

Article

Storm Driven Migration of the Napatree Barrier, Rhode Island, USA

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Supplementary Materials

Table S1. Water levels exceeding the 0.7 m MHHW threshold at the Newport, RI and New London tide gauges.

Date	Newport, RI Water Level (m MHHW)	New London, CT Water Level (m MHHW)	Storm Name
9/21/1938	2.88	2.3	Hurricane of 1938
9/14 to 9/15/1944	1.21	1.2	Hurricane of 1944
11/30/1944	0.78	0.74	Extra-tropical storm
3/3/1947	0.72	0.44	Extra-tropical storm
11/25/1950	0.50	1.38	Extra-tropical storm
11/7/1953	0.78	1.1	-
8/31/1954	2.06	1.78	Hurricane Carol
9/12/1960	0.81	1.2	Hurricane Donna
3/7/1962	0.72	0.71	Ash Wednesday
11/30/1963	0.96	0.74	-
2/19/1972	0.71	0.86	-
11/20/1972	0.83	0.62	-
12/2/1974	0.98	0.87	-
2/2/1976	0.75	0.25	-
1/9/1978	1.02	-	-
2/6/1978	0.77	-	Blizzard of 1978
9.28/1985	0.80	0.9	Hurricane Gloria
12/3/1986	0.74	0.55	-
1/2/1987	0.70	0.66	-
1/23/1987	0.83	0.97	-
12/4/1990	0.71	0.68	-
8/19/1991	1.14	0.83	Hurricane Bob
10/31/1991	0.98	1.04	Halloween Nor'Easter
12/11 - 12/13/1992	0.72	0.95	-
1/19/1996	0.71	0.42	-
1/10/1997	0.93	0.67	-
12/12/2000	0.71	0.48	-
11/6/2002	0.70	0.74	-
10/28/2006	0.73	0.84	-
4/16/2007	0.86	0.88	Patriots Day
12/12/2008	0.80	0.73	-
12/3/2009	0.74	0.6	-
8/28/2011	0.80	1.01	Tropical Storm Irene
6/4/2012	0.71	0.62	-
10/29/2012	1.32	1.47	Hurricane Sandy
12/27/2012	0.75	0.87	-

2/9/2016

0.77

0.67

-

Table S2. Average distance from baseline and standard deviation of shoreline position used in this analysis. See table 3 for the source of the shorelines. .

Shoreline	Average Distance from Baseline (m)	Standard Deviation of Shoreline Position (m)
1883 T-Sheet	127.3	10.8
5/25/1939	117.9	7.7
1948 T-Sheet	93.8	11.5
11/22/1951	80.4	8.3
10/5/1963	58.5	7.8
4/14/1975	48.4	8.4
3/22/1985	51.2	4.8
3/18/1992	56.0	5.0
4/8/2004	51.4	3.2
6/1/2012	57.4	6.9
4/15/2014	54.5	6.5

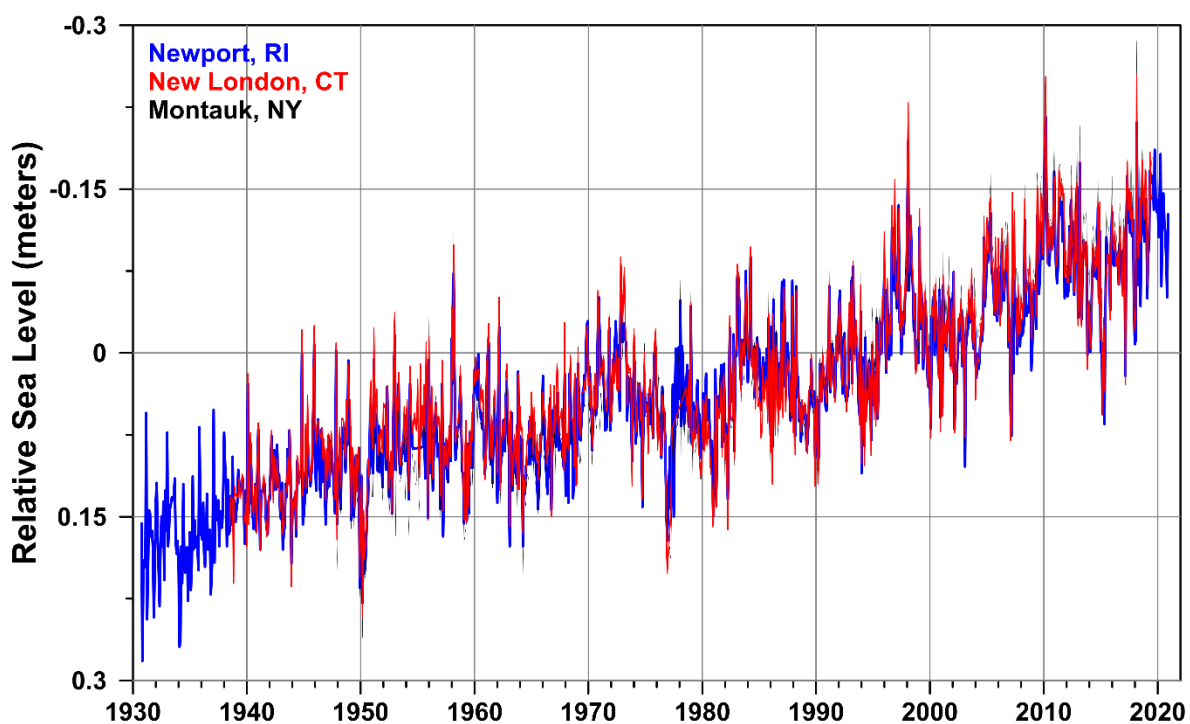


Figure S1. Monthly sea level elevations at the Newport, RI [1], New London, CT [2] and Montauk, NY tide gauges [3].

Supplemental Figures S2–S20, Oakley, 2021. Vertical Aerial Photographs used in the qualitative and quantitative analysis. See table 2 for a listing of the photographs used to delineate shoreline positions.

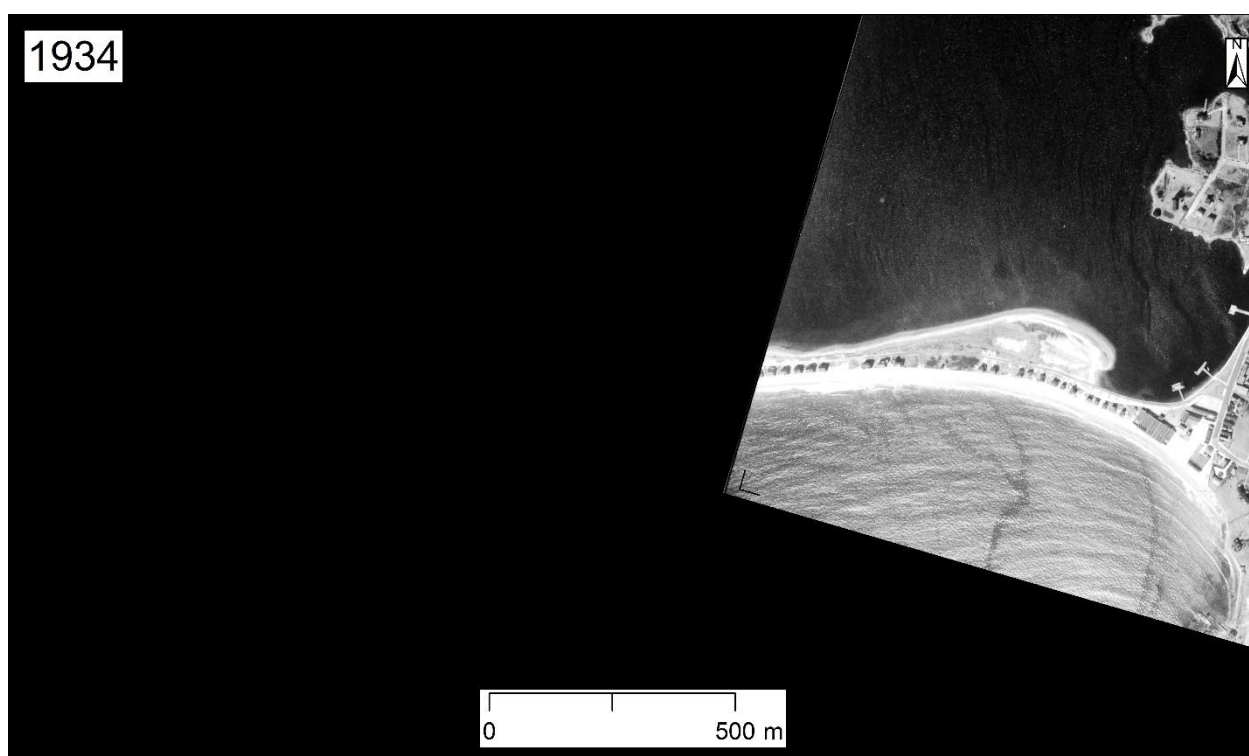


Figure S2. 1934 Partial vertical aerial photograph of the Napatree Barrier [4].

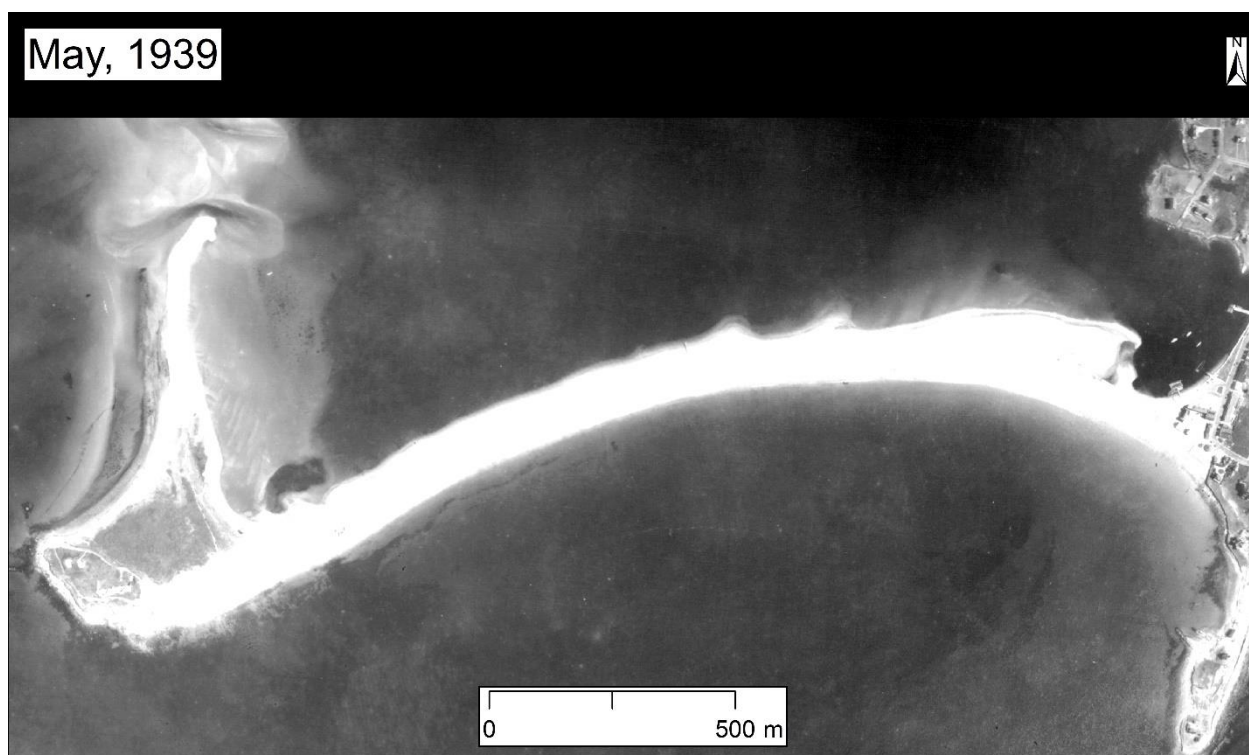


Figure S3. 1939 Vertical aerial photograph of the Napatree Barrier [5].



Figure S4. 1945 Vertical aerial photograph of the Napatree Barrier.



Figure S5. 1951 Vertical aerial photograph of the Napatree Barrier [6].

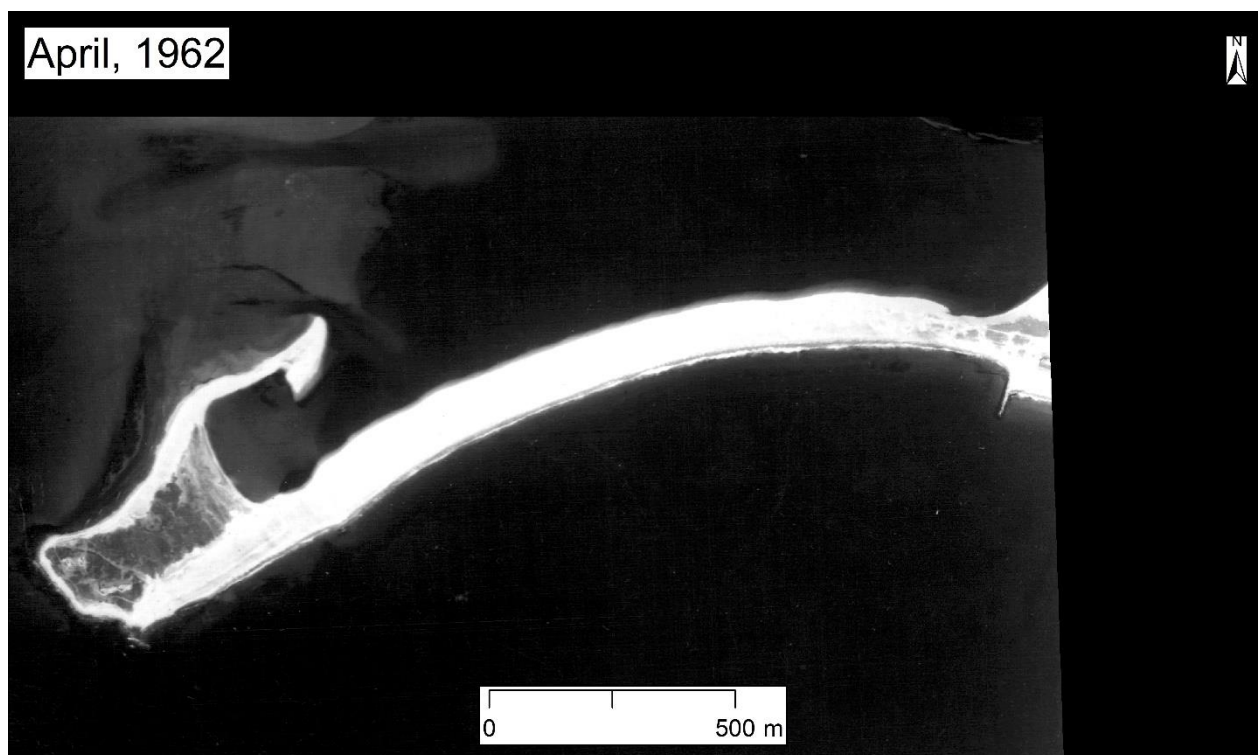


Figure S6. April 1962 Vertical aerial photograph of the Napatree Barrier [7].

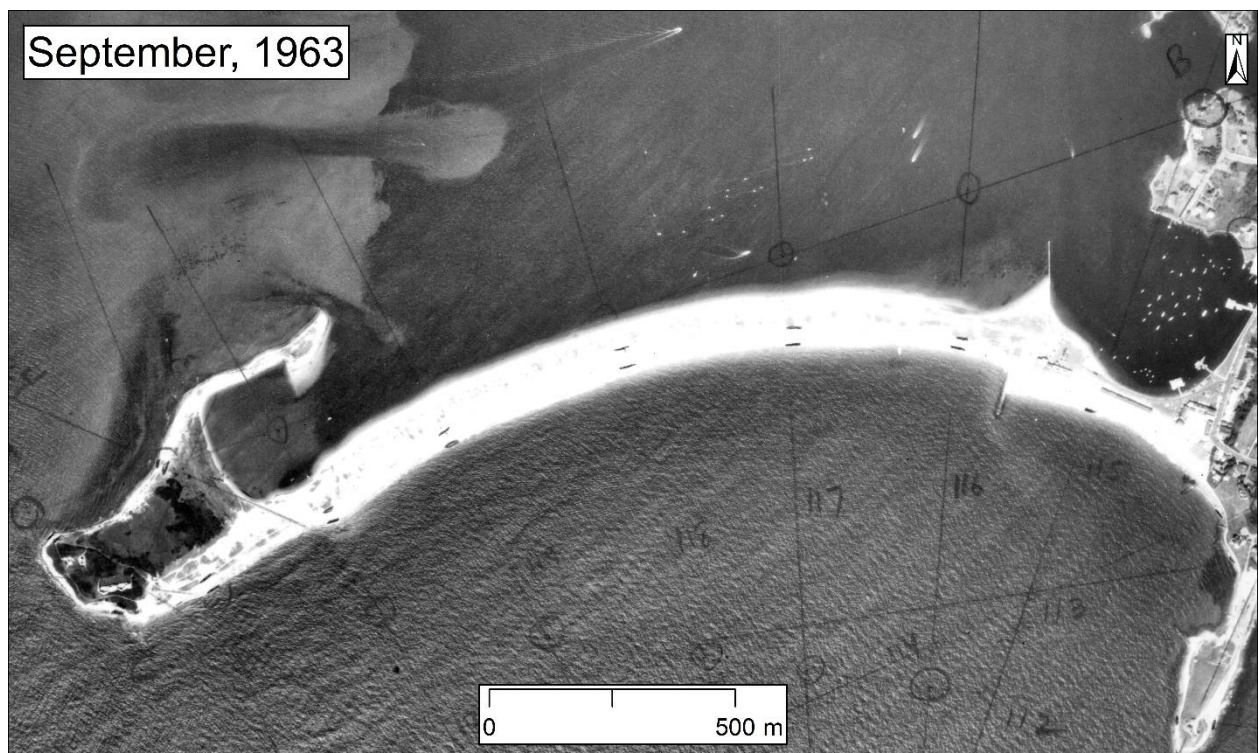


Figure S7. September 1963 Vertical aerial photograph of the Napatree Barrier. Original 9×9 Photograph scanned by Boothroyd and Hehre, [8].

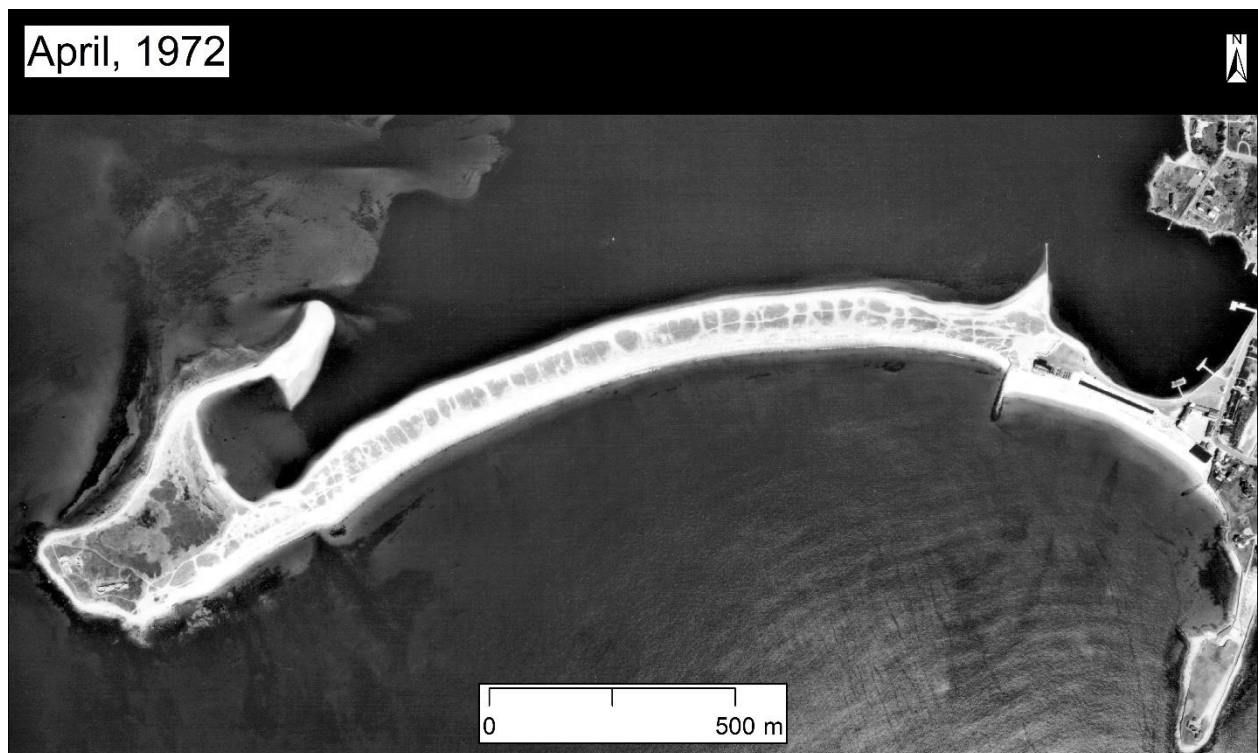


Figure S8. April 1972 Vertical aerial photograph of the Napatree Barrier [9].

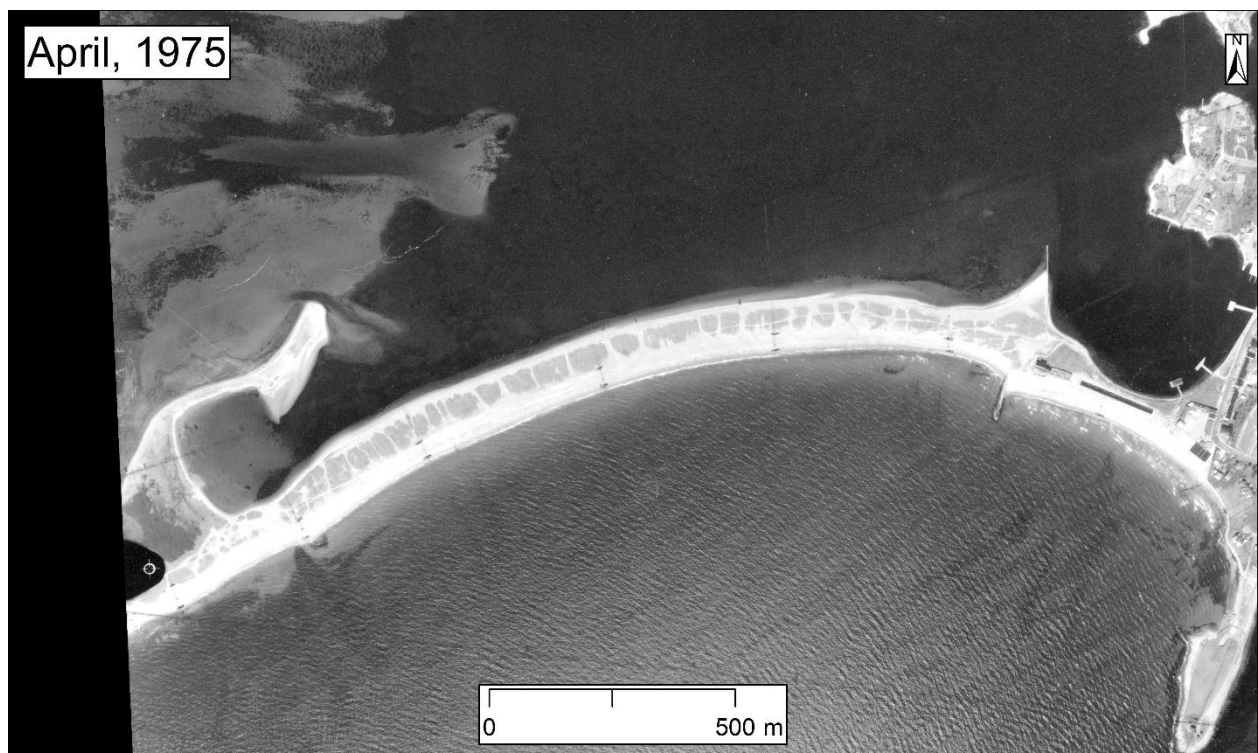


Figure S9. April 1975 Vertical aerial photograph of the Napatree Barrier. Original 9x9 Photograph scanned by Boothroyd and Hehre, [8].

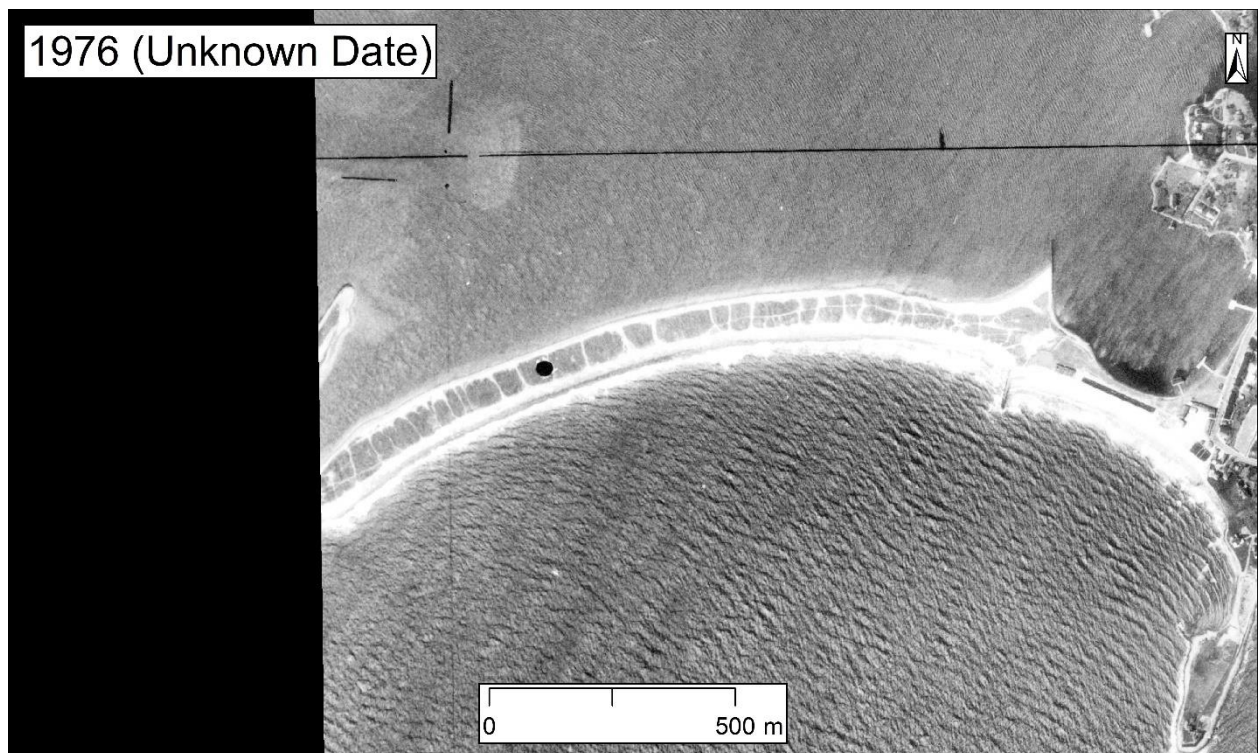


Figure S10. 1976 Vertical aerial photograph of the Napatree Barrier [10].

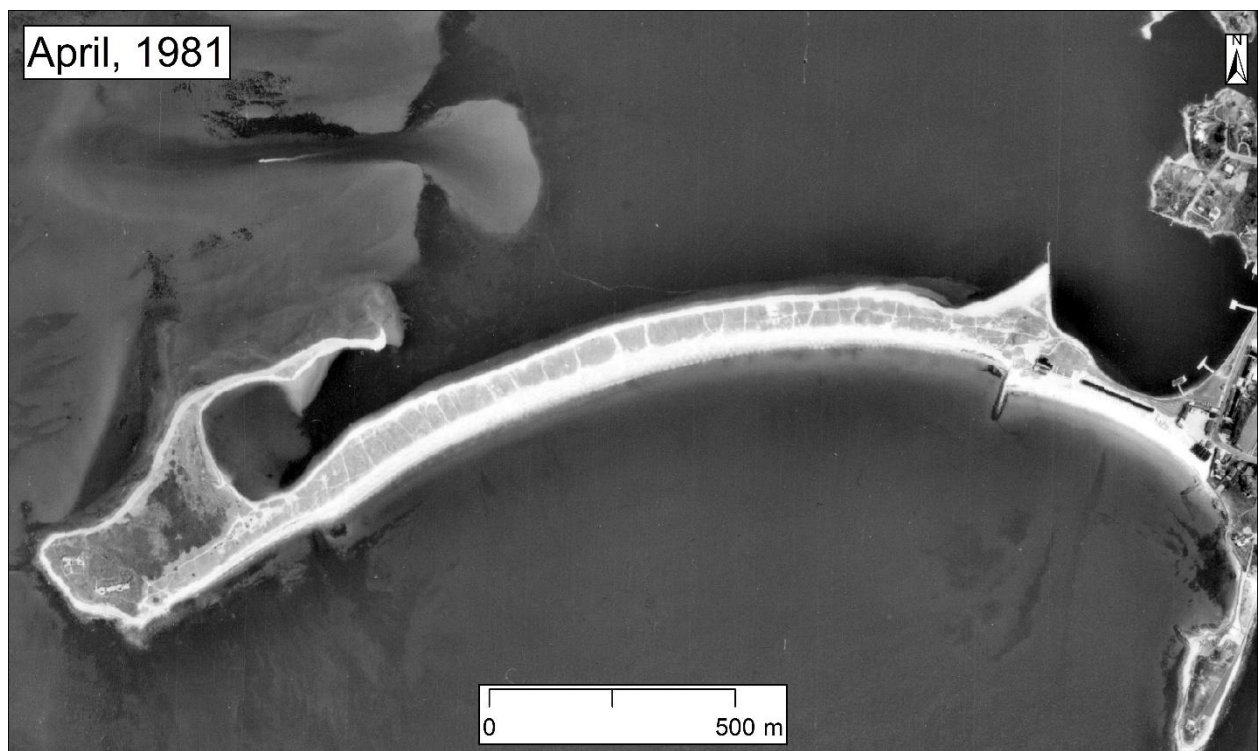


Figure S11. April 1981 Vertical aerial photograph of the Napatree Barrier [11].

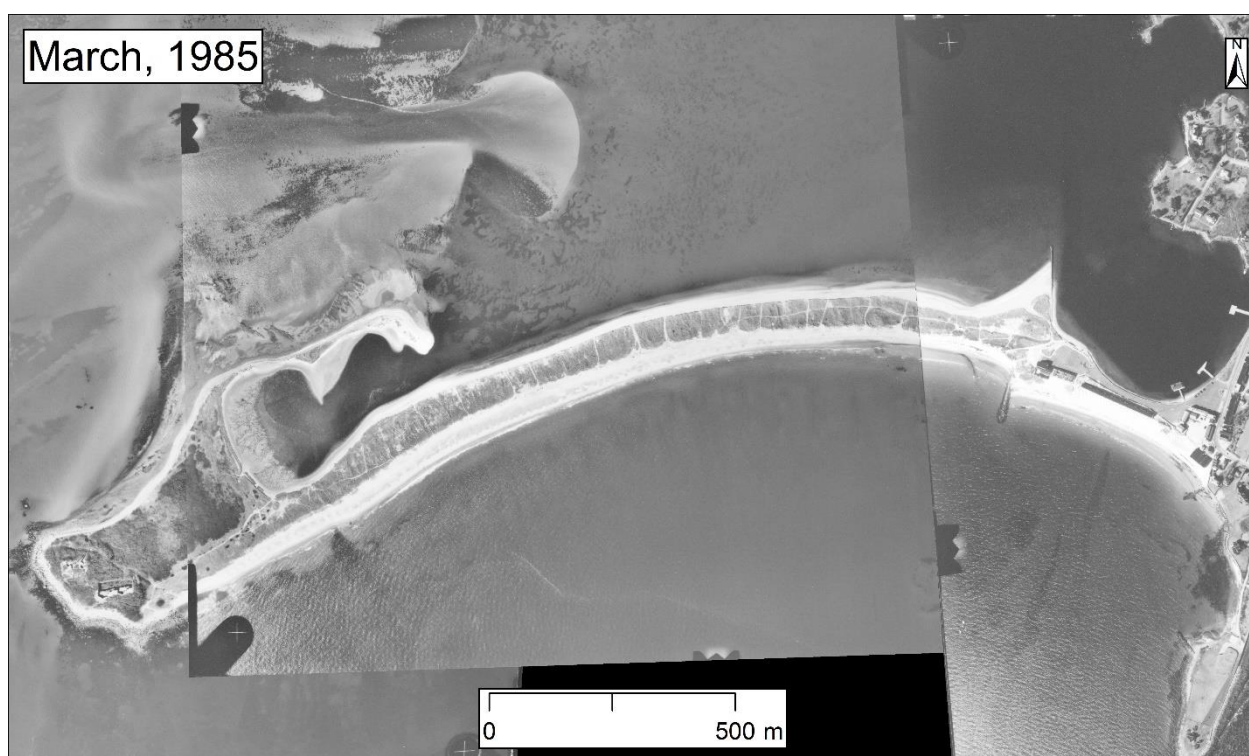


Figure S12. March 1985 Vertical aerial photograph of the Napatree Barrier. Original 9x9 Scanned by Boothroyd and Hehre, 2007 [8].

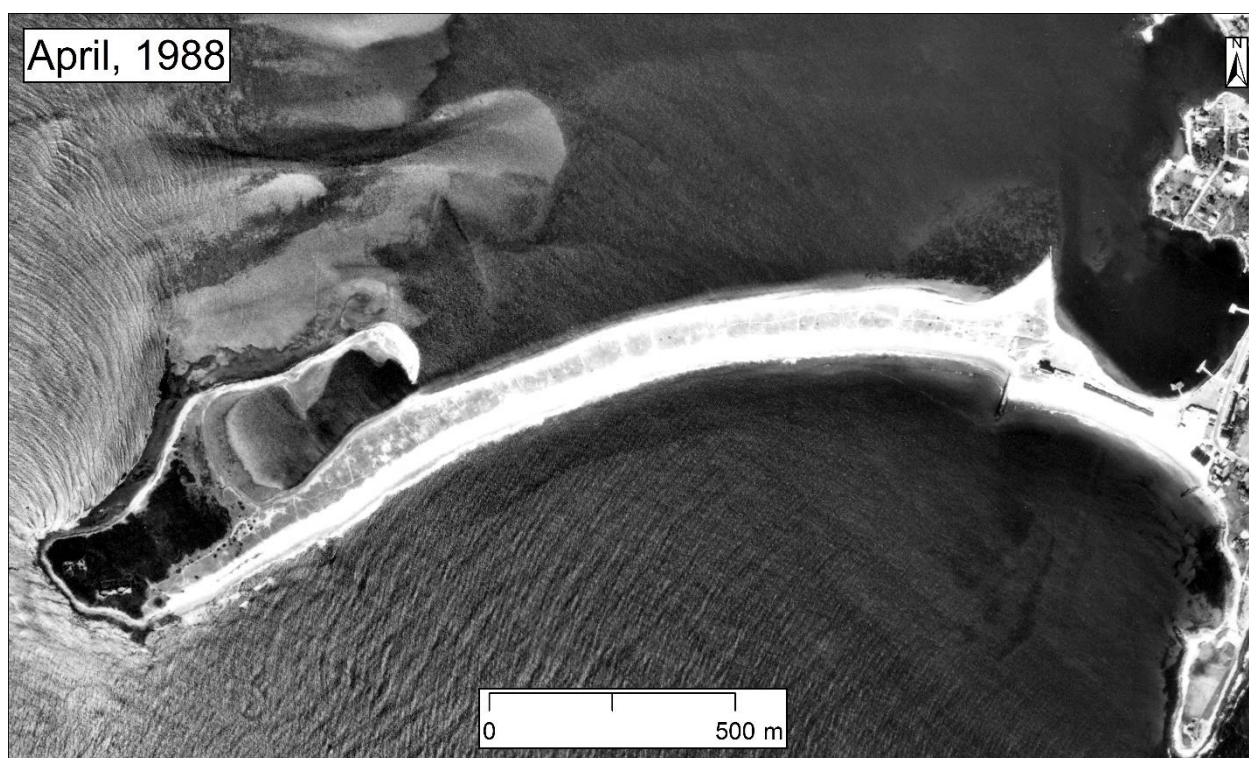


Figure S13. April 1988 Vertical aerial photograph of the Napatree Barrier [12].

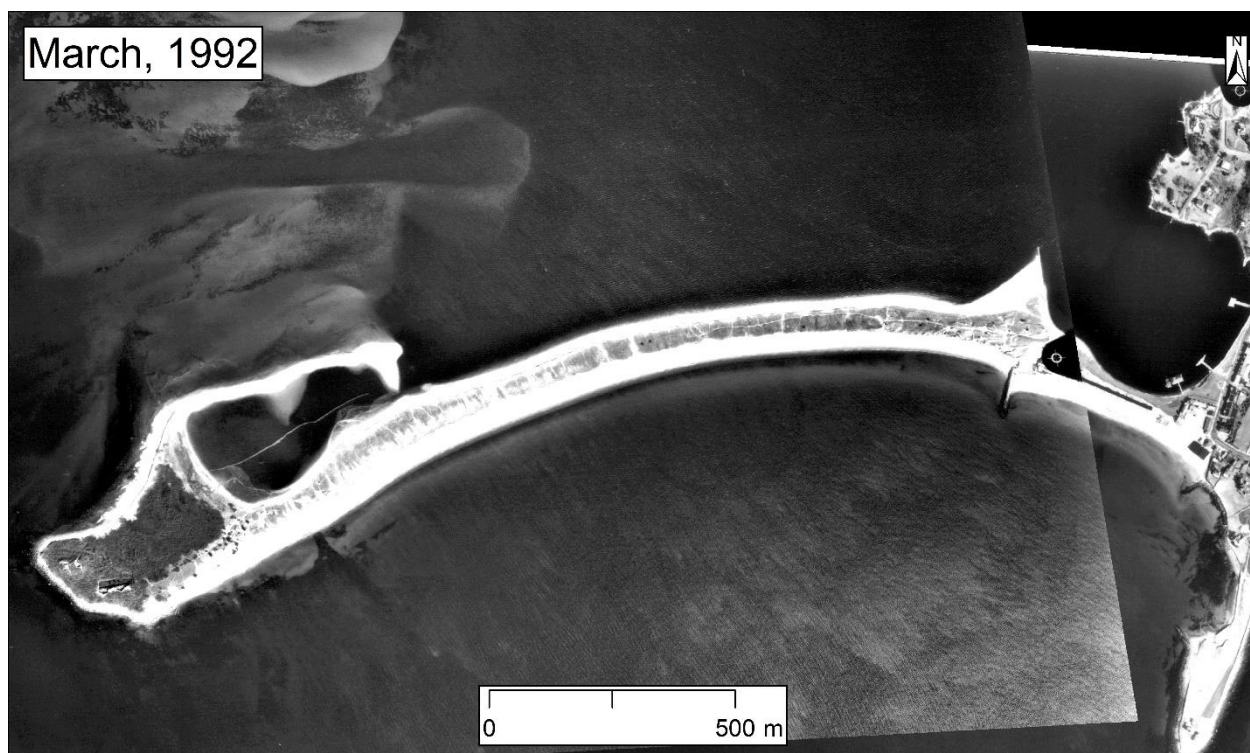


Figure S14. March 1992 Vertical aerial photograph of the Napatree Barrier [13].

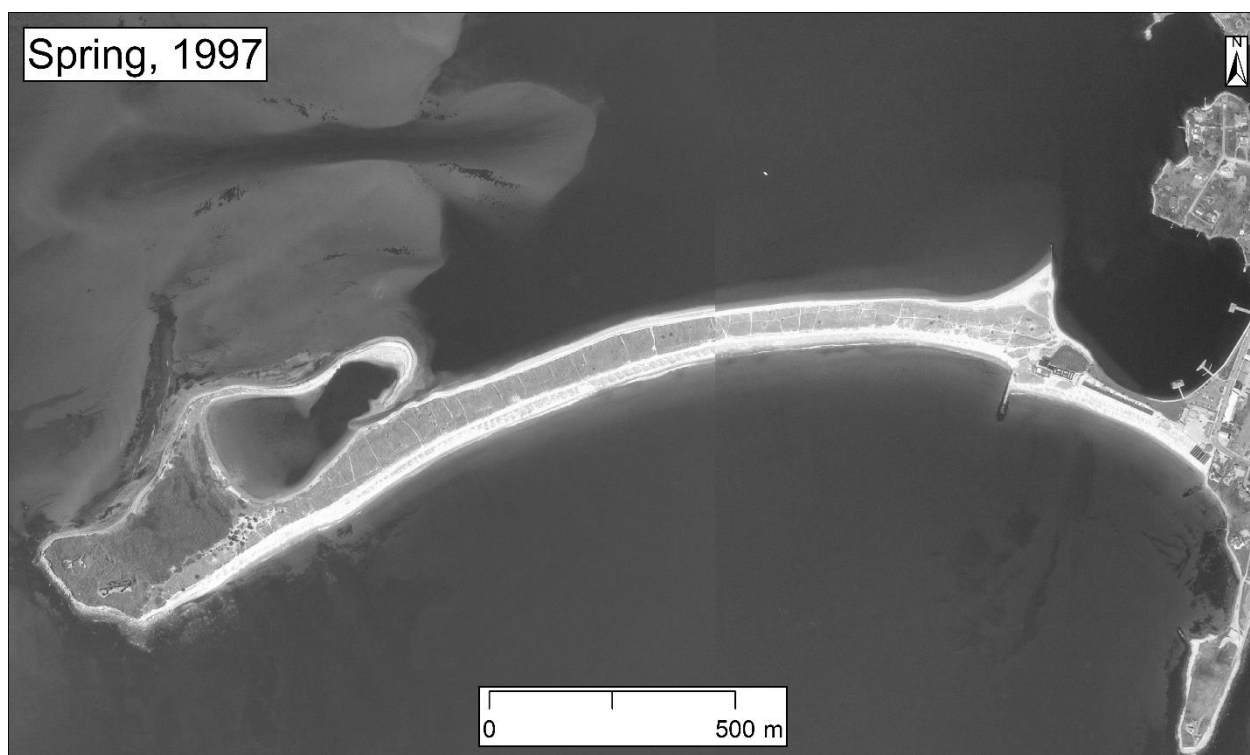


Figure S15. Spring 1997 Digital Orthophotograph of the Napatree Barrier [14].



Figure S16. April 2004 Digital Orthophotograph of the Napatree Barrier [15].



Figure S17. Spring 2008 Digital aerial photograph of the Napatree Barrier [16].

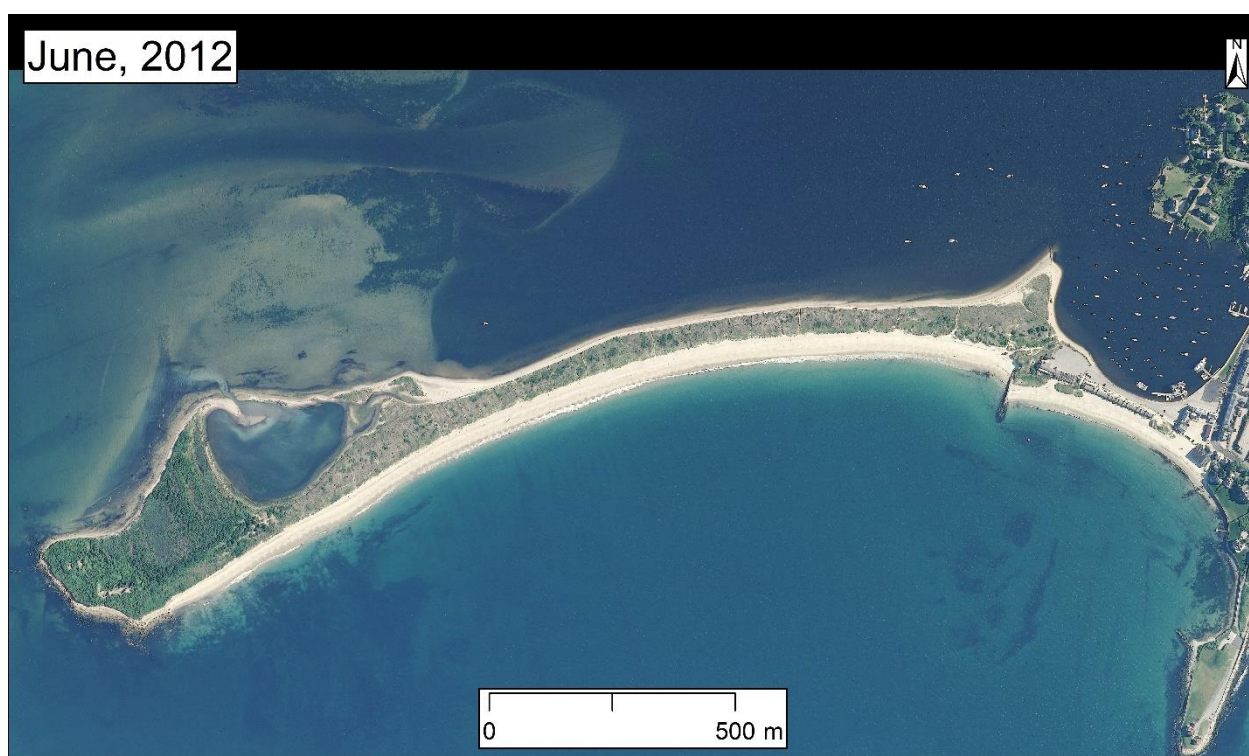


Figure S18. June 2012 Digital Orthophotograph of the Napatree Barrier [17].

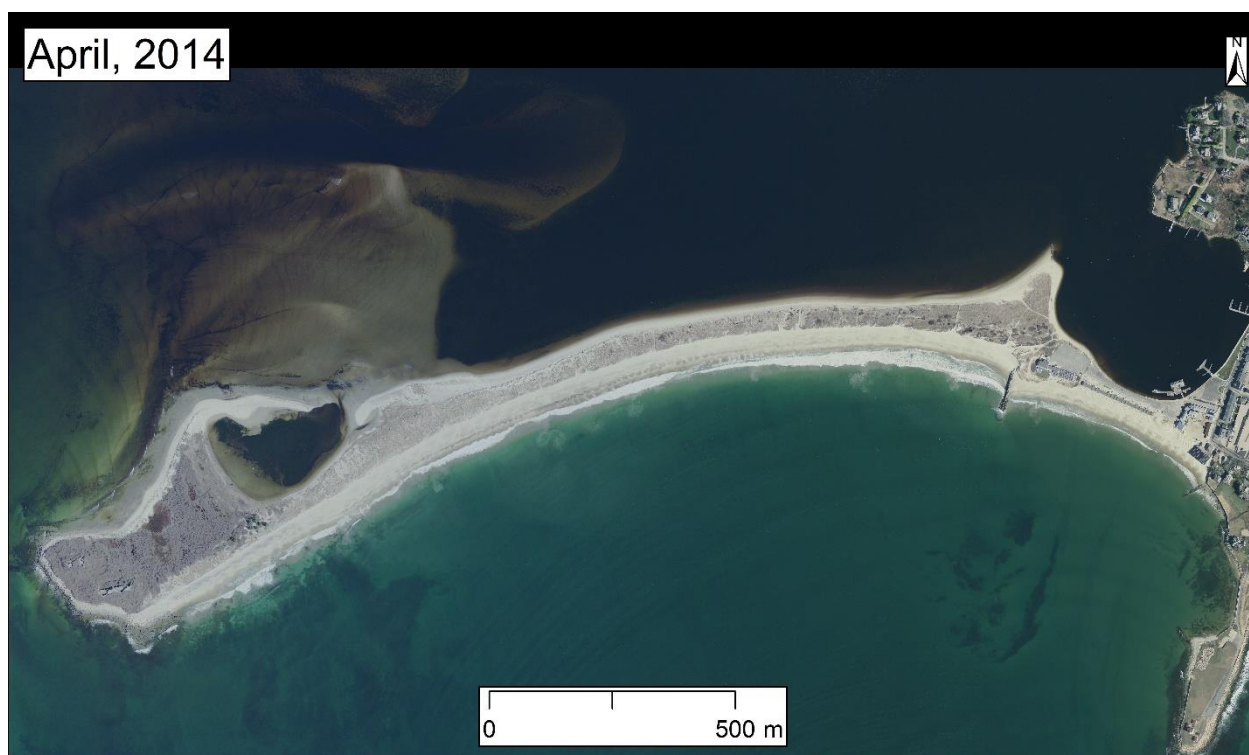


Figure S19. April 2014 Digital Orthophotograph of the Napatree Barrier [18].



Figure S20. April 2018 Digital Aerial Photograph of the Napatree Barrier [19].

References

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