SC's Intertidal Oyster Survey

W.D. Anderson & G.M. Yianopoulos

Coastal Issue Workshop

USC Baruch Marine Field Lab

June 27, 2003

Why an oyster survey?

- Resource management
- Lease rental based on resource
- Monitor population trends
- Shellfish mitigation
- Identify environmental issues

How many acres are oysters?

Georgia	South Carolina
300 acres	2,000 acres
378,000 marsh	504,000 marsh
.0008	.004

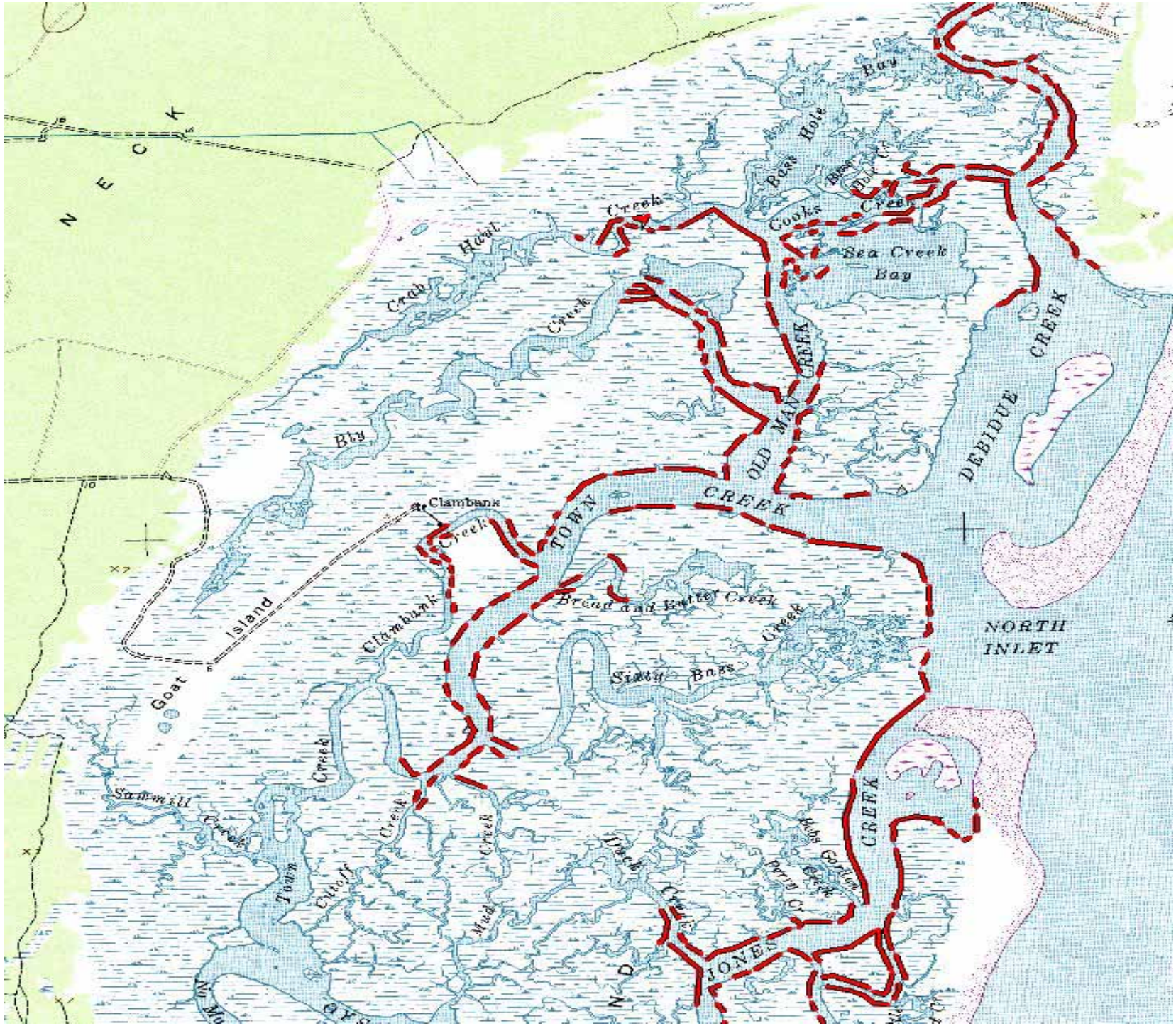
Oyster Surveys in SC

1890/91- Battle (*Fish Hawk)*

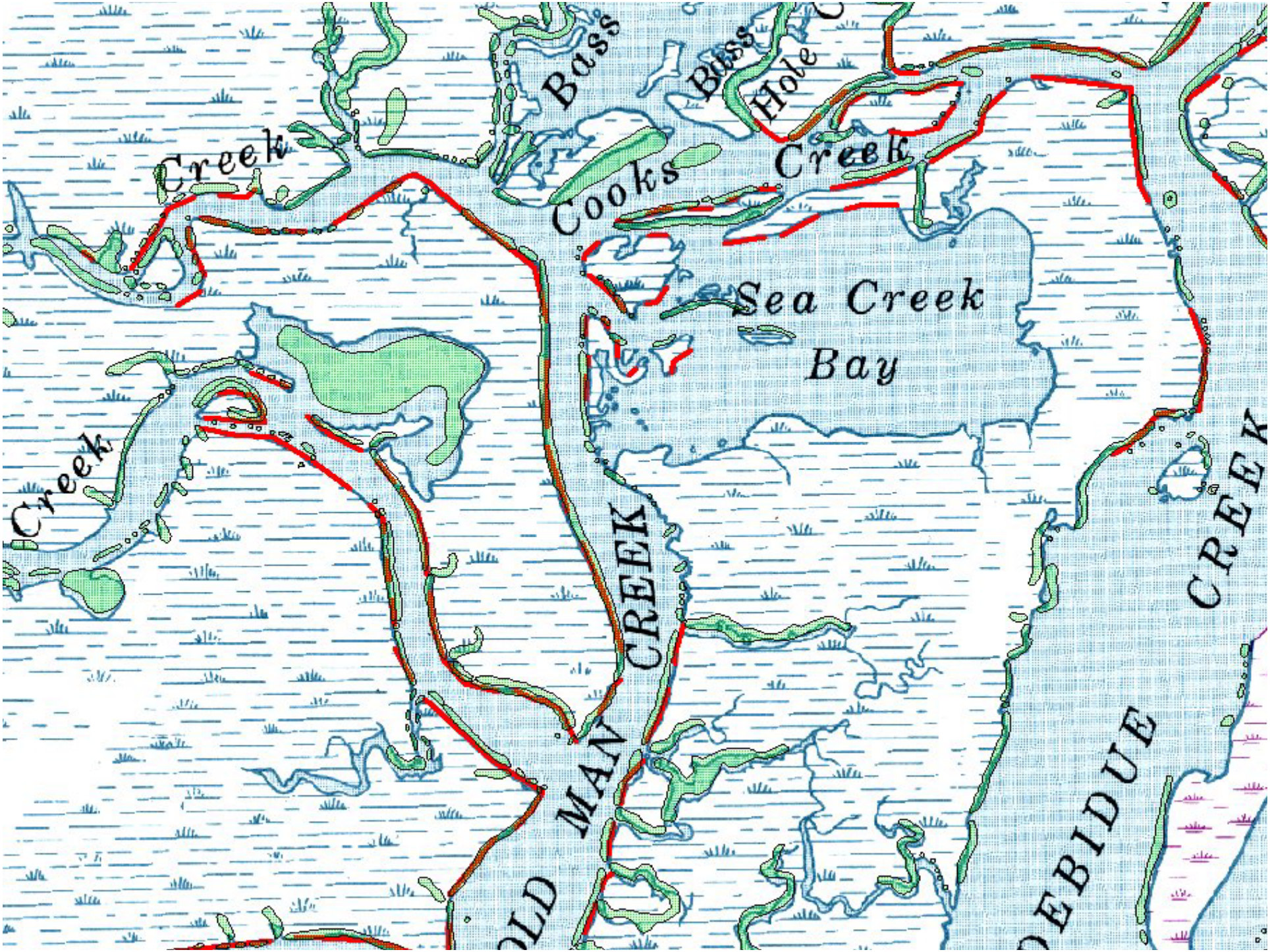
1943 - Lunz

1969 - McKenzie and Badger

1980s – Anderson, Yianopoulos, Haggerty, Monck and others

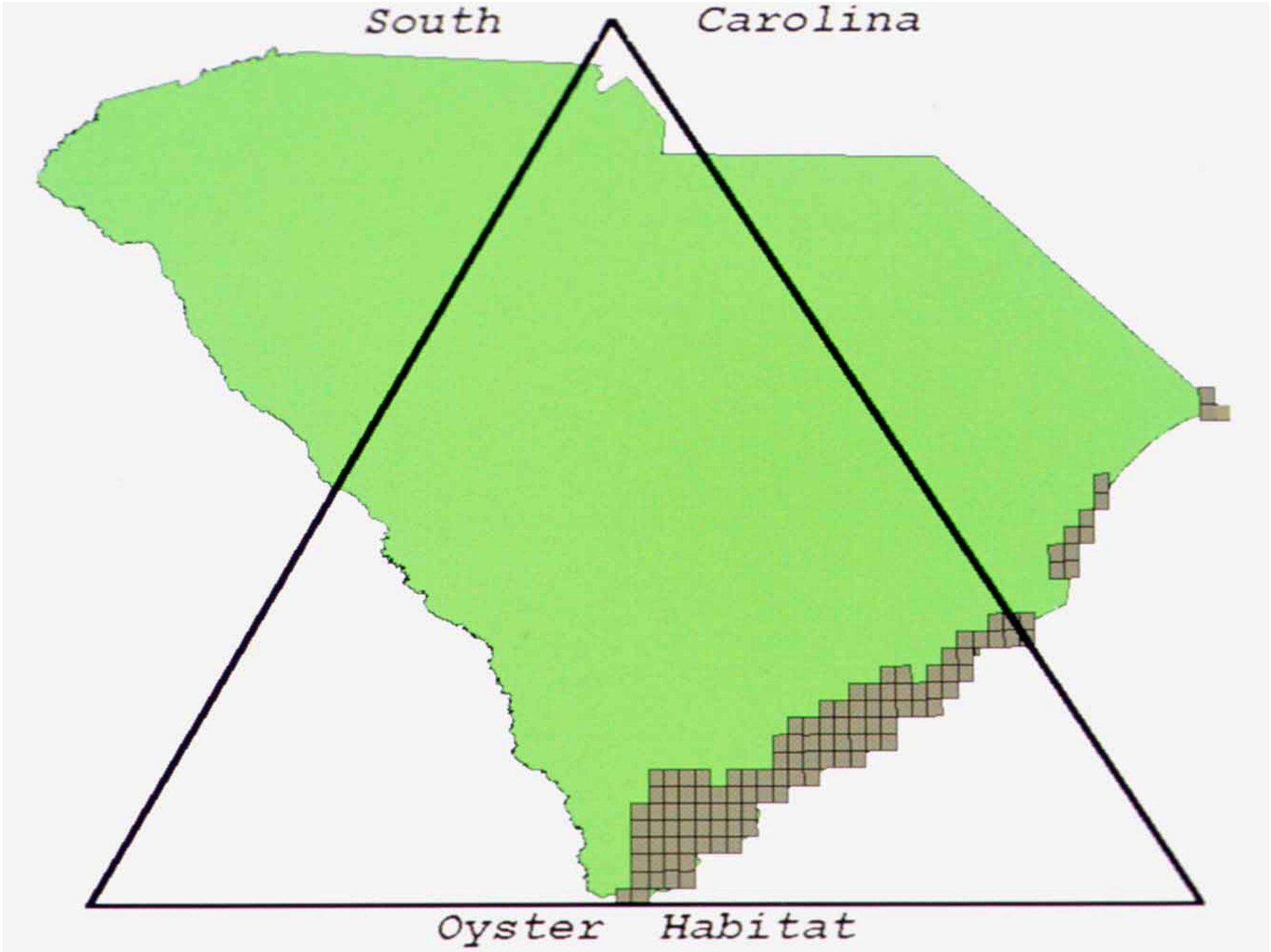


N E C K
Bay
Bass Hole
Cooks Creek
Sea Creek Bay
Creek
Crab Haul
Creek
Bly
OLD MAN CREEK
DEBIDUE CREEK
Clambank
Creek
TOWN CREEK
Bread and Butter Creek
Creek
Sixty Bass
NORTH INLET
Goat Island
Clambank
Creek
Sawmill Creek
Town Creek
Cutoff Creek
Mud Creek
Duck Creek
Bobs Gordon Creek
Perry Cr.
CREEK
JONES


Creek
Bass
Buss
Hole
Cooks
Creek
Sea Creek
Bay
Creek
OLD MAN CREEK
EBIDUE CREEK

Survey Concept

- Ground truth rapid assessment
- Intertidal reef area (footprint)
- Characteristic spatial dispersions (strata development)
- Ancillary data


South Carolina
Oyster Habitat

Survey Priorities

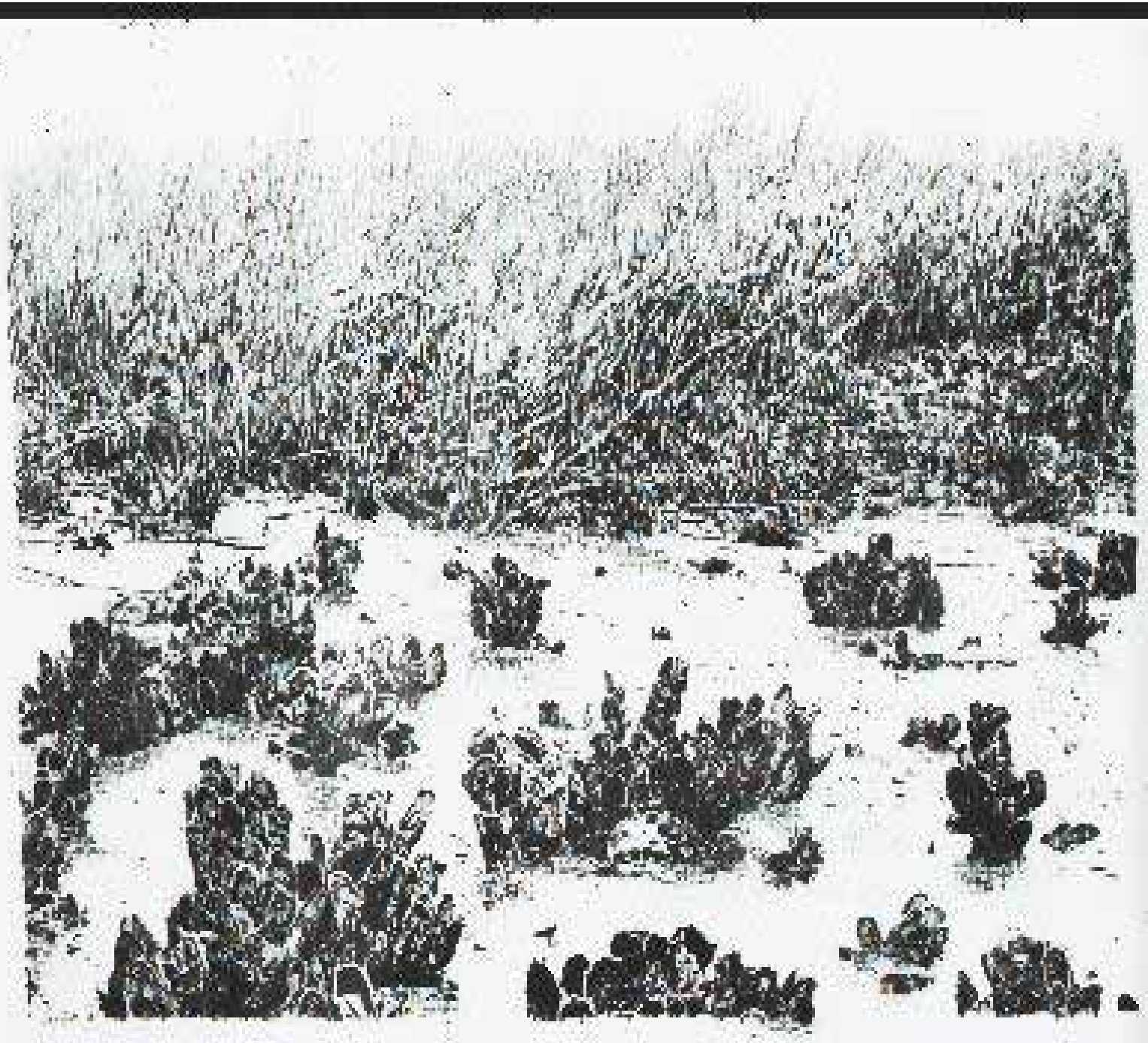
- Areas closed to shellfish harvesting
- Leases (culture permits)
- State Shellfish Grounds (SSGs)
- Public Shellfish Grounds (PSGs)
- Grant areas

Survey Issues

- Shoreline (fringe) reefs
- Flat areas (patch) reefs
- Feeder creeks
- Oysters shaded by *Spartina*
- Spatial dispersions or “strata”

E

C



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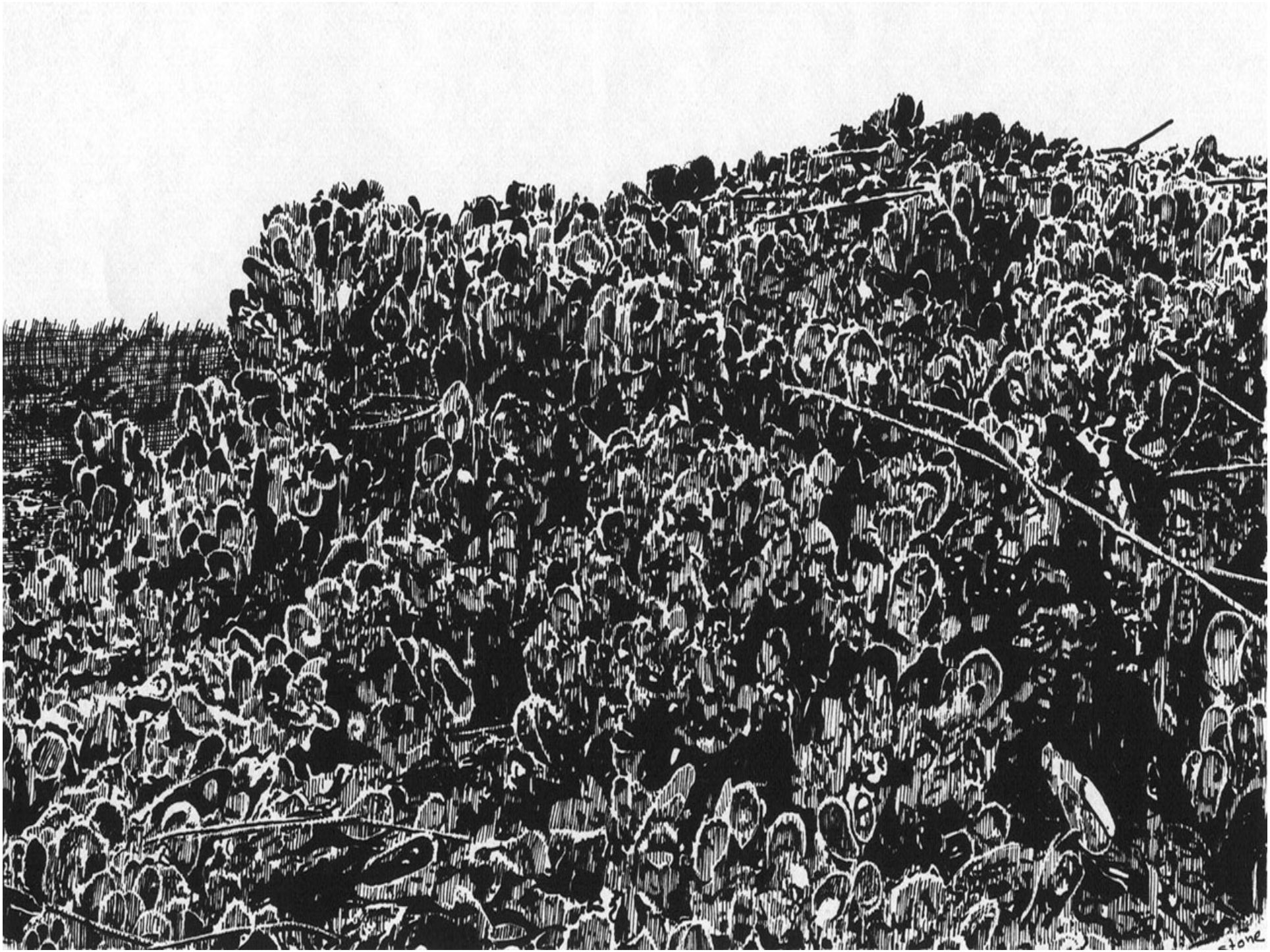
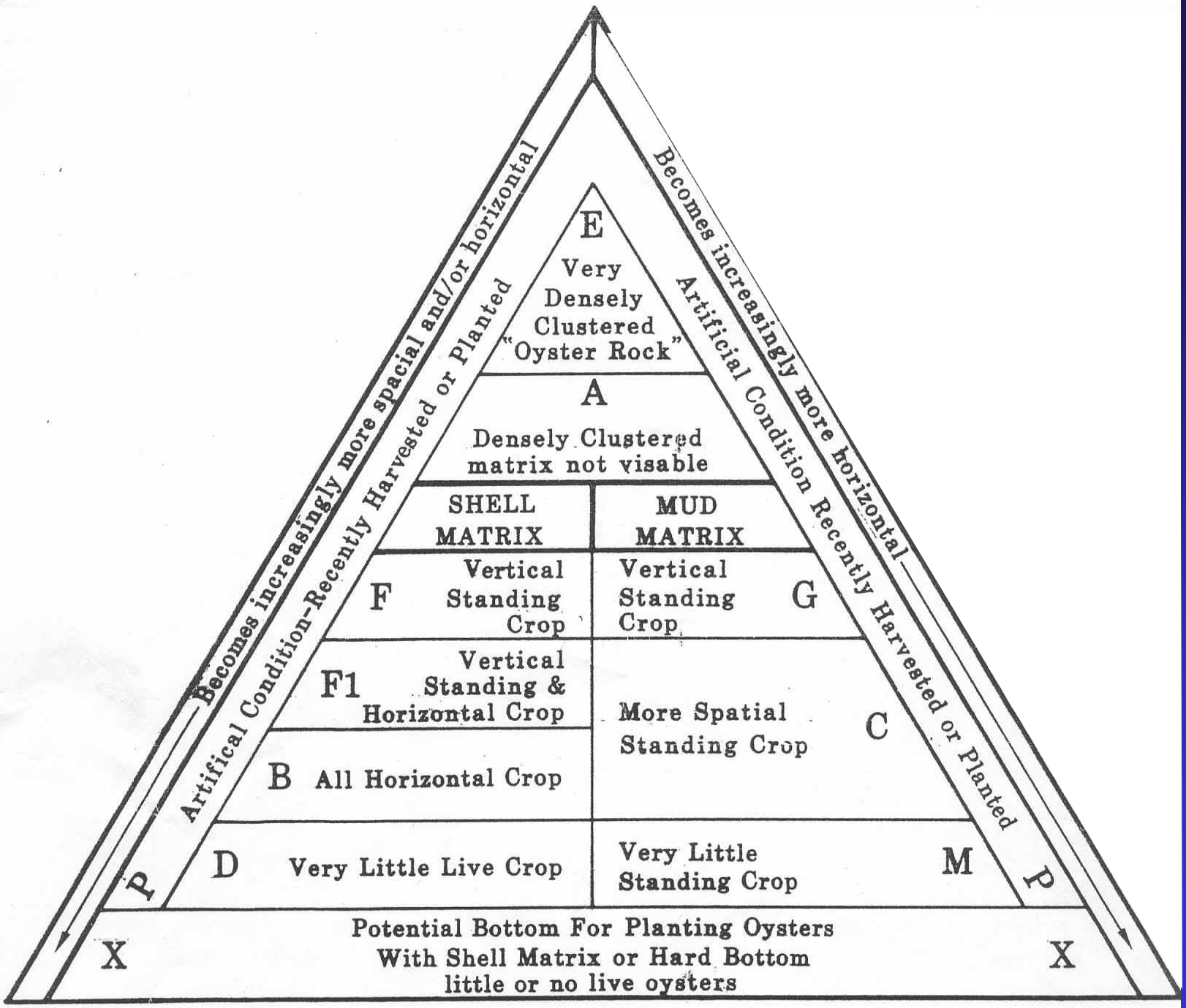
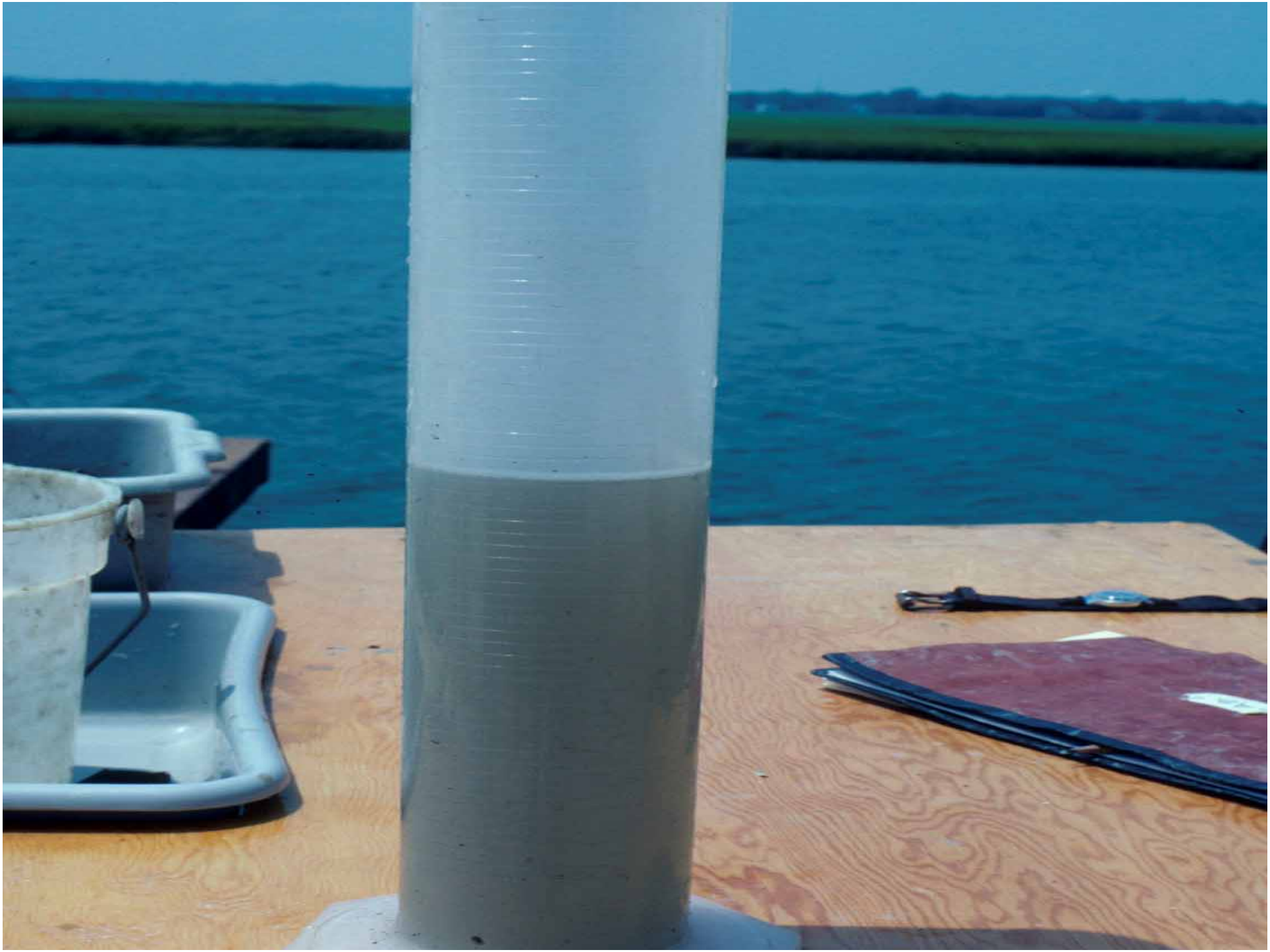
D

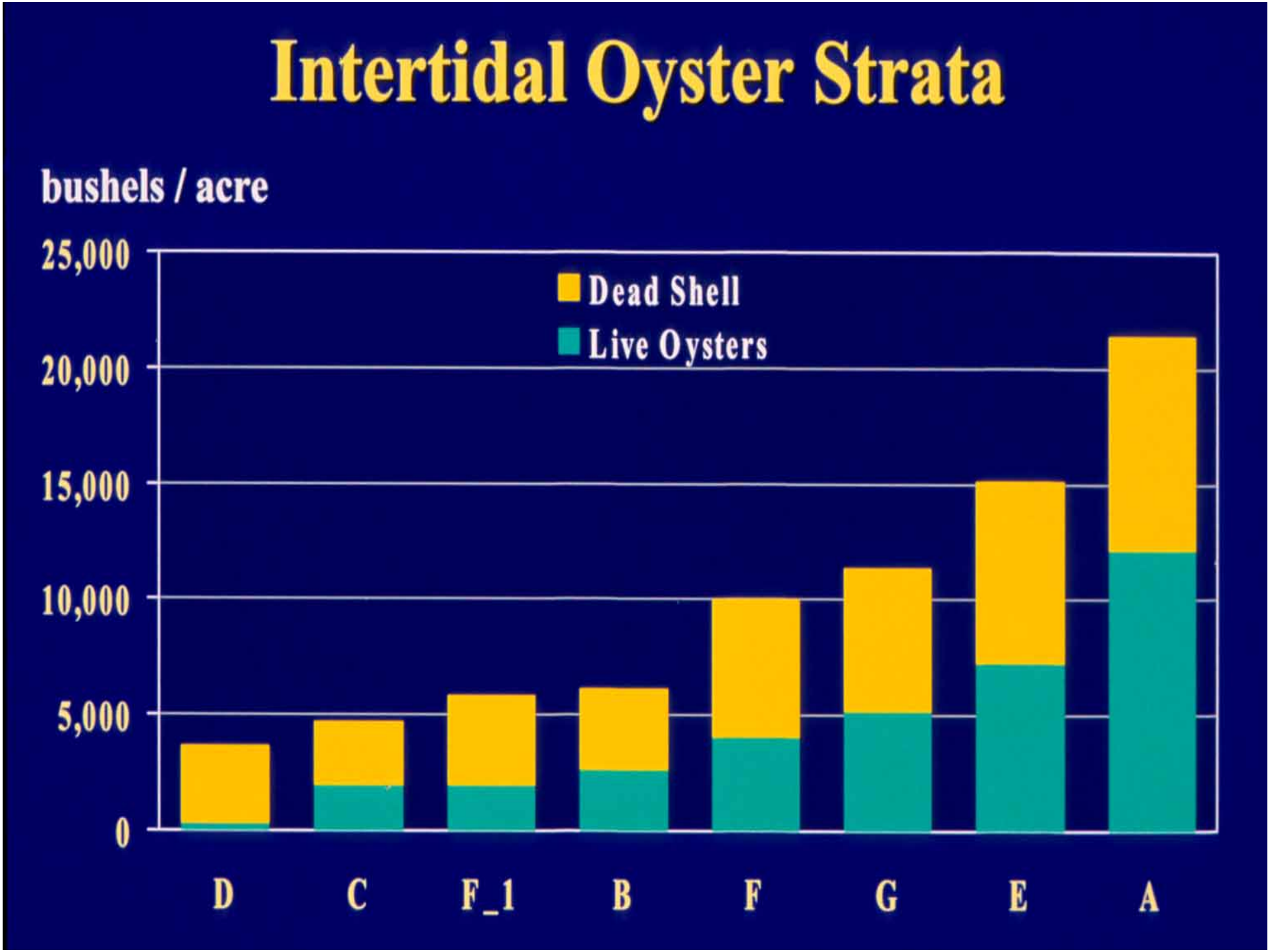



E
Very Densely Clustered "Oyster Rock"
A
Densely Clustered matrix not visable
SHELL MATRIX
MUD MATRIX
F
Vertical Standing Crop
G
Vertical Standing Crop
F1
Vertical Standing & Horizontal Crop
B
All Horizontal Crop
C
More Spatial Standing Crop
D
Very Little Live Crop
M
Very Little Standing Crop
P
P
X
X
Potential Bottom For Planting Oysters With Shell Matrix or Hard Bottom little or no live oysters
Becomes increasingly more spacial and/or horizontal
Artifical Condition-Recently Harvested or Planted
Becomes increasingly more horizontal
Artificial Condition Recently Harvested or Planted

1-1/2"



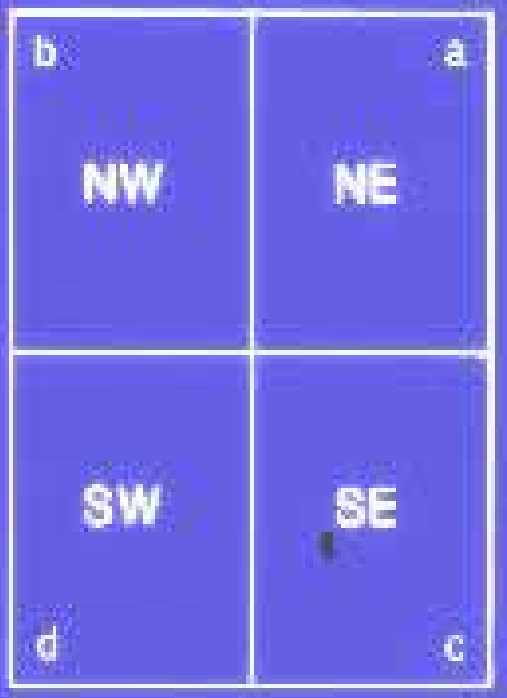
Intertidal Oyster Strata



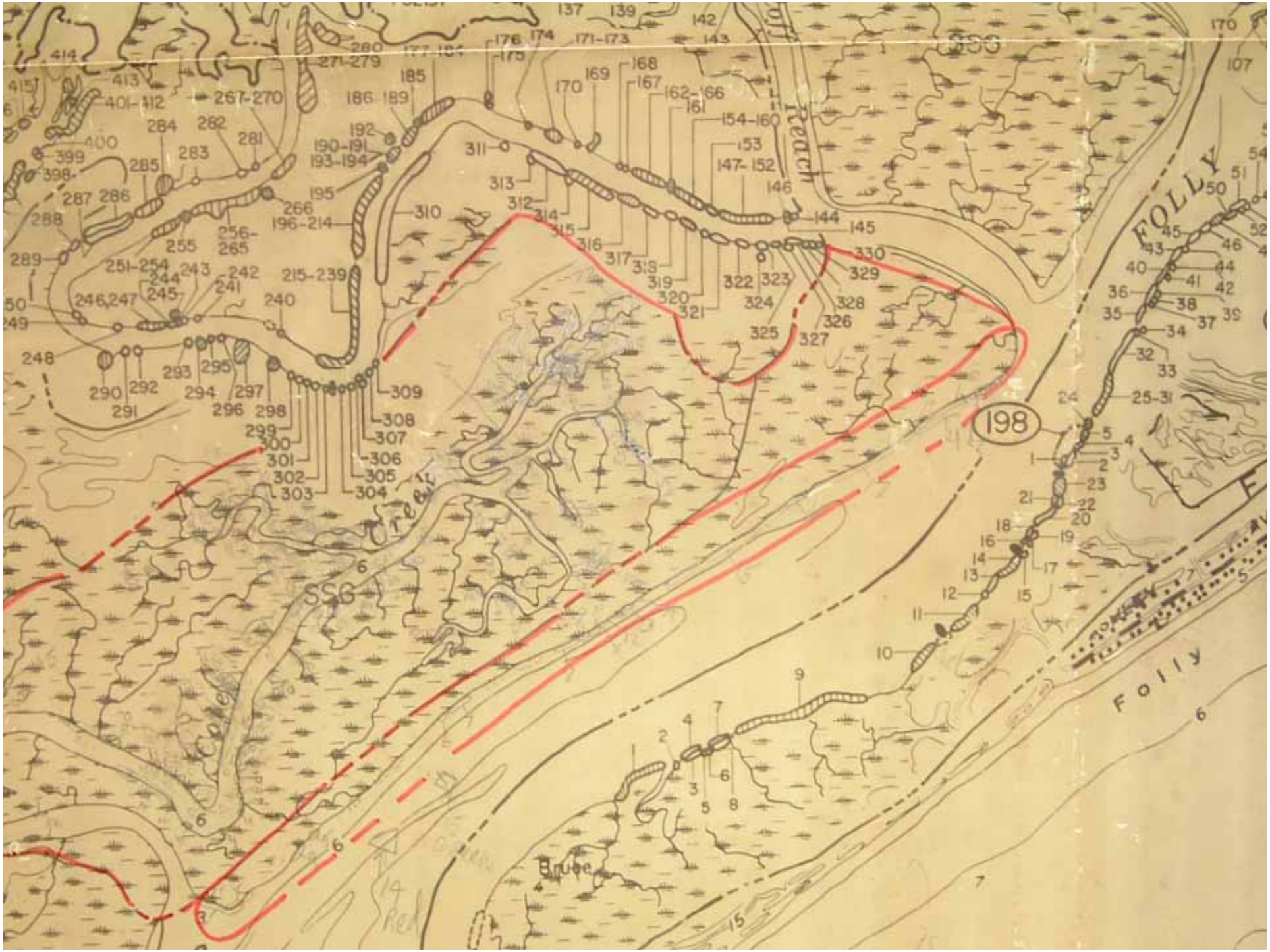
INTERTIDAL OYSTER SURVEY MAPS

USGS Topographic
Quad Sheet
1/24,000

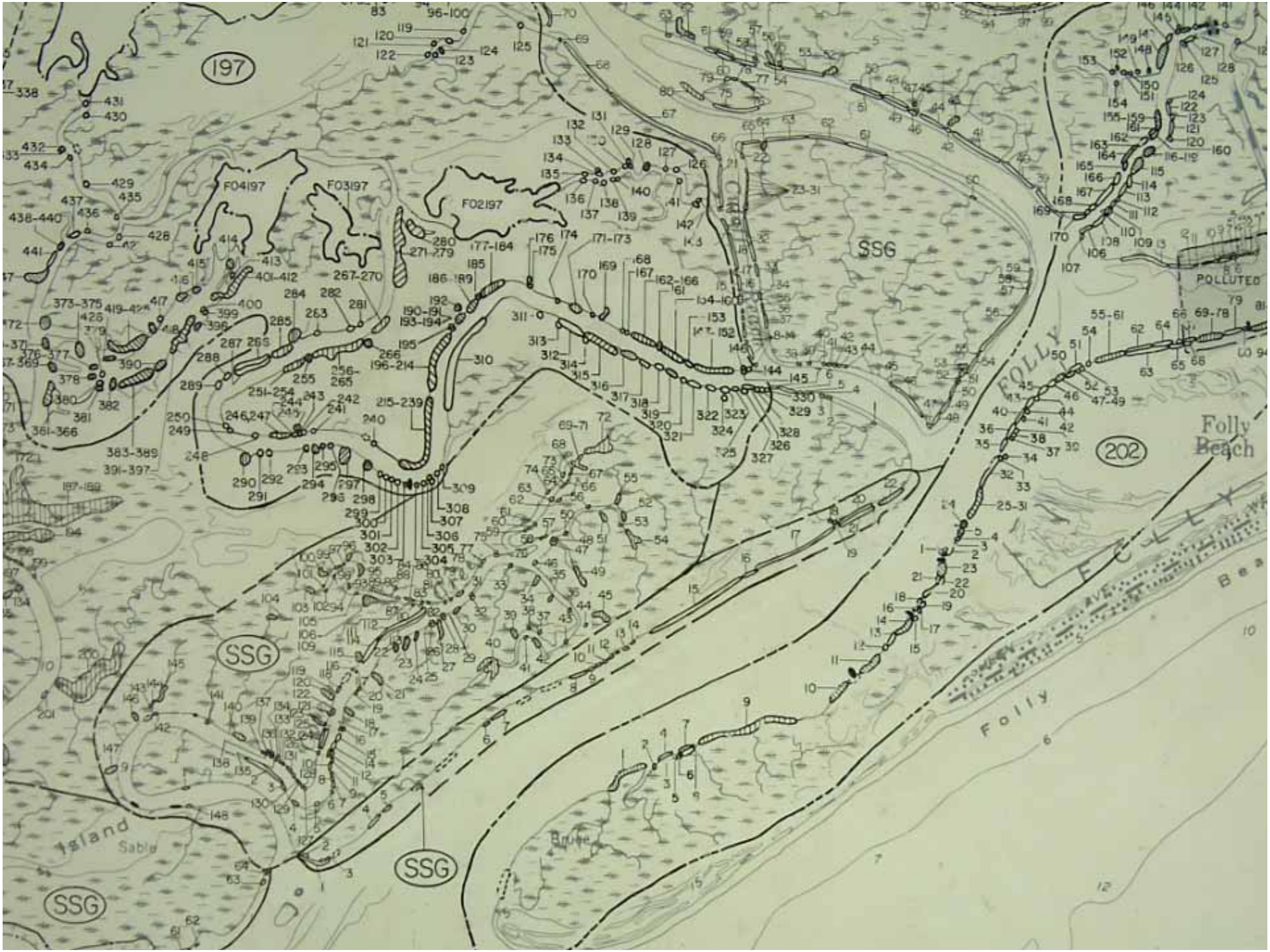
2x



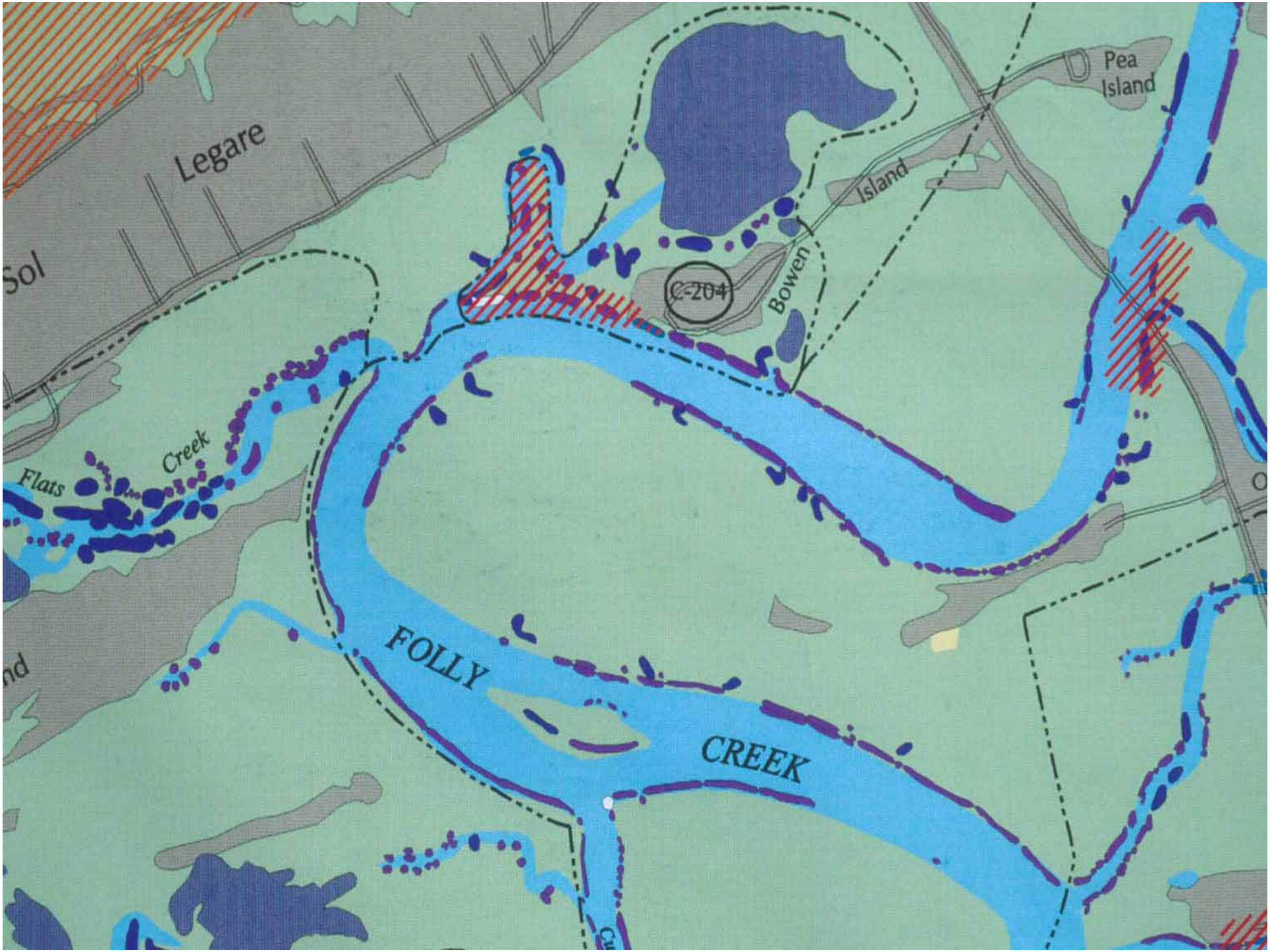
4 Oyster Survey Maps
1/12,000 (22" x 31 1/2")



FOLLY
Folly
198
Creek
SSG
Bruce


197
F04197
F03197
F02197
SSG
SSG
SSG
SSG
202
POLLUTED
Folly Beach
FOLLY
Folly
Island
Sable

197
202
SSG
SSG
SSG
SSG
FOLLY
Folly
Island
Sable
Bruce
F04197
F03197
F02197


Legare
Sol
Pea
Island
Island
Bowen
C-204
Creek
Flats
FOLLY
CREEK

Ancillary Data

- Bottom type
- Shell matrix depth
- Strata elevation
- Hydrographic data
- Clam densities
- Oyster size

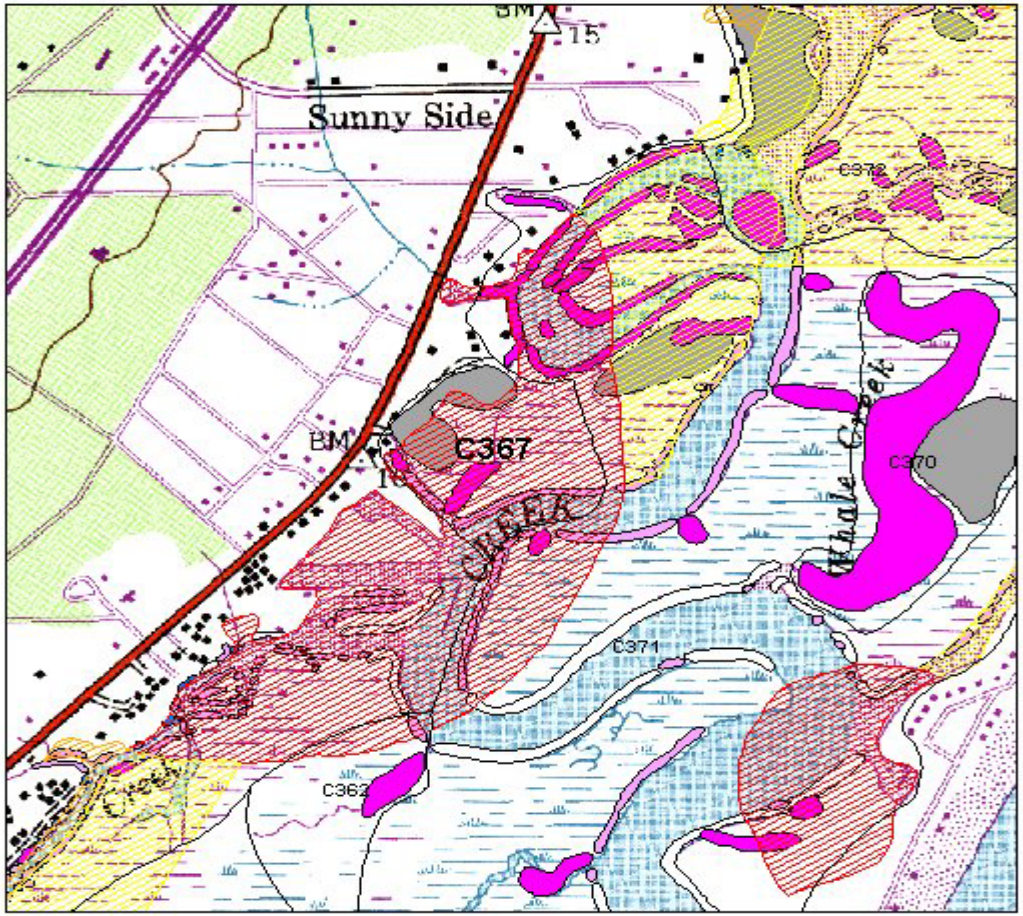
Survey Products

- Commercial permit maps
- Commercial shellfish contracts
- Recreational maps on DNR web
- DHEC/DNR Law Enforcement maps
- Mitigation representation
- Special Area Management plans

CULTURE PERMIT C-367

Acreage
Sub tidal:
Inter tidal: 1.8

Location: Portions of Main Creek and Salt Creek. These boundaries are also indicated on SCDNR Intertidal Oyster Survey map Sc.
County: Georgetown



Legend

- PERMIT BOUNDARY
- COOD= SHELLFISH CULTURE PERMIT
- GOOD= GRANT PERMIT
- MOOD= MARICULTURE PERMIT
- SOOD= STATE SHELLFISH GROUND
- ROOD= PUBLIC SHELLFISH GROUND

WATER QUALITY (SCDHEC)

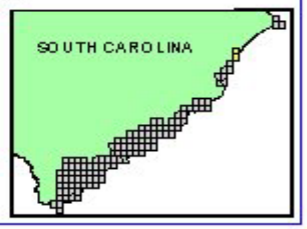
- PROHIBITED
- RESTRICTED
- CONDITIONALLY APPROVED

PRODUCED BY:
SOUTH CAROLINA DEPARTMENT OF NATURAL RESOURCES
OFFICE OF FISHERIES MANAGEMENT
SHELLFISH MANAGEMENT SECTION
09/2002

N

600 0 600 1200 Feet

Permittee: Albert Hitchcock
P O BOX 626
MURRELLS INLET, SC 29576
(843) 651-2044



"Holy Grail" of Ground Truthing

- GPS with sub meter accuracy
- No digitizing
- Minimal post processing
- Actual footprint
- Faster survey process
- MediaMapper™ (photo linkage)

UTC Time
UTC Time
15:59:26
June 19, 2003
Tab
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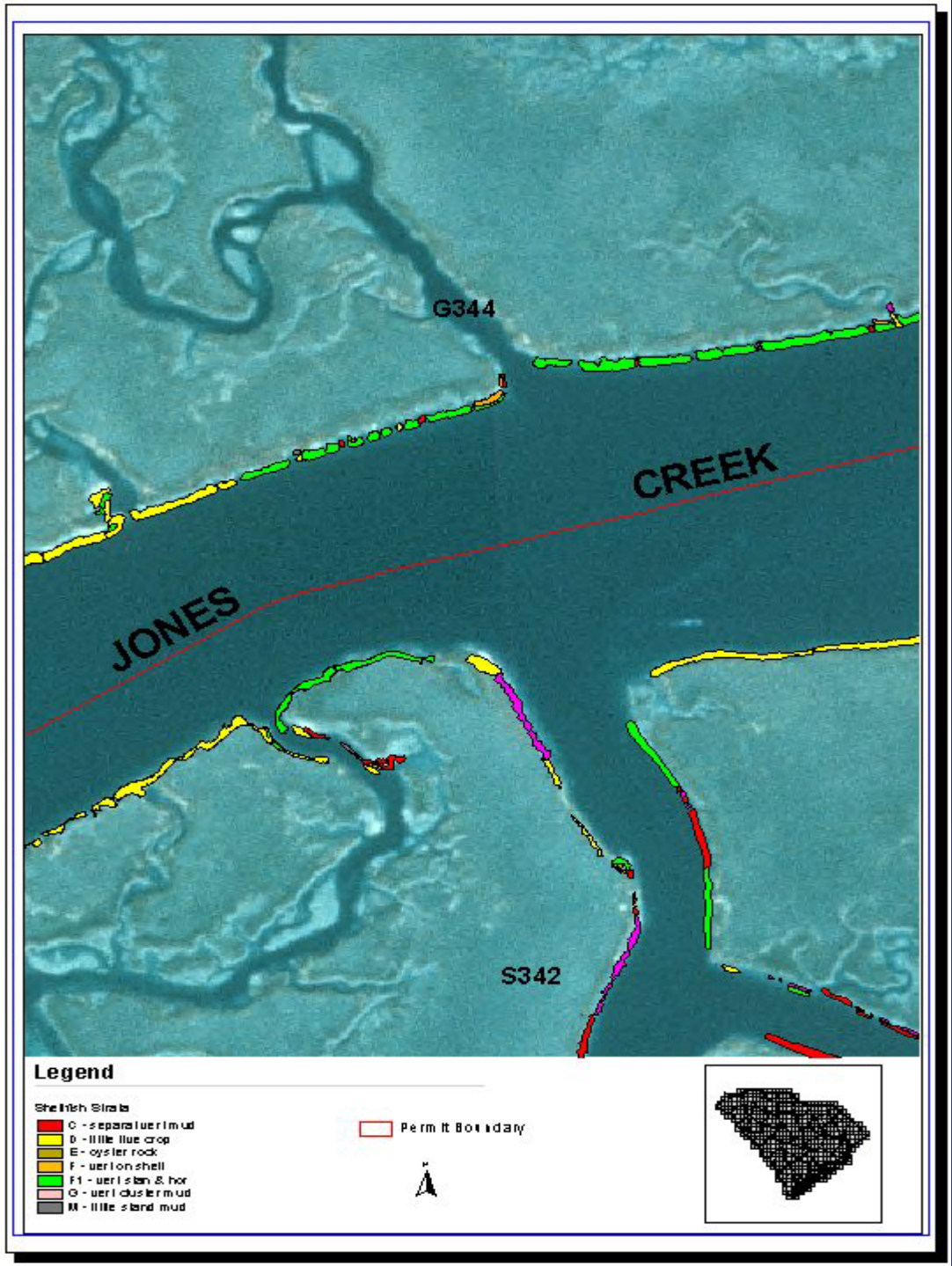
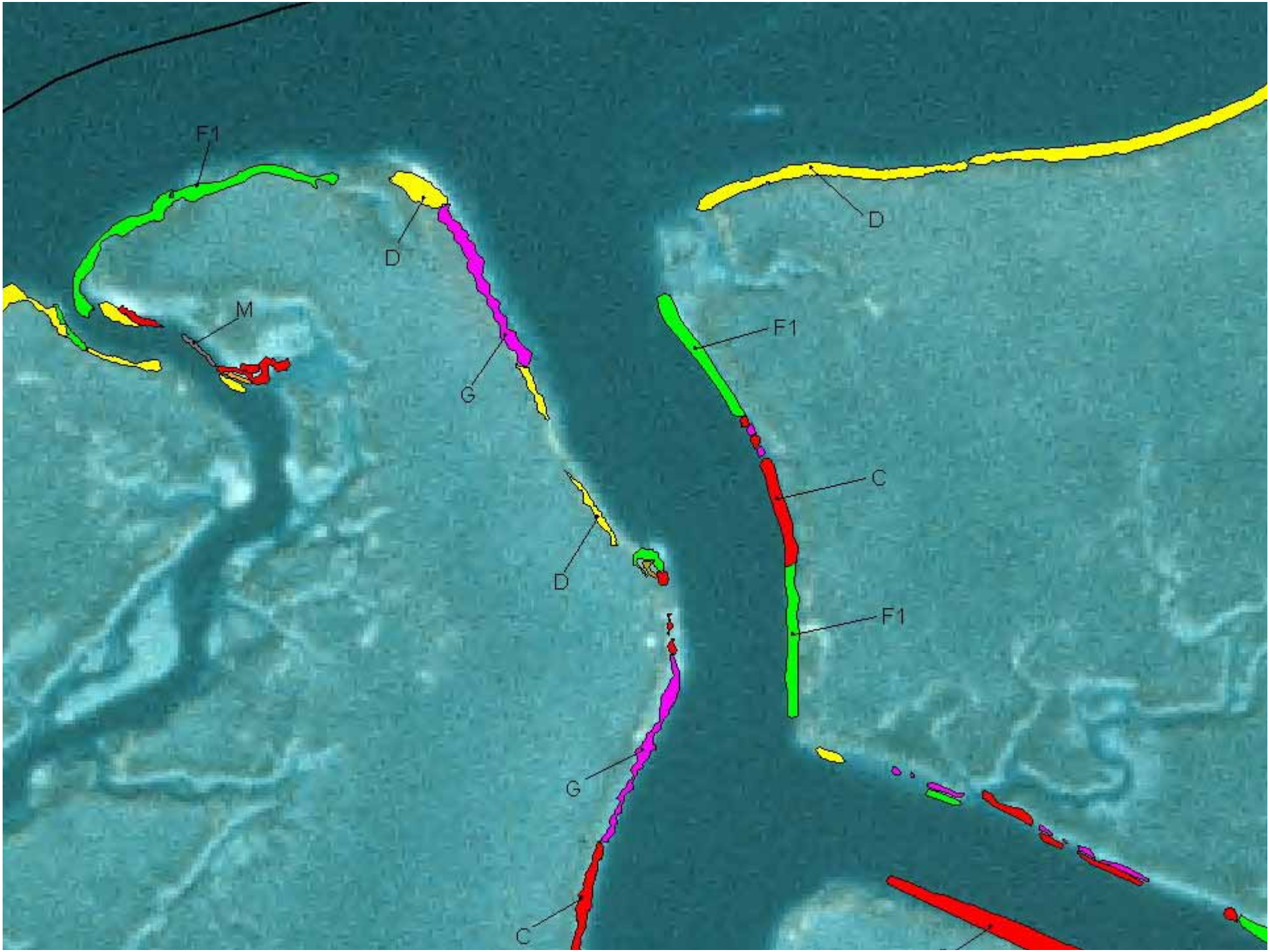
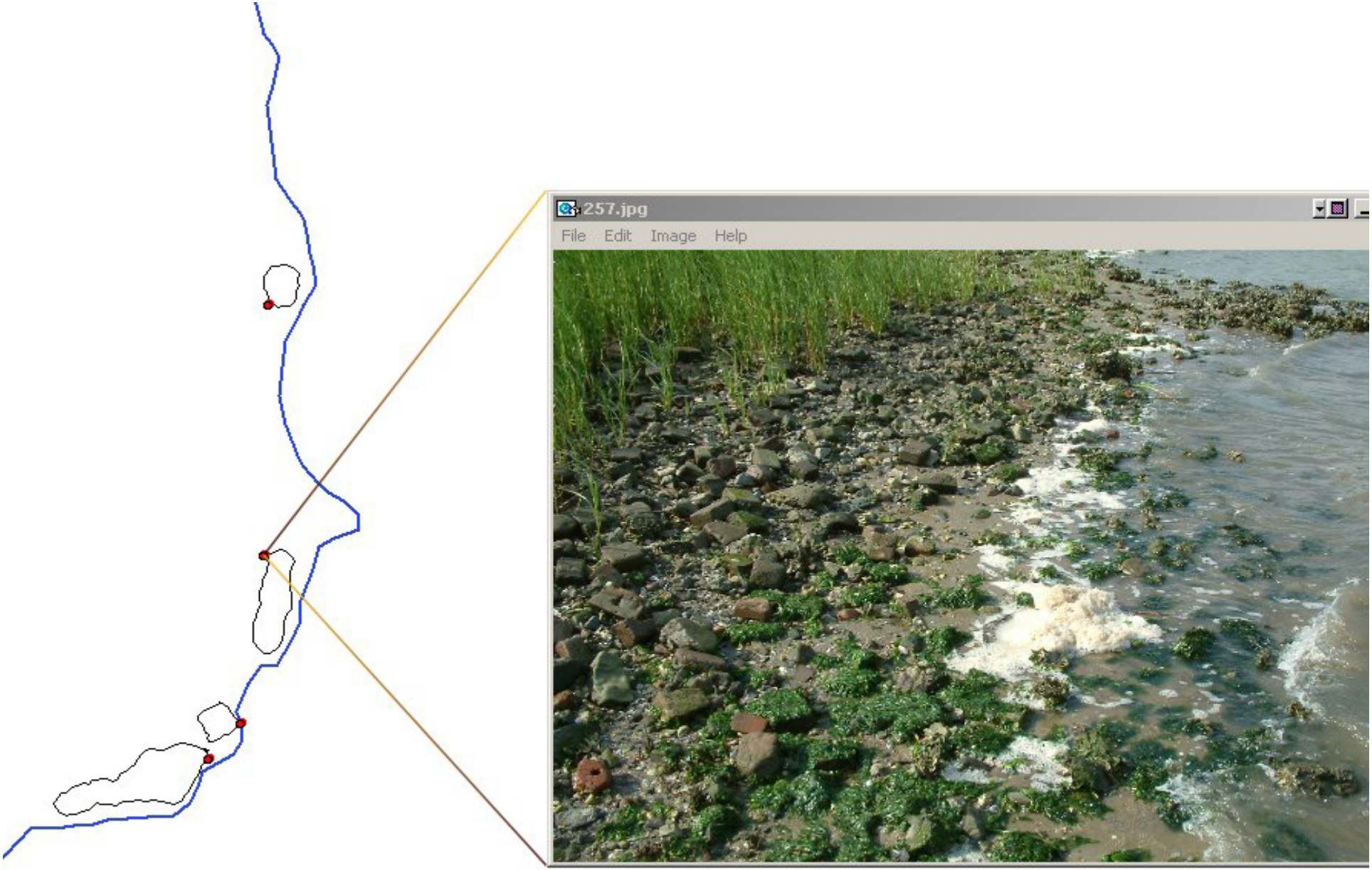
Copy
A
B
C
D
E
F


G344
CREEK
JONES
S342
Legend
Shellfish Strata
C - separate veri mud
D - little blue crop
E - oyster rock
F - veri on shell
F1 - veri stan & hor
G - veri cluster mud
M - little stand mud
Permit Boundary
N


F1
D
M
G
D
F1
C
F1
G
C

GeoVantage 1/4 Meter Imagery
Hamlin Creek
"C" Strata
"F1" Strata
"C" Strata
Ground-truth data collected using Trimble
GPS Pathfinder Pro XRS

C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