

The background of the slide is a light gray gradient with several realistic water droplets of various sizes scattered across it. The droplets have highlights and shadows, giving them a three-dimensional appearance. The title text is centered in the middle of the slide.

# LEGACY SEDIMENT PLACEMENT AND HISTORICAL PHOTOGRAPHIC INSIGHTS FOR USING NNBF FOR CLIMATE ADAPTATION

LENORE P. TEDESCO

# NORTHERN SMILL USACE PRIOR PLACEMENT AREAS



## BENEFICIAL USE IN 1960'S?



- WETLANDS INSTITUTE FOUNDER HERBERT MILLS STUDYING THE BLACK SKIMMER AND TERN COLONY “IN THE VICINITY OF CEDAR ISLAND” IN THE EARLY 1960’S
- NOT CERTAIN EXACTLY WHERE BUT LIKELY SITE 97 PRIOR PLACEMENT SITE



# KNOWN PLACEMENT HISTORY 98B/C

## DREDGING AND PLACEMENT HISTORY GREAT CHANNEL FOOTBALL FIELD AND 98 B/C COMPLEX (FY1973 – PRESENT)

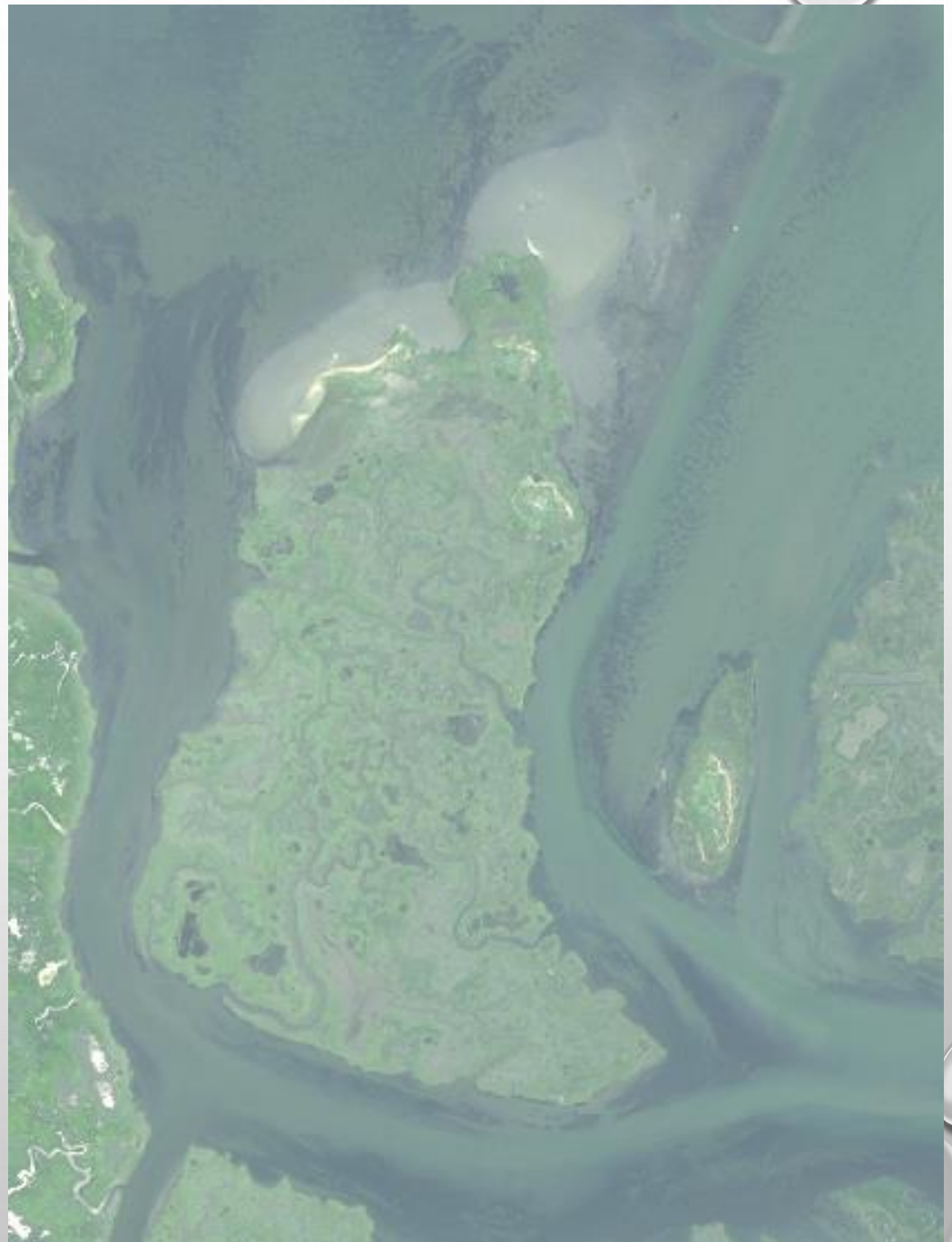
- 98 B
    - 1977 - 61,212 CY
  - 98 C
    - 1974 – 33,017 CY
    - 1979 – 40,875 CY
    - 1982 – 68,600 CY
    - 1985 – 41,543 CY
    - 1987 – 58,500 CY
    - 1991 – 119,263 CY
    - 1993 – 53,367 CY
  - AVALON MARSH ENHANCEMENT
    - 2015 – 5,000 CY
    - 2016 – 45,000 CY
- 476,676 cy
- 50,000 cy



- Does not include significant placements pre-1973 or at sites 96, 97 or 98A
- Do not know if any was removed from the system

# GULL / STURGEON ISLAND PLACEMENT COMPLEX

- OVERBOARD PLACEMENT  
CREATED MARSH ISLANDS  
AND IMPORTANT SUBTIDAL  
AND INTERTIDAL FLATS
  - IMPORTANT MACROALGAL  
SAV HABITAT
  - IMPORTANT INTERTIDAL  
FORAGING AND LOAFING  
FLATS FOR SHOREBIRDS AND  
WADING BIRDS
- UNCONFINED ON MARSH  
SEDIMENT PLACEMENT  
CREATED ELEVATED NESTING  
HABITAT FOR WADING BIRDS  
AND GULLS





CLERK OF CAPE MAY COUNTY

CAPE MAY COURT HOUSE, N. J.

February 29, 1952

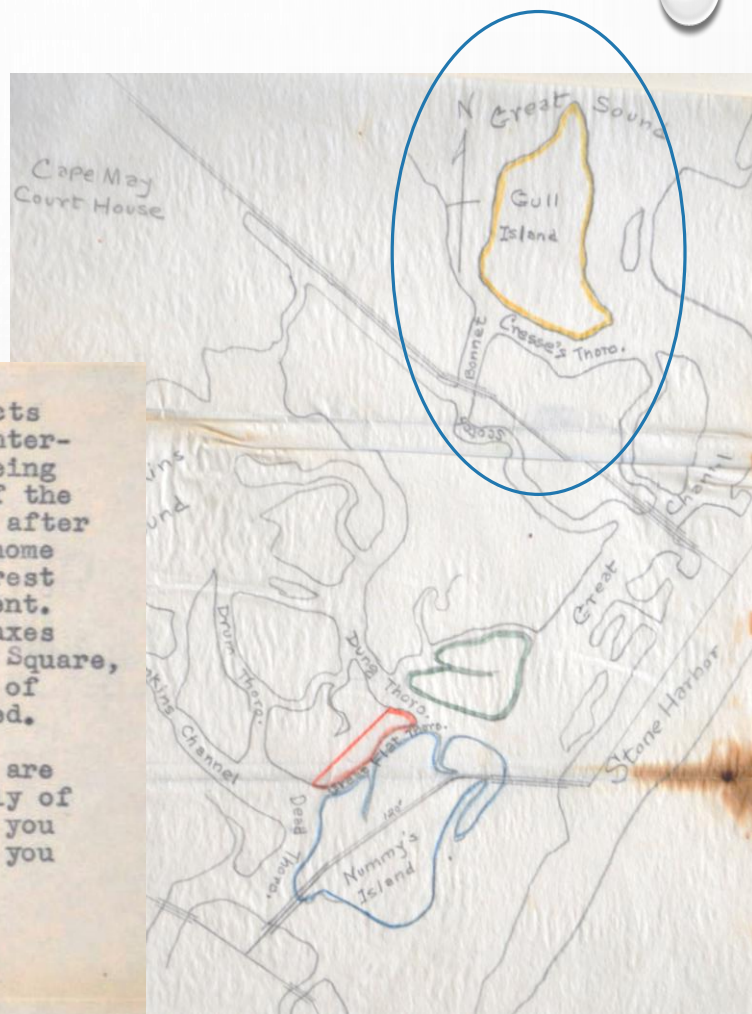
Mr. H. H. Mills  
c/o T. C. Wheaton Company  
Millville, New Jersey

The island outlined in yellow is Gull Island which projects out into Great Sound; it has an acreage of 526 acres. It is interesting as having been formerly owned by the Audubon Society being purchased by them at the time when it was the nesting place of the colony of Laughing Gulls, from which it got its name. Shortly after it was purchased the gulls moved from there to their present home on Bluefish Creek Meadows, the Audubon Society then lost interest in the Island, ceased paying taxes and it was sold as delinquent. It is now understood to belong to one Hugh McHenry, but the taxes are paid by Mr. C. D. Bevis, Spruce Road, Castle Rock, Newton Square, Penna. It is a wonderful conservation site and a small growth of trees has started at the northern end which could be encouraged.

I am particularly glad to hear from Miss Thomas that you are interested in the general plan of conservation and particularly of these specific areas. I will be most happy to cooperate with you in any way possible, and hope to have the pleasure of meeting you personally in the near future.

Sincerely yours,

*Stirling W. Cole*  
County Clerk



# GULL ISLAND AND GULL ISLAND FLATS COMPLEX

- OVERBOARD  
PLACEMENT
- UNCONFINED ON  
MARSH SEDIMENT  
PLACEMENT

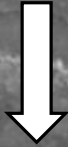




1930

Gull Flats

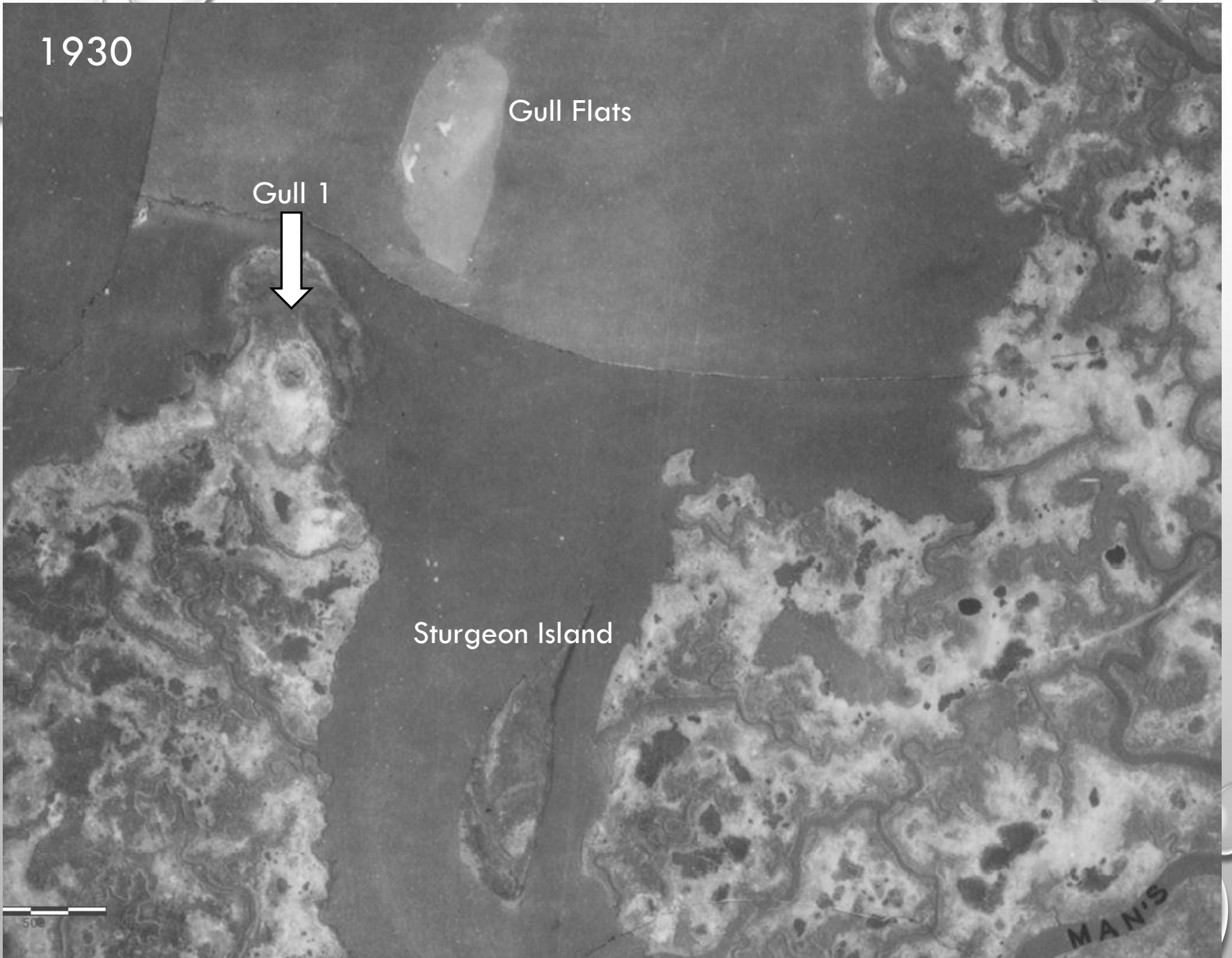
Gull 1



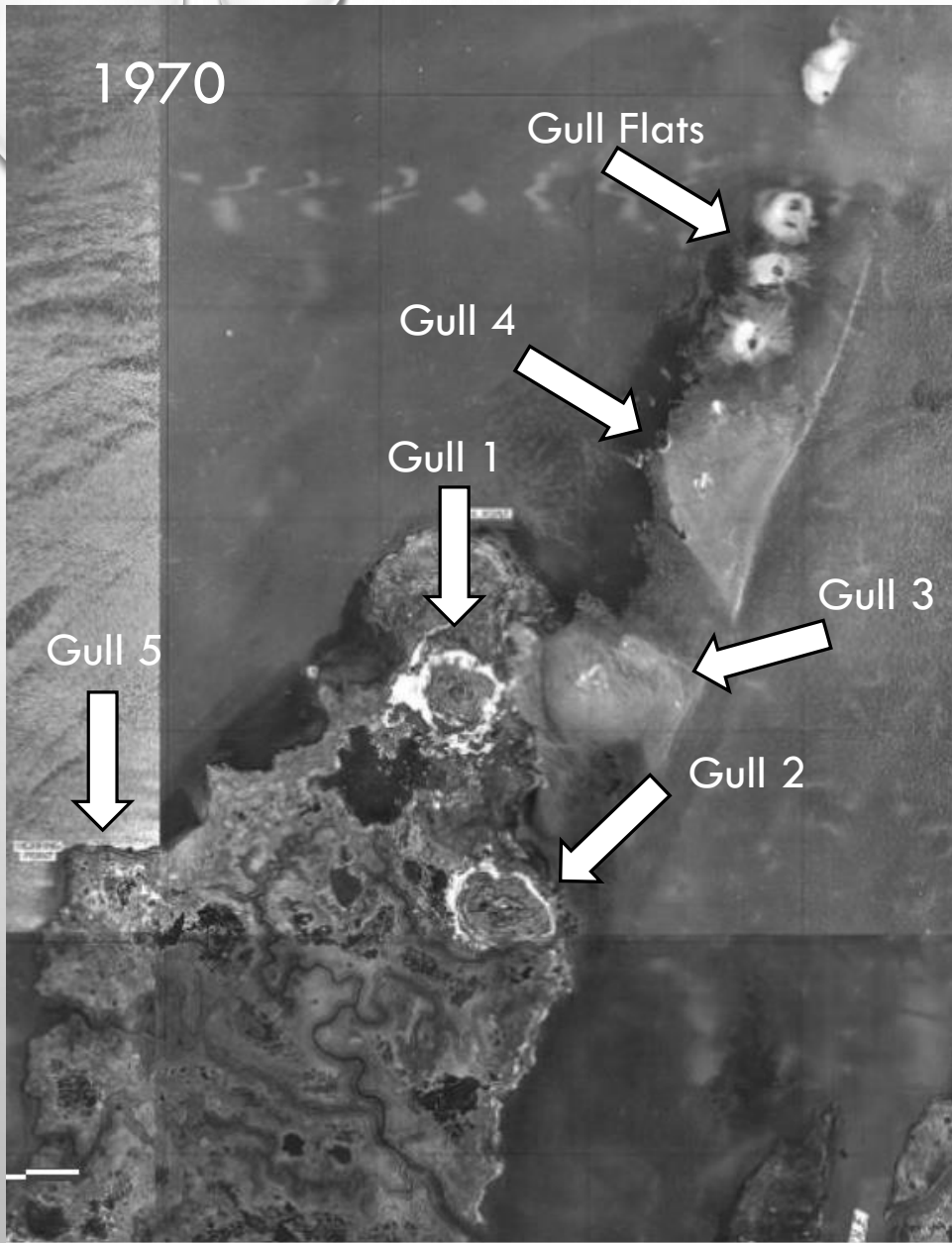
Sturgeon Island

50m

MAN'S





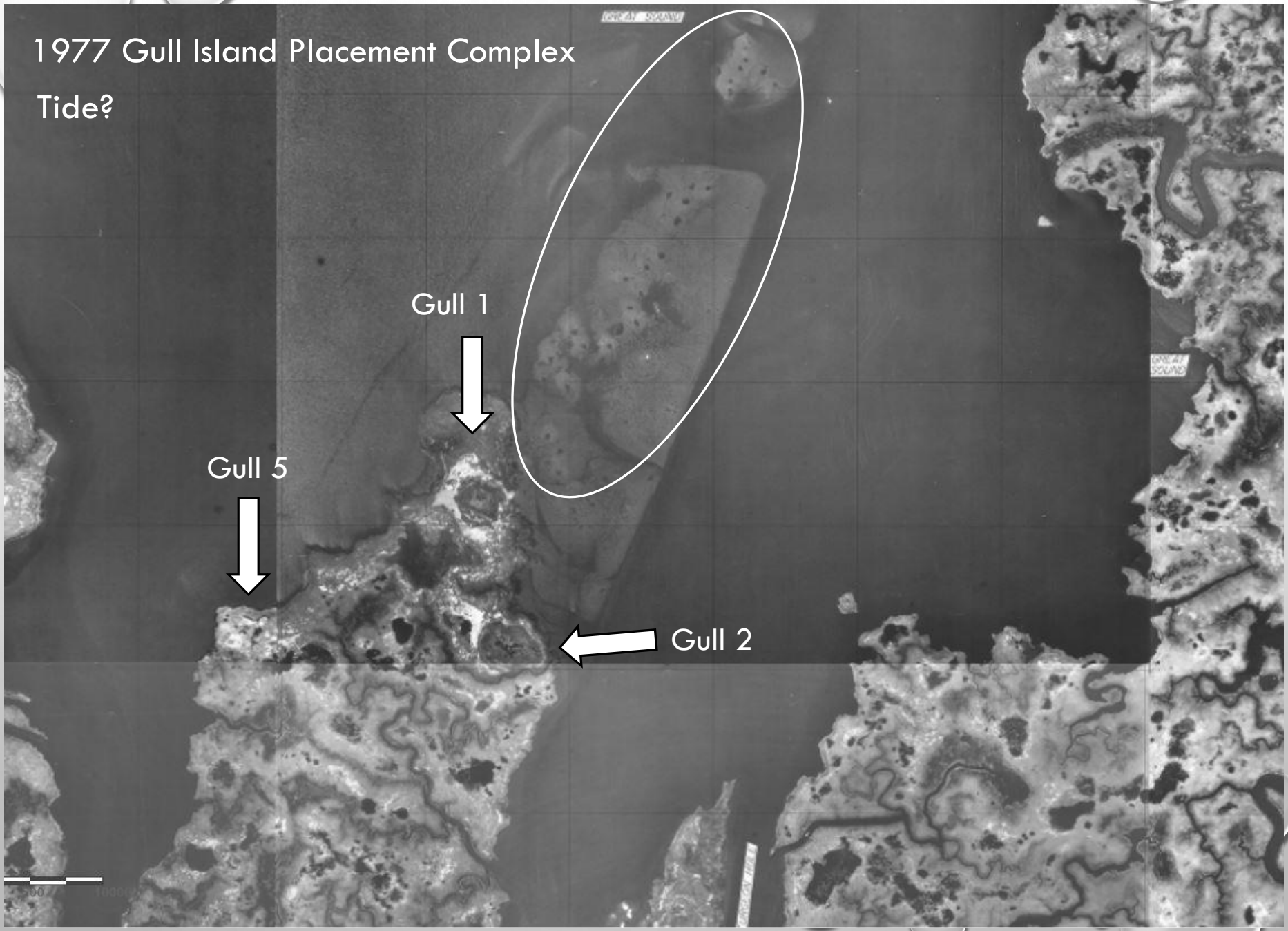


1970 Gull Island Placement Complex

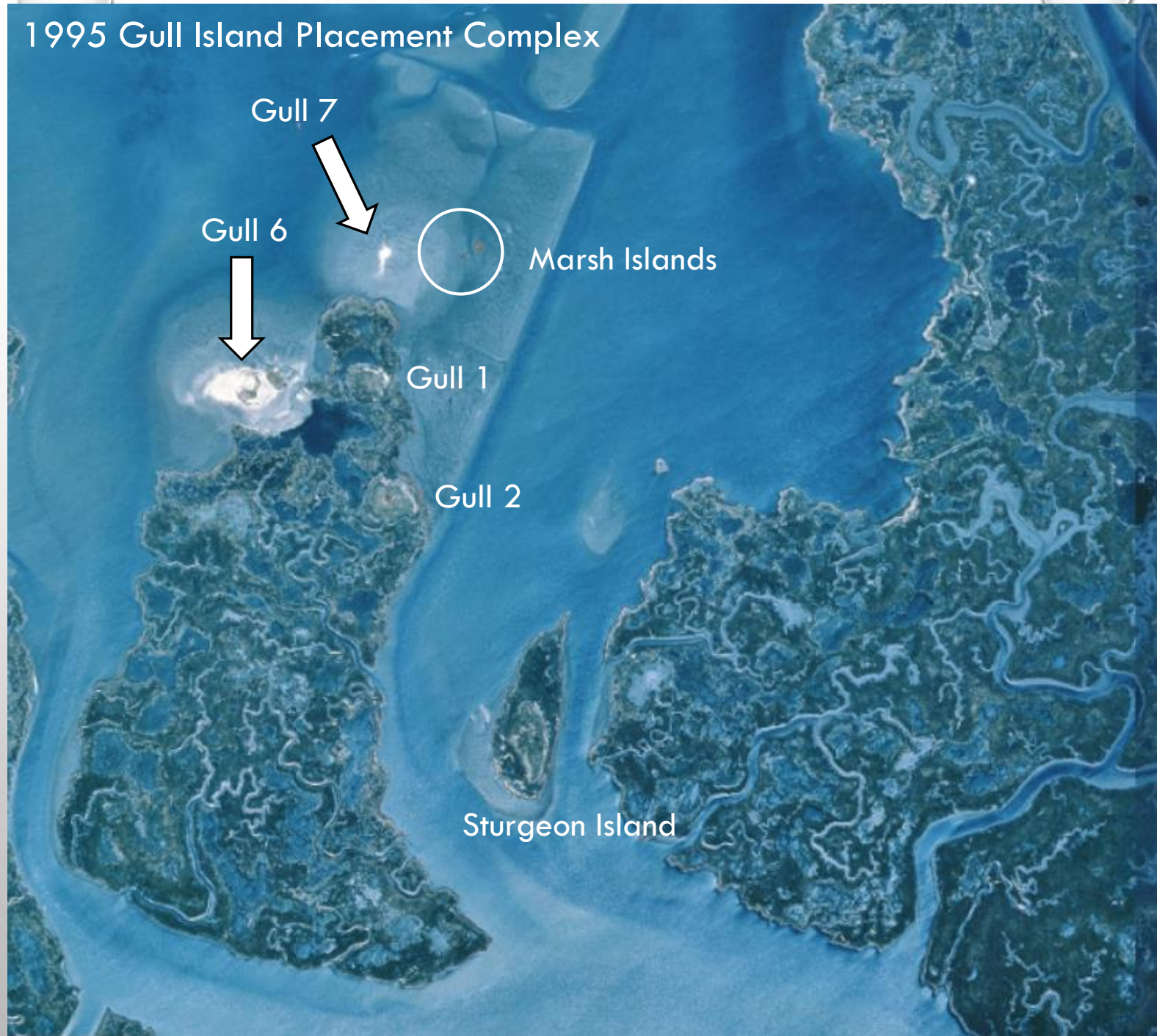


# 1977 Gull Island Placement Complex

Tide?



# 1995 Gull Island Placement Complex



Gull 7

Gull 6

Marsh Islands

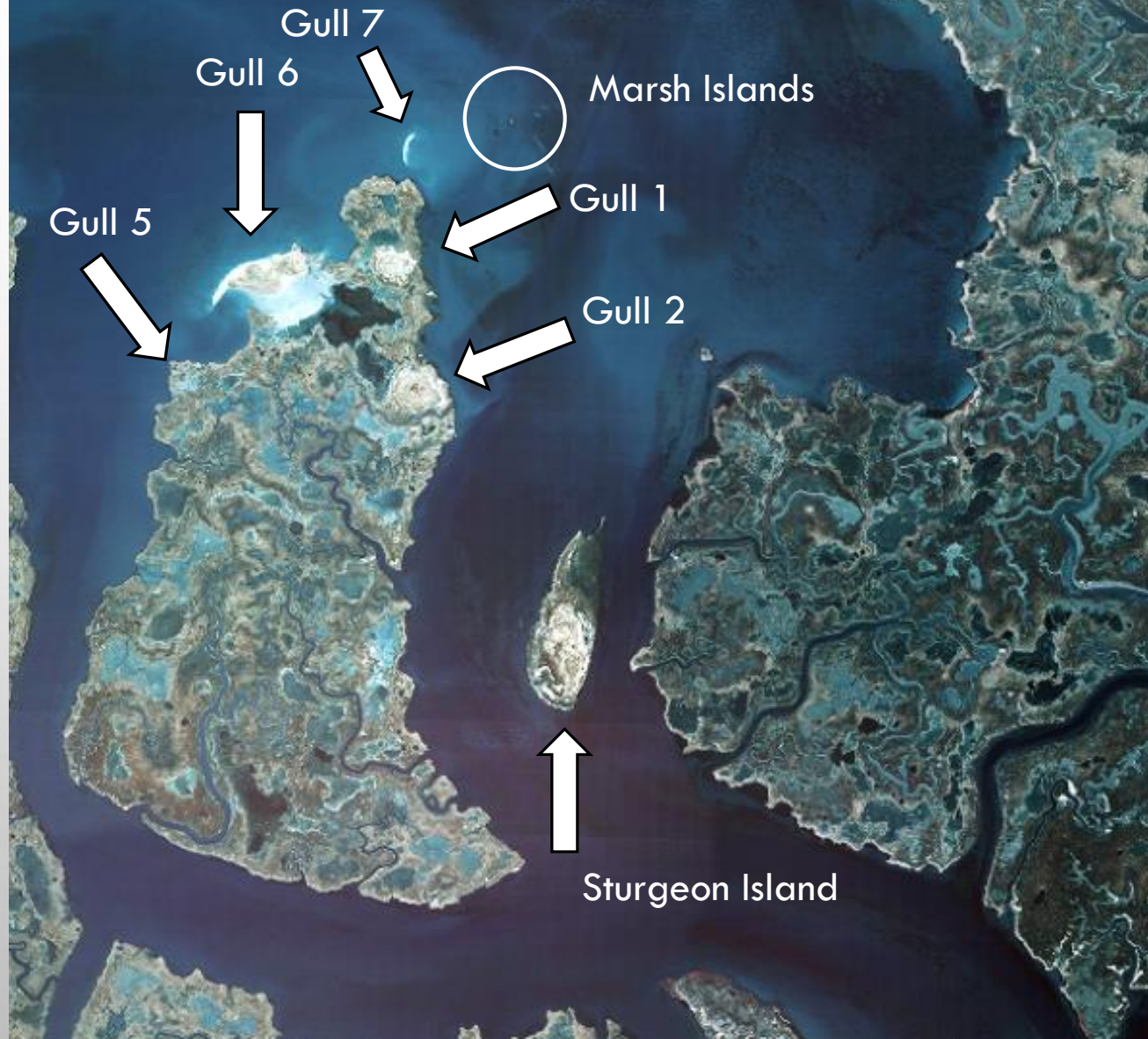
Gull 1

Gull 2

Sturgeon Island



# 2002 Gull Island Placement Complex



Gull 7  
Gull 6



Marsh Islands

Gull 5

Gull 1

Gull 2



Sturgeon Island

# 2006 Gull Island Placement Complex

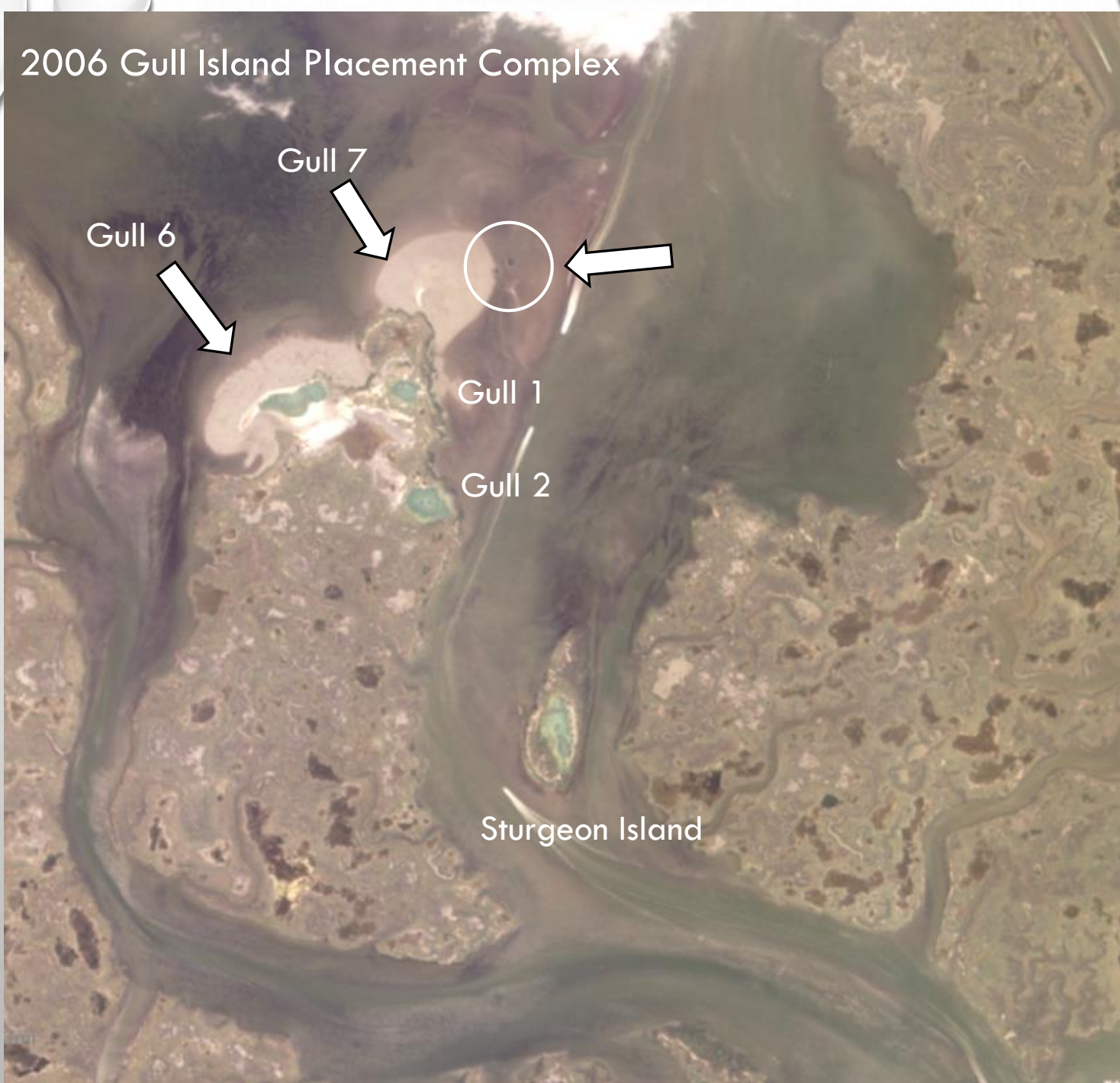
Gull 6

Gull 7

Gull 1

Gull 2

Sturgeon Island



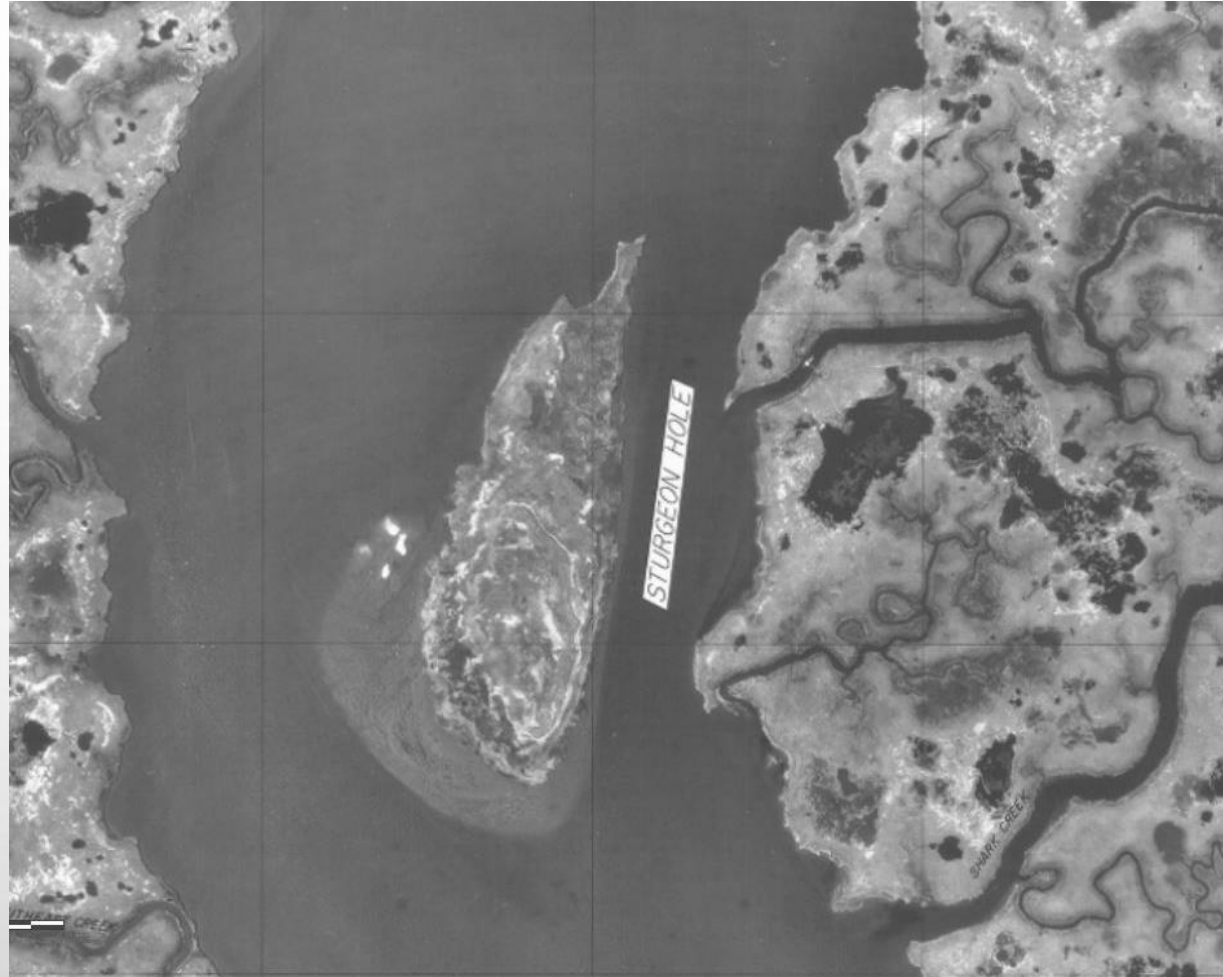




2007 IR Gull Island Placement Complex



- PRIOR PLACEMENT SITES CREATED IMPORTANT WADING BIRD HABITAT
  - NESTING AREAS ACCOUNT FOR NESTING FOR NEARLY 1/3 OF WADING BIRDS IN STATE OF NJ
- HABITAT DEGRADING WITH ELEVATION LOSS
- DON'T KNOW WHEN STURGEON RECEIVED FILL BUT ELEVATIONS RELATIVE TO GULL SUGGEST EARLIER OR LESS MATERIAL OVERALL



1977

## STURGEON ISLAND

# 1930 Sturgeon Island



7000ft

OLD MA

# 1970 Sturgeon Island





# 2002 Sturgeon Island



# 2017 Sturgeon Island

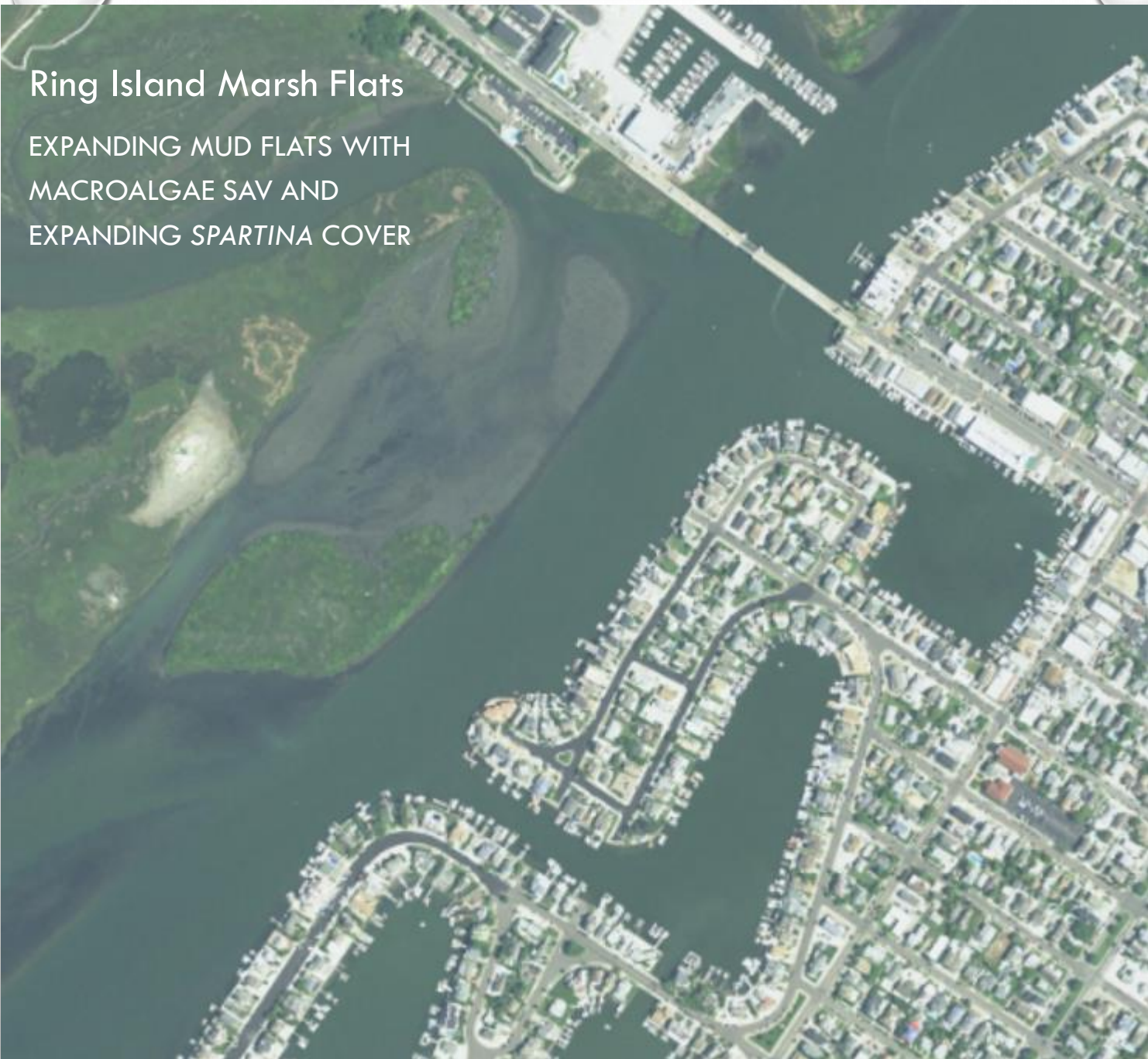


0 100ft



## Ring Island Marsh Flats

EXPANDING MUD FLATS WITH  
MACROALGAE SAV AND  
EXPANDING *SPARTINA* COVER







1977 Imagery

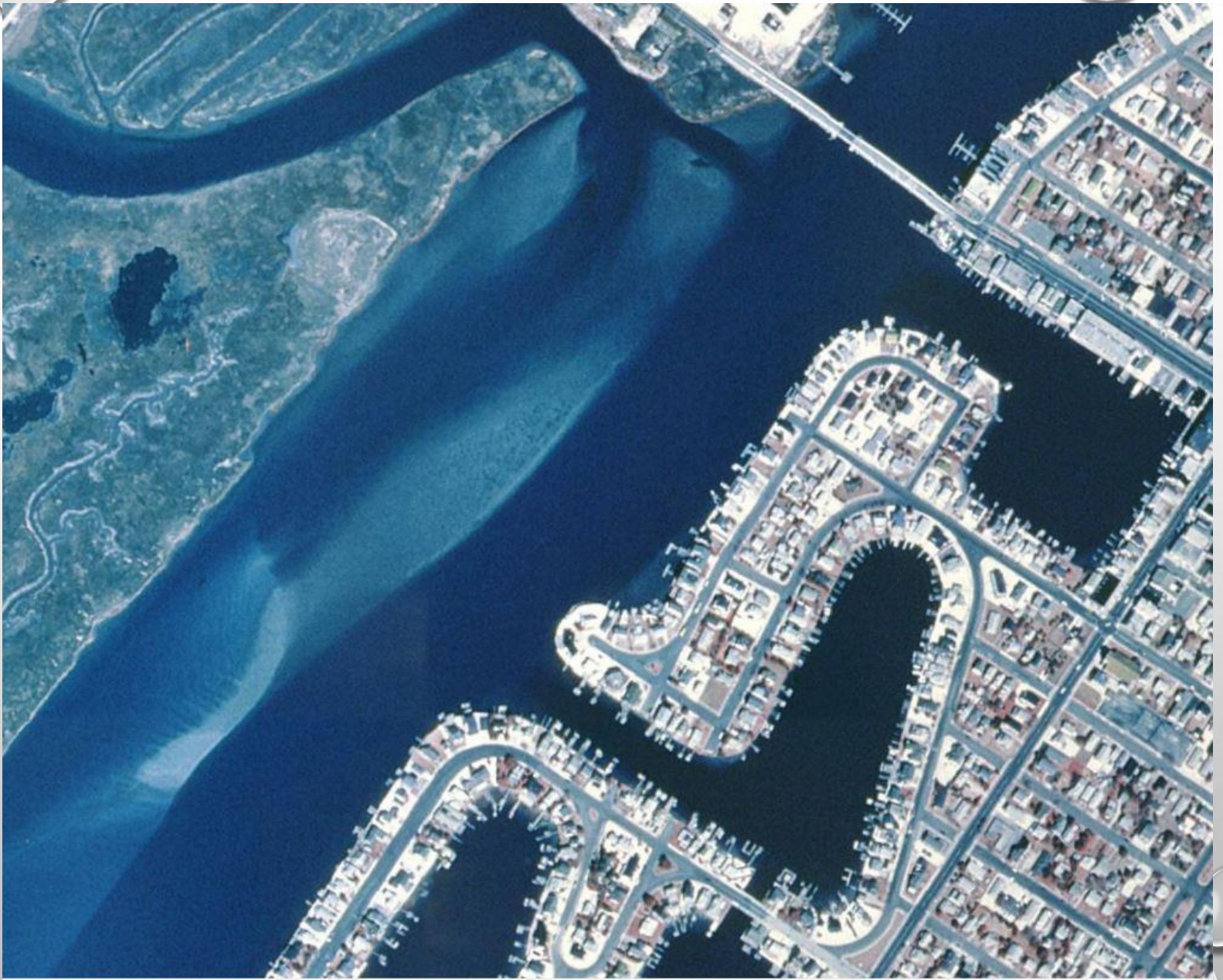


1991 Imagery

Pleasure Bay  
Image U.S. Geological Survey

Shelter Haven  
Google E





1995 IR Imagery





2002 Imagery





Pleasure Bay  
Image USDA Farm Service Agency

Shelter Haven

Google Earth

2006 Imagery

Imagery Date: 7/15/2006 39°03'08.39" N 74°46'48.07" W elev 2 ft eye alt 5113





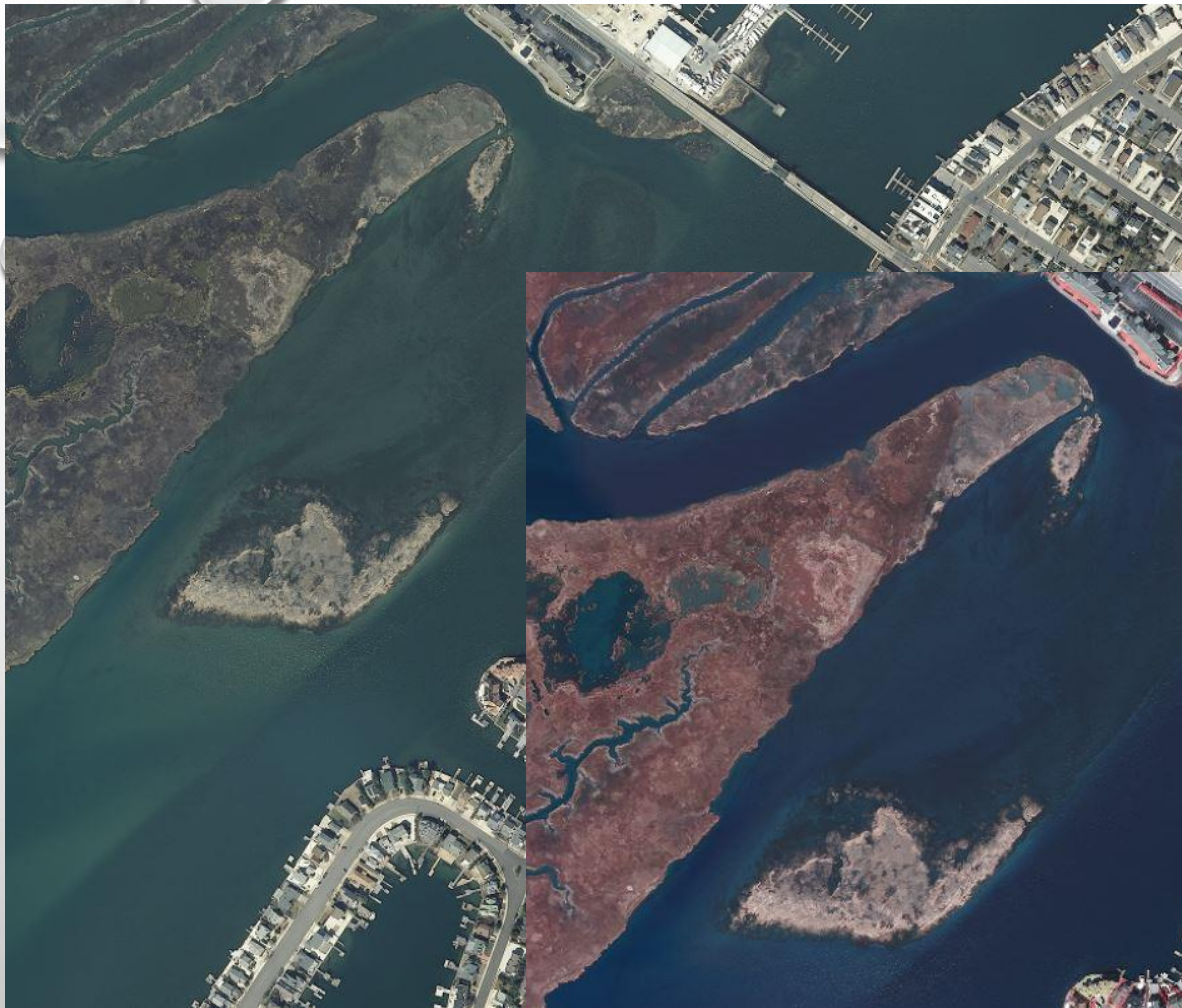
2007 IR Imagery



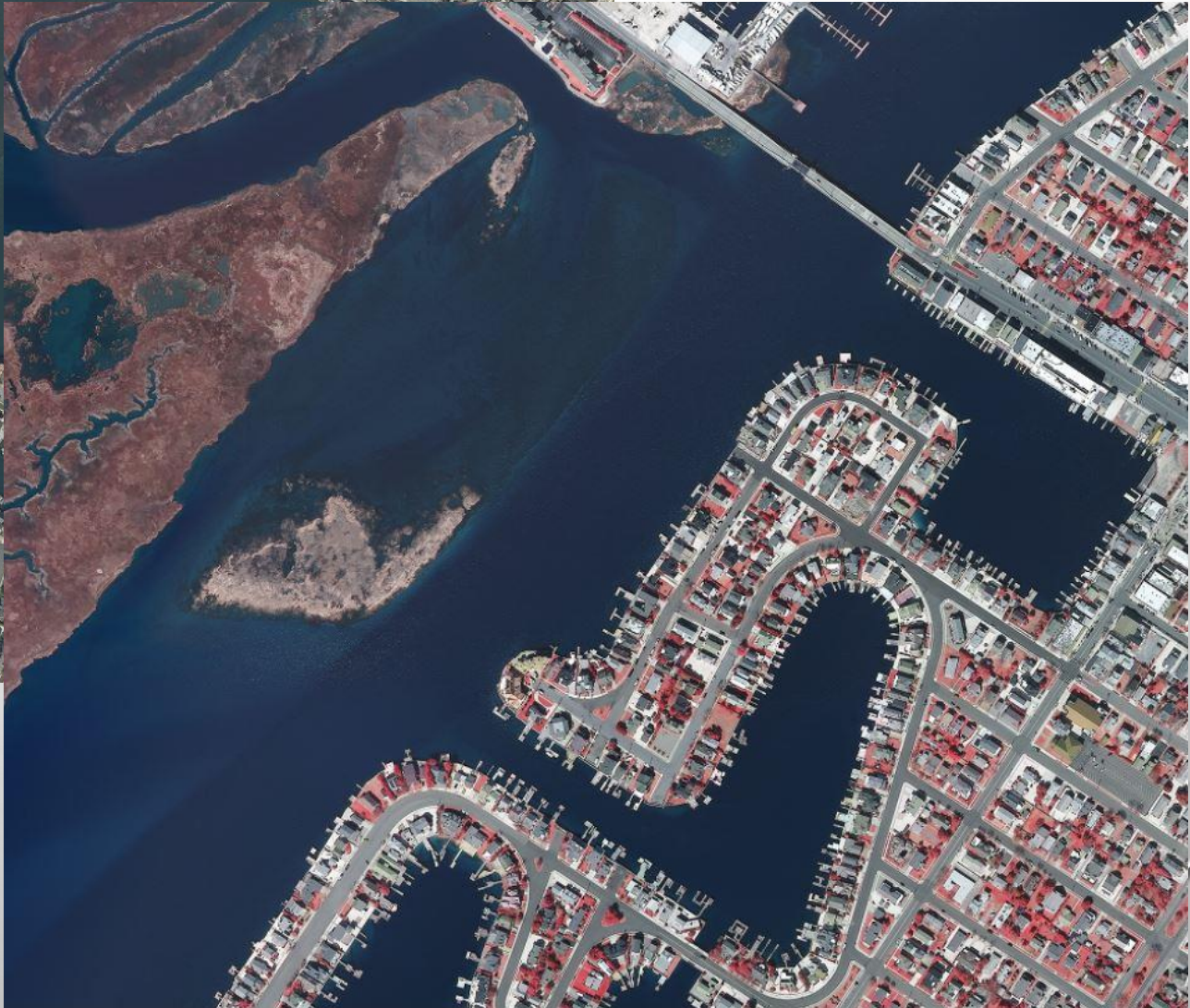


2011 Imagery





2012 Color and IR Imagery







2013 Imagery





Shelter Haven

Pleasure Bay

2014 Imagery





Shellfish and SAV

Spartina





## Sedge Island Marsh Flats

EXPANDING SAND FLATS WITH  
MACROALGAE SAV AND  
EXPANDING *SPARTINA* COVER





1995 Imagery





2006 Imagery





2014 Imagery





2016 Imagery



Site 97B Fill Area

Complex Evolution of  
*Spartina* and Mud Flats



2017 Imagery





1930 Imagery

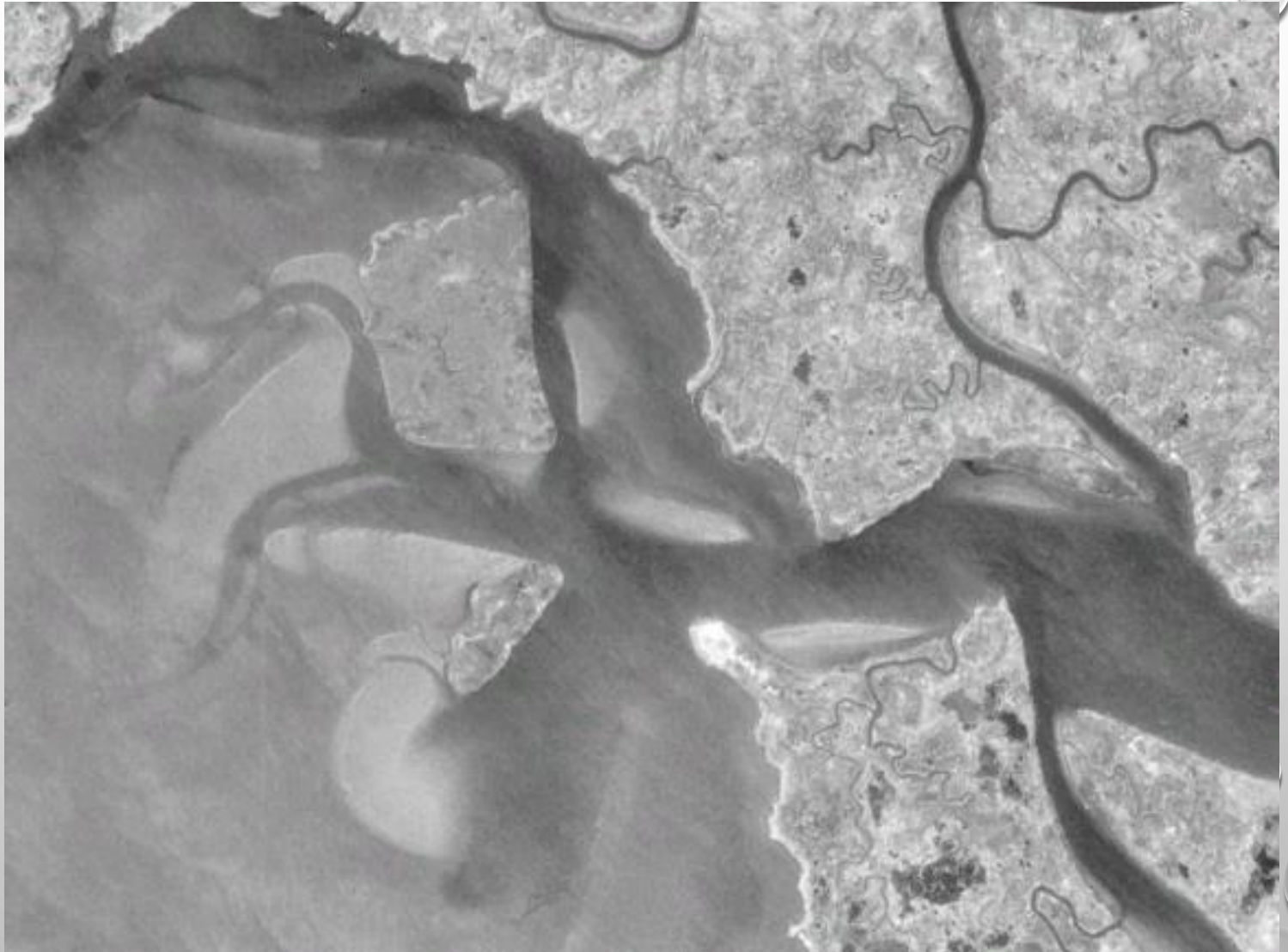


1970 Imagery



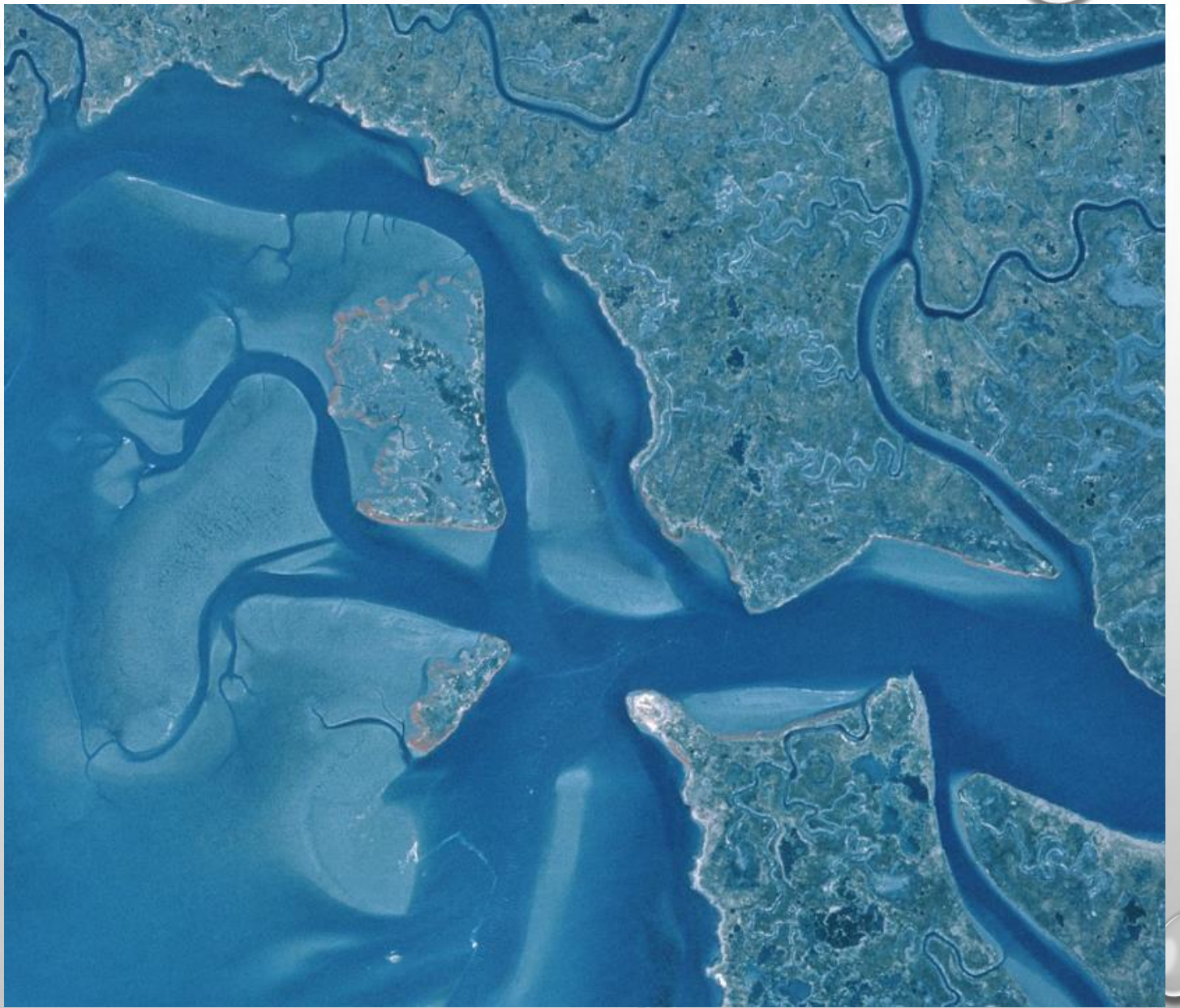


1977 Imagery



1991 Imagery





1995 IR Imagery



2007 IR Imagery





2012 IR Imagery



2015 Imagery



**SITE 97A CHANNEL FILL EVOLVING TO  
SPARTINA MARSH, INTERTIDAL FLATS AND SAV HABITAT**



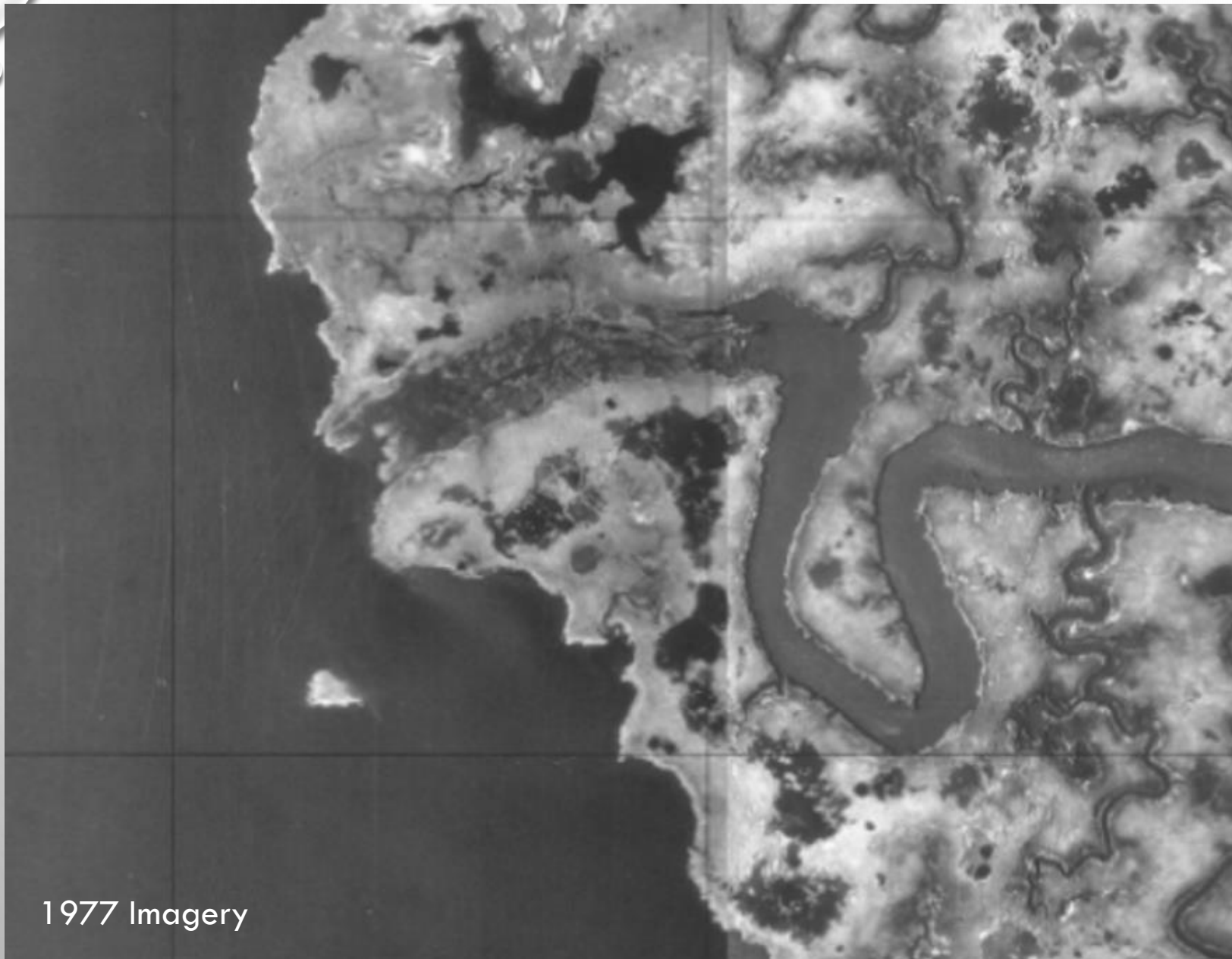
2017 Imagery







1970 Imagery



1977 Imagery





1995 Imagery





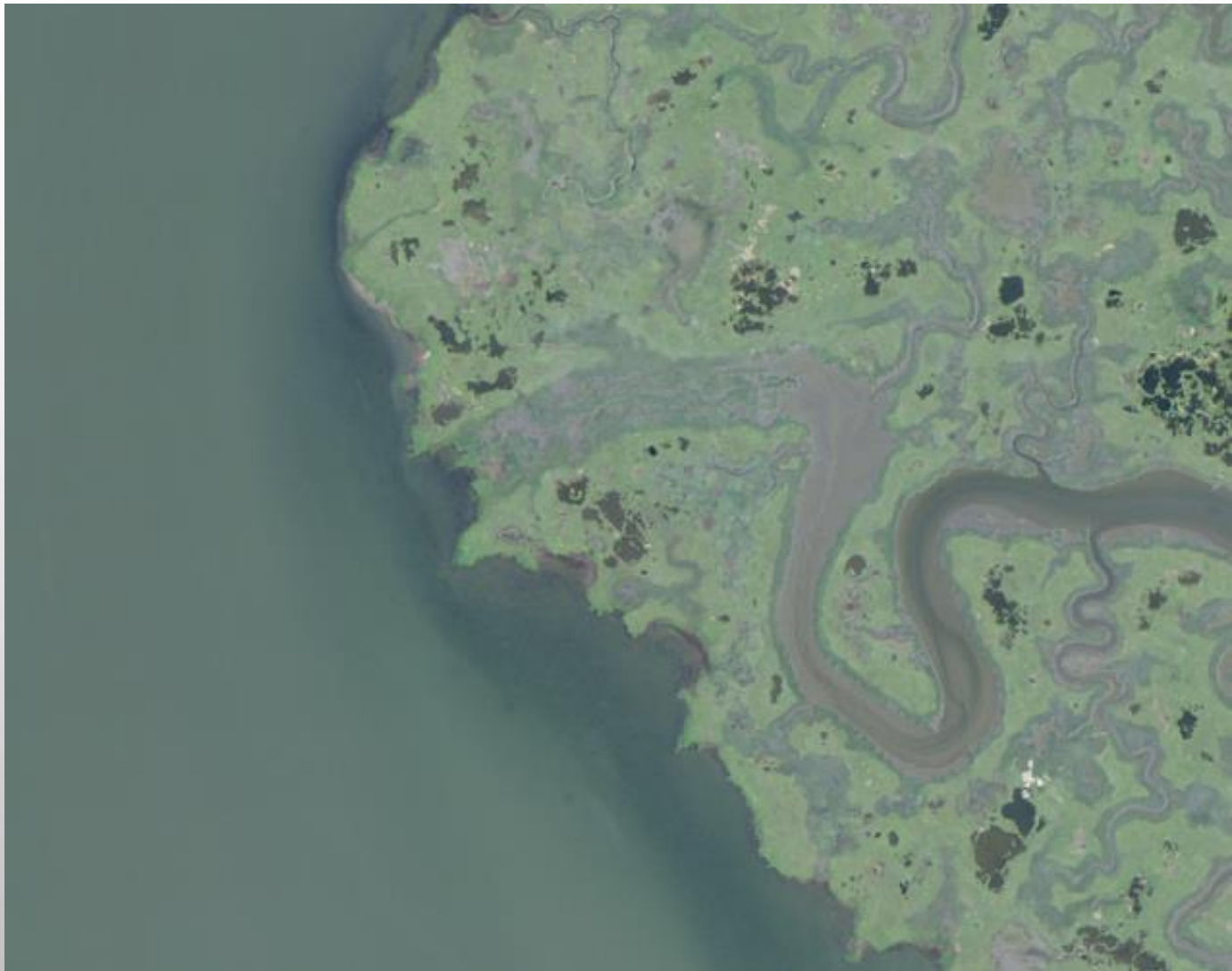
2007 color IR

POWERED BY





2010 Imagery



2013 Imagery



# DYNAMIC SEDIMENT SYSTEMS OF SMILL

- SMILL HAS AN ABUNDANCE OF INTERTIDAL AND SUPRATIDAL FLATS AND A RICH HISTORY OF LEGACY SEDIMENT PLACEMENT
- SYSTEM HAS EVOLVED NATURALLY AND THROUGH PRIOR PLACEMENT TO CREATE A SERIES OF BENEFICIAL FEATURES
- PROVIDE LESSONS FOR USING SEDIMENT PLACEMENT TO MIMIC NATURAL PROCESS WITH THE OPTION TO ADAPT TO CLIMATE CHANGE FOR FUTURE BENEFIT
- THE PAST IS A KEY TO THE FUTURE