

# If You Build It, Will They Come? Response of Waterbirds to Salt Pond Enhancements and Island Creation in the San Francisco Bay

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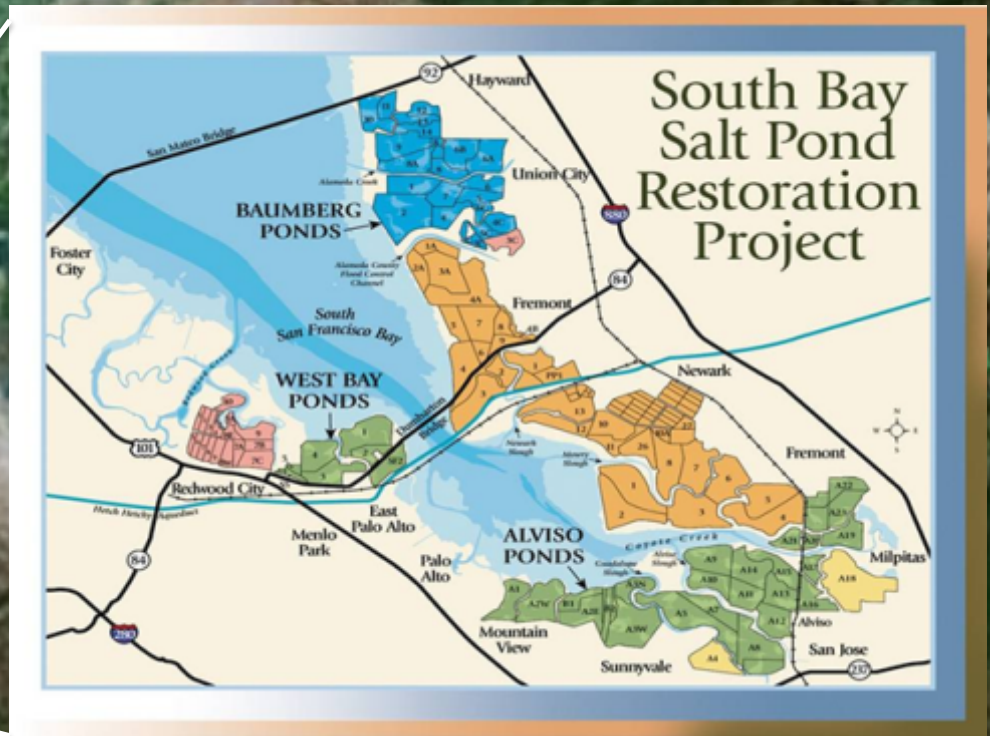


# Importance of Tidal Marshes



- **Ecosystem Services**
  - Flood Protection
  - Water Purification
- **Wildlife Diversity/Endangered Species**
- **Open Space**
- **Recreation**



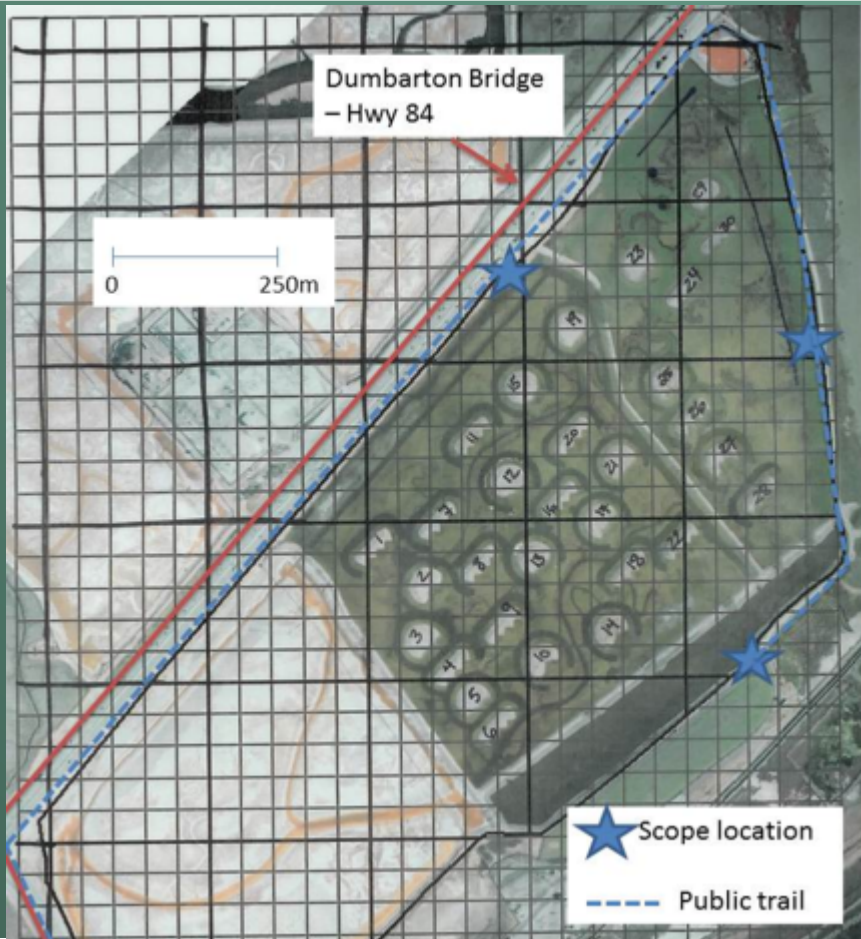


# Research Questions

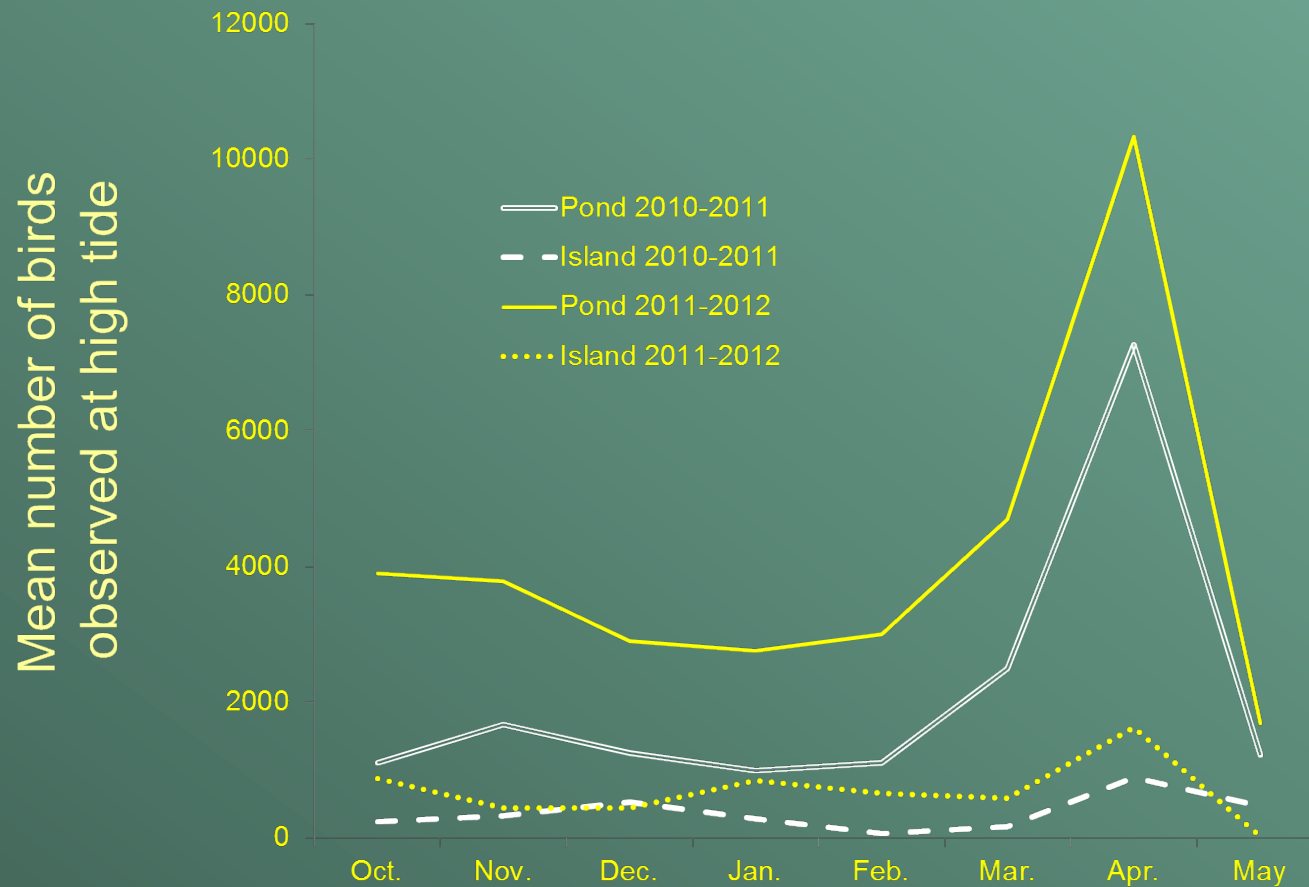
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- Are wintering and migrating waterbirds using the islands?
  - Total bird abundances on islands
  - Relative guild abundances on islands
  - Island shape, size, perimeter, slope and distance to mudflat as predictors of guild usage of islands

# Methods



# Waterbirds Observed Over Time

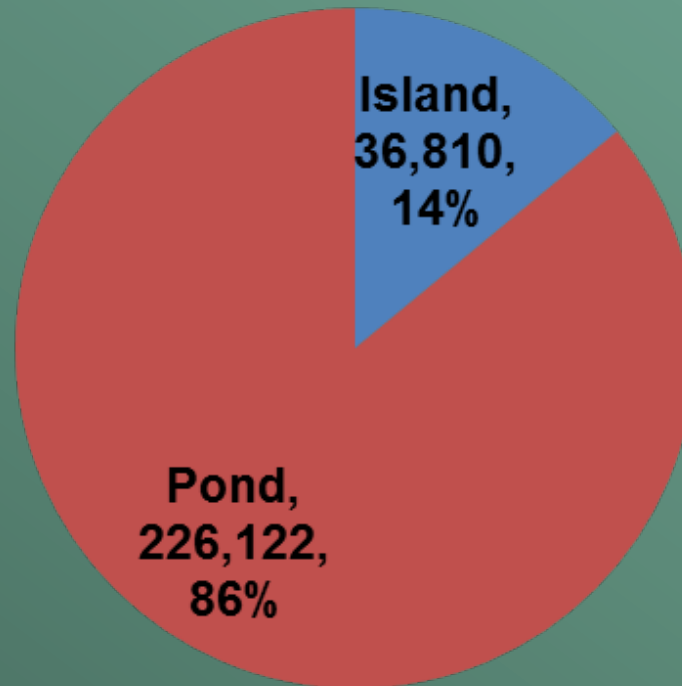


# Are the islands being used?



# Total Waterbird Abundance Island Use

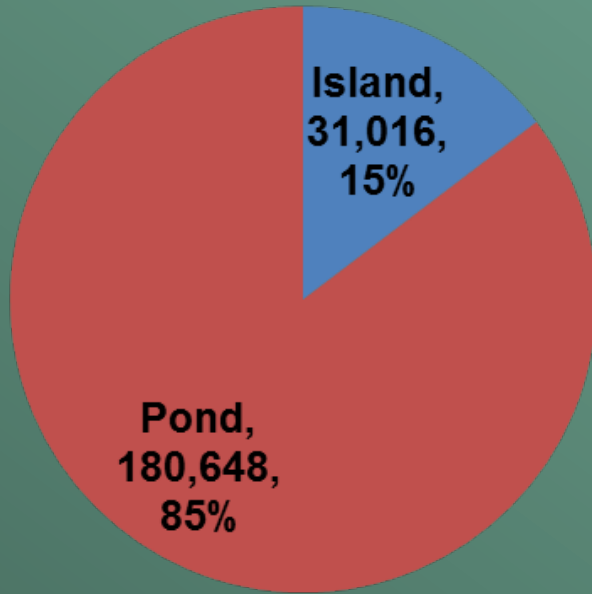
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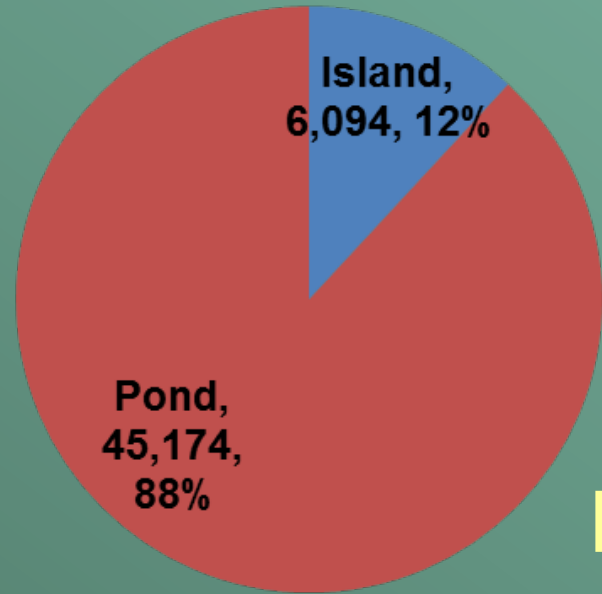


# Total Waterbird Abundance High and Low Tide

HIGH

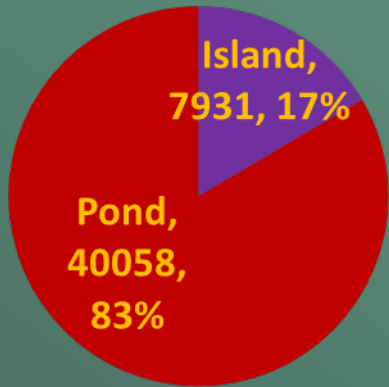


LOW

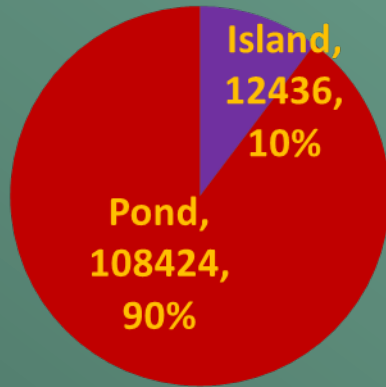


# Waterbird Island Usage by Guild High Tide

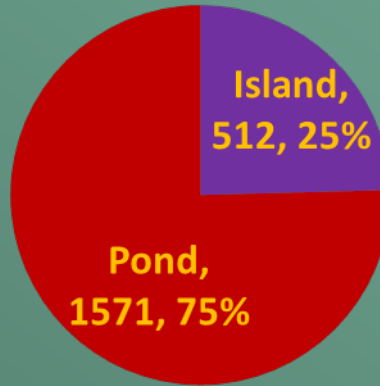
### Med Shore



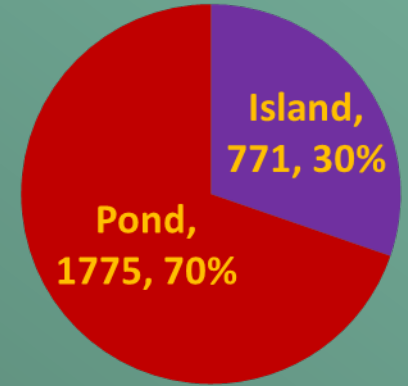
### Sm Shore



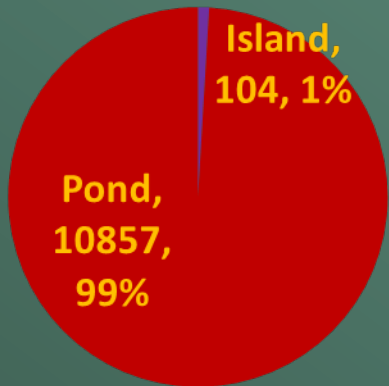
### Heron



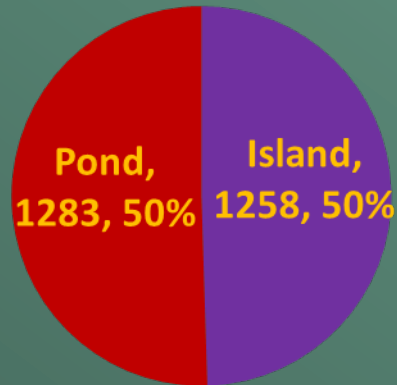
### Gull



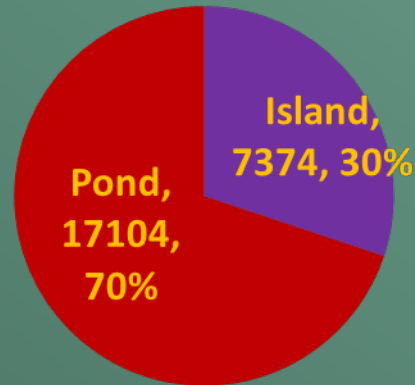
### Diver



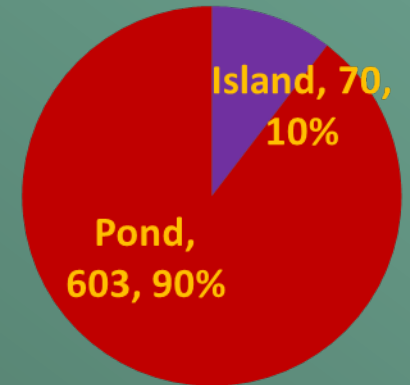
### Piscivore



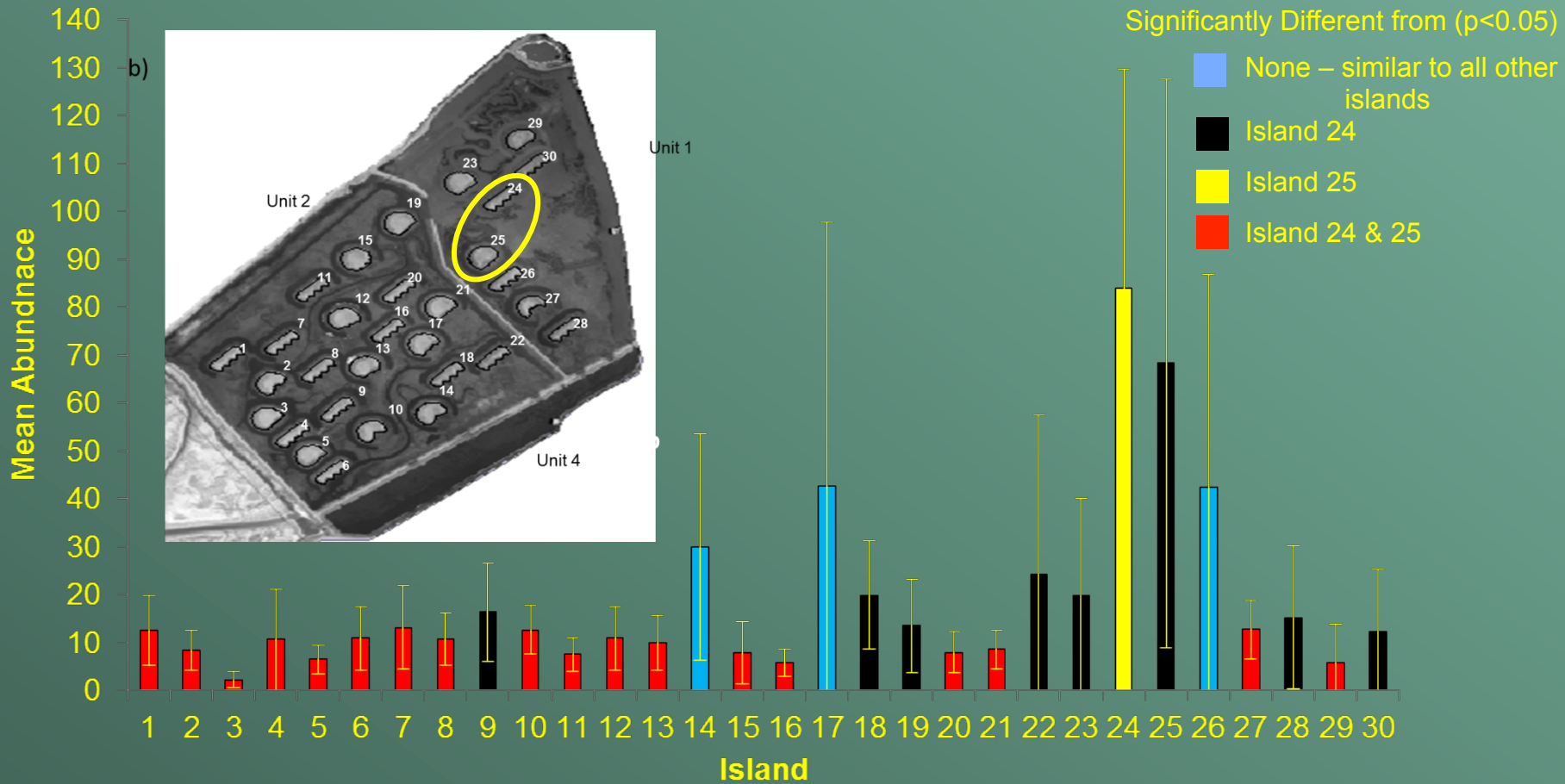
### Dabbler



### Tern



# Mean Bird Abundance by Island at High Tide



# Relative Bird Abundances



Small Shorebirds



Gulls



Piscivores



Medium Shorebirds

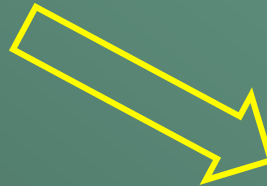


Dabblers

# Island Shape



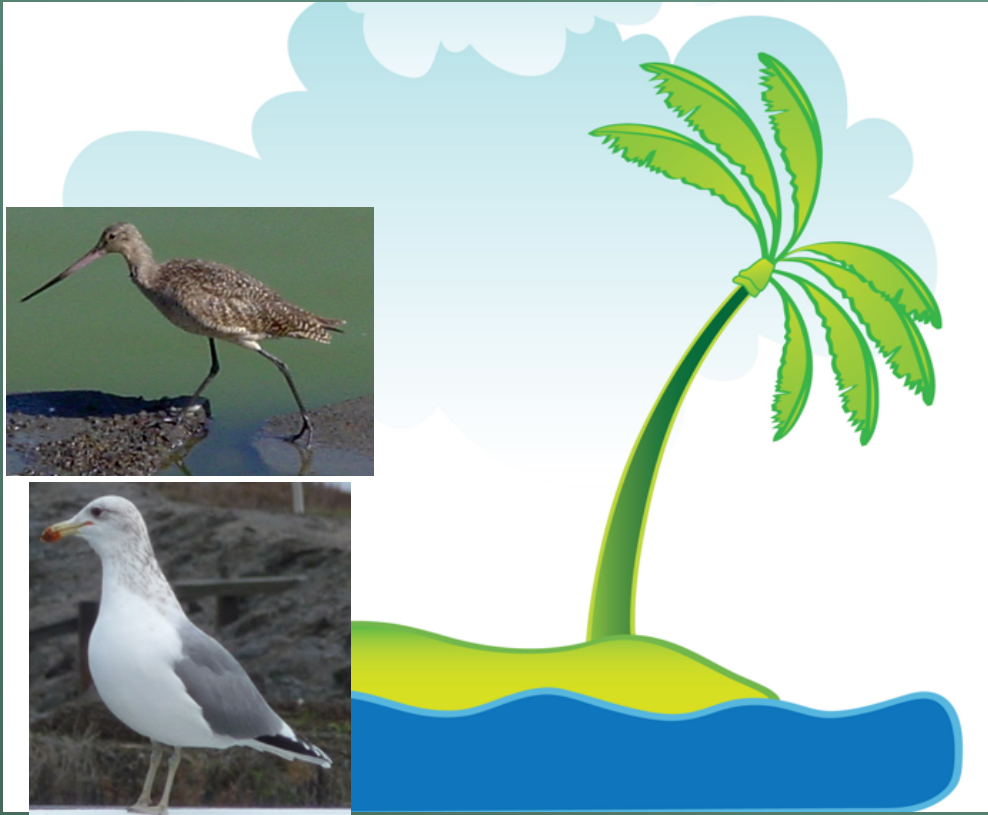
High ridge



High ridge



# Island Size



# Other Island Attributes

- Island parameters that did not seem to influence bird usage of islands:
  - Perimeter
  - Slope
  - Distance to mudflat



# Conclusions



- Changes in use over time
- Variability between guilds
- Island Characteristics
  - Size and Shape

If you build it, they may come



# Acknowledgements

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