

# Beach Restoration at Southern Seven-Mile Island, New Jersey

Project Lead: NJ Audubon  
Partners: LJ Niles & Associates  
The Wetlands Institute  
Stockton University  
Conserve Wildlife Foundation  
NJ Division of Fish & Wildlife  
US Fish & Wildlife Service  
Borough of Stone Harbor



# Goals and Objectives

- Improve habitat suitability for beach-nesting birds and migratory shorebirds
  - Habitat restoration
  - Predation, human disturbance reduction
- Increase coastal resiliency for the Borough of Stone Harbor
  - Dune fortification
  - Community engagement
- Long-term management/resiliency for Borough of Stone Harbor
  - Beach biological monitoring and stewardship
  - Developing adaptive management framework





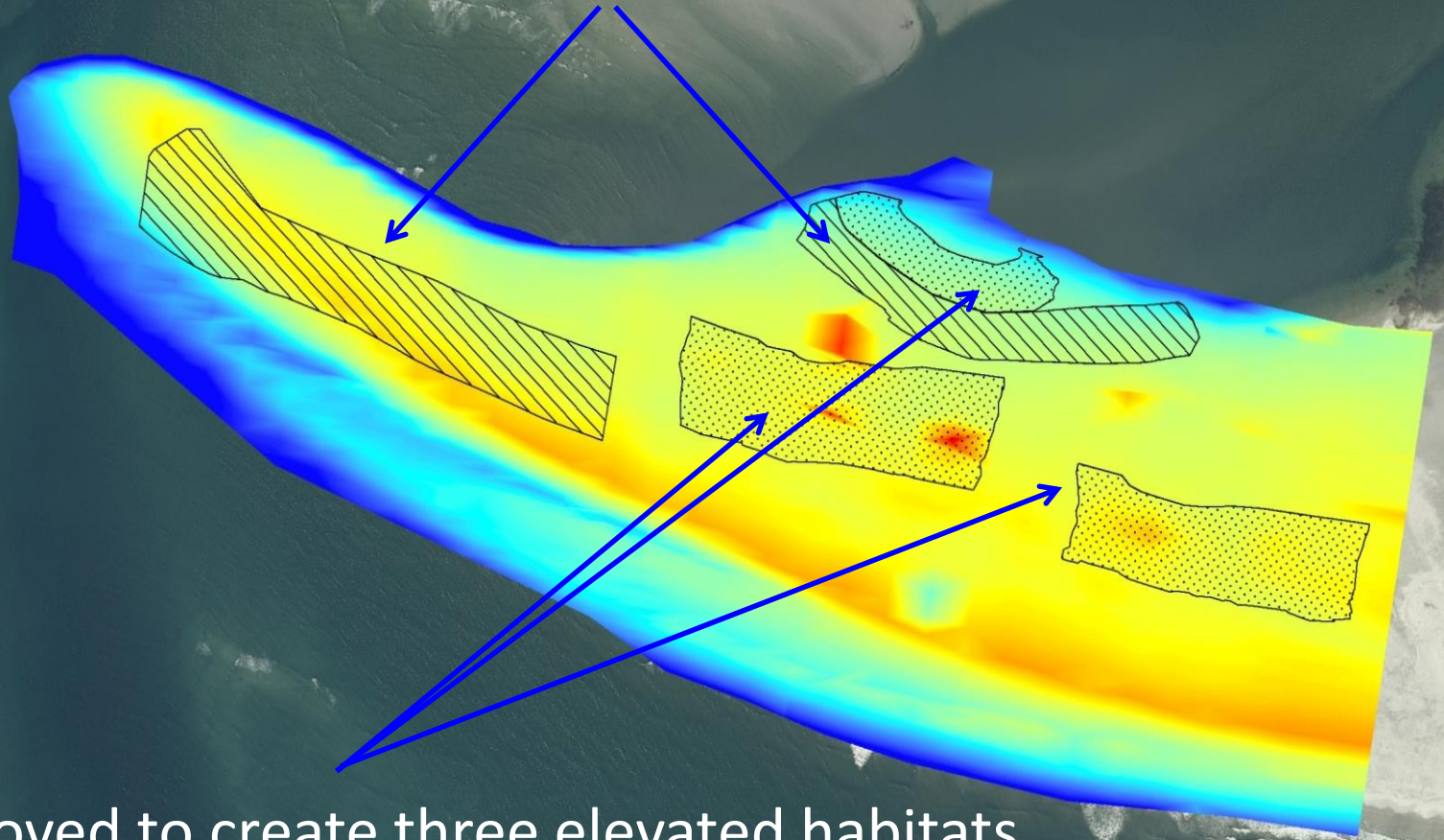
# Stone Harbor Point – 20 Years of Change



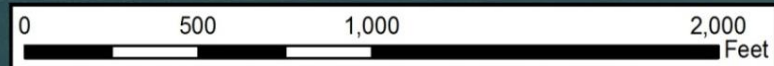
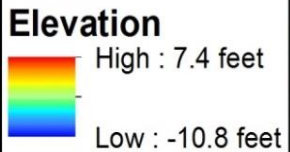


2015

Sand harvested from two areas



Sand moved to create three elevated habitats





# Restoration activities

- February 11 - March 15, 2015







**Stone Harbor Point, NJ:  
Habitat Restoration Areas  
Elevation Change Map  
February 2016 to March 2016**

**2016**



The Stone Harbor Point Elevation Change Map was created by comparing February 2016 pre-construction survey data and March 2016 post-construction survey data collected by the Stockton University Coastal Research Center.

The total volume placed in all habitat restoration areas were estimated to be 9,500 cubic yards.

The total volume harvested from all transfer zones were estimated to be -12,200 cubic yards.

Base Aerial Photography: 2015

**Elevation Change**

**in feet**



Restoration Sites	Volume yd <sup>3</sup>
Southern Habitat	7,100
Landward Habitat	2,400
<b>Total Estimated Volume</b>	<b>9,500</b>

Transfer Zones	Volume yd <sup>3</sup>
Runnel	-3,600
Transfer Zone	-8,600
<b>Total Estimated Volume</b>	<b>-12,200</b>



# Restoration activities

February 22- March 3, 2016





**Stone Harbor Point Habitats  
August 26, 2016**



**The aerial image above shows conditions at the point on August 26, 2016, approximately 18 months following initial construction. Red colored areas are the project feature created in 2015, blue those features constructed in 2016.**

# Assessment

- Geomorphology
- Beach nesting bird productivity
- Effects of intertidal zone sand harvesting on benthic invertebrate communities
- Site use by migratory shorebird





## Beach Nesting Bird Assessment



- PIPL, AMOY
- Mixed-species colony established on Island Habitat
  - Black Skimmer, Common Tern, Royal Tern, Least Terns

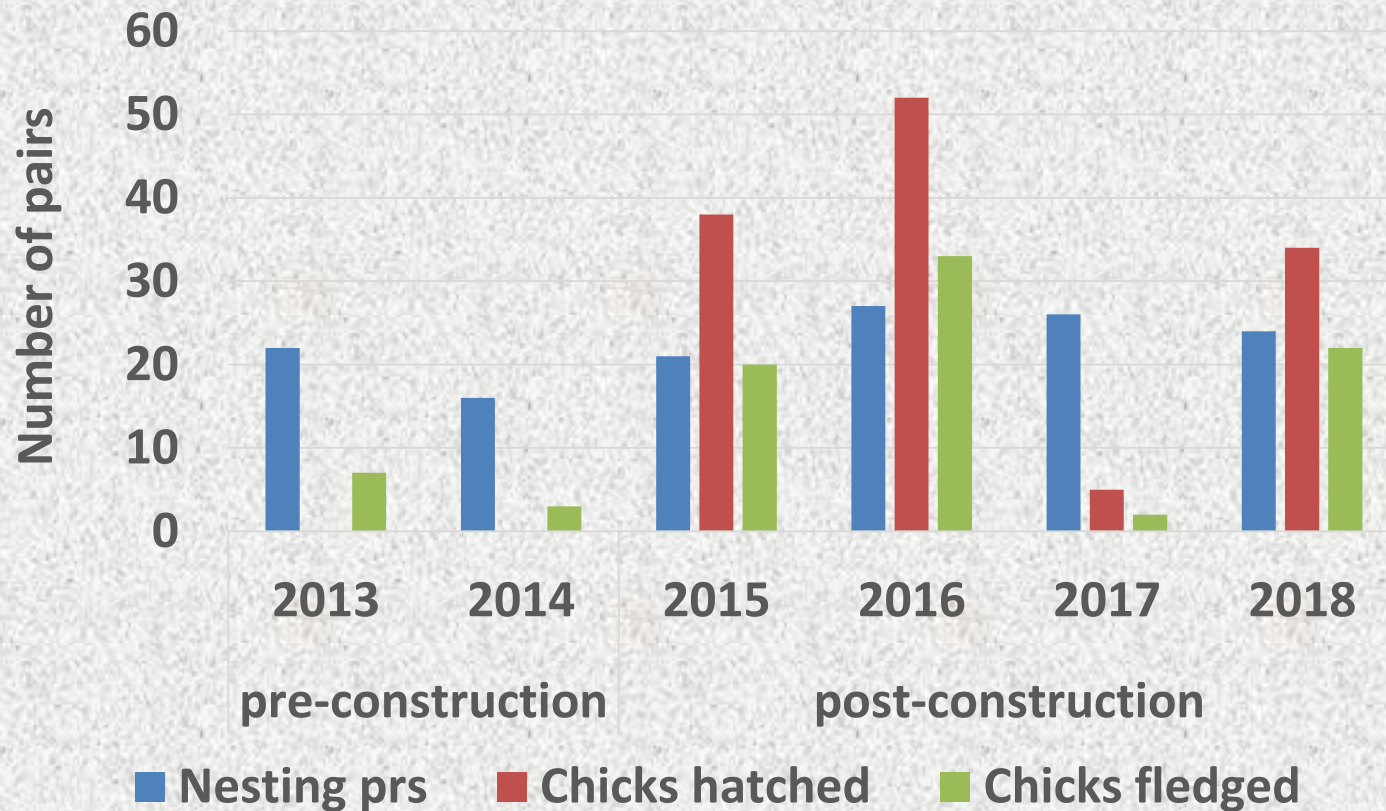
# Impacts on Beach Nesting Birds



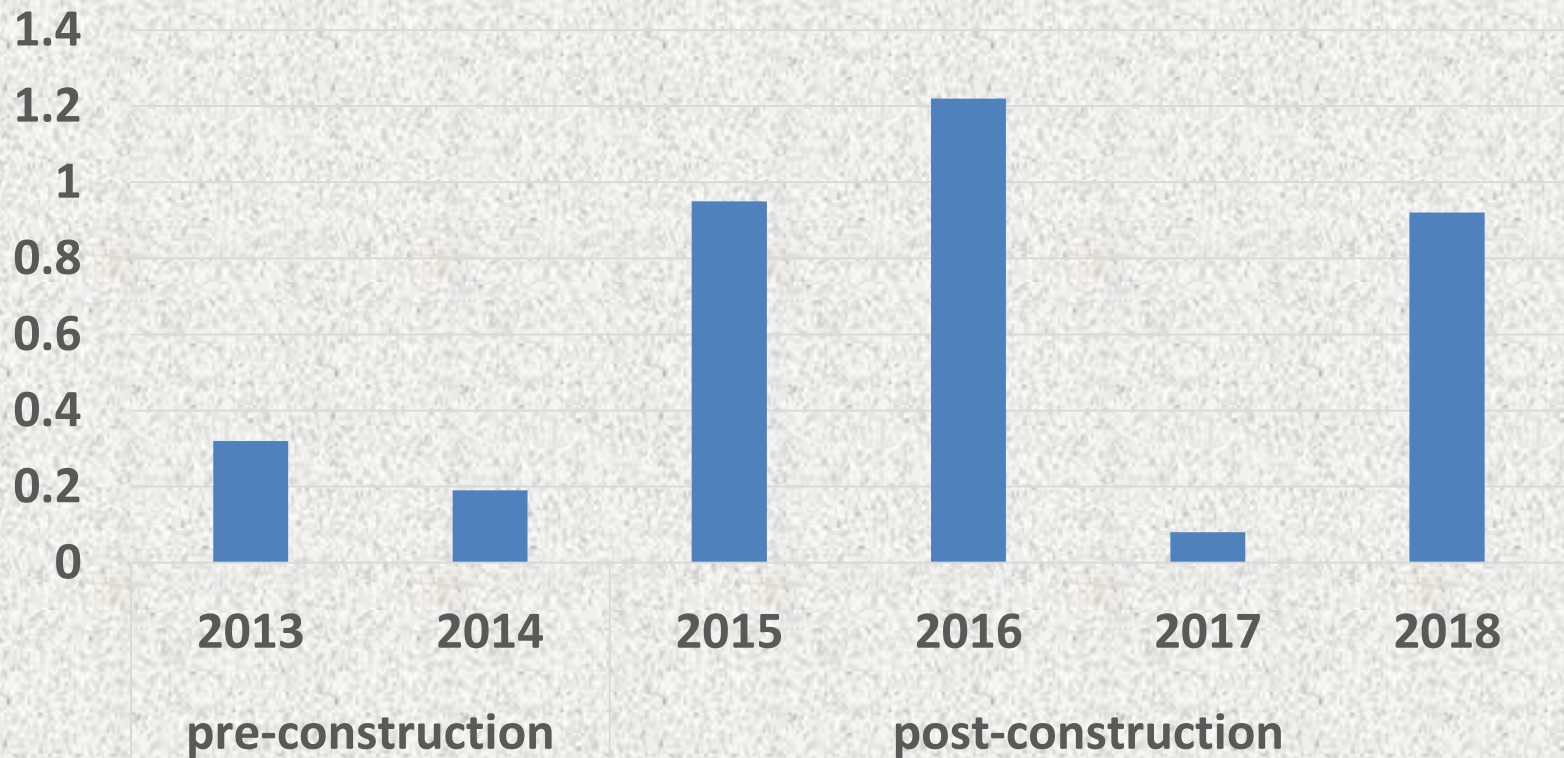
- Predation
  - Mammalian predators: skunk, fox, cat
  - Avian predators: large gulls, laughing gull, crow
- Human Disturbance
  - Stewardship program
  - SHP police patrols
  - Boat landings?
- Flooding



## AMOY at Stone Harbor

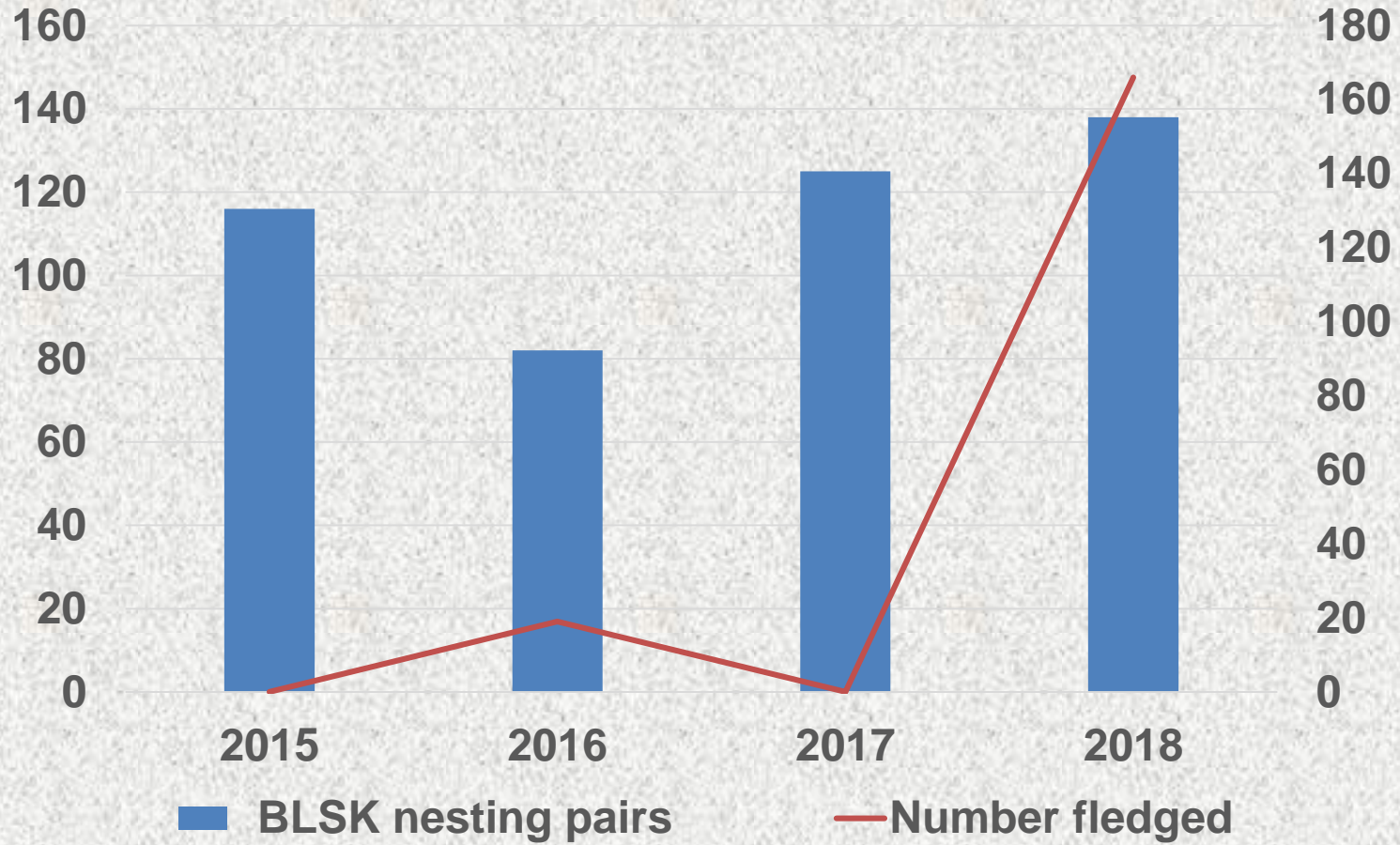


# AMOY # fledglings/pair





## Black Skimmer at SHP



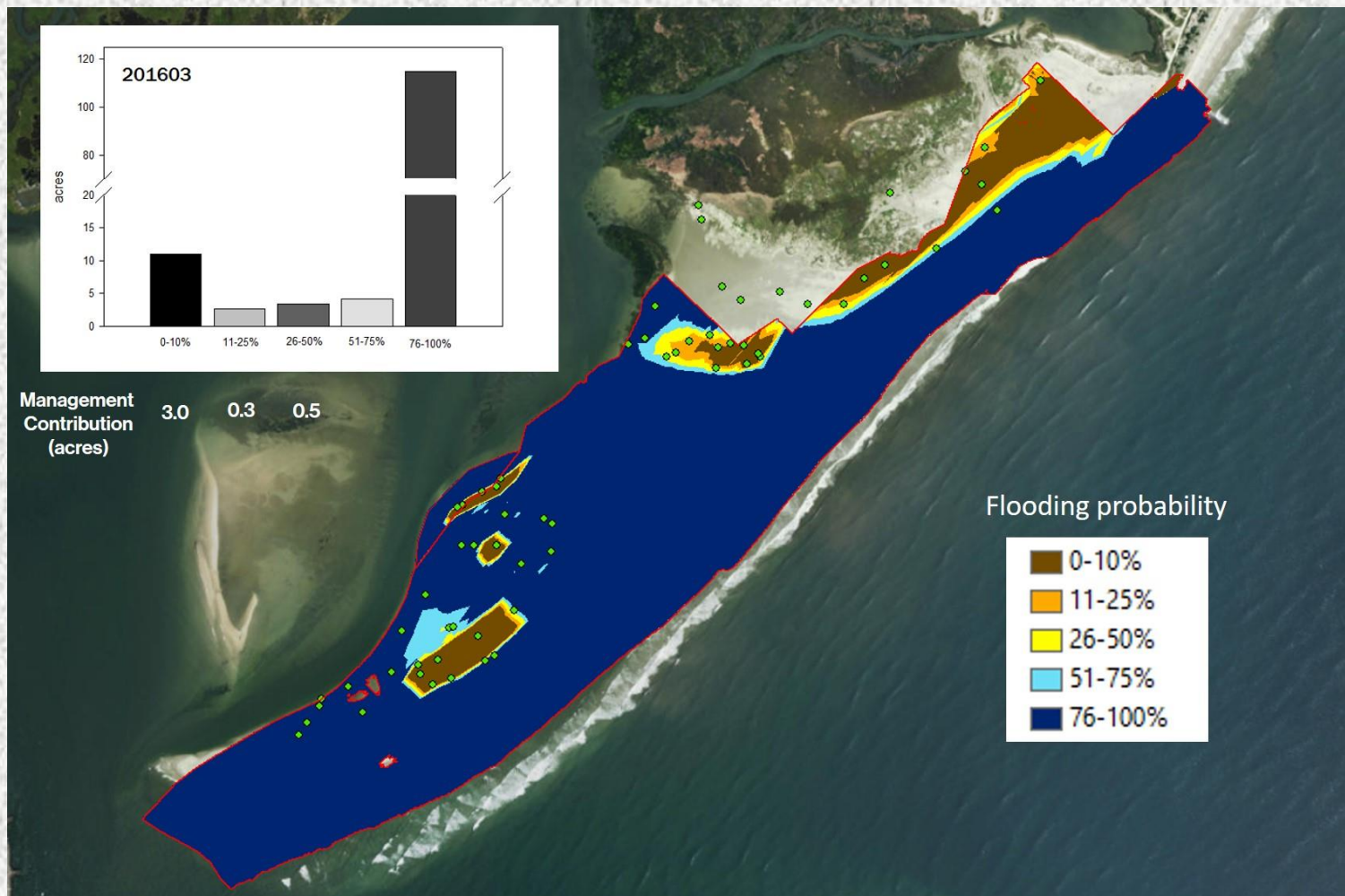
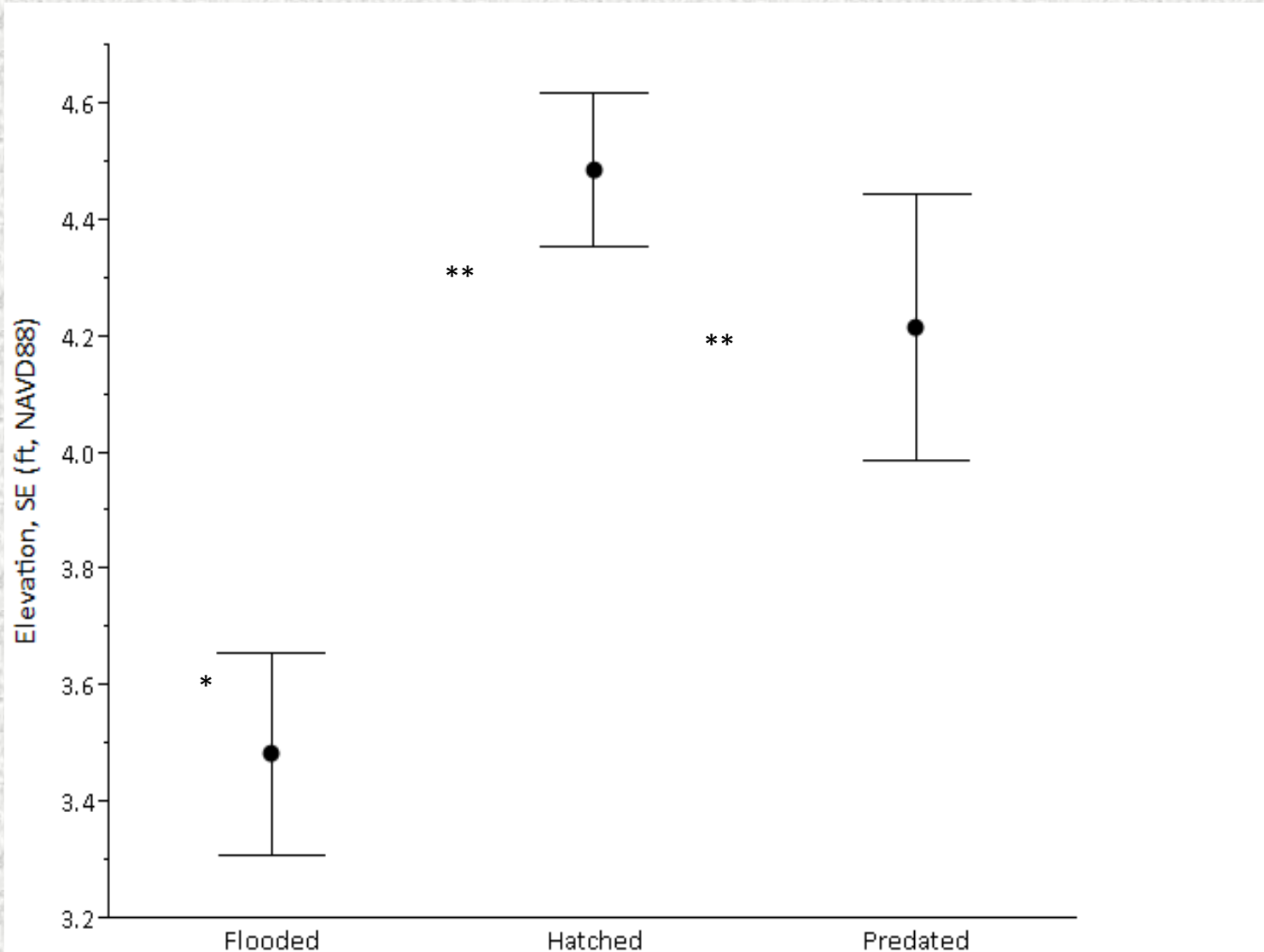


Figure 4. March 2016 Flood probability map for the project area after the second round of management. The histogram illustrates acreage for each of the five flooding categories, with the proportion of this acreage contributed by management listed for each category. Points represent nest locations for American oystercatcher in 2016.



# AMOY nest fate by nest elevation



# Next? Management recommendations

- Improved understanding of restoration and flood management
- Predator and human disturbance management
- Continued monitoring
- Long-term management of elevation at SHP and species management

