

# Tern use of Dredged Materials

Designs for creation and restoration  
of tern nesting sites

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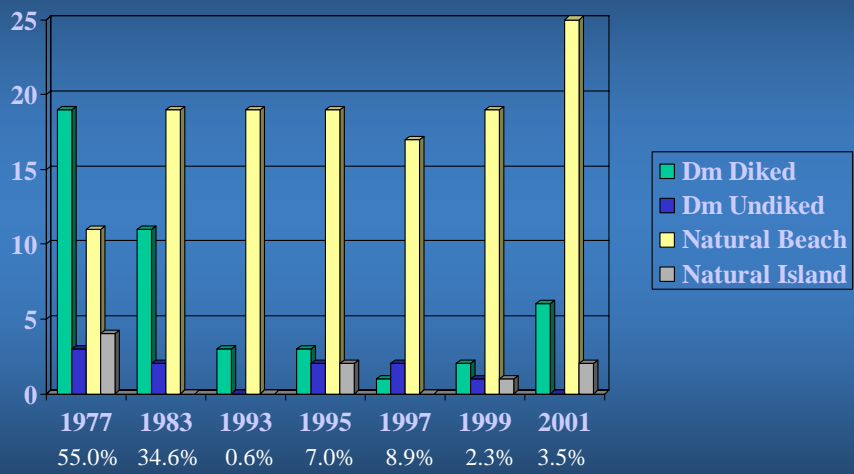
Trudy Wilder, US Army Corps of Engineers-Wilmington District

## Tern Nesting Habitat

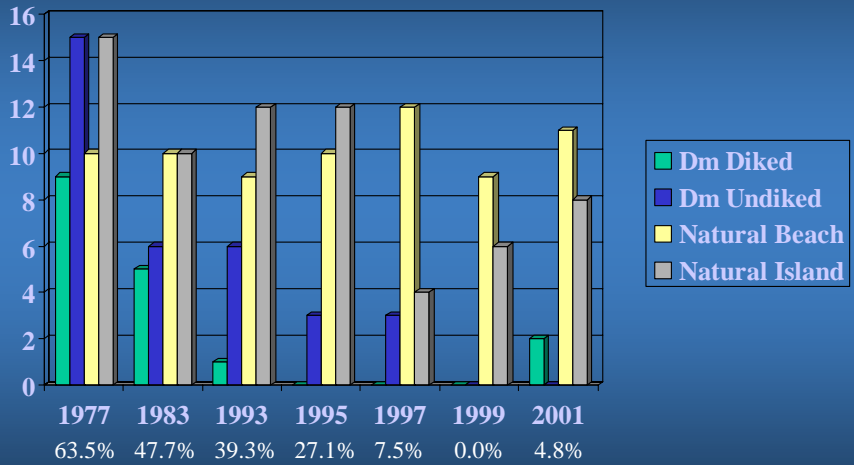
- Islands and barrier beaches; sometimes marshes.
- bare to sparsely vegetated sites with a substrate of sand, shell, or gravel.
- Isolation from mammalian predators
- Isolation from human disturbances
- Nearby foraging habitat



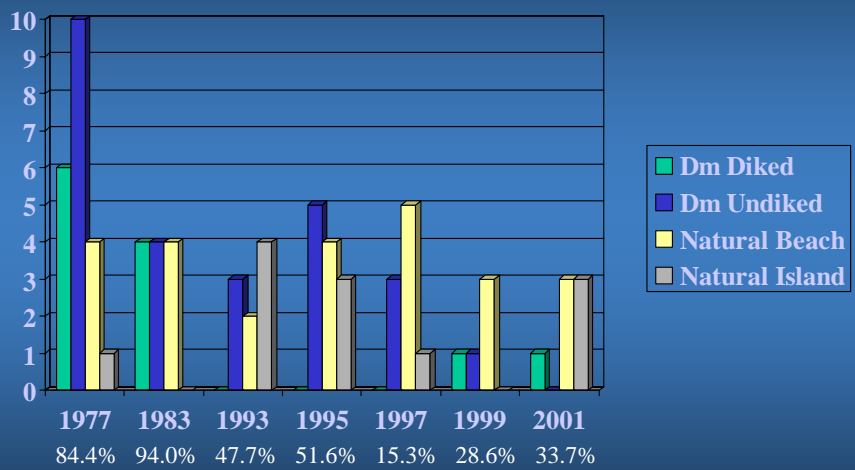
### Least Tern Nesting Sites



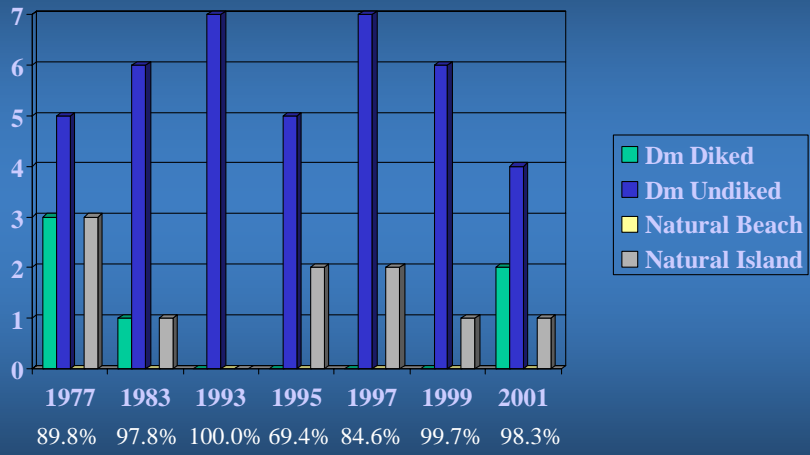
### Common Tern Nesting Sites



### Gull-billed Tern Nesting Sites



## Royal Tern Nesting Sites



## Primary Considerations

- Location
- Substrate
- Size and Elevation; secondary -- shape
- History of nesting waterbirds
- Long term management plan
- Long term maintenance plan
- Long term monitoring plan

## Location





## Substrate



“beach-quality” sand, sand-shell, gravel

### Dredged material Island, undiked

Mean size=3.4 ha

Mean elevation=3.4 m



### Natural Island

Mean size=1.5 ha

Mean elevation=1.3 m



# To dike or not to dike?





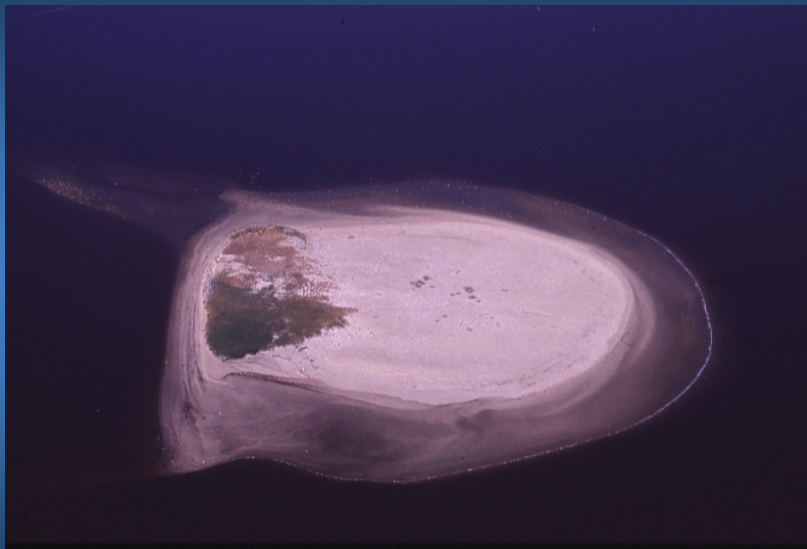
## Sand Bags



## Slope



# Shape



## Timing



4 weeks between project completion and arrival of birds  
...if possible.

Management  
Maintenance  
Monitoring

This can become...



This



Signs

Posts

Rope/string

Enforcement

Education



## Maintenance Plan



## Succession on dredged material Islands



Year 0-1



Year 3-4



Year 4-5

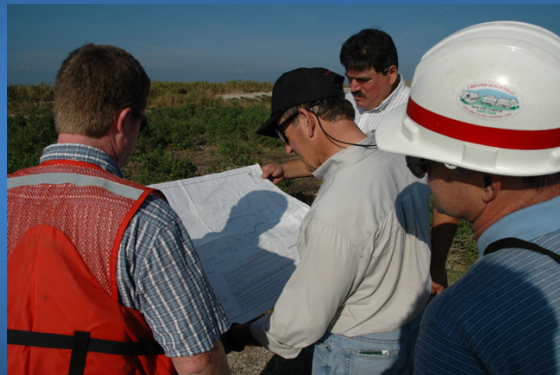


Year 7-10

## Erosion



## Partnerships and Cooperation





## Ferry Slip Island before





## Ferry Slip Island after



## South Pelican before



## South Pelican after



## Beaches



## Masons Inlet, NC



## Wrightsville Beach Waterbird Management Area



### Nesting Activity on the North End of Wrightsville Beach

<u>Species</u>	<u>2002</u>	<u>2003</u>
Least Tern	0	178
Common Tern	0	3
Black Skimmer	4	136
American Oystercatcher	2	3
Wilson's Plover	1	6
Willet	0	4
Total nests	7	330

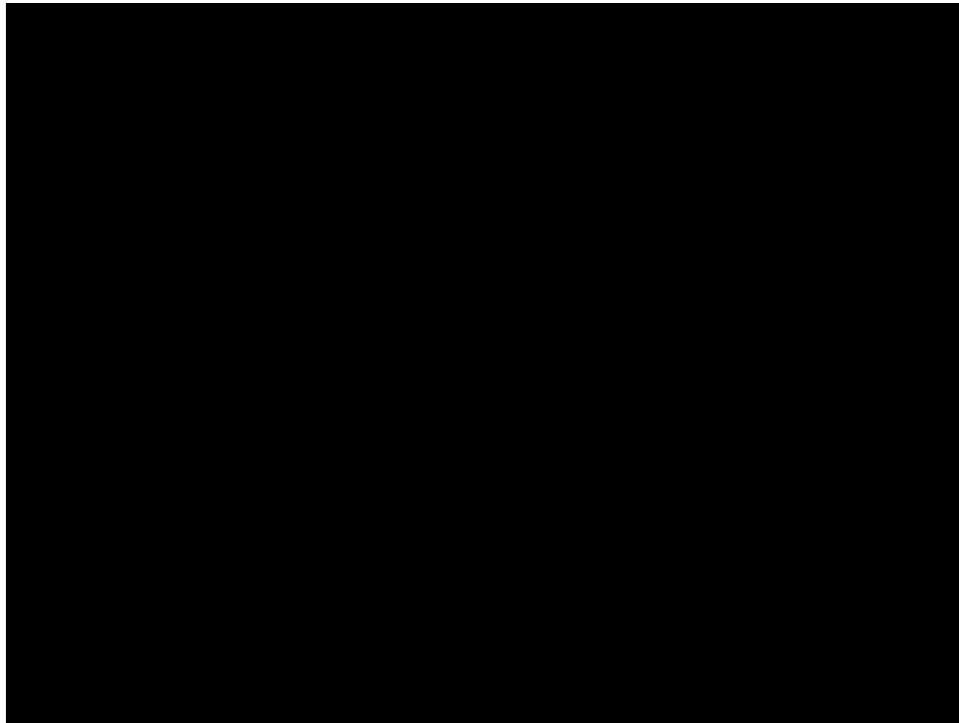
## Recommendations

- Location
  - Isolation from mammalian predators
  - Protection from chronic human disturbances
- Substrate
  - “beach-quality” sand, sand-shell, or gravel
- Size and Elevation
  - Maximum elevation of 5m
  - Maximum size of 15 ha
- Slope
  - Gentle slope on at least one side
- 4 weeks between project completion and arrival of birds
- Long term management, maintenance, monitoring plan
- Mechanism for partnerships, communication, and cooperation.

North Rock Island



Lea Island





## Education and Outreach Programs



## Lea Island, NC



## Useful Life for Terns



First use: year 2  
Estimated use: 4 years



First use: year 1-2  
Estimated use: 4 years



First use: year 1-2  
Estimated use: 4-7 years



First use: year 2  
Estimated use: 6 years