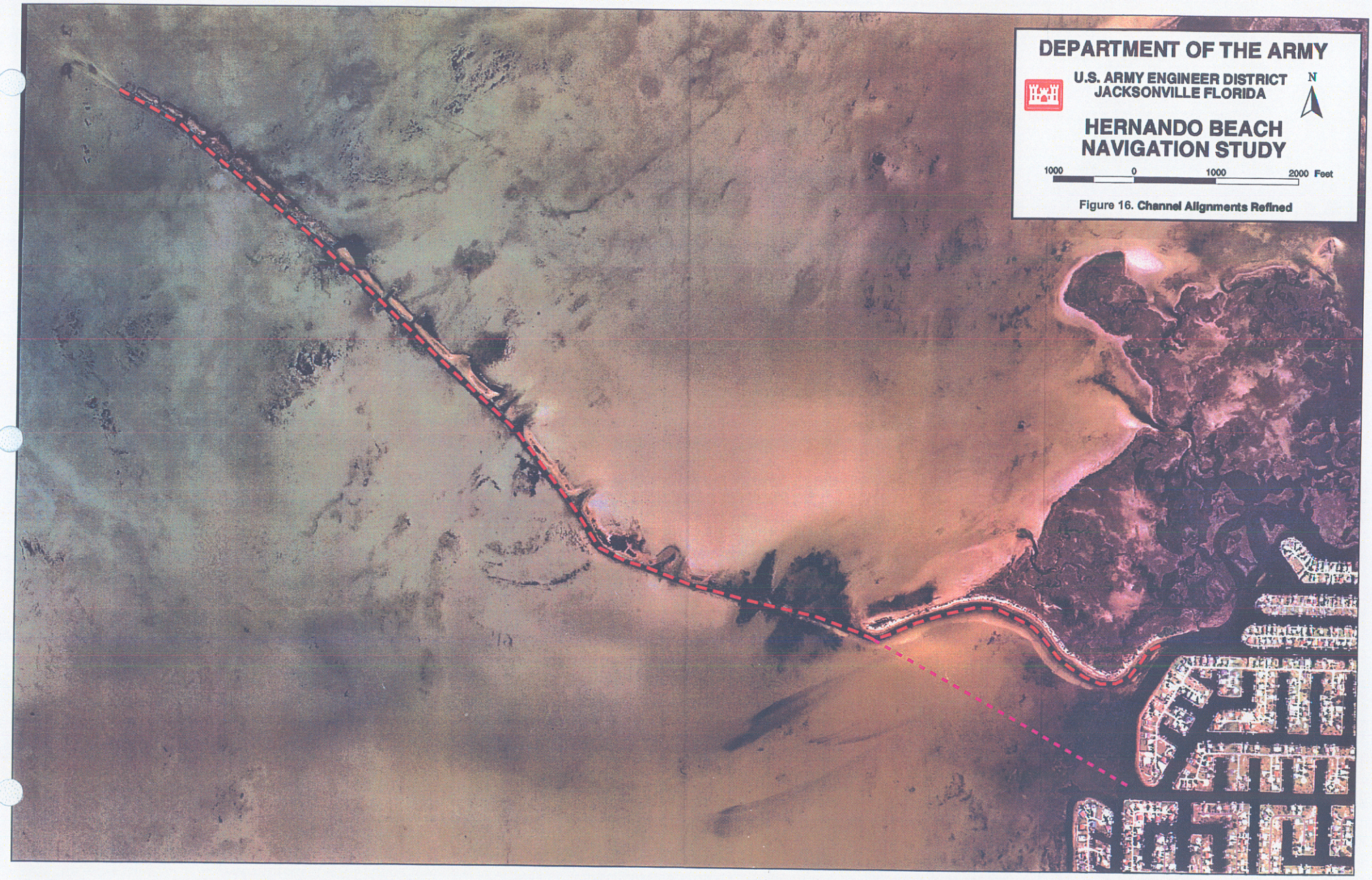
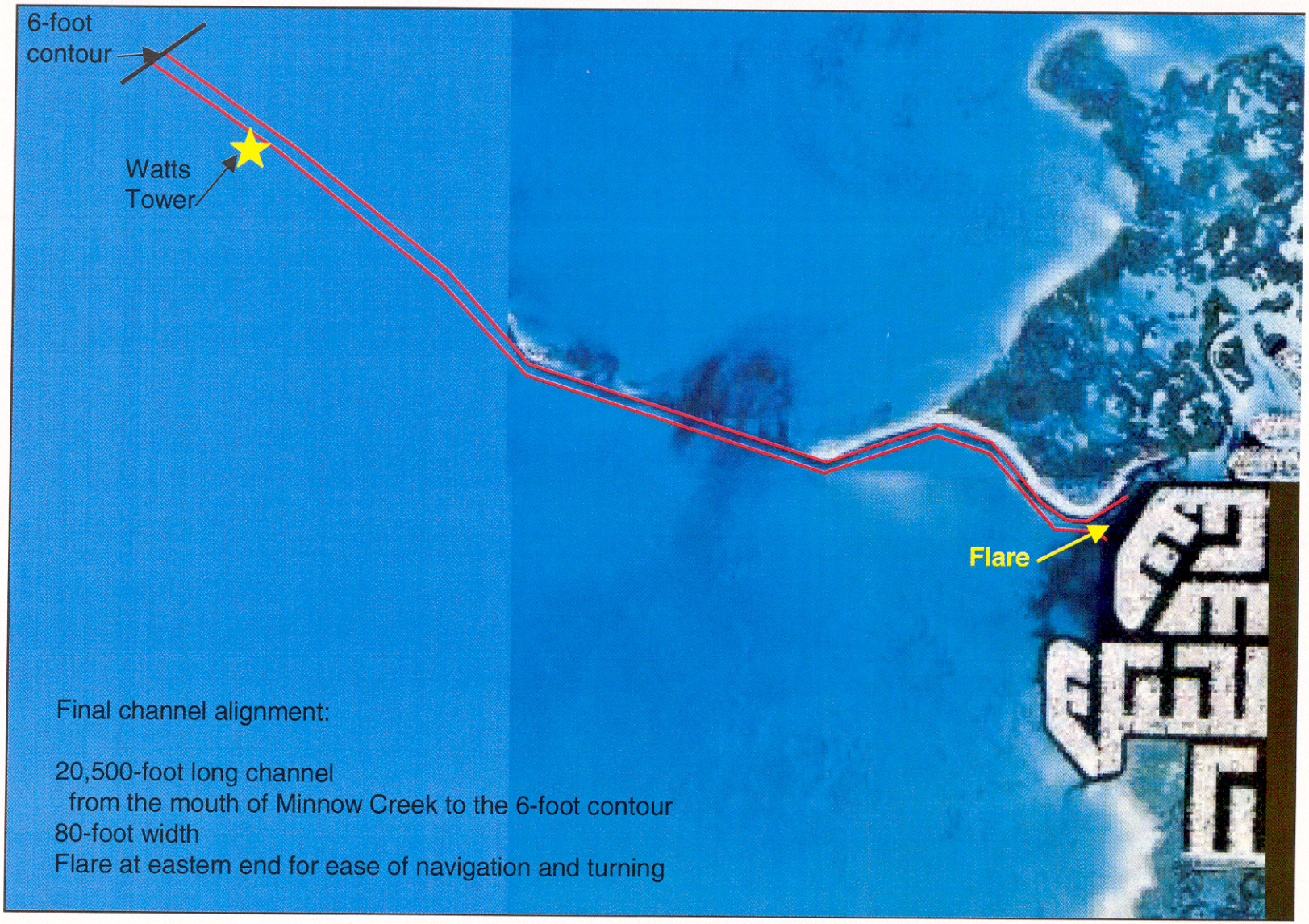
DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT
JACKSONVILLE FLORIDA
N
HERNANDO BEACH
NAVIGATION STUDY
1000 0 1000 2000 Feet
Figure 15. Channel Alignments
2
1
5
6
7
4
3


DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT
JACKSONVILLE FLORIDA
N
HERNANDO BEACH
NAVIGATION STUDY
1000 0 1000 2000 Feet
Figure 16. Channel Alignments Refined



Hernando Beach Navigation Study

Figure 17. Final channel design

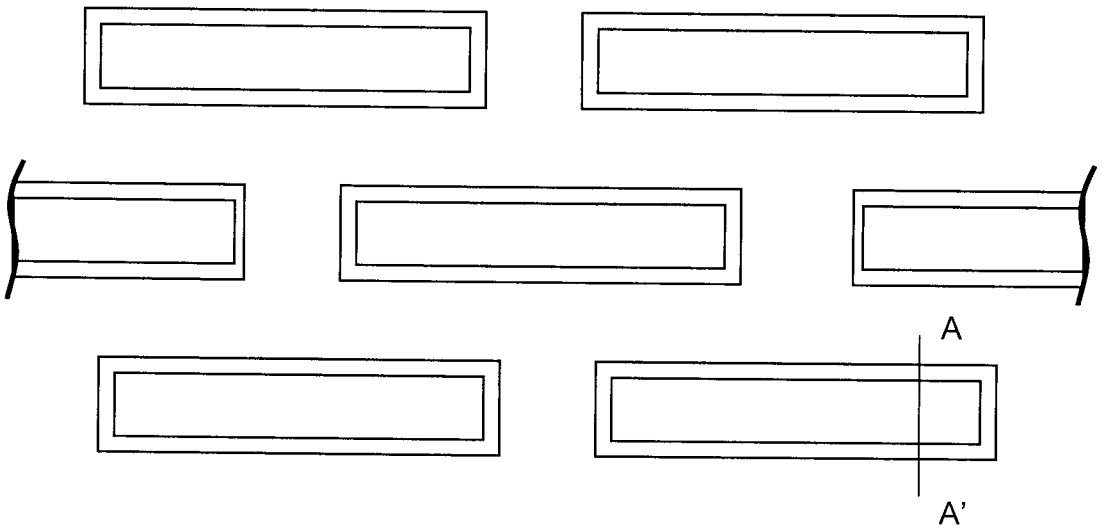
Figure 18.
Hernando Beach Navigation Study
Upland Placement Area

SITE NUMBER	PERIMETER LENGTH (YARDS)	SITE SIZE (ACRES)	DIKE HEIGHT (FT)	DIKE X-SECTION (SF)	DIKE QUANTITY (CY)	BULKING FACTOR	CAPACITY DIKED AREA (CY)
Near boat ramp	600	5	38	5,092	339,500	1.3	205,100
Near boat ramp	600	5	26	2,548	169,900	1.3	136,800
Unidentified	1,078	15	20	1,600	191,600	1.3	335,100
Unidentified	1,078	15	13	767	91,900	1.3	204,800
Unidentified	1,078	15	10	500	59,900	1.3	148,900
Pederson Park	835	9	15	975	90,400	1.3	145,200
Pederson Park	1,275	21	15	975	138,200	1.3	338,800

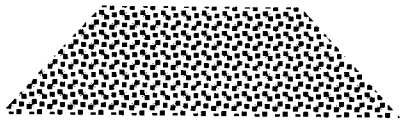
Notes: A site was identified near the boat ramp of about five acres. To hold just the finer material on this site, a placement area with a dike height of about 26 feet would be required. A fifteen acre site would hold the fines with a dike height of about 10 feet. No parcel this large could be found within reasonable distance of the channel. At the site of the future Pederson Park a nine-acre site with a dike height of 15 feet could hold the fines. A 21-acre site with a dike height of 15 feet could hold all the material.

a)Spoil islands
b)Thin-layer
c)Recreational area
d)New spoil islands
e)Breakwater
f)Channel fill
g)Upland/Coon Key Point
h)Highway fill
i)Borrow canal fill
j)Upland
k)In canal
l)Littoral zone habitat
m)Shallow water habitat
n)County park fill
o)Bird island
p)Plug conduit
q)Hardbottom habitat
r)Shallow canals

Hernando Beach
Navigation Study
Figure 19.
Placement Sites



Plan View



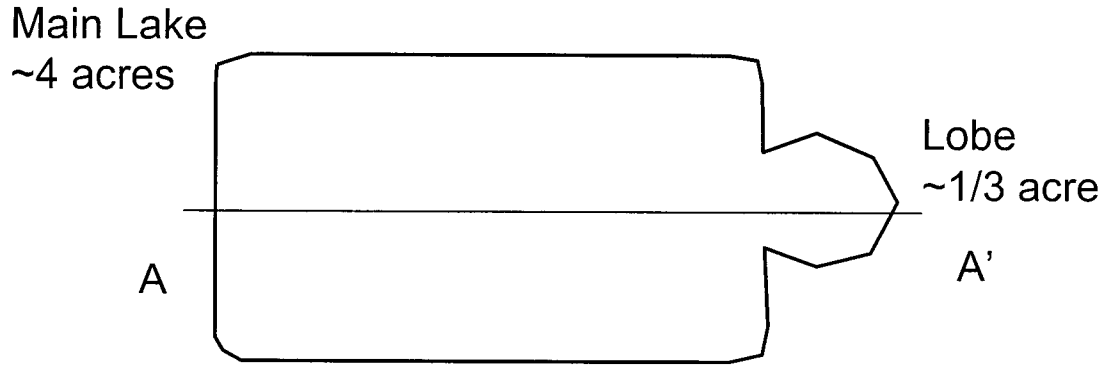
Cross-section A-A'

LEGEND

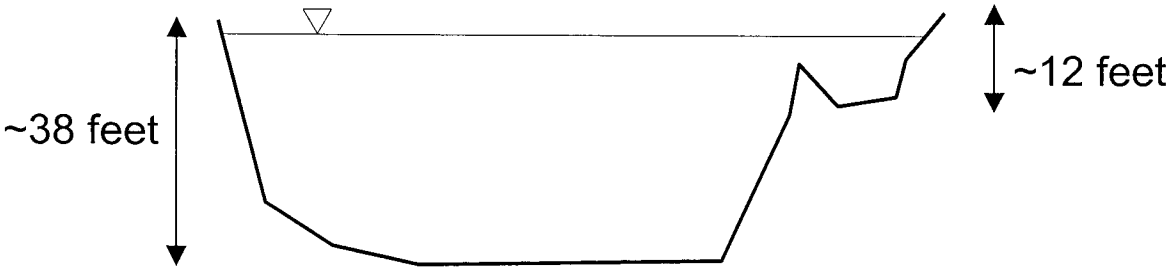
Limerock, varying diameters

Not To Scale

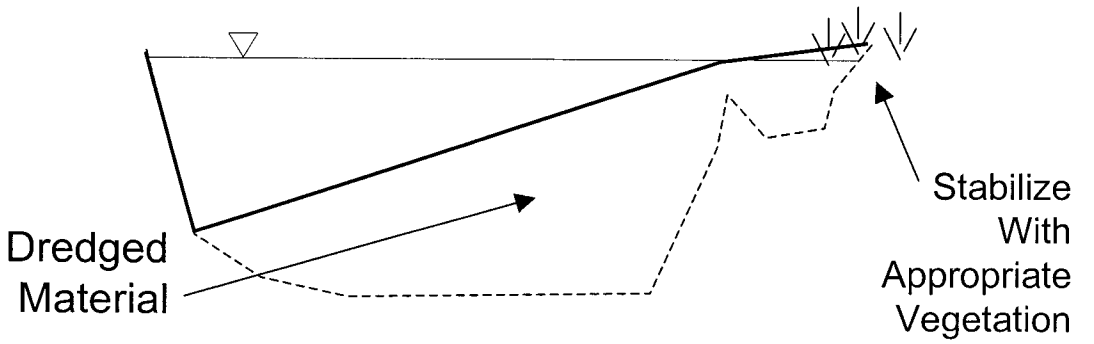
Hernando Beach Navigation Study
Figure 20.
Hardbottom habitat schematic



Plan View



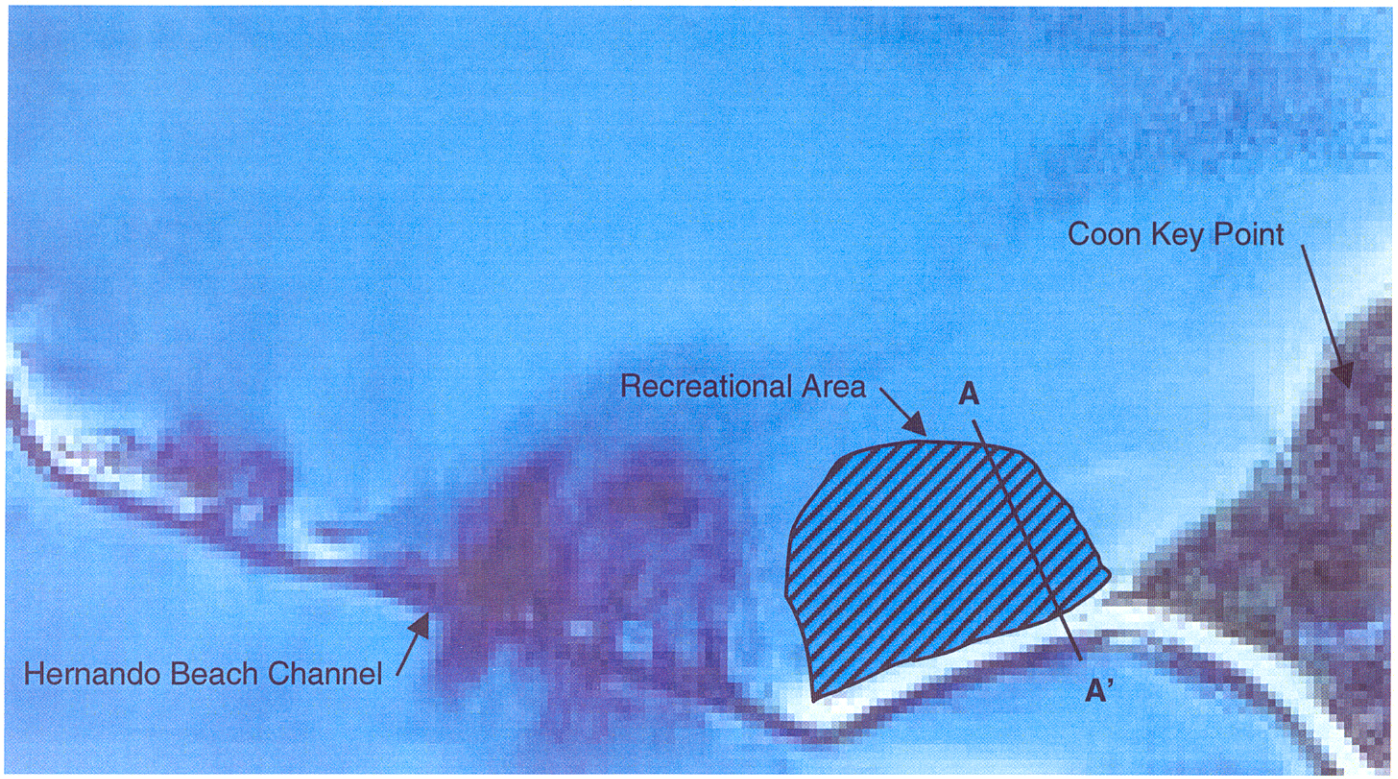
Cross-section A-A' Before

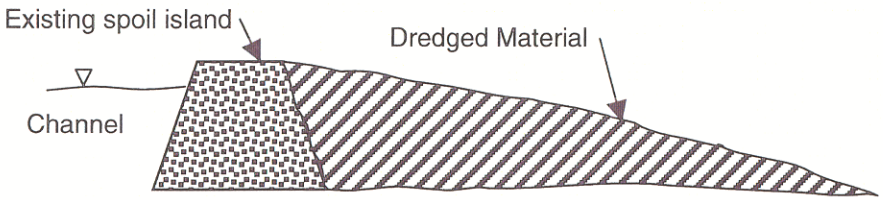


Cross-section A-A' After

Not To Scale

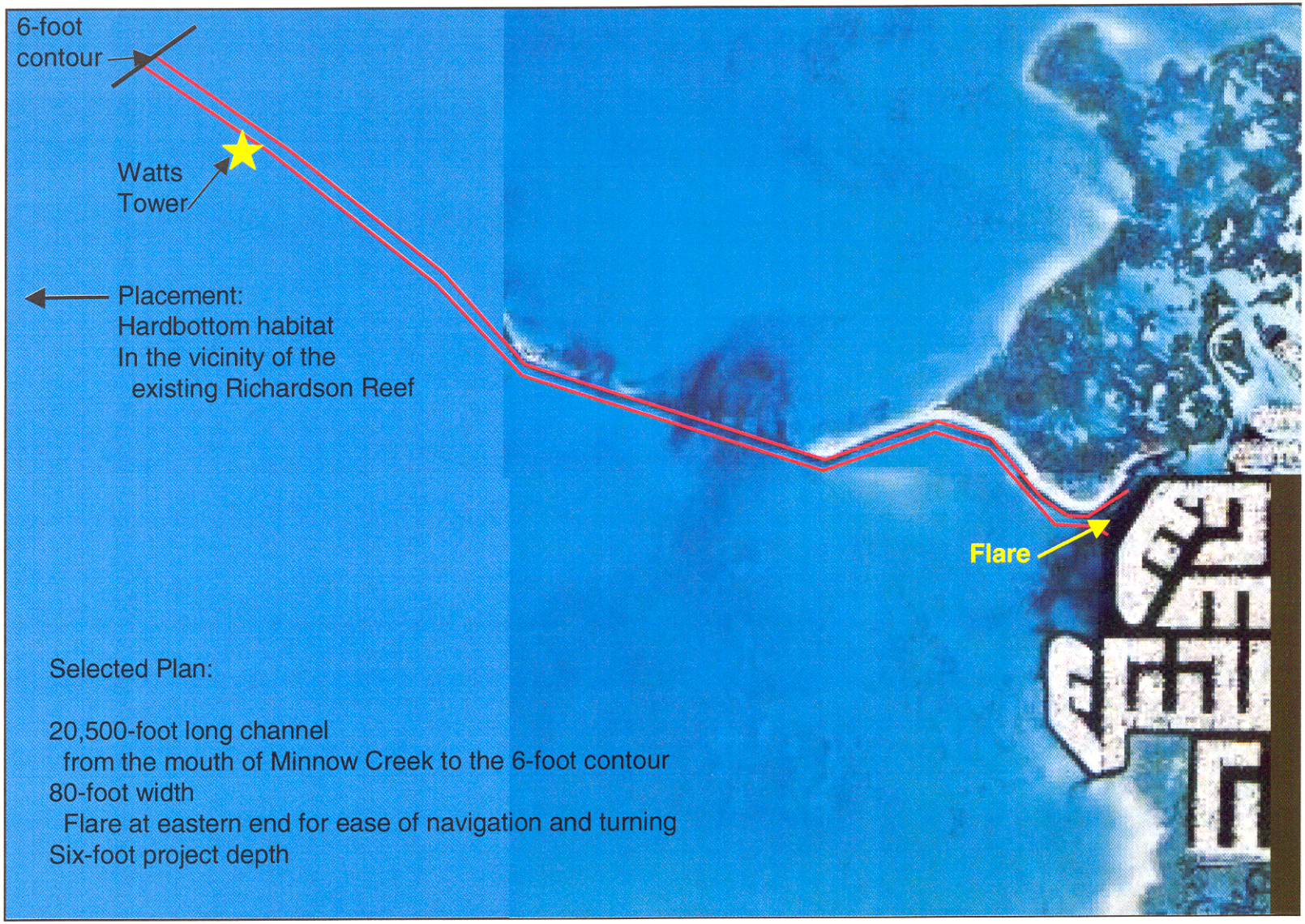
Hernando Beach Navigation Study
Schematic showing
Little Lake restoration
Figure 21.





Cross-Section A-A'

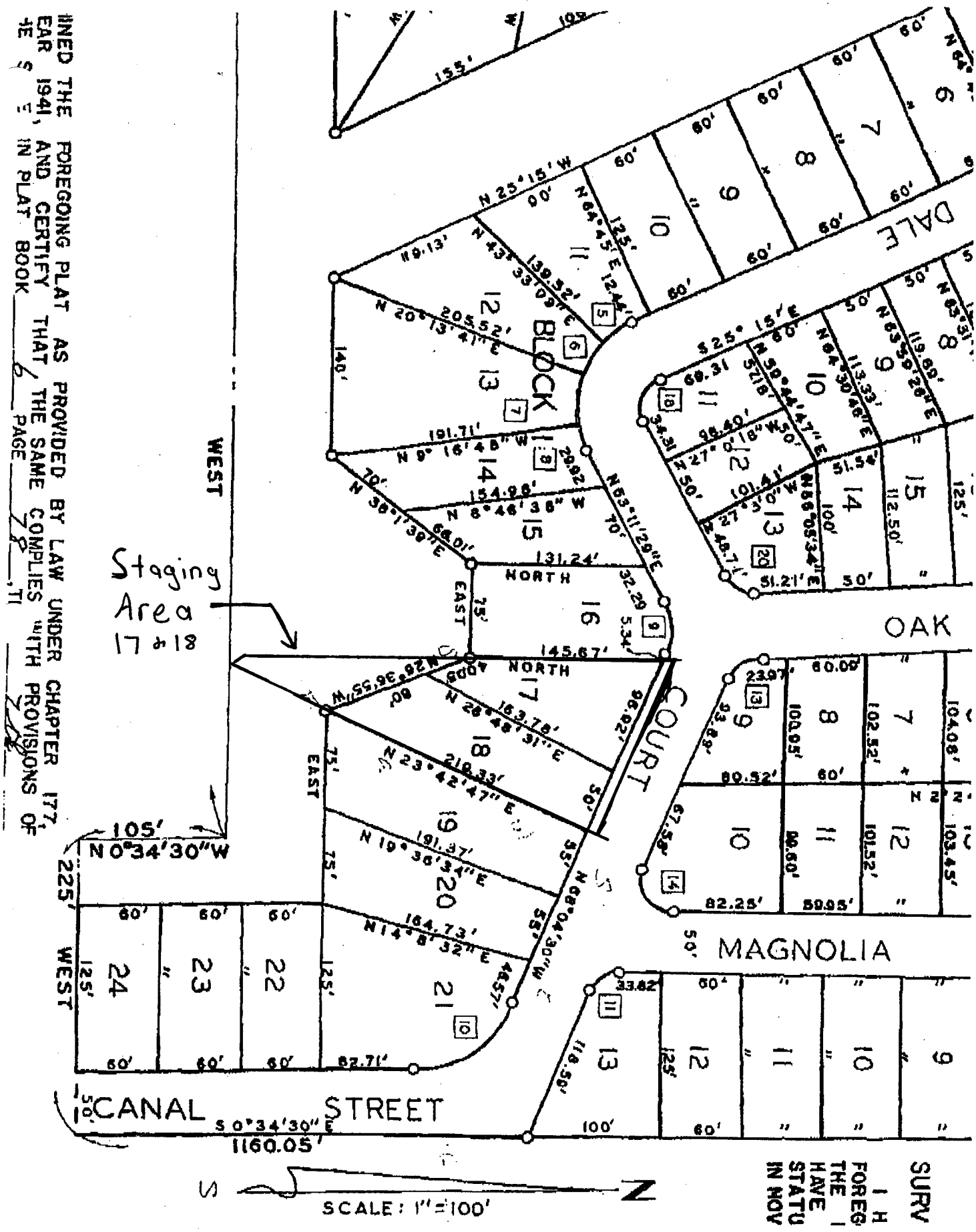
Hernando Beach Navigation Study
Figure 22.
Shoreline placement area



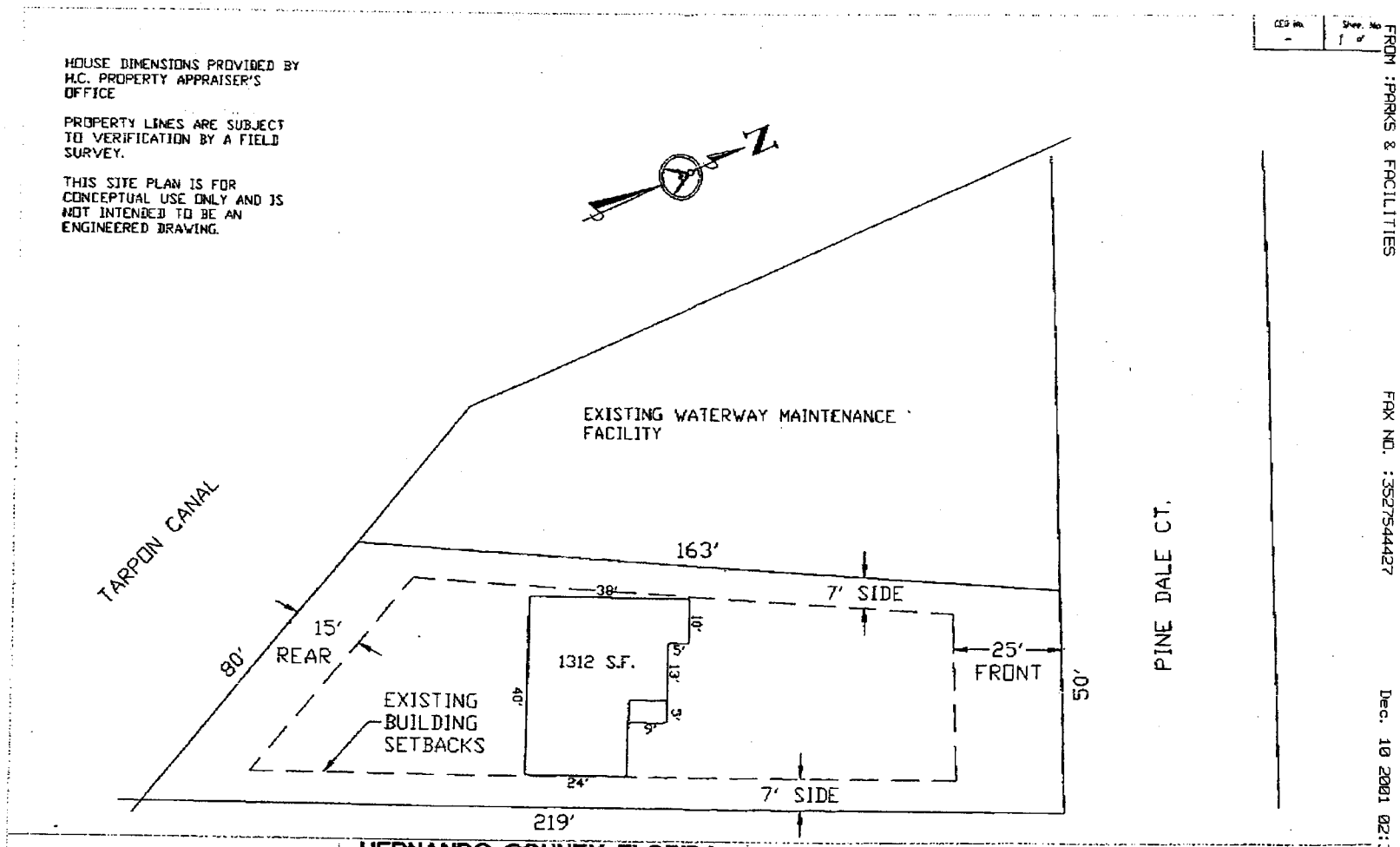
Hernando Beach Navigation Study

Figure 23. Selected Plan

Hernando Beach Navigation Study
Figure 24. Staging Area



Hernando Beach Navigation Study
Figure 25. Staging Area



Hernando Beach Navigation Study
Figure 26. Staging Area

PROJECT: Hernando Beach
LOCATION: Gulf Coast

ESTIMATED S&A COSTS

PROJECTED S&A EXPENSES = Cost/day * (contract period) = S&A Expense

$\frac{\$\ 1{,}450.62}{\text{Day}}$ x 160 days = $ 232,099

PROJECTED S&A RATE = Projected S&A expenses / Projected Contract Amount

$\frac{\$\ 232{,}099}{\$4.27\ M}$ = **5.4%**

PROJECT: Hernando Beach
LOCATION: Gulf Coast

DISTRICT OFFICE COSTS

A. CONST BRANCH LABOR:

Pro-rated: (Contract Amount/Dist Placement)(Time Factor)(CO-C Daily Rate)

$4.27 M x 1 x $ 19,982 = $ 436

$ 195.70

B. Other Project Costs

CESAJ-EN-DT (Contract Amount/Contract Period)(Time Factor/ConstPeriod)(Office %)

$4.27 M x 1 Time x 0.00% = $ -

160 days Factor

CESAJ-CT (Contract Amount/Contract Period)(365 Days/ConstPeriod)(Office %)

$4.27 M * % 1 Time x 0.00% = $ -

160 days Factor

CESAJ-EN (Contract Amount/Contract Period)(365 Days/ConstPeriod)(Office %)

$4.27 M * % 1 Time x 0.00% = $ -

160 days Factor

CESAJ-DP (Contract Amount/Contract Period)(365 Days/ConstPeriod)(Office %)

$4.27 M * % 1 Time x 0.00% = $ -

160 days Factor

TOTAL DISTRICT OFFICE COST: $ 436

TOTAL OF FIELD & DISTRICT OFFICE COSTS: $ 1,451

CONSTRUCTION PERIOD 160 Days

TOTAL LIQUIDATED DAMAGES $ 1,451 PER DAY

LIQUIDATED DAMAGE ESTIMATE

PROJECT: Hernando Beach
LOCATION: Gulf Coast
ESTIMATOR: Carl Pettijohn
ADVERTISEMENT DATE: 1-Mar-04
TIME IN CONTRACT: 160 days
CONTRACT AMOUNT: $4.27 Million

FIELD OFFICE COST:

A. Inspector 1 GS-11/10 — Will be on site every day

Hourly wage:	$ 69.40 TI & GO				
Hours/day REG.	8 hrs / day *	$ 69.40	per/hr =	$	555.20
O/T	0 hrs / day *	$ 104.10	per/hr =	$	-
Per Diem	$ - per/day *	1	days =	$	-
Vehicle	$ 19.60 $/day	1	days =	$	19.60
		SUB TOTAL =		$	574.80

B. Field Office Assiastant GS-6/9

Hourly wage: $ 40.15 TI & GO

Pro-rated: $/Day = (Contract Cost/Total Annual Placement)(Hours/Day)(Time Factor)(Hourly Wage)

$4.27 / $ 23.1 = 8 hrs / day × 1 Time Factor × $ 40.15 = $ 59.40 per/day

C. OfficeEngineer GS12/10

Hourly wage: $ 80.20 TI & GO

Pro-rated: $/Day = (Contract Cost/Total Annual Placement)(Hours/Day)(Time Factor)(Hourly Wage)

$4.27 / $ 23.1 = 8 hrs / day × 1 Time Factor × $ 80.20 = $ 118.65 per/day

D. Team Leader GS12/10

Hourly wage: $ 80.20 TI & GO

Pro-rated: $/Day = (Contract Cost/Total Annual Placement)(Hours/Day)(Time Factor)(Hourly Wage)

$4.27 / $ 23.1 = 8 hrs / day × 1 Time Factor × $ 80.20 = $ 118.65 per/day

E. Area Engineer GS13/9

Hourly wage: $ 96.59 TI & GO

Pro-rated: $/Day = (Contract Cost/Total Annual Placement)(Hours/Day)(Time Factor)(Hourly Wage)

$4.27 / $ 23.1 = 8 hrs / day × 1 Time Factor × $ 96.59 = $ 142.90 per/day

TOTAL LABOR: $ 1,014.41

TOTAL FIELD OFFICE COST **$ 1,014**

Reference Values for FY 2002

Est Placement for CO-G	$23.1	Million
Est Placement for CO-N	$72.0	Million
Est Placement for CO-W	$70.5	Million
Est Placement for DS-CO-P	$7.9	Million
Est Placement for DS-CO-S	$22.2	Million
Total Est Placement for FY:	$195.7	Million

CO-C Daily Labor Cost $19,982

S&A/S&I BREAKDOWN FY 2002 PROJECTS

	CG		O&M		Military		SFO		HTRW	
	FLA	PR	Other	Dredging	FLA	PR	FLA	PR	FLA	PR
FIELD	4.5	5.5	6.2	3	4.1	5.1	6.1	7	6	6
CO-C	3.1	3.1	3.3	2.4	2	2.5	2.5	2.5	2	2.5
SURVEY	0.5	0.5		2						
CT	0.2	0.2		0.1	0.2	0.2	0.2	0.2		
EN										
PD										
DP	0.2	0.2			0.2	0.2	0.2	0.2		
TOTAL	8.5	9.5	9.5	7.5	6.5	8	9	9.9	8	8.5

Activity	Date	Month	Amount	FWF	FW	IDC
Initate PED	1-Jun-03	1	$57,833	1.071417	$61,964	$4,130
Continue PED		2	$57,833	1.066332	$61,670	$3,836
Continue PED		3	$57,833	1.061271	$61,377	$3,544
Continue PED		4	$57,833	1.056235	$61,086	$3,252
Continue PED		5	$57,833	1.051222	$60,796	$2,962
Complete PED	1-Nov-03	6	$57,833	1.046232	$60,507	$2,674
Begin Contracting		7	$0	1.041267	$0	$0
Continue Contracting		8	$0	1.036325	$0	$0
Award Contract	1-Feb-04	9	$0	1.031406	$0	$0
Begin Construction	1-Mar-04	10	$765,667	1.026511	$785,965	$20,299
		11	$765,667	1.021639	$782,235	$16,568
		12	$765,667	1.016790	$778,522	$12,856
		13	$765,667	1.011965	$774,828	$9,161
		14	$765,667	1.007162	$771,150	$5,483
Complete Construction	1-Aug-04	15	$765,667	1.002382	$767,490	$1,823
					Total IDC	$86,589
				Total First Costs		$4,941,000
				Economic Investment		$5,027,589
				Annual Costs (AAEQ)		$324,551

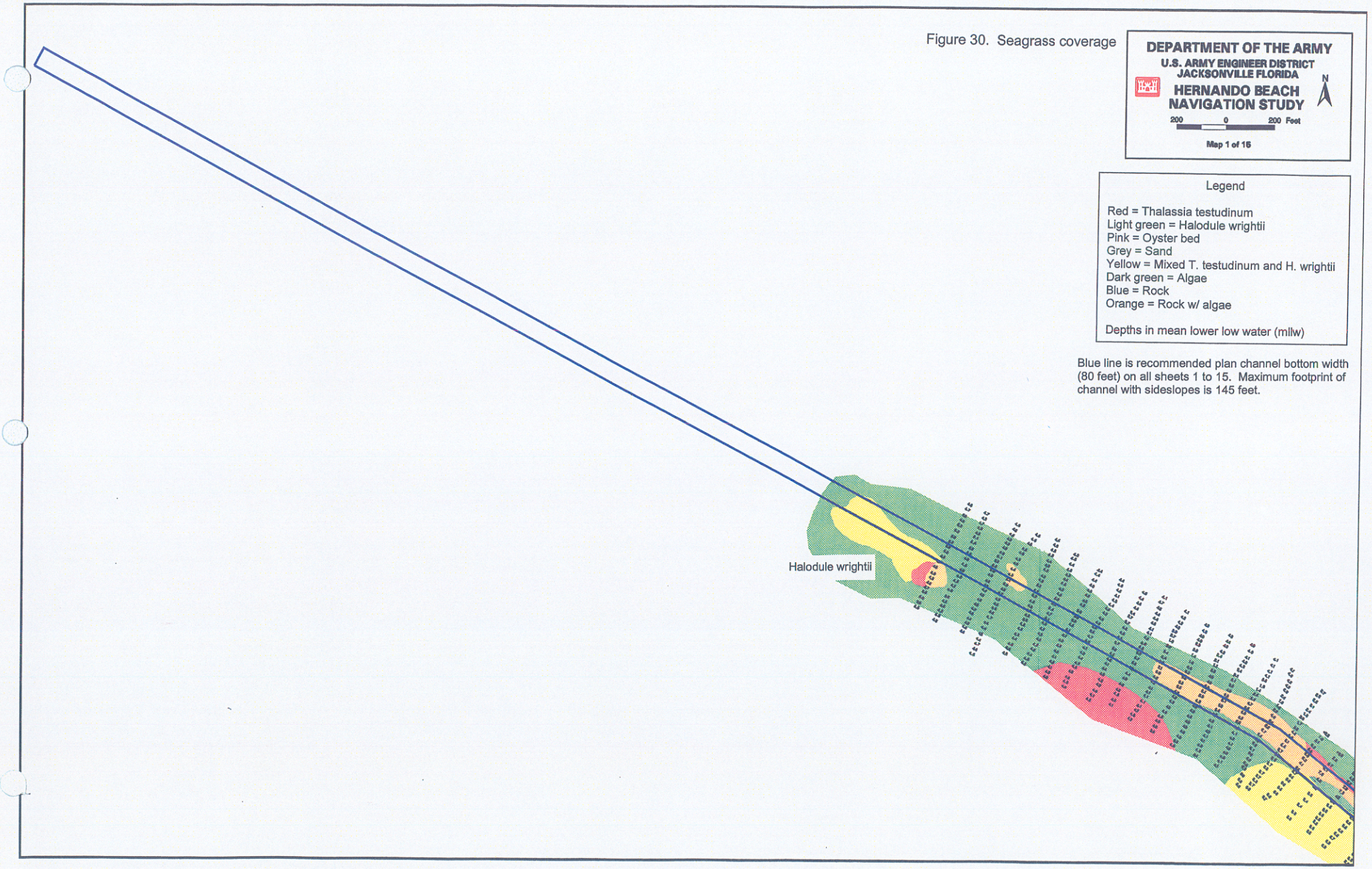
Notes:

1) IDC based on PED taking place at uniform rate of expenditure at the middle of each month starting at 14 months prior to completion of construction for a period of 6 months

2) Also based on construction costs being incurred at a uniform rate at the middle of each month at 6 months prior to completion of construction for a period of 6 months

Construction Cost	$4,594,000		
PED Cost	$347,000		
Total First Costs	$4,941,000		
Interest = 5 7/8	5.875%	0.05875	

Figure 30. Seagrass coverage



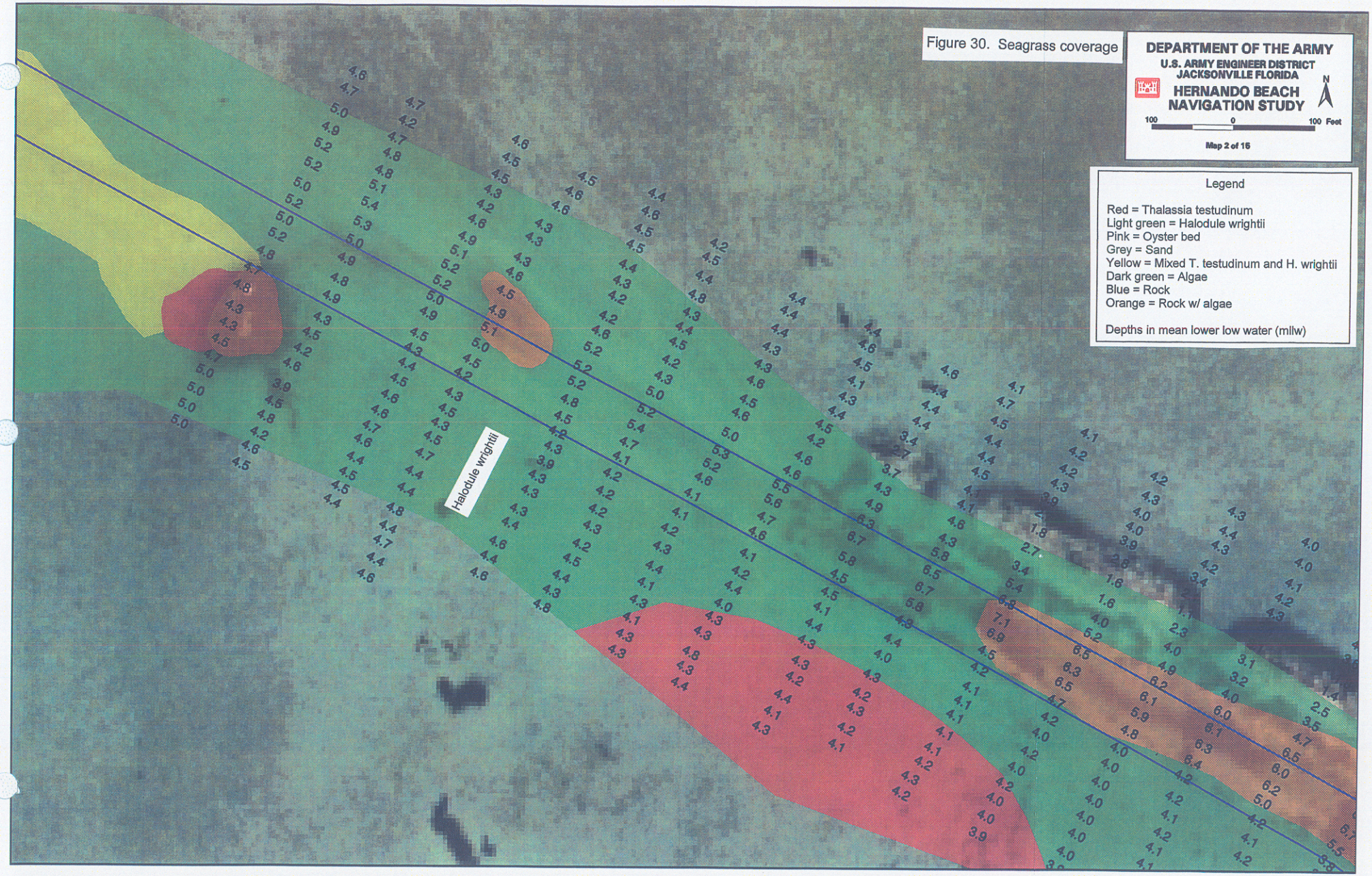


Figure 30. Seagrass coverage
DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT
JACKSONVILLE FLORIDA
HERNANDO BEACH
NAVIGATION STUDY
N
100 0 100 Feet
Map 2 of 15
Legend
Red = Thalassia testudinum
Light green = Halodule wrightii
Pink = Oyster bed
Grey = Sand
Yellow = Mixed T. testudinum and H. wrightii
Dark green = Algae
Blue = Rock
Orange = Rock w/ algae
Depths in mean lower low water (mlw)
Halodule wrightii

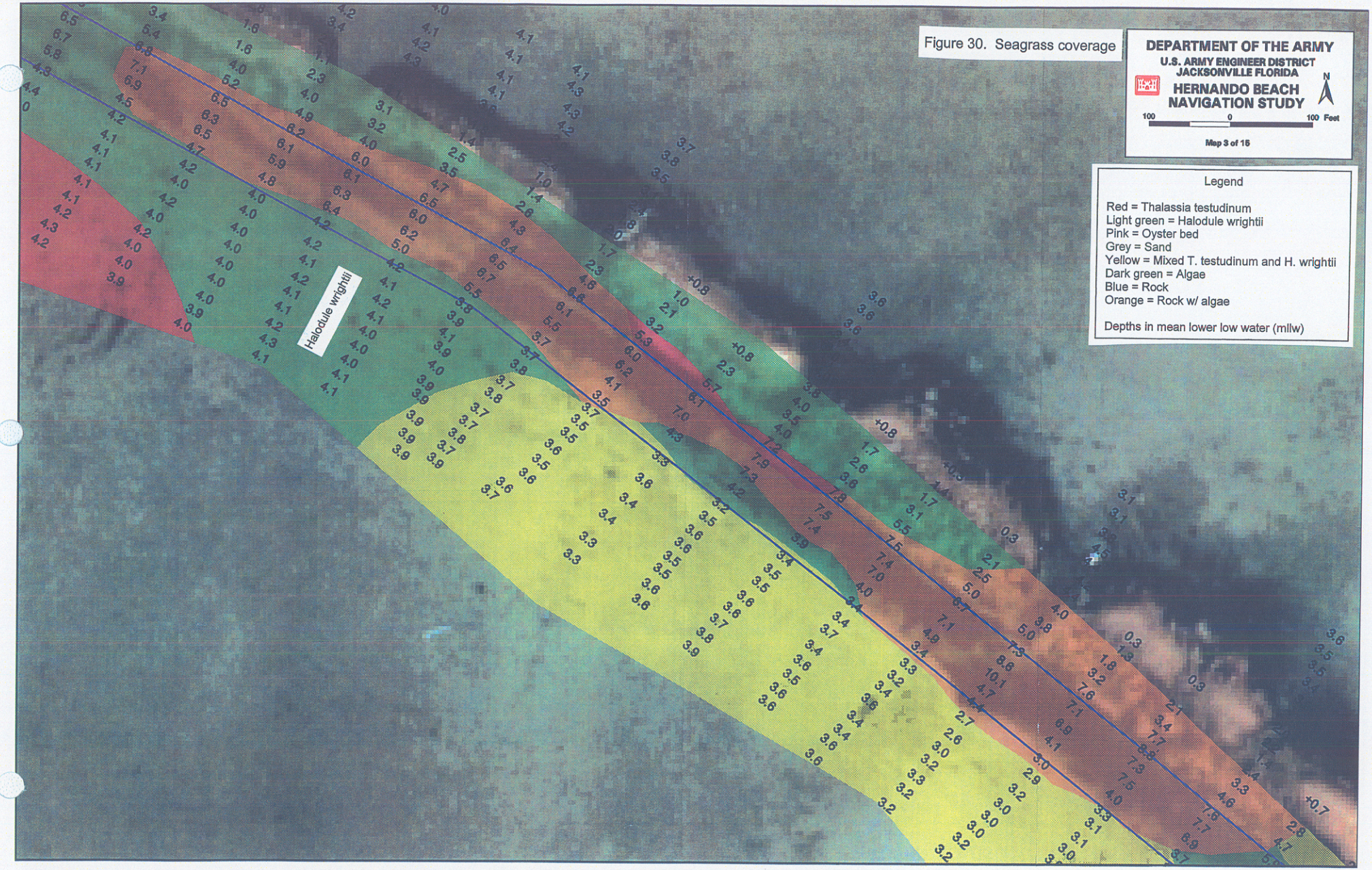


Figure 30. Seagrass coverage
DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT
JACKSONVILLE FLORIDA
HERNANDO BEACH
NAVIGATION STUDY
N
100 0 100 Feet
Map 3 of 15
Legend
Red = Thalassia testudinum
Light green = Halodule wrightii
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Blue = Rock
Orange = Rock w/ algae
Depths in mean lower low water (mlw)
Halodule wrightii

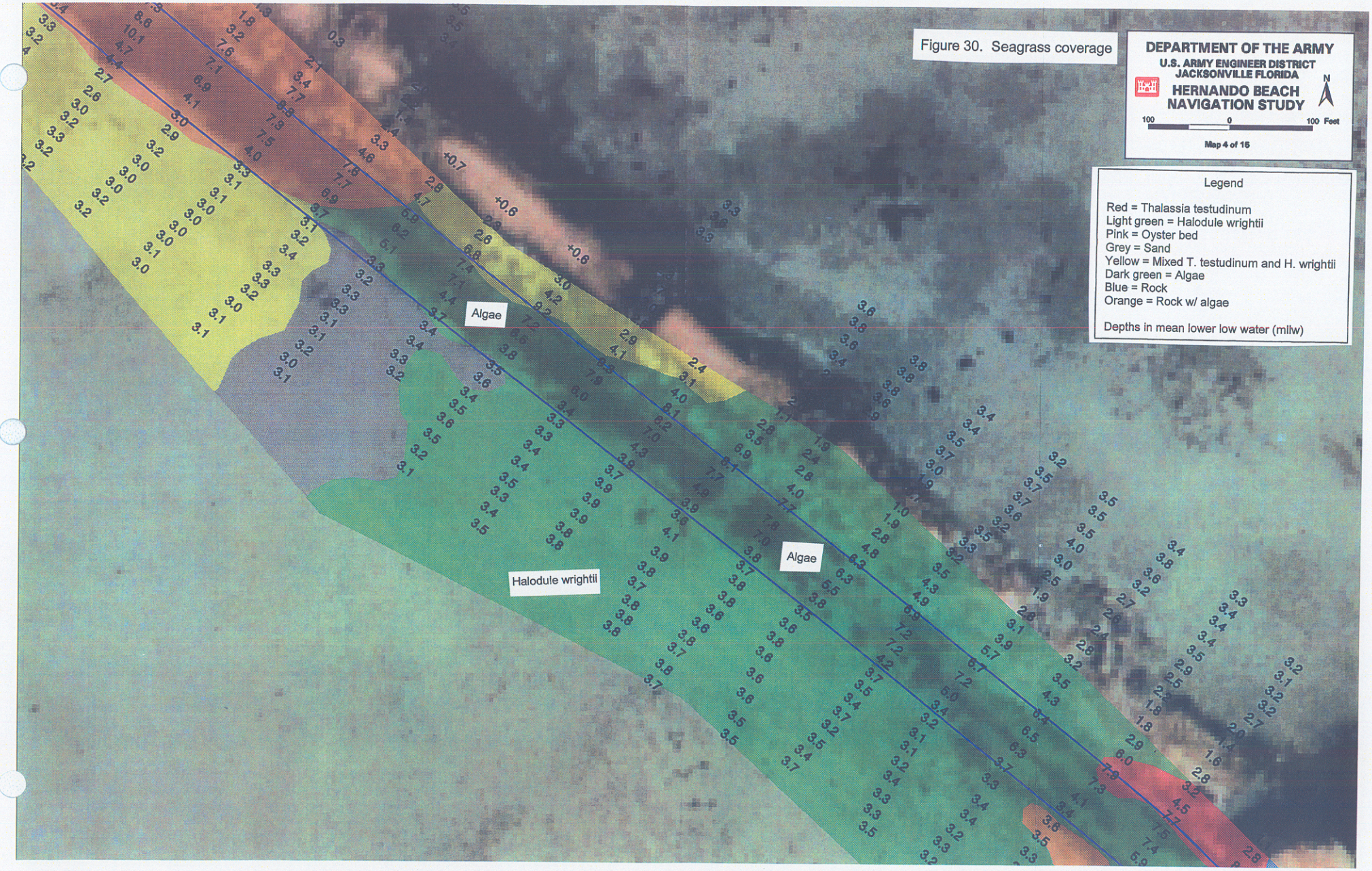


Figure 30. Seagrass coverage
DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT
JACKSONVILLE FLORIDA
HERNANDO BEACH
NAVIGATION STUDY
N
100 0 100 Feet
Map 4 of 15
Legend
Red = Thalassia testudinum
Light green = Halodule wrightii
Pink = Oyster bed
Grey = Sand
Yellow = Mixed T. testudinum and H. wrightii
Dark green = Algae
Blue = Rock
Orange = Rock w/ algae
Depths in mean lower low water (mlw)
Algae
Algae
Halodule wrightii

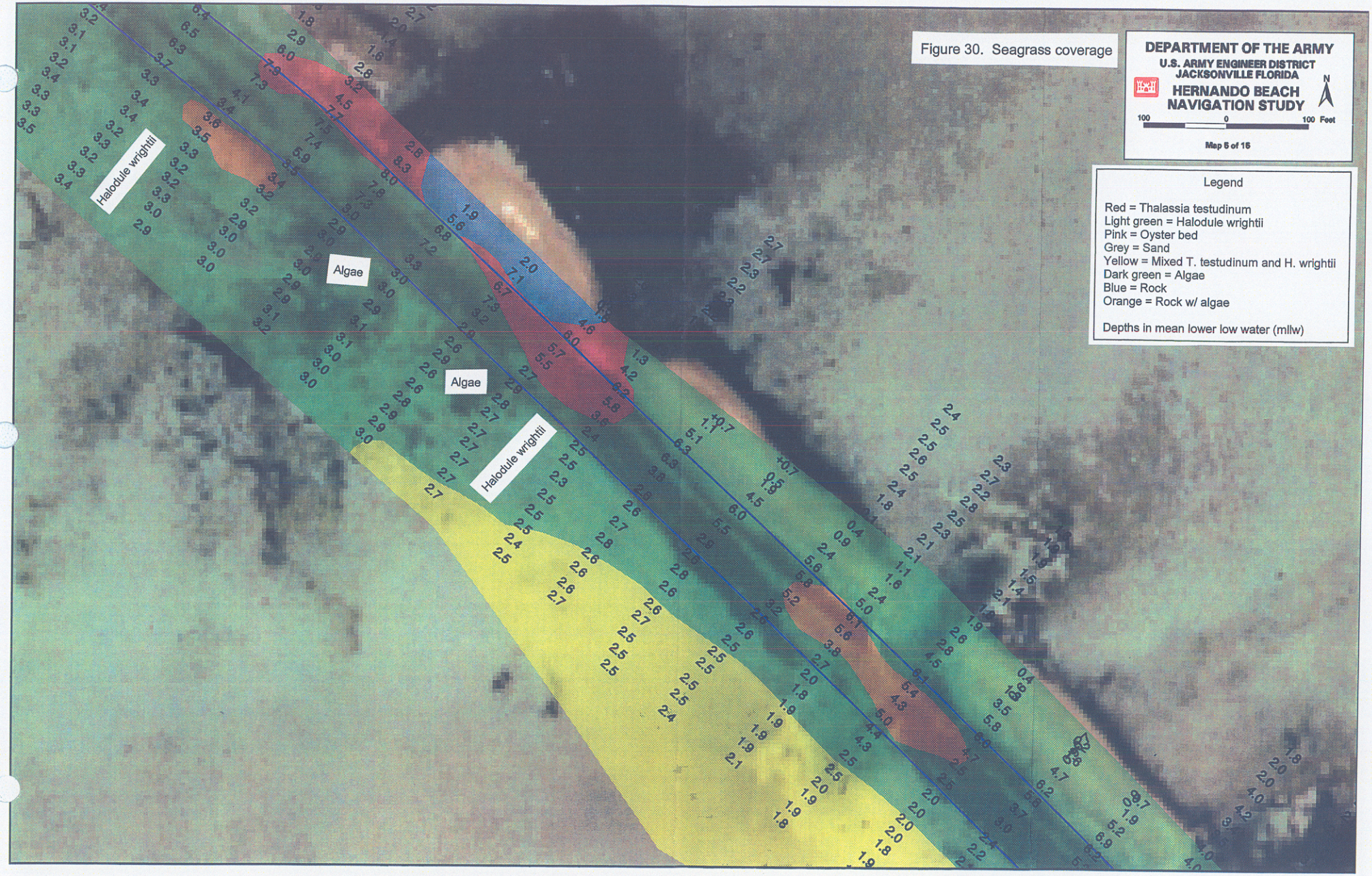


Figure 30. Seagrass coverage
DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT
JACKSONVILLE FLORIDA
HERNANDO BEACH
NAVIGATION STUDY
100 0 100 Feet
Map 5 of 15
Legend
Red = Thalassia testudinum
Light green = Halodule wrightii
Pink = Oyster bed
Grey = Sand
Yellow = Mixed T. testudinum and H. wrightii
Dark green = Algae
Blue = Rock
Orange = Rock w/ algae
Depths in mean lower low water (mllw)
Halodule wrightii
Algae
Algae
Halodule wrightii

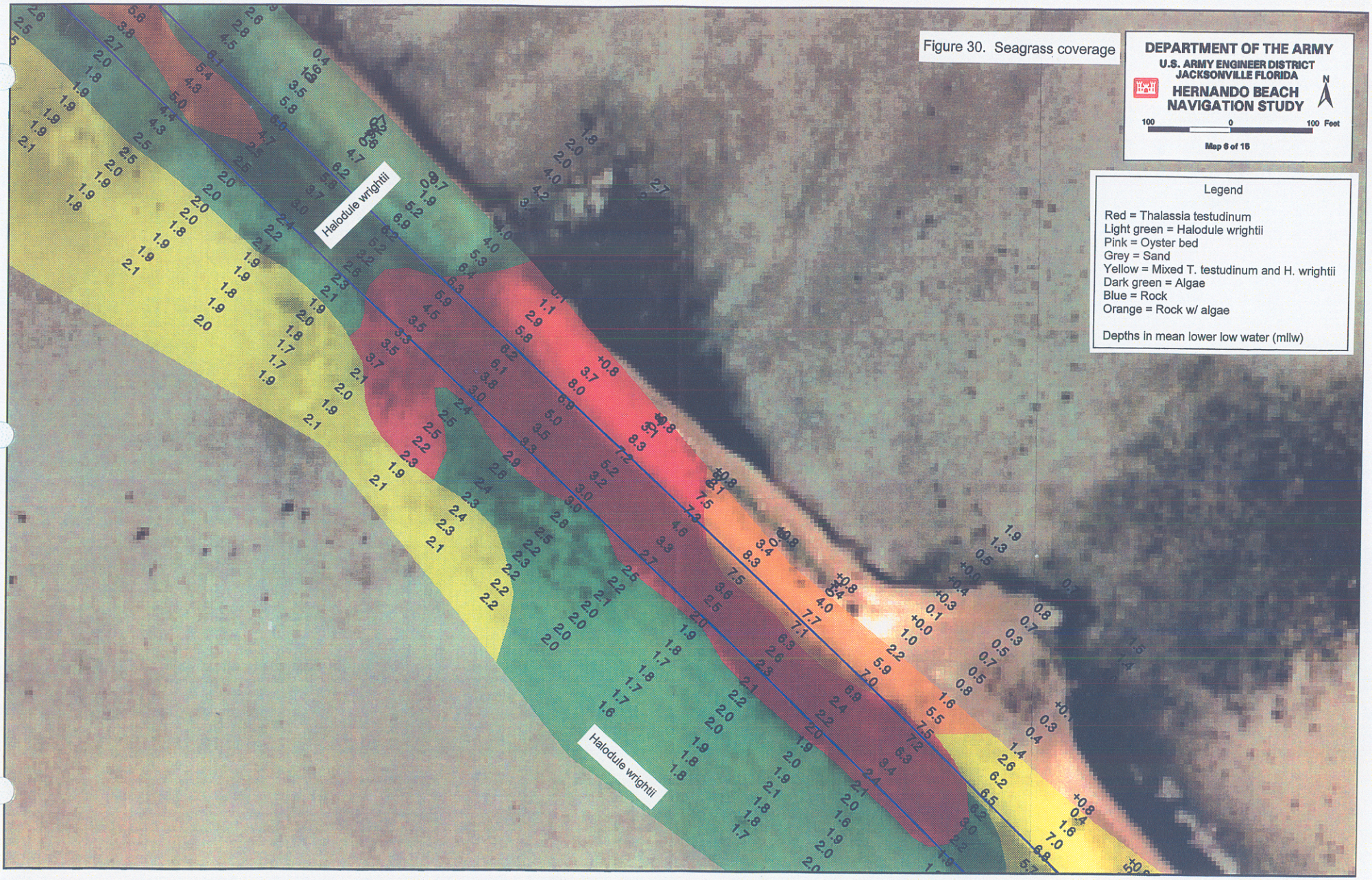


Figure 30. Seagrass coverage
DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT
JACKSONVILLE FLORIDA
HERNANDO BEACH
NAVIGATION STUDY
N
100 0 100 Feet
Map 6 of 15
Legend
Red = Thalassia testudinum
Light green = Halodule wrightii
Pink = Oyster bed
Grey = Sand
Yellow = Mixed T. testudinum and H. wrightii
Dark green = Algae
Blue = Rock
Orange = Rock w/ algae
Depths in mean lower low water (mlw)
Halodule wrightii
Halodule wrightii

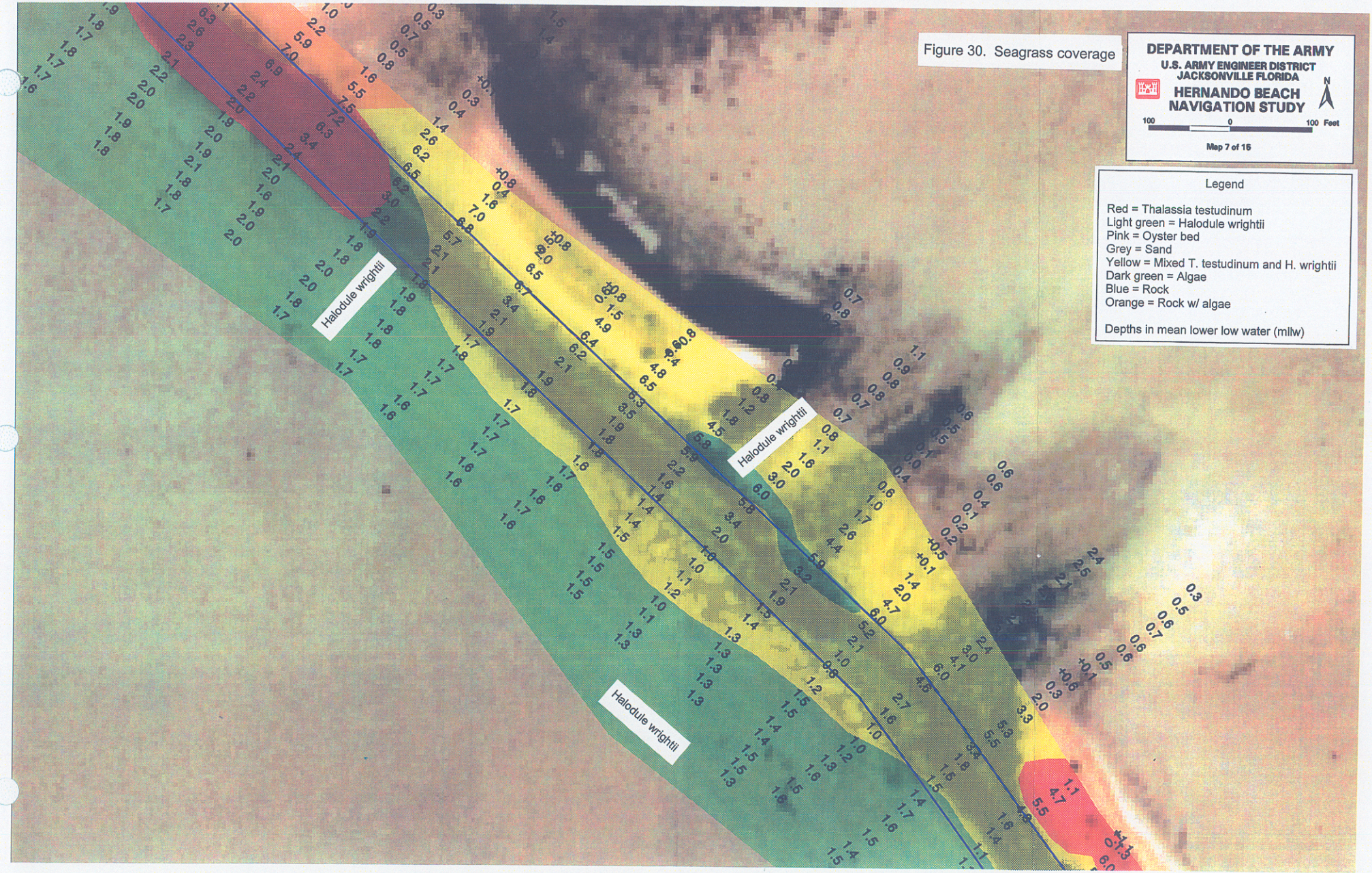


Figure 30. Seagrass coverage
DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT
JACKSONVILLE FLORIDA
HERNANDO BEACH
NAVIGATION STUDY
N
100 0 100 Feet
Map 7 of 15
Legend
Red = Thalassia testudinum
Light green = Halodule wrightii
Pink = Oyster bed
Grey = Sand
Yellow = Mixed T. testudinum and H. wrightii
Dark green = Algae
Blue = Rock
Orange = Rock w/ algae
Depths in mean lower low water (mllw)
Halodule wrightii
Halodule wrightii
Halodule wrightii

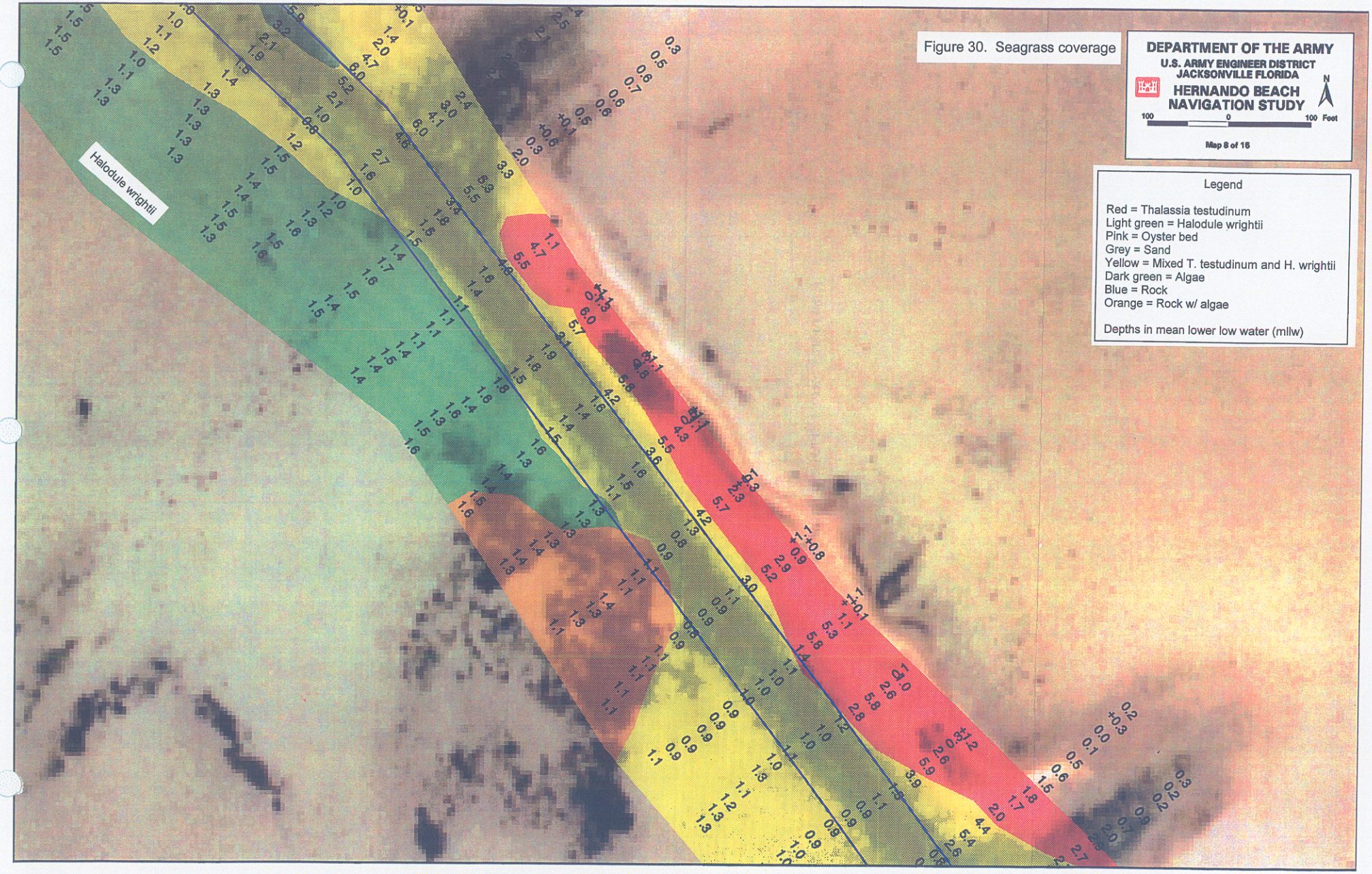
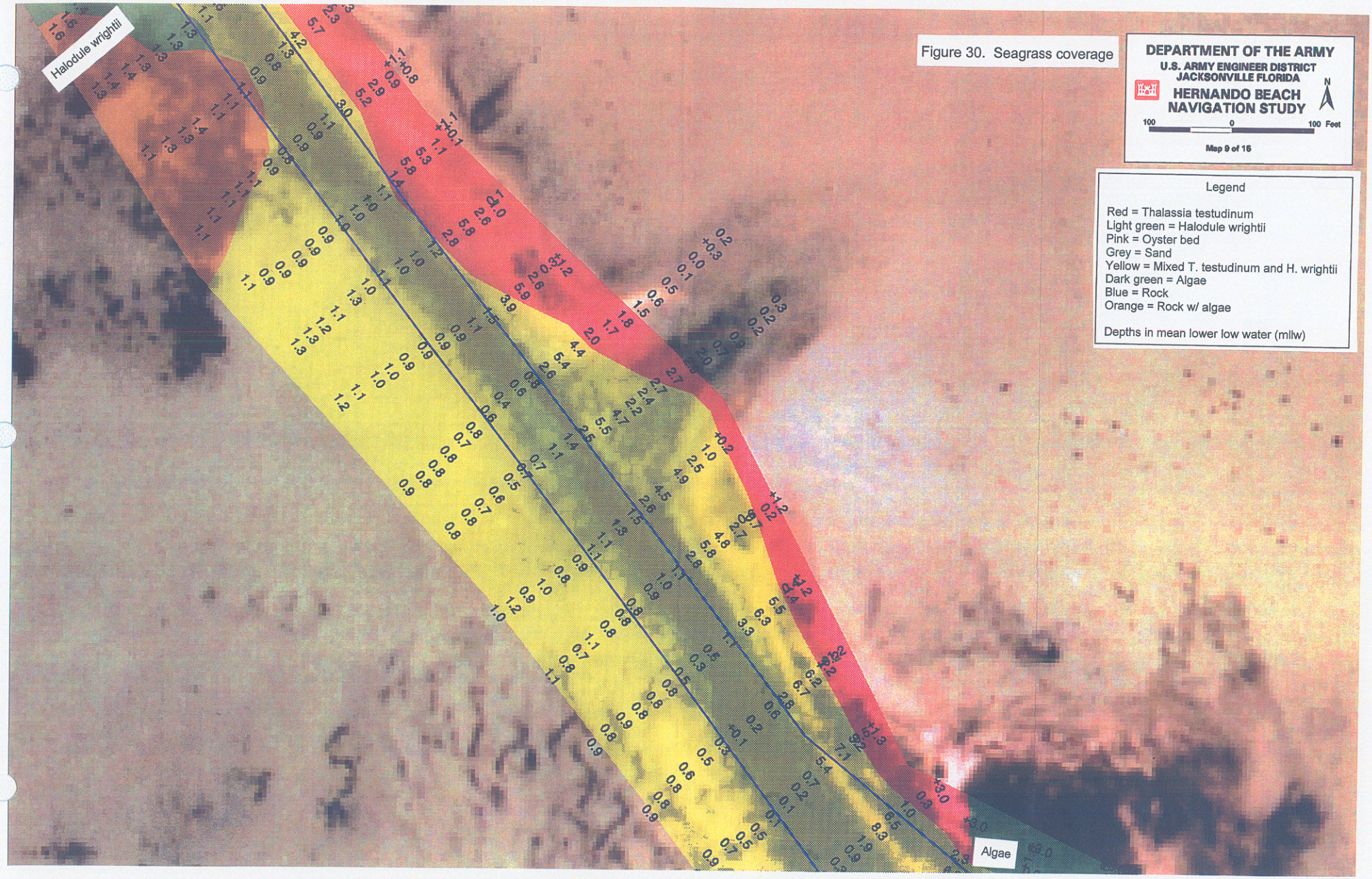


Figure 30. Seagrass coverage


Halodule wrightii
Algae
Figure 30. Seagrass coverage
DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT
JACKSONVILLE FLORIDA
HERNANDO BEACH
NAVIGATION STUDY
100 0 100 Feet
Map 9 of 16
Legend
Red = Thalassia testudinum
Light green = Halodule wrightii
Pink = Oyster bed
Grey = Sand
Yellow = Mixed T. testudinum and H. wrightii
Dark green = Algae
Blue = Rock
Orange = Rock w/ algae
Depths in mean lower low water (mlw)

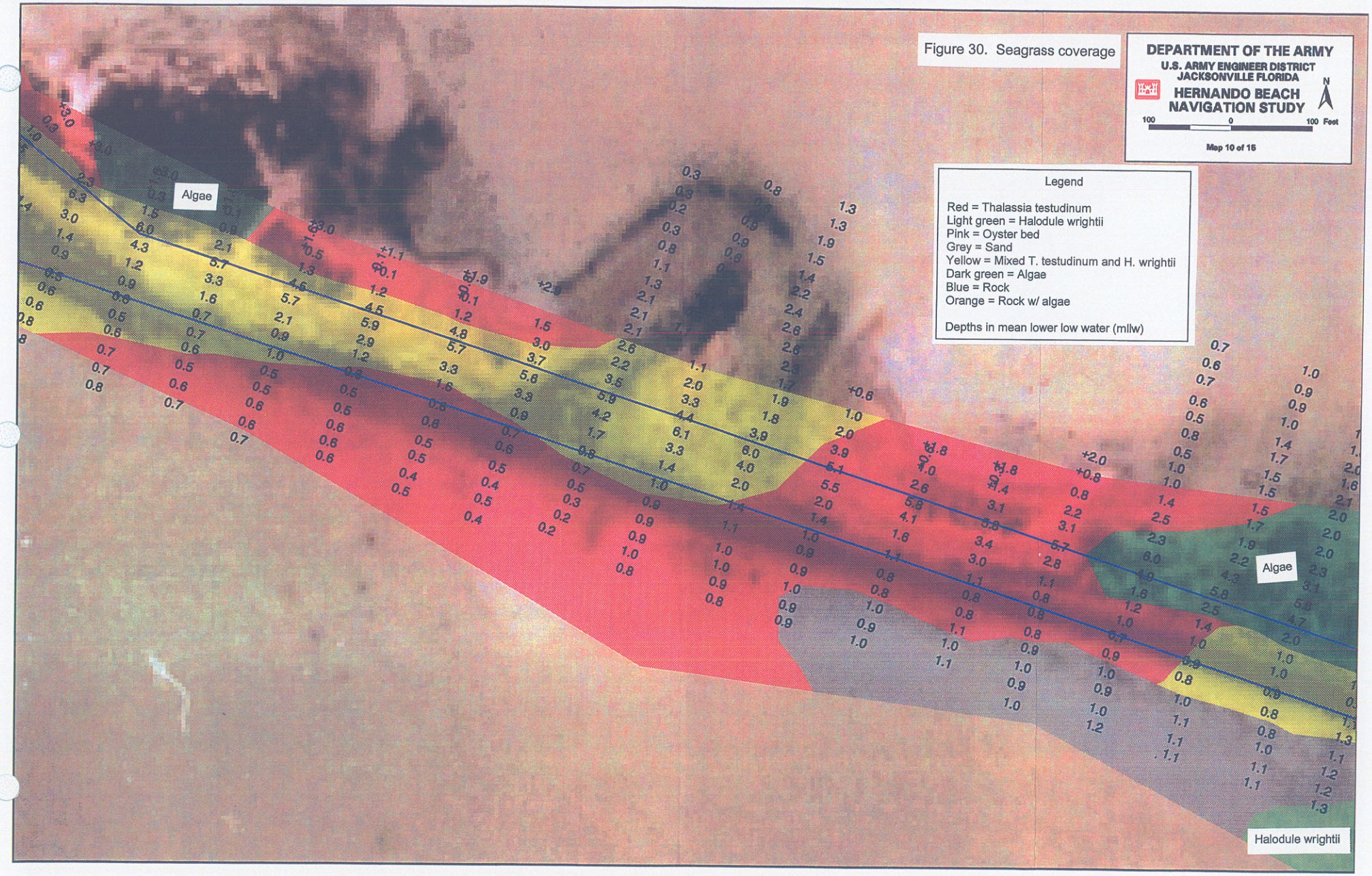


Figure 30. Seagrass coverage
DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT
JACKSONVILLE FLORIDA
HERNANDO BEACH
NAVIGATION STUDY
N
100 0 100 Feet
Map 10 of 15
Legend
Red = Thalassia testudinum
Light green = Halodule wrightii
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Grey = Sand
Yellow = Mixed T. testudinum and H. wrightii
Dark green = Algae
Blue = Rock
Orange = Rock w/ algae
Depths in mean lower low water (mllw)
Algae
Algae
Halodule wrightii

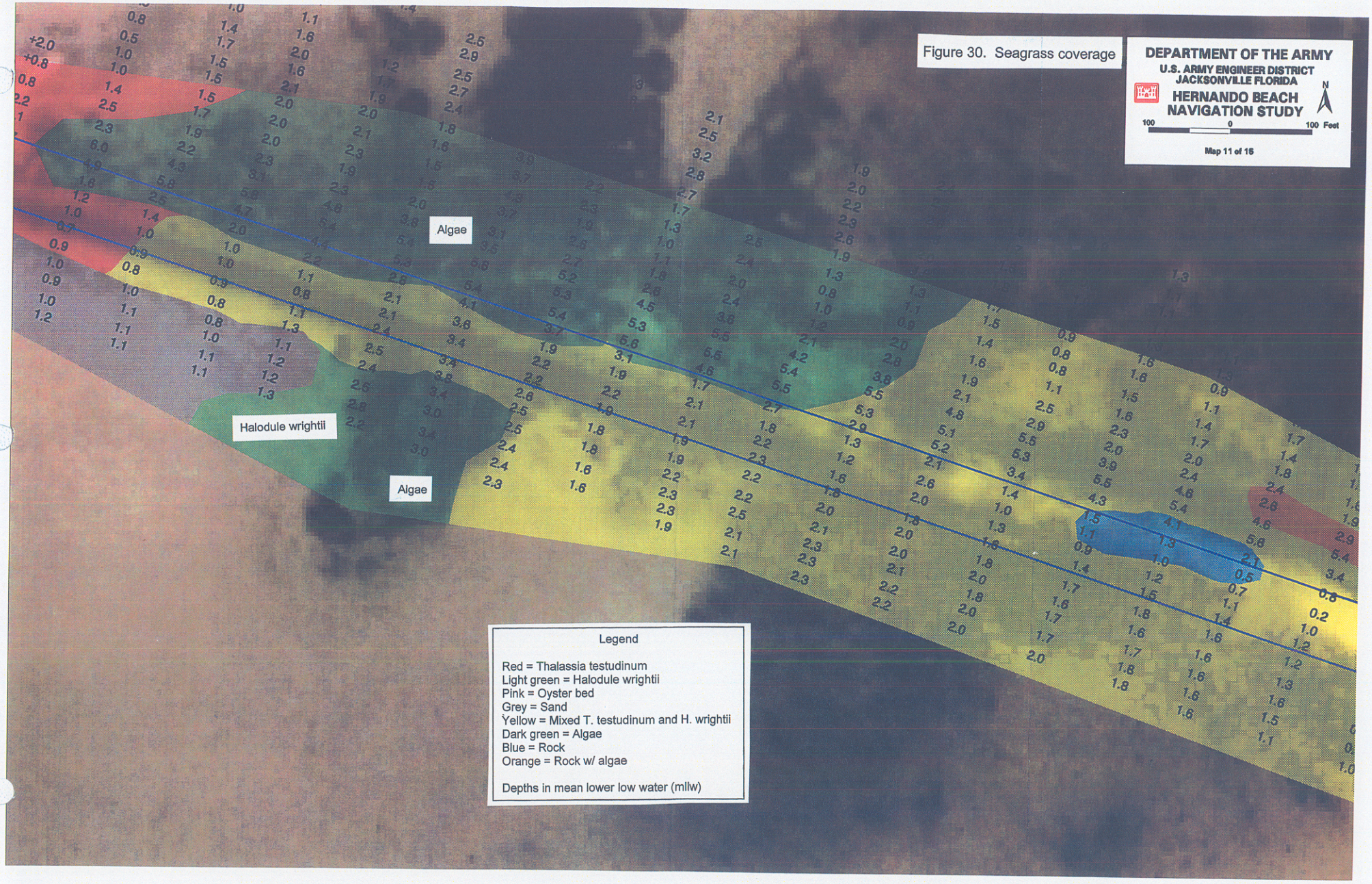


Figure 30. Seagrass coverage
DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT
JACKSONVILLE FLORIDA
HERNANDO BEACH
NAVIGATION STUDY
N
100 0 100 Feet
Map 11 of 15
Algae
Halodule wrightii
Algae
Legend
Red = Thalassia testudinum
Light green = Halodule wrightii
Pink = Oyster bed
Grey = Sand
Yellow = Mixed T. testudinum and H. wrightii
Dark green = Algae
Blue = Rock
Orange = Rock w/ algae
Depths in mean lower low water (mllw)

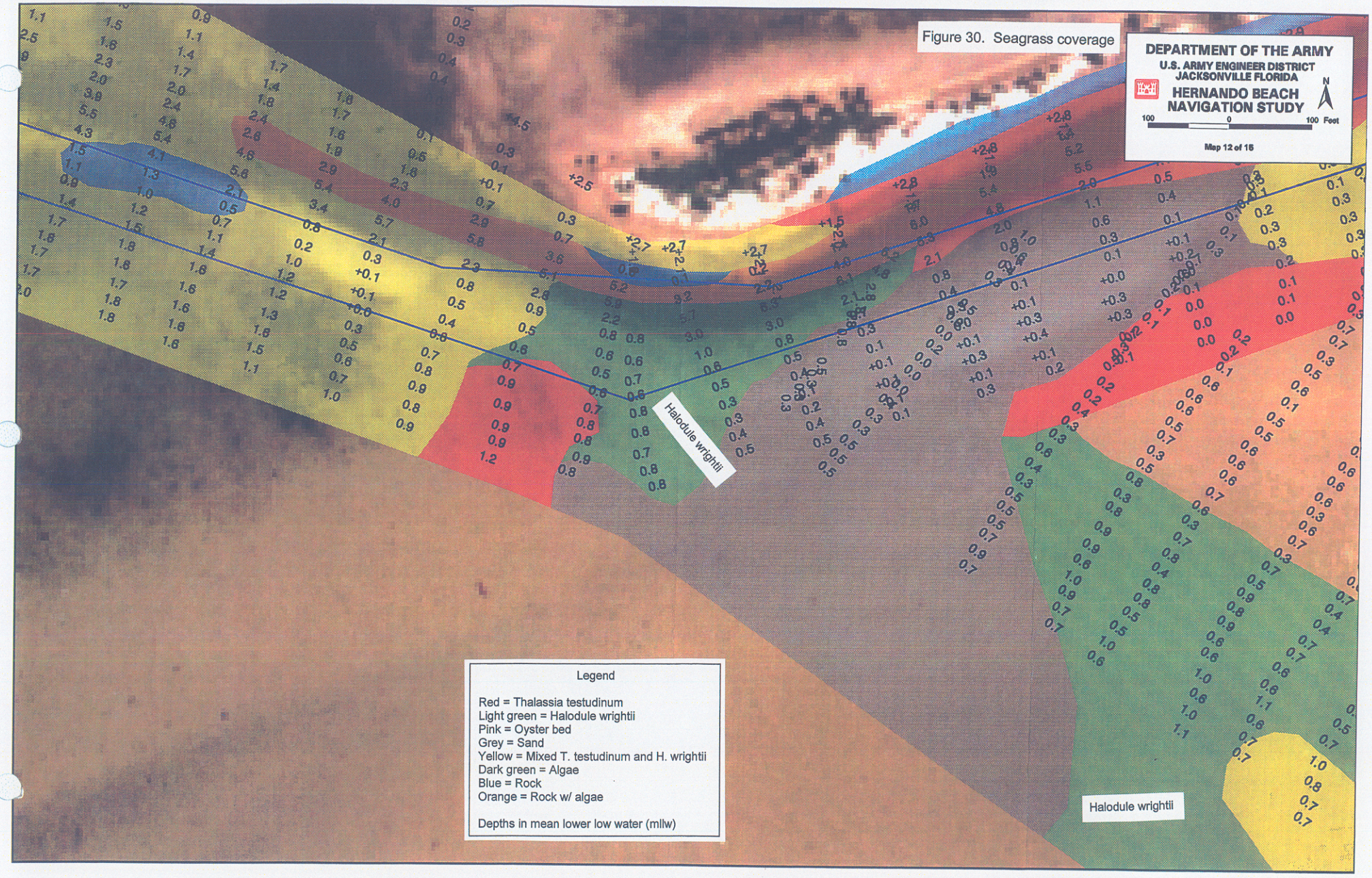


Figure 30. Seagrass coverage
DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT
JACKSONVILLE FLORIDA
HERNANDO BEACH
NAVIGATION STUDY
N
100 0 100 Feet
Map 12 of 15
Halodule wrightii
Halodule wrightii
Legend
Red = Thalassia testudinum
Light green = Halodule wrightii
Pink = Oyster bed
Grey = Sand
Yellow = Mixed T. testudinum and H. wrightii
Dark green = Algae
Blue = Rock
Orange = Rock w/ algae
Depths in mean lower low water (mllw)

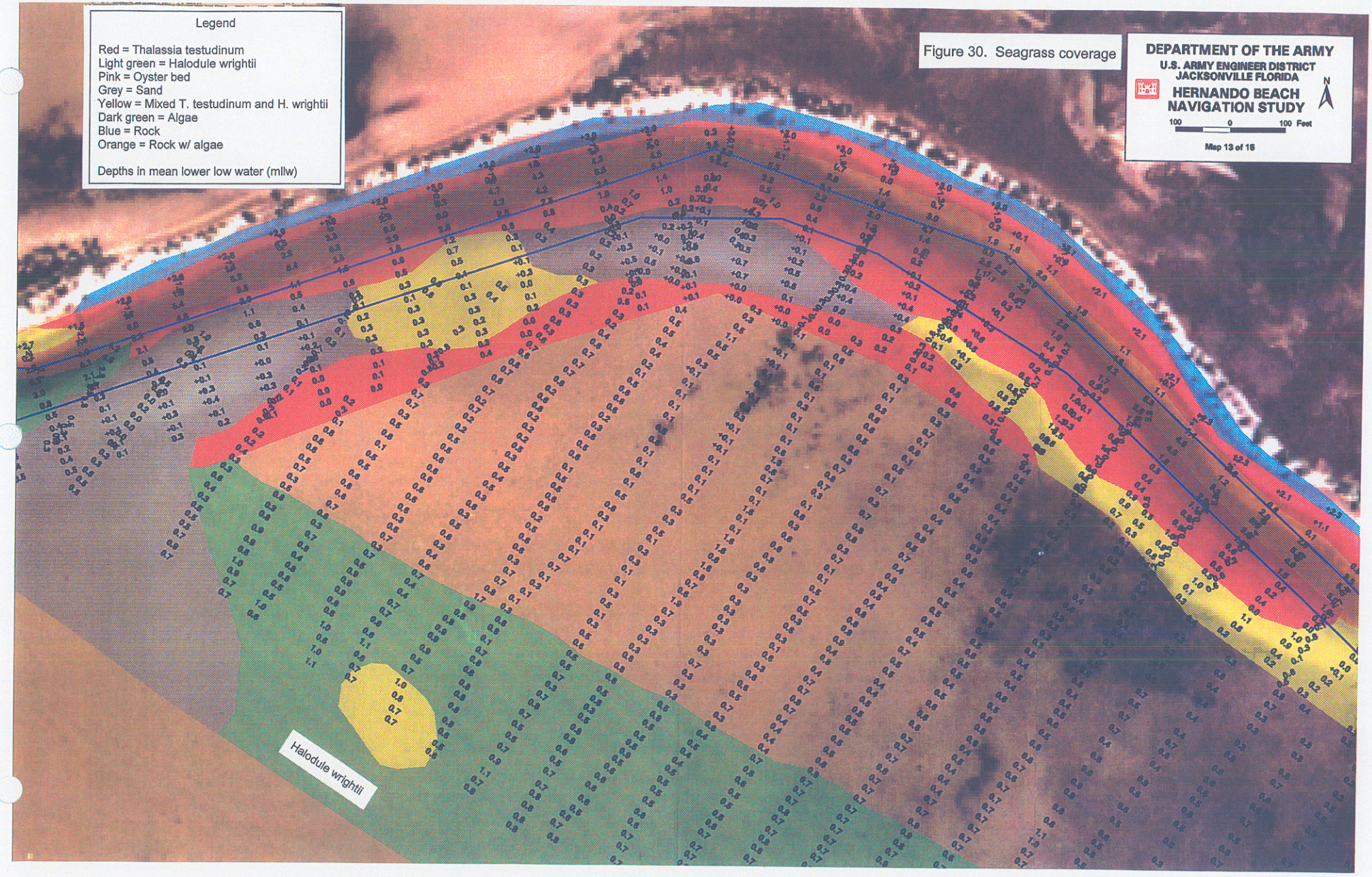


Figure 30. Seagrass coverage

Figure 30. Seagrass coverage

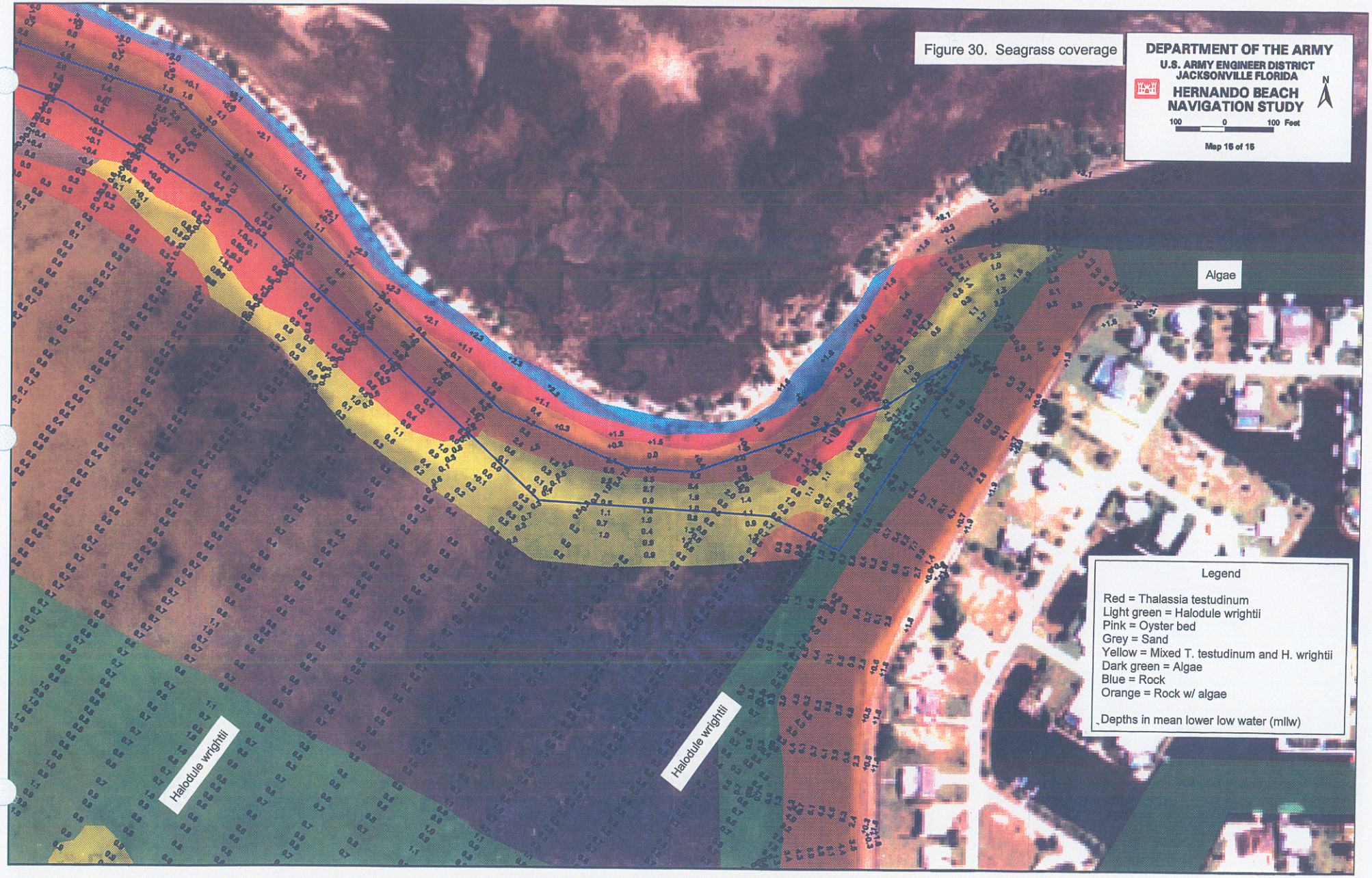
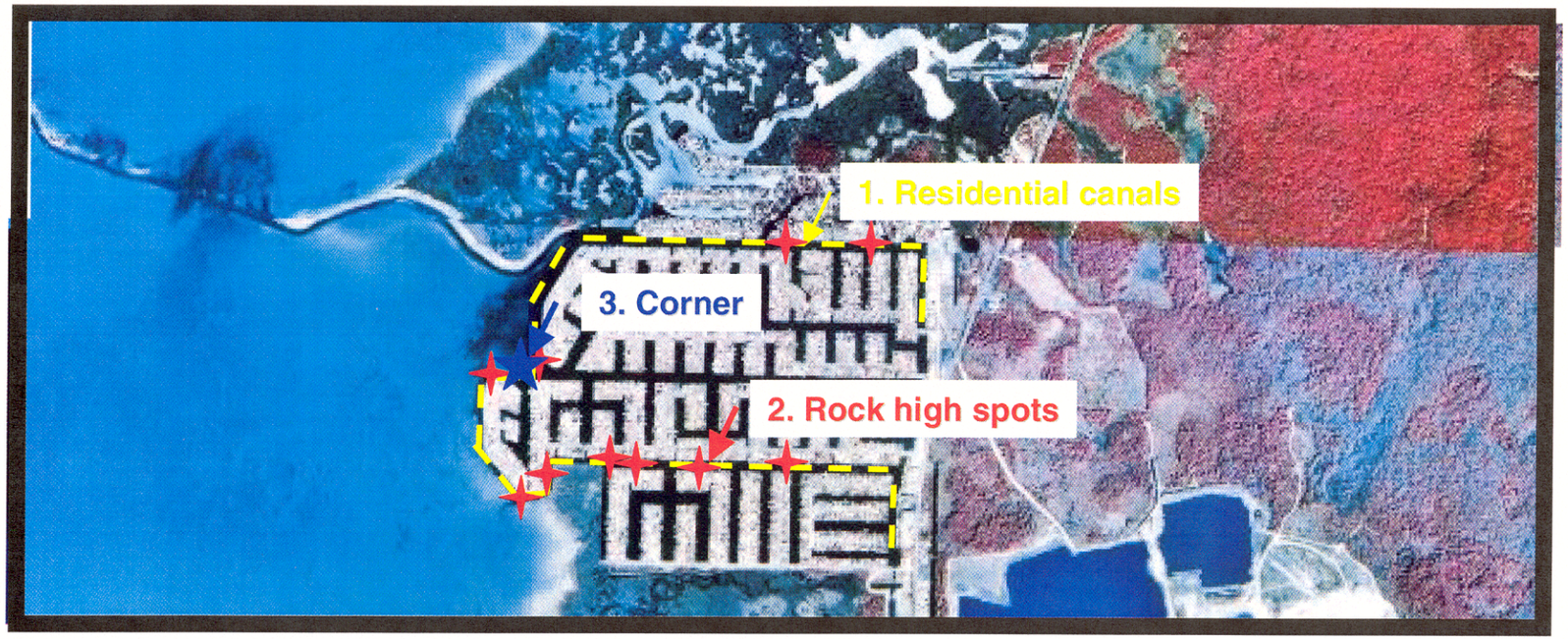


Figure 30. Seagrass coverage
DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT
JACKSONVILLE FLORIDA
HERNANDO BEACH
NAVIGATION STUDY
100 0 100 Feet
Map 15 of 15
N
Algae
Halodule wrightii
Halodule wrightii
Legend
Red = Thalassia testudinum
Light green = Halodule wrightii
Pink = Oyster bed
Grey = Sand
Yellow = Mixed T. testudinum and H. wrightii
Dark green = Algae
Blue = Rock
Orange = Rock w/ algae
Depths in mean lower low water (mllw)



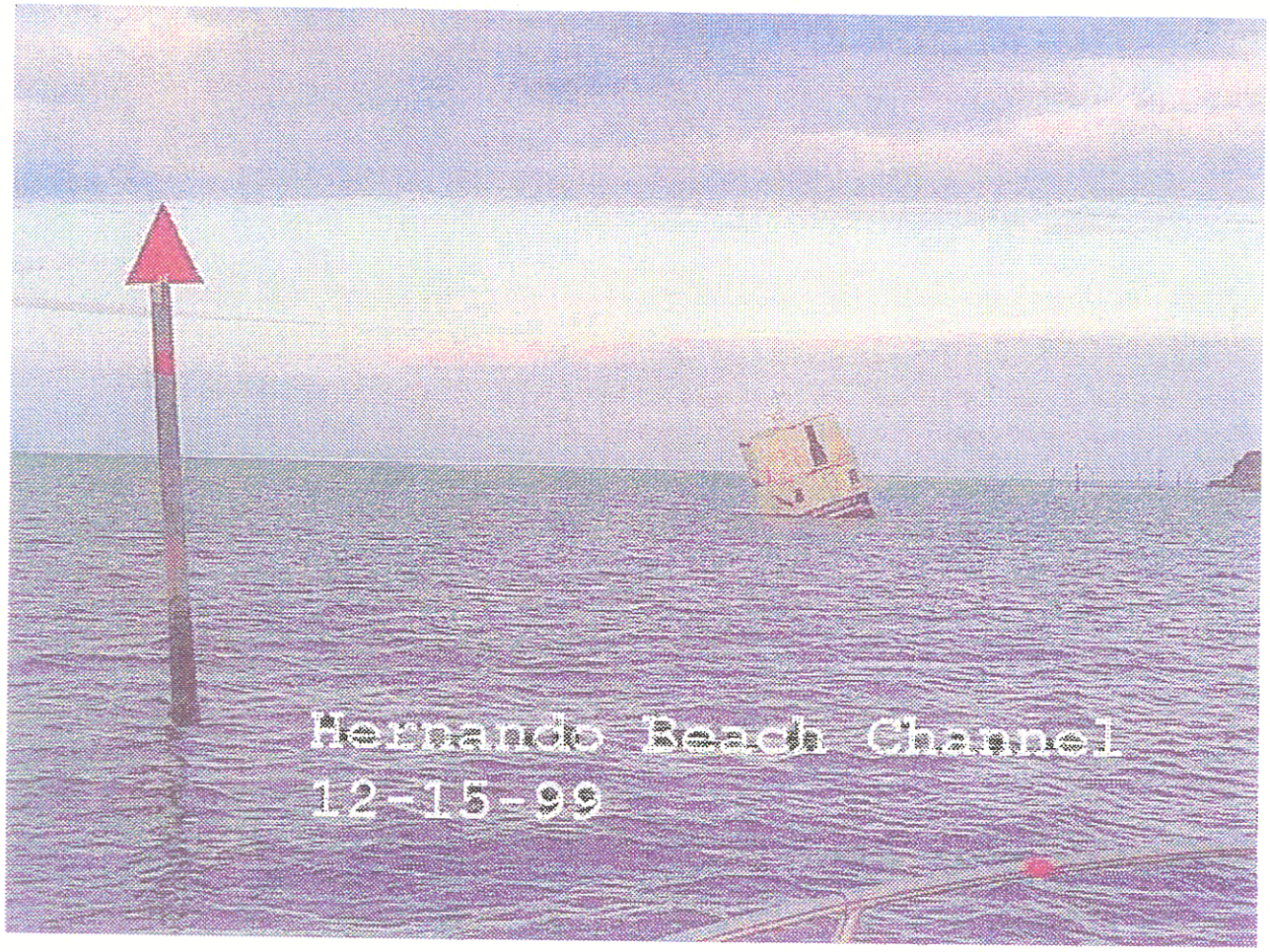
Areas that might be dredged in the future by the non-Federal sponsor

Legend:

1. Residential canals (from Federal channel to docks/service facilities)
2. Rock high spots
3. Corner (270 degree turn)

Hernando Beach Navigation Study
Figure 29.
Areas of potential dredging by non-Federal sponsor

PHOTOGRAPHS



Photographs 1. Vessel aground

Photograph 2. Commercial vessels

Photograph 3. Vessels in the channel

Hernando Beach Navigation Study
Figure 4. Cutter Vise

Photograph 5. Existing spoil islands

Photograph 6. Existing spoil islands, another view

Photograph 7. Little Lake

Photograph 8. Exotic vegetation