.0	4361008	553642.2	4360883	553801.0	4360889	553792.6	4360918	553755.6	4360901	553777.5
1635	4361116	553423.6	4360976	553601.7	4360856	553753.6	4360858	553751.3	4360883	553719.3	4360869	553737.4
1636	4361082	553386.7	4360945	553560.8	4360833	553702.9	4360824	553714.0	4360858	553670.3	4360835	553699.6
1637	4361047	553349.8	4360913	553520.1	4360813	553646.6	4360794	553671.6	4360826	553630.1	4360801	553661.8
1638	4361013	553312.3	4360882	553478.7	4360791	553594.1	4360762	553630.5	4360790	553595.2	4360766	553625.5
1639	4360979	553274.9	4360852	553436.4	4360770	553539.6	4360729	553591.5	4360758	553555.1	4360732	553588.3
1640	4360944	553238.8	4360824	553391.0	4360751	553482.7	4360695	553554.2	4360727	553514.0	4360702	553545.6
1641	4360909	553202.1	4360807	553331.8	4360731	553428.3	4360662	553514.9	4360692	553477.3	4360667	553509.1
1642	4360875	553164.3	4360788	553275.1	4360707	553378.1	4360627	553479.3	4360662	553434.4	4360635	553469.2
1643	4360840	553128.3	4360771	553215.0	4360687	553322.3	4360591	553443.9	4360631	553393.4	4360602	553430.2
1644	4360804	553092.7	4360762	553146.0	4360663	553271.6	4360557	553406.4	4360598	553354.0	4360567	553394.0
1645	4360766	553060.1			4360639	553221.9	4360524	553367.8	4360567	553312.8	4360528	553362.4
1646	4360727	553028.5			4360612	553174.7	4360496	553322.2	4360533	553274.9	4360491	553328.8
1647	4360687	552998.4			4360586	553127.2	4360466	553279.8	4360504	553231.6	4360461	553286.2
1648	4360648	552968.3			4360560	553079.2	4360437	553235.9	4360471	553192.1	4360425	553251.0
1649	4360608	552938.2			4360534	553031.0	4360403	553197.3	4360433	553160.4	4360395	553208.4
1650	4360568	552908.2			4360508	552984.0	4360369	553159.7	4360394	553128.7	4360362	553169.0
1651	4360527	552878.4			4360481	552937.7	4360337	553119.4	4360362	553088.6	4360329	553130.1
1652	4360489	552847.0			4360452	552893.3	4360303	553082.1	4360331	553046.4	4360297	553089.4
1653	4360449	552816.4	4360407	552869.4	4360423	552848.8	4360274	553038.9	4360298	553007.7	4360266	553048.5
1654	4360409	552786.4	4360355	552854.8	4360395	552803.9	4360246	552993.7	4360264	552970.0	4360232	553011.0
1655	4360369	552756.9	4360318	552821.2	4360366	552759.6	4360217	552949.7	4360234	552927.0	4360196	552975.2
1656	4360328	552728.0	4360290	552776.4	4360335	552719.0	4360190	552902.0	4360215	552871.2	4360164	552936.0
1657	4360286	552699.9	4360258	552735.6			4360164	552855.2	4360188	552824.8	4360130	552897.4
1658	4360248	552667.0	4360225	552696.3			4360138	552807.2	4360155	552785.1	4360098	552857.3
1659	4360210	552635.1	4360190	552660.5			4360112	552759.6	4360122	552746.2	4360066	552818.1
1660	4360169	552606.2	4360154	552624.9			4360081	552718.2	4360091	552705.5	4360032	552779.4
1661	4360129	552575.6	4360119	552589.4			4360049	552677.4	4360061	552662.7	4359999	552741.6
1662	4360090	552544.5	4360084	552552.0			4360019	552635.6	4360031	552619.7	4359964	552704.3
1663	4360051	552513.8	4360050	552514.8			4359986	552595.9	4360010	552565.6	4359930	552666.7
1664	4360010	552485.1	4360012	552481.8			4359957	552552.1	4359984	552517.9	4359897	552628.3
1665	4359968	552457.0	4359975	552447.8			4359930	552506.1	4359956	552472.0	4359863	552591.2
1666	4359929	552426.5	4359940	552412.4			4359904	552457.2	4359923	552433.9	4359828	552554.6
1667	4359888	552397.4	4359904	552376.5			4359880	552407.7	4359888	552397.1	4359792	552518.8
1668	4359844	552372.0	4359866	552344.4			4359853	552360.5	4359872	552336.3	4359756	552483.5
1669	4359800	552347.3	4359828	552312.3			4359833	552305.5	4359857	552274.5	4359721	552447.1
1670	4359756	552322.3	4359789	552280.4			4359812	552251.9	4359829	552229.7	4359688	552409.3
1671	4359711	552298.9	4359751	552248.6			4359783	552207.6	4359795	552191.9	4359652	552373.2
1672	4359664	552277.3	4359712	552217.2			4359753	552164.1	4359757	552160.1	4359616	552338.2
1673	4359616	552257.8	4359673	552185.3			4359728	552115.3	4359766	552068.0	4359578	552306.4
1674	4359568	552237.4	4359636	552151.8			4359701	552069.1	4359740	552019.9	4359538	552276.0
1675	4359520	552217.7	4359596	552122.2			4359679	552016.6	4359713	551973.5	4359495	552250.1
1676	4359473	552196.5	4359554	552093.6			4359656	551964.9	4359686	551927.0	4359455	552220.1
1677	4359430	552170.4	4359514	552063.6			4359628	551919.2	4359659	551880.4	4359417	552187.7
1678	4359386	552145.4	4359476	552031.6			4359596	551879.2	4359630	551836.0	4359378	552156.0
1679	4359340	552123.5	4359437	552000.3			4359565	551837.6	4359600	551793.8	4359335	552129.2
1680	4359292	552103.5	4359398	551968.3			4359533	551798.1	4359571	551748.8	4359296	552098.5
1681	4359243	552084.4	4359361	551935.3			4359499	551759.7	4359541	551706.0	4359265	552057.0
1682	4359197	552062.6	4359323	551902.7			4359467	551720.3	4359507	551668.6	4359231	552019.2
1683	4359153	552036.9	4359284	551871.3			4359434	551680.8	4359471	551633.7	4359192	551987.9
1684	4359110	552010.9	4359250	551833.9			4359401	551642.1	4359437	551596.5	4359154	551955.8
1685	4359061	551992.9	4359212	551801.2			4359367	551604.7	4359408	551552.4	4359124	551912.2
1686	4359012	551973.8	4359174	551768.4			4359331	551568.9	4359380	551506.7		
1687	4358966	551951.3	4359140	551730.6			4359298	551530.8	4359349	551465.1		
1688	4358922	551926.6	4359110	551688.3			4359264	551492.2	4359319	551422.7		
1689	4358877	551903.1	4359078	551648.4			4359231	551453.6	4359289	551380.5		
1690	4358830	551882.0	4359047	551606.3			4359194	551420.0	4359270	551323.6		
1691	4358783	551860.9	4359016	551564.7			4359161	551381.0	4359245	551274.8		
1692	4358740	551834.2	4358982	551526.8			4359128	551342.2	4359216	551229.9		
1693	4358699	551806.2	4358951	551486.1			4359095	551303.3	4359191	551181.7		
1694	4358659	551775.6	4358920	551443.9			4359064	551261.2	4359167	551131.6		
1695	4358620	551743.9	4358892	551399.4			4359032	551221.0	4359149	551072.5		
1696	4358585	551707.8	4358865	551352.9			4359003	551177.5	4359132	551014.0		
1697	4358552	551669.2	4358839	551305.4			4358975	551132.4	4359113	550957.8		

High-Water Shoreline Position Change Rate

Transect #	1839/42 to 1864/86 (m/yr)	1839/42 to 1899 (m/yr)	1839/42 to 1932 (m/yr)	1839/42 to 1950/51 (m/yr)	1839/42 to 1977 (m/yr)	1864/86 to 1899 (m/yr)	1864/86 to 1932 (m/yr)	1864/86 to 1950/51 (m/yr)	1864/86 to 1977 (m/yr)	1899 to 1932 (m/yr)	1899 to 1950/51 (m/yr)	1899 to 1977 (m/yr)	1932 to 1950/51 (m/yr)	1932 to 1977 (m/yr)	1950/51 to 1977 (m/yr)
1698	-20.5		-7.6	-8.5			-3.2	-5.3					-13.3		
1699	-20.5		-7.6	-8.5			-3.2	-5.3					-13.3		
1700	-19.3		-7.4	-8.4			-3.3	-5.5					-13.5		
1701	-19.4		-7.5	-8.4			-3.4	-5.5					-13.2		
1702	-20.5		-7.7	-8.6			-3.4	-5.4					-13.1		
1703	-21.6		-7.8	-8.9			-3.1	-5.5					-14.5		
1704			-7.7												
1705			-7.5												
Absecon Inlet															
1706	-20.7		-7.3	-6.4			-2.8	-2.6					-1.7		
1707	-27.2		-9.3	-8.8			-3.3	-3.9					-5.9		
1708	-19.8		-7.1	-7.3			-2.8	-4.0					-8.7		
1709	-18.2	-8.6	-4.7	-4.8		-2.4	-0.1	-1.2		2.3	-0.4		-5.2		
1710	-15.1	-4.7	-2.6	-2.0		2.1	1.6	1.5		1.0	1.1		1.1		
1711	-13.0	-1.3	0.6	2.1		6.4	5.2	6.1		3.9	5.9		9.6		
1712	-11.6	-0.8	1.0	1.9		6.3	5.3	5.5		4.3	5.0		6.3		
1713	-10.7	-0.6	1.2	1.8		6.1	5.3	5.1		4.4	4.4		4.5		
1714	-10.0	-0.4	1.4	1.6	1.4	5.8	5.2	4.7	3.7	4.5	4.0	2.7	3.1	1.4	0.4
1715	-9.2	-0.4	1.4	1.7	1.3	5.3	5.0	4.5	3.4	4.7	4.0	2.6	2.8	1.0	-0.2
1716	-8.6	-0.9	1.5	1.7	1.2	4.2	5.0	4.5	3.3	5.8	4.7	2.8	2.7	0.7	-0.7
1717	-8.4	-1.1	1.6	1.7	1.3	3.7	4.9	4.4	3.2	6.2	4.9	3.0	2.4	0.6	-0.6
1718	-8.7	-0.9	1.4	1.6	1.2	4.2	4.9	4.4	3.2	5.6	4.5	2.7	2.5	0.7	-0.6
1719	-9.2	-0.7	1.4	1.6	1.1	4.9	4.9	4.4	3.2	4.9	4.1	2.5	2.5	0.7	-0.5
1720	-9.2	-0.4	1.3	1.6	1.1	5.5	4.9	4.5	3.3	4.3	3.8	2.3	3.0	0.8	-0.7
1721	-7.9	0.5	1.7	1.9	1.4	6.0	5.0	4.5	3.2	3.9	3.4	2.0	2.6	0.6	-0.7
1722	-5.7	1.7	2.4	2.3	1.7	6.6	5.1	4.5	3.2	3.6	3.0	1.7	1.9	0.3	-0.7
1723	-3.2	2.9	3.1	2.6	1.9	6.9	5.2	4.1	3.0	3.5	2.2	1.2	-0.1	-0.4	-0.7
1724	-1.0	3.8	3.6	2.8	2.1	7.0	5.2	3.9	2.7	3.2	1.7	0.8	-1.1	-0.9	-0.8
1725	1.0	4.4	4.0	3.0	2.3	6.7	5.0	3.5	2.6	3.3	1.3	0.7	-2.2	-1.1	-0.4
1726	3.5	5.0	4.4	3.2	2.6	6.0	4.7	3.1	2.4	3.2	1.2	0.7	-2.6	-1.1	-0.1
1727	6.1	5.3	4.6	3.4	2.7	4.8	4.1	2.7	2.1	3.3	1.2	0.8	-2.6	-1.0	0.1
1728	9.1	5.5	4.9	3.5	2.9	3.1	3.4	1.9	1.6	3.7	1.1	0.9	-3.7	-1.2	0.5
1729	12.4	5.7	5.0	3.5	3.0	1.3	2.5	1.1	1.1	3.7	1.0	1.0	-4.0	-1.1	0.8
1730	15.7	6.0	5.2	3.7	3.0	-0.3	1.6	0.4	0.4	3.6	0.9	0.8	-4.0	-1.3	0.4
1731	18.2	6.2	5.2	3.7	3.1	-1.7	0.8	-0.1	0.0	3.4	0.9	0.8	-3.6	-1.1	0.5
1732	18.0	6.4	5.2	3.9	3.2	-1.3	1.0	0.1	0.2	3.3	1.1	0.9	-3.0	-0.9	0.6
1733	17.4	6.6	5.5	4.1	3.4	-0.5	1.4	0.6	0.5	3.5	1.3	1.0	-2.7	-0.8	0.5
1734	17.6	7.0	5.8	4.4	3.6	0.0	1.8	0.8	0.8	3.6	1.4	1.1	-2.7	-0.7	0.6
1735	17.9	7.2	5.8	4.5		0.1	1.7	0.9		3.5	1.5		-2.1		
1736	18.5	7.3	5.8	4.6		-0.1	1.5	0.9		3.2	1.6		-1.5		
1737	19.5	7.4	5.7	4.6		-0.6	1.0	0.6		2.6	1.4		-0.7		
1738	20.4	7.4	5.6	4.6		-1.1	0.6	0.3		2.4	1.3		-0.6		
1739	21.2	7.4	5.4	4.5		-1.7	0.1	0.0		2.0	1.2		-0.4		
1740	22.0	7.3	5.2	4.3		-2.4	-0.5	-0.4		1.6	1.0		-0.1		
1741	22.6	7.2	5.2	4.3		-3.0	-0.7	-0.6		1.6	1.0		-0.3		
1742	22.1	7.2	5.3	4.3		-2.6	-0.4	-0.4		2.0	1.1		-0.5		
1743	21.6	7.3	5.2	4.4		-2.2	-0.3	-0.2		1.7	1.2		0.4		
1744	20.9	6.9	5.1	4.3		-2.3	-0.2	-0.1		1.9	1.4		0.3		
1745	20.3	6.6	4.9	4.2		-2.4	-0.3	-0.2		1.8	1.3		0.4		
1746	19.9	6.3	4.8	4.0		-2.6	-0.4	-0.2		2.0	1.4		0.4		
1747	19.1	6.0	4.6	4.0		-2.6	-0.3	-0.1		2.2	1.6		0.6		
1748	18.4	5.8	4.5	3.9		-2.5	-0.2	0.0		2.3	1.7		0.7		
1749	17.5	5.7	4.4	3.8		-2.1	0.0	0.2		2.2	1.7		0.9		
1750	16.4	5.8	4.4	3.7		-1.2	0.3	0.3		1.9	1.4		0.5		
1751	15.5	5.4	4.3	3.7		-1.2	0.6	0.6		2.4	1.8		0.6		
1752	14.4	5.2	4.1	3.7		-0.8	0.7	0.8		2.2	1.9		1.4		
1753	13.5	5.1	4.0	3.6		-0.5	0.7	1.0		2.0	2.0		2.0		
1754	13.1	4.9	3.7	3.6		-0.5	0.6	1.1		1.8	2.3		3.2		
1755	12.4	4.7	3.6	3.6		-0.4	0.6	1.2		1.7	2.4		3.5		
1756	11.8	4.5	3.6	3.6		-0.3	0.8	1.4		2.0	2.6		3.6		
1757	11.2	4.3	3.6	3.6		-0.3	1.0	1.6		2.3	2.8		3.7		
1758	10.7	4.1	3.6	3.6		-0.2	1.2	1.7		2.7	3.0		3.7		
1759	10.5	4.1	3.7	3.7		-0.1	1.4	1.9		3.0	3.3		3.9		
1760	10.3	4.1	3.7	3.8		0.1	1.5	2.1		2.9	3.5		4.6		
1761	9.8	4.4	3.7	3.9		0.8	1.6	2.3		2.5	3.3		4.7		
1762	9.0	4.3	3.7	3.9		1.2	1.9	2.5		2.7	3.4		4.6		
1763	7.8	3.9	3.6	3.7		1.2	2.2	2.6		3.3	3.5		3.8		
1764	6.5	3.7	3.4	3.4		2.0	2.3	2.5		2.7	2.9		3.3		
1765	6.4	3.7	3.1	3.1		1.9	2.0	2.2		2.1	2.4		2.9		
1766	6.1	3.8	2.9	2.9		2.3	1.8	2.0		1.3	1.9		3.0		
1767	5.7	3.6	2.7	2.7		2.3	1.7	1.9		1.2	1.7		2.7		
1768	5.5	3.3	2.5	2.5		1.9	1.5	1.8		1.1	1.7		2.8		
1769	5.0	3.4	2.3	2.4		2.4	1.4	1.7		0.3	1.2		2.8		
1770	4.2	3.0	2.2	2.2		2.2	1.5	1.7		0.7	1.4		2.6		
1771	3.4	2.7	2.0	2.1		2.3	1.5	1.8		0.8	1.4		2.6		
1772	2.6	4.1	1.9	2.0	2.0	5.1	1.6	1.8	1.9	-2.0	-0.4	0.4	2.6	2.2	1.9
1773	1.9	2.1	1.7	1.9	1.9	2.3	1.7	2.0	1.9	1.1	1.8	1.7	3.0	2.3	1.7
1774	1.4	2.0	1.7	1.9	1.9	2.3	1.8	2.0	2.0	1.2	1.8	1.8	3.0	2.3	1.8
1775	1.1	1.9	1.6	1.9	1.9	2.4	1.8	2.1	2.0	1.1	1.9	1.8	3.3	2.3	1.7
1776	0.8	1.9	1.6	1.9	1.8	2.6	1.9	2.2	2.1	1.2	1.9	1.8	3.3	2.3	1.7

High-Water Shoreline Position (UTM Zone 18, NAD 1983)

Transect #	1839/42 UTM-x (m)	1839/42 UTM-y (m)	1864/86 UTM-x (m)	1864/86 UTM-y (m)	1899 UTM-x (m)	1899 UTM-y (m)	1932 UTM-x (m)	1932 UTM-y (m)	1950/51 UTM-x (m)	1950/51 UTM-y (m)	1977 UTM-x (m)	1977 UTM-y (m)
1698	4358521	551627.1	4358813	551257.3			4358947	551086.6	4359096	550898.6		
1699	4358501	551572.7	4358792	551202.9			4358928	551030.6	4359076	550842.5		
1700	4358497	551496.1	4358772	551147.2			4358913	550968.6	4359063	550778.1		
1701	4358481	551435.9	4358758	551084.9			4358902	550901.4	4359049	550714.9		
1702	4358461	551380.5	4358753	551009.9			4358895	550829.7	4359041	550645.0		
1703	4358452	551311.0	4358760	550921.2			4358891	550754.4	4359053	550548.8		
1704	4358455	551227.1					4358890	550674.2				
1705	4358472	551123.8					4358896	550585.9				
1706	4358132	550762.9	4358520	550486.8			4358676	550375.9	4358700	550358.6		
1707	4357859	550896.3	4358368	550533.7			4358551	550403.1	4358638	550341.4		
1708	4357758	550906.6	4358128	550643.0			4358282	550533.3	4358410	550442.6		
1709	4357703	550884.8	4358044	550641.9	4358111	550593.8	4358050	550637.1	4358127	550582.4		
1710	4357676	550842.0	4357959	550640.6	4357900	550683.0	4357872	550702.9	4357856	550714.4		
1711	4357633	550811.7	4357876	550638.2	4357695	550767.3	4357590	550842.4	4357449	550942.8		
1712	4357592	550779.8	4357809	550625.0	4357630	550752.5	4357515	550834.1	4357423	550900.0		
1713	4357543	550752.9	4357743	550610.3	4357570	550734.0	4357452	550817.9	4357386	550864.7		
1714	4357489	550730.0	4357676	550596.9	4357509	550715.6	4357388	550801.8	4357343	550833.9	4357335	550839.6
1715	4357441	550702.4	4357613	550580.3	4357462	550688.1	4357336	550777.4	4357295	550806.8	4357300	550803.5
1716	4357396	550673.4	4357557	550558.4	4357438	550643.7	4357283	550754.2	4357243	550782.8	4357258	550771.8
1717	4357350	550645.1	4357507	550532.9	4357401	550608.7	4357234	550727.6	4357198	550752.9	4357211	550744.0
1718	4357303	550617.0	4357466	550500.7	4357346	550586.0	4357197	550692.7	4357160	550718.4	4357173	550709.7
1719	4357260	550586.1	4357433	550463.3	4357292	550563.1	4357160	550657.7	4357122	550684.1	4357135	550675.5
1720	4357223	550551.0	4357396	550427.9	4357240	550538.9	4357125	550621.0	4357082	550651.8	4357096	550641.3
1721	4357209	550499.5	4357357	550394.5	4357186	550516.4	4357081	550591.2	4357043	550618.1	4357058	550607.1
1722	4357210	550437.3	4357317	550361.1	4357129	550495.1	4357033	550563.8	4357006	550583.1	4357020	550572.8
1723	4357217	550371.3	4357276	550329.2	4357081	550468.4	4356987	550535.0	4356988	550534.3	4357003	550523.3
1724	4357213	550313.0	4357232	550299.4	4357032	550441.7	4356946	550502.9	4356962	550491.7	4356980	550478.8
1725	4357206	550256.6	4357188	550269.4	4356997	550405.2	4356909	550467.8	4356942	550444.5	4356950	550438.6
1726	4357198	550200.9	4357131	550248.0	4356960	550370.4	4356873	550431.8	4356911	550405.1	4356914	550403.2
1727	4357182	550150.6	4357068	550231.8	4356931	550329.2	4356842	550392.9	4356880	550365.7	4356879	550366.6
1728	4357166	550101.0	4356994	550222.9	4356905	550286.5	4356805	550357.9	4356859	550319.6	4356848	550327.0
1729	4357148	550052.0	4356917	550216.9	4356879	550243.5	4356779	550315.1	4356837	550273.5	4356819	550286.5
1730	4357135	550000.1	4356842	550208.9	4356849	550203.4	4356752	550272.6	4356810	550231.2	4356800	550238.2
1731	4357118	549950.3	4356777	550193.8	4356824	550159.8	4356734	550224.0	4356786	550186.9	4356775	550195.2
1732	4357103	549900.1	4356766	550139.8	4356803	550113.8	4356714	550177.2	4356758	550146.0	4356745	550154.9
1733	4357090	549847.7	4356765	550079.5	4356778	550069.8	4356685	550136.2	4356725	550107.6	4356715	550114.8
1734	4357081	549792.6	4356752	550027.2	4356752	550026.9	4356655	550096.6	4356694	550068.5	4356682	550077.4
1735	4357066	549742.0	4356730	549981.4	4356728	549983.1	4356633	550050.4	4356664	550028.7		
1736	4357047	549694.0	4356700	549941.2	4356704	549938.6	4356617	550000.6	4356638	549985.5		
1737	4357030	549644.7	4356665	549904.8	4356681	549893.6	4356611	549943.7	4356621	549936.3		
1738	4357012	549596.3	4356629	549869.0	4356661	549846.6	4356597	549892.2	4356605	549886.2		
1739	4356990	549550.8	4356593	549833.5	4356641	549799.4	4356586	549838.3	4356592	549834.4		
1740	4356965	549507.4	4356552	549801.3	4356621	549752.2	4356578	549782.4	4356580	549781.5		
1741	4356943	549461.7	4356518	549763.9	4356603	549703.5	4356559	549734.9	4356564	549731.7		
1742	4356929	549410.0	4356515	549704.9	4356588	549652.9	4356535	549690.5	4356543	549684.9		
1743	4356911	549361.7	4356505	549650.5	4356567	549606.2	4356522	549638.4	4356517	549642.2		
1744	4356878	549323.5	4356486	549603.0	4356551	549556.4	4356499	549593.6	4356495	549596.7		
1745	4356851	549281.3	4356471	549551.9	4356539	549503.9	4356489	549539.4	4356483	549543.7		
1746	4356833	549232.6	4356461	549498.0	4356536	549444.4	4356481	549483.5	4356476	549487.2		
1747	4356813	549185.6	4356455	549440.6	4356530	549387.2	4356470	549429.9	4356462	549435.9		
1748	4356791	549140.3	4356446	549385.7	4356517	549334.8	4356457	549377.9	4356447	549385.2		
1749	4356768	549095.0	4356441	549328.1	4356499	549286.3	4356440	549328.8	4356427	549338.0		
1750	4356746	549049.6	4356437	549269.1	4356472	549244.8	4356422	549280.4	4356415	549285.1		
1751	4356723	549004.5	4356433	549210.8	4356467	549186.5	4356402	549232.8	4356394	549238.9		
1752	4356699	548960.1	4356429	549152.6	4356452	549135.9	4356392	549178.3	4356371	549193.3		
1753	4356675	548915.4	4356423	549095.5	4356437	549085.3	4356382	549124.4	4356352	549145.6		
1754	4356652	548870.9	4356407	549045.3	4356422	549034.6	4356375	549068.2	4356328	549101.2		
1755	4356626	548827.6	4356395	548992.6	4356406	548984.7	4356359	549018.0	4356308	549054.3		
1756	4356602	548783.8	4356381	548940.7	4356389	548935.3	4356335	548973.9	4356282	549011.1		
1757	4356577	548739.8	4356367	548889.8	4356374	548884.4	4356312	548928.7	4356258	548967.2		
1758	4356556	548693.7	4356354	548837.1	4356360	548833.2	4356288	548884.4	4356234	548923.1		
1759	4356539	548644.3	4356342	548784.8	4356345	548782.2	4356266	548838.8	4356208	548879.9		
1760	4356521	548595.5	4356328	548732.9	4356327	548733.9	4356248	548790.3	4356181	548838.0		
1761	4356499	548549.8	4356316	548680.5	4356294	548696.3	4356226	548744.5	4356156	548794.1		
1762	4356475	548505.5	4356307	548625.2	4356272	548650.2	4356200	548701.7	4356132	548749.8		
1763	4356450	548462.2	4356303	548566.9	4356267	548592.2	4356180	548654.4	4356124	548694.5		
1764	4356422	548420.3	4356301	548506.5	4356246	548546.2	4356174	548597.3	4356125	548632.3		
1765	4356399	548375.9	4356279	548461.0	4356224	548500.5	4356168	548540.2	4356125	548570.9		
1766	4356372	548333.4	4356257	548415.1	4356193	548460.8	4356158	548486.1	4356114	548517.0		
1767	4356346	548290.4	4356240	548365.9	4356176	548411.6	4356144	548434.2	4356105	548462.5		
1768	4356322	548246.5	4356219	548319.8	4356166	548357.5	4356137	548377.9	4356096	548407.3		
1769	4356297	548202.9	4356204	548269.3	4356134	548319.0	4356125	548325.3	4356084	548354.6		
1770	4356269	548161.4	4356190	548217.5	4356126	548263.1	4356107	548276.6	4356069	548303.4		
1771	4356236	548123.6	4356172	548168.7	4356108	548214.6	4356087	548229.6	4356049	548256.5		
1772	4356205	548084.5	4356155	548119.5	4356010	548222.8	4356064	548184.4	4356026	548211.7	4355985	548241.1
1773	4356174	548044.5	4356139	548069.6	4356075	548115.5	4356046	548135.8	4356002	548167.5	4355964	548194.5
1774	4356149	548001.1	4356123	548019.8	4356057	548066.8	4356025	548089.3	4355981	548120.9	4355942	548148.6
1775	4356127	547955.7	4356106	547970.6	4356036	548020.3	4356006	548041.7	4355958	548075.6	4355920	548102.9
1776	4356104	547910.4	4356089	547921.4	4356015	547973.8	4355983	547996.3	4355936	548030.4	4355899	548056.3

High-Water Shoreline Position Change Rate

Transect #	1839/42 to 1864/86 (m/yr)	1839/42 to 1899 (m/yr)	1839/42 to 1932 (m/yr)	1839/42 to 1950/51 (m/yr)	1839/42 to 1977 (m/yr)	1864/86 to 1899 (m/yr)	1864/86 to 1932 (m/yr)	1864/86 to 1950/51 (m/yr)	1864/86 to 1977 (m/yr)	1899 to 1932 (m/yr)	1899 to 1950/51 (m/yr)	1899 to 1977 (m/yr)	1932 to 1950/51 (m/yr)	1932 to 1977 (m/yr)	1950/51 to 1977 (m/yr)
1777	0.6	1.8	1.6	1.9	1.8	2.5	2.0	2.3	2.1	1.4	2.1	1.9	3.4	2.3	1.5
1778	0.4	1.6	1.6	1.9	1.8	2.4	2.0	2.3	2.1	1.6	2.2	2.0	3.4	2.3	1.5
1779	-0.1	1.4	1.5	1.8	1.8	2.3	2.1	2.3	2.1	1.9	2.3	2.0	3.1	2.2	1.5
1780	-0.4	1.1	1.5	1.7	1.7	2.2	2.1	2.3	2.1	2.1	2.4	2.1	2.9	2.1	1.6
1781	-1.0	0.9	1.4	1.6	1.6	2.2	2.2	2.3	2.2	2.1	2.4	2.1	2.8	2.2	1.7
1782	-1.5	1.0	1.2	1.5	1.6	2.6	2.2	2.3	2.2	1.7	2.1	2.0	2.7	2.2	1.9
1783	-1.8	0.6	1.1	1.4	1.5	2.2	2.1	2.2	2.2	2.0	2.2	2.2	2.5	2.3	2.2
1784	-2.1	0.5	1.1	1.3	1.5	2.2	2.2	2.2	2.2	2.1	2.2	2.3	2.3	2.3	2.3
1785	-2.4	0.3	1.0	1.2	1.5	2.1	2.1	2.2	2.2	2.1	2.3	2.3	2.5	2.4	2.3
1786	-2.5	0.2	1.0	1.2	1.4	2.0	2.2	2.2	2.3	2.3	2.4	2.4	2.4	2.4	2.4
1787	-2.7	0.1	0.9	1.2	1.4	2.0	2.2	2.2	2.3	2.4	2.3	2.4	2.2	2.4	2.5
1788	-2.6	-0.1	0.9	1.1	1.4	1.6	2.1	2.1	2.3	2.6	2.5	2.6	2.3	2.6	2.7
1789	-2.5	0.0	0.8	1.1	1.5	1.6	1.9	2.1	2.3	2.2	2.4	2.6	2.6	2.8	2.9
1790	-2.4	0.0	0.8	1.1	1.5	1.6	1.9	2.0	2.2	2.3	2.3	2.5	2.3	2.7	3.0
1791	-2.6	0.0	0.8	1.0	1.4	1.7	1.9	2.0	2.3	2.2	2.1	2.5	2.0	2.7	3.2
1792	-2.9	-0.2	0.8	0.9	1.4	1.6	2.0	1.9	2.3	2.4	2.1	2.6	1.6	2.7	3.5
1793	-3.1	-0.2	0.7	0.9	1.4	1.7	2.0	1.9	2.3	2.4	2.1	2.6	1.5	2.7	3.6
1794	-3.4	-0.3	0.6	0.8	1.4	1.8	2.0	1.9	2.3	2.2	2.0	2.6	1.6	2.8	3.7
1795	-3.6	-0.2	0.5	0.7	1.3	2.1	1.9	1.9	2.3	1.8	1.8	2.5	1.8	2.9	3.7
1796	-3.7	-0.4	0.5	0.7	1.3	1.8	1.9	1.8	2.3	1.9	1.8	2.6	1.7	3.0	3.9
1797	-3.6	-0.4	0.5	0.6	1.3	1.7	1.9	1.8	2.3	2.0	1.8	2.6	1.4	3.0	4.0
1798	-3.5	-0.5	0.4	0.6	1.3	1.5	1.8	1.7	2.3	2.0	1.9	2.6	1.6	3.1	4.1
1799	-3.3	-0.6	0.4	0.6	1.3	1.2	1.7	1.7	2.3	2.2	2.0	2.8	1.6	3.2	4.2
1800	-2.9	-0.6	0.4	0.7	1.4	1.0	1.6	1.6	2.2	2.2	2.1	2.8	1.8	3.2	4.2
1801	-2.5	-0.5	0.5	0.7	1.4	0.8	1.5	1.5	2.2	2.1	2.0	2.8	1.8	3.3	4.2
1802	-2.5	-0.5	0.5	0.7	1.4	0.7	1.4	1.5	2.2	2.2	2.0	2.8	1.7	3.2	4.2
1803	-2.4	-0.5	0.4	0.7	1.4	0.8	1.4	1.5	2.1	2.1	2.0	2.8	1.9	3.3	4.2
1804	-2.3	-0.5	0.5	0.7	1.4	0.8	1.4	1.5	2.1	2.1	2.0	2.7	1.8	3.2	4.2
1805	-2.5	-0.5	0.4	0.6	1.3	0.8	1.4	1.4	2.1	2.0	1.8	2.7	1.4	3.2	4.4
1806	-2.7	-0.5	0.4	0.5	1.3	0.9	1.4	1.4	2.1	1.9	1.8	2.7	1.4	3.3	4.5
1807	-2.8	-0.6	0.3	0.5	1.3	1.0	1.4	1.4	2.1	1.9	1.7	2.7	1.5	3.3	4.5
1808	-2.9	-0.5	0.4	0.5	1.3	1.1	1.4	1.4	2.1	1.9	1.7	2.6	1.3	3.2	4.4
1809	-2.8	-0.4	0.4	0.5	1.3	1.1	1.5	1.4	2.1	1.8	1.6	2.5	1.3	3.1	4.2
1810	-2.4	-0.2	0.5	0.6	1.3	1.2	1.5	1.4	2.1	1.8	1.6	2.5	1.1	2.9	4.1
1811	-2.2	-0.1	0.6	0.7	1.3	1.3	1.6	1.4	2.1	1.9	1.5	2.4	0.8	2.8	4.1
1812	-1.6	0.1	0.8	0.8	1.4	1.2	1.6	1.4	2.0	1.9	1.5	2.4	0.7	2.8	4.1
1813	-0.9	0.4	0.9	0.9	1.5	1.2	1.5	1.4	2.0	1.8	1.5	2.4	0.9	2.8	4.1
1814	-0.4	0.6	1.0	1.0	1.6	1.2	1.5	1.4	2.0	1.8	1.5	2.4	1.0	2.8	4.0
1815	0.0	0.8	1.2	1.1	1.7	1.3	1.6	1.4	2.0	1.8	1.5	2.4	0.9	2.8	4.0
1816	1.0	1.2	1.4	1.3	1.8	1.2	1.5	1.4	2.0	1.7	1.5	2.3	1.0	2.7	3.9
1817	1.5	1.4	1.5	1.4	1.9	1.4	1.5	1.4	2.0	1.6	1.4	2.3	1.0	2.7	3.8
1818	8.0	4.0	3.1	2.8	3.0	1.3	1.5	1.4	2.0	1.7	1.5	2.3	1.1	2.7	3.8
1819	8.1	4.0	3.2	2.8	3.0	1.3	1.5	1.4	1.9	1.6	1.4	2.2	1.1	2.6	3.6
1820	2.3	1.7	1.7	1.6	1.9	1.3	1.5	1.4	1.9	1.6	1.4	2.1	1.0	2.4	3.4
1821	1.3	1.4	1.5	1.3	1.8	1.4	1.5	1.3	1.8	1.6	1.3	2.0	0.7	2.4	3.4
1822	0.4	1.1	1.3	1.2	1.6	1.6	1.6	1.4	1.9	1.6	1.2	2.0	0.6	2.3	3.4
1823	-0.1	0.9	1.1	1.1	1.5	1.6	1.6	1.4	1.9	1.5	1.3	2.0	0.8	2.3	3.3
1824	-0.2	0.9	1.1	1.1	1.5	1.6	1.5	1.4	1.8	1.5	1.3	1.9	1.0	2.2	3.0
1825	-0.6	0.7	0.9	1.0	1.4	1.5	1.5	1.4	1.8	1.4	1.3	1.9	1.1	2.2	2.9
1826	-1.1	0.6	0.9	0.8	1.3	1.6	1.5	1.4	1.8	1.4	1.2	1.8	0.8	2.2	3.1
1827	-1.1	0.5	0.9	0.8	1.2	1.5	1.5	1.3	1.7	1.5	1.2	1.8	0.6	2.0	3.0
1828	-1.0	0.4	0.9	0.8	1.2	1.2	1.5	1.3	1.7	1.9	1.3	1.9	0.3	1.9	2.9
1829	-1.1	0.3	0.9	0.8	1.2	1.3	1.6	1.3	1.7	1.9	1.3	1.8	0.3	1.8	2.8
1830	-1.1	0.3	0.9	0.8	1.2	1.3	1.5	1.3	1.6	1.8	1.3	1.8	0.4	1.8	2.7
1831	-1.1	0.3	0.9	0.8	1.1	1.3	1.5	1.3	1.6	1.8	1.3	1.7	0.4	1.7	2.6
1832	-1.1	0.3	0.9	0.8	1.1	1.2	1.6	1.3	1.6	1.9	1.3	1.8	0.2	1.7	2.7
1833	-1.1	0.3	0.9	0.8	1.2	1.2	1.6	1.3	1.6	1.9	1.3	1.8	0.3	1.7	2.6
1834	-0.8	0.5	1.0	0.8	1.2	1.3	1.6	1.3	1.6	1.8	1.3	1.7	0.2	1.6	2.5
1835	-0.8	0.5	0.9	0.9	1.1	1.4	1.4	1.3	1.5	1.5	1.3	1.6	0.9	1.7	2.2
1836	-0.7	0.5	0.9	0.9	1.2	1.4	1.5	1.3	1.5	1.5	1.3	1.6	0.9	1.6	2.1
1837	-0.6	0.6	1.0	0.9	1.2	1.4	1.6	1.3	1.5	1.7	1.3	1.6	0.4	1.4	2.1
1838	-0.5	0.7	1.1	0.9	1.2	1.4	1.7	1.3	1.5	1.9	1.2	1.5	0.0	1.2	2.1
1839	-0.5	0.7	1.2	1.0	1.2	1.4	1.8	1.4	1.5	2.1	1.3	1.5	-0.2	1.1	2.0
1840	-0.6	0.6	1.2	1.0	1.1	1.4	1.8	1.4	1.5	2.2	1.4	1.5	-0.1	1.1	1.8
1841	-0.6	0.6	1.2	1.0	1.1	1.4	1.8	1.4	1.5	2.2	1.4	1.5	0.0	1.0	1.8
1842	-0.5	0.6	1.2	1.0	1.1	1.2	1.8	1.4	1.5	2.3	1.5	1.6	0.1	1.0	1.6
1843	-0.3	0.5	1.1	1.1	1.2	1.0	1.5	1.5	1.5	2.0	1.8	1.7	1.3	1.4	1.4
1844	-0.1	0.5	1.0	1.3	1.2	0.9	1.4	1.6	1.5	1.9	2.1	1.7	2.5	1.6	1.0
1845	-0.2	0.4	1.0	1.2	1.2	0.9	1.5	1.6	1.5	2.1	2.1	1.8	2.2	1.5	1.1
1846	-0.4	0.3	1.1	1.2	1.2	0.7	1.6	1.6	1.5	2.4	2.2	1.8	1.7	1.3	1.1
1847	-0.4	0.2	1.1	1.1	1.1	0.6	1.6	1.5	1.4	2.6	2.2	1.8	1.5	1.3	1.1
1848	-0.3	0.1	1.1	1.1	1.1	0.3	1.5	1.5	1.4	2.7	2.3	1.9	1.5	1.3	1.1
1849	-0.2	0.0	1.1	1.1	1.1	0.1	1.5	1.5	1.4	2.9	2.4	2.0	1.4	1.2	1.1
1850	0.0	0.0	0.8	1.1	1.1	-0.1	1.0	1.4	1.4	2.2	2.4	2.0	2.7	1.9	1.3
1851	0.2	-0.1	0.8	1.0	1.2	-0.3	1.0	1.3	1.4	2.4	2.3	2.1	2.2	1.8	1.6
1852	0.4	-0.1	0.2	1.0	1.2	-0.4	0.1	1.2	1.3	0.7	2.3	2.1	5.3	3.2	1.8
1853	0.1	-0.3	0.1	1.0	1.1	-0.5	0.1	1.2	1.3	0.8	2.4	2.1	5.2	3.1	1.6
1854	0.0	-0.4	0.9	1.0	1.1	-0.7	1.2	1.2	1.3	3.3	2.5	2.1	1.1	1.3	1.4
1855	-0.4	-0.6	0.8	0.9	1.0	-0.8	1.2	1.2	1.3	3.3	2.6	2.2	1.2	1.4	1.5
1856	-0.4	-0.7	0.8	0.8	0.9	-1.0	1.1	1.1	1.2	3.4	2.6	2.2	1.1	1.3	1.4
1857	-0.4	-0.8	0.4	0.8	0.9	-1.0	0.7	1.1	1.2	2.5	2.5	2.1	2.7	1.9	1.3

High-Water Shoreline Position (UTM Zone 18, NAD 1983)

Transect #	1839/42 UTM-x (m)	1839/42 UTM-y (m)	1864/86 UTM-x (m)	1864/86 UTM-y (m)	1899 UTM-x (m)	1899 UTM-y (m)	1932 UTM-x (m)	1932 UTM-y (m)	1950/51 UTM-x (m)	1950/51 UTM-y (m)	1977 UTM-x (m)	1977 UTM-y (m)
1777	4356081	547865.2	4356070	547873.6	4355999	547924.2	4355960	547951.7	4355910	547987.3	4355878	548010.4
1778	4356057	547821.3	4356050	547826.1	4355981	547875.1	4355938	547905.8	4355889	547940.9	4355856	547964.7
1779	4356028	547780.4	4356030	547779.2	4355964	547826.1	4355914	547861.9	4355868	547894.8	4355834	547918.6
1780	4356000	547739.4	4356008	547733.5	4355946	547777.4	4355890	547817.3	4355848	547847.6	4355812	547873.3
1781	4355969	547699.8	4355987	547686.9	4355924	547731.5	4355868	547771.9	4355826	547801.4	4355788	547828.5
1782	4355939	547660.0	4355966	547640.4	4355892	547693.1	4355847	547725.4	4355807	547754.0	4355765	547783.4
1783	4355911	547618.6	4355945	547594.0	4355881	547639.4	4355827	547677.9	4355790	547704.3	4355742	547738.8
1784	4355884	547576.3	4355924	547547.7	4355862	547591.9	4355804	547632.8	4355770	547657.2	4355719	547694.0
1785	4355858	547533.3	4355903	547501.6	4355842	547544.6	4355784	547585.6	4355748	547611.8	4355696	547648.6
1786	4355833	547489.8	4355880	547455.9	4355822	547497.5	4355760	547542.0	4355724	547567.2	4355672	547604.1
1787	4355808	547446.4	4355858	547410.5	4355801	547450.8	4355737	547496.4	4355705	547519.7	4355649	547559.1
1788	4355785	547401.2	4355834	547365.9	4355789	547398.3	4355719	547447.8	4355685	547472.2	4355626	547514.6
1789	4355764	547354.6	4355811	547321.3	4355765	547354.2	4355704	547397.1	4355666	547424.4	4355603	547469.5
1790	4355742	547309.1	4355787	547276.8	4355741	547309.8	4355680	547353.2	4355646	547377.0	4355580	547424.0
1791	4355714	547267.4	4355764	547232.2	4355716	547266.2	4355656	547309.1	4355627	547329.5	4355556	547380.2
1792	4355687	547225.5	4355741	547187.2	4355694	547220.5	4355630	547265.7	4355606	547282.8	4355530	547336.8
1793	4355659	547183.6	4355718	547142.2	4355670	547175.9	4355605	547222.1	4355584	547237.6	4355505	547293.6
1794	4355630	547142.9	4355694	547097.8	4355643	547133.8	4355583	547176.5	4355560	547192.8	4355480	547250.1
1795	4355601	547102.3	4355669	547053.9	4355611	547095.6	4355562	547129.9	4355537	547148.3	4355455	547206.5
1796	4355574	547060.0	4355643	547011.2	4355592	547047.5	4355540	547084.5	4355515	547102.2	4355429	547163.4
1797	4355548	547017.4	4355616	546968.8	4355567	547004.2	4355513	547042.5	4355492	547057.6	4355403	547120.7
1798	4355523	546973.9	4355589	546926.6	4355546	546957.4	4355492	546996.2	4355468	547012.9	4355378	547077.1
1799	4355500	546928.8	4355562	546884.9	4355528	546909.0	4355469	546951.2	4355445	546968.3	4355352	547034.1
1800	4355477	546883.7	4355532	546844.5	4355505	546864.0	4355445	546906.8	4355419	546925.2	4355326	546991.3
1801	4355455	546838.1	4355501	546805.1	4355477	546822.3	4355420	546863.2	4355393	546882.5	4355301	546948.1
1802	4355428	546795.9	4355475	546762.5	4355454	546777.6	4355395	546819.7	4355369	546837.9	4355277	546903.8
1803	4355404	546751.6	4355449	546719.7	4355427	546735.2	4355371	546775.2	4355343	546795.0	4355252	546860.2
1804	4355380	546707.7	4355423	546676.5	4355401	546692.2	4355346	546731.8	4355319	546751.0	4355227	546816.0
1805	4355352	546666.2	4355399	546632.8	4355375	546649.9	4355320	546688.6	4355300	546703.2	4355202	546772.6
1806	4355324	546624.4	4355375	546588.1	4355349	546606.5	4355297	546643.7	4355277	546658.3	4355177	546728.8
1807	4355298	546582.0	4355351	546544.1	4355324	546563.4	4355272	546599.9	4355251	546615.0	4355153	546684.9
1808	4355272	546539.0	4355325	546500.7	4355296	546522.0	4355245	546557.9	4355226	546571.7	4355129	546640.3
1809	4355249	546493.9	4355300	546457.2	4355268	546480.3	4355220	546514.5	4355201	546527.8	4355108	546594.4
1810	4355230	546445.9	4355276	546413.4	4355240	546438.5	4355191	546473.6	4355174	546485.4	4355084	546550.0
1811	4355210	546398.7	4355251	546369.9	4355214	546395.7	4355163	546431.9	4355151	546440.7	4355061	546504.9
1812	4355193	546349.2	4355224	546327.7	4355188	546352.8	4355137	546389.2	4355126	546397.0	4355036	546461.6
1813	4355180	546297.7	4355197	546285.3	4355163	546309.8	4355113	546345.1	4355100	546354.4	4355009	546419.0
1814	4355164	546247.6	4355171	546242.3	4355137	546266.8	4355088	546301.7	4355073	546311.9	4354985	546375.1
1815	4355147	546198.2	4355147	546198.3	4355110	546224.6	4355061	546259.5	4355047	546269.3	4354960	546331.3
1816	4355136	546144.7	4355116	546158.4	4355081	546183.6	4355035	546216.3	4355021	546226.7	4354935	546287.5
1817	4355122	546092.9	4355094	546113.2	4355054	546141.4	4355010	546172.7	4354995	546183.6	4354911	546243.7
1818	4355217	545964.3	4355068	546070.5	4355029	546097.7	4354984	546130.1	4354968	546141.2	4354886	546200.0
1819	4355192	545920.7	4355039	546029.4	4355002	546056.0	4354957	546087.5	4354942	546098.9	4354862	546155.4
1820	4355053	545957.9	4355009	545989.2	4354972	546016.1	4354928	546046.9	4354914	546057.0	4354839	546110.8
1821	4355010	545927.7	4354985	545945.2	4354944	545974.3	4354901	546004.7	4354891	546012.4	4354815	546066.3
1822	4354969	545894.9	4354962	545900.0	4354917	545932.0	4354875	545962.0	4354867	545967.9	4354791	546021.7
1823	4354934	545858.4	4354937	545856.5	4354891	545889.2	4354850	545918.8	4354838	545927.2	4354766	545978.4
1824	4354905	545817.6	4354909	545815.3	4354864	545847.2	4354824	545875.8	4354809	545886.5	4354742	545934.1
1825	4354869	545782.0	4354880	545774.1	4354837	545805.3	4354799	545832.1	4354783	545843.1	4354719	545889.1
1826	4354836	545744.7	4354856	545730.3	4354809	545763.7	4354772	545789.8	4354760	545798.3	4354693	545846.1
1827	4354807	545703.5	4354827	545689.4	4354785	545719.6	4354744	545748.7	4354735	545755.0	4354669	545802.1
1828	4354779	545661.9	4354798	545648.8	4354762	545674.0	4354712	545709.6	4354709	545712.2	4354644	545758.3
1829	4354751	545620.7	4354771	545606.4	4354735	545631.8	4354685	545667.7	4354681	545670.4	4354619	545714.6
1830	4354723	545579.3	4354744	545564.5	4354707	545590.4	4354658	545625.6	4354652	545630.1	4354593	545671.6
1831	4354695	545537.8	4354715	545523.5	4354679	545549.1	4354631	545583.5	4354625	545587.7	4354569	545627.8
1832	4354669	545494.7	4354690	545480.2	4354654	545505.5	4354604	545541.5	4354601	545543.7	4354542	545585.3
1833	4354645	545450.7	4354665	545436.4	4354630	545461.5	4354579	545497.9	4354574	545501.1	4354517	545542.1
1834	4354620	545407.1	4354636	545395.9	4354599	545422.3	4354549	545457.4	4354546	545459.6	4354492	545498.2
1835	4354594	545364.2	4354609	545353.3	4354570	545381.1	4354529	545410.4	4354516	545419.6	4354467	545454.4
1836	4354569	545320.8	4354582	545311.4	4354543	545339.2	4354501	545368.8	4354488	545378.1	4354441	545411.5
1837	4354545	545276.7	4354556	545268.5	4354515	545297.5	4354469	545330.6	4354463	545334.7	4354416	545368.3
1838	4354520	545233.0	4354530	545225.8	4354488	545255.3	4354436	545292.6	4354437	545292.1	4354391	545324.3
1839	4354494	545190.1	4354503	545183.2	4354462	545212.4	4354406	545252.7	4354409	545250.7	4354365	545281.5
1840	4354467	545147.8	4354478	545140.3	4354437	545169.1	4354379	545210.4	4354380	545209.5	4354340	545238.1
1841	4354441	545105.2	4354451	545097.5	4354412	545125.4	4354353	545167.3	4354354	545167.0	4354315	545194.6
1842	4354416	545061.4	4354425	545054.9	4354390	545079.9	4354327	545124.8	4354326	545125.8	4354290	545151.1
1843	4354392	545016.7	4354399	545012.3	4354369	545033.3	4354314	545072.3	4354295	545086.0	4354264	545108.4
1844	4354370	544971.3	4354372	544969.6	4354345	544988.8	4354294	545025.6	4354257	545051.5	4354236	545066.9
1845	4354343	544929.1	4354347	544926.3	4354322	544944.1	4354266	544983.9	4354234	545006.8	4354211	545023.3
1846	4354314	544888.6	4354322	544882.9	4354301	544898.0	4354236	544944.2	4354211	544962.0	4354186	544979.4
1847	4354289	544844.9	4354296	544839.5	4354279	544851.8	4354210	544900.9	4354188	544916.5	4354164	544934.1
1848	4354265	544800.3	4354270	544797.0	4354260	544804.1	4354187	544856.3	4354164	544872.5	4354140	544889.9
1849	4354240	544756.6	4354243	544754.6	4354241	544756.4	4354162	544812.6	4354142	544827.0	4354117	544844.8
1850	4354218	544711.5	4354217	544711.7	4354219	544710.4	4354160	544752.8	4354120	544780.8	4354091	544801.3
1851	4354195	544665.9	4354192	544668.5	4354200	544663.0	4354135	544709.1	4354103	544732.0	4354067	544757.3
1852	4354174	544620.1	4354166	544625.4	4354178	544616.9	4354159	544630.2	4354082	544685.2	4354044	544712.7
1853	4354141	544581.7	4354140	544582.9	4354155	544572.1	4354132	544588.0	4354056	544642.7	4354020	544668.4
1854	4354112	544541.2	4354113	544540.8	4354132	544527.3	4354044	544589.8	4354027	544601.6	4353996	544624.1
1855	4354076	544505.2	4354083	544500.4	4354107	544483.6	4354017	544547.3	4354000	544559.3	4353967	544583.2
1856	4354047	544464.7	4354054	544460.0	4354082	544440.1	4353991	544504.8	4353975	544516.3	4353945	544537.6
1857	4354018	544423.9	4354026	544418.2	4354055	544397.8	4353988	544445.2	4353949	544473.2	4353919	544494.3

	High-Water Shoreline Position Change Rate														
	1839/42 to	1839/42 to	1839/42 to	1839/42 to	1839/42 to	1864/86 to	1864/86 to	1864/86 to	1864/86 to	1899 to	1899 to	1899 to	1932 to	1932 to	1950/51 to
Transect #	1864/86 (m/yr)	1899 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1899 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1977 (m/yr)
1858	-0.4	-0.8	0.4	0.8	0.9	-1.1	0.7	1.1	1.1	2.6	2.5	2.2	2.5	1.9	1.4
1859	-0.3	-0.8	0.4	0.8	0.9	-1.2	0.7	1.0	1.1	2.7	2.6	2.2	2.4	1.8	1.5
1860	-0.1	-0.8	0.5	0.7	0.9	-1.2	0.7	1.0	1.1	2.7	2.5	2.2	2.0	1.8	1.6
1861	0.2	-0.7	0.5	0.8	0.9	-1.3	0.7	0.9	1.1	2.8	2.4	2.2	1.8	1.7	1.6
1862	0.2	-0.7	0.5	0.7	0.9	-1.2	0.7	0.9	1.1	2.7	2.3	2.1	1.7	1.7	1.7
1863	0.1	-0.8	0.2	0.7	0.9	-1.3	0.2	0.9	1.0	1.8	2.3	2.1	3.3	2.3	1.6
1864	0.0	-0.8	0.4	0.7	0.8	-1.4	0.6	0.8	1.0	2.7	2.3	2.1	1.8	1.6	1.6
1865	0.1	-0.9	0.4	0.6	0.8	-1.5	0.5	0.8	1.0	2.7	2.3	2.1	1.6	1.6	1.6
1866	0.4	-0.8	0.5	0.6	0.8	-1.5	0.5	0.7	0.9	2.6	2.2	2.0	1.6	1.5	1.5
1867	0.6	-0.7	0.5	0.7	0.8	-1.5	0.4	0.7	0.9	2.5	2.2	1.9	1.7	1.5	1.4
1868	0.9	-0.6	0.5	0.7	0.8	-1.6	0.4	0.7	0.8	2.5	2.3	1.9	1.9	1.5	1.3
1869	0.9	-0.7	0.5	0.7	0.8	-1.7	0.3	0.6	0.8	2.5	2.2	1.9	1.9	1.5	1.3
1870	0.9	-0.7	0.4	0.7	0.8	-1.8	0.2	0.6	0.8	2.4	2.3	1.9	2.1	1.5	1.2
1871	1.1	-0.6	0.4	0.8	0.8	-1.8	0.2	0.7	0.7	2.3	2.3	1.9	2.4	1.6	1.0
1872	1.3	-0.5	0.4	0.8	0.8	-1.8	0.1	0.6	0.7	2.2	2.3	1.8	2.4	1.6	1.1
1873	1.6	-0.5	0.5	0.8	0.9	-1.9	0.1	0.6	0.7	2.2	2.3	1.9	2.4	1.6	1.1
1874	2.2	-0.3	0.2	0.9	1.0	-1.9	-0.5	0.6	0.7	1.0	2.3	1.9	4.8	2.6	1.1
1875	2.8	-0.1	0.3	1.0	1.0	-2.0	-0.6	0.6	0.7	0.9	2.3	1.9	4.9	2.6	1.1
1876	2.9	0.0	0.2	1.0	1.0	-1.9	-0.7	0.5	0.7	0.7	2.2	1.8	5.0	2.7	1.1
1877	3.1	0.1	0.2	1.1	1.1	-1.9	-0.7	0.5	0.7	0.6	2.2	1.8	5.2	2.7	1.1
1878	3.0	0.1	0.7	1.1	1.1	-1.9	-0.1	0.6	0.7	1.7	2.2	1.8	3.1	1.8	1.0
1879	2.8	0.0	0.8	1.0	1.0	-1.8	0.2	0.6	0.7	2.3	2.2	1.8	2.1	1.4	1.0
1880	2.6	-0.1	0.9	1.1	1.0	-1.8	0.4	0.6	0.7	2.7	2.3	1.8	1.7	1.2	0.8
1881	2.6	-0.1	0.9	1.0	1.0	-2.0	0.3	0.6	0.7	2.7	2.4	1.8	1.8	1.2	0.9
1882	2.8	-0.2	0.5	1.0	1.0	-2.1	-0.3	0.5	0.6	1.7	2.4	1.8	3.6	1.9	0.7
1883	2.7	-0.2	0.5	1.0	0.9	-2.1	-0.3	0.5	0.6	1.6	2.3	1.8	3.7	1.9	0.7
1884	3.0	-0.2	0.4	1.0	0.9	-2.4	-0.4	0.4	0.5	1.6	2.3	1.7	3.6	1.8	0.7
1885	3.0	-0.2	0.4	0.9	0.9	-2.3	-0.5	0.3	0.4	1.4	2.1	1.7	3.4	1.9	0.9
1886	2.8	-0.2	0.3	0.9	0.9	-2.2	-0.5	0.3	0.5	1.3	2.1	1.7	3.5	1.9	0.9
1887	2.5	-0.3	0.3	0.8	0.8	-2.1	-0.5	0.3	0.5	1.2	2.0	1.6	3.5	2.0	1.0
1888	2.3	-0.3	-0.1	0.7	0.8	-1.9	-0.9	0.3	0.5	0.2	1.9	1.6	4.9	2.7	1.2
1889	2.2	-0.3	-0.2	0.7	0.8	-1.9	-1.0	0.3	0.5	0.0	1.8	1.6	5.0	2.7	1.2
1890	2.3	-0.2	-0.2	0.7	0.8	-1.9	-1.1	0.2	0.5	-0.2	1.7	1.5	5.2	2.8	1.1
1891	2.5	-0.2	-0.3	0.7	0.8	-2.0	-1.2	0.2	0.4	-0.3	1.7	1.5	5.5	2.8	1.0
1892	2.7	-0.2	0.1	1.4	0.8	-2.1	-0.7	1.0	0.4	0.8	3.1	1.6	7.5	2.2	-1.3
1893	2.8	-0.1	0.2	0.7	0.8	-2.0	-0.7	0.2	0.4	0.6	1.7	1.4	3.6	2.0	0.9
1894	3.0	0.0	0.5	0.8	0.8	-2.0	-0.3	0.2	0.3	1.5	1.7	1.3	2.1	1.2	0.6
1895	2.9	0.0	0.5	0.8	0.7	-1.9	-0.3	0.2	0.3	1.5	1.6	1.3	1.8	1.1	0.7
1896	2.9	0.0	0.6	0.7	0.7	-1.9	-0.2	0.1	0.3	1.6	1.5	1.3	1.4	1.0	0.8
1897	2.9	0.0	0.6	0.7	0.7	-1.9	-0.2	0.1	0.3	1.6	1.5	1.2	1.4	0.9	0.6
1898	2.7	-0.2	0.5	0.7	0.7	-2.1	-0.2	0.1	0.2	1.8	1.7	1.3	1.4	0.9	0.6
1899	2.6	-0.2	0.5	0.6	0.6	-2.1	-0.2	0.1	0.2	1.7	1.6	1.2	1.3	0.9	0.6
1900	2.7	-0.1	0.5	0.6	0.6	-2.0	-0.2	0.0	0.2	1.7	1.4	1.2	1.0	0.7	0.6
1901	2.9	-0.1	0.5	0.6	0.6	-2.1	-0.3	-0.1	0.1	1.7	1.3	1.1	0.7	0.7	0.8
1902	2.9	-0.1	0.6	0.6	0.6	-2.1	-0.2	0.0	0.1	1.7	1.4	1.1	0.9	0.7	0.6
1903	2.8	-0.1	0.5	0.6	0.6	-2.0	-0.3	0.0	0.2	1.5	1.4	1.1	1.3	0.9	0.6
1904	2.7	-0.2	0.4	0.6	0.6	-2.1	-0.4	0.0	0.2	1.4	1.5	1.2	1.7	1.1	0.6
1905	2.6	-0.3	0.3	0.5	0.5	-2.3	-0.5	0.0	0.1	1.5	1.5	1.2	1.5	0.9	0.5
1906	2.2	-0.5	0.2	0.5	0.4	-2.4	-0.5	0.0	0.1	1.5	1.6	1.2	1.7	0.9	0.3
1907	2.1	-0.7	0.2	0.4	0.4	-2.5	-0.5	-0.1	0.0	1.6	1.6	1.1	1.6	0.8	0.3
1908	1.9	-0.8	0.1	0.3	0.3	-2.5	-0.5	-0.1	0.0	1.6	1.5	1.1	1.4	0.8	0.4
1909	1.6	-0.9	0.0	0.2	0.3	-2.5	-0.5	-0.2	0.0	1.6	1.4	1.2	1.0	0.9	0.8
1910	1.5	-1.0	-0.1	0.1	0.2	-2.6	-0.6	-0.3	0.0	1.5	1.4	1.1	1.1	0.8	0.6
1911	1.4	-1.1	-0.3	0.0	0.1	-2.7	-0.8	-0.4	-0.2	1.2	1.2	1.0	1.3	0.9	0.6
1912	1.2	-0.9	-0.4	-0.1	0.1	-2.3	-1.0	-0.5	-0.2	0.4	0.8	0.8	1.5	1.0	0.7
1913	1.3	-0.9	-0.6	-0.2	0.0	-2.4	-1.3	-0.6	-0.2	-0.1	0.6	0.7	2.0	1.3	0.9
1914	1.6	-0.9	-0.7	-0.3	0.0	-2.6	-1.4	-0.7	-0.3	-0.2	0.5	0.7	1.9	1.3	1.0
1915	1.4	-0.9	-0.7	-0.3	0.0	-2.5	-1.4	-0.8	-0.3	-0.3	0.4	0.7	1.5	1.3	1.2
1916	0.8	-1.0	-0.8	-0.4	-0.1	-2.2	-1.3	-0.7	-0.3	-0.4	0.4	0.6	1.9	1.4	1.1
1917	0.7	-1.0	-0.8	-0.4	-0.1	-2.1	-1.2	-0.7	-0.3	-0.3	0.3	0.6	1.3	1.2	1.1
1918	-0.4	-1.2	-0.8	-0.5	-0.2	-1.7	-1.0	-0.5	-0.1	-0.2	0.3	0.6	1.3	1.2	1.2
1919	-1.6	-1.2	-1.0	-0.6	-0.2	-0.9	-0.7	-0.3	0.1	-0.6	0.1	0.5	1.4	1.3	1.2
1920	-2.2	-1.2	-1.0	-0.6	-0.3	-0.5	-0.6	-0.2	0.1	-0.6	0.0	0.4	1.1	1.2	1.2
1921	-2.6	-1.2	-1.1	-0.7	-0.3	-0.3	-0.6	-0.2	0.1	-0.9	-0.1	0.3	1.4	1.2	1.1
1922	-2.7	-1.2	-1.2	-0.7	-0.4	-0.2	-0.7	-0.1	0.1	-1.2	-0.1	0.3	2.0	1.4	0.9
1923	-2.7	-1.2	-1.3	-0.7	-0.4	-0.2	-0.9	-0.2	0.1	-1.6	-0.1	0.2	2.6	1.5	0.8
1924	-2.9	-1.3	-1.5	-0.7	-0.5	-0.2	-1.0	-0.1	0.0	-2.0	-0.1	0.0	3.2	1.5	0.3
1925	-2.9	-1.3	-1.6	-0.8	-0.6	-0.2	-1.2	-0.2	-0.1	-2.2	-0.2	-0.1	3.4	1.5	0.2
1926	-2.8	-1.3	-1.7	-0.8	-0.6	-0.3	-1.3	-0.3	-0.2	-2.4	-0.4	-0.1	3.5	1.6	0.3
1927	-3.0	-1.3	-1.8	-0.9	-0.6	-0.2	-1.3	-0.4	-0.2	-2.5	-0.5	-0.1	3.2	1.6	0.5
1928	-3.0	-1.4	-1.8	-1.0	-0.7	-0.3	-1.4	-0.4	-0.2	-2.4	-0.5	-0.2	3.2	1.5	0.3
1929	-2.9	-1.3	-1.7	-1.0	-0.7	-0.3	-1.3	-0.4	-0.2	-2.4	-0.5	-0.2	2.8	1.4	0.4
1930	-2.6	-1.2	-1.6	-0.9	-0.7	-0.3	-1.2	-0.5	-0.3	-2.1	-0.6	-0.2	2.3	1.1	0.4
1931	-2.6	-1.2	-1.4	-0.9	-0.7	-0.2	-1.0	-0.5	-0.3	-1.8	-0.7	-0.3	1.4	0.8	0.4
1932	-3.0	-1.2	-1.4	-1.0	-0.7	0.0	-0.9	-0.5	-0.2	-1.9	-0.8	-0.3	1.3	0.8	0.5
1933	-3.2	-1.2	-1.5	-1.0	-0.7	0.1	-0.9	-0.5	-0.2	-1.9	-0.8	-0.3	1.2	0.8	0.6
1934	-3.2	-1.2	-1.5	-1.1	-0.7	0.1	-0.9	-0.5	-0.2	-2.0	-0.9	-0.3	1.1	0.9	0.7
1935	-3.2	-1.3	-1.5	-1.1	-0.7	0.0	-1.0	-0.5	-0.2	-2.0	-0.8	-0.3	1.4	0.9	0.6
1936	-3.2	-1.3	-1.6	-1.0	-0.7	0.0	-1.0	-0.5	-0.2	-2.1	-0.8	-0.3	1.6	1.0	0.5
1937	-3.2	-1.3	-1.6	-1.0	-0.7	0.0	-1.0	-0.4	-0.2	-2.2	-0.7	-0.4	2.0	1.0	0.4
1938	-3.2	-1.2	-1.2	-1.0	-0.7	0.1	-0.6	-0.4	-0.2	-1.3	-0.7	-0.3	0.5	0.4	0.3

	High-Water Shoreline Position (UTM Zone 18, NAD 1983)											
		1839/42		1864/86		1899		1932		1950/51		1977
Transect #	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)
1858	4353992	544380.9	4353999	544376.0	4354031	544353.6	4353962	544402.5	4353925	544428.7	4353894	544451.0
1859	4353967	544337.6	4353973	544333.6	4354007	544309.2	4353935	544360.2	4353900	544385.1	4353868	544407.9
1860	4353945	544291.9	4353947	544290.7	4353982	544265.4	4353908	544317.8	4353879	544339.2	4353844	544364.1
1861	4353922	544246.7	4353919	544248.7	4353956	544222.8	4353882	544275.5	4353855	544294.3	4353819	544320.1
1862	4353895	544204.5	4353892	544207.1	4353927	544181.7	4353855	544233.1	4353830	544251.1	4353793	544277.0
1863	4353864	544165.3	4353863	544166.0	4353900	544140.0	4353851	544174.7	4353803	544209.1	4353767	544234.6
1864	4353834	544125.4	4353834	544125.4	4353874	544097.1	4353802	544148.1	4353776	544166.5	4353742	544190.9
1865	4353806	544084.1	4353804	544085.2	4353846	544055.3	4353775	544106.2	4353751	544123.3	4353715	544148.4
1866	4353781	544040.1	4353774	544045.2	4353817	544014.7	4353747	544064.3	4353724	544080.9	4353691	544104.4
1867	4353757	543996.3	4353745	544004.9	4353788	543973.9	4353720	544022.3	4353695	544039.9	4353665	544061.9
1868	4353731	543952.9	4353715	543964.7	4353761	543931.8	4353694	543979.8	4353666	543999.4	4353638	544019.7
1869	4353701	543912.8	4353685	543924.9	4353733	543890.4	4353667	543937.4	4353640	543956.7	4353611	543977.5
1870	4353672	543872.7	4353654	543885.1	4353705	543849.2	4353640	543894.9	4353609	543917.0	4353584	543935.1
1871	4353645	543830.5	4353624	543844.9	4353675	543808.7	4353614	543852.5	4353578	543877.9	4353556	543893.6
1872	4353620	543786.8	4353595	543804.6	4353646	543768.3	4353587	543810.2	4353552	543835.1	4353528	543852.0
1873	4353596	543742.1	4353567	543762.9	4353620	543725.3	4353560	543768.1	4353525	543793.1	4353502	543809.7
1874	4353581	543691.7	4353540	543720.8	4353595	543682.0	4353569	543700.2	4353499	543749.9	4353475	543767.3
1875	4353562	543644.0	4353510	543680.9	4353566	543641.2	4353543	543657.6	4353471	543708.7	4353446	543726.5
1876	4353534	543602.4	4353480	543641.0	4353535	543601.7	4353516	543615.0	4353443	543667.5	4353419	543684.5
1877	4353507	543559.9	4353450	543600.6	4353505	543561.6	4353490	543572.4	4353414	543626.7	4353390	543643.4
1878	4353478	543519.3	4353422	543559.2	4353475	543521.6	4353429	543554.5	4353383	543586.9	4353362	543602.2
1879	4353448	543479.7	4353395	543517.1	4353446	543480.7	4353385	543524.3	4353355	543546.1	4353333	543561.2
1880	4353416	543441.1	4353368	543475.4	4353420	543438.1	4353348	543489.3	4353322	543507.5	4353306	543519.3
1881	4353386	543400.8	4353337	543436.0	4353393	543396.0	4353321	543447.1	4353295	543465.9	4353275	543479.6
1882	4353357	543360.3	4353305	543397.4	4353365	543354.2	4353320	543386.5	4353266	543424.6	4353251	543435.9
1883	4353327	543319.9	4353276	543356.1	4353337	543313.3	4353294	543343.9	4353240	543382.3	4353225	543392.8
1884	4353298	543279.2	4353243	543318.8	4353310	543271.1	4353267	543301.6	4353214	543339.3	4353199	543349.8
1885	4353269	543239.0	4353212	543278.9	4353279	543231.6	4353241	543258.9	4353190	543294.8	4353171	543308.3
1886	4353238	543199.0	4353187	543235.8	4353250	543191.2	4353214	543216.2	4353163	543252.8	4353143	543266.8
1887	4353208	543159.5	4353161	543192.7	4353220	543151.1	4353188	543173.5	4353137	543209.9	4353116	543225.1
1888	4353176	543120.8	4353134	543150.9	4353189	543111.5	4353184	543115.1	4353112	543166.3	4353087	543184.4
1889	4353145	543081.7	4353103	543111.3	4353159	543071.8	4353157	543072.7	4353084	543124.7	4353059	543143.0
1890	4353115	543041.7	4353072	543072.4	4353124	543034.8	4353131	543030.3	4353054	543084.7	4353030	543102.2
1891	4353084	543001.9	4353038	543034.6	4353096	542993.6	4353104	542987.9	4353023	543045.4	4353001	543061.3
1892	4353056	542960.5	4353005	542996.8	4353066	542953.6	4353045	542968.2	4352936	543046.4	4352965	543025.6
1893	4353029	542918.6	4352976	542956.2	4353034	542915.1	4353017	542926.9	4352964	542964.6	4352944	542979.3
1894	4353002	542876.2	4352946	542916.1	4353003	542875.9	4352962	542904.5	4352931	542926.8	4352917	542936.9
1895	4352971	542837.0	4352916	542876.3	4352971	542836.8	4352930	542866.0	4352904	542884.7	4352890	542895.0
1896	4352941	542796.9	4352886	542836.1	4352941	542797.4	4352898	542827.5	4352878	542842.1	4352861	542854.1
1897	4352911	542757.1	4352857	542795.7	4352911	542757.3	4352867	542788.3	4352847	542802.5	4352833	542812.6
1898	4352876	542720.3	4352825	542756.8	4352884	542715.0	4352836	542748.9	4352815	542763.9	4352803	542772.9
1899	4352842	542683.2	4352793	542718.2	4352852	542676.0	4352805	542709.4	4352787	542722.7	4352773	542732.2
1900	4352813	542642.7	4352762	542679.3	4352819	542638.4	4352773	542671.0	4352759	542681.2	4352746	542690.6
1901	4352781	542604.2	4352727	542642.6	4352787	542600.1	4352741	542632.7	4352730	542640.1	4352714	542652.0
1902	4352750	542564.8	4352696	542603.6	4352755	542561.2	4352708	542594.4	4352696	542603.5	4352684	542612.1
1903	4352719	542525.8	4352666	542562.9	4352725	542521.3	4352684	542550.3	4352666	542563.5	4352653	542572.7
1904	4352685	542488.1	4352635	542523.6	4352696	542480.4	4352659	542506.6	4352634	542524.5	4352621	542534.1
1905	4352652	542450.7	4352602	542485.9	4352668	542439.0	4352628	542467.7	4352605	542483.6	4352593	542492.2
1906	4352613	542417.0	4352571	542446.6	4352638	542398.6	4352598	542427.8	4352573	542445.6	4352565	542450.9
1907	4352578	542380.5	4352538	542408.5	4352609	542358.6	4352566	542389.1	4352543	542405.5	4352536	542410.3
1908	4352542	542344.7	4352507	542369.4	4352579	542318.5	4352535	542349.6	4352515	542363.8	4352506	542370.0
1909	4352507	542308.3	4352476	542329.9	4352549	542278.4	4352505	542309.7	4352490	542320.1	4352473	542332.4
1910	4352472	542271.9	4352444	542291.6	4352519	542238.5	4352477	542268.0	4352462	542279.1	4352448	542288.8
1911	4352437	542235.2	4352412	542253.3	4352488	542198.9	4352457	542221.1	4352438	542234.8	4352425	542243.5
1912	4352405	542197.0	4352382	542212.9	4352448	542166.2	4352437	542174.1	4352415	542189.8	4352399	542201.2
1913	4352374	542157.0	4352350	542174.5	4352418	542126.2	4352420	542124.5	4352391	542144.9	4352373	542158.3
1914	4352344	542117.1	4352315	542138.3	4352389	542085.5	4352395	542081.2	4352367	542101.1	4352345	542116.2
1915	4352314	542077.6	4352287	542096.4	4352358	542045.9	4352365	542041.0	4352343	542056.6	4352317	542075.3
1916	4352280	542039.9	4352264	542051.2	4352327	542006.7	4352339	541998.3	4352311	542017.7	4352288	542034.4
1917	4352248	542001.8	4352235	542010.5	4352296	541967.2	4352304	541961.7	4352284	541975.6	4352259	541993.5
1918	4352212	541965.9	4352220	541960.3	4352268	541925.7	4352274	541921.4	4352256	541934.7	4352230	541952.9
1919	4352176	541930.1	4352205	541909.1	4352231	541891.1	4352247	541879.8	4352226	541894.6	4352199	541913.3
1920	4352139	541895.1	4352180	541865.8	4352195	541854.9	4352212	541842.7	4352197	541854.0	4352170	541873.2
1921	4352103	541859.5	4352152	541824.5	4352161	541817.9	4352185	541800.8	4352164	541815.7	4352140	541832.9
1922	4352069	541821.7	4352119	541786.3	4352125	541781.9	4352159	541758.2	4352129	541779.5	4352109	541793.7
1923	4352034	541785.8	4352085	541749.5	4352090	541745.5	4352133	541715.2	4352095	541741.9	4352077	541755.0
1924	4351997	541750.8	4352052	541711.5	4352056	541708.4	4352109	541670.8	4352061	541704.7	4352054	541710.2
1925	4351962	541714.1	4352017	541674.8	4352024	541670.3	4352083	541628.1	4352033	541663.3	4352029	541666.7
1926	4351931	541674.5	4351984	541636.9	4351992	541631.7	4352057	541584.8	4352007	541620.9	4352000	541625.7
1927	4351897	541637.4	4351954	541596.9	4351960	541592.6	4352028	541544.4	4351981	541578.2	4351969	541586.2
1928	4351864	541599.8	4351920	541559.8	4351929	541553.2	4351995	541506.4	4351948	541539.7	4351941	541545.0
1929	4351834	541560.0	4351888	541521.4	4351896	541515.3	4351960	541469.7	4351919	541499.3	4351910	541505.7
1930	4351805	541519.3	4351854	541484.3	4351863	541477.7	4351921	541436.7	4351887	541460.3	4351879	541466.4
1931	4351775	541479.0	4351825	541443.7	4351830	541439.8	4351879	541405.1	4351858	541419.8	4351849	541426.5
1932	4351740	541442.4	4351796	541402.8	4351797	541401.9	4351847	541366.2	4351829	541379.3	4351817	541387.6
1933	4351707	541404.7	4351767	541362.2	4351764	541363.9	4351816	541327.2	4351799	541339.4	4351785	541349.3
1934	4351673	541367.4	4351734	541324.3	4351731	541326.0	4351785	541288.0	4351768	541299.6	4351753	541310.8
1935	4351639	541330.1	4351699	541287.6	4351698	541288.0	4351753	541249.1	4351733	541263.3	4351720	541272.7
1936	4351606	541292.7	4351666	541250.0	4351665	541250.6	4351722	541210.1	4351698	541226.7	4351687	541235.0
1937	4351572	541255.4	4351632	541212.5	4351631	541213.2	4351690	541171.1	4351661	541191.7	4351654	541197.2
1938	4351539	541217.6	4351598	541175.4	4351596	541176.6	4351631	541151.8	4351624	541156.8	4351618	541161.2

High-Water Shoreline Position Change Rate

Transect #	1839/42 to 1864/86 (m/yr)	1839/42 to 1899 (m/yr)	1839/42 to 1932 (m/yr)	1839/42 to 1950/51 (m/yr)	1839/42 to 1977 (m/yr)	1864/86 to 1899 (m/yr)	1864/86 to 1932 (m/yr)	1864/86 to 1950/51 (m/yr)	1864/86 to 1977 (m/yr)	1899 to 1932 (m/yr)	1899 to 1950/51 (m/yr)	1899 to 1977 (m/yr)	1932 to 1950/51 (m/yr)	1932 to 1977 (m/yr)	1950/51 to 1977 (m/yr)
1939	-3.3	-1.2	-1.3	-1.0	-0.7	0.1	-0.6	-0.4	-0.2	-1.3	-0.7	-0.4	0.3	0.3	0.3
1940	-3.2	-1.1	-1.4	-1.0	-0.7	0.2	-0.8	-0.4	-0.2	-1.8	-0.8	-0.4	1.0	0.6	0.4
1941	-3.0	-1.1	-1.5	-1.0	-0.7	0.2	-1.0	-0.4	-0.2	-2.2	-0.8	-0.4	1.7	1.0	0.5
1942	-1.0	-0.3	-0.9	-0.6	-0.3	0.2	-0.9	-0.5	-0.2	-2.1	-0.9	-0.4	1.2	0.9	0.6
1943	0.3	0.2	-0.7	-0.4	-0.1	0.2	-1.0	-0.5	-0.2	-2.3	-1.0	-0.4	1.2	1.0	0.8
1944	0.8	0.5	-0.5	-0.3	0.0	0.2	-0.9	-0.6	-0.2	-2.1	-1.1	-0.4	0.6	0.8	0.9
1945	1.4	0.7	-0.3	-0.1	0.1	0.2	-0.9	-0.6	-0.2	-2.1	-1.1	-0.4	0.8	0.8	0.9
1946	2.1	0.9	0.1	0.0	0.2	0.2	-0.6	-0.6	-0.2	-1.4	-1.1	-0.4	-0.4	0.4	0.9
1947	3.2	1.3	0.5	0.6	0.4	0.1	-0.5	-0.1	-0.2	-1.0	-0.2	-0.3	1.3	0.2	-0.6
1948	4.0	1.6	0.6	0.5	0.5	0.0	-0.5	-0.5	-0.2	-1.2	-0.8	-0.3	-0.3	0.3	0.7
1949	6.0	2.4	1.1	0.8	0.9	0.1	-0.6	-0.5	-0.2	-1.3	-1.0	-0.3	-0.4	0.4	0.9
1950						0.0	-0.6	-0.6	-0.2	-1.3	-0.9	-0.3	-0.3	0.4	0.9
1951						0.0	-0.6	-0.6	-0.2	-1.2	-1.0	-0.3	-0.5	0.5	1.1
1952						0.2	-0.5	-0.4	-0.1	-1.2	-0.9	-0.2	-0.3	0.5	1.0
1953						0.2	-0.5	-0.4	0.0	-1.2	-0.8	-0.2	-0.1	0.6	1.0
1954						0.1	-0.5	-0.4	-0.1	-1.3	-0.8	-0.2	0.0	0.6	1.1
1955						0.2	-0.5	-0.5	-0.1	-1.3	-0.9	-0.2	-0.2	0.7	1.2
1956						0.3	-0.5	-0.4	0.0	-1.4	-1.0	-0.2	-0.1	0.7	1.3
1957						0.2	-0.6	-0.5	0.0	-1.4	-1.0	-0.1	-0.3	0.9	1.6
1958						0.1	-0.6	-0.6	0.0	-1.4	-1.0	-0.1	-0.3	1.0	1.8
1959						0.1	-0.7	-0.6	0.0	-1.5	-1.2	-0.1	-0.5	1.0	2.0
1960						0.0	-1.1	-0.8	0.0	-2.2	-1.4	0.0	0.0	1.6	2.6
1961						-0.2	-1.1	-0.8	0.0	-2.1	-1.3	0.0	0.2	1.6	2.5
1962						-0.4	-1.2	-0.6	-0.1	-2.0	-0.8	0.0	1.3	1.5	1.7
1963						-0.5	-0.7	-0.7	-0.1	-0.9	-0.9	0.0	-0.7	0.7	1.6
1964						-0.7	-0.8	-0.7	-0.2	-1.0	-0.7	0.0	-0.2	0.7	1.3
1965						-0.8	-1.0	-0.7	-0.3	-1.1	-0.6	-0.1	0.4	0.7	0.9
1966						-0.7	-1.0	-0.6	-0.4	-1.3	-0.6	-0.2	0.8	0.6	0.5
1967						-0.6	-1.0	-0.5	-0.3	-1.4	-0.4	-0.2	1.3	0.7	0.3
1968						-0.7	-1.0	-0.4	-0.2	-1.3	-0.3	0.0	1.7	1.0	0.5
1969						-1.2	-1.2	-2.2		-1.2	-2.9		-5.9		
1970						-1.8	-1.4	-2.9		-0.9	-3.6		-8.4		
1971						-2.3									
1972						-2.9									
1973						-3.6									
1974						-3.8									
1975						-4.1									
1976						-4.2									
1977						-4.5									
1978						-5.2									
1979						-5.9									
1980						-6.5									
1981						-7.1									
1982						-7.5									
1983						-7.7									
1984						-7.7									
1985						-7.6									
1986						-8.1									
1987						-9.0									
1988						-10.6									
1989															
1990															
1991															
1992															
1993															
1994															
1995															
Great Egg															
Harbor Inlet															
1996															
1997													4.3	6.9	8.6
1998													5.9	4.0	2.7
1999													5.6	3.4	1.9
2000													11.6	6.6	3.2
2001										9.0	6.6	5.2	2.3	2.4	2.5
2002										8.3	6.3	4.8	2.6	2.2	2.0
2003										8.2	6.1	4.7	2.4	2.1	1.9
2004										8.4	6.0	4.6	1.6	1.9	2.1
2005										9.0	6.1	5.1	0.9	2.3	3.2
2006										9.3	5.9	4.9	-0.3	1.6	3.0
2007										9.5	6.1	4.7	-0.2	1.2	2.2
2008										9.7	6.2	4.6	-0.4	0.9	1.8
2009										10.5	6.8	4.7	0.0	0.4	0.7
2010										10.2	6.9	4.9	0.9	1.1	1.2
2011										9.8	6.9	4.5	1.6	0.7	0.1
2012						4.1	6.5	5.6	4.2	9.1	6.7	4.2	2.2	0.7	-0.4
2013						1.6	5.0	4.5	3.3	8.6	6.5	4.0	2.7	0.6	-0.7
2014						1.2	4.8	3.7	3.3	8.6	5.5	4.2	-0.3	1.0	1.9
2015						0.9	4.6	3.3	2.9	8.5	4.9	3.7	-1.9	0.2	1.6
2016						0.7	4.4	2.8	2.5	8.3	4.3	3.3	-3.2	-0.4	1.4
2017						0.9	4.3	2.6	2.3	7.8	3.8	2.9	-3.5	-0.8	1.1

High-Water Shoreline Position (UTM Zone 18, NAD 1983)

Transect #	1839/42 UTM-x (m)	1839/42 UTM-y (m)	1864/86 UTM-x (m)	1864/86 UTM-y (m)	1899 UTM-x (m)	1899 UTM-y (m)	1932 UTM-x (m)	1932 UTM-y (m)	1950/51 UTM-x (m)	1950/51 UTM-y (m)	1977 UTM-x (m)	1977 UTM-y (m)
1939	4351503	541181.6	4351565	541137.5	4351561	541140.4	4351597	541114.8	4351592	541118.4	4351584	541123.8
1940	4351473	541141.7	4351533	541099.2	4351526	541103.7	4351575	541068.9	4351561	541079.3	4351551	541085.9
1941	4351443	541101.4	4351499	541061.5	4351493	541065.9	4351553	541023.3	4351528	541040.9	4351517	541048.7
1942	4351448	541036.8	4351467	541023.1	4351461	541027.8	4351518	540987.1	4351500	540999.9	4351486	541009.8
1943	4351437	540982.8	4351432	540986.4	4351426	540991.1	4351487	540947.8	4351469	540960.6	4351452	540972.6
1944	4351412	540939.3	4351397	540950.5	4351391	540954.6	4351447	540914.9	4351437	540921.6	4351417	540935.9
1945	4351389	540894.2	4351362	540913.4	4351356	540918.3	4351412	540877.8	4351401	540886.0	4351382	540899.4
1946	4351366	540849.4	4351326	540877.7	4351321	540881.3	4351359	540854.2	4351365	540849.9	4351345	540864.3
1947	4351349	540800.2	4351289	540843.0	4351287	540844.2	4351314	540825.2	4351295	540838.9	4351308	540829.8
1948	4351329	540752.8	4351254	540806.4	4351253	540807.3	4351284	540785.2	4351288	540782.1	4351273	540793.2
1949	4351333	540689.1	4351220	540769.5	4351218	540770.6	4351252	540746.4	4351258	540742.3	4351238	540756.6
1950			4351182	540735.0	4351183	540734.4	4351217	540710.4	4351222	540706.8	4351201	540721.4
1951			4351148	540697.6	4351148	540698.1	4351181	540674.3	4351188	540669.3	4351164	540686.6
1952			4351120	540656.6	4351113	540661.7	4351146	540638.1	4351151	540634.5	4351128	540650.8
1953			4351085	540620.2	4351078	540625.2	4351111	540601.8	4351112	540600.6	4351089	540616.9
1954			4351045	540586.8	4351041	540589.6	4351076	540565.2	4351076	540564.7	4351053	540581.6
1955			4351011	540549.6	4351005	540554.3	4351041	540528.8	4351043	540527.0	4351016	540546.1
1956			4350977	540512.4	4350968	540519.1	4351006	540492.4	4351008	540490.8	4350979	540511.4
1957			4350937	540479.8	4350932	540483.4	4350970	540456.1	4350974	540453.2	4350939	540478.3
1958			4350899	540445.2	4350896	540447.4	4350935	540419.8	4350940	540416.6	4350900	540444.6
1959			4350862	540410.3	4350859	540412.8	4350900	540383.5	4350908	540378.0	4350863	540409.9
1960			4350825	540375.7	4350824	540376.2	4350884	540333.1	4350884	540333.6	4350826	540374.6
1961			4350786	540341.6	4350791	540338.5	4350847	540298.3	4350845	540300.0	4350789	540339.4
1962			4350745	540309.7	4350756	540302.1	4350810	540263.5	4350790	540277.3	4350753	540303.8
1963			4350704	540277.2	4350719	540267.1	4350744	540249.3	4350754	540241.8	4350718	540267.6
1964			4350663	540245.1	4350682	540231.5	4350709	540212.3	4350712	540210.6	4350683	540231.4
1965			4350623	540212.7	4350645	540196.5	4350675	540175.3	4350669	540179.9	4350650	540193.4
1966			4350584	540178.4	4350606	540163.3	4350641	540138.2	4350629	540146.9	4350618	540154.8
1967			4350551	540141.0	4350569	540128.0	4350607	540101.2	4350587	540114.9	4350581	540119.5
1968			4350515	540105.4	4350535	540090.7	4350571	540065.1	4350546	540083.0	4350536	540090.4
1969			4350470	540075.7	4350503	540052.2	4350535	540029.8	4350622	539967.9		
1970			4350423	540047.7	4350475	540010.6	4350500	539992.9	4350623	539905.4		
1971			4350385	540013.4	4350450	539967.0						
1972			4350346	539979.7	4350429	539920.9						
1973			4350307	539946.2	4350411	539872.3						
1974			4350271	539910.9	4350380	539833.3						
1975			4350241	539870.3	4350357	539788.0						
1976			4350210	539831.3	4350329	539746.5						
1977			4350177	539793.7	4350304	539702.9						
1978			4350135	539762.2	4350283	539656.8						
1979			4350092	539731.3	4350261	539610.6						
1980			4350054	539696.8	4350240	539564.3						
1981			4350016	539662.3	4350219	539518.3						
1982			4349985	539623.5	4350198	539471.6						
1983			4349959	539580.1	4350179	539423.6						
1984			4349940	539532.3	4350159	539376.3						
1985			4349930	539478.6	4350145	539324.9						
1986			4349914	539428.3	4350144	539264.4						
1987			4349893	539381.8	4350151	539198.3						
1988			4349872	539335.2	4350173	539120.8						
1989			4349849	539290.8								
1990			4349824	539247.2								
1991			4349802	539201.1								
1992			4349783	539153.1								
1993			4349773	539098.9								
1994			4349774	539036.8								
1995			4349785	538967.8								
1996											4349718	538522.6
1997							4349806	538277.9	4349767	538343.9	4349648	538543.1
1998							4349680	538391.8	4349625	538483.6	4349588	538545.1
1999							4349608	538415.4	4349556	538501.9	4349529	538546.7
2000							4349518	538467.9	4349411	538646.5	4349367	538721.3
2001					4349538	538337.4	4349386	538591.1	4349365	538627.0	4349331	538684.5
2002					4349477	538342.2	4349336	538578.6	4349312	538618.2	4349284	538664.9
2003					4349421	538338.2	4349283	538569.3	4349261	538606.2	4349235	538650.3
2004					4349369	538327.9	4349227	538565.0	4349212	538589.9	4349184	538638.2
2005					4349319	538314.0	4349167	538568.5	4349159	538582.3	4349114	538656.8
2006					4349267	538303.2	4349110	538565.7	4349113	538561.0	4349072	538629.4
2007					4349214	538294.0	4349054	538563.2	4349055	538560.1	4349026	538610.3
2008					4349161	538285.3	4348997	538560.6	4349000	538554.8	4348976	538595.3
2009					4349108	538276.8	4348931	538574.2	4348930	538574.5	4348921	538590.3
2010					4349057	538265.0	4348885	538552.8	4348876	538567.4	4348860	538595.5
2011					4349005	538254.0	4348840	538531.7	4348825	538556.1	4348824	538558.1
2012			4349024	538125.0	4348951	538247.7	4348797	538505.1	4348777	538539.3	4348782	538530.5
2013			4348925	538192.7	4348896	538242.3	4348750	538486.0	4348725	538528.1	4348736	538510.8
2014			4348864	538198.2	4348842	538234.4	4348696	538478.9	4348700	538473.6	4348673	538517.4
2015			4348807	538196.3	4348790	538223.7	4348646	538465.9	4348663	538437.2	4348641	538474.4
2016			4348752	538190.4	4348739	538212.6	4348598	538449.1	4348627	538400.0	4348608	538432.5
2017			4348701	538178.7	4348684	538206.5	4348553	538427.1	4348585	538373.4	4348570	538397.8

High-Water Shoreline Position Change Rate

Transect #	1839/42 to 1864/86 (m/yr)	1839/42 to 1899 (m/yr)	1839/42 to 1932 (m/yr)	1839/42 to 1950/51 (m/yr)	1839/42 to 1977 (m/yr)	1864/86 to 1899 (m/yr)	1864/86 to 1932 (m/yr)	1864/86 to 1950/51 (m/yr)	1864/86 to 1977 (m/yr)	1899 to 1932 (m/yr)	1899 to 1950/51 (m/yr)	1899 to 1977 (m/yr)	1932 to 1950/51 (m/yr)	1932 to 1977 (m/yr)	1950/51 to 1977 (m/yr)
2018						1.3	4.1	2.4	2.1	7.0	3.3	2.5	-3.7	-0.7	1.2
2019						1.8	4.0	2.3	2.4	6.2	2.7	2.7	-3.9	0.1	2.8
2020						5.0	3.9	2.1	2.2	2.8	0.1	0.9	-4.9	-0.5	2.4
2021						6.6	4.0	2.1	2.0	1.3	-1.0	0.0	-5.4	-1.1	1.8
2022						6.7	4.4	2.3	2.1	2.0	-0.7	0.0	-5.6	-1.4	1.4
2023						6.4	4.8	2.9	2.3	3.1	0.5	0.5	-4.3	-1.3	0.7
2024						5.8	5.0	3.0	2.3	4.2	1.0	0.8	-4.7	-1.7	0.4
2025						5.0	5.2	3.1	2.4	5.4	1.8	1.3	-4.7	-1.7	0.3
2026						4.9	5.3	3.4	2.6	5.8	2.4	1.6	-3.9	-1.4	0.2
2027						4.7	5.4	3.5	3.4	6.1	2.6	2.9	-3.8	0.5	3.4
2028						4.5	5.4	3.5	3.3	6.3	2.9	2.8	-3.5	0.2	2.6
2029						4.3	5.5	3.7	3.3	6.7	3.2	2.9	-3.2	0.0	2.2
2030						4.0	5.5	4.6	3.3	7.0	5.0	2.9	1.3	0.0	-0.9
2031						3.7	5.5	4.7	3.3	7.5	5.4	3.2	1.6	0.0	-1.0
2032						3.6	5.3	4.9	3.5	7.2	5.7	3.5	3.1	0.8	-0.8
2033						3.6	5.1	4.9	3.7	6.7	5.9	3.7	4.3	1.5	-0.4
2034						3.9	5.1	5.0	3.9	6.4	5.8	3.9	4.9	2.1	0.3
2035						4.3	5.2	5.1	3.8	6.2	5.7	3.6	4.8	1.7	-0.4
2036						4.7	5.5	5.3	3.8	6.4	5.6	3.4	4.3	1.2	-0.9
2037						5.1	5.7	5.4	3.8	6.3	5.5	3.2	4.1	1.0	-1.1
2038						5.6	5.8	5.5	3.9	6.0	5.4	3.1	4.3	1.0	-1.3
2039						6.2	6.0	5.5	4.0	5.7	5.0	3.1	3.8	1.1	-0.6
2040						6.8	5.6	5.4	4.4	4.4	4.5	3.4	4.6	2.7	1.4
2041						7.2	5.7	5.2	4.3	4.2	3.9	3.0	3.5	2.1	1.3
2042						7.4	5.7	5.1	4.1	3.8	3.4	2.6	2.8	1.8	1.1
2043						7.5	5.4	4.9	3.8	3.2	3.1	2.1	3.0	1.3	0.1
2044						7.4	5.4	4.8	3.8	3.2	3.0	2.2	2.6	1.4	0.7
2045						6.9	5.4	4.7	3.9	3.7	3.2	2.5	2.2	1.6	1.3
2046						6.5	5.8	4.7	4.1	5.0	3.4	3.1	0.5	1.6	2.4
2047						5.9	5.7	4.6	3.8	5.4	3.6	2.9	0.4	1.1	1.5
2048						5.1	5.5	4.4	3.7	5.9	4.0	3.1	0.4	1.1	1.5
2049						4.6	5.3	4.3	3.7	6.2	4.1	3.3	0.4	1.2	1.7
2050						4.2	5.2	4.2	3.7	6.3	4.2	3.5	0.5	1.4	2.1
2051						3.7	5.1	4.1	3.7	6.5	4.4	3.8	0.5	1.7	2.5
2052						3.2	4.9		3.9	6.8		4.2		2.3	
2053						2.8	4.8		3.1	6.9		3.2		0.5	
2054						2.3	4.8		3.0	7.4		3.3		0.4	
2055						1.6	4.6		3.0	7.7		3.5		0.5	
2056						0.9	4.4		2.8	8.1		3.7		0.5	
2057						0.3	4.1		2.8	8.2		4.0		0.9	
2058						-0.2	4.0		2.9	8.5		4.2		1.1	
2059						-0.6	3.8		2.9	8.5		4.5		1.5	
2060						-1.0	3.6	2.5	2.3	8.4	4.9	3.8	-1.5	0.5	1.8
2061						-0.9	3.4	2.4	2.2	8.0	4.7	3.6	-1.5	0.4	1.7
2062						-0.9	3.3	2.3	2.2	7.9	4.5	3.6	-1.7	0.4	1.8
2063						-0.7	3.3	2.2	2.2	7.6	4.2	3.4	-2.0	0.4	2.0
2064						-0.6	3.2	2.2	2.1	7.2	4.1	3.3	-1.7	0.5	1.9
2065						-0.6	3.2	2.2	2.1	7.3	4.1	3.3	-1.8	0.3	1.7
2066						-0.7	3.1	2.2	2.0	7.2	4.2	3.2	-1.4	0.3	1.5
2067						-0.8	3.0	2.1	2.0	7.0	4.2	3.2	-1.0	0.5	1.4
2068						-0.8	3.0	2.1	2.0	6.9	4.0	3.2	-1.3	0.5	1.6
2069						-0.8	2.9	2.1	1.9	6.8	4.0	3.1	-1.1	0.5	1.5
2070						-0.9	2.8	2.0	1.9	6.7	4.1	3.1	-0.8	0.5	1.4
2071						-1.0	2.6	2.1	1.8	6.4	4.2	3.1	0.2	0.7	1.0
2072						-1.0	2.5	2.1	1.6	6.3	4.1	2.8	0.2	0.2	0.2
2073						-1.0	2.4	2.0	1.5	6.1	4.1	2.6	0.6	0.1	-0.3
2074						-1.2	2.3	2.0	1.4	6.1	4.2	2.5	0.8	-0.1	-0.6
2075						-1.2	2.2	1.9	1.3	5.7	4.1	2.4	1.1	0.0	-0.7
2076						-1.1	2.2	1.9	1.2	5.7	3.9	2.3	0.6	-0.2	-0.7
2077						-1.2	2.2	1.8	1.2	5.7	3.8	2.2	0.4	-0.3	-0.7
2078						-1.1	2.0	1.7	1.1	5.4	3.7	2.2	0.6	-0.2	-0.8
2079						-1.4	1.8	1.7	1.1	5.2	3.8	2.2	1.1	-0.1	-0.9
2080						-1.5	1.7	1.7	1.0	5.0	3.9	2.1	1.7	0.0	-1.1
2081						-1.5	1.5	1.7	1.0	4.8	3.9	2.1	2.3	0.2	-1.2
2082						-1.4	1.6	1.8	1.0	4.7	3.9	2.1	2.6	0.3	-1.3
2083						-1.4	1.4	1.7	1.0	4.3	3.8	2.0	2.7	0.3	-1.3
2084						-1.5	1.2	1.5	0.9	4.0	3.6	1.9	2.9	0.4	-1.2
2085						-1.8	1.0	1.4	0.7	3.8	3.6	1.7	3.1	0.2	-1.7
2086						-1.8	0.9	1.3	0.6	3.7	3.5	1.8	3.1	0.3	-1.5
2087						-1.8	0.8	1.3	0.6	3.5	3.5	1.7	3.3	0.4	-1.6
2088						-1.8	0.7	1.3	0.6	3.5	3.5	1.7	3.5	0.5	-1.5
2089						-1.8	0.7	1.3	0.6	3.3	3.4	1.7	3.6	0.6	-1.5
2090						-1.7	0.6	1.3	0.6	3.1	3.3	1.7	3.8	0.6	-1.5
2091						-1.4	0.7	1.4	0.7	2.8	3.2	1.6	4.0	0.7	-1.5
2092						-1.0	0.7	1.4	0.7	2.5	3.1	1.5	4.2	0.8	-1.6
2093						-0.8	0.7	1.4	0.7	2.3	2.9	1.4	4.2	0.8	-1.4
2094						-0.7	0.7	1.4	0.8	2.2	2.9	1.4	4.1	0.9	-1.3
2095						-0.7	0.6	1.4	0.8	2.0	2.8	1.4	4.3	1.0	-1.2
2096						-0.7	0.6	1.3	0.7	1.9	2.8	1.4	4.3	1.0	-1.2
2097						-0.7	0.4	1.3	0.8	1.7	2.7	1.4	4.6	1.2	-1.0
2098						-0.6	0.3	1.3	0.8	1.4	2.7	1.4	5.0	1.4	-0.9

High-Water Shoreline Position (UTM Zone 18, NAD 1983)

Transect #	1839/42 UTM-x (m)	1839/42 UTM-y (m)	1864/86 UTM-x (m)	1864/86 UTM-y (m)	1899 UTM-x (m)	1899 UTM-y (m)	1932 UTM-x (m)	1932 UTM-y (m)	1950/51 UTM-x (m)	1950/51 UTM-y (m)	1977 UTM-x (m)	1977 UTM-y (m)
2018			4348651	538164.5	4348629	538202.2	4348510	538401.2	4348544	538344.5	4348527	538372.7
2019			4348606	538142.1	4348573	538197.0	4348468	538374.0	4348504	538313.9	4348465	538379.2
2020			4348564	538114.9	4348475	538264.9	4348427	538345.0	4348472	538269.4	4348438	538325.7
2021			4348525	538082.2	4348407	538280.0	4348385	538317.6	4348435	538234.6	4348409	538276.9
2022			4348496	538034.6	4348375	538236.8	4348342	538292.5	4348394	538205.2	4348375	538237.1
2023			4348465	537988.1	4348351	538179.8	4348299	538267.0	4348339	538200.3	4348329	538215.6
2024			4348433	537944.8	4348329	538118.7	4348259	538236.8	4348302	538164.0	4348297	538172.3
2025			4348400	537902.0	4348310	538053.1	4348219	538205.3	4348262	538132.9	4348259	538138.8
2026			4348368	537857.8	4348281	538003.7	4348183	538168.8	4348218	538109.3	4348215	538114.1
2027			4348334	537818.0	4348250	537958.5	4348147	538131.3	4348182	538073.1	4348134	538152.3
2028			4348302	537774.4	4348221	537910.2	4348113	538090.1	4348145	538036.6	4348109	538097.6
2029			4348269	537732.1	4348192	537860.8	4348078	538051.4	4348108	538001.8	4348077	538053.0
2030			4348233	537694.1	4348161	537815.3	4348042	538014.2	4348030	538033.7	4348043	538012.4
2031			4348200	537651.6	4348134	537762.8	4348008	537974.4	4347993	537998.7	4348007	537975.8
2032			4348170	537604.9	4348106	537712.6	4347985	537915.4	4347956	537963.3	4347967	537945.3
2033			4348135	537565.2	4348071	537672.3	4347957	537863.3	4347918	537929.1	4347924	537919.8
2034			4348103	537522.2	4348033	537638.7	4347926	537818.7	4347881	537893.9	4347877	537900.3
2035			4348071	537478.1	4347994	537606.7	4347889	537783.1	4347844	537857.4	4347849	537849.3
2036			4348039	537433.3	4347955	537575.3	4347847	537755.4	4347807	537822.6	4347819	537801.9
2037			4348008	537388.9	4347915	537543.5	4347809	537721.5	4347771	537785.4	4347786	537759.7
2038			4347977	537342.3	4347876	537511.4	4347775	537681.6	4347735	537748.8	4347753	537718.4
2039			4347948	537292.8	4347837	537479.8	4347741	537640.3	4347706	537698.7	4347715	537684.4
2040			4347918	537246.3	4347797	537449.6	4347723	537573.7	4347680	537644.7	4347661	537676.5
2041			4347886	537202.0	4347757	537418.2	4347687	537536.1	4347655	537589.5	4347638	537618.7
2042			4347853	537159.5	4347720	537382.5	4347656	537490.7	4347630	537533.5	4347615	537559.2
2043			4347822	537115.0	4347687	537341.5	4347633	537432.0	4347605	537477.7	4347603	537480.9
2044			4347791	537068.5	4347658	537292.4	4347603	537383.4	4347580	537422.9	4347570	537438.6
2045			4347762	537019.9	4347637	537228.7	4347574	537334.9	4347554	537368.8	4347536	537398.1
2046			4347734	536968.9	4347617	537165.4	4347532	537307.5	4347528	537314.9	4347495	537370.3
2047			4347704	536921.1	4347598	537099.7	4347507	537252.4	4347503	537258.6	4347482	537293.2
2048			4347672	536877.1	4347581	537030.3	4347481	537197.3	4347478	537203.3	4347457	537238.6
2049			4347642	536830.0	4347560	536967.7	4347456	537142.1	4347452	537148.4	4347428	537188.9
2050			4347612	536783.1	4347537	536909.6	4347431	537087.0	4347426	537094.8	4347397	537142.9
2051			4347582	536735.3	4347516	536846.8	4347405	537032.0	4347400	537040.2	4347366	537098.3
2052			4347552	536688.2	4347494	536785.7	4347380	536977.1			4347327	537065.7
2053			4347522	536641.5	4347471	536726.3	4347355	536921.1			4347343	536941.8
2054			4347490	536597.4	4347448	536667.9	4347323	536877.2			4347314	536892.2
2055			4347453	536562.2	4347423	536611.4	4347293	536830.5			4347282	536848.5
2056			4347416	536526.3	4347400	536553.4	4347264	536781.7			4347251	536802.5
2057			4347381	536487.0	4347376	536495.5	4347238	536727.0			4347218	536760.4
2058			4347349	536443.3	4347352	536438.4	4347209	536678.3			4347183	536721.3
2059			4347316	536401.9	4347327	536382.4	4347184	536622.3			4347149	536680.8
2060			4347282	536359.9	4347300	536330.0	4347159	536567.2	4347172	536544.0	4347148	536585.6
2061			4347251	536314.8	4347268	536286.4	4347132	536513.9	4347146	536490.3	4347122	536530.6
2062			4347220	536269.9	4347236	536242.3	4347103	536464.9	4347119	536439.1	4347093	536481.5
2063			4347188	536226.0	4347200	536205.5	4347072	536419.7	4347091	536388.2	4347063	536435.0
2064			4347155	536182.4	4347166	536164.1	4347044	536368.8	4347060	536342.9	4347033	536387.6
2065			4347124	536137.4	4347135	536118.6	4347013	536324.1	4347029	536296.7	4347005	536336.7
2066			4347092	536094.1	4347104	536073.3	4346982	536277.1	4346995	536255.2	4346975	536289.2
2067			4347057	536053.9	4347072	536029.8	4346954	536227.9	4346963	536212.2	4346943	536245.6
2068			4347025	536011.0	4347038	535988.3	4346921	536184.8	4346933	536165.1	4346910	536202.8
2069			4346989	535973.2	4347003	535949.5	4346888	536142.0	4346898	536125.7	4346877	536160.3
2070			4346953	535936.0	4346970	535908.4	4346856	536097.9	4346864	536086.0	4346844	536118.3
2071			4346919	535896.2	4346936	535867.6	4346827	536049.9	4346825	536052.6	4346812	536075.5
2072			4346882	535859.3	4346900	535829.3	4346794	536007.4	4346792	536010.8	4346789	536016.0
2073			4346846	535822.5	4346864	535792.0	4346762	535963.7	4346756	535973.2	4346760	535967.1
2074			4346809	535786.5	4346830	535751.7	4346728	535923.3	4346721	535934.9	4346730	535920.3
2075			4346774	535748.5	4346794	535713.8	4346699	535874.7	4346688	535891.5	4346698	535875.4
2076			4346738	535710.4	4346759	535676.2	4346662	535838.9	4346656	535848.0	4346667	535830.7
2077			4346702	535673.2	4346723	535638.5	4346627	535798.9	4346624	535805.0	4346633	535788.8
2078			4346666	535635.9	4346687	535601.4	4346595	535755.5	4346590	535764.5	4346600	535746.2
2079			4346628	535601.8	4346653	535560.9	4346564	535709.5	4346554	535727.1	4346566	535706.5
2080			4346591	535567.3	4346618	535521.5	4346533	535664.3	4346517	535690.4	4346532	535665.5
2081			4346556	535528.1	4346583	535482.4	4346502	535618.4	4346481	535653.9	4346498	535625.5
2082			4346523	535484.9	4346548	535444.1	4346469	535576.4	4346445	535616.4	4346463	535586.2
2083			4346485	535451.5	4346510	535409.4	4346437	535531.4	4346412	535573.8	4346430	535544.5
2084			4346445	535421.4	4346472	535375.7	4346404	535489.3	4346378	535534.3	4346394	535506.0
2085			4346404	535391.6	4346436	535338.9	4346371	535447.9	4346342	535495.6	4346366	535455.8
2086			4346367	535357.3	4346400	535302.1	4346336	535408.2	4346308	535455.8	4346329	535420.1
2087			4346331	535320.2	4346363	535265.7	4346303	535366.2	4346273	535417.6	4346294	535380.8
2088			4346295	535282.6	4346328	535227.8	4346269	535325.6	4346237	535379.0	4346258	535343.9
2089			4346259	535244.8	4346292	535190.5	4346236	535284.1	4346202	535340.3	4346223	535305.4
2090			4346224	535206.4	4346254	535156.0	4346201	535243.9	4346167	535302.3	4346188	535267.0
2091			4346190	535165.7	4346214	535124.7	4346167	535204.8	4346130	535266.6	4346151	535230.9
2092			4346156	535125.8	4346174	535094.7	4346132	535164.4	4346093	535229.9	4346115	535193.9
2093			4346121	535086.2	4346136	535061.6	4346097	535125.8	4346059	535190.6	4346078	535157.6
2094			4346086	535046.5	4346099	535025.6	4346061	535088.9	4346023	535152.4	4346041	535122.2
2095			4346049	535011.1	4346062	534989.8	4346028	535047.0	4345988	535113.4	4346005	535085.9
2096			4346012	534976.6	4346025	534954.9	4345992	535009.2	4345952	535076.0	4345968	535049.0
2097			4345975	534941.1	4345987	534919.9	4345959	534966.8	4345917	535037.1	4345931	535014.5
2098			4345938	534904.5	4345950	534885.2	4345926	534924.8	4345880	535001.6	4345893	534980.0

High-Water Shoreline Position Change Rate

Transect #	1839/42 to 1864/86 (m/yr)	1839/42 to 1899 (m/yr)	1839/42 to 1932 (m/yr)	1839/42 to 1950/51 (m/yr)	1839/42 to 1977 (m/yr)	1864/86 to 1899 (m/yr)	1864/86 to 1932 (m/yr)	1864/86 to 1950/51 (m/yr)	1864/86 to 1977 (m/yr)	1899 to 1932 (m/yr)	1899 to 1950/51 (m/yr)	1899 to 1977 (m/yr)	1932 to 1950/51 (m/yr)	1932 to 1977 (m/yr)	1950/51 to 1977 (m/yr)
2099						-0.6	0.3	1.3	0.8	1.2	2.6	1.4	5.1	1.5	-0.8
2100						-0.5	0.2	1.3	0.8	1.0	2.5	1.4	5.1	1.6	-0.7
2101						-0.5	0.2	1.2	0.8	1.0	2.4	1.3	5.0	1.6	-0.7
2102						-0.6	0.1	1.2	0.8	0.9	2.4	1.4	5.2	1.7	-0.7
2103						-0.8	0.1	1.1	0.7	0.9	2.4	1.4	5.2	1.7	-0.7
2104						-0.8	-0.1	1.1	0.6	0.8	2.4	1.3	5.3	1.7	-0.7
2105						-0.9	-0.1	1.1	0.6	0.8	2.4	1.3	5.5	1.7	-0.8
2106						-0.9	-0.1	1.1	0.6	0.8	2.4	1.3	5.5	1.7	-0.9
2107						-1.0	-0.1	1.0	0.6	0.7	2.3	1.3	5.2	1.7	-0.7
2108						-1.0	-0.2	1.0	0.5	0.7	2.4	1.2	5.4	1.6	-0.9
2109						-1.0	-0.1	0.9	0.5	0.8	2.2	1.2	4.8	1.5	-0.7
2110						-1.0	0.0	0.9	0.5	1.0	2.1	1.2	4.2	1.4	-0.5
2111						-0.8	-0.1	0.9	0.6	0.7	2.0	1.2	4.4	1.5	-0.4
2112						-0.7	0.0	0.9	0.6	0.6	2.0	1.1	4.4	1.5	-0.5
2113						-0.7	0.0	0.9	0.6	0.6	2.0	1.1	4.4	1.5	-0.5
2114						-0.8	-0.1	0.8	0.6	0.5	1.9	1.1	4.5	1.6	-0.4
2115						-0.7	-0.1	0.8	0.5	0.6	1.9	1.1	4.4	1.5	-0.5
2116						-0.6	-0.1	0.8	0.6	0.4	1.8	1.1	4.5	1.6	-0.3
2117						-0.6	-0.2	0.8	0.6	0.3	1.8	1.1	4.6	1.7	-0.3
2118						-0.6	-0.2	0.8	0.5	0.3	1.8	1.0	4.4	1.6	-0.3
2119						-0.6	-0.2	0.7	0.5	0.3	1.6	1.0	4.1	1.5	-0.2
2120						-0.6	-0.3	0.7	0.4	0.0	1.5	0.9	4.3	1.5	-0.3
2121						-0.5	-0.3	0.7	0.5	0.0	1.5	0.9	4.2	1.6	-0.2
2122						-0.5	-0.3	0.6	0.5	0.0	1.4	1.0	4.0	1.7	0.1
2123						-0.6	-0.3	0.6	0.5	0.0	1.4	1.1	3.8	1.8	0.5
2124						-0.7	-0.4	0.5	0.5	-0.1	1.3	1.0	3.8	1.8	0.5
2125						-0.8	-0.5	0.5	0.4	-0.2	1.4	1.0	4.1	1.8	0.3
2126						-0.8	-0.5	0.4	0.4	-0.2	1.3	1.0	4.1	1.8	0.3
2127						-0.7	-0.4	0.4	0.4	-0.2	1.2	0.9	3.8	1.7	0.3
2128	4.0	1.2	0.7	1.2	1.0	-0.5	-0.4	0.5	0.4	-0.2	1.2	0.8	3.8	1.6	0.1
2129	3.9	1.2	0.7	1.2	1.0	-0.5	-0.4	0.5	0.4	-0.3	1.1	0.8	3.7	1.5	0.1
2130	3.4	1.1	0.6	1.0	0.9	-0.4	-0.3	0.4	0.4	-0.3	1.0	0.7	3.3	1.5	0.2
2131	3.1	1.0	0.5	1.0	0.8	-0.3	-0.4	0.4	0.4	-0.4	1.0	0.7	3.4	1.5	0.2
2132	3.0	1.0	0.4	0.9	0.8	-0.2	-0.4	0.4	0.4	-0.5	0.8	0.7	3.3	1.6	0.4
2133	2.8	1.0	0.4	0.8	0.8	-0.2	-0.4	0.3	0.4	-0.6	0.7	0.6	3.0	1.6	0.6
2134	2.6	0.9	0.4	0.8	0.7	-0.1	-0.4	0.3	0.4	-0.6	0.7	0.6	3.0	1.5	0.6
2135	2.1	0.7	0.2	0.7	0.7	-0.1	-0.4	0.3	0.4	-0.6	0.6	0.7	2.9	1.6	0.7
2136	1.9	0.7	0.2	0.6	0.7	-0.1	-0.4	0.3	0.5	-0.7	0.5	0.7	2.7	1.7	1.1
2137	1.4	0.5	0.1	0.5	0.6	0.0	-0.3	0.3	0.5	-0.7	0.4	0.7	2.6	1.7	1.2
2138	0.8	0.4	0.0	0.4	0.5	0.1	-0.3	0.3	0.5	-0.7	0.4	0.6	2.5	1.6	1.0
2139	0.6	0.2	-0.1	0.3	0.4	0.0	-0.3	0.3	0.4	-0.7	0.4	0.6	2.5	1.6	0.9
2140	0.4	0.2	-0.2	0.3	0.4	0.0	-0.4	0.3	0.4	-0.8	0.4	0.6	2.7	1.6	0.9
2141	0.1	0.0	-0.3	0.2	0.3	0.0	-0.4	0.3	0.4	-0.8	0.4	0.6	2.7	1.6	0.8
2142	0.0	0.0	-0.4	0.2	0.3	0.0	-0.5	0.2	0.4	-0.9	0.4	0.5	2.7	1.6	0.9
2143	-0.5	-0.2	-0.5	0.1	0.2	0.0	-0.5	0.2	0.3	-0.9	0.3	0.5	2.7	1.5	0.7
2144	-0.5	-0.2	-0.5	0.1	0.2	0.0	-0.5	0.2	0.3	-0.9	0.4	0.5	2.8	1.5	0.6
2145	-0.7	-0.3	-0.5	0.0	0.1	0.0	-0.5	0.2	0.3	-1.0	0.3	0.4	2.7	1.4	0.6
2146	-0.9	-0.3	-0.6	-0.1	0.1	0.0	-0.5	0.1	0.3	-1.0	0.2	0.4	2.6	1.4	0.7
2147	-0.8	-0.4	-0.6	-0.1	0.0	-0.1	-0.6	0.0	0.2	-1.0	0.2	0.4	2.4	1.4	0.7
2148	-0.7	-0.4	-0.6	-0.1	0.0	-0.2	-0.6	0.0	0.2	-1.0	0.2	0.4	2.4	1.3	0.6
2149	-0.7	-0.4	-0.6	-0.1	0.0	-0.2	-0.6	0.0	0.2	-1.0	0.2	0.3	2.4	1.3	0.6
2150	-0.7	-0.4	-0.6	-0.1	0.1	-0.1	-0.6	0.0	0.2	-1.1	0.1	0.4	2.4	1.4	0.8
2151	-0.8	-0.3	-0.6	-0.1	0.1	-0.1	-0.5	0.0	0.3	-1.0	0.1	0.4	2.1	1.5	1.0
2152	-0.8	-0.4	-0.6	-0.1	0.0	-0.1	-0.6	0.0	0.2	-1.0	0.1	0.4	2.3	1.4	0.8
2153	-1.0	-0.4	-0.6	-0.2	0.0	-0.1	-0.5	0.0	0.2	-1.1	0.1	0.3	2.2	1.3	0.7
2154	-1.2	-0.5	-0.7	-0.2	0.0	0.0	-0.5	0.0	0.2	-1.1	0.0	0.3	2.0	1.4	0.9
2155	-1.4	-0.5	-0.7	-0.3	0.0	0.0	-0.5	0.0	0.2	-1.1	0.0	0.3	1.9	1.4	1.1
2156	-1.3	-0.5	-0.7	-0.3	0.0	0.0	-0.5	0.0	0.2	-1.0	0.0	0.4	1.9	1.4	1.1
2157	-1.4	-0.5	-0.7	-0.3	0.0	0.0	-0.5	-0.1	0.2	-1.0	-0.1	0.3	1.6	1.3	1.1
2158	-1.4	-0.6	-0.7	-0.4	-0.1	0.0	-0.5	-0.1	0.2	-1.1	-0.1	0.3	1.6	1.2	1.0
2159	-1.5	-0.6	-0.7	-0.3	-0.1	-0.1	-0.5	0.0	0.1	-1.0	0.0	0.2	1.8	1.1	0.6
2160	-1.5		-0.8	-0.3	-0.1		-0.5	0.0	0.1				2.1	1.1	0.4
2161	-1.4		-0.7	-0.3	-0.1		-0.5	0.0	0.1				1.9	1.1	0.5
2162	-1.3		-0.7	-0.3	-0.1		-0.6	-0.1	0.1				1.8	1.2	0.8
2163	-1.4		-0.8	-0.4	-0.1		-0.6	-0.1	0.1				1.6	1.1	0.8
2164	-1.4		-0.8	-0.4	-0.1		-0.5	-0.1	0.2				1.5	1.3	1.1
2165	-1.4		-0.7	-0.4	0.0		-0.5	-0.1	0.2				1.4	1.3	1.3
2166	-1.2		-0.7	-0.3	-0.1		-0.5	-0.1	0.1				1.5	1.2	1.0
2167	-0.8		-0.6	-0.3	-0.1		-0.5	-0.1	0.1				1.3	1.0	0.8
2168	-0.6		-0.6	-0.2	-0.1		-0.6	-0.2	0.0				1.4	1.0	0.7
2169	-0.5		-0.6	-0.3	-0.1		-0.6	-0.2	0.0				1.2	0.9	0.6
2170	-0.8		-0.6	-0.3	-0.1		-0.6	-0.2	0.0				1.3	0.9	0.6
2171	-0.9		-0.7	-0.4	-0.2		-0.6	-0.2	0.0				1.3	0.9	0.6
2172	-1.3		-0.8	-0.5	-0.2		-0.6	-0.3	0.0				1.1	1.0	0.9
2173	-1.0			-0.4	-0.1			-0.2	0.0						0.7
2174	0.0			-0.1	0.0			-0.2	0.0						0.6
2175	0.8			0.0	0.2			-0.2	0.0						0.7
2176	1.4			0.1	0.2			-0.2	0.0						0.7
2177	1.7			0.3	0.3			-0.1	0.0						0.3
2178	1.3			0.0	0.2			-0.3	0.0						0.8
2179	0.4			-0.2	0.0			-0.3	0.0						0.8

High-Water Shoreline Position (UTM Zone 18, NAD 1983)

Transect #	1839/42 UTM-x (m)	1839/42 UTM-y (m)	1864/86 UTM-x (m)	1864/86 UTM-y (m)	1899 UTM-x (m)	1899 UTM-y (m)	1932 UTM-x (m)	1932 UTM-y (m)	1950/51 UTM-x (m)	1950/51 UTM-y (m)	1977 UTM-x (m)	1977 UTM-y (m)
2099			4345902	534867.6	4345912	534851.0	4345892	534884.8	4345845	534963.9	4345856	534944.5
2100			4345866	534830.7	4345874	534816.6	4345857	534844.8	4345810	534924.4	4345820	534908.1
2101			4345828	534796.5	4345837	534782.0	4345820	534809.4	4345774	534886.8	4345783	534871.1
2102			4345790	534763.3	4345800	534745.0	4345785	534771.3	4345737	534852.2	4345746	534836.2
2103			4345750	534731.7	4345764	534709.1	4345748	534735.6	4345700	534815.7	4345710	534799.6
2104			4345711	534699.9	4345726	534675.3	4345713	534696.9	4345664	534778.9	4345674	534761.7
2105			4345674	534665.0	4345690	534638.0	4345677	534659.9	4345626	534744.2	4345637	534726.0
2106			4345636	534630.4	4345653	534602.5	4345640	534624.4	4345589	534709.1	4345601	534689.0
2107			4345598	534597.0	4345615	534568.2	4345603	534588.6	4345555	534669.0	4345565	534652.4
2108			4345559	534563.6	4345577	534533.3	4345566	534553.1	4345515	534637.3	4345528	534616.7
2109			4345522	534529.2	4345539	534499.7	4345526	534522.7	4345481	534596.8	4345490	534581.6
2110			4345484	534494.3	4345502	534464.9	4345485	534492.4	4345447	534557.2	4345454	534545.4
2111			4345447	534458.4	4345463	534432.9	4345450	534453.5	4345410	534521.5	4345415	534512.0
2112			4345411	534422.0	4345423	534402.0	4345412	534419.9	4345372	534487.9	4345379	534476.1
2113			4345374	534385.5	4345386	534365.7	4345376	534383.8	4345335	534452.1	4345341	534441.2
2114			4345335	534353.7	4345349	534330.7	4345340	534345.4	4345298	534415.7	4345303	534407.3
2115			4345297	534319.6	4345310	534298.1	4345301	534313.9	4345260	534381.8	4345267	534370.7
2116			4345260	534284.0	4345272	534265.2	4345266	534275.4	4345224	534344.8	4345228	534337.8
2117			4345222	534250.5	4345233	534231.8	4345229	534239.8	4345186	534311.3	4345190	534304.6
2118			4345183	534218.1	4345194	534199.7	4345189	534208.1	4345148	534276.6	4345153	534269.3
2119			4345143	534187.8	4345154	534168.8	4345150	534176.5	4345112	534239.8	4345115	534234.5
2120			4345104	534155.4	4345114	534138.2	4345114	534138.7	4345074	534205.8	4345079	534198.3
2121			4345066	534121.4	4345075	534106.0	4345075	534106.1	4345037	534170.3	4345040	534166.2
2122			4345027	534089.6	4345037	534073.3	4345036	534074.5	4344999	534136.8	4344998	534138.2
2123			4344987	534058.6	4344998	534040.2	4344998	534040.8	4344963	534099.7	4344956	534110.8
2124			4344948	534027.5	4344960	534007.0	4344961	534005.2	4344926	534063.3	4344919	534075.2
2125			4344907	533997.4	4344921	533973.8	4344924	533969.5	4344886	534033.0	4344883	534038.8
2126			4344868	533966.0	4344882	533941.7	4344886	533936.0	4344848	533998.7	4344844	534005.7
2127			4344831	533930.4	4344843	533910.1	4344846	533904.6	4344811	533963.6	4344807	533970.0
2128	4344840	533818.2	4344794	533893.9	4344804	533878.4	4344808	533871.6	4344772	533931.1	4344771	533933.6
2129	4344800	533786.9	4344756	533859.9	4344765	533846.3	4344769	533838.7	4344735	533895.3	4344734	533897.6
2130	4344757	533762.1	4344718	533826.5	4344726	533814.0	4344730	533806.6	4344699	533858.0	4344696	533863.1
2131	4344715	533733.8	4344680	533793.3	4344685	533783.7	4344692	533772.4	4344661	533825.4	4344658	533830.7
2132	4344675	533704.2	4344641	533761.0	4344645	533753.5	4344654	533738.2	4344624	533789.8	4344618	533799.0
2133	4344633	533676.1	4344602	533729.1	4344605	533724.2	4344615	533706.3	4344587	533753.2	4344579	533767.6
2134	4344592	533647.8	4344563	533696.5	4344565	533692.1	4344575	533675.4	4344548	533721.5	4344540	533734.5
2135	4344549	533622.2	4344525	533662.1	4344527	533658.4	4344538	533641.2	4344511	533685.4	4344501	533702.2
2136	4344508	533592.9	4344487	533629.2	4344488	533627.3	4344499	533607.6	4344475	533648.6	4344459	533675.1
2137	4344464	533569.7	4344448	533595.7	4344448	533596.2	4344460	533576.2	4344436	533615.7	4344420	533643.2
2138	4344419	533547.0	4344410	533562.8	4344408	533565.1	4344421	533544.3	4344398	533582.7	4344383	533606.9
2139	4344375	533522.8	4344369	533533.3	4344369	533533.9	4344381	533514.2	4344357	533552.1	4344344	533574.8
2140	4344334	533495.0	4344330	533502.1	4344329	533503.3	4344342	533480.8	4344317	533522.8	4344305	533542.9
2141	4344289	533472.1	4344288	533473.3	4344289	533472.9	4344302	533450.3	4344277	533491.8	4344266	533510.7
2142	4344248	533444.4	4344248	533443.6	4344249	533442.5	4344264	533417.3	4344239	533458.7	4344227	533478.5
2143	4344203	533420.9	4344209	533411.8	4344209	533411.3	4344225	533385.2	4344200	533426.6	4344190	533443.7
2144	4344163	533390.9	4344169	533381.3	4344169	533380.2	4344185	533353.8	4344160	533396.4	4344151	533410.4
2145	4344121	533364.0	4344129	533350.3	4344129	533350.0	4344145	533323.0	4344121	533364.1	4344112	533378.9
2146	4344079	533337.0	4344089	533320.0	4344089	533319.9	4344106	533290.9	4344083	533330.4	4344073	533345.7
2147	4344038	533308.1	4344046	533294.0	4344049	533289.7	4344066	533260.7	4344044	533297.3	4344035	533313.4
2148	4343997	533278.7	4344005	533264.8	4344009	533258.9	4344025	533231.4	4344003	533268.1	4343994	533283.1
2149	4343958	533246.6	4343966	533233.7	4343969	533228.2	4343986	533198.9	4343964	533235.8	4343956	533250.5
2150	4343918	533215.2	4343926	533202.1	4343929	533197.8	4343947	533167.1	4343925	533203.8	4343914	533222.3
2151	4343878	533184.7	4343887	533170.2	4343889	533167.6	4343906	533138.4	4343887	533171.1	4343872	533194.7
2152	4343837	533157.0	4343846	533141.0	4343848	533137.4	4343866	533108.5	4343845	533143.0	4343833	533162.5
2153	4343796	533128.5	4343806	533110.3	4343808	533108.3	4343825	533078.3	4343805	533112.8	4343795	533129.6
2154	4343753	533102.0	4343766	533080.0	4343767	533079.3	4343785	533048.3	4343766	533079.6	4343754	533101.0
2155	4343711	533074.3	4343727	533048.8	4343726	533049.5	4343744	533018.9	4343727	533047.6	4343712	533072.9
2156	4343671	533043.9	4343686	533018.5	4343687	533018.2	4343704	532989.2	4343687	533017.8	4343672	533042.2
2157	4343630	533014.8	4343646	532989.1	4343647	532987.9	4343663	532960.3	4343648	532985.2	4343633	533010.7
2158	4343589	532986.4	4343605	532959.1	4343606	532958.6	4343624	532928.5	4343609	532953.3	4343596	532975.6
2159	4343549	532956.3	4343566	532928.4	4343566	532926.8	4343583	532899.4	4343566	532927.3	4343558	532940.8
2160	4343509	532926.3	4343526	532897.4			4343543	532868.3	4343524	532900.6	4343519	532909.6
2161	4343468	532896.6	4343484	532869.2			4343502	532840.4	4343484	532870.3	4343476	532883.0
2162	4343427	532868.1	4343441	532844.0			4343461	532811.1	4343445	532838.3	4343434	532856.5
2163	4343384	532841.8	4343401	532814.6			4343420	532782.2	4343405	532806.7	4343394	532825.4
2164	4343344	532811.6	4343360	532784.7			4343379	532753.4	4343365	532776.9	4343349	532803.3
2165	4343304	532781.1	4343320	532754.4			4343338	532725.0	4343325	532746.8	4343307	532776.2
2166	4343265	532749.1	4343279	532726.3			4343298	532694.3	4343283	532718.2	4343270	532740.6
2167	4343227	532715.4	4343236	532699.7			4343254	532669.3	4343243	532689.1	4343231	532707.6
2168	4343189	532681.8	4343195	532671.4			4343215	532637.6	4343202	532658.9	4343192	532675.4
2169	4343148	532652.7	4343154	532642.9			4343174	532609.2	4343162	532628.5	4343154	532642.6
2170	4343103	532630.6	4343111	532616.2			4343133	532580.4	4343120	532601.2	4343113	532614.1
2171	4343060	532605.0	4343070	532587.2			4343092	532551.4	4343079	532572.1	4343071	532586.7
2172	4343016	532581.5	4343030	532557.7			4343051	532521.8	4343041	532538.8	4343029	532559.3
2173	4342978	532546.4	4342990	532527.5					4342998	532513.7	4342988	532530.4
2174	4342948	532499.4	4342948	532499.1					4342955	532487.7	4342947	532501.6
2175	4342917	532454.5	4342908	532468.8					4342915	532457.2	4342906	532472.5
2176	4342883	532413.5	4342867	532439.7					4342876	532425.1	4342866	532442.0
2177	4342845	532378.9	4342826	532410.9					4342830	532405.5	4342826	532411.7
2178	4342799	532359.2	4342784	532384.0					4342797	532363.2	4342786	532381.0
2179	4342746	532349.6	4342742	532356.9					4342755	532335.1	4342744	532353.8

High-Water Shoreline Position Change Rate

Transect #	1839/42 to 1864/86 (m/yr)	1839/42 to 1899 (m/yr)	1839/42 to 1932 (m/yr)	1839/42 to 1950/51 (m/yr)	1839/42 to 1977 (m/yr)	1864/86 to 1899 (m/yr)	1864/86 to 1932 (m/yr)	1864/86 to 1950/51 (m/yr)	1864/86 to 1977 (m/yr)	1899 to 1932 (m/yr)	1899 to 1950/51 (m/yr)	1899 to 1977 (m/yr)	1932 to 1950/51 (m/yr)	1932 to 1977 (m/yr)	1950/51 to 1977 (m/yr)
2180	-0.4			-0.3	-0.1			-0.2	0.0						0.6
2181	-1.0			-0.4	-0.2			-0.2	-0.1						0.3
2182	-1.0			-0.4	-0.3			-0.2	-0.2						0.0
2183	-0.8			-0.4	-0.3			-0.2	-0.2						0.0
2184	-0.7			-0.4	-0.2			-0.3	-0.2						0.3
2185	-0.7			-0.4	-0.3			-0.3	-0.2						0.4
2186	-0.8			-0.5	-0.3			-0.4	-0.2						0.3
2187	-0.4		-0.8	-0.5	-0.3		-0.9	-0.5	-0.2				1.3	0.8	0.5
2188	-0.1		-0.7	-0.4	-0.2		-1.0	-0.5	-0.3				1.2	0.8	0.5
2189	0.3		-0.7	-0.3	-0.2		-1.0	-0.5	-0.3				1.2	0.8	0.4
2190	0.2		-0.7	-0.3	-0.2		-1.0	-0.5	-0.3				1.4	0.8	0.4
2191	0.1	-0.7	-0.7	-0.4	-0.2	-1.2	-1.0	-0.5	-0.3	-0.7	-0.1	0.2	1.2	0.9	0.6
2192	0.2	-0.7	-0.7	-0.4	-0.2	-1.3	-1.0	-0.6	-0.3	-0.8	-0.1	0.2	1.2	0.8	0.6
2193	0.3	-0.8	-0.7	-0.4	-0.2	-1.5	-1.0	-0.6	-0.3	-0.6	0.0	0.2	1.0	0.8	0.7
2194	0.5	-0.7	-0.7	-0.4	-0.2	-1.4	-1.1	-0.6	-0.3	-0.7	0.0	0.2	1.2	0.8	0.5
2195	0.5	-0.7	-0.7	-0.4	-0.2	-1.5	-1.1	-0.6	-0.3	-0.7	-0.1	0.2	1.1	0.8	0.6
2196	0.3	-0.7	-0.7	-0.5	-0.2	-1.4	-1.1	-0.7	-0.3	-0.8	-0.2	0.1	1.0	0.8	0.7
2197	0.2	-0.7	-0.8	-0.5	-0.3	-1.3	-1.1	-0.6	-0.4	-0.9	-0.2	0.1	1.1	0.8	0.5
2198	0.3	-0.6	-0.7	-0.4	-0.2	-1.2	-1.0	-0.6	-0.3	-0.9	-0.2	0.1	1.0	0.7	0.5
2199	0.4	-0.6	-0.7	-0.4	-0.2	-1.2	-1.0	-0.6	-0.3	-0.8	-0.2	0.1	0.9	0.7	0.6
2200	0.3	-0.5	-0.6	-0.4	-0.2	-1.0	-0.9	-0.6	-0.3	-0.9	-0.3	0.0	0.9	0.7	0.6
2201	0.7	-0.3	-0.5	-0.3	-0.1	-1.0	-0.9	-0.6	-0.3	-0.9	-0.3	0.0	0.9	0.8	0.7
2202	0.9	-0.2	-0.5	-0.2	-0.1	-0.8	-0.9	-0.5	-0.2	-1.0	-0.3	0.0	1.1	0.8	0.6
2203	1.0	0.1	-0.4	-0.2	0.0	-0.5	-0.9	-0.5	-0.2	-1.3	-0.6	-0.1	0.8	0.8	0.8
2204	1.5	0.3	-0.3	-0.1	0.1	-0.5	-0.9	-0.5	-0.2	-1.4	-0.6	-0.1	0.9	0.9	0.8
2205	1.9	0.4	-0.2	0.0	0.1	-0.5	-0.9	-0.5	-0.2	-1.3	-0.5	-0.1	1.0	0.9	0.8
2206	2.2	0.3	-0.3	-0.1	0.1	-0.8	-1.0	-0.6	-0.3	-1.3	-0.5	-0.1	0.9	0.9	0.8
2207	2.0	0.3	-0.4	-0.2	0.1	-0.8	-1.1	-0.7	-0.3	-1.5	-0.7	-0.1	0.8	0.9	0.9
2208	2.2	0.4	-0.4	-0.2	0.1	-0.8	-1.2	-0.8	-0.4	-1.7	-0.8	-0.2	0.8	0.9	1.0
2209	1.9	0.3	-0.5	-0.2	0.0	-0.7	-1.3	-0.8	-0.4	-1.9	-0.9	-0.2	1.1	1.0	0.9
2210	1.8	0.2	-0.6	-0.3	-0.1	-0.9	-1.4	-0.9	-0.4	-1.8	-0.8	-0.2	1.0	1.0	1.0
2211	1.5	0.0	-0.6	-0.4	-0.1	-0.9	-1.3	-0.9	-0.4	-1.8	-0.9	-0.2	0.8	1.0	1.1
2212	1.4	0.0	-0.9	-0.4	-0.1	-0.9	-1.7	-0.9	-0.4	-2.5	-0.8	-0.1	2.2	1.6	1.2
2213	1.3	-0.1	-1.0	-0.4	-0.1	-1.0	-1.7	-0.9	-0.4	-2.5	-0.8	-0.1	2.4	1.7	1.1
2214	1.0	-0.1	-1.1	-0.5	-0.1	-0.9	-1.8	-0.9	-0.4	-2.7	-0.9	-0.2	2.4	1.7	1.2
2215	0.8	-0.2	-1.0	-0.5	-0.2	-0.8	-1.6	-0.9	-0.3	-2.5	-0.9	-0.1	2.1	1.6	1.3
2216	0.5	-0.3	-1.0	-0.5	-0.2	-0.8	-1.5	-0.7	-0.3	-2.3	-0.7	-0.1	2.2	1.6	1.1
2217	0.3	-0.5	-0.9	-0.6	-0.2	-0.9	-1.3	-0.8	-0.3	-1.6	-0.7	0.0	0.9	1.2	1.4
2218	0.4	-0.4	-0.7	-0.7	-0.2	-0.9	-1.1	-1.0	-0.3	-1.3	-1.1	0.0	-0.6	1.0	2.0
2219	0.1	-0.4	-1.3	-0.9	-0.2	-0.8	-1.7	-1.2	-0.3	-2.7	-1.4	0.0	0.9	2.0	2.7
2220	-0.1	-0.6	-1.8	-1.1	-0.2	-0.9	-2.3	-1.3	-0.3	-3.8	-1.6	0.0	2.4	2.9	3.2
2221	-0.1	-0.7	-1.9	-1.2	-0.2	-1.1	-2.5	-1.4	-0.3	-3.9	-1.7	0.1	2.4	3.0	3.4
2222	0.0	-0.8	-1.9	-1.3	-0.3	-1.3	-2.6	-1.6	-0.4	-3.9	-1.8	0.1	2.0	3.0	3.6
2223	-0.9	-0.8	-2.0	-1.4	-0.3	-0.8	-2.4	-1.6	-0.2	-4.0	-2.1	0.0	1.4	3.0	4.1
2224	-2.2	-0.8	-2.0	-1.5	-0.3	0.1	-2.0	-1.4	0.0	-4.2	-2.4	0.0	1.0	3.1	4.4
2225	-4.5	-0.9	-2.1	-1.7	-0.4	1.4	-1.4	-0.9	0.5	-4.3	-2.6	0.0	0.6	3.2	4.9
2226	-5.9	-1.0	-2.3	-1.9	-0.4	2.1	-1.1	-0.8	0.7	-4.4	-2.8	0.1	0.1	3.4	5.5
2227	-6.5	-1.1	-2.4	-2.1	-0.4	2.3	-1.0	-0.9	0.8	-4.5	-3.1	0.1	-0.5	3.5	6.2
2228	-7.2	-1.2	-2.5	-2.3	-0.4	2.6	-1.0	-1.0	0.9	-4.7	-3.5	0.1	-1.3	3.7	7.1
2229	-7.8	-1.3	-2.7	-2.4	-0.4	2.8	-1.0	-1.0	1.0	-5.1	-3.7	0.2	-1.1	4.2	7.7
2230	-8.5	-1.4	-3.0	-2.6	-0.4	3.1	-1.2	-1.0	1.2	-5.7	-3.9	0.4	-0.5	4.9	8.4
2231	-9.2	-1.6	-3.3	-2.7	-0.3	3.3	-1.4	-1.1	1.4	-6.3	-4.1	0.6	0.0	5.6	9.4
2232	-9.9	-1.7	-3.7	-2.8	-0.2	3.4	-1.7	-1.0	1.7	-7.0	-4.1	0.9	1.3	6.7	10.3
2233	-10.4	-1.8		-2.9	-0.1	3.7		-1.0	1.9		-4.1	1.1			10.9
2234	-10.8	-1.6		-2.9	0.0	4.2		-0.9	2.1		-4.3	1.1			11.4
2235	-11.5	-1.7		-3.0	0.0	4.6		-0.8	2.3		-4.4	1.3			12.0
2236	-12.2	-1.8		-3.0	0.1	4.7		-0.7	2.5		-4.3	1.5			12.5
2237	-12.6	-2.0		-3.0	0.1	4.8		-0.5	2.6		-4.2	1.7			12.6
2238	-13.1	-2.2		-3.0	0.1	4.8		-0.4	2.7		-4.0	1.8			12.9
2239	-13.5	-2.5		-3.2	0.2	4.3		-0.5	2.9		-3.9	2.2			13.7
2240	-13.3	-3.5			0.3	2.7			2.9			3.0			
2241	-12.5				0.4				3.0						
2242	-11.8				0.5				2.9						
2243	-9.0				0.8				2.7						
2244					1.8										
2245															
2246															
Corsons Inlet															
2247															
2248															
2249															
2250													1.2		
2251													0.5		
2252													0.4		
2253													0.8		
2254													1.0		
2255													1.6		
2256													3.3	-4.7	-10.0
2257													6.3	-3.5	-10.1
2258													8.6	-2.5	-9.9

High-Water Shoreline Position (UTM Zone 18, NAD 1983)

Transect #	1839/42 UTM-x (m)	1839/42 UTM-y (m)	1864/86 UTM-x (m)	1864/86 UTM-y (m)	1899 UTM-x (m)	1899 UTM-y (m)	1932 UTM-x (m)	1932 UTM-y (m)	1950/51 UTM-x (m)	1950/51 UTM-y (m)	1977 UTM-x (m)	1977 UTM-y (m)
2180	4342696	532335.9	4342701	532328.8					4342711	532312.1	4342703	532324.8
2181	4342647	532321.3	4342658	532302.7					4342667	532286.9	4342663	532293.9
2182	4342604	532295.4	4342616	532275.9					4342625	532259.6	4342625	532260.8
2183	4342565	532263.6	4342574	532248.3					4342585	532230.7	4342584	532231.5
2184	4342525	532232.9	4342533	532220.0					4342545	532199.0	4342541	532205.3
2185	4342483	532205.1	4342491	532191.8					4342506	532166.6	4342501	532175.3
2186	4342441	532178.3	4342450	532163.6					4342467	532135.1	4342463	532142.3
2187	4342403	532145.3	4342408	532136.9			4342440	532082.5	4342428	532103.1	4342421	532114.2
2188	4342364	532112.0	4342365	532110.6			4342398	532054.8	4342387	532073.5	4342380	532084.9
2189	4342326	532078.1	4342323	532083.9			4342357	532027.1	4342345	532046.3	4342339	532056.2
2190	4342283	532053.0	4342281	532056.9			4342315	531999.4	4342302	532020.8	4342297	532029.9
2191	4342240	532027.4	4342238	532030.1	4342261	531992.9	4342273	531971.8	4342262	531989.8	4342254	532004.7
2192	4342197	532001.3	4342196	532004.3	4342219	531965.7	4342231	531944.2	4342220	531962.5	4342212	531976.5
2193	4342156	531972.2	4342153	531978.3	4342179	531933.7	4342189	531917.2	4342180	531932.9	4342171	531948.5
2194	4342115	531943.3	4342110	531951.9	4342136	531909.3	4342147	531890.2	4342137	531908.0	4342130	531919.7
2195	4342073	531916.6	4342068	531926.1	4342094	531882.1	4342105	531863.1	4342095	531879.9	4342086	531894.7
2196	4342029	531893.8	4342025	531900.1	4342049	531858.9	4342063	531836.1	4342054	531851.1	4342045	531867.1
2197	4341985	531868.8	4341983	531872.5	4342006	531834.1	4342021	531809.1	4342010	531826.8	4342003	531838.4
2198	4341946	531836.3	4341943	531841.8	4341964	531806.2	4341979	531782.1	4341970	531797.5	4341962	531810.1
2199	4341906	531806.0	4341902	531813.1	4341923	531778.3	4341937	531755.0	4341928	531769.5	4341920	531783.3
2200	4341865	531777.8	4341862	531783.3	4341879	531753.8	4341895	531728.0	4341886	531742.3	4341878	531755.6
2201	4341828	531742.5	4341820	531755.5	4341837	531726.9	4341853	531700.8	4341844	531714.5	4341835	531730.1
2202	4341789	531710.3	4341779	531727.3	4341794	531702.1	4341811	531673.4	4341800	531690.9	4341792	531704.0
2203	4341749	531678.8	4341737	531698.6	4341747	531683.4	4341769	531645.9	4341761	531658.6	4341750	531677.6
2204	4341713	531642.1	4341696	531671.3	4341704	531657.1	4341727	531618.5	4341719	531631.9	4341707	531651.6
2205	4341674	531610.1	4341653	531645.6	4341662	531629.1	4341685	531591.3	4341676	531607.1	4341665	531624.6
2206	4341631	531584.5	4341607	531625.3	4341621	531601.4	4341643	531564.2	4341634	531578.7	4341623	531597.8
2207	4341585	531564.1	4341562	531601.6	4341577	531578.0	4341601	531536.3	4341594	531549.3	4341581	531570.7
2208	4341542	531539.1	4341517	531579.8	4341531	531556.4	4341560	531508.7	4341552	531520.8	4341538	531545.1
2209	4341495	531519.7	4341474	531555.3	4341486	531535.4	4341518	531481.0	4341508	531497.3	4341495	531519.0
2210	4341450	531498.1	4341429	531532.9	4341445	531505.6	4341476	531453.4	4341467	531468.6	4341454	531491.1
2211	4341405	531475.5	4341387	531504.7	4341404	531476.9	4341434	531427.0	4341426	531439.4	4341411	531465.8
2212	4341360	531452.3	4341345	531478.1	4341361	531450.6	4341403	531380.7	4341383	531414.0	4341367	531441.2
2213	4341316	531429.6	4341301	531454.7	4341318	531425.3	4341361	531353.1	4341339	531390.7	4341323	531417.3
2214	4341271	531406.7	4341260	531426.3	4341275	531400.6	4341321	531323.7	4341298	531361.2	4341281	531389.6
2215	4341227	531382.8	4341218	531397.9	4341232	531374.6	4341275	531302.4	4341256	531334.5	4341238	531364.7
2216	4341183	531360.1	4341177	531369.1	4341192	531344.8	4341230	531280.0	4341210	531313.8	4341194	531340.4
2217	4341139	531334.9	4341136	531340.8	4341153	531312.6	4341180	531267.4	4341172	531280.9	4341152	531314.0
2218	4341097	531308.5	4341092	531316.2	4341109	531289.0	4341131	531251.5	4341137	531241.9	4341108	531289.1
2219	4341052	531286.3	4341051	531288.6	4341065	531265.0	4341111	531187.8	4341102	531201.7	4341066	531263.5
2220	4341007	531264.0	4341008	531262.9	4341024	531235.8	4341089	531127.4	4341067	531163.9	4341023	531237.8
2221	4340963	531240.6	4340963	531239.6	4340982	531207.9	4341049	531096.1	4341027	531132.6	4340980	531212.2
2222	4340917	531219.9	4340917	531219.4	4340940	531181.4	4341006	531070.0	4340987	531101.6	4340938	531184.8
2223	4340872	531197.6	4340882	531181.3	4340896	531156.5	4340964	531043.6	4340951	531065.4	4340895	531159.3
2224	4340827	531174.9	4340852	531133.3	4340850	531137.5	4340921	531017.6	4340912	531033.3	4340851	531135.5
2225	4340782	531152.5	4340833	531066.9	4340808	531110.3	4340881	530987.7	4340875	530996.9	4340807	531110.6
2226	4340737	531131.2	4340803	531019.6	4340766	531081.7	4340841	530956.2	4340840	530958.4	4340763	531086.8
2227	4340693	531107.3	4340767	530983.9	4340726	531052.0	4340802	530924.4	4340807	530916.2	4340721	531060.3
2228	4340648	531084.7	4340730	530948.2	4340683	531025.7	4340763	530891.8	4340775	530871.9	4340678	531035.4
2229	4340605	531060.2	4340693	530912.6	4340642	530997.5	4340729	530852.3	4340739	530835.3	4340633	531013.3
2230	4340560	531037.1	4340656	530876.9	4340601	530968.8	4340697	530807.0	4340702	530799.5	4340585	530994.8
2231	4340515	531015.8	4340619	530841.2	4340560	530939.6	4340667	530760.9	4340667	530761.2	4340537	530978.4
2232	4340470	530992.8	4340582	530805.5	4340520	530908.5	4340640	530708.8	4340628	530728.5	4340486	530966.6
2233	4340428	530965.8	4340545	530769.8	4340479	530879.8			4340587	530699.2	4340437	530951.3
2234	4340386	530938.8	4340508	530734.1	4340434	530858.9			4340546	530670.2	4340388	530935.5
2235	4340341	530916.6	4340471	530698.4	4340389	530835.7			4340505	530640.9	4340339	530919.7
2236	4340297	530892.6	4340434	530662.8	4340350	530803.2			4340463	530614.0	4340291	530903.0
2237	4340255	530865.8	4340397	530627.1	4340312	530770.2			4340421	530588.0	4340246	530881.1
2238	4340212	530839.8	4340360	530591.4	4340275	530734.5			4340380	530558.5	4340202	530856.8
2239	4340171	530810.4	4340323	530555.7	4340246	530685.7			4340347	530515.4	4340158	530833.1
2240	4340136	530771.5	4340286	530520.0	4340237	530602.2					4340116	530806.1
2241	4340108	530721.1	4340249	530484.3							4340078	530772.0
2242	4340080	530671.6	4340213	530448.7							4340042	530734.4
2243	4340063	530601.5	4340164	530432.1							4340007	530696.1
2244	4340095	530450.9									4339972	530656.0
2245											4339936	530618.8
2246											4339897	530586.6
											4339860	530551.6
2247									4339988	530365.8		
2248									4339909	530401.1		
2249									4339839	530420.4		
2250							4339788	530407.9	4339777	530426.5		
2251							4339721	530422.8	4339717	530430.1		
2252							4339666	530417.4	4339663	530423.0		
2253							4339614	530406.3	4339607	530418.3		
2254							4339562	530396.1	4339553	530410.8		
2255							4339510	530385.8	4339496	530410.1		
2256							4339461	530370.9	4339430	530422.3	4339568	530191.2
2257							4339420	530342.2	4339361	530440.0	4339501	530206.7
2258							4339380	530311.6	4339301	530443.9	4339438	530214.4

	High-Water Shoreline Position Change Rate														
	1839/42 to	1839/42 to	1839/42 to	1839/42 to	1839/42 to	1864/86 to	1864/86 to	1864/86 to	1864/86 to	1899 to	1899 to	1899 to	1932 to	1932 to	1950/51 to
Transect #	1864/86 (m/yr)	1899 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1899 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1977 (m/yr)
2259							-2.4	0.8	-2.0				9.5	-1.6	-9.0
2260							-2.5	1.0	-1.5				10.3	-0.4	-7.6
2261						-13.4	-2.1	1.4	-0.9	3.0	5.7	1.5	10.8	0.5	-6.4
2262						-6.2	-1.8	1.5	-0.7	0.2	3.8	0.3	10.3	0.4	-6.2
2263	7.3	4.5	2.6	3.6	1.8	-3.6	-1.5	1.2	-0.8	-0.6	2.7	-0.2	8.7	0.1	-5.7
2264	5.6	3.7	1.9	2.7	1.2	-1.4	-1.3	0.9	-0.8	-1.3	1.6	-0.7	6.7	-0.3	-5.0
2265	4.0	3.1	1.2	1.9	0.6	0.6	-1.3	0.5	-0.9	-2.1	0.5	-1.2	5.3	-0.6	-4.5
2266	2.5	2.1	0.5	1.1	0.0	0.8	-1.3	0.1	-1.1	-2.2	0.0	-1.4	4.0	-0.8	-4.0
2267	1.7	1.7	0.1	0.6	-0.2	1.6	-1.3	-0.1	-1.1	-2.7	-0.6	-1.6	3.1	-0.8	-3.4
2268	1.1	1.3	-0.2	0.2	-0.4	1.8	-1.3	-0.3	-1.0	-2.7	-1.0	-1.6	2.3	-0.7	-2.7
2269	0.6	1.0	-0.5	-0.1	-0.5	1.9	-1.4	-0.6	-1.1	-3.0	-1.3	-1.6	1.7	-0.7	-2.3
2270	-0.2	0.6	-0.8	-0.5	-0.7	2.8	-1.3	-0.6	-1.0	-3.1	-1.6	-1.7	1.0	-0.6	-1.7
2271	-0.8	0.2	-1.0	-0.7	-0.9	3.0	-1.2	-0.7	-0.9	-3.1	-1.8	-1.7	0.7	-0.7	-1.6
2272	-1.2	-0.1	-1.2	-1.0	-1.1	3.2	-1.2	-0.8	-1.0	-3.2	-2.0	-1.8	0.3	-0.7	-1.4
2273	-1.5	-0.3	-1.3	-1.2	-1.2	3.1	-1.1	-0.9	-1.0	-3.1	-2.1	-1.8	-0.4	-0.9	-1.3
2274	-1.9	-0.6	-1.4	-1.4	-1.3	3.1	-1.0	-1.0	-1.1	-2.9	-2.3	-1.9	-1.1	-1.1	-1.1
2275	-2.1	-0.7	-1.4	-1.5	-1.4	3.0	-0.9	-1.1	-1.0	-2.7	-2.3	-1.8	-1.6	-1.2	-1.0
2276	-2.2	-0.9	-1.5	-1.5	-1.4	3.0	-0.9	-1.1	-1.0	-2.7	-2.2	-1.8	-1.5	-1.2	-1.0
2277	-2.2	-0.9	-1.5	-1.5	-1.4	2.7	-1.0	-1.1	-1.0	-2.6	-2.2	-1.7	-1.5	-1.0	-0.7
2278	-2.3	-1.0	-1.5	-1.7	-1.4	2.6	-0.9	-1.3	-1.0	-2.4	-2.4	-1.7	-2.3	-1.1	-0.3
2279	-2.4	-1.1	-1.6	-1.8	-1.4	2.7	-0.9	-1.4	-1.0	-2.5	-2.5	-1.7	-2.6	-1.1	-0.1
2280	-2.5	-1.1	-1.6	-1.8	-1.5	2.7	-0.8	-1.4	-1.0	-2.4	-2.6	-1.7	-2.9	-1.2	-0.1
2281	-2.4	-1.1	-1.6	-1.8	-1.5	2.4	-0.9	-1.5	-1.1	-2.4	-2.6	-1.8	-2.9	-1.3	-0.3
2282	-2.2	-1.1	-1.6	-1.9	-1.5	2.1	-1.0	-1.6	-1.2	-2.5	-2.7	-1.9	-3.2	-1.4	-0.2
2283	-2.1	-1.0	-1.6	-1.9	-1.6	1.8	-1.2	-1.8	-1.3	-2.6	-2.9	-1.9	-3.4	-1.5	-0.2
2284	-2.2	-1.1	-1.6	-2.0	-1.6	1.9	-1.1	-1.9	-1.4	-2.5	-3.0	-2.0	-3.8	-1.7	-0.3
2285	-2.4	-1.2	-1.6	-2.1	-1.7	2.1	-1.0	-1.9	-1.4	-2.4	-3.0	-2.0	-4.2	-1.8	-0.2
2286	-2.3	-1.2	-1.6	-2.0	-1.7	2.1	-0.9	-1.8	-1.4	-2.3	-3.0	-2.0	-4.2	-1.8	-0.3
2287	-2.1	-1.1	-1.5	-2.0	-1.7	1.6	-1.0	-1.9	-1.4	-2.2	-2.9	-2.0	-4.2	-1.9	-0.4
2288	-2.2	-1.1	-1.5	-1.9	-1.7	1.7	-0.9	-1.7	-1.4	-2.1	-2.7	-2.0	-3.9	-2.0	-0.8
2289	-2.3	-1.2	-1.5	-1.9	-1.7	1.8	-0.8	-1.6	-1.4	-2.0	-2.6	-2.0	-3.7	-2.1	-1.0
2290	-2.5	-1.4	-1.6	-1.8	-1.8	1.6	-0.8	-1.5	-1.4	-1.9	-2.3	-2.0	-3.2	-2.1	-1.4
2291	-2.6	-1.6	-1.6	-1.9	-1.8	1.1	-0.9	-1.4	-1.5	-1.7	-2.1	-2.0	-2.9	-2.1	-1.7
2292	-2.3	-1.5	-1.6	-1.7	-1.7	0.7	-0.9	-1.3	-1.5	-1.6	-1.9	-1.9	-2.5	-2.1	-1.9
2293	-2.0	-1.4	-1.4	-1.6	-1.6	0.3	-0.9	-1.3	-1.5	-1.5	-1.8	-1.9	-2.3	-2.1	-2.0
2294	-1.7	-1.3	-1.3	-1.5	-1.6	-0.1	-1.0	-1.3	-1.5	-1.4	-1.7	-1.8	-2.2	-2.1	-2.0
2295	-1.6	-1.3	-1.3	-1.4	-1.6	-0.3	-0.9	-1.3	-1.5	-1.2	-1.6	-1.8	-2.3	-2.1	-2.1
2296	-1.6	-1.3	-1.2	-1.4	-1.5	-0.7	-1.0	-1.3	-1.5	-1.1	-1.5	-1.7	-2.2	-2.1	-2.1
2297	-1.6	-1.4	-1.3	-1.5	-1.6	-0.9	-1.0	-1.4	-1.6	-1.1	-1.5	-1.7	-2.3	-2.1	-2.0
2298	-1.7	-1.5	-1.3	-1.5	-1.6	-1.2	-1.0	-1.4	-1.6	-1.0	-1.5	-1.6	-2.4	-2.1	-1.9
2299	-1.7	-1.6	-1.4	-1.6	-1.6	-1.3	-1.0	-1.4	-1.5	-0.9	-1.5	-1.6	-2.5	-2.1	-1.8
2300	-1.7	-1.6	-1.3	-1.5	-1.6	-1.6	-1.0	-1.4	-1.5	-0.8	-1.4	-1.5	-2.4	-2.1	-1.8
2301	-1.7	-1.7	-1.3	-1.5	-1.6	-1.6	-1.0	-1.4	-1.5	-0.7	-1.3	-1.5	-2.4	-2.1	-1.8
2302	-1.5	-1.7	-1.3	-1.5	-1.5	-2.0	-1.0	-1.5	-1.6	-0.6	-1.3	-1.5	-2.6	-2.1	-1.8
2303	-1.4	-1.6	-1.2	-1.5	-1.5	-2.2	-1.1	-1.5	-1.6	-0.6	-1.3	-1.5	-2.7	-2.1	-1.7
2304	-1.4	-1.6	-1.2	-1.5	-1.5	-2.2	-1.1	-1.5	-1.6	-0.6	-1.3	-1.5	-2.7	-2.1	-1.7
2305	-1.4	-1.7	-1.3	-1.5	-1.5	-2.6	-1.2	-1.6	-1.6	-0.6	-1.3	-1.4	-2.7	-2.1	-1.6
2306	-1.5	-1.8	-1.3	-1.6	-1.5	-2.6	-1.1	-1.6	-1.6	-0.5	-1.3	-1.4	-2.9	-2.1	-1.5
2307	-1.5	-1.8	-1.3	-1.5	-1.6	-2.6	-1.1	-1.5	-1.6	-0.3	-1.2	-1.3	-2.8	-2.1	-1.6
2308	-1.5	-1.8	-1.3	-1.5	-1.5	-2.7	-1.1	-1.5	-1.5	-0.3	-1.1	-1.3	-2.5	-2.0	-1.7
2309	-1.6	-1.9	-1.3	-1.5	-1.5	-2.8	-1.1	-1.4	-1.5	-0.3	-1.0	-1.2	-2.4	-1.9	-1.6
2310	-1.5	-1.8	-1.3	-1.5	-1.5	-2.8	-1.0	-1.4	-1.5	-0.3	-1.0	-1.2	-2.5	-1.9	-1.5
2311	-1.4	-1.7	-1.2	-1.4	-1.4	-2.6	-1.0	-1.3	-1.4	-0.2	-1.0	-1.2	-2.4	-1.9	-1.6
2312	-1.5	-1.6	-1.1	-1.3	-1.4	-2.1	-0.8	-1.2	-1.3	-0.1	-0.9	-1.2	-2.2	-1.9	-1.7
2313	-1.6	-1.7	-1.1	-1.3	-1.4	-1.8	-0.6	-1.1	-1.3	-0.1	-0.9	-1.2	-2.3	-1.9	-1.7
2314	-1.8	-1.7	-1.1	-1.3	-1.4	-1.2	-0.5	-1.0	-1.2	-0.2	-0.9	-1.2	-2.1	-1.9	-1.8
2315	-1.9	-1.6	-1.1	-1.3	-1.4	-1.0	-0.5	-0.9	-1.2	-0.3	-0.9	-1.2	-1.9	-1.9	-1.9
2316	-2.0	-1.6	-1.2	-1.3	-1.4	-0.6	-0.5	-0.8	-1.2	-0.4	-0.9	-1.3	-1.8	-1.9	-1.9
2317	-2.1	-1.7	-1.2	-1.3	-1.4	-0.5	-0.5	-0.8	-1.1	-0.5	-0.9	-1.2	-1.7	-1.8	-1.9
2318	-2.1	-1.5	-1.2	-1.3	-1.4	0.0	-0.4	-0.8	-1.1	-0.6	-1.0	-1.3	-1.7	-1.8	-1.8
2319	-1.9	-1.4	-1.1	-1.2	-1.3	0.1	-0.5	-0.8	-1.1	-0.7	-1.0	-1.3	-1.6	-1.7	-1.7
2320	-1.8	-1.3	-1.1	-1.2	-1.3	-0.1	-0.5	-0.8	-1.1	-0.7	-1.0	-1.2	-1.6	-1.6	-1.6
2321	-1.7	-1.3	-1.1	-1.2	-1.2	-0.3	-0.6	-0.9	-1.1	-0.7	-1.0	-1.2	-1.6	-1.5	-1.5
2322	-1.6	-1.3	-1.1	-1.2	-1.2	-0.5	-0.6	-0.9	-1.0	-0.7	-1.0	-1.2	-1.5	-1.5	-1.5
2323	-1.6	-1.3	-1.1	-1.1	-1.2	-0.6	-0.7	-0.9	-1.0	-0.7	-0.9	-1.1	-1.4	-1.5	-1.5
2324	-1.5	-1.3	-1.1	-1.1	-1.2	-0.9	-0.7	-0.8	-1.0	-0.7	-0.8	-1.1	-1.1	-1.4	-1.6
2325	-1.5	-1.4	-1.1	-1.1	-1.2	-1.2	-0.8	-0.8	-1.0	-0.6	-0.7	-1.0	-0.9	-1.3	-1.6
2326	-1.4	-1.4	-1.1	-1.1	-1.2	-1.4	-0.8	-0.9	-1.1	-0.5	-0.7	-1.0	-1.1	-1.3	-1.5
2327	-1.5	-1.5	-1.2	-1.2	-1.2	-1.5	-0.9	-1.0	-1.0	-0.6	-0.8	-0.9	-1.1	-1.2	-1.2
2328	-1.6	-1.6	-1.3	-1.2	-1.2	-1.6	-1.0	-1.0	-1.1	-0.7	-0.8	-1.0	-0.9	-1.2	-1.3
2329	-1.8	-1.7	-1.3	-1.2	-1.3	-1.7	-0.9	-0.9	-1.0	-0.6	-0.7	-0.9	-0.8	-1.2	-1.4
2330	-1.9	-1.9	-1.4	-1.3	-1.3	-1.9	-1.0	-1.0	-1.1	-0.6	-0.7	-0.9	-0.7	-1.1	-1.4
2331	-2.0	-2.0	-1.6	-1.4	-1.4	-2.1	-1.2	-1.0	-1.1	-0.7	-0.7	-0.9	-0.5	-1.0	-1.4
2332	-2.2	-2.2	-1.7	-1.5	-1.4	-2.1	-1.2	-1.0	-1.1	-0.8	-0.7	-0.9	-0.5	-1.0	-1.3
2333	-2.3	-2.3	-1.8	-1.5	-1.5	-2.2	-1.3	-1.0	-1.1	-0.8	-0.7	-0.9	-0.3	-0.9	-1.3
2334	-2.4	-2.4	-1.8	-1.6	-1.5	-2.3	-1.3	-1.0	-1.1	-0.8	-0.7	-0.8	-0.4	-0.8	-1.2
2335	-2.5	-2.4	-1.8	-1.6	-1.5	-2.3	-1.3	-1.1	-1.0	-0.8	-0.8	-0.8	-0.7	-0.8	-0.9
2336	-2.7	-2.5	-1.9	-1.7	-1.5	-1.8	-1.1	-1.0	-0.9	-0.8	-0.8	-0.8	-0.8	-0.8	-0.7
2337	-2.7	-2.4	-1.9	-1.7	-1.5	-1.6	-1.1	-1.1	-0.9	-1.0	-0.9	-0.8	-0.9	-0.7	-0.6
2338	-2.8	-2.4	-1.9	-1.7	-1.5	-1.1	-1.1	-1.1	-0.9	-1.1	-1.1	-0.9	-0.9	-0.7	-0.5
2339	-3.1	-2.5	-2.0	-1.8	-1.5	-1.0	-1.1	-1.0	-0.8	-1.1	-1.0	-0.8	-0.9	-0.6	-0.4

	High-Water Shoreline Position (UTM Zone 18, NAD 1983)											
	1839/42		1864/86		1899		1932		1950/51		1977	
Transect #	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)
2259			4339276	530388.3			4339336	530288.0	4339248	530435.4	4339372	530227.1
2260			4339230	530367.5			4339290	530266.1	4339196	530425.2	4339301	530248.7
2261			4339190	530336.2	4339294	530163.4	4339243	530248.3	4339144	530414.8	4339232	530267.1
2262			4339150	530305.7	4339198	530225.3	4339194	530232.3	4339100	530391.0	4339185	530246.9
2263	4339264	530017.1	4339107	530281.1	4339134	530235.2	4339145	530217.4	4339065	530351.3	4339143	530220.2
2264	4339181	530058.8	4339061	530259.9	4339072	530241.7	4339094	530205.8	4339032	530309.6	4339101	530193.9
2265	4339101	530096.0	4339015	530239.5	4339011	530247.3	4339047	530187.1	4338997	530269.7	4339060	530164.4
2266	4339023	530128.6	4338969	530219.0	4338963	530229.4	4339001	530165.8	4338964	530227.3	4339020	530134.2
2267	4338965	530128.4	4338928	530190.5	4338916	530211.3	4338961	530135.8	4338932	530184.5	4338978	530106.0
2268	4338912	530120.2	4338888	530159.8	4338874	530183.0	4338921	530105.3	4338899	530141.2	4338937	530077.8
2269	4338861	530107.0	4338848	530129.9	4338833	530154.8	4338883	530071.2	4338867	530097.8	4338898	530045.4
2270	4338809	530097.1	4338813	530090.0	4338792	530125.5	4338845	530037.7	4338835	530053.3	4338859	530013.3
2271	4338759	530082.8	4338777	530053.9	4338753	530093.0	4338806	530005.1	4338800	530015.4	4338822	529978.3
2272	4338712	530063.8	4338739	530019.9	4338714	530060.5	4338769	529969.7	4338766	529975.0	4338785	529942.0
2273	4338668	530041.6	4338700	529986.7	4338676	530027.1	4338728	529939.9	4338732	529933.6	4338750	529903.8
2274	4338621	530022.2	4338662	529953.3	4338638	529992.9	4338687	529911.5	4338697	529894.3	4338712	529868.8
2275	4338579	529995.2	4338624	529919.8	4338600	529958.8	4338645	529883.4	4338660	529858.4	4338674	529836.3
2276	4338539	529964.8	4338586	529885.0	4338564	529923.1	4338609	529847.6	4338622	529824.6	4338636	529802.2
2277	4338500	529931.9	4338548	529852.4	4338527	529887.2	4338571	529812.5	4338585	529789.6	4338595	529772.5
2278	4338459	529903.9	4338508	529821.1	4338488	529854.2	4338530	529784.8	4338551	529749.1	4338555	529741.7
2279	4338416	529877.7	4338469	529789.6	4338448	529823.8	4338490	529753.8	4338514	529713.0	4338515	529711.0
2280	4338376	529847.4	4338429	529757.9	4338409	529792.1	4338450	529723.9	4338476	529678.7	4338478	529676.1
2281	4338338	529813.0	4338389	529728.2	4338370	529758.8	4338412	529689.9	4338439	529644.7	4338442	529638.4
2282	4338300	529778.7	4338348	529699.5	4338332	529726.2	4338373	529656.6	4338403	529606.6	4338406	529601.2
2283	4338262	529746.2	4338306	529672.1	4338292	529695.6	4338336	529622.0	4338367	529570.2	4338369	529565.8
2284	4338219	529719.6	4338267	529640.0	4338252	529664.9	4338294	529594.2	4338329	529535.1	4338333	529528.6
2285	4338178	529690.5	4338229	529605.6	4338213	529632.7	4338254	529564.2	4338292	529500.0	4338294	529496.5
2286	4338140	529657.6	4338190	529573.2	4338174	529600.3	4338213	529535.4	4338251	529470.4	4338255	529464.3
2287	4338102	529622.5	4338148	529545.8	4338136	529567.0	4338173	529504.6	4338212	529439.5	4338217	529430.8
2288	4338064	529589.5	4338111	529510.9	4338097	529533.2	4338133	529474.1	4338169	529414.1	4338179	529396.0
2289	4338024	529558.1	4338073	529476.7	4338059	529499.4	4338093	529443.1	4338127	529386.3	4338141	529362.5
2290	4337980	529534.2	4338034	529445.2	4338022	529465.3	4338053	529412.2	4338083	529362.9	4338102	529330.1
2291	4337937	529509.3	4337992	529417.1	4337984	529431.3	4338013	529381.9	4338040	529337.5	4338063	529299.1
2292	4337902	529471.0	4337951	529388.0	4337946	529396.5	4337974	529350.4	4337997	529311.9	4338023	529268.3
2293	4337869	529427.8	4337912	529357.0	4337909	529361.1	4337935	529318.3	4337956	529282.9	4337983	529236.7
2294	4337834	529389.7	4337871	529327.3	4337872	529326.4	4337895	529287.7	4337915	529254.0	4337942	529207.7
2295	4337796	529356.1	4337831	529296.8	4337833	529293.6	4337853	529259.3	4337874	529224.4	4337903	529176.3
2296	4337756	529325.5	4337789	529269.3	4337794	529260.7	4337813	529228.9	4337833	529195.4	4337862	529147.7
2297	4337714	529297.5	4337748	529240.0	4337756	529227.9	4337774	529197.7	4337795	529161.7	4337822	529116.3
2298	4337672	529269.9	4337708	529210.3	4337717	529195.1	4337734	529167.3	4337755	529130.6	4337782	529085.9
2299	4337631	529241.0	4337669	529178.4	4337679	529161.3	4337694	529136.6	4337717	529097.2	4337741	529056.6
2300	4337592	529208.7	4337628	529148.4	4337641	529128.0	4337654	529105.7	4337676	529068.2	4337701	529026.3
2301	4337554	529175.6	4337590	529116.0	4337602	529094.7	4337615	529073.9	4337637	529037.0	4337662	528994.2
2302	4337516	529142.3	4337549	529086.8	4337564	529061.4	4337574	529043.6	4337598	529004.1	4337623	528962.8
2303	4337476	529110.4	4337507	529058.9	4337524	529030.6	4337534	529014.6	4337559	528972.7	4337582	528933.0
2304	4337437	529079.1	4337468	529027.3	4337485	528999.0	4337494	528982.8	4337520	528940.5	4337543	528901.3
2305	4337397	529048.4	4337426	528999.3	4337446	528965.9	4337455	528950.3	4337481	528908.0	4337503	528870.7
2306	4337355	529020.5	4337388	528966.6	4337407	528933.7	4337415	528920.7	4337441	528876.6	4337462	528841.4
2307	4337315	528991.2	4337348	528935.3	4337368	528901.2	4337374	528891.6	4337400	528848.3	4337422	528811.4
2308	4337275	528959.5	4337308	528904.3	4337329	528869.2	4337334	528860.6	4337357	528821.9	4337381	528782.1
2309	4337234	528931.7	4337268	528873.5	4337290	528838.1	4337294	528830.2	4337316	528792.9	4337339	528755.6
2310	4337196	528897.7	4337228	528843.2	4337250	528807.3	4337254	528800.0	4337277	528761.7	4337297	528727.3
2311	4337159	528861.9	4337189	528811.2	4337210	528777.1	4337213	528771.1	4337235	528734.8	4337257	528697.9
2312	4337122	528826.7	4337153	528774.4	4337169	528746.9	4337171	528743.2	4337192	528708.7	4337215	528669.6
2313	4337079	528800.3	4337115	528741.0	4337128	528718.1	4337130	528716.0	4337151	528680.4	4337174	528641.0
2314	4337037	528773.1	4337076	528708.2	4337085	528692.2	4337088	528687.1	4337108	528654.2	4337133	528611.9
2315	4336996	528745.2	4337036	528678.1	4337043	528665.7	4337048	528657.6	4337066	528627.9	4337092	528583.6
2316	4336953	528719.1	4336996	528647.4	4337001	528639.1	4337007	528627.9	4337024	528600.1	4337051	528555.3
2317	4336910	528694.2	4336955	528618.7	4336958	528612.8	4336966	528599.6	4336982	528572.6	4337008	528529.2
2318	4336871	528661.5	4336915	528587.3	4336916	528586.7	4336926	528569.7	4336941	528543.3	4336966	528501.9
2319	4336832	528628.9	4336874	528559.1	4336873	528560.9	4336885	528540.4	4336900	528515.9	4336924	528475.1
2320	4336793	528597.4	4336831	528533.2	4336831	528532.5	4336844	528511.6	4336859	528486.6	4336881	528449.3
2321	4336752	528567.5	4336789	528506.8	4336791	528502.7	4336803	528482.4	4336818	528457.5	4336839	528422.8
2322	4336712	528537.5	4336746	528479.8	4336750	528473.9	4336762	528453.9	4336776	528430.3	4336796	528396.0
2323	4336670	528510.1	4336704	528452.8	4336709	528445.5	4336721	528425.4	4336733	528404.2	4336754	528369.1
2324	4336629	528481.2	4336661	528427.2	4336668	528415.9	4336680	528396.4	4336689	528380.0	4336711	528343.5
2325	4336587	528453.6	4336619	528401.3	4336628	528386.3	4336638	528368.6	4336646	528355.0	4336669	528317.5
2326	4336544	528427.9	4336576	528375.8	4336587	528357.5	4336595	528342.9	4336606	528325.4	4336626	528291.8
2327	4336501	528403.7	4336533	528350.1	4336544	528330.4	4336555	528312.7	4336565	528295.9	4336582	528267.2
2328	4336455	528382.3	4336490	528324.3	4336502	528303.3	4336514	528284.3	4336522	528269.9	4336541	528238.9
2329	4336410	528360.6	4336448	528296.8	4336461	528275.4	4336471	528258.7	4336479	528245.6	4336498	528213.8
2330	4336365	528339.1	4336404	528272.3	4336419	528247.5	4336430	528229.1	4336437	528218.3	4336456	528185.8
2331	4336319	528318.7	4336361	528246.7	4336377	528219.9	4336390	528198.9	4336395	528191.3	4336413	528159.9
2332	4336272	528298.6	4336319	528220.2	4336335	528193.3	4336348	528170.9	4336353	528163.4	4336371	528133.7
2333	4336226	528277.8	4336276	528194.1	4336293	528166.1	4336307	528142.6	4336310	528137.4	4336328	528107.4
2334	4336183	528252.9	4336234	528167.3	4336252	528137.8	4336266	528114.0	4336269	528108.6	4336285	528081.7
2335	4336139	528228.6	4336192	528140.2	4336210	528110.0	4336223	528087.9	4336230	528076.8	4336242	528056.6
2336	4336095	528205.2	4336154	528106.4	4336168	528083.5	4336182	528060.3	4336189	528047.3	4336199	528030.6
2337	4336053	528178.2	4336112	528079.4	4336124	528059.3	4336140	528032.1	4336148	528018.2	4336157	528004.2
2338	4336010	528153.0	4336070	528052.4	4336079	528037.8	4336098	528005.3	4336107	527990.8	4336113	527979.7
2339	4335964	528132.9	4336030	528021.6	4336037	528009.0	4336056	527977.5	4336065	527963.6	4336070	527954.7

	High-Water Shoreline Position Change Rate														
	1839/42 to	1839/42 to	1839/42 to	1839/42 to	1839/42 to	1864/86 to	1864/86 to	1864/86 to	1864/86 to	1899 to	1899 to	1899 to	1932 to	1932 to	1950/51 to
Transect #	1864/86 (m/yr)	1899 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1899 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1977 (m/yr)
2340	-3.0	-2.5	-2.0	-1.8	-1.5	-1.1	-1.1	-1.0	-0.9	-1.1	-1.0	-0.8	-0.8	-0.5	-0.4
2341	-3.0	-2.5	-2.0	-1.8	-1.5	-1.3	-1.2	-1.0	-0.9	-1.2	-0.9	-0.8	-0.5	-0.5	-0.5
2342	-2.8	-2.5	-2.0	-1.7	-1.5	-1.7	-1.3	-1.0	-0.9	-1.1	-0.9	-0.7	-0.4	-0.5	-0.5
2343	-3.0	-2.6	-2.1	-1.8	-1.5	-1.5	-1.3	-1.0	-0.9	-1.2	-0.9	-0.7	-0.2	-0.4	-0.5
2344	-3.0	-2.6	-2.0	-1.8	-1.5	-1.4	-1.2	-1.0	-0.8	-1.1	-0.9	-0.7	-0.4	-0.4	-0.5
2345	-3.1	-2.5	-2.1	-1.8	-1.5	-1.1	-1.2	-1.0	-0.8	-1.3	-1.0	-0.8	-0.4	-0.3	-0.3
2346	-3.2	-2.5	-2.1	-1.8	-1.5	-0.6	-1.1	-0.9	-0.7	-1.4	-1.0	-0.8	-0.4	-0.3	-0.3
2347	-3.1	-2.4	-2.1	-1.7	-1.5	-0.3	-1.1	-0.9	-0.7	-1.5	-1.0	-0.8	-0.2	-0.3	-0.3
2348	-3.0	-2.2	-2.0	-1.7	-1.4	-0.2	-1.1	-0.9	-0.7	-1.5	-1.1	-0.8	-0.4	-0.2	-0.1
2349	-2.9	-2.2	-1.9	-1.7	-1.4	-0.2	-1.0	-0.9	-0.7	-1.3	-1.1	-0.8	-0.6	-0.4	-0.2
2350	-2.9	-2.1	-1.8	-1.6	-1.4	-0.1	-0.9	-0.8	-0.7	-1.2	-1.0	-0.8	-0.7	-0.5	-0.4
2351	-2.7	-2.0	-1.7	-1.5	-1.3	0.0	-0.8	-0.7	-0.6	-1.2	-1.0	-0.8	-0.6	-0.5	-0.4
2352	-2.6	-1.9	-1.6	-1.4	-1.2	0.1	-0.8	-0.6	-0.6	-1.2	-0.8	-0.8	-0.1	-0.4	-0.7
2353	-2.2	-1.6	-1.4	-1.2	-1.2	0.0	-0.7	-0.5	-0.7	-1.0	-0.7	-0.8	-0.1	-0.6	-1.0
2354	-2.0	-1.6	-1.3	-1.2	-1.1	-0.3	-0.8	-0.6	-0.7	-1.0	-0.8	-0.8	-0.3	-0.6	-0.8
2355	-1.9	-1.5	-1.3	-1.1	-1.1	-0.3	-0.7	-0.6	-0.7	-0.9	-0.7	-0.7	-0.5	-0.6	-0.7
2356	-1.9	-1.5	-1.2	-1.0	-1.0	-0.2	-0.6	-0.5	-0.6	-0.7	-0.5	-0.7	-0.3	-0.7	-1.0
2357	-2.0	-1.5	-1.1	-1.0	-1.0	0.0	-0.4	-0.4	-0.6	-0.6	-0.5	-0.7	-0.3	-0.7	-1.0
2358	-1.8	-1.4	-1.1	-0.9	-1.0	-0.1	-0.4	-0.3	-0.6	-0.6	-0.4	-0.7	0.0	-0.8	-1.3
2359	-1.7	-1.2	-1.0	-0.8	-0.9	0.1	-0.4	-0.3	-0.6	-0.5	-0.4	-0.7	-0.1	-0.8	-1.3
2360	-1.6	-1.2	-0.9	-0.8	-0.9	0.1	-0.3	-0.2	-0.5	-0.4	-0.3	-0.7	-0.1	-0.8	-1.3
2361	-1.5	-0.9	-0.8	-0.7	-0.8	0.5	-0.3	-0.3	-0.5	-0.6	-0.5	-0.7	-0.2	-0.8	-1.2
2362	-1.3	-0.8	-0.7	-0.7	-0.8	0.6	-0.3	-0.3	-0.5	-0.7	-0.6	-0.8	-0.4	-0.8	-1.1
2363	-1.1	-0.7	-0.7	-0.6	-0.7	0.6	-0.3	-0.3	-0.5	-0.8	-0.6	-0.7	-0.2	-0.7	-1.0
2364	-1.0	-0.6	-0.6	-0.6	-0.7	0.4	-0.3	-0.3	-0.5	-0.6	-0.5	-0.7	-0.4	-0.7	-0.9
2365	-0.9	-0.5	-0.6	-0.6	-0.6	0.7	-0.2	-0.4	-0.4	-0.7	-0.7	-0.7	-0.7	-0.7	-0.6
2366	-0.9	-0.4	-0.5	-0.5	-0.5	0.9	-0.2	-0.3	-0.3	-0.7	-0.7	-0.6	-0.7	-0.5	-0.4
2367	-0.7	-0.3	-0.5	-0.5	-0.4	0.9	-0.3	-0.3	-0.3	-0.8	-0.7	-0.6	-0.3	-0.4	-0.4
2368	-0.6	-0.1	-0.4	-0.4	-0.4	1.2	-0.3	-0.3	-0.3	-1.0	-0.7	-0.6	-0.2	-0.2	-0.2
2369	-0.5	0.0	-0.4	-0.4	-0.2	1.5	-0.3	-0.3	-0.1	-1.2	-0.8	-0.5	-0.2	0.0	0.2
2370	-0.4	0.2	-0.4	-0.4	0.0	1.8	-0.4	-0.3	0.1	-1.4	-0.9	-0.2	-0.1	0.7	1.2
2371	-0.4	0.2	-0.5	-0.3	-0.1	1.7	-0.6	-0.3	0.1	-1.6	-0.9	-0.2	0.3	0.8	1.1
2372	-0.4	0.2	-0.4	-0.3	-0.1	1.9	-0.4	-0.3	0.1	-1.5	-0.9	-0.3	0.2	0.6	0.8
2373	-0.4	0.2	-0.2	-0.3	-0.1	1.8	0.0	-0.3	0.0	-0.8	-0.9	-0.3	-1.0	0.1	0.8
2374	-0.4	0.1	-0.2	-0.3	-0.1	1.5	0.0	-0.2	0.0	-0.7	-0.7	-0.3	-0.7	0.0	0.5
2375	-0.4	0.0	-0.3	-0.3	-0.2	1.1	-0.1	-0.3	0.0	-0.7	-0.7	-0.2	-0.7	0.1	0.6
2376	-0.4	-0.1	-0.3	-0.4	-0.2	0.6	-0.2	-0.4	-0.1	-0.6	-0.6	-0.2	-0.6	0.2	0.7
2377	-0.2	-0.1	-0.3	-0.3	0.0	0.1	-0.3	-0.4	0.0	-0.6	-0.5	0.0	-0.5	0.4	1.0
2378	-0.2	-0.1	-0.2	-0.2	0.0	0.2	-0.3	-0.2	0.0	-0.5	-0.3	0.0	-0.1	0.4	0.7
2379	-0.2	-0.2	-0.2	-0.3	-0.1	0.0	-0.3	-0.4	0.0	-0.4	-0.5	0.0	-0.8	0.3	1.0
2380	-0.2	-0.3	-0.3	-0.3	-0.1	-0.3	-0.3	-0.4	-0.1	-0.3	-0.4	0.0	-0.7	0.2	0.7
2381	-0.1	-0.3	-0.2	-0.3	-0.1	-0.7	-0.3	-0.4	-0.1	-0.1	-0.3	0.0	-0.6	0.1	0.6
2382	-0.1	-0.4	-0.3	-0.3	-0.1	-1.1	-0.4	-0.4	-0.1	0.0	-0.2	0.1	-0.5	0.1	0.6
2383	0.0	-0.4	-0.2	-0.3	-0.1	-1.5	-0.4	-0.4	-0.1	0.1	-0.1	0.1	-0.4	0.2	0.6
2384	-0.1	-0.5	-0.2	-0.2	-0.1	-1.6	-0.2	-0.3	-0.1	0.4	0.1	0.2	-0.6	0.1	0.6
2385	0.0	-0.5	-0.1	-0.2	0.0	-1.8	-0.2	-0.3	0.0	0.6	0.2	0.4	-0.5	0.2	0.6
2386	0.1	-0.5	0.0	-0.1	0.1	-2.2	-0.2	-0.3	0.1	0.7	0.2	0.5	-0.7	0.3	1.0
2387	0.1	-0.5	0.0	-0.1	0.1	-2.2	-0.1	-0.2	0.1	0.8	0.3	0.5	-0.6	0.3	0.8
2388						-2.3	-0.1	2.2	0.0	0.9	3.5	0.5	8.2	0.2	-5.2
2389						-2.3	0.0	-0.2	0.1	1.0	0.4	0.5	-0.7	0.2	0.8
2390						-2.9	-0.1	-0.3	0.0	1.2	0.5	0.6	-0.8	0.2	0.9
2391						-3.1	-0.1	-0.3	0.1	1.3	0.5	0.7	-0.8	0.3	1.0
2392						-3.1	-0.1	-0.2	0.1	1.3	0.6	0.8	-0.6	0.3	1.0
2393						-3.1	0.0	-0.2	0.1	1.4	0.7	0.7	-0.6	0.2	0.7
2394						-3.0	0.1	-0.1	0.1	1.5	0.8	0.7	-0.6	0.1	0.5
2395						-3.4	0.2	-0.1	0.0	1.8	0.9	0.7	-0.9	-0.1	0.4
2396						-3.6	0.2	-0.1	0.0	1.9	0.9	0.7	-0.8	-0.1	0.4
2397						-3.7	0.3	-0.1	0.0	2.0	1.0	0.8	-1.0	-0.2	0.3
2398						-4.2	0.2	-0.2	-0.1	2.1	1.0	0.7	-1.0	-0.3	0.1
2399						-4.6	0.0	-0.2	-0.2	2.1	1.1	0.7	-0.7	-0.4	-0.2
2400						-4.8	0.0	-0.1	-0.2	2.2	1.2	0.6	-0.6	-0.5	-0.4
2401						-4.2	0.2	0.0	-0.2	2.2	1.2	0.6	-0.4	-0.6	-0.6
2402						-4.3	0.2	0.1	-0.2	2.2	1.3	0.6	-0.2	-0.6	-0.8
2403						-4.3	0.2	0.0	-0.2	2.3	1.3	0.6	-0.7	-0.7	-0.6
2404						-4.5	0.2	-0.1	-0.2	2.4	1.2	0.7	-1.2	-0.6	-0.3
2405						-4.6	0.1	-0.2	-0.2	2.2	1.1	0.7	-0.8	-0.4	-0.2
2406						-4.6	0.0	-0.1	-0.2	2.1	1.2	0.7	-0.5	-0.4	-0.3
2407						-4.4	0.0	-0.1	-0.3	2.1	1.1	0.5	-0.6	-0.6	-0.5
2408						-4.4	0.2	-0.2	-0.3	2.2	1.1	0.5	-1.0	-0.8	-0.7
2409	0.0	-1.2	0.1	-0.1	-0.2	-4.4	0.2	-0.1	-0.3	2.3	1.2	0.4	-1.0	-1.0	-0.9
2410	0.0	-1.0	0.2	0.0	-0.2	-3.7	0.3	0.0	-0.3	2.1	1.0	0.3	-1.1	-1.0	-1.0
2411	-0.1	-1.0	0.2	0.0	-0.2	-3.5	0.4	0.0	-0.3	2.2	1.0	0.3	-1.1	-1.0	-0.9
2412	0.0	-1.0	0.2	-0.1	-0.2	-3.6	0.4	-0.1	-0.3	2.2	1.0	0.4	-1.2	-1.0	-0.8
2413	-0.1	-1.0	0.2	0.0	-0.2	-3.3	0.4	0.0	-0.2	2.1	1.0	0.4	-1.1	-0.9	-0.7
2414	-0.2	-0.9	0.2	0.0	-0.1	-2.8	0.5	0.1	-0.1	2.0	0.9	0.4	-1.0	-0.7	-0.5
2415	-0.3	-0.7	0.2	0.0	-0.1	-1.8	0.6	0.2	-0.1	1.8	0.8	0.3	-1.0	-0.8	-0.7
2416	-0.4	-0.7	0.3	0.0	-0.1	-1.6	0.8	0.3	-0.1	1.9	0.8	0.2	-1.2	-1.0	-0.9
2417	-0.2	-0.6	0.3	0.1	-0.1	-1.5	0.8	0.3	-0.1	1.9	0.8	0.2	-1.3	-1.1	-1.0
2418	-0.1	-0.4	0.4	0.1	-0.2	-1.4	0.8	0.2	-0.2	1.8	0.7	0.1	-1.3	-1.2	-1.1
2419	-0.1	-0.3	0.3	0.1	-0.2	-0.8	0.7	0.2	-0.2	1.4	0.5	-0.1	-1.0	-1.2	-1.3
2420	-0.1	-0.3	0.3	0.1	-0.2	-0.6	0.7	0.3	-0.2	1.3	0.6	-0.2	-0.7	-1.2	-1.6

	High-Water Shoreline Position (UTM Zone 18, NAD 1983)											
	1839/42		1864/86		1899		1932		1950/51		1977	
Transect #	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)
2340	4335921	528106.0	4335987	527996.2	4335996	527981.7	4336015	527949.6	4336022	527937.7	4336027	527928.3
2341	4335880	528078.0	4335944	527971.4	4335953	527955.1	4335973	527921.9	4335978	527913.9	4335985	527902.3
2342	4335838	528050.7	4335899	527949.2	4335911	527927.6	4335930	527896.2	4335934	527889.7	4335941	527877.7
2343	4335793	528028.5	4335857	527921.5	4335868	527902.6	4335889	527868.1	4335891	527864.6	4335898	527853.1
2344	4335750	528003.3	4335814	527896.0	4335825	527877.8	4335844	527845.3	4335848	527838.9	4335854	527828.3
2345	4335706	527979.0	4335772	527868.0	4335780	527854.3	4335803	527817.0	4335806	527811.2	4335811	527803.7
2346	4335663	527953.0	4335731	527839.0	4335736	527830.8	4335760	527791.7	4335763	527786.3	4335767	527779.2
2347	4335623	527923.3	4335690	527810.5	4335693	527806.4	4335718	527764.6	4335719	527761.9	4335724	527754.0
2348	4335585	527889.9	4335648	527782.9	4335650	527780.4	4335675	527738.7	4335679	527732.4	4335680	527729.4
2349	4335543	527862.7	4335605	527757.3	4335607	527754.9	4335629	527717.1	4335635	527707.9	4335638	527703.1
2350	4335501	527834.9	4335562	527732.0	4335563	527731.1	4335584	527696.3	4335590	527686.1	4335595	527677.7
2351	4335460	527805.3	4335519	527706.4	4335519	527706.8	4335539	527674.0	4335544	527664.8	4335550	527654.9
2352	4335421	527774.3	4335476	527681.7	4335475	527683.0	4335496	527648.1	4335497	527646.7	4335506	527631.6
2353	4335382	527741.1	4335430	527660.9	4335430	527660.7	4335448	527631.3	4335449	527629.9	4335463	527606.4
2354	4335342	527711.5	4335385	527639.1	4335387	527635.6	4335404	527607.4	4335407	527602.7	4335418	527583.7
2355	4335301	527682.5	4335342	527613.3	4335344	527609.7	4335359	527584.6	4335364	527577.1	4335374	527560.2
2356	4335259	527654.8	4335300	527585.7	4335302	527582.8	4335314	527563.0	4335316	527558.8	4335331	527534.8
2357	4335216	527628.6	4335259	527556.7	4335259	527557.2	4335269	527540.4	4335272	527535.9	4335286	527512.6
2358	4335175	527600.8	4335214	527534.4	4335215	527533.3	4335225	527517.3	4335224	527517.7	4335243	527487.0
2359	4335133	527572.5	4335170	527510.8	4335170	527511.8	4335179	527496.3	4335180	527495.0	4335198	527463.8
2360	4335093	527542.8	4335128	527484.0	4335127	527485.5	4335135	527472.8	4335135	527471.7	4335154	527440.7
2361	4335052	527513.7	4335084	527460.6	4335080	527467.7	4335090	527450.0	4335092	527446.1	4335109	527418.1
2362	4335012	527483.1	4335039	527437.8	4335035	527445.1	4335046	527426.1	4335050	527420.4	4335065	527394.8
2363	4334971	527454.6	4334995	527414.9	4334990	527422.7	4335003	527401.3	4335005	527397.6	4335019	527373.8
2364	4334927	527430.9	4334949	527393.9	4334946	527399.3	4334956	527381.7	4334960	527375.4	4334972	527354.7
2365	4334885	527404.2	4334904	527371.7	4334899	527380.3	4334910	527361.6	4334916	527350.8	4334925	527336.0
2366	4334843	527375.8	4334862	527344.9	4334854	527357.1	4334866	527337.0	4334872	527326.9	4334878	527317.4
2367	4334801	527349.8	4334816	527323.9	4334809	527335.9	4334823	527312.5	4334826	527307.2	4334831	527298.1
2368	4334759	527322.5	4334771	527301.1	4334762	527316.7	4334779	527288.6	4334781	527285.3	4334784	527279.9
2369	4334717	527295.2	4334727	527277.9	4334715	527297.6	4334735	527265.0	4334737	527261.5	4334734	527266.7
2370	4334674	527269.4	4334683	527254.6	4334669	527277.5	4334693	527237.3	4334694	527236.4	4334677	527264.4
2371	4334630	527244.9	4334638	527232.1	4334625	527254.3	4334652	527208.2	4334649	527213.1	4334635	527237.6
2372	4334587	527219.8	4334595	527206.8	4334580	527231.1	4334606	527188.5	4334604	527191.6	4334592	527210.8
2373	4334543	527196.1	4334551	527182.8	4334537	527205.7	4334551	527183.2	4334560	527168.2	4334549	527185.7
2374	4334499	527171.7	4334508	527157.1	4334496	527176.6	4334508	527156.3	4334515	527144.9	4334508	527157.3
2375	4334455	527148.9	4334464	527133.0	4334455	527147.6	4334467	527128.8	4334473	527117.6	4334465	527131.4
2376	4334411	527124.4	4334419	527111.1	4334415	527118.5	4334425	527101.0	4334431	527091.1	4334421	527106.9
2377	4334371	527093.9	4334375	527087.7	4334374	527089.5	4334383	527073.7	4334388	527065.8	4334374	527088.3
2378	4334330	527065.8	4334334	527058.5	4334333	527060.4	4334341	527047.4	4334342	527045.5	4334332	527061.1
2379	4334287	527040.2	4334292	527031.3	4334292	527031.4	4334298	527021.0	4334305	527008.8	4334292	527031.2
2380	4334243	527015.0	4334249	527006.2	4334251	527002.3	4334255	526995.0	4334262	526984.1	4334252	527001.0
2381	4334202	526986.9	4334205	526982.6	4334210	526973.3	4334212	526969.5	4334218	526959.8	4334210	526974.0
2382	4334158	526962.4	4334161	526958.6	4334169	526944.3	4334170	526942.9	4334175	526935.3	4334167	526948.3
2383	4334116	526936.1	4334116	526935.0	4334128	526915.2	4334127	526917.2	4334130	526911.6	4334123	526924.6
2384	4334073	526910.8	4334075	526907.1	4334087	526886.2	4334081	526897.1	4334086	526888.5	4334078	526901.5
2385	4334032	526880.7	4334032	526880.7	4334046	526857.1	4334037	526873.9	4334041	526866.1	4334032	526880.7
2386	4333991	526851.8	4333989	526855.8	4334006	526828.1	4333993	526849.1	4333999	526838.8	4333986	526861.6
2387	4333949	526825.2	4333948	526827.6	4333965	526799.0	4333951	526822.2	4333956	526813.5	4333945	526831.9
2388			4333906	526799.6	4333924	526770.0	4333908	526796.4	4333833	526922.9	4333904	526803.3
2389			4333865	526770.9	4333883	526740.9	4333865	526770.5	4333872	526759.5	4333861	526777.6
2390			4333820	526748.8	4333842	526711.9	4333822	526744.9	4333830	526732.3	4333818	526752.2
2391			4333777	526723.2	4333801	526682.9	4333780	526718.4	4333788	526705.7	4333774	526728.2
2392			4333736	526693.7	4333760	526653.8	4333738	526691.4	4333743	526682.1	4333730	526704.5
2393			4333696	526664.1	4333719	526624.8	4333696	526664.2	4333702	526654.4	4333691	526671.5
2394			4333655	526634.7	4333678	526595.7	4333653	526638.1	4333659	526629.0	4333651	526641.3
2395			4333611	526610.4	4333638	526566.7	4333606	526619.0	4333615	526604.6	4333610	526613.2
2396			4333569	526584.3	4333597	526537.6	4333564	526591.7	4333572	526578.8	4333567	526587.2
2397			4333527	526556.1	4333556	526508.6	4333521	526566.7	4333530	526551.8	4333525	526559.5
2398			4333483	526533.5	4333515	526479.6	4333479	526539.8	4333488	526524.9	4333487	526526.7
2399			4333439	526509.1	4333474	526450.5	4333438	526510.3	4333445	526498.9	4333447	526495.3
2400			4333397	526482.7	4333433	526421.5	4333395	526484.5	4333401	526475.3	4333407	526464.9
2401			4333357	526451.6	4333389	526397.3	4333353	526458.4	4333357	526451.8	4333366	526437.0
2402			4333314	526426.1	4333347	526370.5	4333310	526432.3	4333312	526429.5	4333323	526410.2
2403			4333271	526399.6	4333305	526343.8	4333265	526409.9	4333272	526399.1	4333280	526384.7
2404			4333227	526377.0	4333262	526318.4	4333221	526387.2	4333231	526369.3	4333235	526362.9
2405			4333182	526354.3	4333218	526294.8	4333181	526356.6	4333188	526345.0	4333190	526340.4
2406			4333139	526328.9	4333174	526270.0	4333138	526329.8	4333143	526321.7	4333147	526315.1
2407			4333095	526304.9	4333129	526248.1	4333094	526306.4	4333100	526296.5	4333107	526284.6
2408			4333051	526281.5	4333085	526224.9	4333047	526288.0	4333056	526272.1	4333066	526256.7
2409	4333007	526257.2	4333007	526257.6	4333041	526200.3	4333001	526266.7	4333010	526251.8	4333023	526229.8
2410	4332964	526232.3	4332964	526231.7	4332992	526184.3	4332956	526245.1	4332966	526228.9	4332979	526206.7
2411	4332919	526209.1	4332921	526206.1	4332948	526160.9	4332912	526222.1	4332921	526205.7	4332934	526184.1
2412	4332875	526185.1	4332876	526183.3	4332904	526137.0	4332867	526199.0	4332878	526180.4	4332890	526161.5
2413	4332831	526161.3	4332834	526156.7	4332859	526114.4	4332824	526174.5	4332834	526157.7	4332844	526140.9
2414	4332787	526137.3	4332792	526129.2	4332814	526093.2	4332780	526149.7	4332789	526134.7	4332796	526122.4
2415	4332744	526111.9	4332750	526101.7	4332765	526078.2	4332735	526128.2	4332744	526112.2	4332754	526096.2
2416	4332701	526087.3	4332708	526074.6	4332721	526053.9	4332688	526108.7	4332699	526090.8	4332711	526070.1
2417	4332658	526061.9	4332662	526054.4	4332674	526034.5	4332642	526088.6	4332653	526069.2	4332668	526045.3
2418	4332613	526038.8	4332615	526035.8	4332626	526017.4	4332596	526068.0	4332608	526047.6	4332624	526021.1
2419	4332567	526018.6	4332569	526015.4	4332575	526005.5	4332552	526044.4	4332561	526029.2	4332579	525998.4
2420	4332521	525999.0	4332524	525993.7	4332528	525986.5	4332507	526022.2	4332513	526011.6	4332535	525974.5

	High-Water Shoreline Position Change Rate														
	1839/42 to	1839/42 to	1839/42 to	1839/42 to	1839/42 to	1864/86 to	1864/86 to	1864/86 to	1864/86 to	1899 to	1899 to	1899 to	1932 to	1932 to	1950/51 to
Transect #	1864/86 (m/yr)	1899 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1899 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1977 (m/yr)
2421	-0.2	-0.3	0.3	0.1	-0.2	-0.6	0.8	0.4	-0.2	1.5	0.7	-0.2	-0.8	-1.4	-1.8
2422	-0.2	-0.3	0.3	0.2	-0.3	-0.4	0.8	0.4	-0.3	1.3	0.6	-0.2	-0.6	-1.4	-1.9
2423	-0.2	-0.2	0.3	0.1	-0.3	0.0	0.7	0.3	-0.3	1.0	0.4	-0.3	-0.5	-1.3	-1.9
2424	-0.3	-0.1	0.3	0.2	-0.2	0.5	0.8	0.5	-0.2	0.9	0.5	-0.4	-0.3	-1.3	-1.9
2425	-0.2	0.1	0.4	0.2	-0.2	0.9	0.9	0.5	-0.2	0.8	0.4	-0.4	-0.5	-1.3	-1.9
2426	-0.2	0.1	0.3	0.2	-0.3	0.9	0.7	0.4	-0.3	0.6	0.3	-0.5	-0.3	-1.3	-1.9
2427	-0.2	0.2	0.3	0.2	-0.2	1.5	0.7	0.4	-0.2	0.3	0.1	-0.6	-0.2	-1.2	-1.9
2428	-0.2	0.4	0.3	0.2	-0.2	2.3	0.8	0.5	-0.2	0.2	0.0	-0.6	-0.2	-1.2	-1.9
2429	-0.1	0.7	0.4	0.3	-0.1	3.0	0.9	0.6	-0.1	-0.1	-0.1	-0.7	-0.1	-1.1	-1.8
2430	0.1	0.9	0.5	0.4	0.0	3.0	0.8	0.6	-0.1	-0.2	-0.1	-0.7	-0.1	-1.1	-1.8
2431	0.3	1.0	0.5	0.5	0.0	3.1	0.7	0.6	-0.1	-0.3	-0.2	-0.7	0.1	-0.9	-1.6
2432	0.5	1.3	0.7	0.6	0.1	3.2	0.8	0.6	-0.1	-0.4	-0.1	-0.7	0.3	-0.9	-1.7
2433	0.8	1.6	0.8	0.7	0.2	3.9	0.8	0.7	-0.1	-0.6	-0.3	-0.8	0.4	-1.0	-1.8
2434	0.9	1.8	0.9	0.8	0.3	4.3	0.8	0.8	0.0	-0.7	-0.3	-0.8	0.6	-0.9	-1.9
2435	1.0	1.9	0.9	0.9	0.3	4.3	0.7	0.8	0.0	-0.9	-0.2	-0.8	1.0	-0.7	-1.9
2436	1.1	1.9	0.9	0.9	0.3	4.3	0.7	0.8	0.0	-0.9	-0.3	-0.8	0.9	-0.7	-1.8
2437	1.2	2.0	0.9	0.9	0.4	4.3	0.6	0.7	0.0	-1.0	-0.3	-0.8	1.0	-0.6	-1.7
2438	1.4	2.1	0.9	0.9	0.4	4.2	0.5	0.6	0.0	-1.2	-0.5	-0.8	0.9	-0.5	-1.5
2439	1.5	2.0	0.9	0.9	0.4	3.4	0.4	0.5	-0.1	-1.0	-0.3	-0.7	0.9	-0.5	-1.5
2440	1.4	2.2	0.9	0.9	0.5	4.2	0.5	0.6	0.0	-1.2	-0.5	-0.8	0.7	-0.5	-1.3
2441	1.4	2.2	1.0	0.9	0.5	4.5	0.6	0.6	0.0	-1.2	-0.6	-0.8	0.6	-0.5	-1.2
2442	1.4	2.2	1.0	0.9	0.5	4.4	0.6	0.6	0.1	-1.0	-0.5	-0.7	0.4	-0.5	-1.2
2443	1.4	2.1	0.9	0.9	0.5	4.2	0.6	0.6	0.1	-1.1	-0.4	-0.7	0.8	-0.5	-1.3
2444	1.3	1.9	0.9	0.9	0.4	3.7	0.5	0.6	0.1	-0.9	-0.3	-0.6	0.8	-0.5	-1.3
2445	1.1	1.7	0.8	0.8	0.4	3.5	0.7	0.6	0.1	-0.6	-0.2	-0.6	0.5	-0.5	-1.3
2446	0.9	1.6	0.8	0.8	0.4	3.4	0.7	0.6	0.1	-0.6	-0.2	-0.5	0.5	-0.5	-1.1
2447	0.7	1.3	0.6	0.7	0.3	3.2	0.6	0.7	0.1	-0.6	-0.1	-0.5	0.8	-0.4	-1.1
2448	0.5	1.2	0.5	0.6	0.3	2.9	0.5	0.7	0.1	-0.6	0.0	-0.4	1.1	-0.3	-1.2
2449	0.4	1.0	0.4	0.5	0.2	2.6	0.5	0.6	0.1	-0.5	0.1	-0.4	1.1	-0.2	-1.1
2450	0.3	0.8	0.4	0.5	0.1	2.2	0.5	0.6	0.1	-0.3	0.2	-0.3	1.1	-0.3	-1.3
2451	0.4	0.7	0.4	0.5	0.1	1.6	0.4	0.5	0.1	-0.1	0.2	-0.2	0.8	-0.3	-1.1
2452	0.4	0.6	0.3	0.4	0.2	1.1	0.3	0.5	0.0	0.0	0.3	-0.1	1.0	-0.2	-1.0
2453	0.4	0.4	0.3	0.4	0.2	0.5	0.2	0.4	0.1	0.1	0.4	0.0	1.0	-0.1	-0.9
2454	0.4	0.2	0.2	0.3	0.1	-0.5	0.0	0.3	0.0	0.1	0.5	0.0	1.0	0.0	-0.7
2455	0.5	0.0	0.1	0.2	0.1	-1.5	-0.3	0.1	-0.1	0.2	0.5	0.2	1.1	0.2	-0.5
2456	0.4	-0.3	-0.1	0.2	0.1	-2.2	-0.5	0.1	-0.1	0.3	0.7	0.3	1.5	0.3	-0.5
2457	0.4	-0.6	-0.2	0.2	0.0	-3.2	-0.8	0.0	-0.1	0.3	1.0	0.5	2.2	0.6	-0.5
2458	0.3	-0.9	-0.4	0.1	0.0	-4.3	-1.1	-0.1	-0.2	0.4	1.2	0.6	2.6	0.7	-0.6
2459	0.4	-1.0	-0.5	0.2	0.0	-5.0	-1.3	0.0	-0.2	0.4	1.4	0.7	3.4	0.9	-0.8
2460	0.5	-1.1	-0.6	0.3	0.0	-5.8	-1.5	0.2	-0.3	0.4	1.9	0.8	4.6	1.0	-1.3
2461	0.6	-1.2	-0.6	0.3	0.0	-6.2	-1.6	0.1	-0.2	0.6	1.9	0.9	4.4	1.2	-0.9
2462	0.9	-1.1	-0.5	0.3	0.2	-6.8	-1.7	-0.1	-0.2	0.6	1.9	1.1	4.3	1.4	-0.5
2463	1.7	-0.9	-0.2	0.5	0.4	-8.2	-1.9	-0.3	-0.2	0.9	2.0	1.3	4.0	1.6	0.0
2464						-8.8	-2.1	-0.4	-0.2	1.0	2.1	1.5	4.0	1.8	0.3
2465						-9.9	-2.2	-0.4	-0.1	1.4	2.4	1.7	4.2	2.0	0.6
2466						-11.1	-2.3	-0.5	-0.1	1.8	2.7	2.0	4.3	2.2	0.9
2467						-12.9	-2.4	-0.4	0.0	2.4	3.2	2.5	4.7	2.6	1.1
2468							-2.4	-0.4	0.2				4.9	2.9	1.6
2469							-2.3	-0.3	0.4				4.9	3.4	2.3
2470							-1.9	-0.2	0.7				4.4	3.6	3.1
2471							-1.7	-0.2	0.9				3.8	3.7	3.6
2472							-1.0	-0.1	1.2				2.3	3.5	4.3
2473													2.1	3.7	4.8
2474													2.8	3.8	4.5
2475															3.8
2476															
Townsends															
Inlet															
2477	24.0														
2478	20.2														
2479	19.7														
2480	17.0	-7.1				-68.7									
2481	13.6	-8.3	-7.3			-64.5	-24.9			-5.7					
2482	12.7	-6.2	-6.7	-6.1		-54.7	-22.9	-17.5	3.0	-7.5	-6.0		-3.5		
2483	12.3	-0.1	-4.9	-5.5		-31.8	-19.3	-16.3		-13.3	-11.5		-8.2		
2484	11.2	3.8	-1.6	-3.9		-15.1	-12.3	-12.9	2.0	-11.0	-12.3		-14.4		
2485	10.1	4.6	-1.2	-2.6		-9.3	-10.6	-10.2	7.0	-11.2	-10.5		-9.2		
2486	8.9	3.9	-0.3	-1.8	-3.1	-8.7	-8.0	-8.3	-8.3	-7.6	-8.2	-8.2	-9.1	-8.6	-8.3
2487	7.5	3.1	0.2	-1.4	-2.2	-8.0	-5.8	-6.8	-6.5	-4.7	-6.4	-6.2	-9.3	-7.2	-5.7
2488	6.6	2.8	0.5	0.0	-1.4	-7.1	-4.6	-4.0	-4.9	-3.4	-3.1	-4.5	-2.6	-5.3	-7.3
2489	5.7	2.1	1.0	0.7	-0.5	-7.0	-2.9	-2.4	-3.3	-0.9	-0.9	-2.5	-0.9	-3.6	-5.6
2490	4.0	1.0	0.5	0.8	0.2	-6.7	-2.4	-1.2	-1.4	-0.3	0.5	-0.4	1.8	-0.4	-2.0
2491	2.1	-0.1	-0.1	0.9	1.5	-5.8	-1.9	0.2	1.2	0.1	2.0	2.6	5.5	4.5	3.8
2492	1.1	-0.5	0.7	1.2	1.7	-4.7	0.4	1.2	2.0	2.9	3.0	3.3	3.2	3.7	4.0
2493	0.9	-0.4	1.3	1.4	2.0	-3.9	1.7	1.8	2.4	4.4	3.5	3.7	2.0	3.2	4.2
2494	0.8	-0.1	1.6	1.7	2.1	-2.5	2.2	2.2	2.7	4.5	3.7	3.7	2.4	3.2	3.8
2495	0.7	0.2	1.7	1.8	2.3	-1.3	2.5	2.5	2.9	4.3	3.7	3.8	2.7	3.4	3.9
2496	0.7	0.8	1.9	2.0	2.4	1.2	2.9	2.8	3.1	3.7	3.2	3.5	2.5	3.4	4.0
2497	0.7	1.2	2.1	2.2	2.4	2.5	3.3	3.1	3.2	3.7	3.3	3.3	2.5	3.0	3.4
2498	0.9	1.5	2.4	2.4	2.5	2.8	3.6	3.2	3.2	4.0	3.4	3.2	2.4	2.7	3.0
2499	1.2	1.7	2.6	2.6	2.6	3.2	3.9	3.5	3.2	4.2	3.6	3.2	2.5	2.4	2.3

	High-Water Shoreline Position (UTM Zone 18, NAD 1983)													
	1839/42		1864/86		1899		1932		1950/51		1977			
Transect #	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)		
2421	4332474	525979.3	4332479	525970.9	4332484	525963.7	4332459	526005.1	4332466	525993.1	4332491	525951.1		
2422	4332428	525959.3	4332433	525951.4	4332436	525946.5	4332414	525983.1	4332420	525973.3	4332445	525930.2		
2423	4332381	525940.0	4332386	525932.2	4332386	525932.2	4332370	525959.4	4332374	525951.8	4332400	525908.9		
2424	4332337	525917.2	4332343	525907.2	4332339	525913.2	4332324	525938.3	4332327	525933.0	4332353	525889.2		
2425	4332293	525892.2	4332298	525884.7	4332291	525896.7	4332277	525919.8	4332281	525912.4	4332308	525868.0		
2426	4332244	525877.9	4332249	525869.1	4332242	525880.7	4332232	525897.6	4332235	525892.9	4332261	525848.4		
2427	4332199	525854.8	4332204	525847.0	4332192	525866.1	4332187	525875.2	4332189	525872.1	4332215	525828.3		
2428	4332156	525829.7	4332160	525822.5	4332143	525851.5	4332140	525855.8	4332142	525852.2	4332168	525809.2		
2429	4332114	525802.9	4332115	525799.9	4332093	525838.1	4332094	525836.4	4332095	525834.8	4332120	525792.8		
2430	4332071	525777.4	4332068	525781.7	4332045	525820.8	4332048	525815.7	4332049	525814.3	4332073	525773.6		
2431	4332028	525751.4	4332022	525761.3	4331998	525800.9	4332004	525792.0	4332003	525793.8	4332025	525756.0		
2432	4331987	525722.7	4331975	525742.4	4331950	525784.0	4331956	525773.6	4331954	525777.4	4331978	525737.2		
2433	4331946	525694.2	4331929	525722.3	4331899	525773.1	4331909	525755.3	4331906	525760.7	4331931	525717.9		
2434	4331903	525667.5	4331884	525700.6	4331850	525756.2	4331863	525735.0	4331857	525744.8	4331884	525700.4		
2435	4331858	525645.7	4331837	525681.7	4331803	525737.4	4331819	525711.9	4331810	525726.9	4331835	525683.8		
2436	4331813	525624.5	4331789	525663.4	4331756	525719.3	4331771	525694.2	4331763	525706.9	4331788	525665.0		
2437	4331768	525602.2	4331741	525647.0	4331708	525701.8	4331725	525673.1	4331716	525688.5	4331740	525649.3		
2438	4331722	525581.8	4331691	525632.8	4331659	525686.8	4331680	525652.0	4331671	525666.3	4331691	525632.3		
2439	4331674	525563.5	4331642	525617.7	4331616	525661.9	4331632	525633.6	4331624	525648.2	4331644	525613.5		
2440	4331628	525542.7	4331597	525594.8	4331565	525648.9	4331585	525615.7	4331579	525626.3	4331597	525595.3		
2441	4331582	525522.8	4331551	525574.2	4331517	525632.0	4331538	525597.1	4331533	525605.8	4331549	525578.0		
2442	4331535	525504.8	4331505	525554.0	4331472	525610.3	4331489	525580.6	4331485	525587.3	4331501	525560.7		
2443	4331487	525487.6	4331457	525536.7	4331425	525590.9	4331444	525559.9	4331437	525571.7	4331455	525540.8		
2444	4331437	525472.5	4331410	525518.0	4331382	525565.3	4331397	525539.9	4331390	525552.1	4331408	525522.2		
2445	4331389	525456.0	4331366	525494.6	4331339	525539.2	4331350	525521.6	4331345	525530.0	4331362	525500.8		
2446	4331340	525441.0	4331320	525474.8	4331293	525519.1	4331303	525502.9	4331298	525510.9	4331314	525484.6		
2447	4331288	525430.2	4331274	525454.2	4331249	525496.1	4331258	525479.7	4331251	525491.5	4331267	525465.9		
2448	4331238	525417.1	4331226	525436.7	4331203	525474.5	4331214	525457.3	4331204	525474.0	4331220	525447.0		
2449	4331187	525404.0	4331179	525417.9	4331159	525451.6	4331167	525437.2	4331157	525454.4	4331173	525428.1		
2450	4331138	525389.6	4331132	525399.8	4331115	525428.0	4331120	525418.4	4331110	525435.3	4331128	525405.6		
2451	4331090	525371.6	4331082	525384.6	4331070	525404.8	4331073	525400.9	4331065	525413.5	4331080	525388.6		
2452	4331042	525353.8	4331034	525367.7	4331026	525381.4	4331027	525380.2	4331018	525395.1	4331032	525371.4		
2453	4330994	525336.9	4330986	525351.5	4330982	525357.9	4330981	525360.0	4330971	525375.4	4330983	525355.5		
2454	4330943	525324.7	4330934	525339.9	4330938	525333.9	4330935	525338.0	4330926	525354.1	4330936	525337.0		
2455	4330893	525311.5	4330883	525328.2	4330894	525309.4	4330890	525316.2	4330880	525333.1	4330887	525322.3		
2456	4330843	525297.3	4330834	525313.2	4330851	525284.6	4330846	525293.3	4330831	525317.1	4330838	525306.1		
2457	4330792	525285.7	4330784	525298.9	4330809	525257.5	4330803	525266.8	4330783	525301.4	4330790	525288.8		
2458	4330740	525274.6	4330734	525286.1	4330767	525230.4	4330760	525242.1	4330735	525283.0	4330743	525270.0		
2459	4330694	525255.1	4330684	525271.3	4330722	525207.3	4330716	525217.3	4330685	525270.5	4330696	525251.9		
2460	4330648	525234.7	4330636	525254.5	4330680	525180.3	4330673	525192.1	4330631	525263.1	4330649	525232.2		
2461	4330604	525210.1	4330592	525231.3	4330639	525151.6	4330630	525167.4	4330589	525234.9	4330602	525214.7		
2462	4330565	525178.3	4330545	525211.2	4330597	525123.8	4330587	525141.6	4330547	525207.8	4330554	525196.3		
2463	4330534	525132.1	4330497	525193.9	4330560	525088.9	4330545	525114.1	4330508	525176.0	4330508	525176.3		
2464			4330453	525171.3	4330520	525057.9	4330503	525086.5	4330466	525148.3	4330462	525155.2		
2465			4330408	525148.2	4330484	525021.2	4330461	525059.4	4330422	525124.4	4330415	525137.5		
2466			4330364	525124.6	4330449	524982.0	4330419	525031.9	4330380	525098.1	4330368	525118.1		
2467			4330321	525099.7	4330420	524933.3	4330379	525002.0	4330336	525074.3	4330320	525100.5		
2468			4330282	525067.4			4330341	524968.9	4330295	525045.2	4330273	525082.7		
2469			4330245	525031.2			4330301	524936.9	4330256	525013.0	4330224	525066.5		
2470			4330214	524985.7			4330262	524905.4	4330221	524973.6	4330179	525045.4		
2471			4330182	524941.4			4330224	524871.1	4330189	524929.4	4330140	525012.4		
2472			4330161	524878.8			4330186	524838.1	4330164	524874.0	4330105	524972.8		
2473							4330154	524793.2	4330135	524824.9	4330069	524936.0		
2474							4330130	524736.3	4330104	524779.1	4330042	524883.4		
2475									4330080	524722.9	4330028	524810.4		
2476											4330005	524750.8		
2477	4330015	524753.2	4329512	525596.6										
2478	4329878	524884.9	4329454	525594.9										
2479	4329814	524894.6	4329400	525588.7										
2480	4329704	524981.9	4329347	525579.6	4329910	524636.0								
2481	4329580	525091.3	4329294	525571.5	4329822	524685.3	4329918	524525.0						
2482	4329506	525118.1	4329239	525566.4	4329687	524814.5	4329814	524601.6	4329848	524544.9				
2483	4329447	525119.7	4329189	525551.4	4329450	525115.0	4329675	524737.3	4329755	524603.7				
2484	4329377	525139.1	4329143	525531.8	4329266	525324.4	4329452	525012.6	4329592	524778.2				
2485	4329307	525159.2	4329095	525514.8	4329171	525386.4	4329361	525068.7	4329450	524919.4				
2486	4329232	525186.2	4329046	525498.6	4329117	525379.2	4329246	525163.7	4329334	525015.9	4329445	524830.6		
2487	4329154	525219.9	4328998	525482.4	4329063	525373.0	4329143	525239.1	4329233	525087.4	4329310	524959.2		
2488	4329089	525231.8	4328949	525465.6	4329007	525368.7	4329064	525273.1	4329089	525230.8	4329187	525067.7		
2489	4329022	525246.5	4328902	525447.9	4328959	525351.7	4328975	525324.9	4328984	525310.4	4329059	525184.0		
2490	4328939	525287.4	4328854	525429.7	4328909	525337.4	4328915	525328.3	4328897	525358.3	4328924	525312.8		
2491	4328854	525332.8	4328810	525406.6	4328857	525327.1	4328856	525328.7	4328803	525417.7	4328752	525503.8		
2492	4328793	525336.6	4328769	525376.8	4328808	525311.8	4328760	525393.0	4328729	525445.3	4328674	525535.9		
2493	4328745	525319.3	4328727	525351.1	4328758	525298.1	4328684	525421.9	4328665	525454.2	4328610	525547.2		
2494	4328700	525298.2	4328683	525326.5	4328703	525292.1	4328628	525418.5	4328605	525456.8	4328554	525543.0		
2495	4328655	525275.9	4328639	525301.8	4328650	525284.4	4328578	525405.1	4328552	525448.8	4328499	525536.9		
2496	4328612	525250.9	4328598	525274.6	4328588	525290.7	4328526	525394.7	4328502	525435.4	4328448	525524.9		
2497	4328570	525223.1	4328556	525246.8	4328535	525281.0	4328473	525385.2	4328449	525426.2	4328403	525502.5		
2498	4328531	525191.0	4328512	525223.5	4328488	525262.2	4328422	525374.3	4328399	525412.9	4328359	525479.7		
2499	4328492	525157.9	4328468	525198.4	4328442	525242.3	4328371	525360.9	4328347	525402.3	4328316	525453.8		

High-Water Shoreline Position Change Rate

Transect #	1839/42 to 1864/86 (m/yr)	1839/42 to 1899 (m/yr)	1839/42 to 1932 (m/yr)	1839/42 to 1950/51 (m/yr)	1839/42 to 1977 (m/yr)	1864/86 to 1899 (m/yr)	1864/86 to 1932 (m/yr)	1864/86 to 1950/51 (m/yr)	1864/86 to 1977 (m/yr)	1899 to 1932 (m/yr)	1899 to 1950/51 (m/yr)	1899 to 1977 (m/yr)	1932 to 1950/51 (m/yr)	1932 to 1977 (m/yr)	1950/51 to 1977 (m/yr)
2500	1.4	1.9	2.9	2.9	2.7	3.4	4.2	3.8	3.2	4.6	4.0	3.2	2.9	2.1	1.6
2501	1.7	2.1	3.2	3.3	2.8	3.2	4.5	4.2	3.2	5.1	4.5	3.3	3.4	1.9	0.7
2502	1.9	2.0	3.5	3.6	2.8	2.4	4.8	4.7	3.3	5.9	5.4	3.5	4.4	1.6	-0.4
2503	2.1	1.9	3.7	3.9	2.9	1.4	5.0	5.1	3.3	6.8	6.2	3.6	5.2	1.3	-1.5
2504	2.1	1.6	3.8	4.2	2.9	0.4	5.3	5.5	3.3	7.7	7.1	3.9	6.1	1.0	-2.6
2505	2.1	1.3	4.0	4.5	2.9	-0.5	5.7	5.9	3.3	8.7	7.9	4.1	6.5	0.8	-3.4
2506	2.2	1.0	4.2	4.5	2.9	-2.0	5.9	5.9	3.3	9.7	8.4	4.4	6.1	0.4	-3.7
2507	2.4	0.7	4.3	4.5	3.0	-3.5	5.9	5.7	3.2	10.5	8.5	4.6	5.2	0.3	-3.3
2508	2.4	0.5	4.4	4.2	2.9	-4.4	6.1	5.3	3.2	11.1	8.4	4.8	3.5	0.1	-2.4
2509	2.3	0.2	4.5	3.9	2.9	-5.0	6.3	4.9	3.2	11.7	8.0	4.8	1.5	-0.2	-1.4
2510	2.4	0.1	4.5	3.7	2.9	-5.6	6.3	4.5	3.1	12.1	7.7	4.9	-0.1	-0.4	-0.6
2511	2.4	0.1	4.5	3.5	2.9	-5.8	6.3	4.2	3.1	12.2	7.3	4.9	-1.2	-0.5	0.0
2512	2.5	0.1	4.5	3.4	2.8	-6.1	6.2	3.9	3.0	12.2	7.0	4.8	-2.1	-0.6	0.5
2513	2.6	0.0	4.5	3.3	2.8	-6.4	6.0	3.7	2.9	12.1	6.8	4.8	-2.3	-0.5	0.8
2514	2.7	0.0	4.3	3.1	2.7	-6.7	5.7	3.4	2.8	11.8	6.5	4.7	-2.6	-0.4	1.1
2515	2.8	0.1	4.2	3.1	2.7	-6.6	5.4	3.2	2.7	11.3	6.3	4.6	-2.4	-0.3	1.2
2516	2.8	0.2	4.0	3.0	2.7	-6.4	5.1	3.1	2.6	10.6	6.0	4.4	-2.1	-0.1	1.3
2517	2.9	0.2	3.9	2.9	2.6	-6.5	4.8	2.9	2.5	10.2	5.8	4.3	-1.9	0.0	1.4
2518	2.8	0.2	3.7	2.8	2.5	-6.5	4.5	2.8	2.4	9.9	5.7	4.2	-1.6	0.1	1.4
2519	2.7	0.0	3.6	2.7	2.5	-6.8	4.4	2.7	2.4	9.8	5.7	4.3	-1.5	0.2	1.5
2520	2.7	0.0	3.5	2.6	2.4	-7.1	4.1	2.6	2.3	9.5	5.6	4.2	-1.3	0.3	1.5
2521	2.8	0.0	3.3	2.5	2.4	-7.2	3.8	2.4	2.2	9.1	5.4	4.1	-1.2	0.4	1.6
2522	2.8	-0.1	3.2	2.5	2.3	-7.4	3.5	2.3	2.1	8.8	5.2	4.0	-0.9	0.5	1.6
2523	2.8	-0.1	3.0	2.3	2.2	-7.7	3.2	2.1	2.0	8.5	5.1	4.0	-0.9	0.6	1.8
2524	2.7	-0.2	2.9	2.2	2.2	-7.5	3.0	2.0	1.9	8.1	4.9	3.9	-0.7	0.8	1.8
2525	2.7	-0.1	2.7	2.2	2.1	-7.1	2.7	1.9	1.8	7.5	4.7	3.7	-0.4	0.8	1.7
2526	2.5	-0.1	2.6	2.1	2.0	-6.7	2.7	1.9	1.8	7.2	4.6	3.5	-0.1	0.8	1.5
2527	2.4	-0.1	2.6	2.0	2.0	-6.3	2.8	1.8	1.8	7.2	4.4	3.5	-0.5	0.8	1.8
2528	2.3	-0.1	2.5	2.0	1.9	-6.4	2.5	1.7	1.8	6.9	4.2	3.4	-0.4	0.9	1.8
2529	2.2	-0.1	2.3	1.9	1.9	-5.9	2.3	1.7	1.8	6.3	4.0	3.3	-0.1	1.1	2.0
2530	2.2	0.0	2.0	1.9	1.9	-5.7	1.9	1.7	1.7	5.6	4.0	3.2	1.1	1.5	1.8
2531	2.2	0.0	1.8	1.9	1.8	-5.8	1.5	1.7	1.7	5.1	4.0	3.2	2.1	1.9	1.7
2532	2.2	0.0	1.6	1.8	1.8	-5.5	1.2	1.6	1.6	4.5	3.8	3.1	2.5	2.0	1.7
2533	2.2	0.1	1.5	1.8	1.7	-5.2	0.9	1.5	1.5	3.9	3.6	2.9	3.0	2.2	1.6
2534	2.2	0.3	1.5	1.8	1.7	-4.6	0.8	1.5	1.5	3.5	3.4	2.7	3.3	2.2	1.4
2535	2.3	0.5	1.4	1.8	1.7	-4.1	0.7	1.5	1.4	3.0	3.2	2.5	3.5	2.2	1.3
2536	2.2	0.7	1.3	1.7	1.6	-3.2	0.6	1.4	1.4	2.4	2.8	2.3	3.5	2.3	1.4
2537	2.2	0.8	1.2	1.6	1.6	-2.9	0.5	1.3	1.3	2.1	2.6	2.2	3.4	2.3	1.5
2538	2.2	0.6	1.2	1.5	1.6	-3.6	0.3	1.2	1.3	2.2	2.6	2.3	3.3	2.3	1.6
2539	2.3	0.4	1.0	1.4	1.5	-4.5	-0.1	0.9	1.1	2.0	2.6	2.3	3.5	2.5	1.7
2540	2.6	0.5	1.0	1.4	1.5	-5.1	-0.4	0.6	1.0	1.8	2.3	2.2	3.2	2.5	2.0
2541	2.6	0.6	0.9	1.4	1.5	-4.7	-0.5	0.6	1.0	1.5	2.3	2.1	3.6	2.6	1.8
2542	2.6	0.6	0.9	1.4	1.4	-4.4	-0.5	0.7	1.0	1.4	2.2	2.1	3.6	2.5	1.8
2543	2.6	0.6	0.9	1.3	1.4	-4.5	-0.6	0.5	0.9	1.3	2.1	2.1	3.4	2.6	2.1
2544	2.7	0.5	0.8	1.2	1.4	-5.1	-0.8	0.4	0.8	1.2	2.1	2.1	3.5	2.7	2.1
2545	2.8	0.6	0.7	1.2	1.4	-5.1	-1.0	0.2	0.8	1.0	1.9	2.0	3.4	2.7	2.2
2546	2.8	0.7	0.7	1.1	1.3	-4.5	-1.0	0.1	0.7	0.7	1.5	1.8	2.9	2.6	2.4
2547	2.8	0.9	0.7	1.0	1.3	-4.1	-1.1	0.0	0.7	0.3	1.2	1.6	2.8	2.6	2.5
2548	3.0	1.0	0.7	1.0	1.3	-4.1	-1.3	-0.2	0.5	0.1	1.0	1.5	2.6	2.5	2.4
2549	3.0	1.1	0.7	1.0	1.3	-3.7	-1.3	-0.2	0.5	-0.1	0.9	1.4	2.7	2.5	2.4
2550	3.0	1.3	0.7	1.0	1.3	-3.2	-1.3	-0.2	0.5	-0.3	0.7	1.3	2.5	2.4	2.4
2551	3.1	1.4	0.6	1.0	1.3	-2.8	-1.4	-0.3	0.4	-0.8	0.4	1.1	2.5	2.5	2.5
2552	3.2	1.6	0.6	0.9	1.2	-2.5	-1.6	-0.4	0.4	-1.2	0.2	1.0	2.6	2.5	2.4
2553	3.3	1.8	0.5	1.0	1.2	-2.1	-1.8	-0.5	0.3	-1.7	0.0	0.8	3.0	2.6	2.4
2554	3.6	2.0	0.5	0.9	1.2	-2.2	-2.1	-0.7	0.1	-2.1	-0.2	0.6	3.2	2.6	2.2
2555	3.7	2.1	0.4	0.9	1.2	-2.1	-2.4	-0.8	0.0	-2.5	-0.4	0.5	3.3	2.7	2.2
2556	3.8	2.2	0.4	0.9	1.1	-1.8	-2.5	-0.9	0.0	-2.8	-0.6	0.3	3.2	2.7	2.3
2557	3.9	2.3	0.4	0.9	1.1	-1.8	-2.6	-0.9	-0.1	-3.0	-0.7	0.3	3.4	2.6	2.1
2558	3.9	2.3	0.3	0.9	1.1	-1.8	-2.7	-1.0	-0.1	-3.2	-0.7	0.2	3.5	2.7	2.1
2559	4.0	2.5	0.2	0.8	1.1	-1.6	-2.9	-1.2	-0.2	-3.6	-1.0	0.1	3.4	2.7	2.3
2560	4.1	2.7	0.2	0.8	1.1	-1.1	-3.0	-1.2	-0.3	-3.9	-1.2	-0.1	3.6	2.7	2.1
2561	4.1	2.8	0.2	0.8	1.0	-0.6	-3.1	-1.2	-0.3	-4.3	-1.4	-0.2	3.6	2.7	2.0
2562	4.0	2.9	0.2	0.7	1.0	-0.2	-3.1	-1.3	-0.4	-4.5	-1.6	-0.4	3.3	2.6	2.1
2563	4.0	2.9	0.1	0.6	0.9	0.1	-3.1	-1.4	-0.4	-4.7	-1.8	-0.5	3.2	2.5	2.1
2564	3.9	2.8	0.0	0.6	0.8	-0.2	-3.2	-1.5	-0.5	-4.7	-1.9	-0.6	3.1	2.4	1.9
2565	3.8	2.8	0.0	0.5	0.8	0.3	-3.2	-1.5	-0.5	-4.9	-2.1	-0.7	2.9	2.4	2.0
2566	3.7	2.9	0.0	0.4	0.7	0.8	-3.1	-1.6	-0.5	-5.0	-2.3	-0.8	2.5	2.3	2.1
2567	3.6	2.9	-0.1	0.4	0.7	1.0	-3.2	-1.6	-0.6	-5.3	-2.4	-0.9	2.6	2.3	2.0
2568	3.5	2.8	-0.2	0.3	0.6	1.1	-3.3	-1.6	-0.6	-5.4	-2.5	-1.0	2.7	2.2	1.9
2569	3.5	2.9	-0.2	0.2	0.6	1.4	-3.4	-1.7	-0.7	-5.7	-2.7	-1.2	2.5	2.2	2.0
2570	3.6	3.0	-0.2	0.2	0.5	1.5	-3.4	-1.9	-0.8	-5.8	-2.9	-1.2	2.1	2.1	2.1
2571	3.6	3.0	-0.3	0.2	0.5	1.4	-3.5	-1.9	-0.8	-5.9	-2.9	-1.3	2.2	2.1	2.1
2572	3.6		-0.2	0.1	0.5		-3.5	-2.0	-0.8				1.8	2.0	2.1
2573	3.5		-0.3	0.1	0.5		-3.4	-2.0	-0.9				1.7	1.9	2.1
2574	3.6		-0.3	0.0	0.4		-3.6	-2.2	-1.0				1.5	1.9	2.1
2575	3.6		-0.3	-0.1	0.4		-3.5	-2.2	-1.0				1.1	1.7	2.2
2576	3.6		-0.4	-0.1	0.3		-3.7	-2.3	-1.1				1.1	1.7	2.1
2577	3.3		-0.4	-0.2	0.3		-3.5	-2.4	-1.1				0.6	1.6	2.3
2578	3.1		-0.4	-0.3	0.2		-3.4	-2.4	-1.1				0.3	1.4	2.3
2579	3.0		-0.4	-0.4	0.1		-3.3	-2.4	-1.1				-0.1	1.3	2.3
2580	3.1		-0.4	-0.4	0.1		-3.3	-2.5	-1.2				-0.3	1.1	2.2

High-Water Shoreline Position (UTM Zone 18, NAD 1983)

Transect #	1839/42 UTM-x (m)	1839/42 UTM-y (m)	1864/86 UTM-x (m)	1864/86 UTM-y (m)	1899 UTM-x (m)	1899 UTM-y (m)	1932 UTM-x (m)	1932 UTM-y (m)	1950/51 UTM-x (m)	1950/51 UTM-y (m)	1977 UTM-x (m)	1977 UTM-y (m)
2500	4328456	525122.1	4328427	525170.3	4328399	525217.0	4328322	525346.8	4328293	525394.5	4328272	525429.8
2501	4328420	525084.7	4328384	525143.9	4328359	525187.2	4328272	525333.1	4328238	525389.0	4328228	525405.6
2502	4328382	525050.2	4328343	525115.7	4328323	525149.0	4328223	525317.3	4328180	525389.1	4328185	525380.5
2503	4328343	525018.6	4328299	525092.0	4328287	525111.7	4328173	525303.4	4328123	525387.4	4328142	525354.6
2504	4328303	524988.2	4328259	525061.2	4328256	525066.6	4328125	525285.2	4328066	525384.8	4328101	525325.7
2505	4328264	524955.9	4328220	525028.9	4328224	525021.6	4328078	525267.8	4328015	525372.7	4328060	525296.8
2506	4328225	524923.6	4328179	525000.2	4328196	524972.5	4328032	525247.3	4327972	525346.7	4328021	525264.6
2507	4328185	524892.4	4328135	524976.1	4328164	524927.8	4327987	525224.5	4327937	525308.8	4327981	525234.4
2508	4328144	524863.4	4328095	524946.5	4328131	524885.7	4327943	525201.2	4327909	525258.3	4327941	525204.3
2509	4328103	524834.5	4328055	524915.2	4328096	524846.6	4327898	525178.9	4327883	525202.9	4327903	525170.4
2510	4328064	524803.2	4328014	524886.7	4328060	524809.8	4327855	525152.7	4327856	525151.8	4327863	525138.8
2511	4328024	524772.1	4327973	524857.0	4328021	524776.7	4327815	525122.8	4327827	525102.5	4327826	525103.5
2512	4327986	524737.9	4327933	524826.8	4327983	524742.4	4327776	525089.4	4327797	525054.7	4327790	525065.9
2513	4327946	524706.8	4327893	524797.2	4327945	524708.6	4327741	525051.2	4327764	525013.1	4327753	525031.3
2514	4327906	524677.4	4327850	524771.1	4327905	524679.2	4327706	525012.9	4327731	524970.4	4327716	524995.9
2515	4327866	524647.3	4327808	524744.5	4327862	524653.4	4327671	524972.9	4327695	524933.6	4327679	524959.5
2516	4327826	524616.7	4327766	524716.2	4327818	524628.7	4327639	524929.3	4327659	524895.5	4327642	524924.1
2517	4327785	524586.4	4327725	524687.9	4327778	524598.3	4327606	524887.9	4327624	524857.6	4327605	524888.2
2518	4327744	524557.6	4327685	524656.8	4327739	524567.2	4327572	524846.5	4327588	524820.1	4327569	524851.3
2519	4327704	524528.3	4327647	524623.8	4327702	524530.4	4327537	524807.8	4327552	524782.8	4327532	524815.4
2520	4327663	524499.3	4327606	524594.9	4327664	524497.8	4327503	524766.5	4327516	524745.7	4327495	524779.8
2521	4327622	524469.7	4327564	524567.4	4327623	524467.9	4327469	524727.0	4327481	524707.1	4327459	524743.9
2522	4327581	524440.4	4327523	524539.1	4327583	524437.9	4327435	524686.0	4327444	524671.2	4327422	524707.1
2523	4327540	524412.4	4327481	524510.9	4327544	524405.3	4327401	524645.4	4327409	524631.0	4327386	524670.5
2524	4327499	524384.1	4327442	524479.0	4327504	524375.7	4327367	524604.7	4327373	524594.0	4327350	524633.7
2525	4327458	524354.7	4327402	524448.8	4327460	524350.6	4327333	524564.5	4327336	524558.3	4327314	524596.2
2526	4327418	524324.5	4327364	524413.8	4327419	524321.7	4327297	524527.0	4327298	524524.7	4327278	524559.0
2527	4327378	524293.1	4327329	524376.1	4327381	524288.9	4327260	524491.8	4327265	524483.6	4327241	524522.8
2528	4327338	524262.3	4327289	524344.6	4327342	524256.7	4327225	524451.8	4327229	524445.3	4327204	524486.7
2529	4327298	524231.9	4327252	524308.7	4327300	524228.2	4327194	524407.2	4327194	524406.3	4327168	524451.0
2530	4327258	524200.9	4327213	524277.2	4327260	524198.7	4327165	524358.2	4327154	524375.8	4327130	524415.5
2531	4327219	524169.4	4327173	524246.8	4327220	524167.4	4327135	524310.8	4327115	524344.3	4327092	524382.6
2532	4327179	524138.5	4327134	524215.0	4327179	524138.8	4327104	524265.5	4327079	524306.7	4327056	524344.4
2533	4327139	524108.4	4327093	524185.8	4327136	524114.3	4327069	524225.7	4327040	524273.7	4327019	524309.9
2534	4327100	524076.7	4327053	524154.6	4327091	524091.2	4327032	524190.1	4327000	524243.6	4326982	524274.8
2535	4327060	524045.7	4327012	524125.5	4327046	524069.5	4326996	524153.7	4326962	524210.6	4326944	524239.8
2536	4327020	524015.1	4326973	524093.2	4326999	524049.6	4326960	524116.5	4326925	524173.8	4326907	524204.2
2537	4326980	523984.7	4326934	524061.9	4326958	524021.4	4326922	524081.2	4326889	524136.5	4326869	524169.8
2538	4326939	523955.7	4326893	524032.8	4326923	523982.8	4326885	524045.8	4326853	524099.8	4326832	524135.4
2539	4326897	523927.8	4326848	524010.4	4326885	523949.2	4326851	524005.5	4326817	524063.0	4326794	524101.7
2540	4326859	523895.4	4326803	523988.0	4326845	523918.1	4326814	523969.5	4326783	524022.0	4326756	524066.7
2541	4326820	523861.8	4326765	523953.8	4326804	523889.3	4326779	523931.9	4326743	523991.1	4326719	524032.2
2542	4326782	523829.0	4326728	523919.0	4326764	523858.7	4326740	523899.2	4326705	523957.1	4326682	523996.7
2543	4326743	523796.9	4326687	523889.3	4326724	523827.3	4326703	523864.0	4326670	523918.7	4326643	523964.7
2544	4326702	523767.5	4326645	523862.2	4326687	523791.8	4326667	523826.6	4326633	523883.7	4326605	523929.8
2545	4326662	523737.4	4326604	523834.7	4326646	523764.4	4326629	523792.8	4326595	523848.6	4326566	523897.5
2546	4326621	523707.3	4326563	523806.0	4326600	523743.5	4326589	523762.2	4326560	523809.6	4326529	523862.6
2547	4326581	523676.7	4326522	523776.6	4326555	523720.8	4326550	523729.2	4326523	523774.3	4326490	523829.6
2548	4326541	523646.3	4326478	523752.0	4326512	523695.5	4326510	523698.6	4326485	523741.3	4326452	523796.0
2549	4326502	523614.9	4326439	523720.2	4326469	523669.6	4326471	523666.6	4326445	523710.3	4326414	523762.9
2550	4326463	523582.9	4326400	523688.5	4326426	523645.2	4326431	523635.8	4326407	523675.9	4326376	523728.9
2551	4326424	523550.9	4326358	523660.2	4326382	523621.1	4326395	523599.4	4326370	523640.7	4326337	523696.0
2552	4326385	523518.5	4326317	523631.4	4326337	523597.7	4326358	523563.8	4326332	523606.8	4326299	523661.4
2553	4326345	523487.1	4326276	523603.9	4326293	523575.4	4326322	523526.9	4326292	523576.3	4326261	523629.0
2554	4326305	523457.2	4326230	523583.3	4326248	523553.1	4326283	523493.0	4326252	523545.2	4326223	523594.2
2555	4326264	523428.7	4326185	523560.0	4326202	523531.2	4326245	523460.1	4326213	523513.7	4326184	523563.0
2556	4326222	523400.8	4326142	523534.3	4326157	523510.0	4326205	523430.0	4326173	523482.4	4326143	523532.8
2557	4326181	523372.3	4326100	523508.6	4326115	523483.3	4326165	523399.7	4326132	523454.3	4326104	523501.2
2558	4326140	523343.7	4326058	523480.4	4326072	523456.4	4326126	523365.9	4326092	523423.4	4326064	523470.6
2559	4326099	523314.7	4326014	523456.2	4326027	523434.7	4326088	523333.5	4326055	523388.7	4326024	523439.3
2560	4326059	523283.1	4325973	523428.1	4325982	523413.5	4326048	523302.3	4326013	523360.5	4325985	523407.3
2561	4326019	523253.2	4325932	523398.8	4325937	523390.7	4326009	523269.8	4325974	523328.5	4325947	523374.1
2562	4325976	523227.8	4325891	523369.5	4325893	523367.3	4325969	523240.0	4325936	523294.1	4325908	523341.0
2563	4325933	523201.8	4325850	523341.9	4325849	523342.8	4325928	523210.9	4325897	523262.1	4325869	523309.3
2564	4325889	523178.0	4325806	523316.9	4325808	523314.7	4325887	523181.1	4325857	523231.6	4325832	523274.7
2565	4325846	523152.8	4325766	523287.2	4325764	523290.8	4325847	523151.2	4325819	523198.9	4325792	523243.9
2566	4325802	523128.5	4325725	523257.6	4325719	523268.5	4325804	523125.7	4325780	523166.6	4325752	523213.3
2567	4325759	523104.2	4325683	523230.8	4325675	523244.1	4325764	523094.8	4325739	523137.2	4325712	523182.3
2568	4325714	523081.8	4325641	523204.4	4325631	523220.0	4325723	523066.5	4325696	523110.7	4325672	523152.1
2569	4325672	523054.1	4325598	523178.1	4325586	523197.7	4325683	523035.8	4325659	523076.6	4325633	523120.3
2570	4325631	523025.6	4325556	523151.4	4325543	523172.0	4325641	523008.1	4325621	523041.8	4325593	523088.8
2571	4325590	522997.0	4325514	523123.4	4325503	523142.3	4325602	522976.2	4325581	523011.3	4325553	523058.5
2572	4325548	522968.7	4325473	523095.5			4325559	522950.0	4325542	522979.7	4325513	523027.3
2573	4325506	522941.2	4325432	523065.5			4325519	522920.4	4325502	522948.5	4325474	522995.5
2574	4325463	522916.0	4325388	523041.8			4325478	522891.3	4325463	522916.2	4325435	522963.6
2575	4325421	522889.9	4325346	523015.6			4325435	522866.6	4325424	522884.7	4325395	522932.9
2576	4325378	522864.6	4325302	522991.0			4325395	522835.9	4325384	522854.6	4325355	522902.4
2577	4325333	522841.9	4325263	522958.4			4325352	522810.0	4325346	522819.7	4325315	522871.0
2578	4325288	522819.6	4325223	522927.7			4325309	522784.9	4325306	522789.0	4325276	522840.3
2579	4325245	522793.7	4325182	522899.7			4325265	522759.8	4325266	522758.0	4325235	522810.0
2580	4325204	522765.3	4325139	522874.3			4325222	522735.3	4325225	522729.7	4325196	522778.8

High-Water Shoreline Position Change Rate

Transect #	1839/42 to 1864/86 (m/yr)	1839/42 to 1899 (m/yr)	1839/42 to 1932 (m/yr)	1839/42 to 1950/51 (m/yr)	1839/42 to 1977 (m/yr)	1864/86 to 1899 (m/yr)	1864/86 to 1932 (m/yr)	1864/86 to 1950/51 (m/yr)	1864/86 to 1977 (m/yr)	1899 to 1932 (m/yr)	1899 to 1950/51 (m/yr)	1899 to 1977 (m/yr)	1932 to 1950/51 (m/yr)	1932 to 1977 (m/yr)	1950/51 to 1977 (m/yr)
2581	3.2		-0.3	-0.4	0.1		-3.3	-2.5	-1.3				-0.4	1.0	2.0
2582	3.3		-0.3	-0.4	0.1		-3.3	-2.6	-1.3				-0.8	0.8	2.0
2583	3.4		-0.2	-0.3	0.1		-3.2	-2.6	-1.3				-1.0	0.7	2.0
2584	3.5		-0.1	-0.3	0.1		-3.2	-2.5	-1.4				-0.9	0.6	1.6
2585	3.5		-0.1	-0.2	0.1		-3.0	-2.5	-1.4				-1.0	0.4	1.5
2586	3.8		0.2	0.0	0.2		-2.8	-2.3	-1.4				-1.0	0.3	1.2
2587	4.0		0.3	0.1	0.3		-2.8	-2.2	-1.4				-0.8	0.2	0.8
2588	4.0		0.4	0.2	0.3		-2.7	-2.2	-1.4				-1.0	0.0	0.7
2589	3.8		0.3	0.1	0.2		-2.6	-2.1	-1.4				-0.9	0.0	0.6
2590	3.7		0.3	0.1	0.2		-2.5	-2.1	-1.4				-1.1	-0.2	0.5
2591	3.5	3.3	0.4	0.1	0.2	2.8	-2.2	-1.9	-1.3	-4.7	-3.4	-2.1	-1.2	-0.3	0.3
2592	3.4	3.3	0.4	0.1	0.1	3.0	-2.2	-1.8	-1.3	-4.6	-3.3	-2.2	-1.0	-0.3	0.1
2593	3.5	3.3	0.4	0.2	0.1	2.8	-2.2	-1.7	-1.3	-4.6	-3.1	-2.2	-0.6	-0.3	-0.2
2594	3.5	3.3	0.4	0.3	0.2	2.9	-2.1	-1.6	-1.3	-4.6	-3.0	-2.1	-0.4	-0.4	-0.4
2595	3.4	3.3	0.5	0.3	0.2	3.1	-2.0	-1.5	-1.2	-4.5	-3.0	-2.1	-0.4	-0.4	-0.3
2596	3.3	3.3	0.5	0.4	0.2	3.2	-1.9	-1.4	-1.1	-4.3	-2.9	-2.0	-0.3	-0.3	-0.4
2597	3.2	3.3	0.5	0.4	0.2	3.5	-1.7	-1.3	-1.1	-4.2	-2.8	-2.0	-0.2	-0.4	-0.5
2598	3.0	3.2	0.6	0.4	0.2	3.8	-1.5	-1.1	-1.0	-4.0	-2.6	-2.0	-0.1	-0.5	-0.7
2599	2.9	3.2	0.6	0.5	0.2	4.1	-1.3	-0.9	-1.0	-4.0	-2.4	-2.0	0.2	-0.5	-1.1
2600	2.7	3.1	0.6	0.5	0.2	4.3	-1.2	-0.8	-0.9	-3.9	-2.3	-2.0	0.3	-0.6	-1.2
2601	2.5	3.1	0.5	0.6	0.2	4.4	-1.1	-0.6	-0.8	-3.8	-2.2	-1.9	0.7	-0.5	-1.4
2602	2.5	2.9	0.5	0.6	0.2	4.0	-1.2	-0.6	-0.8	-3.7	-2.0	-1.8	0.9	-0.4	-1.4
2603	2.4	2.8	0.5	0.6	0.2	3.8	-1.1	-0.4	-0.8	-3.5	-1.7	-1.7	1.4	-0.4	-1.7
2604	2.4	2.7	0.5	0.7	0.2	3.5	-1.1	-0.3	-0.7	-3.3	-1.5	-1.6	1.7	-0.3	-1.8
2605	2.3	2.6	0.5	0.8	0.2	3.3	-0.9	-0.2	-0.7	-3.0	-1.3	-1.5	1.8	-0.4	-1.9
2606	2.3	2.4	0.6	0.8	0.3	2.7	-0.8	-0.2	-0.6	-2.5	-1.0	-1.3	1.5	-0.4	-1.8
2607	2.3	2.3	0.7	0.9	0.3	2.4	-0.7	0.0	-0.5	-2.2	-0.8	-1.1	1.7	-0.3	-1.8
2608	2.4	2.4	0.8	0.9	0.4	2.3	-0.6	0.1	-0.4	-2.0	-0.6	-1.0	1.8	-0.2	-1.6
2609	2.3	2.2	0.8	1.0	0.5	1.9	-0.5	0.1	-0.3	-1.6	-0.4	-0.8	1.7	-0.2	-1.6
2610	2.3	2.2	0.9	1.0	0.5	1.7	-0.3	0.3	-0.2	-1.2	-0.2	-0.6	1.6	-0.2	-1.6
2611	2.4	2.0	1.0	1.1	0.6	1.1	-0.2	0.3	-0.2	-0.8	0.1	-0.5	1.7	-0.2	-1.6
2612	2.5	2.0	1.1	1.2	0.6	0.8	-0.2	0.4	-0.2	-0.6	0.3	-0.4	1.8	-0.3	-1.8
2613	2.5	1.9	1.1	1.2	0.6	0.3	-0.1	0.5	-0.2	-0.3	0.5	-0.3	1.9	-0.2	-1.8
2614	2.5	1.7	1.1	1.2	0.7	-0.3	-0.1	0.3	-0.1	0.0	0.5	-0.1	1.4	-0.2	-1.4
2615	2.7	1.7	1.1	1.2	0.7	-1.1	-0.2	0.4	-0.1	0.2	0.8	0.1	1.8	-0.1	-1.4
2616	2.8	1.8	1.2	1.4	0.8	-0.7	-0.1	0.5	0.0	0.2	0.8	0.1	1.9	0.0	-1.3
2617	3.4	2.2	1.5	1.6	1.0	-0.9	0.0	0.5	0.0	0.4	0.9	0.2	1.8	0.1	-1.2
2618	3.8	2.5	1.8	1.7	1.2	-0.8	0.1	0.5	0.1	0.6	0.9	0.3	1.4	0.1	-0.9
2619	4.0	2.7	2.0	1.9	1.3	-0.4	0.4	0.6	0.2	0.8	0.9	0.3	1.2	0.0	-0.8
2620	3.8	2.7	2.2	1.9	1.4	0.0	0.9	0.7	0.3	1.3	1.0	0.4	0.3	-0.3	-0.7
2621	3.6	2.6	2.1	1.9	1.4	0.0	0.9	0.8	0.4	1.3	1.1	0.5	0.6	-0.1	-0.6
2622	3.3	2.4	2.0	1.7	1.5	0.1	0.9	0.8	0.7	1.3	1.0	0.8	0.3	0.4	0.4
2623	3.0	2.1	1.8	1.6	1.3	0.0	0.9	0.8	0.6	1.3	1.1	0.7	0.7	0.3	0.1
2624	2.7	2.0	1.7	1.5	1.2	0.1	0.8	0.8	0.6	1.2	1.0	0.7	0.8	0.3	-0.1
2625	2.6	1.9	1.6	1.5	1.2	0.3	0.8	0.8	0.5	1.1	1.0	0.6	0.8	0.2	-0.2
2626	2.6	2.0	1.7	1.5	1.2	0.4	0.9	0.8	0.6	1.1	1.0	0.6	0.7	0.2	-0.2
2627	2.6	2.0	1.7	1.5	1.2	0.5	0.9	0.8	0.5	1.1	0.9	0.5	0.7	0.1	-0.3
2628	2.7	2.1	1.7	1.5	1.2	0.6	0.9	0.8	0.5	1.0	0.9	0.5	0.6	0.1	-0.3
2629	2.9	2.3	1.8	1.6	1.2	0.7	0.9	0.8	0.5	1.0	0.9	0.4	0.7	0.1	-0.4
2630	3.0	2.4	1.8	1.7	1.2	0.6	0.8	0.8	0.5	0.9	0.9	0.4	0.8	0.1	-0.5
2631	3.1	2.4	1.9	1.7	1.3	0.8	0.8	0.8	0.5	0.9	0.9	0.4	0.9	0.0	-0.6
2632	3.2	2.5	1.9	1.8	1.3	0.7	0.8	0.9	0.4	0.8	0.9	0.4	1.1	0.0	-0.8
2633	3.3	2.6	2.0	1.8	1.3	0.8	0.9	0.9	0.4	0.9	0.9	0.4	0.9	-0.1	-0.8
2634	3.3	2.6	2.0	1.8	1.3	0.8	0.9	0.9	0.4	1.0	0.9	0.4	0.8	-0.1	-0.8
2635	3.3	2.7	2.1	1.8	1.3	1.0	1.0	1.0	0.5	1.0	0.9	0.4	0.8	-0.1	-0.7
2636	3.3	2.7	2.1	1.9	1.5	1.3	1.2	1.0	0.7	1.1	1.0	0.6	0.7	0.2	-0.2
2637	3.3	2.9	2.2	2.0	1.5	1.8	1.3	1.1	0.7	1.1	0.9	0.4	0.6	0.0	-0.5
2638	3.4	3.0	2.3	2.0	1.5	2.1	1.3	1.1	0.7	1.0	0.9	0.4	0.7	0.0	-0.5
2639	3.4	3.1	2.3	2.0	1.5	2.4	1.4	1.1	0.7	0.9	0.8	0.3	0.6	0.0	-0.5
2640	3.5	3.2	2.3	2.0	1.5	2.5	1.3	1.1	0.7	0.8	0.7	0.3	0.6	0.0	-0.4
2641	3.5	3.2	2.3	2.0	1.5	2.5	1.3	1.1	0.7	0.7	0.7	0.3	0.6	0.0	-0.4
2642	3.5	3.3	2.3	2.0	1.5	2.8	1.3	1.1	0.7	0.5	0.6	0.2	0.6	0.0	-0.5
2643	3.6	3.4	2.3	2.0	1.5	2.8	1.3	1.1	0.6	0.5	0.5	0.2	0.6	-0.1	-0.5
2644	3.6	3.4	2.3	2.0	1.5	2.6	1.2	1.0	0.6	0.5	0.5	0.2	0.5	0.0	-0.4
2645	3.8	3.4	2.3	2.0	1.5	2.3	1.0	0.8	0.5	0.4	0.4	0.2	0.4	0.1	-0.2
2646	4.1	3.4	2.3	1.9	1.6	1.7	0.7	0.7	0.6	0.3	0.3	0.4	0.4	0.4	0.4
2647	4.2	3.4	2.3	1.9	1.6	1.5	0.6	0.6	0.5	0.2	0.3	0.2	0.4	0.3	0.2
2648	4.2	3.4	2.2	1.9	1.5	1.3	0.5	0.5	0.4	0.2	0.3	0.2	0.4	0.2	0.0
2649	4.0	3.4	2.2	1.9	1.5	1.9	0.7	0.6	0.4	0.2	0.2	0.1	0.3	0.1	-0.1
2650	3.9	3.4		1.9	1.5	2.3		0.7	0.4		0.2	0.0			-0.3
2651	3.9	3.4		1.9	1.4	2.4		0.7	0.4		0.1	-0.1			-0.4
2652	3.9	3.5		1.9	1.4	2.4		0.6	0.3		0.1	-0.2			-0.6
2653	4.1	3.6		1.9	1.4	2.5		0.5	0.2		-0.1	-0.3			-0.7
2654	4.2	3.6		1.9	1.4	2.2		0.5	0.1		-0.1	-0.3			-0.7
2655	4.3	3.7		1.9	1.4	2.1		0.4	0.1		-0.1	-0.3			-0.8
2656	4.4	3.7		1.9	1.4	1.7		0.3	0.0		-0.1	-0.3			-0.7
2657	4.6	3.7		1.9	1.4	1.5		0.2	-0.1		-0.2	-0.4			-0.7
2658	4.8	3.8		1.9	1.4	1.2		0.1	-0.1		-0.2	-0.3			-0.5
2659	5.0	3.9		1.9	1.5	1.0		0.0	0.0		-0.3	-0.2			-0.1
2660	5.3	4.0	2.2	1.9	1.5	0.6	-0.3	-0.1	-0.1	-0.8	-0.3	-0.3	0.5	0.1	-0.2
2661	5.4	4.1	2.2	1.8	1.5	0.6	-0.6	-0.4	-0.2	-1.2	-0.6	-0.4	0.2	0.2	0.1

High-Water Shoreline Position (UTM Zone 18, NAD 1983)

Transect #	1839/42 UTM-x (m)	1839/42 UTM-y (m)	1864/86 UTM-x (m)	1864/86 UTM-y (m)	1899 UTM-x (m)	1899 UTM-y (m)	1932 UTM-x (m)	1932 UTM-y (m)	1950/51 UTM-x (m)	1950/51 UTM-y (m)	1977 UTM-x (m)	1977 UTM-y (m)
2581	4325164	522735.1	4325096	522849.0			4325179	522708.8	4325183	522702.1	4325156	522747.7
2582	4325122	522707.5	4325053	522822.9			4325136	522683.9	4325143	522671.4	4325117	522716.5
2583	4325083	522674.4	4325012	522794.4			4325093	522658.7	4325102	522643.2	4325076	522686.9
2584	4325043	522644.8	4324970	522766.8			4325049	522634.2	4325058	522619.9	4325036	522656.5
2585	4325003	522614.4	4324930	522736.7			4325005	522610.6	4325015	522593.7	4324995	522627.7
2586	4324969	522574.2	4324890	522706.6			4324961	522587.1	4324971	522570.6	4324955	522597.3
2587	4324932	522538.2	4324847	522680.2			4324918	522561.9	4324925	522549.6	4324914	522567.9
2588	4324891	522508.5	4324806	522650.9			4324873	522538.7	4324882	522523.3	4324873	522539.8
2589	4324846	522486.6	4324765	522622.0			4324831	522512.4	4324840	522497.7	4324831	522511.5
2590	4324801	522464.4	4324725	522592.9			4324786	522489.6	4324796	522472.5	4324790	522483.0
2591	4324759	522437.4	4324685	522560.7	4324663	522598.7	4324742	522466.5	4324753	522447.6	4324748	522455.3
2592	4324717	522410.4	4324646	522529.0	4324622	522569.6	4324701	522437.9	4324710	522422.0	4324709	522424.4
2593	4324676	522382.0	4324603	522503.7	4324580	522542.2	4324658	522410.8	4324664	522401.8	4324666	522397.9
2594	4324635	522352.3	4324562	522474.8	4324539	522514.2	4324616	522384.8	4324619	522379.2	4324624	522371.1
2595	4324594	522323.6	4324523	522443.1	4324497	522486.2	4324573	522358.8	4324576	522353.0	4324581	522345.3
2596	4324552	522296.2	4324482	522413.4	4324456	522457.0	4324529	522334.2	4324532	522329.6	4324537	522321.4
2597	4324510	522269.2	4324444	522380.6	4324415	522429.3	4324486	522309.2	4324489	522305.3	4324495	522294.0
2598	4324467	522243.1	4324405	522348.4	4324374	522400.4	4324441	522286.8	4324443	522284.6	4324452	522268.9
2599	4324424	522217.9	4324364	522318.4	4324331	522374.1	4324398	522261.7	4324396	522265.3	4324410	522241.3
2600	4324380	522194.1	4324324	522287.9	4324289	522346.4	4324355	522236.9	4324352	522241.8	4324368	522214.8
2601	4324337	522168.3	4324284	522257.1	4324248	522317.6	4324313	522209.5	4324306	522220.6	4324325	522189.8
2602	4324294	522143.3	4324242	522230.8	4324209	522286.3	4324271	522182.2	4324262	522197.5	4324281	522165.4
2603	4324251	522118.3	4324200	522202.7	4324170	522254.4	4324229	522154.4	4324216	522177.2	4324239	522138.5
2604	4324209	522091.2	4324159	522174.6	4324130	522223.3	4324185	522130.2	4324169	522157.8	4324193	522116.7
2605	4324167	522063.1	4324119	522144.6	4324091	522190.6	4324142	522105.4	4324125	522134.0	4324151	522090.5
2606	4324126	522034.6	4324078	522115.3	4324056	522152.6	4324098	522081.0	4324083	522106.0	4324108	522065.2
2607	4324087	522002.7	4324038	522084.5	4324018	522117.7	4324056	522054.4	4324039	522082.8	4324063	522042.3
2608	4324049	521969.3	4323999	522052.6	4323980	522084.7	4324014	522027.5	4323997	522056.3	4324018	522020.1
2609	4324007	521942.1	4323958	522024.0	4323942	522049.7	4323970	522004.2	4323953	522031.9	4323974	521997.2
2610	4323968	521908.9	4323919	521991.5	4323905	522014.3	4323926	521979.7	4323910	522006.5	4323931	521971.5
2611	4323928	521878.8	4323877	521963.6	4323868	521979.1	4323882	521955.6	4323866	521982.7	4323887	521946.9
2612	4323887	521849.3	4323834	521938.2	4323828	521949.3	4323838	521931.5	4323820	521961.3	4323844	521921.5
2613	4323845	521822.2	4323793	521909.7	4323790	521914.1	4323796	521905.5	4323777	521936.2	4323801	521896.0
2614	4323804	521794.5	4323751	521881.9	4323754	521877.7	4323753	521878.6	4323739	521902.1	4323758	521871.3
2615	4323765	521761.0	4323708	521857.0	4323717	521842.3	4323713	521848.2	4323696	521877.8	4323715	521846.0
2616	4323728	521725.3	4323669	521825.5	4323675	521815.3	4323671	521821.0	4323653	521852.3	4323670	521822.9
2617	4323697	521680.3	4323626	521798.4	4323634	521785.6	4323628	521796.4	4323610	521825.4	4323626	521798.5
2618	4323665	521637.0	4323585	521770.0	4323592	521759.2	4323582	521774.9	4323569	521797.2	4323581	521777.6
2619	4323629	521599.0	4323546	521738.2	4323550	521732.2	4323537	521753.9	4323525	521774.1	4323536	521755.1
2620	4323587	521572.5	4323507	521706.0	4323507	521705.4	4323485	521743.4	4323482	521748.5	4323490	521733.7
2621	4323541	521550.8	4323466	521676.6	4323466	521677.0	4323444	521714.2	4323438	521724.0	4323446	521709.8
2622	4323494	521531.8	4323424	521649.5	4323423	521651.0	4323401	521689.0	4323397	521694.4	4323393	521702.7
2623	4323443	521520.3	4323381	521624.3	4323381	521624.8	4323359	521660.5	4323353	521671.7	4323352	521673.3
2624	4323395	521503.3	4323338	521599.0	4323337	521600.7	4323317	521633.5	4323310	521646.3	4323311	521644.7
2625	4323350	521480.6	4323296	521571.2	4323294	521575.7	4323275	521606.5	4323267	521619.9	4323270	521615.5
2626	4323310	521451.2	4323255	521542.7	4323251	521548.7	4323233	521579.5	4323226	521591.6	4323229	521587.1
2627	4323268	521423.4	4323214	521514.7	4323209	521522.2	4323191	521552.5	4323185	521563.3	4323188	521556.8
2628	4323228	521392.4	4323171	521488.8	4323166	521497.3	4323149	521525.4	4323143	521535.2	4323147	521528.5
2629	4323190	521359.6	4323129	521461.7	4323123	521470.8	4323107	521498.0	4323100	521510.0	4323106	521500.0
2630	4323150	521328.7	4323086	521435.4	4323081	521443.8	4323065	521470.4	4323057	521483.7	4323064	521472.6
2631	4323109	521299.1	4323045	521407.5	4323038	521418.5	4323023	521442.9	4323015	521457.0	4323023	521444.3
2632	4323068	521270.0	4323001	521383.0	4322995	521393.3	4322981	521417.1	4322970	521434.4	4322980	521417.4
2633	4323028	521239.5	4322959	521355.3	4322952	521366.9	4322936	521393.7	4322928	521408.2	4322938	521391.0
2634	4322986	521213.6	4322916	521330.0	4322910	521340.8	4322893	521368.9	4322885	521382.0	4322896	521364.4
2635	4322945	521184.3	4322876	521300.0	4322867	521314.2	4322850	521342.8	4322843	521355.7	4322852	521340.1
2636	4322906	521152.5	4322836	521268.6	4322825	521286.8	4322807	521317.8	4322800	521329.5	4322803	521325.1
2637	4322867	521120.0	4322796	521237.8	4322782	521262.4	4322764	521292.6	4322758	521302.9	4322764	521292.2
2638	4322826	521090.3	4322756	521208.6	4322739	521237.1	4322723	521264.2	4322716	521275.4	4322723	521263.2
2639	4322785	521061.3	4322714	521180.9	4322694	521214.3	4322680	521238.5	4322674	521248.0	4322681	521236.8
2640	4322745	521032.2	4322672	521154.0	4322652	521187.9	4322638	521210.3	4322632	521220.5	4322638	521210.8
2641	4322702	521005.3	4322629	521128.7	4322608	521163.2	4322596	521182.8	4322590	521193.0	4322596	521183.6
2642	4322660	520978.4	4322586	521101.9	4322563	521140.5	4322554	521155.7	4322549	521165.5	4322555	521155.2
2643	4322619	520949.4	4322544	521075.8	4322521	521113.9	4322512	521128.5	4322507	521137.7	4322514	521126.3
2644	4322577	520923.0	4322500	521051.3	4322479	521087.6	4322471	521101.0	4322466	521109.2	4322471	521100.2
2645	4322534	520897.3	4322454	521032.0	4322435	521063.0	4322429	521073.5	4322424	521080.7	4322427	521075.8
2646	4322491	520870.8	4322406	521014.7	4322392	521038.0	4322387	521046.2	4322383	521052.7	4322377	521061.9
2647	4322449	520844.9	4322360	520993.2	4322348	521013.7	4322345	521018.9	4322341	521025.6	4322339	521029.5
2648	4322404	520822.1	4322317	520968.6	4322306	520986.1	4322303	520991.6	4322299	520998.4	4322298	520999.3
2649	4322361	520796.4	4322278	520936.2	4322262	520962.2	4322259	520966.9	4322256	520972.2	4322258	520968.8
2650	4322319	520770.3	4322238	520906.1	4322218	520938.1			4322214	520946.3	4322217	520939.8
2651	4322275	520746.1	4322194	520881.9	4322174	520914.9			4322171	520920.5	4322176	520911.2
2652	4322232	520720.9	4322149	520859.3	4322129	520892.2			4322128	520895.1	4322136	520881.7
2653	4322189	520694.3	4322103	520838.0	4322083	520872.8			4322085	520869.6	4322095	520853.0
2654	4322146	520669.2	4322058	520816.5	4322040	520847.1			4322042	520844.2	4322051	520828.5
2655	4322103	520643.0	4322013	520794.5	4321995	520824.0			4321999	520818.4	4322009	520801.6
2656	4322059	520619.0	4321967	520774.7	4321953	520798.3			4321956	520792.6	4321966	520776.3
2657	4322017	520592.9	4321920	520755.1	4321908	520776.1			4321913	520766.8	4321922	520751.0
2658	4321975	520565.4	4321874	520735.2	4321864	520751.1			4321870	520741.1	4321878	520728.8
2659	4321933	520537.4	4321828	520713.6	4321820	520727.1			4321827	520715.3	4321828	520714.2
2660	4321892	520508.9	4321781	520694.9	4321776	520703.4	4321790	520680.8	4321785	520689.5	4321787	520684.6
2661	4321851	520481.2	4321736	520672.5	4321732	520680.5	4321751	520647.9	4321749	520651.6	4321747	520654.0

	High-Water Shoreline Position Change Rate														
	1839/42 to	1839/42 to	1839/42 to	1839/42 to	1839/42 to	1864/86 to	1864/86 to	1864/86 to	1864/86 to	1899 to	1899 to	1899 to	1932 to	1932 to	1950/51 to
Transect #	1864/86 (m/yr)	1899 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1899 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1932 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1950/51 (m/yr)	1977 (m/yr)	1977 (m/yr)
2662	5.5	4.1	2.1	1.8	1.5	0.4	-0.8	-0.4	-0.3	-1.4	-0.7	-0.4	0.7	0.3	0.0
2663	5.8	4.2	2.1	1.9	1.5	0.0	-1.0	-0.5	-0.4	-1.5	-0.7	-0.5	0.6	0.2	-0.1
2664	6.1	4.3	2.2	1.9	1.5	-0.4	-1.1	-0.7	-0.5	-1.4	-0.7	-0.6	0.4	0.1	-0.2
2665	6.4	4.4	2.3	2.0	1.5	-0.5	-1.2	-0.7	-0.6	-1.5	-0.7	-0.7	0.6	-0.1	-0.5
2666	6.6	4.6	2.3	2.0	1.5	-0.7	-1.4	-0.8	-0.7	-1.7	-0.9	-0.7	0.7	0.0	-0.5
2667	6.8	4.6	2.3	1.9	1.5	-1.0	-1.5	-1.0	-0.7	-1.7	-1.0	-0.7	0.4	0.1	-0.1
2668	7.0	4.7	2.3	1.9	1.6	-1.1	-1.6	-1.2	-0.7	-1.8	-1.3	-0.6	-0.3	0.3	0.7
2669	7.1	4.7	2.3	1.8	1.6	-1.6	-1.8	-1.4	-0.8	-1.9	-1.3	-0.7	-0.2	0.2	0.6
2670	7.3	4.5	2.2	1.7	1.5	-2.5	-2.1	-1.7	-1.0	-2.0	-1.5	-0.7	-0.7	0.3	1.0
2671	7.4	4.5	2.1	1.6	1.5	-2.9	-2.5	-2.0	-1.1	-2.2	-1.7	-0.7	-0.8	0.4	1.3
2672	7.6	4.5	2.0	1.4	1.5	-3.2	-2.7	-2.3	-1.1	-2.4	-2.0	-0.7	-1.2	0.6	2.0
2673	7.6	4.4	1.9	1.3	1.4	-3.9	-3.0	-2.5	-1.4	-2.6	-2.1	-0.9	-1.3	0.3	1.5
2674	7.8	4.4	1.8	1.1	1.3	-4.3	-3.3	-2.8	-1.6	-2.8	-2.4	-1.0	-1.7	0.3	1.7
2675	7.9	4.4	1.7	1.1	1.2	-4.7	-3.5	-3.0	-1.7	-2.9	-2.5	-1.1	-1.8	0.2	1.6
2676	8.1	4.4	1.6	1.0	1.1	-5.1	-3.8	-3.3	-1.9	-3.2	-2.7	-1.2	-1.9	0.2	1.7
2677	8.4	4.3	1.6	1.0	1.1	-6.1	-4.1	-3.5	-2.1	-3.1	-2.7	-1.3	-2.1	0.1	1.6
2678	8.7	4.4	1.6	0.9	1.1	-6.8	-4.4	-3.8	-2.3	-3.2	-2.9	-1.4	-2.2	0.0	1.6
2679	9.0	4.4	1.6	1.1	1.0	-7.4	-4.7	-3.7	-2.4	-3.3	-2.6	-1.4	-1.3	0.0	0.9
2680	9.3	4.4	1.5	1.0	1.0	-8.1	-5.0	-4.0	-2.6	-3.5	-2.7	-1.5	-1.4	0.0	1.0
2681	9.6	4.5	1.5	0.9	1.0	-8.5	-5.3	-4.3	-2.8	-3.7	-3.0	-1.6	-1.8	0.0	1.2
2682	9.8	4.5	1.5	0.9	1.0	-9.1	-5.5	-4.5	-2.9	-3.8	-3.1	-1.6	-2.0	0.0	1.4
2683	10.0	4.5	1.4	0.8	0.9	-9.6	-5.8	-4.8	-3.0	-3.9	-3.3	-1.6	-2.2	0.0	1.5
2684	10.1	4.4	1.4	0.7	0.9	-10.1	-5.9	-4.9	-3.1	-3.9	-3.3	-1.7	-2.4	-0.1	1.6
2685	10.2	4.2	1.4	0.6	0.9	-11.1	-6.0	-5.1	-3.2	-3.6	-3.3	-1.6	-2.8	-0.1	1.8
2686	10.2	4.0	1.3	0.5	0.8	-11.9	-6.1	-5.4	-3.2	-3.3	-3.3	-1.4	-3.4	-0.1	2.3
2687	10.2	3.9	1.3	0.4	0.8	-12.3	-6.3	-5.6	-3.3	-3.3	-3.5	-1.5	-3.8	-0.2	2.5
2688	10.2	3.7	1.2	0.2	0.7	-13.2	-6.4	-5.8	-3.5	-3.1	-3.6	-1.5	-4.4	-0.3	2.6
2689	10.4	3.5	1.1	0.1	0.6	-13.9	-6.6	-6.1	-3.7	-3.1	-3.7	-1.6	-4.8	-0.5	2.7
2690	10.4	3.5	1.0	-0.1	0.5	-14.1	-6.8	-6.3	-3.8	-3.2	-3.9	-1.7	-5.2	-0.6	2.8
2691	10.3	3.3	0.9	-0.2	0.4	-14.8	-6.9	-6.6	-3.9	-3.1	-4.0	-1.7	-5.6	-0.7	2.9
2692	10.3	3.1	0.8	-0.4	0.3	-15.6	-7.1	-6.9	-4.1	-3.0	-4.2	-1.7	-6.3	-0.8	3.2
2693	10.3	2.9	0.8	-0.6	0.2	-16.1	-7.2	-7.1	-4.2	-2.8	-4.4	-1.8	-7.0	-1.0	3.4
2694	10.3	2.8	0.8	-0.7	0.2	-16.6	-7.2	-7.3	-4.3	-2.6	-4.5	-1.7	-7.8	-1.1	3.7
2695	10.4	2.7	0.8	-1.0	0.1	-17.2	-7.2	-7.9	-4.5	-2.4	-5.0	-1.8	-9.5	-1.4	4.4
2696	10.6	2.6	0.8	-1.1	-0.8	-17.8	-7.3	-8.2	-5.8	-2.2	-5.2	-3.3	-10.4	-4.1	0.5
2697	10.7	2.5	0.8	-1.3	-1.0	-18.4	-7.5	-8.5	-6.0	-2.2	-5.5	-3.5	-11.3	-4.5	0.5
2698	11.0	2.5	0.9	-1.6	-1.0	-19.1	-7.6	-9.1	-6.2	-2.0	-6.0	-3.6	-13.1	-4.8	1.3
2699	11.4	2.6	0.9	-1.8	-1.0	-19.9	-7.8	-9.8	-6.4	-1.9	-6.7	-3.7	-14.9	-5.0	2.2
2700		2.5	0.9	-2.3	-1.1					-1.7	-7.5	-3.8	-17.7	-5.3	3.7
2701		2.5	1.0	-3.1	-1.2					-1.5	-9.2	-3.9	-22.6	-5.7	6.6
2702		2.4	1.1		-1.3					-1.3		-4.0		-6.0	
2703		2.3	1.1		-1.4					-1.0		-4.0		-6.3	
2704		2.1	1.2		-1.4					-0.4		-4.0		-6.6	
2705		2.0	1.2		-1.5					-0.1		-4.0		-6.8	
2706		1.8	1.2		-1.5					0.3		-3.9		-7.0	
2707		1.5	1.3		-1.6					0.8		-3.8		-7.2	
2708		1.3	1.3		-1.6					1.4		-3.7		-7.4	
2709		1.1	1.4		-1.6					2.0		-3.5		-7.6	
2710		0.8	1.4		-1.6					2.5		-3.4		-7.7	
2711		0.5	1.4		-1.6					2.8		-3.2		-7.6	
2712		0.2	1.4		-1.6					3.6		-2.9		-7.7	
2713		-1.2	1.4		-1.6					5.9		-1.9		-7.7	
2714			1.4		-1.6									-7.6	
2715			1.4		-1.6									-7.4	
2716			1.3		-1.5									-7.0	
2717			1.1		-1.5									-6.7	
2718			0.8		-1.6									-6.4	
2719			0.6		-1.7									-6.4	
2720			0.5		-1.8									-6.2	
2721														-6.1	
2722														-5.2	
2723														-4.4	
2724														-4.2	
Hereford															
Inlet															

	High-Water Shoreline Position (UTM Zone 18, NAD 1983)											
		1839/42		1864/86		1899		1932		1950/51		1977
Transect #	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)	UTM-x (m)	UTM-y (m)
2662	4321808	520455.6	4321692	520650.1	4321688	520655.7	4321713	520614.9	4321706	520625.9	4321706	520626.1
2663	4321767	520425.4	4321645	520630.8	4321645	520630.6	4321670	520589.2	4321664	520599.2	4321666	520596.0
2664	4321726	520396.9	4321598	520611.4	4321602	520605.7	4321625	520566.4	4321621	520572.5	4321624	520568.8
2665	4321685	520368.8	4321551	520592.4	4321556	520585.0	4321581	520543.4	4321575	520552.4	4321582	520540.2
2666	4321644	520338.7	4321505	520572.5	4321511	520563.1	4321540	520514.1	4321533	520524.8	4321540	520514.5
2667	4321602	520312.8	4321459	520551.3	4321468	520537.4	4321497	520488.6	4321493	520495.0	4321495	520491.8
2668	4321560	520284.8	4321414	520530.0	4321423	520514.5	4321454	520463.2	4321457	520457.8	4321448	520473.3
2669	4321517	520259.2	4321367	520510.6	4321381	520488.1	4321413	520434.6	4321415	520430.7	4321407	520443.3
2670	4321472	520236.8	4321319	520493.8	4321340	520459.3	4321373	520403.9	4321380	520391.9	4321366	520414.7
2671	4321428	520213.3	4321272	520475.1	4321296	520435.2	4321334	520371.9	4321341	520359.1	4321324	520387.3
2672	4321385	520188.3	4321226	520454.2	4321252	520410.3	4321294	520341.4	4321306	520321.1	4321279	520365.0
2673	4321339	520167.5	4321178	520436.7	4321210	520383.6	4321253	520310.9	4321266	520289.9	4321245	520324.4
2674	4321295	520144.3	4321132	520417.3	4321167	520358.1	4321214	520279.8	4321231	520251.7	4321208	520290.0
2675	4321251	520120.5	4321084	520399.3	4321123	520334.2	4321173	520251.1	4321190	520222.4	4321168	520258.2
2676	4321207	520095.3	4321037	520381.7	4321078	520311.7	4321132	520221.9	4321151	520190.7	4321128	520228.3
2677	4321164	520070.2	4320988	520365.7	4321038	520282.3	4321090	520193.8	4321111	520160.1	4321089	520196.5
2678	4321122	520043.8	4320938	520351.8	4320994	520258.7	4321048	520167.4	4321070	520131.2	4321048	520168.1
2679	4321078	520019.1	4320889	520336.7	4320949	520235.6	4321005	520141.1	4321018	520119.6	4321006	520140.7
2680	4321034	519994.9	4320840	520321.1	4320906	520210.0	4320965	520111.7	4320978	520088.9	4320965	520111.6
2681	4320991	519969.4	4320791	520305.9	4320860	520189.5	4320923	520084.8	4320940	520056.2	4320923	520083.9
2682	4320947	519946.1	4320741	520291.0	4320816	520165.4	4320880	520058.8	4320899	520026.8	4320881	520057.7
2683	4320901	519925.6	4320692	520276.5	4320771	520144.0	4320836	520034.6	4320857	519999.1	4320837	520033.7
2684	4320855	519904.6	4320643	520260.1	4320726	520120.9	4320792	520011.1	4320815	519972.3	4320794	520007.4
2685	4320809	519885.5	4320595	520243.8	4320686	520090.7	4320746	519989.8	4320773	519944.5	4320750	519984.2
2686	4320760	519869.4	4320546	520228.6	4320643	520064.9	4320700	519970.4	4320732	519915.8	4320701	519967.8
2687	4320712	519853.0	4320496	520213.9	4320597	520044.7	4320653	519950.8	4320690	519889.5	4320657	519944.8
2688	4320662	519838.0	4320447	520198.3	4320556	520016.9	4320608	519929.6	4320650	519858.6	4320616	519916.2
2689	4320614	519820.7	4320397	520185.5	4320511	519994.4	4320563	519906.2	4320610	519827.5	4320574	519888.2
2690	4320565	519805.1	4320348	520169.8	4320464	519975.7	4320518	519884.3	4320568	519800.2	4320532	519862.0
2691	4320515	519791.4	4320299	520154.1	4320420	519950.7	4320473	519863.0	4320527	519771.7	4320488	519836.7
2692	4320466	519777.5	4320248	520141.6	4320376	519927.3	4320426	519843.1	4320487	519740.8	4320445	519811.8
2693	4320415	519764.4	4320198	520128.4	4320330	519906.6	4320378	519826.5	4320446	519712.3	4320401	519787.9
2694	4320366	519748.9	4320149	520112.4	4320286	519884.0	4320329	519811.1	4320405	519684.1	4320355	519767.8
2695	4320319	519730.1	4320100	520097.7	4320241	519860.7	4320281	519793.6	4320373	519639.7	4320314	519738.4
2696	4320271	519712.4	4320049	520085.4	4320195	519840.2	4320232	519777.9	4320333	519608.7	4320326	519620.9
2697	4320224	519695.2	4319999	520071.5	4320150	519819.0	4320187	519756.9	4320296	519573.5	4320290	519583.7
2698	4320180	519671.1	4319949	520057.3	4320106	519795.1	4320139	519738.8	4320266	519526.1	4320249	519555.1
2699	4320136	519646.1	4319898	520046.1	4320061	519772.1	4320094	519717.3	4320238	519475.5	4320208	519525.5
2700	4320090	519626.3			4320018	519747.4	4320046	519699.2	4320218	519411.9	4320169	519493.8
2701	4320046	519603.0			4319974	519723.7	4319999	519680.5	4320218	519313.3	4320131	519460.7
2702	4320004	519575.4			4319933	519694.3	4319954	519658.8	Hereford Inlet		4320093	519425.5
2703	4319962	519548.1			4319894	519662.6	4319911	519633.7			4320055	519391.5
2704	4319919	519522.1			4319858	519624.3	4319866	519611.7			4320017	519357.9
2705	4319877	519495.6			4319820	519591.6	4319821	519588.4			4319978	519325.2
2706	4319835	519468.4			4319783	519555.2	4319778	519563.8			4319939	519293.3
2707	4319792	519442.2			4319747	519517.3	4319734	519540.5			4319899	519262.5
2708	4319751	519413.4			4319713	519477.9	4319690	519516.7			4319860	519231.1
2709	4319711	519383.7			4319679	519436.1	4319646	519491.6			4319820	519199.9
2710	4319670	519353.5			4319648	519392.0	4319605	519462.8			4319782	519166.3
2711	4319631	519322.1			4319615	519348.5	4319568	519428.0			4319743	519134.3
2712	4319592	519289.9			4319587	519298.8	4319527	519399.6			4319703	519103.7
2713	4319551	519260.3			4319587	519200.0	4319487	519368.2			4319664	519071.9
2714	4319513	519226.8					4319448	519336.7			4319623	519042.2
2715	4319473	519196.7					4319410	519302.9			4319580	519017.0
2716	4319433	519165.2					4319375	519262.6			4319537	518991.8
2717	4319392	519136.7					4319343	519219.7			4319498	518959.4
2718	4319352	519106.8					4319316	519166.9			4319464	518919.5
2719	4319314	519073.2					4319286	519119.6			4319434	518871.1
2720	4319280	519032.5					4319258	519069.1			4319401	518829.1
2721							4319232	519015.4			4319371	518781.4
2722							4319220	518937.8			4319339	518737.3
2723							4319205	518865.7			4319307	518694.2
2724							4319190	518793.1			4319286	518632.5

APPENDIX B. WAVE TRANSFORMATION NUMERICAL MODELING

B1. WAVE MODEL THEORETICAL BACKGROUND

REF/DIF S simulates the behavior of a random sea surface by distributing wave energy among a range of directions (directional spectrum) and frequencies (frequency spectrum). The two-dimensional wave spectrum is discretized into separate wave components, which make up an essential part of the input for REF/DIF S. Therefore, at any point (*x, y*) in the model domain, water surface elevation is represented as:

$$h(x,y,t) = \sum_{f} \sum_{q} \left\{ \frac{A(x,y,f,q)}{2} e^{iy} \right\} \tag{B1.1}$$

where *A(x, y, f, 2)* is the complex amplitude, *f* is the component's frequency, *2* is the direction of any individual wave component, and:

$$y = \int \vec{k} \cdot d\vec{x} - wt \tag{B1.2}$$

is the phase of the wave component, *k* is the wave number, and *t* is the radian frequency. The wave number vector, *k*, can be defined in terms of its components in the *x* and *y* directions and related to the direction of any individual wave component, 2_n, by:

$$k_x = k_n \cos q_n \tag{B1.3}$$

$$k_y = k_n \sin q_n \tag{B1.4}$$

Figure B1-1 shows the coordinate convention used in the present wave modeling study and the angle made by each wave component relative to the x-axis.

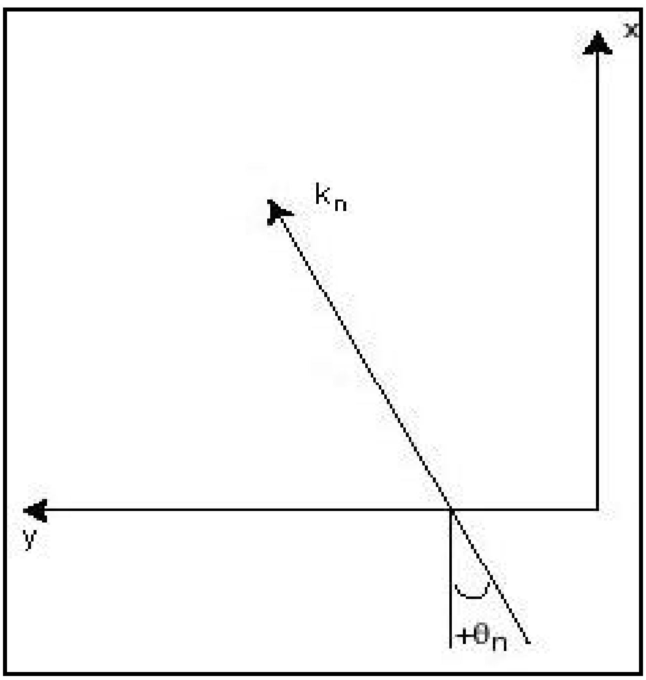

Figure B1-1. Coordinate and angle convention used for the wave modeling in the present study.

Input wave spectra are comprised of discrete, bin-centered values of wave frequency and direction specified at the offshore boundary. A description of the development of specific input conditions for the New Jersey wave modeling grids is presented in Section 4.2 (Volume I). Computations in the model domain are performed simultaneously for all wave components, *n*. After each shoreward step in the model grid, the complex amplitudes, $A(x, y)_n$, are known for all wave components contained within the selected spectra. REF/DIF S calculates the significant wave height ($H_{1/3}$), based on all the components, as:

$$H_{1/3}(x,y) = \sqrt{8\sum_{n=1}^{N}\left|A(x,y)_n\right|^2} \tag{B1.5}$$

where *N* is the total number of wave components and $A(x, y)_n$ is the complex amplitude of the wave component, *n*. Historically, significant wave height, which is the average of the one-third highest waves, has been referenced for characterizing the sea state, and it is used throughout REF/DIF S for additional computations (e.g., wave breaking).

As waves propagate over irregular bathymetry, complex interactions between individual waves and other natural physical phenomena create modifications to the wave field that result in a complicated three-dimensional problem. REF/DIF S is a parabolic model that solves this complex problem based on the mild slope equation developed by Berkhoff (1972).

The vertically integrated mild slope equation can be written in terms of the horizontal gradient operator as:

$$\nabla_h \cdot (CC_g \nabla_h h) + k^2 CC_g h = 0 \tag{B1.6}$$

where:

$$C = \sqrt{(g/k)\tanh kh} \quad \text{(Wave Celerity)} \tag{B1.7}$$

$$C_g = C(1 + 2kh/\sinh 2kh)/2 \quad \text{(Group Velocity)} \tag{B1.8}$$

and g = acceleration of gravity and h = local water depth.

Although the mild slope equation is an approximation, it is accurate in both deep and shallow water and is sufficient even for steeper local bottom slopes (Booij, 1983). REF/DIF S is based on the linear form of the mild slope equation and includes the effects of shoaling, non-linear refraction and diffraction (Kirby, 1983; Kirby and Dalrymple, 1983a), wave breaking, energy dissipation, and wave-current interaction (Kirby, 1984; Kirby and Dalrymple, 1983b). Equation B1.9 presents the complete form of the revised mild slope equation.

$$\frac{\partial A_n}{\partial x} = \frac{i}{2k_n}\frac{\partial^2 A_n}{\partial y^2} - \frac{w_n}{2C_{gn}}A_n - aA_n \tag{B1.9}$$

where w_n is the dissipation factor.

Through a combination of the various wave directions and frequencies, REF/DIF S is able to simulate the behavior of a random sea. In addition, detailed analysis and selection of an appropriate input spectrum allows the model to be applied to assess the impact of different seasonal conditions, varying wave approach pathways, and storms.

Refraction and Diffraction

Wave refraction and diffraction have a significant impact on wave transformations along the coast. Wave refraction (Figure B1-2) tends to align wave crests parallel to offshore depth contours and eventually the shoreline. Wave energy may be distributed unevenly along the coast; therefore, wave refraction results indicate potential variations in sediment transport pathways. Wave diffraction (Figure B1-2) tends to spread wave energy as a wave passes a structure or a shoal. This effect is most evident behind shore parallel breakwaters. As waves propagate past a breakwater, they bend towards the shadow zone behind the structure. Wave energy is then transferred along wave crests towards regions of smaller wave height. As with wave refraction, diffraction also will result in an uneven distribution of wave energy along the coast.

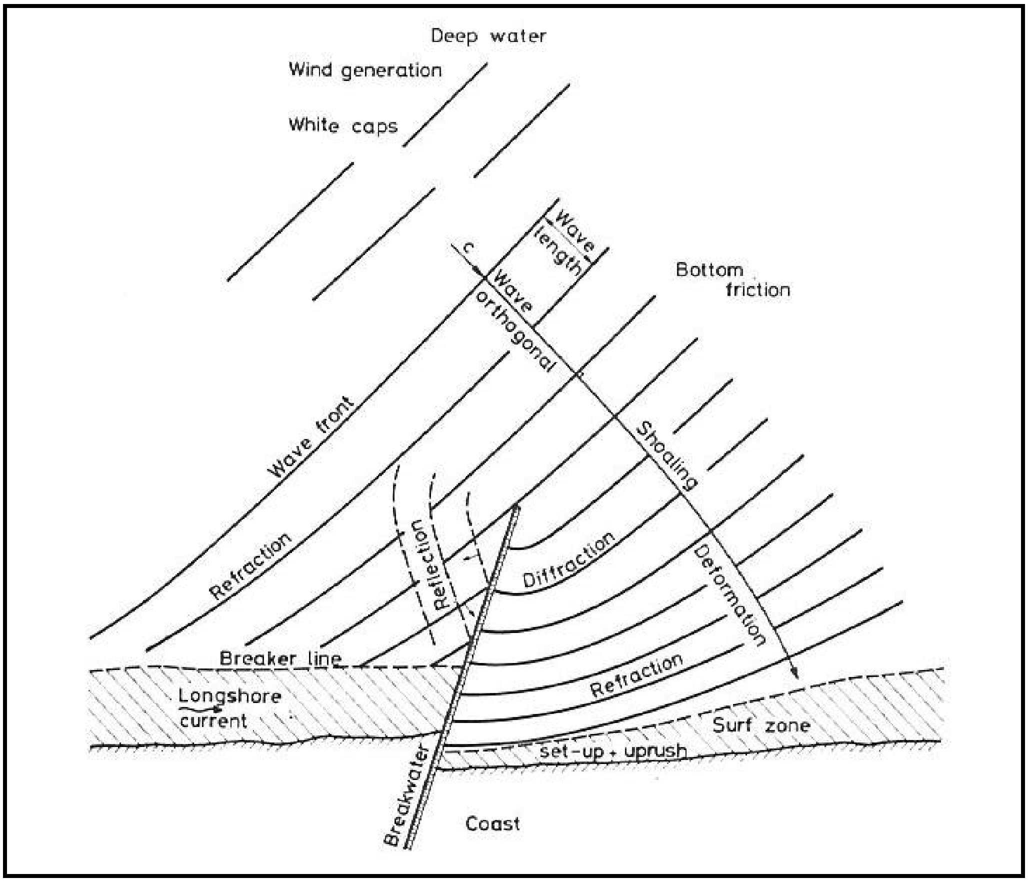

Figure B1-2. Diagram indicating the effects of refraction and diffraction as waves approach the coastline (from Svendsen and Jonsson, 1976).

In some cases, refraction and diffraction occur simultaneously, and it is important to be able to simulate both phenomena. REF/DIF S simulates refraction and diffraction using a parabolic approximation developed by Radder (1979) and Lozano and Liu (1980) to solve the mild-slope equation. This parabolic model was further extended by Kirby and Dalrymple (1983a) to be weakly non-linear. Comparisons with laboratory data (Kirby and Dalrymple, 1984) show the importance of non-linear dispersion terms in the governing equations as the weakly non-linear model indicated better agreement with the observed laboratory data.

Energy Dissipation

In nature, sea floor characteristics vary from muddy substrates to sandy, rippled beds to rough, rocky bottoms. Therefore, assuming a rigid, impermeable horizontal seafloor is inadequate for simulation of natural wave transformations. To varying degrees, water waves are influenced by these bottom characteristics through wave damping, which reduces wave height. Wave damping is accounted for in REF/DIF S with three potential energy dissipation options assigned to the dissipation factor, ω_n, presented in Equation B1.9.

1. *Laminar Surface and Bottom Boundary Layers* - accounts for the damping associated with boundary layers caused by viscosity at the surface and bottom as:

$$w_n = \frac{s_n k_n \sqrt{(n / 2s_n)}(1 - i)}{\tanh k_n h} \qquad \text{(Surface)} \qquad \text{(B1.10)}$$

$$w_n = \frac{2s_n k_n \sqrt{(n / 2s_n)}(1 - i)}{\sinh 2k_n h} \qquad \text{(Bottom)} \qquad \text{(B1.11)}$$

where s_n is the frequency and n is the kinematic viscosity.

2. *Turbulent Bottom Boundary Layer Damping* - accounts for wave conditions that result in a turbulent bottom boundary layer, as would occur in nature. The dissipation term is:

$$w_n = \frac{2s_n k_n f |A_n|}{3p \sinh 2k_n h \sinh k_n h} \qquad \text{(B1.12)}$$

where f represents the Darcy-Weisbach friction factor.

3. *Porous Sand Damping* - accounts for wave damping due to the Darcy flow into the sand bed where the dissipation term is:

$$w_n = \frac{g k_n C_p}{\cosh^2 k_n h} \qquad \text{(B1.13)}$$

and C_p is the coefficient of permeability.

For this study, wave damping was simulated using a turbulent bottom boundary layer to most accurately represent natural conditions offshore New Jersey. The assumed Darcy-Weisbach friction factor, f, in REF/DIF S is set equal to 0.01 by the model.

Wave Breaking

As a wave proceeds into shallow water, it continues to shoal and increase in wave height. However, at some depth, a wave will become unstable (i.e., too steep for its shortening length) and break. Seafloor and wave characteristics determine how a wave will break. In REF/DIF S, the breaking model developed by Thornton and Guza (1983) is employed to dissipate energy in the form of turbulence. Energy dissipation due to wave breaking is expressed as:

$$-e_b = \frac{\partial E C_{gn}}{\partial x} \qquad \text{(B1.14)}$$

where energy, *E,* is expressed as:

$$E = \frac{1}{8} rgH_{rms}^{2} \tag{B1.15}$$

and bore dissipation, e_b, is:

$$e_b = \frac{3\sqrt{p}}{16} \frac{rgf_p B^3}{g^4 h^5} H_{rms}^{7} \tag{B1.16}$$

In Equation B1.16, f_p is the peak spectral frequency, $H_s = 1.41H_{rms}$, and B and g are constants equal to 1 and 0.6, respectively. The breaking coefficient, a, as presented in Equation B1.9, is a function of the bore dissipation and is very small when breaking does not occur. However, once breaking starts, a increases and significant wave energy is dissipated from the wave field.

$$a = \frac{4e_b}{rgH_{rms}^{2}} \tag{B1.17}$$

Radiation Stresses

After each forward computational step, REF/DIF S calculates radiation stresses for waves propagating at angle *2* and outputs the values at every grid point in the model domain. For spectral modeling, radiation stresses are computed as a summation over all of the spectral wave components. Radiation stress in the y-direction due to the excess momentum flux in the x-direction is given by:

$$S_{xy}(x,y) = \frac{1}{4} rg \sum_{n=1}^{N} \left(\frac{C_{gn}}{C_n}\right)(x,y) \left|A(x,y)_n\right|^2 \sin 2q(x,y)_n \tag{B1.18}$$

Likewise, radiation stress in the x-direction due to the momentum flux in the x-direction and radiation stress in the y-direction due to the momentum flux in the y-direction are given by:

$$S_{xx}(x,y) = \frac{1}{2} rg \sum_{n=1}^{N} \left|A(x,y)_n\right|^2 \left\{ \left(\frac{C_{gn}}{C_n}\right)(x,y)(1+\cos^2 q(x,y)_n) - \frac{1}{2} \right\} \tag{B1.19}$$

$$S_{yy}(x,y) = \frac{1}{2} rg \sum_{n=1}^{N} \left|A(x,y)_n\right|^2 \left\{ \left(\frac{C_{gn}}{C_n}\right)(x,y)(1+\sin^2 q(x,y)_n) - \frac{1}{2} \right\} \tag{B1.20}$$

respectively. Radiation stress results are used as input to the nearshore circulation model and sediment transport simulations.

Subgrids

Another feature of REF/DIF S is its capability to use a coarse-scale (typically hundreds of meters) reference grid and a fine-scale subgrid, which can have many times the resolution of the reference grid. The subgridding option can be implemented to resolve important topographic features (e.g., artificial islands, shoals, borrow pits, etc.) or increase resolution for coupling with additional models (e.g., nearshore circulation). Figure B1-3 illustrates a case where a subgrid was utilized to increase resolution at a sand borrow site. The selection and development of reference grids and subgrids for the present study can be found in Section 4.3.

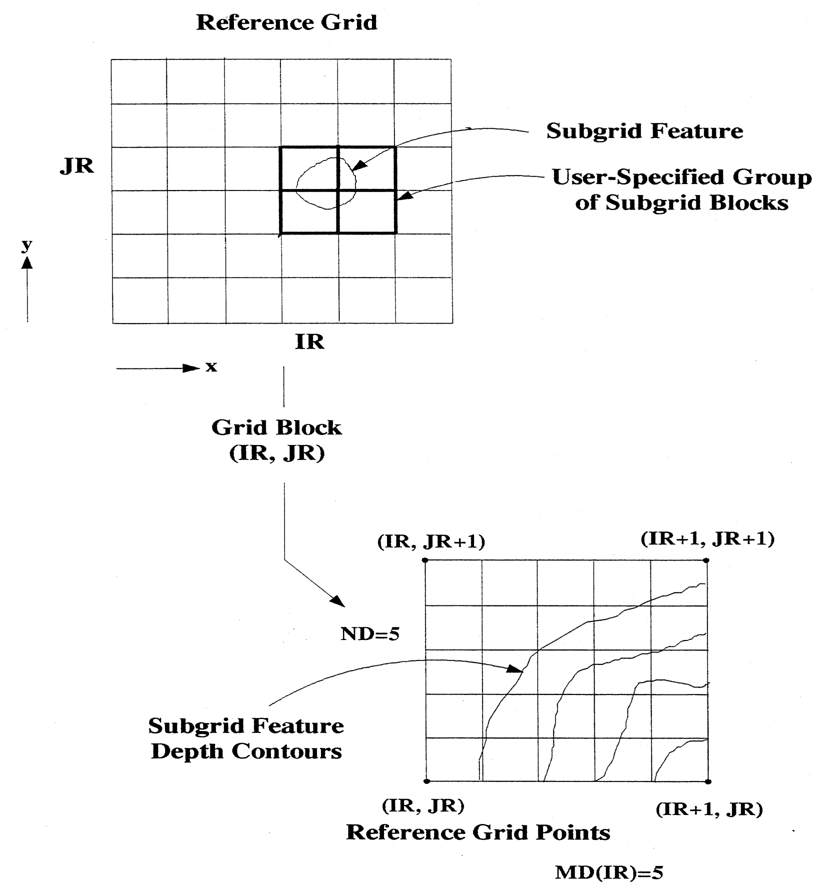

Figure B1-3. Example of subgrid development over a borrow pit feature (Kirby and Özkan, 1994).

Wave Model Limitations and Modifications

The version of REF/DIF S used in this study was modified from REF/DIF S version 1.2 and obtained from Dr. James Kaihatu of the Naval Research Laboratory, Oceanographic Division at the Stennis Space Center, Mississippi. Dr. Kaihatu discovered limitations in the calculation method of the wave group velocity in REF/DIF S, which constrained the selection of y-subdivisions to the value of one. He also updated the finite difference scheme used for calculating peak wave approach angle, as well as disabled the internal, numerical filtering mechanism to reduce energy loss from the wave field. The removal of numerical filtering eliminated alongshore smoothing.

Additional modifications were made to REF/DIF S for the present study. The limitation discovered in the calculation of wave group velocity was corrected, allowing an uninhibited selection of y-subdivisions. The number of y-subdivisions can become critical depending on reference model grid spacing and bathymetric changes in the model domain. The ability to increase the number of alongshore subdivisions improved model resolution in the alongshore direction and allowed more accurate calculation of wave field characteristics. REF/DIF S also was upgraded to run in either monochromatic or spectral modes, to allow for larger reference grids and subgrids, and to provide user-controlled output of major parameters (i.e., wave height, radiation stresses, etc.) within subgrid regions.

User interface options were also provided to control the internal filtering used in REF/DIF S. Under large approach directions (approximately greater than 35 degrees shore-relative), wave energy leakage begins to occur due the internal filtering routine. Since REF/DIF S propagates waves, and subsequently filters, on a row-by-row basis directed onshore, spectra with obtuse approach directions will experience energy loss through the filtering routine. The greater the angle of approach, the greater the amount of energy lost due to the increase in angle between the filtering direction and the approach direction. Therefore, the ability to increase or decrease the amount of alongshore filtering has been added within REF/DIF S. In addition, conformal mapping to a complex plane was applied to enhance the calculation of wave angles within the model. Therefore, a greater spread of wave angles could be computed.

Although more advanced wave models are currently under development (i.e., Bousinesq modeling), the wave modeling presented here is similar to other currently accepted spectral wave modeling techniques and is superior to other commercial models typically applied for gauging potential changes in the wave field caused by offshore sand mining. However, wave prediction capabilities are still limited even when using the spectral approach. Required computation time limits the spectral representation to discrete bins in the directional and frequency domains. Simulation of a continuous spectra, rather than discrete bins, would yield a more comprehensive and accurate representation of the wave field. In addition, REF/DIF S does not define the peak angle approach well in directional, multi-component seas or when waves become short crested. Wave modeling also requires detailed input (wave fields and bathymetric information) to produce high quality results, specifically those required to drive nearshore circulation and sediment transport models. Therefore, the model results are limited by the accuracy and availability of offshore wave data.

Existing modeling techniques also may be limited for simulating long-period, high-energy wave events (or storms), and the accuracy of results for these simulations is questionable. The reduced number of spectral components used for simulating long-period, high-wave events, as well as the lack of internal alongshore energy dispersion, produce wave modeling results with substantial gradients in alongshore wave height. These gradients (or streaks) associated with long wave period events indicate the limitation of REF/DIF S for areas with highly-variable offshore bathymetric contours. For these cases, REF/DIF S tends to over-predict wave focusing, although REF/DIF S is much-improved over monochromatic wave models.

Despite some of the limitations of spectral wave modeling, it is the best overall technique currently available to simulate wave propagation. REF/DIF S is capable of accurately simulating most wave fields, and it is efficient for identifying potential modifications to the wave field caused by offshore sand mining.

B2. SPECTRA DEVELOPMENT

Numerous empirical approximations have been developed to represent frequency and directional distributions. The frequency distribution for fully developed wind waves was approximated by Bretschneider (1968), or for deep water swell the JONSWAP formulation may be applied (Hasselmann et al., 1973). More recently, the TMA spectrum (Hughes, 1984) was developed for finite depths and is utilized in the present study. The TMA spectrum is given by the energy density, *E(f)*, for frequency f as:

$$E(f) = \frac{\alpha g^2}{(2\pi)^4 f^5} \exp\left\{ -1.25\left(\frac{f_m}{f}\right)^4 + (\ln\gamma)\exp\left[\frac{-(f-f_m)^2}{2\sigma^2 f_m^2}\right]\right\}\phi(f,h) \qquad \text{(B2.1)}$$

where α = Phillips' constant
f_m = peak frequency
γ = peak enhancement factor

The shape parameter, σ, is defined as:

$$\sigma = \begin{cases} \sigma_a = 0.07 & \text{if } f < f_m \\ \sigma_b = 0.09 & \text{if } f \geq f_m \end{cases} \qquad \text{(B2.2)}$$

The factor $\phi(f, h)$ incorporates the effect of depth on the frequency distribution by:

$$\phi = \begin{cases} 0.5\left[\omega_h^2\right] & \text{if } \omega_h < 1 \\ 1 - 0.5\left(2-\omega_h\right)^2 & \text{if } 1 \leq \omega_h \leq 2 \\ 1 & \text{if } \omega_h > 2 \end{cases} ; \quad \omega_h = 2\pi f\sqrt{\frac{h}{g}} \qquad \text{(B2.3)}$$

where h = water depth.

The peak enhancement factor, γ, can be manipulated to represent the narrowness (or broadness) of the input frequency spectra, as dictated by observed data. A narrow frequency spectrum indicates the waves in the wave group have a relatively compressed frequency range, while broad spectra contain waves ranging over a greater frequency distribution (i.e., wide range of wave periods).

In a similar manner, the directional spreading distribution can be represented through various formulations. Borgman (1985) developed the following relationship, which is applied in the current study:

$$D(\theta) = \frac{1}{2\pi} + \frac{1}{\pi}\sum_{j=1}^{J}\exp\left[-\frac{(j\sigma_m)^2}{2}\right]\cos j(\theta - \theta_m) \qquad \text{(B2.4)}$$

where

θ_m = the mean wave direction
J = the number of terms in the series
σ_m = the directional spreading parameter

The directional spreading parameter, σ_m, can be selected to produce narrow or wide directional range, as dictated by observed data. A broad directional spectrum identifies waves approaching the coast from many different directions, whereas a narrow directional spectrum concentrates the wave group predominantly around the primary wave direction.

B3. DIRECTIONAL AND FREQUENCY VERIFICATION

Directional and frequency spectral plots for Grid A (WIS station 2067), Grid B2 (WIS station 2069), and Grids B1 and C (WIS station 2070) are presented in Appendix B3. Figures B3-1 through B3-16 illustrate the directional input conditions used for each grid. Because a binned approach was applied, a normal distribution within each bin was used to the peak coinciding with the peak direction. This produced very narrow directional spectra. WIS data are plotted as histogram plots, and the generated spectra are represented by solid black lines. Each figure includes direction verification and utilization, as well as frequency verification and utilization.

The generated frequency spectra is created by binning the directional spectra to reflect the associated wave climate. This is accomplished by a combination of techniques, including determining the binned wave statistics for each direction modeled at every grid and stretching or compressing the directional or frequency spread. Both of these methods allowed a custom fit of the WIS wave data. Section 4.2.2.1 and 4.2.2.2 provide a more thorough discussion of directional and frequency spectral theory.

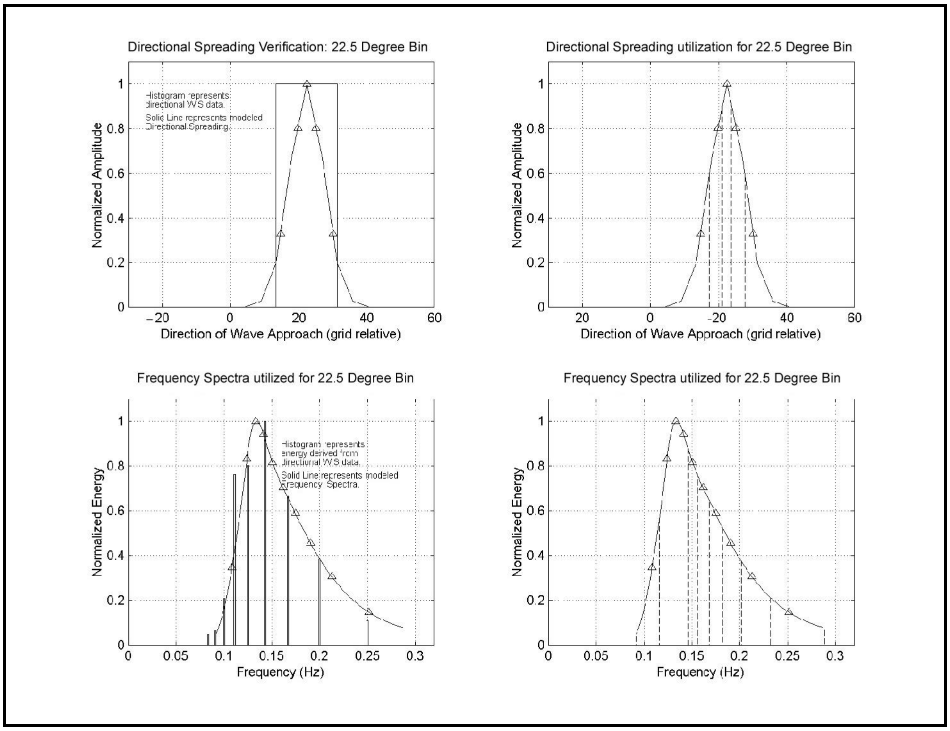

Figure B3-1. East-northeast (22.5°) spectral verification and utilization at WIS 2067.

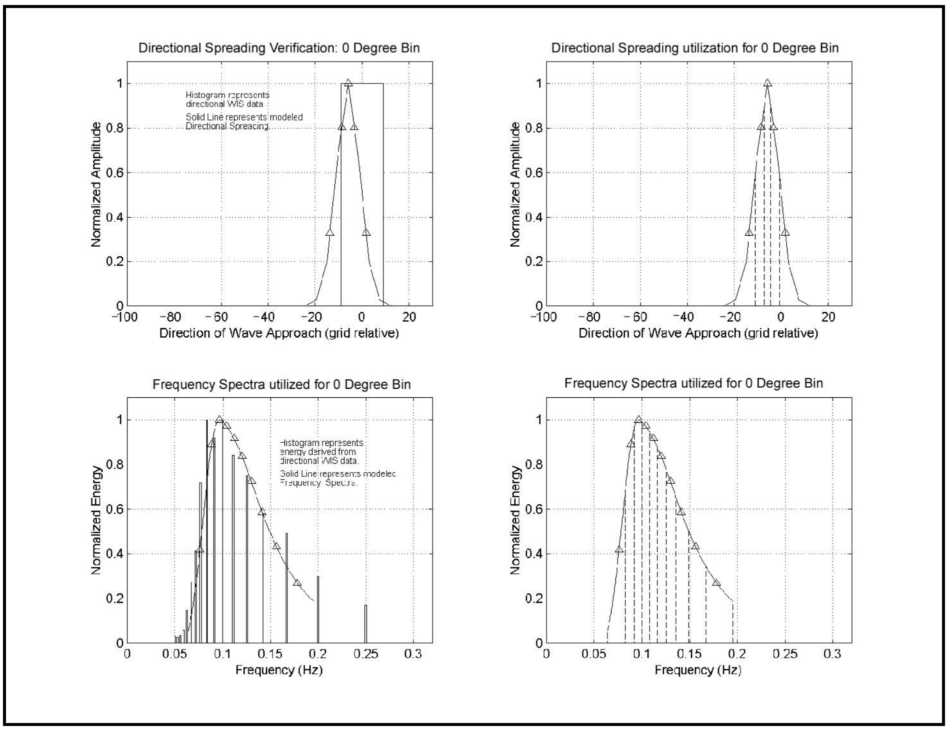

Figure B3-2. 0° spectral verification and utilization at WIS 2067.

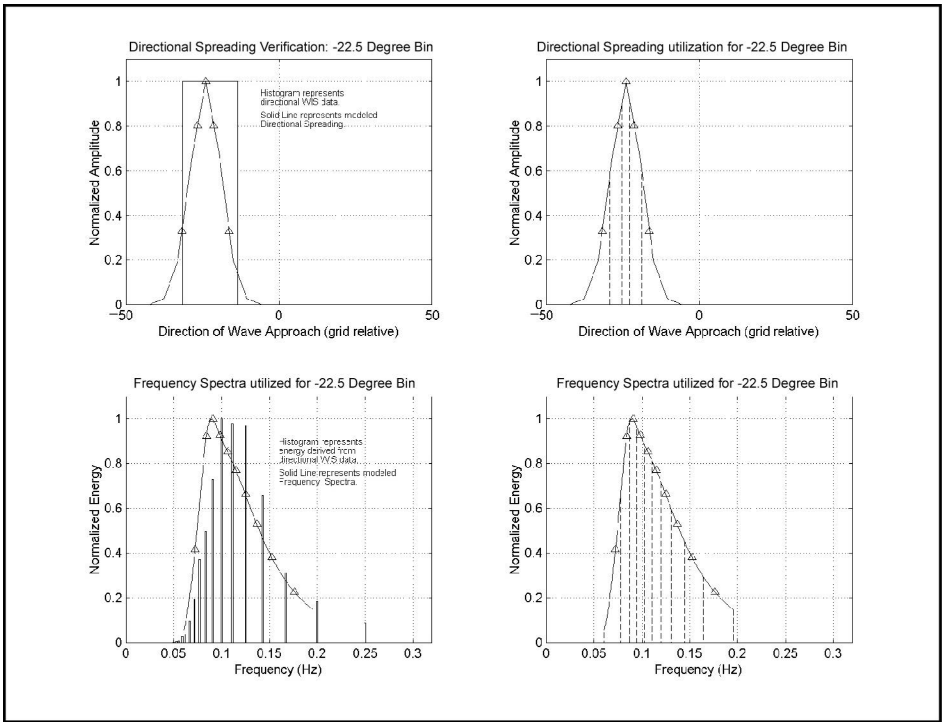

Figure B3-3. East-southeast (-22.5°) spectral verification and utilization at WIS 2067.

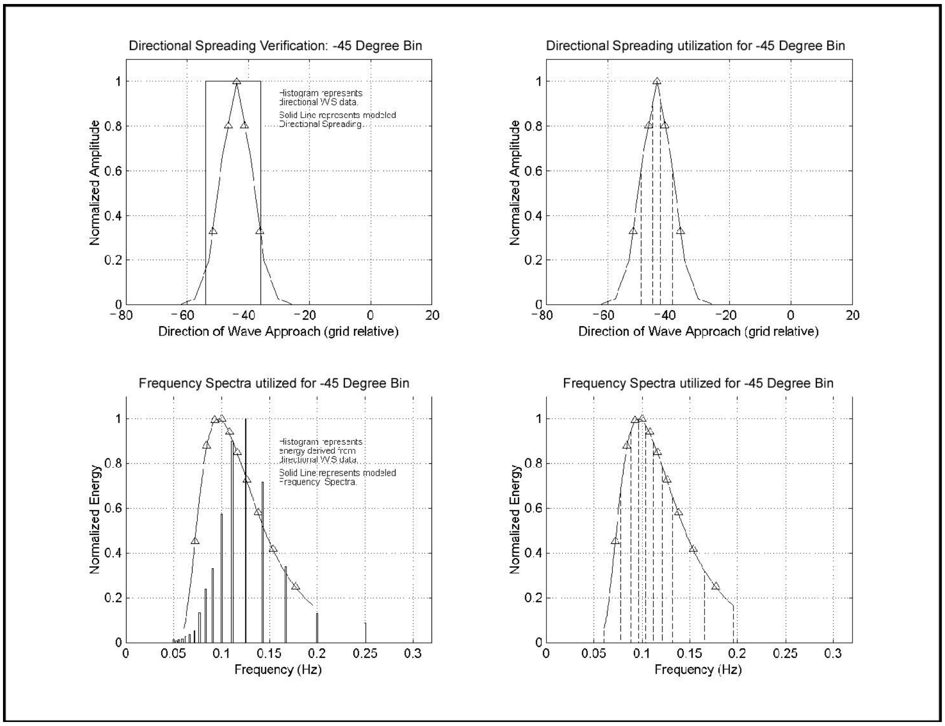

Figure B3-4. Southeast (-45°) spectral verification and utilization at WIS 2067.

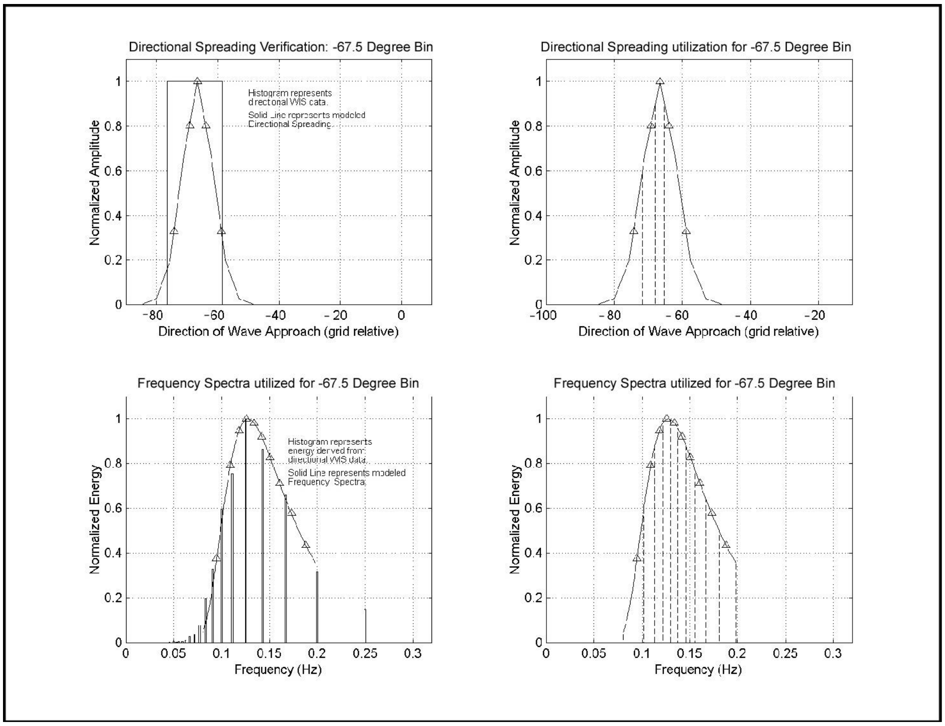

Figure B3-5. South-southeast (-67.5°) spectral verification and utilization at WIS 2067.

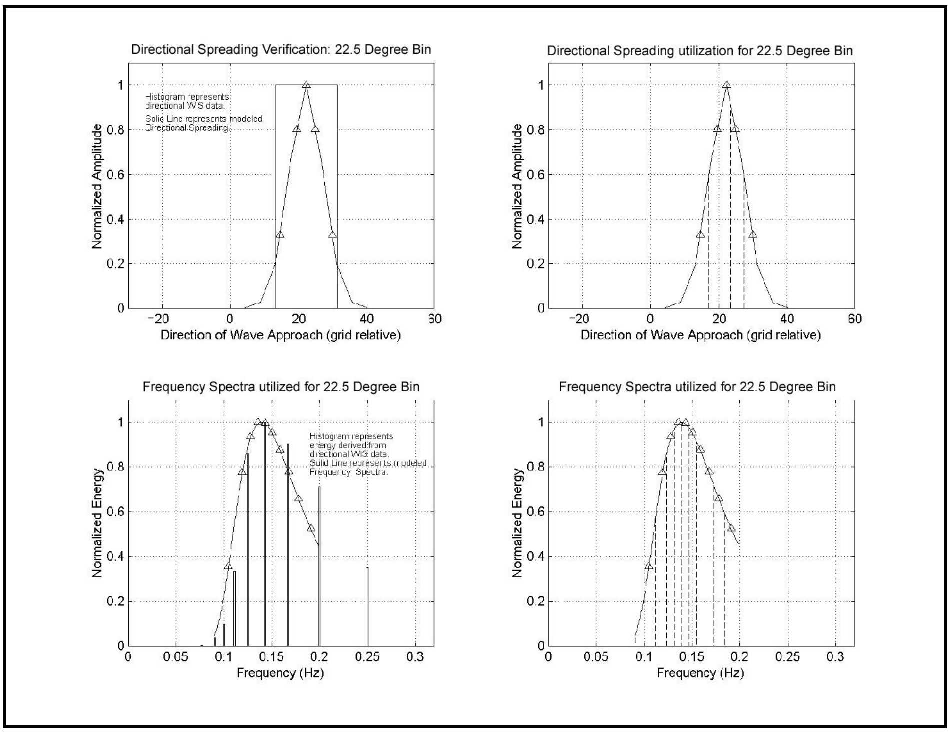

Figure B3-6. East-northeast (22.5°) spectral verification and utilization at WIS 2069.

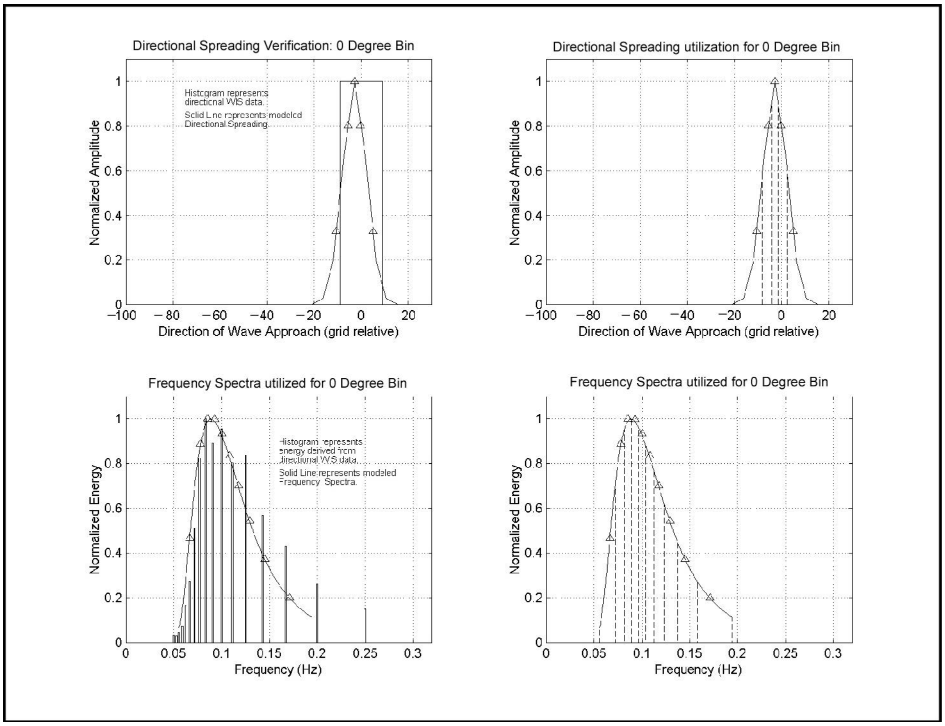

Figure B3-7. East (0°) spectral verification and utilization at WIS 2069.

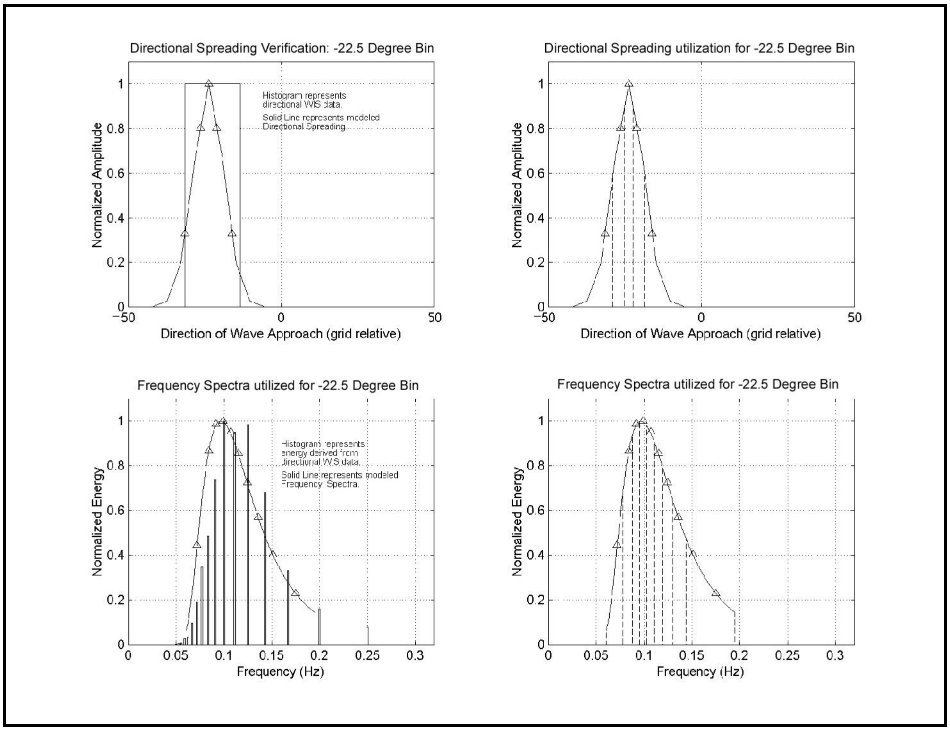

Figure B3-8. East-southeast (-22.5°) spectral verification and utilization at WIS 2069.

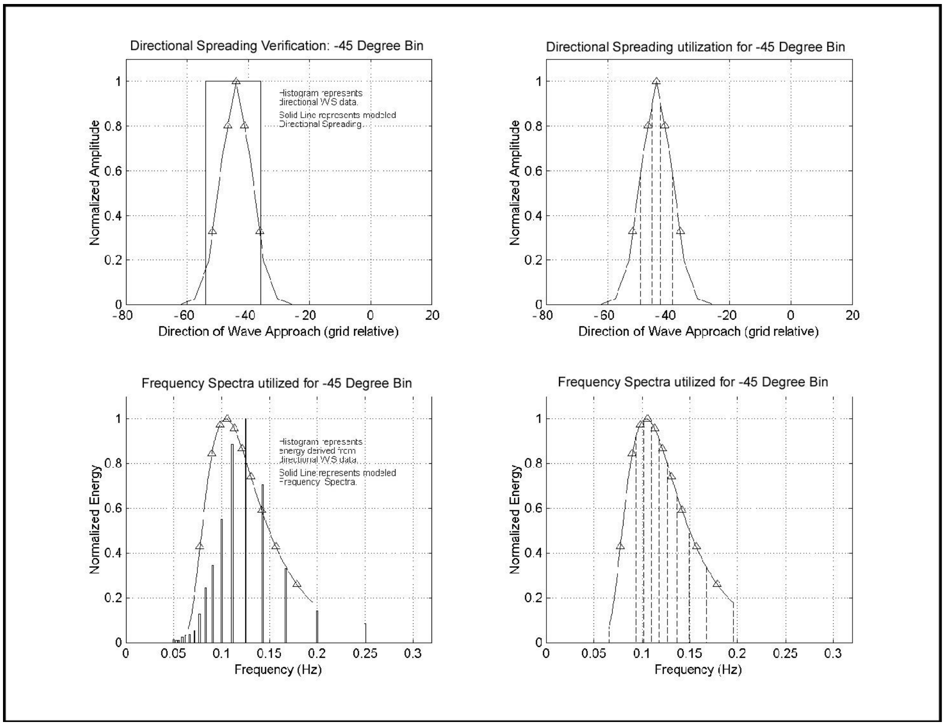

Figure B3-9. Southeast (-45°) spectral verification and utilization at WIS 2069.

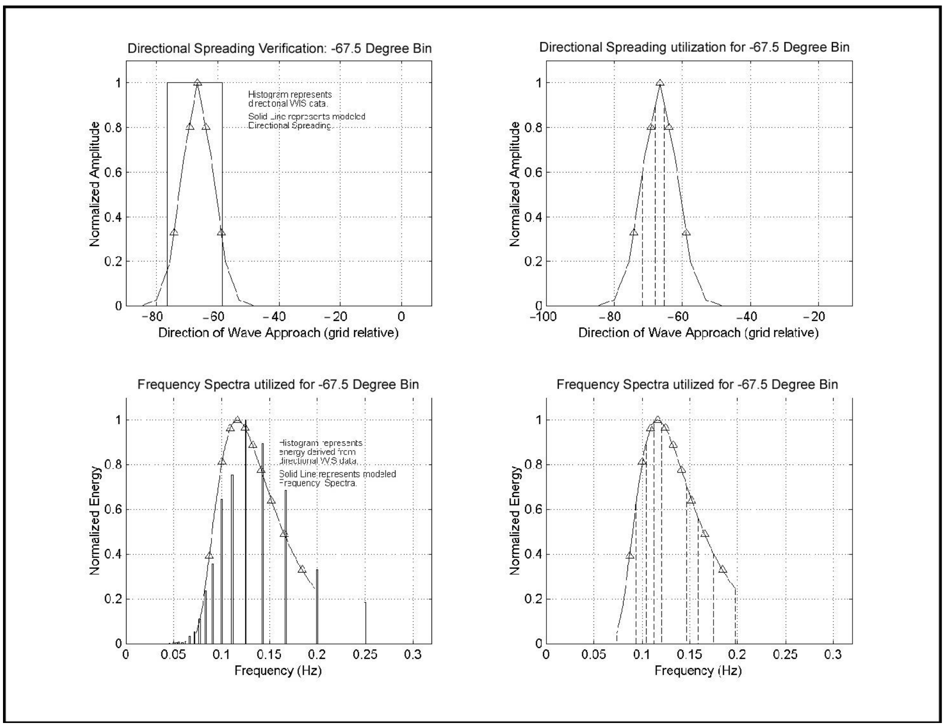

Figure B3-10. South-southeast (-67.5°) spectral verification and utilization at WIS 2069.

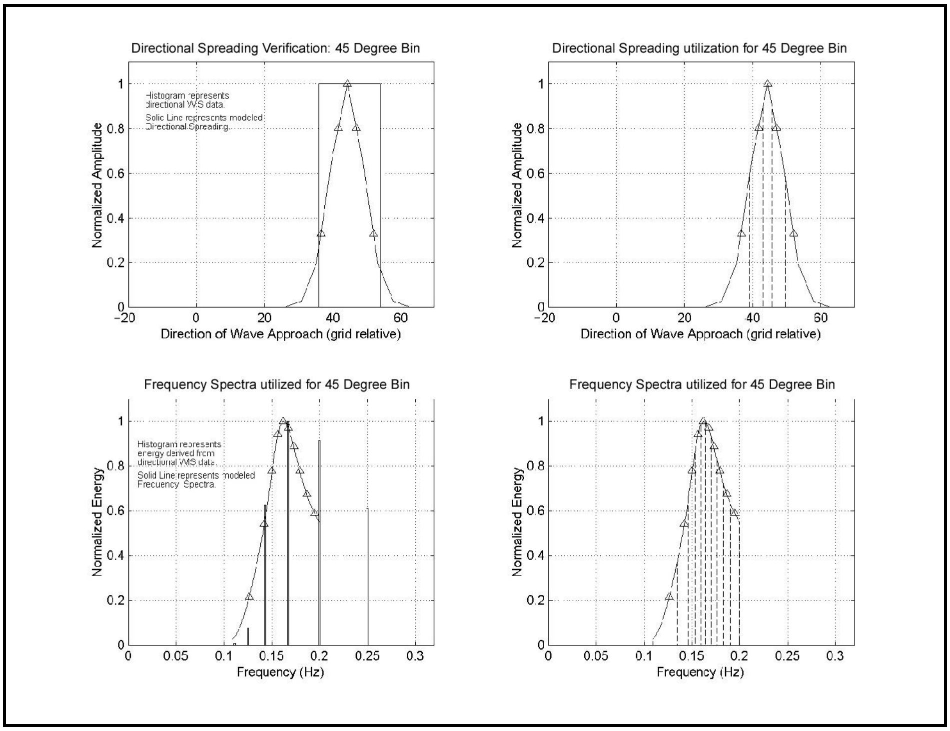

Figure B3-11. Northeast (45°) spectral verification and utilization at WIS 2070.

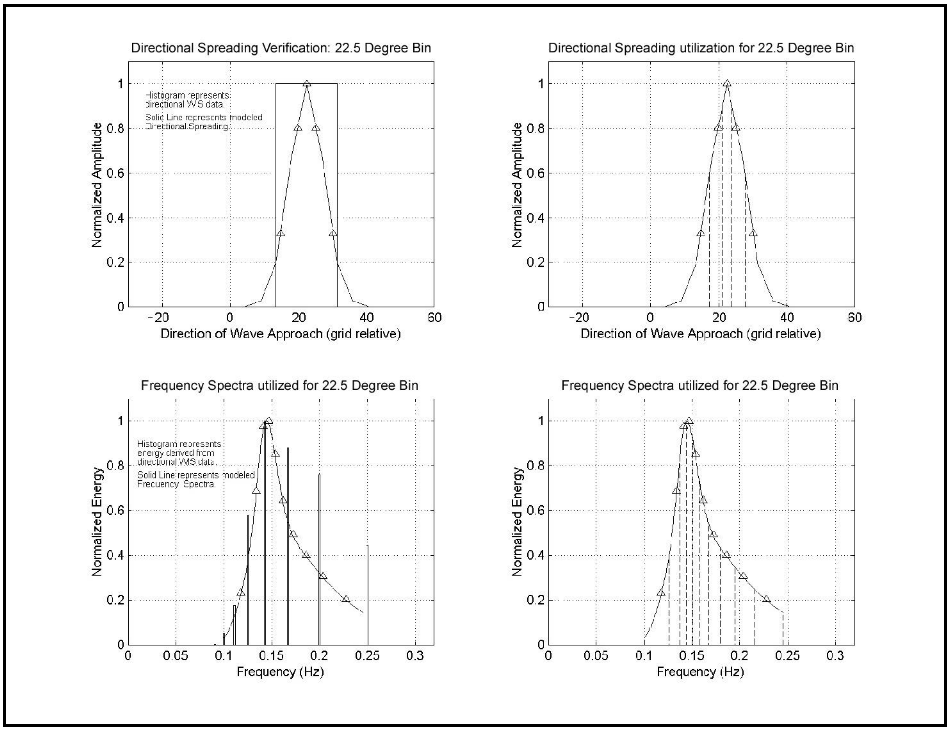

Figure B3-12. East-northeast (22.5°) spectral verification and utilization at WIS 2070.

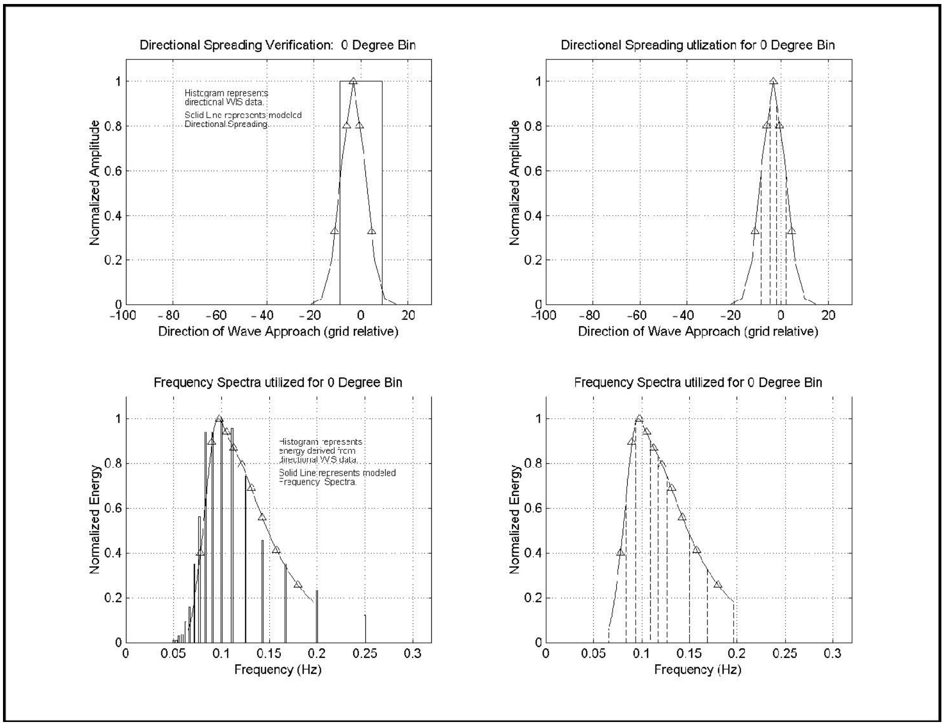

Figure B3-13. East (0°) spectral verification and utilization at WIS 2070.

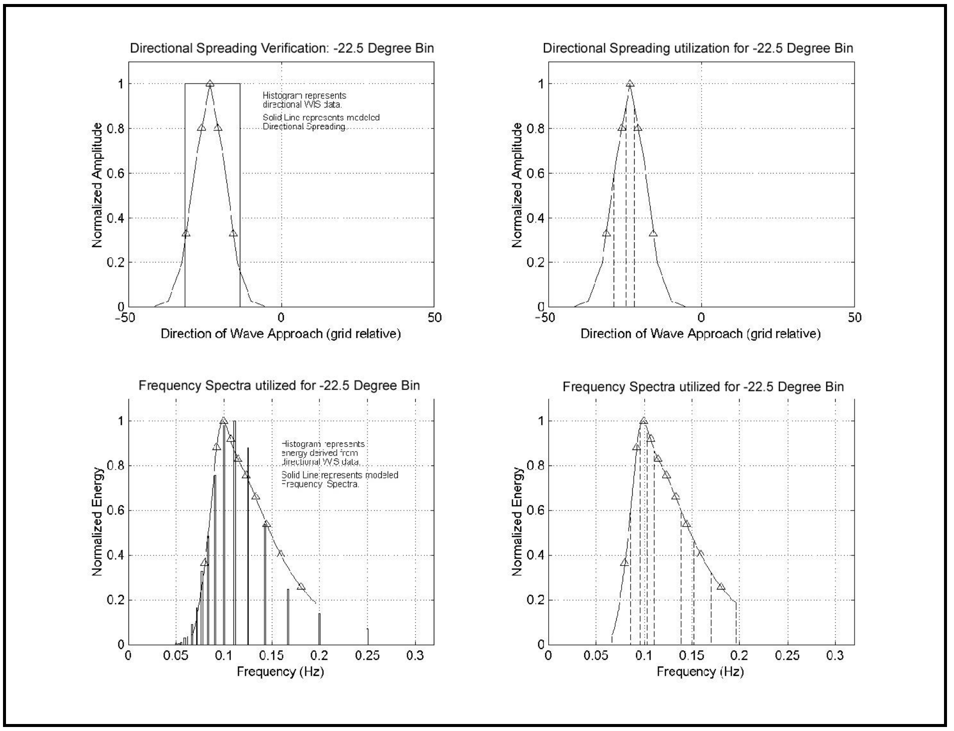

Figure B3-14. East-southeast (-22.5°) spectral verification and utilization at WIS 2070.

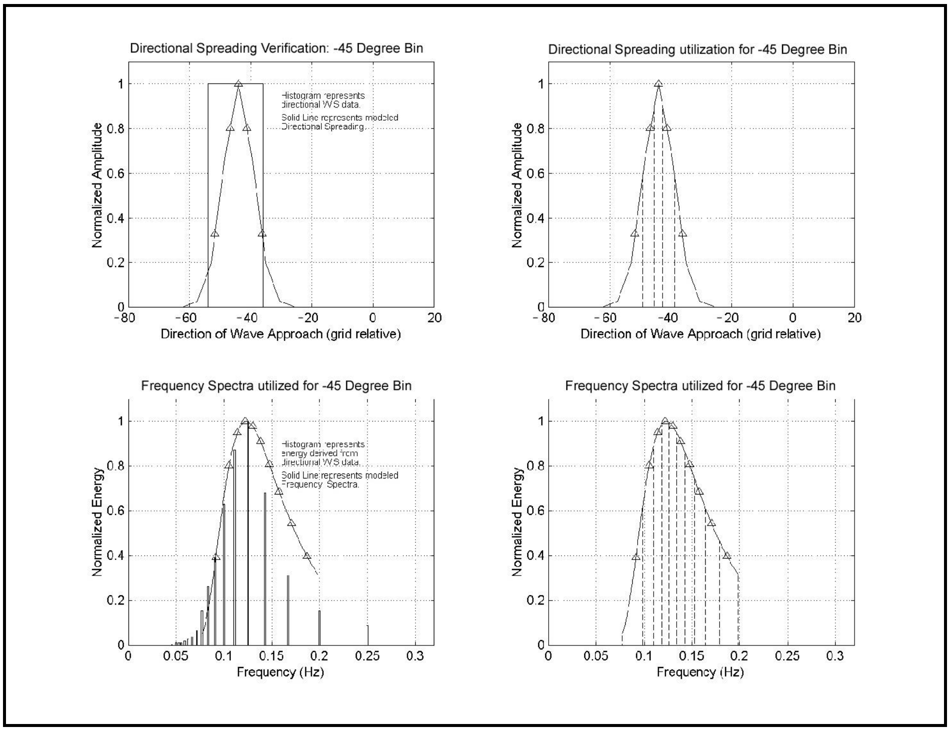

Figure B3-15. Southeast (-45°) spectral verification and utilization at WIS 2070.

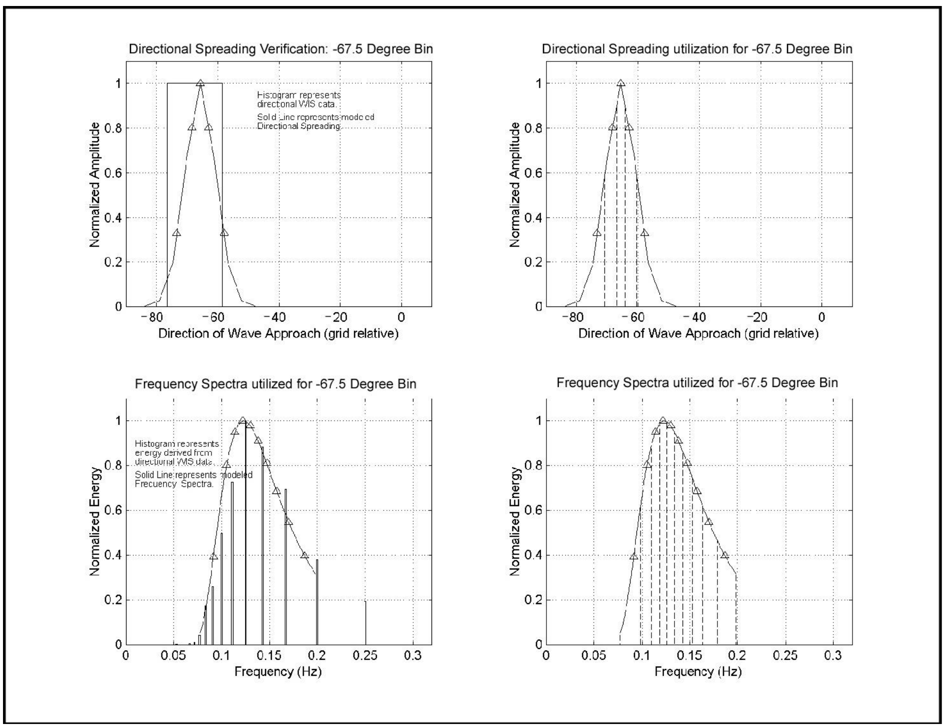

Figure B3-16. South-southeast (-67.5°) spectral verification and utilization at WIS 2070.

B4. WAVE TRANSFORMATION COMPARED WITH HISTORICAL SHORELINE CHANGE

This section presents significant wave height results extracted along a nearcoast transect compared with historical shoreline change for the same region. Results are presented for all directional simulations at Grid A, Grid B1, Grid B2, and Grid C. The left-hand panel illustrates the nearshore wave transformation results for the east approach simulation, where the image represents wave height in meters. The solid black line in the left-hand panel represents the transect from which significant wave heights were extracted. The right-hand panel presents the historical shoreline change rates for this stretch of the New Jersey coast and is represented by a black line scaled by the bottom axis (m/yr). Significant wave height is added to the plot and represented by a green line and scaled by the upper axis (m).

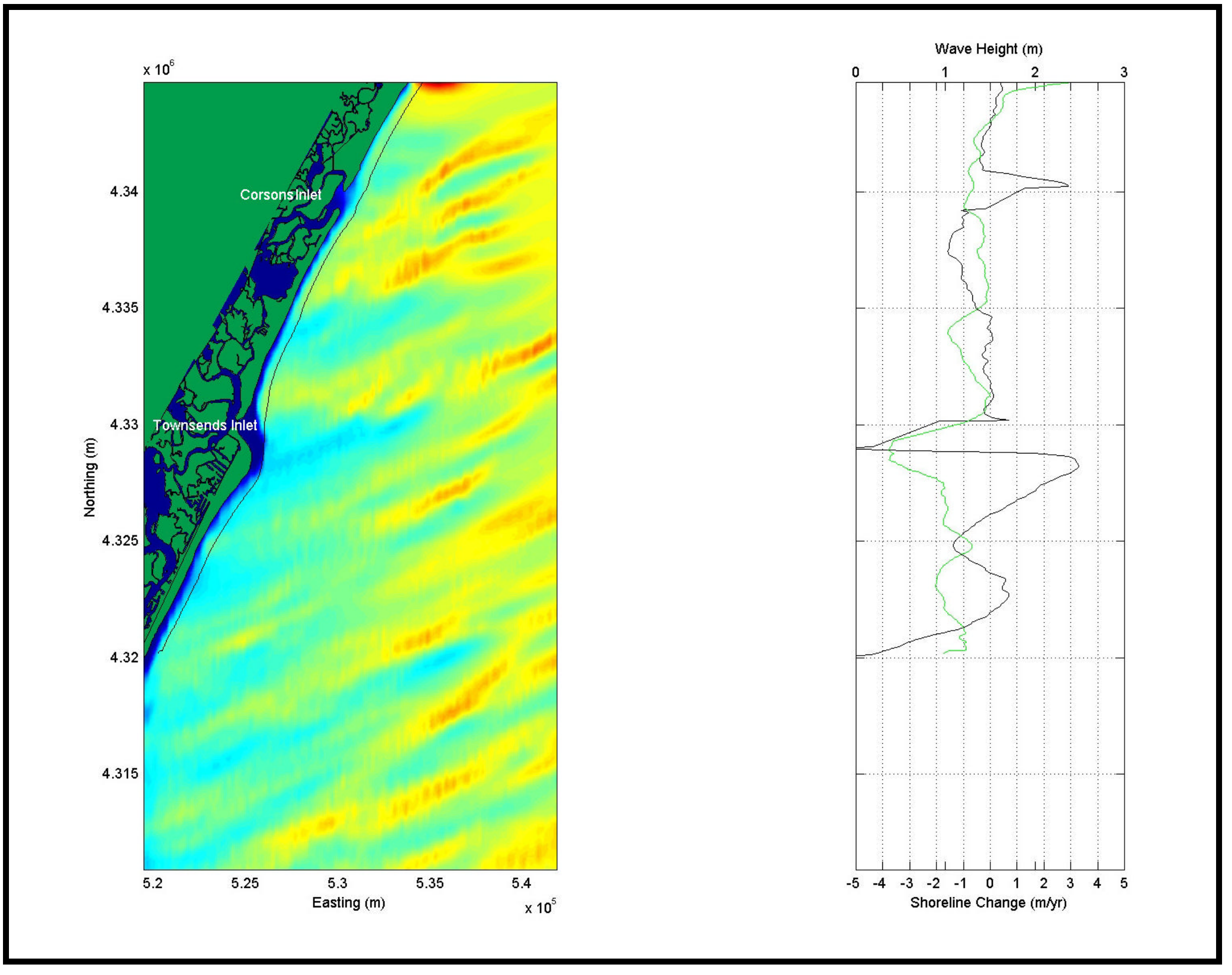

Figure B4-1. Wave height (green line on plot) taken from nearshore transect (black line on image) for the east-northeast (22.5E) approach simulation at reference Grid A compared with historical shoreline change rates (black line on plot; 1864/68 to 1997).

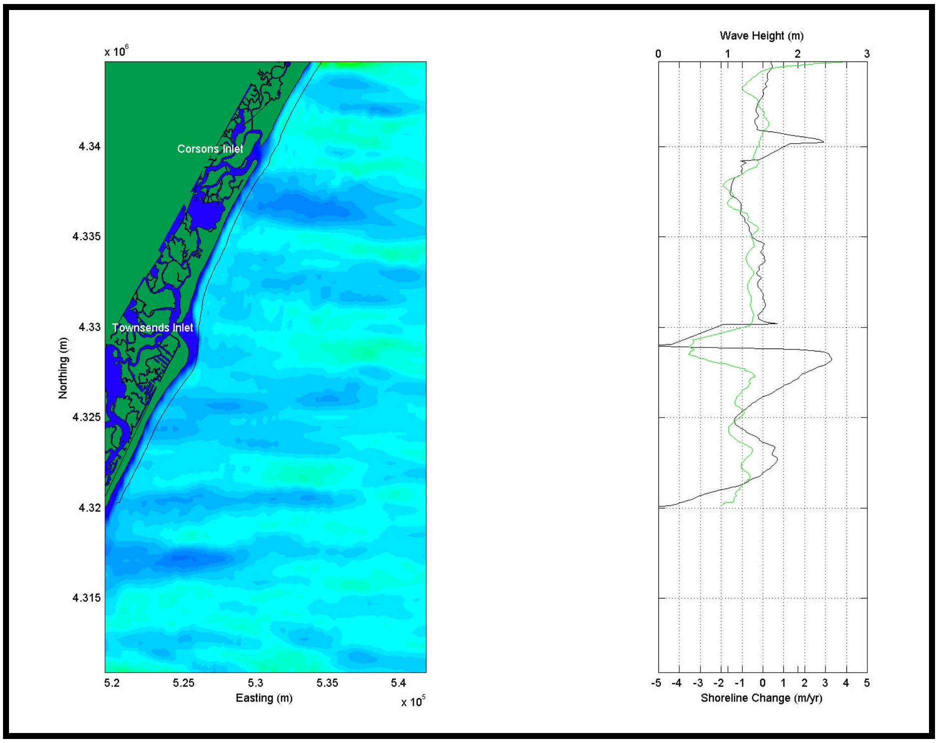

Figure B4-2. Wave height (green line on plot) taken from nearshore transect (black line on image) for the east (0E) approach simulation at reference Grid A compared with historical shoreline change rates (black line on plot; 1864/68 to 1997).

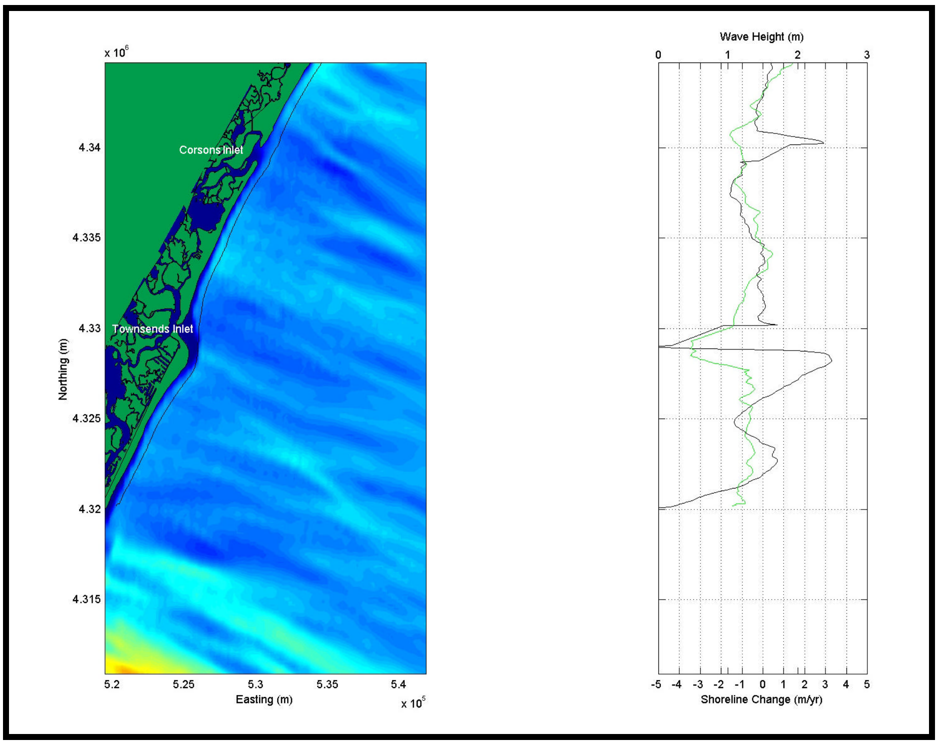

Figure B4-3. Wave height (green line on plot) taken from nearshore transect (black line on image) for the east-southeast (-22.5E) approach simulation at reference Grid A compared with historical shoreline change rates (black line on plot; 1864/68 to 1997).

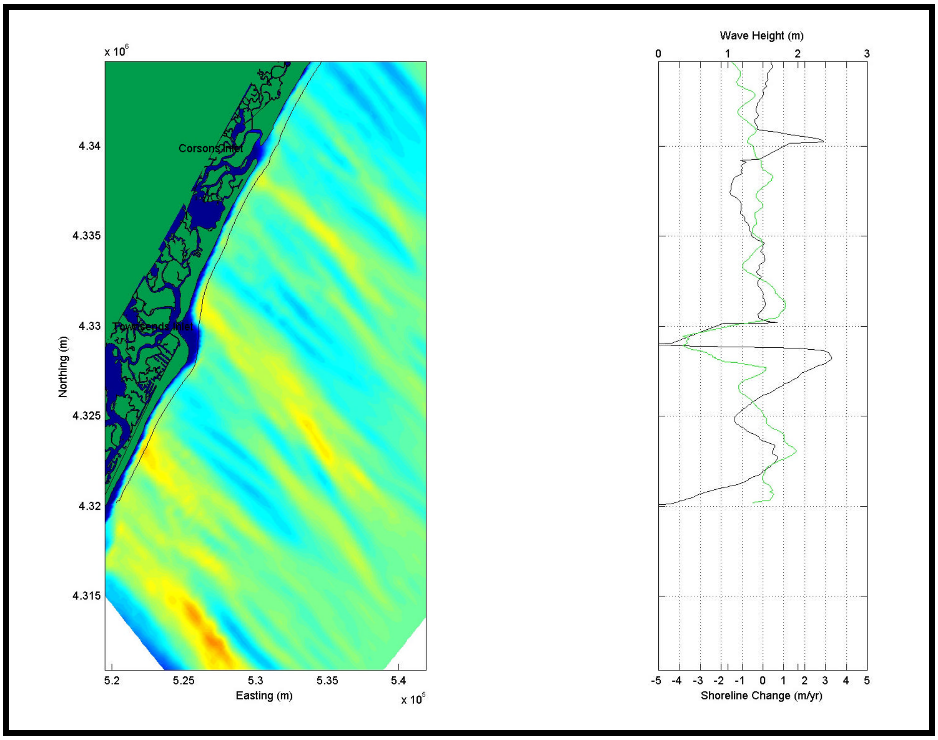

Figure B4-4. Wave height (green line on plot) taken from nearshore transect (black line on image) for the southeast (-45E) approach simulation at reference Grid A compared with historical shoreline change rates (black line on plot; 1864/68 to 1997).

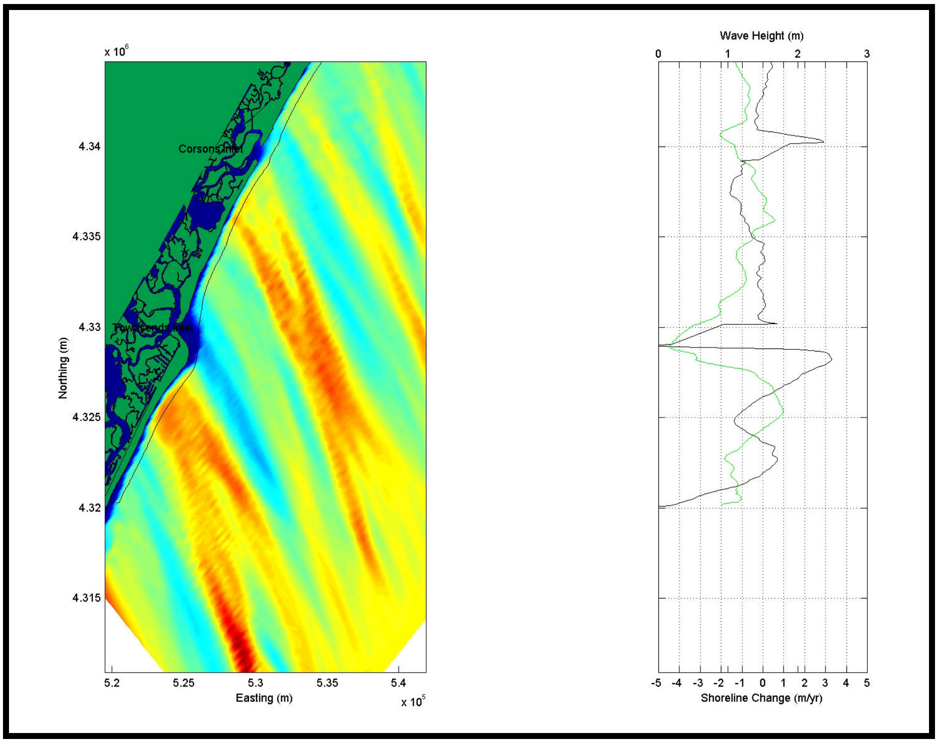

Figure B4-5. Wave height (green line on plot) taken from nearshore transect (black line on image) for the south-southeast (-67.5E) approach simulation at reference Grid A compared with historical shoreline change rates (black line on plot; 1864/68 to 1997).

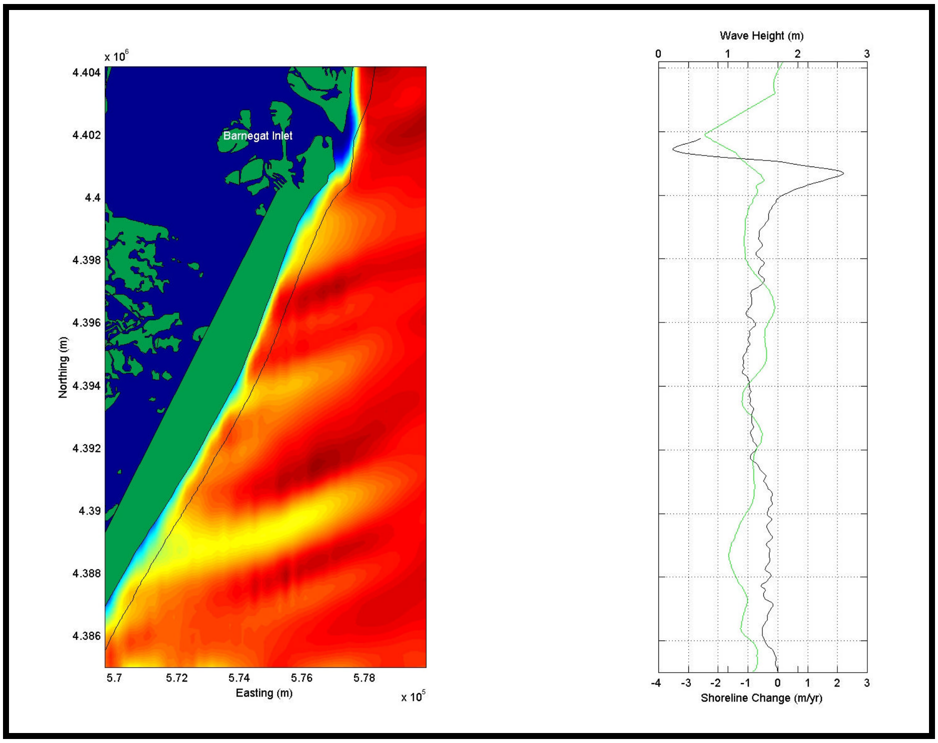

Figure B4-6. Wave height (green line on plot) taken from nearshore transect (black line on image) for the east-northeast (22.5E) approach simulation at reference Grid B1 compared with historical shoreline change rates (black line on plot; 1864/68 to 1997).

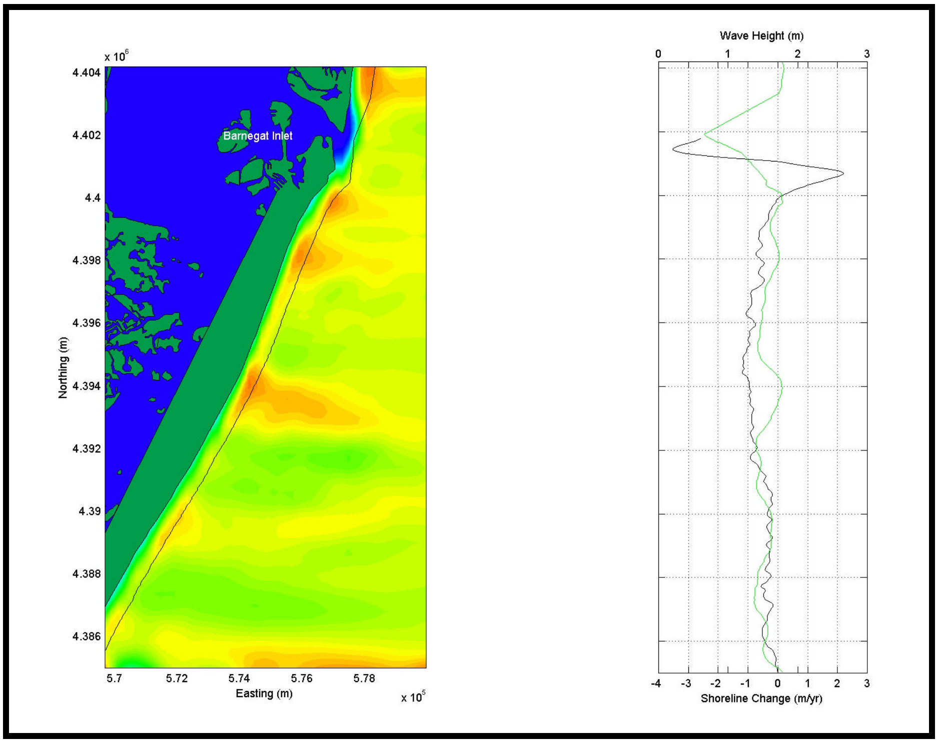

Figure B4-7. Wave height (green line on plot) taken from nearshore transect (black line on image) for the east (0E) approach simulation at reference Grid B1 compared with historical shoreline change rates (black line on plot; 1864/68 to 1997).

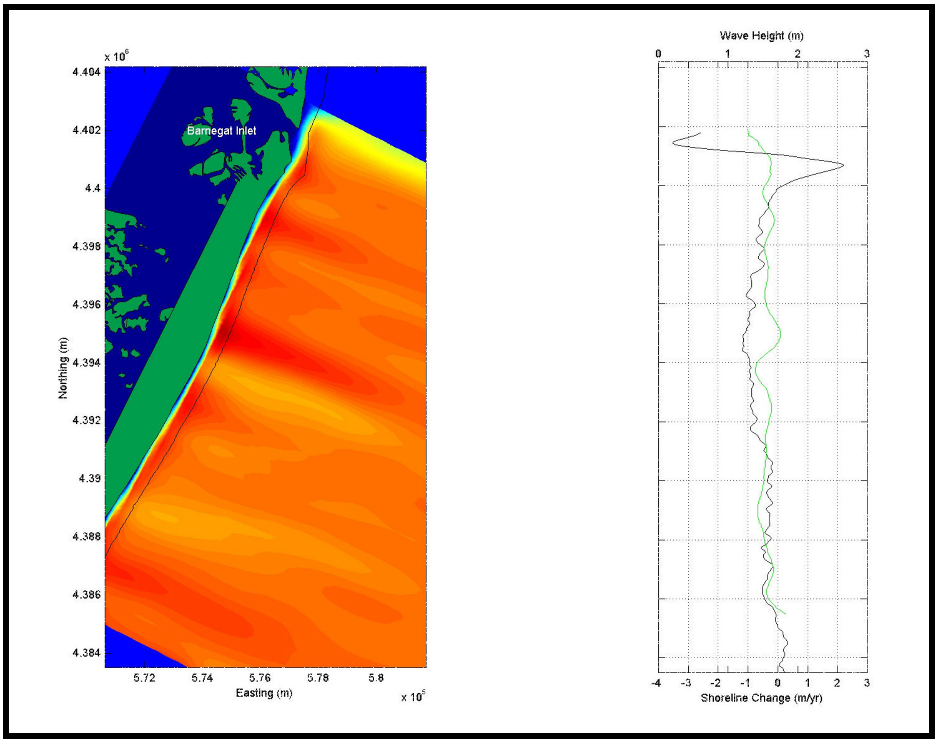

Figure B4-8. Wave height (green line on plot) taken from nearshore transect (black line on image) for the east-southeast (-22.5E) approach simulation at reference Grid B1 compared with historical shoreline change rates (black line on plot; 1864/68 to 1997).

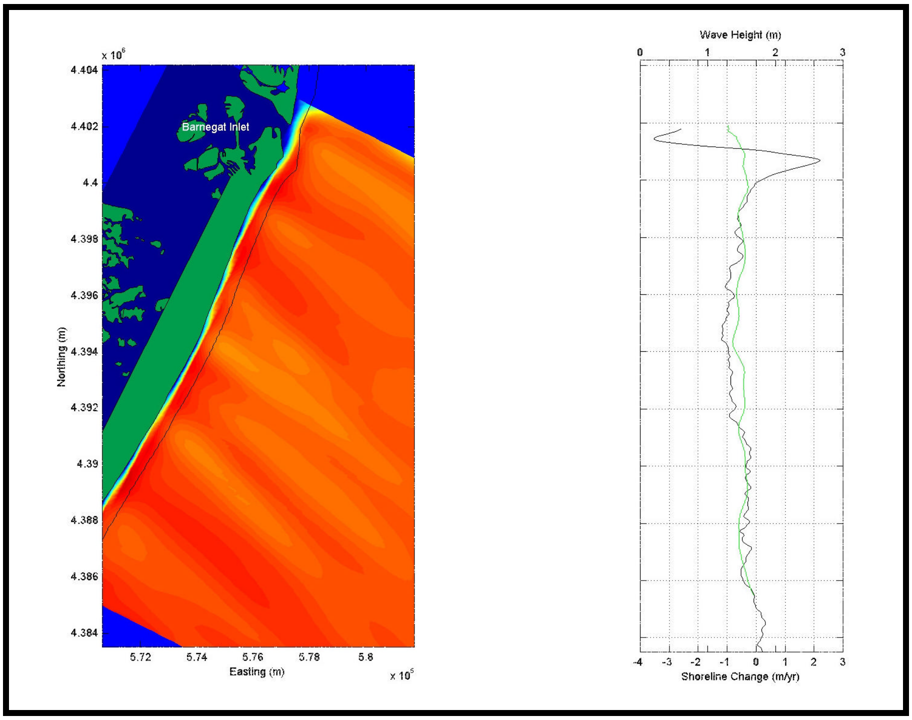

Figure B4-9. Wave height (green line on plot) taken from nearshore transect (black line on image) for the southeast (-45E) approach simulation at reference Grid B1 compared with historical shoreline change rates (black line on plot; 1864/68 to 1997).

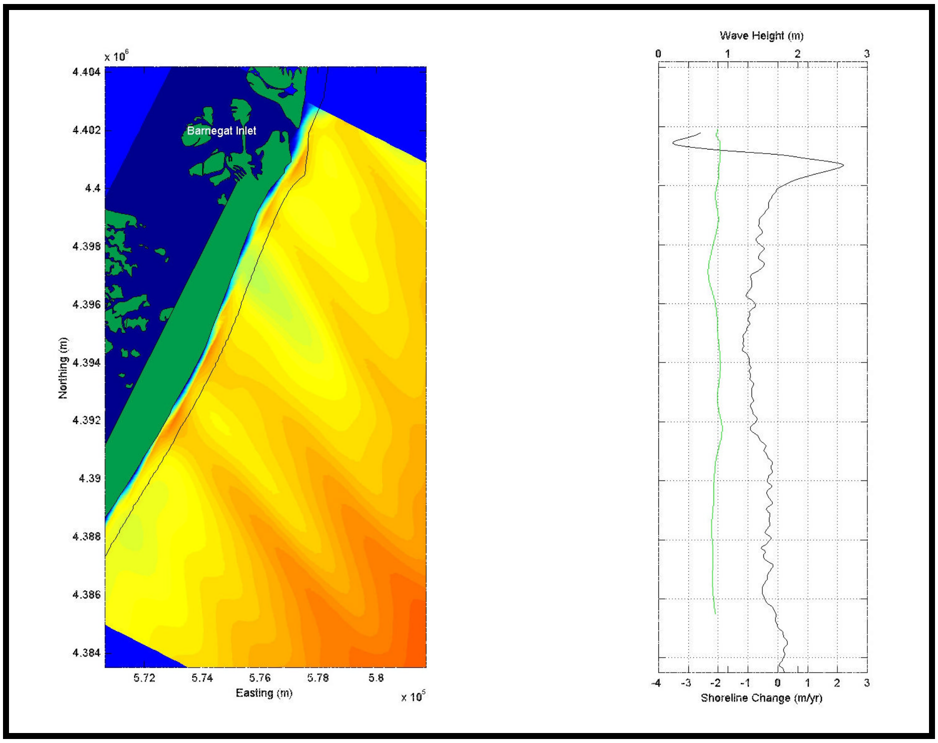

Figure B4-10. Wave height (green line on plot) taken from nearshore transect (black line on image) for the south-southeast (-67.5E) approach simulation at reference Grid B1 compared with historical shoreline change rates (black line on plot; 1864/68 to 1997).

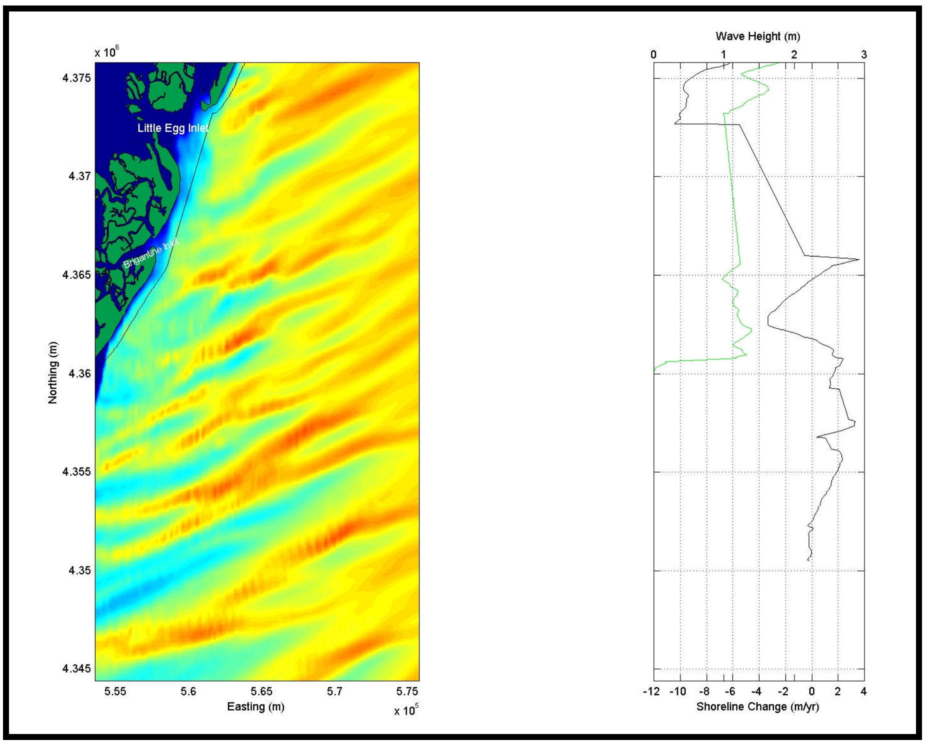

Figure B4-11. Wave height (green line on plot) taken from nearshore transect (black line on image) for the east-northeast (22.5E) approach simulation at reference Grid B2 compared with historical shoreline change rates (black line on plot; 1864/68 to 1997).

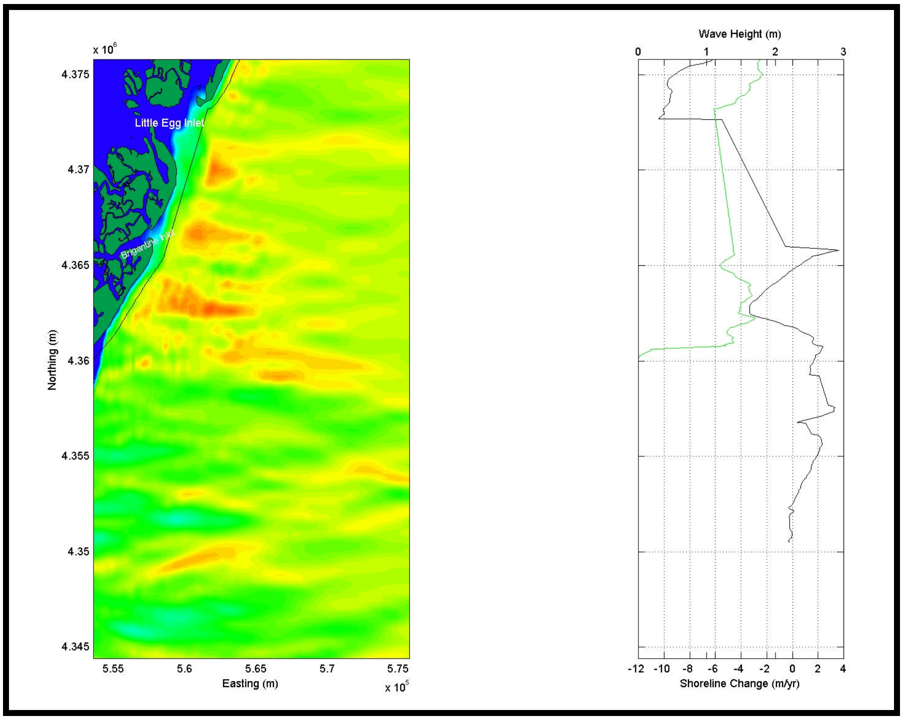

Figure B4-12. Wave height (green line on plot) taken from nearshore transect (black line on image) for the east (0E) approach simulation at reference Grid B2 compared with historical shoreline change rates (black line on plot; 1864/68 to 1997).

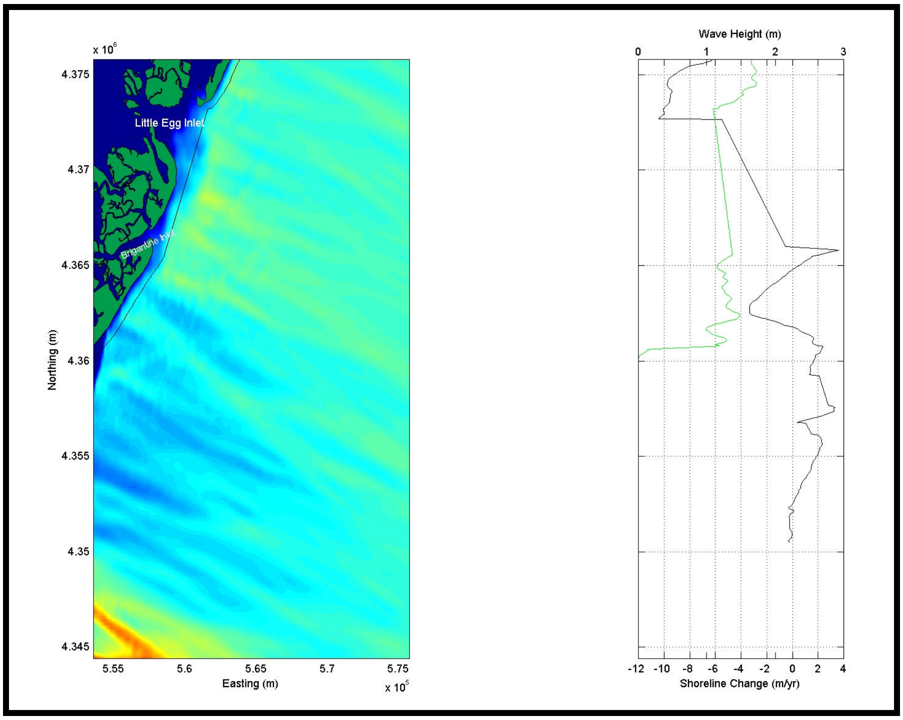

Figure B4-13. Wave height (green line on plot) taken from nearshore transect (black line on image) for the east-southeast (-22.5E) approach simulation at reference Grid B2 compared with historical shoreline change rates (black line on plot; 1864/68 to 1997).

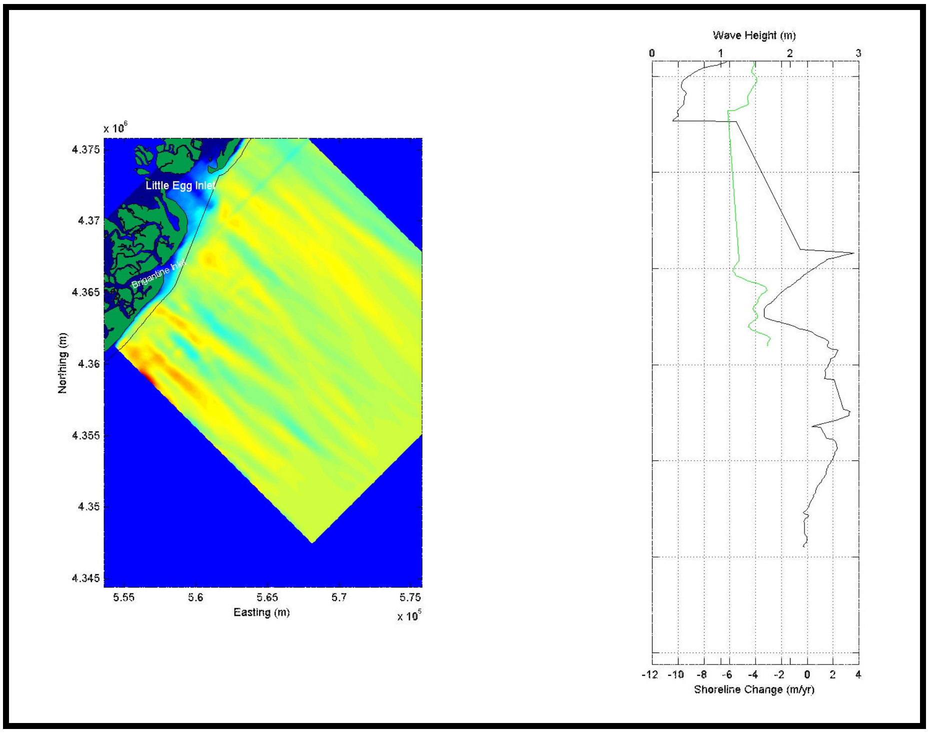

Figure B4-14. Wave height (green line on plot) taken from nearshore transect (black line on image) for the southeast (-45E) approach simulation at reference Grid B2 compared with historical shoreline change rates (black line on plot; 1864/68 to 1997).

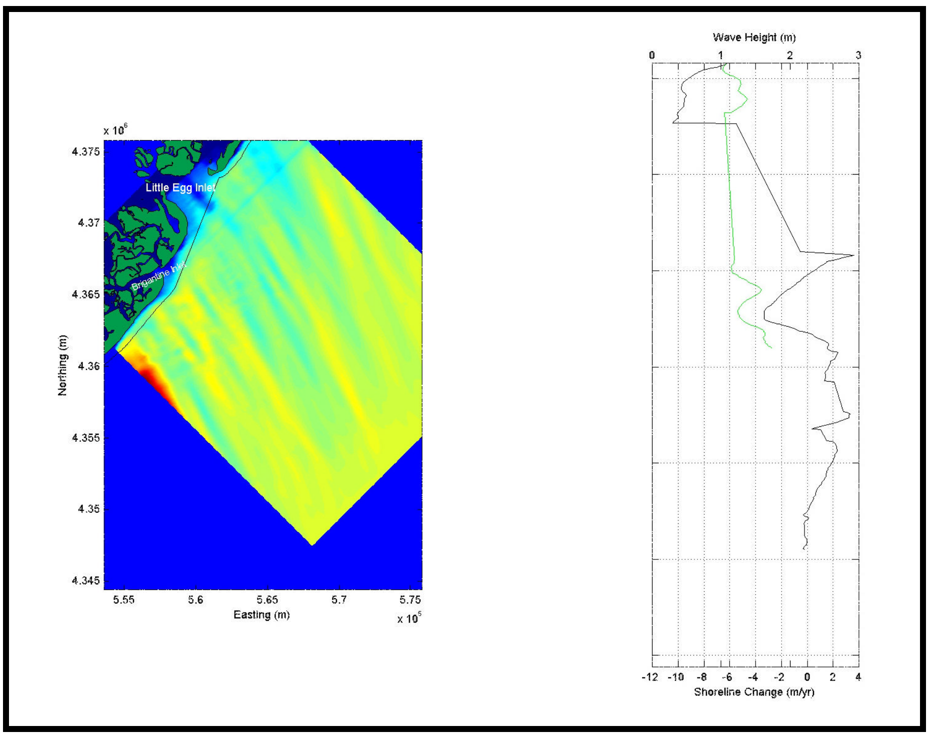

Figure B4-15. Wave height (green line on plot) taken from nearshore transect (black line on image) for the south-southeast (-67.5E) approach simulation at reference Grid B2 compared with historical shoreline change rates (black line on plot; 1864/68 to 1997).

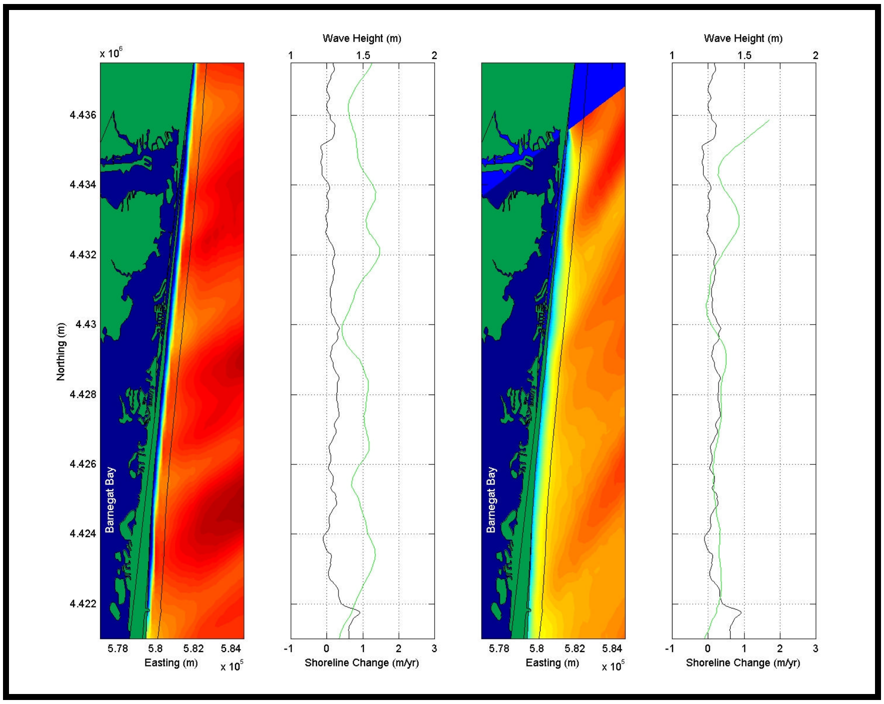

Figure B4-16. Wave height (green line on plots) taken from approximate breaker line (black line on images) for the east-northeast (22.5 degree) and northeast (45 degree) approach simulations, respectively, compared with historical shoreline change rates (black line on plots; 1864/68 to 1977) for Grid C.

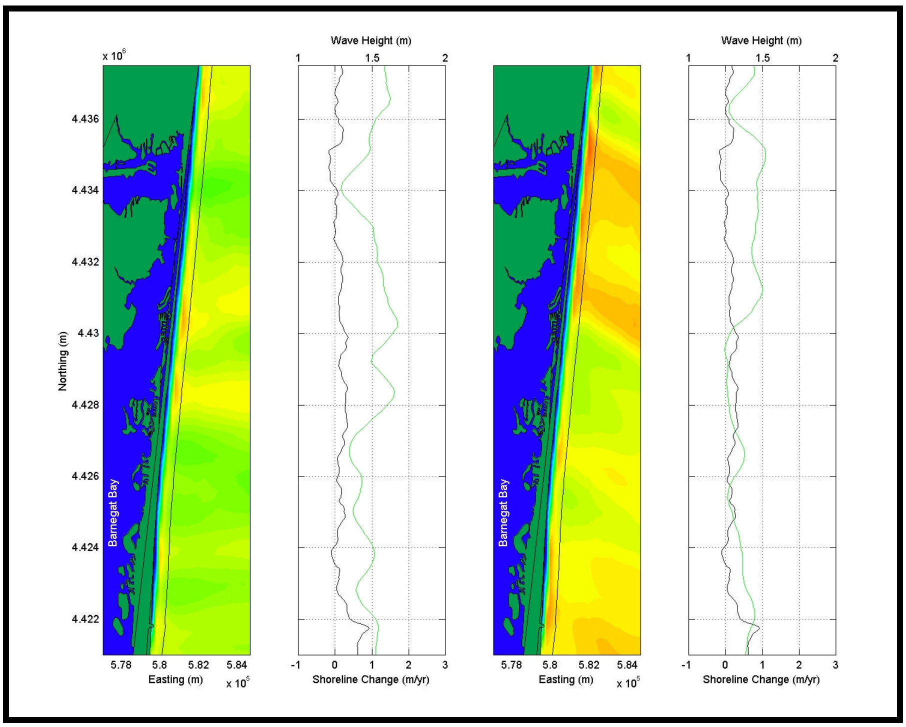

Figure B4-17. Wave height (green line on plots) taken from approximate breaker line (black line on images) for the east (0 degree) and east-southeast (-22.5 degree) approach simulations, respectively, compared with historical shoreline change rates (black line on plots; 1864/68 to 1977) for Grid C.

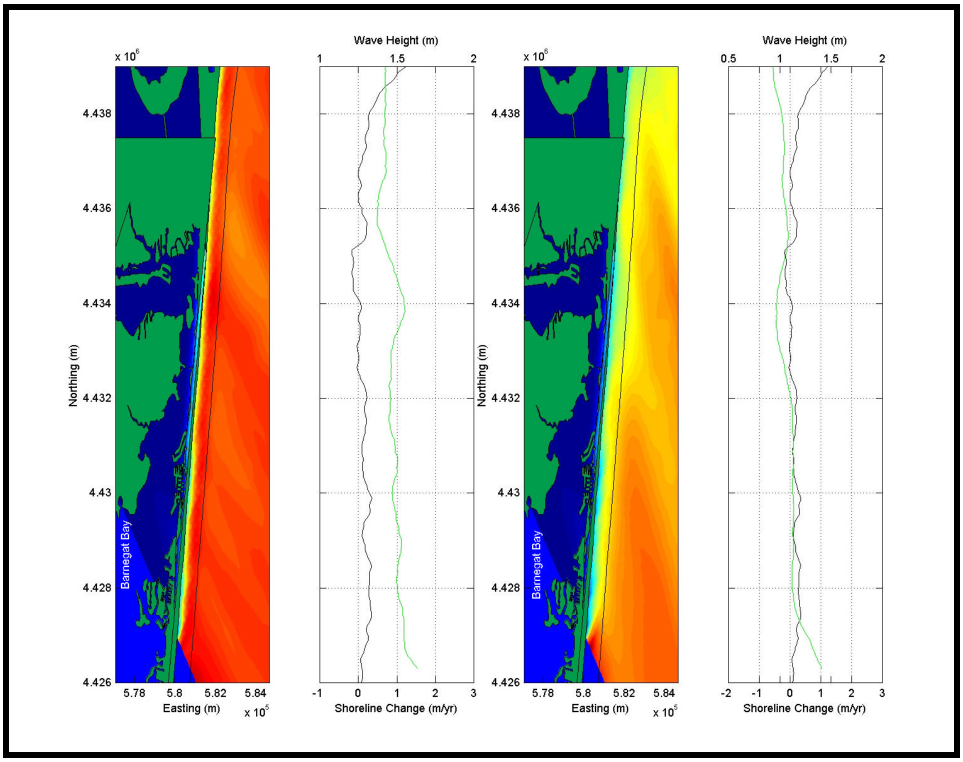

Figure B4-18. Wave height (green line on plots) taken from approximate breaker line (black line on images) for the southeast (-45 degree) and south-southeast (-67.5 degree) approach simulations, respectively, compared with historical shoreline change rates (black line on plots; 1864/68 to 1977) for Grid C.

B5. POST-DREDGING WAVE TRANSFORMATION RESULTS

This section presents post-dredging numerical wave transformation modeling results. Results are presented for all simulations (directional and 50-year storm) at Grid A, Grid B1, Grid B2, and Grid C.

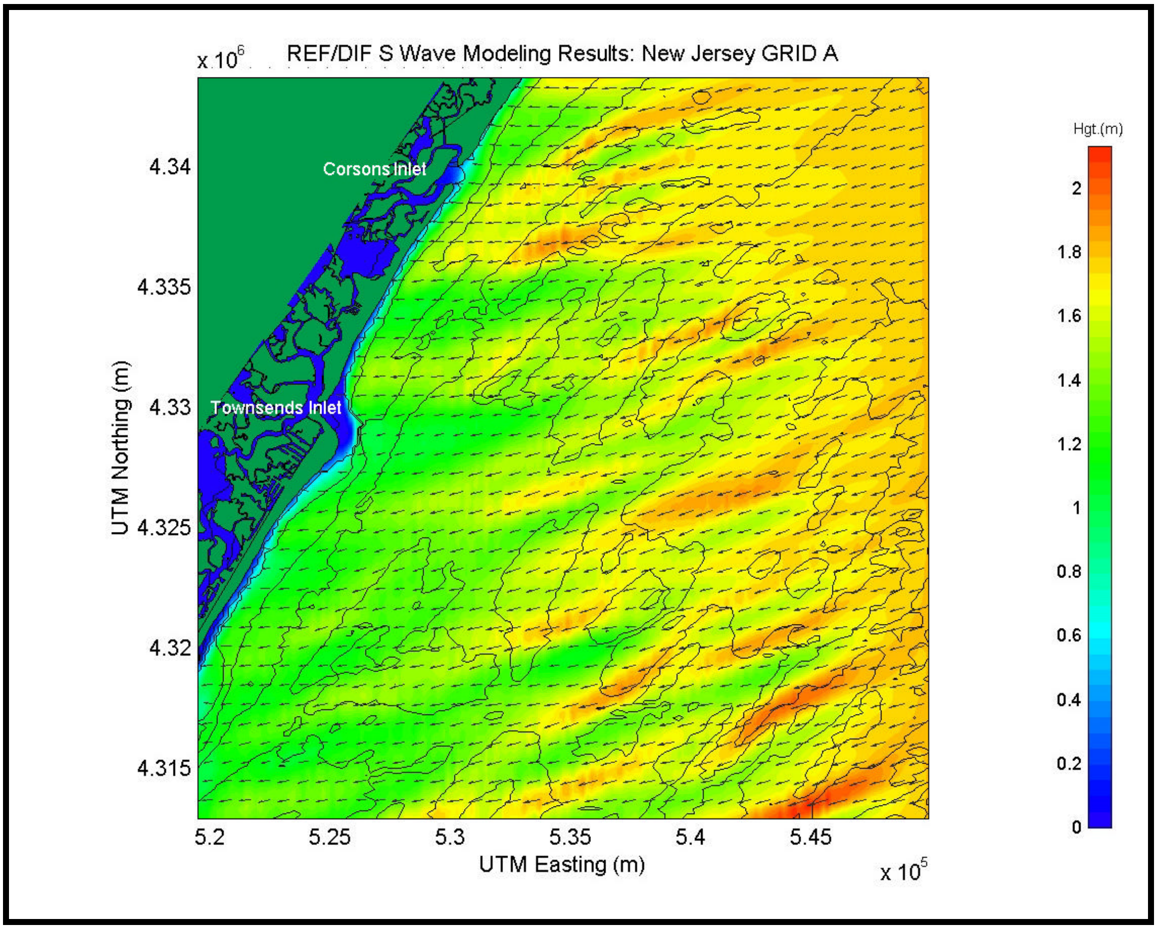

Figure B5-1. Spectral wave modeling results for post-dredging conditions using an east-northeast (22.5E) approach direction for reference Grid A.

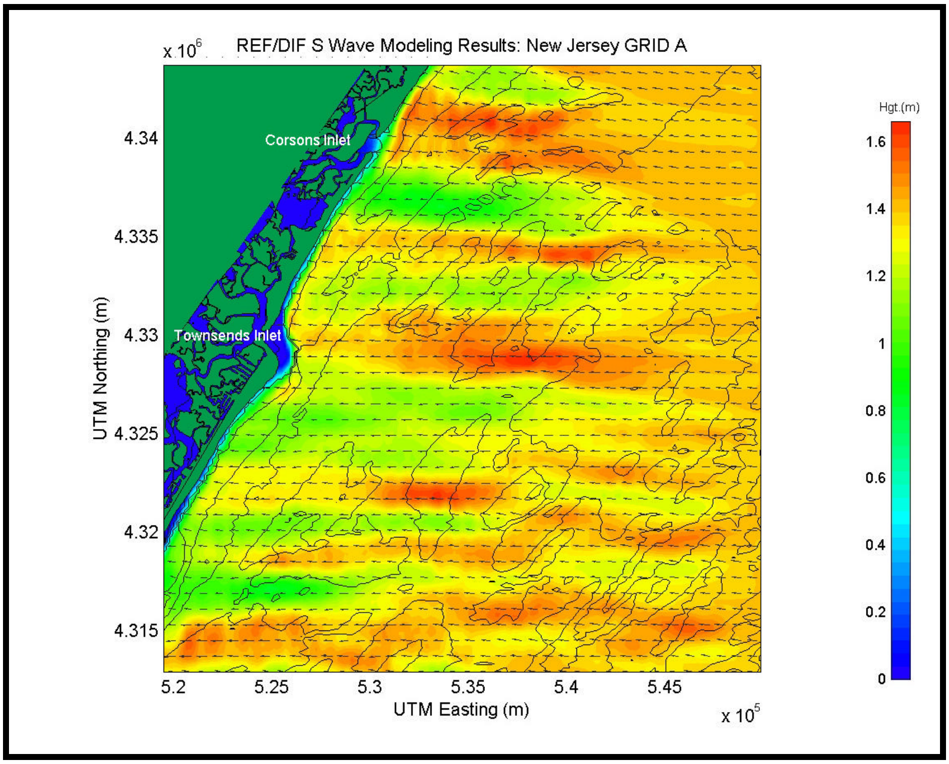

Figure B5-2. Spectral wave modeling results for post-dredging conditions using an east (0E) approach direction for reference Grid A.

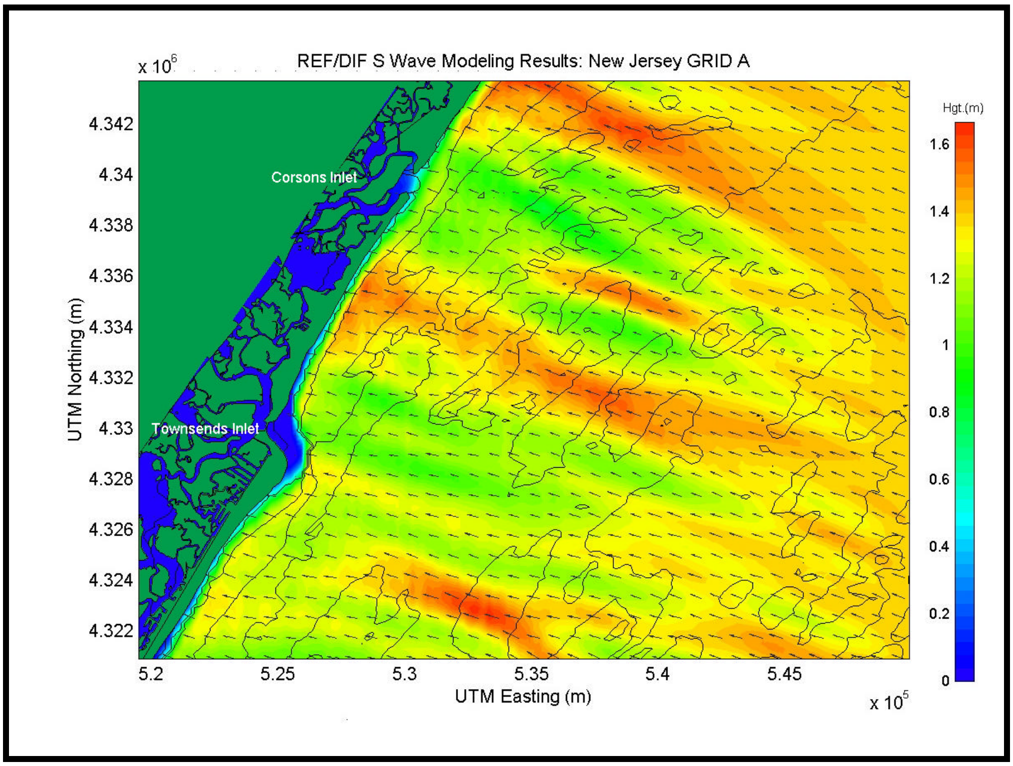

Figure B5-3. Spectral wave modeling results for post-dredging conditions using an east-southeast (-22.5E) approach direction for reference Grid A.

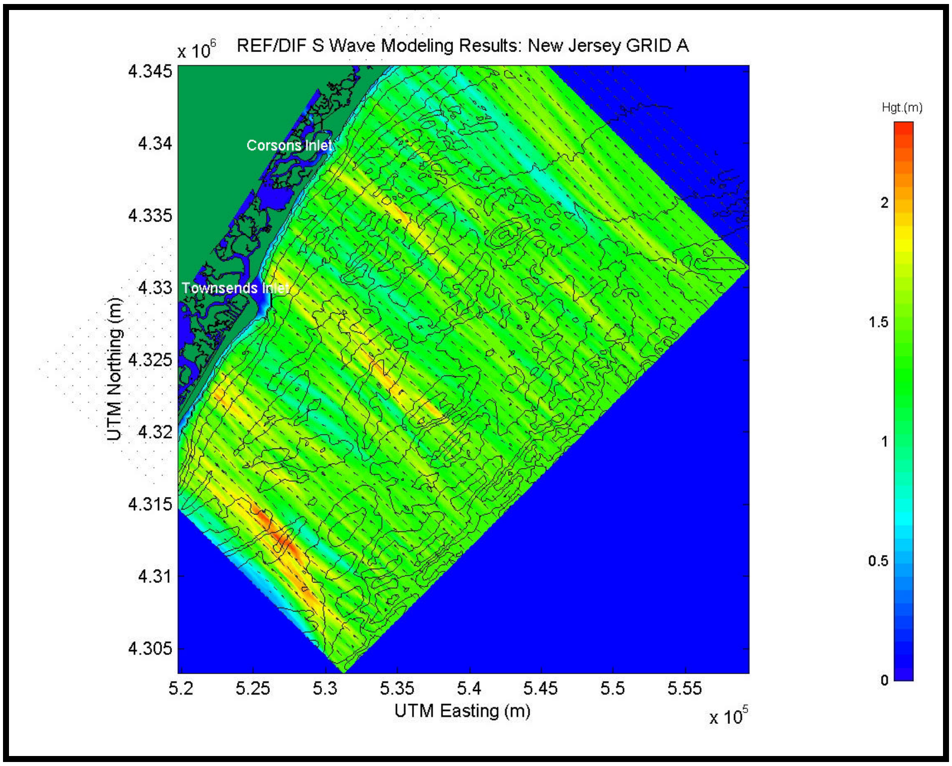

Figure B5-4. Spectral wave modeling results for post-dredging conditions using a southeast (-45E) approach direction for reference Grid A.

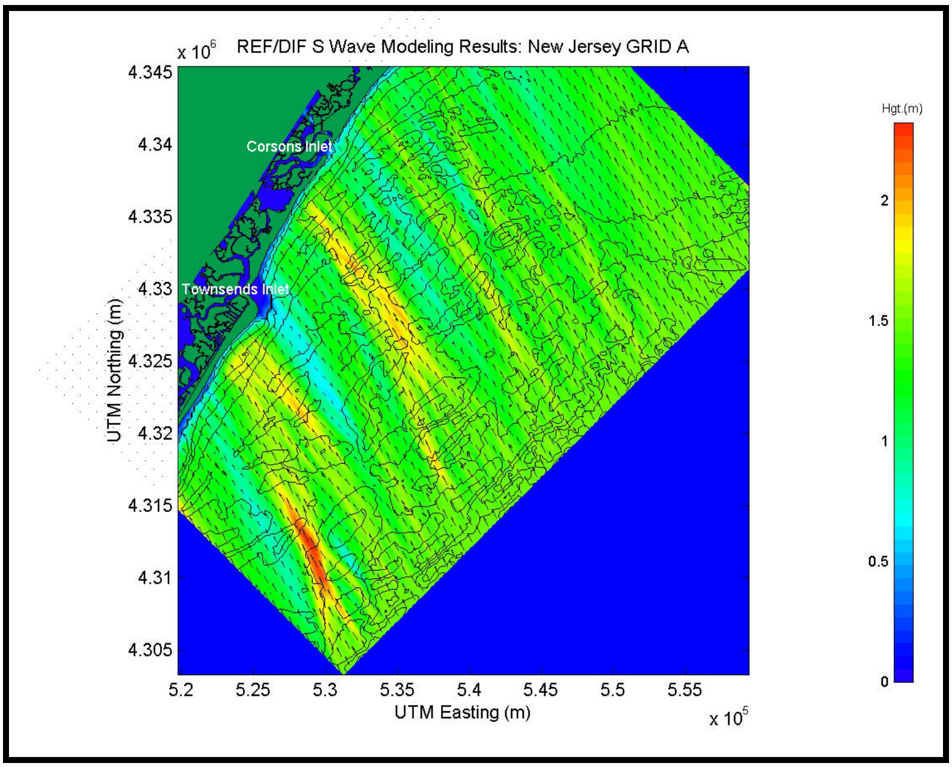

Figure B5-5. Spectral wave modeling results for post-dredging conditions using a south-southeast (-67.5E) approach direction for reference Grid A.

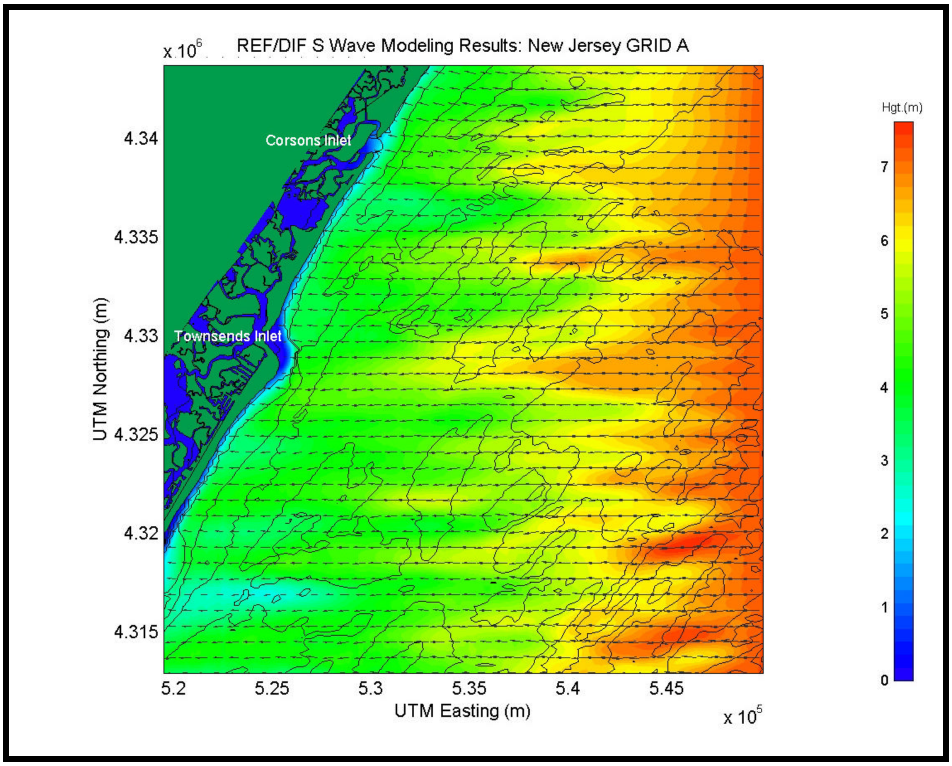

Figure B5-6. Spectral wave modeling results for post-dredging conditions using a 50-yr northeast storm at reference Grid A.

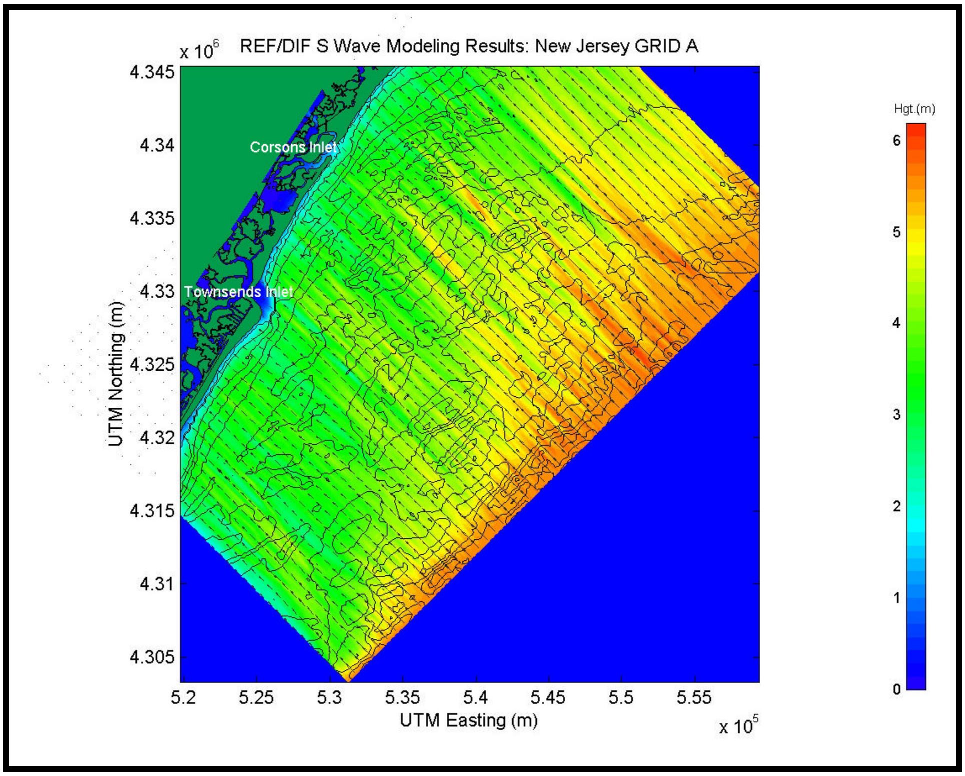

Figure B5-7. Spectral wave modeling results for post-dredging conditions using a 50-yr hurricane at reference Grid A.

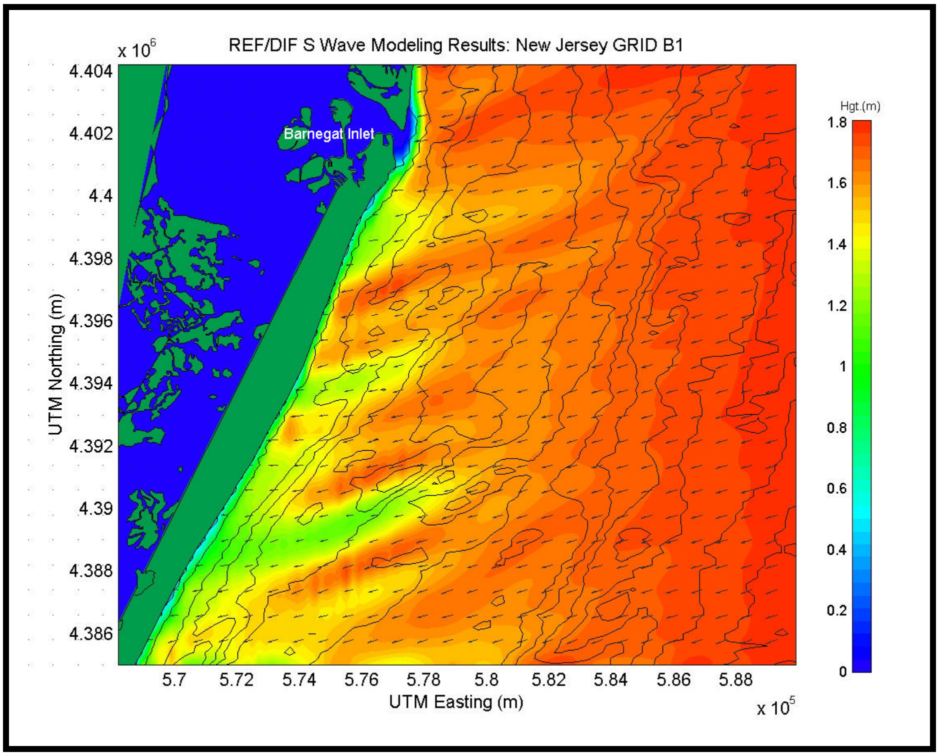

Figure B5-8. Spectral wave modeling results for post-dredging conditions using an east-northeast (22.5E) approach direction for reference Grid B1.

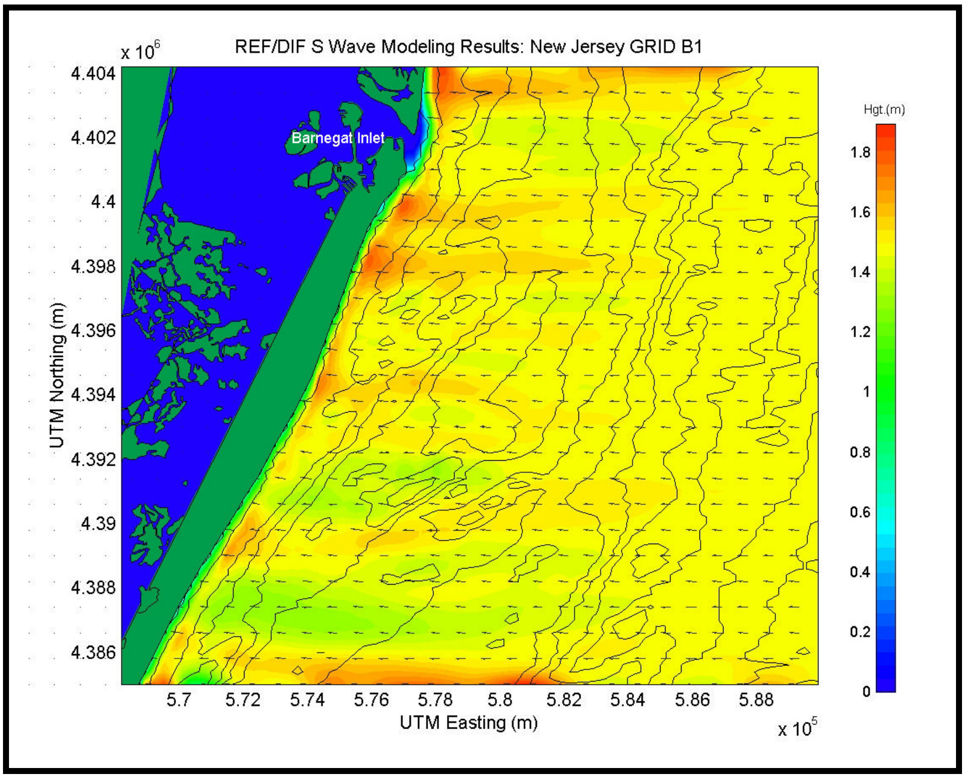

Figure B5-9. Spectral wave modeling results for post-dredging conditions using an east (0E) approach direction for reference Grid B1.

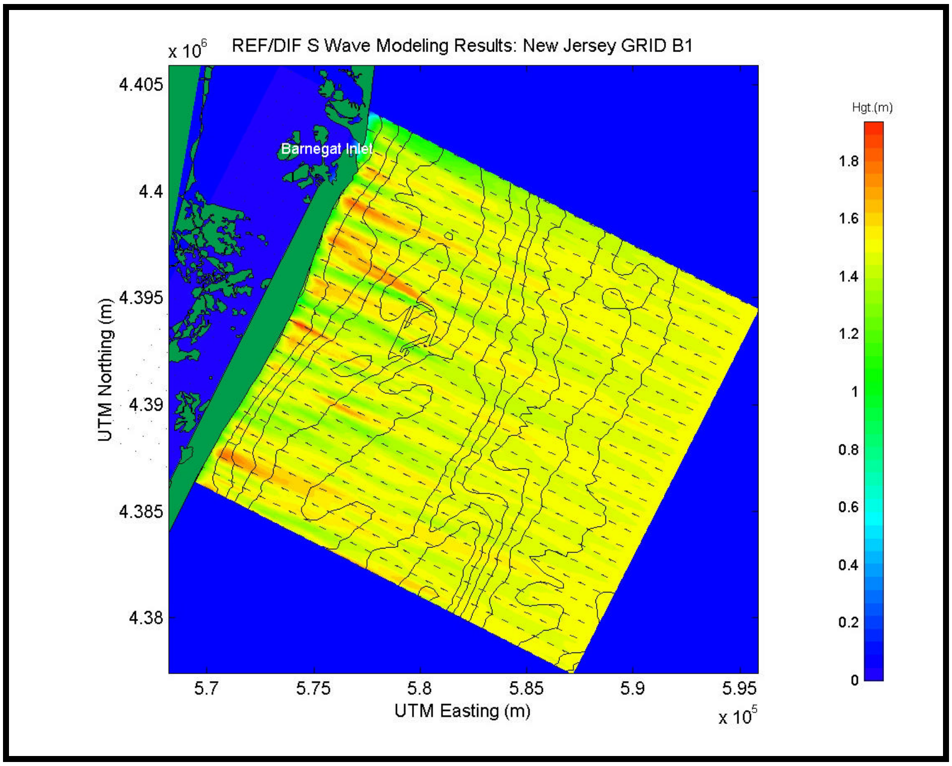

Figure B5-10. Spectral wave modeling results for post-dredging conditions using an east-southeast (-22.5E) approach direction for reference Grid B1.

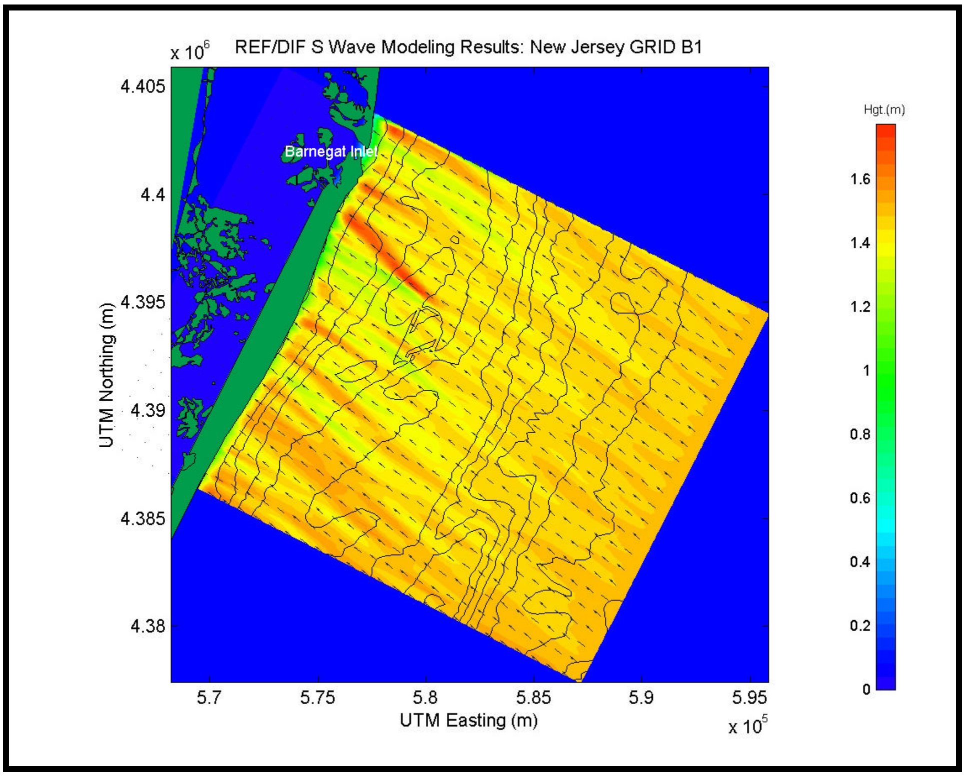

Figure B5-11. Spectral wave modeling results for post-dredging conditions using an southeast (-45E) approach direction for reference Grid B1.

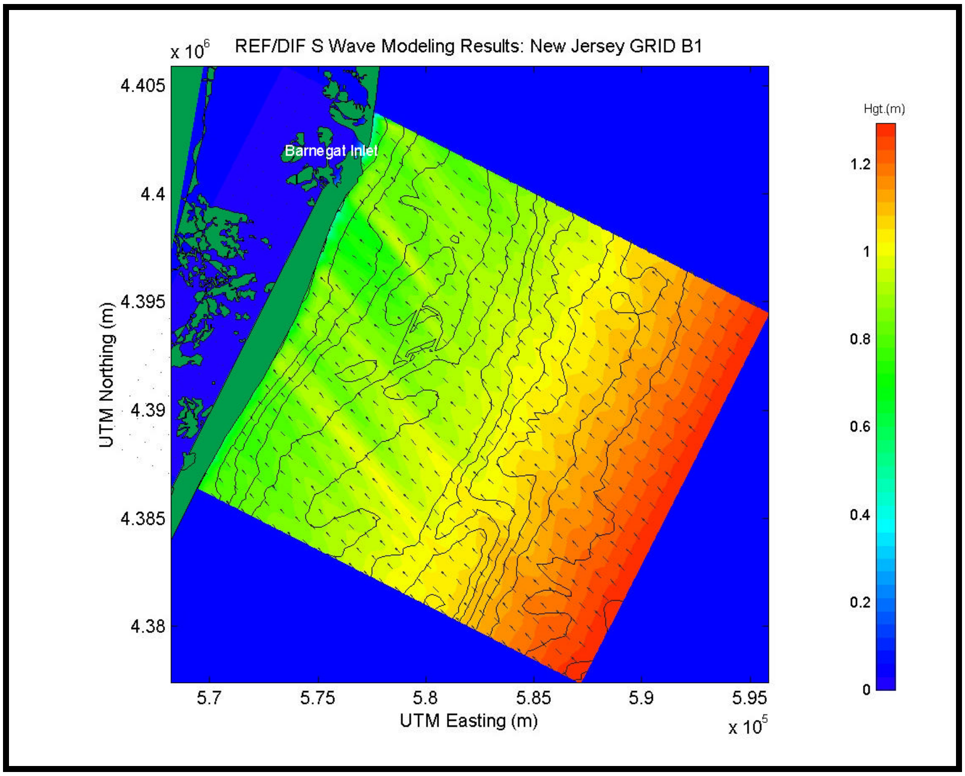

Figure B5-12. Spectral wave modeling results for post-dredging conditions using a south-southeast (-67.5E) approach direction for reference Grid B1.

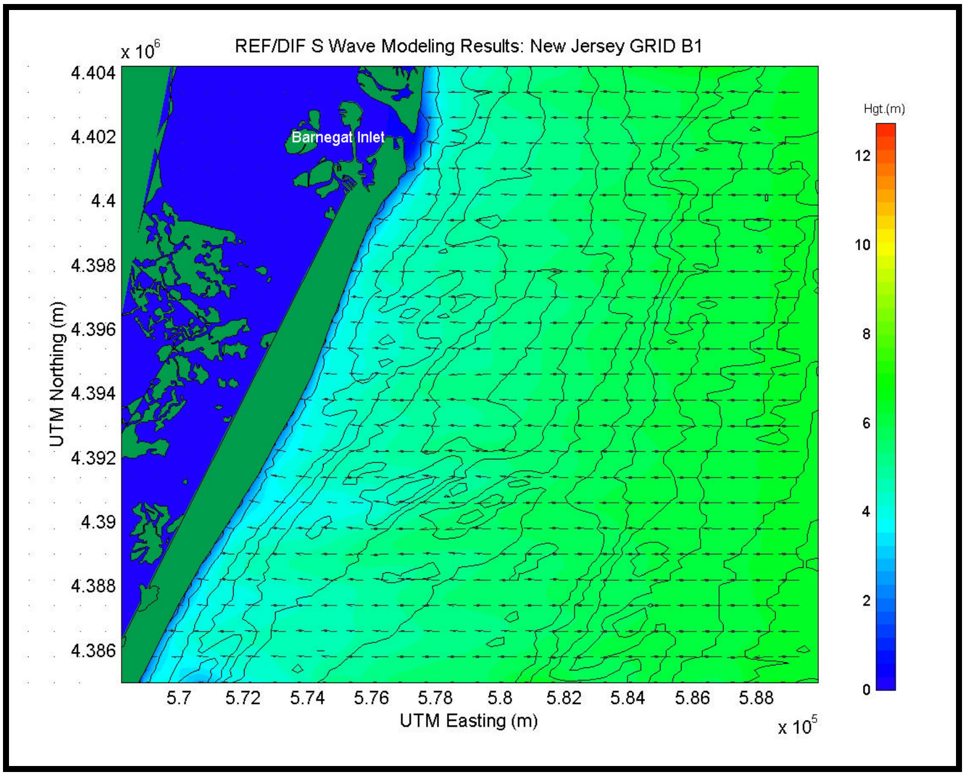

Figure B5-13. Spectral wave modeling results for post-dredging conditions using a 50-yr northeast storm at reference Grid B1.

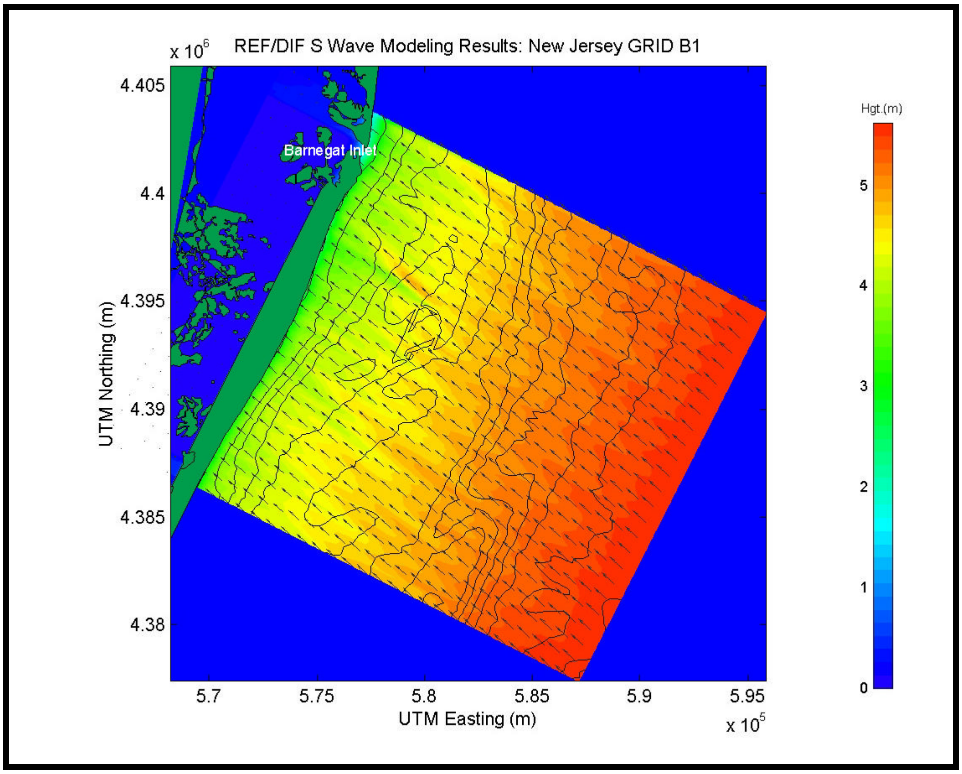

Figure B5-14. Spectral wave modeling results for post-dredging conditions using a 50-yr hurricane at reference Grid B1.

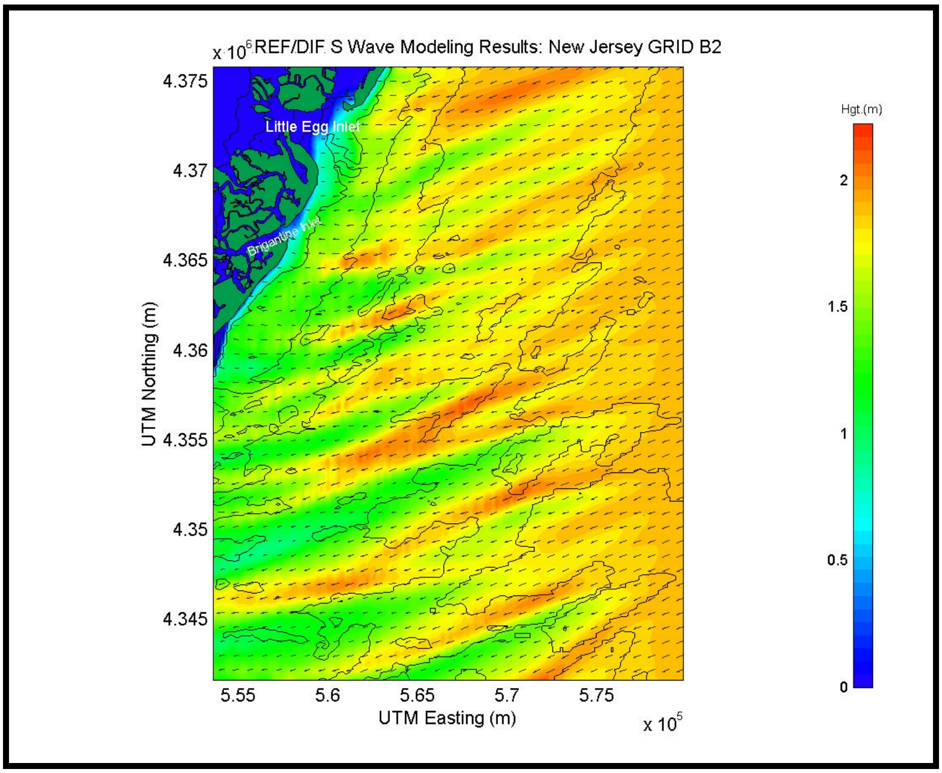

Figure B5-15. Spectral wave modeling results for post-dredging conditions using an east-northeast (22.5E) approach direction for reference Grid B2.

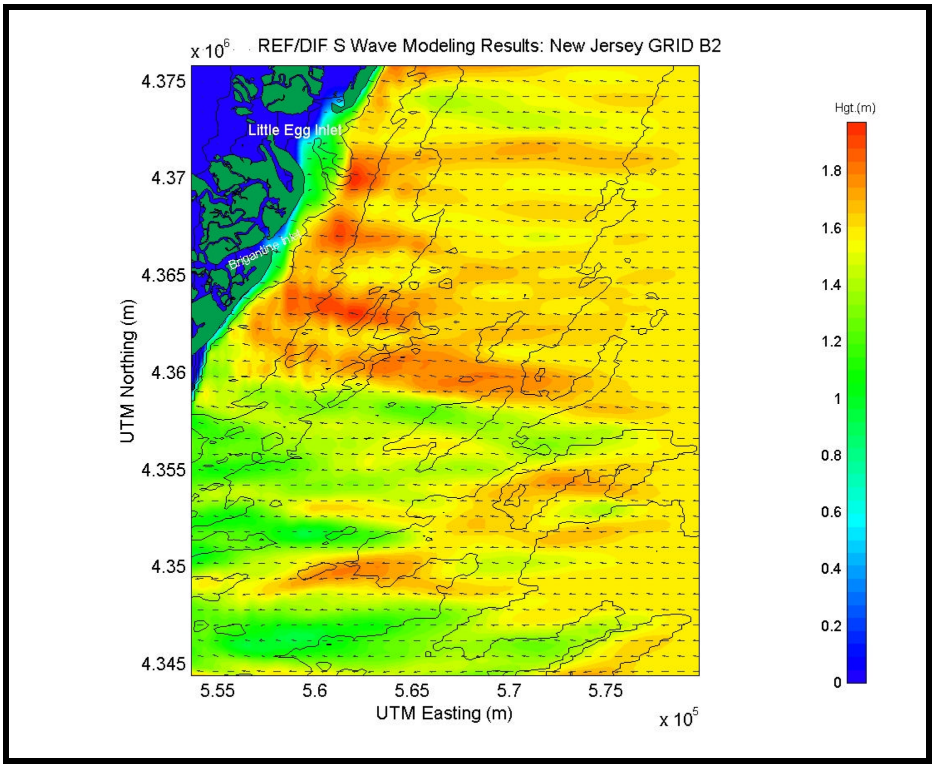

Figure B5-16. Spectral wave modeling results for post-dredging conditions using an east (0E) approach direction for reference Grid B2.

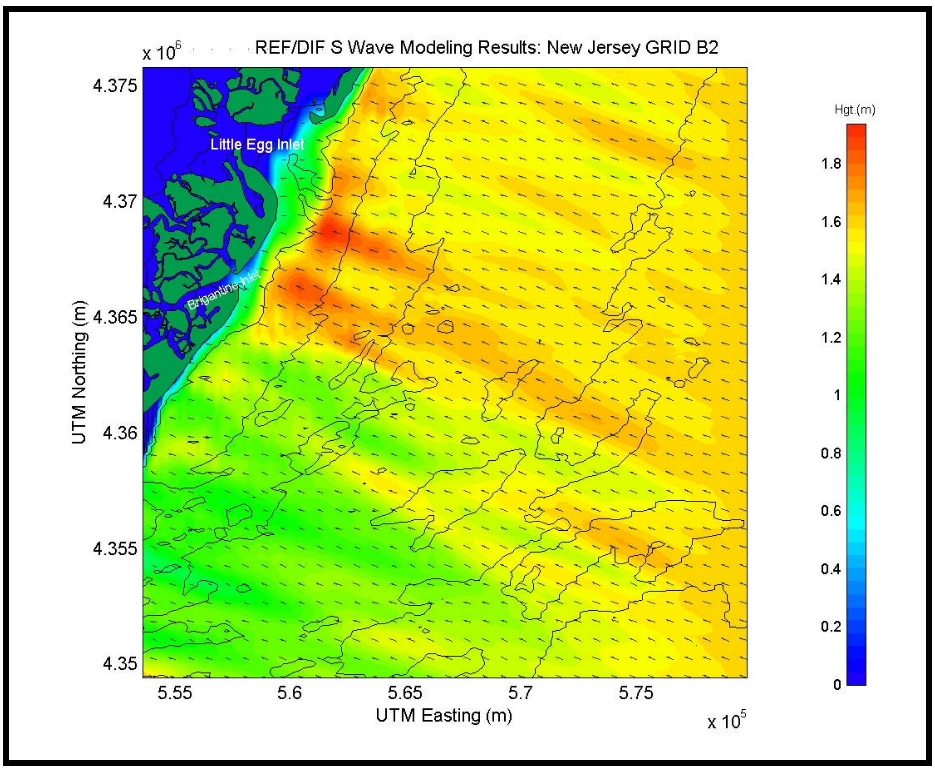

Figure B5-17. Spectral wave modeling results for post-dredging conditions using an east-southeast (-22.5E) approach direction for reference Grid B2.

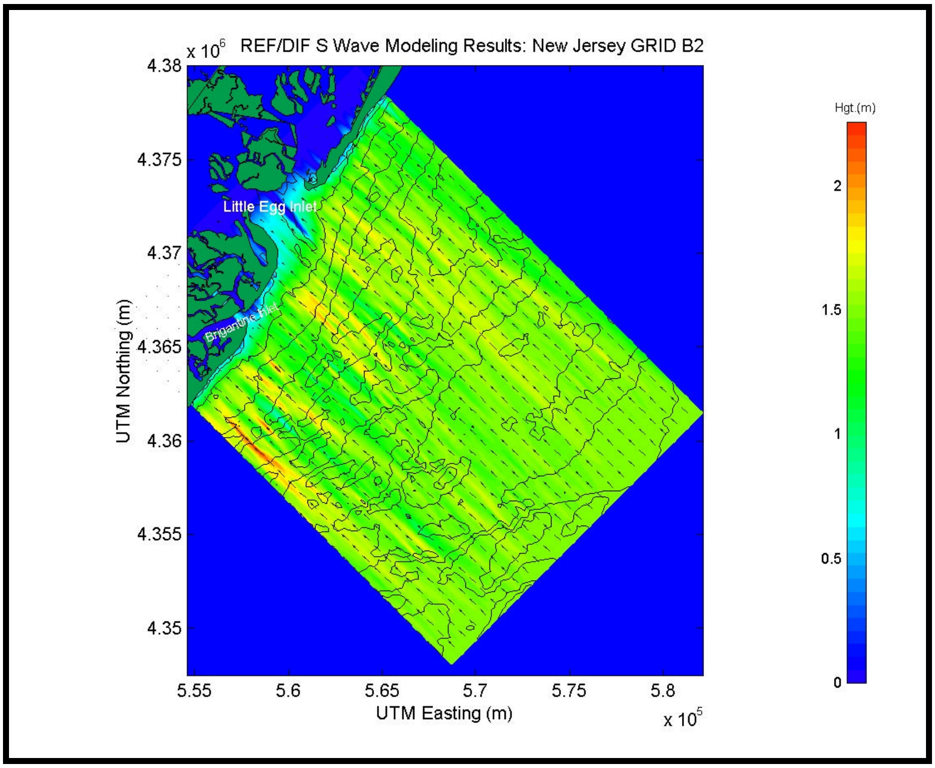

Figure B5-18. Spectral wave modeling results for post-dredging conditions using a southeast (-45E) approach direction for reference Grid B2.

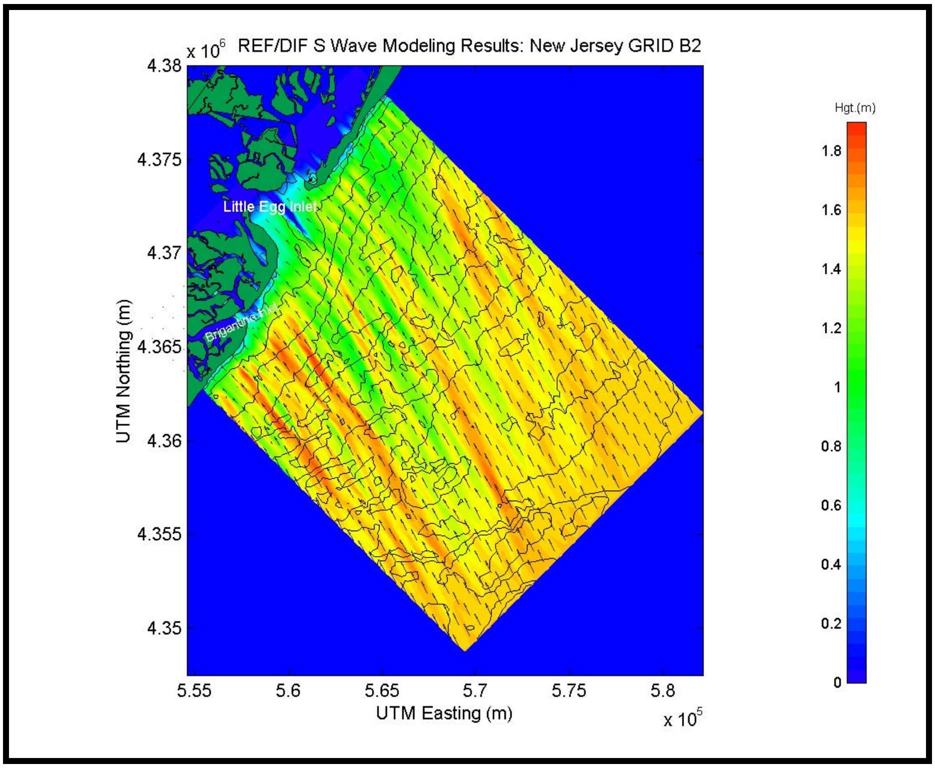

Figure B5-19. Spectral wave modeling results for post-dredging conditions using a south-southeast (-67.5E) approach direction for reference Grid B2.

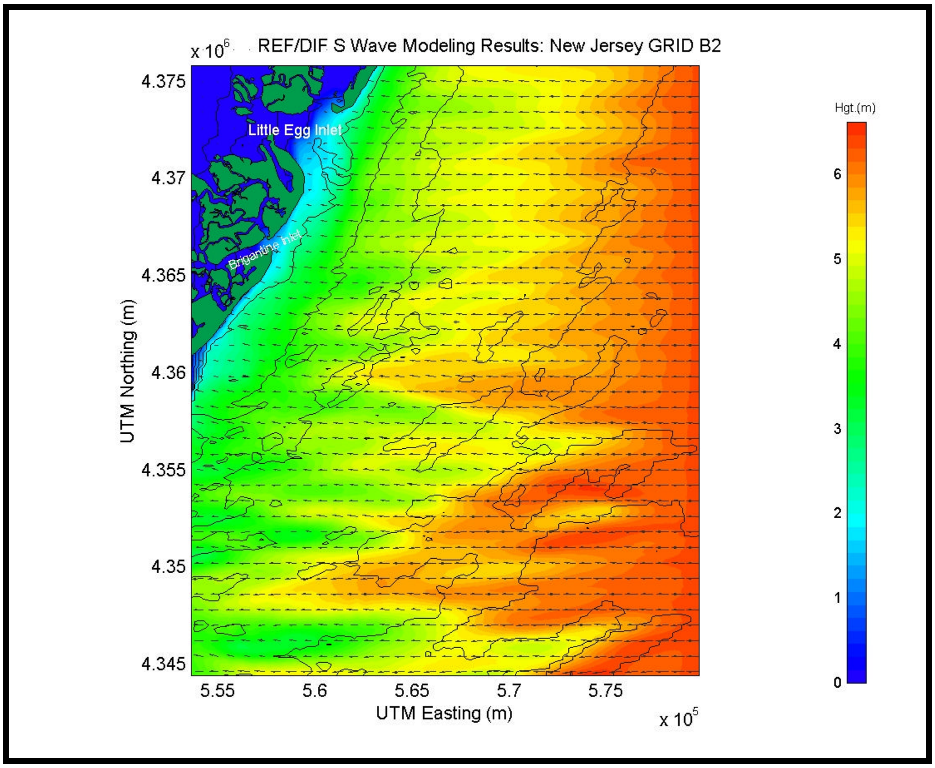

Figure B5-20. Spectral wave modeling results for post-dredging conditions using a 50-yr northeast storm at reference Grid B2.

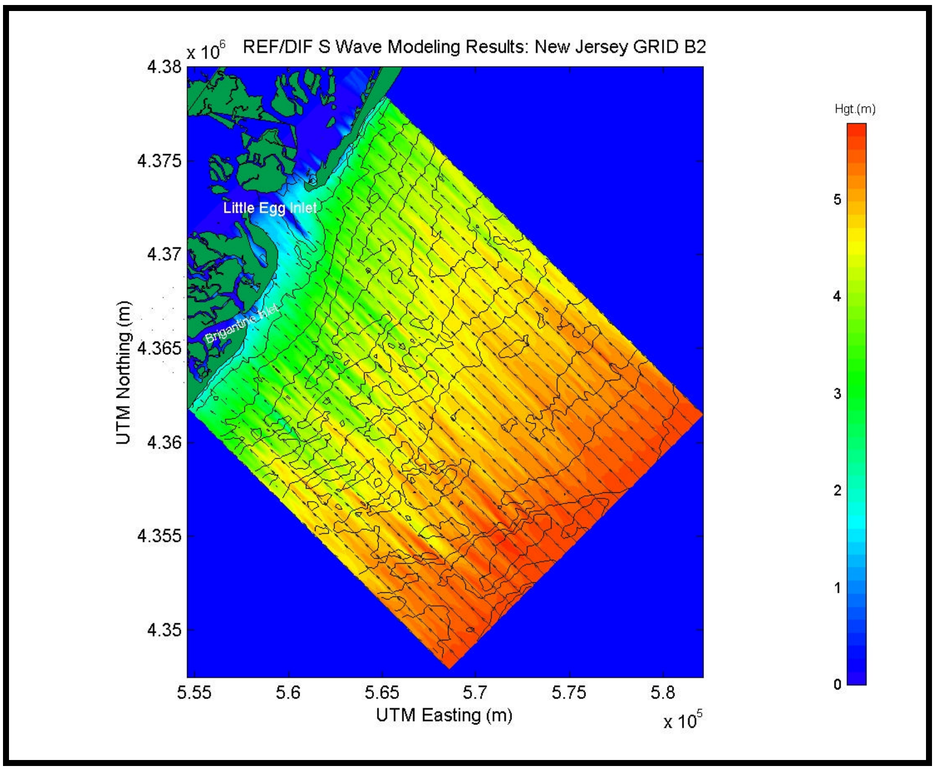

Figure B5-21. Spectral wave modeling results for post-dredging conditions using a 50-yr hurricane at reference Grid B2.

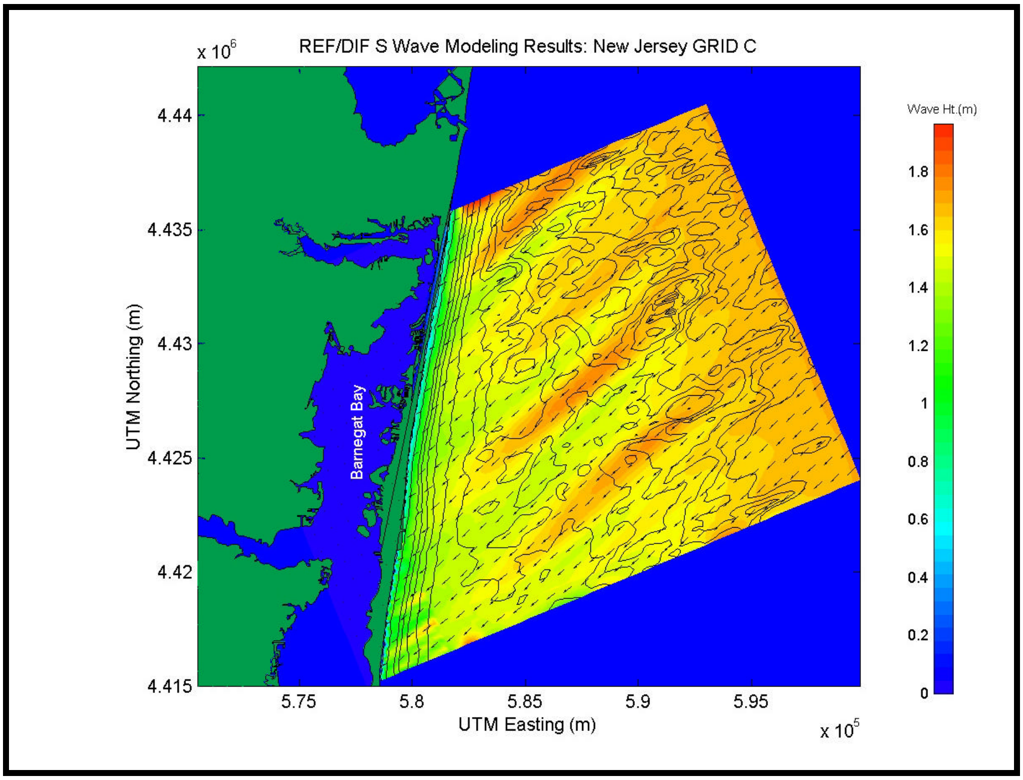

Figure B5-22. Spectral wave modeling results for post-dredging conditions using a northeast (45 degree) approach direction for reference Grid C.

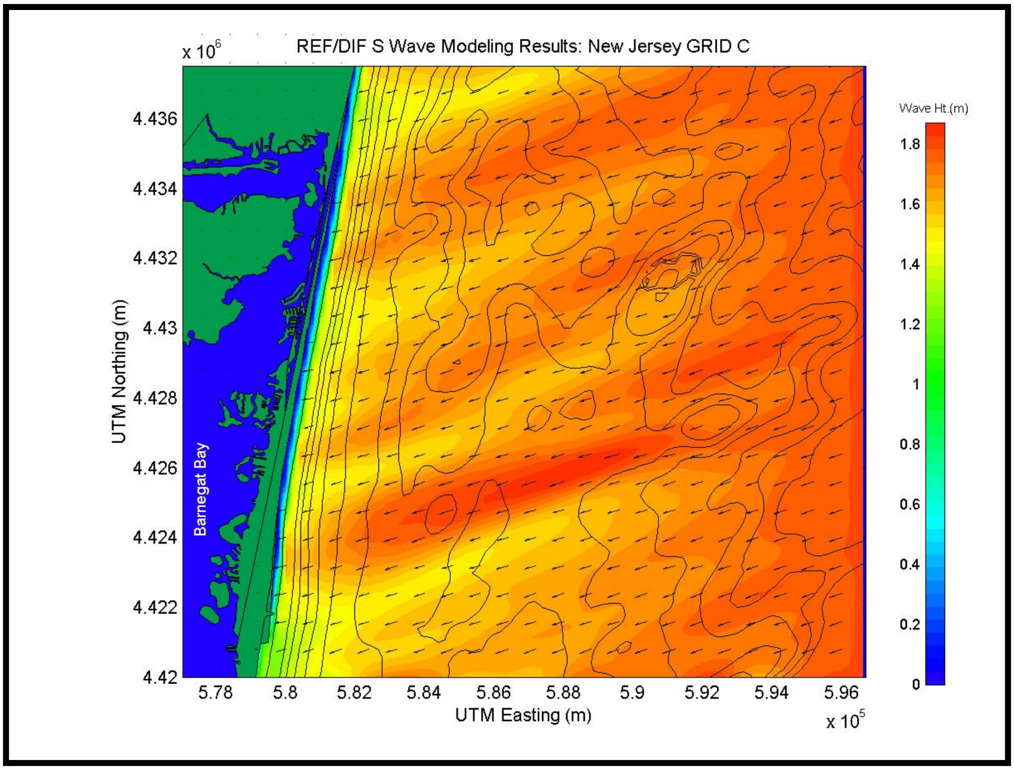

Figure B5-23. Spectral wave modeling results for post-dredging conditions using an east-northeast (22.5E) approach direction for reference Grid C.

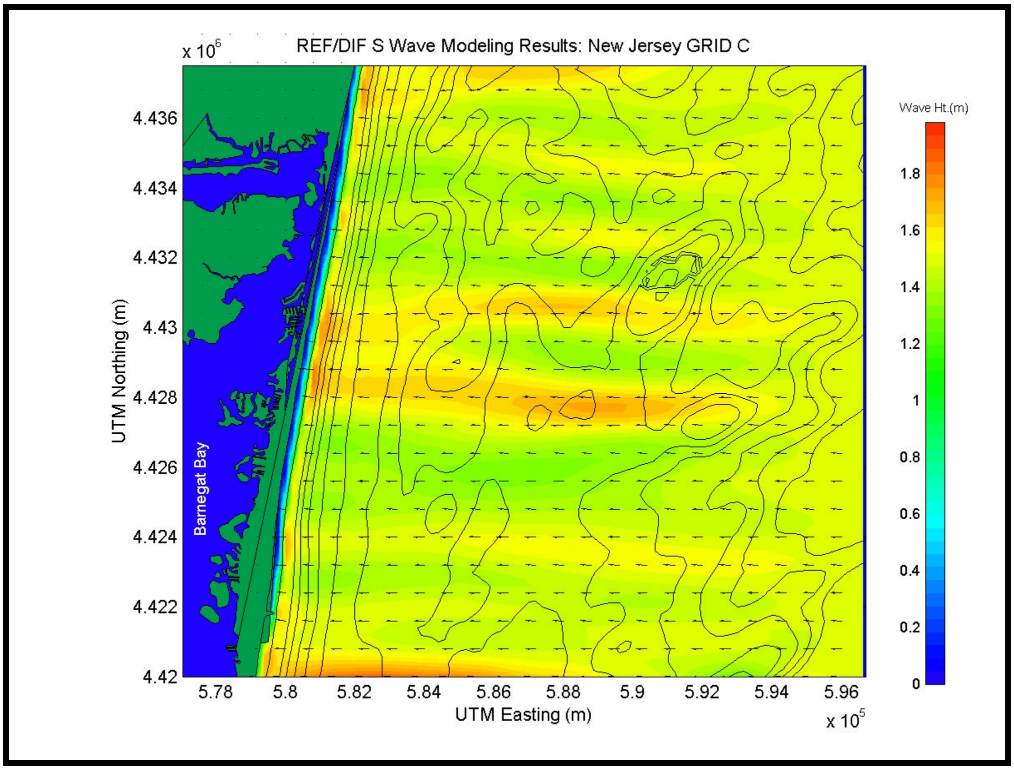

Figure B5-24. Spectral wave modeling results for post-dredging conditions using an east (0E) approach direction for reference Grid C.

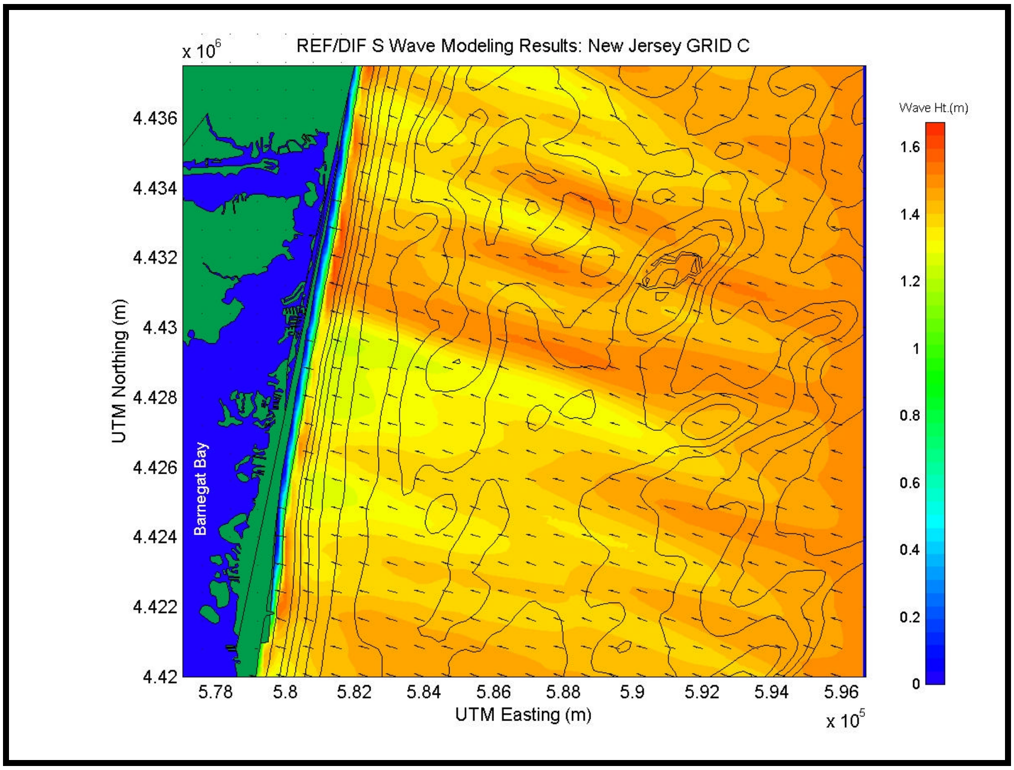

Figure B5-25. Spectral wave modeling results for post-dredging conditions using an east-southeast (-22.5E) approach direction for reference Grid C.

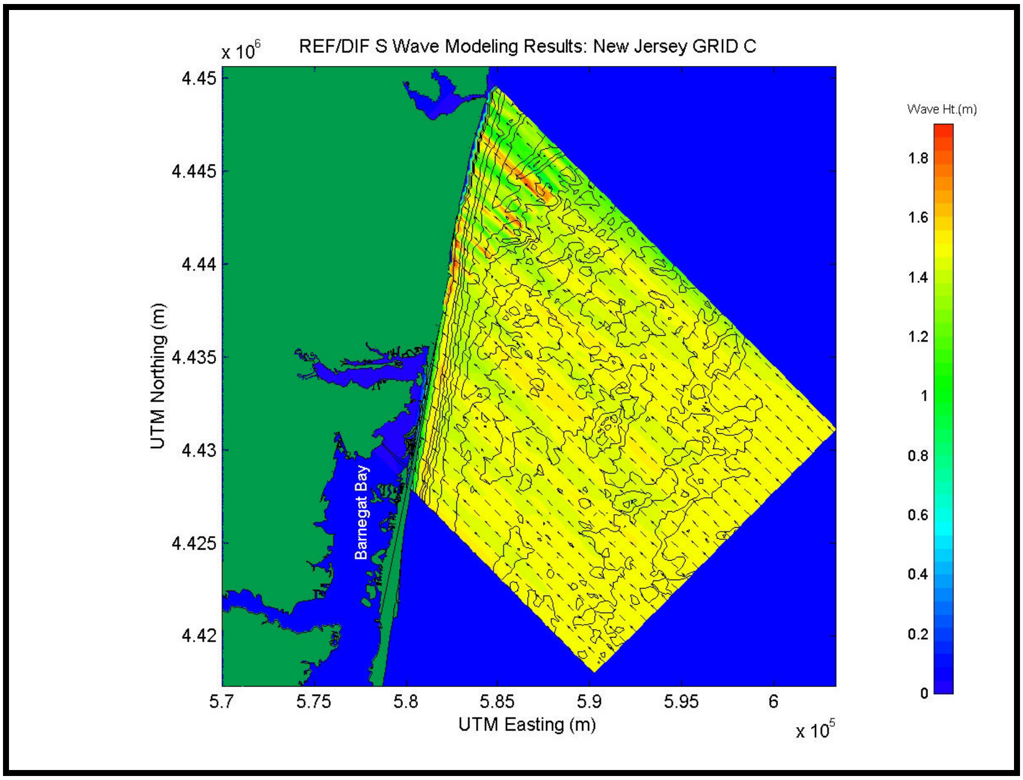

Figure B5-26. Spectral wave modeling results for post-dredging conditions using a southeast (-45E) approach direction for reference Grid C.

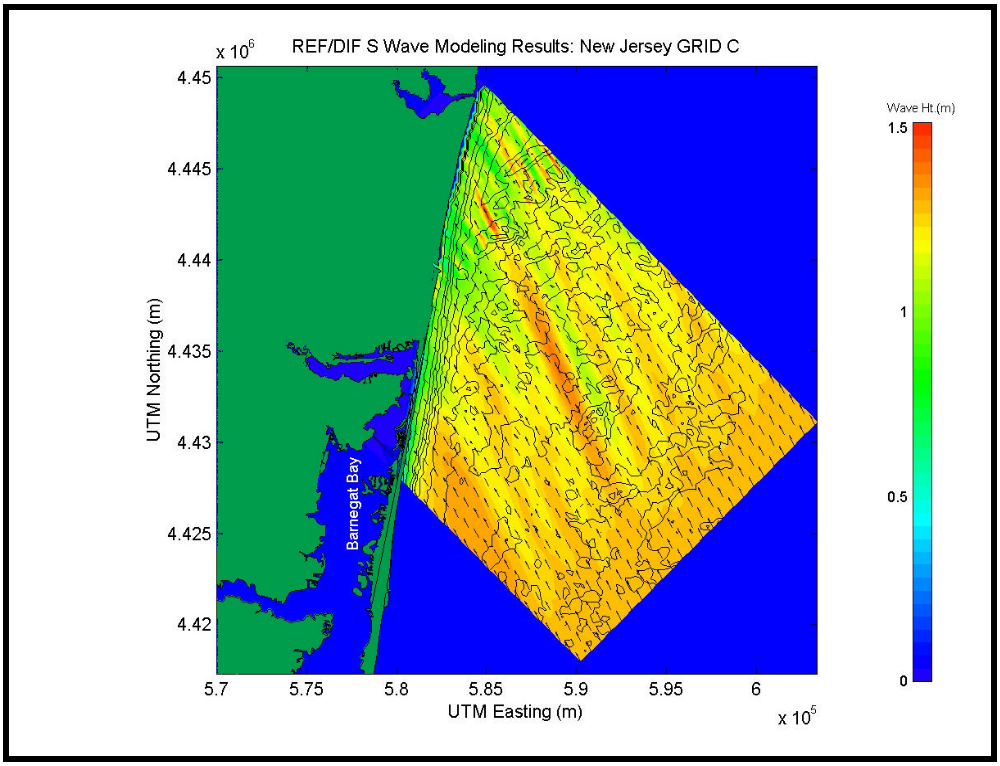

Figure B5-27. Spectral wave modeling results for post-dredging conditions using a south-southeast (-67.5E) approach direction for reference Grid C.

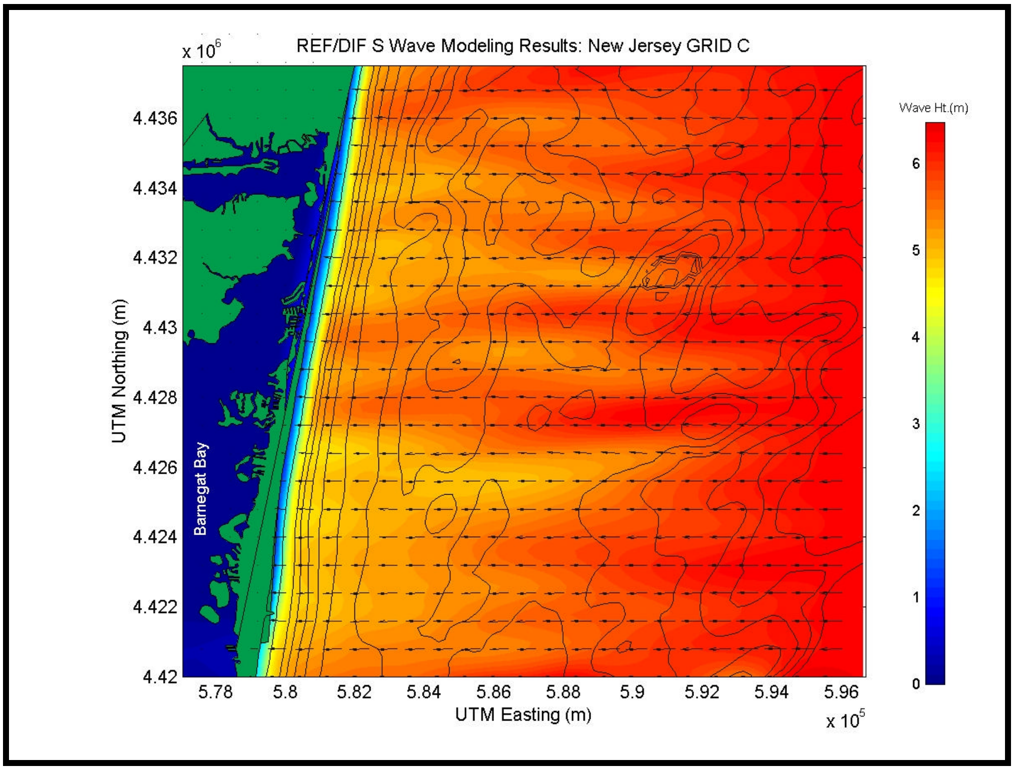

Figure B5-28. Spectral wave modeling results for post-dredging conditions using a 50-yr northeast storm at reference Grid C.

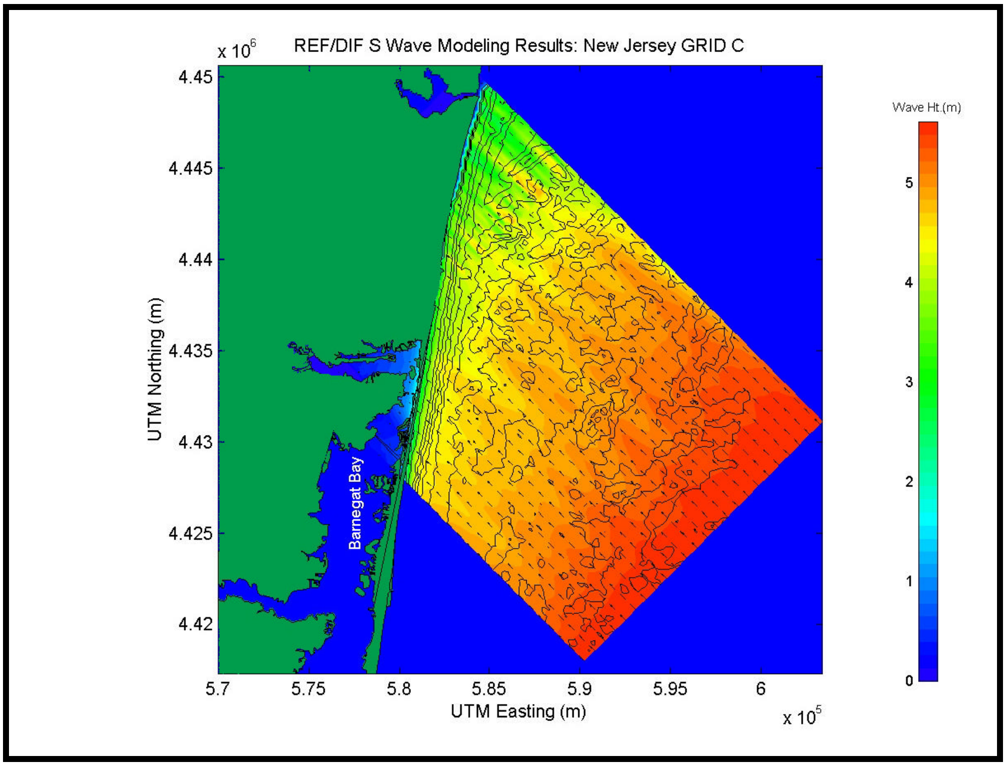

Figure B5-29. Spectral wave modeling results for post-dredging conditions using a 50-yr hurricane at reference Grid C.

B6. PRE- AND POST-DREDGING DIFFERENCE PLOTS

This section presents wave height modifications caused by potential offshore sand mining of various proposed borrow sites. Results are presented for all simulations (directional and 50-year storm) at Grids A, B1, B2, and C. For all figures, green shades indicate areas of increased wave height, while blue shades identify areas of decreased wave height. Solid black lines indicate depth contours, solid white lines indicate proposed sand borrow sites, and the colorbar on the right indicates the magnitude of modifications.

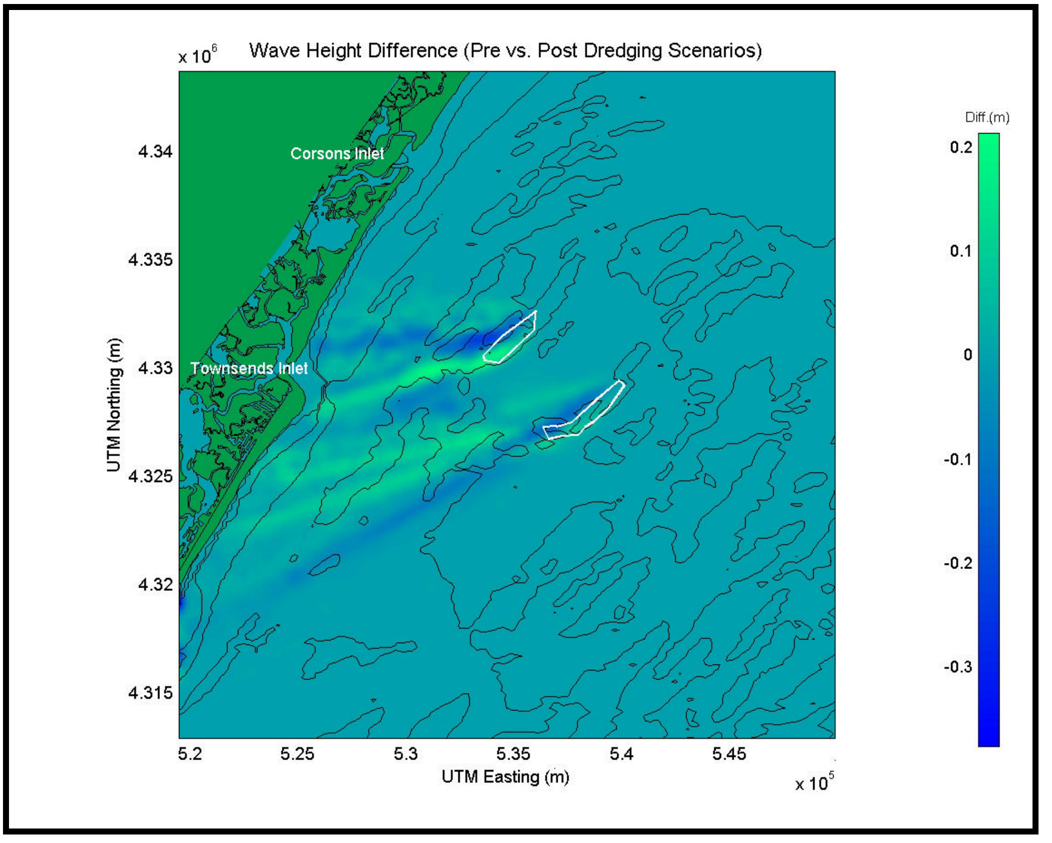

Figure B6-1. Wave height modifications caused by potential offshore mining at Resource Areas A1 and A2 for an east-northeast (22.5E) approach direction for reference Grid A.

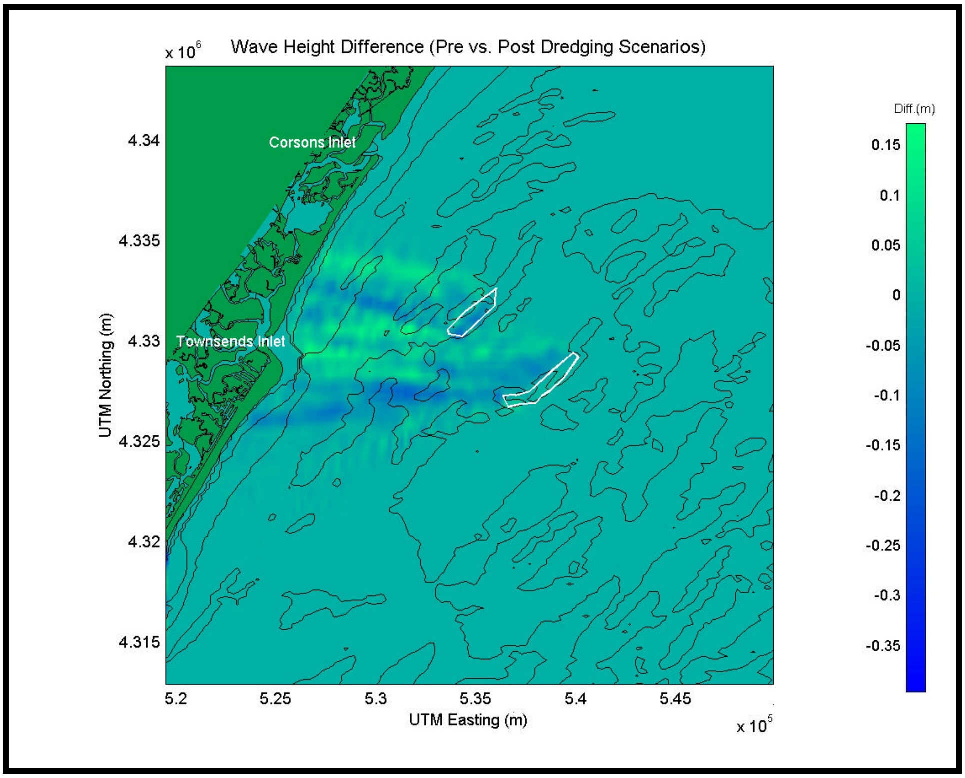

Figure B6-2. Wave height modifications caused by potential offshore mining at Resource Areas A1 and A2 for an east (0E) approach direction for reference Grid A.

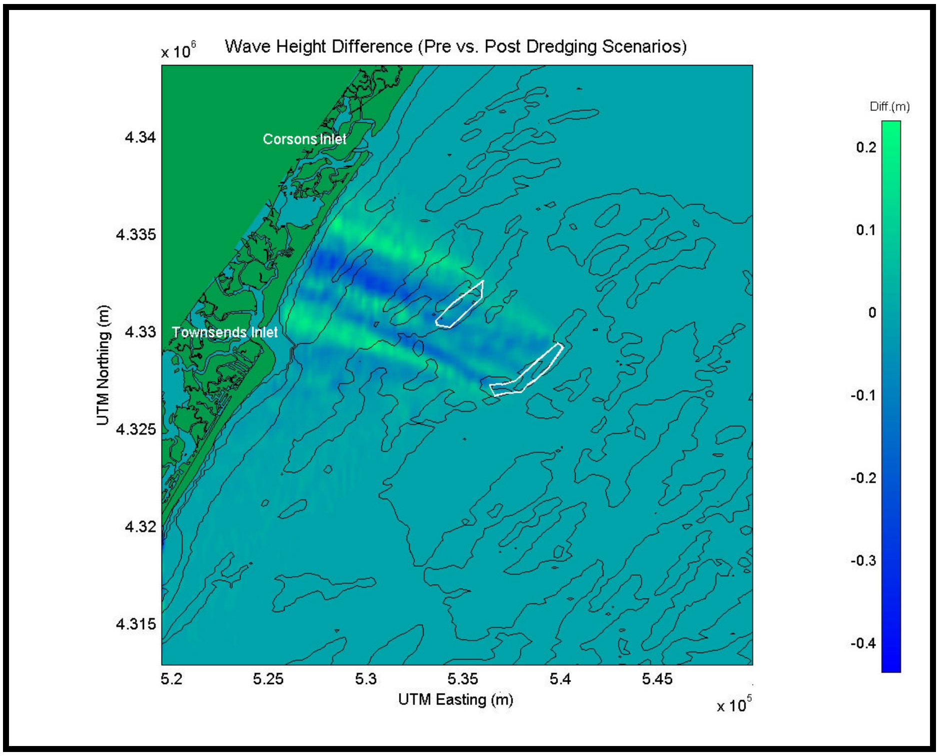

Figure B6-3. Wave height modifications caused by potential offshore mining at Resource Areas A1 and A2 for an east-southeast (-22.5E) approach direction for reference Grid A.

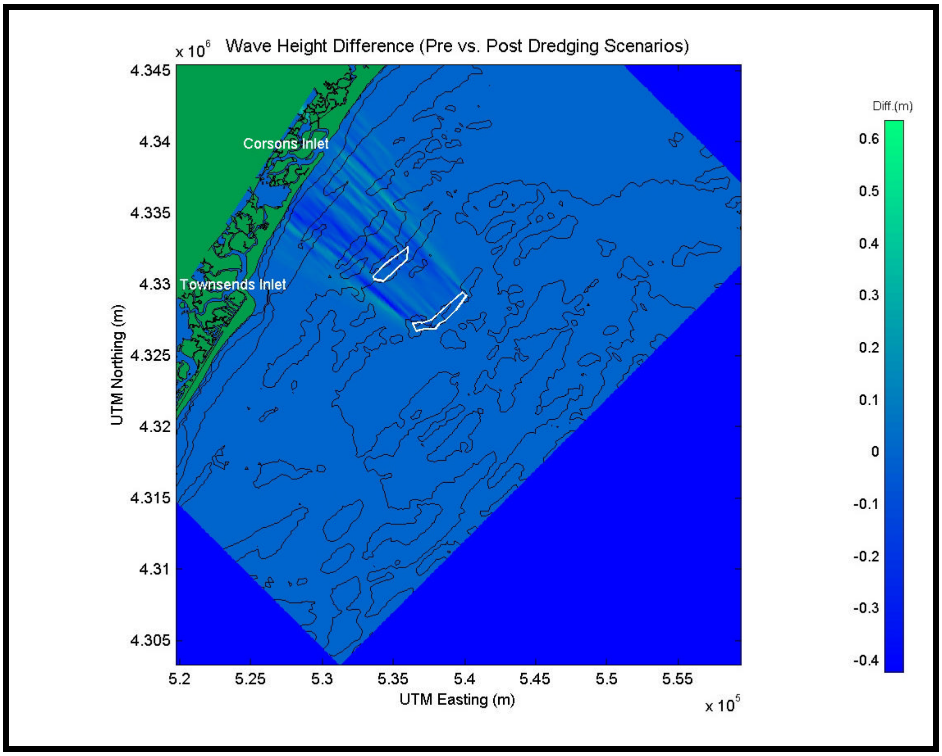

Figure B6-4. Wave height modifications caused by potential offshore mining at Resource Areas A1 and A2 for a southeast (-45E) approach direction for reference Grid A.

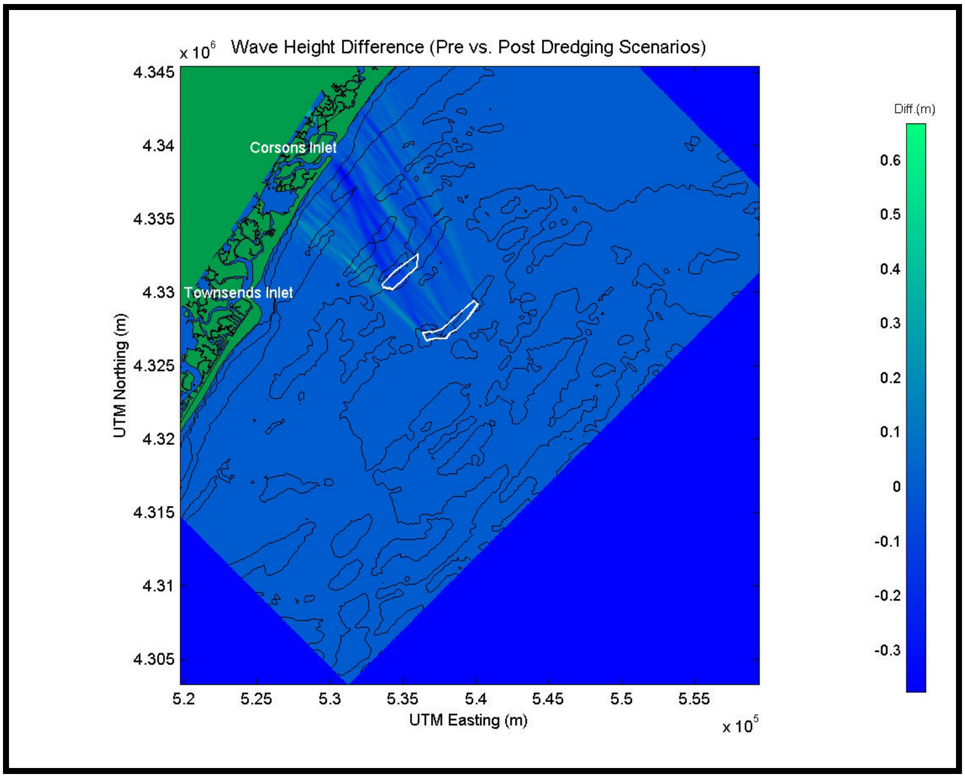

Figure B6-5. Wave height modifications caused by potential offshore mining at Resource Areas A1 and A2 for a south southeast (-67.5E) approach direction for reference Grid A.

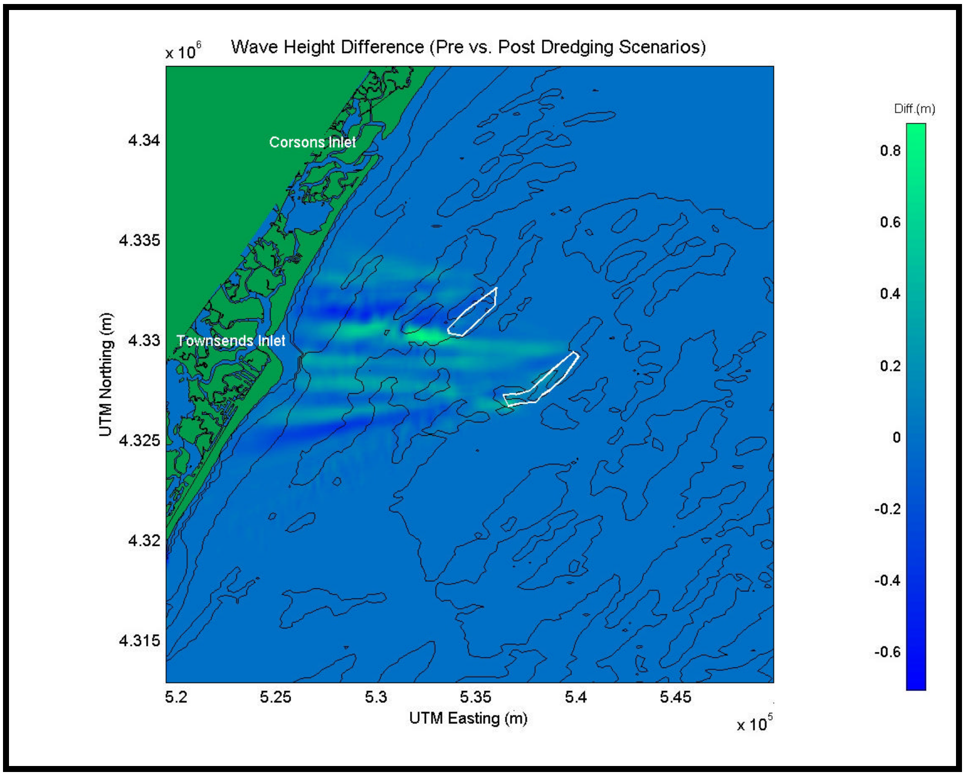

Figure B6-6. Wave height modifications caused by potential offshore mining at Resource Areas A1 and A2 for a 50-yr northeast storm at reference Grid A.

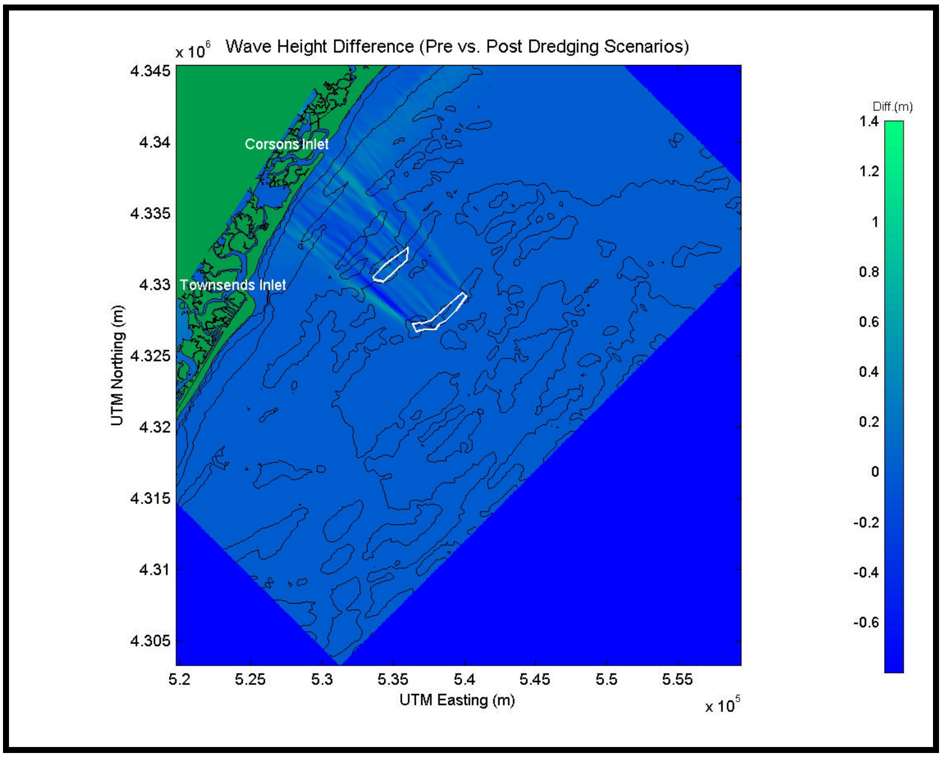

Figure B6-7. Wave height modifications caused by potential offshore mining at Resource Areas A1 and A2 for a 50-yr hurricane at reference Grid A.

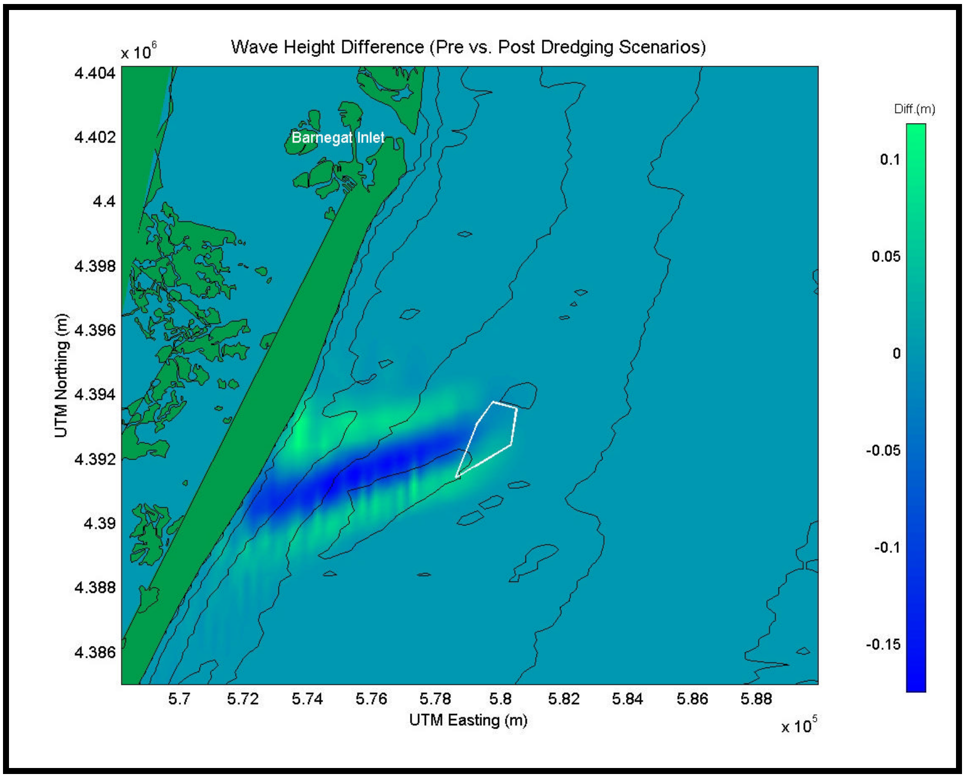

Figure B6-8. Wave height modifications caused by potential offshore mining at Resource Area C1 for an east-northeast (22.5E) approach direction for reference Grid B1.

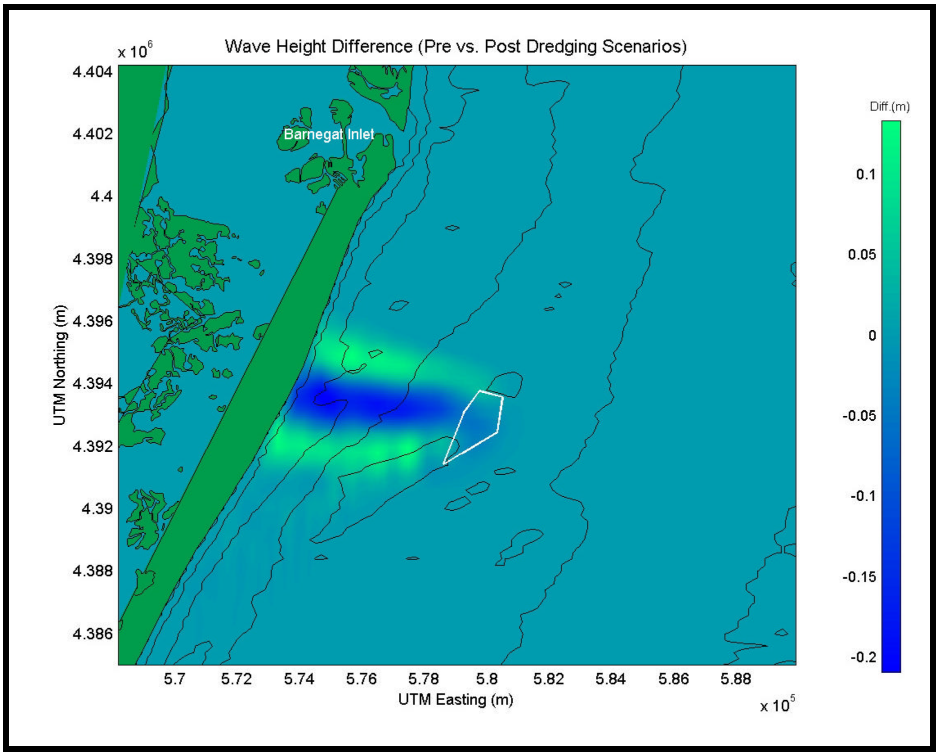

Figure B6-9. Wave height modifications caused by potential offshore mining at Resource Area C1 for an east (0E) approach direction for reference Grid B1.

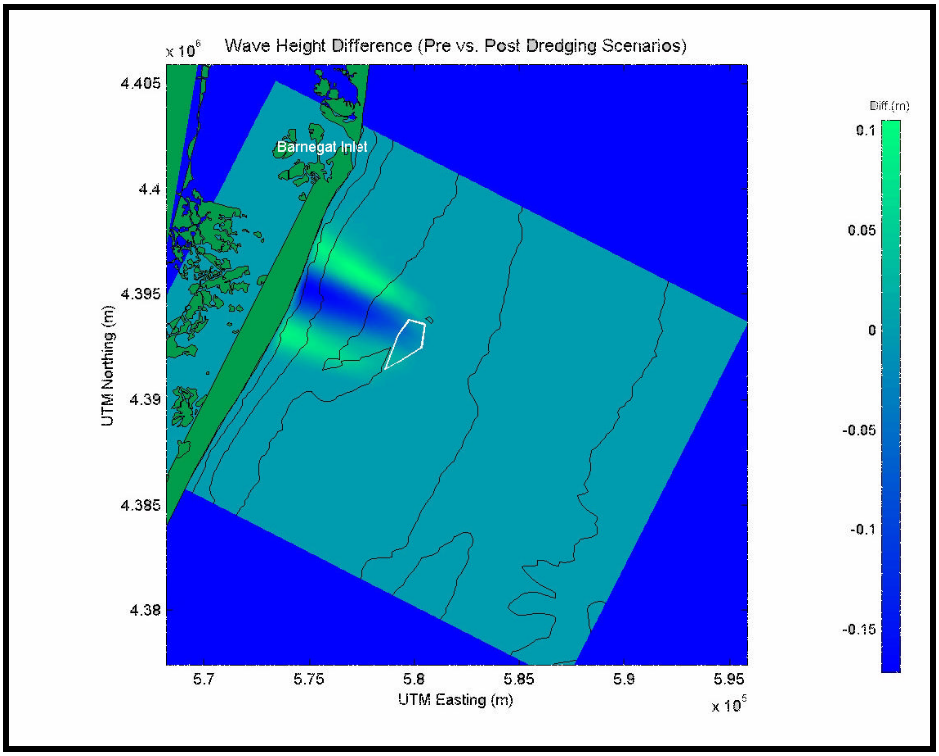

Figure B6-10. Wave height modifications caused by potential offshore mining at Resource Area C1 for an east-southeast (-22.5E) approach direction for reference Grid B1.

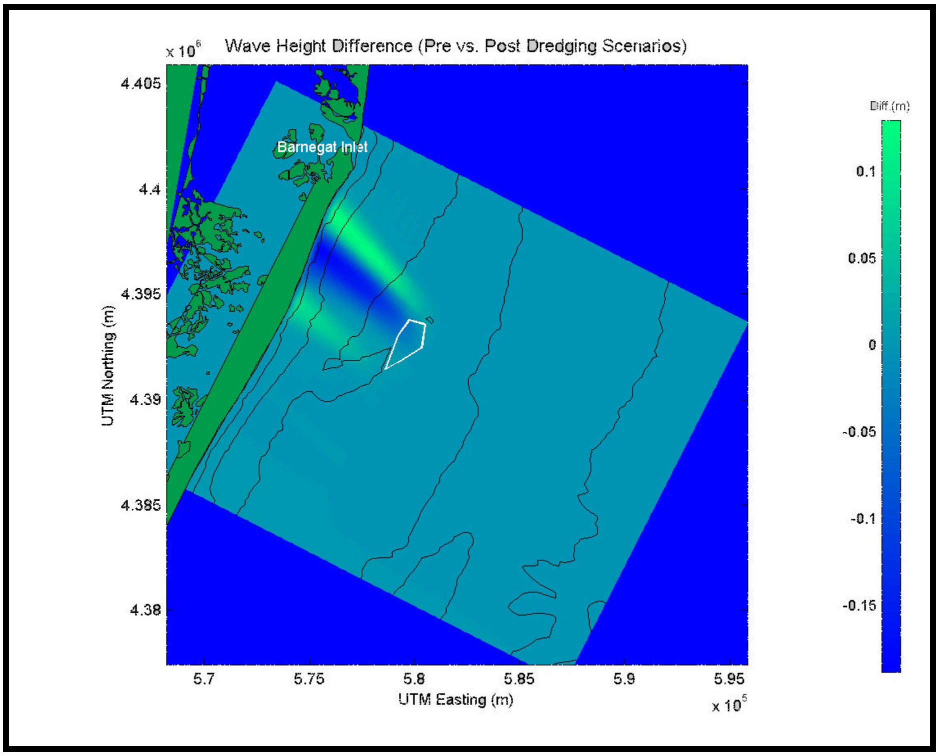

Figure B6-11. Wave height modifications caused by potential offshore mining at Resource Area C1 for a southeast (-45E) approach direction for reference Grid B1.

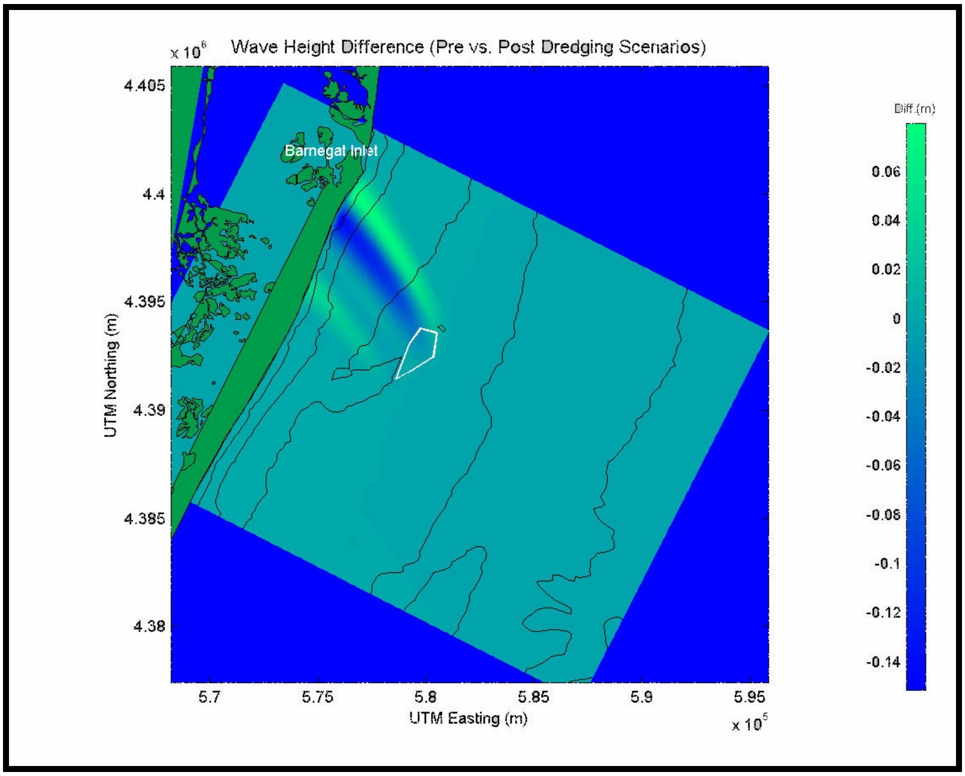

Figure B6-12. Wave height modifications caused by potential offshore mining at Resource Area C1for a south-southeast (-67.5E) approach direction for reference Grid B1.

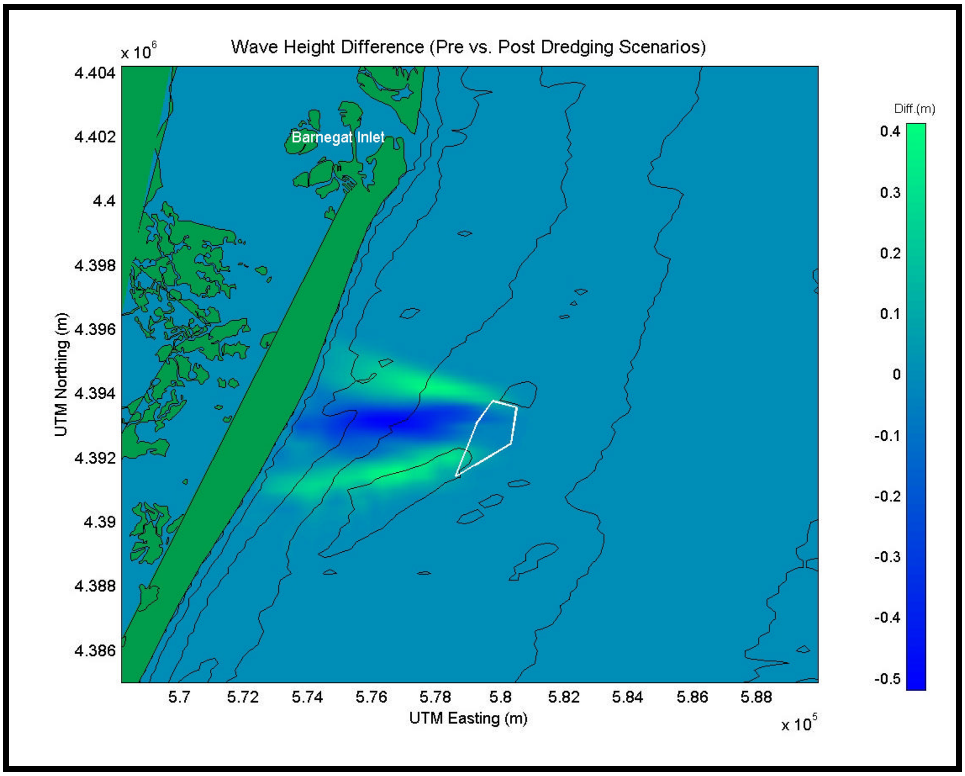

Figure B6-13. Wave height modifications caused by potential offshore mining at Resource Area C1 for a 50-yr northeast storm at reference Grid B1.

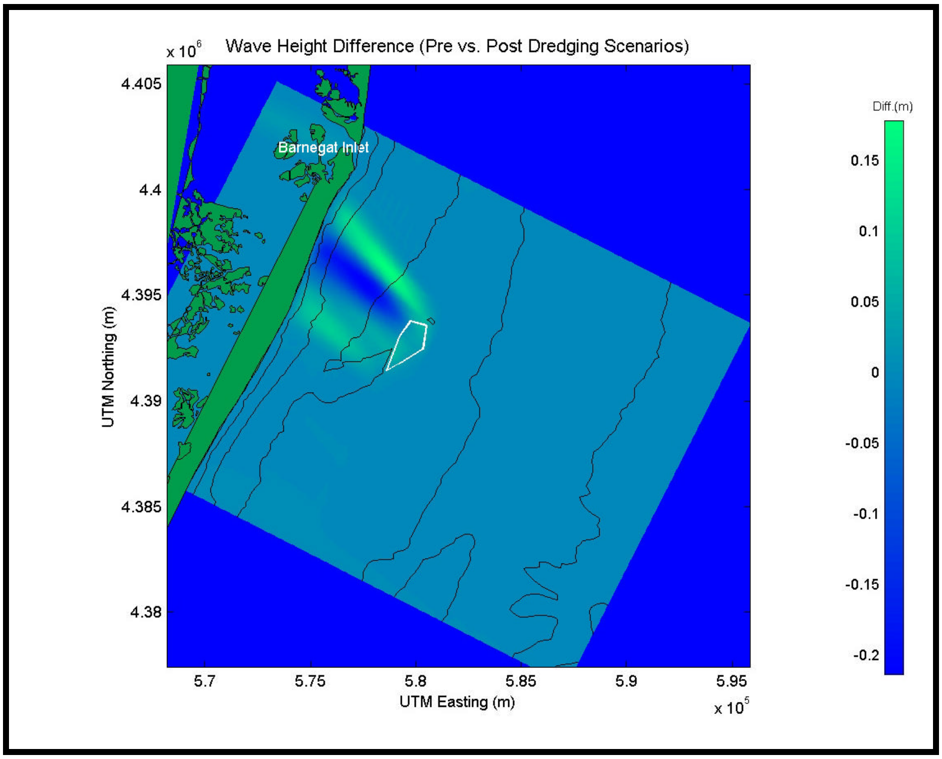

Figure B6-14. Wave height modifications caused by potential offshore mining at Resource Area C1 for a 50-yr hurricane at reference Grid B1.

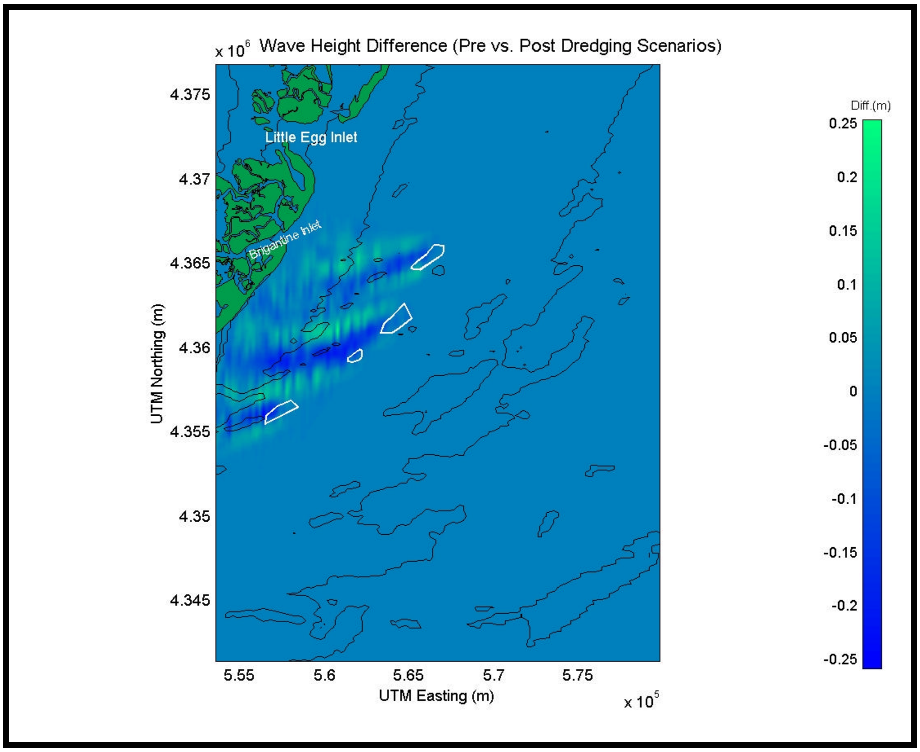

Figure B6-15. Wave height modifications caused by potential offshore mining at Resource Areas G2 (top and bottom) and G3 for an east-northeast (22.5E) approach direction for reference Grid B2.

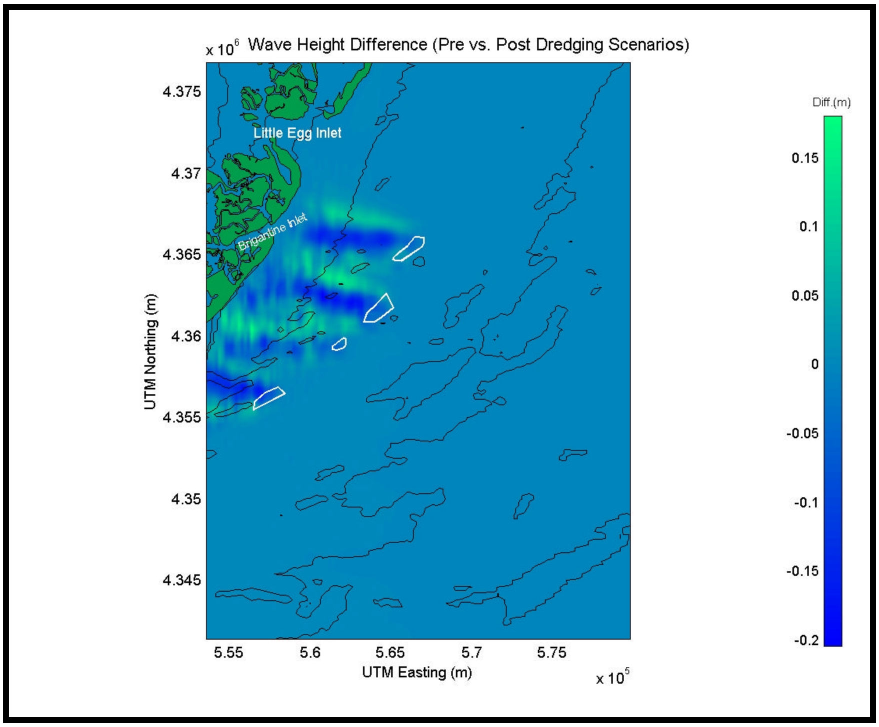

Figure B6-16. Wave height modifications caused by potential offshore mining at Resource Areas G2 (top and bottom) and G3 for an east (0E) approach direction for reference Grid B2.

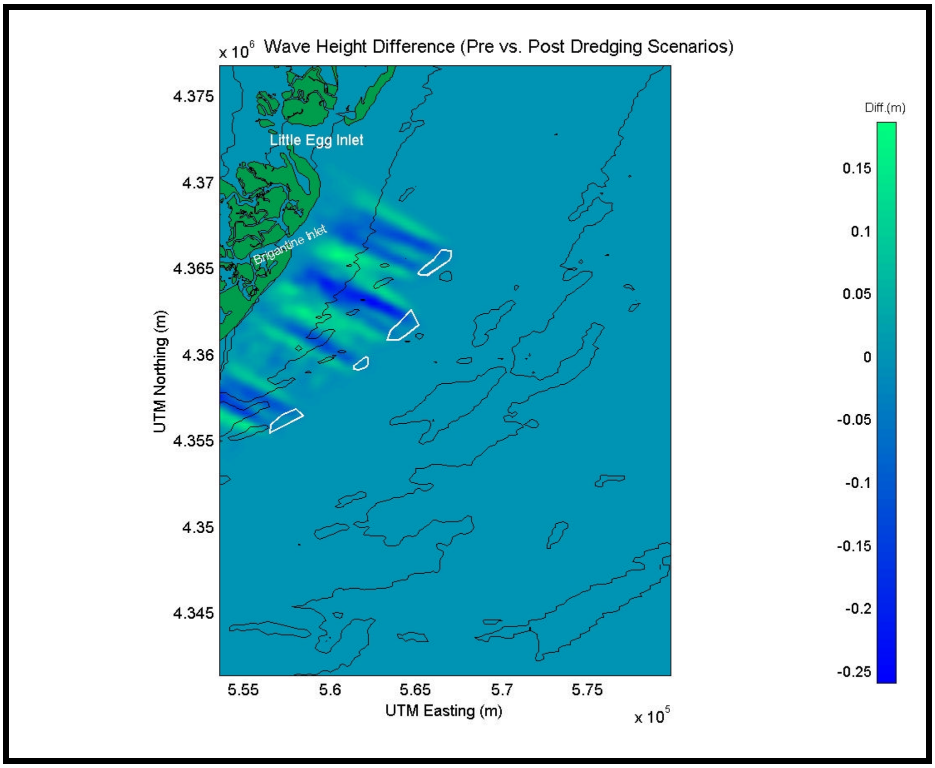

Figure B6-17. Wave height modifications caused by potential offshore mining at Resource Areas G2 (top and bottom) and G3 for an east-southeast (-22.5E) approach direction for reference Grid B2.

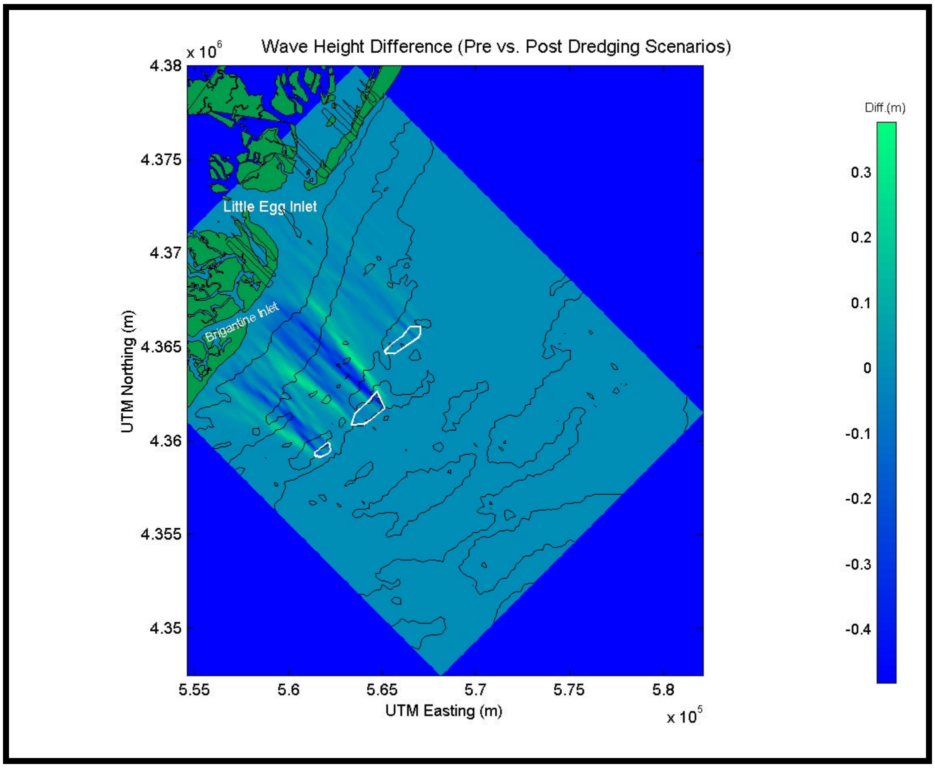

Figure B6-18. Wave height modifications caused by potential offshore mining at Resource Areas G2 (top and bottom) and G3 for a southeast (-45E) approach direction for reference Grid B2.

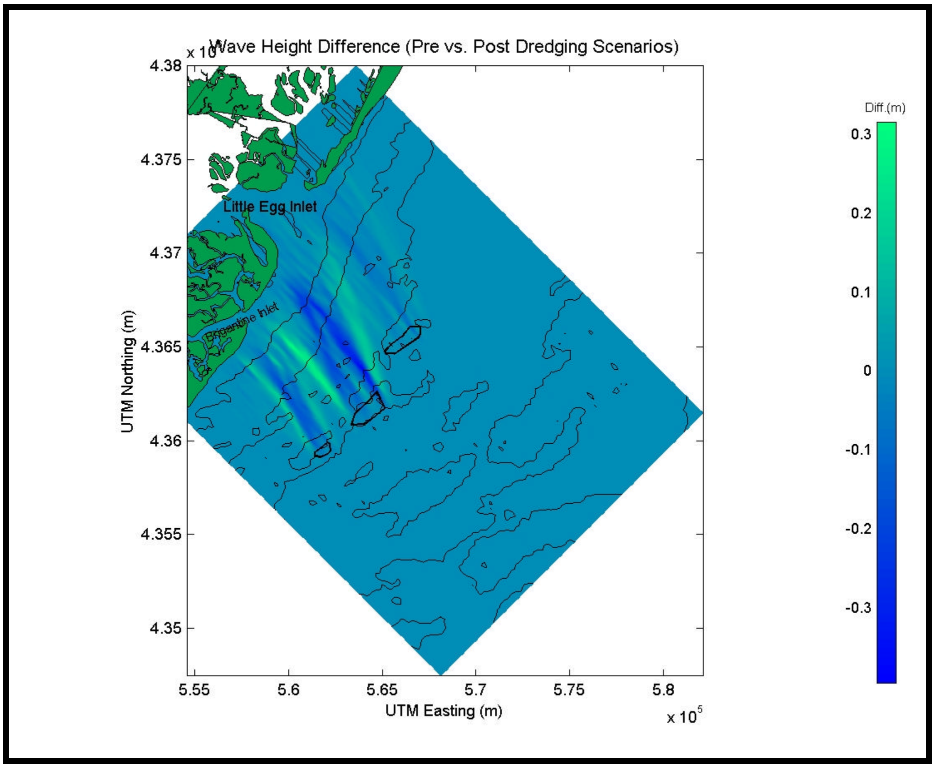

Figure B6-19. Wave height modifications caused by potential offshore mining at Resource Areas G2 (top and bottom) and G3 for a southeast (-45E) approach direction for reference Grid B2.

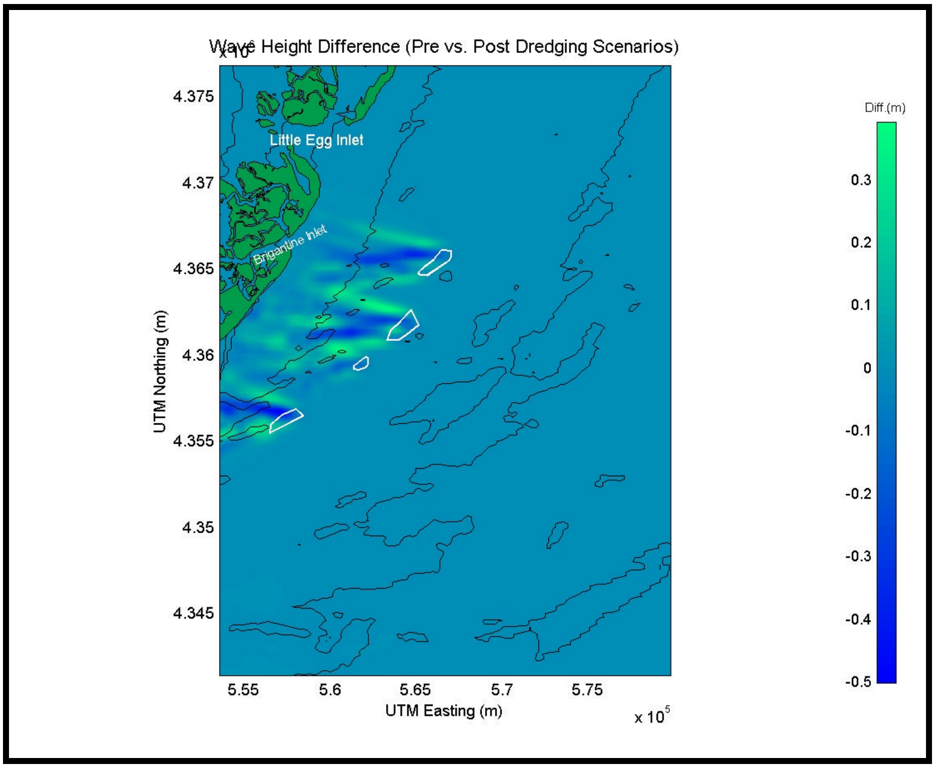

Figure B6-20. Wave height modifications caused by potential offshore mining at Resource Areas G2 (top and bottom) and G3 for a 50-yr northeast storm at reference Grid B2.

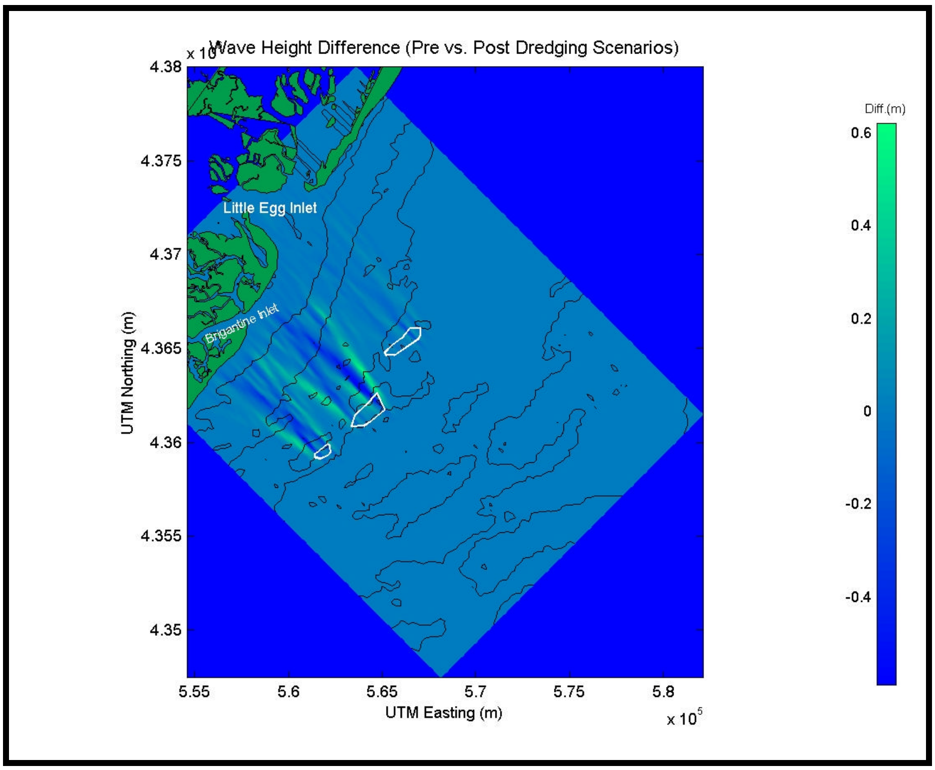

Figure B6-21. Wave height modifications caused by potential offshore mining at Resource Areas G2 (top and bottom) and G3 for a 50-yr hurricane at reference Grid B2.

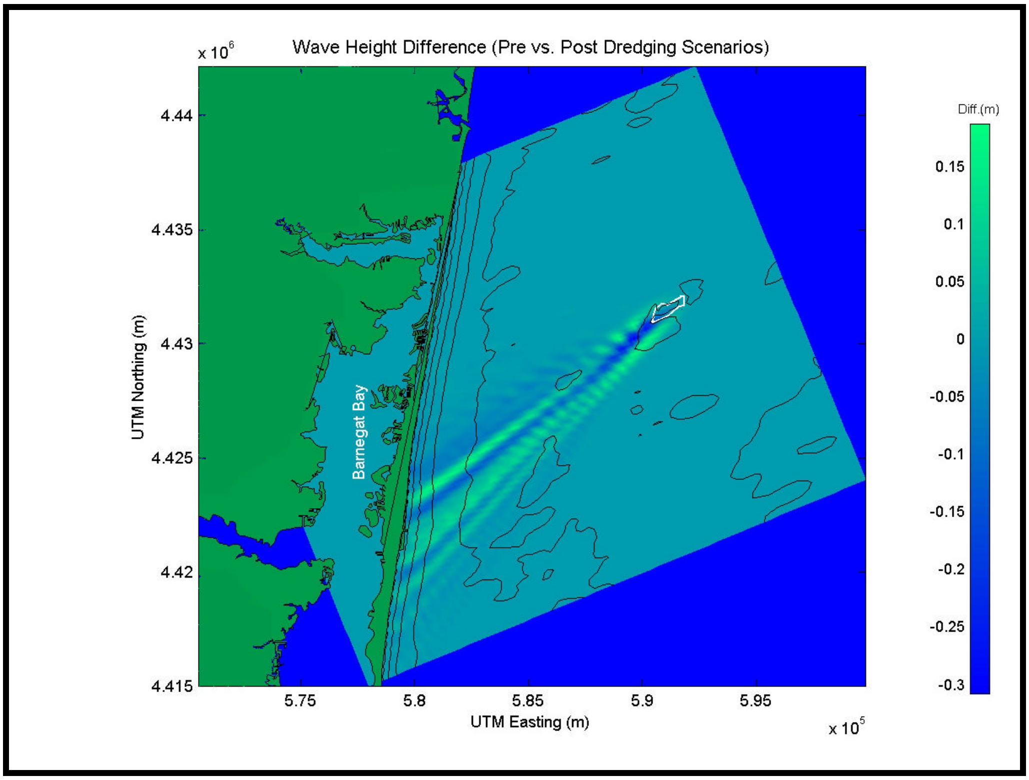

Figure B6-22. Wave height modifications caused by potential offshore mining at Resource Area F2 for a northeast (45°) approach direction for reference Grid C.

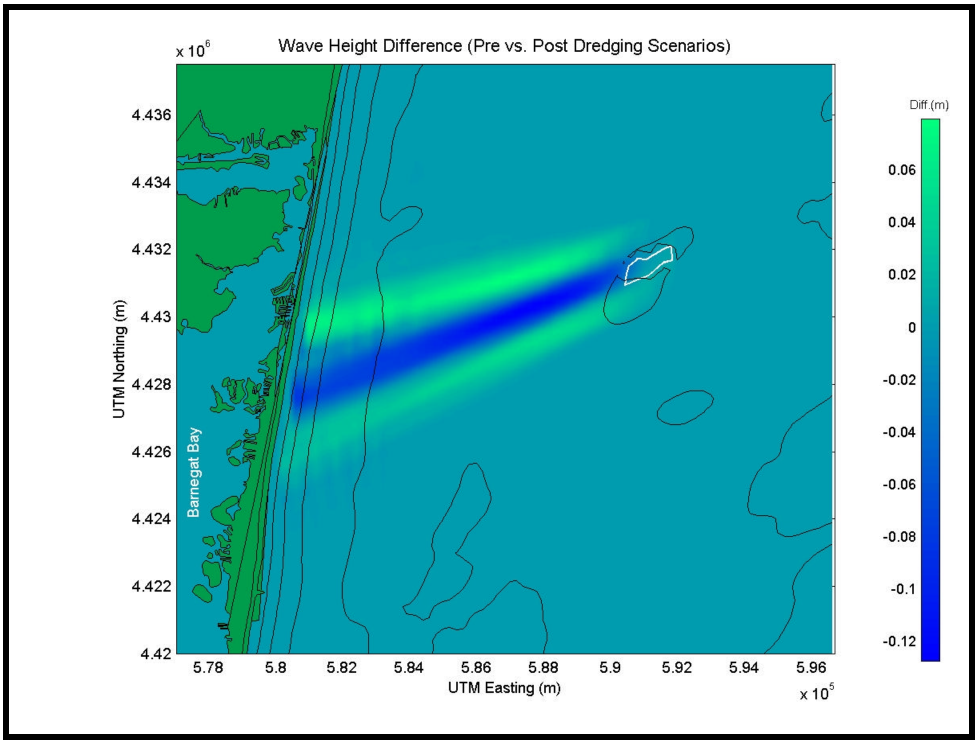

Figure B6-23. Wave height modifications caused by potential offshore mining at Resource Area F2 for an east-northeast (22.5E) approach direction for reference Grid C.

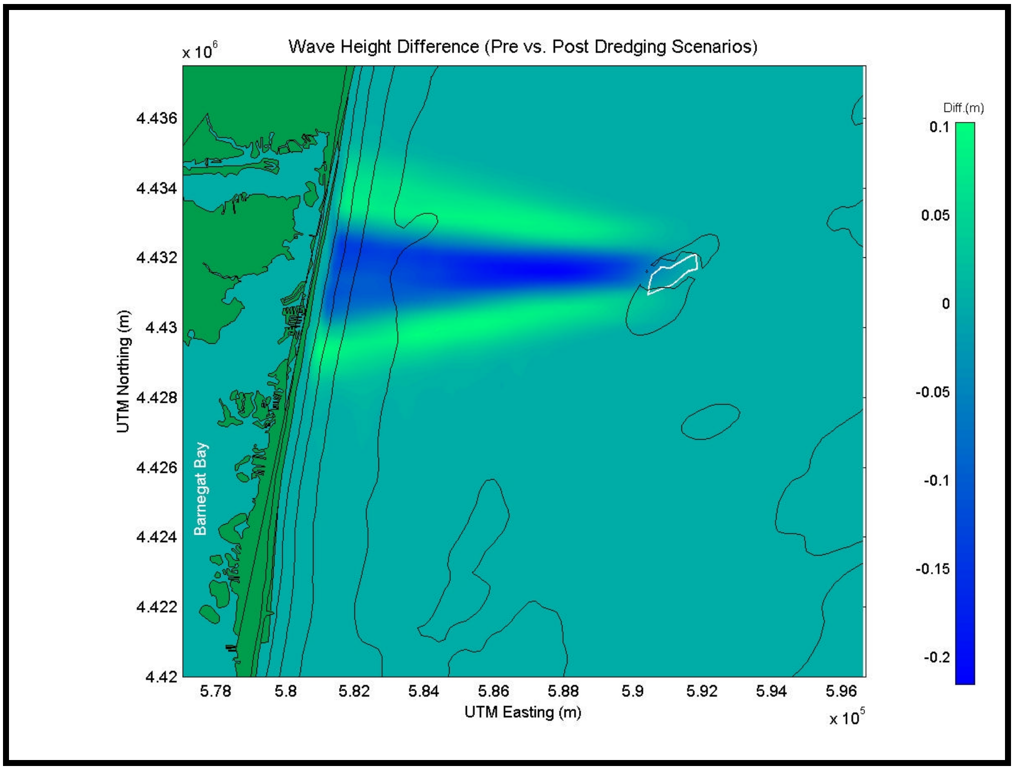

Figure B6-24. Wave height modifications caused by potential offshore mining at Resource Area F2 for an east (0E) approach direction for reference Grid C.

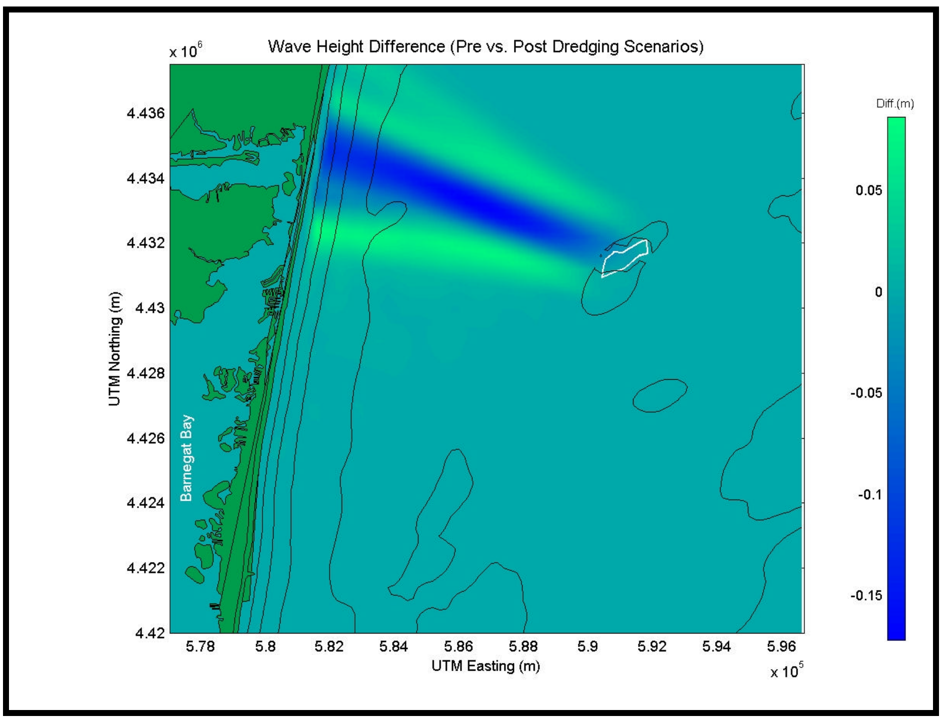

Figure B6-25. Wave height modifications caused by potential offshore mining at Resource Area F2 for an east-southeast (-22.5E) approach direction for reference Grid C.

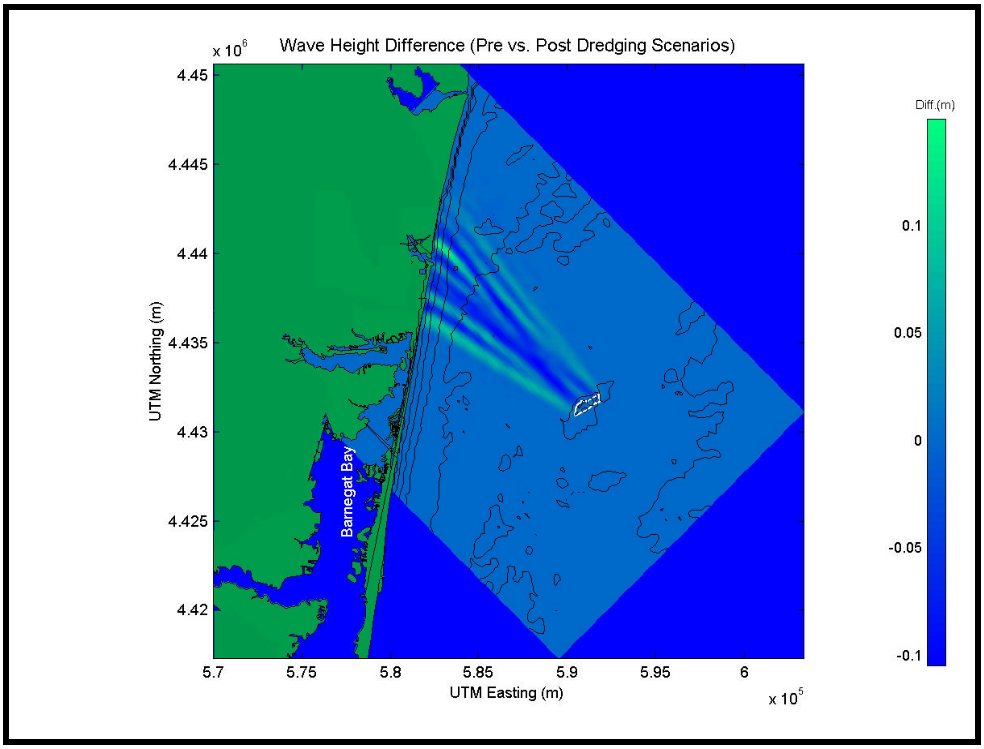

Figure B6-26. Wave height modifications caused by potential offshore mining at Resource Area F2 for a southeast (-45E) approach direction for reference Grid C.

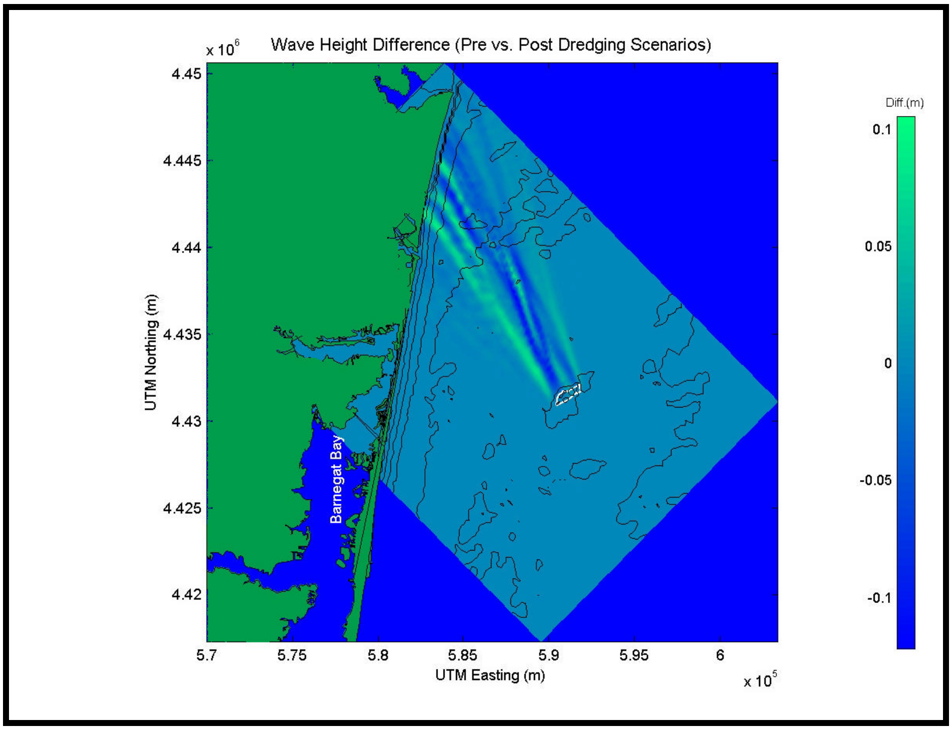

Figure B6-27. Wave height modifications caused by potential offshore mining at Resource Area F2 for a south southeast (-67.5E) approach direction for reference Grid C.

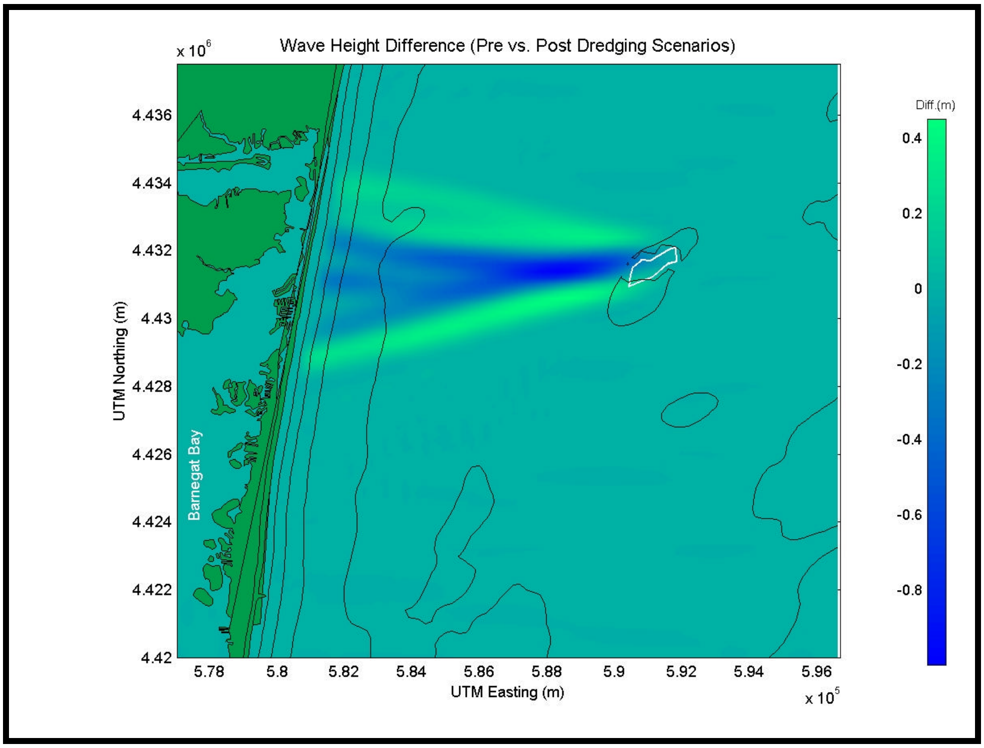

Figure B6-28. Wave height modifications caused by potential offshore mining at Resource Area F2 for a 50-yr northeast storm at reference Grid C.

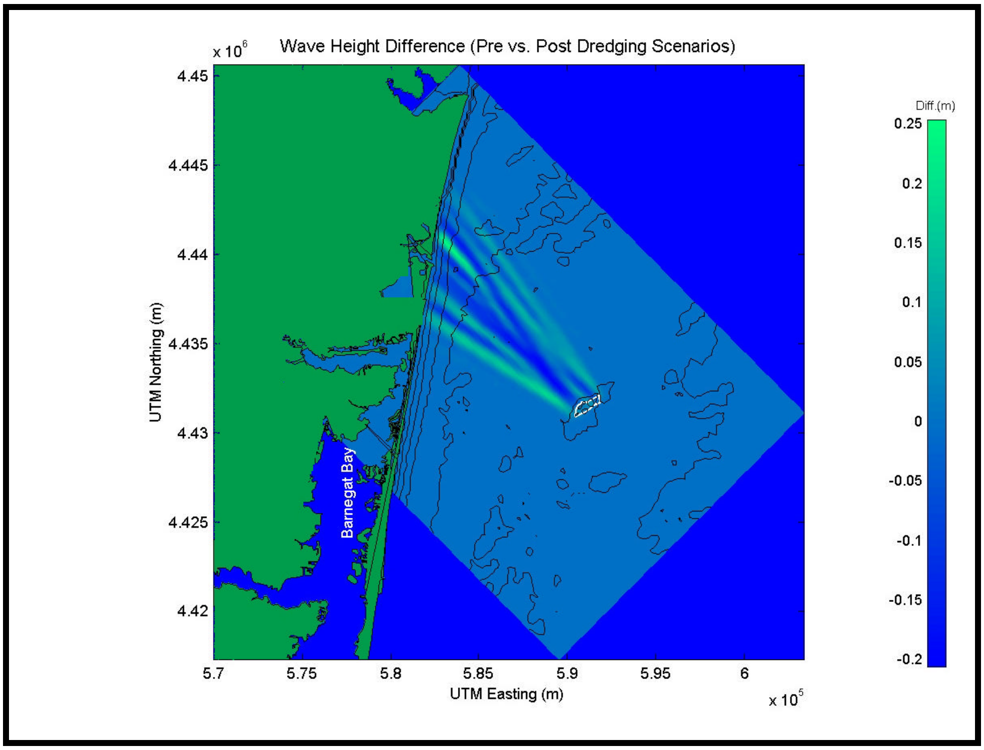

Figure B6-29. Wave height modifications caused by potential offshore mining at Resource Area F2 for a 50-yr hurricane at reference Grid C.

APPENDIX C. SEDIMENT TRANSPORT NUMERICAL MODELING

C1. INITIATION OF SEDIMENT MOTION UNDER COMBINED WAVE AND CURRENT ACTION

Before sediment can be transported, it must be moved from the seabed by combined wave and current motion. When sufficient stress is applied to the bed, sediment may begin to move. Typically, a mild steady flow over a bed of cohesionless grains will not result in sediment transport (Fredsoe and Deigaard, 1992). However, when subjected to a large enough flow, the driving forces impacting sediment grains exceed the stabilizing forces, and sediment will begin to move.

Through dimensional analysis, Shields (1936) derived an expression that identifies the point where bed stress equals bed resistance. The threshold of particle motion is based on a ratio between the driving forces (drag and lifting forces) and stabilizing forces (frictional forces) as seen in Figure C1-1. The Shields parameter (ψ) results from equating the driving and stabilizing forces. For a flat bed:

$$\psi = \frac{\tau_b}{(s-1)\,\rho g\, d_{50}} \quad \text{(C1.1)}$$

where

τ_b = maximum bottom shear stress
ρ = density of the sea water
s = relative density (equals 2.65 for natural sediment)
g = acceleration due to gravity
d_{50} = grain diameter which corresponds to 50% by weight finer

The shear stress at the bed, τ_b, is given by Madsen and Grant (1976) and Raudkivi (1990) as:

$$\vec{\tau}_b = \frac{1}{2}\rho f_{cw}\left|\vec{u}_{cw}\right|\vec{u}_{cw} \quad \text{(C1.2)}$$

where f_{cw} is the combined wave/current friction factor and $\boldsymbol{u_{cw}}$ is the combined wave/current reference velocity.

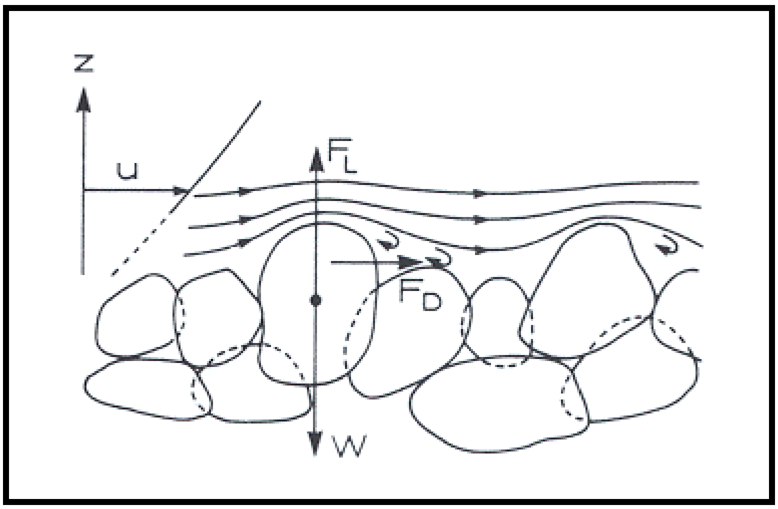

Figure C1-1. Forces acting on grains resting on the seabed (Fredsoe and Deigaard, 1992). F_L = lifting force, F_D = drag force, and W = grain weight.

In this study, $\boldsymbol{u_{cw}}$ includes the effects of waves and a steady current. A combination of the two creates a more realistic representation of maximum bottom velocity and bed shear stress (Figure C1-2). Proper combination of wave-induced and ambient currents requires an accurate representation of flow dynamics located directly at the seabed. In most cases, it is difficult to measure ambient current magnitude and direction directly at the seafloor. In the present study, historical current observations were measured a certain distance from the bottom. For example, current data used to derive the current field at Sand Resource Area C1 were sampled at a distance of 1.1 m above the sea floor.

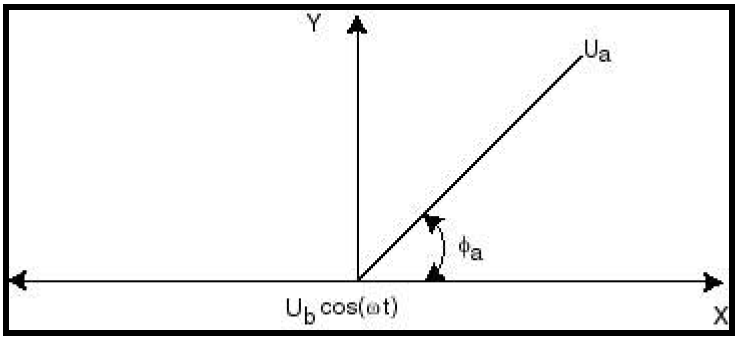

Figure C1-2. Illustration indicating the angle between the apparent bottom current and wave-induced bottom current (Grant and Madsen, 1979).

The combined wave/current reference velocity, u_{cw}, is a function of the wave-induced bottom orbital velocity (Equation C1.4) and the apparent ambient current velocity at the bottom, U_a, as given by:

$$\vec{u}_{cw} = \left(U_b \cos wt + U_a \cos f_a , U_a \sin f_a\right) \quad \text{(C1.3)}$$

where, U_b = wave-induced bottom velocity
U_a = apparent ambient current velocity at the bottom
ϕ_a = the angle between the apparent current and wave-induced current (Figure C1-2)

Because current observations were not measured at the bottom, they must be translated to the seafloor based on the application of a current profile through the bottom boundary layer. In order to determine the appropriate vertical current profile, the thickness of the bottom wave/current boundary layer (δ_w) must be determined and compared to the observed current location within the water column. A significant amount of work has been completed relative to the wave/current bottom boundary layer (Kajiura, 1964; Kajiura, 1968; Kamphuis, 1975; Bakker and van Doorn, 1978; Knight, 1978; Grant and Madsen, 1979; Trowbridge and Madsen, 1984). In addition, Trowbridge and Agrawal (1995) collected field data within the bottom boundary layer. Jonsson (1980) presents an equation for the thickness of the wave boundary layer in oscillatory rough turbulent flow, which is most common in nature, as:

$$d_w = \frac{2k U_{*m}}{w} \quad \text{(C1.4)}$$

κ = Von Karman's constant (0.4)
U_{*m} = the maximum current velocity at the seabed
$\omega = 2\pi/T$

If observed currents were measured outside of the bottom boundary layer ($z > \delta_w$), which is usually the case in field measurements, a logarithmic current profile is assumed, as:

$$U_c = \frac{U_{*c}}{k} \ln\left(\frac{30z}{k_{bc}}\right) \tag{C1.5}$$

where U_{*c} = the critical bottom velocity
z = height above the bed
U_c = the magnitude of the measured current
k_{bc} = the apparent bed roughness

The apparent bed roughness presented in Equation C1.5 is defined as:

$$k_{bc} = k_b \left(60k \, \frac{U_{*m}}{k_b w}\right)^b \tag{C1.6}$$

where k_b is the roughness coefficient, which is assumed to be equivalent to d_{50} of the local sediment, and $\kappa = 1-(U_{*c}/U_{*m})$.

In the present study, the observed current was measured outside of the wave boundary layer at all of the measurement stations; therefore, Equation C1.5 was applied to translate the observed current data to the seabed for each of the Sand Resource Areas A1, A2, C1, F2, G2, and G3.

Having defined the ambient current velocity at the bottom, the bottom shear stress resulting from combined wave/current interaction can be determined. Maximum bottom shear stress, $\tau_{b,max}$, due to the combined current and wave action can be determined from:

$$t_{b,\max} = r U_{*m}^2 = \frac{1}{2} r f_{cw} U_b^2 \left(1 + 2e \cos f_a\right) \tag{C1.7}$$

where $\varepsilon = (U_a/U_b)$.

The combined wave/current friction factor, f_{cw}, is provided by Madsen and Grant (1976) as:

$$f_{cw} = \frac{U_c f_c + U_b f_w}{U_c + U_b} \tag{C1.8}$$

where f_c and f_w are friction factors corresponding to ambient current flow and wave-induced flow, respectively. The wave friction factor was presented by Jonsson (1966a) and is a function of the wave Reynolds number and $(U_b/k_b T)$.

$$f_w = f_w \left(\frac{{U_b}^2}{nw}, \frac{U_b}{k_b w}\right) \tag{C1.9}$$

The wave friction factor can be determined using Jonsson's wave friction factor diagram (Jonsson, 1966a). In a similar manner, the current friction factor can be determined from the standard Darcy-Weisbach approach:

$$f_c = \frac{1}{4} f\left(\frac{U_m 4h}{n}, \frac{d_{50}}{4h}\right) \tag{C1.10}$$

The maximum bottom shear stress under the combined wave/current interaction is then used to calculate the Shields parameter (Ψ_{max}) from Equation C1.1, recast as:

$$\Psi_{max} = \frac{U_{*m}^2}{g(s-1)d_{50}} \tag{C1.11}$$

Once the Shields parameter has been calculated at points of interest, the resulting values can be compared to a critical Shields parameter (Ψ_{crit}) to determine if sediment initiation occurs at each point of interest. The critical Shields parameter may be determined using a modified Shields diagram developed for sediment transport in the coastal environment (Madsen and Grant, 1976, 1977).

In addition, modifications have been made to the critical Shields parameter to account for sloped bed forms, such as the sideslopes of the dredged area. If sand grains are placed on a bed with a transverse slope or longitudinal slope, it is either easier or more difficult to initiate movement based on the direction of current flow (Figure C1-3). In the transverse case, the flow direction is perpendicular to the slope, while in the longitudinal case, the flow travels parallel to the slope. Therefore, sediment is initiated more easily on a downward slope than an upward slope and the critical Shields parameter decreases or increases according to bathymetry. Equations (C1.12) and (C1.13) take into account the transversely and longitudinally sloped bed forms, respectively, and provide an adjusted Ψ_{crit}:

$$\Psi_{crit} = \Psi_{\substack{critical\ for \\ a\ flat\ bed}} \cos b \sqrt{1 - \frac{\tan^2 b}{\tan^2 f_s}} \tag{C1.12}$$

$$\Psi_{crit} = \Psi_{\substack{critical\ for \\ a\ flat\ bed}} \cos g \left[1 - \frac{\tan g}{\tan f_s}\right] \tag{C1.13}$$

where b = transverse bed slope
γ = longitudinal bed slope
f_s = angle of repose

Finally, by comparing maximum and critical Shields parameters, sediment initiation can be determined at locations within and surrounding the offshore borrow sites. If ψ_{max} exceeds ψ_{crit}, then sediment will move. At each of the potential borrow locations, an observation area encompassing the dredged region and surrounding area, was extracted from the reference modeling domain. At each point within the selected observation area, the Shields parameter was determined and compared to the critical Shields parameter at that same grid point using wave modeling results for post-dredging scenario runs.

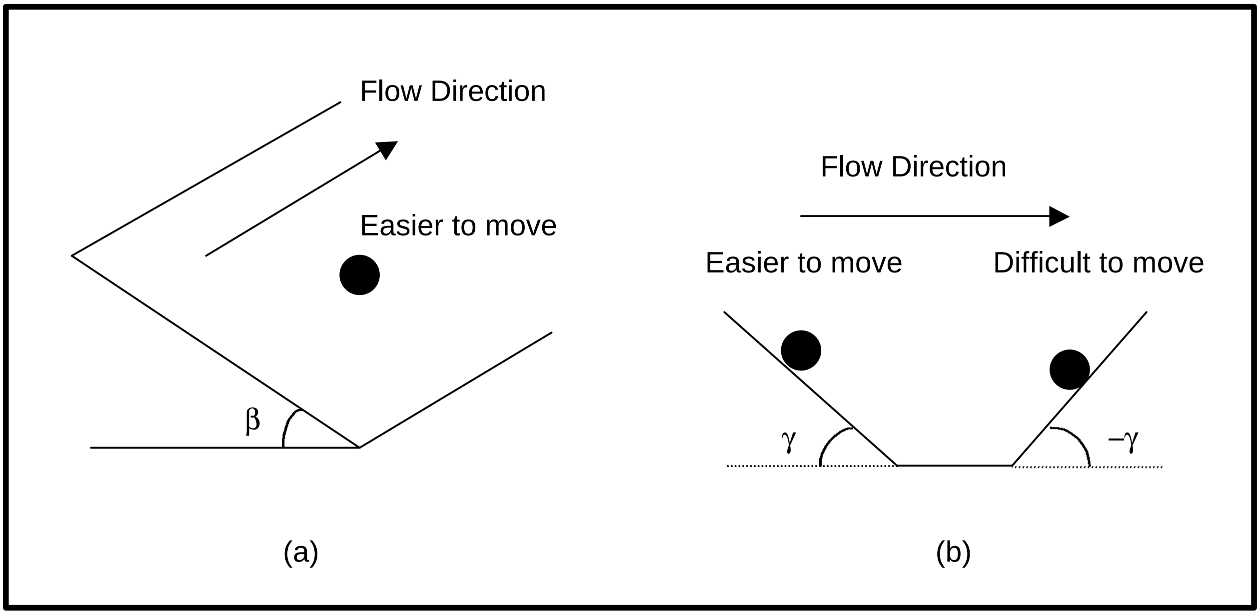

Figure C1-3. Illustration of a particle on a (a) transverse slope, and on a (b) longitudinal slope.

C2. RELATIVE MAGNITUDE AND DIRECTION OF TRANSPORT

Sediment initiation provides valuable insight into sediment movement, but does not provide information as to how much sediment moves and in what direction is it traveling. Therefore, sediment transport rates and transport directions need to be calculated in and around the offshore borrow sites to assess overall sediment transport potential as well as provide insight into:

- approximate rates of sediment transport,
- estimates of borrow site infilling rates,
- seasonal fluctuations in sediment transport patterns, and
- impact of storm events on borrow site infilling.

This section presents the theory of offshore sediment transport.

Offshore sediment transport rates are based on analytical expressions developed by Madsen and Grant (1976). They involve:

1. determining the time-varying values of sediment transport in the northing (y) and easting (x) directions,
2. period-averaging these sediment transport component results, and
3. calculating the net sediment transport magnitude and direction.

Determination of the instantaneous sediment transport rate is given by the following equations:

$$q(t)_{sediment,\,y} = 40\,\omega_{fall}\,d_{50}\left[\frac{\frac{1}{2} f_{cw}\left(u(t)^2 + v(t)^2\right)}{(s-1)\,g\,d_{50}}\right]^3 * \frac{v(t)}{\sqrt{u(t)^2 + v(t)^2}} \quad \text{(C2.1)}$$

$$q(t)_{sediment,\,x} = 40\,\omega_{fall}\,d_{50}\left[\frac{\frac{1}{2} f_{cw}\left(u(t)^2 + v(t)^2\right)}{(s-1)\,g\,d_{50}}\right]^3 * \frac{u(t)}{\sqrt{u(t)^2 + v(t)^2}} \quad \text{(C2.2)}$$

where $q(t)_{sediment,\,y}$ = sediment transport rate in northing direction
$q(t)_{sediment,\,x}$ = sediment transport rate in easting direction
$v(t)$ = time-dependent wave orbital bottom velocity and steady near bottom current in the northing direction
$u(t)$ = time-dependent wave orbital bottom velocity and steady near bottom current in the easting direction
ω_{fall} = sediment fall velocity

To determine the net sediment transport rate per wave cycle, sediment transport rates were period-averaged. The net period-averaged sediment transport rates in the northing $\left(\bar{q}(x,y)_y\right)$ and easting $\left(\bar{q}(x,y)_x\right)$ directions, respectively, are:

$$\bar{q}(x,y)_y = \frac{1}{T}\int_0^T q(t)_y\,dt \quad \text{(C2.3)}$$

$$\bar{q}(x,y)_x = \frac{1}{T}\int_0^T q(t)_x\,dt \quad \text{(C2.4)}$$

The northing and easting components can be combined by determining the sediment transport magnitude $\left(\overline{q}(x,y)\right)$ defined as:

$$\overline{q}(x,y) = \sqrt{\left[\overline{q}(x,y)_y\right]^2 + \left[\overline{q}(x,y)_x\right]^2} \qquad \text{(C2.5)}$$

In addition to magnitude, the net direction can be calculated based on the sediment transport components. Results of the analyses were used to visualize the rate of sediment movement and the direction of transport which are presented in Section 5.2.1.2.

Since wave input conditions were specified in terms of directional bins, wave energies within each bin were different. This was taken into account for the offshore sediment transport modeling. Sediment transport rates were weighted in accordance with their contribution of wave energy, as well as calm time (waves with T < 5 seconds).

C3. LONGSHORE SEDIMENT TRANSPORT MODEL RESULTS

The following 87 plots provide S_{xy} radiation stress values as well as annualized longshore sediment transport rates. Annualized sediment transport rates were computed by weighting the sediment transport potential for each case by the percent occurrence of the specific wave condition. The radiation stress variation indicates the relative strength of longshore sediment transport potential. By plotting the nearshore variability of this quantity, areas of increased wave energy focusing can be determined. As expected areas of high radiation stress correspond to areas of high longshore sediment transport.

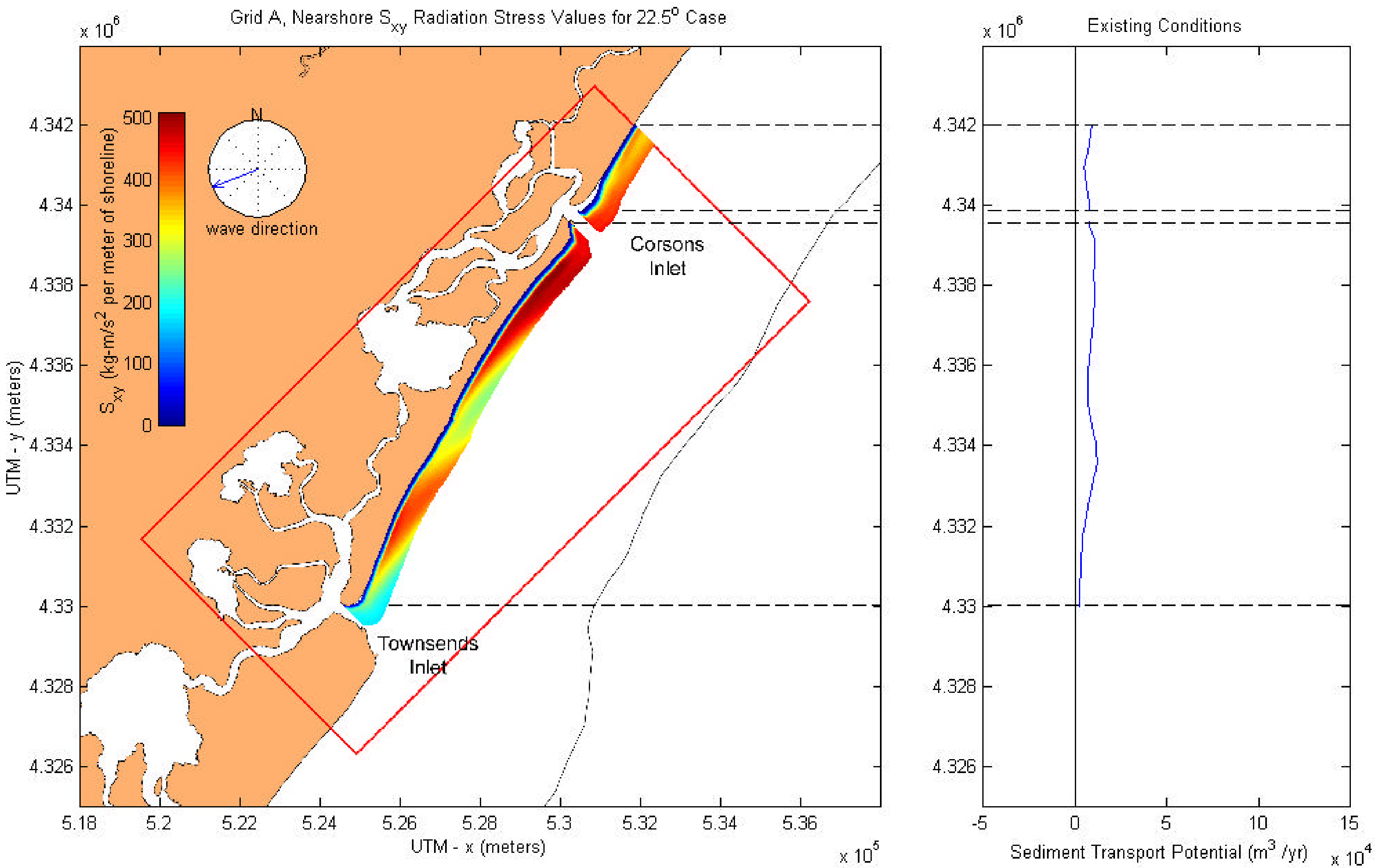

Figure C3-1. S_{xy} radiation stress and annual sediment transport potential for existing conditions at Grid A, 22.5° case.

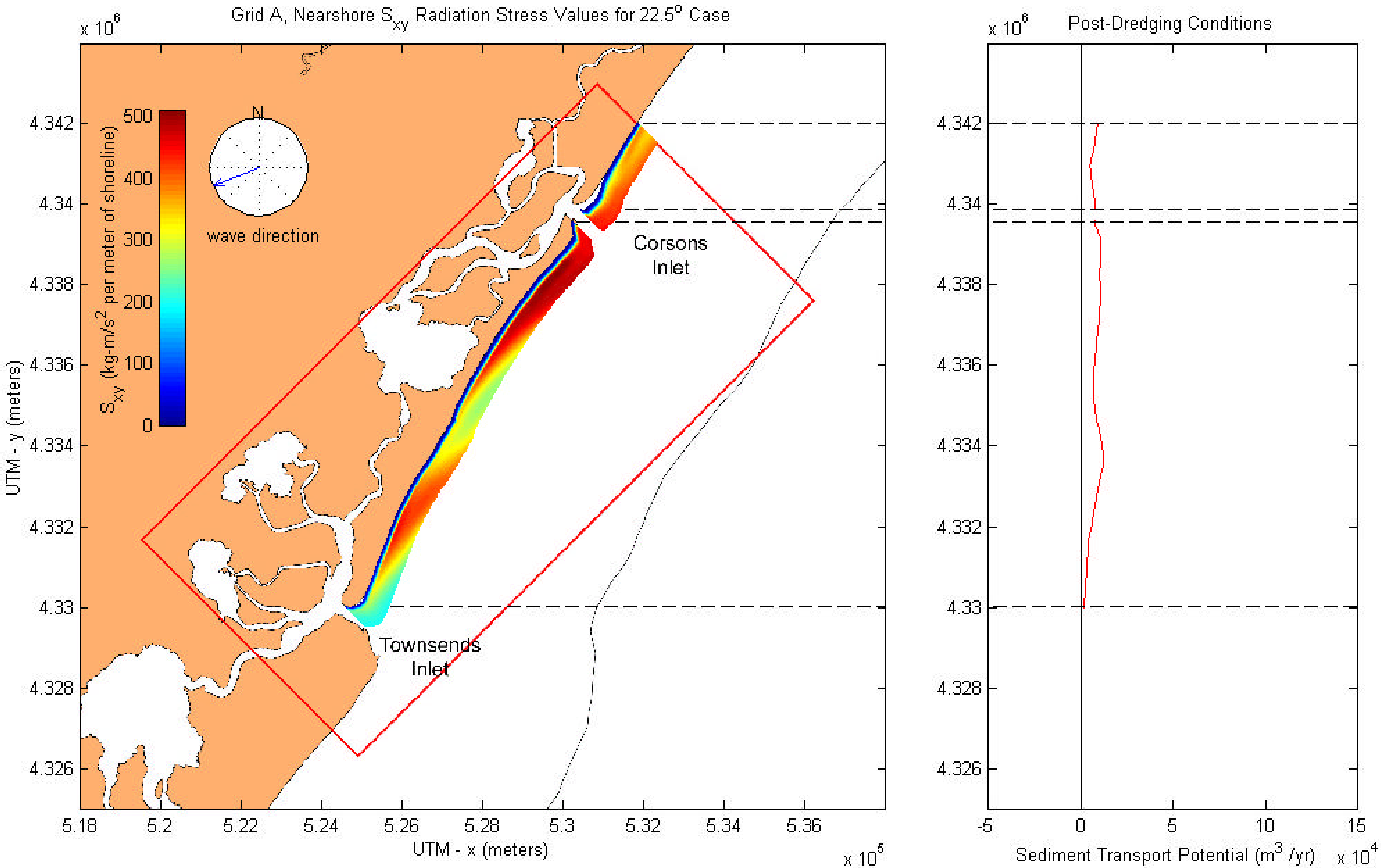

Figure C3-2. S_{xy} radiation stress and annual sediment transport potential for post-dredging conditions at Grid A, 22.5° case.

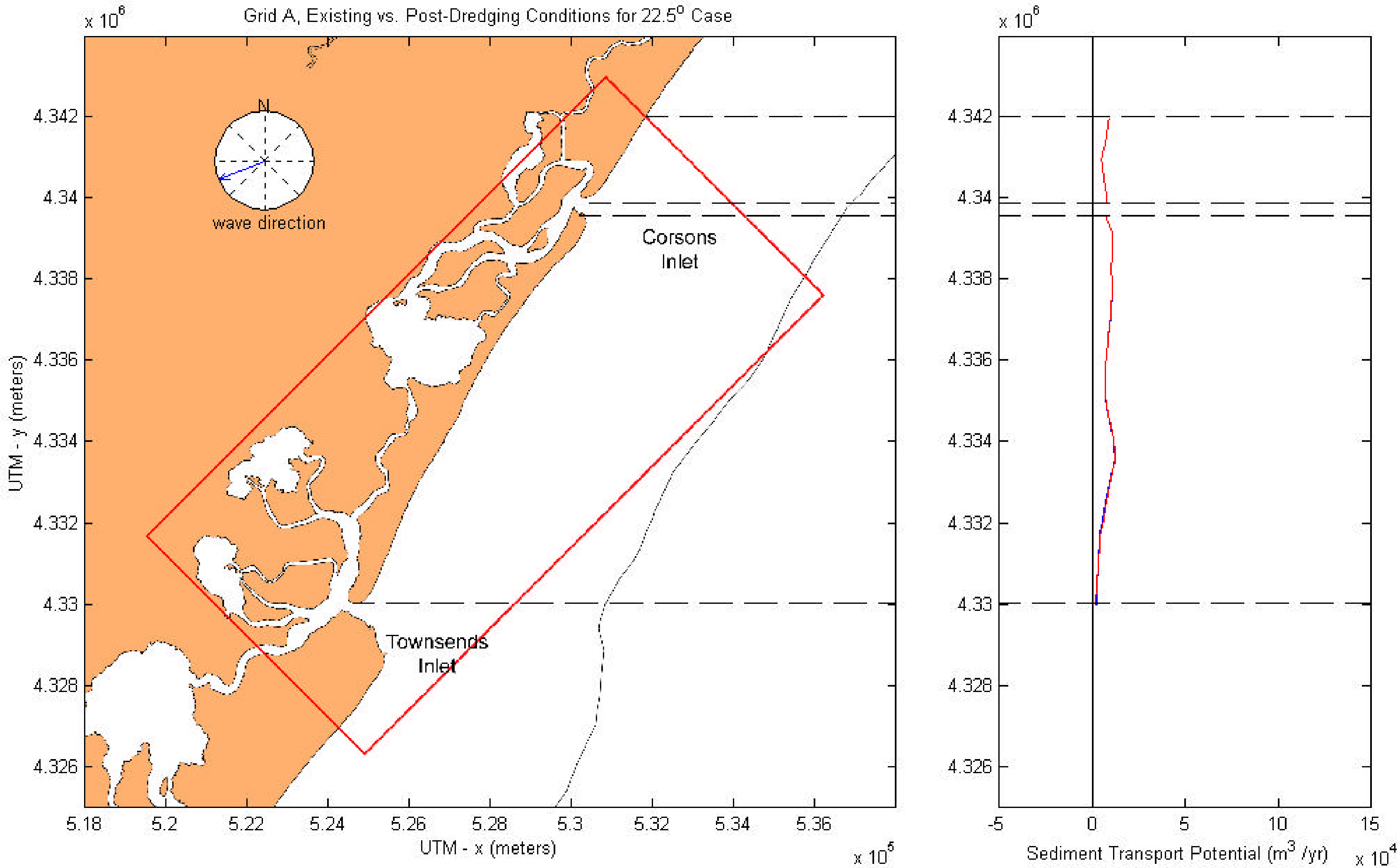

Figure C3-3. Existing versus post-dredging annual sediment transport potential at Grid A for the 22.5° case.

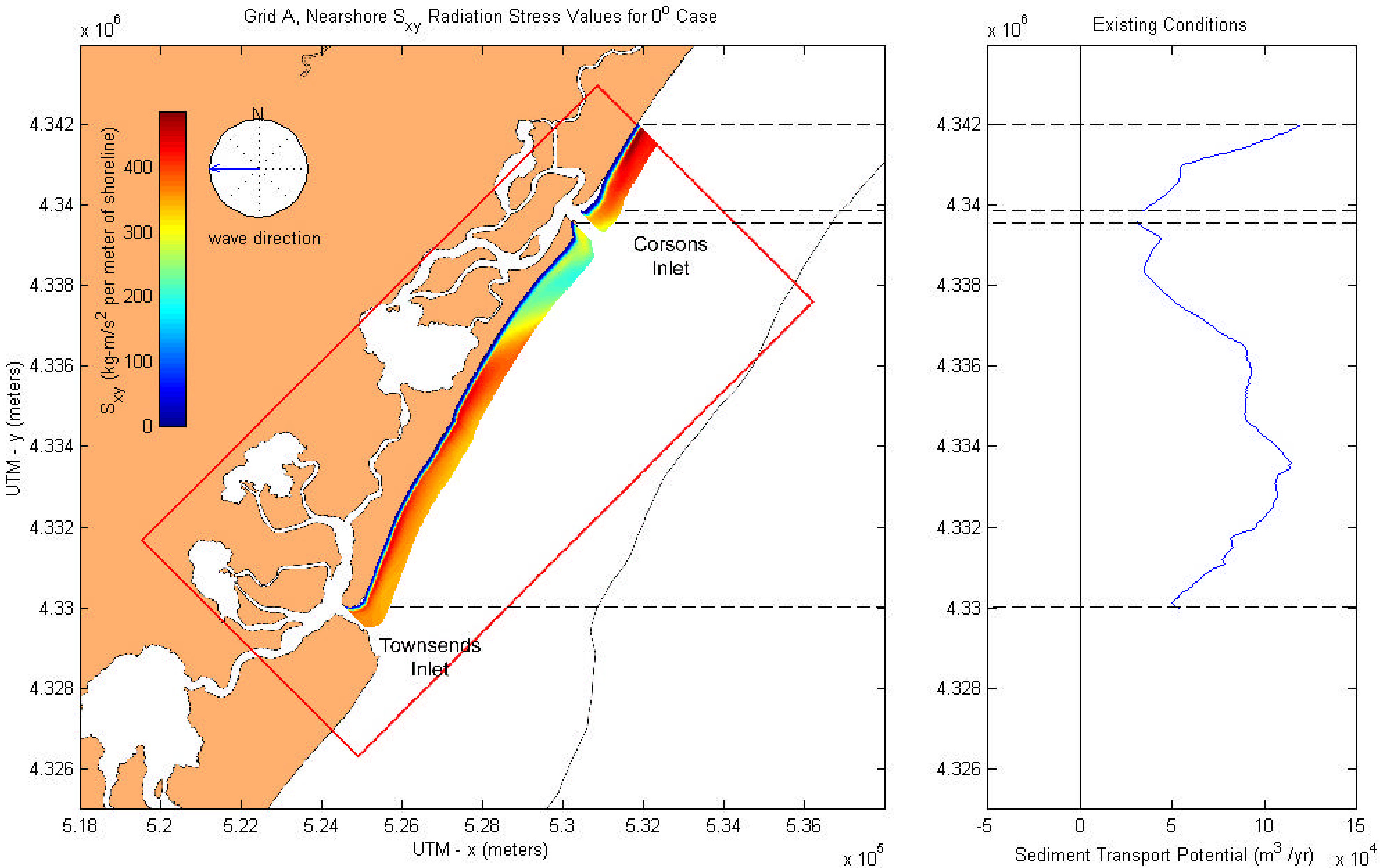

Figure C3-4. S_{xy} radiation stress and annual sediment transport potential for existing conditions at Grid A, 0° case.

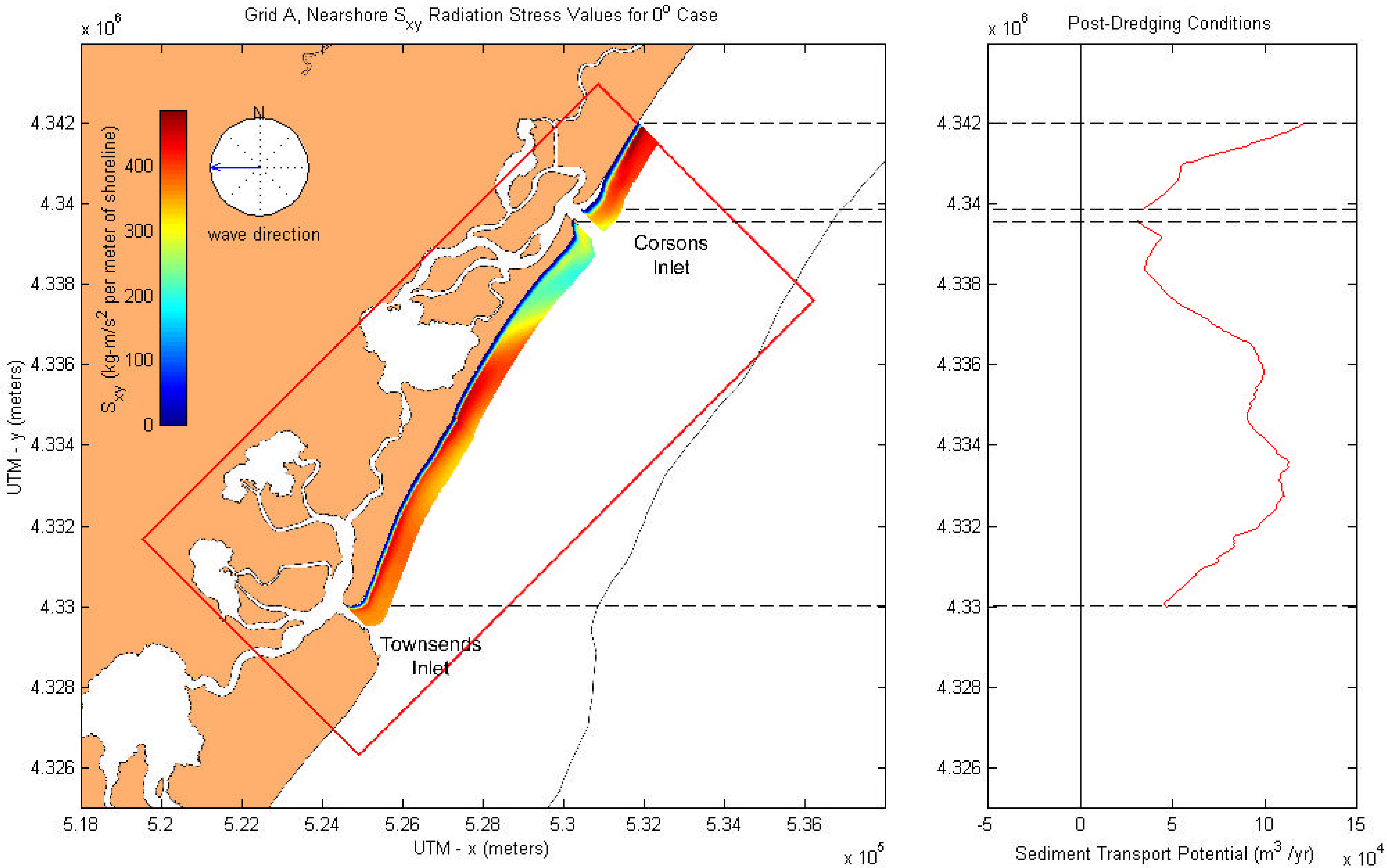

Figure C3-5. S_{xy} radiation stress and annual sediment transport potential for post-dredging conditions at Grid A, 0° case.

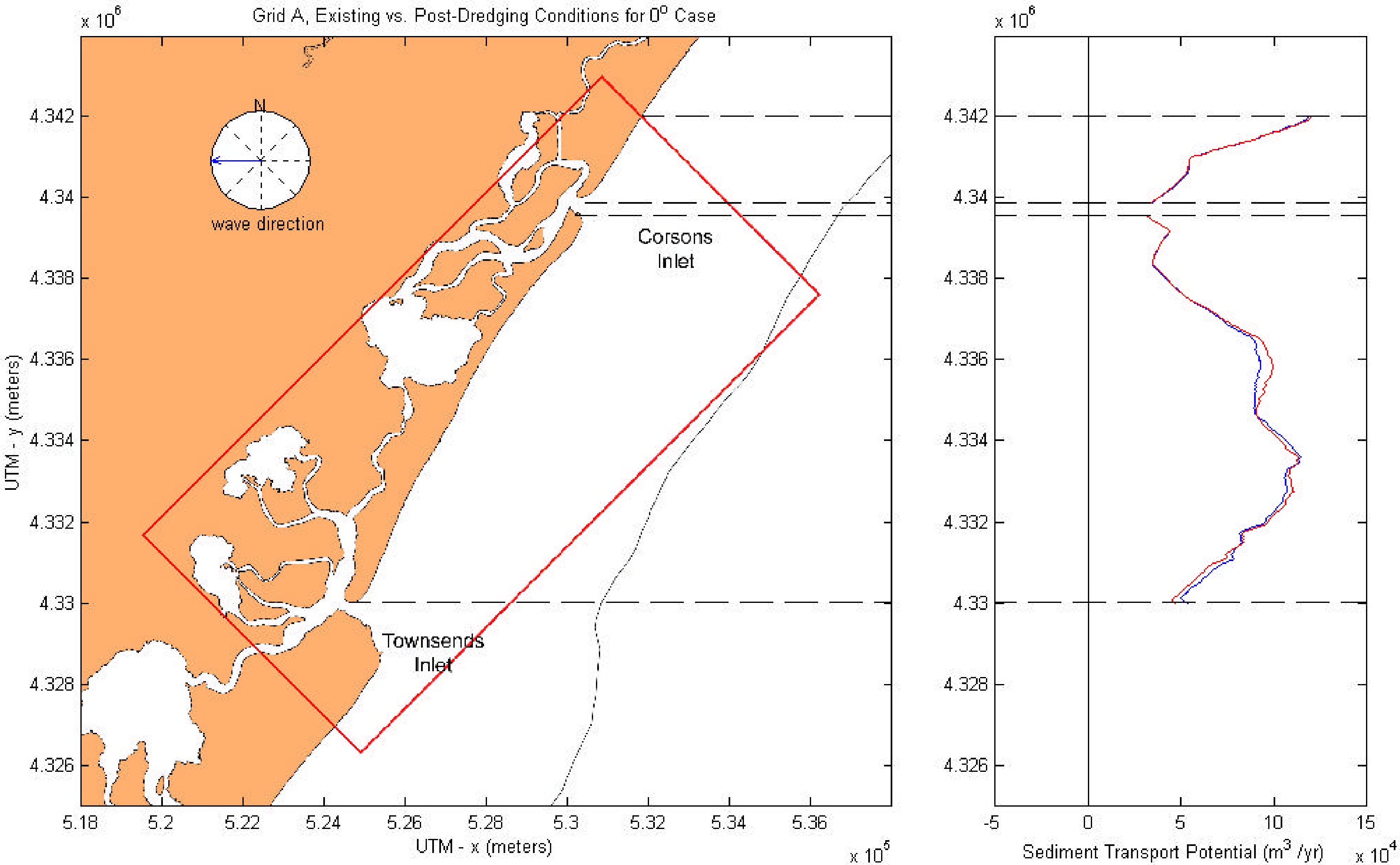

Figure C3-6. Existing versus post-dredging annual sediment transport potential at Grid A for the 0° case.

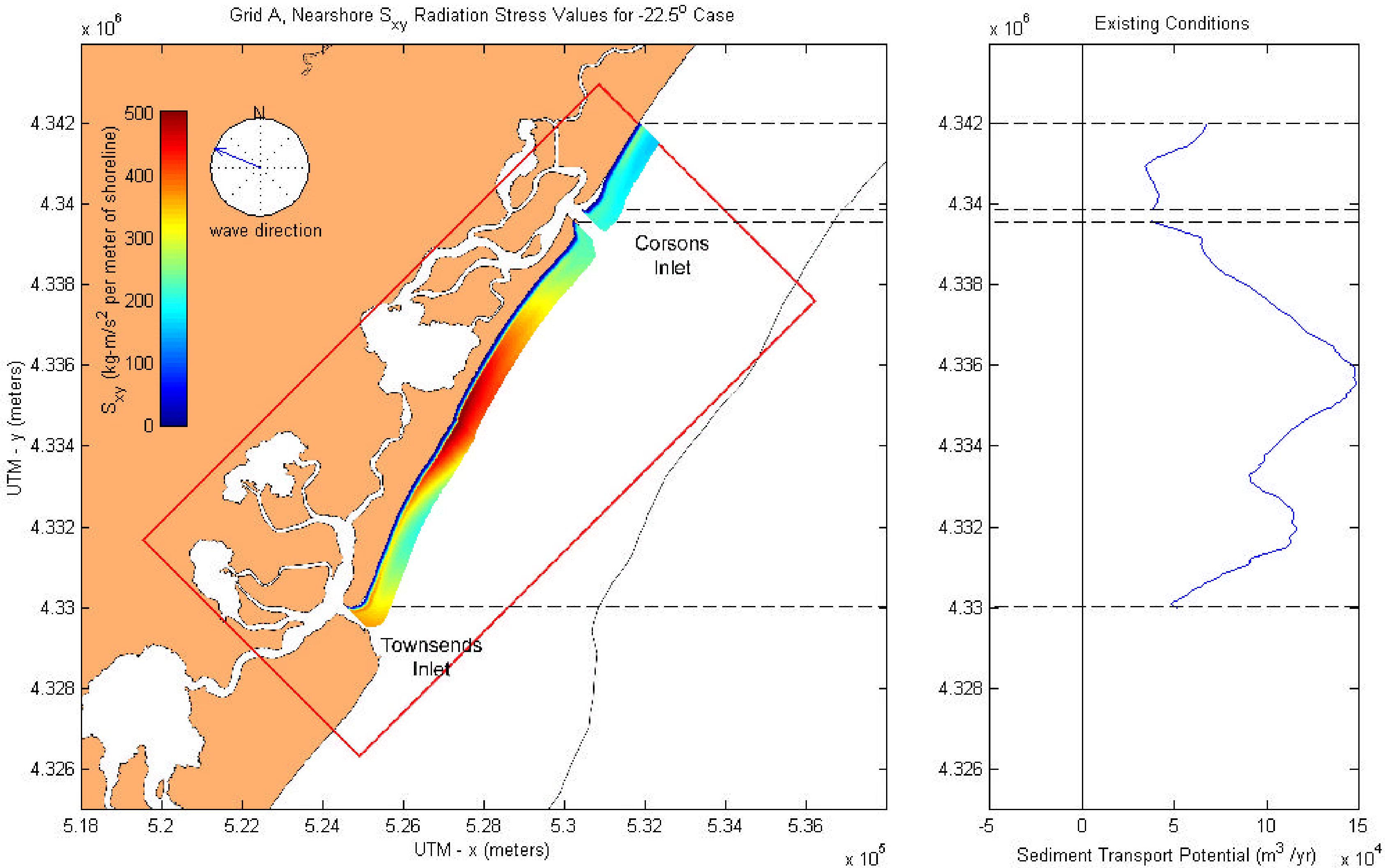

Figure C3-7. S_{xy} radiation stress and annual sediment transport potential for existing conditions at Grid A, -22.5° case.

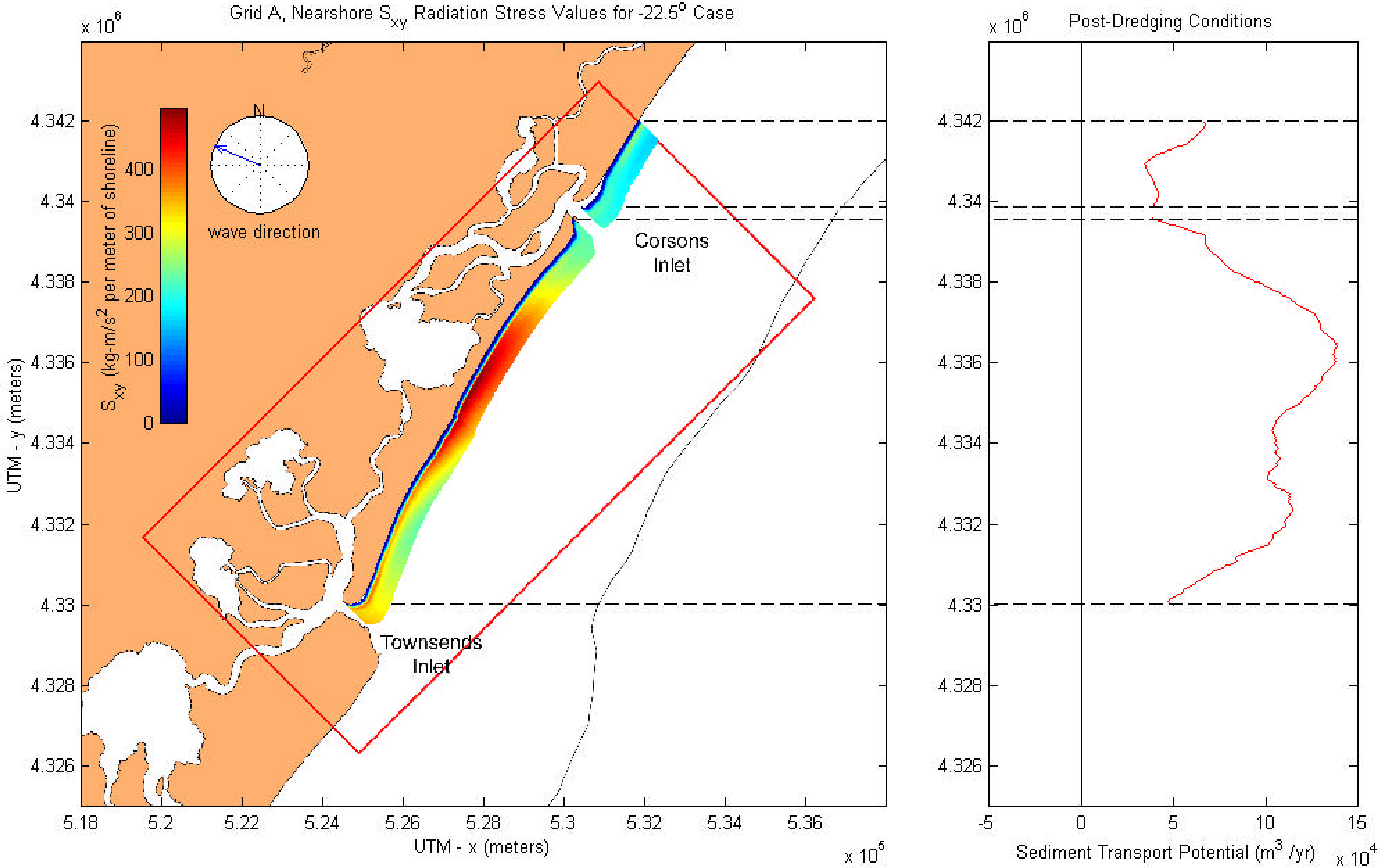

Figure C3-8. S_{xy} radiation stress and annual sediment transport potential for post-dredging conditions at Grid A, -22.5° case.

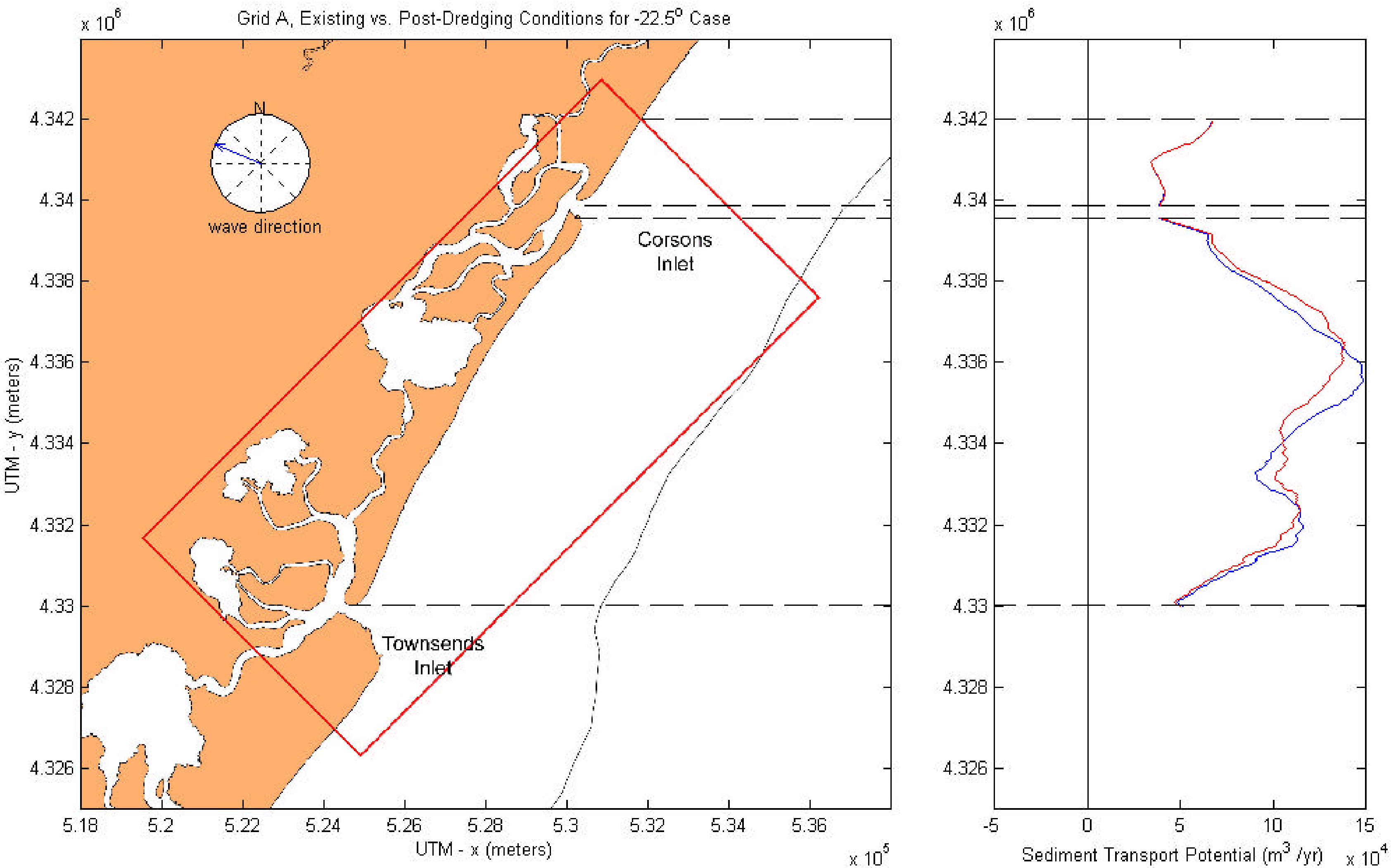

Figure C3-9. Existing versus post-dredging annual sediment transport potential at Grid A for the -22.5° case.

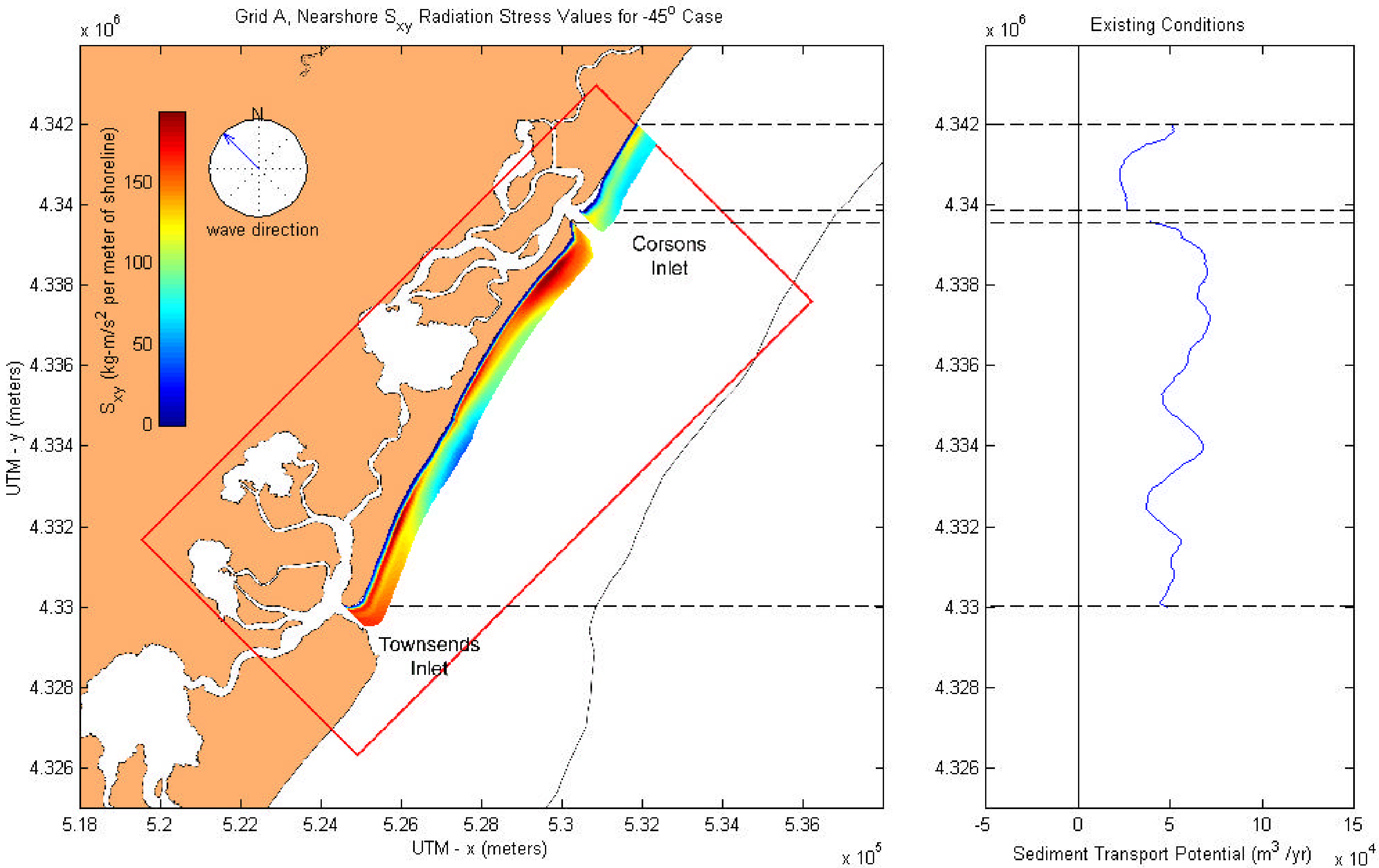

Figure C3-10. S_{xy} radiation stress and annual sediment transport potential for existing conditions at Grid A, -45° case.

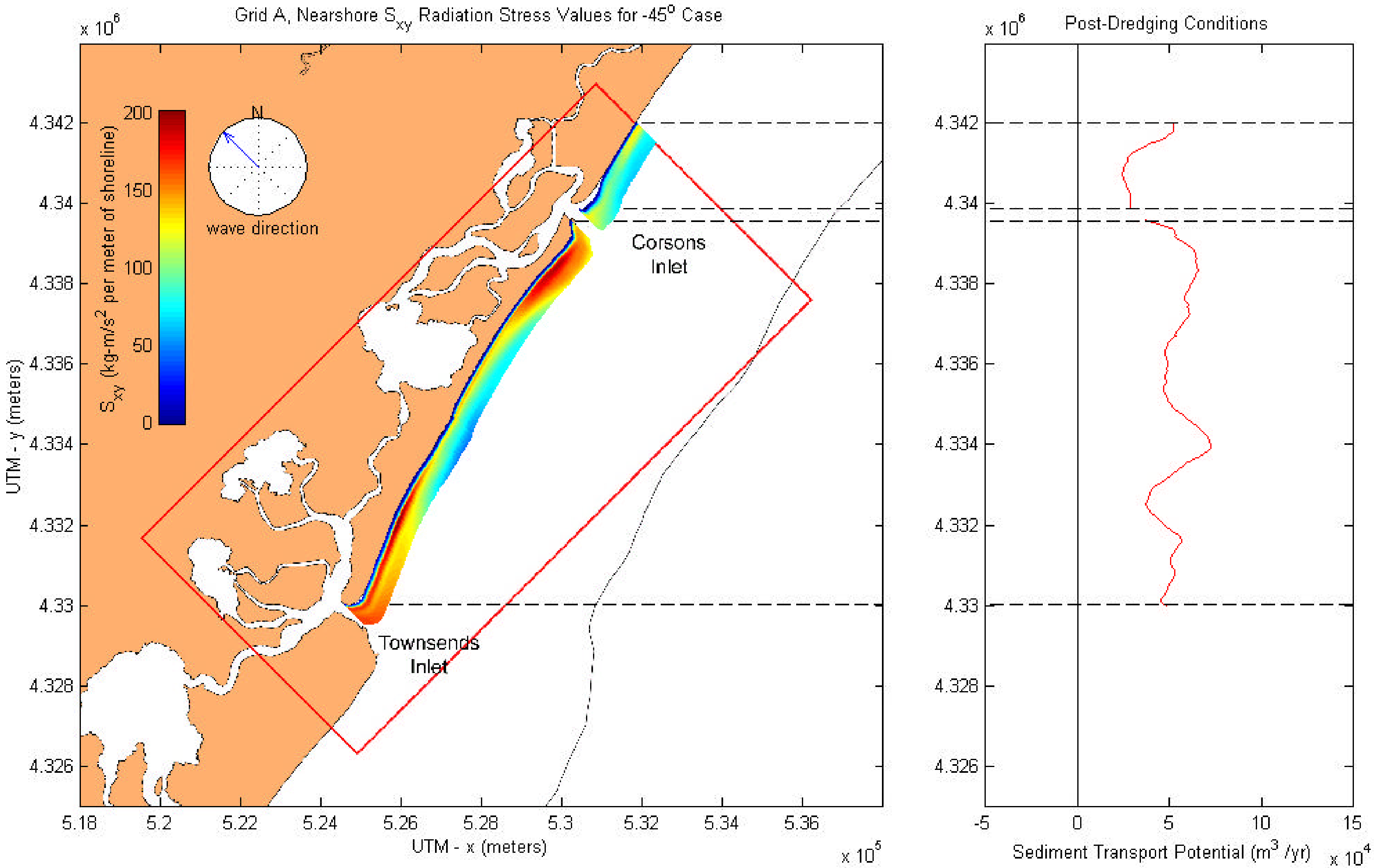

Figure C3-11. S_{xy} radiation stress and annual sediment transport potential for post-dredging conditions at Grid A, -45° case.

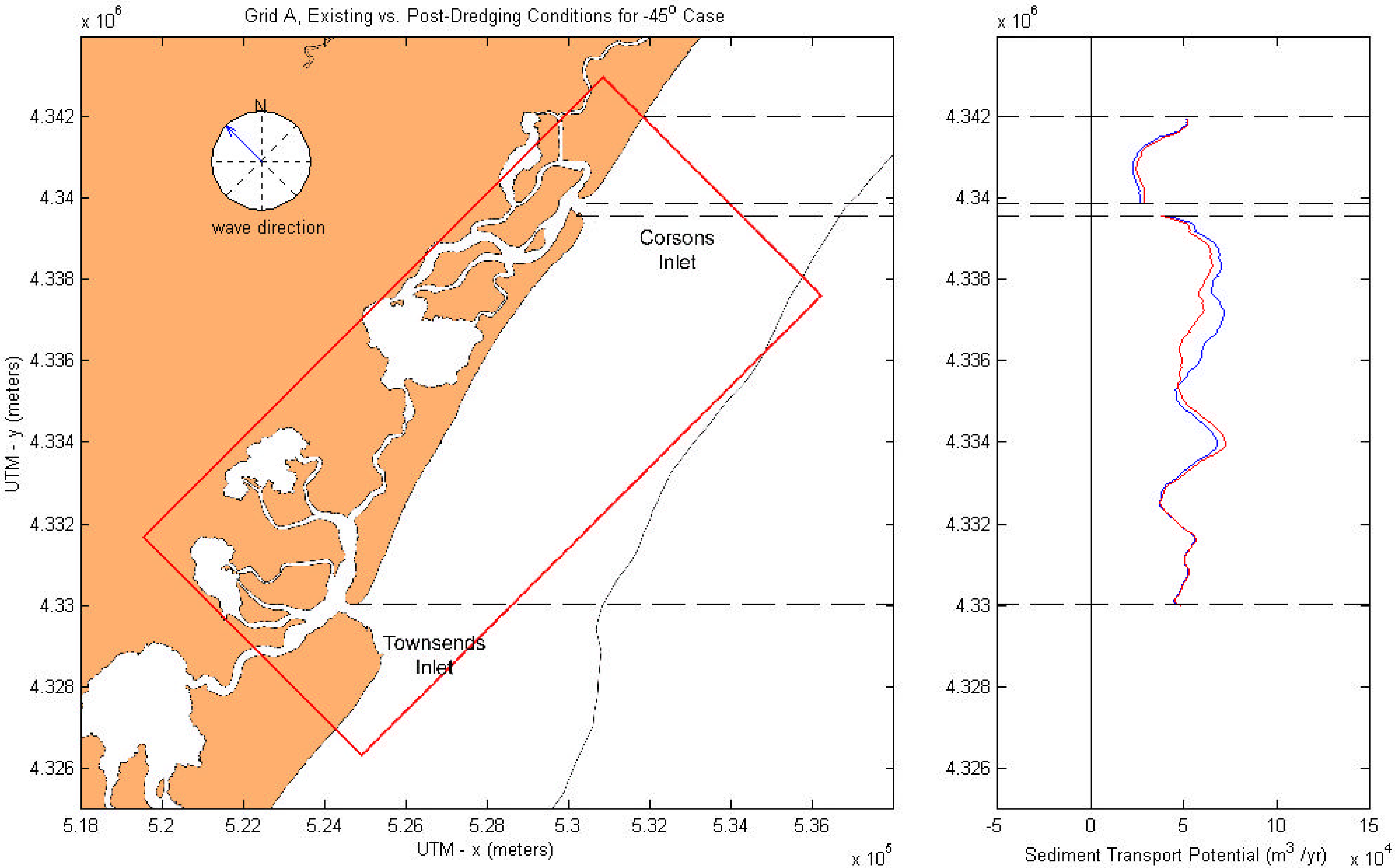

Figure C3-12. Existing versus post-dredging annual sediment transport potential at Grid A for the -45° case.

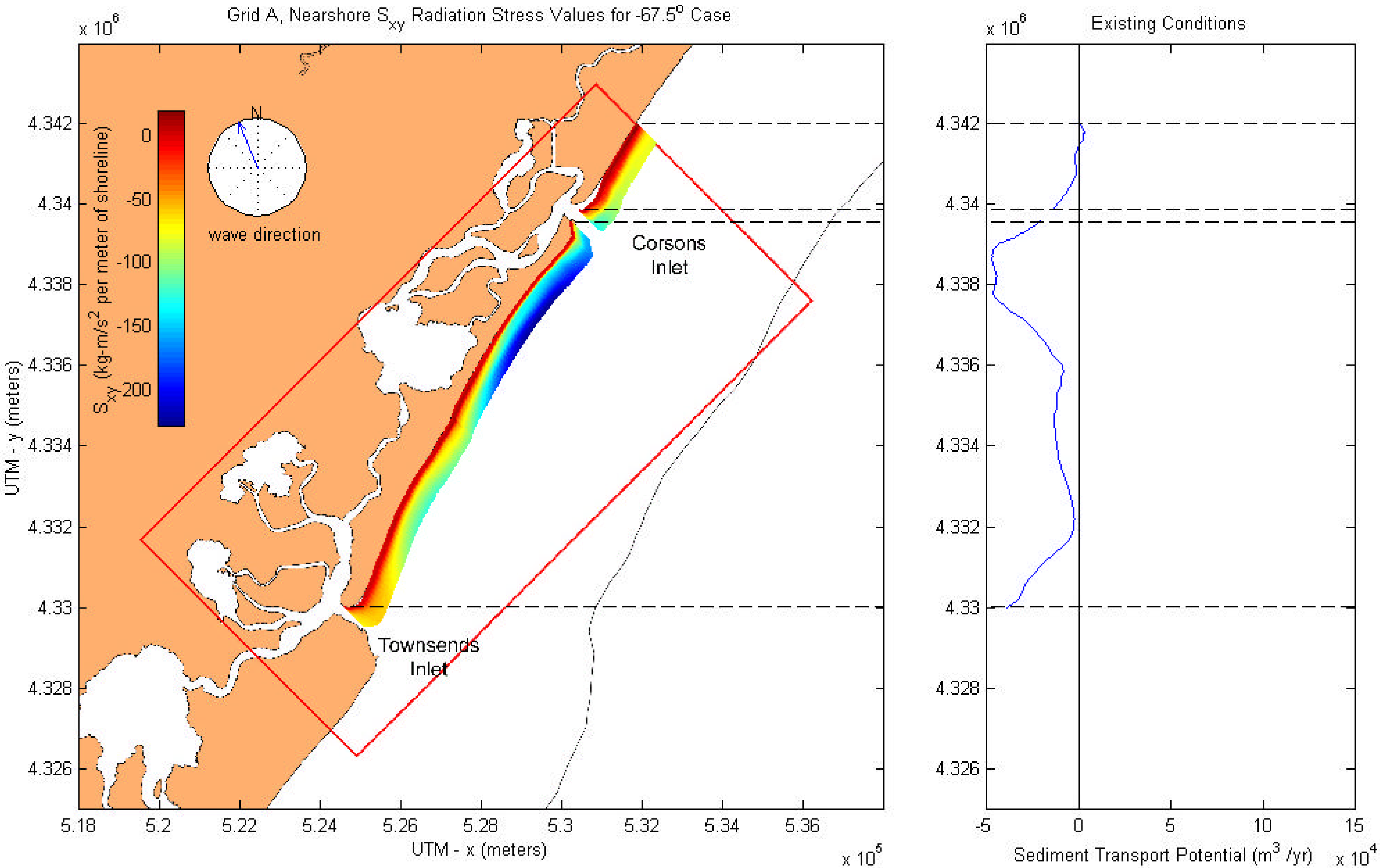

Figure C3-13. S_{xy} radiation stress and annual sediment transport potential for existing conditions at Grid A, -67.5° case.

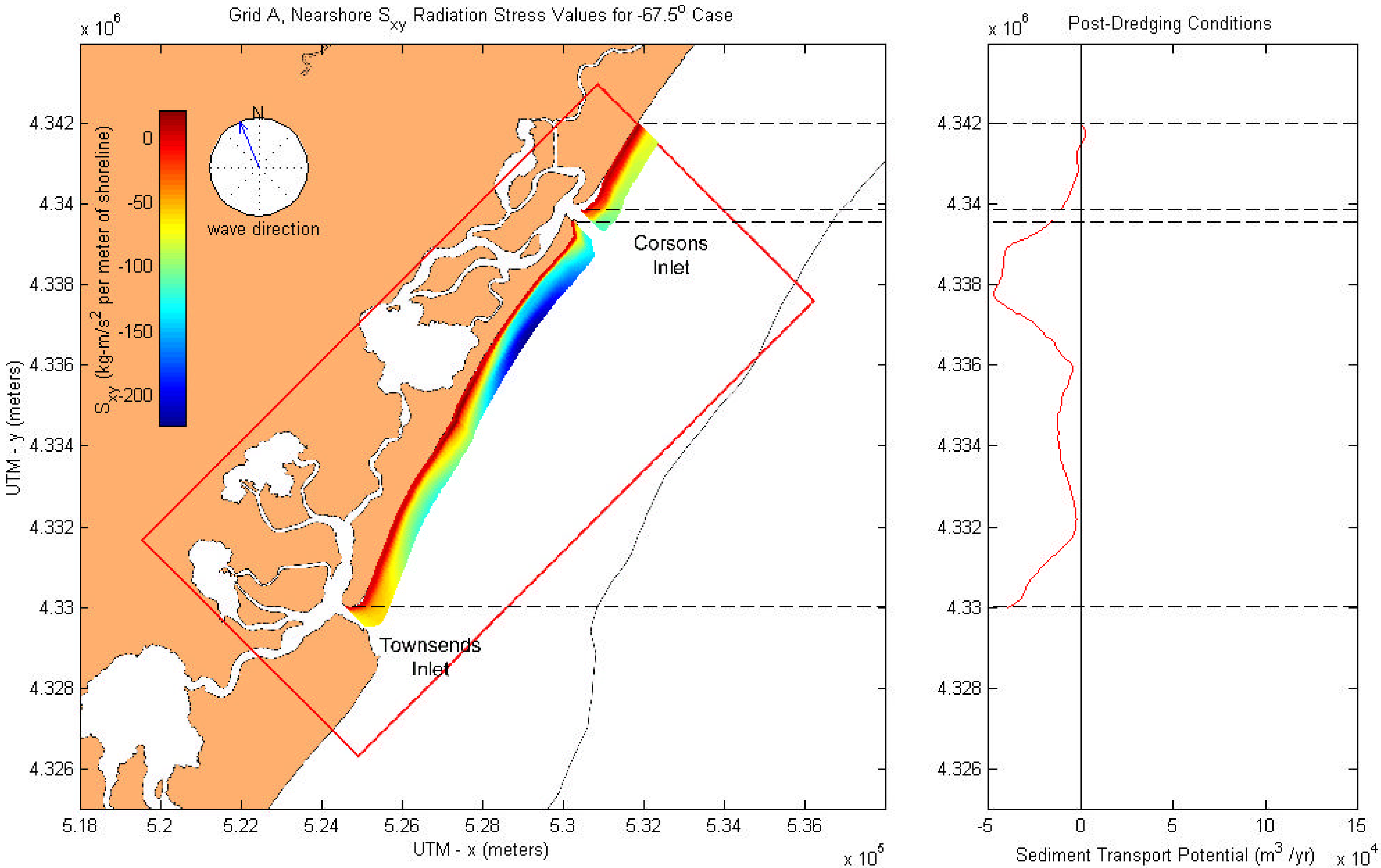

Figure C3-14. S_{xy} radiation stress and annual sediment transport potential for post-dredging conditions at Grid A, -67.5° case.

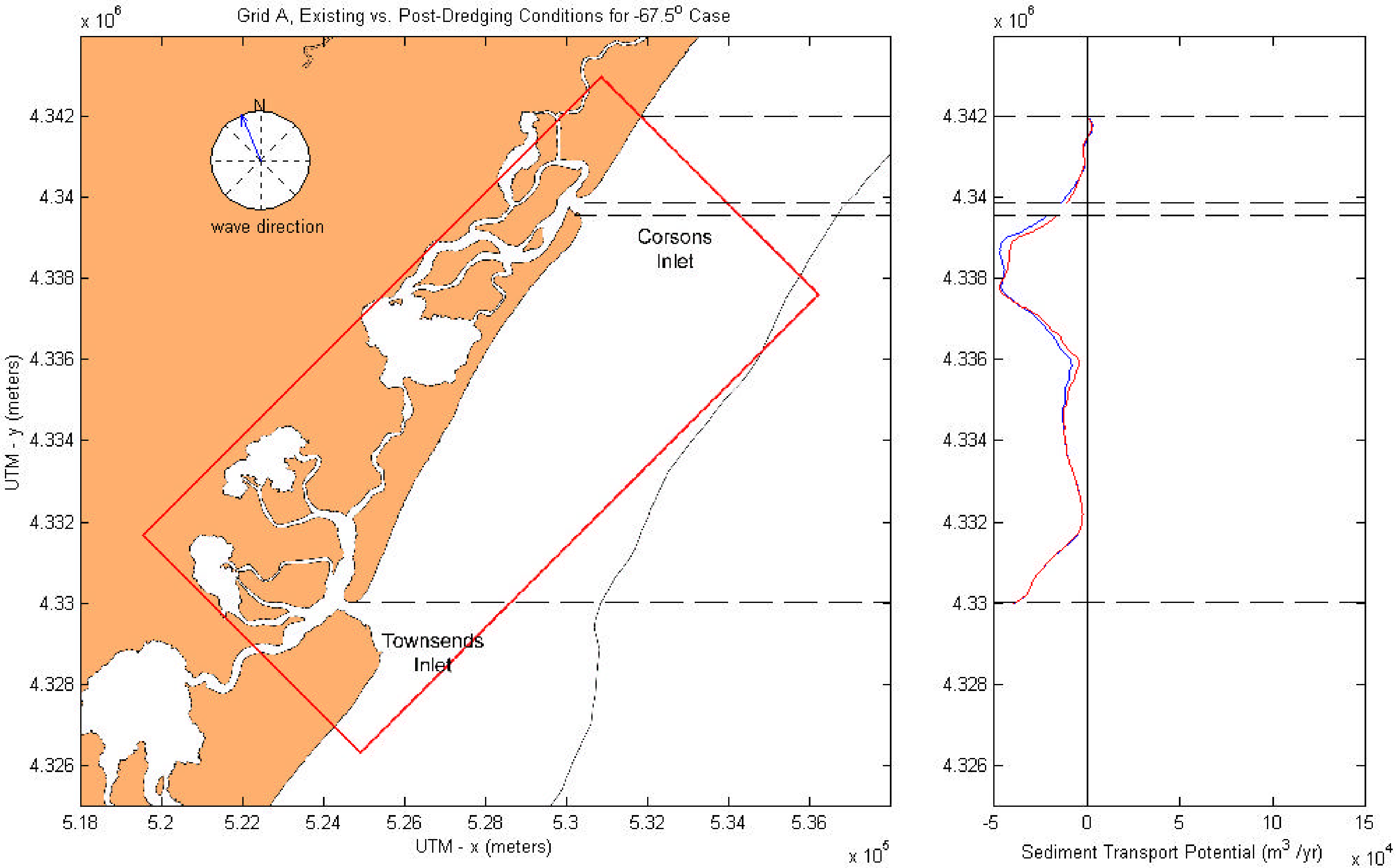

Figure C3-15. Existing versus post-dredging annual sediment transport potential at Grid A for the -67.5° case.

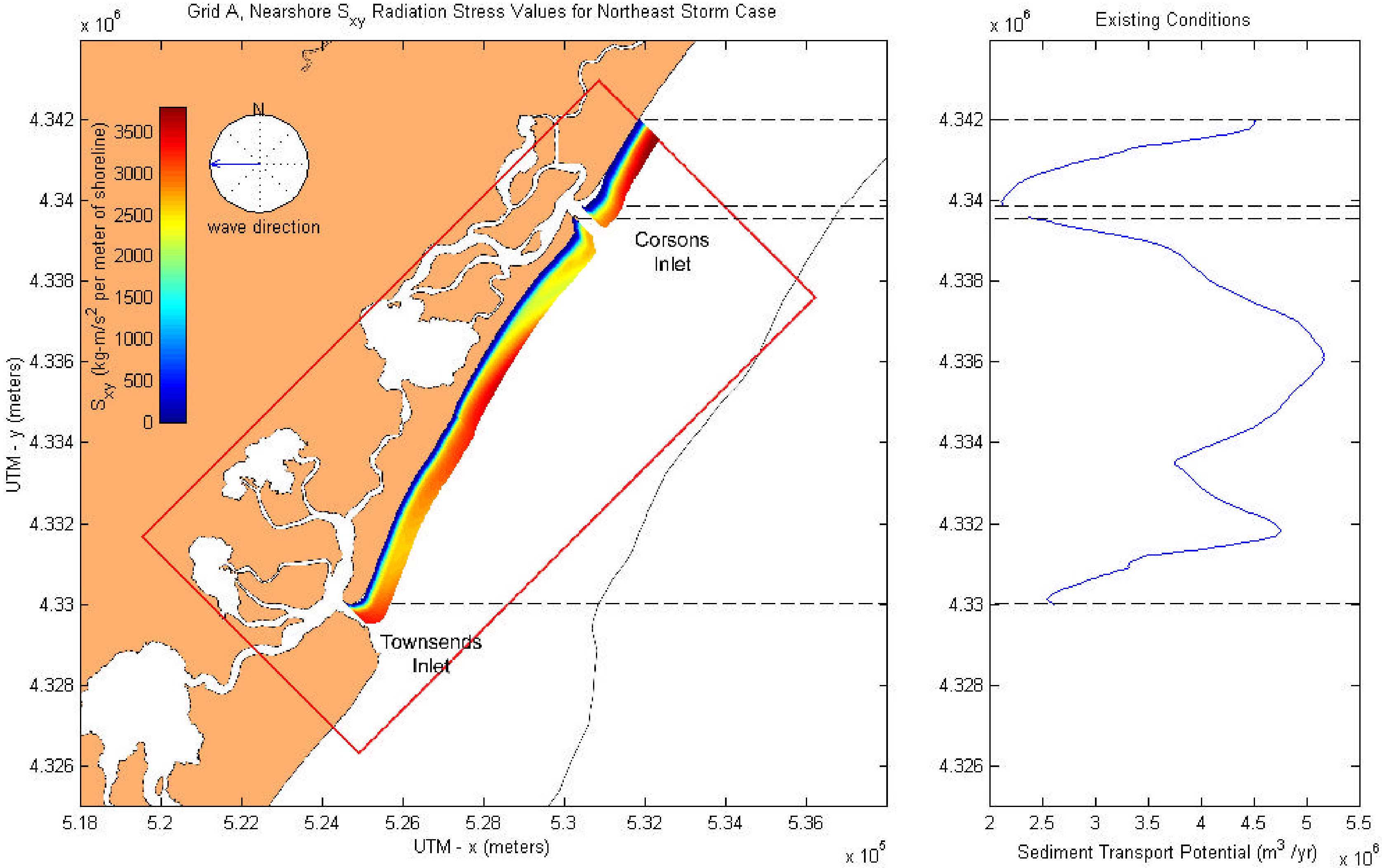

Figure C3-16. S_{xy} radiation stress and annual sediment transport potential for existing conditions at Grid A, northeast storm case.

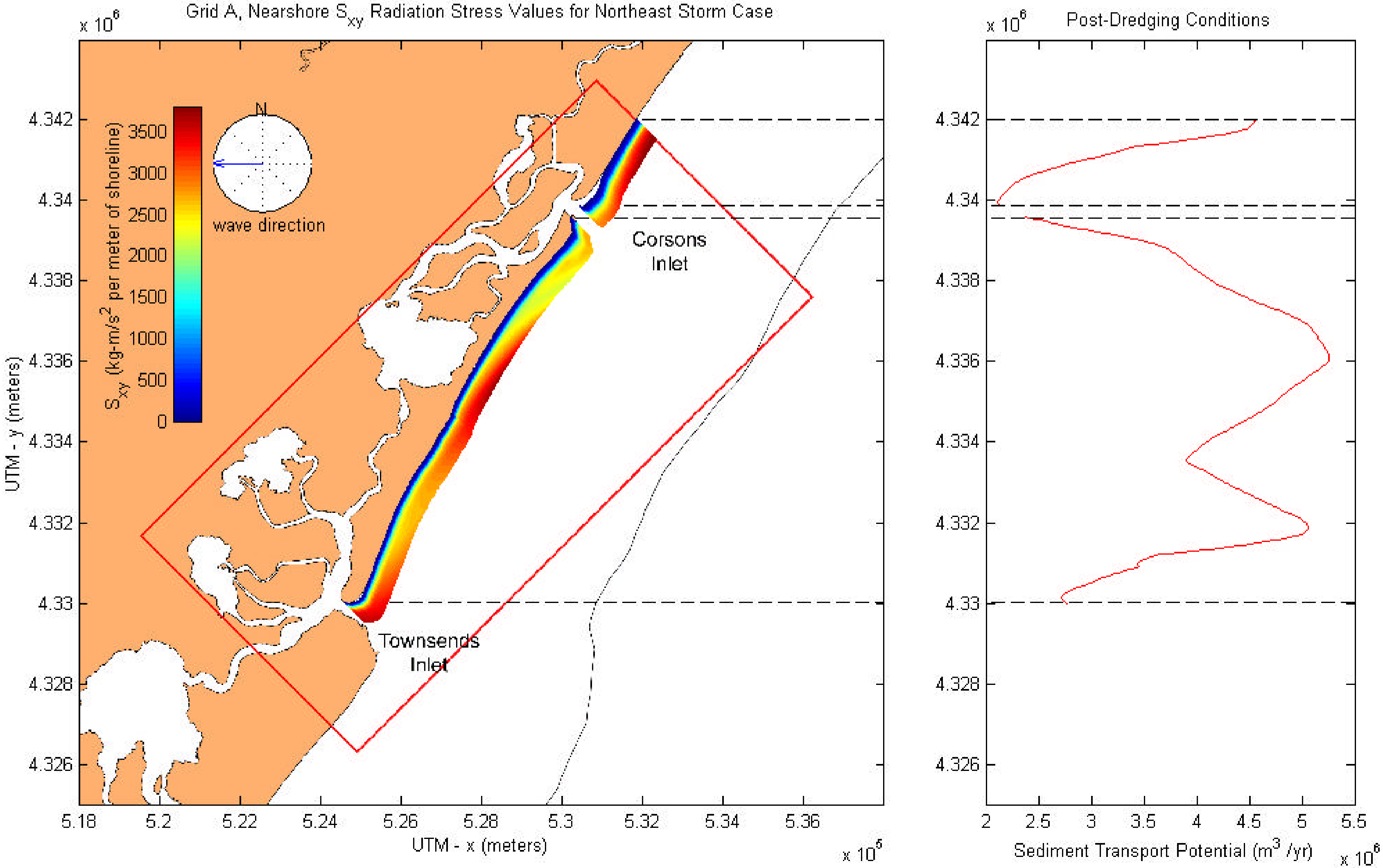

Figure C3-17. S_{xy} radiation stress and annual sediment transport potential for post-dredging conditions at Grid A, northeast storm case.

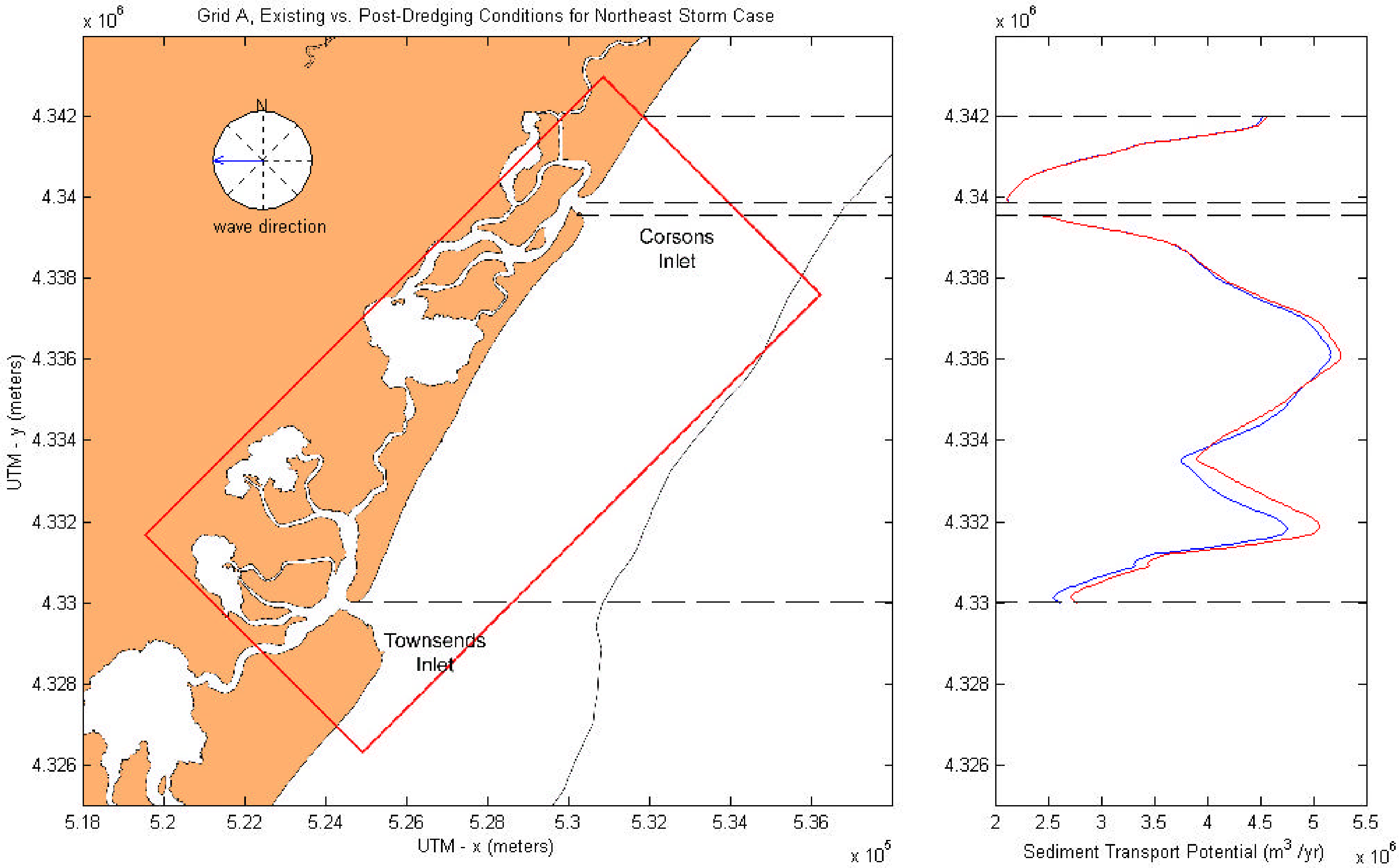

Figure C3-18. Existing versus post-dredging annual sediment transport potential at Grid A for the northeast storm case.

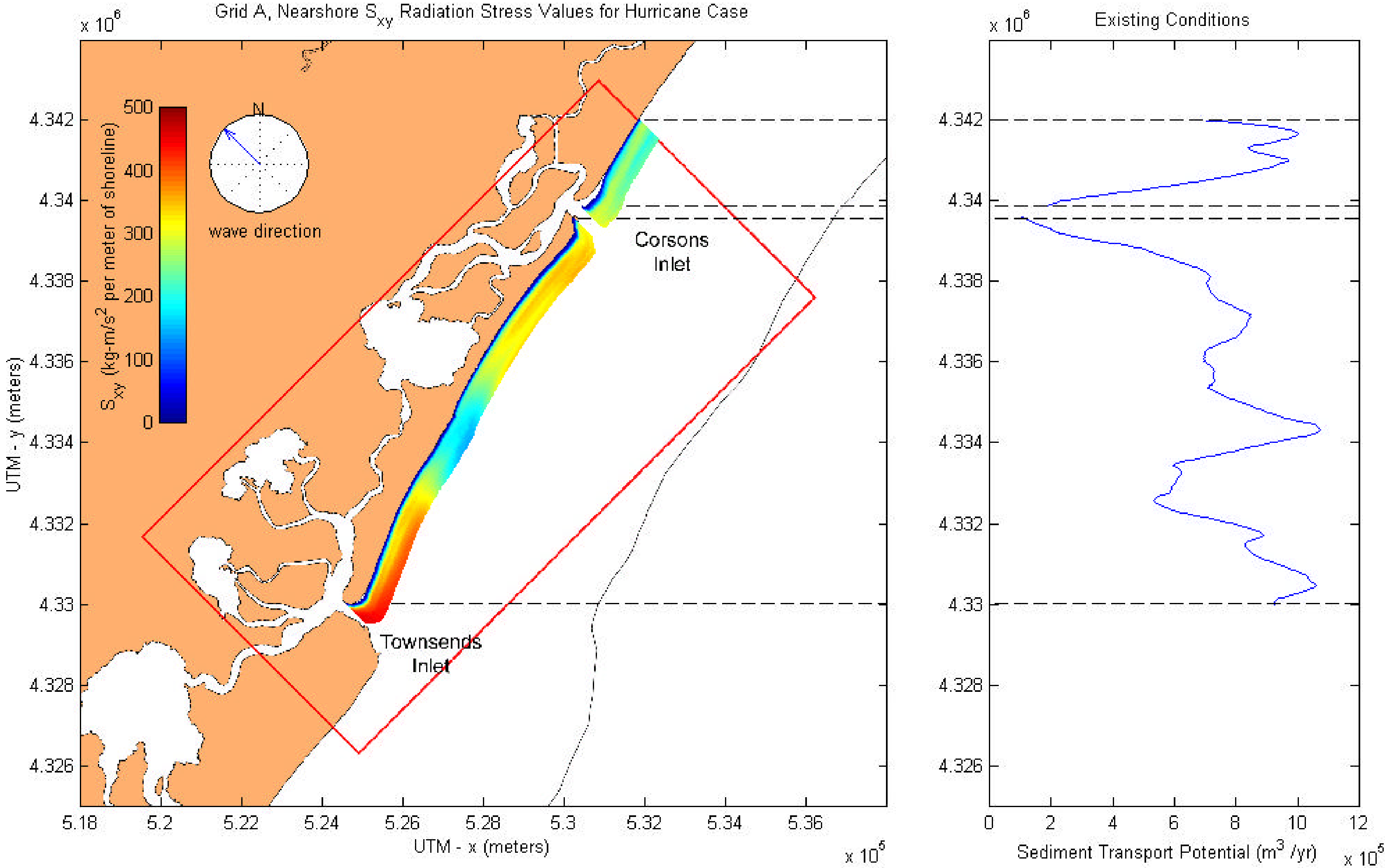

Figure C3-19. S_{xy} radiation stress and annual sediment transport potential for existing conditions at Grid A, hurricane case.

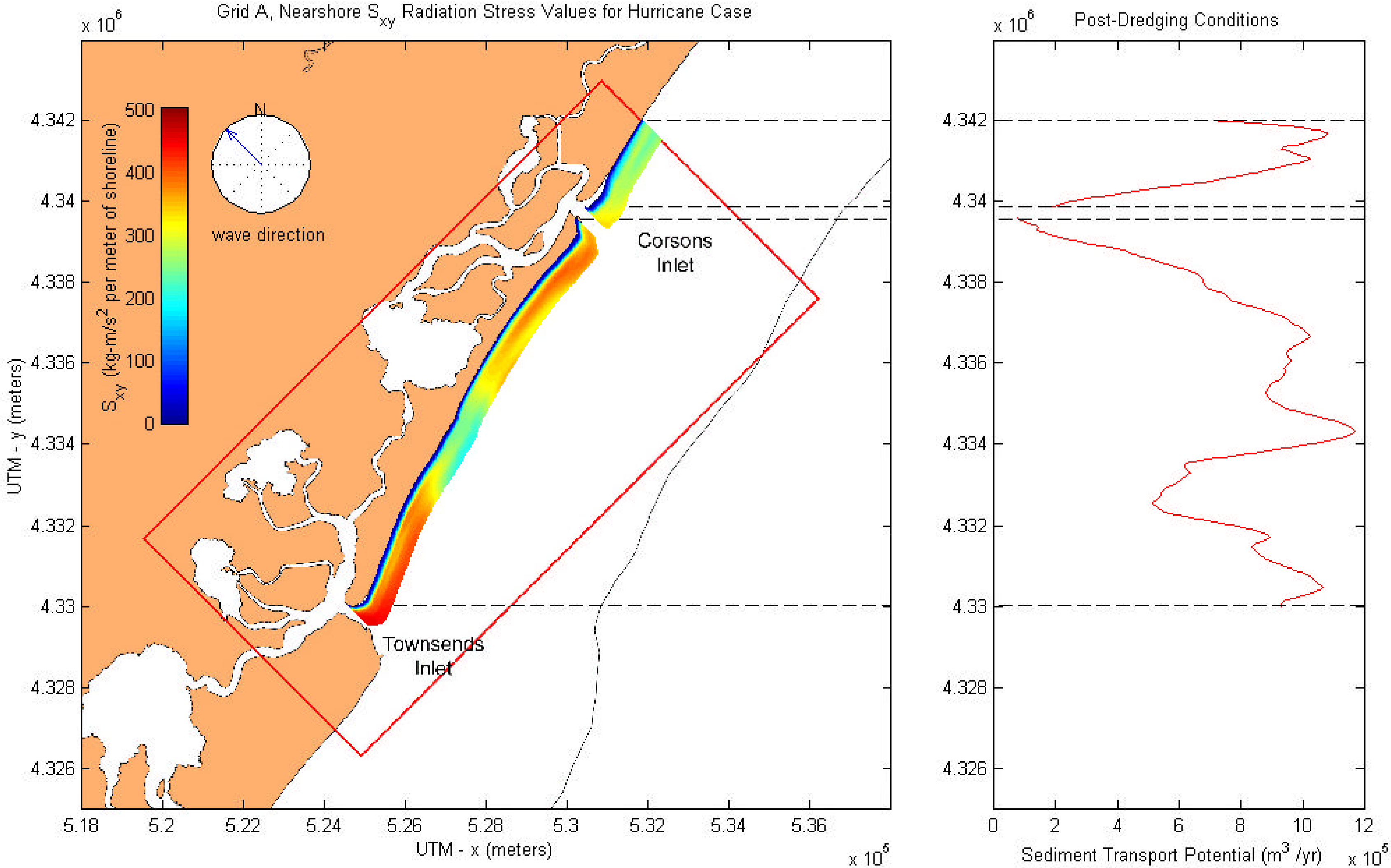

Figure C3-20. S_{xy} radiation stress and annual sediment transport potential for post-dredging conditions at Grid A, hurricane case.

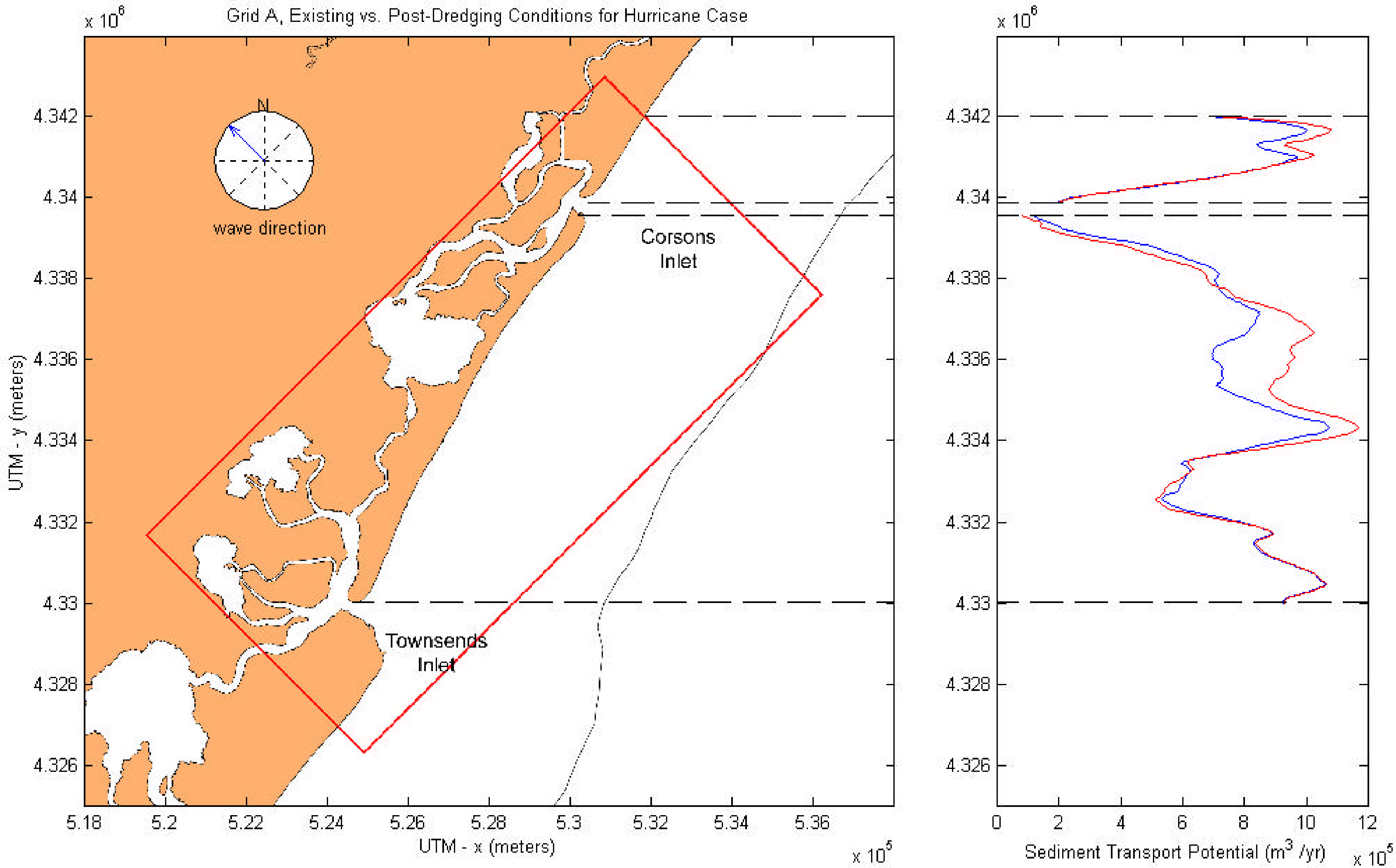

Figure C3-21. Existing versus post-dredging annual sediment transport potential at Grid A for the hurricane case.

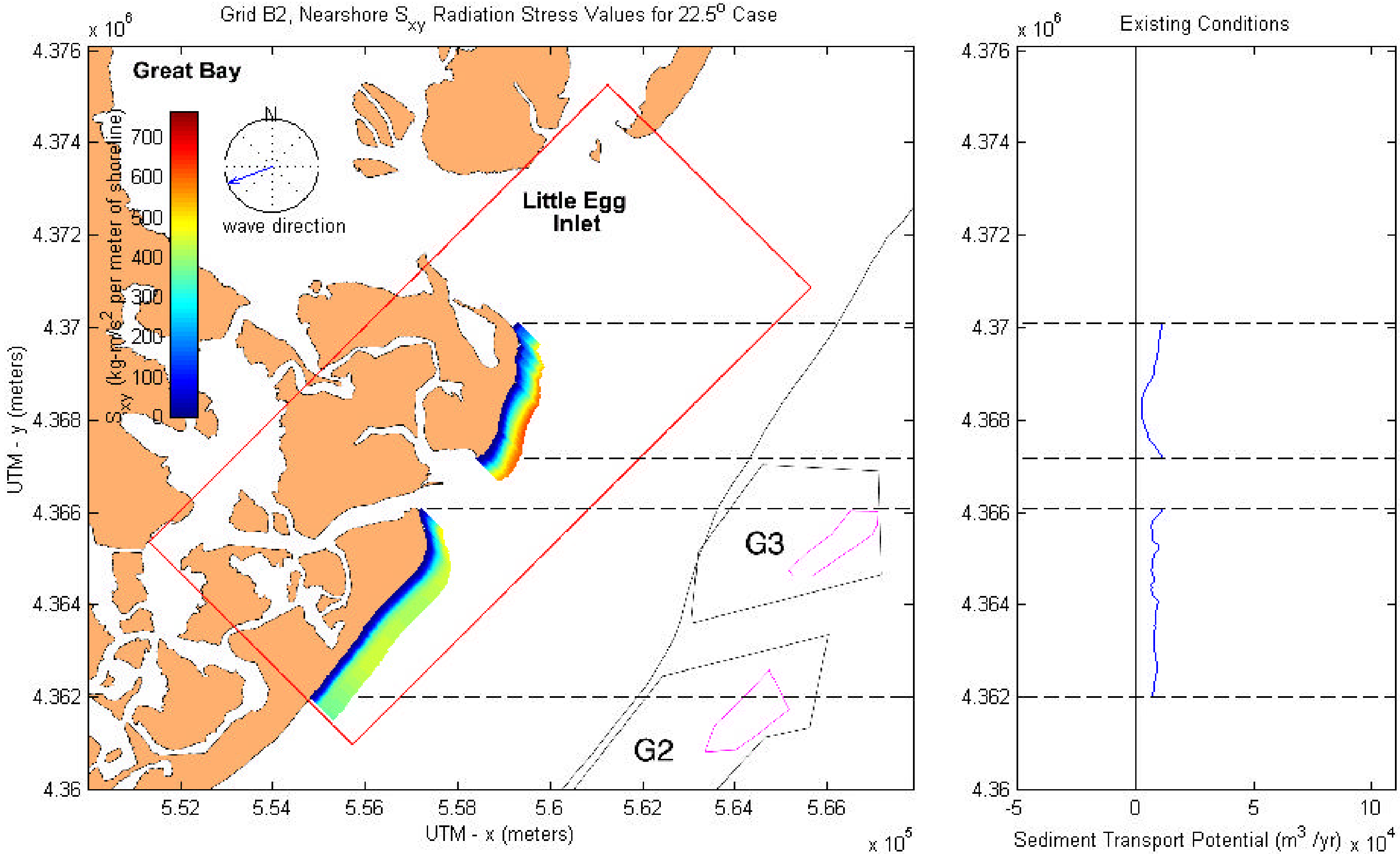

Figure C3-22. S_{xy} radiation stress and annual sediment transport potential for existing conditions at Grid B2, 22.5° case.

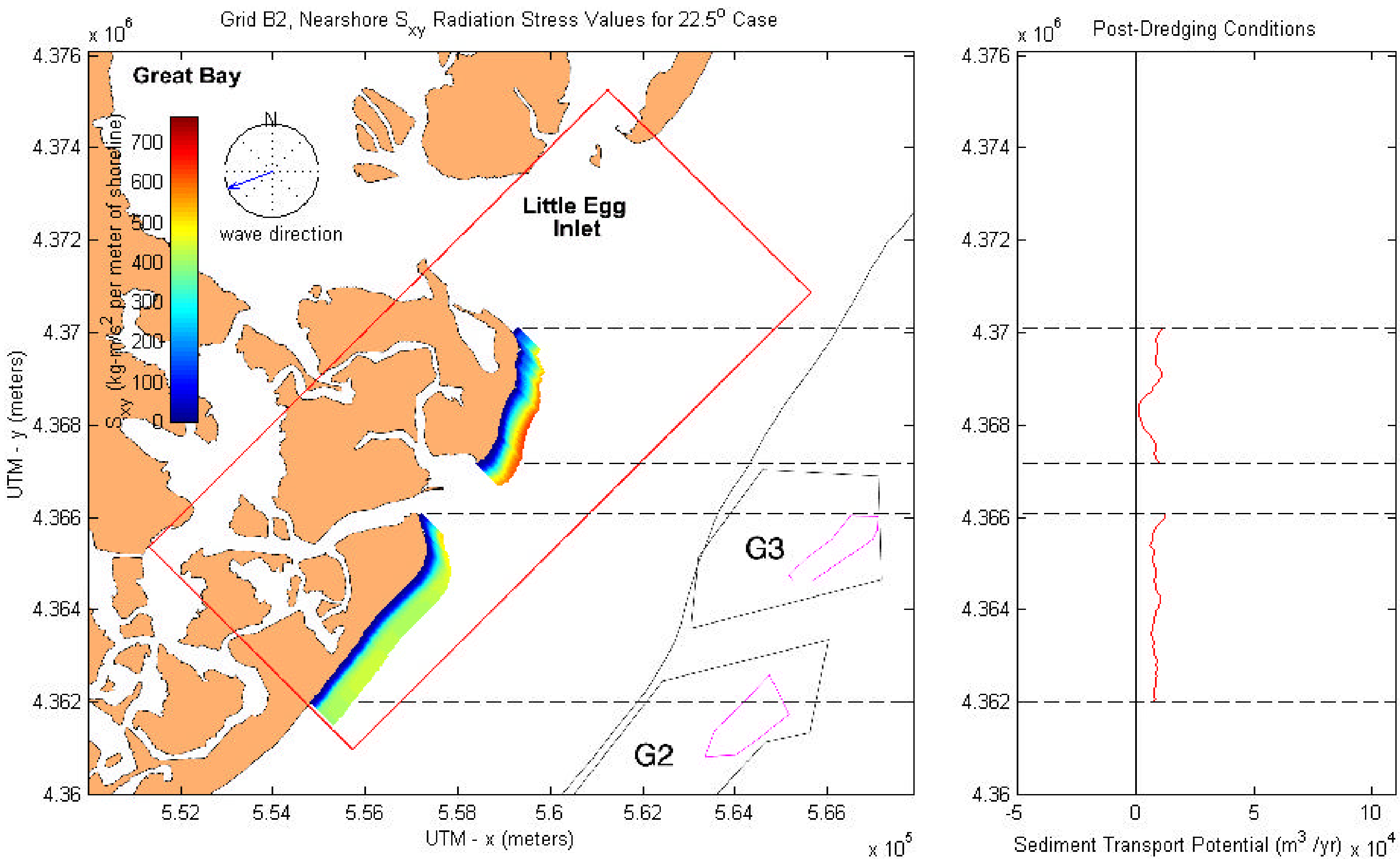

Figure C3-23. S_{xy} radiation stress and annual sediment transport potential for post-dredging conditions at Grid B2, 22.5° case.

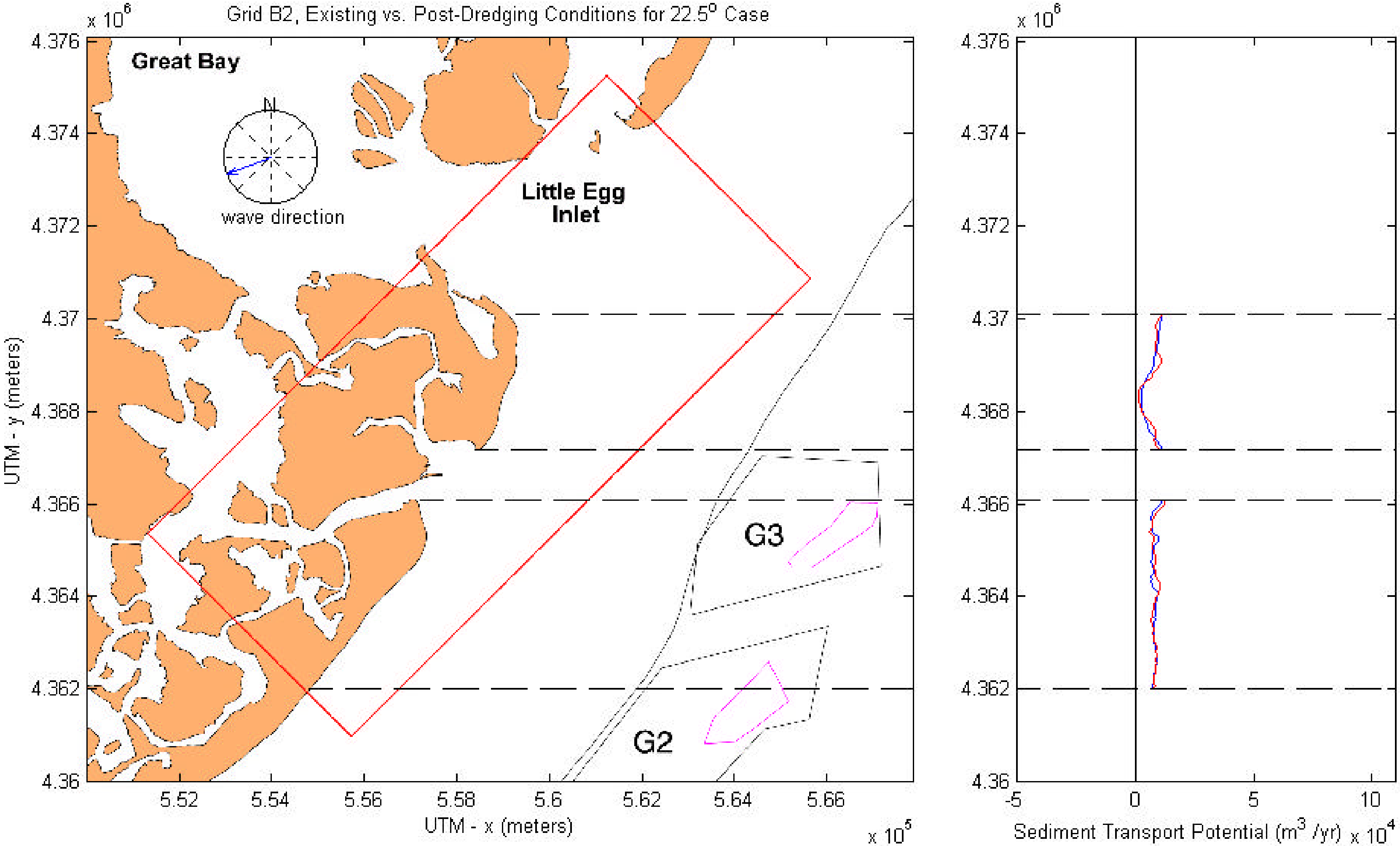

Figure C3-24. Existing versus post-dredging annual sediment transport potential at Grid B2 for the 22.5° case.

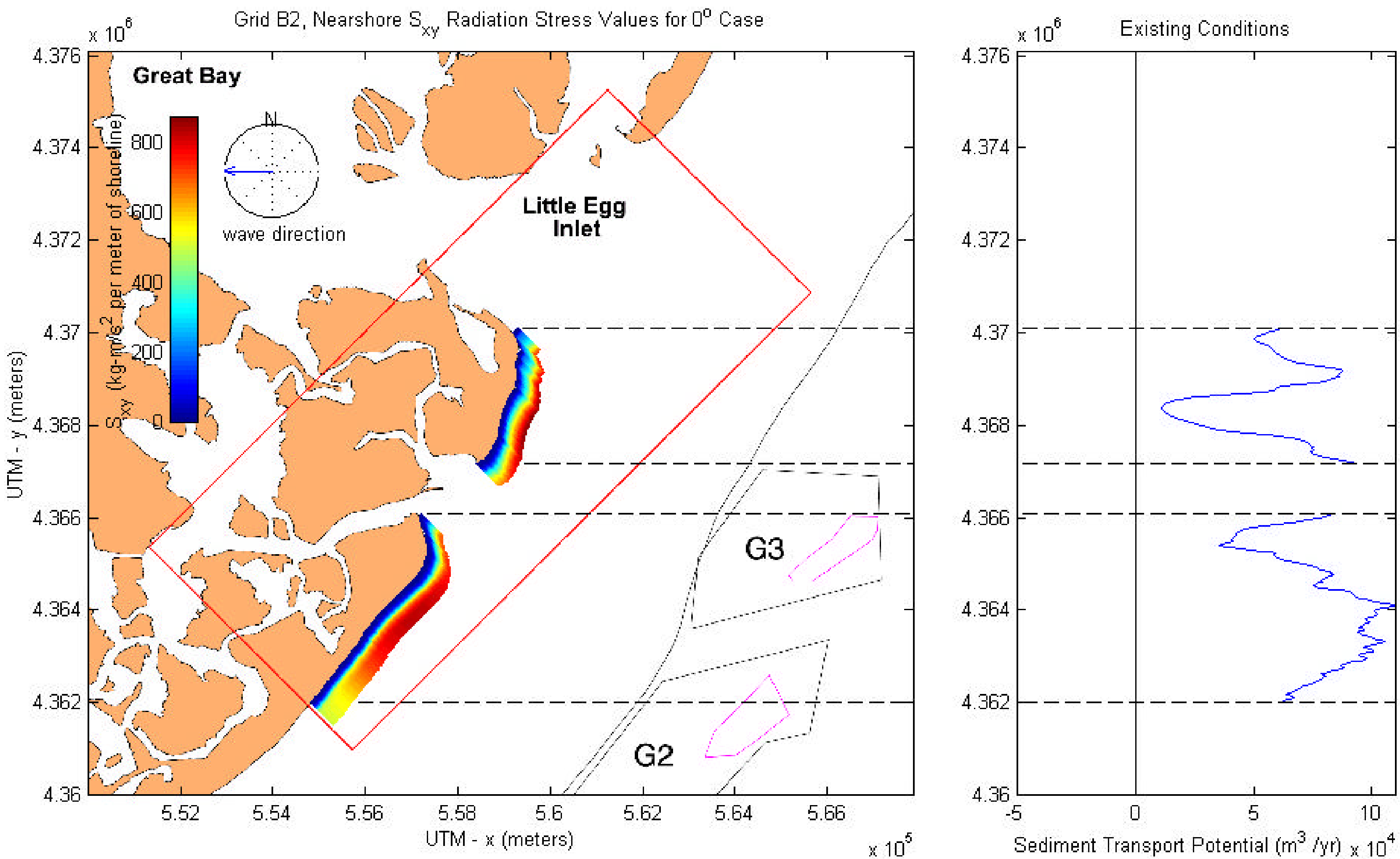

Figure C3-25. S_{xy} radiation stress and annual sediment transport potential for existing conditions at Grid B2, 0° case.

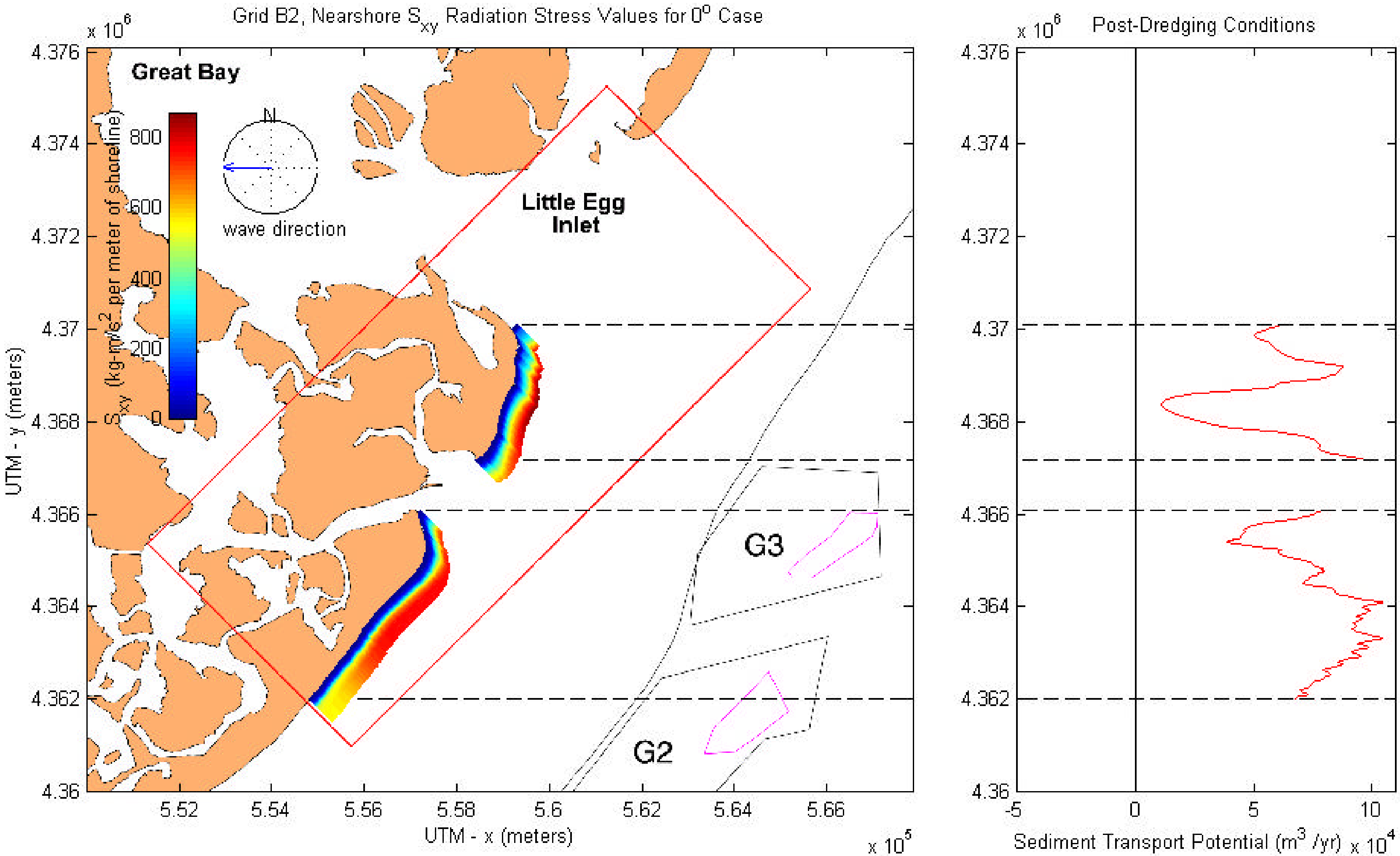

Figure C3-26. S_{xy} radiation stress and annual sediment transport potential for post-dredging conditions at Grid B2, 0° case.

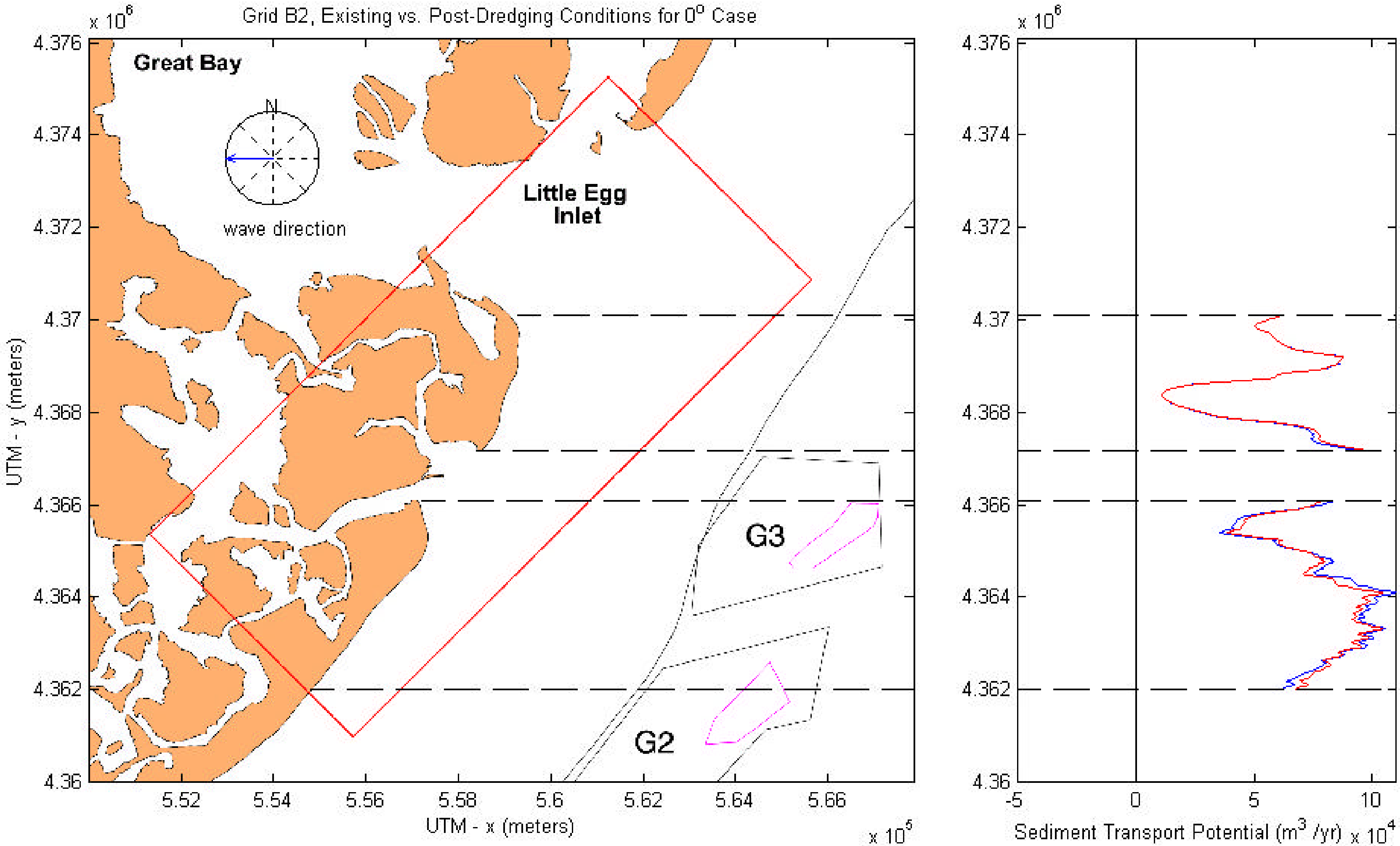

Figure C3-27. Existing versus post-dredging annual sediment transport potential at Grid B2 for the 0° case.

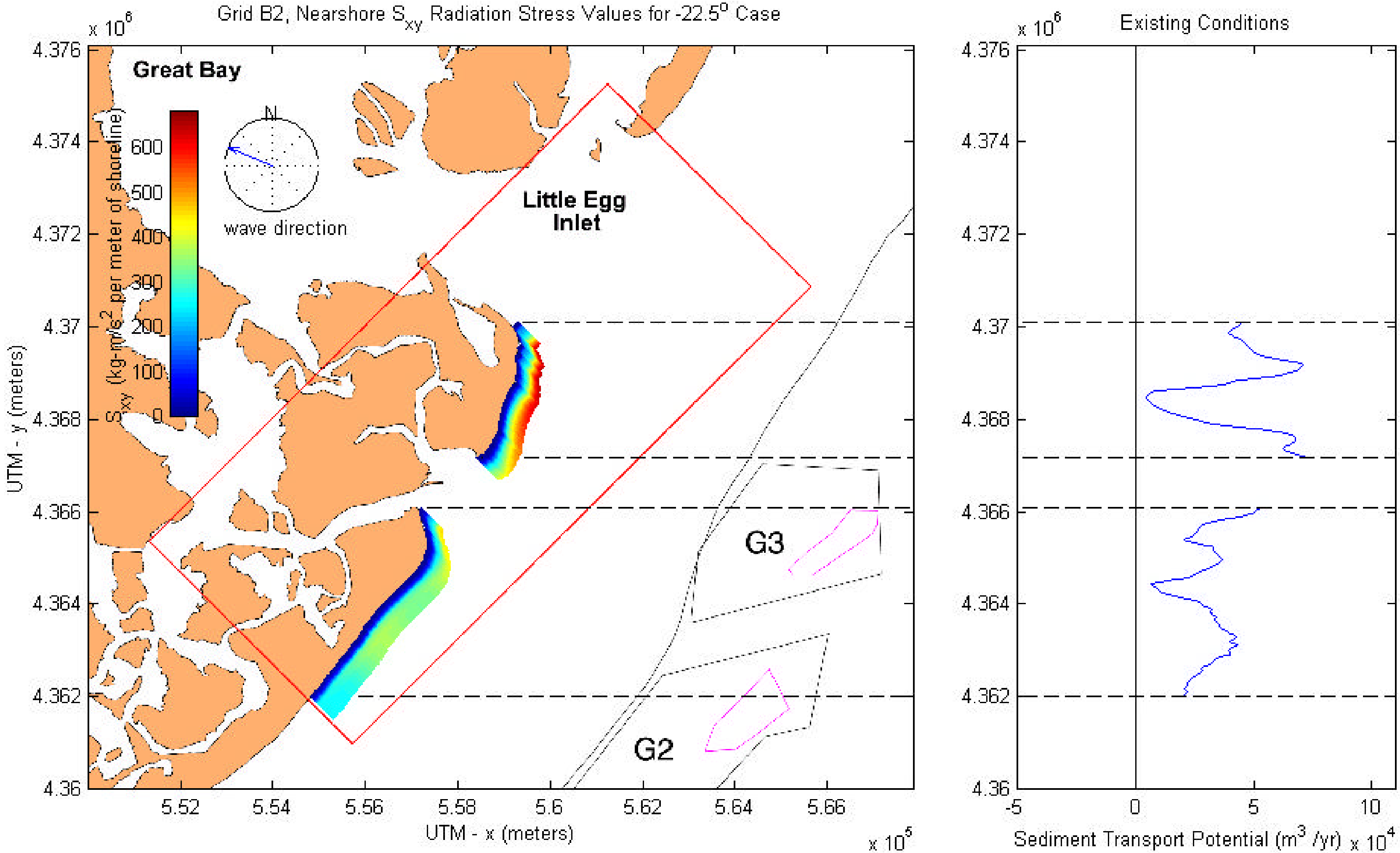

Figure C3-28. S_{xy} radiation stress and annual sediment transport potential for existing conditions at Grid B2, -22.5° case.

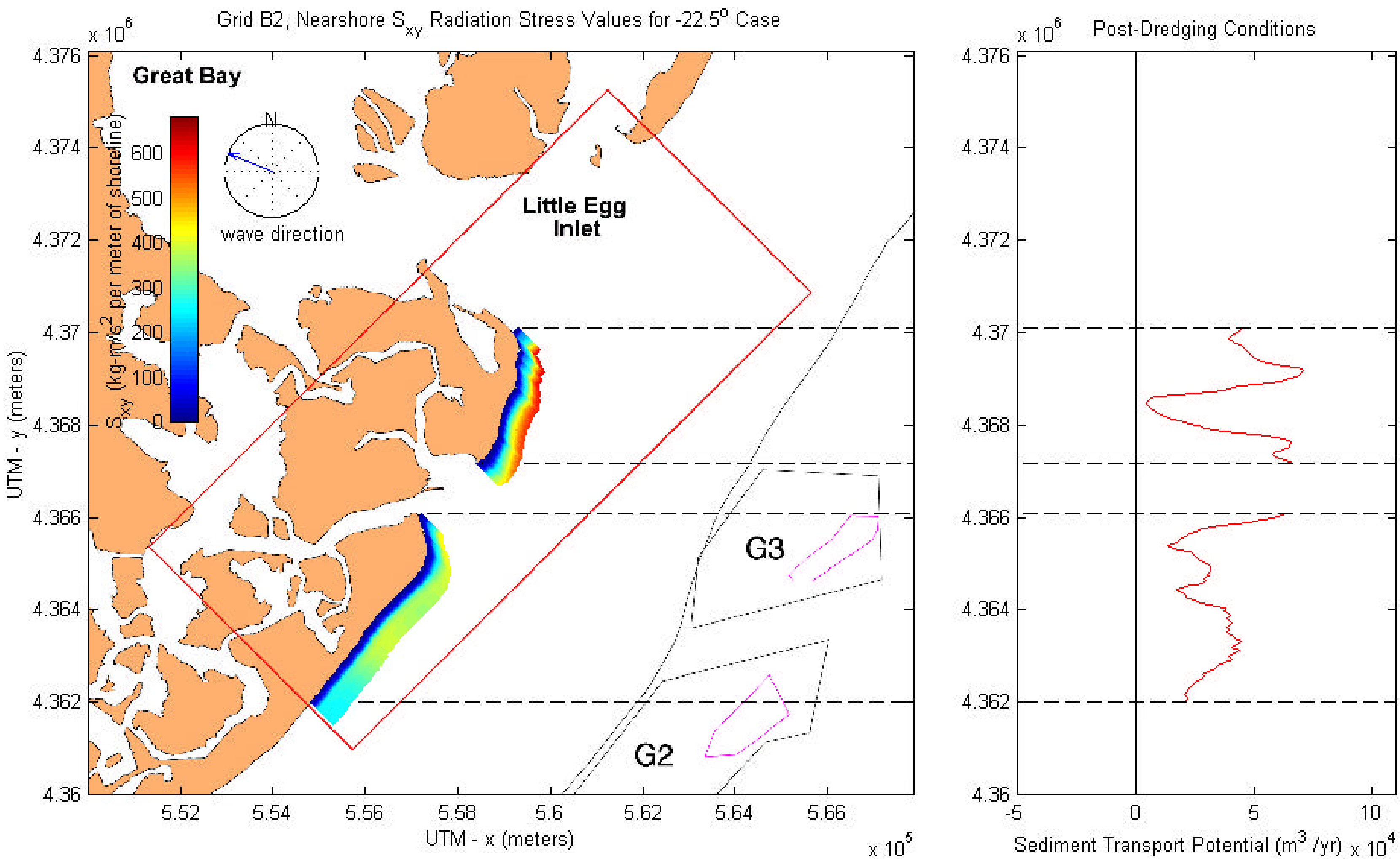

Figure C3-29. S_{xy} radiation stress and annual sediment transport potential for post-dredging conditions at Grid B2, -22.5° case.

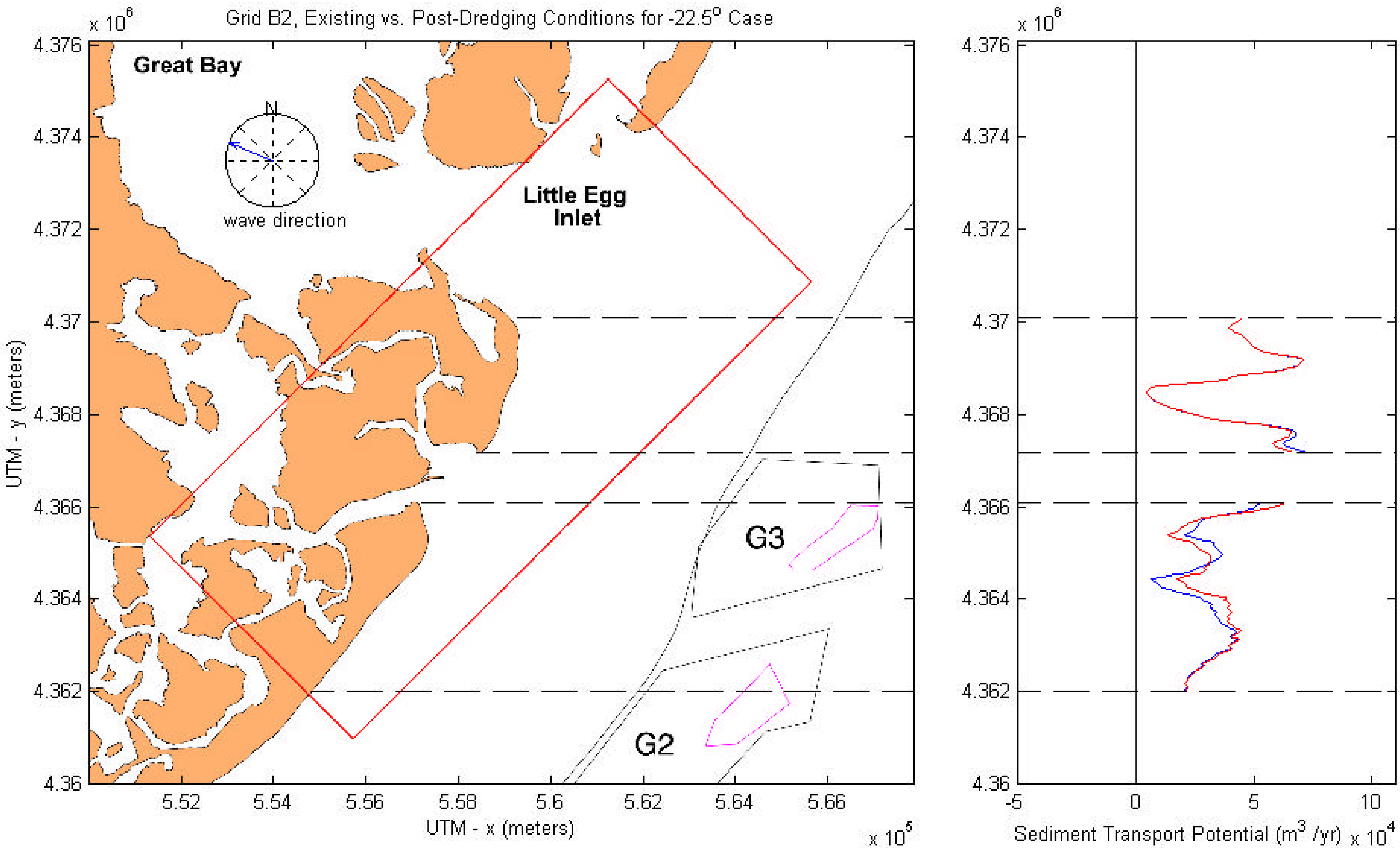

Figure C3-30. Existing versus post-dredging annual sediment transport potential at Grid B2 for the -22.5° case.

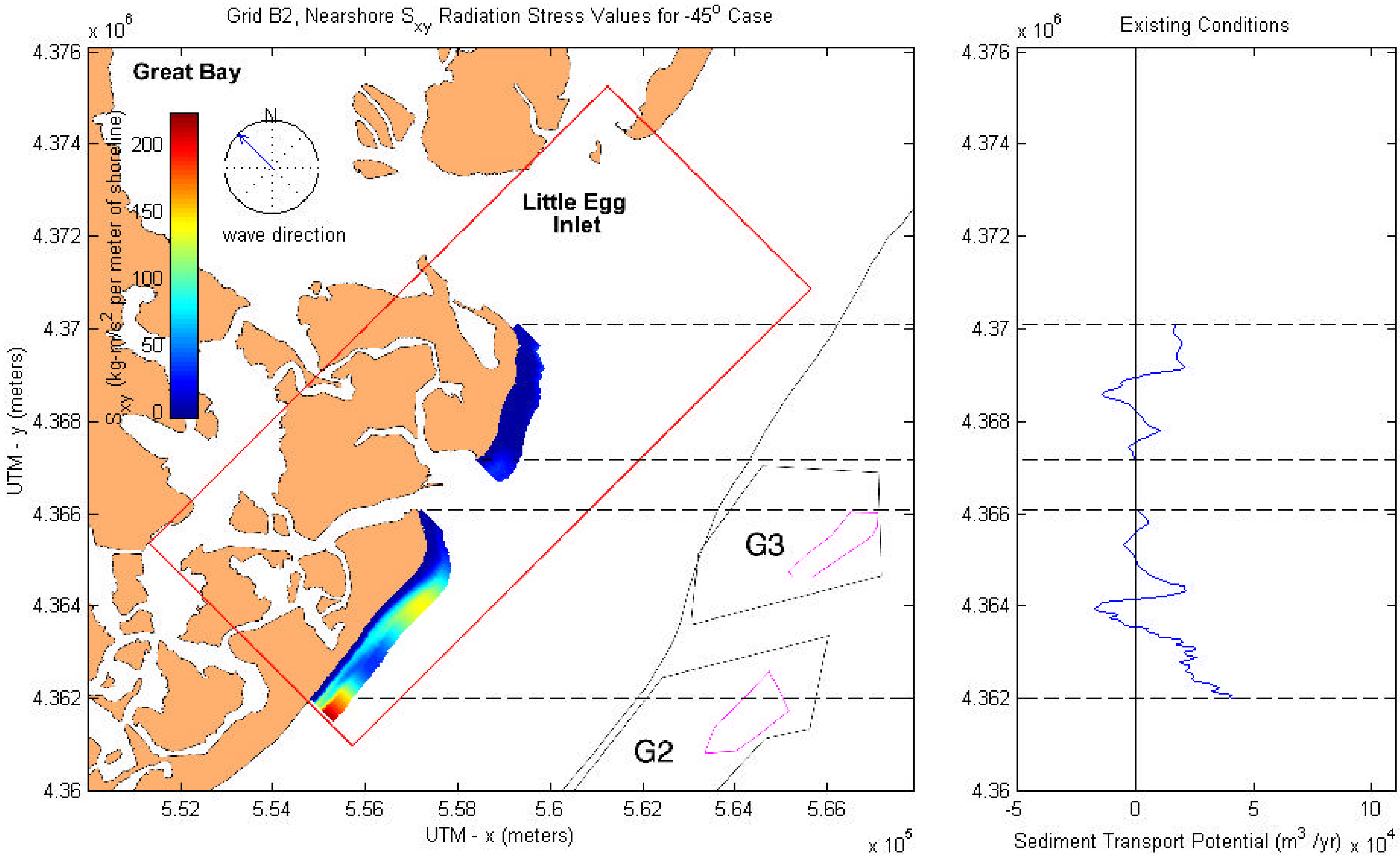

Figure C3-31. S_{xy} radiation stress and annual sediment transport potential for existing conditions at Grid B2, -45° case.

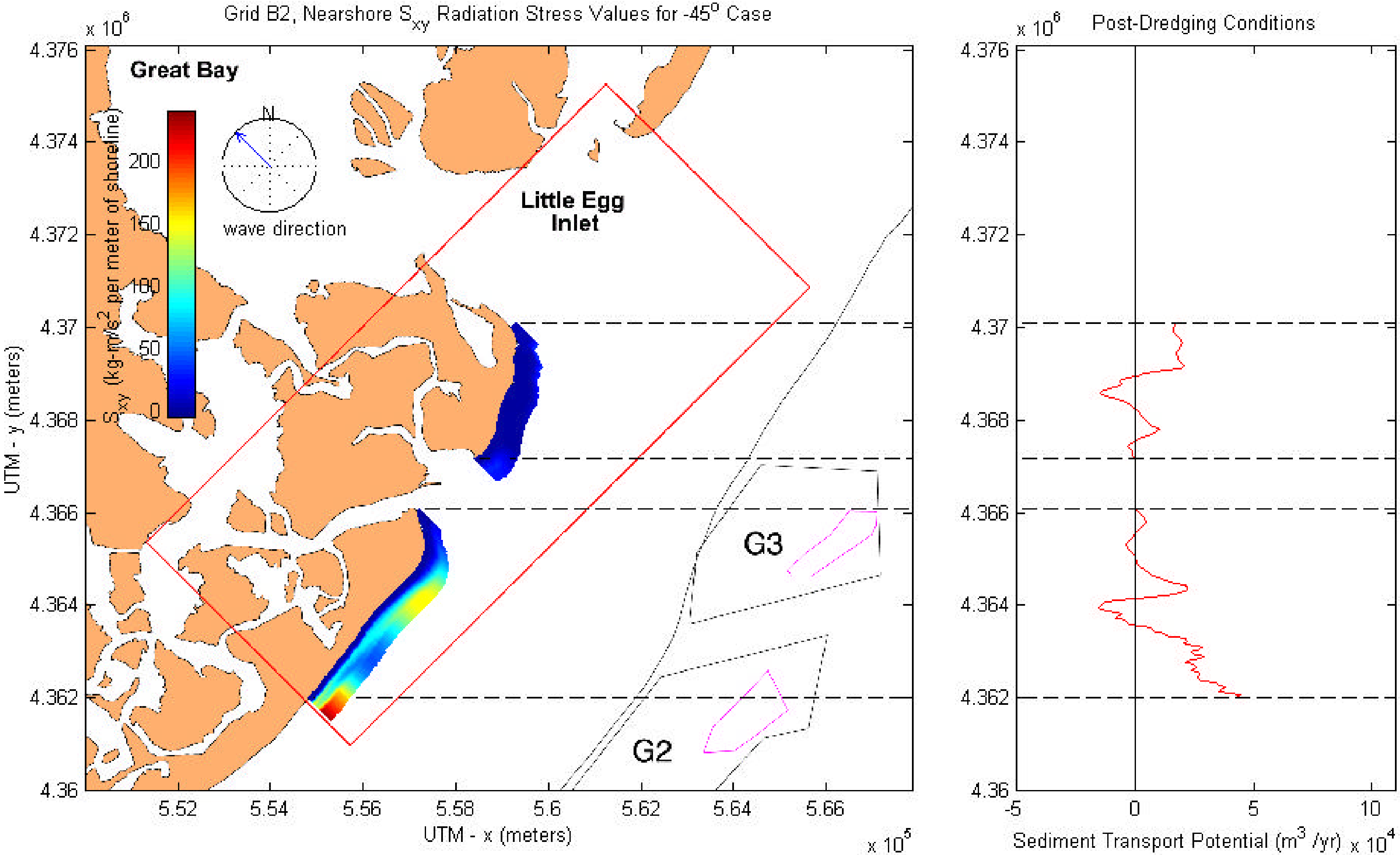

Figure C3-32. S_{xy} radiation stress and annual sediment transport potential for post-dredging conditions at Grid B2, -45° case.

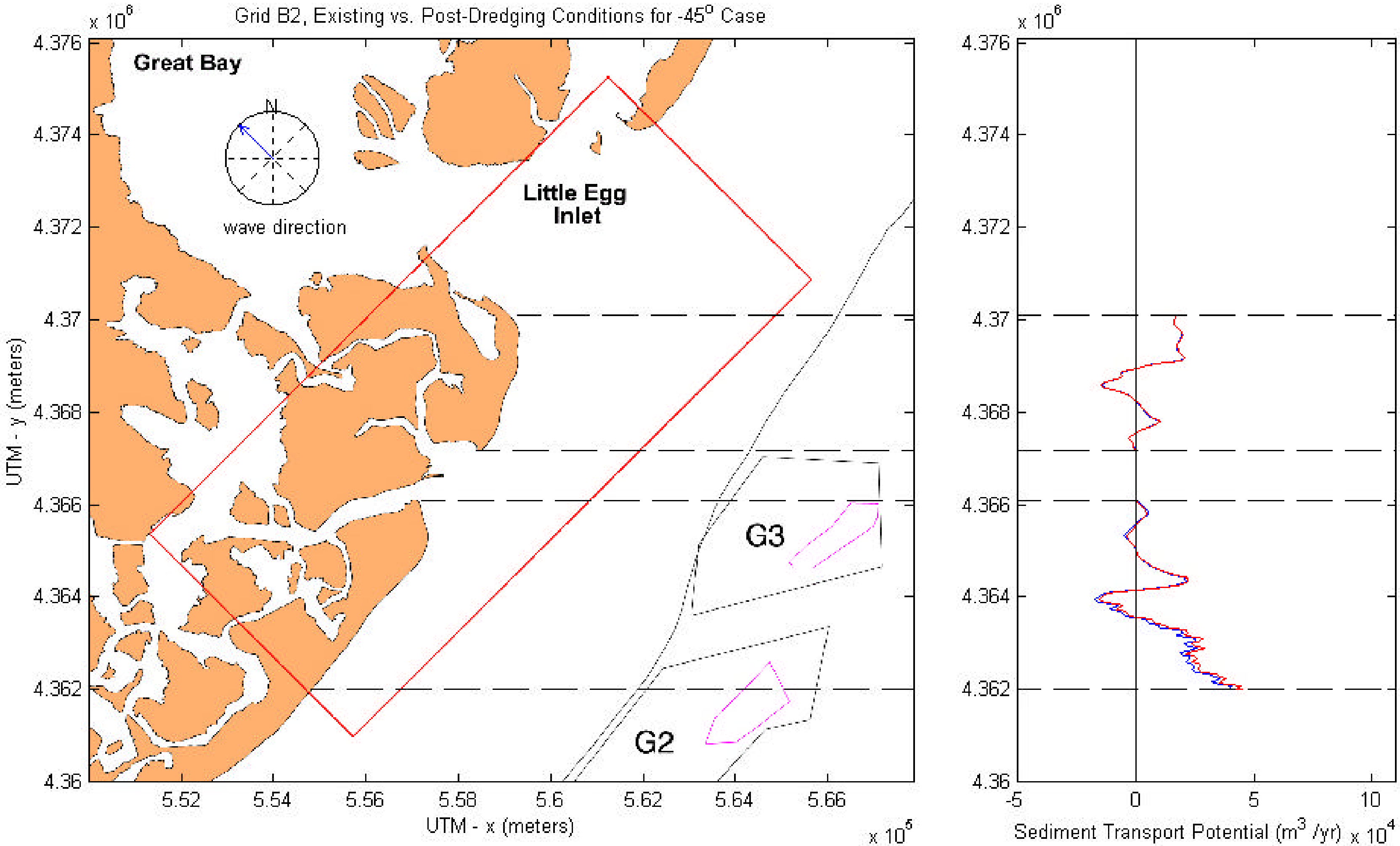

Figure C3-33. Existing versus post-dredging annual sediment transport potential at Grid B2 for the -45° case.

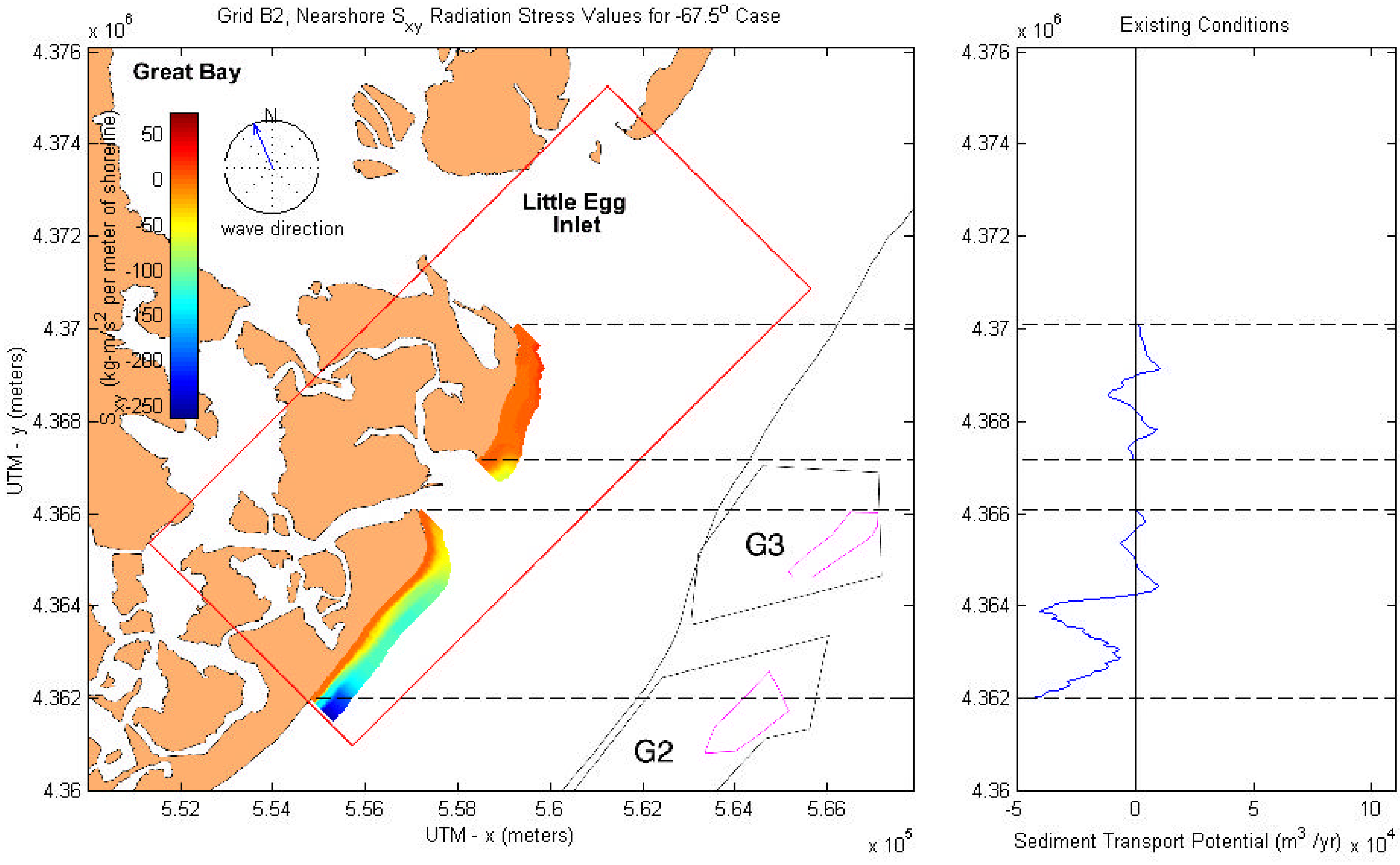

Figure C3-34. S_{xy} radiation stress and annual sediment transport potential for existing conditions at Grid B2, -67.5° case.

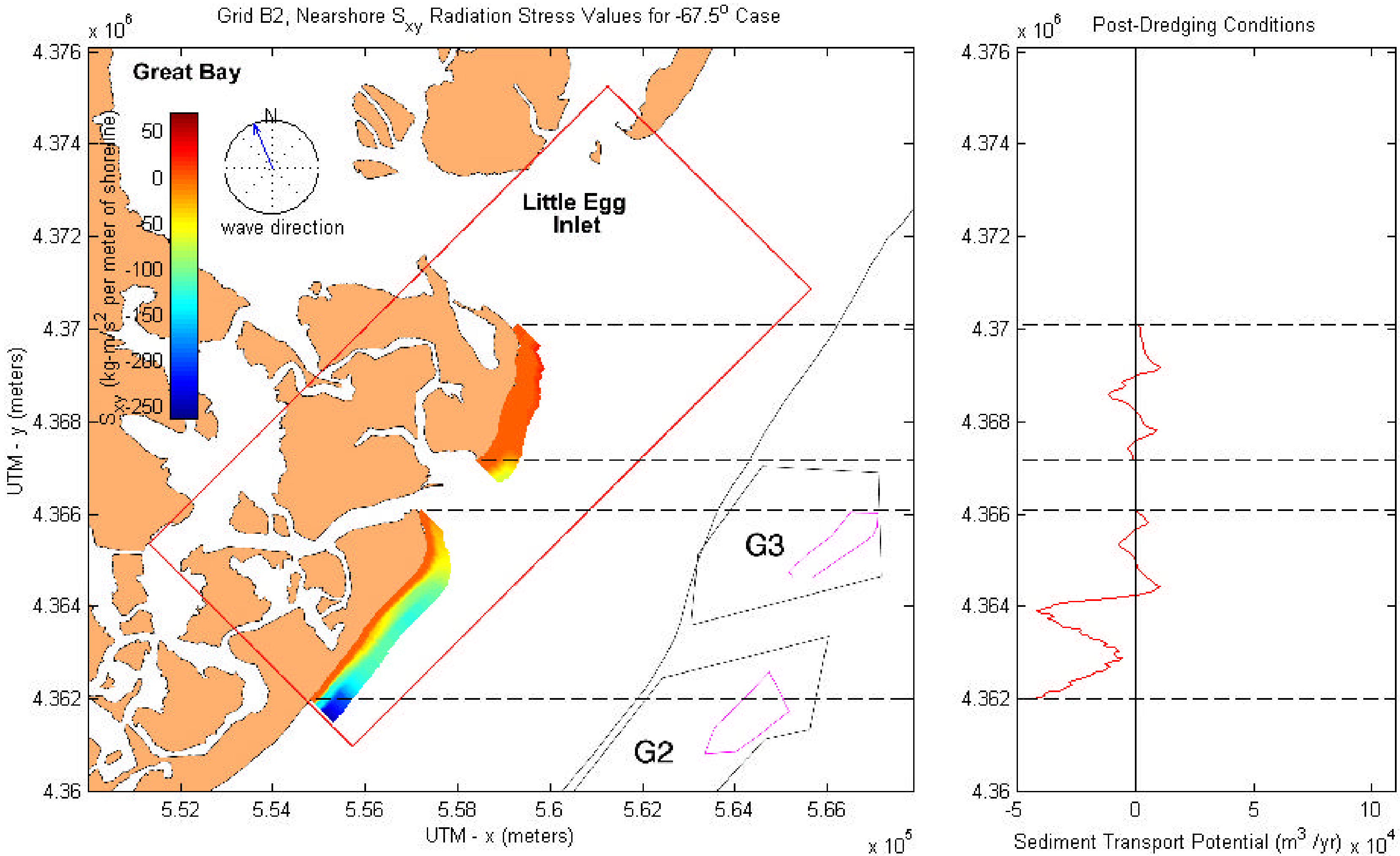

Figure C3-35. S_{xy} radiation stress and annual sediment transport potential for post-dredging conditions at Grid B2, -67.5° case.

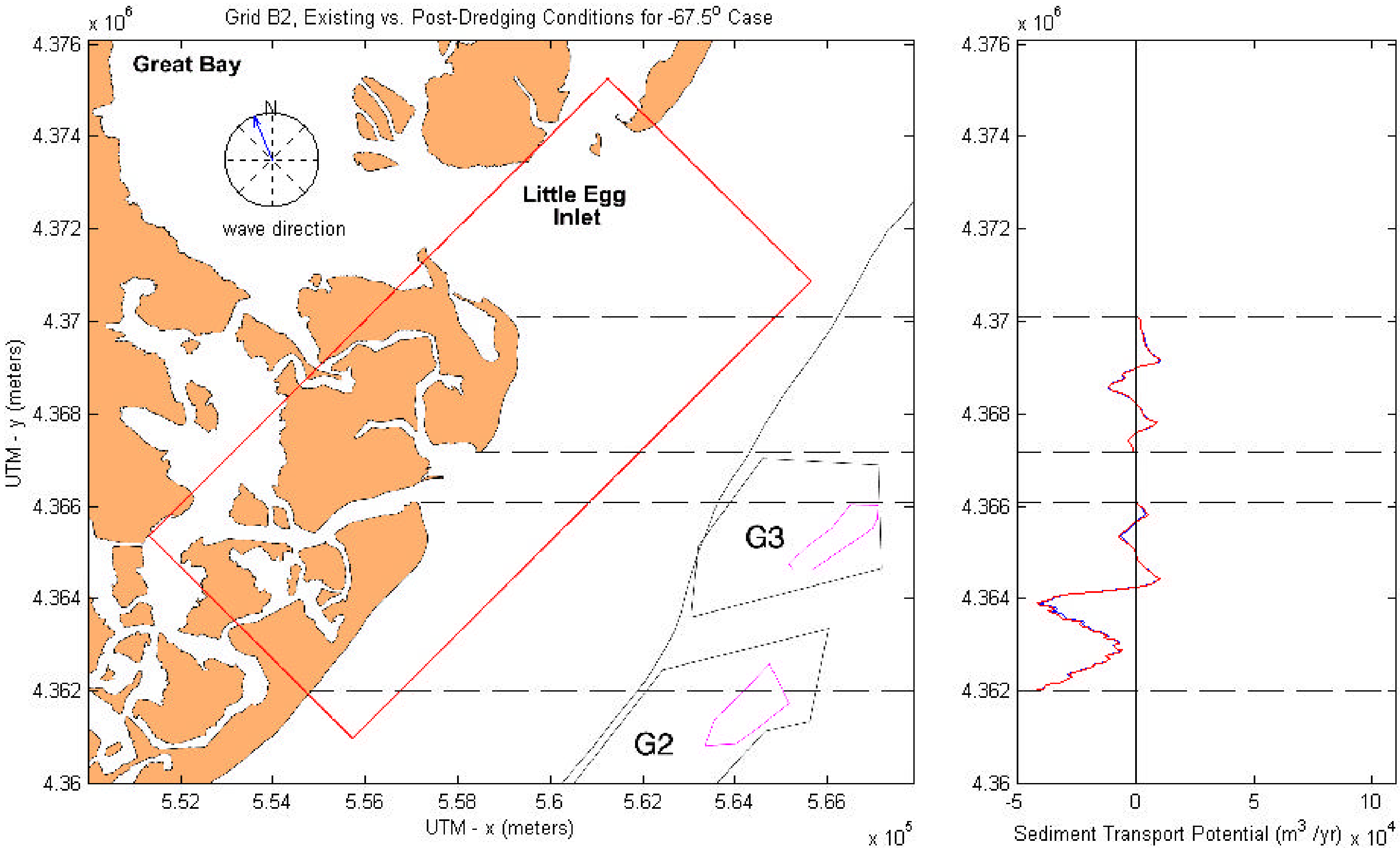

Figure C3-36. Existing versus post-dredging annual sediment transport potential at Grid B2 for the -67.5° case.

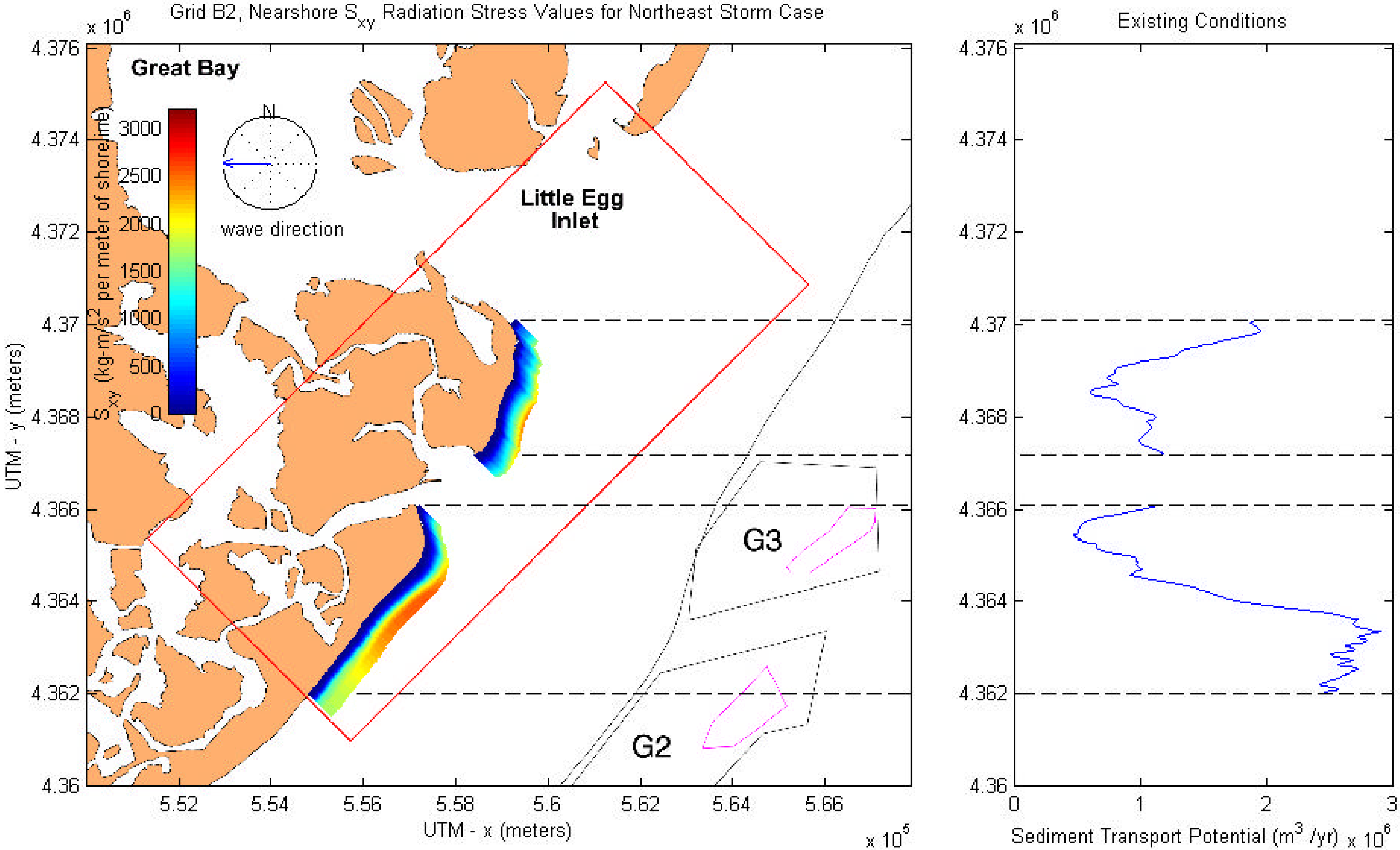

Figure C3-37. S_{xy} radiation stress and annual sediment transport potential for existing conditions at Grid B2, northeast storm case.

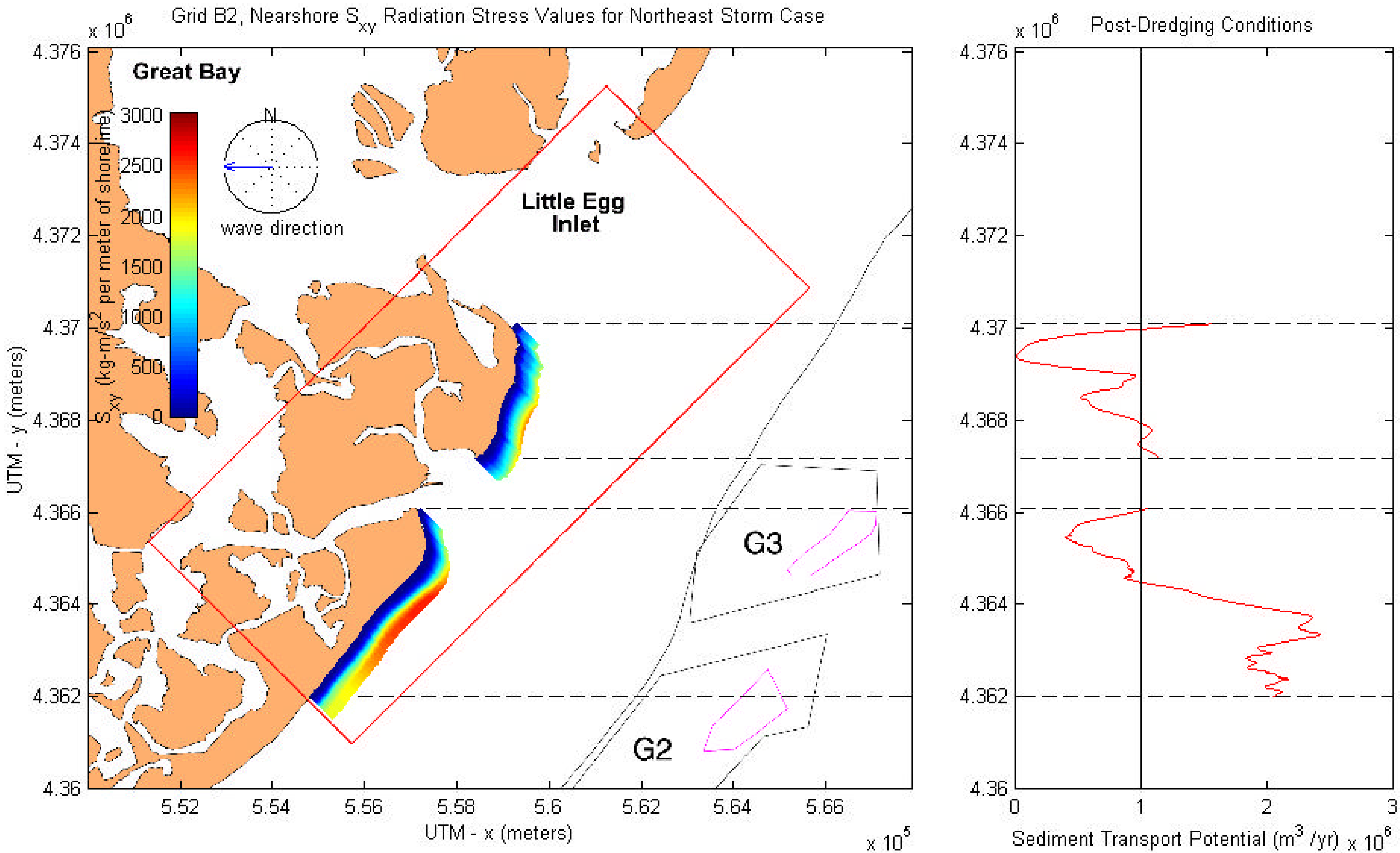

Figure C3-38. S_{xy} radiation stress and annual sediment transport potential for post-dredging conditions at Grid B2, northeast storm case.

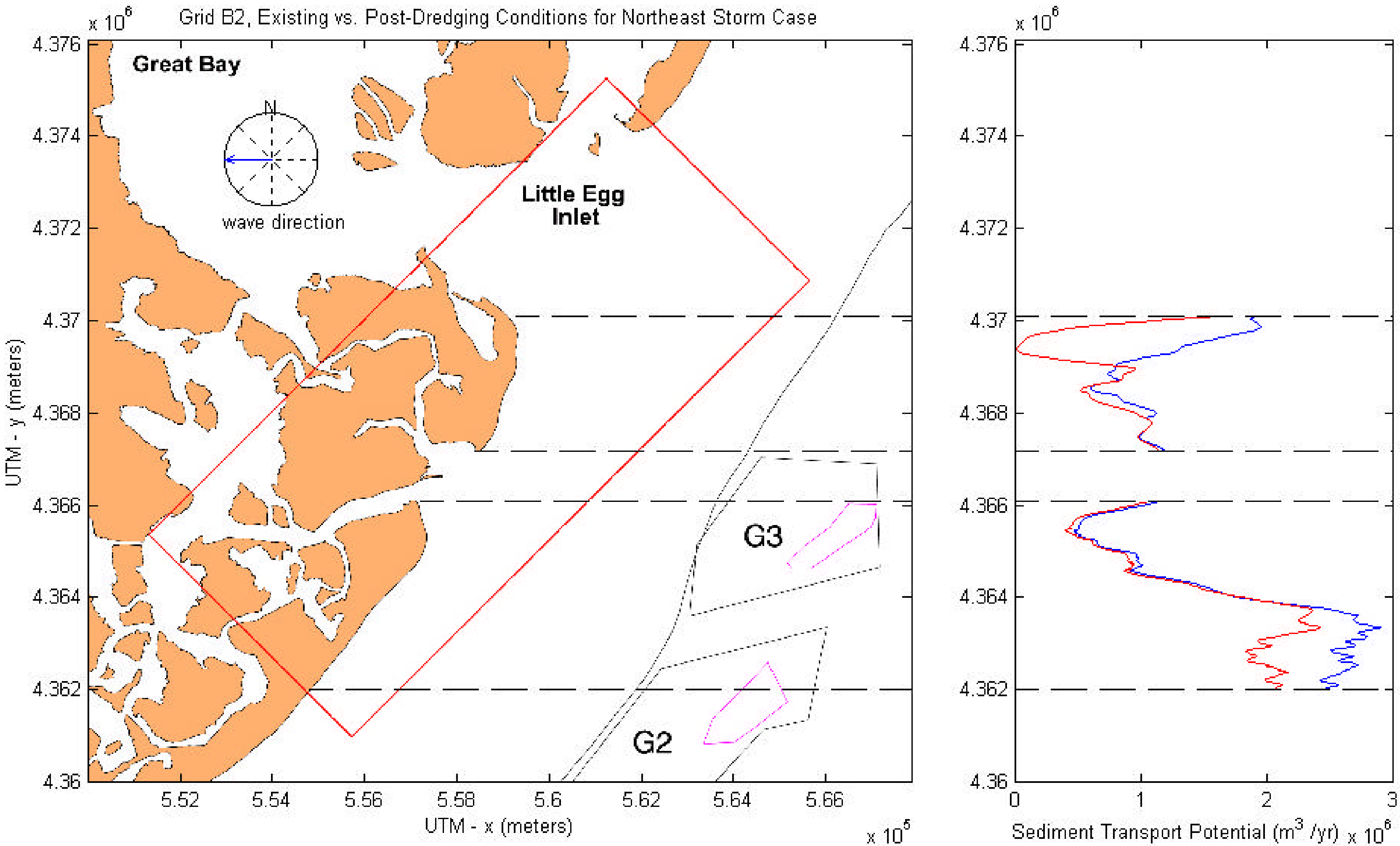

Figure C3-39. Existing versus post-dredging annual sediment transport potential at Grid B2 for the northeast storm case.

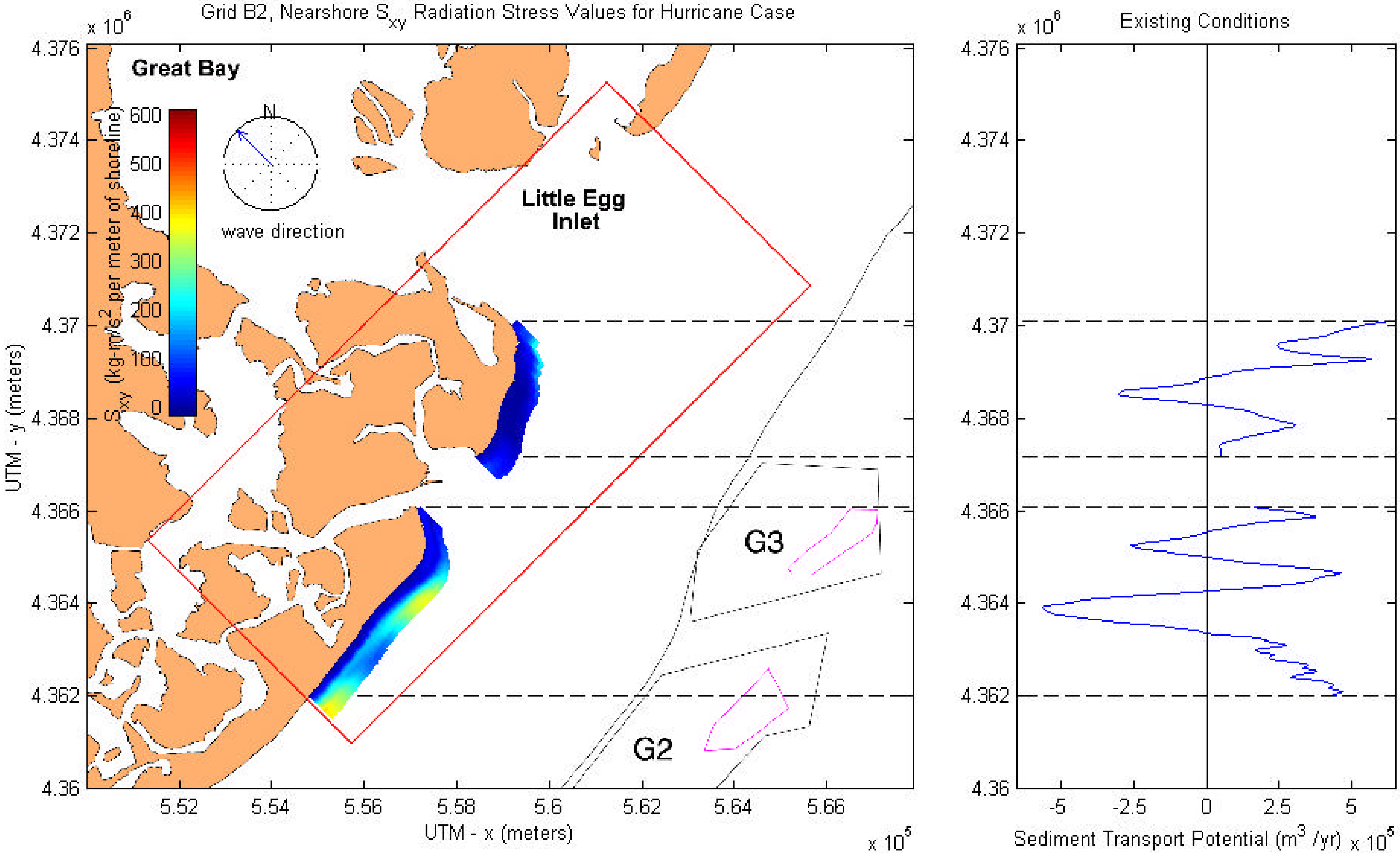

Figure C3-40. S_{xy} radiation stress and annual sediment transport potential for existing conditions at Grid B2, hurricane case.

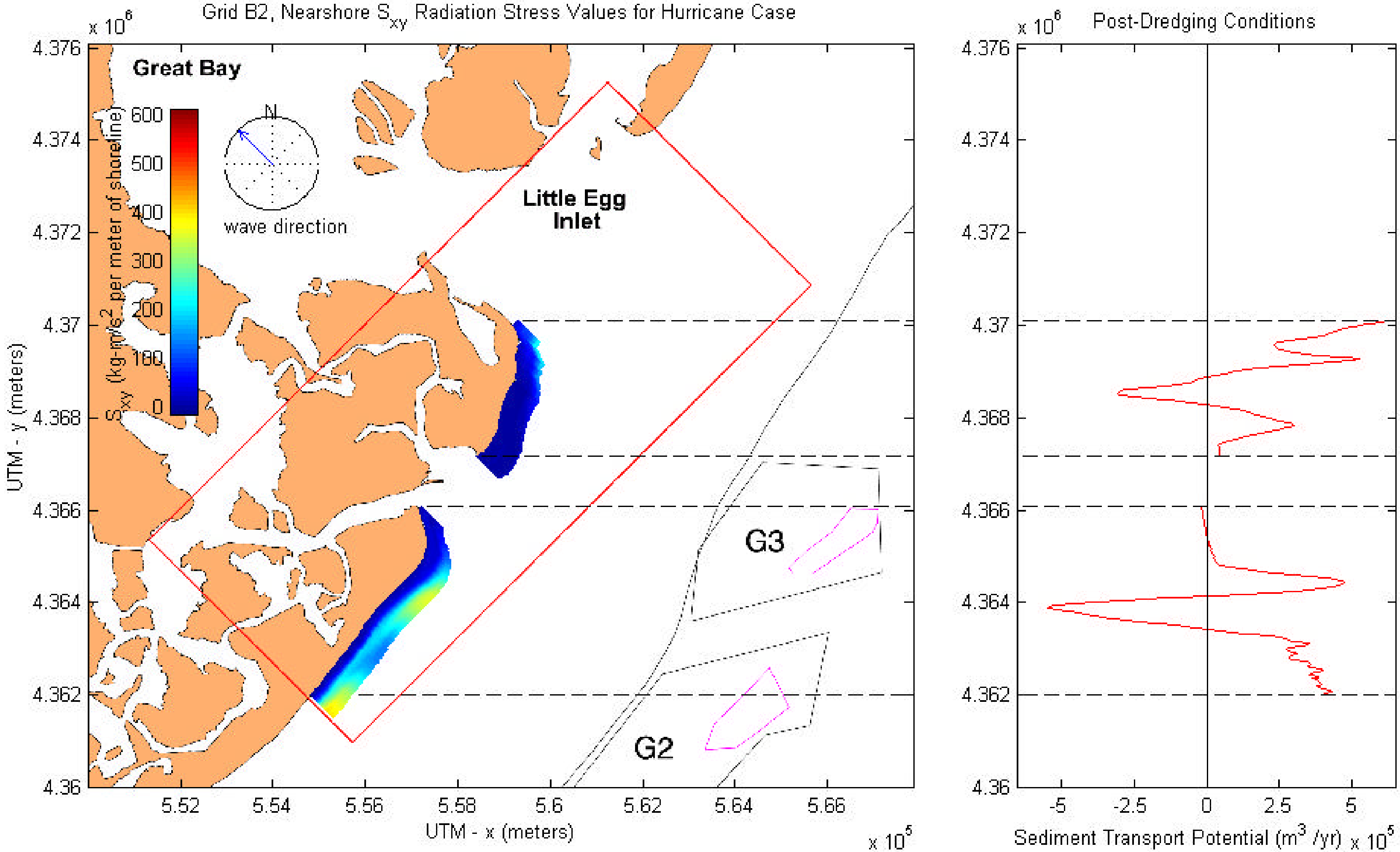

Figure C3-41. S_{xy} radiation stress and annual sediment transport potential for post-dredging conditions at Grid B2, hurricane case.

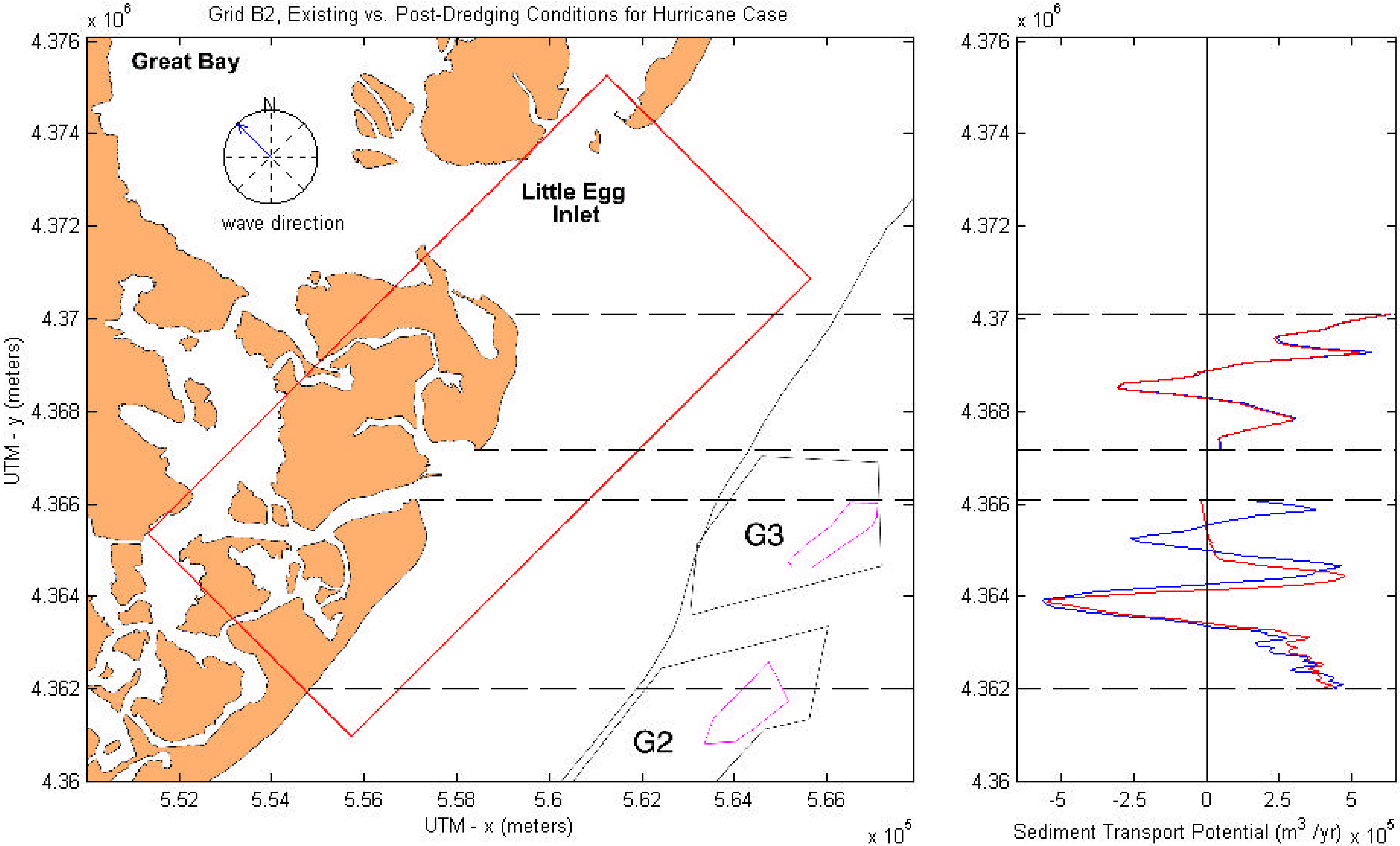

Figure C3-42. Existing versus post-dredging annual sediment transport potential at Grid B2 for the hurricane case.

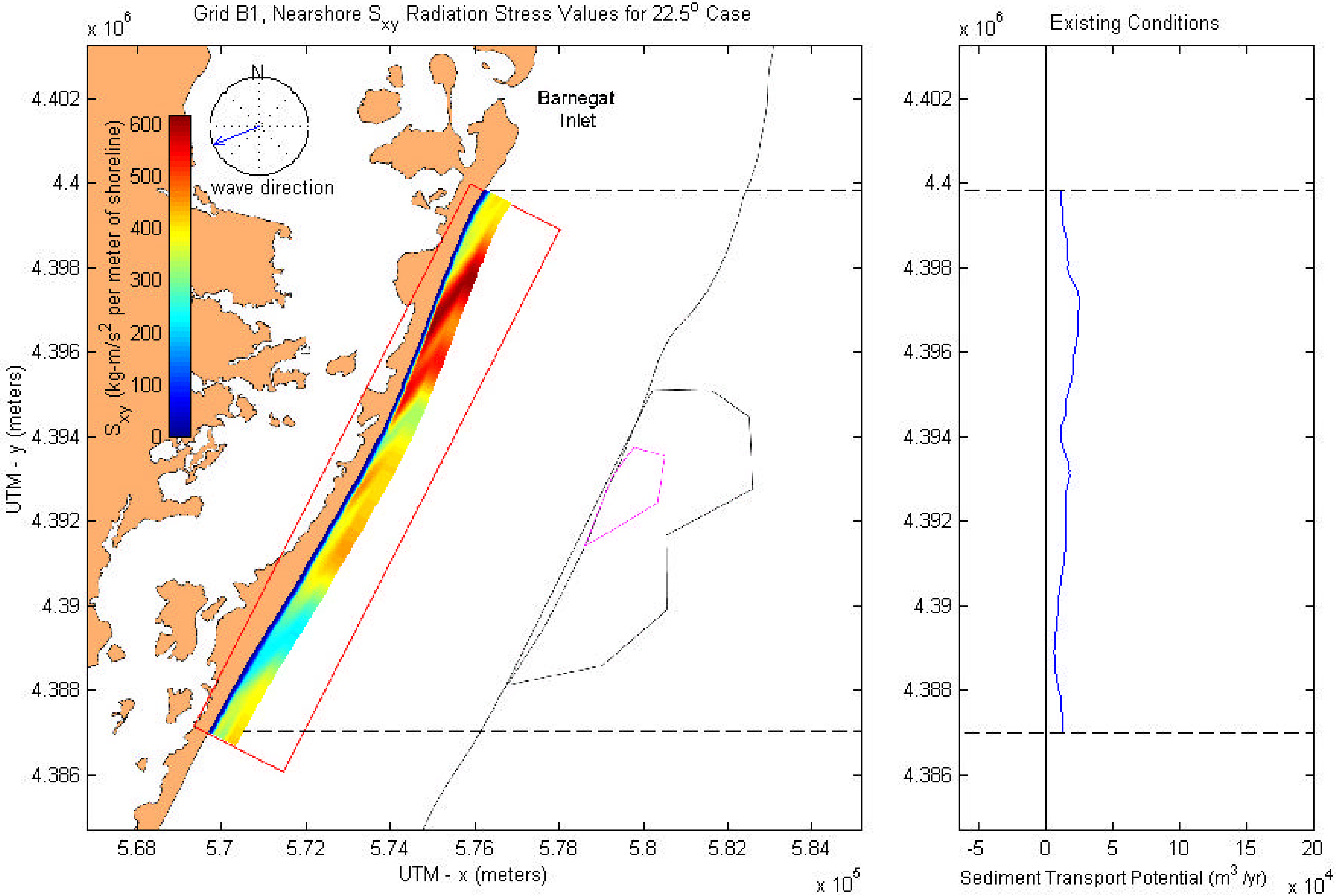

Figure C3-43. S_{xy} radiation stress and annual sediment transport potential for existing conditions at Grid B1, 22.5° case.

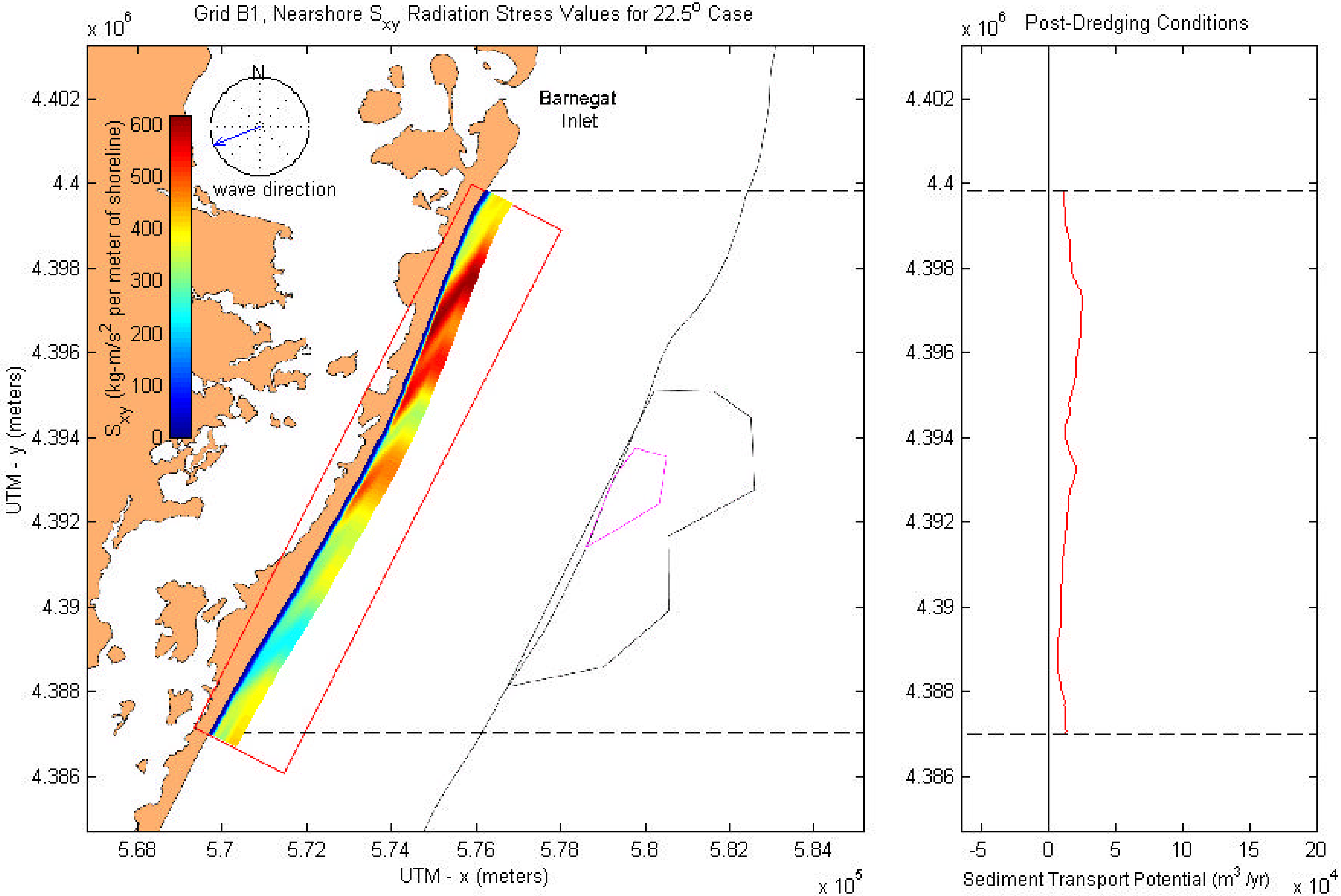

Figure C3-44. S_{xy} radiation stress and annual sediment transport potential for post-dredging conditions at Grid B1, 22.5° case.

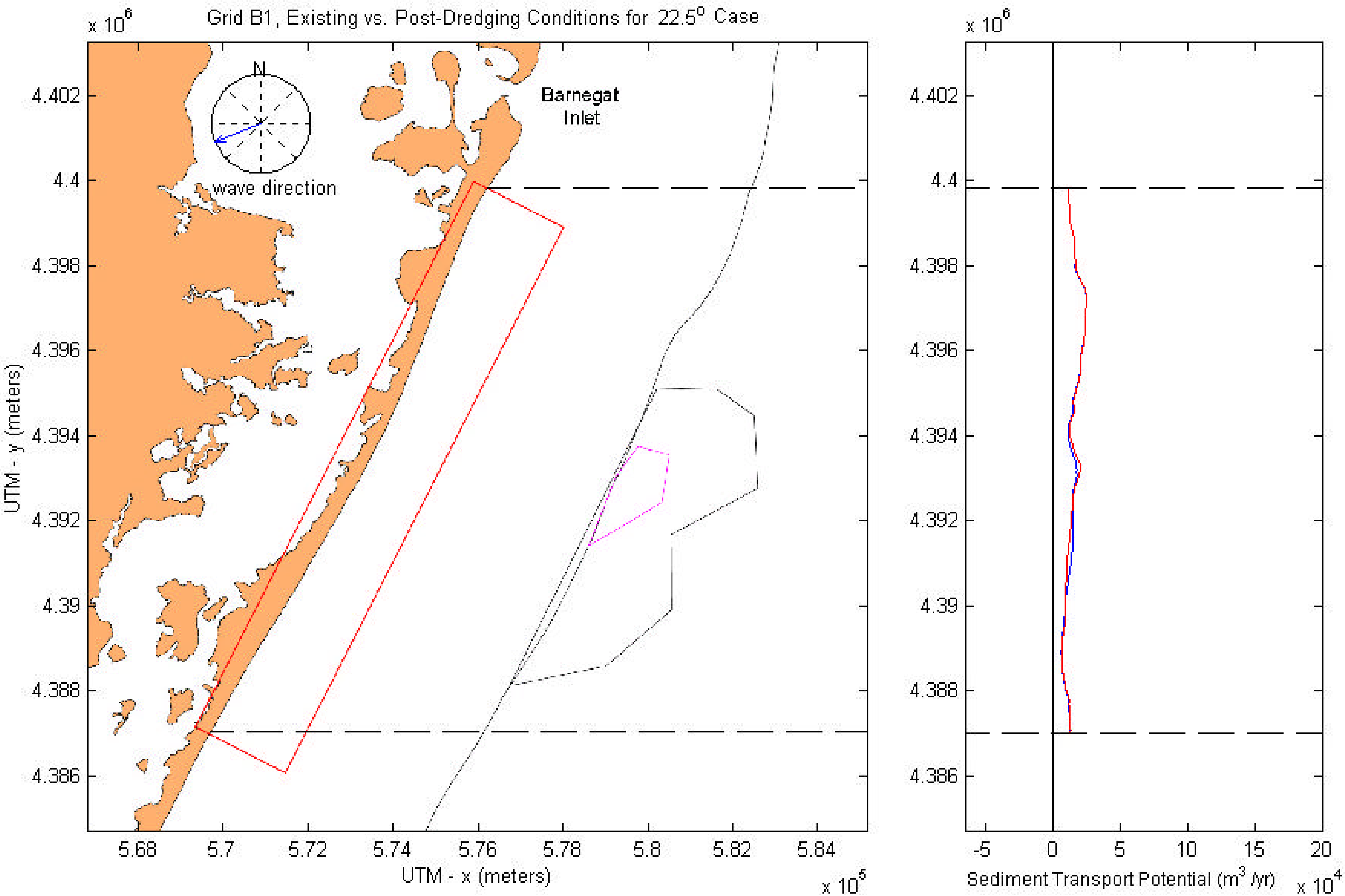

Figure C3-45. Existing versus post-dredging annual sediment transport potential at Grid B1 for the 22.5° case.

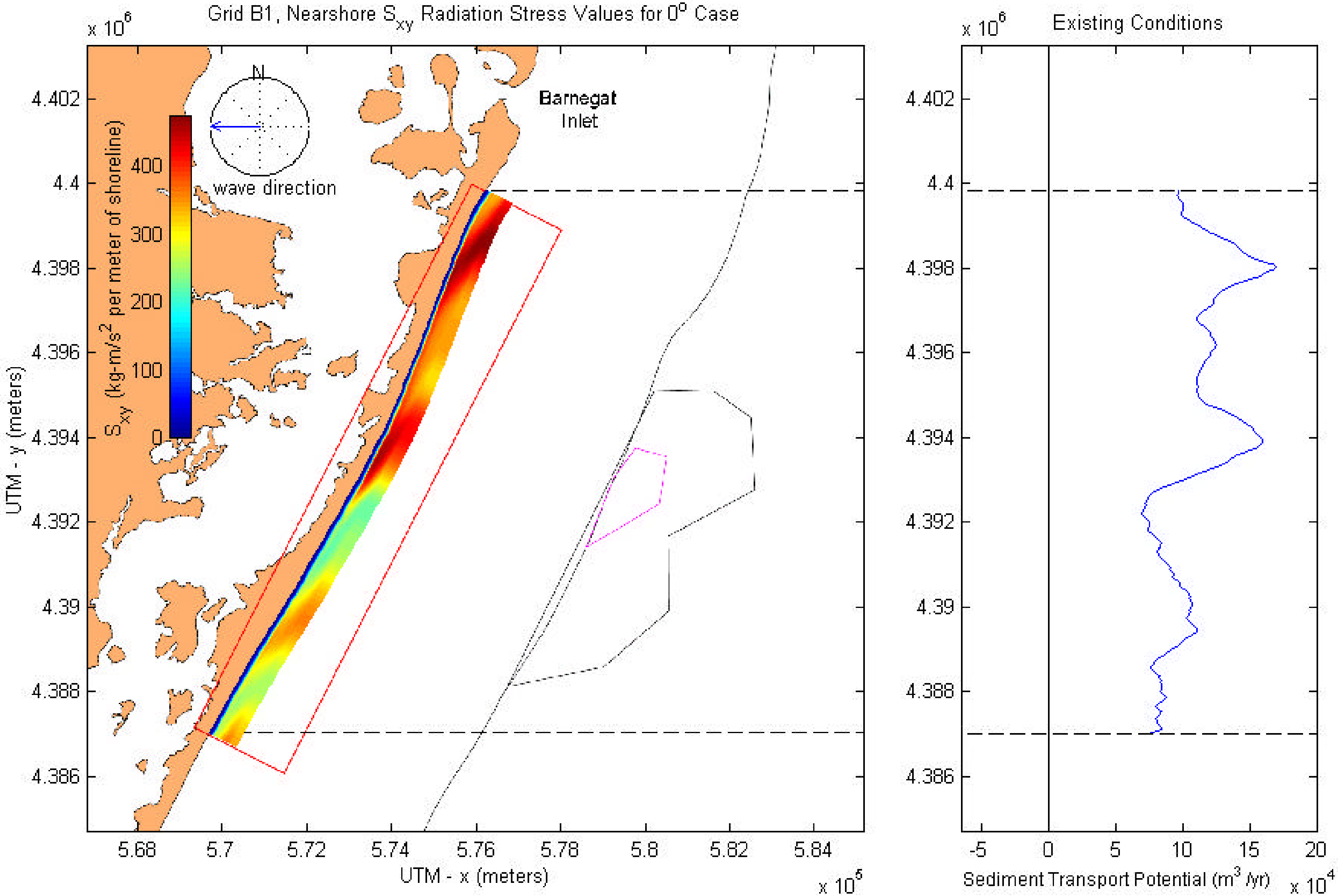

Figure C3-46. S_{xy} radiation stress and annual sediment transport potential for existing conditions at Grid B1, 0° case.

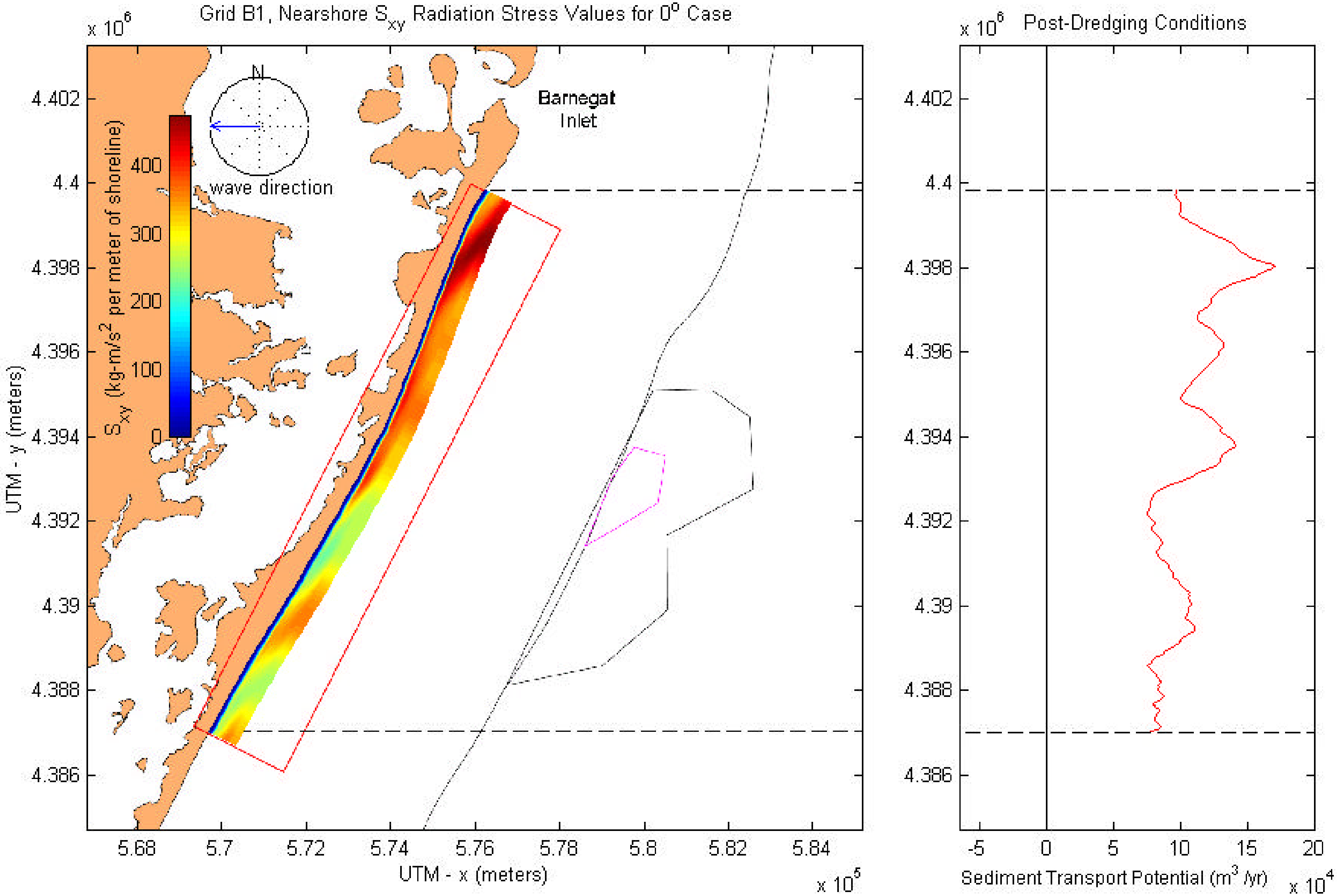

Figure C3-47. S_{xy} radiation stress and annual sediment transport potential for post-dredging conditions at Grid B1, 0° case.

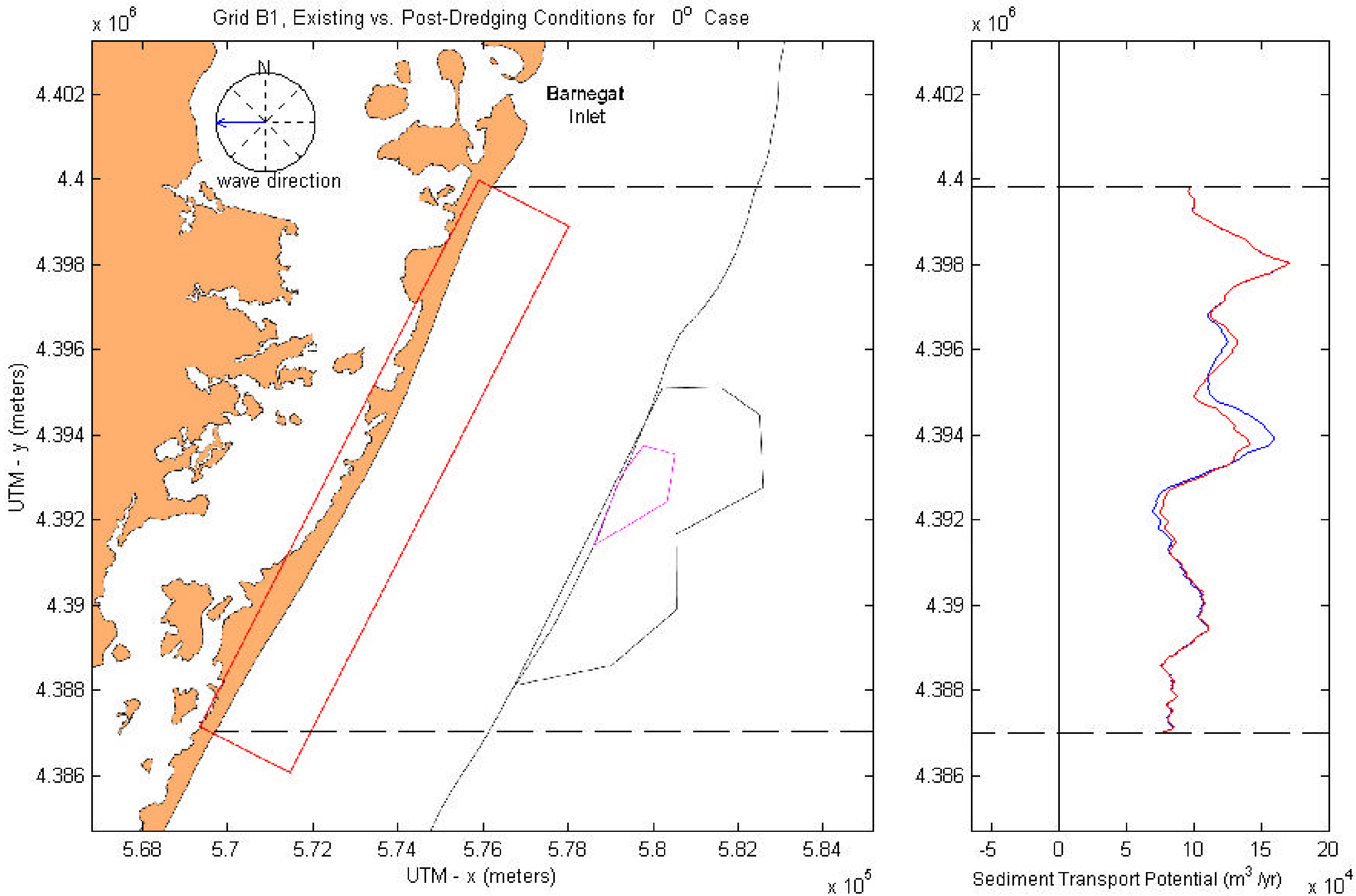

Figure C3-48. Existing versus post-dredging annual sediment transport potential at Grid B1 for the 0° case.

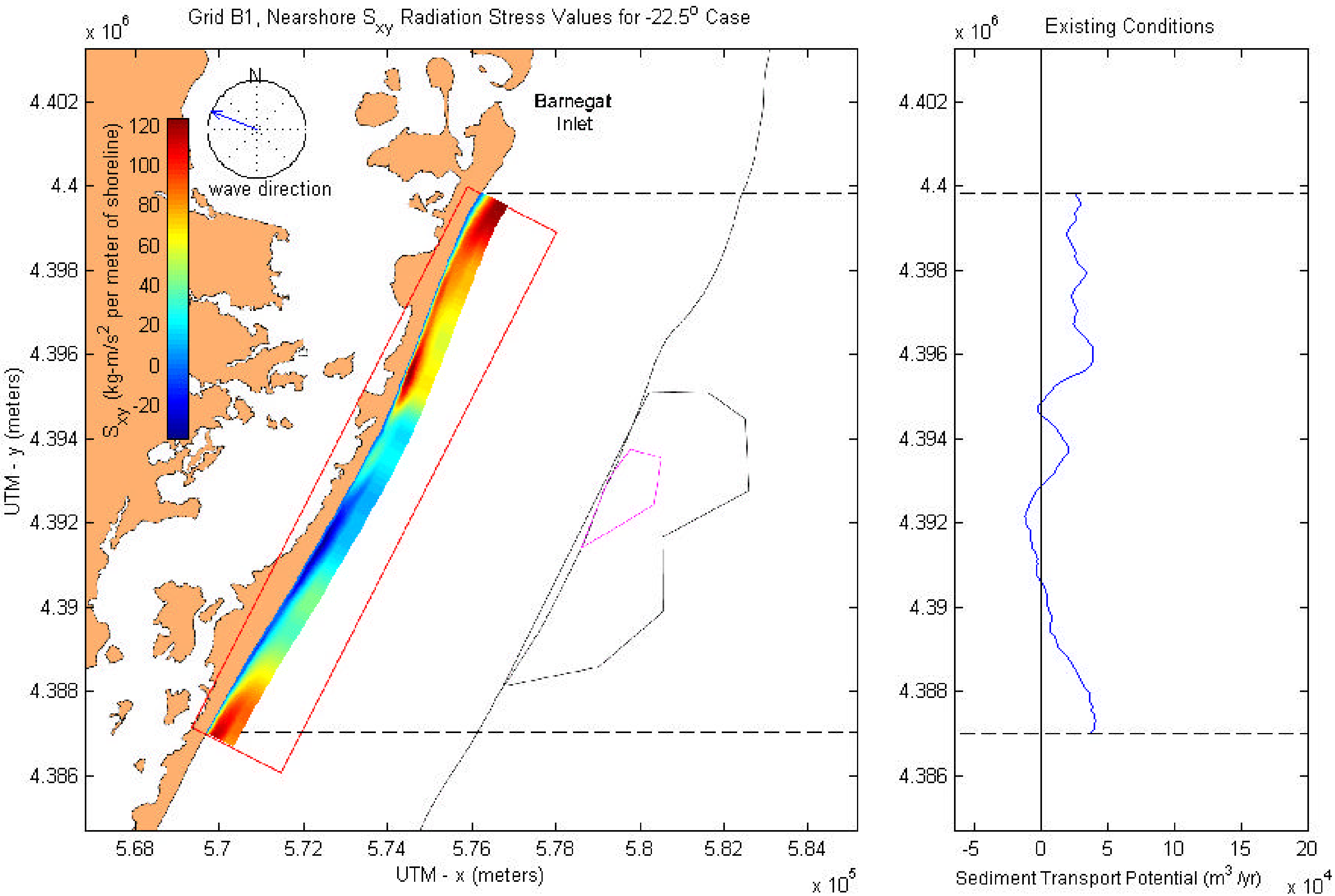

Figure C3-49. S_{xy} radiation stress and annual sediment transport potential for existing conditions at Grid B1, -22.5° case.

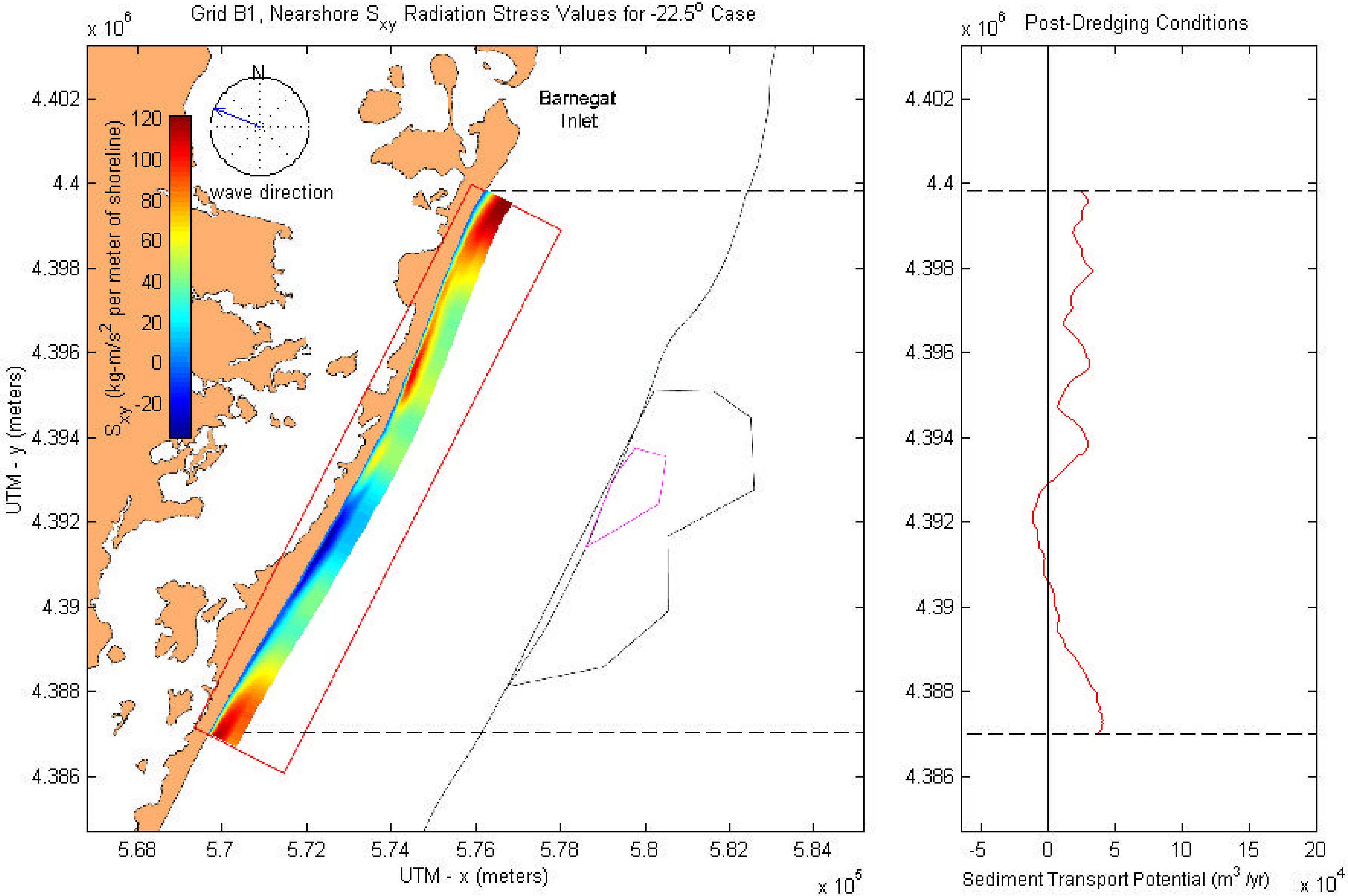

Figure C3-50. S_{xy} radiation stress and annual sediment transport potential for post-dredging conditions at Grid B1, -22.5° case.

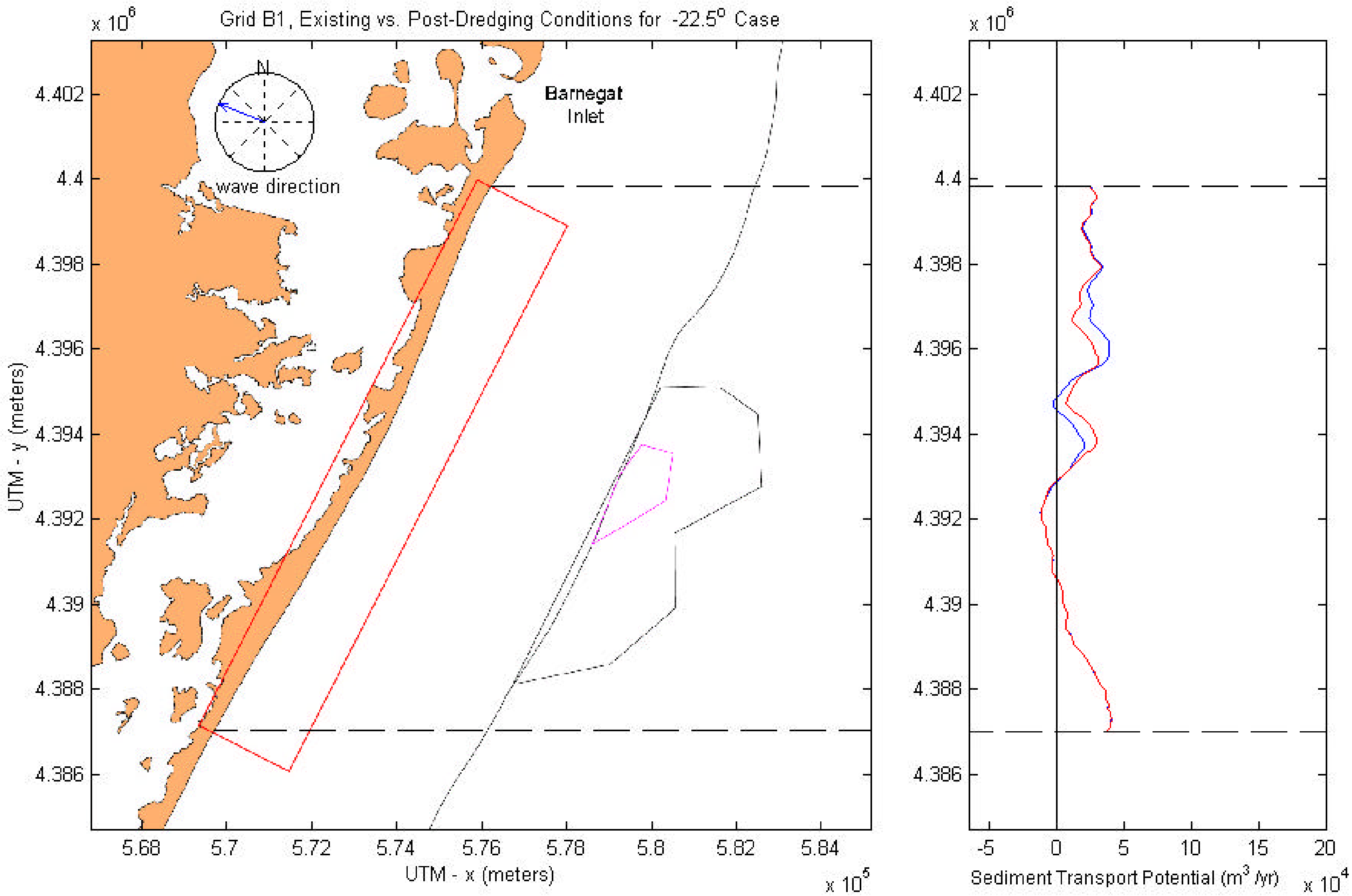

Figure C3-51. Existing versus post-dredging annual sediment transport potential at Grid B1 for the -22.5° case.

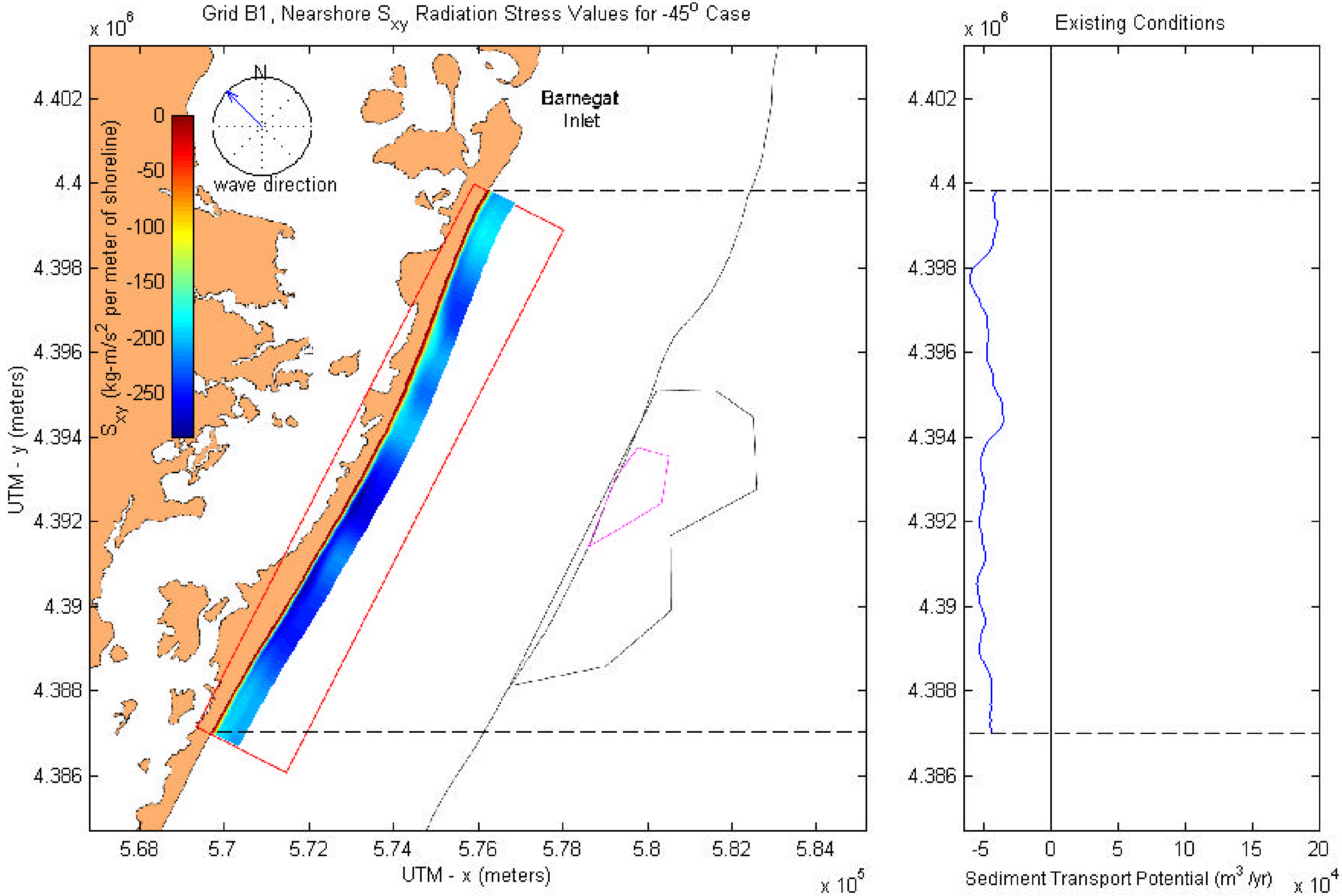

Figure C3-52. S_{xy} radiation stress and annual sediment transport potential for existing conditions at Grid B1, -45° case.

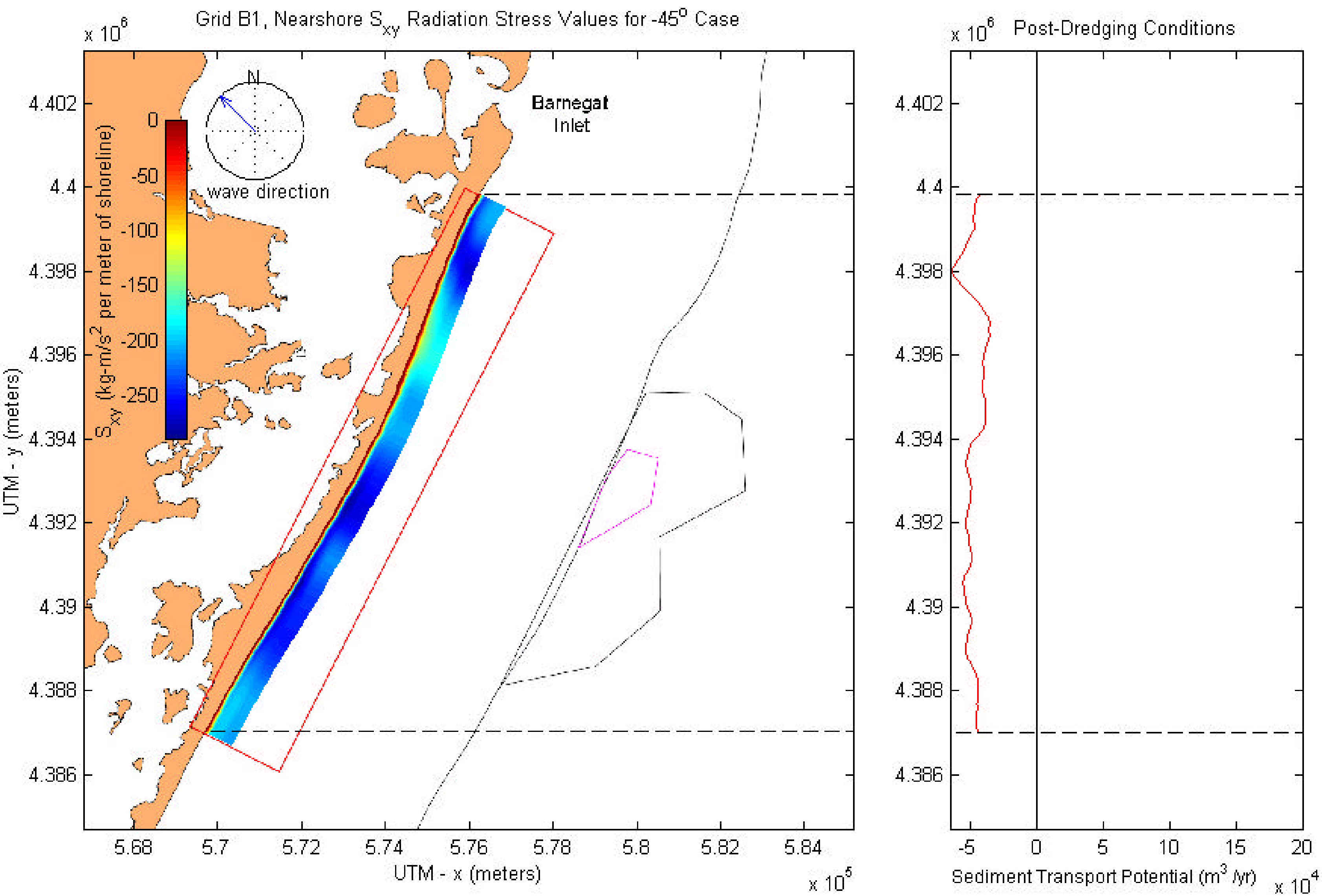

Figure C3-53. S_{xy} radiation stress and annual sediment transport potential for post-dredging conditions at Grid B1, -45° case.

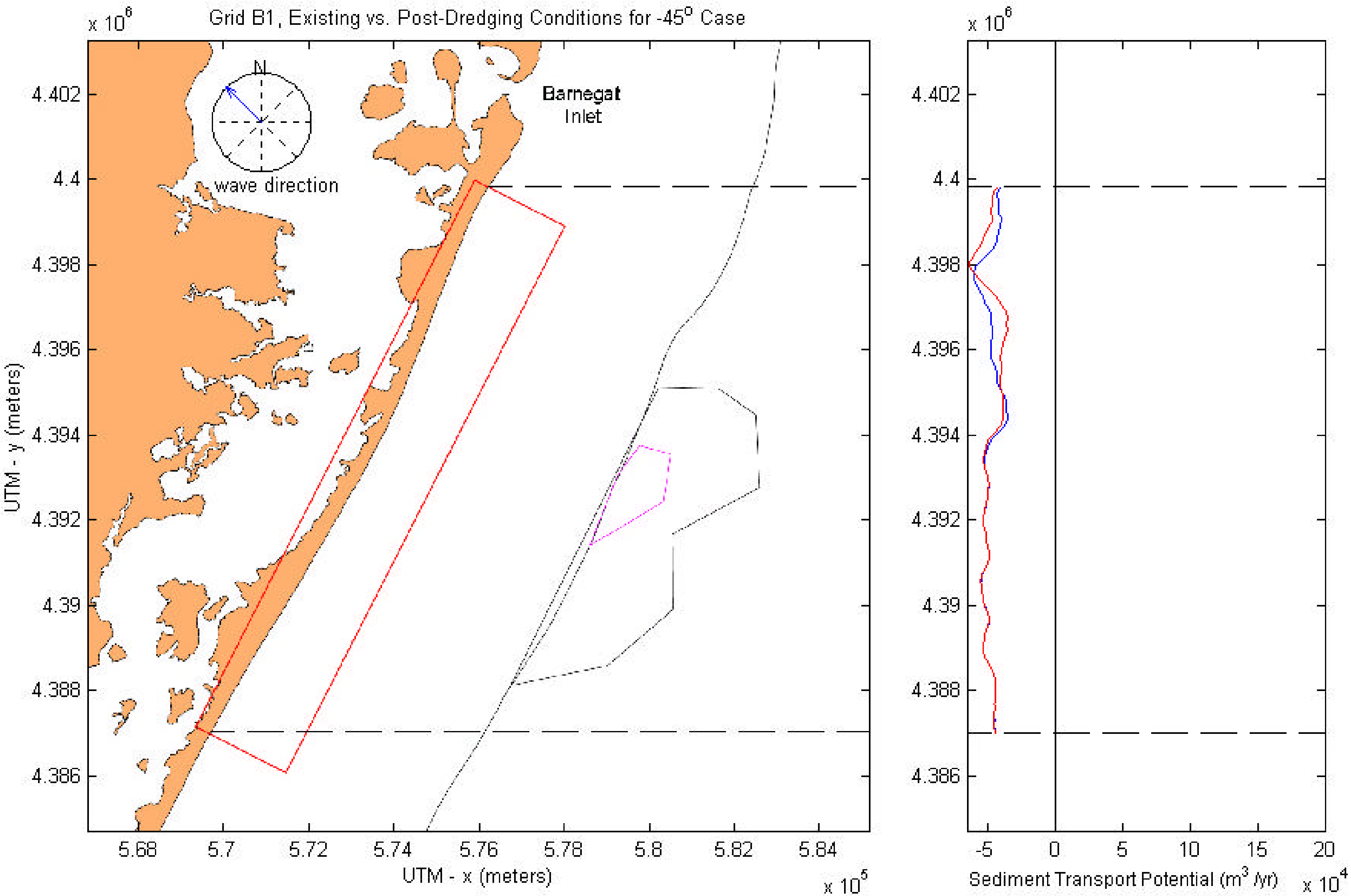

Figure C3-54. Existing versus post-dredging annual sediment transport potential at Grid B1 for the -45° case.

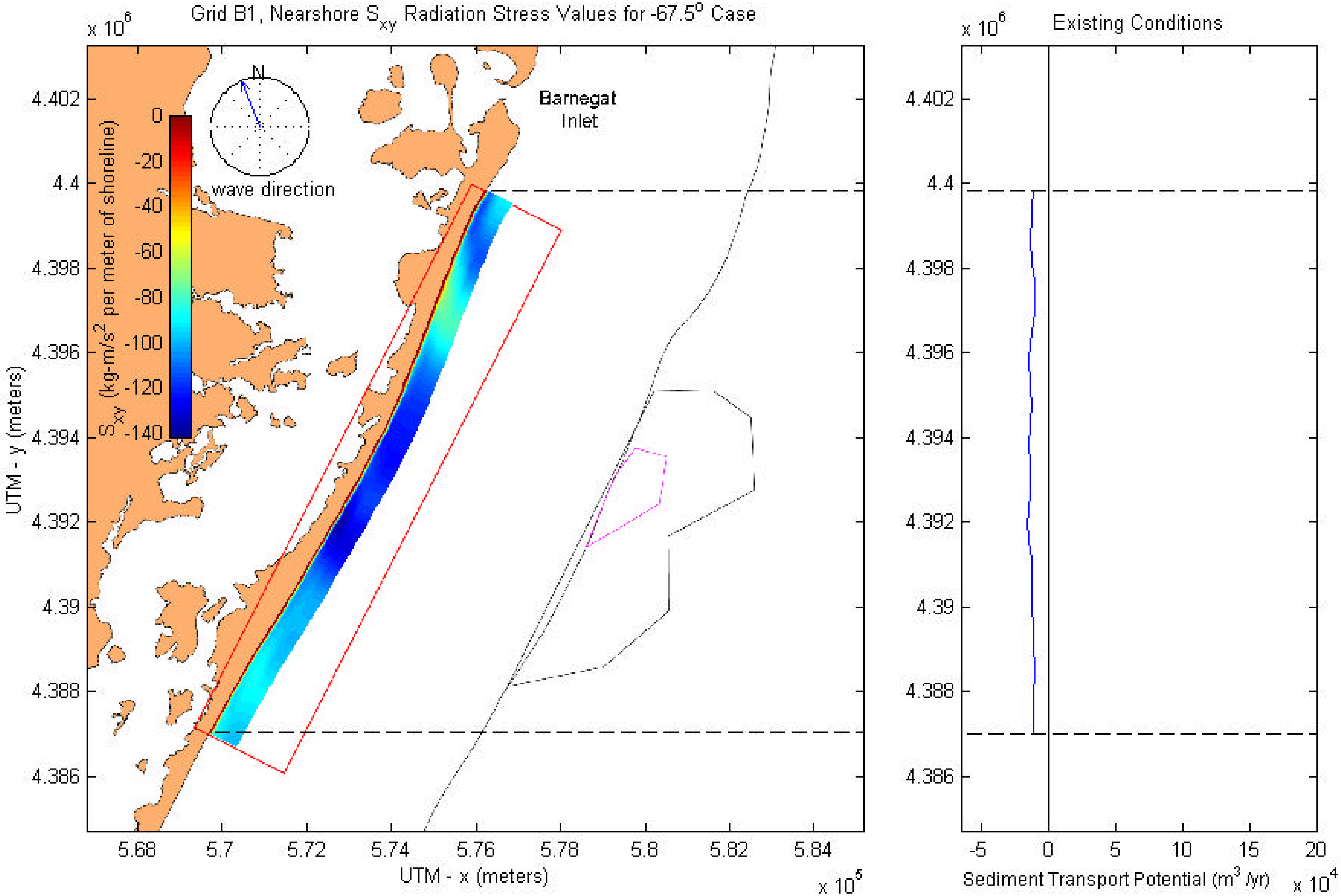

Figure C3-55. S_{xy} radiation stress and annual sediment transport potential for existing conditions at Grid B1, -67.5° case.

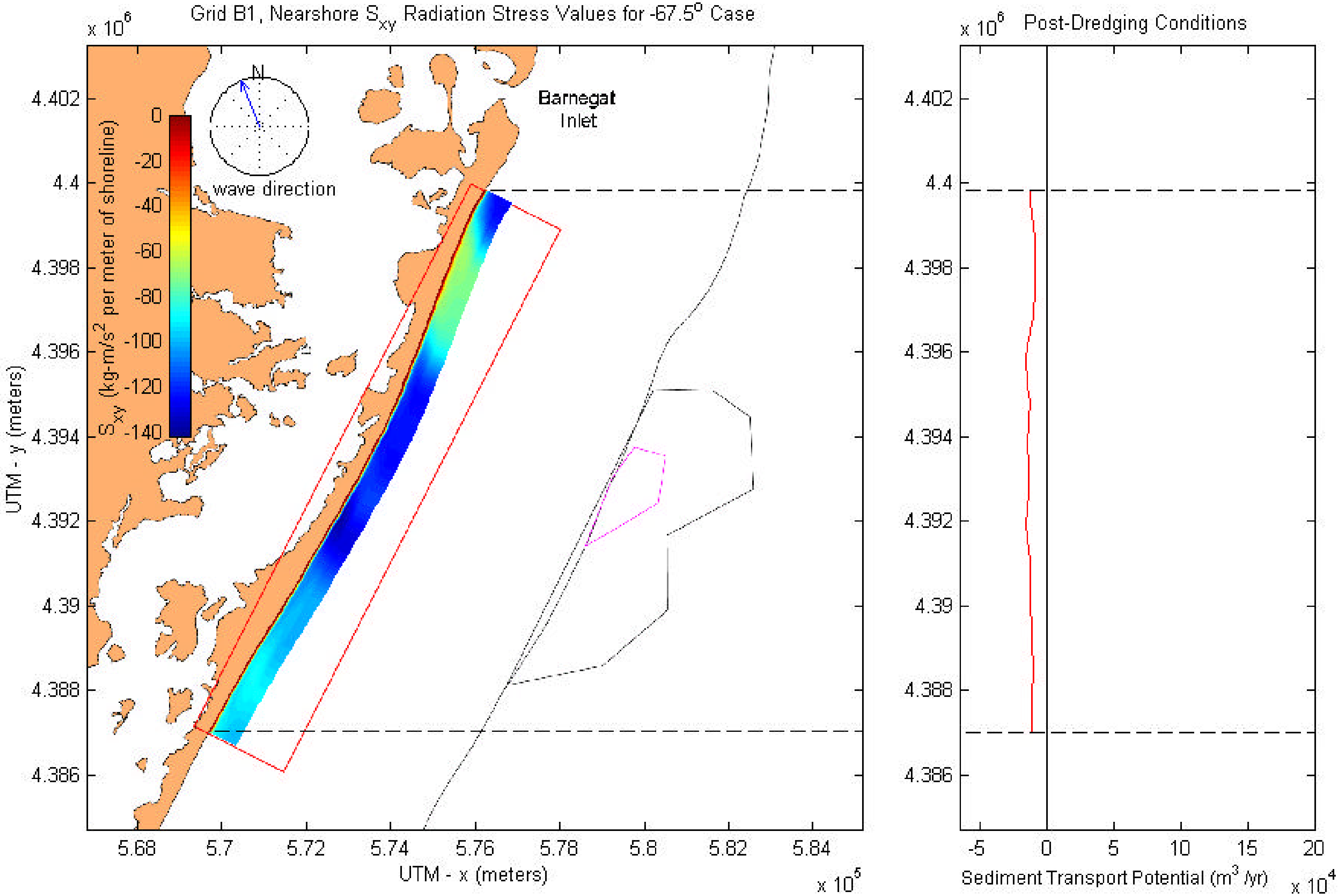

Figure C3-56. S_{xy} radiation stress and annual sediment transport potential for post-dredging conditions at Grid B1, -67.5° case.

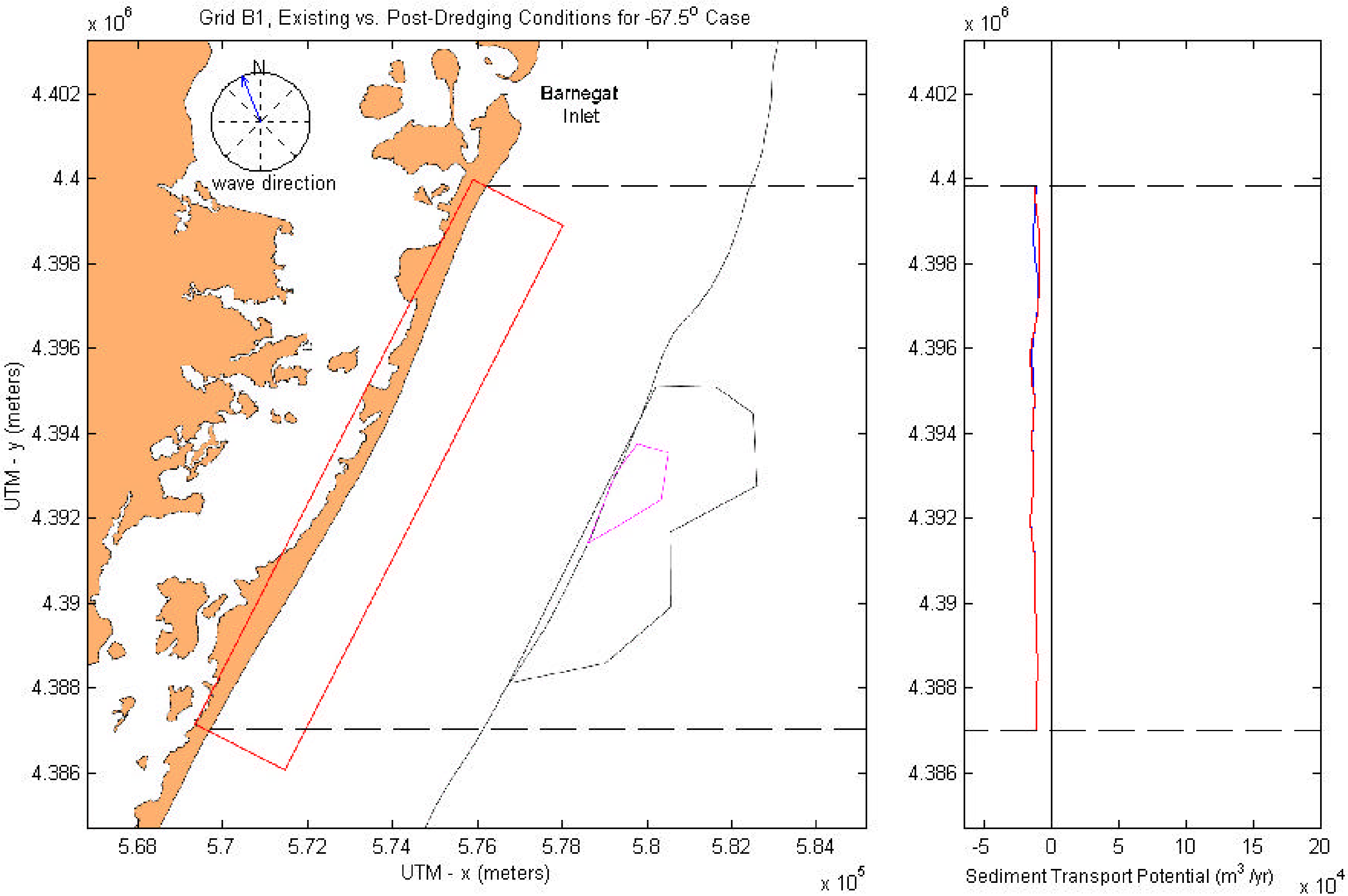

Figure C3-57. Existing versus post-dredging annual sediment transport potential at Grid B1 for the -67.5° case.

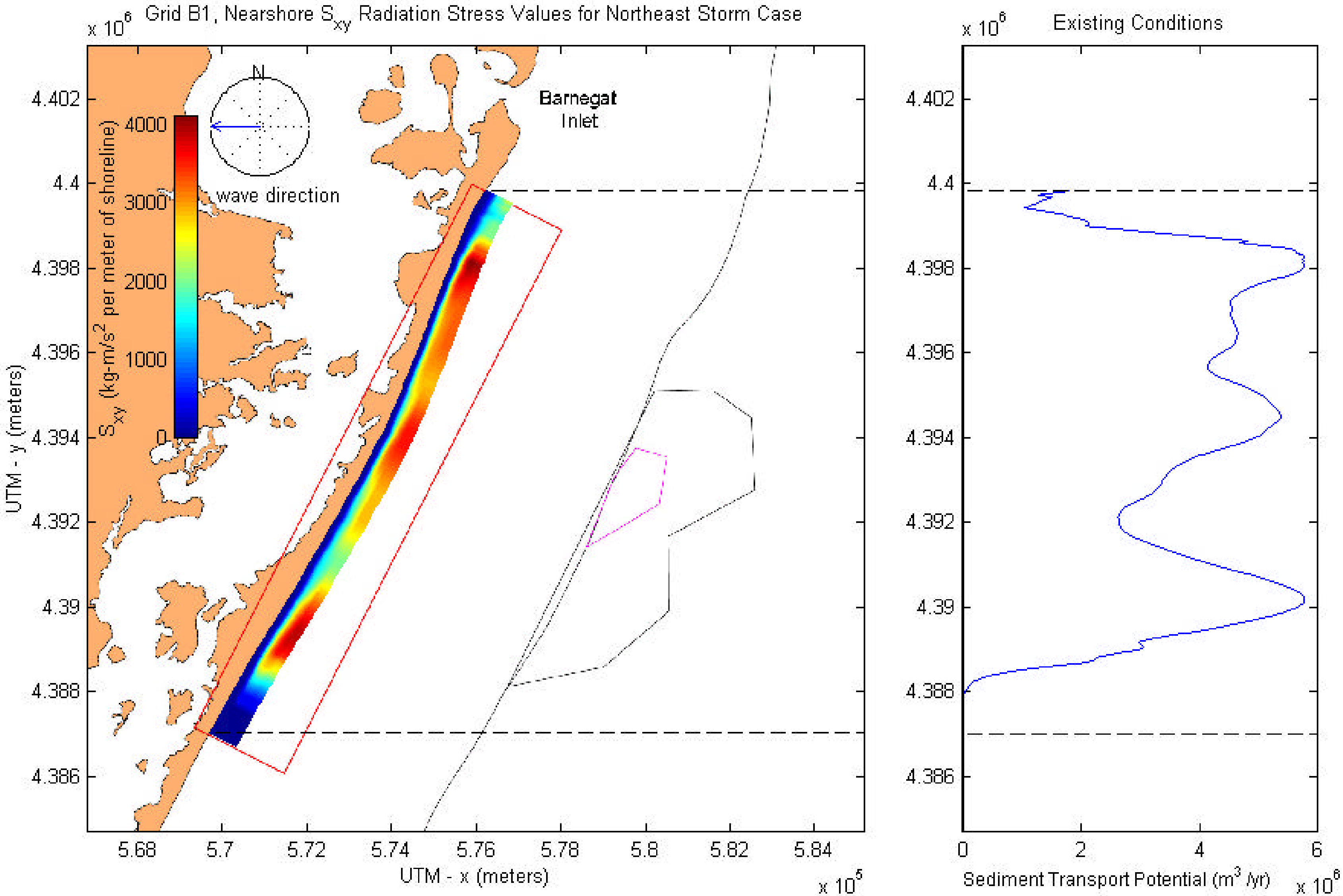

Figure C3-58. S_{xy} radiation stress and annual sediment transport potential for existing conditions at Grid B1, northeast storm case.

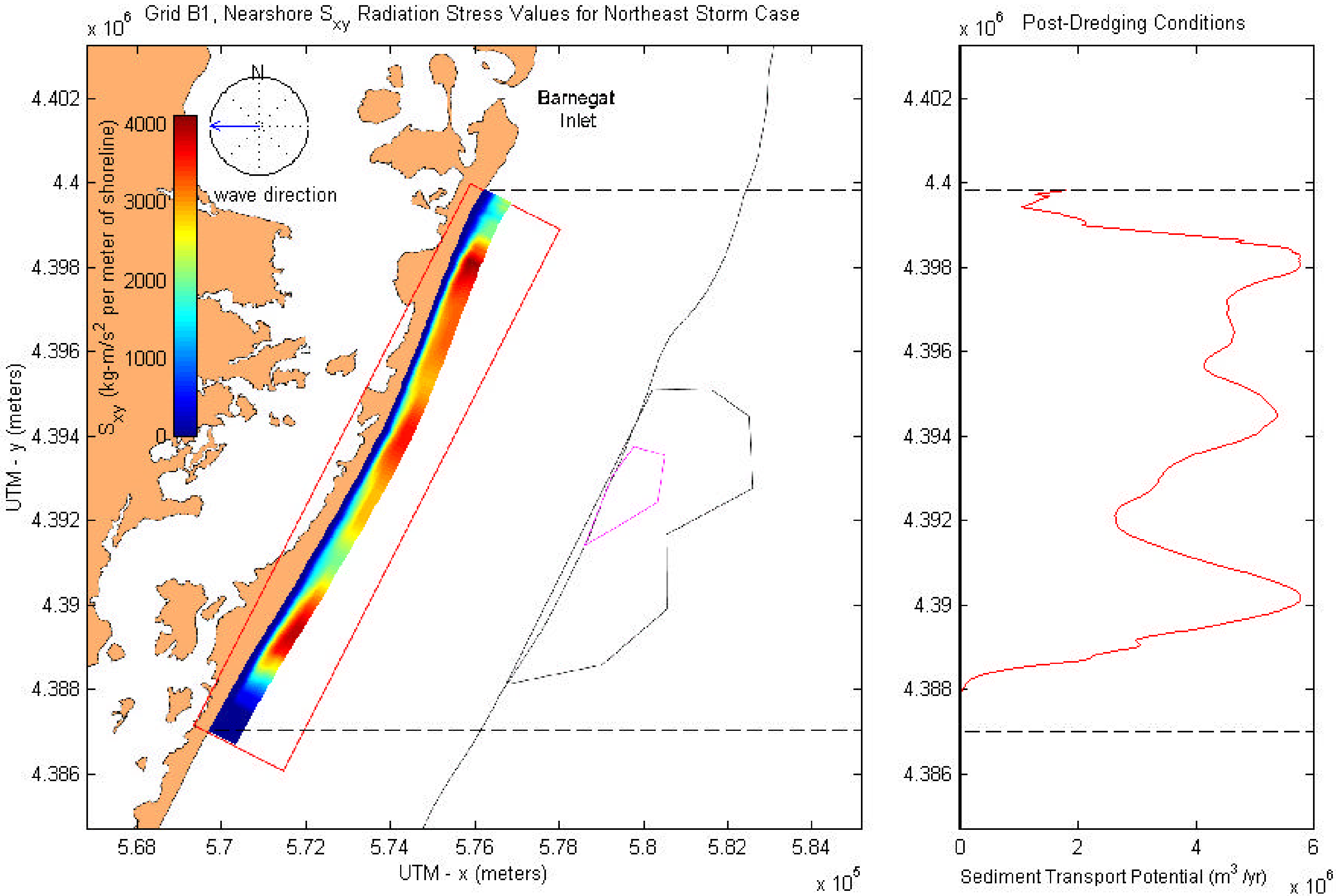

Figure C3-59. S_{xy} radiation stress and annual sediment transport potential for post-dredging conditions at Grid B1, northeast storm case.

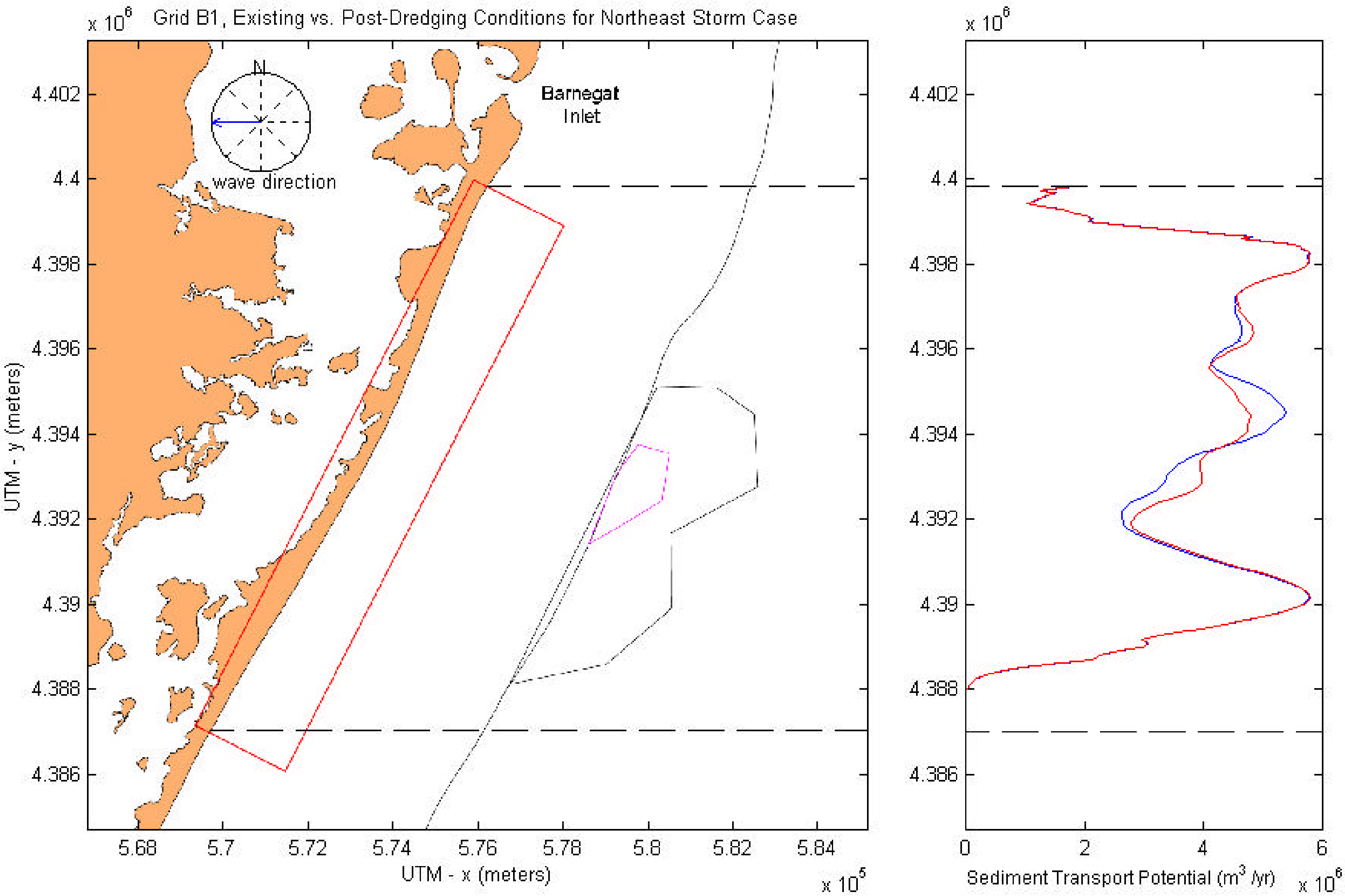

Figure C3-60. Existing versus post-dredging annual sediment transport potential at Grid B1 for the northeast storm case.

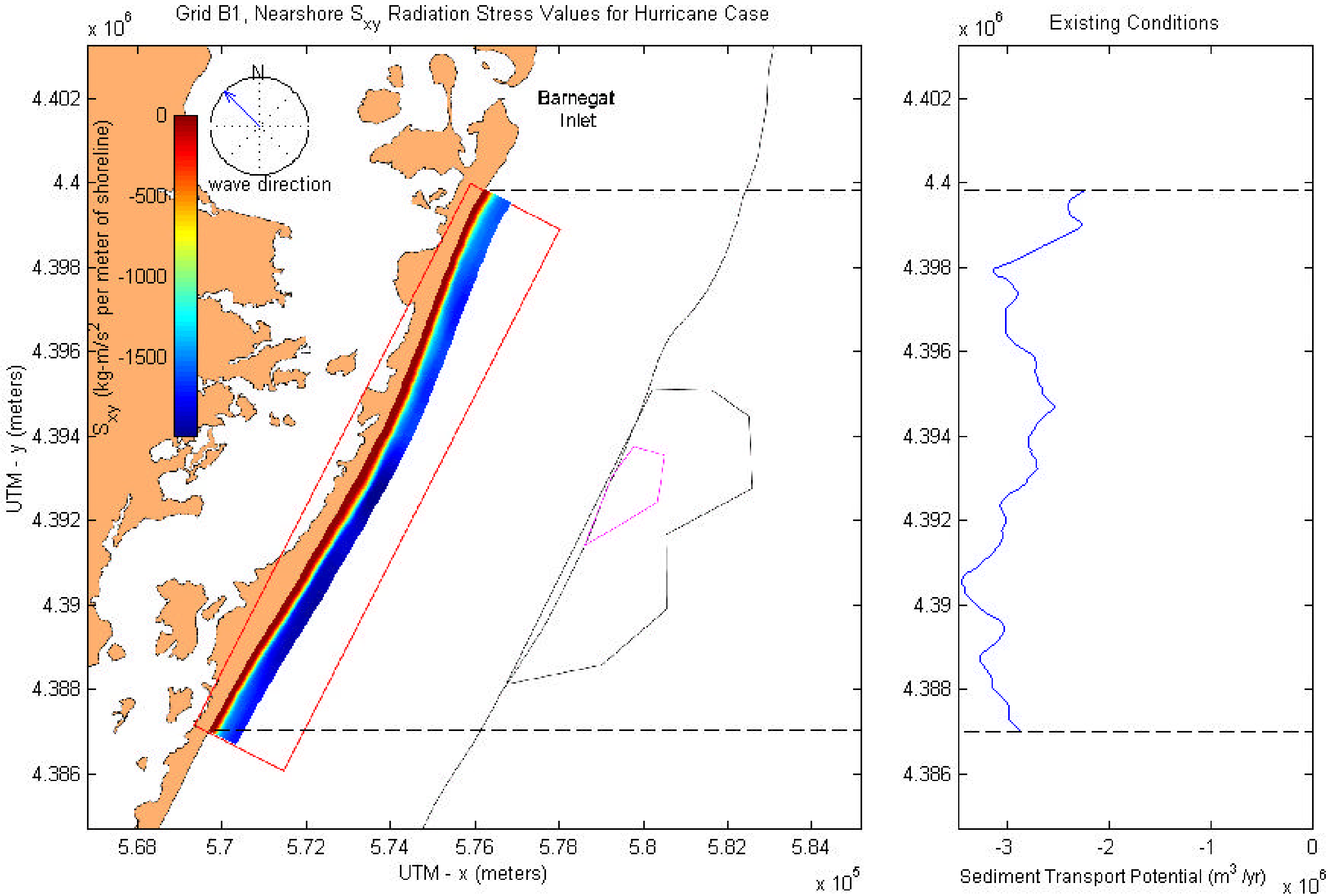

Figure C3-61. S_{xy} radiation stress and annual sediment transport potential for existing conditions at Grid B1, hurricane case.

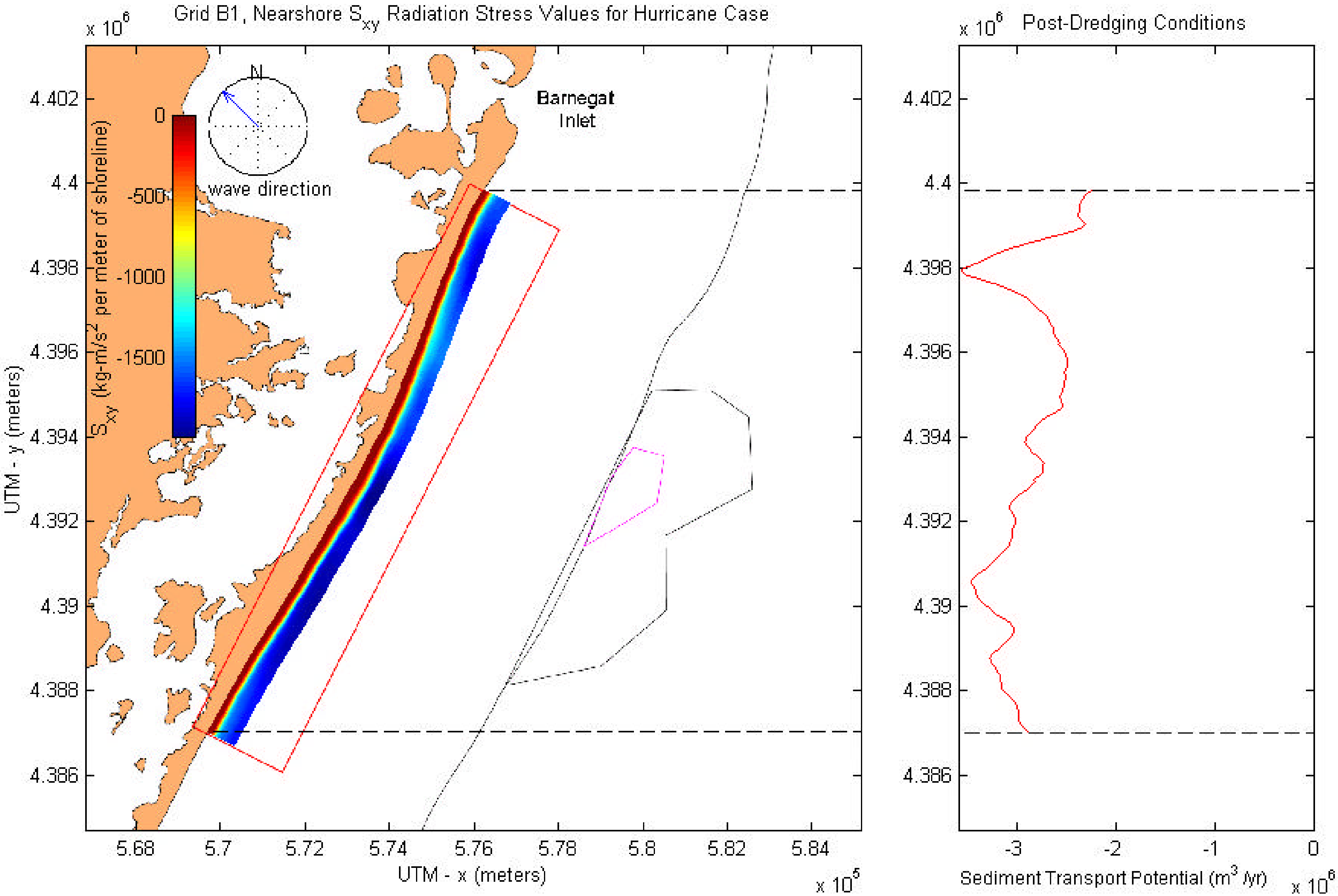

Figure C3-62. S_{xy} radiation stress and annual sediment transport potential for post-dredging conditions at Grid B1, hurricane case.

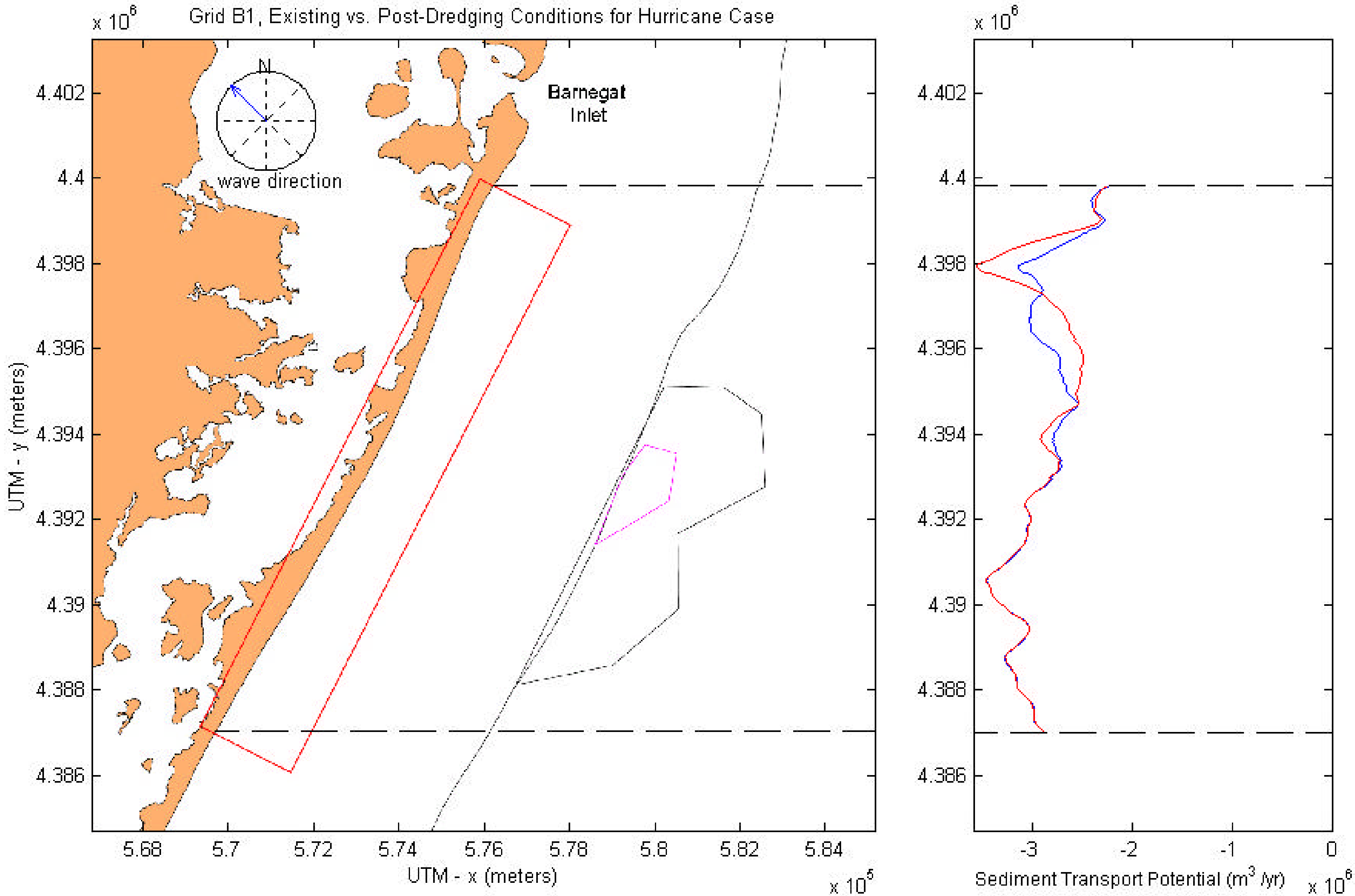

Figure C3-63. Existing versus post-dredging annual sediment transport potential at Grid B1 for the hurricane case.

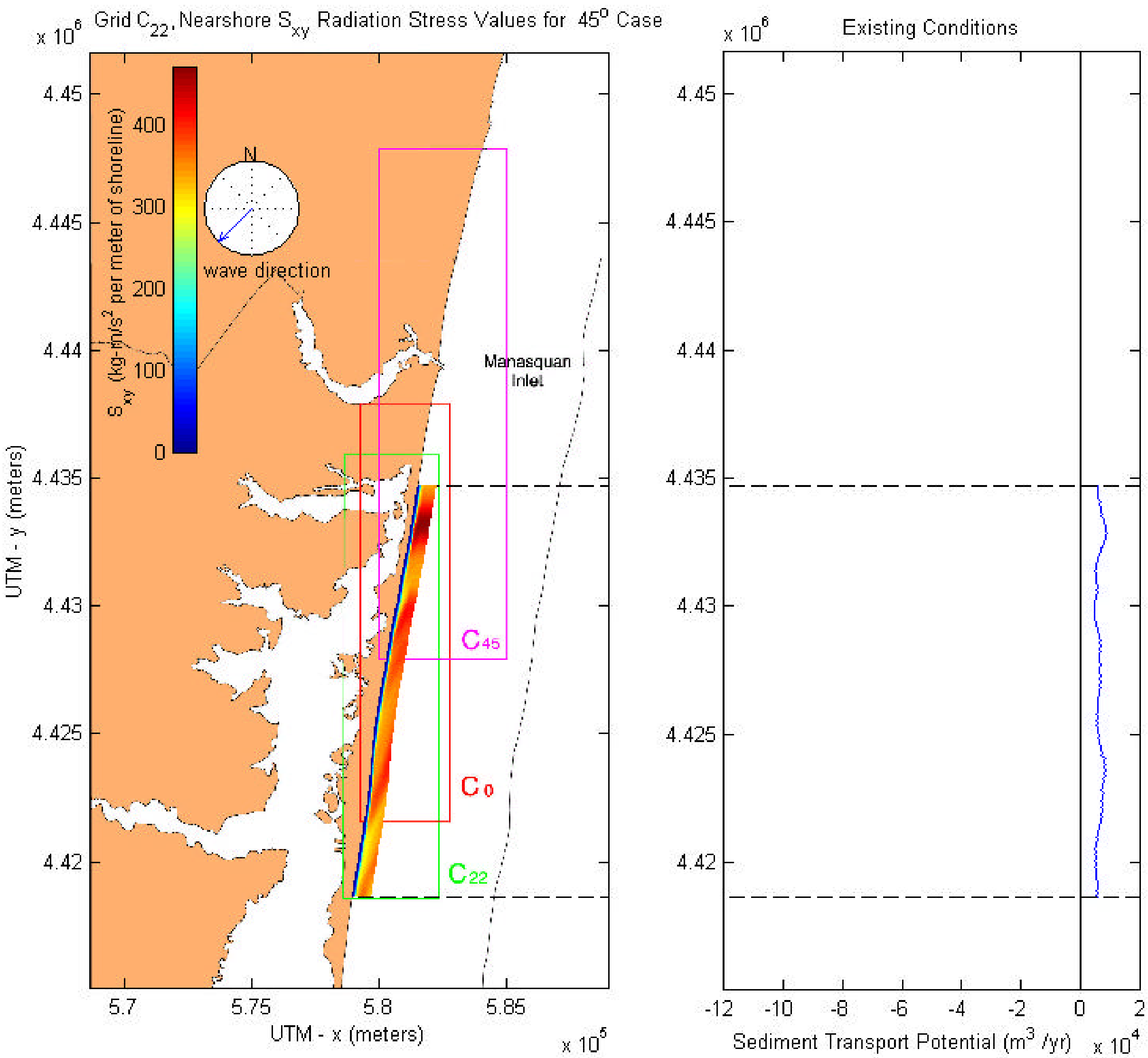

Figure C3-64. S_{xy} radiation stress and annual sediment transport potential for existing conditions at Grid C_{22}, 45° case.

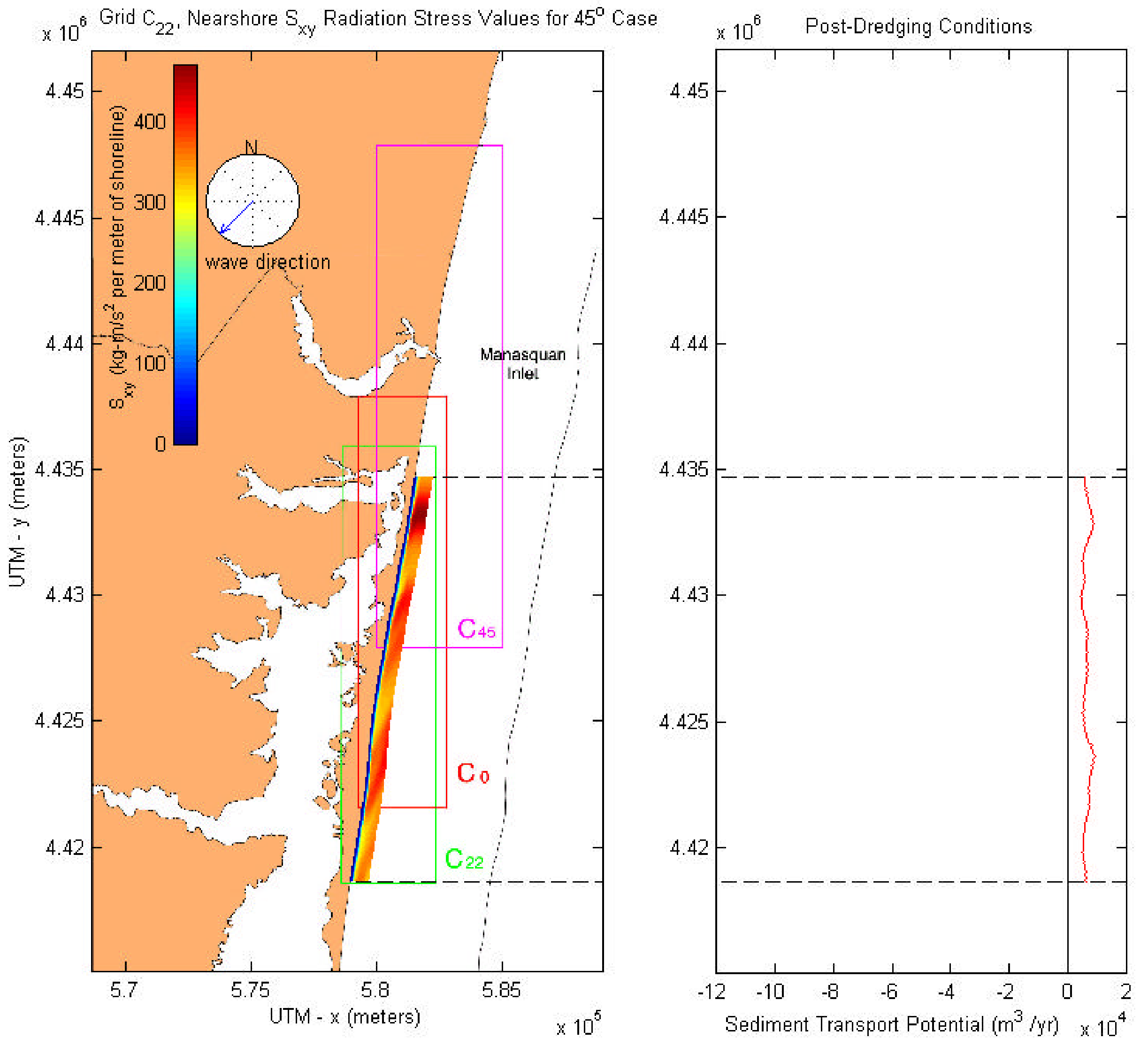

Figure C3-65. S_{xy} radiation stress and annual sediment transport potential for post-dredging conditions at Grid C_{22}, 45° case.

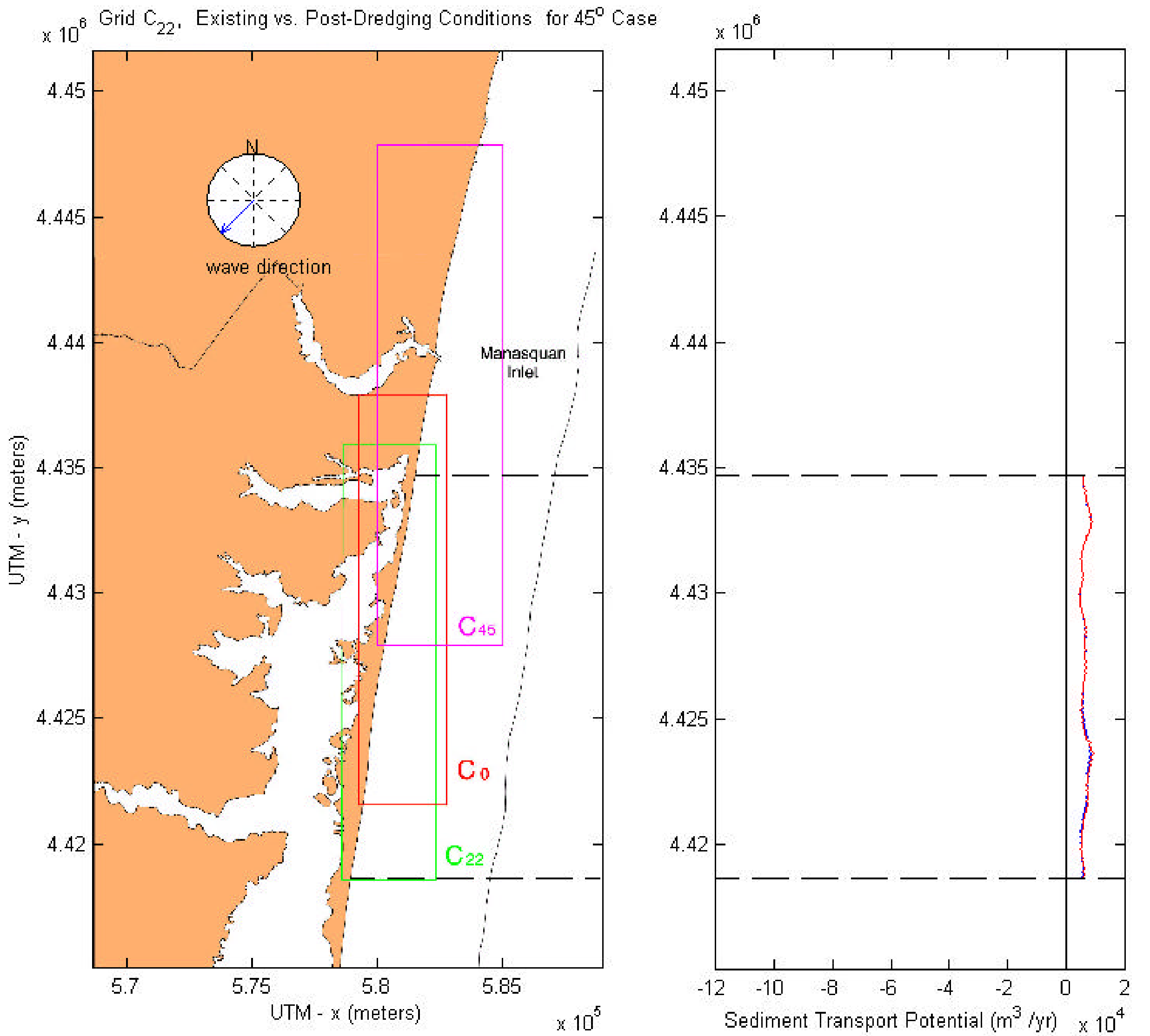

Figure C3-66. Existing versus post-dredging annual sediment transport potential at Grid C_{22} for the 45° case.

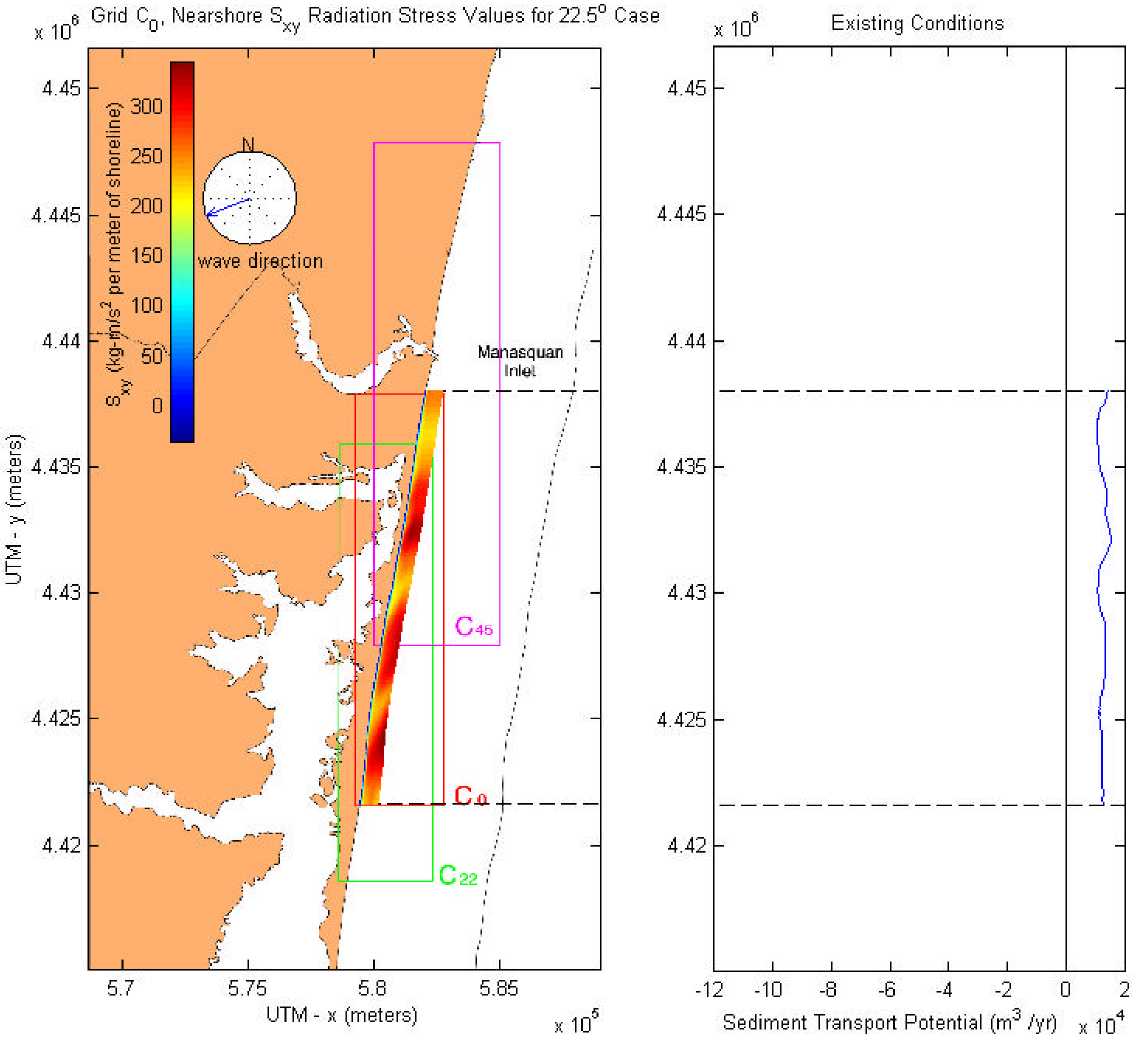

Figure C3-67. S_{xy} radiation stress and annual sediment transport potential for existing conditions at Grid C_0, 22.5° case.

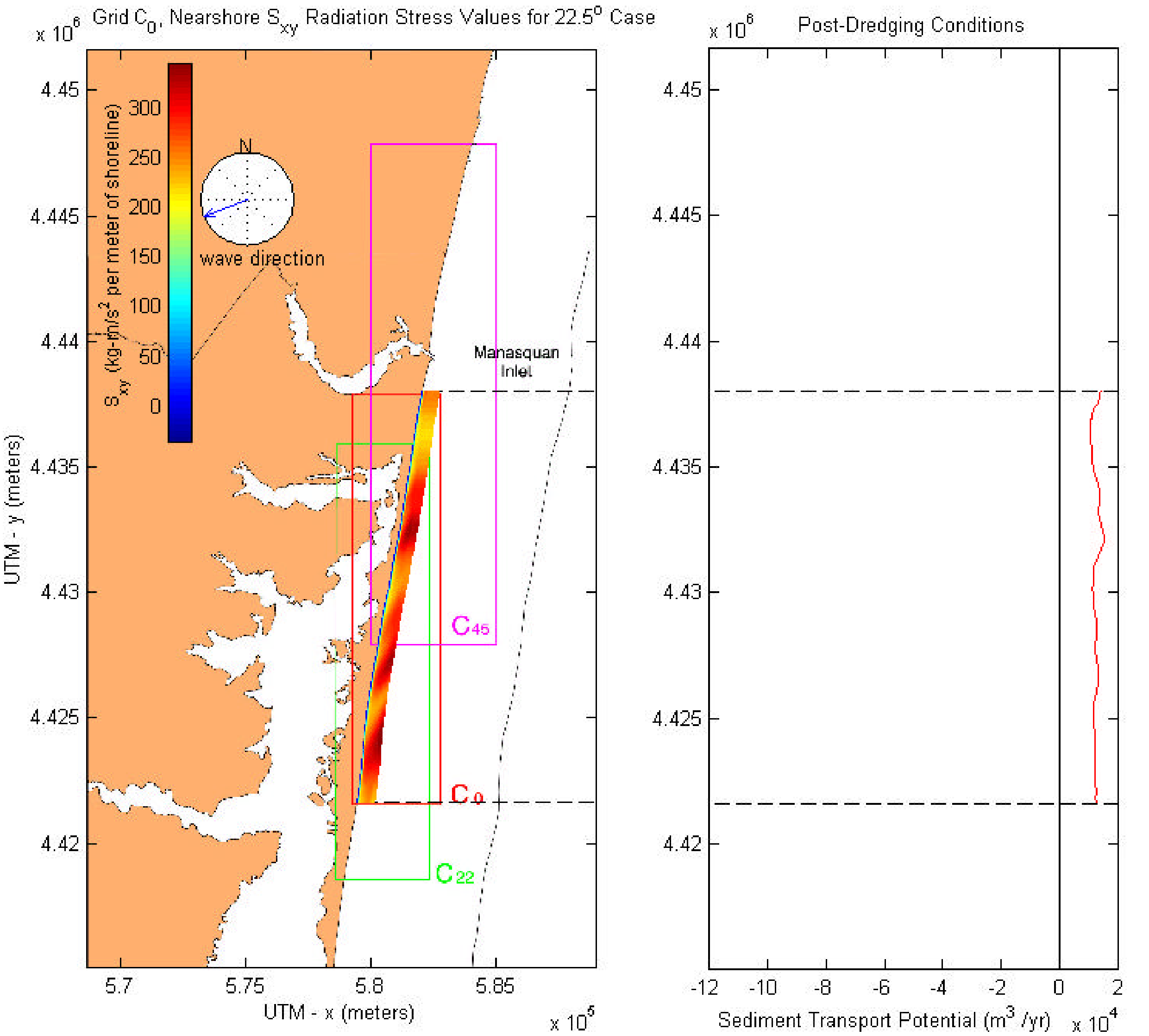

Figure C3-68. S_{xy} radiation stress and annual sediment transport potential for post-dredging conditions at Grid C_0, 22.5° case.

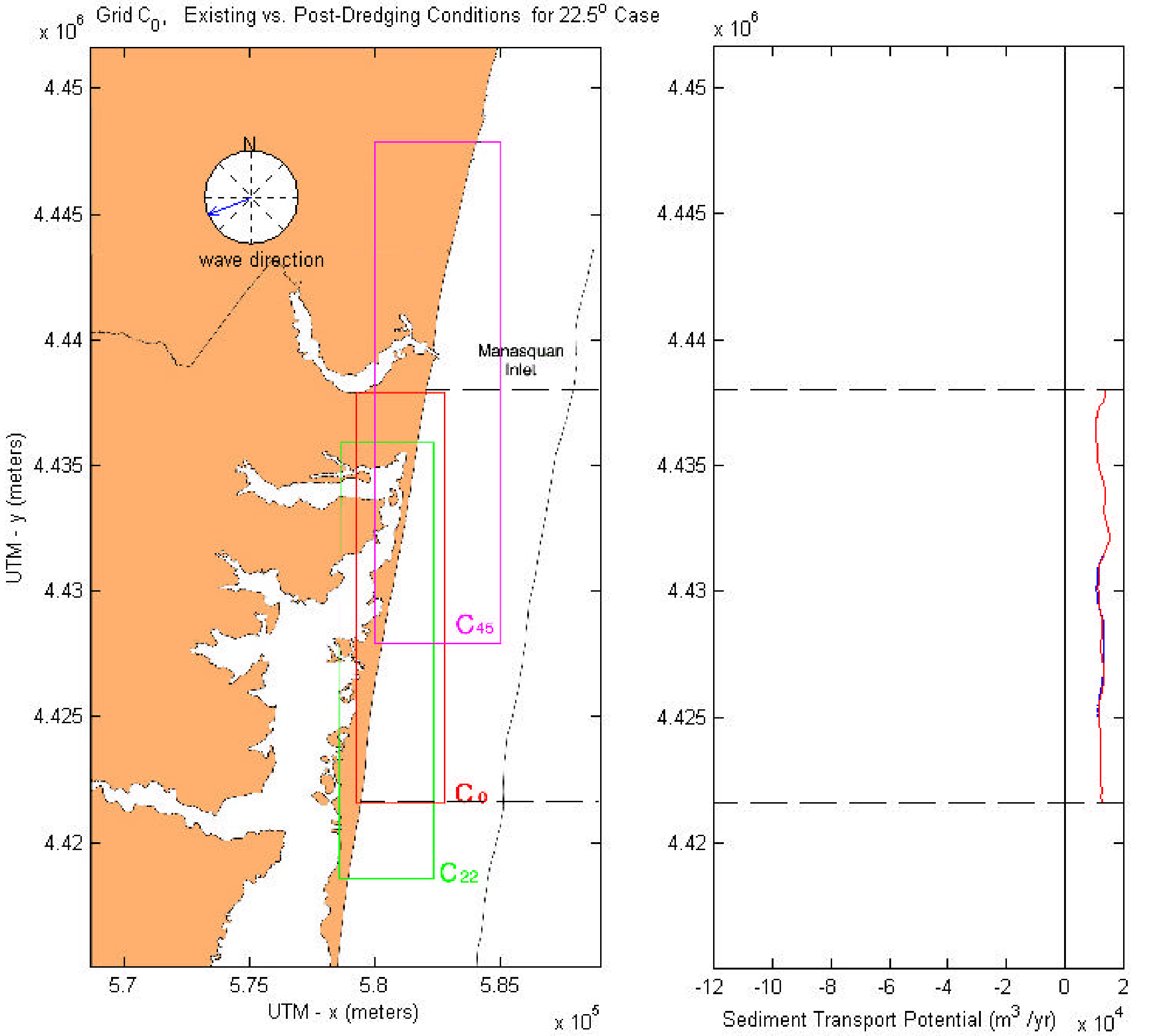

Figure C3-69. Existing versus post-dredging annual sediment transport potential at Grid C_0 for the 22.5° case.

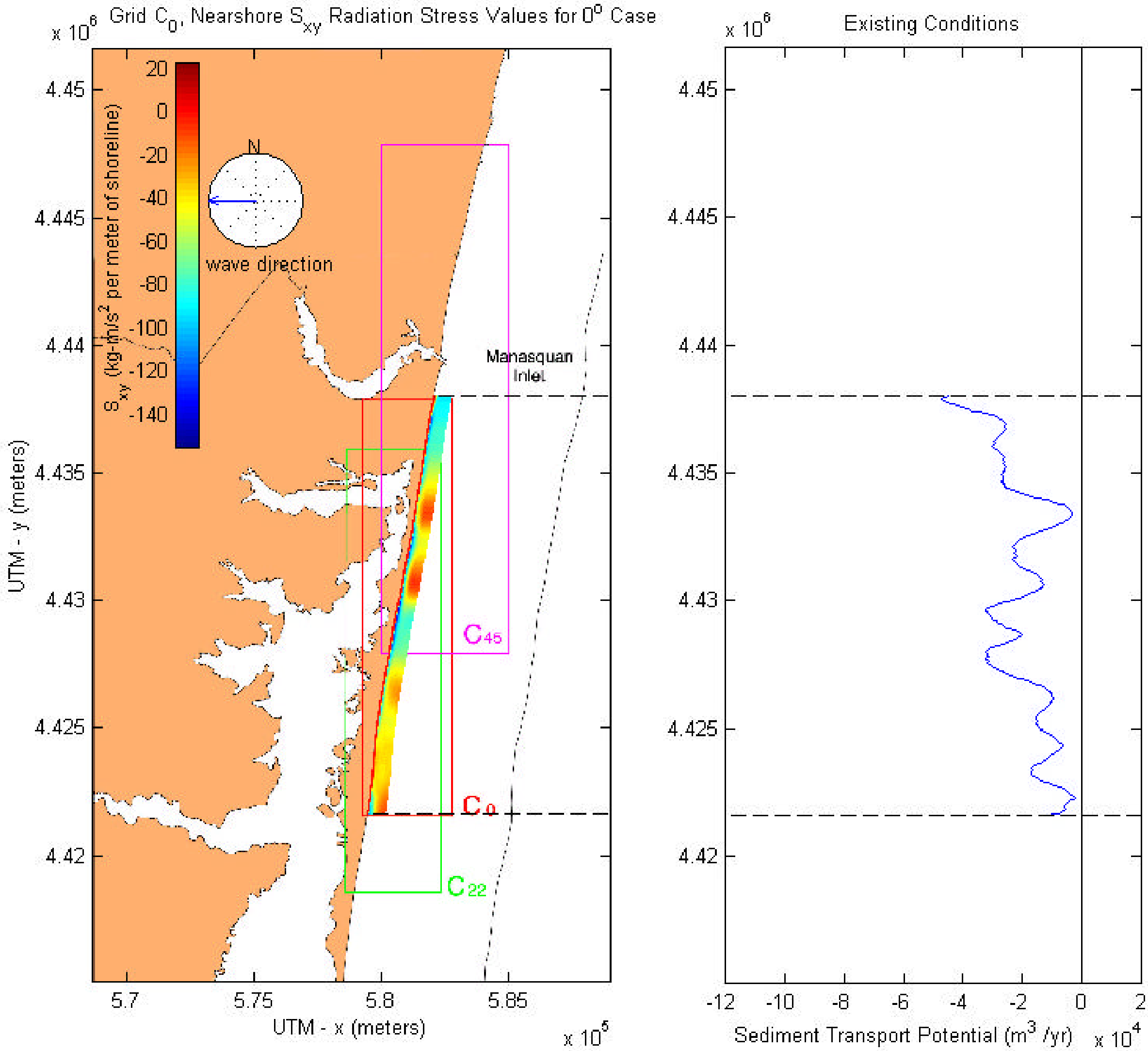

Figure C3-70. S_{xy} radiation stress and annual sediment transport potential for existing conditions at Grid C_0, 0° case.

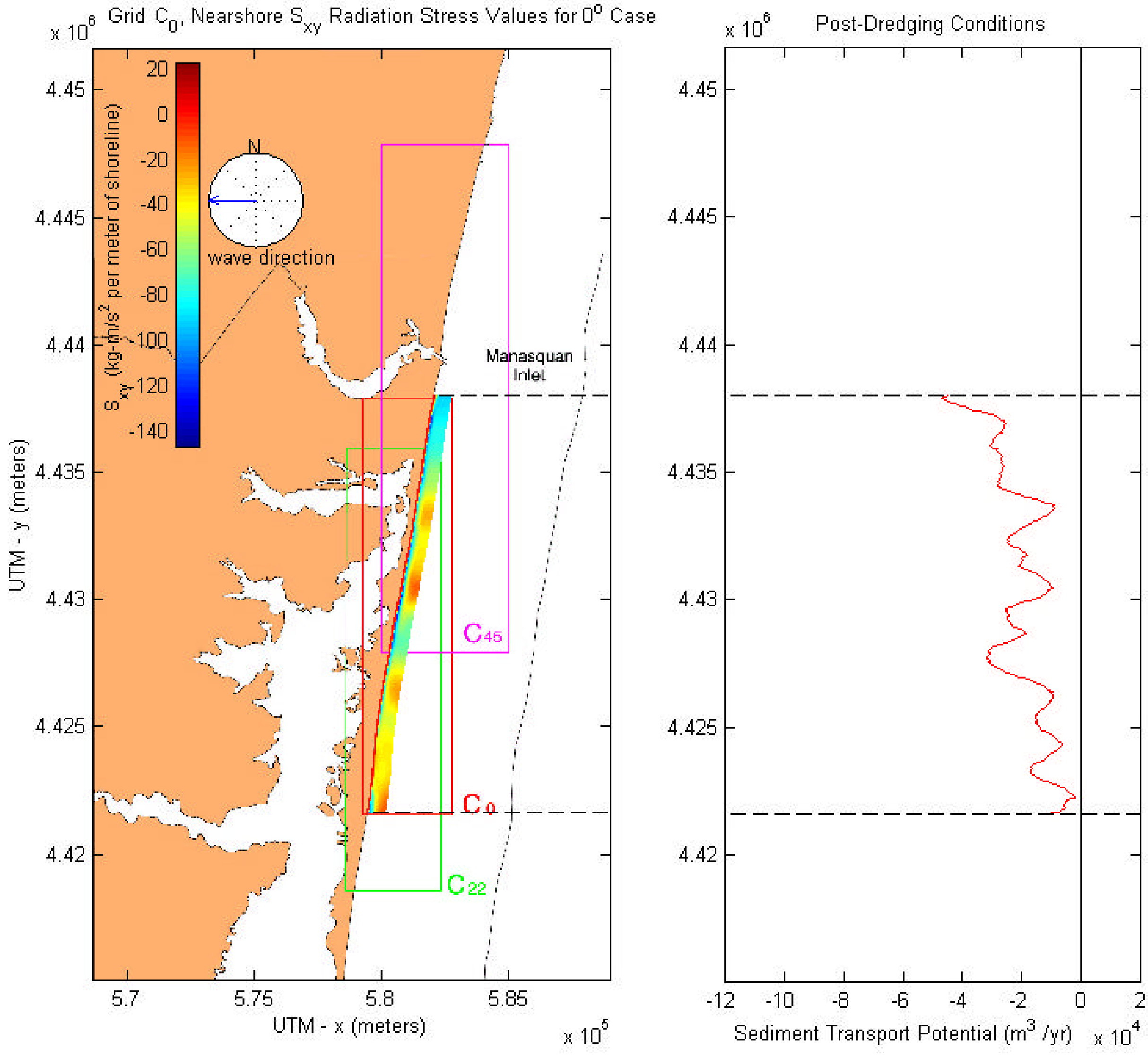

Figure C3-71. S_{xy} radiation stress and annual sediment transport potential for post-dredging conditions at Grid C_0, 0° case.

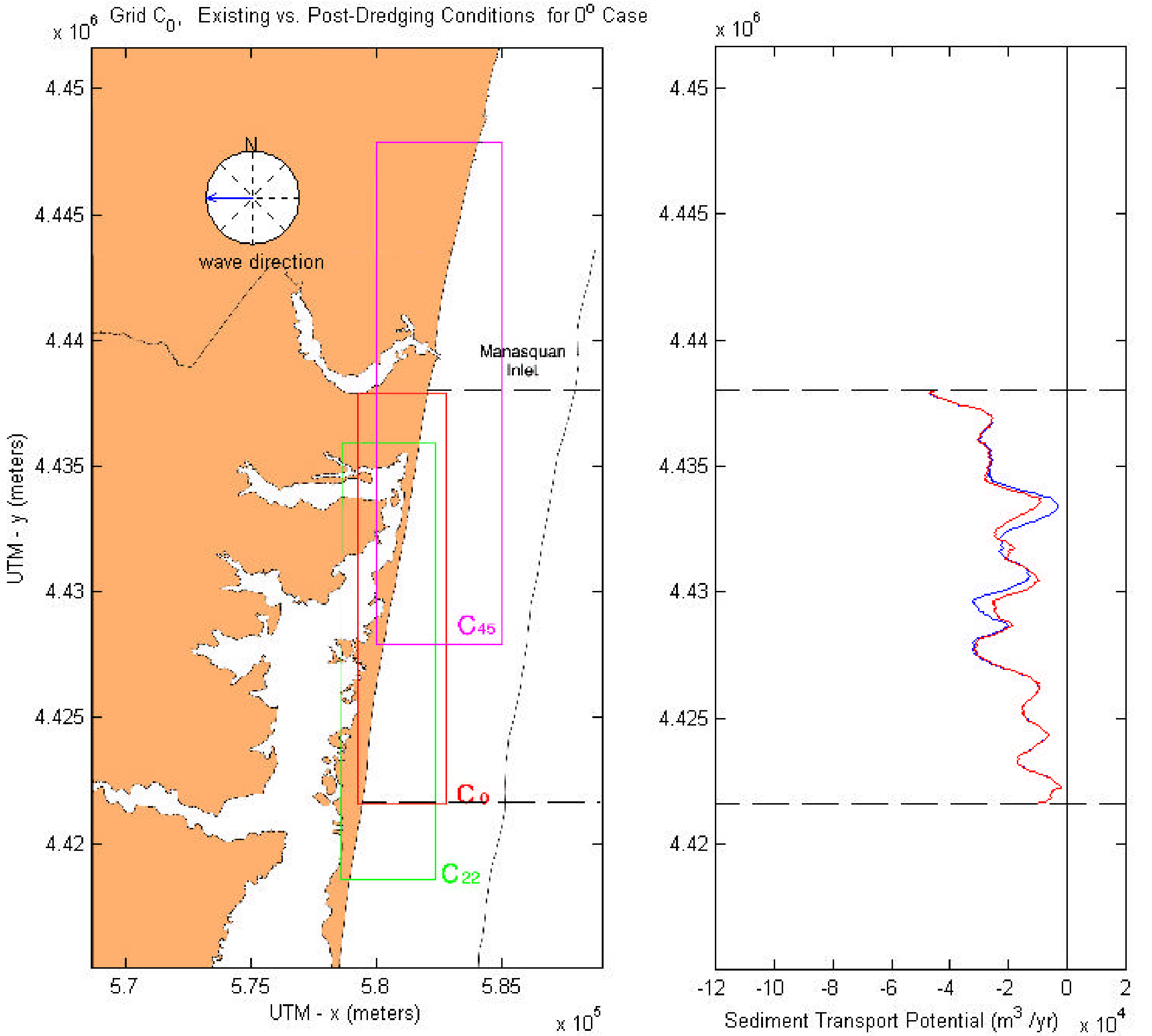

Figure C3-72. Existing versus post-dredging annual sediment transport potential at Grid C_0 for the 0° case.

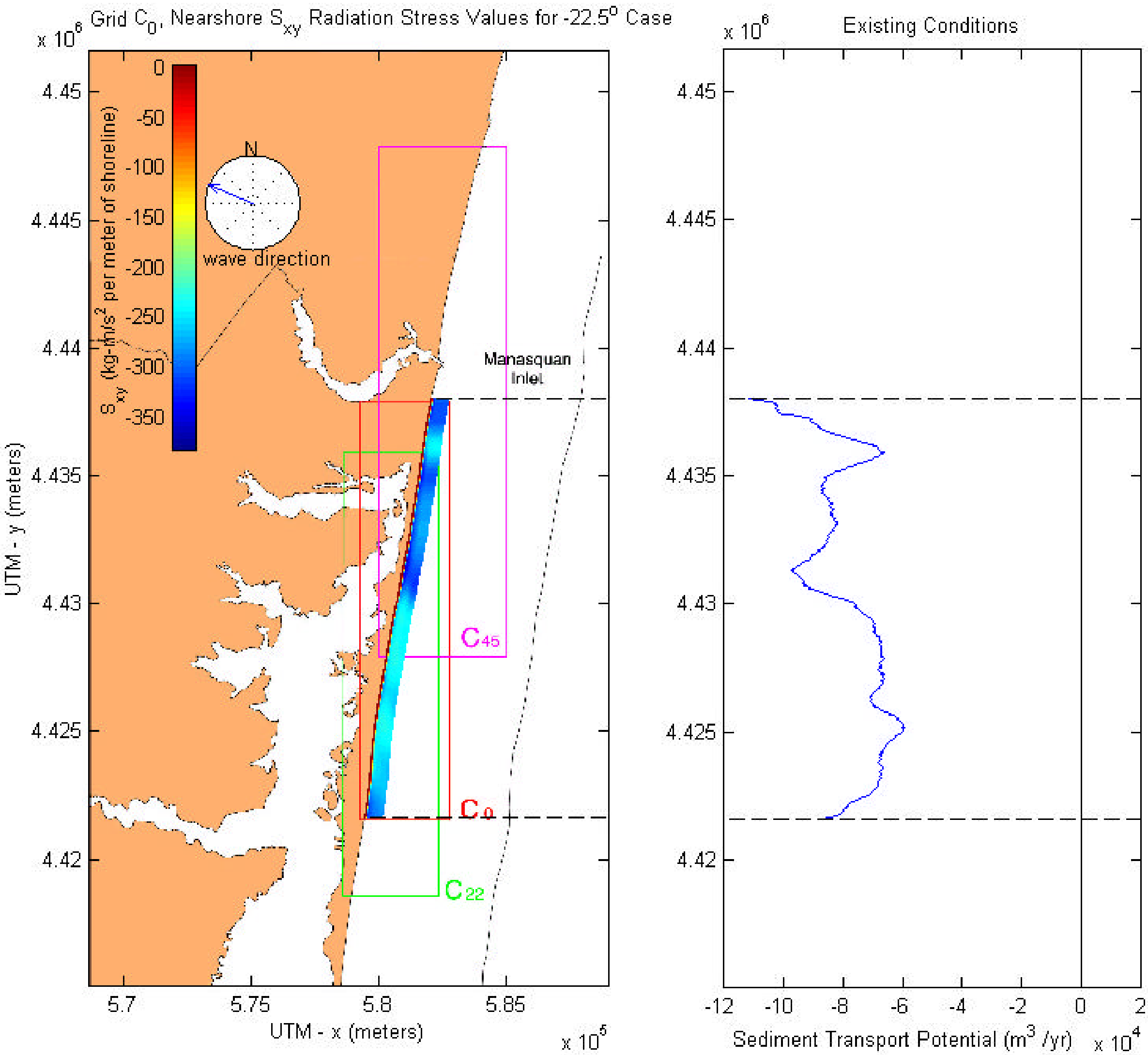

Figure C3-73. S_{xy} radiation stress and annual sediment transport potential for existing conditions at Grid C_0, -22.5° case.

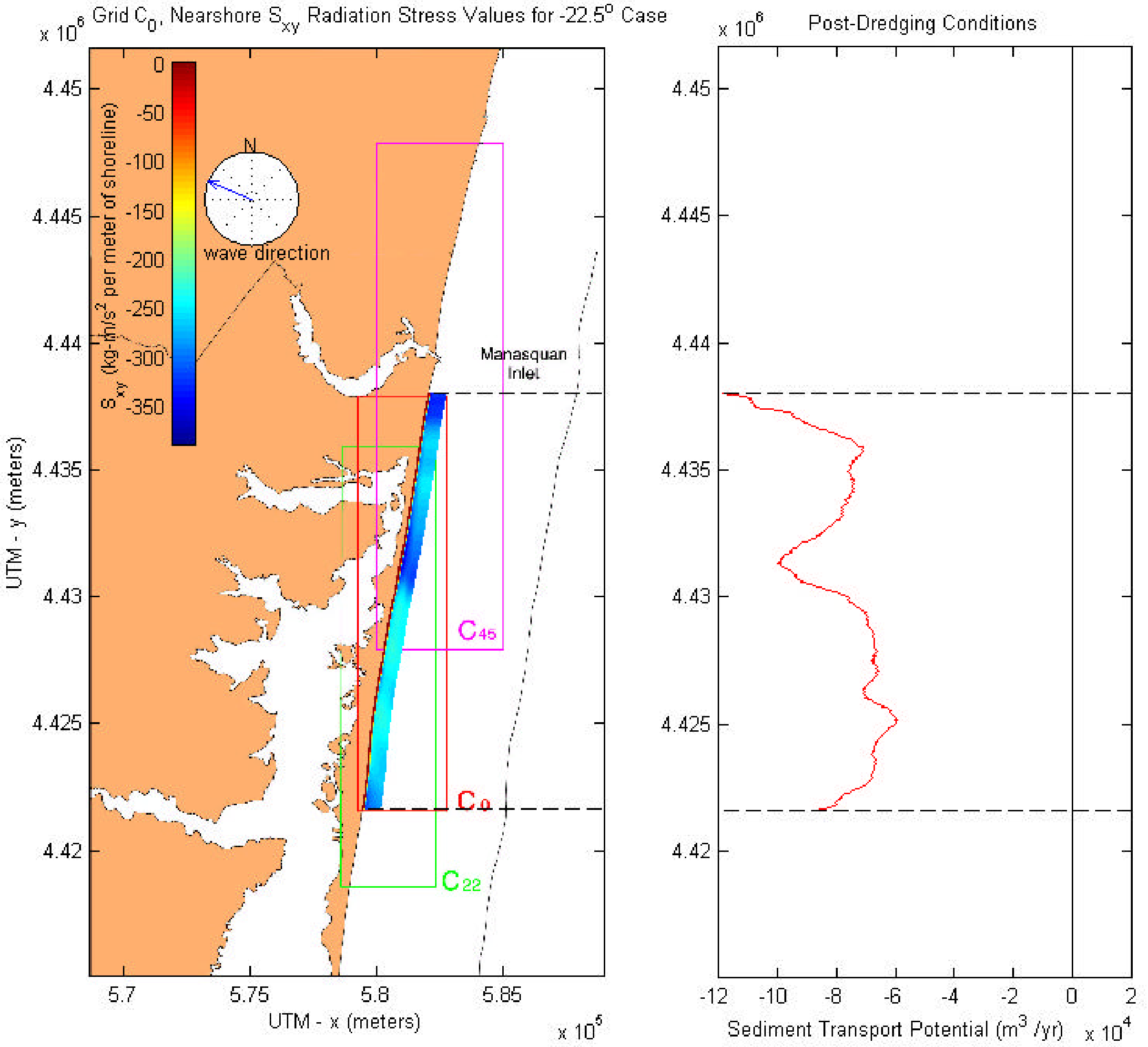

Figure C3-74. S_{xy} radiation stress and annual sediment transport potential for post-dredging conditions at Grid C_0, -22.5° case.

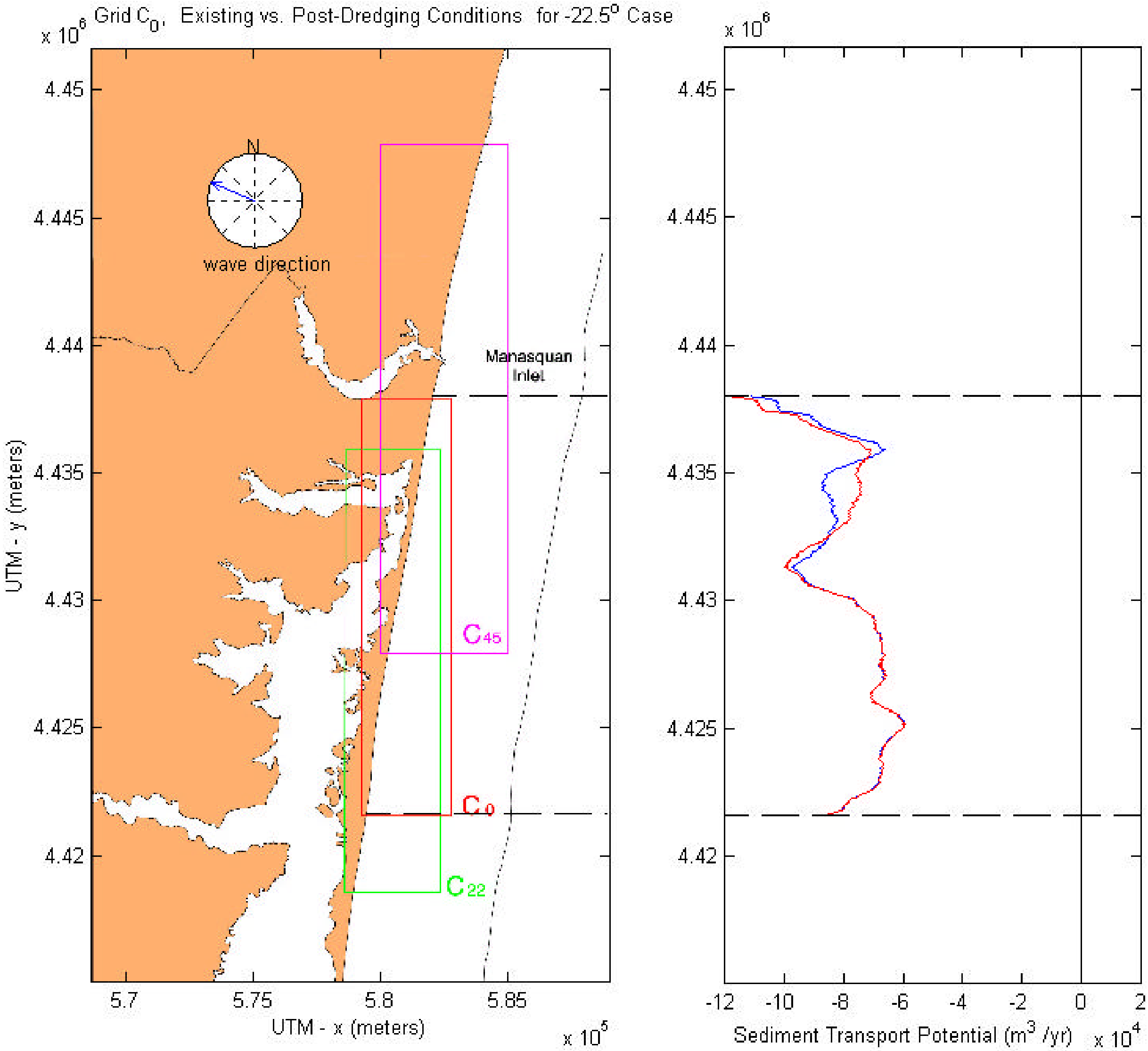

Figure C3-75. Existing versus post-dredging annual sediment transport potential at Grid C_0 for the -22.5° case.

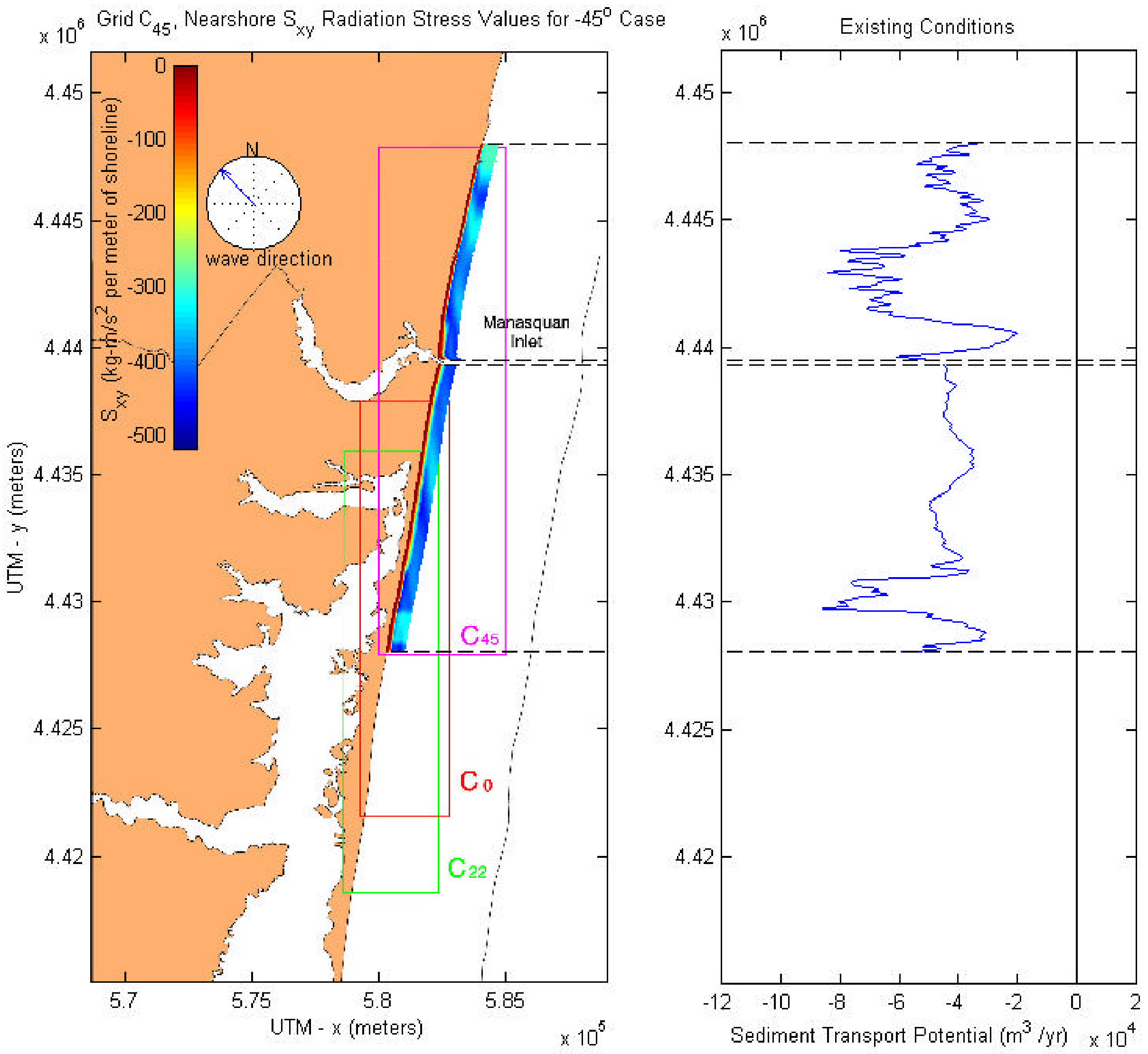

Figure C3-76. S_{xy} radiation stress and annual sediment transport potential for existing conditions at Grid C_{45}, -45° case.

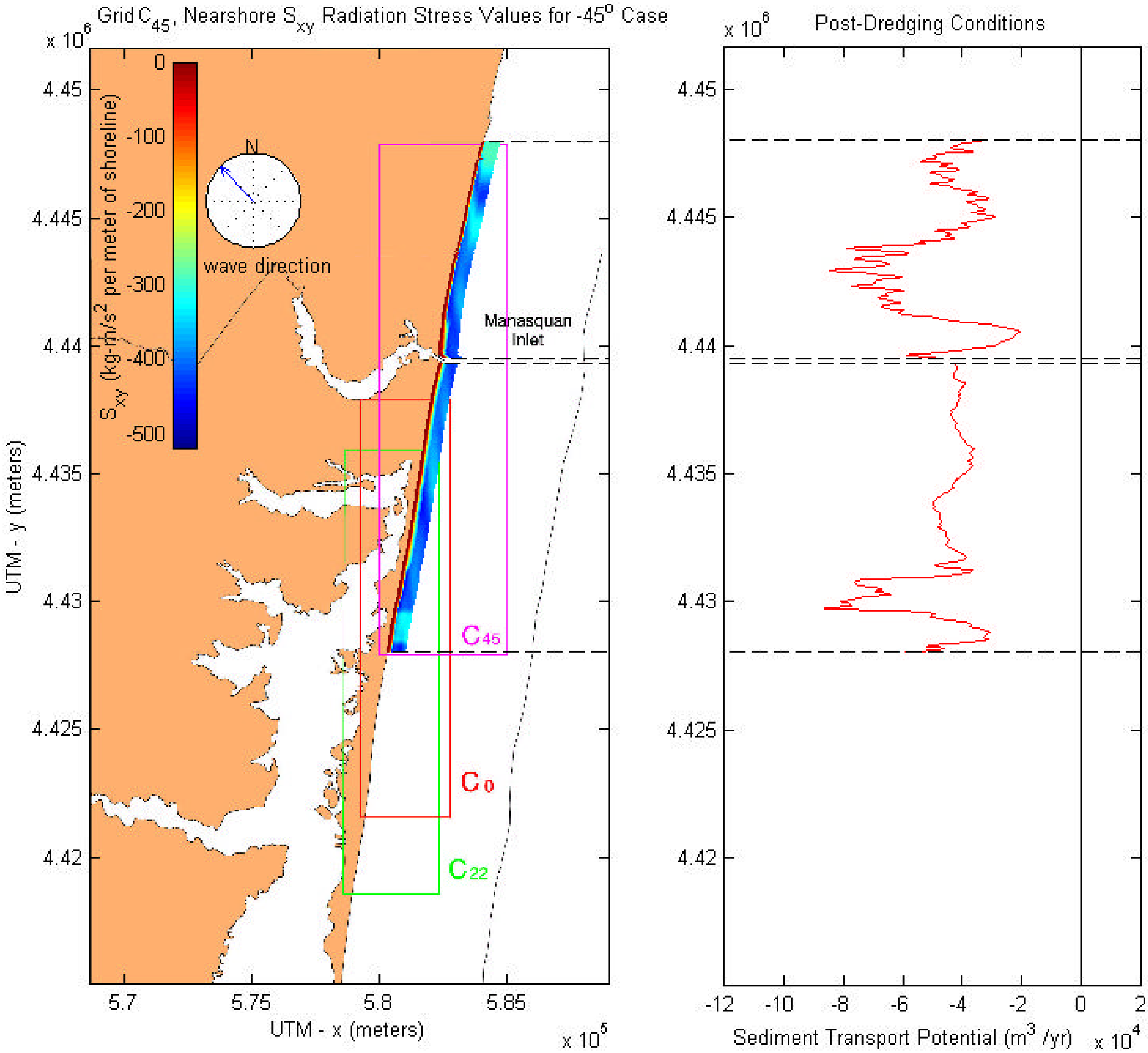

Figure C3-77. S_{xy} radiation stress and annual sediment transport potential for post-dredging conditions at Grid C_{45}, -45° case.

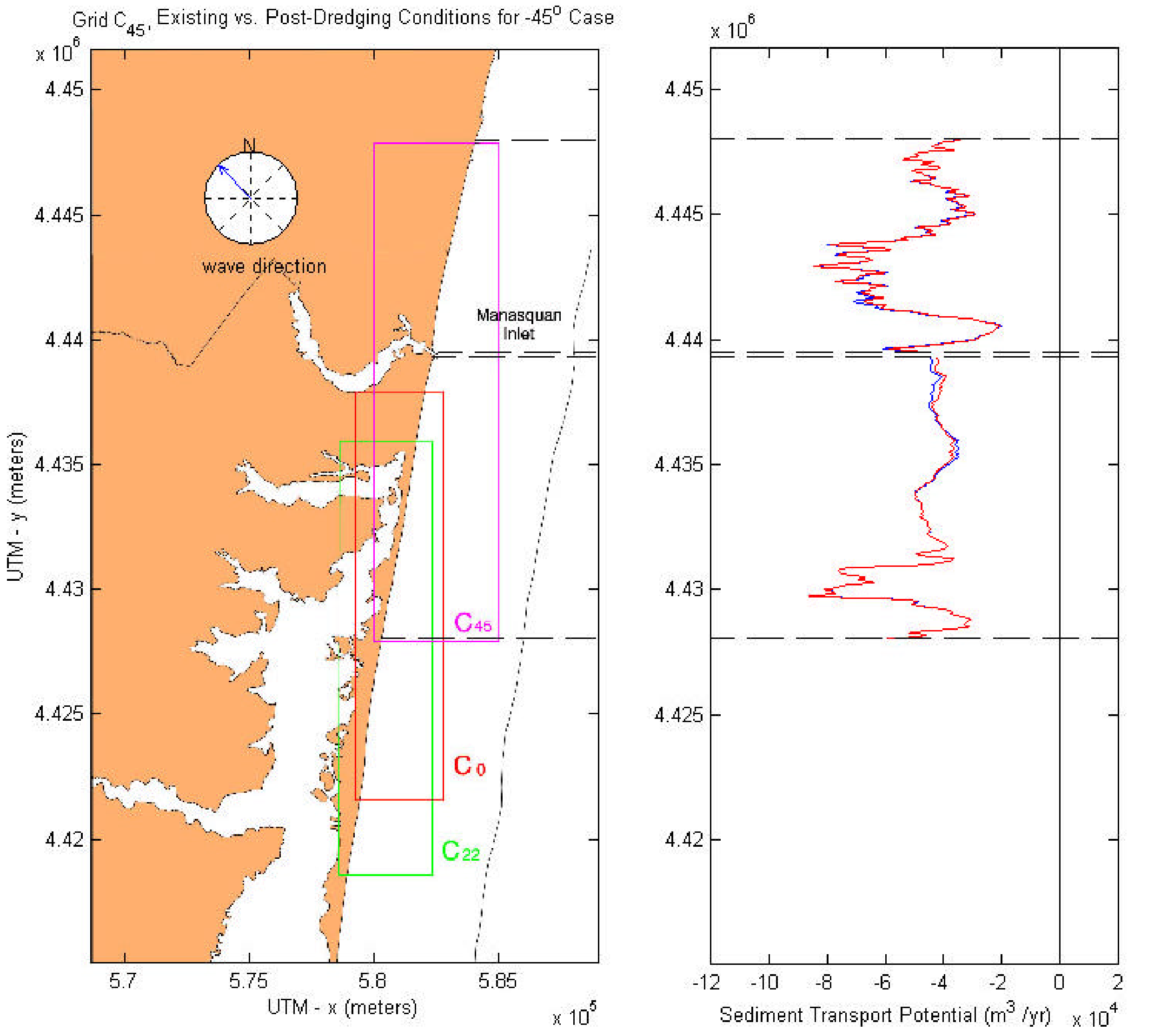

Figure C3-78. Existing versus post-dredging annual sediment transport potential at Grid C_{45} for the -45° case.

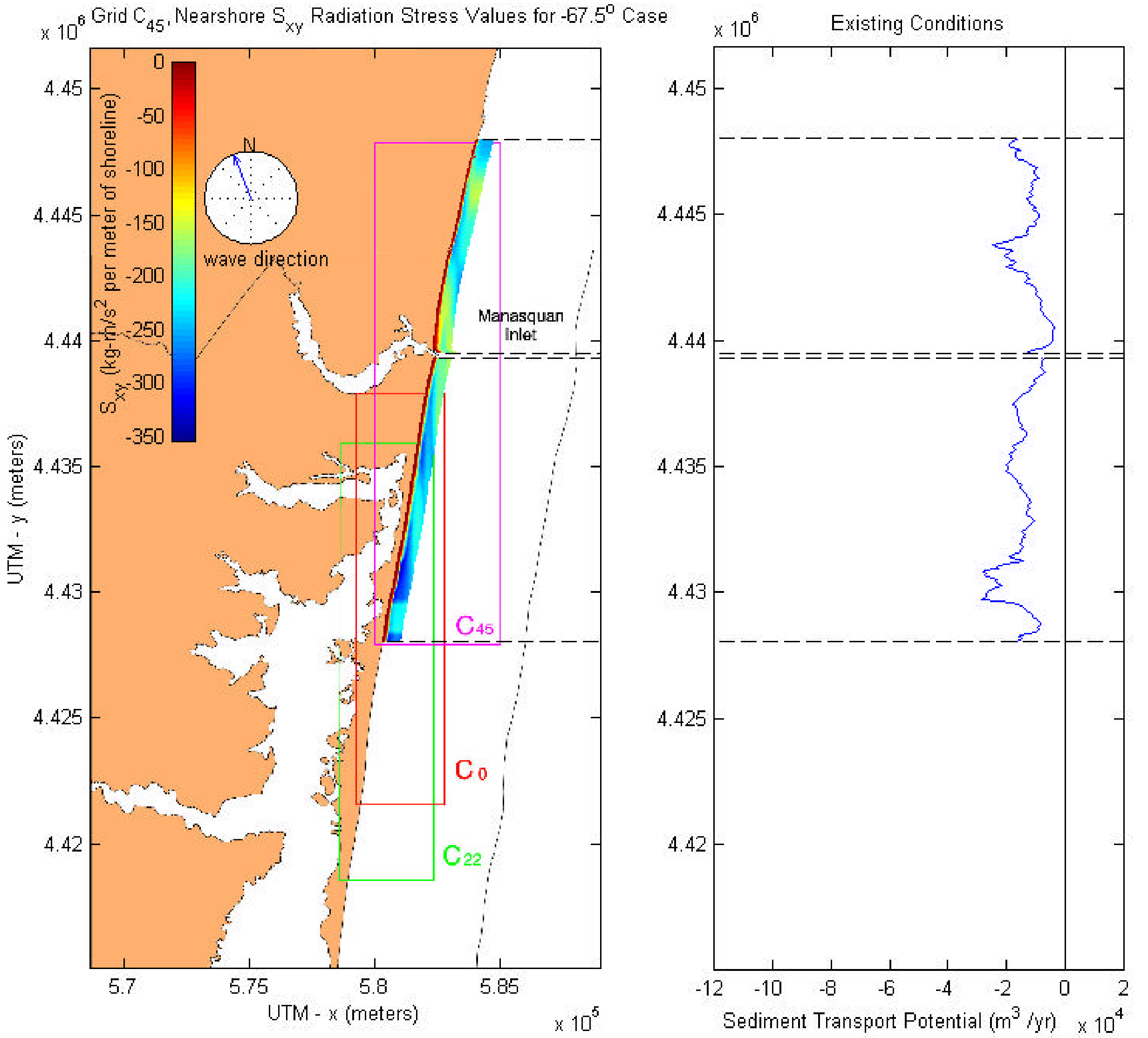

Figure C3-79. S_{xy} radiation stress and annual sediment transport potential for existing conditions at Grid C_{45}, -67.5° case.

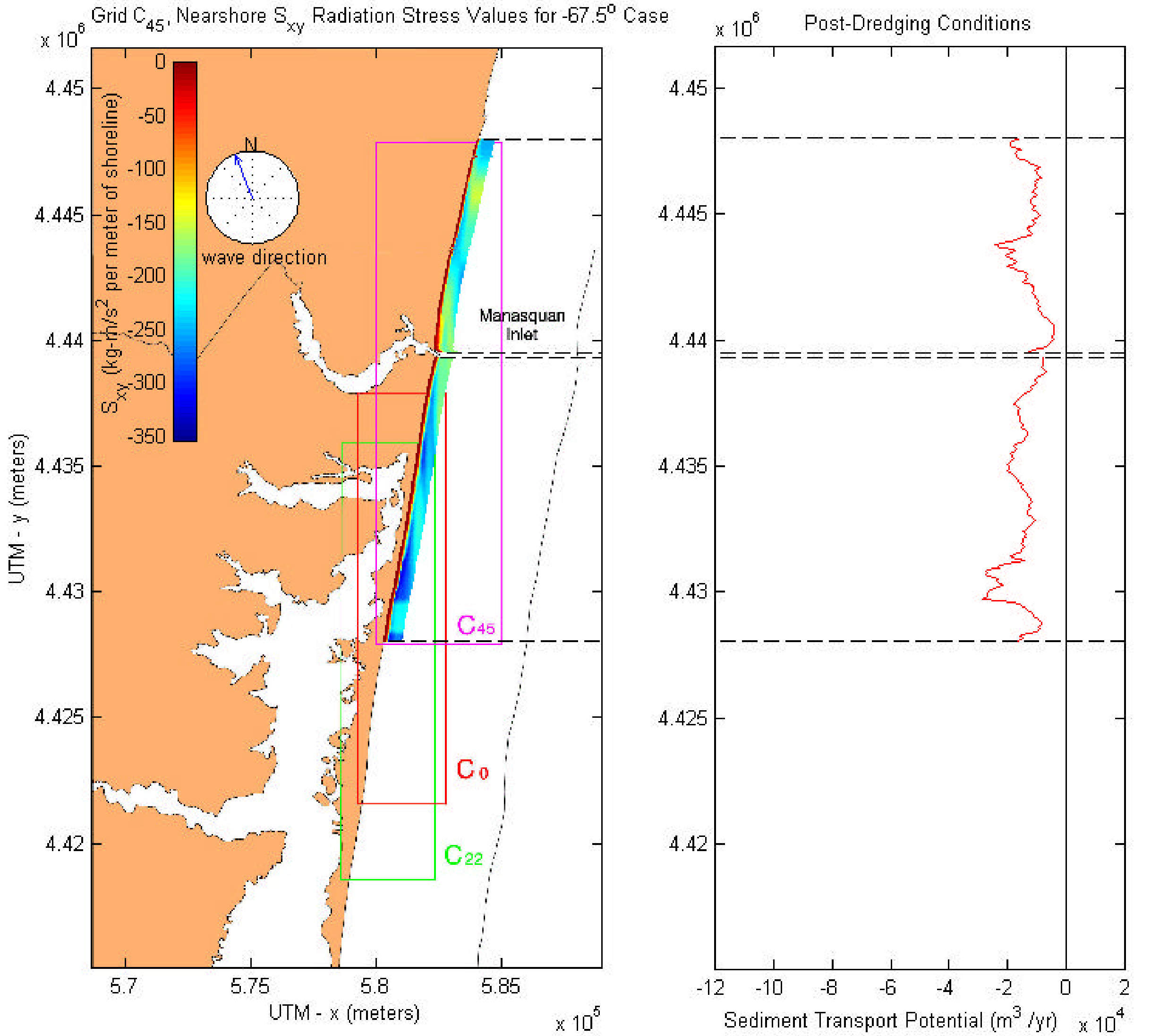

Figure C3-80. S_{xy} radiation stress and annual sediment transport potential for post-dredging conditions at Grid C_{45}, -67.5° case.

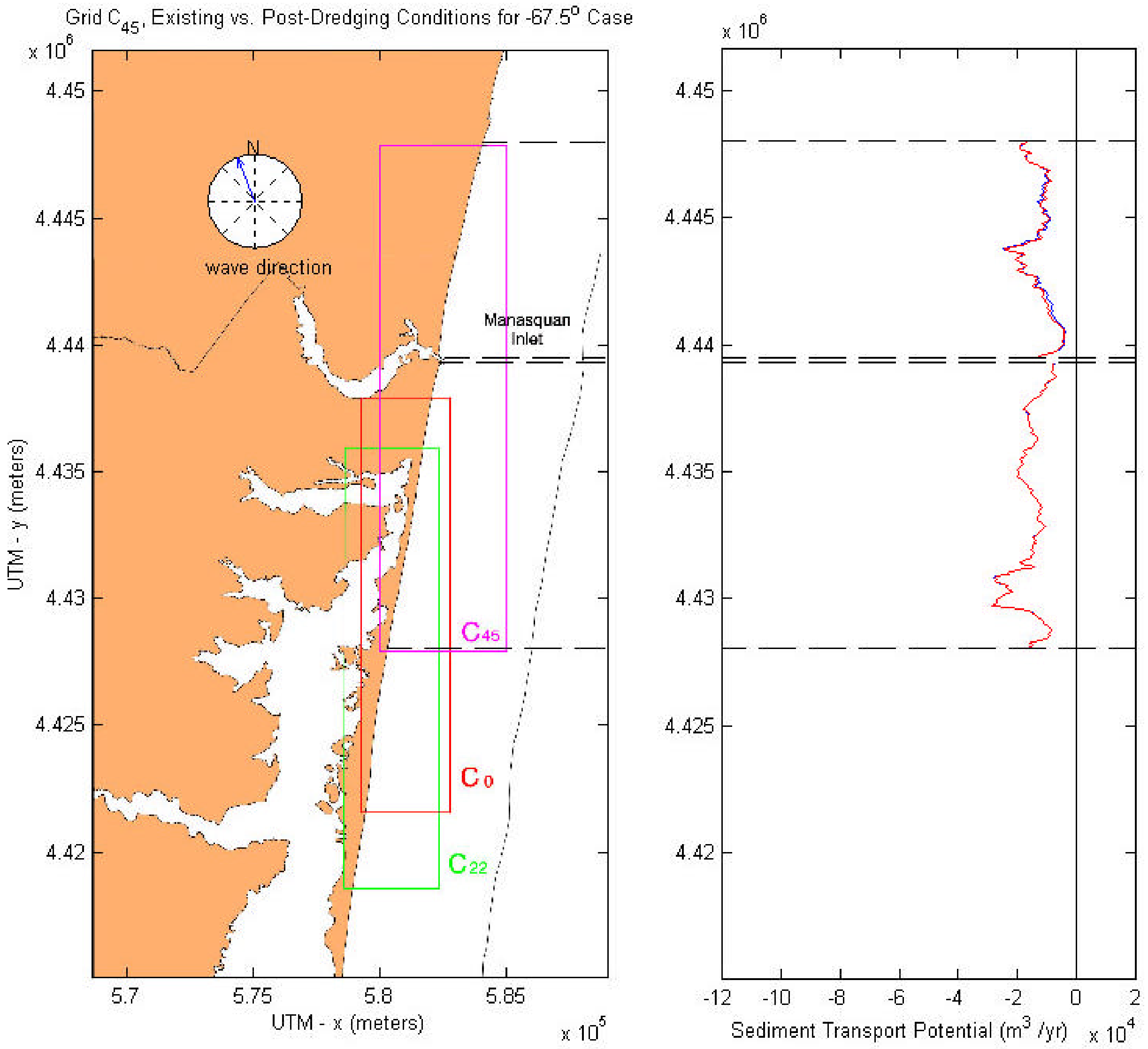

Figure C3-81. Existing versus post-dredging annual sediment transport potential at Grid C_{45} for the -67.5° case.

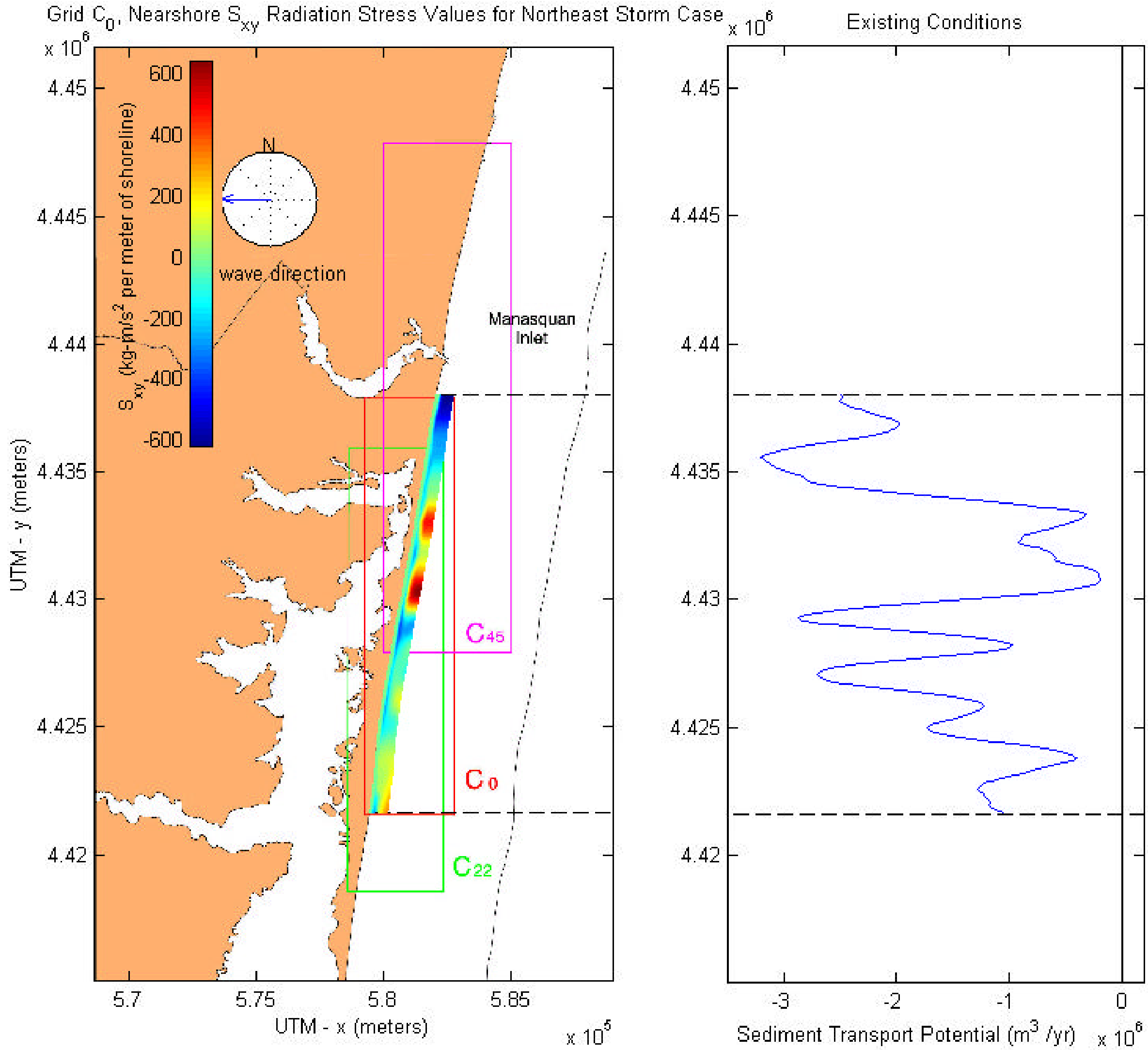

Figure C3-82. S_{xy} radiation stress and annual sediment transport potential for existing conditions at Grid C_0, northeast storm case.

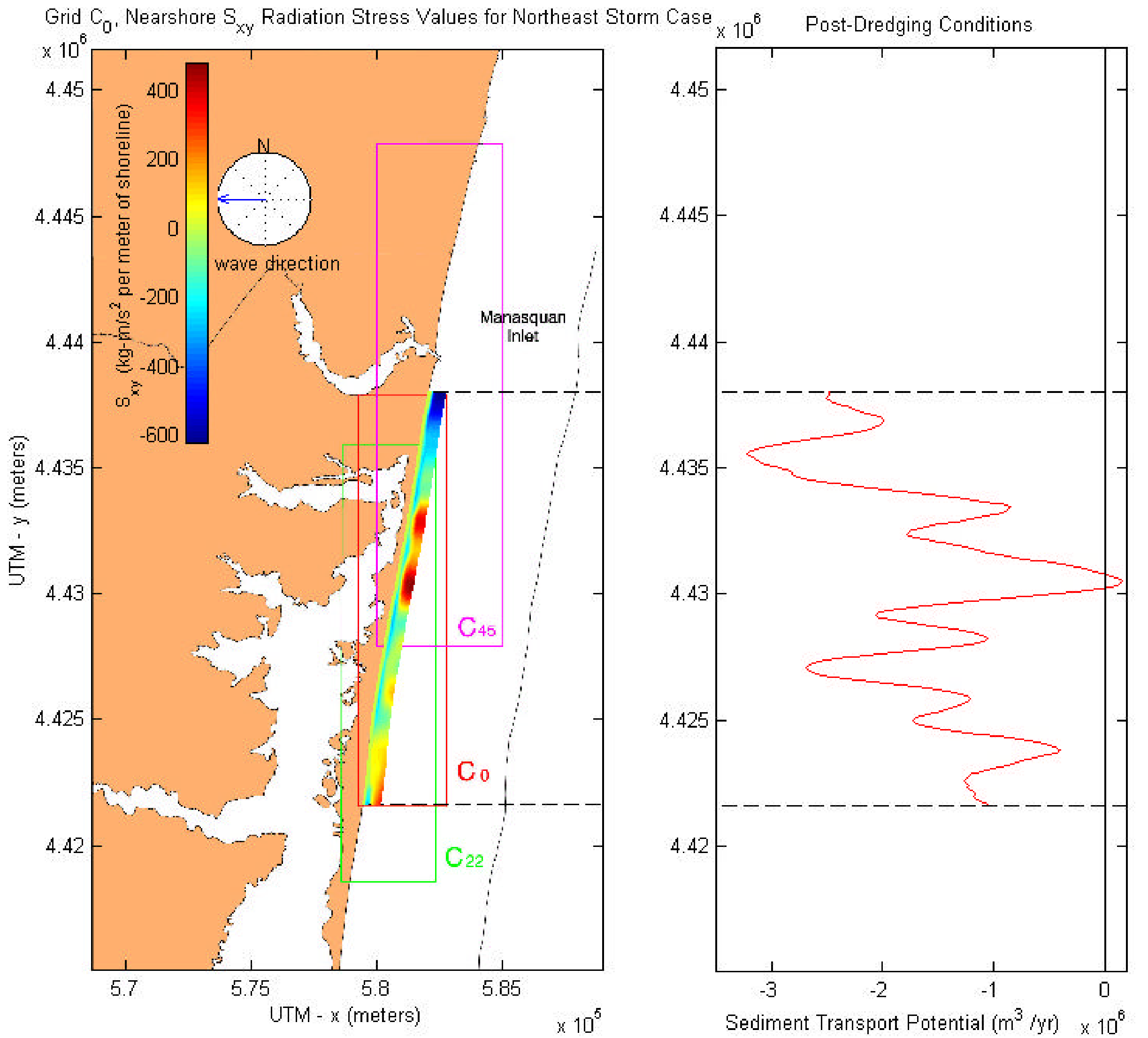

Figure C3-83. S_{xy} radiation stress and annual sediment transport potential for post-dredging conditions at Grid C_0, northeast storm case.

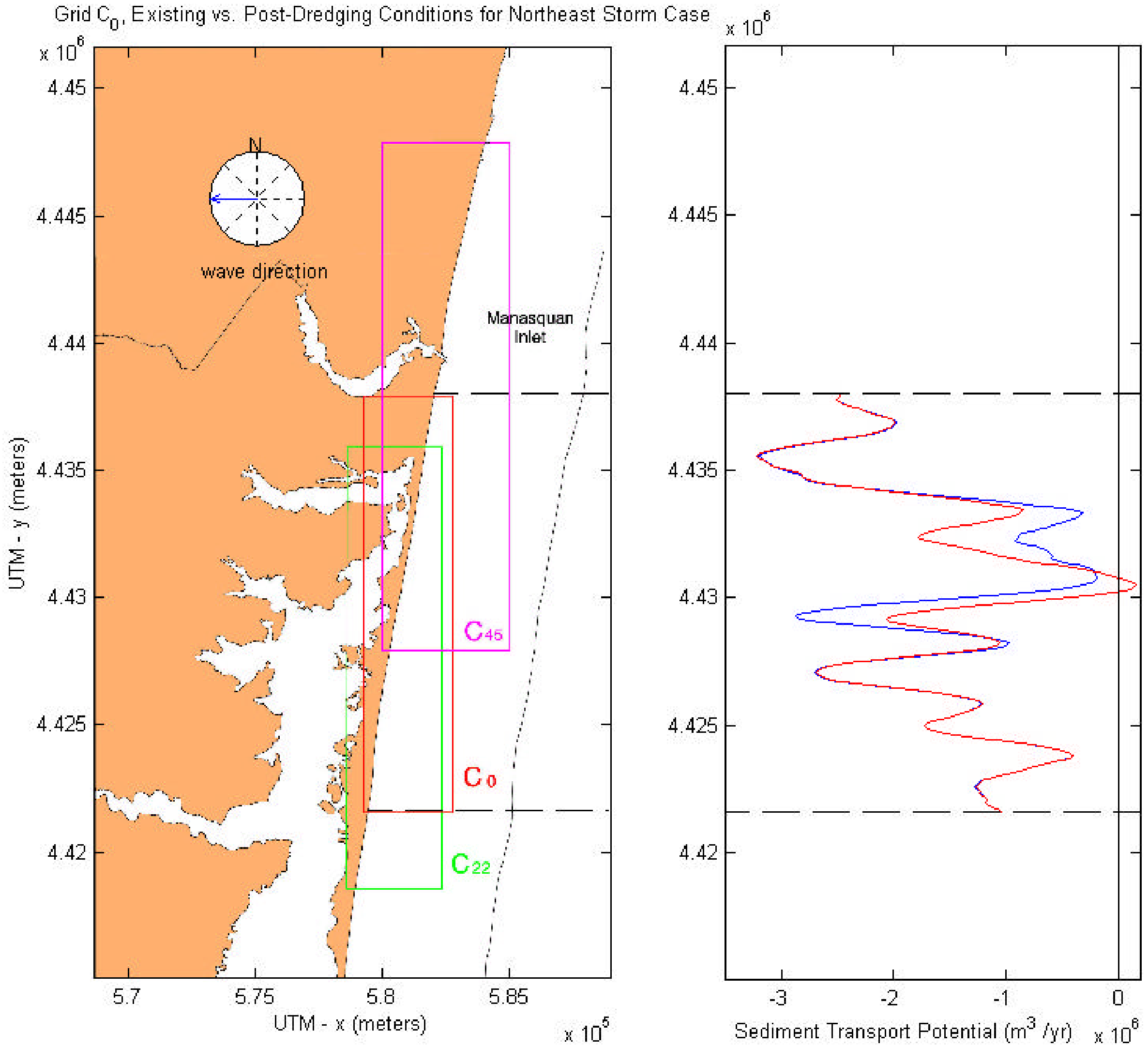

Figure C3-84. Existing versus post-dredging annual sediment transport potential at Grid C_0 for the northeast storm case.

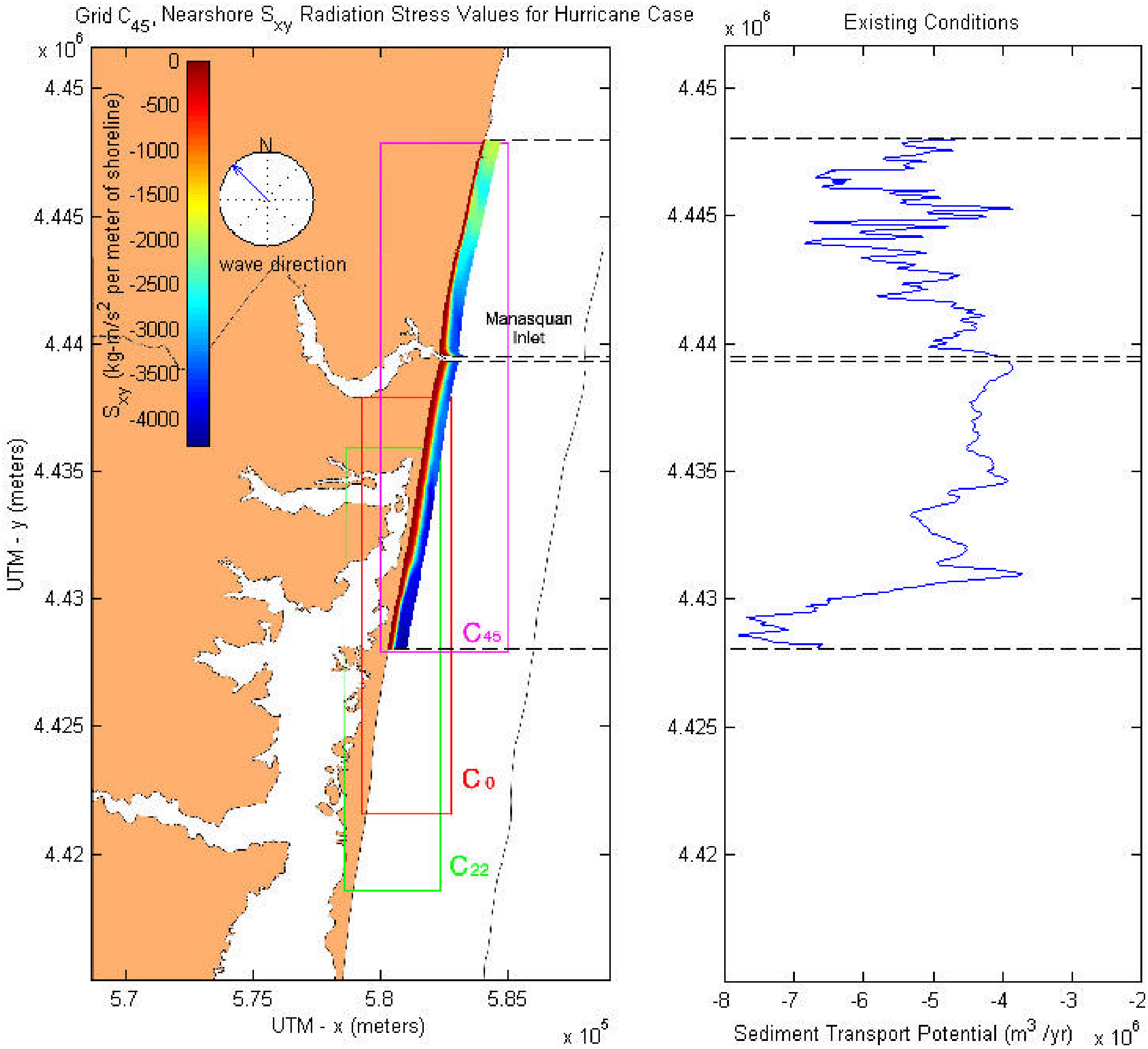

Figure C3-85. S_{xy} radiation stress and annual sediment transport potential for existing conditions at Grid C_{45}, hurricane case.

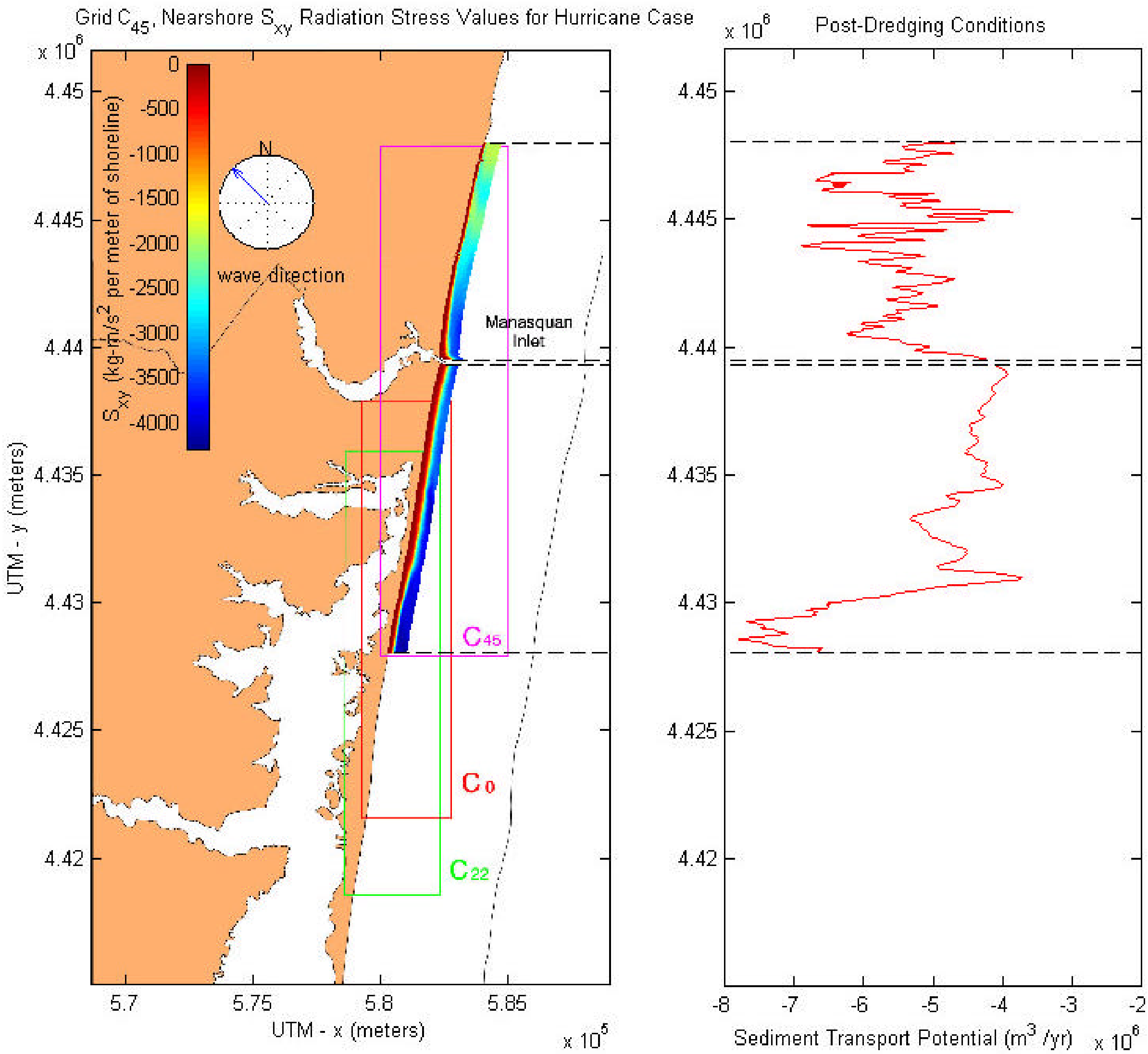

Figure C3-86. S_{xy} radiation stress and annual sediment transport potential for post-dredging conditions at Grid C_{45}, hurricane case.

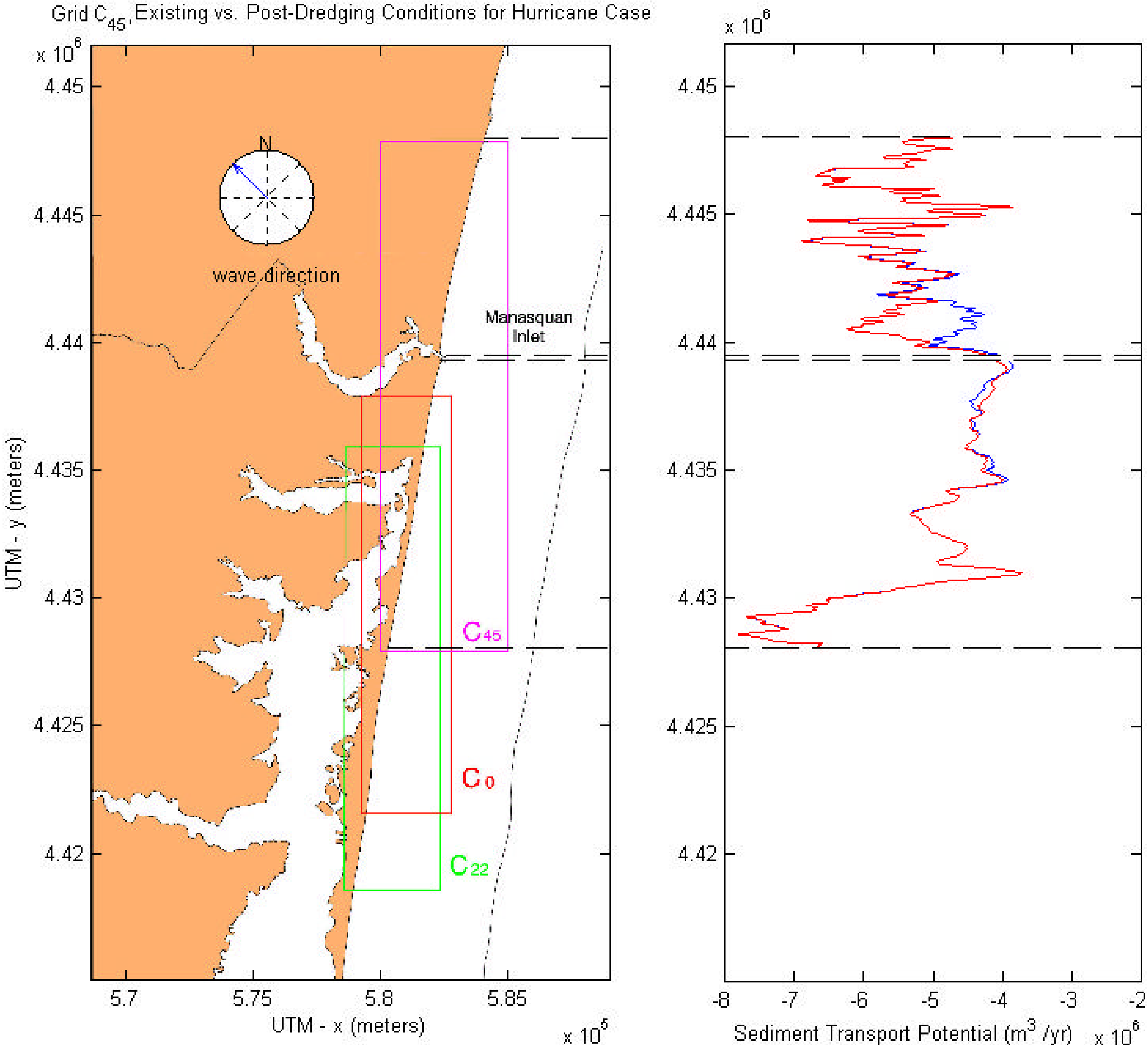

Figure C3-87. Existing versus post-dredging annual sediment transport potential at Grid C_{45} for the hurricane case.

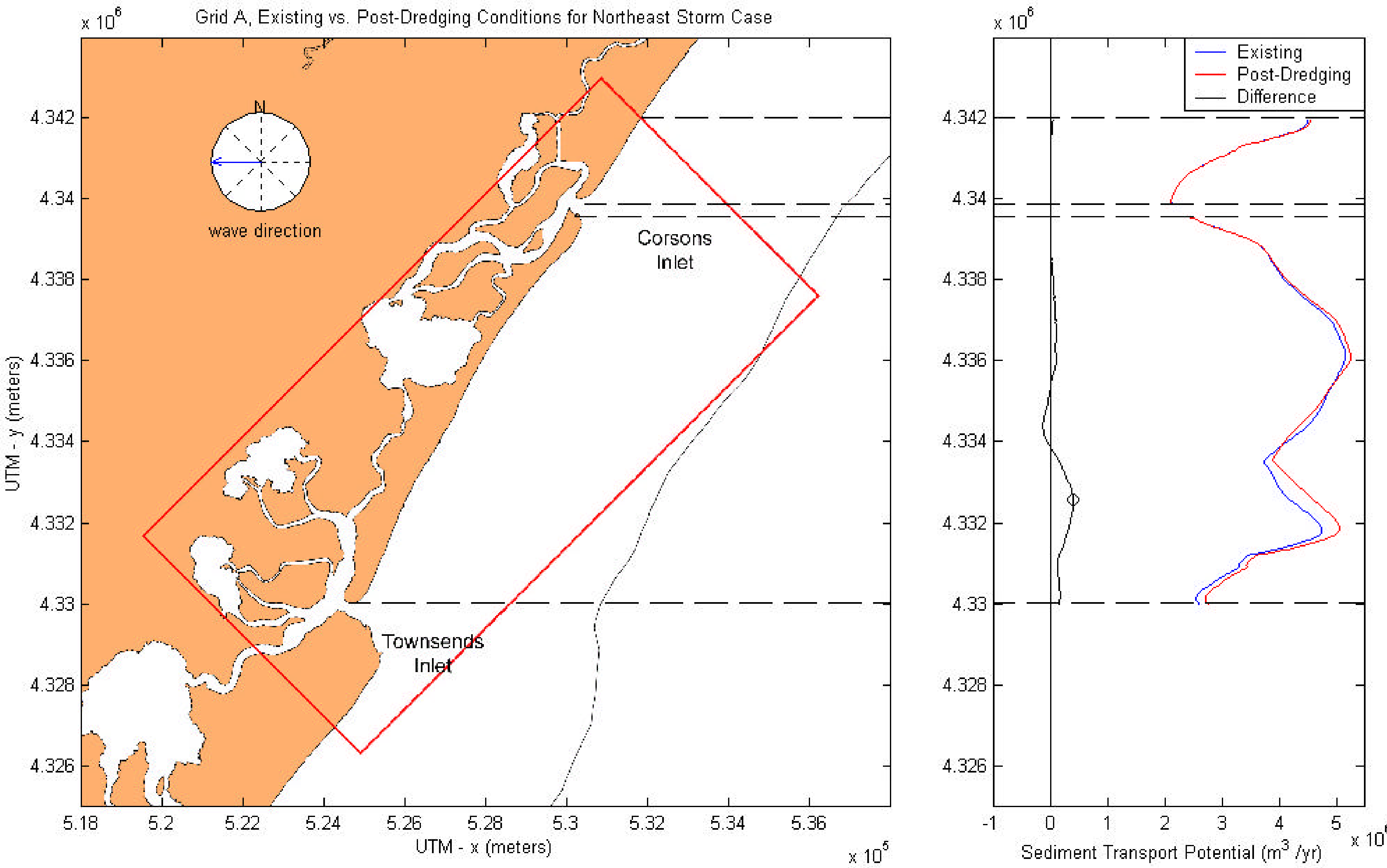

Figure C3-88. Difference between existing and post-dredging annual sediment transport potential at Grid A for the northeast storm case.

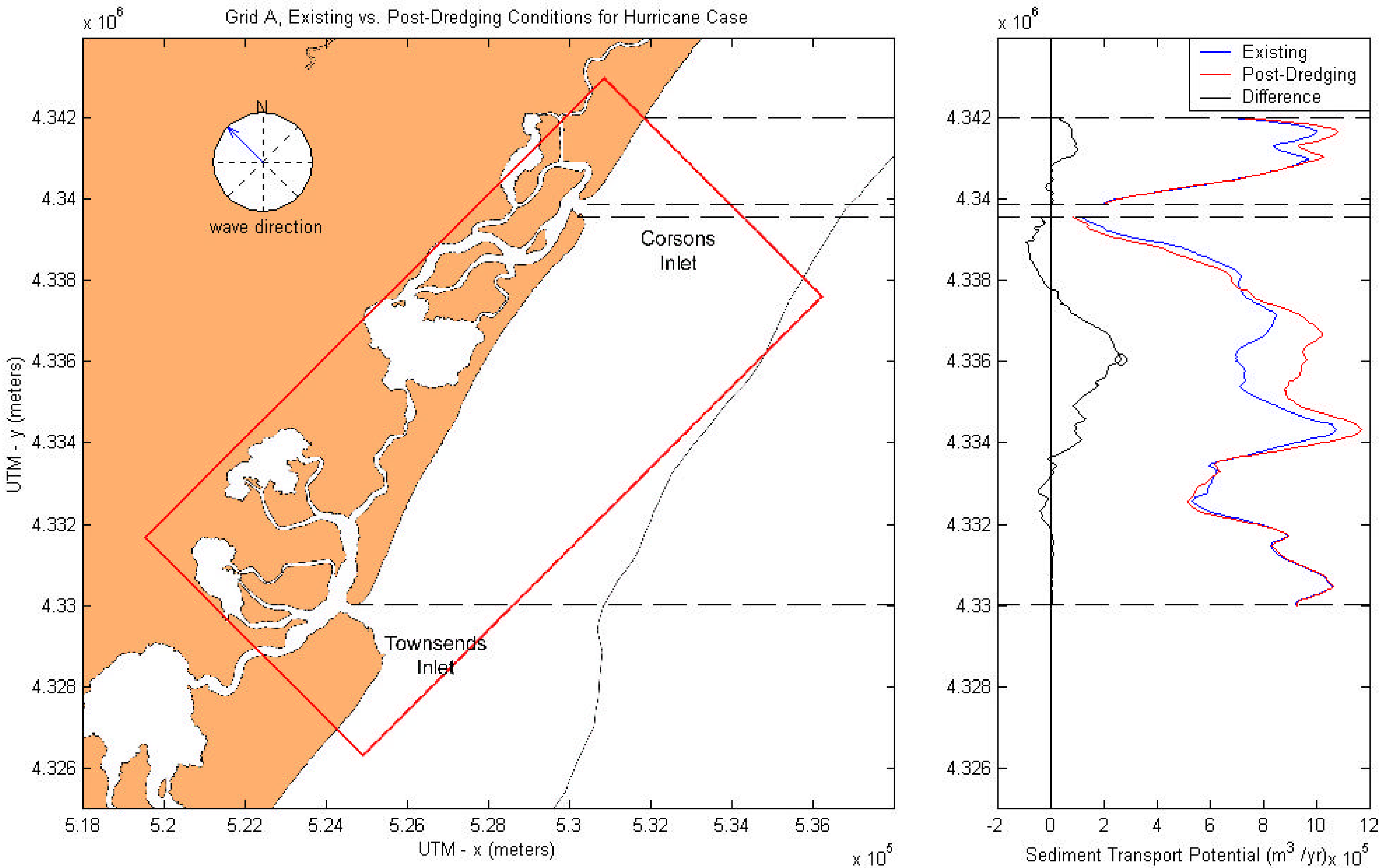

Figure C3-89. Difference between existing and post-dredging annual sediment transport potential at Grid A for the hurricane case.

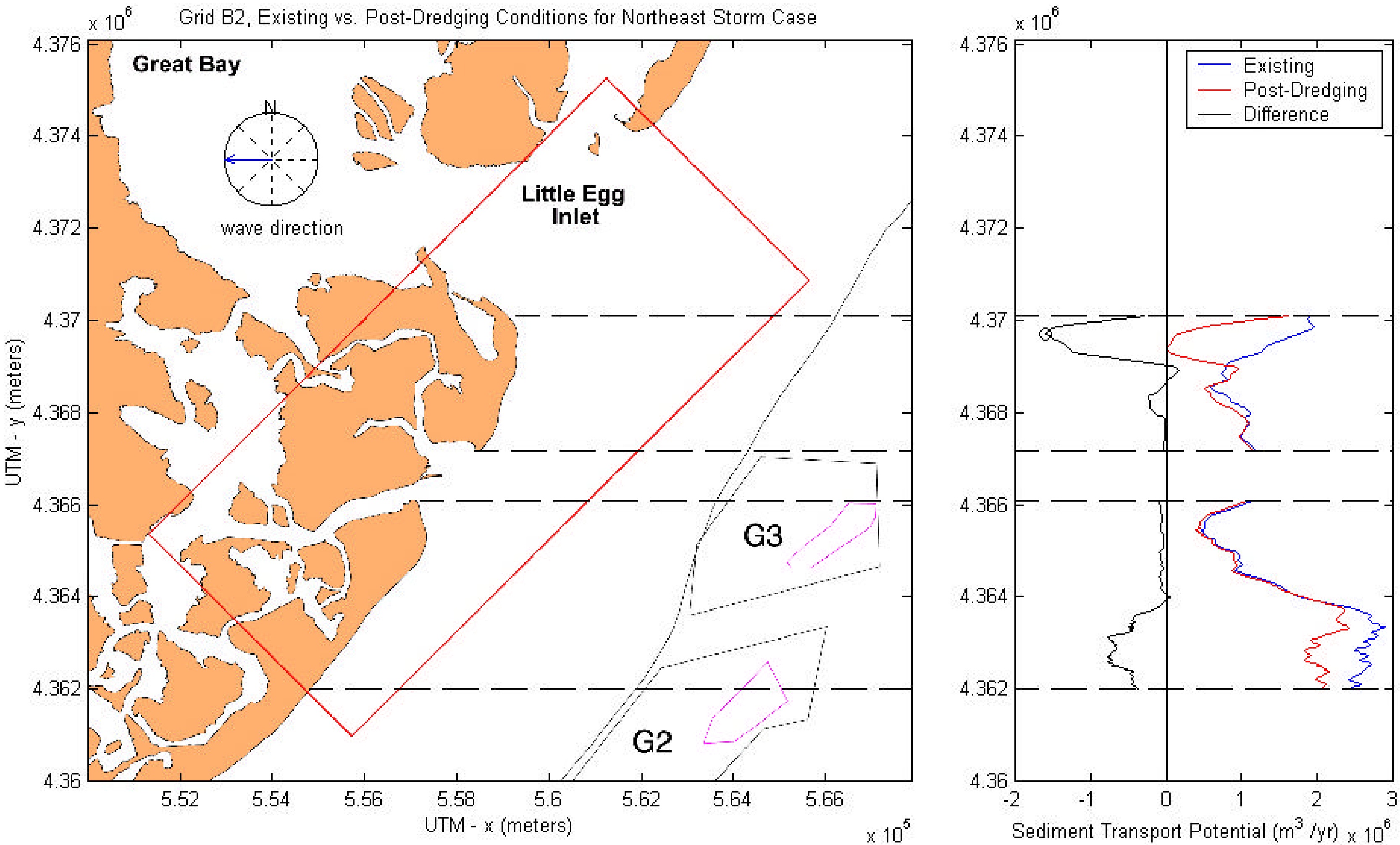

Figure C3-90. Difference between existing and post-dredging annual sediment transport potential at Grid B2 for the northeast storm case.

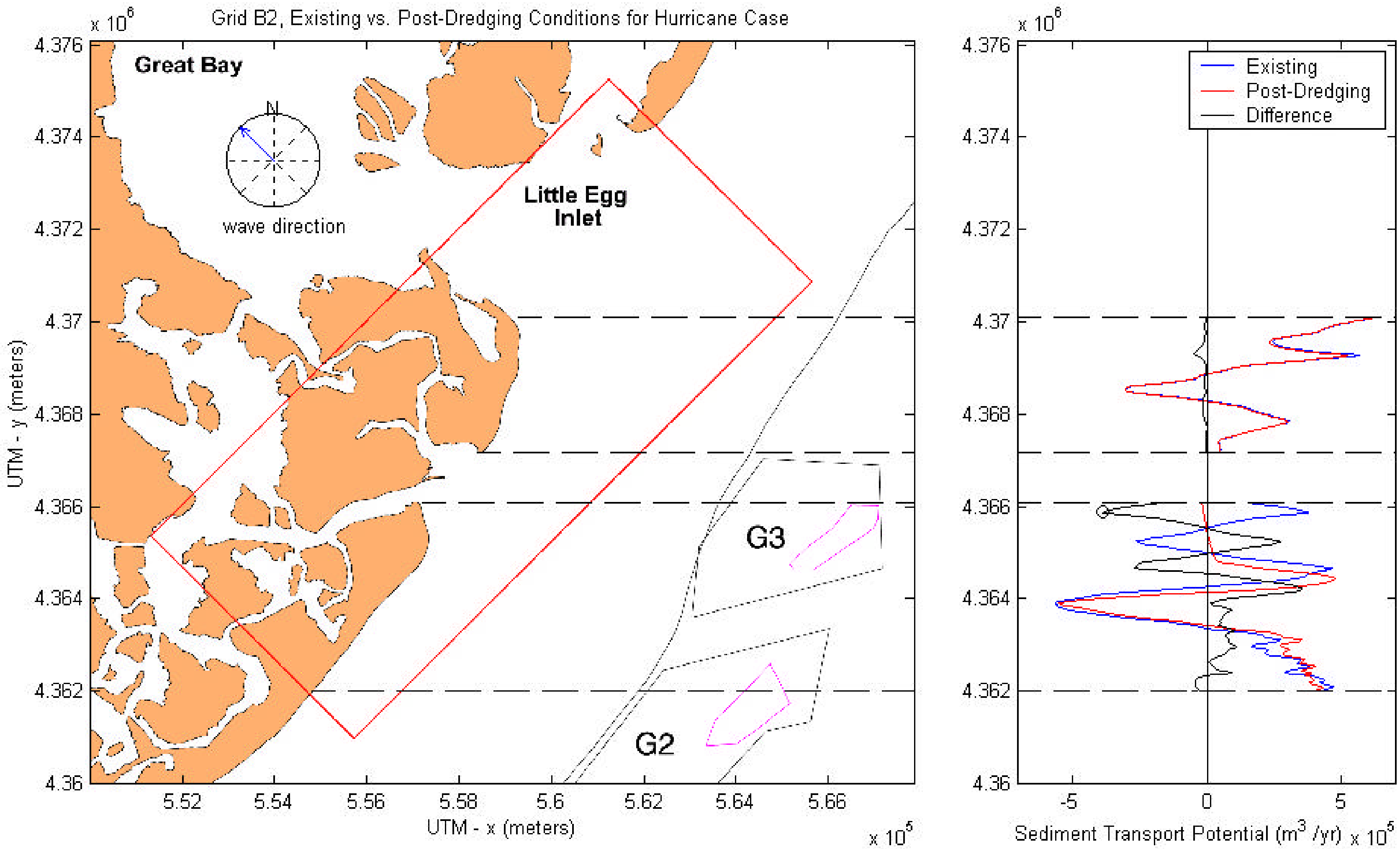

Figure C3-91. Difference between existing and post-dredging annual sediment transport potential at Grid B2 for the hurricane case.

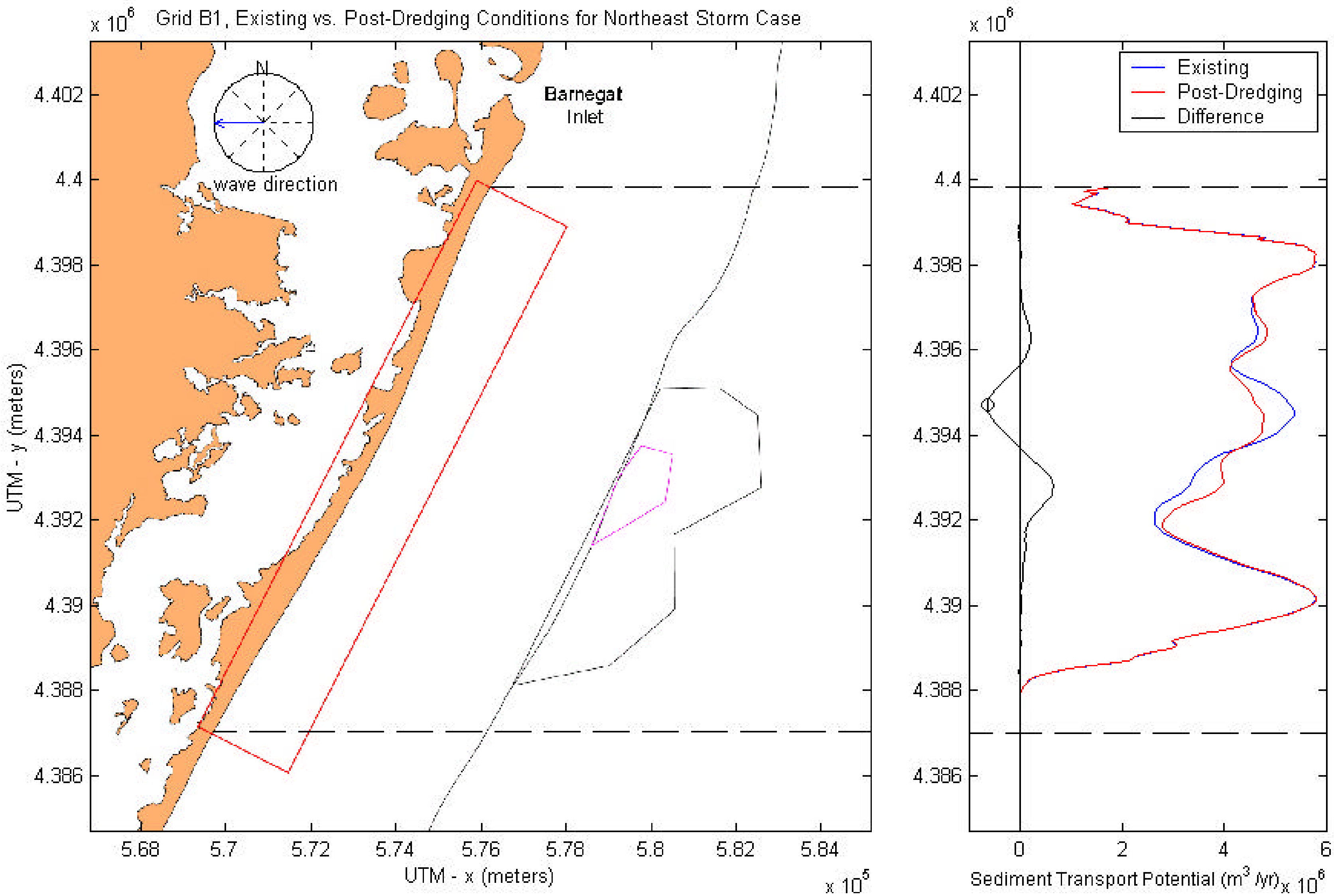

Figure C3-92. Difference between existing and post-dredging annual sediment transport potential at Grid B1 for the northeast storm case.

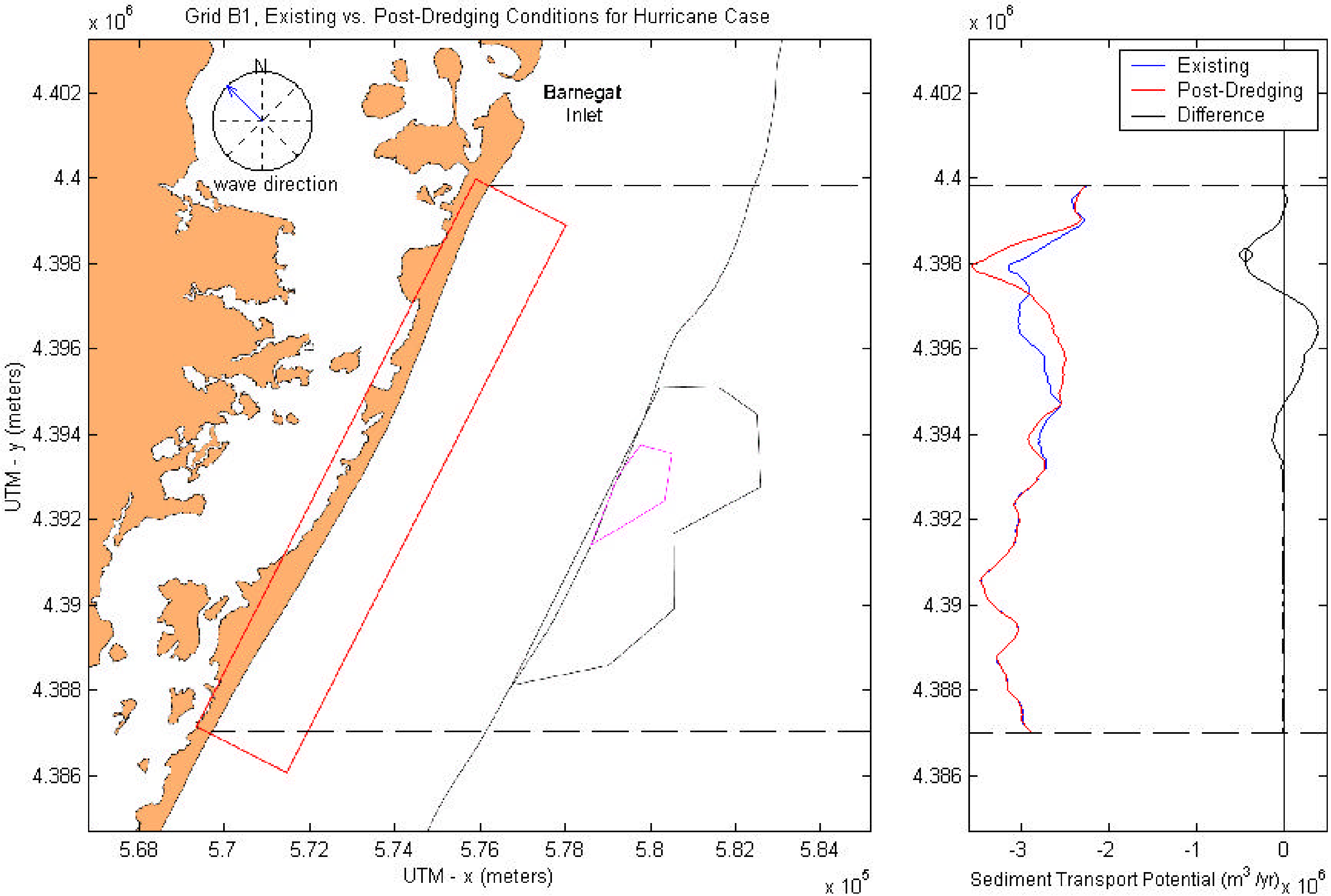

Figure C3-93. Difference between existing and post-dredging annual sediment transport potential at Grid B1 for the hurricane case.

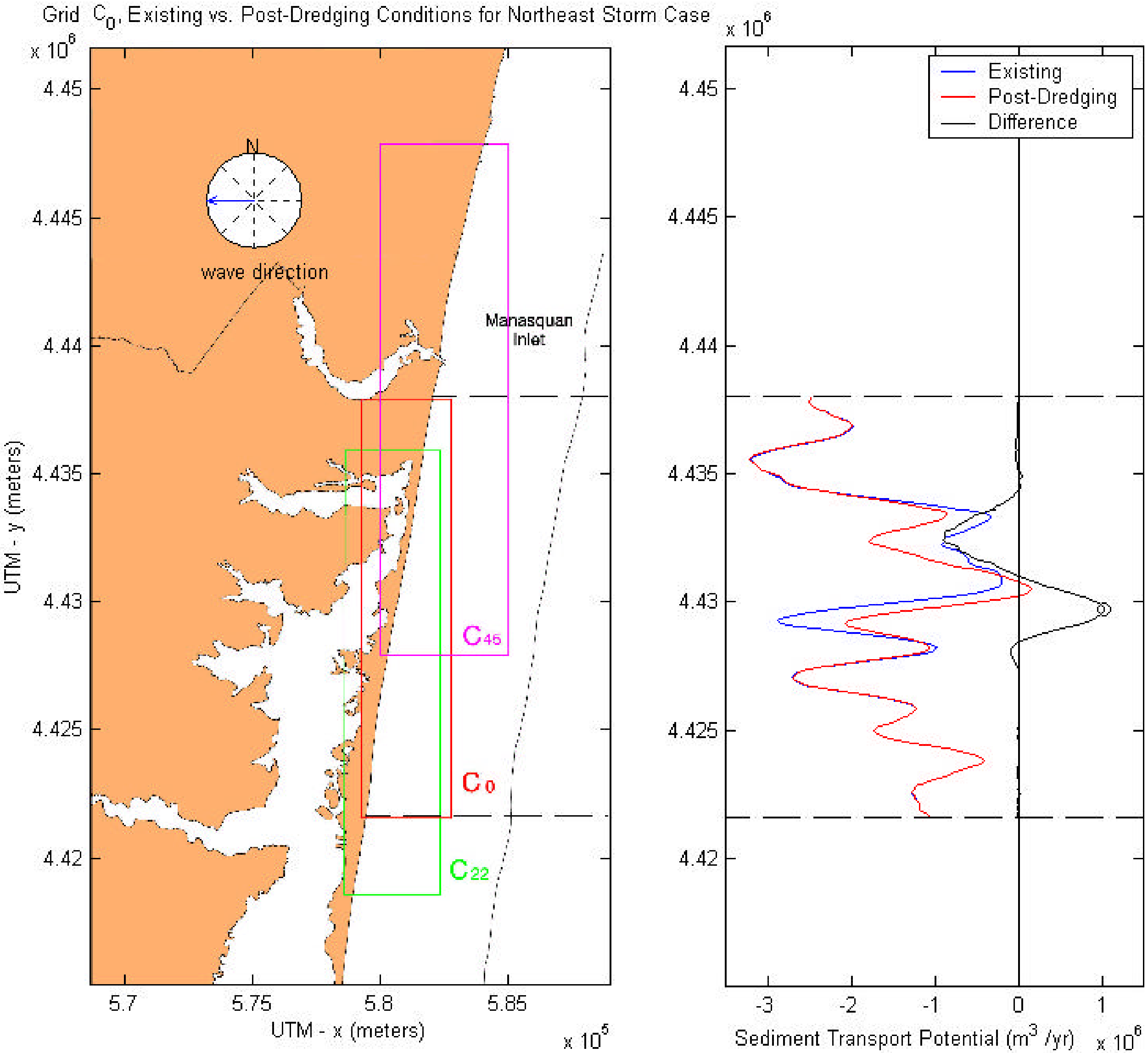

Figure C3-94. Difference between existing and post-dredging annual sediment transport potential at Grid C_0 for the northeast storm case.

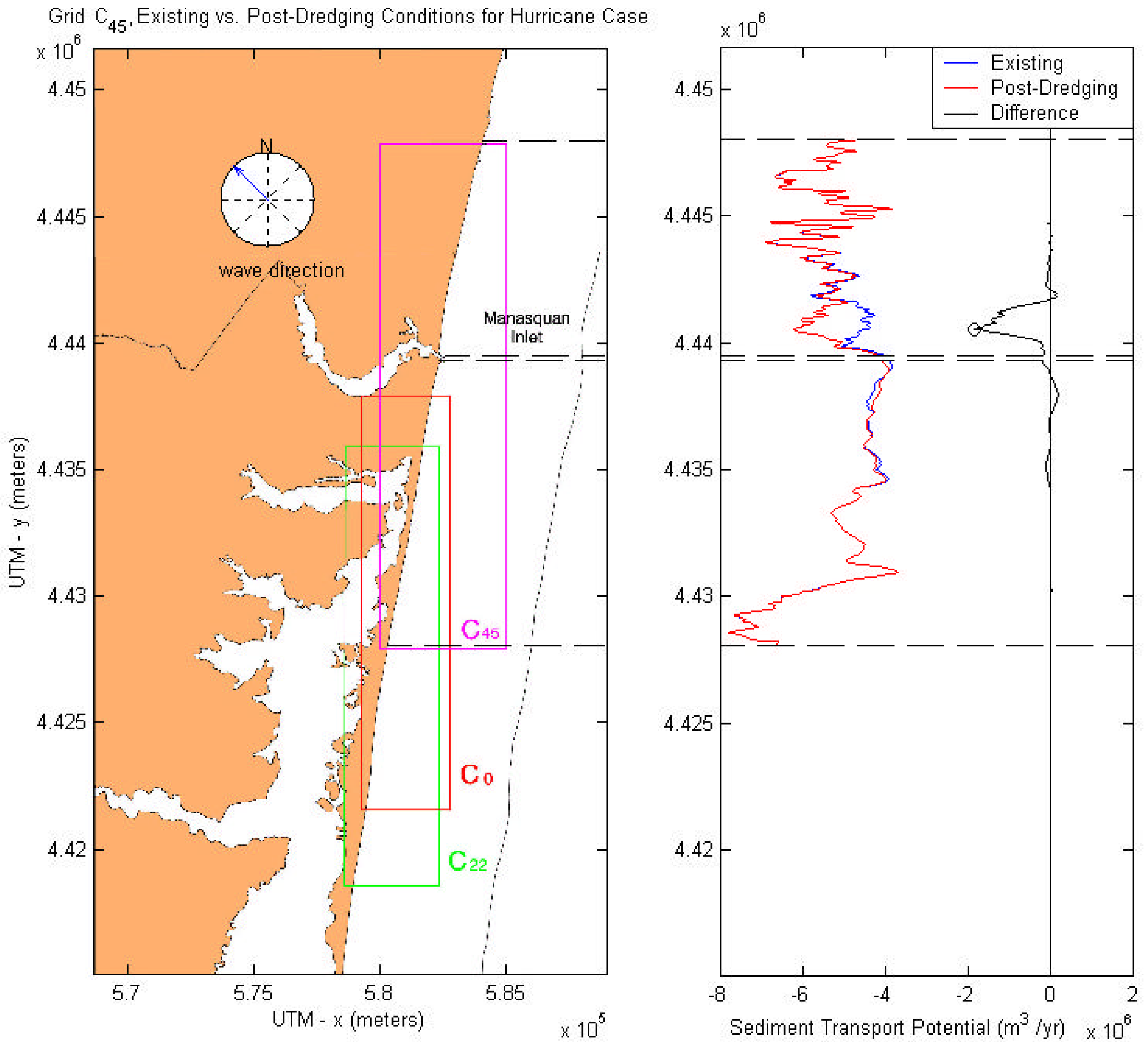

Figure C3-95. Difference between existing and post-dredging annual sediment transport potential at Grid C_{45} for the hurricane case.

APPENDIX D. BIOLOGICAL FIELD SURVEY DATA

D1. SEDIMENT PROFILING CAMERA DATA

D1.1 Introduction

This appendix was authored by Dr. Robert J. Diaz and Mr. G. Randall Cutter, Jr. from the Virginia Institute of Marine Science. Section numbers and section titles for the text, and tables, and figures, numbers were the only items changed for the purposes of formatting this appendix. All text, tables, and figures are presented as they were provided by the aforementioned authors. The reader is referred to Sections 6.1 (Background), 6.2.1 (Survey Design), and 6.2.2 (Field Methods) for introductory information relative to the overall biological field surveys.

D1.2 Field Methods

For the May, 1998 survey, sediment profile images and surface images were acquired using a camera system consisting of a Hulcher Model Minnie sediment profile camera and a Benthos Model 381 Edgerton Deep-Sea standard camera (Figure D1-1). Lead and steel weights were attached to the profile camera cradle to facilitate penetration into the sediments. Approximately 450 to 500 pounds of weights were used until a weld that held one side of the prism broke due to excessive drop velocity. Subsequently, field repairs were made and the weight was reduced to about 460 pounds. When sea conditions became very rough (8 May 1998) and deployment of the camera system began to become uncontrollable, the attached weights were reduced to 360 pounds. The amount of weight attached was recorded with the field data. The Benthos (surface) camera was triggered by bottom contact, and acquired images of the seafloor in plan-view. The surface camera was triggered at 40 - 45 cm above the seafloor and imaged an area of 0.13 m^2 (typically 43.5 by 30 cm).

The camera system was deployed two times at each station, or more times if camera functions or system stability during any of the drops were questionable. Deployment of the camera system involved lifting it off the deck using a hydraulic winch, removing prism motion restriction pins, lowering over the stern to the bottom at a controlled rate of drop speed (about 1 to 2 fps), providing slack to the system while on bottom for 20 seconds, lifting the camera off bottom for 40 seconds for circuitry reset, then lowering to the bottom again. Retrieval involved raising the camera system to the water surface where tag lines were used to lash the camera to the A-frame, replacing the pins, and setting the system onboard. The cameras were tested on the vessel after every three to five stations to ensure proper functioning and to provide demarcated images in the slide series that could be used for laboratory quality control purposes.

For the September, 1998 survey, the camera system and procedures were the same as those used during spring, except that the Hulcher profile camera had a video camera incorporated. The video camera was enclosed in an underwater housing attached to the back of the profile prism, and viewed the prism window at a 30 degree angle (Figure D1-2). Using the modified profile camera system, video profile images were acquired in addition to the 35-mm slide images. The video camera was wired to the surface vessel and its output viewed during deployment and recorded. This ensured that camera system deployment was proper and that the still camera functioned. Also, video observation provided preliminary information about the substrate and biological features in the sediments.

D1.3 Laboratory Methods

Slide film from profile and surface cameras was processed by a professional commercial photofinishing laboratory that could handle bulk film. Slides were mounted and labeled with numbers and survey dates. Slides were labeled with station and drop numbers after inspecting the set and comparing their time-stamps and sequence in the series to field data logs. Slides were digitized using a Polaroid Sprintscan 35 Plus slide scanner, at 725 by 1080 pixels per

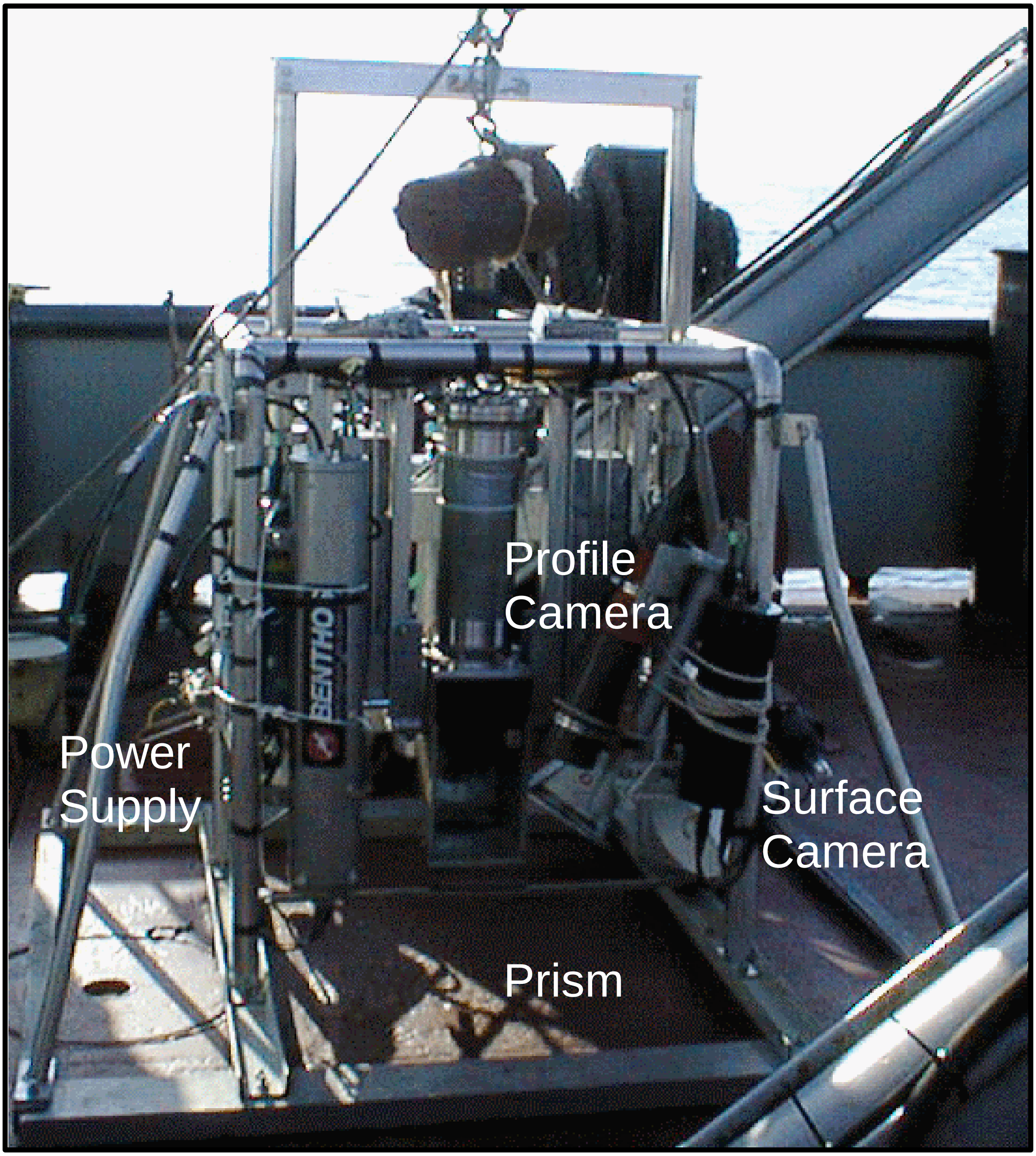

Figure D1-1. Hulcher Sediment Profile Camera and standard surface camera. Prism face plate is 15-cm wide.

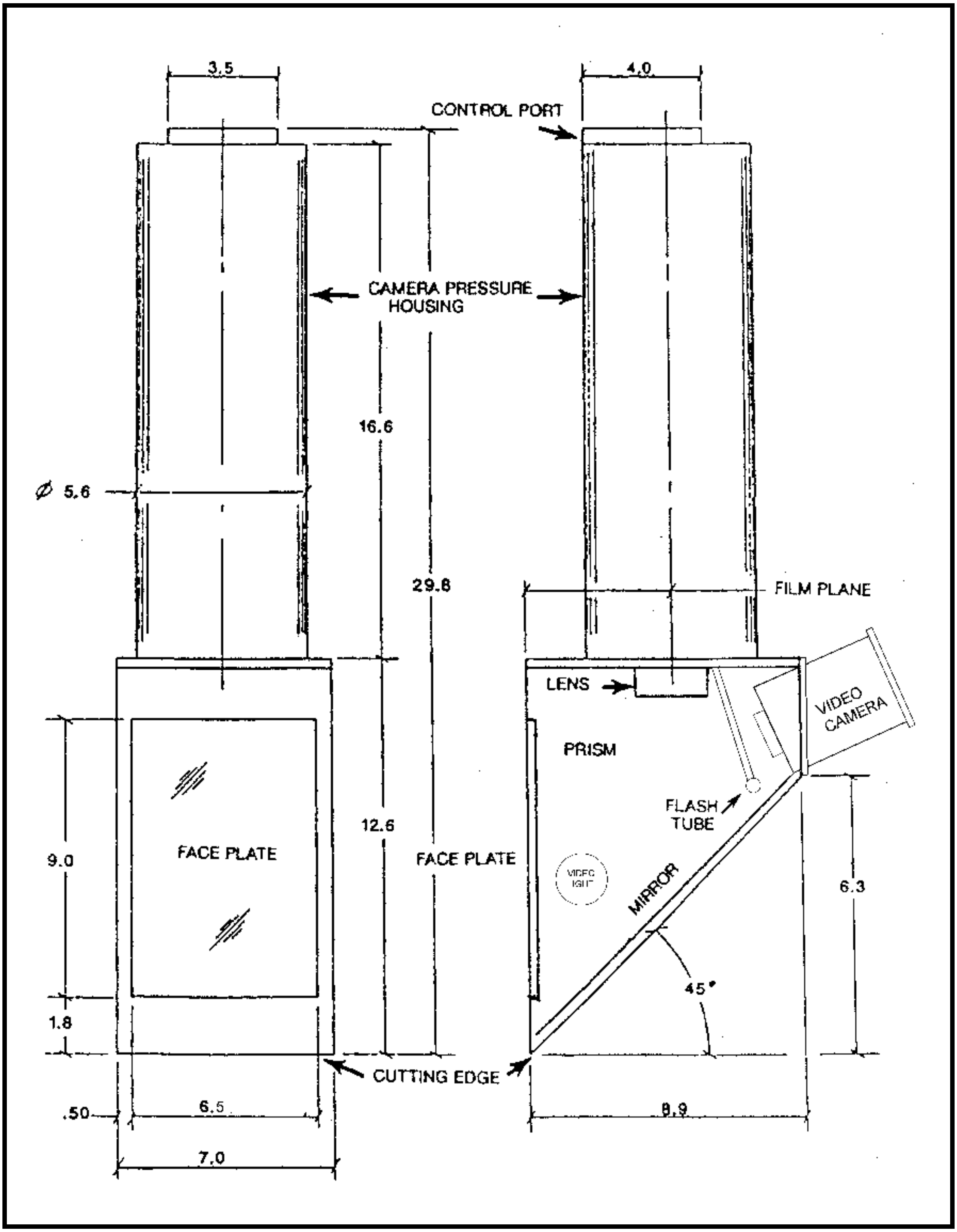

Figure D1-2. Hulcher sediment profile camera diagram.

slide, and 24-bit RGB color. Digital images were archived on CD-ROM disks. Images used for figures included with this report were rescanned at 2350 pixels wide and variable height depending upon the region of interest.

D1.4 Data Analysis

Sediment Profile Image Analysis

Sediment profile images (SPI) were analyzed by visual examination of projected slide images upon calibrated screens. Data recorded from each image included the time of acquisition (except from spring images when the clock malfunctioned) and date; minimum, maximum, and average penetration depth of the prism window into the sediments; depth to the redox potential discontinuity; sediment type (grain size class); sediment-water interface relief (maximum - minimum penetration); sediment relief type or the dominant surface roughness features; number and type of epifauna; categorized number of surface tubes; categorized number of fecal pellets on the sediment surface; approximate percentage composition of calcareous biogenic shell material in the sediments; amount of shell on the sediment surface; presence of an organic material layer on the surface; presence of 0.5 mm black grains, dark mineral patches (or layers) in the sediments; number and type of infauna visible, and their depths below the sediment-water interface; and number, type and depth of infaunal burrow and feeding void structures.

Details on the physical and biological importance of these image parameters, and how they are determined, can be found in Viles and Diaz (1991), Diaz and Schaffner (1988), and Rhoads and Germano (1986). A summary of the importance of major image parameters follows:

Prism Penetration - This parameter provided a geotechnical estimate of sediment compaction with the profile camera prism acting as a dead weight penetrometer. The further the prism entered into the sediment the softer the sediments. In fine sediments (silts and clays), higher penetration correlates with the higher the water content. Penetration was measured as the distance the sediment moved up the 23-cm length of the faceplate.

Surface Relief - Surface relief or boundary roughness was measured as the difference between the maximum and minimum distance the prism penetrated and provided qualitative and quantitative data on habitat characteristics which can be used to evaluate existing conditions. This parameter also estimated small-scale bed roughness, on the order of the prism faceplate width (15-cm). The causes of roughness can often be inferred from visual analysis of the film images and video.

Apparent Color Redox Potential Discontinuity (RPD) Layer - This parameter has been determined to be an important estimator of benthic habitat quality (Rhoads and Germano 1986, Diaz and Schaffner 1988, Nilsson and Rosenberg 1997), providing an estimate of the depth to which sediments appear to be oxidized. The term apparent was used in describing this parameter because no actual measurement was made of the redox potential. An assumption was made that, given the complexities of iron and sulfate reduction-oxidation chemistry, reddish-brown sediment color tones (Diaz and Schaffner 1988), or in black and white images whiter or lighter areas of the image (Rhoads and Germano 1986), were indications that the sediments were oxic, or at least are not intensely reducing. This is in accordance with the classical concept of RPD depth, which associates it with sediment color (Fenchel 1969, Vismann 1991).

The depth of the apparent color RPD was defined as the area of all the pixels in the image discerned as being oxidized divided by the width of the digitized image. The area of the image with oxic sediment was obtained by digitally manipulating the image to enhance characteristics associated with oxic sediment (greenish-brown color tones). The enhanced area was then determined from a density slice of the image.

The apparent color RPD has been very useful in assessing the quality of a habitat for epifauna and infauna from both physical and biological points of view. Rhoads and Germano (1986), Revelas et al. (1987), Day et al. (1988), Diaz and Schaffner (1988), Valente et al. (1992) and Bonsdorff et al. (1996) all found the depth of the RPD from profile images to be directly correlated to the quality of the benthic habitat in polyhaline and mesohaline estuarine zones. Controlling for differences in sediment type, habitats with thinner RPD's (mm's) tend to be associated with some type of environmental stress. While, habitats with deeper RPD's (cm's) usually have flourishing epibenthic and infaunal communities.

Sediment Grain Size - Grain size is an important parameter for determining the nature of the physical forces acting on a habitat. It is also a major factor in determining benthic community structure (Rhoads 1974). The sediment type descriptors used for image analysis follow the Wentworth classification as described in Folk (1974) and represent the major modal class for each image. Grain size was determined by comparison of collected images with a set of standard images for which mean grain size had been determined in the laboratory.

Surface Features - These parameters included a wide variety of features. Each gives a bit of information on the type of habitat and its quality for supporting benthic species. The presence of certain surface features is indicative of the overall nature of a habitat. For example, bedforms are always associated with physically dominated habitats, whereas the presence of worm tubes or feeding pits would be indicative of a more biologically accommodated habitat (Rhoads and Germano 1986, Diaz and Schaffner 1988). Surface features were visually evaluated from each slide and compiled by type and frequency of occurrence.

Subsurface Features - These parameters included a wide variety of features and revealed a great deal about physical and biological processes influencing the bottom. Habitats with burrows, infaunal feeding voids, and/or actual infauna visible are generally more biologically accommodated and considered "healthy" (Rhoads and Germano 1986, Diaz and Schaffner 1988, Valente et al. 1992). Surface features were visually evaluated from each slide and compiled by type and frequency of occurrence.

Surface Image Analysis

Surface images were analyzed for sediment type; surface sediment sorting characteristics; surface relief feature type; number and type of epifauna; number of tubes extending above the surface; quantity of fecal pellets; quantity of shell material on the surface; number of burrow openings; and presence of dark mineral patches. Comments were recorded as necessary.

Habitat Classification

Preliminary habitat classifications were designated based upon SPI image data spatial plots. Habitat classifications were first made using only May SPI data (83 stations [187 replicate images]) because of the sparse number of samples in September (29 stations [85 replicate images]). September data were also reserved for testing the validity of the classification scheme. Habitat class designations were made according to sediment type, sediment-water interface configurations, and biological features. Initially, habitat classes were arbitrarily assigned numbers. Apparently similar habitats between sand resource sites were assigned the same number. The initial habitat classification produced seven categories that were tested for robustness using discriminant analysis. The habitat classifications (group variable) were combined with the SPI data {Average Prism Penetration, Relative RPD Depth (deeper or shallower than penetration), Sediment Grain Size, Epifaunal Presence, Tubes at the Sediment-Water Interface, Fecal Pellets (categorical quantity), Buried Shell Content, Surface Shell Content, Sediment-Water Interface Relief, and Number of Infauna} and discriminant analysis performed. Discriminant analysis results indicted that three of the initial habitat classes were similar and therefore could be combined, and that nine replicates of the 187 could not be classified due to lack of image data. This resulted in a final habitat classification scheme with five habitats (1 through 5).

Biological and physical features were sparse and variable in Habitat 1. This habitat had fine to medium sediments (modal grain size was approximately fine sand with some variation, coarsest sediments were coarse sand). While biological features were not common in Habitat 1, epifauna could be locally abundant (at least one replicate image per station). Bed roughness in Habitat 1 generally consisted of low surface relief bedforms. Habitat 2 consisted of fine to medium sediments with infaunal tubes at the sediment-water interface and/or infauna present. Biogenic relief in the form of surface tubes and pellets was common and an important contribution to overall bed roughness. A high proportion of stations in Habitat 2 had shallow RPD layer depths likely related to the fining of sediments. Habitat 3 was similar to Habitat 1 but had medium to coarse sediments (medium sand to gravel). Grain and gravel dominated surface roughness in Habitat 3, occasional epifauna were present. Habitat 4 consisted of medium to coarse sediments with large infauna, tubes, and other biogenic features common. Habitat 5 had the coarsest sediments of all the habitats. High surface relief and an absence of biogenic features, both epifauna and infuana, characterized stations in the Habitat 5 classification. Habitat 5 appeared to be the most dynamic of all habitats.

After determination of the final habitat classification scheme, September data were added to the discriminant analysis model that defined the five habitat classes in order to determine the validity of the classification. Of the 29 September stations, which were a re-sampled subset from the May stations representing a total of 76 classifiable replicate images, only four replicates (one each from Stations A2-3, F2-6, G1-1, and G2-8) failed to classify into one of the habitat classes determined from the May data.

Because of the project sampling design for New Jersey SPI data collection, no attempt was made to contour habitats identified by discriminant analysis. Habitat contouring was done for a study of sand borrow areas offshore Virginia (Cutter and Diaz 1998), however, sampling design for that study permitted contouring because over 400 grid-cell/stations were sampled twice in a uniform grid design. SPI samples in New Jersey resource areas (83 stations in May and 29 stations in September) were randomly located within ROI's. Random sampling within a small ROI has two problems: first, major topographic and sedimentary features with the ROI could be missed by random sampling and second, the small ROI leads to poor interpolation because of boundary problems. Habitat classes therefore were only plotted for SPI sample locations (Figures D1-3 to D1-14).

D1.5 Results

Sediment profile image data were collected from a total of 83 stations in May 1998 and 29 stations in September 1998. All sediment profile image data are provided in Tables D1-1 through D1-3, and Figures D1-3 through D1-8 for the May cruise and D1-9 through D1-14 for the September cruise. The data from May and September cruises was combined for the purposes of identifying and discussing habitat conditions since there was little evidence of between-cruise difference in habitat classification. Only four stations (A2-3, F2-6, G1-1, and G2-8) had a single replicate image that classified differently between the cruises. Habitat classifications were provided as point maps. Unfortunately, the low density of sampling and complexity of the bathymetry precluded the use of spatial mapping techniques.

Most of the 254 station/replicate/cruise images (65% of the total) that could be classified were categorized as Habitat 1, which was characterized as fine to medium sediments (modal grain size approximately fine sand with some variation, coarsest sediments are coarse sand) with few biological features, and generally low surface relief. Habitat 2 was second in total occurrence, followed by class 3, 4, and 5, respectively, as follows:

Habitat Class	May Reps	May %	September Reps	September %	Total %
1	118	66	46	61	65
2	27	15	15	20	17
3	16	9	8	11	9
4	11	6	5	7	6
5	6	3	2	3	3

All Sand Resource Areas

Seafloor relief at decimeter scale was dominated by wave-generated bedforms, which occurred at all sand resource areas. Sediments were primarily fine to medium sand, followed by course sand and gravel. Black mineral sediment grains and patches of dark mineral sediments were apparent at all sand resource areas except Adjacent Station 2. In the fall, an organic surface layer was present in all of the sand resource sites except Sand Resource Areas A1, A2, and Adjacent Station 2. This layer appeared to be composed of detrital material originating from planktonic primary and secondary production.

Overall, sampled sand resource area stations were very consistent from May to September 1998 in habitat characteristics. Among the resource areas, Areas F1 and F2 were the most spatially homogeneous, although this may have been an artifact of more limited sampling in these areas, relative to Areas A1, A2, G1, G2, G3, and C1. Resource Area C1 was the most heterogeneous in terms of habitat, both spatially within a cruise and temporally between cruises. All five habitat classes occurred within Area C1. The five C1 stations sampled in September were classified into different habitat types relative to the May classification.

Area A1 (Figure D1-3 and D1-9)

Sediments in Area A1 were mostly fine to very fine grained, however silt and gravel also were present. In addition to bedforms, relief types included biogenic features in fall and sediment grains (granules and pebbles) in spring and fall. Surface tubes of infauna were present, as were fecal pellets. Infaunal bivalves were observed during spring, and other infauna were observed in spring and fall. In spring an anemone was seen at Station 13 (Figure D1-15), and a large polychaete was visible at Station 1 (Figure D1-16). Infaunal burrows also were apparent in some images.

Area A2 (Figure D1-3 and D1-9)

Sediments in Area A2 were coarser than in Area A1, primarily medium sand to gravel, followed by fine to medium sand. Bedforms and sediment grains dominated relief in the site. Infaunal surface tubes, fecal pellets, and subsurface burrows were present. In fall, an organic surface layer was present. Infaunal organisms were apparent here as well.

Area C1 (Figure D1-4 and D1-10)

Sediments in Area C1 were primarily fine to coarse sand and gravel. The coarsest sediments observed (medium to large pebbles) in the region were found in this sand resource area. Relief types included, in addition to bedforms, biogenic features (in spring) and sediment grains. Infaunal surface tubes and fecal pellets were abundant at some stations. Infauna also were present. In fall, an organic surface layer was present. In fall at Station 4, a mussel bed with several live mussels apparent was present (Figure D1-17) in coarse sandy gravel. Several dead mussel shells were present at the location of the other camera deployment at Station 4 (Figure D1-18).

Area F1 (Figure D1-5 and D1-11)

Sediments in Area F1 were fine sand to gravel. Relief was dominated by bedforms. Infaunal surface tubes were present. In fall, an organic surface layer was present. A large *Diopatra* tube and the surface organic layer apparent in fall were both present at Station 3 (Figure D1-19).

Area F2 (Figure D1-5 and D1-11)

Sediments in Area F2 were fine sand to gravel. Relief was dominated by bedforms. Infaunal surface tubes, infauna, burrows, and pellets were present. A large clam was observed in spring (Figure D1-20). In fall, an organic surface layer was present.

Area G1 (Figure D1-6 and D1-12)

Sediments in Area G1 were primarily fine to medium sand, however coarse sand and gravel and some silty clay, and combination silt/gravel beds also were present. In addition to bedforms, relief types included biological features such as large worm tubes and biogenic mounds and clasts. Infaunal surface tubes were found in abundance and some tube mats were present. Many fecal pellets were seen at stations in this area. In fall, an organic layer was present. Infauna and infaunal burrows were present. At Station 3, surface images revealed several small *Diopatra* tubes (Figure D1-21a). At Station 2 in fall, many tubes of the polychaete *Asabellides oculata* were present in sandy-gravelly silt sediment (Figure D1-22).

Area G2 (Figure D1-6 and D1-12)

Sediments in Area G2 were primarily fine sand and medium to coarse sand; gravel and some silts and silty combination sediments also were present. In addition to bedforms, relief types included biological features such as large worm tubes and biogenic mounds and clasts. Infaunal tubes were found in abundance and some tube mats were present. Many fecal pellets were seen at stations in Area G2. Many small *Diopatra* tubes were apparent in profile images from Station 4 in spring (Figure D1-21b). In fall, an organic layer was present. Infaunal burrows were present. Several features which appeared to be either sand clasts or tunicates were observed on the sediment surface in fall at Station 8 (Figure D1-23).

Area G3 (Figure D1-6 and D1-12)

Sediments in Area G3 were primarily fine to medium sand. Coarse sand, silt and silty combination sediments also were present. In addition to bedforms, relief types included biological features such as large worm tubes and biogenic mounds and clasts. Infaunal tubes were found in abundance and some tube mats were present. Many fecal pellets were seen at stations in Area G3. In fall, an organic layer was present. Infauna and infaunal burrows were present. Sediments in Area G3 had high quantities of black mineral grains on the order of 0.5-mm diameter and patches of dark minerally sediment (Figure D1-24). The origin of the mineral grains is uncertain.

Adjacent Station 1 (Figure D1-7 and D1-13)

Bedforms were the only relief feature at Adjacent Station 1 where sediments were primarily fine to medium sand. Infaunal surface tubes and burrows were present. Pellets were absent. In fall, an organic surface layer was present and one camera image revealed many small sand dollars, partially buried and oriented vertically (Figure D1-25).

Adjacent Station 2 (Figure D1-8 and D1-14)

Sediments at Adjacent Station 2 were medium sand to gravel. Relief was dominated by bedforms. No tubes, pellets, infauna, or burrows were observed. There was no organic layer in fall.

Adjacent Station 3

Sediments at Adjacent Station 3 were fine sand to gravel. Relief was dominated by bedforms. Infaunal surface tubes, infauna, burrows, and fecal pellets were present. A large clam was observed in spring.

D1.6 Discussion

Physical processes dominated over the entire range of benthic habitats sampled. This is most evident in the sediment grain size with finest sediments being silty-fine-sands (Fig. D1-3) and coarsest sediments composed of shell and gravels (Fig. D1-5 and D1-6). The only exception occurred in September in Area G1 where tube mats of the polychaete *Asabellides oculata* functioned to trap finer sediments creating the only habitat to be dominated by biological processes (Fig. D1-10). These tube mats were not present in May 1998 and *Asabellides oculata* was not even among the top 10 numerical dominants at any of the Areas sampled (see benthic community section). At that time Area G1 was dominated by physical processes with the basic grain size being coarse-sand and gravel.

The predominance of physical processes is also reflected in the benthic community data where dominant species tend to be those associated with high-energy environments, such as the worm *Polygordius*, haustorid amphipods, and the surf clam *Spisula solidissima*. While grain size and surface relief were dominated by physical processes, sediments were still being reworked and modified by the benthic communities. Tubes and burrows were common in many habitats with current induced bed forms present. For example, tubes of the polychaete *Diopatra cuprea* and other infaunal burrows occurred in fine-sand bedforms of Area G1 and G2 (Fig. D1-9). In localized areas biology could be an important determinant of benthic habitat conditions. Therefore, although major sedimentation patterns and distributions of sediment types are likely controlled by water column dynamics (currents, waves, storms) and topography, the benthic biology controls or alters ultimate fates of particles in many areas, as observed at several stations.

In a few instances, grain size determined from SPI was different from grain size determined by analysis of benthic grab sediments. Grain size samples likely were taken from the top layer of sediments in the grabs, and therefore would typically have included larger grains because of differential sorting. In dynamic non-cohesive sediments, smaller grains will settle deeper into the matrix than larger grains. Also, the sediment profile camera images a 2-D vertical slice of the substrate, but does not slice through individual grains. If sediment grain size distribution spans several sizes, then the smaller grains will infill the spaces between larger grains. Smaller grains will surround much of the larger grains, and obstruct them visually. Therefore, SPI may see only the unobstructed part of the grain. This visual obstruction effect will be more pronounced in poorly sorted sediments. If the sediments are composed of a limited grain size range, SPI images will reveal a greater area of the grains, since visual obstructions will only be caused by grain packing. In that case, SPI and grab grain sizes should agree best.

In many areas, biological processes appeared to be responsible for fining of sediments and shallowing of the apparent color RPD layer (Rhoads 1974). At most stations without indications of biogenic structures (tubes, burrows, infauna, void), RPD layer depths exceeded prism penetration. The deep RPD layers in these habitats was due to wave or tidal induced pore water pumping that percolated water through sandy sediments. In areas were the benthos facilitated the trapping of fine sediments RPD layer depths were shallower. This sequence can be seen in images from Areas G1, D1, and F2. Area G1 had stations with the shallowest RPD layers, associated with a polychaete tube mat (Fig. D1-10). Area D1 had stations with RPD layers that were about 3 cm (Fig. D1-3). Area F2 had stations with RPD layer depths that exceeded 12 cm (Fig. D1-8).

While benthic habitats were consistent temporally from May to September 1998, our sample size may not have been sufficient to account for small-scale spatial heterogeneity observed in several areas. For example, the two replicate images from Area G1 Station 2 ranged in grain size from silty-clay to coarse-sand-gravel. In any case, habitats changed little between collections. Recruitment and/or growth of individuals could have accounted for most of the major changes that related to biological processes. For example, the development of a tube mat in Area G1. A flocculent organic-looking layer was present in all areas in September, except A1 and A2. This layer appeared to be composed of detrital material deposited from the water column and may represent settlement of fall bloom material either directly through sinking of phytoplankton cells or indirectly through zooplankton fecal pellets (Fig. D1-7). Similar layers attributed to settlement of spring and fall bloom material have been reported in other coastal environments (Graf 1992 and Nilsson and Rosenberg 1997).

Recruitment of *Asabellides oculata,* blue mussels, and tunicates was observed in September. *Asabellides oculata* recruited into finer sedimentary regions of Areas G1, G2, and G3 (also confirmed by infaunal data). Mussels recruited only into Area C1 and seemed to be attached to coarse-sand or gravel. Similar grain size sediments in other Areas showed no signs of recruitment, such as empty shells or fragments from recent predation events (Fig. D1-6). In Figure D1-17 there is a small *Cancer* crab that may be in the process of eating recently set mussels. Tunicates recruited over a broader range of sediment grain sizes from fine-sand to gravel and in Areas A1, A2, C1, G1, G2, G3, and R2 (in Figure D1-23, the tunicates may be the features identified as sand aggregates). Tunicates were also observed in May in Areas D1 and A2.

Overall, the stations sampled were consistent from May to September 1998 in habitat characteristics. Recruitment of several benthic species during this time interval accounted for most of the variation in habitat type. While physical processes dominated the entire study area, biological processes were important and could affect benthic habitat classification. Community development in dredged areas will be dependent not only upon existing sediment types and sediment deposition due to physical processes alone, but also upon sediment changes occurring in response to recruitment behavior. To evaluate the relative importance of physical and biological processes a longer time series or denser spatial coverage is needed.

Table D1-1. Explanations for key terms used in Tables D1-2 and D1-3.

AREA - Sand resource area.

STATION - Sample station name.

REPLICATE - The sequential number given to each camera deployment.

PICTURE - Picture A or B, since the camera takes two images during each deployment.

TIME - Time that the image was taken.

DATE - SP98: Spring cruise, May 3-8, 1998. Fall98: Fall cruise, September 19-21, 1998.

Minimum Penetration - Refers to profile camera prism penetration. Minimum penetration is the distance from the bottom of the prism to the lowest point on the sediment-water interface in the image.

Maximum Penetration - Refers to profile camera prism penetration. Maximum penetration is the distance from the bottom of the prism to the highest point on the sediment-water interface in the image.

Average Penetration - Refers to profile camera prism penetration. Average Penetration is the mean height of the image based upon image area divided by width. This parameter provides a geotechnical estimate of sediment compaction with the profile camera prism acting as a dead weight penetrometer. The further the prism enters into the sediment the softer the sediments, and likely the higher the water content. Penetration is simply measured as the distance the sediment moves up the length of the face plate.

Redox Potential Discontinuity Depth (RPD) - Refers to the apparent color Redox Potential Discontinuity (RPD) Layer. ">" indicates that the RPD was deeper than the prism penetration of the prism window into the sediments. It is the depth to which sediments are oxidized. The term apparent is used in describing this parameter because no actual measurement is made of the redox potential. An assumption is made that, given the complexities of iron and sulfate reduction-oxidation chemistry, reddish-brown sediment color tones (Diaz and Schaffner 1988), or in black and white images whiter or lighter areas of the image (Rhoads and Germano 1986), are indications that the sediments are oxic, or at least are not intensely reducing. This is in accordance with the classical concept of RPD depth, which associates it with sediment color (Fenchel 1969, Vismann 1991).

SEDIMENT TYPE - The sediment type descriptors used follow the Wentworth classification as described in Folk (1974) and represent the major modal class for each layer identified in an image. Grain size is determined by comparison of collected images with a set of standard images for which mean grain size has been determined in the laboratory. Sediment grain size from gravel, to sand, to silt, and clay can be accurately estimated from the images. Abbreviations used are:

CL	Clay
CLSI	Clayey Silt
CLSIFS	Clayey Silty Fine-sand
CLMS	Clayey Medium-Sand
CS	Coarse-Sand
CSGR	Coarse-Sandy Gravel
FS	Fine-Sand
FSCL	Fine-Sand and Clay
FSMS	Fine-Sand to Medium-Sand

FSSI	Fine-Sandy Silt
GR	Gravel
GRMS	Gravelly Medium-Sand
GRCS	Gravelly Coarse-Sand
IND	Indeterminate
MS	Medium-Sand
MSCS	Medium-Sand to Coarse-Sand
MSCSGR	Medium-Sand Coarse-Sand and Gravel
NA	No analysis
SA	Sand
SACL	Sandy Clay
SASI	Sandy Silt
SASH	Sandy Shell
SH	Shell
SI	Silt
SISACL	Silty Sandy Clay
SICL	Silty Clay
SIFS	Silty Fine-Sand
SISH	Silty Shell
SICLFS	Silty Clayey Fine-sand
SISA	Silty Sand
VCS	Very-Coarse-Sand
VCSGR	Very-Coarse-Sand to Gravel

/ Indicates that sediments are layered, for example: FS/SI is fine sand layer over silt layer.

Sediment Surface relief - Surface relief is measured as the difference between the maximum and minimum distance the prism penetrated. This parameter provides an estimate of small-scale bed roughness, on the order of the prism face plate width (15 cm).

Relief Type - The causes of roughness can often be determined from visual analysis of the images. In physically dominated sandy habitats surface relief is typically small sand waves or bed forms. In muddy habitats surface relief is typically irregular surfaces, derived from biological activity of benthic organisms, or smooth. Biological surface roughness can range from small fecal mounds and tubes to large colonies of hydroids or macroalgae. Surface relief provides qualitative and quantitative data on habitat characteristics, which can be used to evaluate existing conditions.

BED - Bedform(s)
GRAIN - Sediment Grains (usually pebbles or larger gravel)
BIOG - Biogenic Features
SH - Shells or shell fragments

Epifauna - Any epifuanal or infaunal organism seen of the surface of the sediment. Surface fauna is visually evaluated from each slide and compiled by type and frequency of occurrence.

Tubes at Sediment Surface - Tubes at the sediment water interface are categorized by abundance per image and type. Categories range form:

NONE - 0 tubes
FEW - 1 to 6 tubes
SOME - 7 to 18
MANY - >18
MAT - densities of tubes high enough to appear as a carpet at the sediment water interface.

Pellets - Presence of fecal pellets in noted. Categories range form:

NONE - 0
FEW - 1 to 6
SOME - 7 to 18
MANY - >18
LAYER - densities of pellets high enough to cover the sediment water interface.

Buried Shell Content - Visually estimated percentage of sediments composed of shells or fragmented shell material.

Surface Shell Content - Relative quantity of shells or shell fragments on the sediment surface.

Infauna - Presence and number of infaunal organisms is noted.

Infauna Type - Taxonomic category to which the infaunal organism belongs.
Abbreviations used are:

CL	Clam
WR	Worm
AN	Anemone
NEMA	NEMATODE

Infauna Depth - Depth at which the infaunal organism is below the sediment water interface.

Burrow - Number of burrows in image.

Burrow condition - Burrows are noted as being either oxic (OX), anoxic (AN).

Comments - Comments on any other characteristics of the image, such as sediment layer, bacterial mats, relic RPD layers, sediment texture or color changes, etc.

General Codes - The following codes are used for many different variables, and always mean the same thing:
NA = No analysis was possible.
ND = No data.
NI = No image was collected.
IND = Indeterminate, unable to determine a value.

Table D1-2. Sediment profile image analysis data for the May 1998 Survey 1 and September 1998 Survey 2 offshore New Jersey.

AREA	STATION	REPLICATE	PICTURE	TIME	DATE	MINIMUM PENETRATION (cm)	MAXIMUM PENETRATION (cm)	AVERAGE PENETRATION (cm)	REDOX POTENTIAL DISCONTINUITY DEPTH (cm)	SEDIMENT TYPE (grain size class)	SEDIMENT SURFACE RELIEF (cm)	RELIEF TYPE	EPIFAUNA	TUBES AT SEDIMENT SURFACE	PELLETS	BURIED SHELL CONTENT (%)	SURFACE SHELL CONTENT	ORGANICS (presence/absence)	0.5 MM BLACK MINERAL GRAINS (PRESENCE/ABSENCE)	SMALL DARK MINERALS (presence/absence)	INFAUNA (number)	INFAUNA TYPE	INFAUNA DEPTH (cm)	BURROW (number)	BURROW CONDITION	COMMENTS
A1	1	1	B	.	SP98	7.1	8.0	7.6	>	MS	0.9	BED	1 SNAIL	NONE	NONE	2	SOME	0	1	0	2	WR	3, 7.5	0		TRACE OF FINES
A1	1	2	B	.	SP98	5.6	8.0	6.8	>	FSMS	2.4	BED	NONE	NONE	FEW	3	SOME	0	1	0	0			0		
A1	2	1	B	.	SP98	7.9	8.9	8.4	>	FSMS	1.0	BED	NONE	NONE	FEW	TRACE	TRACE	0	1	1	0			0		DARK MINERAL PATCHES
A1	2	2	B	.	SP98	6.0	9.0	7.5	>	FSMS	3.0	BED	NONE	FEW	FEW	TRACE	TRACE	0	0	1	1	CLAM	5	0		SMALL DIOPATRA
A1	3	1	B	.	SP98	11.6	13.1	12.4	>	FSMS	1.5	BED	NONE	NONE	NONE	1	NONE	0	1	0	0			0		
A1	3	3	B	.	SP98	6.3	8.8	7.6	6.0	FSMS	2.5	BED	NONE	NONE	NONE	1	TRACE	0	1	0	0			0		DARK MINERAL PATCHES
A1	4	1	B	.	SP98	10.0	10.7	10.4	>	CS	0.7	BED	TUNICATES?	NONE	NONE	TRACE	NONE	0	0	0	0			0		
A1	4	2	B	.	SP98	14.5	16.4	15.5	>	CS	1.9	BED	NONE	NONE	NONE	TRACE	NONE	0	0	0	0			0		
A1	5	1	B	.	SP98	5.5	7.2	6.4	>	FSMS	1.7	BED	NONE	NONE	NONE	TRACE	TRACE	0	0	1	0			0		DARK MINERAL PATCHES
A1	5	2	B	.	SP98	9.2	13.0	11.1	>	FSMS	3.8	BED	NONE	NONE	NONE	TRACE	NONE	0	0	1	0			0		DARK MINERAL PATCHES
A1	6	1	B	.	SP98	4.0	5.6	4.8	>	FSMS	1.6	BED	NONE	NONE	NONE	TRACE	TRACE	0	0	1	0			0		DARK MINERAL PATCHES
A1	7	1	B	.	SP98	5.0	6.8	5.9	>	MSCS	1.8	BED	TUNICATES?	NONE	NONE	TRACE	TRACE	0	0	0	0			0		
A1	7	2	B	.	SP98	7.0	8.4	7.7	6.0	MSCS	1.4	BED	1 SNAIL	NONE	NONE	1	TRACE	0	0	1	0			0		
A1	8	1	B	.	SP98	5.0	7.3	6.2	>	FSMS	2.3	BED	NONE	NONE	NONE	1	SOME	0	0	0	0			0		
A1	8	2	B	.	SP98	8.0	11.1	9.6	>	FSMS	3.1	BED	NONE	NONE	NONE	2	TRACE	0	0	1	0			0		
A1	9	1	B	.	SP98	6.0	7.3	6.7	0.3	MSCSGR	1.3	BED/GRAIN	NONE	FEW	NONE	TRACE	SOME	0	0	0	1	AN	4	0		DARK GRAVEL, LARGE DIOPATRA, ORG. SAND
A1	9	2	B	.	SP98	4.0	5.0	4.5	2.5	MSCSGR	1.0	BED/GRAIN	NONE	NONE	NONE	TRACE	TRACE	0	0	0	0			0		DARK GRAVEL, ORG. SAND
A1	10	1	B	.	SP98	7.0	9.0	8.0	>	FSMS	2.0	BED	NONE	NONE	NONE	TRACE	NONE	0	0	1	0			0		DARK MINERAL PATCHES
A1	10	2	B	.	SP98	8.0	11.4	9.7	>	FSMS	3.4	BED	NONE	NONE	FEW	TRACE	SOME	0	0	0	0			0		
A1	11	1	B	.	SP98	7.5	8.0	7.8	>	FSMS	0.5	BED	NONE	NONE	NONE	5	SOME	0	0	0	0			0		SH LAYER @ 3 cm
A1	11	2	B	.	SP98	8.7	9.6	9.2	>	FS	0.9	BED	NONE	NONE	NONE	TRACE	TRACE	0	0	1	0			0		DARK MINERAL PATCHES
A1	12	1	B	.	SP98	7.1	12.2	9.7	>	FSMS	5.1	BED	NONE	NONE	NONE	TRACE	TRACE	0	0	1	0			0		DARK MINERAL PATCHES
A1	12	2	B	.	SP98	4.0	6.3	5.2	>	FSMS	2.3	BED	NONE	NONE	NONE	NONE	TRACE	0	0	1	0			0		DARK MINERAL PATCHES
A1	13	1	B	.	SP98	9.5	10.7	10.1	4.0	SIFS	1.2	BED	NONE	SOME	NONE	TRACE	TRACE	0	0	0	0			6	OX	SMALL DIOPATRA TUBES, 2 LARGE TUBES, CERIANTHID TUBE
A1	13	2	B	.	SP98	8.5	10.2	9.4	3.0	SIFS	1.7	BED	NONE	SOME	NONE	TRACE	TRACE	0	0	0	1	AN	5	0		SMALL DIOPATRA TUBES, 1 LARGE TUBES, CERIANTHID
A2	1	2	B	.	SP98	13.0	16.6	14.8	>	MSCS	3.6	BED	NONE	NONE	NONE	1	TRACE	0	0	0	0			0		
A2	2	1	B	.	SP98	12.1	12.6	12.4	1.0	SIFS/GR	0.5	GRAIN	NONE	FEW	SOME	TRACE	SOME	0	0	0	1	WR	5	3	OX	AMPELISCA TUBES?
A2	2	2	B	.	SP98	8.6	10.1	9.4	1.2	SIFS/GR	1.5	GRAIN	NONE	NONE	SOME	TRACE	SOME	0	0	0	2	WR	3, 6	4	OX	LARGE WORM
A2	3	1	B	.	SP98	7.9	8.6	8.3	>	FSMS	0.7	BED	NONE	NONE	NONE	TRACE	SOME	0	0	1	0			0		
A2	3	2	B	.	SP98	8.3	13.4	10.9	>	MSCSGR	5.1	BED/GRAIN	NONE	NONE	NONE	TRACE	NONE	0	0	1	0			0		
A2	4	1	B	.	SP98	10.0	12.2	11.1	>	MSCSGR	2.2	BED	NONE	NONE	NONE	TRACE	TRACE	0	0	1	0			0		

Table D1-2. Continued.

AREA	STATION	REPLICATE	PICTURE	TIME	DATE	MINIMUM PENETRATION (cm)	MAXIMUM PENETRATION (cm)	AVERAGE PENETRATION (cm)	REDOX POTENTIAL DISCONTINUITY DEPTH (cm)	SEDIMENT TYPE (grain size class)	SEDIMENT SURFACE RELIEF (cm)	RELIEF TYPE	EPIFAUNA	TUBES AT SEDIMENT SURFACE	PELLETS	BURIED SHELL CONTENT (%)	SURFACE SHELL CONTENT	ORGANICS (presence/absence)	0.5 MM BLACK MINERAL GRAINS (PRESENCE/ABSENCE)	SMALL DARK MINERALS (presence/absence)	INFAUNA (number)	INFAUNA TYPE	INFAUNA DEPTH (cm)	BURROW (number)	BURROW CONDITION	COMMENTS
A2	4	2	B	.	SP98	10.4	14.8	12.6	>	MSCS	4.4	BED	NONE	NONE	NONE	TRACE	NONE	0	0	1	0			0		
A2	5	1	B	.	SP98	5.0	7.6	6.3	>	FS	2.6	BED	NONE	FEW	NONE	3	TRACE	0	0	1	0			0		DIOPATRA TUBES
A2	5	2	B	.	SP98	5.1	6.7	5.9	>	FS	1.6	BED	NONE	SOME	NONE	2	TRACE	0	0	1	0			1	OX	SMALL DIOPATRA TUBES, CLAM BLOOD
A2	6	1	B	.	SP98	6.8	8.2	7.5	>	MSCS	1.4	BED	NONE	NONE	NONE	TRACE	TRACE	0	0	1	0			0		
A2	6	2	B	.	SP98	7.4	11.2	9.3	>	MSCS	3.8	BED	NONE	NONE	NONE	TRACE	TRACE	0	0		0			0		
A2	7	1	B	.	SP98	7.9	10.8	9.4	>	FSMS	2.9	BED	NONE	NONE	NONE	TRACE	TRACE	0	0	1	0			0		PATCHES OF DARK MINERALS
A2	7	2	B	.	SP98	12.0	13.7	12.9	>	FSMS	1.7	BED	NONE	NONE	FEW	TRACE	NONE	0	0	1	0			0		PATCHES OF DARK MINERALS
A2	8	1	B	.	SP98	5.3	8.5	6.9	>	FS	3.2	BED	1 SAND DOLLAR	NONE	NONE	TRACE	TRACE	0	0	1	0			0		PATCHES OF DARK MINERALS, EDGE OF SAND TRACKS
A2	8	2	B	.	SP98	6.2	11.1	8.7	>	FSMS	4.9	BED	NONE	NONE	FEW	TRACE	TRACE	0	0	0	0			0		
A2	9	1	B	.	SP98	11.5	14.0	12.8	>	MSCSGR	2.5	BED	NONE	NONE	NONE	1	TRACE	0	0	0	0			0		GRAVEL LAYER @ 6 cm
A2	9	2	B	.	SP98	15.0	15.6	15.3	>	MSCSGR	0.6	BED	NONE	NONE	NONE	1	TRACE	0	0	0	0			0		GRAVEL LAYER @ 6 cm
A2	10	1	B	.	SP98	4.7	7.3	6.0	>	MS	2.6	BED	NONE	NONE	NONE	TRACE	NONE	0	0	0	0			0		
A2	10	2	B	.	SP98	6.7	8.9	7.8	>	MS	2.2	BED	NONE	NONE	NONE	NONE	TRACE	0	0	0	0			0		
A2	11	1	B	.	SP98	6.5	9.6	8.1	>	FS	3.1	BED	NONE	NONE	NONE	NONE	NONE	0	0	1	0			0		
A2	11	2	B	.	SP98	6.4	8.6	7.5	>	FS	2.2	BED	NONE	NONE	NONE	NONE	TRACE	0	0	1	0			0		
A2	12	1	B	.	SP98	7.0	9.3	8.2	>	FS	2.3	BED	NONE	NONE	NONE	NONE	NONE	0	0	1	0			0		PATCHES OF DARK MINERAL
A2	12	2	B	.	SP98	5.9	8.2	7.1	>	FS	2.3	BED	2 SAND DOLLARS	NONE	NONE	NONE	NONE	0	0	1	0			0		PATCHES OF DARK MINERAL
A2	13	1	B	.	SP98	6.3	10.4	8.4	>	MS	4.1	BED	NONE	NONE	NONE	TRACE	NONE	0	0	0	0			0		
A2	14	1	B	.	SP98	10.0	15.0	12.5	>	CSGR	5.0	BED/GRAIN	NONE	NONE	NONE	TRACE	NONE	0	0	0	0			0		
A2	14	2	B	.	SP98	6.8	7.2	7.0	>	CSGR	0.4	BED/GRAIN	NONE	NONE	NONE	TRACE	TRACE	0	0	0	0			0		
A2	15	1	B	.	SP98	7.7	9.1	8.4	>	MSCS	1.4	BED	1 ASTARTE	NONE	NONE	1	SOME	0	0	0	0			0		
A2	15	2	B	.	SP98	7.9	8.8	8.4	>	FSMS	0.9	BED	NONE	NONE	NONE	TRACE	TRACE	0	0	0	0			0		
A2	16	1	B	.	SP98	15.8	17.0	16.4	>	MSCSGR	1.2	BED	NONE	NONE	NONE	TRACE	TRACE	0	0	0	0			0		
A2	16	2	B	.	SP98	2.5	3.5	3.0	>	CSGR	1.0	BED/GRAIN	SNAILS	NONE	NONE	NONE	MANY	0	0	0	0			0		
A2	17	1	B	.	SP98	7.5	8.0	7.8	>	MSCSGR	0.5	BED/GRAIN	NONE	NONE	NONE	TRACE	TRACE	0	0	0	0			0		
A2	17	2	B	.	SP98	8.6	13.2	10.9	>	MSCSGR	4.6	BED	NONE	NONE	NONE	TRACE	TRACE	0	0	0	0			0		GR COVERED BY MS LAYER
A2	18	1	B	.	SP98	8.0	10.5	9.3	>	MSCS	2.5	BED	NONE	NONE	NONE	TRACE	TRACE	0	0	0	0			0		SAND BALLS
A2	18	2	B	.	SP98	11.8	14.0	12.9	>	MSCS	2.2	BED	NONE	NONE	NONE	TRACE	TRACE	0	0	0	0			0		
A2	19	1	B	.	SP98	12.0	13.0	12.5	>	CSGR	1.0	BED	NONE	NONE	NONE	TRACE	TRACE	0	0	0	0			0		BLACK GRAVEL
A2	19	2	B	.	SP98	7.0	10.0	8.5	>	CSGR	3.0	BED	NONE	NONE	NONE	TRACE	TRACE	0	0	0	0			0		BLACK GRAVEL
C1	1	1	B	.	SP98	7.0	9.0	8.0	>	MSCSGR	2.0	BED	NONE	FEW	NONE	TRACE	TRACE	0	0	0	0			0		
C1	1	2	B	.	SP98	4.8	8.0	6.4	>	CSGR	3.2	BED	NONE	NONE	NONE	NONE	TRACE	0	0	0	0			0		

Table D1-2. Continued.

AREA	STATION	REPLICATE	PICTURE	TIME	DATE	MINIMUM PENETRATION (cm)	MAXIMUM PENETRATION (cm)	AVERAGE PENETRATION (cm)	REDOX POTENTIAL DISCONTINUITY DEPTH (cm)	SEDIMENT TYPE (grain size class)	SEDIMENT SURFACE RELIEF (cm)	RELIEF TYPE	EPIFAUNA	TUBES AT SEDIMENT SURFACE	PELLETS	BURIED SHELL CONTENT (%)	SURFACE SHELL CONTENT	ORGANICS (presence/absence)	0.5 MM BLACK MINERAL GRAINS (PRESENCE/ABSENCE)	SMALL DARK MINERALS (presence/absence)	INFAUNA (number)	INFAUNA TYPE	INFAUNA DEPTH (cm)	BURROW (number)	BURROW CONDITION	COMMENTS
C1	1	3	B	.	SP98	4.0	8.5	6.3	>	MSCSGR	4.5	BED	NONE	NONE	FEW	NONE	NONE	0	0	0	0			0		
C1	2	1	B	.	SP98	15.5	16.6	16.1	>	CSGR	1.1	BED	NONE	FEW	NONE	TRACE	NONE	0	0	0	3	WR	4,5,6	0		
C1	2	2	B	.	SP98	7.0	10.3	8.7	>	CSGR	3.3	BED	NONE	NONE	FEW	1	TRACE	0	0	0	1	WR	3	0		
C1	2	3	B	.	SP98	6.6	10.2	8.4	>	CSGR	3.6	BED	NONE	NONE	NONE	TRACE	TRACE	0	0	0	1	WR	6	0		
C1	3	1	A	.	SP98	5.8	7.4	6.6	>	MSCSGR	1.6	BED	NONE	NONE	NONE	5	SOME	0	1	0	0			0		
C1	3	3	B	.	SP98	5.2	7.2	6.2	>	MSCSGR	2.0	BED	NONE	NONE	NONE	5	SOME	0	1	0	0			0		
C1	4	1	B	.	SP98	6.0	6.5	6.3	>	CSGR	0.5	BED	NONE	NONE	NONE	TRACE	TRACE	0	0	0	0			0		
C1	4	2	B	.	SP98	8.6	13.7	11.2	>	CSGR	5.1	BED	3 HERMIT CRABS	NONE	NONE	TRACE	TRACE	0	0	0	0			0		
C1	4	3	B	.	SP98	12.5	17.0	14.8	>	MSCSGR	4.5	BED	NONE	SOME	NONE	TRACE	NONE	0	0	0	0			0		
C1	5	1	B	.	SP98	4.6	7.0	5.8	3.5	FS	2.4	BED	NONE	NONE	NONE	2	TRACE	0	0	1	0			0		
C1	5	2	B	.	SP98	6.2	7.7	7.0	>	FS	1.5	BED	NONE	SOME	SOME	TRACE	TRACE	0	1	1	0			0		
C1	5	3	B	.	SP98	6.2	9.5	7.9	3.0	FS	3.3	BED	1 HERMIT CRAB	NONE	NONE	TRACE	TRACE	0	1	1	0			0		
C1	6	1	B	.	SP98	8.3	10.9	9.6	>	FSMS	2.6	BED	NONE	NONE	NONE	1	TRACE	0	1	1	0			0		
C1	6	2	B	.	SP98	6.3	11.5	8.9	>	FSMS	5.2	BED	NONE	FEW	NONE	TRACE	TRACE	0	1	1	0			0		LARGE DIOPATRA
C1	6	3	B	.	SP98	7.8	12.0	9.9	>	FSMS	4.2	BED	NONE	NONE	FEW	TRACE	TRACE	0	1	1	0			0		
C1	7	1	B	.	SP98	10.4	12.0	11.2	>	SIFSMSCSGR	1.6	BED	NONE	NONE	NONE	TRACE	TRACE	0	0	0	0			0		TRACE OF FINES IN PORE WATER
C1	7	2	B	.	SP98	3.8	7.0	5.4	>	SIFSMSCSGR	3.2	BED	NONE	NONE	NONE	NONE	NONE	0	0	0	0			0		
C1	7	3	B	.	SP98	9.8	10.1	10.0	>	MSCSGR	0.3	GRAIN	NONE	NONE	NONE	TRACE	TRACE	0	0	0	0			0		
C1	8	1	B	.	SP98	8.6	9.1	8.9	>	FS	0.5	BED/BIOG	NONE	MANY	MANY	TRACE	TRACE	0	0	1	0			0		TRACE OF FINES
C1	8	2	B	.	SP98	6.0	7.3	6.7	>	FS	1.3	BED	NONE	MANY	FEW	TRACE	TRACE	0	1	1	0			0		
C1	9	1	B	.	SP98	7.8	11.8	9.8	>	FSMSCS	4.0	BED	NONE	NONE	NONE	1	TRACE	0	1	1	0			0		
C1	9	2	B	.	SP98	5.5	6.0	5.8	>	FSMSCS	0.5	BED	NONE	NONE	NONE	TRACE	TRACE	0	1	1	0			0		
C1	9	3	B	.	SP98	8.4	9.4	8.9	>	FSMSCS	1.0	BED	NONE	NONE	NONE	1	TRACE	0	1	1	0			0		
C1	10	1	B	.	SP98	4.2	6.6	5.4	>	FSMS	2.4	BED	NONE	NONE	NONE	TRACE	TRACE	0	1	0	0			0		
C1	10	2	B	.	SP98	5.4	5.9	5.7	>	FSMS	0.5	BED	NONE	NONE	NONE	TRACE	TRACE	0	1	0	0			0		
C1	10	3	B	.	SP98	7.4	7.8	7.6	>	FSMS	0.4	BED	NONE	NONE	NONE	TRACE	TRACE	0	1	0	0			0		
C1	11	1	B	.	SP98	6.5	12.0	9.3	>	FSMS	5.5	BED	NONE	NONE	NONE	TRACE	TRACE	0	1	0	0			0		
C1	11	2	B	.	SP98	4.5	9.0	6.8	>	FSMS	4.5	BED	NONE	NONE	NONE	TRACE	TRACE	0	1	0	0			0		
C1	11	3	B	.	SP98	8.0	10.0	9.0	>	FSMS	2.0	BED	NONE	NONE	NONE	1	TRACE	0	1	0	0			0		
C1	12	1	B	.	SP98	8.0	9.8	8.9	>	MSCS	1.8	BED	NONE	NONE	NONE	TRACE	TRACE	0	1	0	2	AN?	3, 5	0		
C1	12	2	B	.	SP98	7.0	8.6	7.8	>	FSMSCS	1.6	BED	NONE	FEW	NONE	2	TRACE	0	1	0	0			0		LARGE DIOPATRA
C1	12	3	B	.	SP98	9.0	12.0	10.5	>	MSCS	3.0	BED	1 SAND DOLLAR	NONE	NONE	3	SOME	0	1	0	0			0		
C1	13	1	B	.	SP98	5.5	6.9	6.2	>	MSCS	1.4	BED	NONE	NONE	NONE	TRACE	TRACE	0	1	0	0			0		

Table D1-2. Continued.

AREA	STATION	REPLICATE	PICTURE	TIME	DATE	MINIMUM PENETRATION (cm)	MAXIMUM PENETRATION (cm)	AVERAGE PENETRATION (cm)	REDOX POTENTIAL DISCONTINUITY DEPTH (cm)	SEDIMENT TYPE (grain size class)	SEDIMENT SURFACE RELIEF (cm)	RELIEF TYPE	EPIFAUNA	TUBES AT SEDIMENT SURFACE	PELLETS	BURIED SHELL CONTENT (%)	SURFACE SHELL CONTENT	ORGANICS (presence/absence)	0.5 MM BLACK MINERAL GRAINS (PRESENCE/ABSENCE)	SMALL DARK MINERALS (presence/absence)	INFAUNA (number)	INFAUNA TYPE	INFAUNA DEPTH (cm)	BURROW (number)	BURROW CONDITION	COMMENTS
C1	13	2	B	.	SP98	13.4	14.0	13.7	>	FSMS	0.6	BED	NONE	NONE	NONE	TRACE	TRACE	0	1	0	0			0		LAYERED SEDIMENTS
C1	14	1	B	.	SP98	9.0	14.8	11.9	>	FSMS	5.8	BED	NONE	NONE	NONE	TRACE	TRACE	0	1	0	0			0		
C1	14	2	B	.	SP98	5.6	7.3	6.5	>	FSMS	1.7	BED	NONE	NONE	NONE	TRACE	TRACE	0	1	0	0			0		
C1	14	3	B	.	SP98	7.0	9.0	8.0	>	FSMS	2.0	BED	NONE	NONE	NONE	TRACE	TRACE	0	1	0	0			0		
C1	15	1	B	.	SP98	3.8	10.0	6.9	>	FSMSCS	6.2	BED	NONE	NONE	NONE	TRACE	TRACE	0	1	1	0			0		
C1	15	2	B	.	SP98	9.0	12.5	10.8	>	FSMSCS	3.5	BED	NONE	NONE	NONE	TRACE	TRACE	0	1	1	0			0		
C1	15	3	B	.	SP98	7.0	12.0	9.5	>	FSMSCS	5.0	BED	NONE	NONE	NONE	2	TRACE	0	1	1	0			0		
C1	16	1	B	.	SP98	5.4	10.5	8.0	>	FSMSCS	5.1	BED	NONE	FEW	NONE	TRACE	TRACE	0	1	0	0			0		LARGE DIOPATRA
C1	16	2	B	.	SP98	4.8	11.0	7.9	>	FSMSCS	6.2	BED	NONE	NONE	NONE	TRACE	TRACE	0	1	0	0			0		
C1	16	3	B	.	SP98	6.0	6.9	6.5	>	FSMSCS	0.9	BED	NONE	NONE	NONE	TRACE	TRACE	0	1	0	0			0		
F1	1	1	B	.	SP98	6.0	7.4	6.7	>	FSMS	1.4	BED	NONE	NONE	NONE	TRACE	TRACE	0	0	0	0			0		
F1	1	2	A	.	SP98	0.0	0.0	0.0	IND	FSMS	0.0	BED	1 SAND DOLLAR	NONE	NONE	IND	TRACE	0	0	0	0			0		
F1	1	3	B	.	SP98	0.0	1.0	0.5	>	FSMS	1.0	BED	8 SAND DOLLARS	NONE	NONE	NONE	TRACE	0	0	0	0			0		
F1	2	1	B	.	SP98	6.0	6.3	6.2	>	FSMS	0.3	BED	5 SAND DOLLARS	NONE	NONE	NONE	TRACE	0	0	0	0			0		WALKING SAND DOLLAR
F1	2	2	B	.	SP98	7.8	9.0	8.4	>	MSCS	1.2	BED	NONE	NONE	NONE	2	SOME	0	0	0	0			0		
F2	5	1	B	.	SP98	7.2	9.0	8.1	>	FS	1.8	BED	NONE	NONE	NONE	TRACE	TRACE	0	0	0	0			0		
F2	5	2	B	.	SP98	6.0	7.8	6.9	>	FS	1.8	BED	NONE	NONE	NONE	TRACE	TRACE	0	0	0	0			1	OX	2 cm BURROW
F2	6	1	B	.	SP98	10.5	14.1	12.3	>	MSCS	3.6	BED	NONE	NONE	NONE	TRACE	NONE	0	0	0	1	CLAM	8	0		LARGE CLAM CRUSHED
F2	6	3	B	.	SP98	9.2	10.8	10.0	>	MSCS	1.6	BED	NONE	NONE	NONE	TRACE	NONE	0	0	0	0			0		
F2	6	4	B	.	SP98	6.8	11.0	8.9	>	MSCS	4.2	BED	NONE	NONE	NONE	1	TRACE	0	0	0	0			0		
G1	1	1	B	.	SP98	7.2	8.0	7.6	>	FSMS	0.8	BED	SNAIL	NONE	NONE	TRACE	TRACE	0	0	1	0			0		LOTS OF DARK MINERALS
G1	1	2	B	.	SP98	5.2	8.6	6.9	>	FSMS	3.4	BED	NONE	NONE	SOME	TRACE	TRACE	0	0	1	0			0		LOTS OF DARK MINERALS
G1	2	1	B	.	SP98	8.0	10.2	9.1	>	CSGR	2.2	BED	NONE	NONE	NONE	TRACE	TRACE	0	0	0	0			0		SILT BALL
G1	2	2	B	.	SP98	12.7	13.4	13.1	0.8	SICL	0.7	BED	NONE	FEW	SOME	TRACE	NONE	0	1	0	0			0		LIGHT LAYER OVER DARK LAYER
G1	3	1	B	.	SP98	6.0	9.3	7.7	>	FS	3.3	BED	NONE	NONE	NONE	TRACE	NONE	0	0	1	0			2	OX	LOTS OF DARK MINERALS
G1	3	2	B	.	SP98	4.0	6.8	5.4	>	FS	2.8	BED	NONE	NONE	NONE	TRACE	TRACE	0	0	1	0			0		LOTS OF DARK MINERALS
G1	4	1	B	.	SP98	5.4	11.0	8.2	>	MS	5.6	BED	NONE	NONE	NONE	1	TRACE	0	1	0	0			0		
G1	4	2	B	.	SP98	6.5	9.0	7.8	3.0	FSMS	2.5	BED	1 HERMIT CRAB	NONE	NONE	20	MANY	0	1	0	0			0		
G1	5	1	B	.	SP98	7.0	10.6	8.8	>	FSMS	3.6	BED	NONE	NONE	NONE	5	SOME	0	1	0	0			0		
G1	5	2	B	.	SP98	8.0	13.0	10.5	>	FSMS	5.0	BED	NONE	NONE	FEW	3	SOME	0	1	0	0			0		
G1	6	1	B	.	SP98	11.3	14.0	12.7	>	FSMS	2.7	BED	NONE	NONE	NONE	TRACE	NONE	0	1	0	0			0		

Table D1-2. Continued.

AREA	STATION	REPLICATE	PICTURE	TIME	DATE	MINIMUM PENETRATION (cm)	MAXIMUM PENETRATION (cm)	AVERAGE PENETRATION (cm)	REDOX POTENTIAL DISCONTINUITY DEPTH (cm)	SEDIMENT TYPE (grain size class)	SEDIMENT SURFACE RELIEF (cm)	RELIEF TYPE	EPIFAUNA	TUBES AT SEDIMENT SURFACE	PELLETS	BURIED SHELL CONTENT (%)	SURFACE SHELL CONTENT	ORGANICS (presence/absence)	0.5 MM BLACK MINERAL GRAINS (PRESENCE/ABSENCE)	SMALL DARK MINERALS (presence/absence)	INFAUNA (number)	INFAUNA TYPE	INFAUNA DEPTH (cm)	BURROW (number)	BURROW CONDITION	COMMENTS
G1	6	2	B	.	SP98	12.5	15.8	14.2	>	FSMSGR	3.3	BED	NONE	NONE	NONE	2	TRACE	0	1	0	0			0		GR @ 8 cm
G1	7	1	B	.	SP98	5.2	9.3	7.3	>	FS	4.1	BED	NONE	FEW	FEW	TRACE	TRACE	0	1	0	0			0		
G1	7	2	B	.	SP98	5.0	7.0	6.0	>	FS	2.0	BED	NONE	FEW	FEW	TRACE	TRACE	0	1	0	0			0		
G1	7R	1	B	.	SP98	7.9	10.8	9.4	>	MSCS	2.9	BED	NONE	NONE	NONE	TRACE	TRACE	0	1	1	0			0		
G1	7R	2	B	.	SP98	12.0	13.0	12.5	>	MSCS	1.0	BED	1 HERMIT CRAB	NONE	FEW	1	TRACE	0	1	1	0			0		
G2	1	1	B	.	SP98	5.4	7.0	6.2	>	FS	1.6	BED	NONE	FEW	FEW	1	SOME	0	0	0	0			0		
G2	1	2	B	.	SP98	4.7	6.8	5.8	>	FS	2.1	BED	NONE	SOME	SOME	TRACE	SOME	0	0	0	1	CLAM	5	0		TRACE OF FINES, SMALL DIOPATRA
G2	2	1	B	.	SP98	5.0	8.8	6.9	5.0	FSMS	3.8	BED	NONE	SOME	MANY	TRACE	SOME	0	1	0	0			0		SMALL DIOPATRA, CLAM BLOOD
G2	2	2	B	.	SP98	5.2	8.0	6.6	>	FSMS	2.8	BED	NONE	FEW	FEW	8	TRACE	0	0	0	1	CLAM	4	0		
G2	3	1	B	.	SP98	6.0	9.0	7.5	>	FS	3.0	BED	NONE	NONE	NONE	TRACE	TRACE	0	1	1				0		DARK MINERAL PATCHES
G2	3	2	B	.	SP98	4.0	6.0	5.0	>	FS	2.0	BED	NONE	FEW	NONE	TRACE	TRACE	0	0	1	0			0		
G2	3	3	B	.	SP98	5.3	6.8	6.1	>	FS	1.5	BED	NONE	NONE	FEW	1	TRACE	0	0	1	0			0		
G2	4	1	B	.	SP98	7.0	9.1	8.1	>	FS	2.1	BED	NONE	FEW	SOME	2	TRACE	0	0	1	0			0		
G2	4	2	B	.	SP98	5.9	8.3	7.1	>	FS	2.4	BED	NONE	NONE	MANY	1	SOME	0	0	1	0			0		
G2	5	1	B	.	SP98	7.0	9.0	8.0	>	FS	2.0	BED	NONE	NONE	NONE	TRACE	TRACE	0	1	1	0			0		DARK MINERAL PATCHES
G2	5	2	B	.	SP98	7.8	10.0	8.9	>	FS	2.2	BED	NONE	NONE	NONE	TRACE	TRACE	0	1	1	0			0		
G2	6	1	B	.	SP98	1.8	3.2	2.5	2.0	FS/CL	1.4	BED	NONE	NONE	NONE	5	MANY	0	0	0	0			0		
G2	6	2	B	.	SP98	5.5	6.1	5.8	>	FS	0.6	BED	NONE	FEW	NONE	TRACE	TRACE	0	0	1	0			0		TRACE OF CLAY
G2	7	1	B	.	SP98	7.0	9.1	8.1	>	FSMS	2.1	BED	NONE	NONE	NONE	TRACE	SOME	0	1	1	0			0		
G2	7	2	B	.	SP98	7.3	12.8	10.1	>	FSMS	5.5	BED	NONE	NONE	NONE	1	TRACE	0	1	1	0			0		
G2	8	1	B	.	SP98	15.8	17.5	16.7	15.0	FSMS	1.7	BED	NONE	NONE	NONE	1	NONE	0	1	0	0			0		
G2	8	2	B	.	SP98	4.8	8.0	6.4	>	FSMSCS	3.2	BED	NONE	NONE	NONE	TRACE	SOME	0	1	0	0			0		
G2	9	1	B	.	SP98	10.3	11.9	11.1	>	FSMS	1.6	BED	NONE	NONE	NONE	1	TRACE	0	1	1	0			0		
G2	9	2	B	.	SP98	6.6	10.1	8.4	>	FSMS	3.5	BED	NONE	NONE	NONE	1	TRACE	0	1	1	0			0		
G2	10	1	B	.	SP98	7.9	10.0	9.0	>	FS	2.1	BED	NONE	NONE	NONE	TRACE	SOME	0	1	1	0			0		
G2	10	2	B	.	SP98	7.8	11.0	9.4	>	FS	3.2	BED	NONE	NONE	NONE	TRACE	TRACE	0	1	1	0			0		
G2	11	1	B	.	SP98	6.3	10.2	8.3	>	FS	3.9	BED	NONE	NONE	NONE	TRACE	TRACE	0	1	1	0			0		
G2	11	2	B	.	SP98	7.2	8.8	8.0	>	FS	1.6	BED	NONE	FEW	NONE	1	TRACE	0	1	1	0			0		
G2	12	1	B	.	SP98	5.0	5.5	5.3	>	FSMS	0.5	BED	1 HERMIT CRAB	NONE	NONE	5	TRACE	0	1	0	0			0		
G2	12	2	B	.	SP98	8.0	8.9	8.5	>	FSMSCS	0.9	BED	NONE	NONE	NONE	4	SOME	0	1	0	0			0		
G3	1	1	B	.	SP98	7.0	9.0	8.0	>	FS	2.0	BED	NONE	NONE	NONE	TRACE	TRACE	0	1	1	0			0		
G3	1	2	B	.	SP98	7.5	11.2	9.4	>	FS	3.7	BED	NONE	NONE	NONE	TRACE	TRACE	0	1	1	0			0		
G3	1	3	B	.	SP98	7.3	11.4	9.4	>	FS	4.1	BED	NONE	NONE	NONE	TRACE	TRACE	0	1	1	0			0		
G3	2	1	B	.	SP98	7.0	11.8	9.4	>	FSMS	4.8	BED	NONE	NONE	NONE	5	TRACE	0	1	1	0			0		DARK MINERAL PATCHES

Table D1-2. Continued.

AREA	STATION	REPLICATE	PICTURE	TIME	DATE	MINIMUM PENETRATION (cm)	MAXIMUM PENETRATION (cm)	AVERAGE PENETRATION (cm)	REDOX POTENTIAL DISCONTINUITY DEPTH (cm)	SEDIMENT TYPE (grain size class)	SEDIMENT SURFACE RELIEF (cm)	RELIEF TYPE	EPIFAUNA	TUBES AT SEDIMENT SURFACE	PELLETS	BURIED SHELL CONTENT (%)	SURFACE SHELL CONTENT	ORGANICS (presence/absence)	0.5 MM BLACK MINERAL GRAINS (PRESENCE/ABSENCE)	SMALL DARK MINERALS (presence/absence)	INFAUNA (number)	INFAUNA TYPE	INFAUNA DEPTH (cm)	BURROW (number)	BURROW CONDITION	COMMENTS
G3	3	1	B	.	SP98	10.0	11.3	10.7	>	FSMS	1.3	BED	NONE	NONE	NONE	TRACE	TRACE	0	1	1	0			0		DARK MINERAL IN LAYER
G3	3	2	B	.	SP98	8.7	12.8	10.8	>	FSMS	4.1	BED	NONE	NONE	NONE	2	TRACE	0	1	1	0			0		DARK MINERAL IN LAYER
G3	4	1	B	.	SP98	5.0	9.1	7.1	>	FSMS	4.1	BED	NONE	FEW	FEW	3	MANY	0	0	0	0			0		SHELL LAYER
G3	4	2	B	.	SP98	8.5	14.0	11.3	>	FSMS	5.5	BED	NONE	FEW	NONE	TRACE	TRACE	0	0	0	0			0		
G3	5	1	B	.	SP98	5.2	9.4	7.3	>	FSMS	4.2	BED	NONE	FEW	MANY	TRACE	TRACE	0	1	0	0			0		
G3	5	2	B	.	SP98	6.6	7.9	7.3	4.0	FSMS/SI	1.3	BED	NONE	SOME	MANY	TRACE	SOME	0	1	0	0			3	OX	
G3	5	3	B	.	SP98	7.0	9.2	8.1	>	MS	2.2	BED	TUNICATES?	MAT	NONE	3	TRACE	0	1	0	0			0		MAT OF SMALL SAND GRAIN TUBES?
G3	6	1	B	.	SP98	6.6	9.3	8.0	>	FSMSCS	2.7	BED	NONE	NONE	NONE	1	SOME	0	1	1	0			0		
G3	6	2	B	.	SP98	5.4	10.8	8.1	>	FSMSCS	5.4	BED	NONE	NONE	NONE	2	TRACE	0	1	1	0			0		
G3	6	3	B	.	SP98	5.5	8.2	6.9	>	FSMS	2.7	BED	NONE	NONE	NONE	2	SOME	0	1	1	0			0		
G3	7	1	B	.	SP98	10.0	11.0	10.5	9.5	FSMS	1.0	BED	NONE	NONE	NONE	5	TRACE	0	1	0	0			1	OX	
G3	7	2	B	.	SP98	5.0	7.2	6.1	2.5	FSMS	2.2	BED	NONE	MANY	SOME	10	MANY	0	1	0	0			0		
G3	7	3	B	.	SP98	8.5	12.0	10.3	9.0	FSMS	3.5	BED	NONE	NONE	SOME	2	TRACE	0	1	0	0			0		
G3	8	1	B	.	SP98	6.8	11.4	9.1	>	FSMS	4.6	BED	NONE	NONE	NONE	5	TRACE	0	1	0	0			0		
G3	8	2	B	.	SP98	7.2	10.9	9.1	>	FSMS	3.7	BED	NONE	FEW	SOME	2	TRACE	0	1	0	0			0		
G3	8	3	B	.	SP98	7.0	9.8	8.4	>	FSMS	2.8	BED	NONE	SOME	FEW	1	SOME	0	1	1	0			0		
G3	9	1	B	.	SP98	7.3	12.0	9.7	>	FSMSCSGR	4.7	BED	NONE	NONE	NONE	5	SOME	0	1	0	0			0		
G3	9	2	B	.	SP98	10.9	11.8	11.4	>	FSMS	0.9	BED	NONE	NONE	NONE	1	TRACE	0	1	0	0			0		
G3	9	3	B	.	SP98	11.3	13.0	12.2	>	FSMSCS	1.7	BED	NONE	NONE	NONE	2	SOME	0	1	0	0			0		LAYERED SEDIMENTS
R1	1	1	B	.	SP98	6.0	7.9	7.0	3.5	FS	1.9	BED	NONE	NONE	NONE	TRACE	NONE	0	0	0	0			0		
R2	1	1	B	.	SP98	8.8	10.1	9.5	>	MSCSGR	1.3	BED	NONE	NONE	NONE	2	TRACE	0	0	0	0			0		GRAVEL LAYER TO 5 cm
R2	1	2	B	.	SP98	5.0	7.7	6.4	>	MSCSGR	2.7	BED	NONE	NONE	NONE	TRACE	NONE	0	0	0	0			0		GRAVEL LAYER TO 5 cm
R2	1	3	B	.	SP98	4.0	9.4	6.7	>	MSCS	5.4	BED	NONE	NONE	NONE	TRACE	TRACE	0	0	0	0			0		
R3	1	1	B	.	SP98	5.4	7.0	6.2	>	FSMSCS	1.6	BED	NONE	NONE	NONE	1	NONE	0	0	0	0			0		
R3	1	2	B	.	SP98	5.0	11.0	8.0	>	FSMSCS	6.0	BED	NONE	NONE	FEW	1	TRACE	0	0	0	0			0		
R3	1	3	B	.	SP98	9.3	10.2	9.8	>	FSMSCS	0.9	BED	NONE	NONE	NONE	5	SOME	0	0	0	1	CLAM	0	0		ASTARTE AT SEDIMENT SURFACE
A1	4	1	B	18:00	Fall98	4.0	5.4	4.7	>	CSGR	1.4	BED	NONE	NONE	NONE	NONE	SOME	0	0	0	0			0		
A1	4	2	A	19:00	Fall98	6.0	9.0	7.5	>	CSGR	3.0	BED	TUNICATES?	IND	IND	IND	IND	IND	IND	IND	0			0		
A1	4	3	A	19:01	Fall98	IND	IND	IND	IND	IND	IND	IND	IND	IND	IND	IND	IND	IND	IND	IND	0			0		
A1	7	1	B	18:22	Fall98	5.0	5.9	5.5	>	FSMS	0.9	BED/BIOG	NONE	SOME	NONE	5	MANY	0	1	0	0			0		LARGE DIOPATRAS
A1	7	2	A	18:23	Fall98	6.9	8.3	7.6	>	FSMSCS	1.4	BED/BIOG	SCAPHOPOD?	SOME	NONE	TRACE	TRACE	0	1	0	0			0		
A1	7	3	B	18:24	Fall98	5.0	7.0	6.0	>	FSMSCS	2.0	BED	1 STARFISH	NONE	NONE	TRACE	MANY	0	1	0	0			0		DARK PATCH OF SILTY SEDIMENT

Table D1-2. Continued.

AREA	STATION	REPLICATE	PICTURE	TIME	DATE	MINIMUM PENETRATION (cm)	MAXIMUM PENETRATION (cm)	AVERAGE PENETRATION (cm)	REDOX POTENTIAL DISCONTINUITY DEPTH (cm)	SEDIMENT TYPE (grain size class)	SEDIMENT SURFACE RELIEF (cm)	RELIEF TYPE	EPIFAUNA	TUBES AT SEDIMENT SURFACE	PELLETS	BURIED SHELL CONTENT (%)	SURFACE SHELL CONTENT	ORGANICS (presence/absence)	0.5 MM BLACK MINERAL GRAINS (PRESENCE/ABSENCE)	SMALL DARK MINERALS (presence/absence)	INFAUNA (number)	INFAUNA TYPE	INFAUNA DEPTH (cm)	BURROW (number)	BURROW CONDITION	COMMENTS
A1	10	1	A	14:38	Fall98	5.0	7.2	6.1	>	FSMS	2.2	BED	NONE	NONE	NONE	TRACE	NONE	0	1	0	0			0		
A1	10	2	B	14:39	Fall98	6.2	11.1	8.7	>	FSMS	4.9	BED	NONE	NONE	NONE	TRACE	TRACE	0	1	0	0			0		
A1	10	3	B	14:40	Fall98	5.8	7.0	6.4	>	FSMS	1.2	BED	NONE	NONE	NONE	TRACE	TRACE	0	1	0	0			0		
A1	10	4	B	17:40	Fall98	7.0	10.0	8.5	IND	IND	3.0	BED	IND	IND	IND	IND	IND	IND	IND	IND	0			0		
A2	3	1	B	16:26	Fall98	7.2	8.3	7.8	>	FSMSCS	1.1	BED	TUNICATES?	NONE	NONE	TRACE	NONE	0	1	0	0			0		SAND GRAIN AGGREGATES
A2	3	2	B	16:27	Fall98	9.3	10.1	9.7	>	FSMSCS	0.8	BED	NONE	NONE	NONE	1	TRACE	0	1	0	0			0		
A2	3	3	B	16:28	Fall98	7.8	9.2	8.5	>	FSMSCS	1.4	BED	1 HERMITCRAB, TUNICATES, SNAIL?	FEW	NONE	TRACE	TRACE	0	1	0	0			0		SNAIL COVERED WITH SAND
A2	4	1	B	16:15	Fall98	9.0	9.9	9.5	>	MSCSGR	0.9	BED	NONE	NONE	NONE	1	TRACE	0	1	0	0			0		
A2	4	2	B	16:16	Fall98	6.4	8.3	7.4	>	MSCSGR	1.9	BED	NONE	NONE	NONE	TRACE	TRACE	0	1	0	0			0		
A2	4	3	B	16:17	Fall98	7.8	8.8	8.3	>	MSCSGR	1.0	BED	NONE	NONE	NONE	TRACE	TRACE	0	1	0	0			0		
A2	4	4	B	16:18	Fall98	9.7	9.9	9.8	>	MSCSGR	0.2	BED	TUNICATES?	NONE	NONE	2	TRACE	0	1	0	1	NEMA	3	0		SAND GRAIN AGGREGATES
A2	11	1	B	15:52	Fall98	6.1	10.3	8.2	>	FSMS	4.2	BED	TUNICATES?	NONE	NONE	TRACE	NONE	0	1	0	0			0		SAND GRAIN AGGREGATES, SALTATING SAND ON CREST
A2	11	2	B	15:53	Fall98	7.3	9.4	8.4	>	FSMS	2.1	BED	TUNICATES?	FEW?	NONE	TRACE	TRACE	0	1	0	0			1	OX	SAND GRAIN AGGREGATES
A2	11	3	B	15:54	Fall98	7.2	10.3	8.8	>	FSMS	3.1	BED	1 SAND DOLLAR, TUNICATES?	NONE	NONE	TRACE	TRACE	0	1	0	0			0		SAND GRAIN AGGREGATES
A2	19	1	B	15:03	Fall98	6.5	8.2	7.4	>	MSCSGRPB	1.7	GRAIN	NONE	NONE	NONE	NONE	NONE	0	0	0	0			0		PATCH OF REDUCED ORGANIC MATERIAL
A2	19	2	B	15:04	Fall98	6.6	8.0	7.3	>	MSCSGRPB	1.4	GRAIN	NONE	FEW	NONE	NONE	NONE	0	0	0	1	WR	3	0		PATCH OF REDUCED ORGANIC MATERIAL
A2	19	3	B	15:05	Fall98	6.0	7.6	6.8	4.0	MSCSGRPB	1.6	GRAIN	MUSSEL?	NONE	NONE	NONE	NONE	0	0	0	0			1	OX	
C1	2	1	B	10:04	Fall98	7.5	8.8	8.2	>	CSGRPB	1.3	BED/GRAIN	NONE	NONE	FEW	1	TRACE	0	0	0	0			0		INTERSTITIAL WATER TURBID
C1	2	2	B	10:05	Fall98	7.6	8.6	8.1	>	CSGRPB	1.0	BED/GRAIN	1 HERMITCRAB, 1 MUSSEL	FEW	NONE	5	TRACE	0	0	0	1	WR?	3	0		
C1	2	3	B	10:06	Fall98	9.4	9.9	9.7	>	CSGRPB	0.5	BED/GRAIN	NONE	NONE	SOME	5	NONE	1	0	0	0			0		CLAM BLOOD?
C1	4	1	B	9:49	Fall98	7.0	11.0	9.0	4.0	CSGRPB	4.0	BED/GRAIN	1 CRAB, MANY MUSSELS	NONE	NONE	NONE	NONE	1	0	0	0			0		MUSSEL BED, GRAVEL LAYERED AT 2 AND 4CM APPEARS AGGREGATED, PSEUDOPODIA ON LEFT
C1	4	2	B	9:50	Fall98	5.5	6.4	6.0	>	CSGRPB	0.9	BED/GRAIN	NONE	NONE	MANY	NONE	MANY	1	0	0	0			0		MUSSEL SHELLS
C1	4	3	B	9:51	Fall98	8.0	9.0	8.5	>	CSGRPB	1.0	BED/GRAIN	1MUSSEL	NONE	FEW	NONE	TRACE	1	0	0	1	WR	6	0		
C1	8	1	B	9:20	Fall98	6.8	8.2	7.5	3.5	FSMS	1.4	BED	NONE	SOME	SOME	1	NONE	1	1	0	0			0		DARK SILT BALLS AT SURFACE, BURIED ORGANIC AGGREGATES, AMPHIPOD TUBES
C1	8	2	A	9:21	Fall98	8.1	8.6	8.4	5.0	FSMS	0.5	BED	NONE	MANY	NONE	1	SOME	1	1	0	0			0		AMPHIPOD TUBES
C1	8	3	B	9:22	Fall98	8.0	9.4	8.7	3.5	FSMS	1.4	BED	NONE	MANY	SOME	1	TRACE	1	1	0	0			0		AMPHIPOD TUBES?

Table D1-2. Continued.

AREA	STATION	REPLICATE	PICTURE	TIME	DATE	MINIMUM PENETRATION (cm)	MAXIMUM PENETRATION (cm)	AVERAGE PENETRATION (cm)	REDOX POTENTIAL DISCONTINUITY DEPTH (cm)	SEDIMENT TYPE (grain size class)	SEDIMENT SURFACE RELIEF (cm)	RELIEF TYPE	EPIFAUNA	TUBES AT SEDIMENT SURFACE	PELLETS	BURIED SHELL CONTENT (%)	SURFACE SHELL CONTENT	ORGANICS (presence/absence)	0.5 MM BLACK MINERAL GRAINS (PRESENCE/ABSENCE)	SMALL DARK MINERALS (presence/absence)	INFAUNA (number)	INFAUNA TYPE	INFAUNA DEPTH (cm)	BURROW (number)	BURROW CONDITION	COMMENTS
C1	10	1	B	8:51	Fall98	7.2	8.9	8.1	>	FSMS	1.7	BED	TUNICATES?	FEW	NONE	TRACE	NONE	1	1	0	0			0		WORM OUT OF TUBE, SAND CLASTS
C1	10	2	B	8:52	Fall98	8.0	9.5	8.8	>	FSMS	1.5	BED	1 SAND DOLLAR, TUNICATES?	FEW	FEW	1	TRACE	1	1	0	0			0		DARK SILT?, PATCH OF HIGHLY REDUCED SEDIMENT, SAND AGGREGATES
C1	10	3	B	8:53	Fall98	6.8	9.0	7.9	>	FSMS	2.2	BED	TUNICATES?	NONE	NONE	TRACE	NONE	0	1	0	0			0		PSEUDOPODIA OF FORAMINIFERA AT DEPTH?, SAND AGGREGATES
C1	13	1	A	8:08	Fall98	5.2	6.3	5.8	>	MSCS	1.1	BED	TUNICATES?	NONE	NONE	TRACE	TRACE	1	1	0	0			0		ANOXIC PATCHES UNDER ORGANIC AGGREGATES
C1	13	2	B	8:09	Fall98	7.1	8.8	8.0	>	MSCS	1.7	BED	TUNICATES?	NONE	NONE	TRACE	TRACE	1	1	0	0			0		BED MIGRATED OVER ORGANIC AGGREGATES, SAND CLASTS
C1	13	3	B	8:10	Fall98	9.0	13.0	11.0	>	MSCS	4.0	BED	1 HERMITCRAB	NONE	NONE	TRACE	NONE	1	1	0	0			0		
F1	2	1	B	16:03	Fall98	6.4	8.9	7.7	>	MSCSGR	2.5	BED	NONE	SOME	NONE	1	SOME	1	1	0	0			0		
F1	2	2	A	16:04	Fall98	3.8	4.6	4.2	>	MSCSGR	0.8	BED	NONE	NONE	NONE	5	SOME	1	1	0	0			0		
F1	3	1	B	16:19	Fall98	5.3	7.0	6.2	2.0	MSCS	1.7	BED	1 SAND DOLLAR	NONE	NONE	2	TRACE	1	1	0	0			0		
F1	3	2	B	16:20	Fall98	7.0	8.0	7.5	2.0	MSCS	1.0	BED	NONE	NONE	NONE	2	TRACE	1	1	0	0			0		
F1	3	3	B	16:21	Fall98	2.7	3.9	3.3	2.0	MSCS	1.2	BED	NONE	FEW	NONE	1	SOME	1	0	0	0			0		1 LARGE DIOPATRA
F2	4	1	B	15:13	Fall98	8.6	9.8	9.2	>	FSMS	1.2	BED	NONE	FEW	FEW	0	NONE	1	1	1	0			0		
F2	4	2	B	15:14	Fall98	7.3	8.4	7.9	>	FSMS	1.1	BED	NONE	NONE	NONE	0	NONE	1	1	1	0			0		
F2	6	1	B	14:34	Fall98	10.0	11.6	10.8	>	CS	1.6	BED	2 SAND DOLLARS	NONE	NONE	TRACE	NONE	0	1	0	0			0		
F2	6	2	B	14:35	Fall98	5.2	6.1	5.7	>	MSCSGR	0.9	BED	NONE	NONE	NONE	0	TRACE	0	1	0	0			0		
F2	6	3	B	14:36	Fall98	11.0	13.1	12.1	>	MSCS	2.1	BED	1 SAND DOLLAR	NONE	NONE	0	NONE	1	1	1	0			0		
G1	1	1	B	16:53	Fall98	6.5	8.2	7.4	>	FSMS	1.7	BED	NONE	FEW	NONE	1	TRACE	0	1	1	0			0		DARK MINERAL PATCHES ON SURFACE
G1	1	2	B	16:54	Fall98	10.0	12.0	11.0	>	FSMS	2.0	BED	1 HERMITCRAB	NONE	SOME	2	TRACE	0	1	1	0			0		DARK MINERAL PATCHES ON SURFACE
G1	1	3	B	16:55	Fall98	9.1	10.3	9.7	>	FSMS	1.2	BED	TUNICATES?	NONE	FEW	1	TRACE	0	1	1	0			0		
G1	2	1	B	17:26	Fall98	6.9	7.5	7.2	0.5	CSGR/SI	0.6	GRAIN/SH	2 HERMIT CRABS	SOME	MANY	3	SOME	1	0	0	0			1	OX	SMALL HERMIT CRABS
G1	2	2	B	17:27	Fall98	10.0	12.0	11.0	0.5	CSGR/SI	2.0	BIOG	NONE	MANY	MANY	3	TRACE	1	0	0	2	WR	7,6	0		ASABELLIDES TUBES, DARK SILT LAYER AT 6 cm
G1	2	3	B	17:28	Fall98	10.6	12.0	11.3	0.0	SI/CSGR	1.4	BIOG	NONE	MAT	MANY	NONE	NONE	1	0	0	0			0		ASABELLIDES TUBES
G1	6	1	B	17:43	Fall98	7.4	8.0	7.7	>	FSMS	0.6	BED	NONE	FEW	SOME	3	TRACE	1	1	1	0			0		
G1	6	2	B	17:44	Fall98	6.6	9.3	8.0	>	FSMS	2.7	BED	1 HERMITCRAB	NONE	FEW	1	TRACE	1	1	1	0			0		
G1	6	3	B	17:45	Fall98	6.9	7.4	7.2	>	FSMS	0.5	BED	1 HERMITCRAB	NONE	SOME	3	SOME	1	1	1	0			0		

Table D1-2. Continued.

AREA	STATION	REPLICATE	PICTURE	TIME	DATE	MINIMUM PENETRATION (cm)	MAXIMUM PENETRATION (cm)	AVERAGE PENETRATION (cm)	REDOX POTENTIAL DISCONTINUITY DEPTH (cm)	SEDIMENT TYPE (grain size class)	SEDIMENT SURFACE RELIEF (cm)	RELIEF TYPE	EPIFAUNA	TUBES AT SEDIMENT SURFACE	PELLETS	BURIED SHELL CONTENT (%)	SURFACE SHELL CONTENT	ORGANICS (presence/absence)	0.5 MM BLACK MINERAL GRAINS (PRESENCE/ABSENCE)	SMALL DARK MINERALS (presence/absence)	INFAUNA (number)	INFAUNA TYPE	INFAUNA DEPTH (cm)	BURROW (number)	BURROW CONDITION	COMMENTS
G2	2	1	B	12:04	Fall98	>25	>25	>25	IND	FSMS/SI	IND	IND	IND	IND	IND	NONE	IND	IND	1	0	0			0		SILT SAND SILT LAYERING
G2	2	2	B	12:05	Fall98	22.4	24.0	23.2	0.1	SI/FSMS	1.6	BIOG	NONE	MAT	NONE	NONE	NONE	1	0	0	0			0		LONG THIN TUBES, 4-5 cm
G2	2	3	B	12:07	Fall98	9.8	10.0	9.9	3.0	MS	0.2	BIOG	NONE	MANY	MANY	TRACE	TRACE	1	1	0	1	WR	3	0		
G2	4	1	B	11:52	Fall98	7.3	9.4	8.4	3.0	FSMS	2.1	BED	NONE	FEW	FEW	2	TRACE	1	1	1	0			0		DARK PATCHES ON SURFACE, SMALL DIOPATRA
G2	4	2	B	11:53	Fall98	5.3	7.8	6.6	4.0	FSMS	2.5	BED	NONE	MANY	FEW	3	MANY	1	1	1	0			0		SMALL DIOPATRA TUBES
G2	4	3	B	11:54	Fall98	7.7	8.5	8.1	5.0	FSMS	0.8	BED	NONE	NONE	FEW	1	MANY	1	1	1	0			0		DARK REDUCED SEDIMENT PATCH
G2	8	1	B	11:02	Fall98	8.0	8.3	8.2	>	MSCS	0.3	BED	1 HERMITCRAB	NONE	NONE	TRACE	TRACE	0	1	0	0			0		
G2	8	2	B	11:03	Fall98	9.0	9.9	9.5	>	MSCS	0.9	BED	TUNICATES?	NONE	NONE	TRACE	TRACE	0	1	1	0			1	OX	SAND AGGREGATES
G2	8	3	B	11:04	Fall98	6.5	9.0	7.8	>	MSCS	2.5	BED	TUNICATES?, SNAIL?	NONE	NONE	5	SOME	0	1	0	0			0		SAND AGGREGATES
G2	10	1	B	10:42	Fall98	9.0	9.5	9.3	>	FSMSCS	0.5	BED	NONE	NONE	NONE	2	TRACE	0	1	0	0			0		
G2	10	2	B	10:43	Fall98	8.5	10.0	9.3	>	FSMSCS	1.5	BED	NONE	NONE	FEW	2	TRACE	0	1	0	0			0		
G2	10	3	B	10:44	Fall98	8.2	11.5	9.9	>	FSMSCS	3.3	BED	NONE	FEW	NONE	TRACE	TRACE	0	1	0	0			0		SMALL DIOPATRA
G3	1	1	B	9:47	Fall98	6.7	7.3	7.0	>	FS	0.6	BED	NONE	FEW	FEW	1	MANY	0	1	1	0			0		SAND AGGREGATES
G3	1	2	B	9:48	Fall98	6.1	8.0	7.1	>	FS	1.9	BED	TUNICATES?	NONE	NONE	1	TRACE	1	1	1	0			0		SAND AGGREGATES
G3	1	3	B	9:49	Fall98	6.5	7.4	7.0	>	FS	0.9	BED	TUNICATES?	NONE	MANY	1	SOME	1	1	1	0			0		
G3	3	1	B	9:57	Fall98	6.5	7.3	6.9	>	FSMS	0.8	BED	NONE	FEW	NONE	1	TRACE	0	0	0	0			0		SAND AGGREGATES
G3	3	5	B	10:07	Fall98	4.4	9.5	7.0	>	FSMS	5.1	BED	NONE	FEW	NONE	TRACE	SOME	0	1	1	0			0		SAND AGGREGATES, SMALL DIOPATRA
G3	5	1	B	9:12	Fall98	7.0	7.8	7.4	3.0	FSMS	0.8	BED/BIOG	NONE	SOME	SOME	4	TRACE	1	1	0	0			0		ASABELLIDES TUBES
G3	5	2	B	9:13	Fall98	8.0	8.3	8.2	2.0	FSMS	0.3	BED/BIOG	NONE	SOME	MANY	2	TRACE	1	1	0	0			0		ASABELLIDES TUBES
G3	5	3	B	9:14	Fall98	6.0	7.8	6.9	1.0	FSMSCS	1.8	BED/BIOG	NONE	MANY	MANY	3	SOME	1	0	0	0			0		ASABELLIDES TUBES
R1	1	1	B	14:03	Fall98	5.4	6.7	6.1	4.0	FSMS	1.3	BED	10 SAND DOLLARS	MANY	SOME	TRACE	TRACE	1	1	0	0			0		AMPHIPOD TUBES OR SAND DOLLARS FEEDING ON EDGE
R1	1	2	B	14:04	Fall98	7.0	7.7	7.4	4.0	FSMS	0.7	BED	NONE	SOME	NONE	1	TRACE	1	1	0	0			3	OX	SAND AGGREGATES
R1	1	3	B	14:05	Fall98	5.9	6.4	6.2	2.5	FSMS	0.5	BED	NONE	SOME	NONE	1	TRACE	0	0	0	0			1	OX	
R2	1	1	B	12:04	Fall98	5.0	8.4	6.7	>	CSGR	3.4	BED	TUNICATES	NONE	NONE	TRACE	TRACE	0	0	0	0			0		
R2	1	2	B	12:05	Fall98	5.0	6.8	5.9	>	CSGR	1.8	BED	NONE	NONE	NONE	TRACE	NONE	0	0	0	0			0		DARK SILT?, PATCH OF HIGHLY REDUCED SEDIMENT
R3	1	1	B	18:13	Fall98	6.1	6.7	6.4	>	MSCSGR	0.6	BED	NONE	NONE	NONE	1	TRACE	1	0	0	0			0		
R3	1	2	B	18:14	Fall98	8.0	10.0	9.0	>	MSCS	2.0	BED	2 SAND DOLLARS	SOME	NONE	1	NONE	1	1	0	1	WR	5	0		CENTER, CLEAR WORM WITH SEGMENTS
R3	1	3	B	18:15	Fall98	4.8	6.8	5.8	>	MSCS	2.0	BED	NONE	NONE	NONE	TRACE	SOME	1	1	0	0			1	OX	

Table D1-3. Sediment surface image analysis data for the May 1998 Survey 1 and September 1998 Survey 2 offshore New Jersey.

AREA	STATION	REPLICATE	PICTURE	SEQUENCE NUMBER	DATE	SEDIMENT TYPE	SURFACE SEDIMENT CHARACTERISTIC	RELIEF TYPE	EPIFAUNA	HERMIT CRAB OR SNAILS	SAND DOLLARS	TUBES AT SEDIMENT SURFACE	PELLETS	SURFACE SHELL CONTENT	BURROW	DARK PATCHES	COMMENTS
A1	1	1	B	297	SP98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	TURBID
A1	1	2	A	299	SP98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	TURBID
A1	2	1	A	285	SP98	FS	UNIFORM	ASYMMETRICAL RIPPLES	NONE	0	0.0	SOME	SOME	TRACE	NONE	0	
A1	2	1	B	286	SP98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	DISTURBED
A1	2	2	A	289	SP98	FS	UNIFORM	ASYMMETRICAL RIPPLES	NONE	0	0.0	NONE	NONE	TRACE	NONE	0	DATE STAMP OUT OF FOCUS
A1	2	3	A	290	SP98	FS	UNIFORM	ASYMMETRICAL RIPPLES	NONE	0	0.0	NONE	NONE	TRACE	NONE	0	
A1	3	1	A	275	SP98	FSMS	UNIFORM	ASYMMETRICAL RIPPLES	NONE	0	0.0	NONE	NONE	FEW	NONE	0	
A1	3	2	A	279	SP98	FSMS	UNIFORM	ASYMMETRICAL RIPPLES	1 HERMIT CRAB	1	0.0	SOME	NONE	TRACE	NONE	1	
A1	3	3	A	280	SP98	FSMS	UNIFORM	IND	NONE	0	0.0	NONE	NONE	TRACE	NONE	0	
A1	4	1	A	260	SP98	CS	UNIFORM	FLAT	NONE	0	0.0	NONE	NONE	NONE	NONE	0	
A1	4	2	A	265	SP98	CSGR	HETEROGENEOUS	FLAT	NONE	0	0.0	NONE	NONE	NONE	NONE	0	CLOSEUP SURFACE IN FOCUS
A1	4	2	B	266	SP98	CSGR	HETEROGENEOUS	FLAT	2 HERMIT CRABS	1	0.0	NONE	NONE	TRACE	NONE	0	CLOSEUP SURFACE IN FOCUS
A1	4	3	A	268	SP98	CSGR	UNIFORM	FLAT	I ANEMONE	0	0.0	NONE	NONE	NONE	NONE	0	
A1	5	1	A	252	SP98	FS	UNIFORM	ASYMMETRICAL RIPPLES	NONE	0	0.0	NONE	NONE	TRACE	NONE	1	
A1	5	1	B	253	SP98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	DISTURBED
A1	5	2	A	254	SP98	FSMS	UNIFORM	ASYMMETRICAL RIPPLES	1 HERMIT CRAB	1	0.0	NONE	NONE	FEW	NONE	1	
A1	6	1	A	225	SP98	FSMS	UNIFORM	ASYMMETRICAL RIPPLES	NONE	0	0.0	NONE	NONE	TRACE	NONE	1	
A1	6	2	A	226	SP98	FSMS	UNIFORM	ASYMMETRICAL RIPPLES	1 SAND DOLLAR	0	1.0	FEW	NONE	FEW	NONE	1	2 ASTARTE?
A1	7	1	A	231	SP98	FSMS	UNIFORM	RIPPLE	NONE	0	0.0	NONE	NONE	SOME	NONE	0	
A1	7	2	A	232	SP98	MSCSGRPB	HETEROGENEOUS	ASYMMETRICAL RIPPLES	NONE	0	0.0	FEW	NONE	FEW	NONE	0	
A1	7	2	B	233	SP98	FSMS	UNIFORM	ASYMMETRICAL RIPPLES	5 HERMIT CRABS	1	0.0	NONE	NONE	FEW	NONE	0	
A1	8	1	A	237	SP98	FSMS	UNIFORM	ASYMMETRICAL RIPPLES	NONE	0	0.0	NONE	NONE	FEW	NONE	0	
A1	8	1	B	238	SP98	FSMS	UNIFORM	ASYMMETRICAL RIPPLES	NONE	0	0.0	NONE	NONE	FEW	NONE	0	
A1	8	2	A	241	SP98	FS	UNIFORM	ASYMMETRICAL RIPPLES	NONE	0	0.0	NONE	NONE	FEW	NONE	1	
A1	9	1	A	217	SP98	MSCSGRPB	HETEROGENEOUS	RIPPLE	CRAB	0	0.0	FEW	NONE	FEW	NONE	0	
A1	9	2	A	218	SP98	MSCSGRPB	HETEROGENEOUS	RIPPLE	NONE	0	0.0	NONE	NONE	FEW	NONE	0	
A1	10	1	A	211	SP98	FS	UNIFORM	ASYMMETRICAL RIPPLES	NONE	0	0.0	NONE	NONE	TRACE	NONE	1	
A1	10	2	A	212	SP98	FS	UNIFORM	ASYMMETRICAL RIPPLES	TUNICATES?	0	0.0	NONE	NONE	TRACE	NONE	1	
A1	11	1	A	204	SP98	FSMS	UNIFORM	ASYMMETRICAL RIPPLES	NONE	0	0.0	NONE	NONE	FEW	NONE	0	
A1	11	2	A	205	SP98	FSMS	UNIFORM	ASYMMETRICAL RIPPLES	1 SAND DOLLAR	0	1.0	NONE	NONE	FEW	NONE	0	
A1	12	1	A	198	SP98	FS	UNIFORM	ASYMMETRICAL RIPPLES	1 SAND DOLLAR	0	1.0	NONE	NONE	TRACE	NONE	1	
A1	12	2	A	200	SP98	FS	UNIFORM	ASYMMETRICAL RIPPLES	1 SAND DOLLAR, 1 ANEMONE	0	1.0	NONE	NONE	TRACE	NONE	1	
A1	13	1	A	190	SP98	FS	UNIFORM	ASYMMETRICAL RIPPLES	SNAILS?	1	0.0	SOME	FEW	TRACE	NONE	0	
A1	13	2	A	191	SP98	FS	UNIFORM	ASYMMETRICAL RIPPLES	1 ANEMONE, SNAILS	1	0.0	MANY	NONE	TRACE	NONE	0	BIOGENIC PITS

Table D1-3. Continued.

AREA	STATION	REPLICATE	PICTURE	SEQUENCE NUMBER	DATE	SEDIMENT TYPE	SURFACE SEDIMENT CHARACTERISTIC	RELIEF TYPE	EPIFAUNA	HERMIT CRAB OR SNAILS	SAND DOLLARS	TUBES AT SEDIMENT SURFACE	PELLETS	SURFACE SHELL CONTENT	BURROW	DARK PATCHES	COMMENTS
A2	1	1	A	35	SP98	FSMSCS	UNIFORM	RIPPLE	1 HAMANOE, TUNICATE?	0	0.0	NONE	NONE	SOME	NONE	0	
A2	1	1	B	36	SP98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	CAMERA DRAGGED
A2	1	2	A	38	SP98	FS	UNIFORM	ASYMMETRICAL RIPPLES	NONE	0	0.0	FEW	NONE	FEW	NONE	0	
A2	1	2	B	39	SP98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	TURBID
A2	2	1	A	44	SP98	SIGRPB	HETEROGENEOUS	FLAT	CRAB, SNAILS	1	0.0	MANY	MANY	SOME	NONE	0	DIOPATRA TUBE
A2	2	2	A	45	SP98	SIGRPB	HETEROGENEOUS	FLAT	SNAILS	1	0.0	MANY	MANY	SOME	FEW	0	DIOPATRA TUBES
A2	3	1	A	51	SP98	FSMSGR	HETEROGENEOUS	TROUGH	1 HERMIT CRAB	1	0.0	NONE	NONE	TRACE	NONE		
A2	3	1	B	52	SP98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	CAMERA DRAGGED
A2	3	2	A	54	SP98	FSMS	UNIFORM	ASYMMETRICAL RIPPLES	1 SAND DOLLAR	0	1.0	NONE	NONE	NONE	NONE	0	
A2	4	1	A	61	SP98	FSMSCS	UNIFORM	FLAT	SNAIL?	1	0.0	NONE	NONE	TRACE	NONE	0	DIOPATRA TUBE, 3 ASTARTE
A2	4	2	A	62	SP98	FSMSCS	UNIFORM	FLAT	SNAIL?	1	0.0	NONE	NONE	FEW	NONE	0	5 ASTARTE ON SURFACE
A2	4	2	B	63	SP98	FSMSCS	UNIFORM	RIPPLE	SNAIL?	1	0.0	NONE	NONE	FEW	NONE	0	4 ASTARTE ON SURFACE
A2	5	1	A	71	SP98	FS	UNIFORM	ASYMMETRICAL RIPPLES	NONE	0	0.0	SOME	NONE	FEW	NONE	0	SMALL DIOPATRA TUBES
A2	5	2	A	72	SP98	FS	UNIFORM	ASYMMETRICAL RIPPLES	NONE	0	0.0	MANY	NONE	FEW	NONE	0	SMALL DIOPATRA TUBES
A2	6	1	A	77	SP98	MSCS	UNIFORM	RIPPLE	NONE	0	0.0	NONE	NONE	FEW	NONE	0	
A2	6	2	A	78	SP98	FSMSCS	UNIFORM	FLAT	1 SAND DOLLAR	0	1.0	NONE	NONE	TRACE	NONE	0	BIOGENIC DEPRESSIONS
A2	7	1	A	85	SP98	FS	UNIFORM	ASYMMETRICAL RIPPLES	NONE	0	0.0	NONE	NONE	TRACE	NONE	1	
A2	7	1	B	86	SP98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	CAMERA DRAGGED
A2	7	2	A	87	SP98	FS	UNIFORM	FLAT	1 SAND DOLLAR	0	1.0	NONE	NONE	TRACE	NONE	1	
A2	8	1	A	90	SP98	FS	UNIFORM	ASYMMETRICAL RIPPLES	1 SAND DOLLAR	0	1.0	NONE	NONE	TRACE	NONE	1	
A2	8	2	A	91	SP98	FS	UNIFORM	ASYMMETRICAL RIPPLES	1 SAND DOLLAR	0	1.0	NONE	NONE	TRACE	NONE	1	
A2	9	1	A	95	SP98	MSCSGR	HETEROGENEOUS	RIPPLE	NONE	0	0.0	NONE	NONE	TRACE	NONE	0	
A2	9	2	A	96	SP98	MSCSGR	HETEROGENEOUS	RIPPLE	NONE	0	0.0	NONE	NONE	TRACE	NONE	0	
A2	10	1	A	130	SP98	FSMS	UNIFORM	ASYMMETRICAL RIPPLES	1 SAND DOLLAR	0	1.0	NONE	NONE	TRACE	NONE	1	
A2	10	2	A	131	SP98	FSMS	UNIFORM	ASYMMETRICAL RIPPLES	NONE	0	0.0	NONE	NONE	TRACE	NONE	1	
A2	11	1	A	122	SP98	FS	UNIFORM	ASYMMETRICAL RIPPLES	NONE	0	0.0	NONE	NONE	TRACE	NONE	1	
A2	11	1	B	123	SP98	FS	UNIFORM	ASYMMETRICAL RIPPLES	NONE	0	0.0	NONE	NONE	TRACE	NONE	1	
A2	11	2	A	124	SP98	FS	UNIFORM	ASYMMETRICAL RIPPLES	1 SAND DOLLAR, SNAIL	1	1.0	NONE	NONE	TRACE	NONE	1	
A2	12	1	A	115	SP98	FS	UNIFORM	ASYMMETRICAL RIPPLES	3 SAND DOLLARS	0	1.0	NONE	NONE	TRACE	NONE	1	
A2	12	2	A	116	SP98	FS	UNIFORM	ASYMMETRICAL RIPPLES	10 SAND DOLLARS	0	1.0	FEW	NONE	TRACE	NONE	0	SMALL DIOPATRA TUBES
A2	12	2	B	117	SP98	FS	UNIFORM	ASYMMETRICAL RIPPLES	2 SAND DOLLARS	0	1.0	NONE	NONE	TRACE	NONE	1	
A2	13	1	A	136	SP98	MSCS	UNIFORM	FLAT	NONE	0	0.0	SOME	NONE	TRACE	NONE	0	
A2	13	2	A	137	SP98	MSCS	UNIFORM	ASYMMETRICAL RIPPLES	2 SAND DOLLARS, 2 HAMANOE	1	1.0	NONE	NONE	TRACE	NONE	0	
A2	13	2	B	138	SP98	MSCS	UNIFORM	IND	1 SAND DOLLAR	0	1.0	NONE	NONE	TRACE	NONE	0	

Table D1-3. Continued.

AREA	STATION	REPLICATE	PICTURE	SEQUENCE NUMBER	DATE	SEDIMENT TYPE	SURFACE SEDIMENT CHARACTERISTIC	RELIEF TYPE	EPIFAUNA	HERMIT CRAB OR SNAILS	SAND DOLLARS	TUBES AT SEDIMENT SURFACE	PELLETS	SURFACE SHELL CONTENT	BURROW	DARK PATCHES	COMMENTS
A2	13	3	A	142	SP98	MSCS	UNIFORM	ASYMMETRICAL RIPPLES	1 SAND DOLLAR, SNAIL	1	1.0	NONE	NONE	TRACE	NONE	1	
A2	14	1	A	153	SP98	MSCSGRPB	HETEROGENEOUS	FLAT	NONE	0	0.0	NONE	NONE	TRACE	NONE	0	2 ASTARTE ON SURFACE
A2	14	2	A	154	SP98	MSCS	UNIFORM	RIPPLE	NONE	0	0.0	NONE	NONE	TRACE	NONE	0	
A2	15	1	A	160	SP98	MSCS	UNIFORM	RIPPLE	2 SAND DOLLARS, 1 SNAIL, 1 HERMIT CRAB	1	1.0	FEW	NONE	TRACE	NONE	1	DIOAPTRA TUBE
A2	15	2	A	161	SP98	MSCS	UNIFORM	ASYMMETRICAL RIPPLES	5 SAND DOLLARS	0	1.0	NONE	NONE	TRACE	NONE	1	BURIED SAND DOLLARS
A2	16	1	A	166	SP98	MSCSGR	HETEROGENEOUS	RIPPLE	3 ANEMONES	0	0.0	NONE	NONE	TRACE	NONE	0	
A2	16	2	A	167	SP98	MSCS	UNIFORM	RIPPLE	1 ANEMONE	0	0.0	NONE	NONE	TRACE	NONE	0	
A2	16	2	B	168	SP98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	CAMERA DRAGGED
A2	17	1	A	148	SP98	MSCS	UNIFORM	FLAT	I SNAIL	0	1.0	NONE	NONE	SOME	NONE	0	
A2	17	2	A	149	SP98	MSCSGR	HETEROGENEOUS	ASYMMETRICAL RIPPLES	NONE	0	0.0	NONE	NONE	TRACE	NONE	0	
A2	18	1	A	179	SP98	MSCSGR	HETEROGENEOUS	ASYMMETRICAL RIPPLES	NONE	0	0.0	NONE	NONE	FEW	NONE	0	
A2	18	2	A	181	SP98	FSMS	UNIFORM	ASYMMETRICAL RIPPLES	NONE	0	0.0	FEW	NONE	TRACE	NONE	0	SMALL DIOPATRA TUBES
A2	19	1	A	172	SP98	MSCSGRPB	HETEROGENEOUS	FLAT	NONE	0	0.0	NONE	NONE	NONE	NONE	0	
A2	19	2	A	173	SP98	MSCSGRPB	HETEROGENEOUS	FLAT	NONE	0	0.0	NONE	NONE	NONE	NONE	0	
A2	19	2	B	174	SP98	MSCSGRPB	HETEROGENEOUS	RIPPLE	NONE	0	0.0	NONE	NONE	NONE	NONE	0	
A2	19	3	A	175	SP98	MSCSGRPB	HETEROGENEOUS	RIPPLE	1 ANEMONE	0	0.0	NONE	NONE	NONE	NONE	0	
F2	5	1	A	27	SP98	FSMS	UNIFORM	ASYMMETRICAL RIPPLES	3 SAND DOLLARS	0	1.0	NONE	NONE	TRACE	NONE	0	
F2	5	2	A	28	SP98	FSMS	UNIFORM	ASYMMETRICAL RIPPLES	2 SAND DOLLARS	0	1.0	NONE	NONE	TRACE	NONE	0	BIOGENIC DEPRESSIONS
F2	6	1	A	10	SP98	CSGRPB	HETEROGENEOUS	FLAT	NONE	0	0.0	NONE	NONE	FEW	NONE	0	
F2	6	1	B	11	SP98	CSGR	UNIFORM	FLAT	1 HERMIT CRAB	1	0.0	NONE	NONE	NONE	NONE	0	
F2	6	2	A	12	SP98	CSGRPB	HETEROGENEOUS	TROUGH	NONE	0	0.0	NONE	NONE	SOME	NONE	0	
F2	6	2	B	13	SP98	CSGRPB	UNIFORM	FLAT	NONE	0	0.0	NONE	NONE	NONE	NONE	0	
F2	6	3	A	16	SP98	CSGR	UNIFORM	RIPPLE	NONE	0	0.0	NONE	NONE	TRACE	NONE	0	
F2	6	3	B	17	SP98	CSGR	HETEROGENEOUS	RIPPLE	1 HERMIT CRAB	1	0.0	FEW	NONE	SOME	NONE	0	
F2	6	4	A	20	SP98	CSGRPB	HETEROGENEOUS	IND	NONE	0	0.0	NONE	NONE	TRACE	NONE	0	
F2	6	4	B	21	SP98	CSGRPB	HETEROGENEOUS	RIPPLE	NONE	0	0.0	NONE	NONE	TRACE	NONE	0	
F2	6	4	C	22	SP98	MSCSGR	HETEROGENEOUS	RIPPLE	1 SAND DOLLAR	0	1.0	NONE	NONE	TRACE	NONE	0	2 ASTARTE ON SURFACE
G1	1	1	A	315	SP98	FS	UNIFORM	ASYMMETRICAL RIPPLES	NONE	0	0.0	NONE	SOME	TRACE	NONE	1	
G1	1	2	A	316	SP98	FS	UNIFORM	ASYMMETRICAL RIPPLES	NONE	0	0.0	FEW	SOME	TRACE	NONE	1	
G1	2	1	A	320	SP98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	TURBID
G1	2	2	A	321	SP98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	TURBID
G1	2	2	B	322	SP98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	TURBID

Table D1-3. Continued.

AREA	STATION	REPLICATE	PICTURE	SEQUENCE NUMBER	DATE	SEDIMENT TYPE	SURFACE SEDIMENT CHARACTERISTIC	RELIEF TYPE	EPIFAUNA	HERMIT CRAB OR SNAILS	SAND DOLLARS	TUBES AT SEDIMENT SURFACE	PELLETS	SURFACE SHELL CONTENT	BURROW	DARK PATCHES	COMMENTS
G1	3	1	A	324	SP98	FS	UNIFORM	ASYMMETRICAL RIPPLES	NONE	0	0.0	SOME	NONE	FEW	NONE	1	
G1	4	1	A	329	SP98	MSCS	UNIFORM	ASYMMETRICAL RIPPLES	NONE	0	0.0	NONE	NONE	SOME	NONE	0	
R1	1	1	A	306	SP98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	TURBID
R1	1	2	A	308	SP98	FSSI	UNIFORM	FLAT	1 SNAIL	1	0.0	MANY	NONE	SOME	NONE	0	DIOPATRA TUBES

Table D1-4. Figure Key: Habitat classifications as predicted from discriminant analysis of sediment profile image data from May and September, 1998; New Jersey Sand Resource Areas.

Habitat 1 Fine to medium sediments (modal grain size approximately fine sand with some variation, coarsest sediments are coarse sand) with few biological features, and generally low surface relief. Dominated by bedforms. Biological and physical features sparse and variable. Epifauna can be locally (in one replicate image per station) common.

FSMS/low relief

Habitat 2 Fine to medium sediments with infaunal tubes at the sediment-water interface and/or infauna present. Dominated by bedforms and biogenic relief. Surface tubes and pellets common. High proportion of stations in this class had shallow RPD layer depths.

FSMS/infauna/biogenic/shallow RPD

Habitat 3 Medium to coarse sediments (medium sand to gravel) and occasional epifauna. Dominated by bedforms. Surface roughness dominated by grain and gravel. A coarser sediment version of Habitat class 1.

MSCS/surface roughness

Habitat 4 Medium to coarse sediments with large infauna common. Dominated by bedforms. Tube and other biogenic features common.

MSCS/large infauna

Habitat 5 Coarse sediments and high surface relief. Dominated by bedforms. Absence of biogenic features and epifauna or infuana. Likely the most dynamic of all habitats.

CS/high relief/no biogenic/dynamic

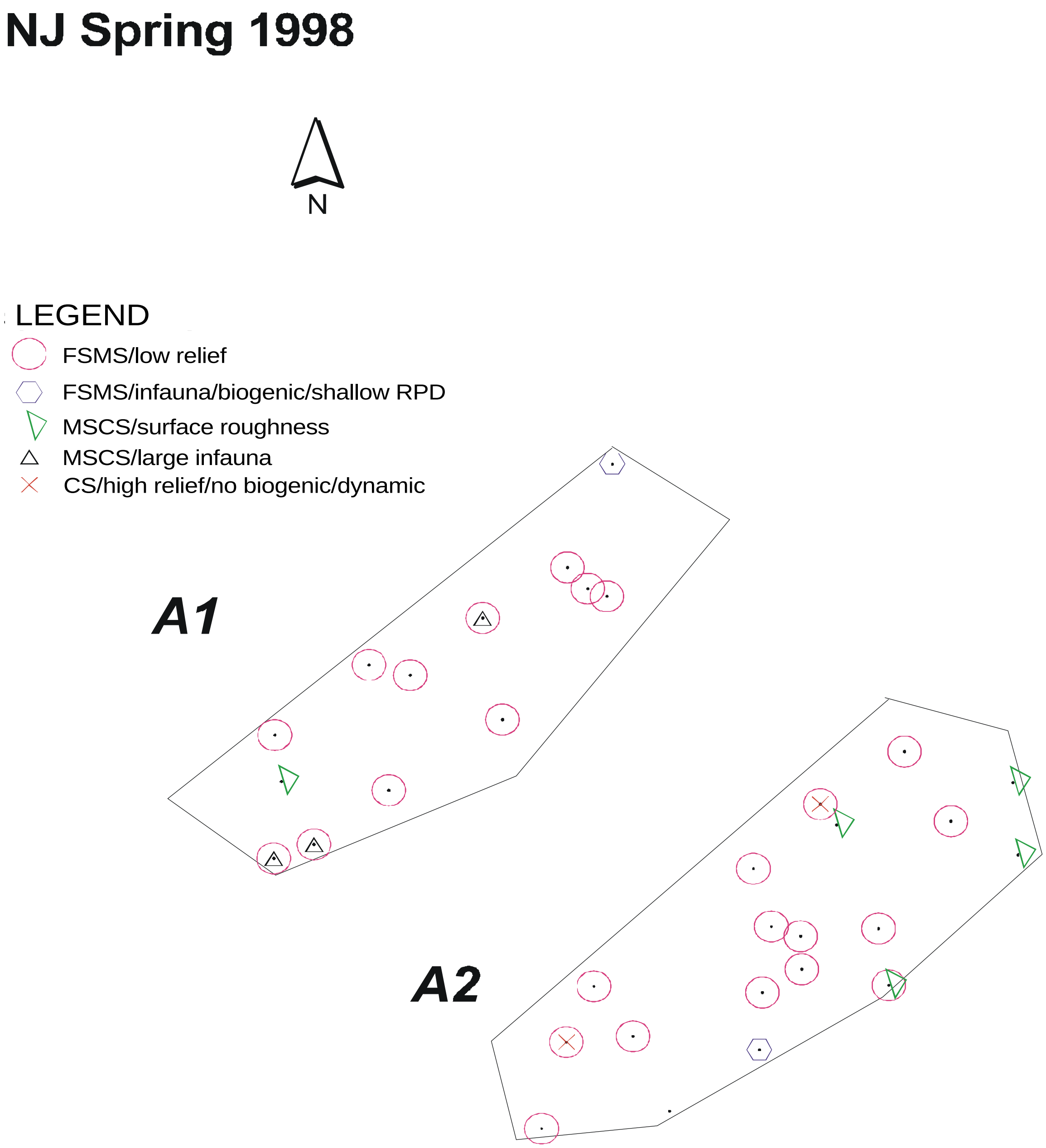

Figure D1-3. Habitat classes from Sand Resource Areas A1 and A2, Spring 1998.

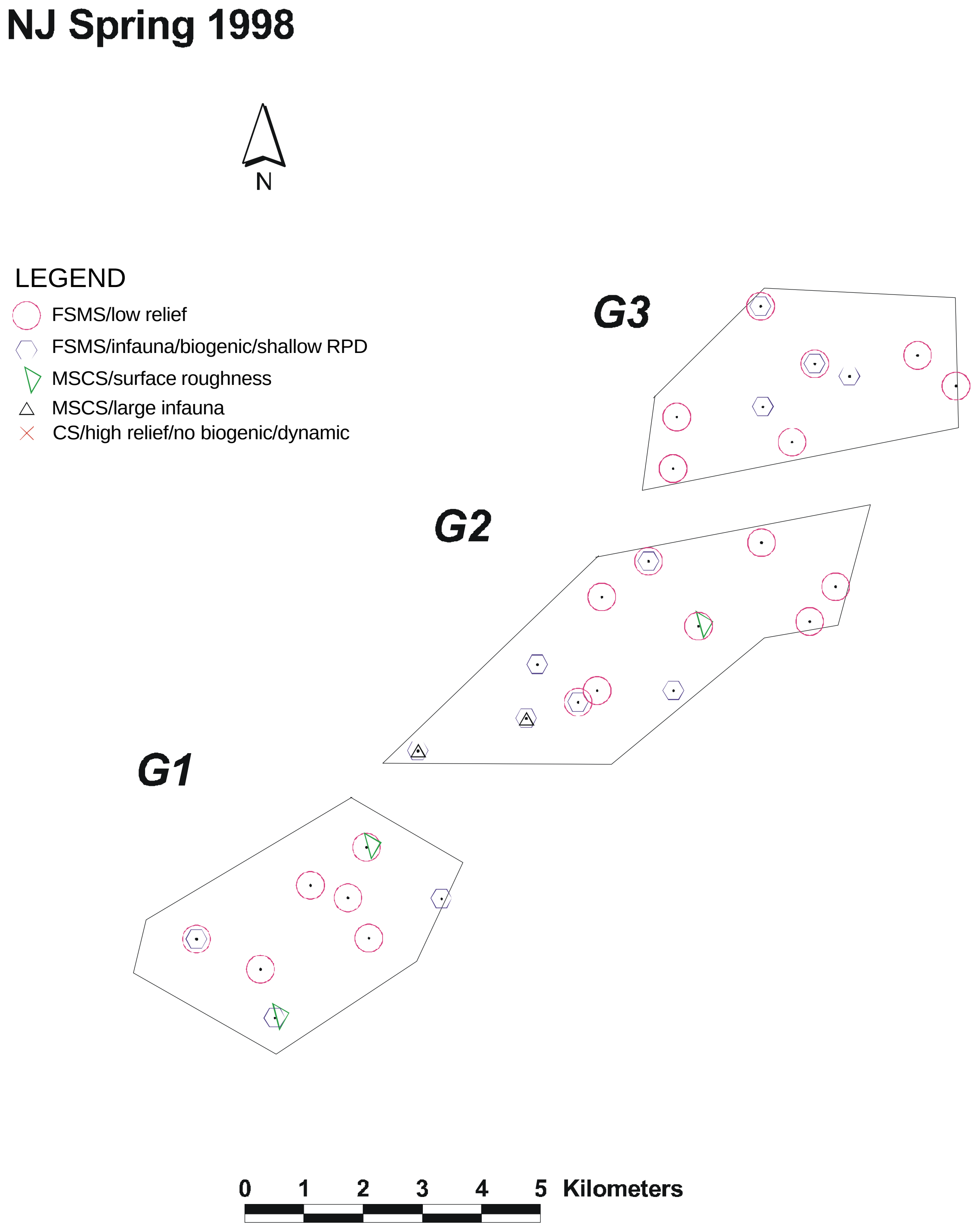

Figure D1-4. Habitat classes from Sand Resource Areas G1, G2, and G3, Spring 1998.

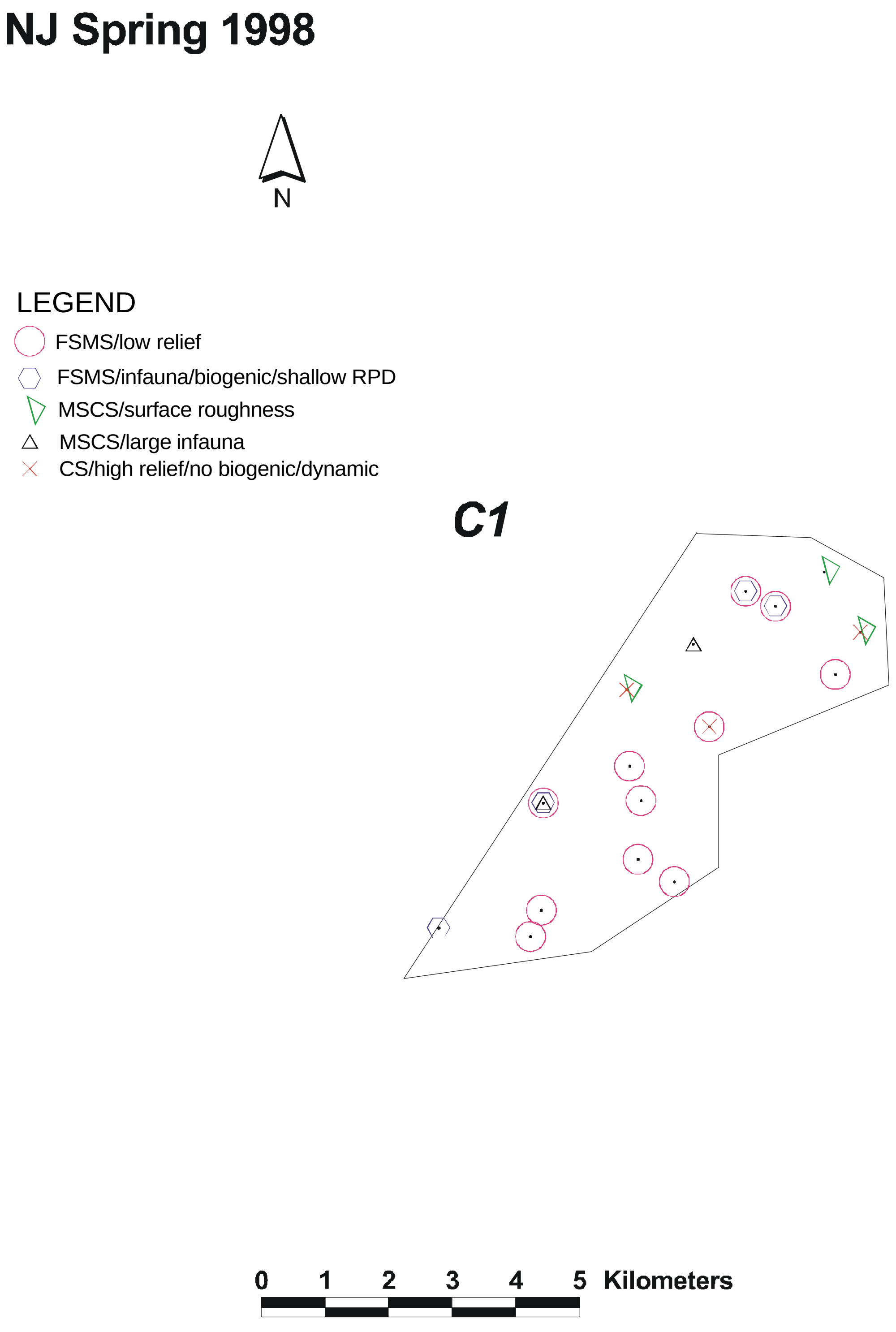

Figure D1-5. Habitat classes form Sand Resource Area C1, Spring 1998.

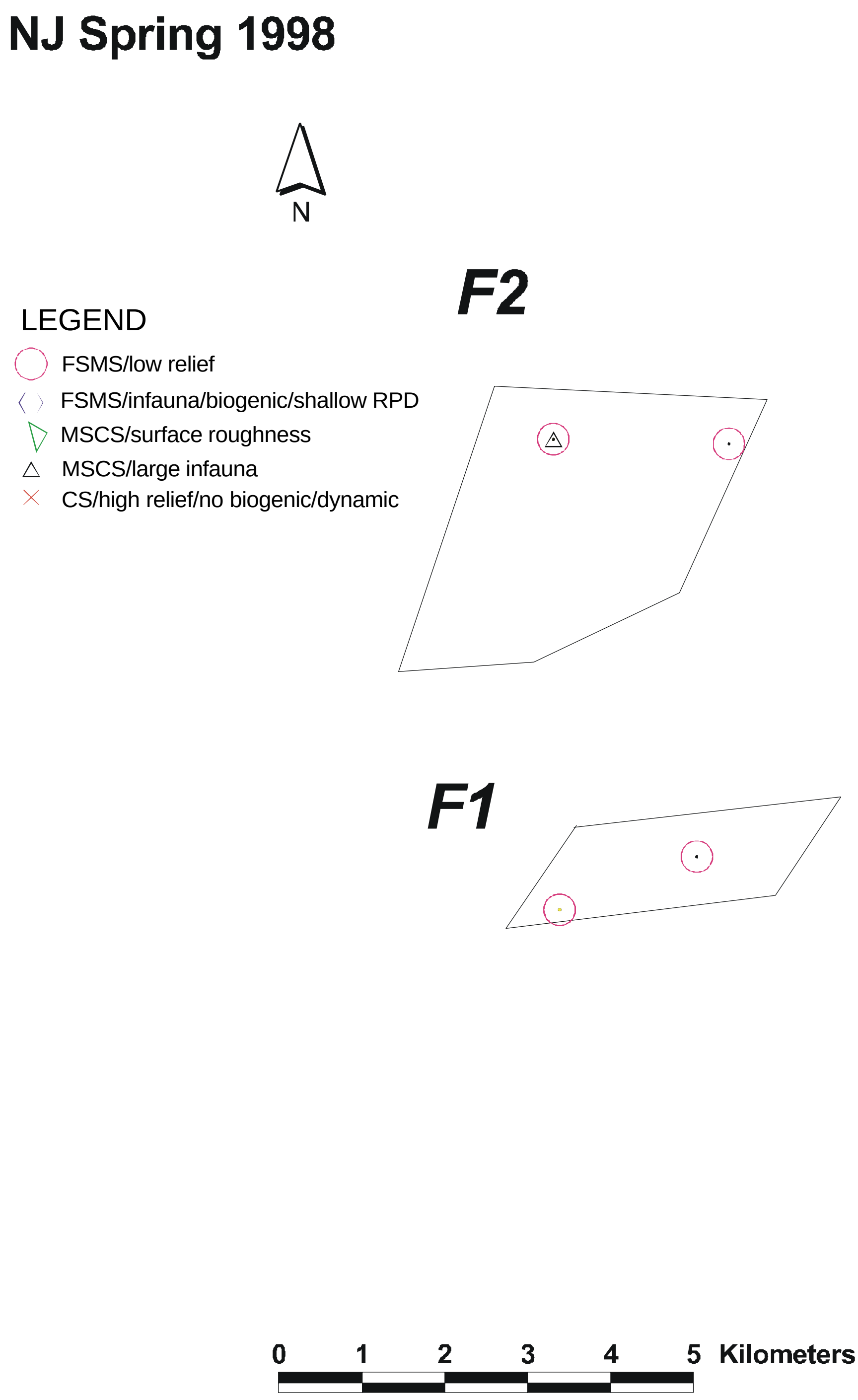

Figure D1-6. Habitat classes from Sand Resource Areas F1 and F2, Spring 1998.

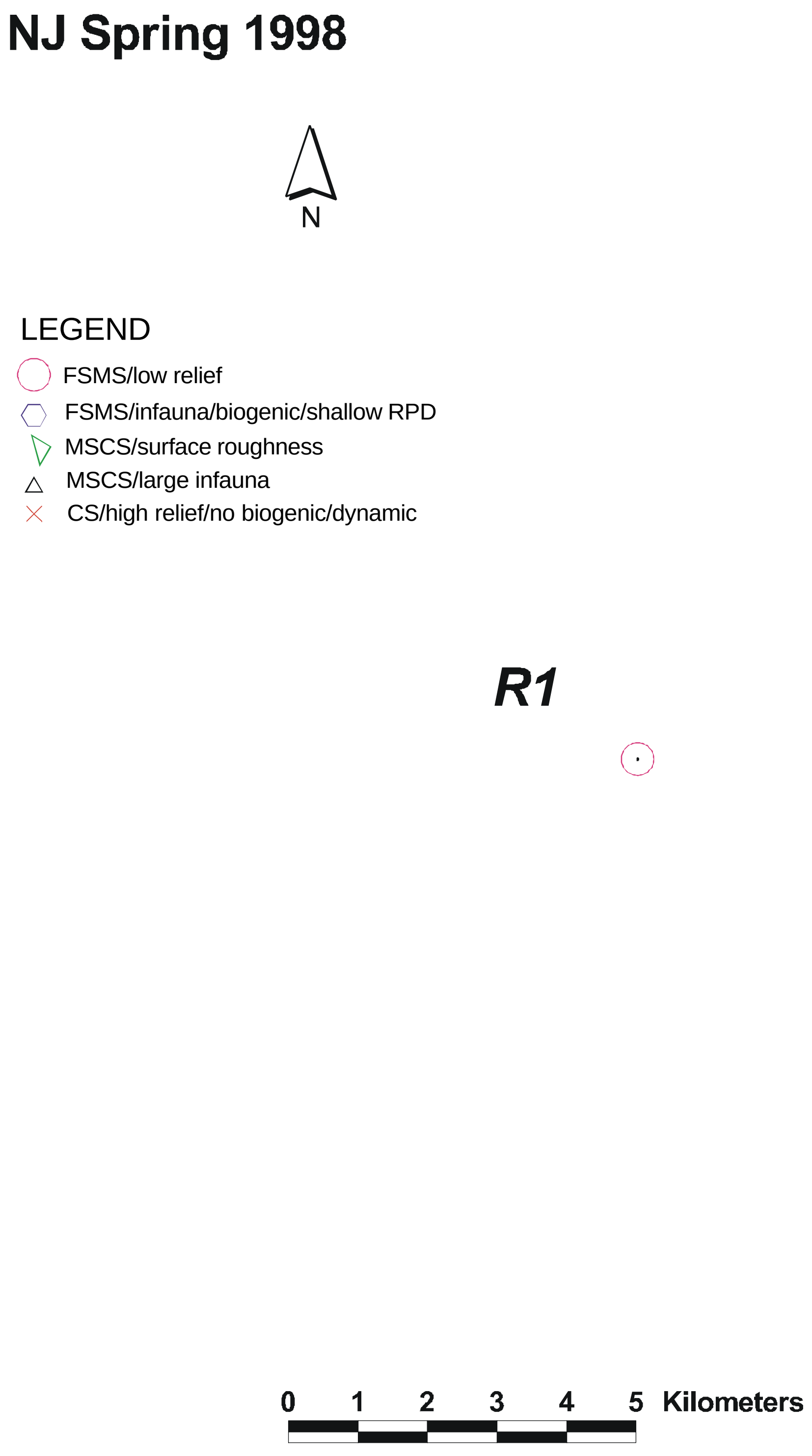

Figure D1-7. Habitat class from Adjacent Station 1, Spring 1998.

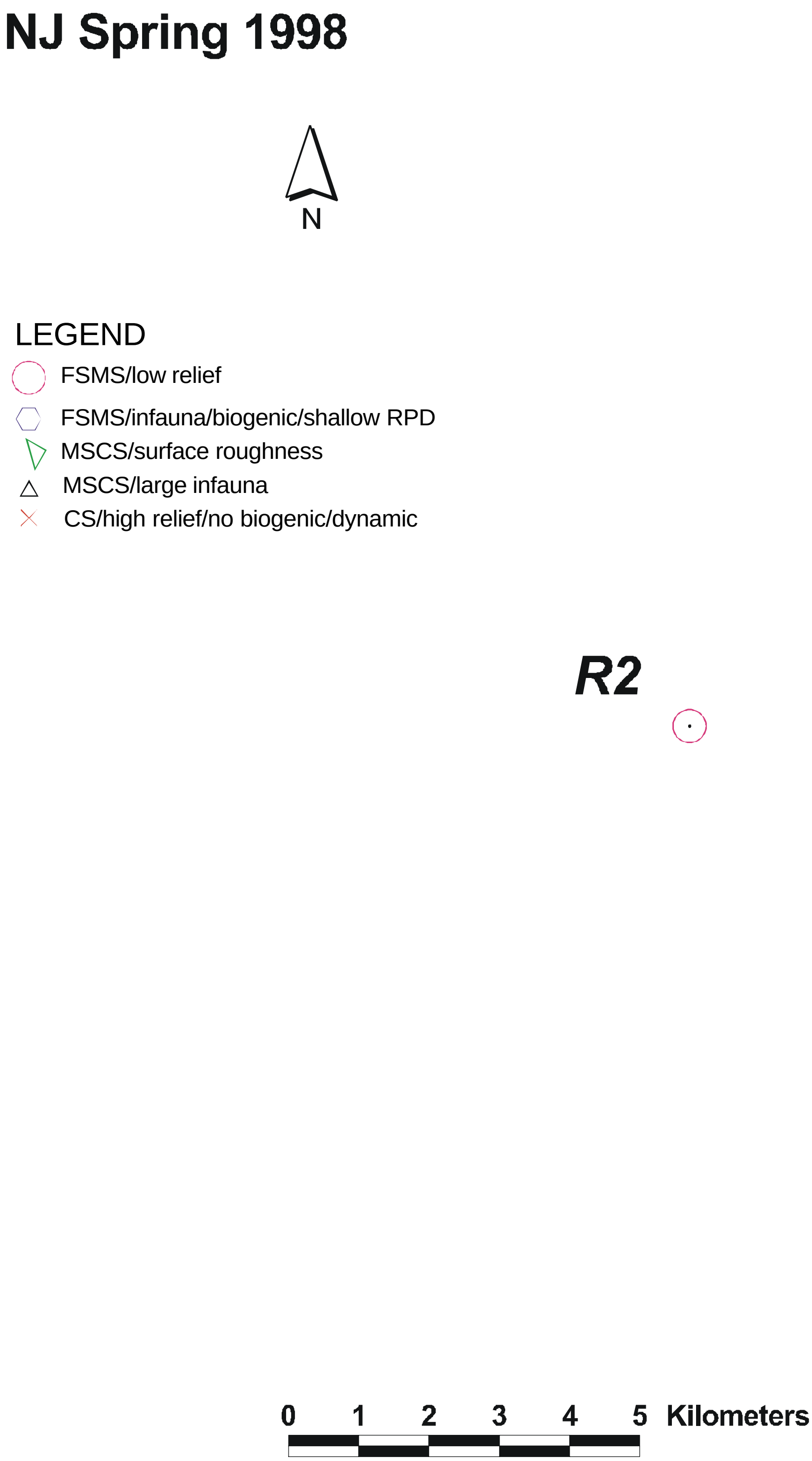

Figure D1-8. Habitat class from Adjacent Station 2, Spring 1998.

NJ Fall 1998

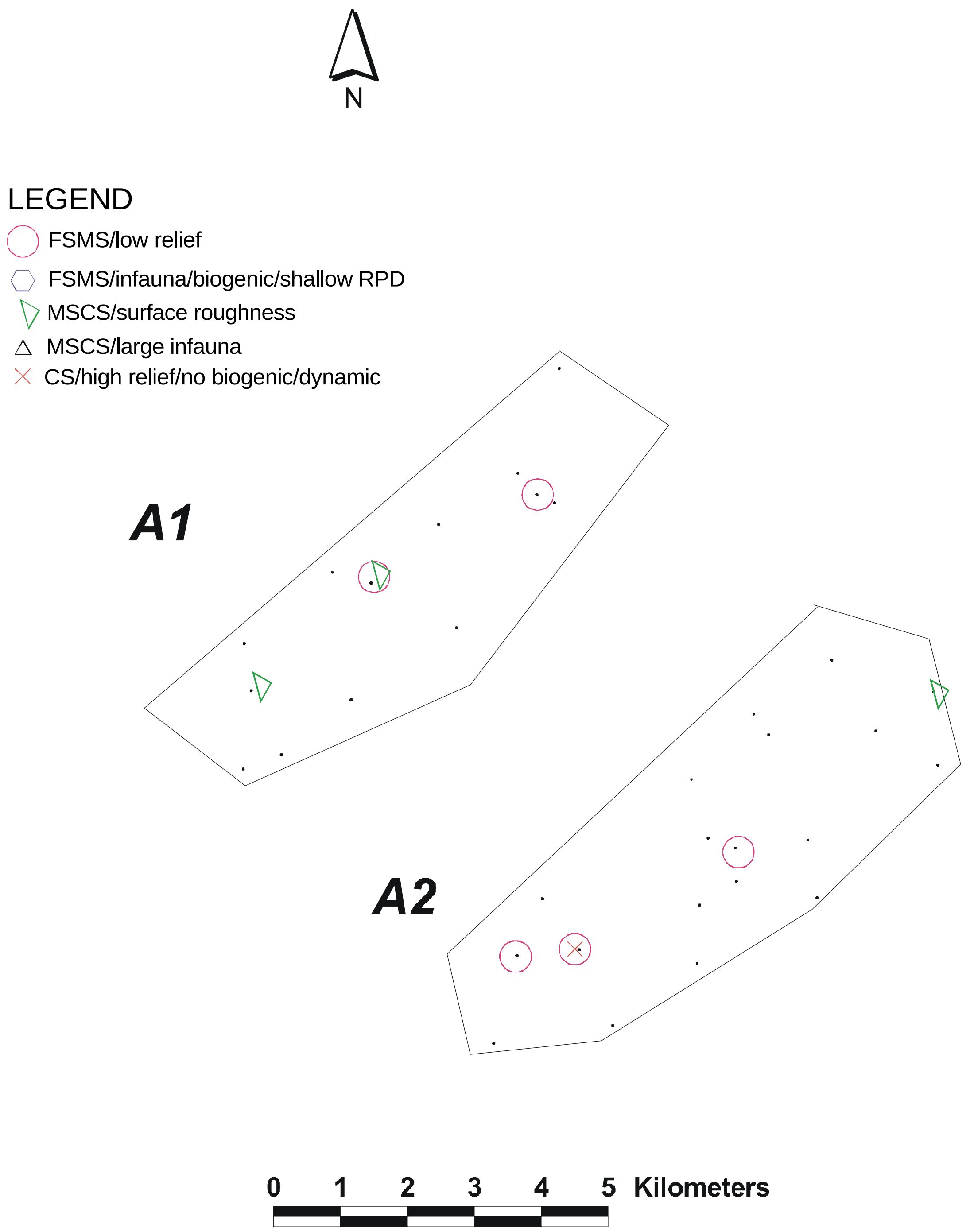

Figure D1-9. Habitat classes from Sand Resource Areas A1 and A2, Fall 1998.

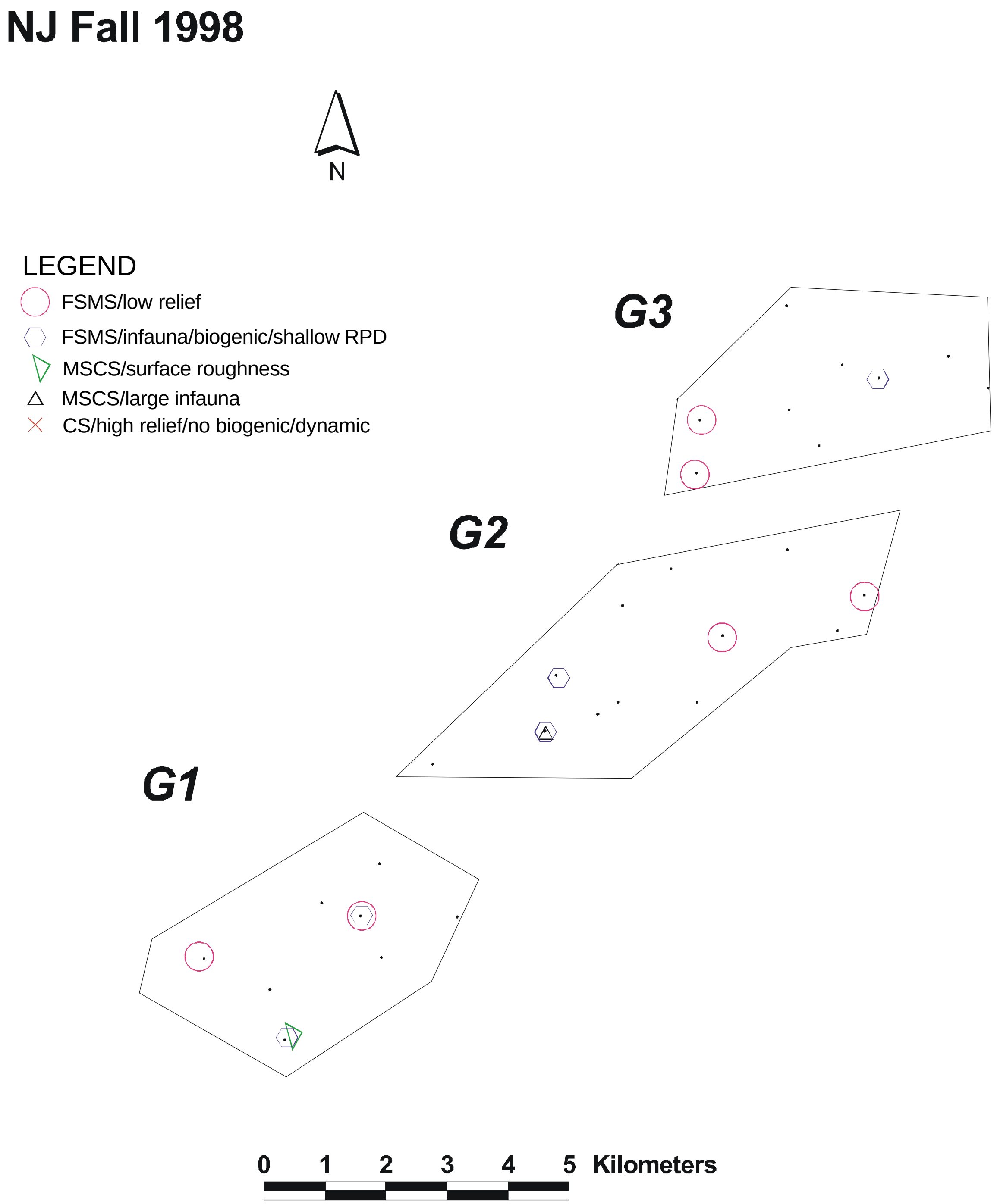

Figure D1-10. Habitat classes from Sand Resource Areas G1, G2, and G3, Fall 1998.

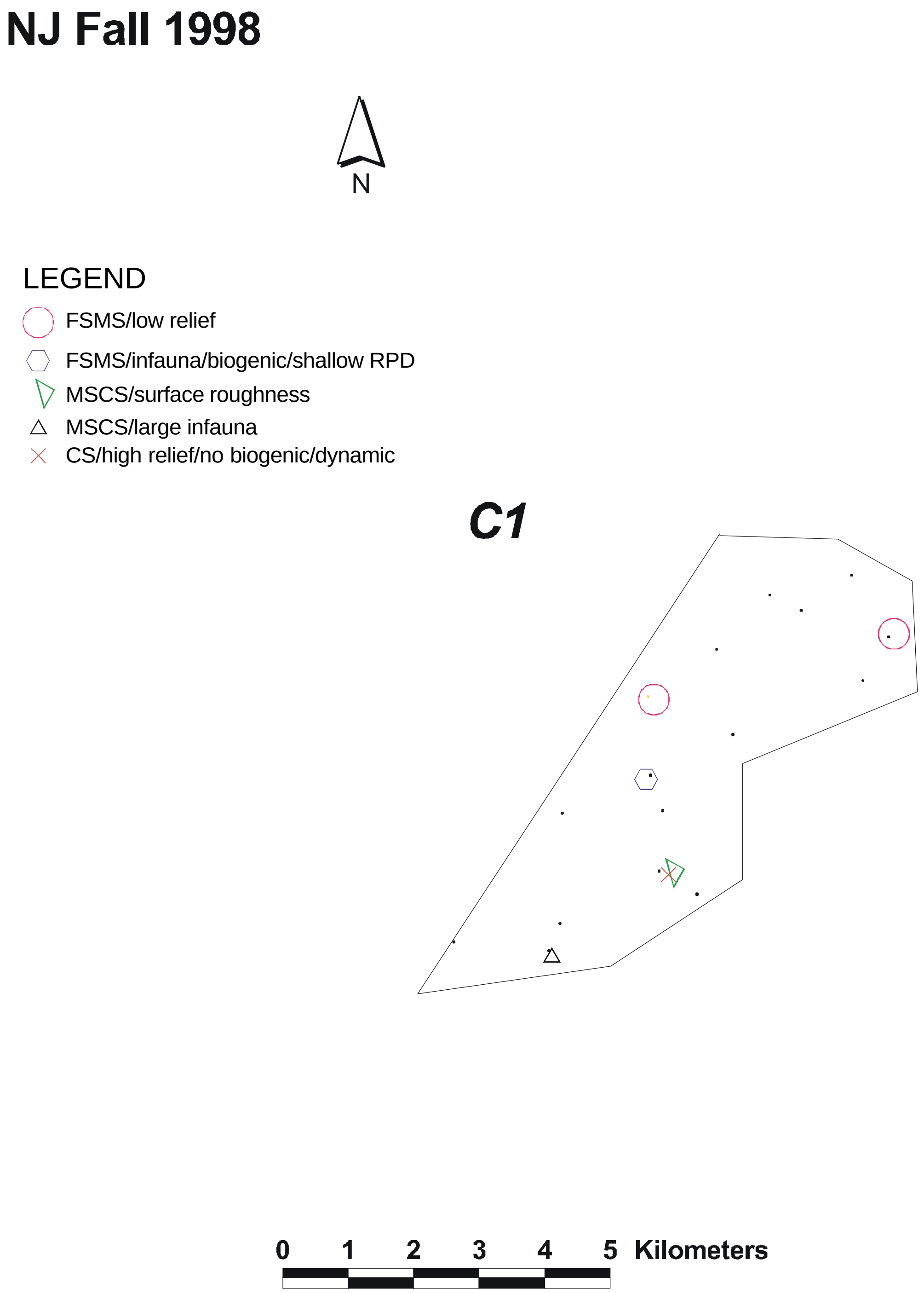

Figure D1-11. Habitat classes from Sand Resource Area C1, Fall 1998.

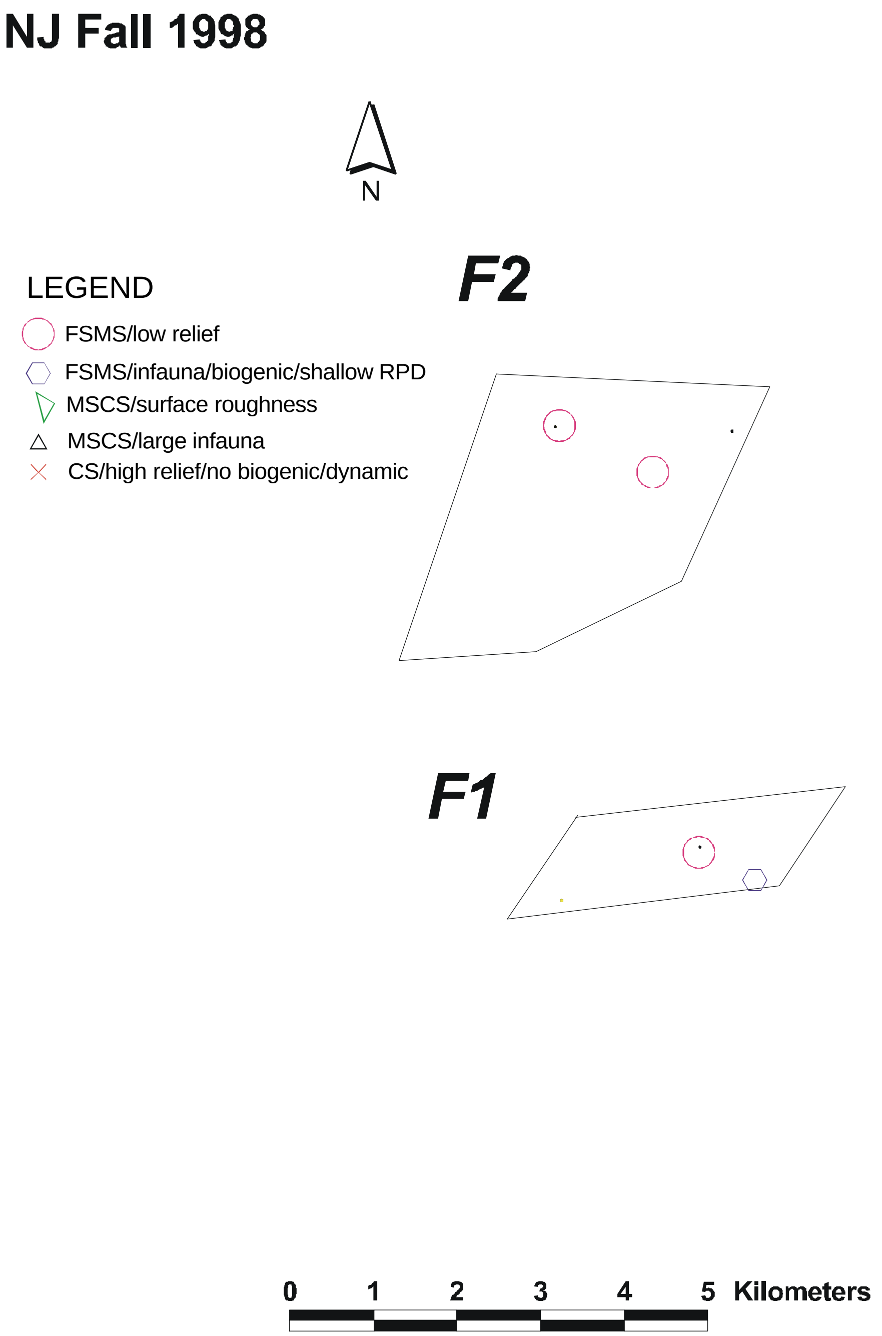

Figure D1-12. Habitat classes from Sand Resource Areas F1 and F2, Fall 1998.

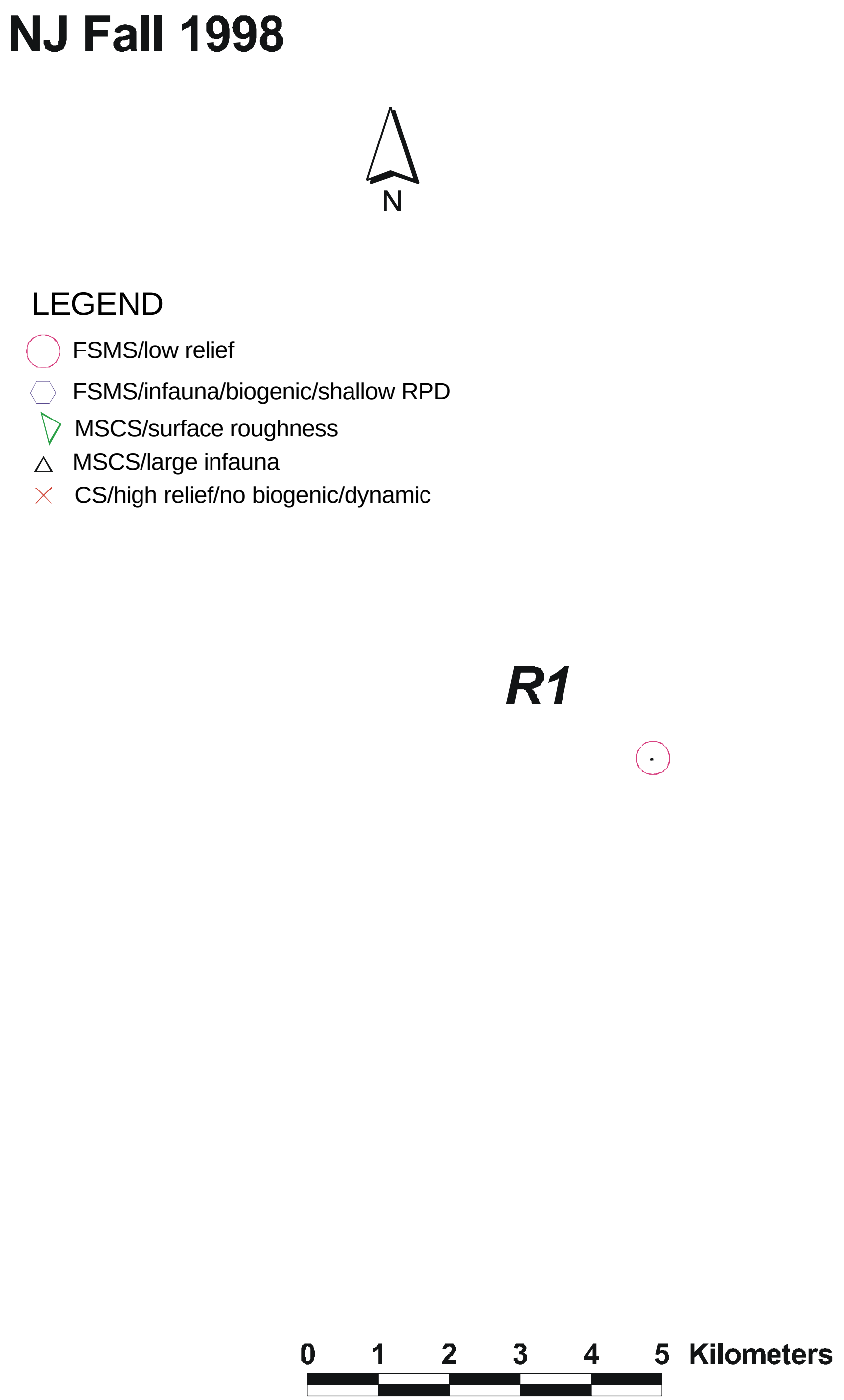

Figure D1-13. Habitat class from Adjacent Station 1, Fall 1998.

Figure D1-14. Habitat class from Adjacent Station 2, Fall 1998.

Figure D1-15. Area A1, Image A1-13-2b, May 1998. Anemone dragged down into the sediments by the camera prism; its tube is visible at the sediment-water interface.

Figure D1-16. Area A1, Image A1-01-1b, May 1998. Infaunal polychaete with visible segmentation (enhanced by unsharp mask filtering).

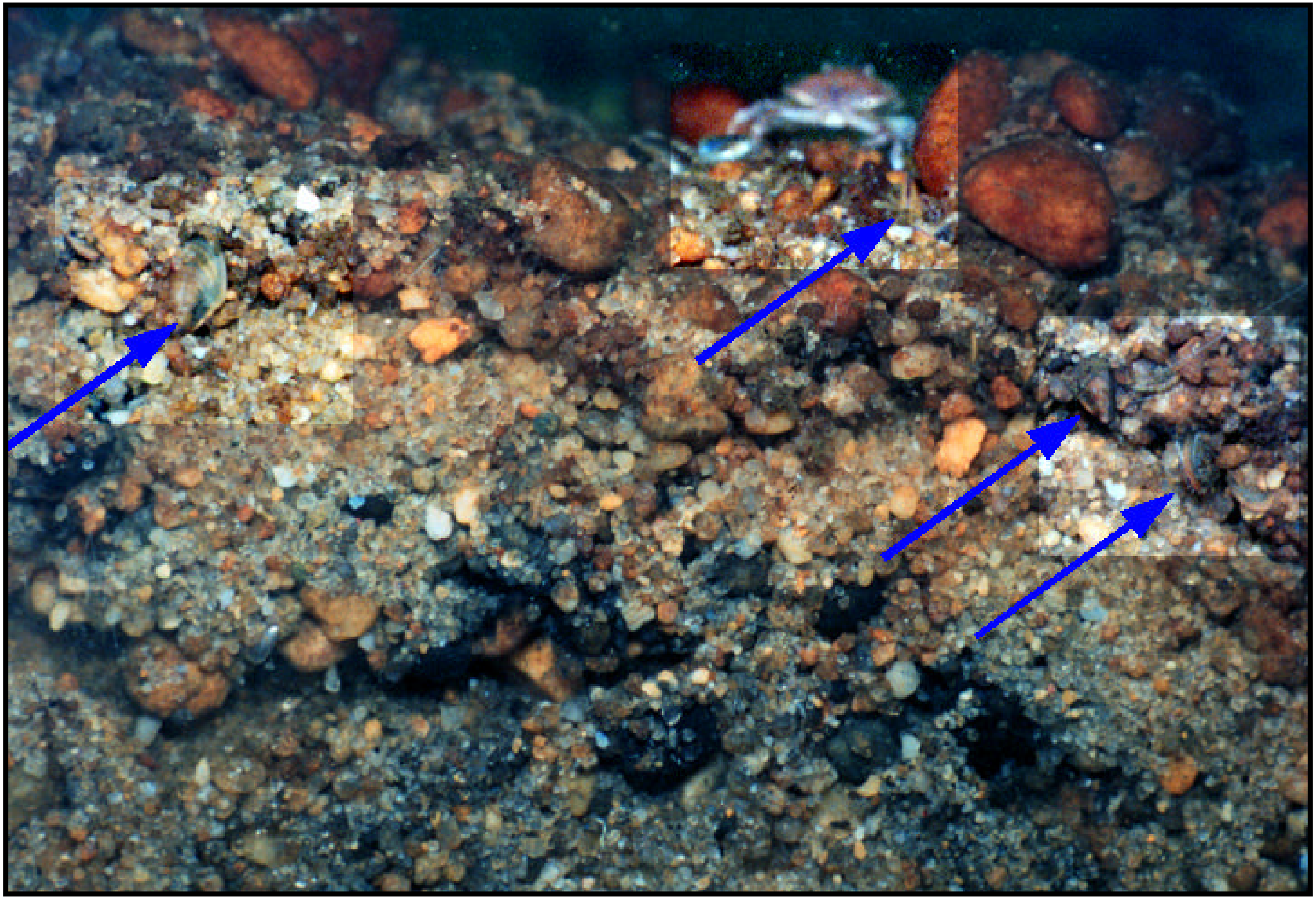

Figure D1-17. Area C1, Image C1-04-1b, September 1998. Live mussels in sandy gravel with signs of decomposing buried organic material, and a crab on the surface.

Figure D1-18. Area C1, Image C1-04-2b, September 1998. Mussel shells in sandy gravel with an organic surface layer. Tick marks are spaced at 1cm.

Figure D1-19. Area F1, Image F1-03-3b, September 1998. Large *Diopatra* tube and organic surface layer. Tick marks are spaced at 1 cm.

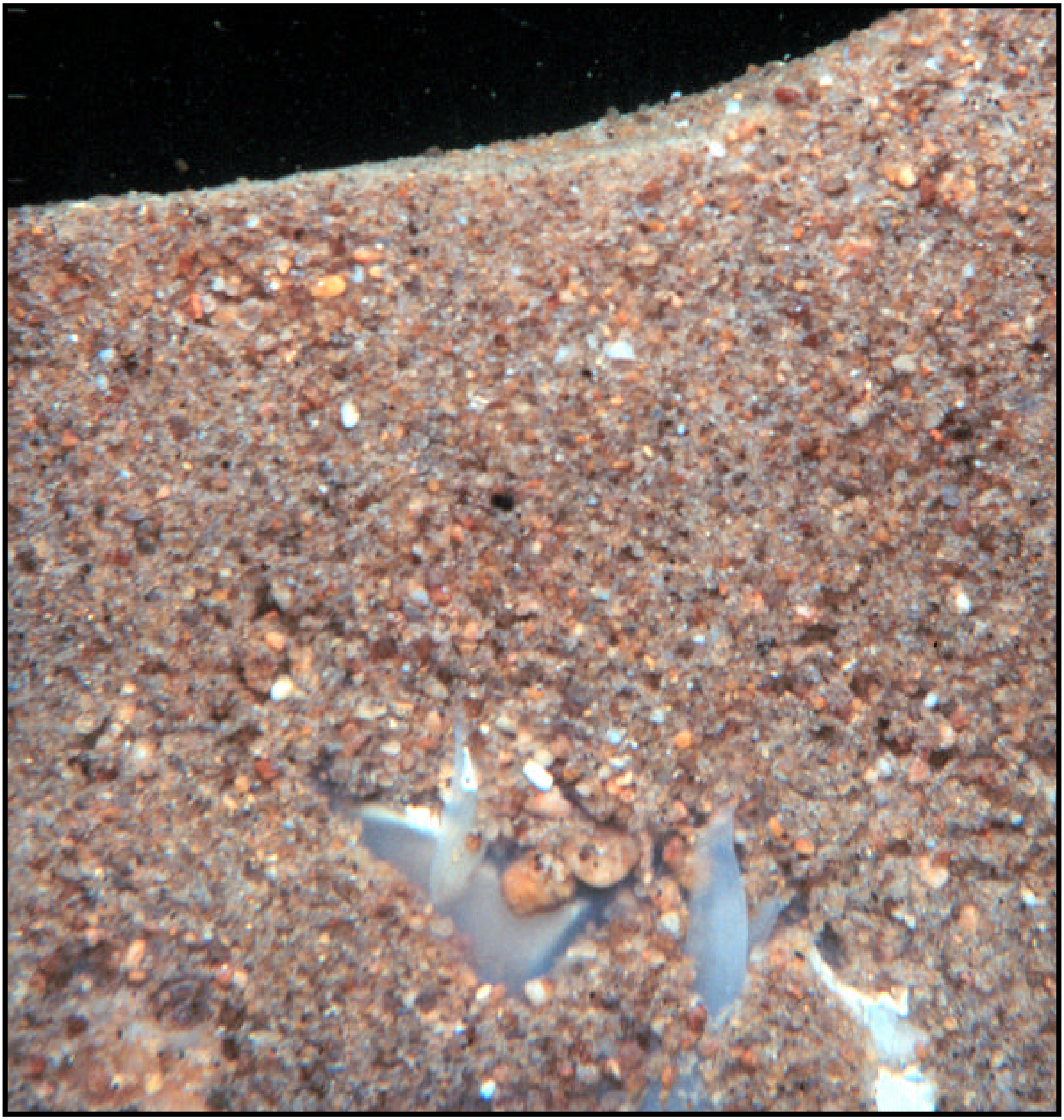

Figure D1-20. Area F2, Image F2-06-1b, May 1998. Large clam (probably *Spisula*; parts of the shell and body are visible) crushed by the camera prism in gravelly coarse sand. Tick marks (upper left) are spaced at 1 cm.

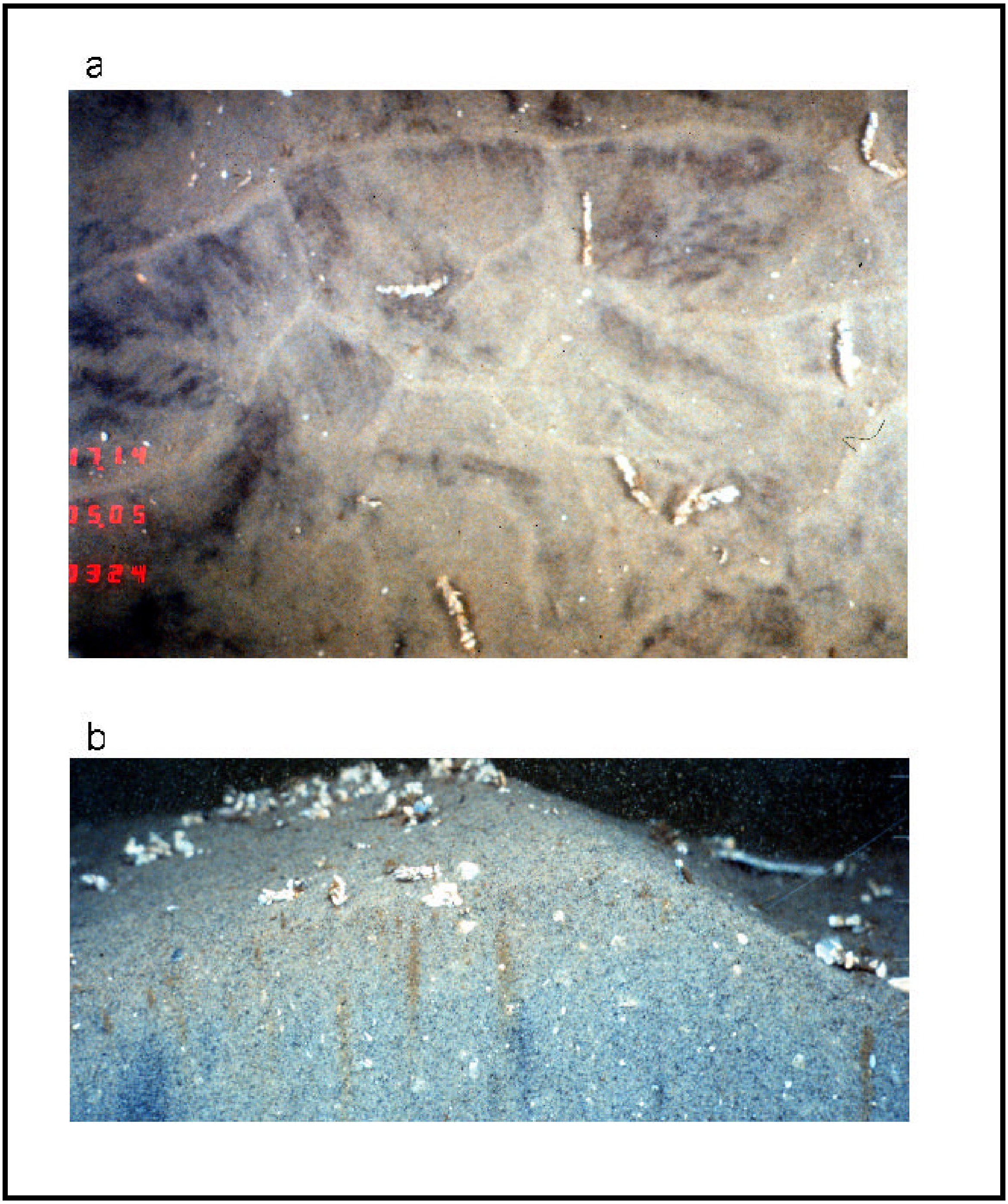

Figure D1-21. (a) Area G1, Image G1-03-1a, May 1998 above, and (b) Area G2, Image G2-04-2b below. Small tubes of the polychaete *Diopatra cuprea*. Tick marks are spaced at 1 cm.

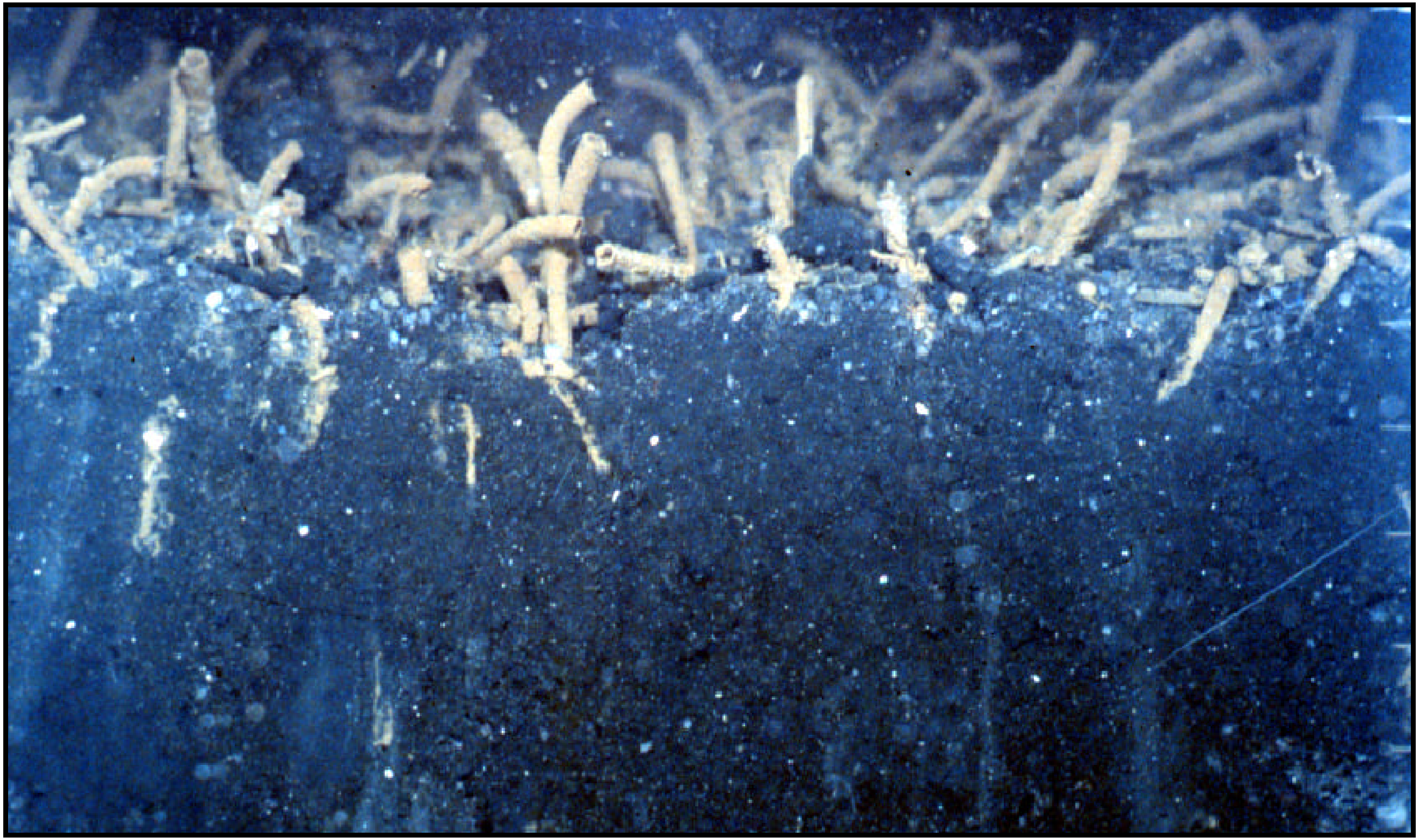

Figure D1-22. Area G1, Image G1-02-2b, September 1998. Tubes of the polychaete *Asabellides oculata* in sandy-gravelly silt. Tick marks are spaced at 1 cm.

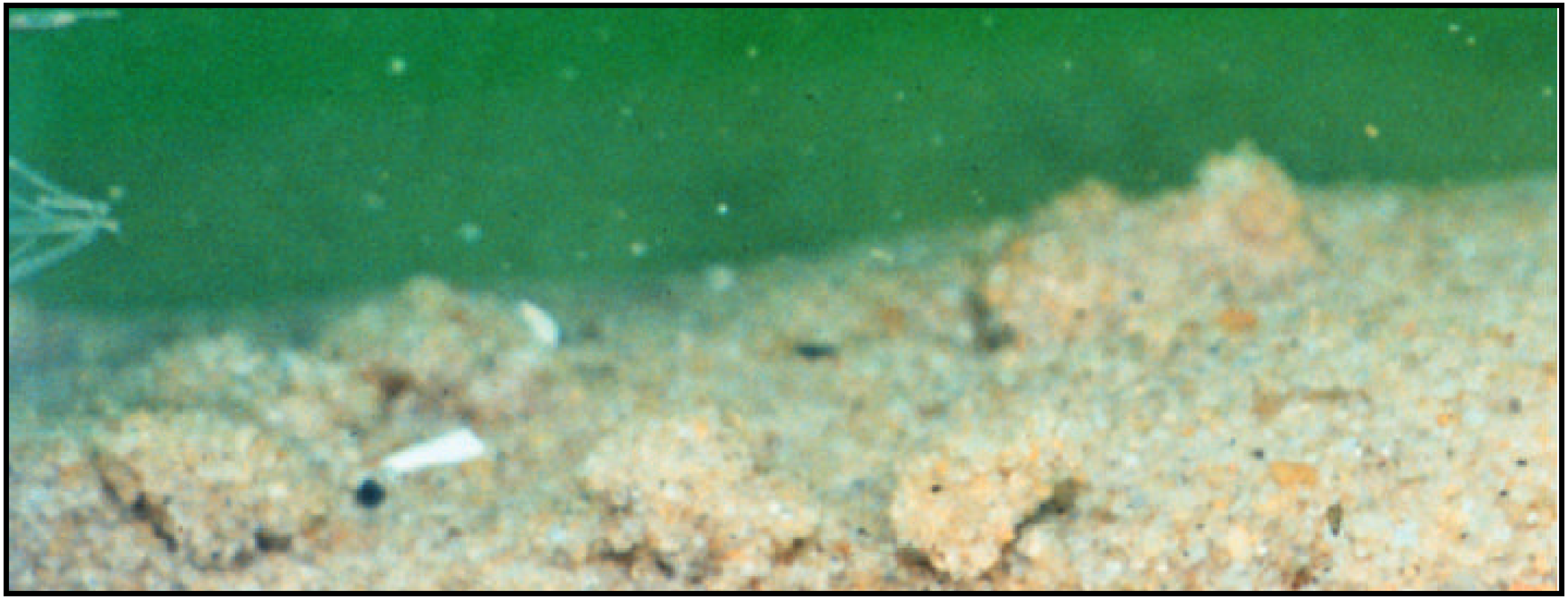

Figure D1-23. Area G2, Image G2-08-2b, September 1998. Sand clasts on the sediment surface. Tick marks are spaced at 1 cm.

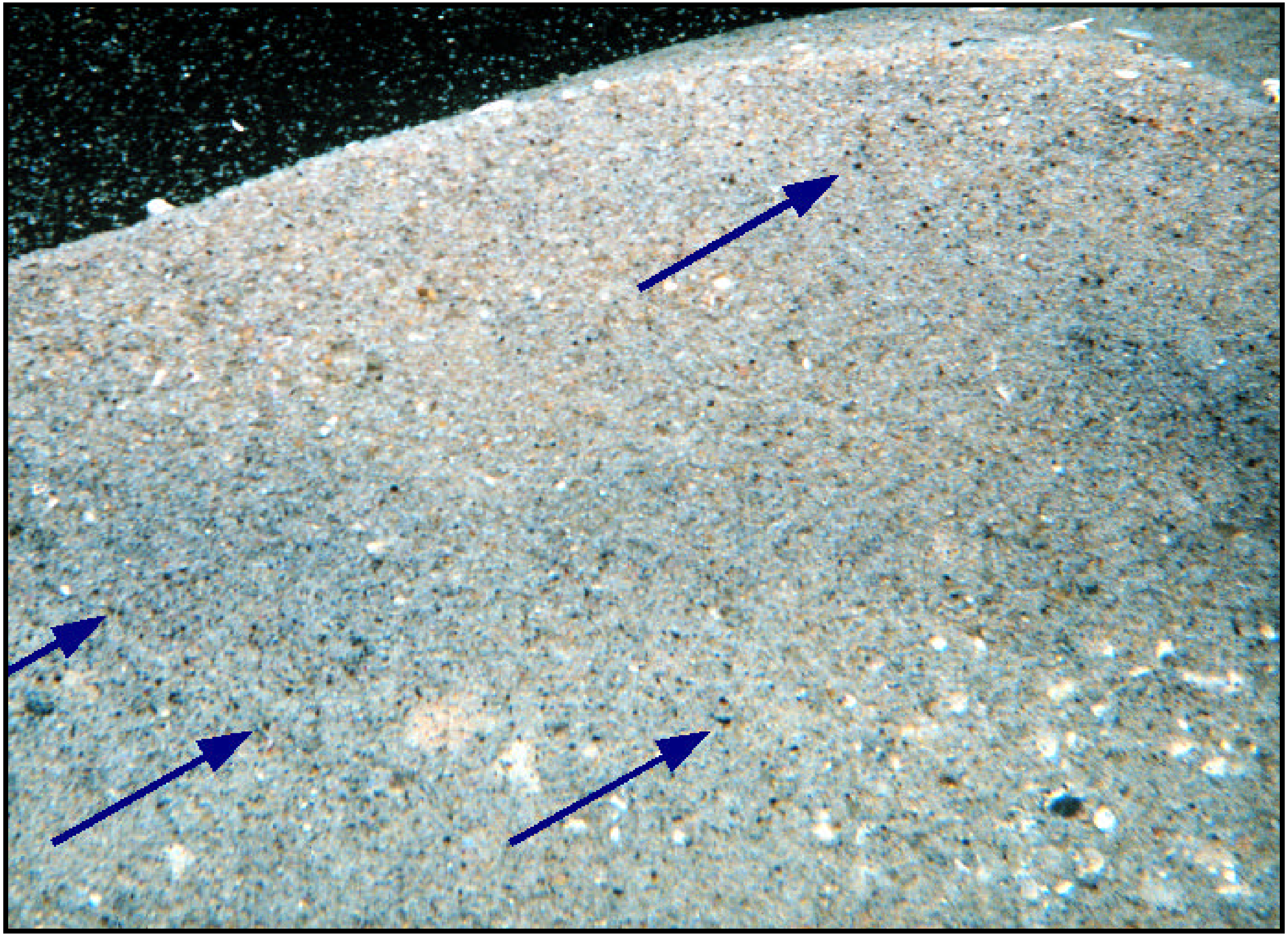

Figure D1-24. Area G3, Image G3-02-1b, May 1998. Black sediment grains, approximately 0.25 to 0.5 mm diameter.

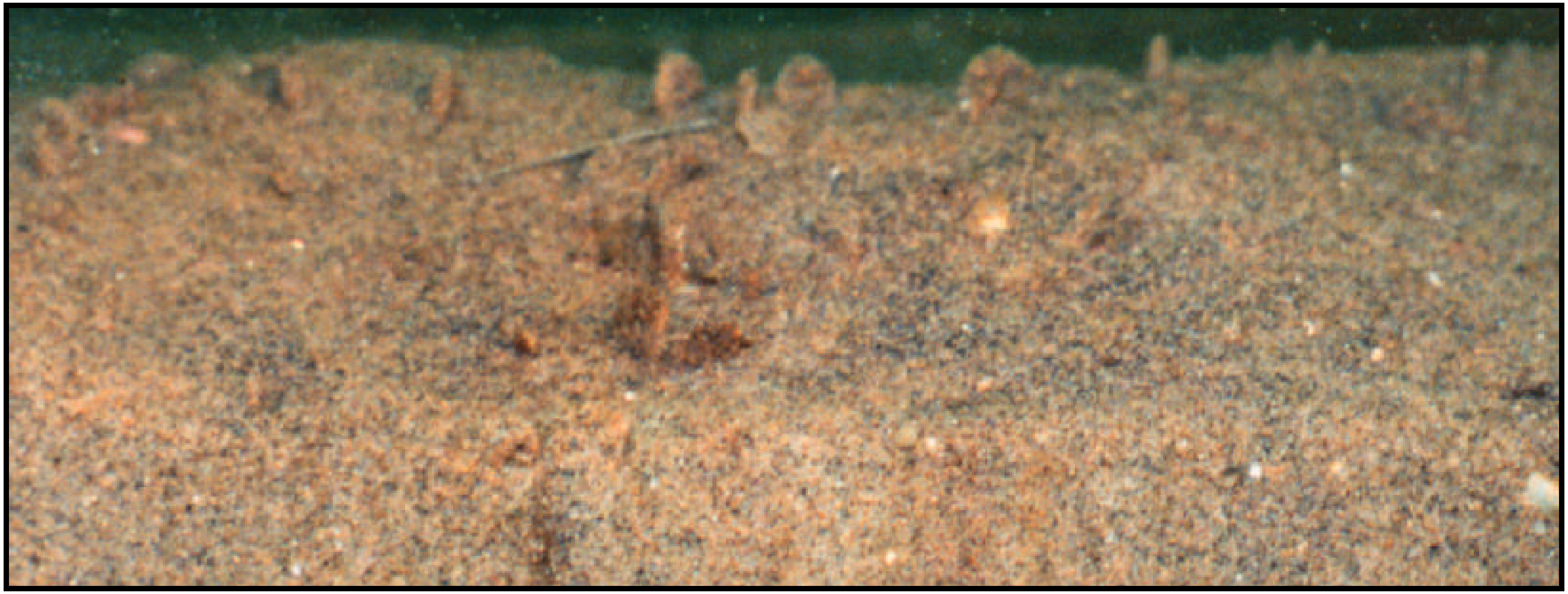

Figure D1-25. Adjacent Station 1, Image R1-01-1b, September 1998. Small sand dollars partially buried.

D2. SAMPLE TYPES, SAMPLE CODES, COORDINATES, AND WATER DEPTHS

The following appendix provides the sample types, sample codes, coordinates, and water depths for the May 1998 Survey 1 and September 1998 Survey 2 in the eight sand resource areas (Areas A1, A2, C1, F1, F2, G1, G2, and G3) and three adjacent stations (R1, R2, and R3) offshore New Jersey. Sample types include grain size, infauna, sediment profile camera, Hydrolab, and trawl. Sample codes are in the format S1-A1-1 where S1 means Survey 1, A1 refers to Area A1, and –1 refers to Station 1. Within some sample codes, HL means Hydrolab, STR means trawl start, and END means trawl end. X and Y coordinates are Universal Transverse Mercator projection and given in meters. Station coordinates also are given in latitude/longitude (World Grid System [WGS] 84). Water depths are in meters.

Table D2-1. Sample types, sample codes, coordinates, and water depths for the May 1998 Survey 1.

Sample Type	Sample Code	X	Y	Latitude	Longitude	Depth
Grain size	S1-A1-1	534014	4329964	N 39° 07’ 05.41”	W 74° 36’ 23.55”	16
	S1-A1-2	534453	4330176	N 39° 07’ 2.23”	W 74° 36’ 05.23”	13
	S1-A1-3	534006	4331780	N 39° 08’ 04.33”	W 74° 36’ 23.53”	12
	S1-A1-5	535341	4330953	N 39° 07’ 37.30”	W 74° 35’ 28.08”	12
	S1-A1-6	535077	4332902	N 39° 08’ 40.57”	W 74° 35’ 38.74”	13
	S1-A1-8	536443	4332065	N 39° 08’ 13.21”	W 74° 34’ 41.97”	14
	S1-A1-9	536246	4333590	N 39° 09’ 02.70”	W 74° 34’ 49.87”	16
	S1-A1-11	537611	4333943	N 39° 09’ 13.97”	W 74° 33’ 52.94”	16
	S1-A1-12	537177	4334392	N 39° 09’ 28.60”	W 74° 34’ 10.95”	14
Grain size/ Infauna	S1-A1-4	534122	4331131	N 39° 07’ 43.26”	W 74° 36’ 18.81”	15
	S1-A1-7	535484	4332762	N 39° 08’ 35.97”	W 74° 35’ 21.81”	14
	S1-A1-10	537389	4334068	N 39° 09’ 18.05”	W 74° 34’ 02.17”	20
	S1-A1-13	537669	4335926	N 39° 10’ 18.28”	W 74° 33’ 50.13”	20
Sediment profile camera	S1-A1-1	534011	4329964	N 39° 07’ 05.41”	W 74° 36’ 23.66”	16
	S1-A1-2	534453	4330177	N 39° 07’ 12.26”	W 74° 36’ 05.21”	13
	S1-A1-3	534016	4331836	N 39° 08’ 06.13”	W 74° 36’ 23.11”	12
	S1-A1-4	534095	4331131	N 39° 07’ 43.25”	W 74° 36’ 19.93”	12
	S1-A1-5	535257	4331003	N 39° 07’ 38.94”	W 74° 35’ 31.59”	13
	S1-A1-6	535034	4332901	N 39° 08’ 40.53”	W 74° 35’ 40.51”	14
	S1-A1-7	535480	4332752	N 39° 08’ 35.63”	W 74° 35’ 21.97”	18
	S1-A1-8	536480	4332080	N 39° 08’ 13.69”	W 74° 34’ 40.44”	16
	S1-A1-9	536262	4333619	N 39° 09’ 03.66”	W 74° 34’ 49.21”	16
	S1-A1-10	537398	4334070	N 39° 09’ 18.10”	W 74° 34’ 01.81”	14
	S1-A1-11	537606	4333953	N 39° 09’ 14.28”	W 74° 33’ 53.13”	15
	S1-A1-12	537179	4334389	N 39° 09’ 28.49”	W 74° 34’ 10.88”	14
	S1-A1-13	537654	4335954	N 39° 10’ 19.18”	W 74° 33’ 50.76”	20

Table D2-1. Continued.

Sample Type	Sample Code	X	Y	Latitude	Longitude	Depth
Hydrolab	S1-A1-HL	533994	4331308	N 39° 07’ 49.01”	W 74° 36’ 24.11”	11
Trawl start	S1-A1-STR	534202	4331077	N 39° 07’ 41.49”	W 74° 36’ 15.50”	11
Trawl end	S1-A1-END	533778	4331393	N 39° 07’ 51.79”	W 74° 36’ 33.08”	16
Grain size	S1-A2-1	536921	4325820	N 39° 04’ 50.57”	W 74° 34’ 23.29”	15
	S1-A2-2	538271	4326145	N 39° 05’ 00.90”	W 74° 33’ 27.03”	20
	S1-A2-5	539265	4327066	N 39° 05’ 30.60”	W 74° 32’ 45.46”	21
	S1-A2-6	537491	4328031	N 39° 06’ 02.21”	W 74° 33’ 59.11”	16
	S1-A2-7	539284	4327996	N 39° 06’ 00.77”	W 74° 32’ 44.47”	14
	S1-A2-8	539745	4328276	N 39° 06’ 09.77”	W 74° 32’ 25.25”	15
	S1-A2-9	540661	4328045	N 39° 06’ 02.14”	W 74° 31’ 47.17”	18
	S1-A2-10	539376	4328960	N 39° 06’ 32.03”	W 74° 32’ 40.45”	13
	S1-A2-12	540550	4328977	N 39° 06’ 32.39”	W 74° 31’ 51.55”	16
	S1-A2-13	539206	4329836	N 39° 07’ 00.47”	W 74° 32’ 47.35”	19
	S1-A2-14	540133	4330551	N 39° 07’ 23.52”	W 74° 32’ 08.61”	16
	S1-A2-15	--	--	--	--	16
	S1-A2-16	542056	4330112	N 39° 07’ 08.95”	W 74° 30’ 48.62”	20
	S1-A2-17	539918	4330827	N 39° 07’ 32.51”	W 74° 32’ 17.47”	19
	S1-A2-18	540845	4331634	N 39° 07’ 58.54”	W 74° 31’ 38.69”	17
Grain size/ Infauna	S1-A2-3	537219	4327167	N 39° 05’ 34.20”	W 74° 34’ 10.62”	13
	S1-A2-4	537899	4327270	N 39° 05’ 37.43”	W 74° 33’ 42.31”	11
	S1-A2-11	539750	4328823	N 39° 06’ 27.53”	W 74° 32’ 24.90”	14
	S1-A2-19	542020	4331146	N 39° 07’ 42.50”	W 74° 30’ 49.87”	20
Sediment profile camera	S1-A2-1	536938	4325888	N 39° 04’ 52.75”	W 74° 34’ 22.57”	15
	S1-A2-2	538322	4326154	N 39° 05’ 01.19”	W 74° 33’ 24.91”	20
	S1-A2-3	537200	4327200	N 39° 05’ 35.27”	W 74° 34’ 11.41”	13
	S1-A2-4	537923	4327290	N 39° 05‘ 38.09”	W 74° 33’ 41.29”	11
	S1-A2-5	539296	4327093	N 39° 05' 31.47”	W 74° 32’ 44.18”	21
	S1-A2-6	537496	4328044	N 39° 06’ 02.63”	W 74° 33’ 58.90”	16
	S1-A2-7	539321	4327963	N 39° 05’ 59.69”	W 74° 32’ 42.97”	14
	S1-A2-8	539748	4328311	N 39° 06’ 10.93”	W 74° 32’ 25.10”	15
	S1-A2-9	540688	4328077	N 39° 06’ 03.17”	W 74° 31’ 46.03”	18
	S1-A2-10	539412	4328958	N 39° 06’ 31.97”	W 74° 32’ 38.95”	13
	S1-A2-11	539730	4328814	N 39° 06’ 27.23”	W 74° 32’ 25.75”	14
	S1-A2-12	540574	4328936	N 39° 06’ 31.07”	W 74° 31’ 50.59”	16
	S1-A2-13	539213	4329838	N 39° 07’ 00.53”	W 74° 32’ 47.05”	19
	S1-A2-14	540112	4330503	N 39° 07’ 21.95”	W 74° 32’ 09.49”	16

Table D2-1. Continued.						
Sample Type	Sample Code	X	Y	Latitude	Longitude	Depth
Sediment profile camera (Continued)	S1-A2-15	541356	4330565	N 39° 07' 23.76"	W 74° 31' 17.67"	16
	S1-A2-16	542079	4330060	N 39° 07' 07.25"	W 74° 30' 47.65"	20
	S1-A2-17	539936	4330818	N 39° 07' 32.21"	W 74° 32' 16.75"	19
	S1-A2-18	540841	4331616	N 39° 07' 57.95"	W 74° 31' 38.89"	17
	S1-A2-19	542022	4331151	N 39° 07' 42.67"	W 74° 30' 49.78"	20
Hydrolab	S1-A2-HL	537042	4327232	N 39° 05' 36.36"	W 74° 34' 17.99"	14
Trawl start	S1-A2-STR	537042	4327232	N 39° 05' 36.36"	W 74° 34' 17.99"	14
Trawl end	S1-A2-END	537344	4326849	N 39° 05' 23.89"	W 74° 34' 05.48"	10
Grain size	S1-C1-1	577135	4388940	N 39° 38' 48.38"	W 74° 06' 03.49"	17
	S1-C1-3	578355	4389203	N 39° 38' 56.51"	W 74° 05' 12.20"	17
	S1-C1-5	578348	4390910	N 39° 39' 51.89"	W 74° 05' 11.78"	20
	S1-C1-6	579527	4390948	N 39° 39' 52.73"	W 74° 04' 22.28"	15
	S1-C1-7	579958	4389671	N 39° 39' 11.16"	W 74° 04' 04.74"	15
	S1-C1-9	580322	4392111	N 39° 40' 30.17"	W 74° 03' 48.44"	15
	S1-C1-11	580159	4393419	N 39° 41' 12.65"	W 74° 03' 54.68"	15
	S1-C1-12	581868	4392952	N 39° 40' 56.93"	W 74° 02' 43.16"	18
	S1-C1-14	580810	4394266	N 39° 41' 39.89"	W 74° 03' 27.00"	15
	S1-C1-15	581098	4394038	N 39° 41' 32.41"	W 74° 03' 15.01"	16
	S1-C1-16	581721	4394599	N 39° 41' 50.38"	W 74° 02' 48.57"	16
Grain size/ Infauna	S1-C1-2	578276	4388814	N 39° 38' 43.92"	W 74° 05' 15.70"	14
	S1-C1-4	579580	4390022	N 39° 39' 22.67"	W 74° 04' 20.49"	15
	S1-C1-8	579362	4391468	N 39° 40' 09.65"	W 74° 04' 29.00"	20
	S1-C1-10	579362	4392696	N 39° 40' 49.47"	W 74° 04' 28.44"	14
	S1-C1-13	582194	4393663	N 39° 41' 19.86"	W 74° 02' 29.16"	17
Sediment profile camera	S1-C1-1	577097	4388936	N 39° 38' 48.29"	W 74° 06' 05.10"	17
	S1-C1-2	578212	4388818	N 39° 38' 44.09"	W 74° 05' 18.38"	14
	S1-C1-3	578341	4389236	N 39° 38' 57.59"	W 74° 05' 12.78"	17
	S1-C1-4	579504	4390041	N 39° 39' 23.31"	W 74° 04' 23.66"	15
	S1-C1-5	578347	4390916	N 39° 39' 52.07"	W 74° 05' 11.84"	20
	S1-C1-6	579534	4390967	N 39° 39' 53.33"	W 74° 04' 21.98"	15
	S1-C1-7	579951	4389694	N 39° 39' 11.93"	W 74° 04' 05.06"	15
	S1-C1-8	579385	4391505	N 39° 40' 10.85"	W 74° 04' 27.99"	20
	S1-C1-9	580350	4392130	N 39° 40' 30.77"	W 74° 03' 47.24"	15
	S1-C1-10	579338	4392696	N 39° 40' 49.49"	W 74° 04' 29.48"	14
	S1-C1-11	580143	4393422	N 39° 41' 12.77"	W 74° 03' 55.34"	15
	S1-C1-12	581868	4392967	N 39° 40' 57.41"	W 74° 02' 43.16"	18

Table D2-1. Continued.

Sample Type	Sample Code	X	Y	Latitude	Longitude	Depth
Sediment profile camera (Continued)	S1-C1-13	582163	4393634	N 39° 41’ 18.94”	W 74° 02’ 30.45”	17
	S1-C1-14	580764	4394258	N 39° 41’ 39.65”	W 74° 03’ 28.92”	15
	S1-C1-15	581130	4394033	N 39° 41’ 32.25”	W 74° 03’ 13.65”	16
	S1-C1-16	581719	4394575	N 39° 41’ 49.61”	W 74° 02’ 48.68”	16
Hydrolab	S1-C1-HL	581636	4394612	N 39° 41’ 50.86”	W 74° 02’ 52.14”	18
Trawl start	S1-C1-STR	578498	4391132	N 39° 39’ 59.03”	W 74° 05’ 05.41”	18
Trawl end	S1-C1-END	578453	4391820	N 39° 40’ 21.36”	W 74° 05’ 07.00”	14
Grain size	S1-F1-1	590903	4426512	N 39° 59’ 02.02”	W 73° 56’ 07.14”	20
	S1-F1-4	592291	4427306	N 39° 59’ 27.23”	W 73° 55’ 08.24”	18
Grain size/ Infauna	S1-F1-2	592150	4427129	N 39° 59’ 21.51”	W 73° 55’ 14.28”	20
	S1-F1-3	592611	4426765	N 39° 59’ 09.55”	W 73° 54’ 55.01”	20
Sediment profile camera	S1-F1-1	590863	4426506	N 39° 59’ 01.84”	W 73° 56’ 08.84”	20
	S1-F1-2	592125	4427161	N 39° 59’ 22.56”	W 73° 55’ 15.30”	18
Grain size	S1-F2-1	590611	4430171	N 40° 01’ 00.79”	W 73° 56’ 17.63”	22
	S1-F2-2	590843	4430600	N 40° 01’ 14.59”	W 73° 56’ 07.61”	18
	S1-F2-3	590552	4431395	N 40° 01’ 40.49”	W 73° 56 19.51”	18
	S1-F2-5	592366	4432105	N 40° 02’ 02.81”	W 73° 55’ 02.59”	19
Grain size/ Infauna	S1-F2-4	591621	4431664	N 40° 01’ 48.80”	W 73° 55’ 34.28”	18
	S1-F2-6	590781	4432144	N 40° 02’ 04.70”	W 73° 56’ 09.48”	22
Sediment profile camera	S1-F2-5	592360	4432132	N 40° 02’ 03.71”	W 73° 55’ 02.84”	19
	S1-F2-6	590737	4432171	N 40° 02’ 05.60”	W 73° 56’ 11.32”	22
Hydrolab	S1-F2(Out)–HL	592224	4433047	N 40° 02’ 33.41”	W 73° 55’ 08.13”	21
Trawl start	S1-F2(Out)–STR	592224	4433047	N 40° 02’ 33.41”	W 73° 55’ 08.13”	21
Trawl end	S1-F2(Out)-END	592851	4433818	N 40° 02’ 58.19”	W 73° 54’ 41.27”	22
Grain size	S1-G1-3	558008	4355539	N 39° 20’ 50.44”	W 74° 19’ 36.45”	16
	S1-G1-4	559477	4356054	N 39° 21’ 06.79”	W 74° 18’ 34.94”	17
	S1-G1-5	558691	4356944	N 39° 21’ 35.85”	W 74° 19’ 07.50”	13
	S1-G1-7	560399	4356745	N 39° 21’ 28.97”	W 74° 17’ 56.17”	18
	S1-G1-8	559422	4357636	N 39° 21’ 58.11”	W 74° 18’ 36.72”	14
Grain size/ Infauna	S1-G1-1	557177	4356031	N 39° 21’ 06.59”	W 74° 20’ 11.05”	10
	S1-G1-2	558225	4354700	N 39° 20’ 23.17”	W 74° 19’ 27.68”	20
	S1-G1-6	559158	4356772	N 39° 21’ 30.15”	W 74° 18’ 48.03”	14
Sediment profile camera	S1-G1-1	557188	4356020	N 39° 21’ 06.23”	W 74° 20’ 10.57”	10
	S1-G1-2	558223	4354697	N 39° 20’ 23.09”	W 74° 19’ 27.73”	20

Table D2-1. Continued.

Sample Type	Sample Code	X	Y	Latitude	Longitude	Depth
Sediment profile camera (Continued)	S1-G1-3	558028	4355517	N 39° 20’ 49.73”	W 74° 19’ 35.65”	16
	S1-G1-4	559441	4356050	N 39° 21’ 06.65”	W 74° 18’ 36.43”	17
	S1-G1-5	558672	4356938	N 39° 21’ 35.64”	W 74° 19’ 08.28”	13
	S1-G1-6	559167	4356731	N 39° 21’ 28.83”	W 74° 18’ 47.67”	14
	S1-G1-7	560391	4356719	N 39° 21’ 28.13”	W 74° 17’ 56.53”	18
	S1-G1-8	559401	4357585	N 39° 21’ 56.45”	W 74° 18’ 37.63”	16
Grain size	S1-G2-1	560075	4359303	N 39° 22’ 52.01”	W 74° 18’ 08.89”	14
	S1-G2-3	562164	4360060	N 39° 23’ 16.03”	W 74° 16’ 41.35”	14
	S1-G2-5	562401	4360268	N 39° 23’ 22.72”	W 74° 16’ 31.34”	13
	S1-G2-6	563432	4360235	N 39° 23’ 21.39”	W 74° 15’ 48.27”	17
	S1-G2-7	562438	4361802	N 39° 24’ 12.47”	W 74° 16’ 29.29”	13
	S1-G2-9	565188	4361484	N 39° 24’ 01.43”	W 74° 14’ 34.46”	13
	S1-G2-11	563082	4362405	N 39° 24’ 31.85”	W 74° 16’ 02.18”	14
	S1-G2-12	564532	4362732	N 39° 24’ 42.09”	W 74° 15’ 01.41”	15
Grain size/ Infauna	S1-G2-2	561492	4359754	N 39° 23’ 06.29”	W 74° 17’ 09.54”	14
	S1-G2-4	561599	4360680	N 39° 23’ 36.29”	W 74° 17’ 04.75”	12
	S1-G2-8	563683	4361365	N 39° 23’ 57.99”	W 74° 15’ 37.41”	10
	S1-G2-10	565539	4362028	N 39° 24’ 18.98”	W 74° 14’ 19.57”	15
Sediment profile camera	S1-G2-1	560063	4359216	N 39° 22’ 49.19”	W 74° 18’ 09.43”	14
	S1-G2-2	561479	4359767	N 39° 23’ 06.71”	W 74° 17’ 10.05”	18
	S1-G2-3	562154	4360053	N 39° 23’ 15.83”	W 74° 16’ 41.77”	14
	S1-G2-4	561619	4360677	N 39° 23’ 36.20”	W 74° 17’ 03.92”	12
	S1-G2-5	562405	4360246	N 39° 23’ 22.01”	W 74° 16’ 31.22”	13
	S1-G2-6	563402	4360252	N 39° 23’ 21.95”	W 74° 15’ 49.52”	17
	S1-G2-7	562452	4361827	N 39° 24’ 13.29”	W 74° 16’ 28.69”	13
	S1-G2-8	563721	4361346	N 39° 23’ 57.35”	W 74° 15’ 35.84”	10
	S1-G2-9	565178	4361432	N 39° 23’ 59.75”	W 74° 14’ 34.88”	13
	S1-G2-10	565512	4362023	N 39° 24’ 18.83”	W 74° 14’ 20.72”	15
	S1-G2-11	563058	4362436	N 39° 24’ 32.88”	W 74° 16’ 03.16”	14
	S1-G2-12	564537	4362757	N 39° 24’ 42.91”	W 74° 15’ 01.20”	15
Hydrolab	S1-G2-HL	564042	4361184	N 39° 23’ 52.02”	W 74° 15’ 22.47”	9
Trawl start	S1-G2-STR	564042	4361184	N 39° 23’ 52.02”	W 74° 15’ 22.47”	9
Trawl end	S1-G2-END	564377	4360651	N 39° 23’ 34.63”	W 74° 15’ 08.62”	20
Grain size	S1-G3-2	564985	4364486	N 39° 25’ 38.87”	W 74° 14’ 41.88”	14
	S1-G3-4	564583	4365128	N 39° 25’ 59.77”	W 74° 14’ 58.47”	14
	S1-G3-6	567057	4365425	N 39° 26’ 08.75”	W 74° 13’ 14.90”	16

Table D2-1. Continued.

Sample Type	Sample Code	X	Y	Latitude	Longitude	Depth
Grain size (Continued)	S1-G3-7	564516	4366808	N 39° 26' 54.29"	W 74° 15' 00.68"	14
	S1-G3-8	565294	4365820	N 39° 26' 22.04"	W 74° 14' 28.50"	14
	S1-G3-9	566560	4365950	N 39° 26' 25.92"	W 74° 13' 35.49"	15
Grain size/ Infauna	S1-G3-1	563372	4363995	N 39° 25' 23.35"	W 74° 15' 49.48"	13
	S1-G3-3	563408	4364866	N 39° 25' 51.59"	W 74° 15' 47.72"	11
	S1-G3-5	565665	4365572	N 39° 26' 13.91"	W 74° 14' 13.04"	18
Sediment profile camera	S1-G3-1	563369	4363997	N 39° 25' 23.44"	W 74° 15' 49.61"	13
	S1-G3-2	564923	4364460	N 39° 25' 38.02"	W 74° 14' 44.49"	14
	S1-G3-3	563406	4364869	N 39° 25' 51.71"	W 74° 15' 47.78"	11
	S1-G3-4	564537	4365047	N 39° 25' 57.17"	W 74° 15' 00.44"	14
	S1-G3-5	565662	4365576	N 39° 26' 14.03"	W 74° 14' 13.16"	18
	S1-G3-6	567057	4365425	N 39° 26' 08.75"	W 74° 13' 14.90"	16
	S1-G3-7	564491	4366748	N 39° 26' 52.37"	W 74° 15' 01.76"	14
	S1-G3-8	565204	4365781	N 39° 26' 20.80"	W 74° 14' 32.25"	14
	S1-G3-9	566549	4365930	N 39° 26' 25.25"	W 74° 13' 35.95"	15
Hydrolab	S1-G3-HL	563091	4363777	N 39° 25' 16.37"	W 74° 16' 01.35"	13
Trawl start	S1-G3-STR	563091	4363777	N 39° 25' 16.37"	W 74° 16' 01.35"	13
Trawl end	S1-G3-END	563012	4364375	N 39° 25' 35.80"	W 74° 16' 04.45"	11
Grain size/ Infauna	S1-R-1	545040	4344526	N 39° 14' 55.97"	W 74° 28' 40.87"	17
Sediment profile camera	S1-R-1	545031	4344522	N 39° 14' 55.85"	W 74° 28' 41.27"	17
Grain size/ Infauna	S1-R-2	575862	4380245	N 39° 34' 06.79"	W 74° 07' 00.50"	18
Sediment profile camera	S1-R-2	575857	4380231	N 39° 34' 06.35"	W 74° 07' 00.74"	18
Grain size/ Infauna	S1-R-3	584575	4411012	N 39° 50' 41.70"	W 74° 00' 41.15"	20
Sediment profile camera	S1-R-3	584563	4411018	N 39° 50' 41.90"	W 74° 00' 41.67"	20

Table D2-2. Sample types, sample codes, coordinates, and water depths for the September 1998 Survey 2.

Sample Type	Station Code	X	Y	Latitude	Longitude	Depth
Grain size/ Infauna	S2-A1-2	534438	4330185	N 39° 07' 12.53"	W 74° 36' 05.83"	15
	S2-A1-3	534003	4331777	N 39° 08' 04.22"	W 74° 36' 23.66"	13
	S2-A1-4	534119	4331149	N 39° 07' 43.83"	W 74° 36' 18.94"	16
	S2-A1-5	535342	4330947	N 39° 07' 37.10"	W 74° 35' 28.04"	15
	S2-A1-7	535484	4332762	N 39° 08' 35.96"	W 74° 35' 21.79"	16
	S2-A1-8	536443	4332069	N 39° 08' 13.35"	W 74° 34' 41.96"	15
	S2-A1-9	536247	4333571	N 39° 09' 02.11"	W 74° 34' 49.84"	17
	S2-A1-10	537380	4334074	N 39° 09' 18.23"	W 74° 34' 02.56"	14
	S2-A1-13	537668	4335927	N 39° 10' 18.30"	W 74° 33' 50.17"	20
Sediment profile camera	S2-A1-4	534114	4331136	N 39° 07' 43.42"	W 74° 36' 19.14"	16
	S2-A1-7	535483	4332784	N 39° 08' 36.68"	W 74° 35' 21.84"	16
	S2-A1-10	537373	4334068	N 39° 09' 18.06"	W 74° 34' 02.84"	13
	S2-A1-13	537676	4335935	N 39° 10' 18.58"	W 74° 33' 49.83"	20
Hydrolab	S2-A1-HL	534197	4331082	N 39° 07' 41.64"	W 74° 36' 15.70"	11
Trawl start	S2-A1-STR	534386	4331071	N 39° 07' 41.26"	W 74° 36' 07.85"	11
Trawl end	S2-A1-END	534902	4331018	N 39° 07' 39.48"	W 74° 35' 46.37"	10
Grain size/ Infauna	S2-A2-3	537198	4327165	N 39° 05' 34.14"	W 74° 34' 11.51"	13
	S2-A2-4	537917	4327281	N 39° 05' 37.80"	W 74° 33' 41.54"	11
	S2-A2-7	539299	4328005	N 39° 06' 01.05"	W 74° 32' 43.87"	14
	S2-A2-10	539384	4328964	N 39° 06' 32.18"	W 74° 32' 40.12"	12
	S2-A2-11	539757	4328832	N 39° 06' 27.83"	W 74° 32' 24.62"	13
	S2-A2-14	540129	4330560	N 39° 07' 23.81"	W 74° 32' 08.74"	15
	S2-A2-15	541340	4330533	N 39° 07' 22.75"	W 74° 31' 18.33"	17
	S2-A2-19	542036	4331127	N 39° 07' 41.89"	W 74° 30' 49.21"	20
Sediment profile camera	S2-A2-3	537181	4327174	N 39° 05' 34.44"	W 74° 34' 12.19"	13
	S2-A2-4	537869	4327286	N 39° 05' 37.97"	W 74° 33' 43.54"	11
	S2-A2-11	539759	4328806	N 39° 06' 26.99"	W 74° 32' 24.52"	13
	S2-A2-19	542021	4331130	N 39° 07' 42.00"	W 74° 30' 49.84"	19
Hydrolab	S2-A2-HL	537030	4327253	N 39° 05' 37.03"	W 74° 34' 18.47"	14
Trawl start	S2-A2-STR	537133	4327258	N 39° 05' 37.16"	W 74° 34' 14.20"	14
Trawl end	S2-A2-END	537609	4327277	N 39° 05' 37.73"	W 74° 33' 54.37"	12
Grain size/ Infauna	S2-C1-2	578281	4388813	N 39° 38' 43.90"	W 74° 05' 15.51"	16
	S2-C1-3	578369	4389185	N 39° 38' 55.94"	W 74° 05' 11.63"	18
	S2-C1-4	579581	4389961	N 39° 39' 20.69"	W 74 04' 20.43"	17

Table D2-2. Continued.						
Sample Type	Station Code	X	Y	Latitude	Longitude	Depth
Grain size/ Infauna (Continued)	S2-C1-5	578351	4390906	N 39° 39' 51.76"	W 74° 05' 11.67"	21
	S2-C1-8	579365	4391463	N 39° 40' 09.49"	W 74° 04' 28.87"	20
	S2-C1-9	580307	4392091	N 39° 40' 29.54"	W 74° 03' 49.07"	16
	S2-C1-10	579351	4392692	N 39° 40' 49.33"	W 74° 04' 28.93"	15
	S2-C1-11	580153	4393415	N 39° 41' 12.53"	W 74° 03' 54.92"	16
	S2-C1-12	581887	4392946	N 39° 40' 56.71"	W 74° 02' 42.35"	18
	S2-C1-13	582219	4393634	N 39° 41' 18.94"	W 74° 02' 28.10"	19
	S2-C1-16	581744	4394558	N 39° 41' 49.05"	W 74° 02' 47.65"	17
Sediment profile camera	S2-C1-2	578266	4388810	N 39° 38' 43.79"	W 74° 05' 16.13"	16
	S2-C1-4	579578	4389946	N 39° 39' 20.20"	W 74° 04' 20.57"	17
	S2-C1-8	579379	4391445	N 39° 40' 08.91"	W 74° 04' 28.29"	20
	S2-C1-10	579390	4392699	N 39° 40' 49.57"	W 74° 04' 27.29"	15
	S2-C1-13	582192	4393626	N 39° 41' 18.67"	W 74° 02' 29.25"	18
Hydrolab	S2-C1-HL	578479	4391113	N 39° 39' 58.42"	W 74° 05' 06.19"	16
Trawl start	S2-C1-STR	578605	4391235	N 39° 40' 02.35"	W 74° 05' 00.86"	15
Trawl end	S2-C1-END	578880	4391943	N 39° 40' 25.22"	W 74° 04' 49.00"	16
Grain size/ Infauna	S2-F1-1	590880	4426525	N 39° 59' 02.43"	W 73° 56' 08.13"	20
	S2-F1-2	592117	4427121	N 39° 59' 21.30"	W 73° 55' 15.66"	19
	S2-F1-3	592602	4426743	N 39° 59' 08.84"	W 73° 54' 55.41"	22
Sediment profile camera	S2-F1-2	592104	4427099	N 39° 59' 20.56"	W 73° 55' 16.22"	19
	S2-F1-3	592627	4426790	N 39° 59' 10.34"	W 73° 54' 54.32"	22
Grain size/ Infauna	S2-F2-2	590855	4430611	N 40° 01' 14.96"	W 73° 56' 07.13"	19
	S2-F2-3	590550	4431404	N 40° 01' 40.80"	W 73° 56' 19.56"	18
	S2-F2-4	591625	4431664	N 40° 01' 48.79"	W 73° 55' 34.11"	16
	S2-F2-5	592358	4432124	N 40° 02' 03.44"	W 73° 55' 02.94"	18
	S2-F2-6	590755	4432205	N 40° 02' 06.69"	W 73° 56' 10.51"	21
Sediment profile camera	S2-F2-4	591658	4431650	N 40° 01' 48.32"	W 73° 55' 32.72"	16
	S2-F2-6	590743	4432197	N 40° 02' 06.42"	W 73° 56' 11.05"	22
Hydrolab	S2-F2(In)-HL	592218	4433161	N 40° 02' 37.13"	W 73° 55' 08.31"	20
Trawl start	S2-F2(In)-STR	592317	4433175	N 40° 02' 37.53"	W 73° 55' 04.14"	21
Trawl end	S2-F2(In)-END	592542	4433818	N 40° 02' 58.29"	W 73° 54' 54.31"	20
Hydrolab	S2-F2(Out)-HL	591057	4432239	N 40° 02' 07.68"	W 73° 55' 57.77"	18

Table D2-2. Continued.

Sample Type	Station Code	X	Y	Latitude	Longitude	Depth
Trawl start	S2-F2(Out)-STR	591076	4432093	N 40° 02' 02.93"	W 73° 55' 57.06"	20
Trawl end	S2-F2(Out)-END	591269	4431562	N 40° 01' 45.62"	W 73° 55' 49.16"	20
Grain size/ Infauna	S2-G1-1	557175	4356021	N 39° 21' 06.28"	W 74° 20' 11.13"	11
	S2-G1-2	558223	4354724	N 39° 20' 23.95"	W 74° 19' 27.73"	20
	S2-G1-3	558035	4355540	N 39° 20' 50.46"	W 74° 19' 35.34"	12
	S2-G1-5	558664	4356948	N 39° 21' 35.99"	W 74° 19' 08.64"	14
	S2-G1-6	559165	4356760	N 39° 21' 29.77"	W 74° 18' 47.76"	15
	S2-G1-8	559424	4357654	N 39° 21' 58.71"	W 74° 18' 36.66"	15
Sediment profile camera	S2-G1-1	557152	4356041	N 39° 21' 06.93"	W 74° 20' 12.08"	10
	S2-G1-2	558227	4354706	N 39° 20' 23.38"	W 74° 19' 27.57"	19
	S2-G1-6	559189	4356777	N 39° 21' 30.32"	W 74° 18' 46.72"	15
Hydrolab	S2-G1-HL	557058	4355832	N 39° 21' 00.16"	W 74° 20' 16.06"	8
Trawl start	S2-G1-STR	556918	4355952	N 39° 21' 04.09"	W 74° 20' 21.87"	13
Trawl end	S2-G1-END	556417	4356489	N 39° 21' 21.64"	W 74° 20' 42.66"	10
Grain size/ Infauna	S2-G2-1	560107	4359252	N 39° 22' 50.36"	W 74° 18' 07.60"	16
	S2-G2-2	561474	4359790	N 39° 23' 07.46"	W 74° 17' 10.28"	19
	S2-G2-3	562168	4360067	N 39° 23' 16.26"	W 74° 16' 41.16"	15
	S2-G2-4	561601	4360676	N 39° 23' 36.16"	W 74° 17' 04.66"	14
	S2-G2-7	562440	4361803	N 39° 24' 12.49"	W 74° 16' 29.20"	13
	S2-G2-8	563697	4361362	N 39° 23' 57.86"	W 74° 15' 36.82"	12
	S2-G2-10	565544	4362019	N 39° 24' 18.69"	W 74° 14' 19.38"	15
	S2-G2-12	564528	4362727	N 39° 24' 41.94"	W 74° 15' 01.59"	16
Sediment profile camera	S2-G2-2	561482	4359792	N 39° 23' 07.53"	W 74° 17' 09.93"	19
	S2-G2-4	561620	4360682	N 39° 23' 36.34"	W 74° 17' 03.88"	14
	S2-G2-8	563701	4361365	N 39° 23' 57.99"	W 74° 15' 36.64"	12
	S2-G2-10	565545	4362030	N 39° 24' 19.06"	W 74° 14' 19.33"	15
Hydrolab	S2-G2-HL	564047	4361171	N 39° 23' 51.59"	W 74° 15' 22.23"	8
Trawl start	S2-G2-STR	564297	4360644	N 39° 23' 34.43"	W 74° 15' 11.98"	10
Trawl end	S2-G2-END	563707	4361172	N 39° 23' 51.70"	W 74° 15' 36.44"	19
Grain size/ Infauna	S2-G3-1	563376	4364012	N 39° 25' 23.90"	W 74° 15' 49.34"	14
	S2-G3-2	564994	4364483	N 39° 25' 38.77"	W 74° 14' 41.50"	15
	S2-G3-3	563425	4364878	N 39° 25' 52.00"	W 74° 15' 46.98"	11
	S2-G3-4	564571	4365132	N 39° 25' 59.91"	W 74° 14' 58.96"	15
	S2-G3-5	565660	4365584	N 39° 26' 14.28"	W 74° 14' 13.24"	18

Table D2-2. Continued.						
Sample Type	Station Code	X	Y	Latitude	Longitude	Depth
Grain size/ Infauna (Cont.)	S2-G3-7	564517	4366801	N 39° 26’ 54.07”	W 74° 15’ 00.65”	16
	S2-G3-9	566566	4365958	N 39° 26’ 26.17”	W 74° 13’ 35.22”	15
Sediment profile camera	S2-G3-1	563380	4363996	N 39° 25’ 23.38”	W 74° 15’ 49.17”	15
	S2-G3-3	563398	4364845	N 39° 25’ 50.91”	W 74° 15’ 48.12”	12
	S2-G3-5	565677	4365559	N 39° 26’ 13.47”	W 74° 14’ 12.55”	18
Hydrolab	S2-G3-HL	562981	4363666	N 39° 25’ 12.79”	W 74° 16’ 05.98”	12
Trawl start	S2-G3-STR	563123	4363842	N 39° 25’ 18.48”	W 74° 15’ 59.98”	12
Trawl end	S2-G3-END	562928	4364491	N 39° 25’ 39.57”	W 74° 16’ 07.90”	13
Grain size/ Infauna	S2-R-1	545048	4344524	N 39° 14’ 55.92”	W 74° 28’ 40.56”	16
Sediment profile camera	S2-R-1	545061	4344523	N 39° 14’ 55.88”	W 74° 28’ 40.03”	16
Grain size/ Infauna	S2-R-2	575875	4380249	N 39° 34’ 06.91”	W 74° 06’ 59.94”	19
Sediment profile camera	S2-R-2	575843	4380209	N 39° 34’ 05.64”	W 74° 07’ 01.32”	19
Grain size/ Infauna	S2-R-3	584552	4410968	N 39° 50’ 40.26”	W 74° 00’ 42.17”	19
Sediment profile camera	S2-R-3	584568	4411024	N 39° 50’ 42.08”	W 74° 00’ 41.44”	20

D3. HYDROLAB DATA

Table D3-1. Temperature, salinity, dissolved oxygen (DO), and depth data recorded during the May 1998 Survey (S1) at Sand Resource Areas A1, A2, C1, F2, G2, and G3 offshore New Jersey.

Sample Code	Temp (°C)	Salinity (ppt)	DO (mg/L)	Depth (m)
S1-A1-HL	12.9	31.5	7.35	0.61
S1-A1-HL	12.9	31.6	7.35	1.52
S1-A1-HL	12.9	31.8	7.34	3.05
S1-A1-HL	12.9	31.8	7.35	4.57
S1-A1-HL	12.8	31.9	7.45	6.10
S1-A1-HL	11.1	32.1	7.37	7.62
S1-A1-HL	11.1	31.9	7.22	9.14
S1-A1-HL	11.1	31.9	7.19	10.67
S1-A1-HL	11.1	32.1	7.09	12.19
S1-A1-HL	11.2	32.0	7.09	13.72
S1-A1-HL	11.2	32.2	7.06	15.24
S1-A2-HL	12.8	31.5	7.70	0.52
S1-A2-HL	12.9	31.7	7.66	1.80
S1-A2-HL	12.9	31.6	7.67	3.17
S1-A2-HL	12.9	32.3	7.63	4.63
S1-A2-HL	12.9	31.8	7.64	6.10
S1-A2-HL	12.7	31.8	7.71	7.62
S1-A2-HL	12.0	32.2	7.75	9.14
S1-A2-HL	11.0	32.1	7.67	10.67
S1-A2-HL	11.0	32.2	7.61	12.19
S1-A2-HL	11.0	32.3	7.57	13.72
S1-C1-HL	12.8	26.0	8.16	0.46
S1-C1-HL	11.9	26.9	8.26	1.52
S1-C1-HL	11.4	27.0	8.34	3.05
S1-C1-HL	11.0	27.3	8.34	4.57
S1-C1-HL	11.3	27.4	8.35	6.10
S1-C1-HL	11.1	27.6	8.35	7.62
S1-C1-HL	11.1	27.8	8.31	9.14
S1-C1-HL	11.0	27.8	8.17	10.67
S1-C1-HL	10.3	28.1	8.14	12.19
S1-C1-HL	9.6	28.6	7.71	13.72
S1-C1-HL	9.5	28.5	7.44	15.24
S1-F2(Out)-HL	11.9	29.9	8.70	0.37
S1-F2(Out)-HL	11.9	29.9	9.38	3.29
S1-F2(Out)-HL	11.8	30.0	10.56	4.82

Table D3-1. Continued.

Sample Code	Temp (°C)	Salinity (ppt)	DO (mg/L)	Depth (m)
S1-F2(Out)-HL	11.7	30.0	10.75	6.10
S1-F2(Out)-HL	11.5	30.5	10.79	7.86
S1-F2(Out)-HL	10.6	30.9	10.80	9.14
S1-F2(Out)-HL	9.2	32.5	10.86	10.73
S1-F2(Out)-HL	9.0	32.9	10.65	12.28
S1-F2(Out)-HL	8.7	33.4	10.31	13.35
S1-F2(Out)-HL	9.0	33.3	9.48	14.97
S1-F2(Out)-HL	8.5	33.4	9.57	16.79
S1-F2(Out)-HL	8.5	33.4	9.71	18.44
S1-F2(Out)-HL	8.5	33.5	9.73	19.51
S1-F2(Out)-HL	8.5	33.8	9.73	21.70
S1-F2(Out)-HL	8.2	33.8	9.60	23.68
S1-G2-HL	12.8	29.5	7.26	0.34
S1-G2-HL	12.8	30.0	7.34	1.52
S1-G2-HL	12.8	30.4	7.33	3.05
S1-G2-HL	12.6	30.8	7.38	4.57
S1-G2-HL	12.5	31.2	7.42	6.10
S1-G2-HL	11.5	31.3	7.29	7.62
S1-G2-HL	10.5	30.6	7.27	9.14
S1-G2-HL	10.3	32.4	7.08	10.67
S1-G2-HL	9.9	32.7	7.06	12.19
S1-G2-HL	9.9	32.5	7.01	13.72
S1-G2-HL	9.9	32.5	7.00	15.24
S1-G2-HL	9.8	32.7	6.97	16.76
S1-G2-HL	9.8	32.8	6.70	18.29
S1-G2-HL	9.8	32.8	6.41	19.81
S1-G3-HL	12.9	29.9	6.98	0.46
S1-G3-HL	12.9	30.2	7.01	1.52
S1-G3-HL	12.9	30.2	7.01	3.05
S1-G3-HL	12.9	31.0	6.99	4.57
S1-G3-HL	12.8	31.1	7.00	6.10
S1-G3-HL	12.1	31.4	7.01	7.62
S1-G3-HL	10.7	32.1	7.14	9.14

Table D3-2. Temperature, salinity, dissolved oxygen (DO), and depth data recorded during the September 1998 Survey 2 (S2) at Sand Resource Areas A1, A2, C1, F2, G1, G2, and G3 offshore New Jersey.

Sample Code	Temp (°C)	Salinity (ppt)	DO (mg/L)	Depth (m)
S2-A1-HL	23.0	33.1	7.20	0.46
S2-A1-HL	23.0	33.1	7.09	1.83
S2-A1-HL	23.0	32.9	7.08	3.35
S2-A1-HL	22.9	33.0	6.94	4.88
S2-A1-HL	22.2	33.0	6.17	6.40
S2-A1-HL	21.8	33.2	5.12	7.92
S2-A1-HL	21.6	33.2	4.74	9.45
S2-A1-HL	21.5	33.2	4.84	11.22
S2-A2-HL	22.4	32.9	7.18	0.03
S2-A2-HL	22.9	33.0	7.00	1.52
S2-A2-HL	22.9	32.9	6.99	3.05
S2-A2-HL	22.9	33.0	6.97	4.57
S2-A2-HL	22.9	33.0	6.96	6.10
S2-A2-HL	22.9	33.3	6.90	7.62
S2-A2-HL	20.5	33.4	5.93	9.14
S2-A2-HL	20.4	33.4	6.89	10.67
S2-A2-HL	20.2	33.3	5.82	12.19
S2-A2-HL	20.2	33.4	5.82	13.50
S2-C1-HL	22.9	27.6	7.22	0.30
S2-C1-HL	22.9	27.5	7.16	1.83
S2-C1-HL	22.8	27.5	7.16	3.35
S2-C1-HL	22.7	27.5	7.17	4.88
S2-C1-HL	22.7	27.5	7.14	6.40
S2-C1-HL	22.7	27.5	7.13	7.92
S2-C1-HL	22.6	27.5	7.09	9.45
S2-C1-HL	21.7	27.7	6.98	10.97
S2-C1-HL	19.9	27.7	5.82	12.50
S2-C1-HL	18.7	28.0	5.33	14.02
S2-C1-HL	16.4	28.0	3.12	15.85
S2-F2(In)-HL	23.0	29.2	7.16	0.15
S2-F2(In)-HL	23.0	29.3	7.03	1.52
S2-F2(In)-HL	22.8	29.4	7.01	3.05

Table D3-2. Continued.

Sample Code	Temp (°C)	Salinity (ppt)	DO (mg/L)	Depth (m)
S2-F2(In)-HL	22.8	29.3	6.98	4.57
S2-F2(In)-HL	22.7	29.3	6.96	6.10
S2-F2(In)-HL	22.7	29.3	6.96	7.62
S2-F2(In)-HL	22.7	29.3	6.95	9.14
S2-F2(In)-HL	22.7	29.3	6.93	10.67
S2-F2(In)-HL	20.9	29.6	6.18	12.19
S2-F2(In)-HL	15.5	30.5	6.15	13.72
S2-F2(In)-HL	13.6	30.4	5.79	15.24
S2-F2(In)-HL	13.0	30.8	4.90	18.35
S2-F2(Out)-HL	22.8	29.0	6.96	0.15
S2-F2(Out)-HL	22.8	29.3	6.94	1.83
S2-F2(Out)-HL	22.7	29.3	6.94	3.35
S2-F2(Out)-HL	22.7	29.3	6.93	4.88
S2-F2(Out)-HL	22.7	29.3	6.94	6.40
S2-F2(Out)-HL	22.7	29.3	6.91	7.92
S2-F2(Out)-HL	22.7	29.3	6.92	9.45
S2-F2(Out)-HL	22.7	29.3	6.90	10.97
S2-F2(Out)-HL	22.6	29.3	6.90	12.50
S2-F2(Out)-HL	22.5	29.3	6.86	14.02
S2-F2(Out)-HL	16.6	30.2	6.52	15.54
S2-F2(Out)-HL	13.9	30.8	5.89	17.07
S2-F2(Out)-HL	12.6	30.9	4.99	18.59
S2-F2(Out)-HL	12.5	30.7	4.32	20.03
S2-G1-HL	23.3	27.5	8.03	0.03
S2-G1-HL	23.3	27.5	7.56	1.52
S2-G1-HL	23.2	27.6	7.51	3.05
S2-G1-HL	23.0	27.6	7.54	4.57
S2-G1-HL	22.5	27.6	7.28	6.10
S2-G1-HL	22.3	27.6	6.64	7.62
S2-G1-HL	22.2	27.6	6.12	8.47
S2-G2-HL	23.6	27.5	7.28	0.12
S2-G2-HL	23.4	27.5	7.35	1.52
S2-G2-HL	23.0	27.6	7.34	3.05
S2-G2-HL	23.3	27.5	7.29	4.57

Table D3-2. Continued.

Sample Code	Temp (°C)	Salinity (ppt)	DO (mg/L)	Depth (m)
S2-G2-HL	23.0	27.6	7.30	6.10
S2-G2-HL	22.6	27.6	7.25	7.01
S2-G2-HL	21.2	27.6	6.48	8.41
S2-G3-HL	23.4	27.5	7.25	0.30
S2-G3-HL	22.9	27.5	7.40	1.52
S2-G3-HL	22.6	27.6	7.33	3.05
S2-G3-HL	22.5	27.6	7.15	4.57
S2-G3-HL	22.4	27.6	6.95	6.10
S2-G3-HL	22.4	27.6	6.87	7.62
S2-G3-HL	20.7	27.8	4.79	9.14
S2-G3-HL	20.0	27.8	3.35	11.49
S2-G3-HL	19.8	27.8	2.94	12.19

D4. SEDIMENT GRAIN SIZE DATA

Table D4-1. Sediment grain size data for samples collected during the May 1998 Survey 1 in the eight sand resource areas (Areas A1, A2, C1, F1, F2, G1, G2, and G3) and three adjacent stations (R1, R2, and R3) offshore New Jersey.

Area	Station	Median Grain Size (mm)	% Gravel	% Sand	% Silt	% Clay	Unaccounted	Folk's Description
A1	1	0.30	1.72	97.96	0.17	0.00	0.15	Slightly gravelly sand
A1	2	0.34	0.00	99.77	0.00	0.00	0.23	Sand
A1	3	0.35	0.09	99.43	0.12	0.00	0.36	Slightly gravelly sand
A1	4	1.83	46.20	53.36	0.00	0.00	0.44	Sandy gravel
A1	5	0.35	0.09	99.32	0.00	0.00	0.59	Slightly gravelly sand
A1	6	0.36	0.35	99.56	0.00	0.00	0.06	Slightly gravelly sand
A1	7	.042	11.02	88.39	0.00	0.00	0.59	Gravelly sand
A1	8	0.47	7.28	92.48	0.00	0.00	0.23	Gravelly sand
A1	9	>4.0	56.57	43.01	0.30	0.00	0.12	Sandy gravel
A1	10	0.35	0.00	99.83	0.00	0.00	0.17	Sand
A1	11	0.36	0.67	98.89	0.00	0.00	0.44	Slightly gravelly sand
A1	12	0.34	0.00	99.79	0.00	0.00	0.21	Sand
A1	13	0.15	0.00	96.27	3.52	0.00	0.21	Sand
A2	1	0.47	4.56	95.14	0.00	0.00	0.26	Slightly gravelly sand
A2	2	0.21	8.73	90.52	0.20	0.00	0.55	Gravelly sand
A2	3	0.67	15.05	84.48	0.00	0.00	0.47	Gravelly sand
A2	4	0.58	15.14	84.10	0.00	0.00	0.76	Gravelly sand
A2	5	0.18	0.33	99.26	0.30	0.00	0.12	Slightly gravelly sand
A2	6	0.46	5.69	93.42	0.00	0.00	0.89	Gravelly sand
A2	7	0.33	0.00	99.37	0.43	0.00	0.20	Sand
A2	8	0.31	0.00	99.62	0.00	0.00	0.38	Sand
A2	9	0.70	24.12	74.74	0.00	0.00	1.15	Gravelly sand
A2	10	0.39	0.00	99.61	0.00	0.00	0.39	Sand
A2	11	0.32	0.00	99.91	0.00	0.00	0.09	Sand
A2	12	0.31	0.36	97.48	0.00	0.00	2.16	Slightly gravelly sand
A2	13	0.38	1.31	98.40	0.00	0.00	0.29	Slightly gravelly sand

Table D4-1. Continued.								
Area	Station	Median Grain Size (mm)	% Gravel	% Sand	% Silt	% Clay	Unaccounted	Folk's Description
A2	14	1.44	38.66	61.28	0.00	0.00	0.06	Sandy gravel
A2	15	0.42	8.22	91.15	0.00	0.00	0.62	Gravelly sand
A2	16	0.88	23.44	76.12	0.00	0.00	0.44	Gravelly sand
A2	17	0.70	16.98	79.38	0.00	0.00	3.64	Gravelly sand
A2	18	0.58	26.91	72.85	0.00	0.00	0.24	Gravelly sand
A2	19	1.89	48.56	51.35	0.00	0.00	0.09	Sandy gravel
C1	1	2.05	50.69	48.26	0.00	0.00	1.05	Sandy gravel
C1	2	>4.0	81.30	18.13	0.00	0.00	0.57	Gravel
C1	3	0.90	29.81	69.59	0.00	0.00	0.69	Gravelly sand
C1	4	2.81	59.43	39.90	0.00	0.00	0.67	Sandy gravel
C1	5	0.19	0.00	99.91	0.06	0.00	0.03	Sand
C1	6	0.32	0.00	99.71	0.00	0.00	0.29	Sand
C1	7	>4.0	70.87	28.46	0.00	0.00	0.66	Sandy gravel
C1	8	0.16	0.00	61.60	23.70	14.70	0.00	Muddy sand
C1	9	0.40	0.00	99.51	0.00	0.00	0.49	Sand
C1	10	0.39	0.15	99.22	0.00	0.00	0.64	Slightly gravelly sand
C1	11	0.36	2.46	97.46	0.00	0.00	0.09	Slightly gravelly sand
C1	12	0.42	2.48	97.03	0.00	0.00	0.49	Slightly gravelly sand
C1	13	0.45	1.67	97.90	0.00	0.00	0.43	Slightly gravelly sand
C1	14	0.62	1.39	98.31	0.00	0.00	0.30	Slightly gravelly sand
C1	15	0.59	8.87	89.32	0.00	0.00	1.82	Gravelly sand
C1	16	0.70	36.18	63.76	0.00	0.00	0.06	Sandy gravel
F1	1	0.42	1.93	97.83	0.00	0.00	0.23	Slightly gravelly sand
F1	2	0.54	12.25	86.53	0.00	0.00	1.21	Gravelly sand
F1	3	0.93	31.85	67.65	0.00	0.00	0.50	Sandy gravel
F1	4	0.45	3.83	95.91	0.00	0.00	0.26	Slightly gravelly sand
F2	1	0.34	0.00	99.77	0.00	0.00	0.23	Sand
F2	2	0.34	0.06	99.77	0.00	0.00	0.17	Slightly gravelly sand
F2	3	2.02	50.33	49.24	0.00	0.00	0.43	Sandy gravel
F2	4	0.58	27.79	71.75	0.00	0.00	0.46	Gravelly sand

Table D4-1. Continued.

Area	Station	Median Grain Size (mm)	% Gravel	% Sand	% Silt	% Clay	Unaccounted	Folk's Description
F2	5	0.64	20.22	79.28	0.00	0.00	0.49	Gravelly sand
F2	6	1.18	17.95	81.64	0.00	0.00	0.41	Gravelly sand
G1	1	0.21	0.00	99.27	0.00	0.00	0.73	Sand
G1	2	1.01	40.62	40.83	13.85	4.70	0.00	Muddy sandy gravel
G1	3	0.19	0.49	99.36	0.00	0.00	0.15	Slightly gravelly sand
G1	4	0.45	2.66	97.05	0.17	0.00	0.12	Slightly gravelly sand
G1	5	0.21	0.44	90.30	0.18	0.00		Slightly gravelly sand
G1	6	0.46	1.83	96.87	1.22	0.00	0.09	Slightly gravelly sand
G1	7	0.79	13.60	85.80	0.00	0.00	0.60	Gravelly sand
G1	8	0.33	1.02	97.84	0.00	0.00	1.14	Slightly gravelly sand
G2	1	0.18	0.18	97.83	0.00	0.00	2.00	Slightly gravelly sand
G2	2	0.14	0.00	17.94	51.72	30.34	0.00	Sandy mud
G2	3	0.27	0.00	99.97	0.00	0.00	0.03	Sand
G2	4	0.19	0.09	99.66	0.00	0.00	0.26	Slightly gravelly sand
G2	5	0.28	0.03	97.87	1.07	0.00	1.04	Slightly gravelly sand
G2	6	0.18	0.19	99.42	0.33	0.00	0.06	Slightly gravelly sand
G2	7	0.39	0.61	99.04	0.00	0.00	0.35	Slightly gravelly sand
G2	8	0.58	1.26	97.76	0.00	0.00	0.99	Slightly gravelly sand
G2	9	0.38	0.96	98.86	0.00	0.00	0.18	Slightly gravelly sand
G2	10	0.40	2.16	97.45	0.00	0.00	0.39	Slightly gravelly sand
G2	11	0.31	0.59	98.84	0.50	0.00	0.06	Slightly gravelly sand
G2	12	0.42	0.58	98.57	0.00	0.00	0.85	Slightly gravelly sand

Table D4-1. Continued.

Area	Station	Median Grain Size (mm)	% Gravel	% Sand	% Silt	% Clay	Unaccounted	Folk's Description
G3	1	0.34	0.00	99.65	0.00	0.00	0.35	Sand
G3	2	0.41	0.87	98.59	0.00	0.00	0.55	Slightly gravelly sand
G3	3	0.36	0.50	99.14	0.00	0.00	0.35	Slightly gravelly sand
G3	4	0.39	0.52	98.64	0.00	0.00	0.84	Slightly gravelly sand
G3	5	0.35	1.41	98.33	0.00	0.00	0.26	Slightly gravelly sand
G3	6	0.46	1.39	98.17	0.00	0.00	0.43	Slightly gravelly sand
G3	7	0.38	1.01	98.43	0.00	0.00	0.56	Slightly gravelly sand
G3	8	0.35	0.64	98.81	0.00	0.00	0.55	Slightly gravelly sand
G3	9	0.46	15.22	84.17	0.00	0.00	0.61	Gravelly sand
R	1	0.17	1.14	97.96	0.26	0.00	0.64	Slightly gravelly sand
R	2	1.23	13.85	85.95	0.00	0.00	0.20	Gravelly sand
R	3	0.57	13.09	86.14	0.00	0.00	0.77	Gravelly sand

Table D4-2. Sediment grain size data for samples collected during the September 1998 Survey 2 in the eight sand resource areas (Areas A1, A2, C1, F1, F2, G1, G2, and G3) and three adjacent stations (R1, R2, and R3) offshore New Jersey.

Area	Station	Median Grain Size (mm)	% Gravel	% Sand	% Silt	% Clay	Unaccounted	Folk's Description
A1	2	0.37	0.00	99.95	0.00	0.00	0.05	Sand
A1	3	0.36	0.00	99.74	0.00	0.00	0.26	Sand
A1	4	1.18	29.01	70.68	0.00	0.00	0.30	Gravelly sand
A1	5	0.35	0.00	98.43	0.00	0.00	1.57	Sand
A1	7	0.46	14.17	85.78	0.00	0.00	0.05	Gravelly sand
A1	8	0.35	0.00	98.91	0.00	0.00	1.09	Sand
A1	9	>4.0	70.01	29.58	0.00	0.00	0.41	Sandy gravel
A1	10	0.35	0.00	99.89	0.00	0.00	0.11	Sand
A1	13	0.16	0.00	98.56	0.00	0.00	1.44	Sand
A2	3	0.48	14.22	58.64	0.00	0.00	27.13	Gravelly sand
A2	4	0.64	7.91	91.60	0.00	0.00	0.49	Gravelly sand
A2	7	0.37	0.00	99.94	0.00	0.00	0.16	Sand
A2	10	0.61	7.76	91.49	0.00	0.00	0.76	Gravelly sand
A2	11	0.37	0.00	99.92	0.00	0.00	0.08	Sand
A2	14	0.94	24.78	72.98	0.00	0.00	2.24	Gravelly sand
A2	15	0.44	0.00	99.76	0.00	0.00	0.24	Sand
A2	19	2.10	51.37	47.88	0.00	0.00	0.76	Sandy gravel
C1	2	>4.0	79.47	20.50	0.00	0.00	0.02	Sandy gravel
C1	3	0.79	19.55	80.40	0.00	0.00	0.05	Gravelly sand
C1	4	>4.0	70.06	29.46	0.00	0.00	0.48	Sandy gravel
C1	5	0.20	0.00	99.41	0.00	0.00	0.59	Sand
C1	8	0.50	0.00	98.70	0.00	0.00	1.30	Sand
C1	9	0.51	0.00	99.49	0.00	0.00	0.51	Sand
C1	10	0.43	0.00	99.69	0.00	0.00	0.31	Sand
C1	11	0.35	0.00	98.42	0.00	0.00	1.58	Sand
C1	12	0.46	0.00	99.71	0.00	0.00	0.29	Sand
C1	13	0.47	0.00	99.52	0.00	0.00	0.48	Sand
C1	16	0.78	24.71	75.11	0.00	0.00	0.19	Gravelly sand
F1	1	0.41	7.94	91.95	0.00	0.00	0.10	Gravelly sand
F1	2	0.97	36.30	63.62	0.00	0.00	0.08	Sandy gravel
F1	3	0.52	17.57	82.30	0.00	0.00	0.13	Gravelly sand
F2	2	0.36	0.00	99.42	0.00	0.00	0.58	Sand
F2	3	2.45	59.31	40.51	0.00	0.00	0.18	Sandy gravel

Table D4-2. Continued.

Area	Station	Median Grain Size (mm)	% Gravel	% Sand	% Silt	% Clay	Unaccounted	Folk's Description
F2	4	0.46	12.58	86.73	0.00	0.00	0.70	Gravelly sand
F2	5	0.36	0.00	99.41	0.00	0.00	0.59	Sand
F2	6	>4.0	58.67	41.13	0.00	0.00	0.20	Sandy gravel
G1	1	0.41	0.00	96.66	0.00	0.00	3.34	Sand
G1	2	0.87	32.08	67.34	0.00	0.00	0.58	Sandy gravel
G1	3	0.22	0.00	100.00	0.00	0.00	0.00	Sand
G1	5	0.33	0.00	99.89	0.00	0.00	0.11	Sand
G1	6	0.43	0.00	99.03	0.00	0.00	0.97	Sand
G1	8	0.35	0.00	99.68	0.00	0.00	0.32	Sand
G2	1	0.21	0.00	99.37	0.00	0.00	0.63	Sand
G2	2	0.15	0.00	73.97	0.00	0.00	26.03	Silty sand
G2	3	0.34	0.00	99.29	0.00	0.00	0.71	Sand
G2	4	0.23	0.00	99.57	0.00	0.00	0.43	Sand
G2	7	0.38	0.00	99.49	0.00	0.00	0.51	Sand
G2	8	0.68	3.43	96.41	0.00	0.00	0.15	Slightly gravelly sand
G2	10	0.41	0.00	99.75	0.00	0.00	0.25	Sand
G2	12	0.53	0.95	98.24	0.00	0.00	0.80	Slightly gravelly sand
G3	1	0.33	0.00	98.03	0.00	0.00	1.97	Sand
G3	2	0.40	0.00	99.97	0.00	0.00	0.03	Sand
G3	3	0.53	0.00	97.94	0.00	0.00	2.06	Sand
G3	4	0.38	0.00	98.88	0.00	0.00	1.12	Sand
G3	5	0.33	0.00	98.79	0.00	0.00	1.21	Sand
G3	7	0.31	0.24	99.02	0.00	0.00	0.74	Slightly gravelly sand
G3	9	0.43	0.00	99.40	0.00	0.00	0.60	Sand
R	1	0.18	0.00	99.39	0.00	0.00	0.61	Sand
R	2	1.57	30.14	68.88	0.00	0.00	0.98	Sandy gravel
R	3	0.67	24.54	75.33	0.00	0.00	0.13	Gravelly sand

D5. INFAUNAL DATA

Table D5-1. Phylogenetic list of infauna collected during May 1998 Survey 1 and September 1998 Survey 2 in the eight sand resource areas offshore New Jersey.

PHYLUM	CLASS	FAMILY	TAXONOMIC NAME
CNIDARIA	ACTINIARIA		ACTINIARIA (LPIL)
PLATYHELMINTHES	TURBELLARIA		TURBELLARIA (LPIL)
RHYNCHOCOELA			RHYNCHOCOELA (LPIL)
RHYNCHOCOELA		TUBULANIDAE	TUBULANUS (LPIL)
RHYNCHOCOELA		LINEIDAE	LINEIDAE (LPIL)
PHORONIDA		PHORONIDAE	PHORONIS (LPIL)
SIPUNCULA			SIPUNCULA (LPIL)
ANNELIDA	POLYCHAETA	AMPHARETIDAE	AMPHARETE AMERICANA
ANNELIDA	POLYCHAETA	AMPHARETIDAE	AMPHARETE ACUTIFRONS
ANNELIDA	POLYCHAETA	AMPHARETIDAE	AMPHARETE FINMARCHICA
ANNELIDA	POLYCHAETA	AMPHARETIDAE	ASABELLIDES OCULATA
ANNELIDA	POLYCHAETA	CAPITELLIDAE	CAPITELLA CAPITATA
ANNELIDA	POLYCHAETA	CAPITELLIDAE	CAPITELLA JONESI
ANNELIDA	POLYCHAETA	CAPITELLIDAE	MEDIOMASTUS (LPIL)
ANNELIDA	POLYCHAETA	CAPITELLIDAE	NOTOMASTUS HEMIPODUS
ANNELIDA	POLYCHAETA	CHAETOPTERIDAE	SPIOCHAETOPTERUS OCULATUS
ANNELIDA	POLYCHAETA	CIRRATULIDAE	CIRRIFORMIA GRANDIS
ANNELIDA	POLYCHAETA	CIRRATULIDAE	THARYX ACUTUS
ANNELIDA	POLYCHAETA	CIRRATULIDAE	CAULLERIELLA SP.J
ANNELIDA	POLYCHAETA	CIRRATULIDAE	APHELOCHAETA MARIONI
ANNELIDA	POLYCHAETA	DORVILLEIDAE	SCHISTOMERINGOS PECTINATA
ANNELIDA	POLYCHAETA	DORVILLEIDAE	PROTODORVILLEA KEFERSTEINI
ANNELIDA	POLYCHAETA	DORVILLEIDAE	PAROUGIA CAECA
ANNELIDA	POLYCHAETA	FLABELLIGERIDAE	PHERUSA PLUMOSA
ANNELIDA	POLYCHAETA	GLYCERIDAE	GLYCERA AMERICANA
ANNELIDA	POLYCHAETA	GLYCERIDAE	GLYCERA DIBRANCHIATA
ANNELIDA	POLYCHAETA	GLYCERIDAE	GLYCERA CAPITATA
ANNELIDA	POLYCHAETA	GLYCERIDAE	HEMIPODUS ROSEUS
ANNELIDA	POLYCHAETA	GONIADIDAE	GONIADELLA GRACILIS
ANNELIDA	POLYCHAETA	HESIONIDAE	MICROPHTHALMUS HARTMANAE
ANNELIDA	POLYCHAETA	HESIONIDAE	MICROPHTHALMUS SIMILIS
ANNELIDA	POLYCHAETA	LUMBRINERIDAE	LUMBRINERIDES ACUTA
ANNELIDA	POLYCHAETA	LUMBRINERIDAE	SCOLETOMA ACICULARUM
ANNELIDA	POLYCHAETA	LUMBRINERIDAE	SCOLETOMA FRAGILIS
ANNELIDA	POLYCHAETA	LUMBRINERIDAE	SCOLETOMA VERRILLI
ANNELIDA	POLYCHAETA	MALDANIDAE	AXIOTHELLA MUCOSA
ANNELIDA	POLYCHAETA	MALDANIDAE	EUCLYMENE (LPIL)

Table D5-1. Continued.

PHYLUM	CLASS	FAMILY	TAXONOMIC NAME
ANNELIDA	POLYCHAETA	MAGELONIDAE	MAGELONA PAPILLICORNIS
ANNELIDA	POLYCHAETA	NEPHTYIDAE	NEPHTYS BUCERA
ANNELIDA	POLYCHAETA	NEPHTYIDAE	NEPHTYS PICTA
ANNELIDA	POLYCHAETA	NEPHTYIDAE	NEPHTYS INCISA
ANNELIDA	POLYCHAETA	NEREIDIDAE	NEREIS SUCCINEA
ANNELIDA	POLYCHAETA	NEREIDIDAE	NEREIS ACUMINATA
ANNELIDA	POLYCHAETA	OPHELIIDAE	OPHELIA DENTICULATA
ANNELIDA	POLYCHAETA	OPHELIIDAE	TRAVISIA PARVA
ANNELIDA	POLYCHAETA	ONUPHIDAE	DIOPATRA CUPREA
ANNELIDA	POLYCHAETA	ONUPHIDAE	ONUPHIS EREMITA
ANNELIDA	POLYCHAETA	OWENIIDAE	OWENIA FUSIFORMIS
ANNELIDA	POLYCHAETA	ORBINIIDAE	SCOLOPLOS (LPIL)
ANNELIDA	POLYCHAETA	ORBINIIDAE	LEITOSCOLOPLOS FRAGILIS
ANNELIDA	POLYCHAETA	ORBINIIDAE	LEITOSCOLOPLOS ROBUSTUS
ANNELIDA	POLYCHAETA	ORBINIIDAE	ORBINIA AMERICANA
ANNELIDA	POLYCHAETA	PARAONIDAE	ARICIDEA CATHERINAE
ANNELIDA	POLYCHAETA	PARAONIDAE	ARICIDEA WASSI
ANNELIDA	POLYCHAETA	PARAONIDAE	ARICIDEA CERRUTII
ANNELIDA	POLYCHAETA	PARAONIDAE	CIRROPHORUS ILVANA
ANNELIDA	POLYCHAETA	PARAONIDAE	PARAONIS FULGENS
ANNELIDA	POLYCHAETA	PILARGIDAE	ANCISTROSYLLIS HARTMANAE
ANNELIDA	POLYCHAETA	PILARGIDAE	SIGAMBRA TENTACULATA
ANNELIDA	POLYCHAETA	PHYLLODOCIDAE	PARANAITIS SPECIOSA
ANNELIDA	POLYCHAETA	PHYLLODOCIDAE	PHYLLODOCE ARENAE
ANNELIDA	POLYCHAETA	PHYLLODOCIDAE	EUMIDA SANGUINEA
ANNELIDA	POLYCHAETA	PHYLLODOCIDAE	HESIONURA ELONGATA
ANNELIDA	POLYCHAETA	PHYLLODOCIDAE	HYPERETEONE HETEROPODA
ANNELIDA	POLYCHAETA	PHYLLODOCIDAE	HYPERETEONE FOLIOSA
ANNELIDA	POLYCHAETA	POLYNOIDAE	LEPIDONOTUS SUBLEVIS
ANNELIDA	POLYCHAETA	POLYNOIDAE	HARMOTHOE EXTENUATA
ANNELIDA	POLYCHAETA	POLYNOIDAE	HARMOTHOE IMBRICATA
ANNELIDA	POLYCHAETA	PISIONIDAE	PISIONE REMOTA
ANNELIDA	POLYCHAETA	SIGALIONIDAE	STHENELAIS LIMICOLA
ANNELIDA	POLYCHAETA	SIGALIONIDAE	SIGALION ARENICOLA
ANNELIDA	POLYCHAETA	SPIONIDAE	APOPRIONOSPIO PYGMAEA
ANNELIDA	POLYCHAETA	SPIONIDAE	APOPRIONOSPIO DAYI
ANNELIDA	POLYCHAETA	SPIONIDAE	POLYDORA CORNUTA
ANNELIDA	POLYCHAETA	SPIONIDAE	SPIO PETTIBONEAE
ANNELIDA	POLYCHAETA	SPIONIDAE	SPIO SETOSA

Table D5-1. Continued.

PHYLUM	CLASS	FAMILY	TAXONOMIC NAME
ANNELIDA	POLYCHAETA	SPIONIDAE	SPIOPHANES BOMBYX
ANNELIDA	POLYCHAETA	SPIONIDAE	STREBLOSPIO BENEDICTI
ANNELIDA	POLYCHAETA	SPIONIDAE	DISPIO UNCINATA
ANNELIDA	POLYCHAETA	SPIONIDAE	SCOLELEPIS SQUAMATA
ANNELIDA	POLYCHAETA	SPIONIDAE	DIPOLYDORA SOCIALIS
ANNELIDA	POLYCHAETA	SYLLIDAE	PARAPIONOSYLLIS LONGICIRRATA
ANNELIDA	POLYCHAETA	SYLLIDAE	BRANIA WELLFLEETENSIS
ANNELIDA	POLYCHAETA	SYLLIDAE	SPHAEROSYLLIS PIRIFEROPSIS
ANNELIDA	POLYCHAETA	SYLLIDAE	SPHAEROSYLLIS PERKINSI
ANNELIDA	POLYCHAETA	SYLLIDAE	STREPTOSYLLIS ARENAE
ANNELIDA	POLYCHAETA	SYLLIDAE	EXOGONE DISPAR
ANNELIDA	POLYCHAETA	SYLLIDAE	EXOGONE HEBES
ANNELIDA	POLYCHAETA	TEREBELLIDAE	LOIMIA MEDUSA
ANNELIDA	POLYCHAETA	TEREBELLIDAE	PISTA CRISTATA
ANNELIDA	POLYCHAETA	TEREBELLIDAE	POLYCIRRUS (LPIL)
ANNELIDA	POLYCHAETA	TEREBELLIDAE	PARAEUPOLYMNIA SP.A
ANNELIDA	POLYCHAETA	OENONIDAE	DRILONEREIS LONGA
ANNELIDA	POLYCHAETA	OENONIDAE	ARABELLA IRICOLOR
ANNELIDA	POLYCHAETA	OENONIDAE	NOTOCIRRUS SPINIFERUS
ANNELIDA	POLYCHAETA	PECTINARIIDAE	PECTINARIA GOULDII
ANNELIDA	POLYCHAETA	POLYGORDIIDAE	POLYGORDIUS (LPIL)
ANNELIDA	POLYCHAETA	MALDANIDAE	SABACO AMERICANUS
ANNELIDA	POLYCHAETA	SABELLARIIDAE	SABELLARIA VULGARIS
ANNELIDA	POLYCHAETA	SPIRORBIDAE	SPIRORBIDAE (LPIL)
ANNELIDA	OLIGOCHAETA		OLIGOCHAETA (LPIL)
MOLLUSCA	BIVALVIA	SEMELIDAE	SEMELE NUCULOIDES
MOLLUSCA	BIVALVIA	SOLENIDAE	ENSIS DIRECTUS
MOLLUSCA	BIVALVIA	NUCULIDAE	NUCULA PROXIMA
MOLLUSCA	BIVALVIA	MYTILIDAE	CRENELLA DECUSSATA
MOLLUSCA	BIVALVIA	MYTILIDAE	CRENELLA GLANDULA
MOLLUSCA	BIVALVIA	MYTILIDAE	MYTILUS EDULIS
MOLLUSCA	BIVALVIA	CARDIIDAE	CARDIIDAE (LPIL)
MOLLUSCA	BIVALVIA	TELLINIDAE	TELLINA AGILIS
MOLLUSCA	BIVALVIA	VENERIDAE	MERCENARIA MERCENARIA
MOLLUSCA	BIVALVIA	VENERIDAE	PITAR MORRHUANUS
MOLLUSCA	BIVALVIA	PERIPLOMATIDAE	PERIPLOMA LEANUM
MOLLUSCA	BIVALVIA	DONACIDAE	DONAX VARIABILIS
MOLLUSCA	BIVALVIA	MACTRIDAE	SPISULA SOLIDISSIMA

Table D5-1. Continued.

PHYLUM	CLASS	FAMILY	TAXONOMIC NAME
MOLLUSCA	BIVALVIA	ASTARTIDAE	ASTARTE CASTANEA
MOLLUSCA	BIVALVIA	NUCULANIDAE	YOLDIA (LPIL)
MOLLUSCA	BIVALVIA	LYONSIIDAE	LYONSIA HYALINA
MOLLUSCA	BIVALVIA	PANDORIDAE	PANDORA GOULDIANA
MOLLUSCA	BIVALVIA	PETRICOLIDAE	PETRICOLA PHOLADIFORMIS
MOLLUSCA	BIVALVIA	SOLEMYACIDAE	SOLEMYA VELUM
MOLLUSCA	BIVALVIA	SOLECURTIDAE	SOLECURTIDAE (LPIL)
MOLLUSCA	BIVALVIA	MYIDAE	MYA ARENARIA
MOLLUSCA	BIVALVIA	MONTACUTIDAE	MYSELLA PLANULATA
MOLLUSCA	GASTROPODA	EPITONIIDAE	EPITONIUM GREENLANDICUM
MOLLUSCA	GASTROPODA	NATICIDAE	EUSPIRA HEROS
MOLLUSCA	GASTROPODA	NATICIDAE	TECTONATICA PUSILLA
MOLLUSCA	GASTROPODA	NATICIDAE	NEVERITA DUPLICATA
MOLLUSCA	GASTROPODA	COLUMBELLIDAE	ANACHIS LAFRESNAYI
MOLLUSCA	GASTROPODA	COLUMBELLIDAE	MITRELLA LUNATA
MOLLUSCA	GASTROPODA	NASSARIIDAE	ILYANASSA TRIVITTATA
MOLLUSCA	GASTROPODA	ACTEONIDAE	RICTAXIS PUNCTOSTRIATUS
MOLLUSCA	GASTROPODA	CAECIDAE	CAECUM JOHNSONI
MOLLUSCA	GASTROPODA	CAECIDAE	CAECUM PULCHELLUM
MOLLUSCA	GASTROPODA	PYRAMIDELLIDAE	TURBONILLA INTERRUPTA
MOLLUSCA	GASTROPODA	PYRAMIDELLIDAE	ODOSTOMIA GIBBOSA
MOLLUSCA	GASTROPODA	TURRIDAE	TURRIDAE (LPIL)
MOLLUSCA	GASTROPODA	SCAPHANDRIDAE	ACTEOCINA BIDENTATA
MOLLUSCA	GASTROPODA	CORAMBIDAE	DORIDELLA (LPIL)
MOLLUSCA	GASTROPODA	CALYPTRAEIDAE	CREPIDULA FORNICATA
MOLLUSCA	GASTROPODA	CALYPTRAEIDAE	CREPIDULA PLANA
ARTHROPODA	ISOPODA	ANTHURIDAE	PTILANTHURA TRICARINA
ARTHROPODA	ISOPODA	IDOTEIDAE	CHIRIDOTEA TUFTSI
ARTHROPODA	ISOPODA	IDOTEIDAE	EDOTIA TRILOBA
ARTHROPODA	ISOPODA	CIROLANIDAE	POLITOLANA POLITA
ARTHROPODA	ISOPODA	SPHAEROMATIDAE	ANCINUS DEPRESSUS
ARTHROPODA	AMPHIPODA	COROPHIIDAE	COROPHIUM (LPIL)
ARTHROPODA	AMPHIPODA	AMPELISCIDAE	AMPELISCA ABDITA
ARTHROPODA	AMPHIPODA	AMPELISCIDAE	AMPELISCA SP.X
ARTHROPODA	AMPHIPODA	AMPELISCIDAE	AMPELISCA MACROCEPHALA
ARTHROPODA	AMPHIPODA	OEDICEROTIDAE	AMEROCULODES EDWARDSI
ARTHROPODA	AMPHIPODA	OEDICEROTIDAE	AMERICHELIDIUM AMERICANUM
ARTHROPODA	AMPHIPODA	OEDICEROTIDAE	BATHYMEDON (LPIL)

Table D5-1. Continued.

PHYLUM	CLASS	FAMILY	TAXONOMIC NAME
ARTHROPODA	AMPHIPODA	STENOTHOIDAE	STENOTHOIDAE (LPIL)
ARTHROPODA	AMPHIPODA	PODOCERIDAE	DYOPEDOS MONACANTHUS
ARTHROPODA	AMPHIPODA	GAMMARIDAE	GAMMARUS (LPIL)
ARTHROPODA	AMPHIPODA	AORIDAE	UNCIOLA SERRATA
ARTHROPODA	AMPHIPODA	AORIDAE	UNCIOLA IRRORATA
ARTHROPODA	AMPHIPODA	AORIDAE	PSEUDUNCIOLA OBLIQUUA
ARTHROPODA	AMPHIPODA	PHOXOCEPHALIDAE	RHEPOXYNIUS EPISTOMUS
ARTHROPODA	AMPHIPODA	PHOXOCEPHALIDAE	RHEPOXYNIUS HUDSONI
ARTHROPODA	AMPHIPODA	PHOXOCEPHALIDAE	PHOXOCEPHALUS HOLBOLLI
ARTHROPODA	AMPHIPODA	HAUSTORIIDAE	ACANTHOHAUSTORIUS SHOEMAKERI
ARTHROPODA	AMPHIPODA	HAUSTORIIDAE	ACANTHOHAUSTORIUS MILLSI
ARTHROPODA	AMPHIPODA	HAUSTORIIDAE	PROTOHAUSTORIUS WIGLEYI
ARTHROPODA	AMPHIPODA	HAUSTORIIDAE	PARAHAUSTORIUS ATTENUATUS
ARTHROPODA	AMPHIPODA	HAUSTORIIDAE	BATHYPOREIA PARKERI
ARTHROPODA	AMPHIPODA	HAUSTORIIDAE	BATHYPOREIA QUODDYENSIS
ARTHROPODA	AMPHIPODA	LYSIANASSIDAE	HIPPOMEDON SERRATUS
ARTHROPODA	AMPHIPODA	SYNOPIIDAE	TIRON (LPIL)
ARTHROPODA	AMPHIPODA	ISCHYROCERIDAE	CERAPUS TUBULARIS
ARTHROPODA	AMPHIPODA	ISAEIDAE	MICROPROTOPUS RANEYI
ARTHROPODA	CUMACEA	BODOTRIIDAE	PSEUDOLEPTOCUMA MINOR
ARTHROPODA	CUMACEA	DIASTYLIDAE	OXYUROSTYLIS SMITHI
ARTHROPODA	CUMACEA	DIASTYLIDAE	DIASTYLIS POLITA
ARTHROPODA	MYSIDACEA	MYSIDAE	AMERICAMYSIS BIGELOWI
ARTHROPODA	TANAIDACEA	NOTOTANAIDAE	TANAISSUS PSAMMOPHILUS
ARTHROPODA	DECAPODA (NATANTIA)	CRANGONIDAE	CRANGON SEPTEMSPINOSA
ARTHROPODA	DECAPODA (REPTANTIA)	PINNOTHERIDAE	PINNIXA CHAETOPTERANA
ARTHROPODA	DECAPODA (REPTANTIA)	PINNOTHERIDAE	DISSODACTYLUS MELLITAE
ARTHROPODA	DECAPODA (REPTANTIA)	PORCELLANIDAE	EUCERAMUS PRAELONGUS
ARTHROPODA	DECAPODA (REPTANTIA)	XANTHIDAE	EURYPANOPEUS DEPRESSUS
ARTHROPODA	DECAPODA (REPTANTIA)	PORTUNIDAE	OVALIPES OCELLATUS
ARTHROPODA	DECAPODA (REPTANTIA)	PAGURIDAE	PAGURUS LONGICARPUS
ARTHROPODA	DECAPODA (REPTANTIA)	PAGURIDAE	PAGURUS POLITUS

Table D5-1. Continued.

PHYLUM	CLASS	FAMILY	TAXONOMIC NAME
ARTHROPODA	DECAPODA (REPTANTIA)	MAJIDAE	LIBINIA DUBIA
ARTHROPODA	DECAPODA (REPTANTIA)	HIPPIDAE	EMERITA TALPOIDA
ARTHROPODA	DECAPODA (REPTANTIA)	CANCRIDAE	CANCER IRRORATUS
ARTHROPODA	OSTRACODA	SARSIELLIDAE	EUSARSIELLA TEXANA
ARTHROPODA	ACARINA		ACARINA (LPIL)
ECHINODERMATA	HOLOTHUROIDEA	SYNAPTIDAE	LEPTOSYNAPTA (LPIL)
ECHINODERMATA	ECHINOIDEA	MELLITIDAE	ENCOPE ABERRANS
ECHINODERMATA	ECHINOIDEA	ECHINARACHNIDAE	ECHINARACHNIUS PARMA
ECHINODERMATA	ASTEROIDEA	ASTERIIDAE	ASTERIAS FORBESI
CEPHALOCHORDATA	LEPTOCARDII	BRANCHIOSTOMIDAE	BRANCHIOSTOMA (LPIL)
UROCHORDATA	ASCIDIACEA		ASCIDIACEA (LPIL)

Table D5-2. Infaunal assemblage summary parameters for the May 1998 Survey 1 in the eight sand resource areas (Areas A1, A2, C1, F1, F2, G1, G2, and G3) and three adjacent stations (R1, R2, and R3) offshore New Jersey.

Area	Station	Total Number of Taxa	Total Number of Individuals	Mean Density (Individuals/m^2)	Diversity (H')	Evenness (J')	Richness (D)
A1	1	67	1,808	18,080	2.91	0.69	8.80
A1	2	22	108	1,080	2.50	0.81	4.49
A1	3	33	250	2,500	2.58	0.74	5.80
A1	4	27	1,424	14,240	1.49	0.45	3.58
A2	1	20	89	890	2.42	0.81	4.23
A2	2	30	470	4,700	2.62	0.77	4.71
A2	3	19	82	820	2.60	0.88	4.08
A2	4	14	228	2,280	1.17	0.44	2.39
C1	1	36	629	6,290	2.31	0.64	5.43
C1	2	34	1,562	15,620	1.29	0.37	4.49
C1	3	15	56	560	1.89	0.70	3.48
C1	4	20	89	890	2.69	0.90	4.23
C1	5	33	791	7,910	1.89	0.54	4.80
F1	1	31	921	9,210	1.41	0.41	4.40
F1	2	30	297	2,970	2.06	0.61	5.09
F2	1	35	593	5,930	2.42	0.68	5.32
F2	2	16	108	1,080	2.08	0.75	3.20
G1	1	17	41	410	2.31	0.82	4.31
G1	2	26	415	4,150	2.24	0.69	4.15
G1	3	20	1,238	12,380	0.37	0.12	2.67
G2	1	36	2,029	20,290	0.98	0.27	4.60
G2	2	32	398	3,980	2.64	0.76	5.18
G2	3	23	507	5,070	1.60	0.51	3.53
G2	4	18	94	940	2.40	0.83	3.74
G3	1	31	195	1,950	2.75	0.80	5.69
G3	2	17	67	670	2.35	0.83	3.81
G3	3	52	2,373	23,730	1.20	0.30	6.56
R	1	39	748	7,480	2.13	0.58	5.74
R	2	44	4,296	42,960	1.42	0.38	5.14
R	3	34	1,252	12,520	1.01	0.29	4.63

Table D5-3. Infaunal assemblage summary parameters for the September 1998 Survey 2 in the eight sand resource areas (Areas A1, A2, C1, F1, F2, G1, G2, and G3) and three adjacent stations (R1, R2, and R3) offshore New Jersey.

Area	Station	Total Number of Taxa	Total Number of Individuals	Mean Density (Individuals/m^2)	Diversity (H')	Evenness (J')	Richness (D)
A1	2	29	412	4,120	2.50	0.74	4.65
A1	3	36	299	2,990	2.73	0.76	6.14
A1	4	60	1,508	15,080	2.54	0.62	8.06
A1	5	33	437	4,370	2.46	0.70	5.26
A1	7	36	1,242	12,420	1.48	0.41	4.91
A1	8	33	216	2,160	2.61	0.75	5.95
A1	9	48	411	4,110	2.62	0.68	7.81
A1	10	33	227	2,270	2.49	0.71	5.90
A1	13	57	1,853	18,530	2.30	0.57	7.44
A2	3	23	177	1,770	2.34	0.75	4.25
A2	4	42	477	4,770	2.56	0.68	6.65
A2	7	38	298	2,980	2.63	0.72	6.49
A2	10	42	280	2,800	2.86	0.77	7.28
A2	11	24	199	1,990	2.22	0.70	4.35
A2	14	31	1,074	10,740	2.51	0.73	4.30
A2	15	26	120	1,200	2.21	0.68	5.22
A2	19	40	949	9,490	1.86	0.50	5.69
C1	2	26	145	1,450	2.68	0.82	5.02
C1	3	25	1,589	15,890	0.29	0.09	3.26
C1	4	23	132	1,320	2.41	0.77	4.51
C1	5	31	155	1,550	2.32	0.68	5.95
C1	8	33	163	1,630	2.75	0.79	6.28
C1	9	38	624	6,240	2.02	0.56	5.75
C1	10	28	143	1,430	2.53	0.76	5.44
C1	11	27	309	3,090	1.82	0.55	4.53
C1	12	39	657	6,570	2.29	0.63	5.86
C1	13	18	267	2,670	1.47	0.51	3.04
C1	16	25	42	420	3.04	0.94	6.42
F1	1	41	960	9,600	1.80	0.48	5.83
F1	2	34	313	3,130	2.56	0.73	5.74
F1	3	34	249	2,490	2.06	0.58	5.98
F2	2	19	418	4,180	1.75	0.59	2.98
F2	3	29	383	3,830	2.40	0.71	4.71
F2	4	21	148	1,480	2.31	0.76	4.00
F2	5	29	355	3,550	2.26	0.67	4.77
F2	6	31	392	3,920	1.68	0.49	5.02
G1	1	31	224	2,240	2.54	0.74	5.54
G1	2	61	1,097	10,970	2.60	0.63	8.57
G1	3	40	732	7,320	2.13	0.58	5.91
G1	5	39	747	7,470	2.03	0.55	5.74

Table D5-3. Continued.

Area	Station	Total Number of Taxa	Total Number of Individuals	Mean Density (Individuals/m^2)	Diversity (H')	Evenness (J')	Richness (D)
G1	6	48	222	2,220	3.07	0.79	8.70
G1	8	39	841	8,410	1.62	0.44	5.64
G2	1	47	1,374	13,740	2.32	0.60	6.37
G2	2	33	3,613	36,130	1.68	0.48	3.91
G2	3	35	211	2,110	2.77	0.78	6.35
G2	4	39	345	3,450	2.32	0.63	6.50
G2	7	36	188	1,880	3.01	0.84	6.68
G2	8	27	326	3,260	2.37	0.72	4.49
G2	10	37	229	2,290	2.80	0.78	6.63
G2	12	23	114	1,140	2.53	0.81	4.65
G3	1	47	608	6,080	2.46	0.64	7.18
G3	2	32	239	2,390	2.77	0.80	5.66
G3	3	31	213	2,130	2.63	0.77	5.60
G3	4	45	824	8,240	1.42	0.37	6.55
G3	5	45	1,283	12,830	2.02	0.53	6.15
G3	7	48	323	3,230	2.91	0.75	8.13
G3	9	35	339	3,390	2.71	0.76	5.84
R	1	40	1,320	13,200	1.98	0.54	5.43
R	2	31	446	4,460	2.26	0.66	4.92
R	3	27	459	4,590	1.56	0.47	4.24

Table D5-4. Numbers of taxa occurring in infaunal samples collected during the May 1998 Survey 1 in the eight sand resource areas (Areas A1, A2, C1, F1, F2, G1, G2, and G3) and three adjacent stations (R1, R2, and R3) offshore New Jersey.

Area	Station	Annelida		Mollusca		Arthropoda		Miscellaneous		Grand Total
		Total Taxa	%	Total Taxa	%	Total Taxa	%	Total Taxa	%	
A1	1	33	49.3	15	22.4	15	22.4	4	6.0	67
A1	2	10	45.5	5	22.7	6	27.3	1	4.5	22
A1	3	17	51.5	5	15.2	9	27.3	2	6.1	33
A1	4	15	55.6	6	22.2	2	7.4	4	14.8	27
A2	1	9	45.0	5	25.0	3	15.0	3	15.0	20
A2	2	14	46.7	7	23.3	5	16.7	4	13.3	30
A2	3	4	21.1	4	21.1	9	47.4	2	10.5	19
A2	4	6	42.9	1	7.1	6	42.9	1	7.1	14
C1	1	21	58.3	11	30.6	1	2.8	3	8.3	36
C1	2	21	61.8	7	20.6	2	5.9	4	11.8	34
C1	3	9	60.0	4	26.7	1	6.7	1	6.7	15
C1	4	8	40.0	3	15.0	6	30.0	3	15.0	20
C1	5	14	42.4	8	24.2	6	18.2	5	15.2	33
F1	1	21	67.7	2	6.5	5	16.1	3	9.7	31
F1	2	13	43.3	6	20.0	7	23.3	4	13.3	30
F2	1	22	62.9	6	17.1	3	8.6	4	11.4	35
F2	2	9	56.3	1	6.3	3	18.8	3	18.8	16
G1	1	3	17.6	8	47.1	5	29.4	1	5.9	17
G1	2	10	38.5	9	34.6	6	23.1	1	3.8	26
G1	3	12	60.0	4	20.0	3	15.0	1	5.0	20
G2	4	18	50.0	12	33.3	2	5.6	4	11.1	36
G2	2	17	53.1	5	15.6	9	28.1	1	3.1	32
G2	3	12	52.2	4	17.4	5	21.7	2	8.7	23
G2	4	10	55.6	2	11.1	4	22.2	2	11.1	18
G3	1	12	38.7	8	25.8	8	25.8	3	9.7	31
G3	2	7	41.2	3	17.6	6	35.3	1	5.9	17
G3	3	20	38.5	15	28.8	14	26.9	3	5.8	52
R	1	20	51.3	9	23.1	7	17.9	3	7.7	39
R	2	24	54.5	10	22.7	7	15.9	3	6.8	44
R	3	22	64.7	5	14.7	4	11.8	3	8.8	34

Table D5-5. Numbers of taxa occurring in infaunal samples collected during the September 1998 Survey 2 in the eight sand resource areas (A1, A2, C1, F1, F2, G1, G2, and G3) and three adjacent stations (R1, R2, and R3) offshore New Jersey.

Area	Station	Annelida		Mollusca		Arthropoda		Miscellaneous	
		Total Taxa	%	Total Taxa	%	Total Taxa	%	Total Taxa	%
A1	2	11	37.9	3	10.3	13	44.8	2	6.9
A1	3	12	33.3	5	13.9	17	47.2	2	5.6
A1	4	34	56.7	7	11.7	12	20.0	7	11.7
A1	5	10	30.3	7	21.2	11	33.3	5	15.2
A1	7	18	50.0	4	11.1	11	30.6	3	8.3
A1	8	12	36.4	5	15.2	14	42.4	2	6.1
A1	9	23	47.9	8	16.7	15	31.3	2	4.2
A1	10	10	30.3	6	18.2	14	42.4	3	9.1
A1	13	19	33.3	20	35.1	15	26.3	3	5.3
A2	3	11	47.8	4	17.4	5	21.7	3	13.0
A2	4	18	42.9	11	26.2	10	23.8	3	7.1
A2	7	17	44.7	7	18.4	12	31.6	2	5.3
A2	10	16	38.1	8	19.0	16	38.1	2	4.8
A2	11	5	20.8	3	12.5	14	58.3	2	8.3
A2	14	14	45.2	6	19.4	7	22.6	4	12.9
A2	15	7	26.9	5	19.2	11	42.3	3	11.5
A2	19	24	60.0	6	15.0	9	22.5	1	2.5
C1	2	16	61.5	3	11.5	4	15.4	3	11.5
C1	3	11	44.0	4	16.0	5	20.0	5	20.0
C1	4	13	56.5	7	30.4	1	4.3	2	8.7
C1	5	13	41.9	8	25.8	6	19.4	4	12.9
C1	8	20	60.6	5	15.2	6	18.2	2	6.1
C1	9	21	55.3	5	13.2	9	23.7	3	7.9
C1	10	11	39.3	4	14.3	10	35.7	3	10.7
C1	11	13	48.1	5	18.5	7	25.9	2	7.4
C1	12	21	53.8	8	20.5	7	17.9	3	7.7
C1	13	11	61.1	2	11.1	3	16.7	2	11.1
C1	16	12	48.0	2	8.0	8	32.0	3	12.0
F1	1	21	51.2	4	9.8	12	29.3	4	9.8
F1	2	19	55.9	5	14.7	8	23.5	2	5.9
F1	3	14	41.2	8	23.5	8	23.5	4	11.8
F2	2	10	52.6	2	10.5	5	26.3	2	10.5
F2	3	19	65.5	4	13.8	3	10.3	3	10.3
F2	4	10	47.6	4	19.0	5	23.8	2	9.5
F2	5	15	51.7	3	10.3	9	31.0	2	6.9
F2	6	21	67.7	3	9.7	5	16.1	2	6.5
G1	1	11	35.5	6	19.4	12	38.7	2	6.5
G1	2	24	39.3	20	32.8	13	21.3	4	6.6
G1	3	16	40.0	8	20.0	12	30.0	4	10.0

Table D5-5. Continued.

Area	Station	Annelida		Mollusca		Arthropoda		Miscellaneous	
		Total Taxa	%	Total Taxa	%	Total Taxa	%	Total Taxa	%
G1	4	19	48.7	5	12.8	12	30.8	3	7.7
G1	5	19	39.6	8	16.7	19	39.6	2	4.2
G1	6	17	43.6	8	20.5	11	28.2	3	7.7
G2	1	24	51.1	10	21.3	11	23.4	2	4.3
G2	2	18	54.5	8	24.2	5	15.2	2	6.1
G2	3	14	40.0	7	20.0	12	34.3	2	5.7
G2	4	15	38.5	12	30.8	10	25.6	2	5.1
G2	7	15	41.7	6	16.7	13	36.1	2	5.6
G2	8	15	55.6	4	14.8	5	18.5	3	11.1
G2	10	14	37.8	7	18.9	10	27.0	6	16.2
G2	12	10	43.5	4	17.4	8	34.8	1	4.3
G3	1	20	42.6	8	17.0	13	27.7	6	12.8
G3	2	16	50.0	4	12.5	9	28.1	3	9.4
G3	3	14	45.2	3	9.7	12	38.7	2	6.5
G3	4	21	46.7	9	20.0	13	28.9	2	4.4
G3	5	26	57.8	9	20.0	8	17.8	2	4.4
G3	7	25	52.1	7	14.6	14	29.2	2	4.2
G3	9	18	51.4	3	8.6	11	31.4	3	8.6
R	1	17	42.5	10	25.0	10	25.0	3	7.5
R	2	21	67.7	3	9.7	3	9.7	4	12.9
R	3	14	51.9	3	11.1	7	25.9	3	11.1

Table D5-6. Numbers of individuals occurring in infaunal samples collected during the May 1998 Survey 1 in the eight sand resource areas (Areas A1, A2, C1, F1, F2, G1, G2, and G3) and three adjacent stations (R1, R2, and R3) offshore New Jersey.

Area	Station	Annelida		Mollusca		Arthropoda		Miscellaneous	
		Total Individuals	%	Total Individuals	%	Total Individuals	%	Total Individuals	%
A1	1	386	21.3	824	45.6	572	31.6	26	1.4
A1	2	31	28.7	32	29.6	30	27.8	15	13.9
A1	3	152	60.8	31	12.4	48	19.2	19	7.6
A1	4	326	22.9	818	57.4	3	0.2	277	19.5
A2	1	56	62.9	19	21.3	8	9.0	6	6.7
A2	2	212	45.1	105	22.3	96	20.4	57	12.1
A2	3	11	13.4	28	34.1	38	46.3	5	6.1
A2	4	198	86.8	1	0.4	27	11.8	2	0.9
C1	1	170	27.0	100	15.9	25	4.0	334	53.1
C1	2	226	14.5	1,097	70.2	3	0.2	236	15.1
C1	3	45	80.4	9	16.1	1	1.8	1	1.8
C1	4	27	30.3	13	14.6	20	22.5	29	32.6
C1	5	468	59.2	41	5.2	133	16.8	149	18.8
F1	1	873	94.8	4	0.4	21	2.3	23	2.5
F1	2	220	74.1	12	4.0	53	17.8	12	4.0
F2	1	225	37.9	130	21.9	22	3.7	216	36.4
F2	2	80	74.1	3	2.8	8	7.4	17	15.7
G1	1	4	9.8	27	65.9	9	22.0	1	2.4
G1	2	236	56.9	164	39.5	14	3.4	1	0.2
G1	3	1,189	96.0	7	0.6	4	0.3	38	3.1
G2	1	1,787	88.1	178	8.8	57	2.8	7	0.3
G2	2	176	44.2	105	26.4	116	29.1	1	0.3
G2	3	364	71.8	17	3.4	67	13.2	59	11.6
G2	4	33	35.1	23	24.5	17	18.1	21	22.3
G3	1	104	53.3	23	11.8	53	27.2	15	7.7
G3	2	32	47.8	10	14.9	19	28.4	6	9.0
G3	3	2,127	89.6	116	4.9	92	3.9	38	1.6
R	1	147	19.7	495	66.2	88	11.8	18	2.4
R	2	432	10.1	757	17.6	37	0.9	3,070	71.5
R	3	1,110	88.7	47	3.8	20	1.6	75	6.0

Table D5-7. Numbers of individuals occurring in infaunal samples collected during the September 1998 Survey 2 in the eight sand resource areas (Areas A1, A2, C1, F1, F2, G1, G2, and G3) and three adjacent stations (R1, R2, and R3) offshore New Jersey.

Area	Station	Annelida		Arthropoda		Mollusca		Miscellaneous	
		Total Individuals	%	Total Individuals	%	Total Individuals	%	Total Individuals	%
A1	2	146	35.4	220	53.4	37	9.0	9	2.2
A1	3	61	20.4	180	60.2	50	16.7	8	2.7
A1	4	1,108	73.5	126	8.4	71	4.7	203	13.5
A1	5	192	43.9	197	45.1	40	9.2	8	1.8
A1	7	615	49.5	606	48.8	10	0.8	11	0.9
A1	8	68	31.5	86	39.8	54	25.0	8	3.7
A1	9	242	58.9	78	19.0	89	21.7	2	0.5
A1	10	27	11.9	135	59.5	61	26.9	4	1.8
A1	13	419	22.6	1,175	63.4	215	11.6	44	2.4
A2	3	67	37.9	32	18.1	61	34.5	17	9.6
A2	4	166	34.8	183	38.4	113	23.7	15	3.1
A2	7	83	27.9	136	45.6	75	25.2	4	1.3
A2	10	72	25.7	128	45.7	70	25.0	10	3.6
A2	11	9	4.5	129	64.8	58	29.1	3	1.5
A2	14	743	69.2	57	5.3	145	13.5	129	12.0
A2	15	15	12.5	77	64.2	11	9.2	17	14.2
A2	19	530	55.8	397	41.8	19	2.0	3	0.3
C1	2	58	40.0	35	24.1	12	8.3	40	27.6
C1	3	41	2.6	13	0.8	5	0.3	1,530	96.3
C1	4	85	64.4	7	5.3	11	8.3	29	22.0
C1	5	44	28.4	6	3.9	18	11.6	87	56.1
C1	8	95	58.3	35	21.5	22	13.5	11	6.7
C1	9	380	60.9	225	36.1	13	2.1	6	1.0
C1	10	68	47.6	65	45.5	4	2.8	6	4.2
C1	11	209	67.6	82	26.5	10	3.2	8	2.6
C1	12	387	58.9	217	33.0	25	3.8	28	4.3
C1	13	90	33.7	166	62.2	2	0.7	9	3.4
C1	16	24	57.1	10	23.8	2	4.8	6	14.3
F1	1	357	37.2	578	60.2	7	0.7	18	1.9
F1	2	219	70.0	66	21.1	25	8.0	3	1.0
F1	3	42	16.9	169	67.9	11	4.4	27	10.8
F2	2	102	24.4	252	60.3	2	0.5	62	14.8
F2	3	222	58.0	9	2.3	111	29.0	41	10.7
F2	4	68	45.9	56	37.8	19	12.8	5	3.4
F2	5	121	34.1	183	51.5	20	5.6	31	8.7
F2	6	305	77.8	75	19.1	5	1.3	7	1.8
G1	1	127	56.7	33	14.7	20	8.9	44	19.6
G1	2	771	70.3	32	2.9	248	22.6	46	4.2
G1	3	533	72.8	134	18.3	55	7.5	10	1.4

Table D5-7. Continued.

Area	Station	Annelida		Arthropoda		Mollusca		Miscellaneous	
		Total Individuals	%	Total Individuals	%	Total Individuals	%	Total Individuals	%
G1	5	668	89.4	47	6.3	26	3.5	6	0.8
G1	6	105	47.3	104	46.8	11	5.0	2	0.9
G1	8	737	87.6	53	6.3	22	2.6	29	3.4
G2	1	1,234	89.8	28	2.0	97	7.1	15	1.1
G2	2	2442	67.6	34	0.9	1,132	31.3	5	0.1
G2	3	84	39.8	108	51.2	11	5.2	8	3.8
G2	4	263	76.2	48	13.9	32	9.3	2	0.6
G2	7	94	50.0	65	34.6	22	11.7	7	3.7
G2	8	133	40.8	96	29.4	8	2.5	89	27.3
G2	10	70	30.6	88	38.4	50	21.8	21	9.2
G2	12	22	19.3	79	69.3	12	10.5	1	0.9
G3	1	450	74.0	118	19.4	31	5.1	9	1.5
G3	2	85	35.6	98	41.0	23	9.6	33	13.8
G3	3	95	44.6	48	22.5	28	13.1	42	19.7
G3	4	668	81.1	119	14.4	27	3.3	10	1.2
G3	5	1,049	81.8	47	3.7	180	14.0	7	0.5
G3	7	223	69.0	78	24.1	19	5.9	3	0.9
G3	9	137	40.4	126	37.2	18	5.3	58	17.1
R	1	295	22.3	635	48.1	372	28.2	18	1.4
R	2	321	72.0	9	2.0	16	3.6	100	22.4
R	3	351	76.5	55	12.0	5	1.1	48	10.5