Camp Ellis Beach/Saco River Jetties, Maine
Section 111

Shore Damage Mitigation Project

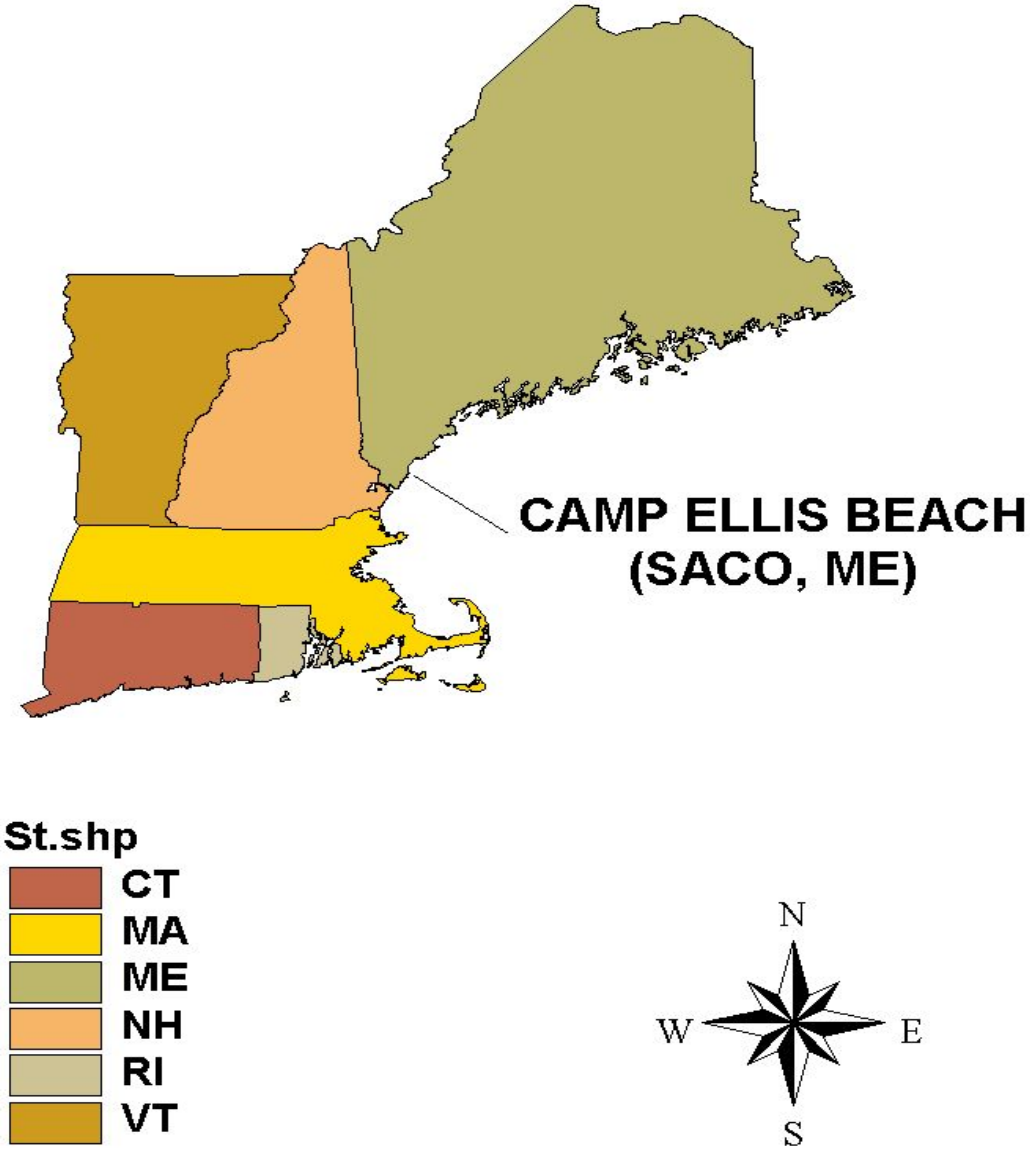
US Army Corps of Engineers
New England District

John Winkelman

Presentation Overview

- Brief Background
- Study Overview
- Results
- Alternative Screening
- Unforeseen Issues
- Current Project Status

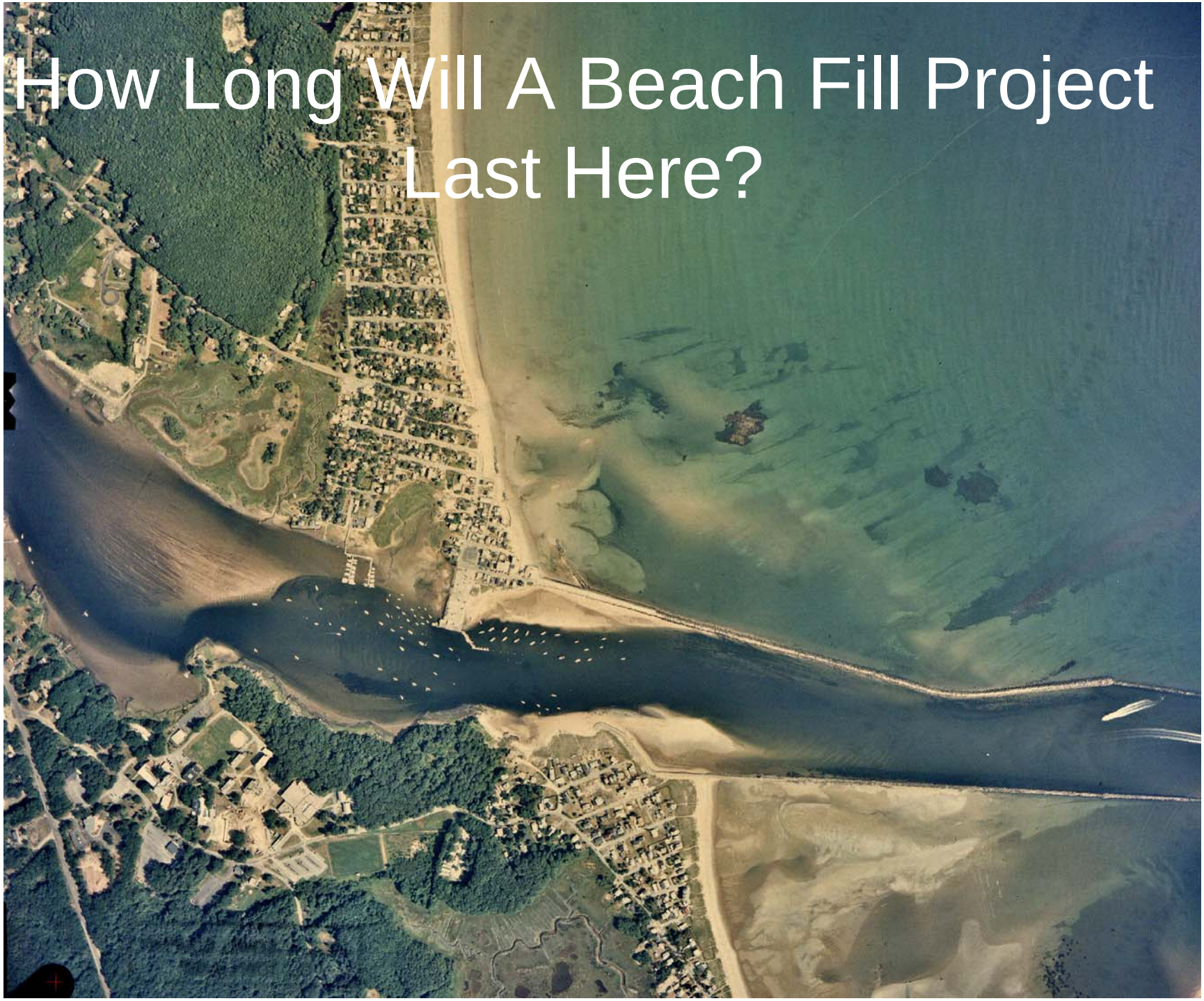
New England District
US Army Corps of Engineers



Section 111 Basics

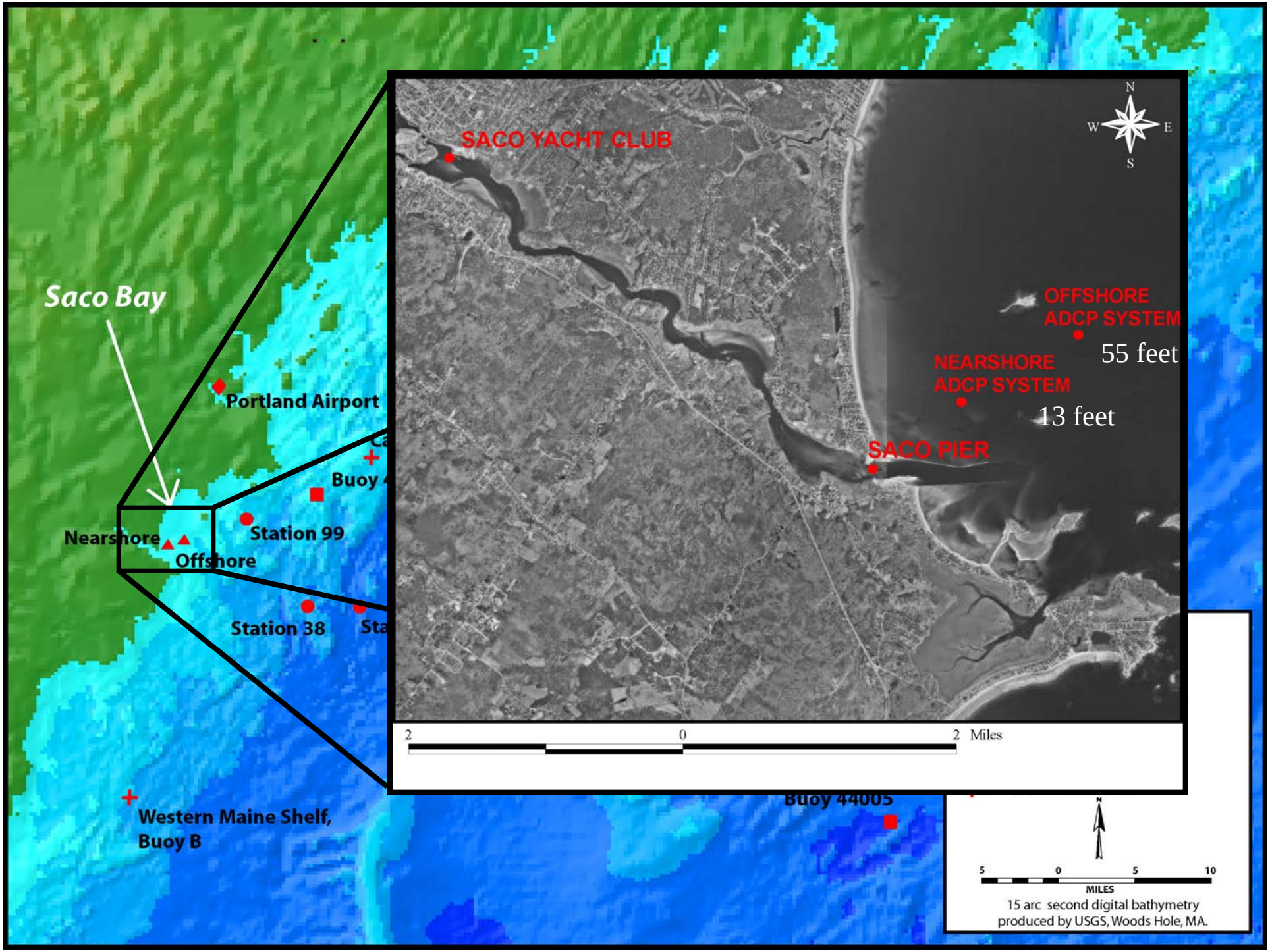
- Continuing Authority Program
- Intent is to mitigate unforeseen damages or impacts from Corps related projects
- Cost sharing is equal to original project cost sharing
- Maintenance is 100% local sponsor responsibility
- Project funding maximum is $5 million

How Long Will A Beach Fill Project Last Here?

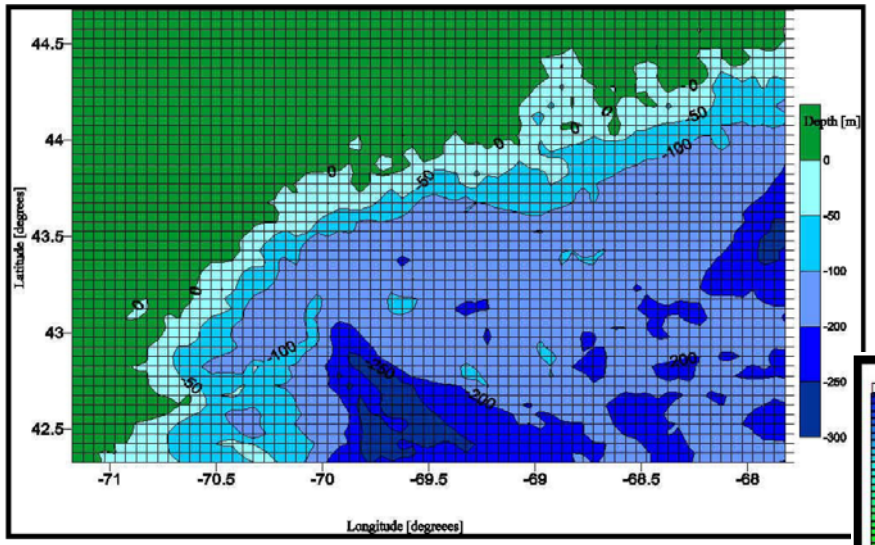


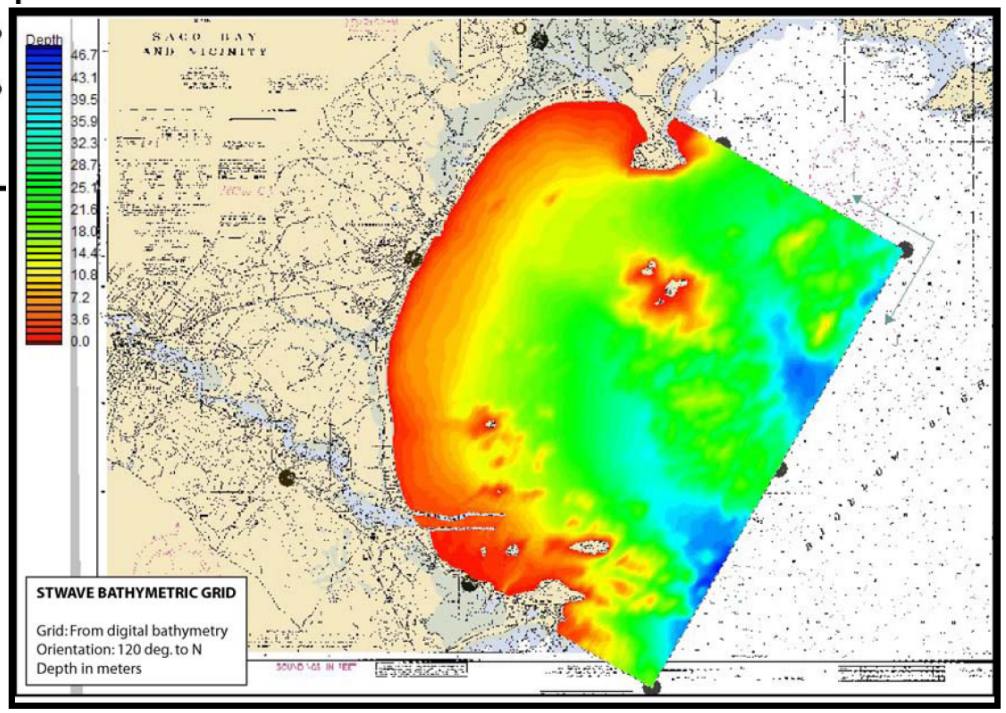
Study Components

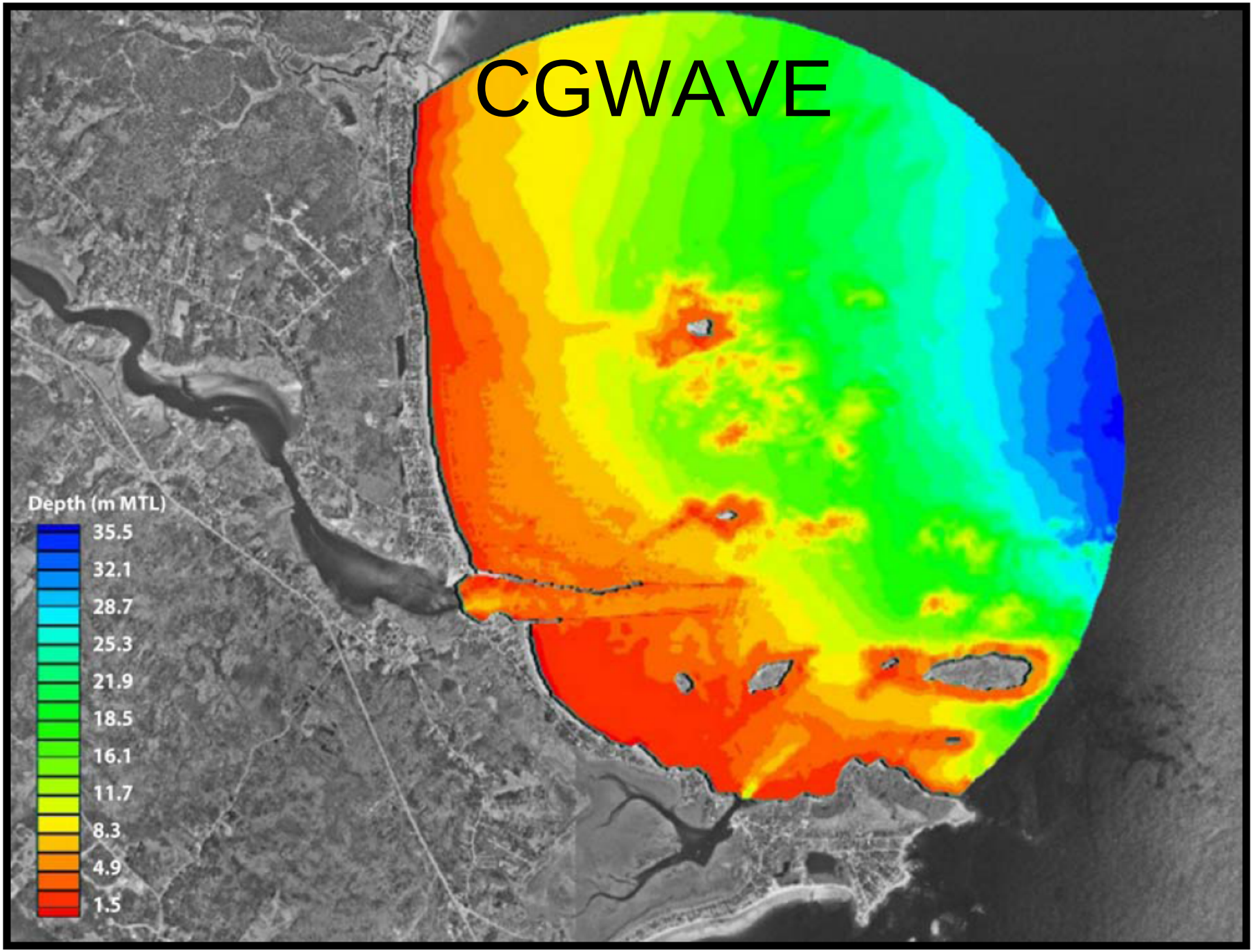
- Data Collection
- Wave Modeling
- Shoreline Movement Analysis
- Sediment Transport
- Woods Hole Group – Aubry Consulting Hired


Saco Bay
Portland Airport
Buoy
Station 99
Nearshore
Offshore
Station 38
Western Maine Shelf,
Buoy B
Buoy 44005
SACO YACHT CLUB
OFFSHORE
ADCP SYSTEM
55 feet
NEARSHORE
ADCP SYSTEM
13 feet
SACO PIER
N
W
E
S
2
0
2 Miles
5
0
5
10
MILES
15 arc second digital bathymetry
produced by USGS, Woods Hole, MA.

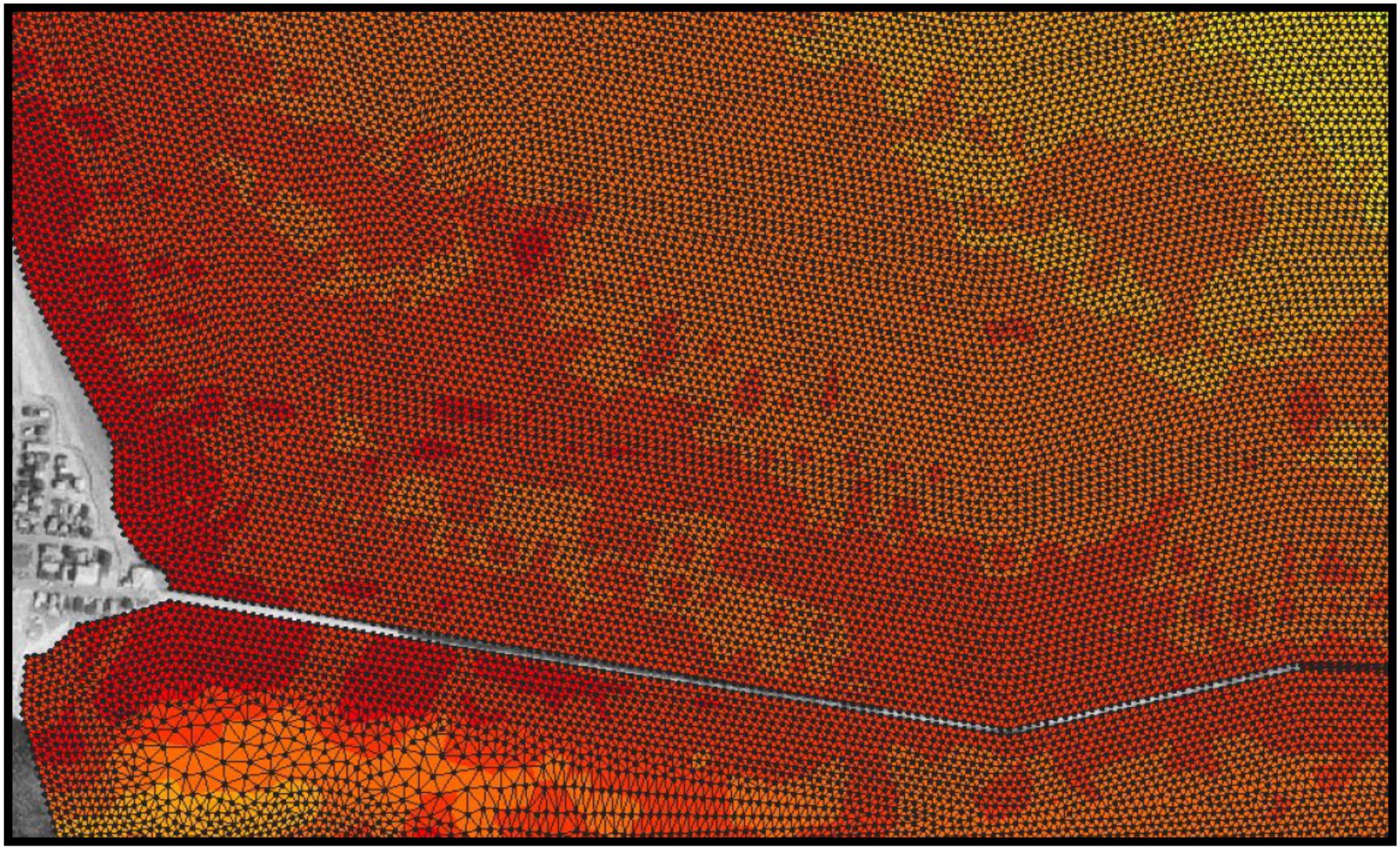
Generation Scale Model and STWAVE Model



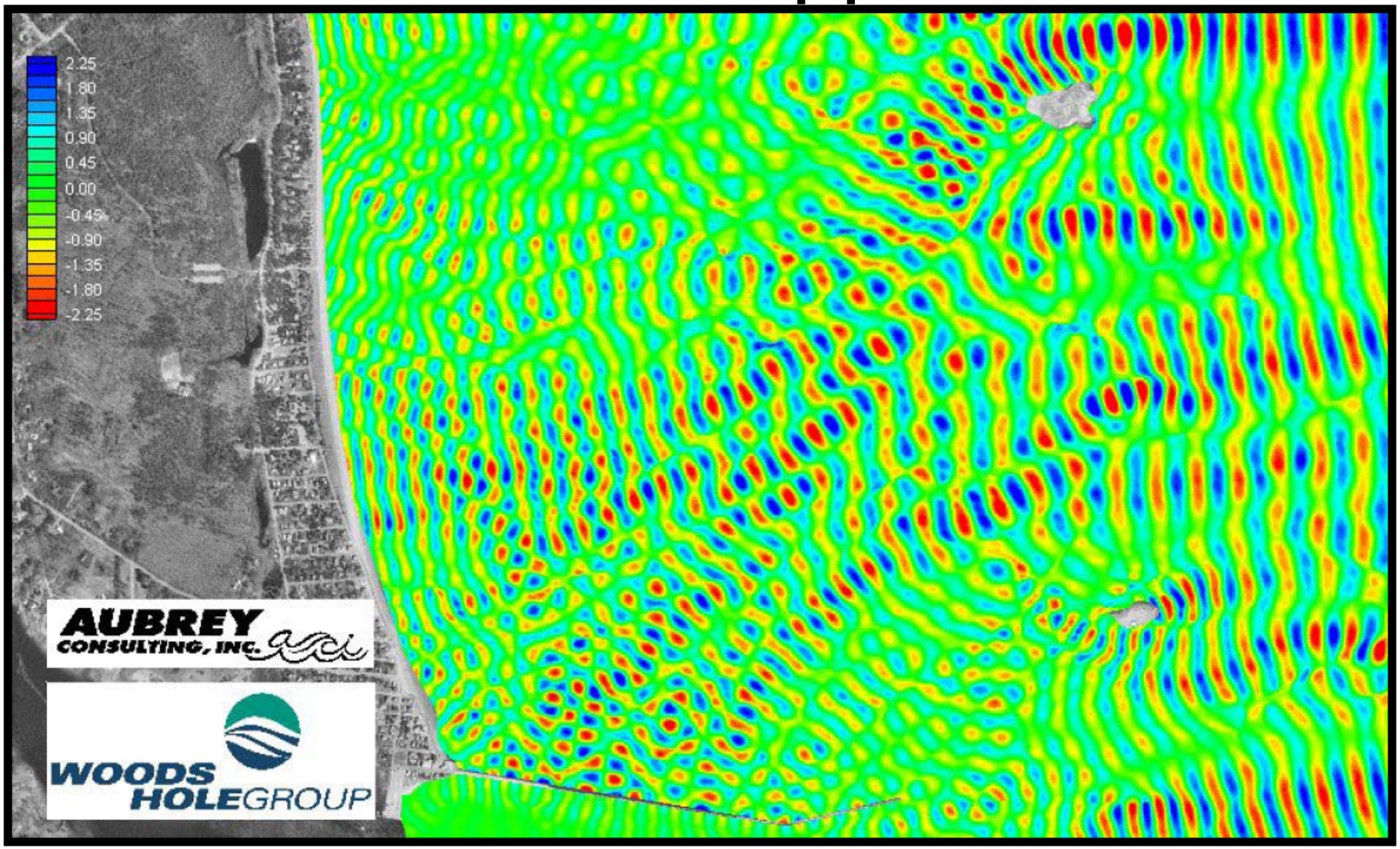



CGWAVE
Depth (m MTL)
35.5
32.1
28.7
25.3
21.9
18.5
16.1
11.7
8.3
4.9
1.5

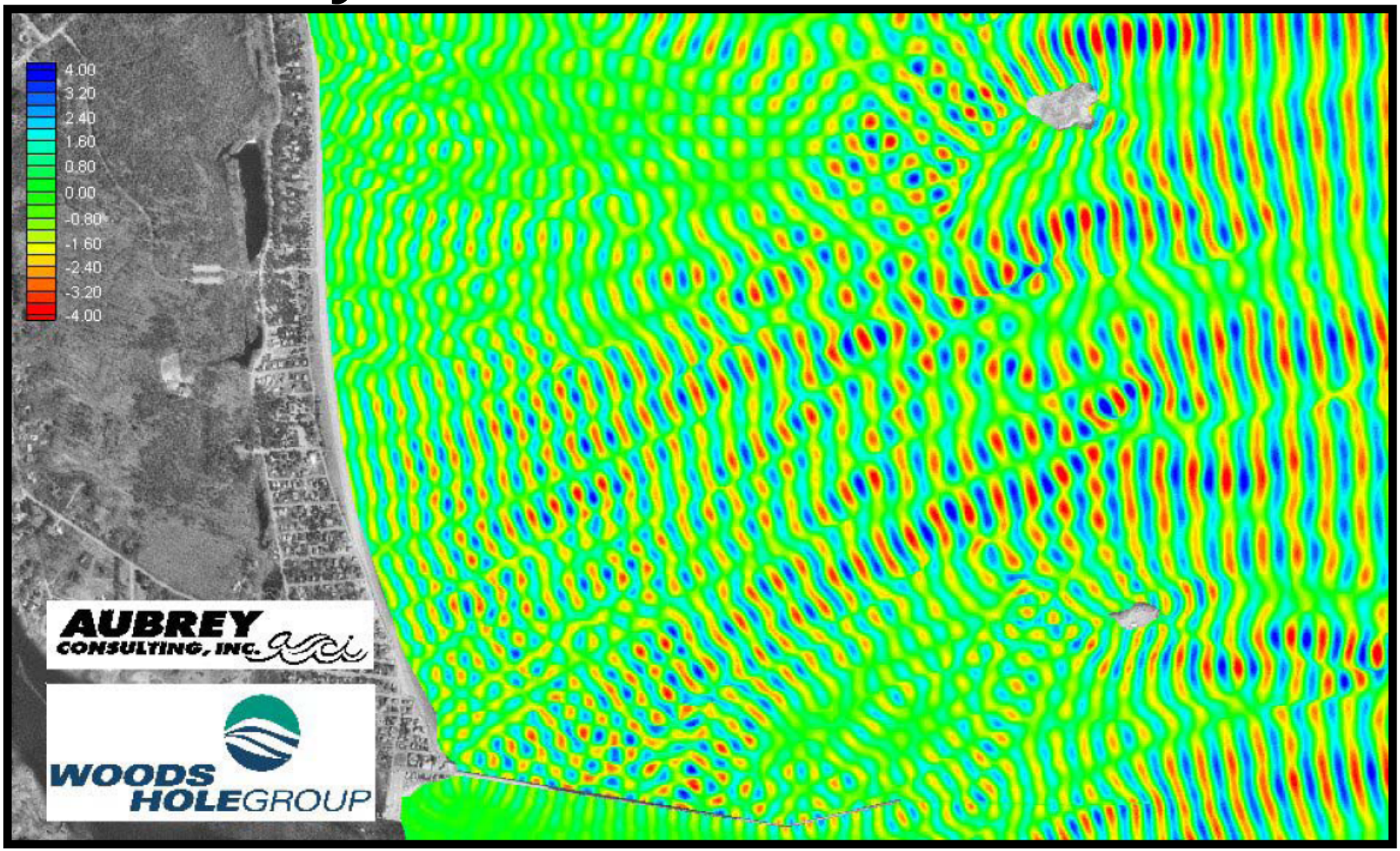
CGWAVE Model Grid



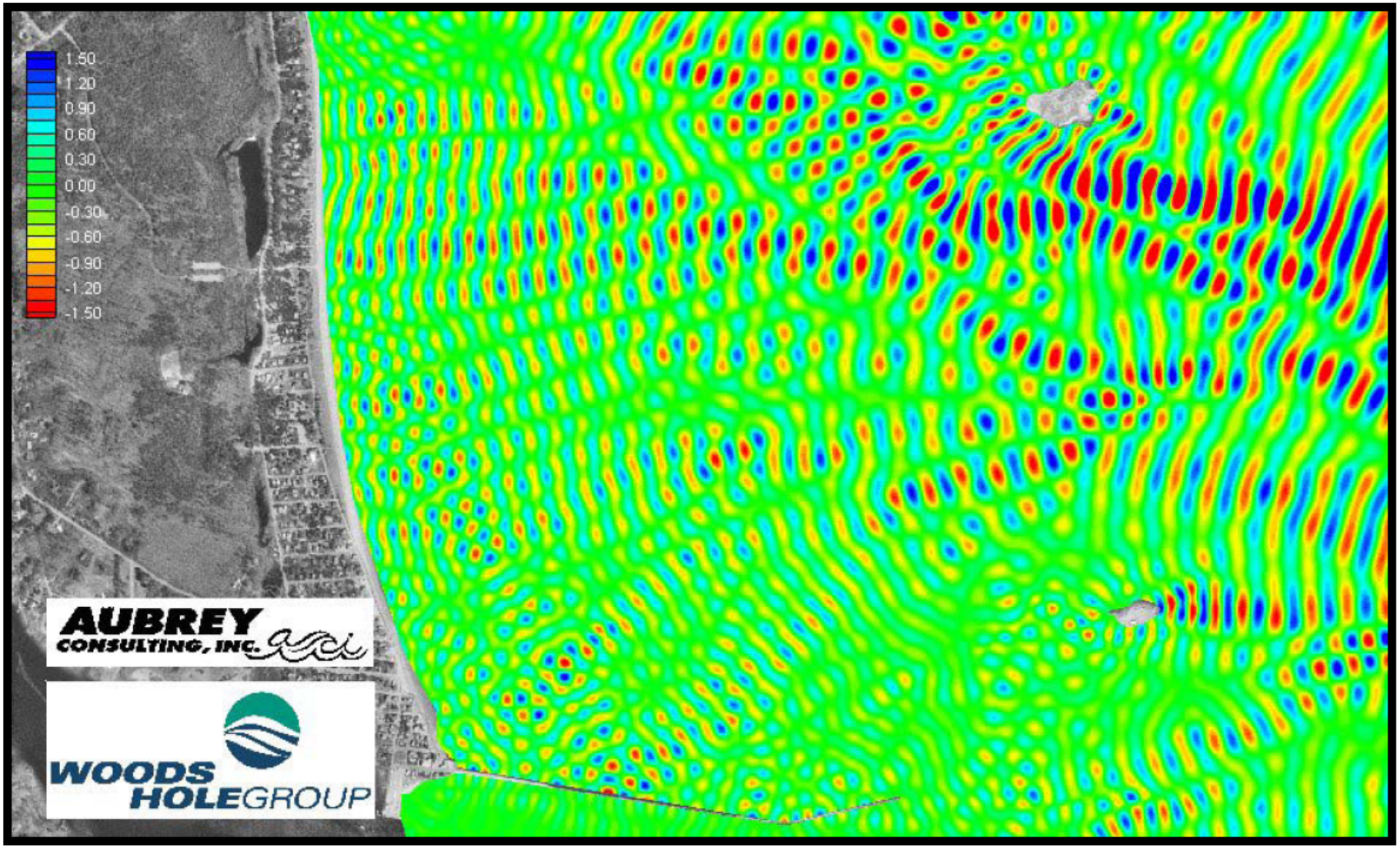
ENE Wave Approach



10 year Storm Nor'easter



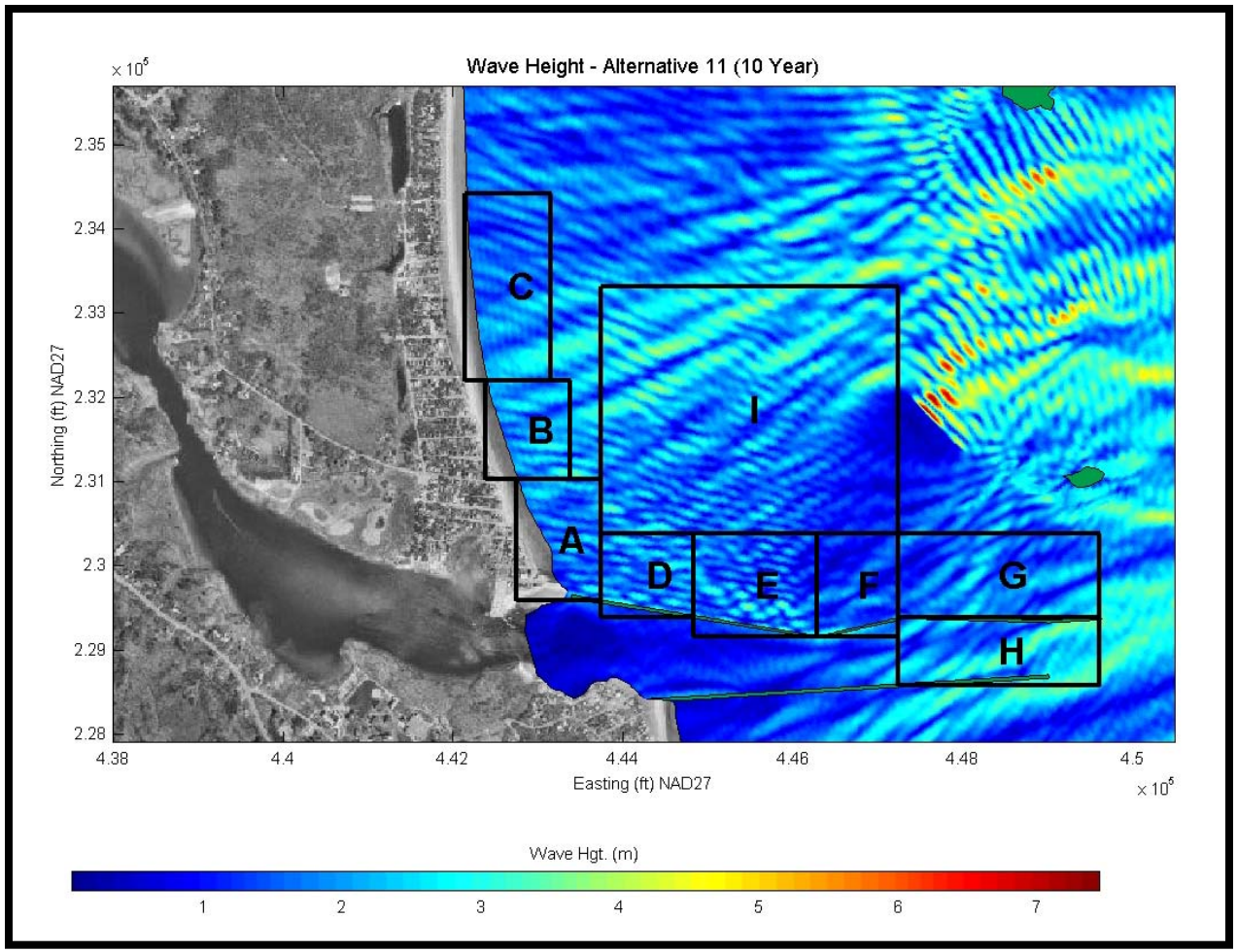
SE Wave Approach



Alternative	Description
1	Northern Jetty Extension Removal
2	Northern Jetty Extension Removal and Jetty Lowering
3	750’ Spur Groin
4	500’ Spur Groin
5	Dual 500’ Spur Groins
6	Additional configuration of best performing spur alternative
7	Optimized Spur Groin Alternative with Northern Jetty Extension Removal
8	Optimized Spur Groin Alternative with terminal groin
9	T-Head Groins
10	Secondary T-Head Layout
11	Offshore Breakwater
11a	Secondary Offshore Breakwater Locatio
12	Combination of Spurs and Breakwater
13	Multiple Short Spur Groins
14	Offshore Borrow Pit
15	Borrow Pit and optimized Spur Groins
16	Jetty Roughening
17	Submerged Breakwater/Shoal
18	Optimized Combination of Spurs and Breakwater
19	750’ Spur Groin, Jetty Roughening, and Extension Removal

All Alternatives coupled with Beach Nourishment

Alternatives Analysis and Assessment



- Screening

Wave Energy

Sediment Transport Results

*Boussinesq Wave Modeling

*Near shore Circulation

Plan 18 – Spur Plus Offshore Breakwater

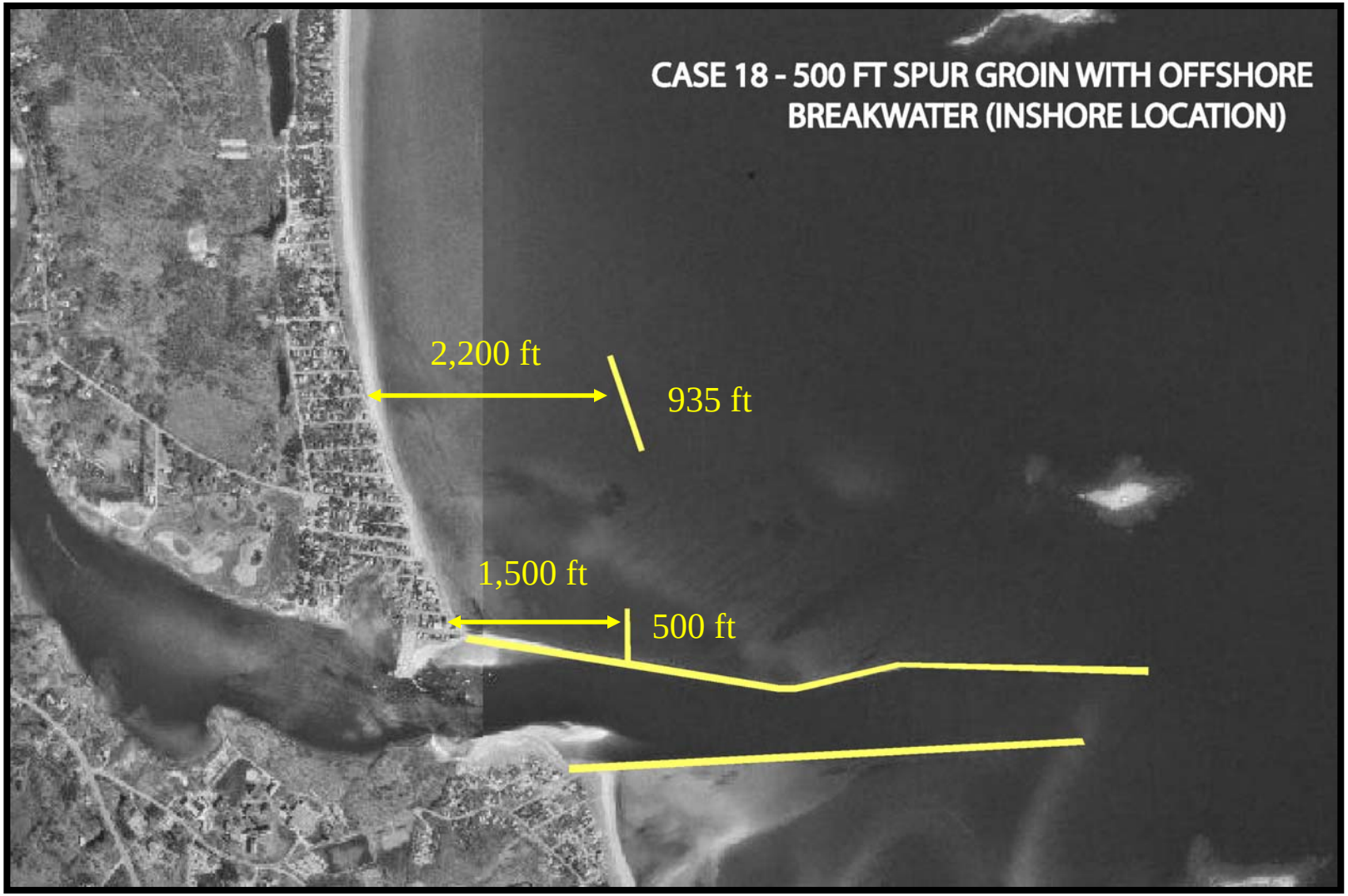
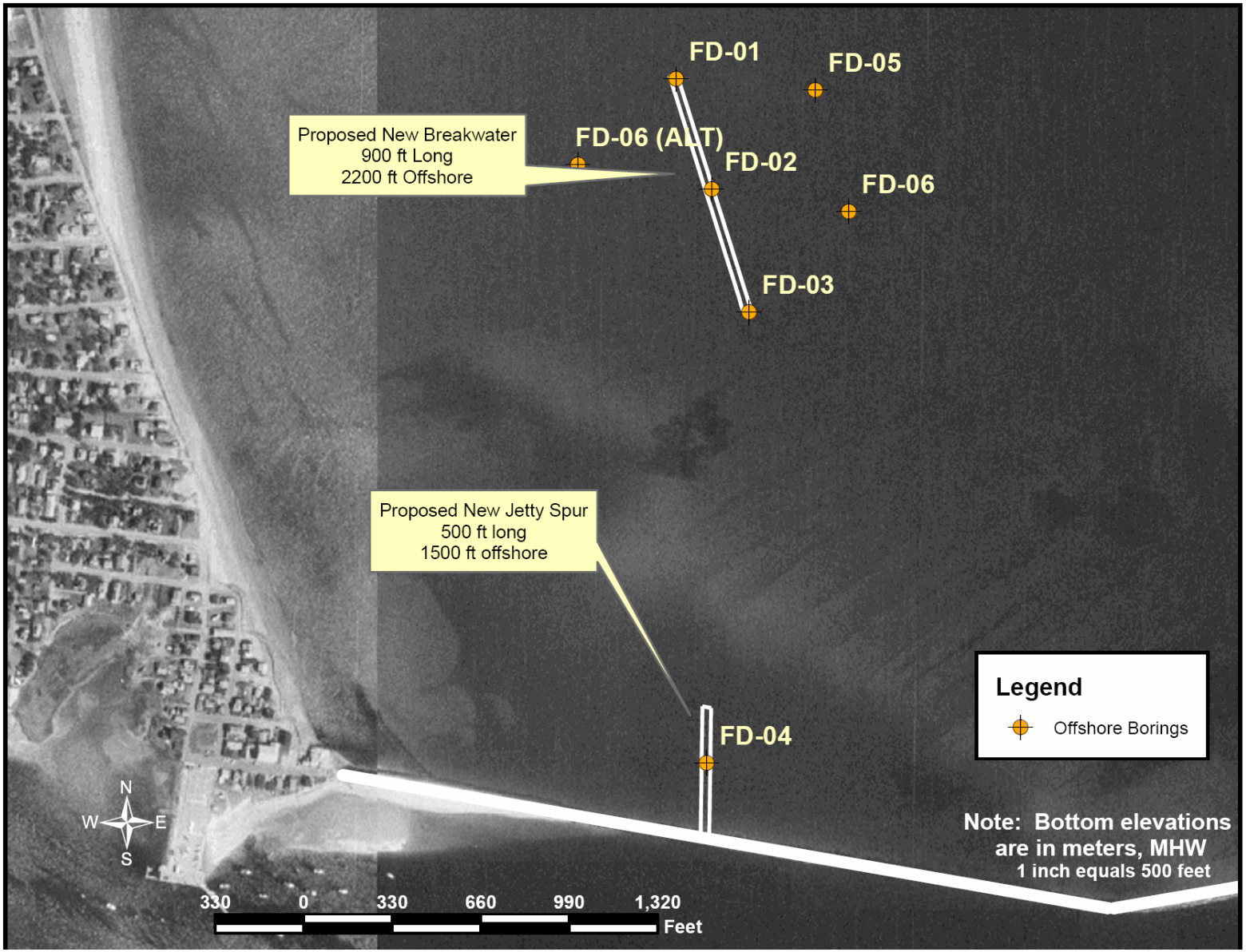
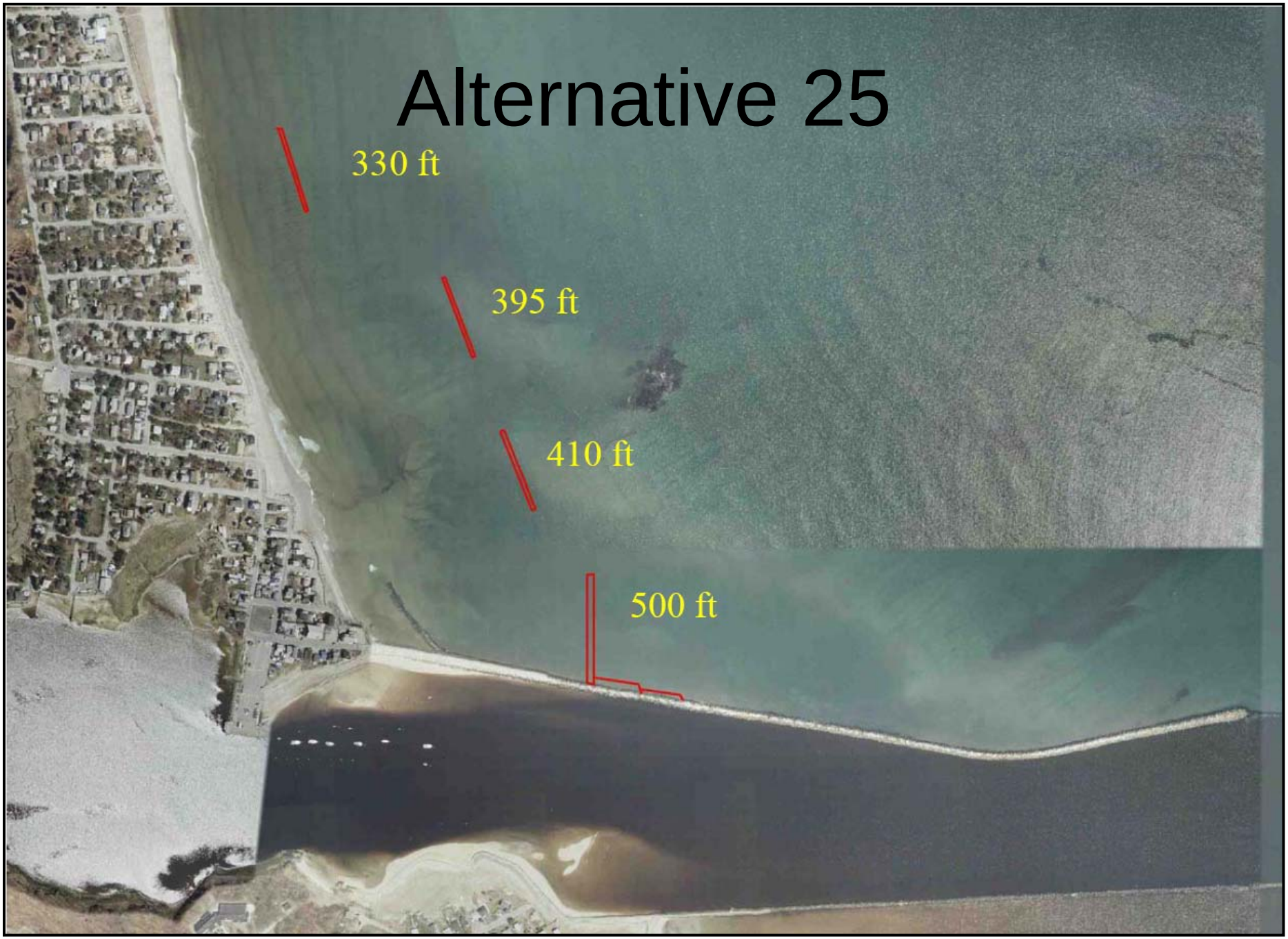


Figure 3 Camp Ellis, Saco, Maine
Approximate Location of Offshore Borings



Alternative 25



Jack Up Barge Flipped May 05

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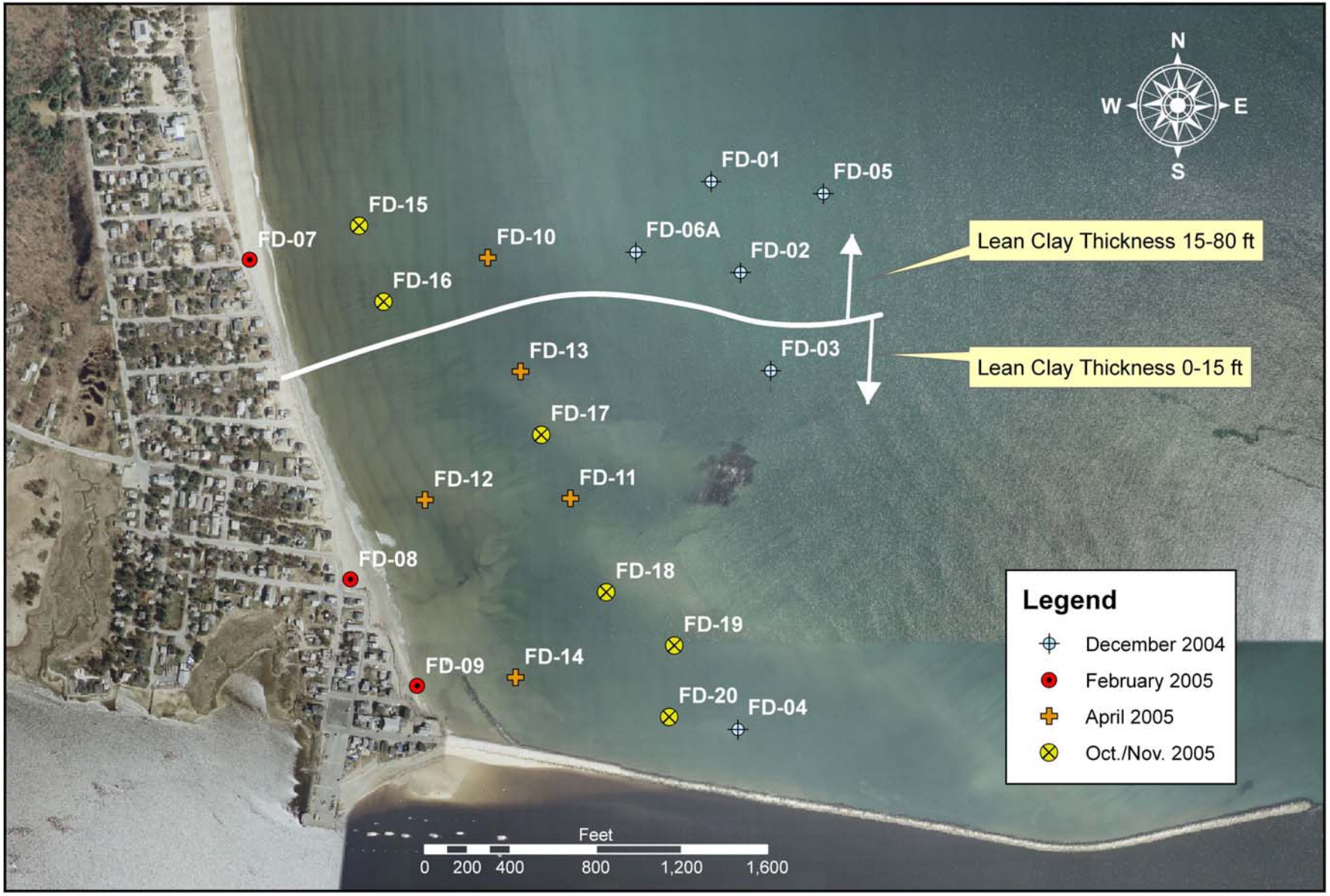
New England District

Camp Ellis, Saco Maine Shoreline Protection
Location and Date of Borings



Plan 25A – Spur Plus 2 Segmented Breakwaters

Cost Comparison of Alternatives

Plan		First Cost	Annual Cost	# of Beach fills
6	750-Foot Spur Jetty	$17,860,000	$1,307,000	3+
18	500-Ft Spur Jetty + 935-Ft Offshore Breakwater	$47,070,000	$2,846,000	2+
25	500-Ft Spur Jetty Plus 3 Segmented Breakwaters	$38,180,000	$2,312,000	1+
25A	500-Ft Spur Jetty Plus 2 Segmented Breakwaters	$25,120,000	$1,674,000	2+
9	100-Ft Spur Jetty Plus 5 T-Head Groins	$27,120,000	$1,605,000	0
	Buyout and Demolition	$44,900,000	$2,640,000	0

Status of Project

- Awaiting money to allow for Alternative 25A to be modeled
- Awaiting money so that geotechnical calculations can be completed for Alternative 25
- Awaiting money so that design can be “tweaked” to Alternative 25 to be constructed for $25 million
- Awaiting WRDA bill so that project can be authorized
- Optimistic construction date in Summer/Fall of 2008

Some Times No Matter How Hard You Try You Cant Win