

**Design and Permitting of Dredging and
Beach Nourishment in Massachusetts
to Benefit Piping Plovers and Least Terns**

Scott Melvin

**Massachusetts Division of
Fisheries and Wildlife**

Outline

- **State regulatory tools**
- **Objectives**
- **Case histories**
- **Design criteria**

Plover nesting beaches and pairs affected by beach nourishment and dune building in Massachusetts

1993

2005

Beaches

Pairs

Beaches

Pairs

5 (7)%

13 (4%)

11 (10%)

65 (14%)

Regulatory Tools for Protecting Piping Plovers, Terns, and Their Habitats in Massachusetts

- **U.S. Endangered Species Act**
- **Mass. Endangered Species Act**
- **Mass. Wetlands Protection Act**

Massachusetts Endangered Species Act

- **Illegal to kill, harm, harass, or disrupt nesting, breeding, feeding, or migratory activity**

Massachusetts Wetlands Protection Act

- **Projects that will alter a wetland resource area shall not have short or long-term adverse effects on the habitat of state-listed wildlife**

Regulatory Objectives

- **Maintain or enhance quality and quantity of nesting habitat for plovers and terns (short- and long-term)**
- **Maintain chick access to foraging habitat**
- **Protect birds from “take”**





Duxbury Beach









**85% of Piping Plover nests on slopes
 $\leq 10:1$ (horizontal:vertical)**

(n = 197 nests, Cape Cod N. S., 1994-95)

**K. Jones, 1997, M.S. thesis,
Univ. Massachusetts, Amherst**



Duxbury Beach

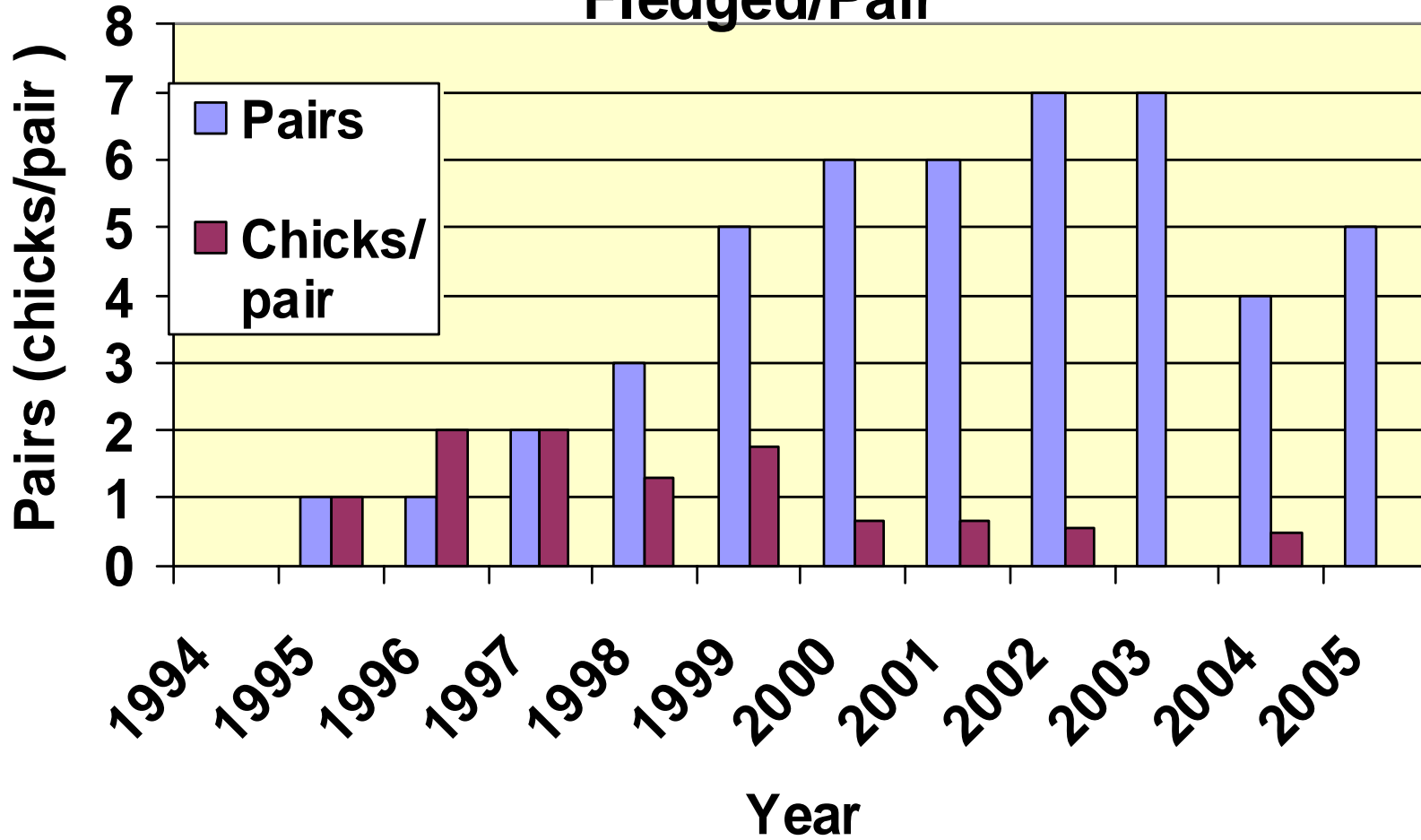


Kalmus Park

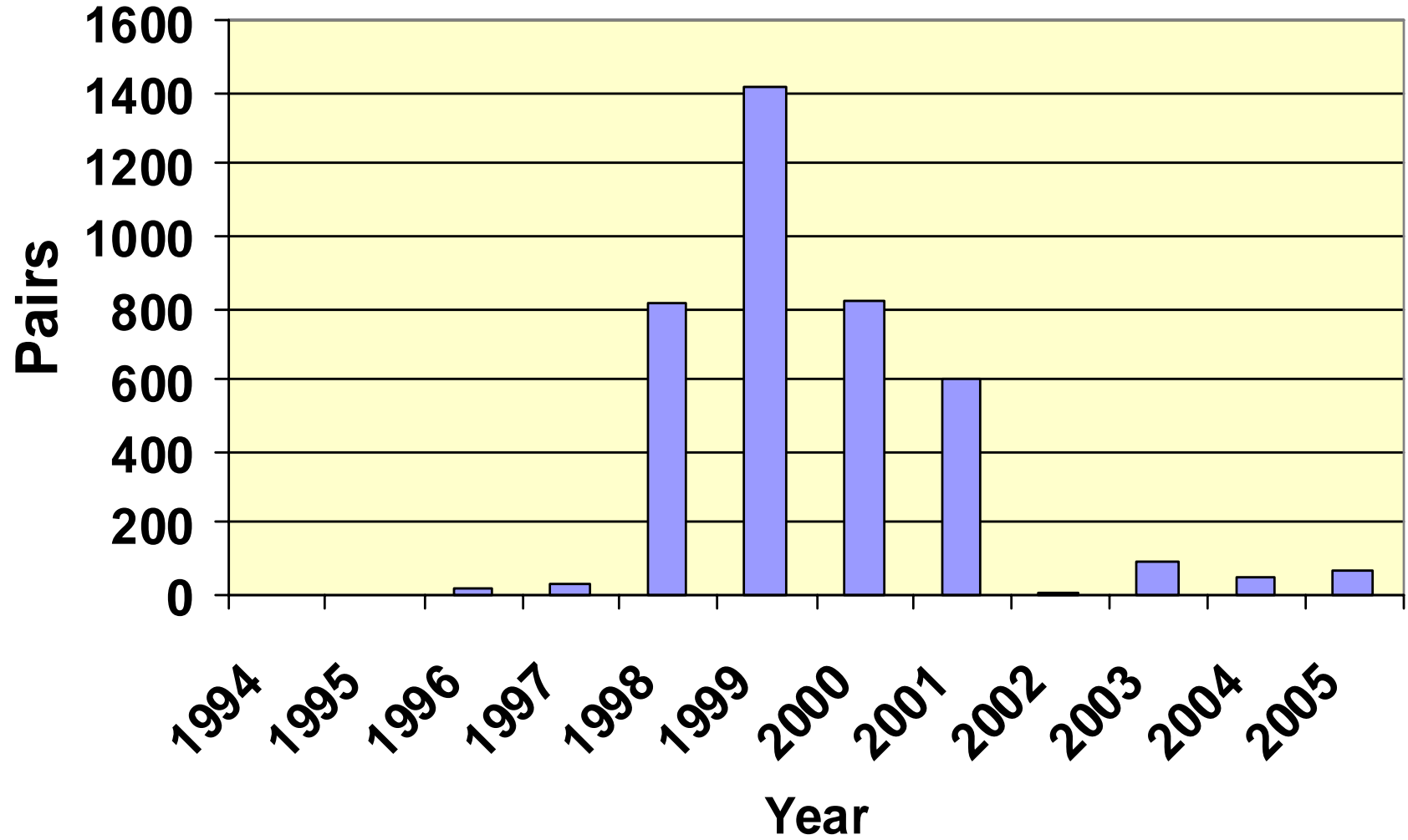




Kalmus - Plover Pairs and Chicks Fledged/Pair



Kalmus - Least Terns



Dead Neck



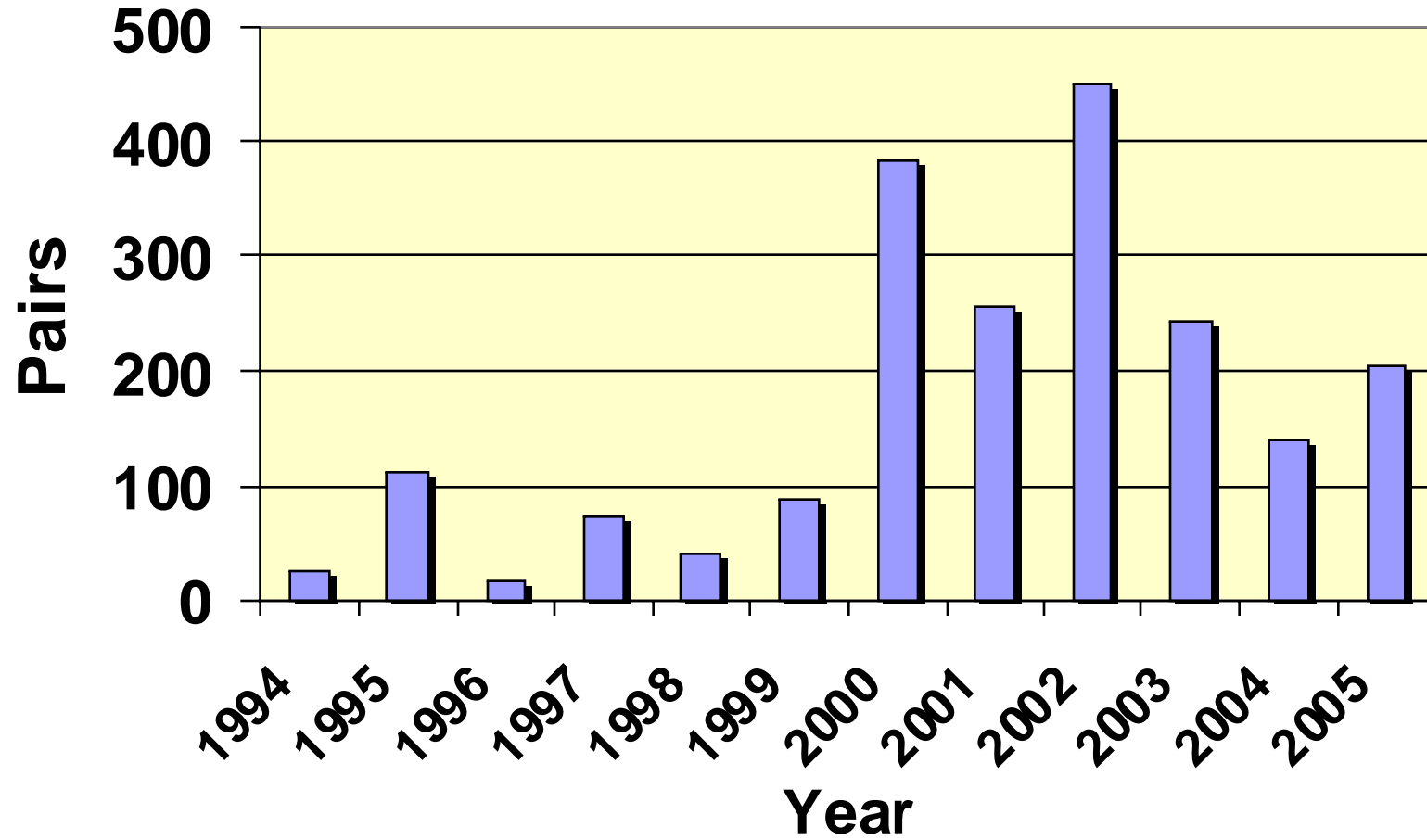




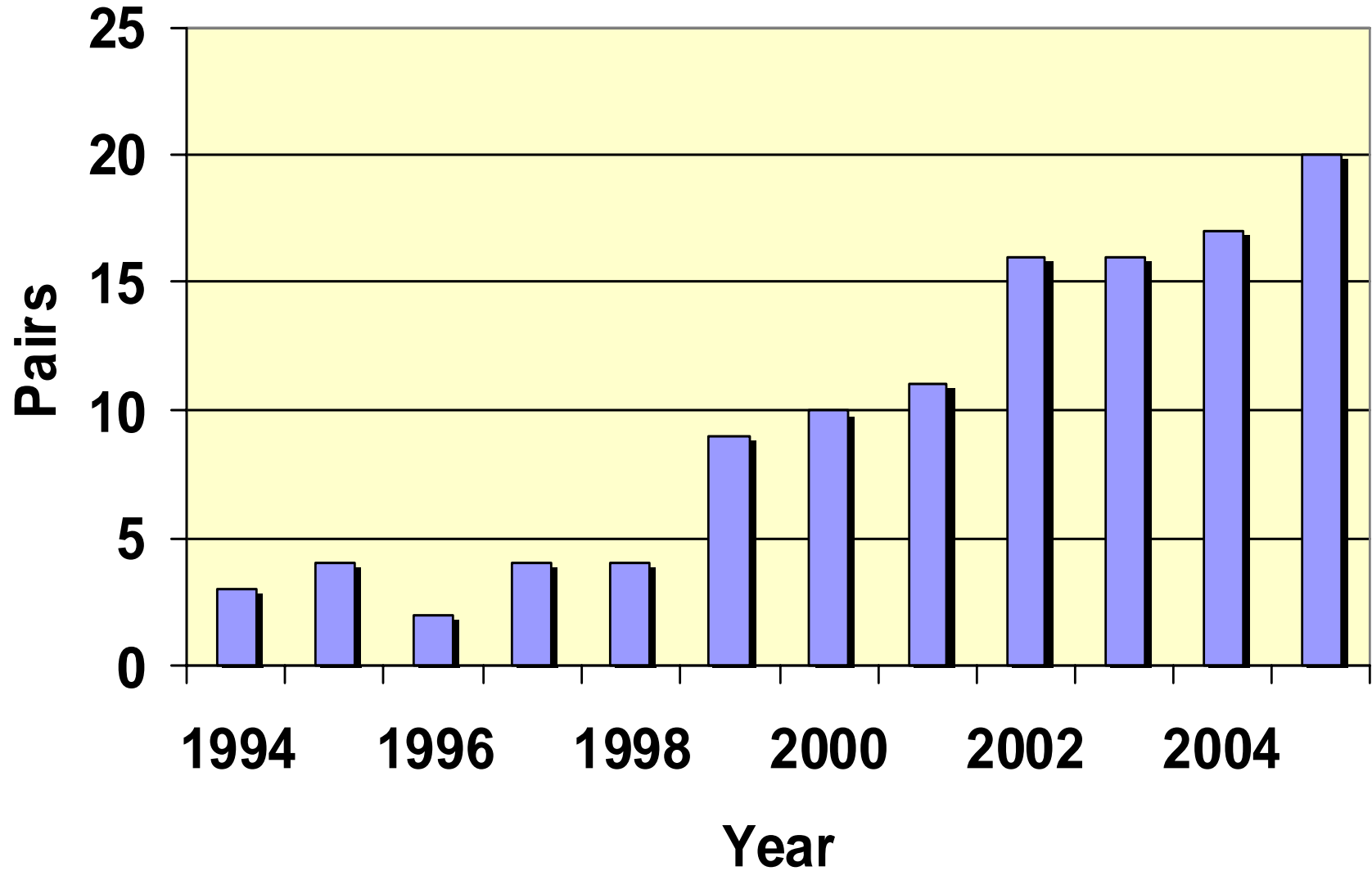




Dead Neck - Least Terns



Dead Neck - Piping Plovers



**Corn Hill
Beach**







NO
VEHICLES
BEYOND THIS
POINT

AREA CLOSED

NO
DOGS

Cuttyhunk Island



Barge Beach, Cuttyhunk Island



Design Criteria for Beach Nourishment

- **No work on beach April 1 – Aug. 31
(ok to April 15 if no birds present and work will enhance habitat)**
- **No above-ground storage of pipes, or excavation and removal, April 1- Aug. 31**
- **No dredging or other work \leq 300 ft. from nests or chicks**

Dredge pipe with slurry and gulls



Design Criteria for Beach Nourishment

- **Compatible material (grain size, color)**
- **10:1 slope**
- **6:1 slope ok for chick access to feeding habitat**
- **Minimum elevation (allow long-term overwash)**

Design Criteria for Beach Nourishment

- **Avoid or minimize plantings (long, narrow probably best)**
- **Avoid or minimize sand fencing**
- **Monitor and protect birds (symbolic fencing, dog and vehicle restrictions)**



