Sediment Transport Analysis Village of Asharoken, New York August 2004

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Sediment Transport Analysis August 2004

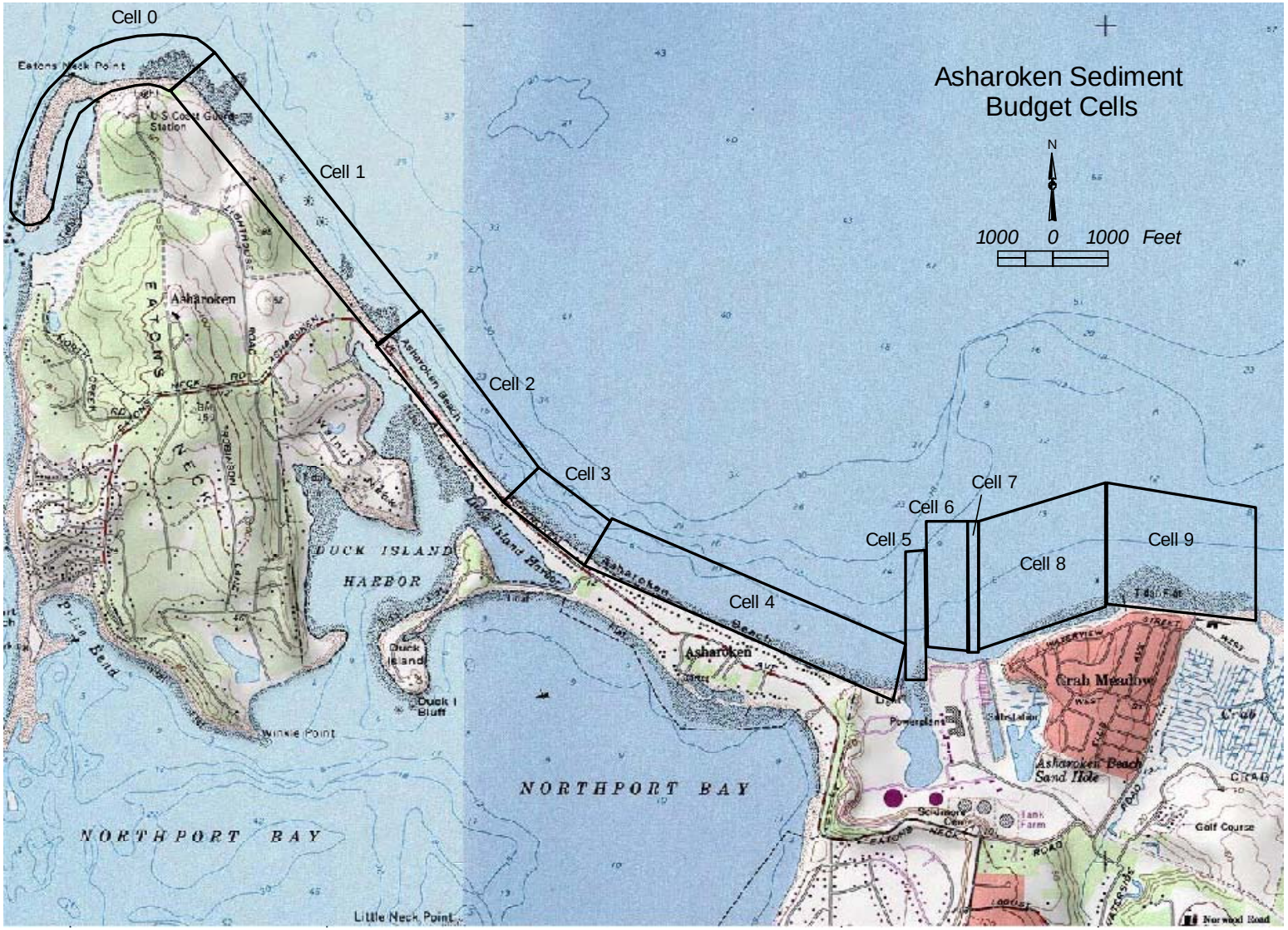
- Data usage for sediment transport rates
  - USCGS Topo Maps
    - 1885
    - 1917
    - 1931
  - Bathymetry
    - 1967 (NOS)
    - 2001 (USACE/Gahagan & Bryant)

Sediment Transport Analysis August 2004

- Data Usage, continued
  - Rectified Aerial Photography
    - Aug. 1961 (not used due to overexposure)
    - Mar. 1962
    - Oct. 1972
    - Apr. 1976
    - Oct. 1983
    - Mar. 1988 (not used due to overexposure)
    - Apr. 1994 (not used due to overexposure)
    - Apr. 2001

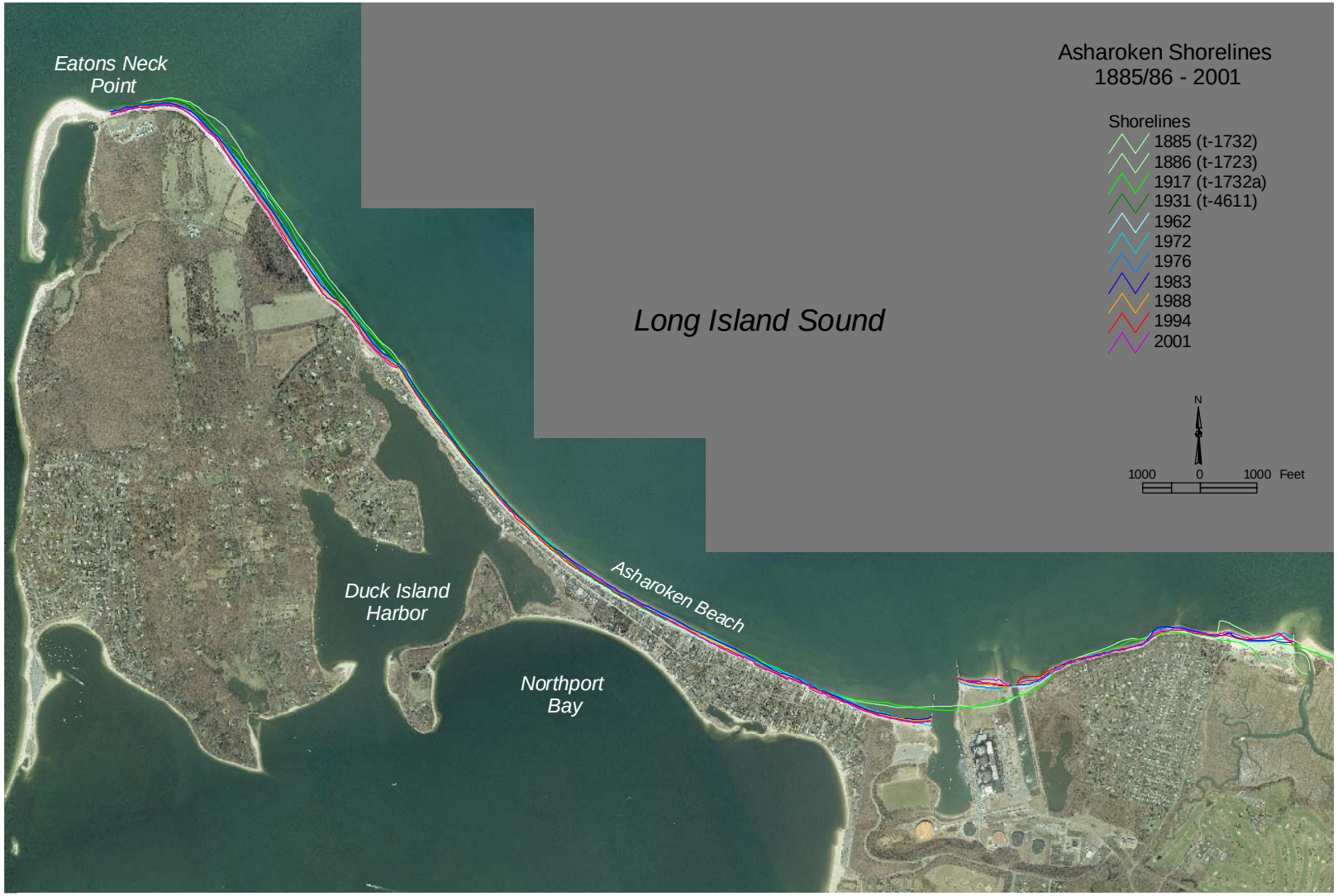
Sediment Transport Analysis August 2004

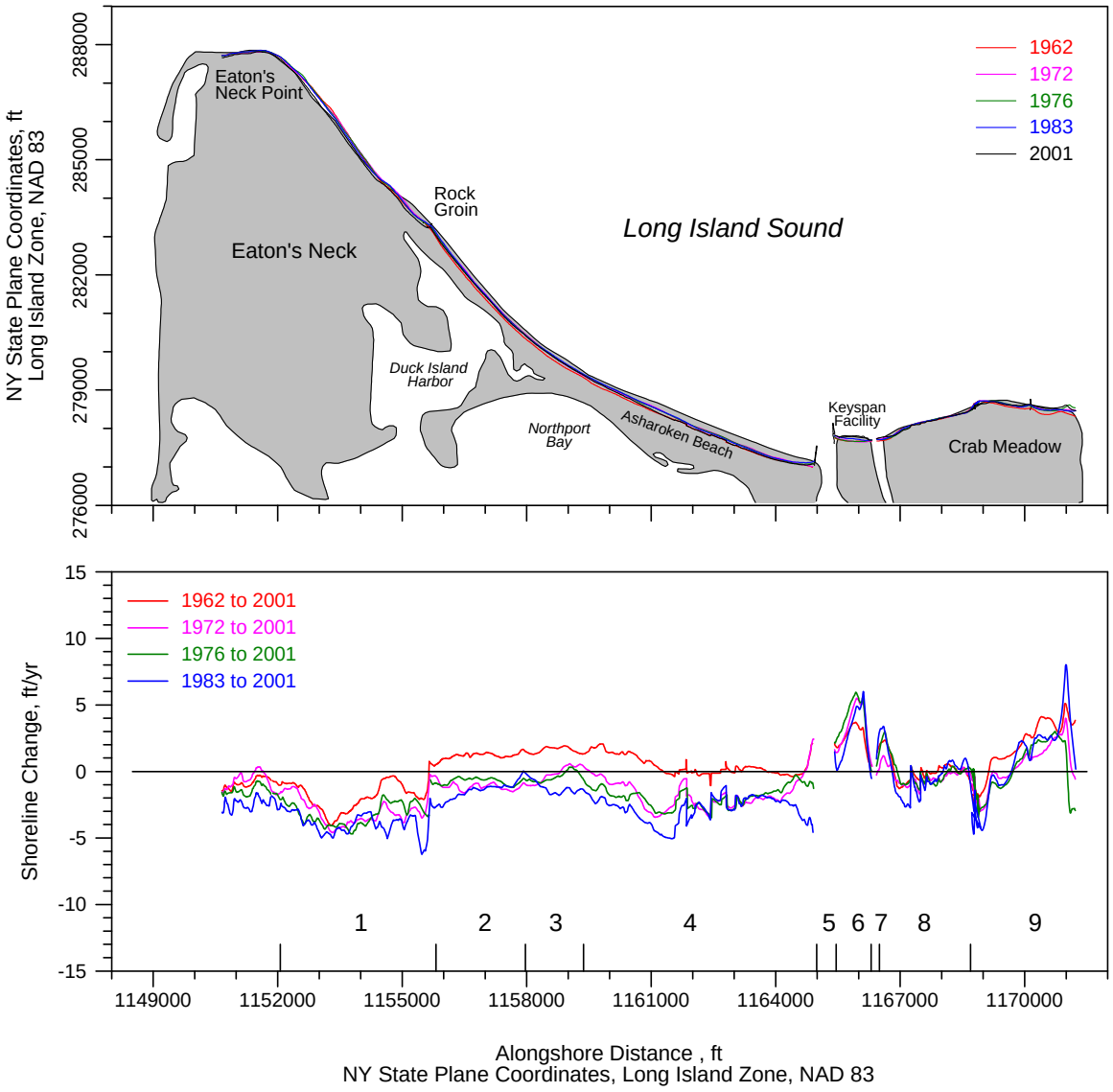
- Assumptions:
  - Average Berm Elevation +5 ft. NGVD
  - Average depth of Closure -20 ft. NGVD

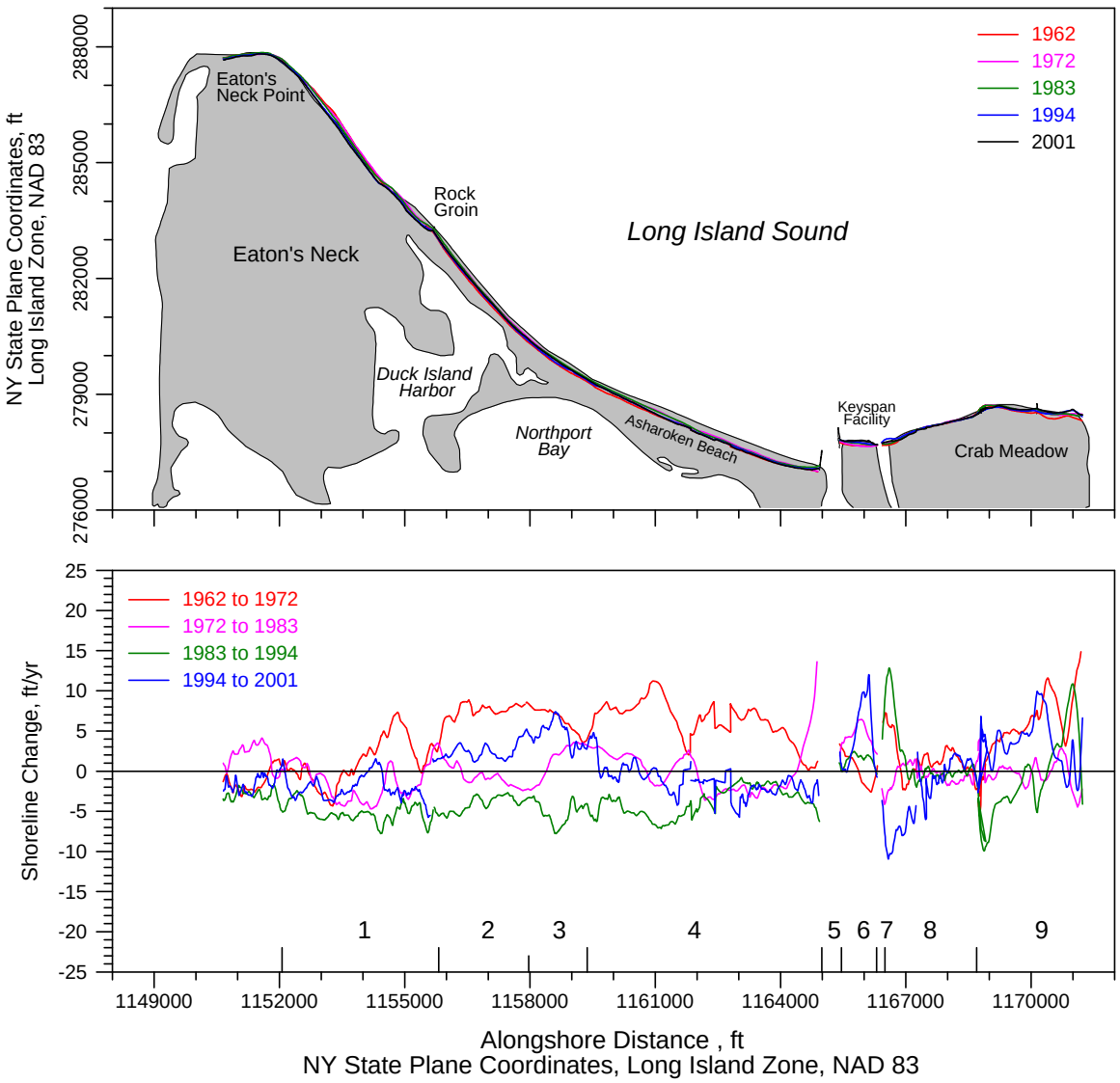

Asharoken Sediment Budget Cells
N
1000 0 1000 Feet
Cell 0
Cell 1
Cell 2
Cell 3
Cell 4
Cell 5
Cell 6
Cell 7
Cell 8
Cell 9
Eatons Neck Point
U.S. Coast Guard Station
Asharoken
Asharoken Beach
DUCK ISLAND HARBOR
Duck Island
Duck Island Bluff
Winkle Point
NORTHPORT BAY
NORTHPORT BAY
Little Neck Point
Crab Meadow
Asharoken Beach Sand Hole
Golf Course
Norwood Road

Sediment Transport Analysis August 2004

- Cell Descriptions
  - Cell 5 – National Grid intake basin
  - Cell 6 – National Grid east jetty 1,025 feet east to the National Grid discharge channel
  - Cell 7 – National Grid discharge channel
  - Cell 8 – Cell 7 east 2,710 feet to a shoreline orientation change in Crab Meadow
  - Cell 9 – Cell 8 east 2,560 feet to the creek at the eastern end of Crab Meadow


Asharoken Shorelines
1885/86 - 2001
Shorelines
1885 (t-1732)
1886 (t-1723)
1917 (t-1732a)
1931 (t-4611)
1962
1972
1976
1983
1988
1994
2001
N
1000
0
1000
Feet
Eatons Neck Point
Long Island Sound
Duck Island Harbor
Northport Bay
Asharoken Beach


NY State Plane Coordinates, ft
Long Island Zone, NAD 83
288000
285000
282000
279000
276000
Eaton's Neck Point
Rock Groin
Eaton's Neck
Long Island Sound
Duck Island Harbor
Northport Bay
Asharoken Beach
Keyspan Facility
Crab Meadow
1962
1972
1976
1983
2001
Shoreline Change, ft/yr
15
10
5
0
-5
-10
-15
1962 to 2001
1972 to 2001
1976 to 2001
1983 to 2001
1
2
3
4
5
6
7
8
9
1149000
1152000
1155000
1158000
1161000
1164000
1167000
1170000
Alongshore Distance , ft
NY State Plane Coordinates, Long Island Zone, NAD 83

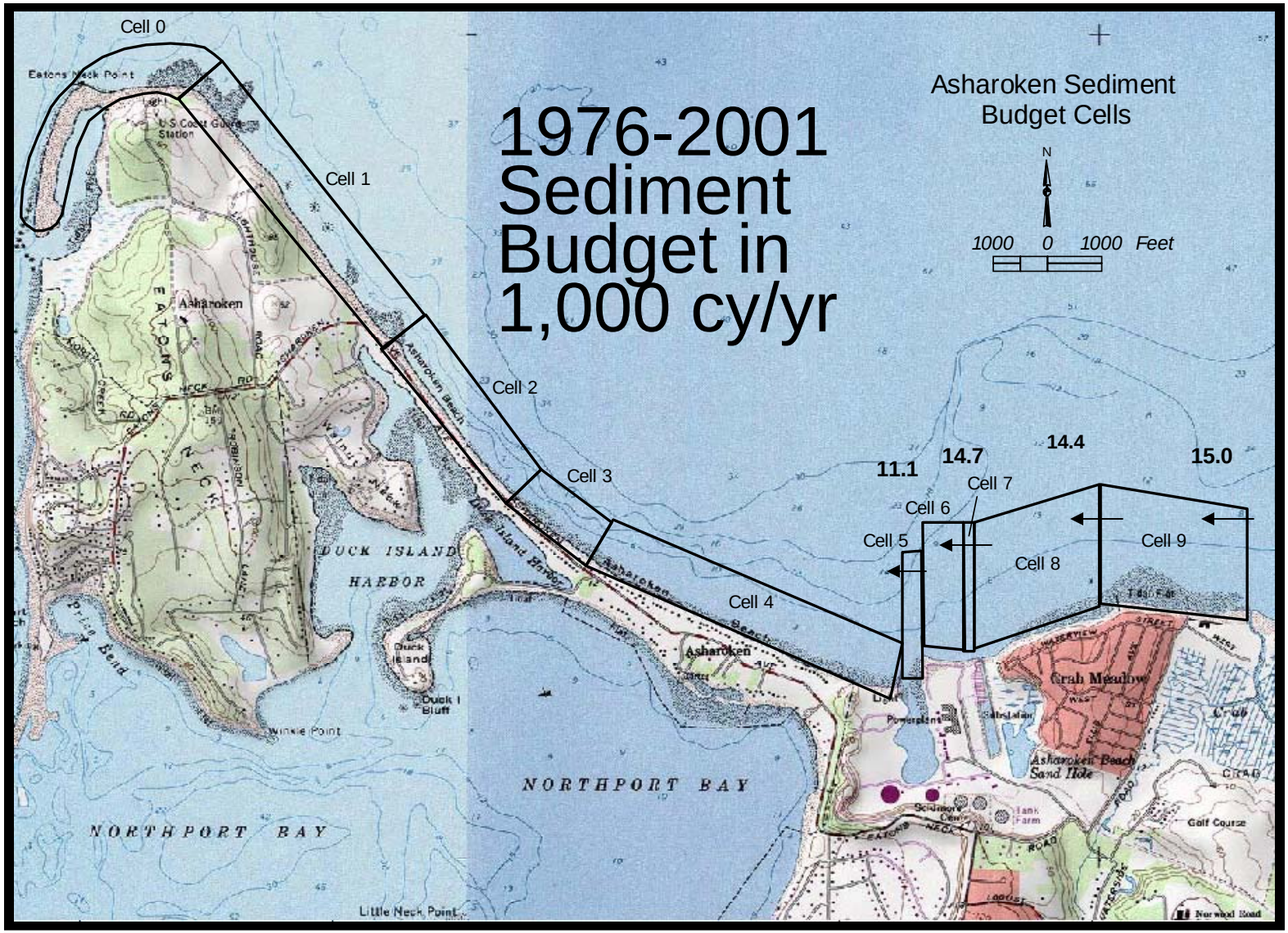

1962
1972
1983
1994
2001
Eaton's Neck Point
Rock Groin
Long Island Sound
Eaton's Neck
Duck Island Harbor
Northport Bay
Asharoken Beach
Keyspan Facility
Crab Meadow
NY State Plane Coordinates, ft
Long Island Zone, NAD 83
288000
285000
282000
279000
276000
1962 to 1972
1972 to 1983
1983 to 1994
1994 to 2001
Shoreline Change, ft/yr
25
20
15
10
5
0
-5
-10
-15
-20
-25
1
2
3
4
5
6
7
8
9
1149000
1152000
1155000
1158000
1161000
1164000
1167000
1170000
Alongshore Distance , ft
NY State Plane Coordinates, Long Island Zone, NAD 83

MHW Shoreline Change Rates from Aerials in ft/yr (+ is accretion)

From	To	Cell 6	Cell 8	Cell 9
1962	1972	0.2	1.1	6
1972	1983	4.4	-0.4	0.3
1983	1994	1.4	0.7	-0.7
1994	2001	4.5	-2.3	3.4
1962	2001	2.5	0	2
1972	2001	3.3	-0.5	0.5
1976	2001	3.8	-0.1	0.2
1983	2001	2.7	-0.5	0.9

Resulting Volumetric Change Rates in cy/yr (+ is accretion)

From	To	Cell 6	Cell 8	Cell 9
1962	1972	165	2,852	14,103
1972	1983	4,170	(1,032)	(678)
1983	1994	1,334	1,773	(1,667)
1994	2001	4,251	(5,774)	7,935
1962	2001	2,318	(77)	4,621
1972	2001	3,118	(1,142)	1,076
1976	2001	3,596	(347)	570
1983	2001	2,506	(1,247)	2,174


1976-2001
Sediment
Budget in
1,000 cy/yr
Asharoken Sediment
Budget Cells
N
1000 0 1000 Feet
Cell 0
Cell 1
Cell 2
Cell 3
Cell 4
Cell 5
Cell 6
Cell 7
Cell 8
Cell 9
11.1
14.7
14.4
15.0
Eatons Neck Point
U.S. Coast Guard Station
Asharoken
EATONS NECK
DUCK ISLAND HARBOR
Duck Island
Duck I Bluff
Winkle Point
NORTHPORT BAY
NORTHPORT BAY
Little Neck Point
Asharoken Beach
Crab Meadow
Asharoken Beach Sand Hole
Golf Course
Norwood Road