

Beach nourishment and dredged material islands in relation to Black Skimmers and Common Terns nesting in New Jersey.

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Human activities have produced functional and direct losses of natural barrier island habitats



loss of suitable nesting sites for beach nesting birds (terns, Black Skimmer, piping plover, American oystercatcher)



population declines and/or shifts to other “secondary” nesting habitats -- primarily estuarine island wrack and dredged material islands

Are we now seeing declines
in these “secondary”
nesting habitats?

Erwin, et al (2003):
examined distribution of terns and skimmers
among different nesting habitat types in NJ,
VA, and NC, comparing 1977 with 1993/95

- Declines in populations of
“combined” species.
- Declines in proportional use of
dredged material sites

Erwin et. al. (2003)

- **NJ**
 - 14% decline in “combined” species population
 - increase in proportion nesting on barrier islands
- **VA**
 - 37% decline in “combined” species
 - dramatic decrease on barrier islands
 - estuarine islands and dredged material sites relatively constant
 - shift to Chesapeake Bay islands
- **NC**
 - 24% decline in “combined” species
 - increase in proportion on estuarine islands

Erwin et. al. (2003)

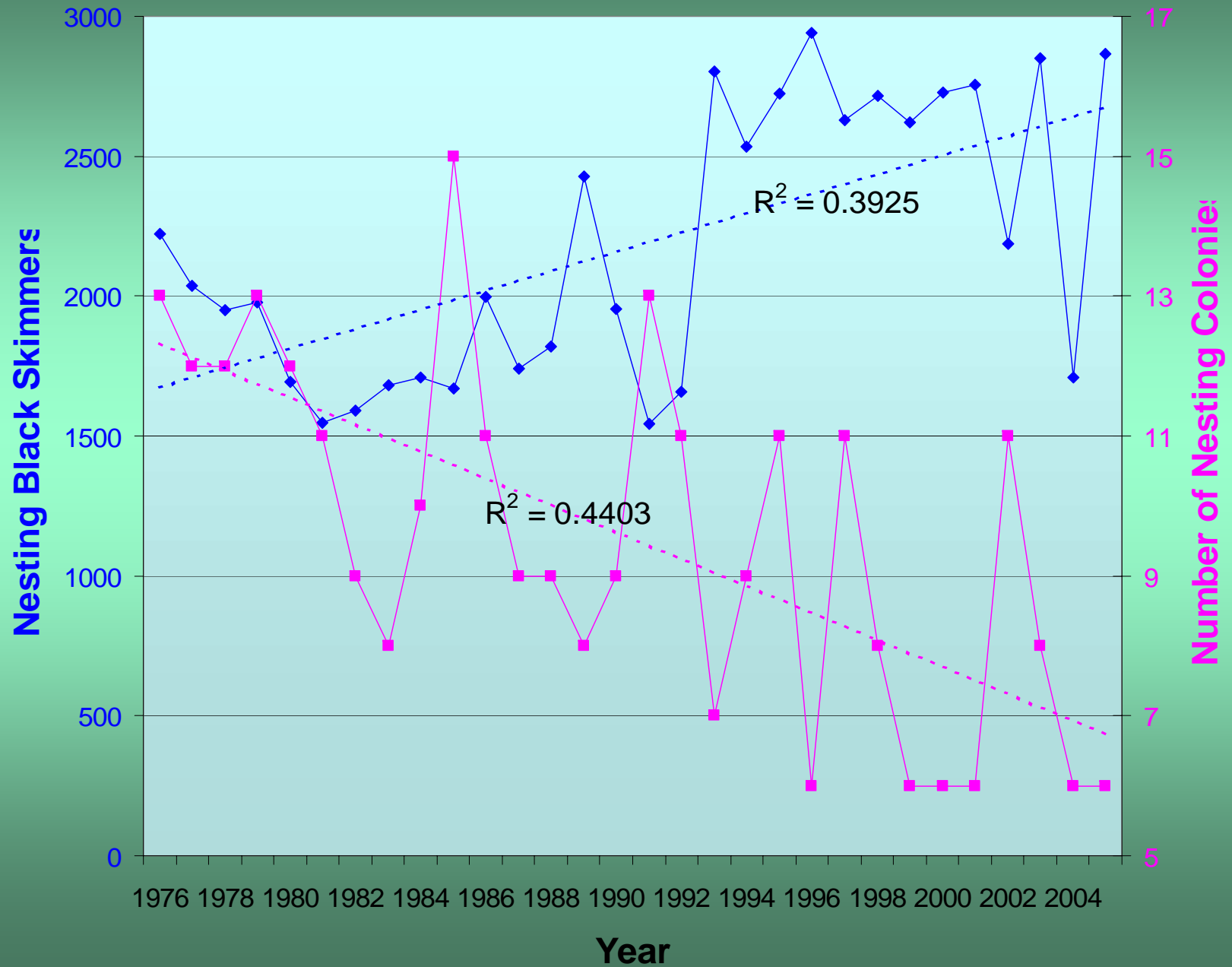
- Limitations

- looked at several species and conclusions related mostly to “combined” species.
 - differences in the way that different species are responding
- compared only two years (1977 and 1993/95)
 - need to more closely examine whether this comparison is reflective of changes over time

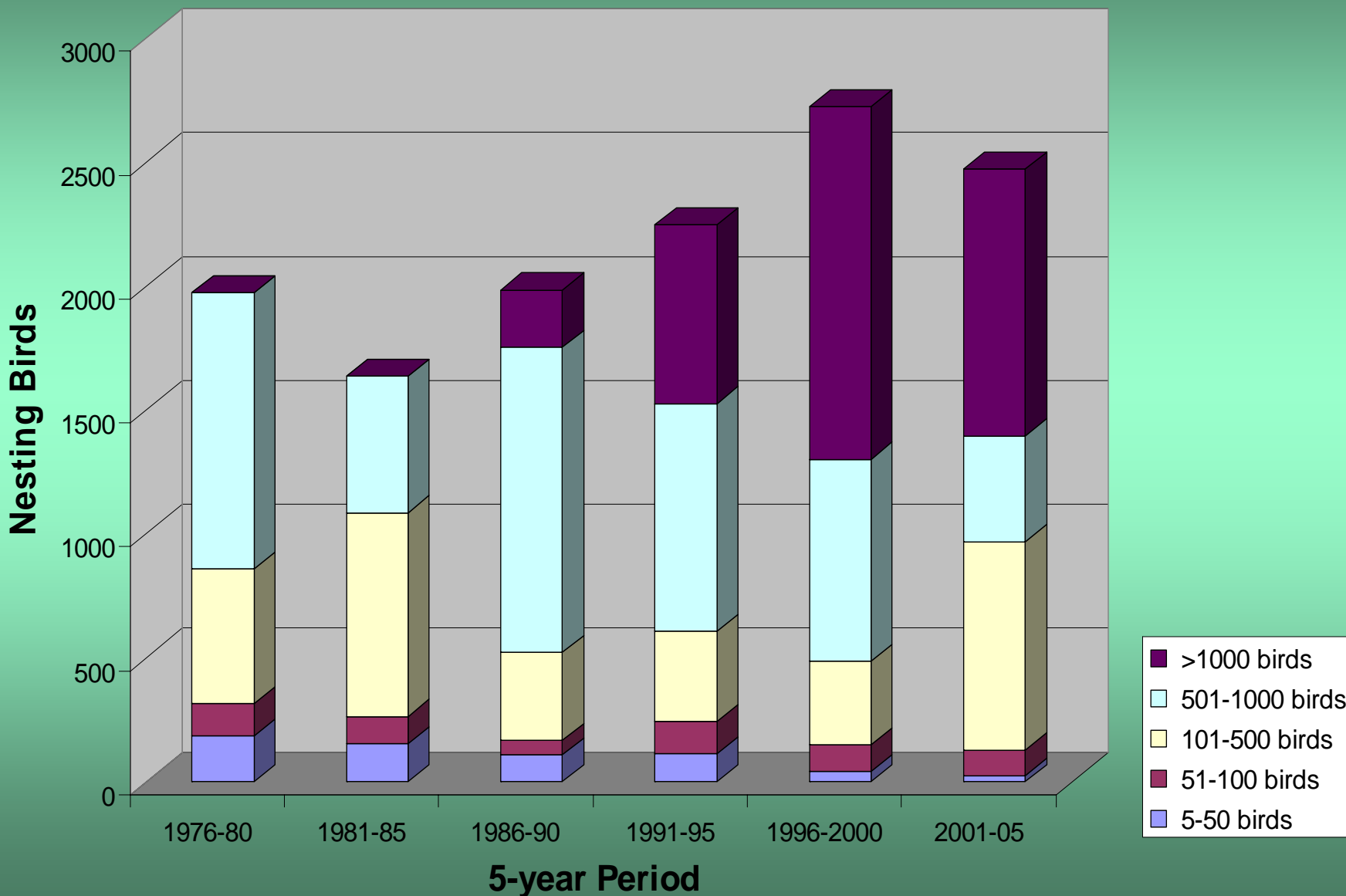
A closer look at Black Skimmers in New Jersey



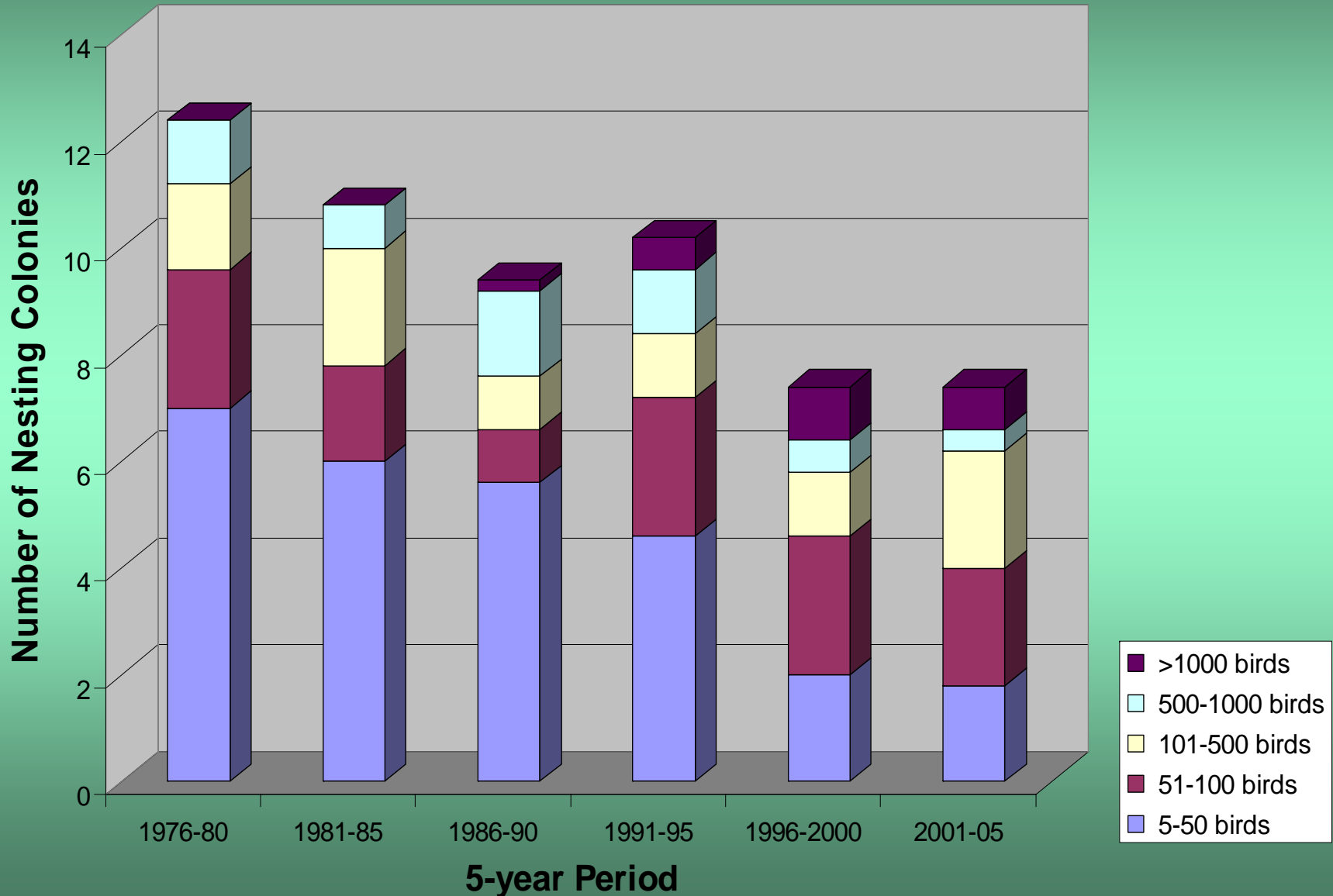
Nesting Black Skimmer trends in New Jersey: 1976-2005



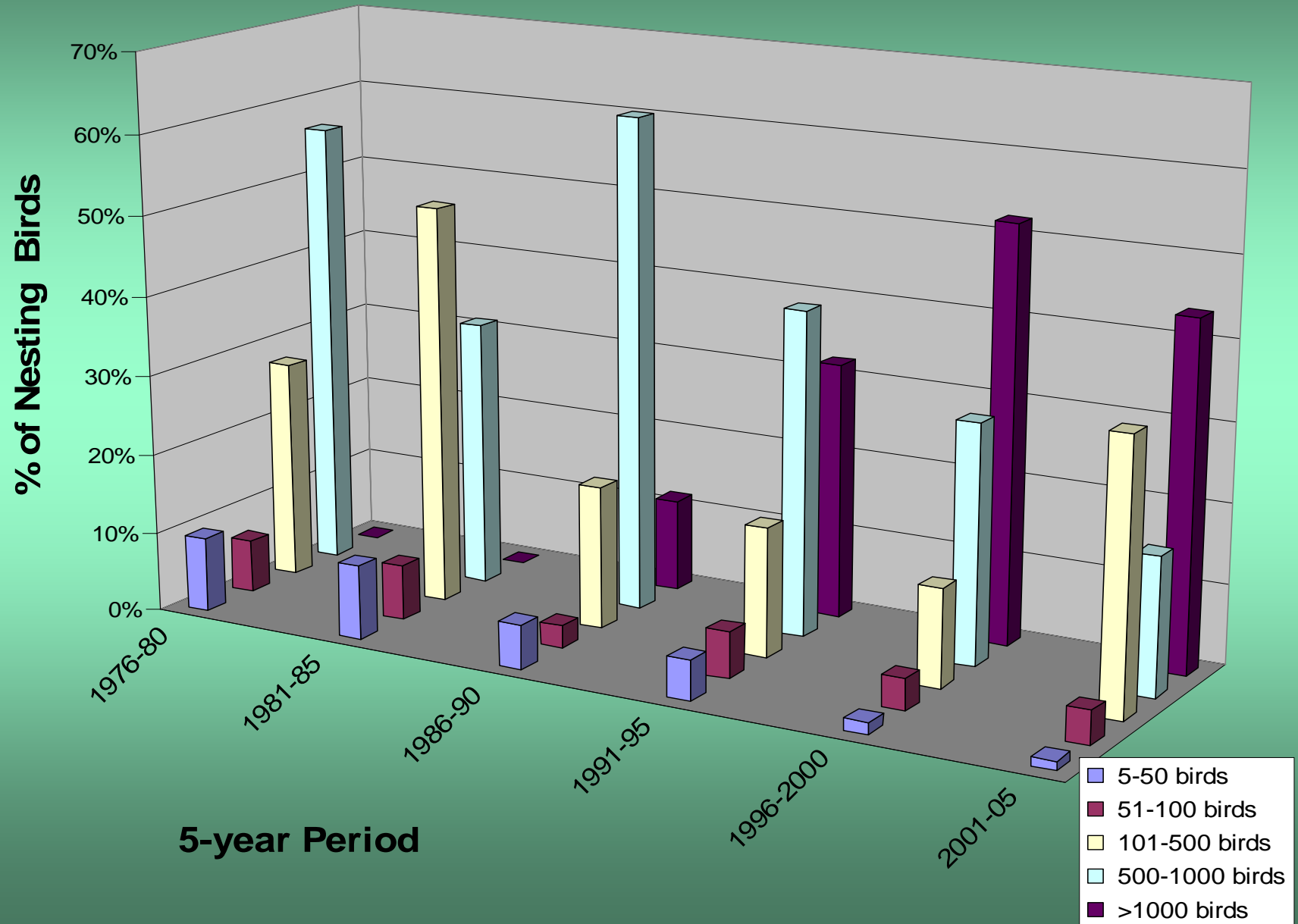
Nesting Black Skimmer numbers 1979-2005: 5-year period averages categorized by size of nesting colony



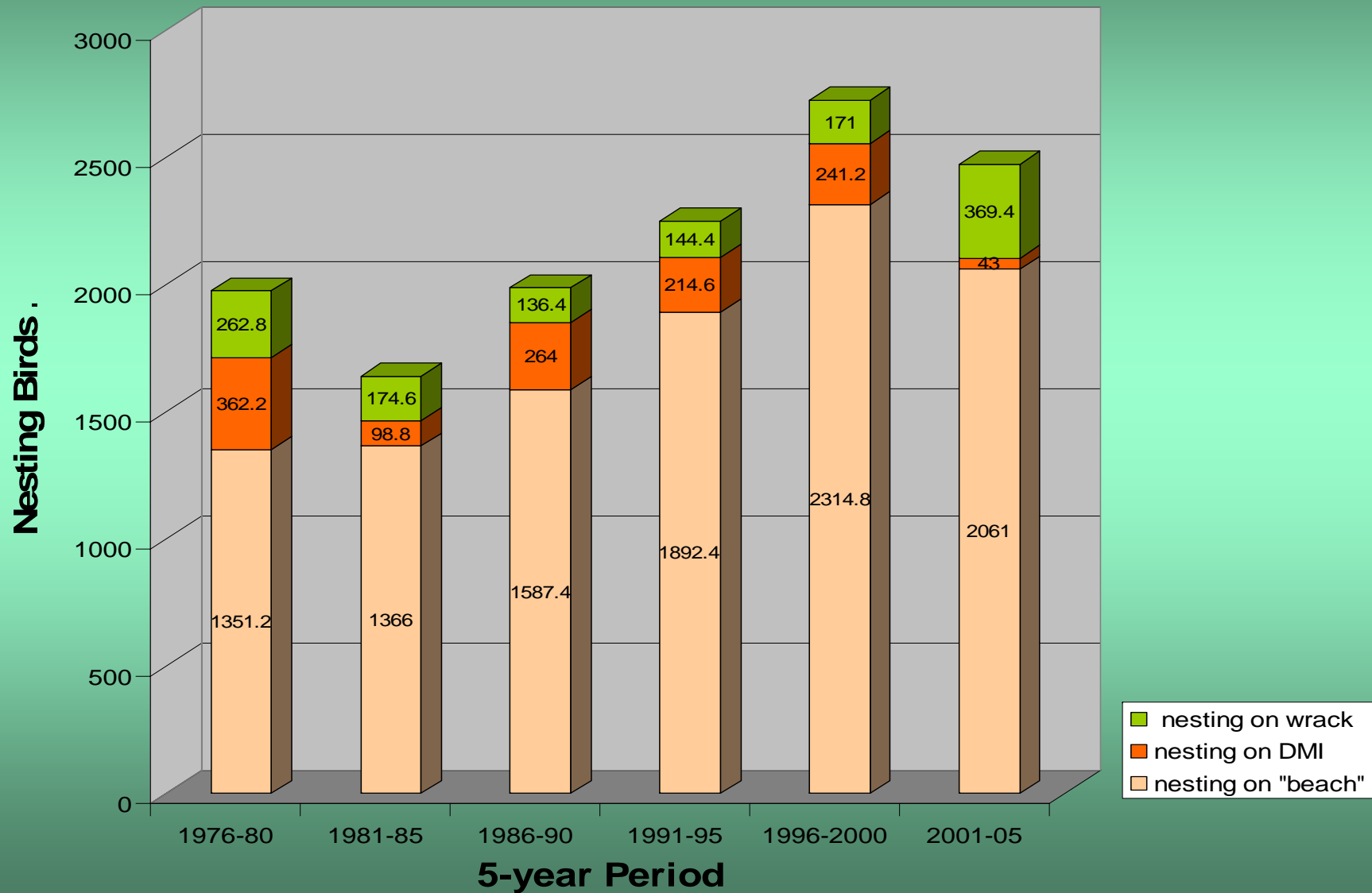
Number of Black Skimmer nesting colonies 1976-2005: 5-year period averages categorized by size of nesting colony



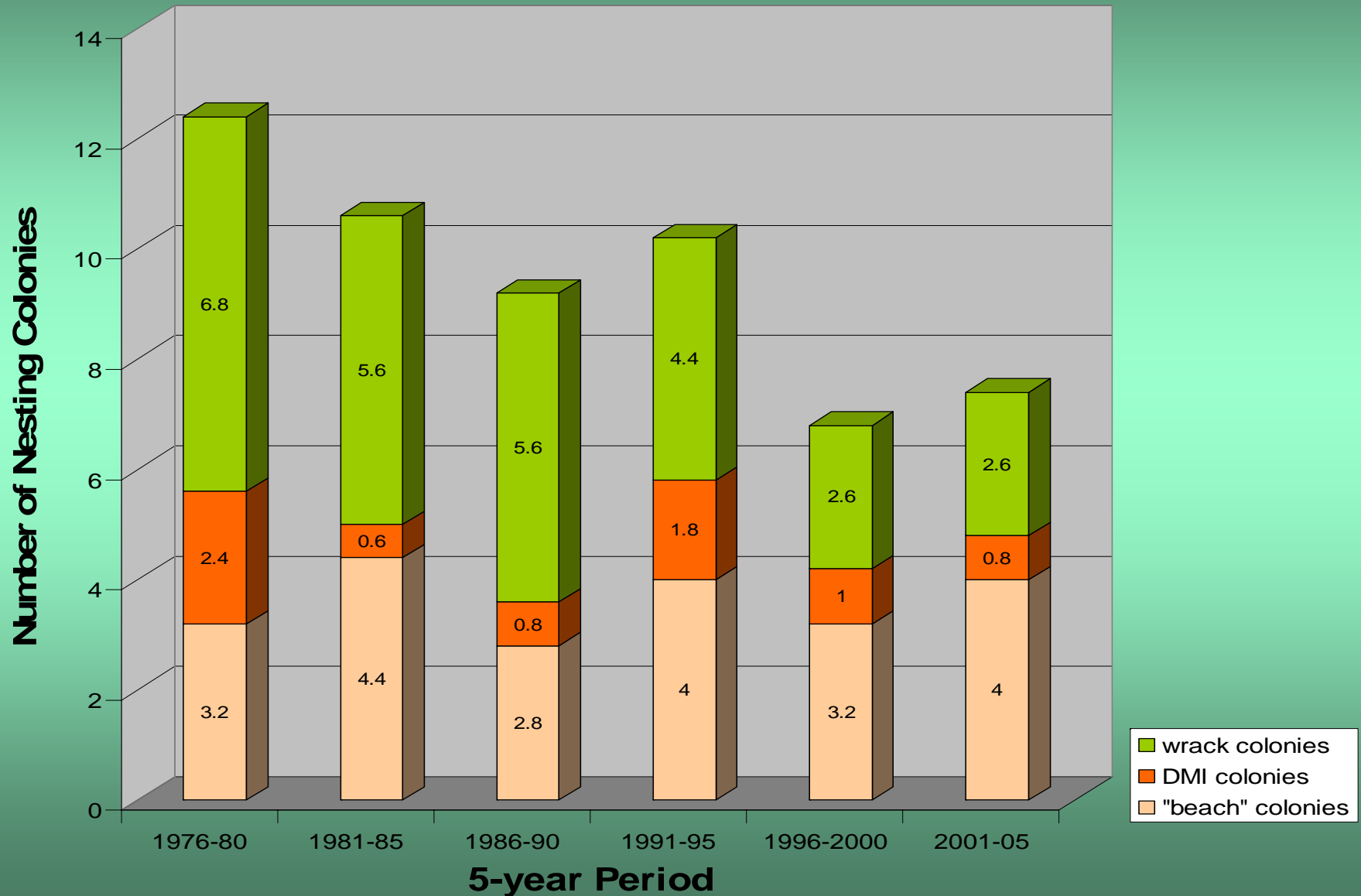
Distribution of nesting Black Skimmers among five colony size-classes: 5-year period averages 1979-2005



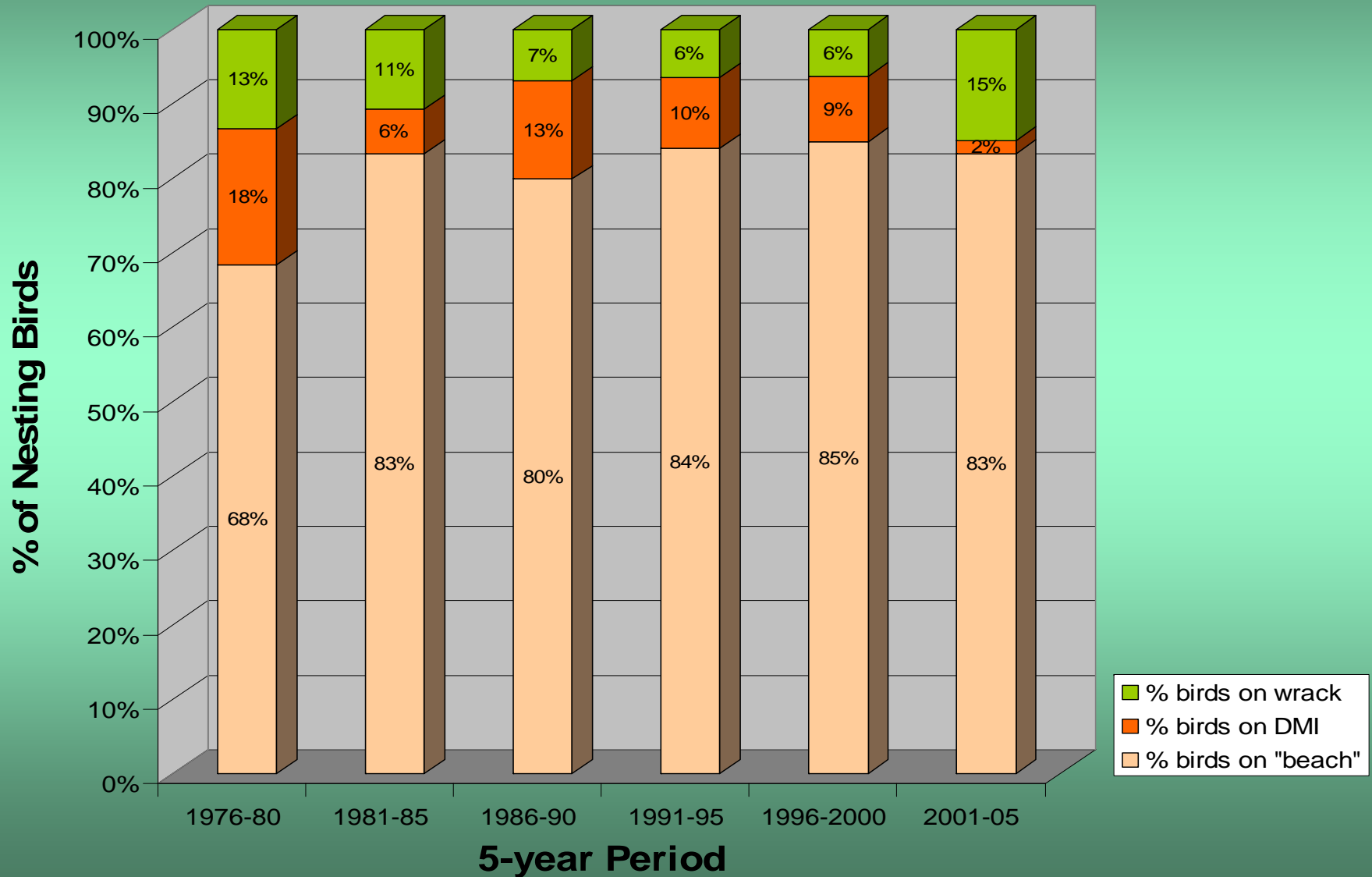
Nesting Black Skimmer numbers 1979-2005: 5-year period averages categorized by nesting habitat



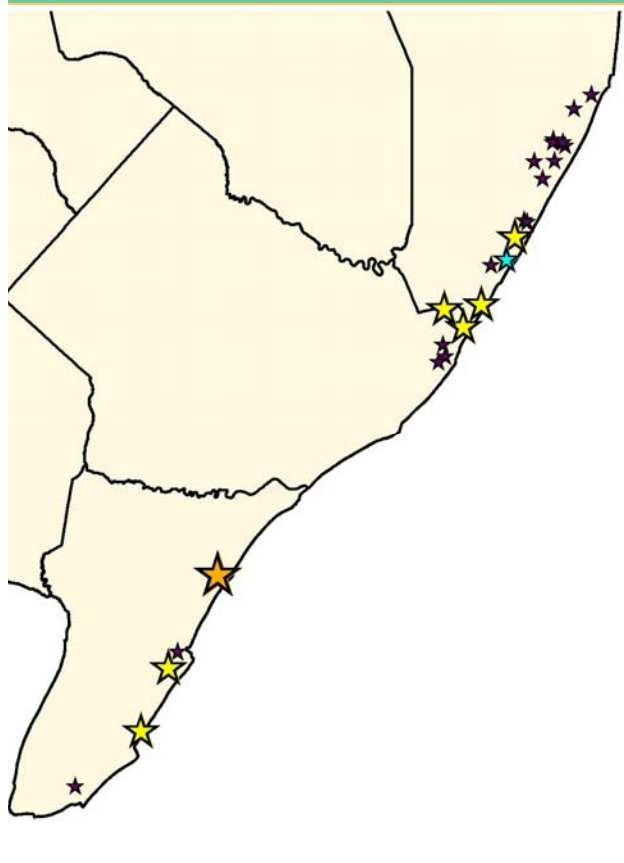
Number of Black Skimmer nesting colonies 1979-2005: 5-year period averages categorized by nesting habitat



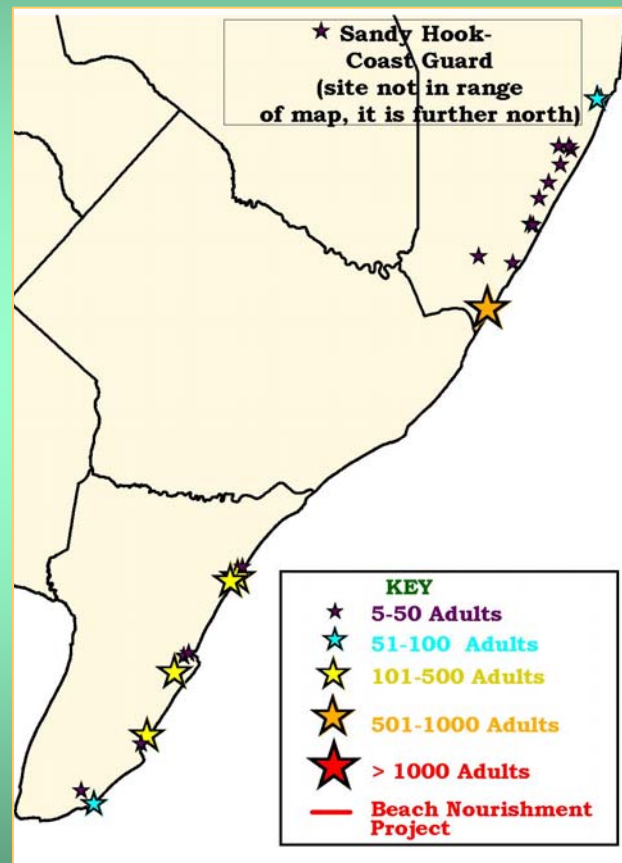
Distribution of nesting Black Skimmers among three nesting habitats: 5-year period averages 1979-2005



Location of Black Skimmers nesting colonies in southern New Jersey categorized by average size of nesting colony during three 5-year periods -- 1976-80, 1981-85 and 1986-90



1976-1980

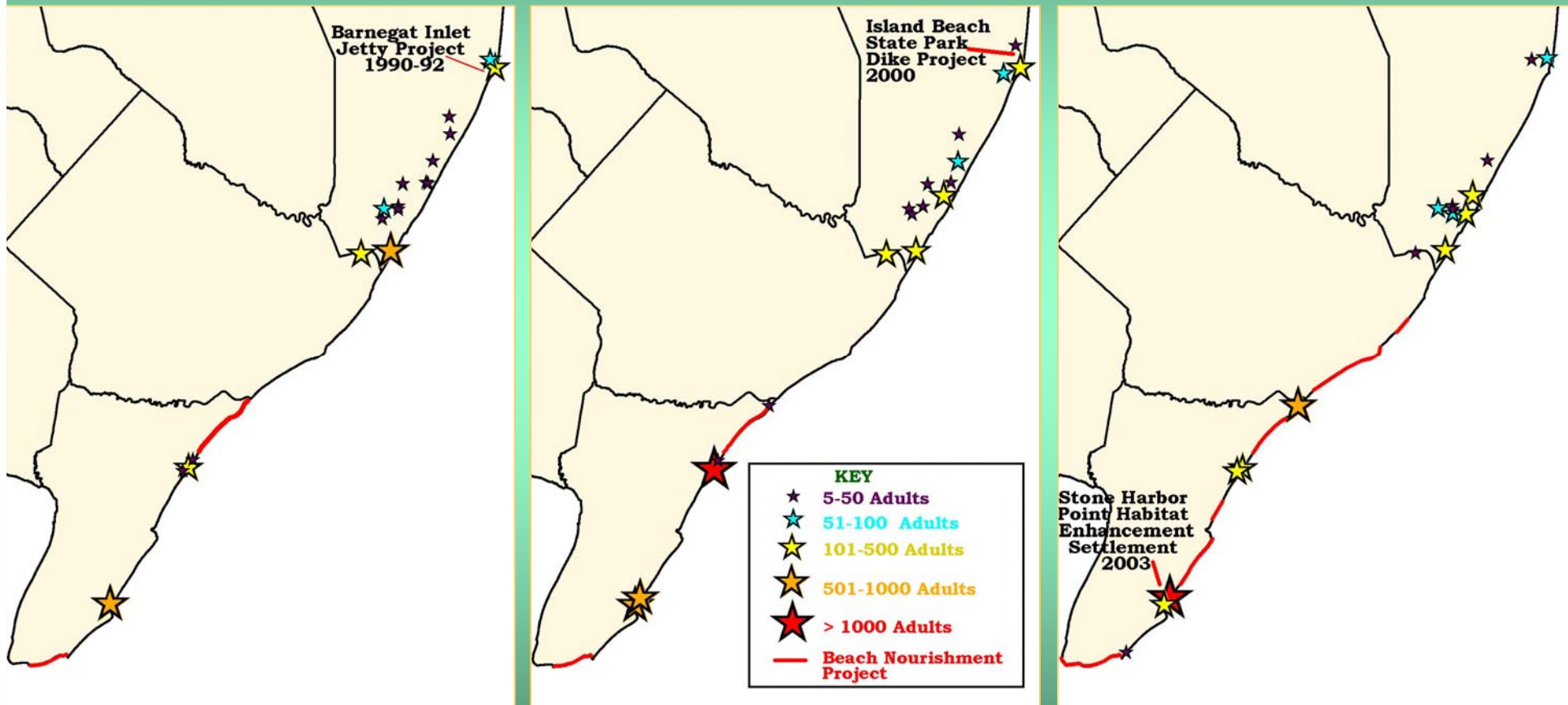


1981-1985



1986-1990

Location of Black Skimmers nesting colonies in southern New Jersey categorized by average size of nesting colony during three 5-year periods -- 1991-95, 1996-2000, 2001-05



1991-1995

1996-2000

2001-2005

What about Common Terns?

With some notable exceptions:

- Nesting on wrack has been predominant since late 1970s
- Occasionally nest on beaches in large colonies with skimmers (not on “nourished” beaches)
- DMIs have not been a significant nesting habitat in NJ





Barnegat Dredge Is.

Is. Bch. St. Pk. Dike

Barnegat Light Beach



Pointer 39°46'17.13" N 74°07'15.03" W

Image © 2005 State of New Jersey

Streaming 100%

© 2005 Google

Eye alt 19381 ft



Mike's Island



College Ter

Harding Ave



Pointer 39°57'08.75" N 74°05'06.29" W

© 2005 TeleAtlas

Image © 2005 State of New Jersey

© 2005 Google

Streaming ||||| 100%

Eye alt 1732 ft



Hereford Inlet

Stone Harbor Pt.



Pointer 39°01'56.12" N 74°46'33.30" W

Image © 2005 State of New Jersey

Streaming ||| 100%

Eye alt 3833 ft

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Great Egg Inlet

Ocean City -
North site



Image © 2005 State of New Jersey

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Pointer 39°17'32.47" N 74°33'31.24" W

Streaming ||||| 100%

Eye alt 18091 ft



Strathmere
Bay Island

Corson's Inlet

Strathmere
Natural Area



Image © 2005 State of New Jersey

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Pointer 39°12'28.51" N 74°38'47.28" W

Streaming ||||| 100%

Eye alt 11861 ft

Issues/questions to contemplate, deliberate and investigate

- **Predation**
 - are beach sites (barrier island) predator sinks?
 - DMI sites -- does size matter?
- **Vegetation**
 - can vegetation/succession really be controlled on DMI sites?
 - on beach sites?
 - what are acceptable/effective methods?
- **Competition from gulls** -- any ideas?

“Integrated” management

(diversity of sites and habitats ↓ options)

- **barrier island sites**

- manage to reduce human disturbance

- policies and practices

- use beach nourishment to create/enhance habitats in areas where human disturbance is low

“Integrated” management

- **barrier island sites (cont.)**
 - manage predators/predation on barrier island sites
 - policies and practices
 - try to anticipate indirect affects of beach nourishment and seek to establish protective policies for “new” areas before they form

“Integrated” management

- **estuarine island sites**
 - renew beneficial use of dredged material to create/enhance habitats
 - work to resolve regulatory obstacles
 - work to resolve conflicting resource issues
 - manage DMI sites
 - vegetation
 - predation

“Integrated” management

- **estuarine island sites**
 - Manage wrack sites
 - create wrack mats
 - predation management

