

# BEACHFRONT LIGHTING REDUCTION THROUGH LOCAL REGULATION

## PALM BEACH COUNTY SEA TURTLE PROTECTION PROGRAM

### INTRODUCTION

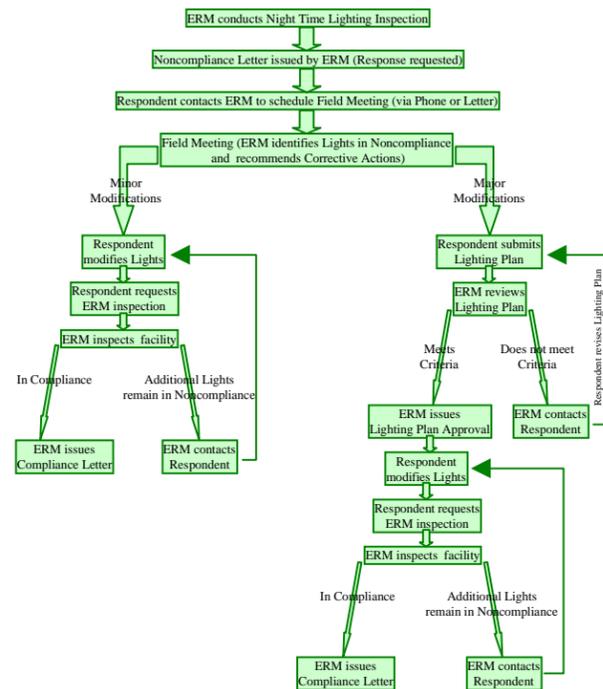
The Palm Beach County Department of Environmental Resources Management (ERM) regulates coastal lighting under the authority of the Sea Turtle Protection and Sand Preservation Ordinance, Section 9.1 of the Palm Beach County Unified Land Development Code. The jurisdiction of the Ordinance is established by the Sea Turtle Protection Zone (STPZ), which extends three miles offshore of the Atlantic Ocean and along inlet shorelines to a line six hundred feet (600') landward of the mean high water line. Any artificial lighting installed within the limits of jurisdiction of the STPZ must be approved through a Sea Turtle Protection Lighting Plan Approval prior to issuance of a building permit. The Ordinance also establishes standards which require compliance for existing buildings.

### STUDY SITE

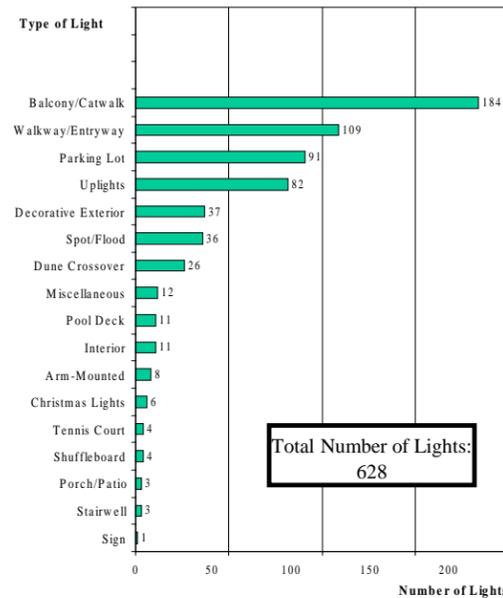
During 1997, ERM conducted extensive compliance efforts for the Sea Turtle Protection Ordinance along a defined stretch of beach at Singer Island, Palm Beach County. Compliance was achieved for individual establishments throughout the 1997 sea turtle nesting season (March 1 to October 31). The 1997 data presented in this poster are considered preliminary in evaluating the effects of correcting coastal lighting on increasing nesting success and reducing disorientations.

|   |   |
|---|---|
| Beach:                                  | Singer Island, Palm Beach County            |
| Length:                                 | 2.4 miles (Ocean Mall north to Waterglades) |
| Monitored:                              | 7 days / week                               |
| Monitored By:                           | Debbie Sobel / Singer Island Turtle Watch   |
| Establishments Located Along Beach:     | 30 Total                                    |
|   | 22 Condominiums / Apartments                |
|   | 7 Hotels / Motels                           |
|   | 1 Business                                  |
| Number of Noncompliance Letters issued: | 26  |
| Total Number of Lights Corrected:       | 628   |
| Number of Compliance Letters Issued:    | 25  |

### Process for Achieving Compliance with Sea Turtle Protection Ordinance



Singer Island Lights Brought into Compliance with Palm Beach County Sea Turtle Protection Standards 1997



| Singer Island Lights Brought into Compliance with Palm Beach County Sea Turtle Protection Standards, 1997 |            |           |           |             |            |          |                 |           |              |             |            |
|---|------------|-----------|-----------|-------------|------------|----------|-----------------|-----------|--------------|-------------|------------|
| Type of Light   | Off        | Painted   | Shielded  | Retrofitted | Redirected | Timer    | Lowered Wattage | Removed   | Changed Bulb | Combination | Totals     |
| Balcony/Catwalk   | 0          | 16        | 16        | 122         | 0          | 0        | 0               | 0         | 0            | 30          | 184        |
| Walkway/Entryway  | 26         | 1         | 0         | 2           | 0          | 0        | 0               | 0         | 8            | 72          | 109        |
| Parking Lot   | 1          | 0         | 18        | 5           | 1          | 0        | 0               | 0         | 0            | 66          | 91         |
| Uplights  | 25         | 0         | 0         | 0           | 2          | 0        | 0               | 40        | 0            | 15          | 82         |
| Decorative Exterior   | 33         | 0         | 0         | 4           | 0          | 0        | 0               | 0         | 0            | 0           | 37         |
| Spot/Flood  | 22         | 0         | 3         | 9           | 1          | 0        | 1               | 0         | 0            | 0           | 36         |
| Dune Crossover  | 15         | 1         | 10        | 0           | 0          | 0        | 0               | 0         | 0            | 0           | 26         |
| Miscellaneous   | 1          | 0         | 0         | 10          | 0          | 1        | 0               | 0         | 0            | 0           | 12         |
| Pool Deck   | 2          | 0         | 2         | 6           | 0          | 0        | 0               | 0         | 0            | 1           | 11         |
| Interior  | 5          | 0         | 5         | 0           | 0          | 0        | 0               | 0         | 0            | 1           | 11         |
| Arm-mounted   | 2          | 2         | 2         | 2           | 0          | 0        | 0               | 0         | 0            | 0           | 8          |
| Christmas Lights  | 1          | 0         | 0         | 5           | 0          | 0        | 0               | 0         | 0            | 0           | 6          |
| Tennis Court  | 0          | 0         | 0         | 0           | 0          | 4        | 0               | 0         | 0            | 0           | 4          |
| Shuffleboard  | 0          | 0         | 0         | 2           | 0          | 0        | 0               | 0         | 0            | 2           | 4          |
| Porch/Patio   | 3          | 0         | 0         | 0           | 0          | 0        | 0               | 0         | 0            | 0           | 3          |
| Stairwell   | 0          | 0         | 0         | 3           | 0          | 0        | 0               | 0         | 0            | 0           | 3          |
| Sign  | 1          | 0         | 0         | 0           | 0          | 0        | 0               | 0         | 0            | 0           | 1          |
| <b>Total</b>  | <b>137</b> | <b>20</b> | <b>56</b> | <b>170</b>  | <b>4</b>   | <b>5</b> | <b>1</b>        | <b>40</b> | <b>8</b>     | <b>187</b>  | <b>628</b> |

### RECOMMENDATIONS

During ERM's 1997 lighting compliance efforts, ERM staff learned that some techniques for achieving compliance worked well, while other techniques needed refining. The following summarizes some of the process-oriented and technically-oriented recommendations:

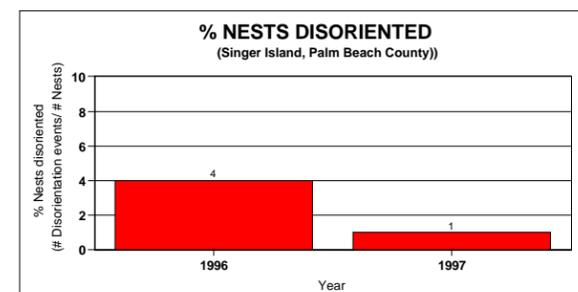
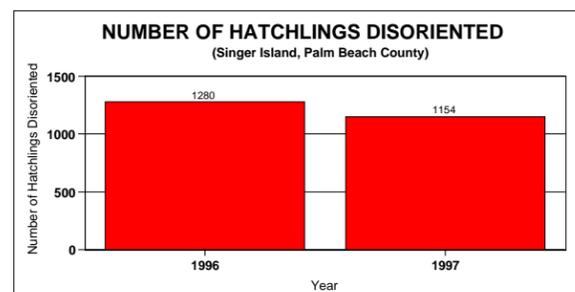
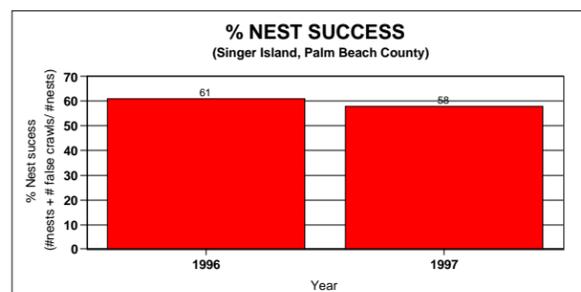
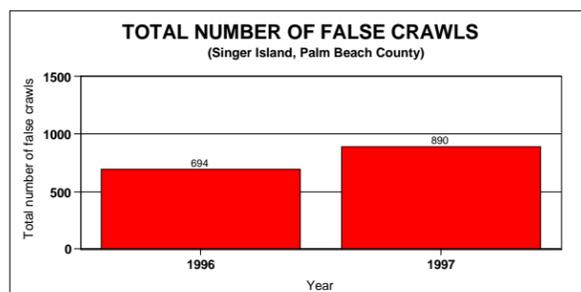
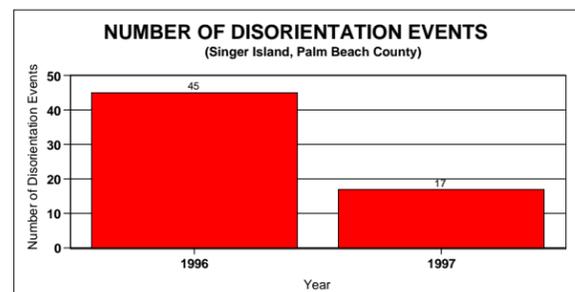
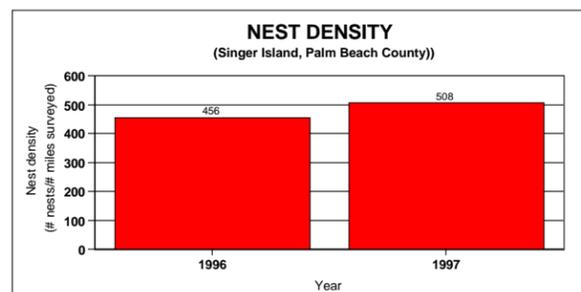
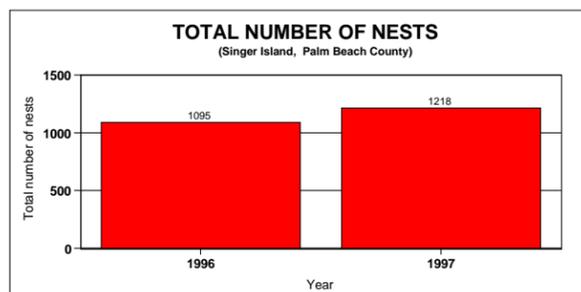
#### ERM's Process:

- Focus time and effort on small stretches of beach at one time:
  - more detailed and accurate field notes
  - more efficient for scheduling field meetings
  - adjacent property owners exchange information
- Schedule field meetings with respondent to explain problem, thus compliance is more easily achieved
- Detailed documentation of all correspondence and inspections is essential

#### Lighting:

- Concentrate efforts on permanent solutions:
  - painting of fixtures is only a temporary solution
  - shields should be constructed to resist wind damage
  - implementing only minimal corrective actions results in increased costs/time
- Never rely on dune vegetation as the primary barrier to lighting
- Using reflective material (e.g., aluminum foil) as an internal shield may increase the intensity of light if not properly installed

### Preliminary Results to Evaluate Effects of Lighting Modifications



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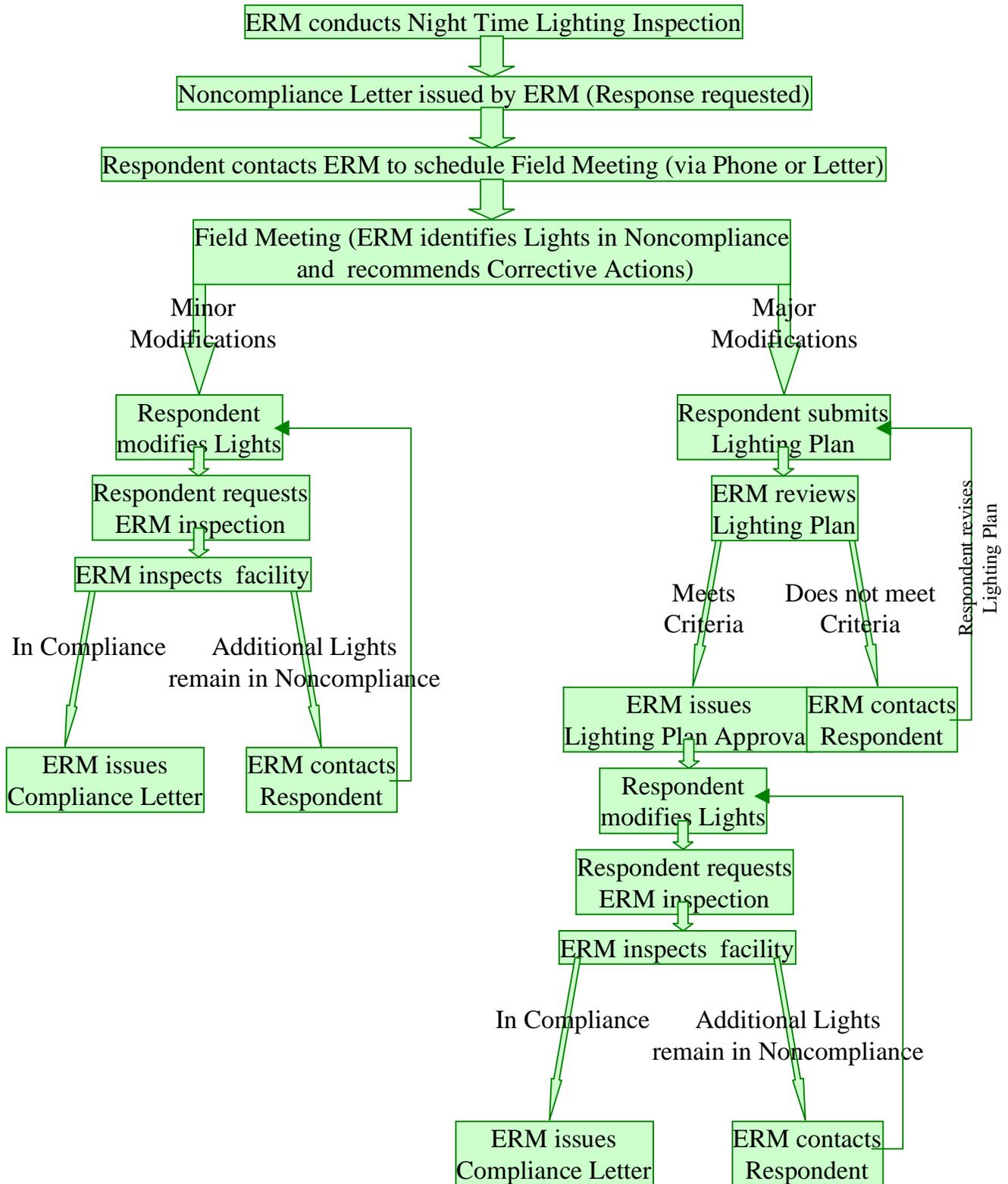
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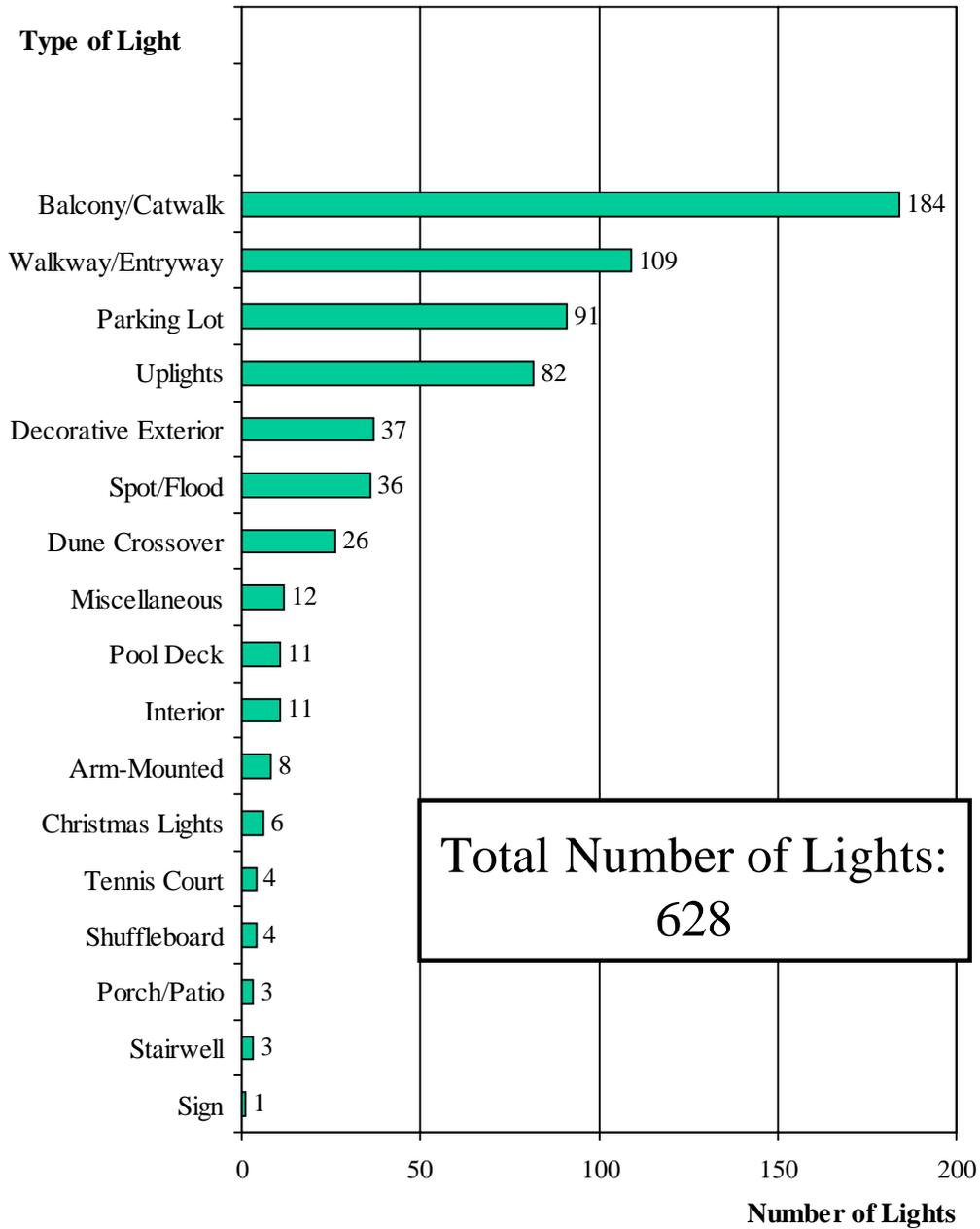
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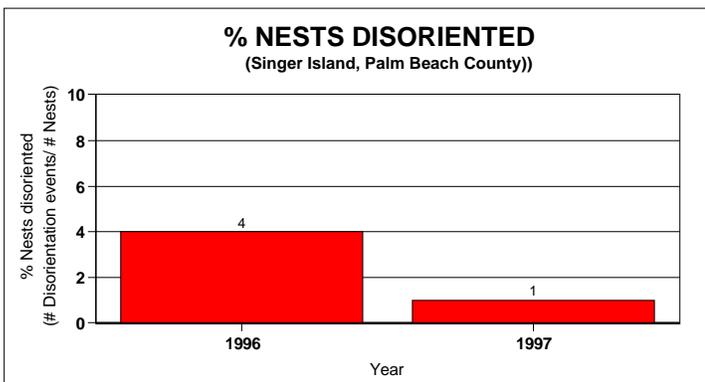
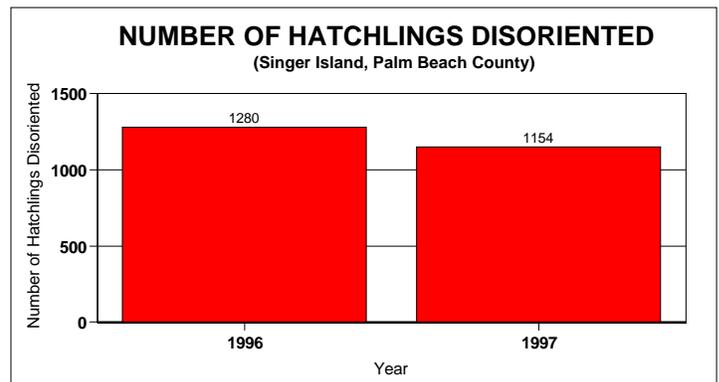
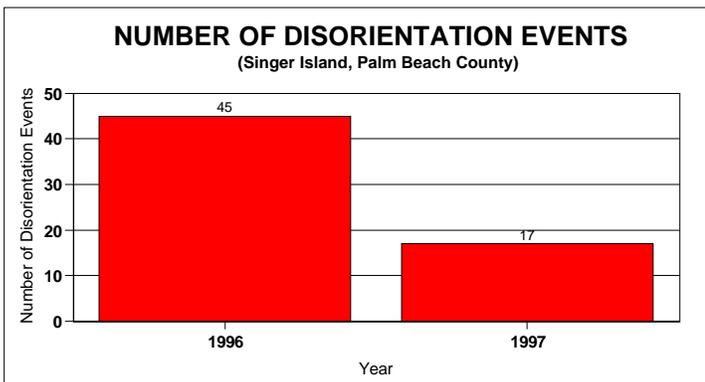
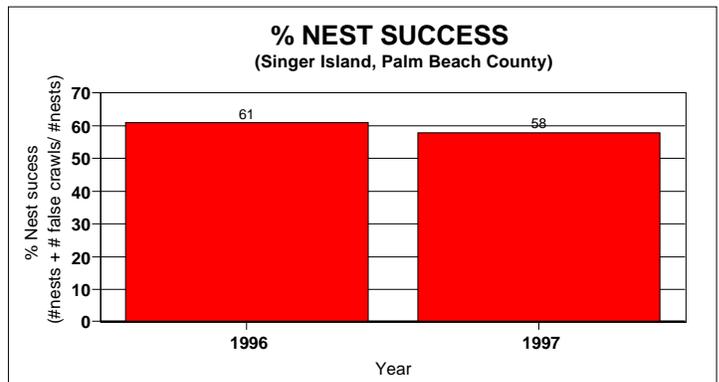
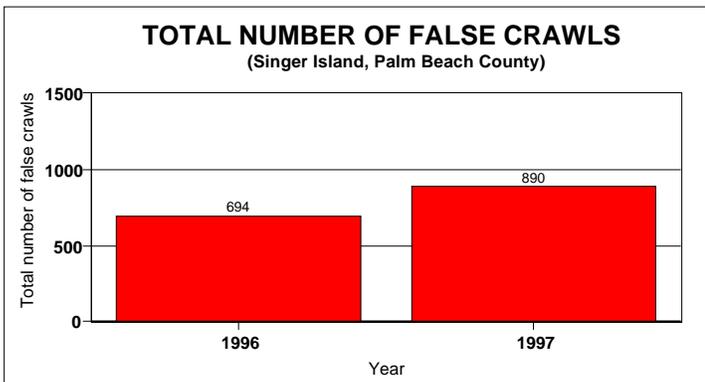
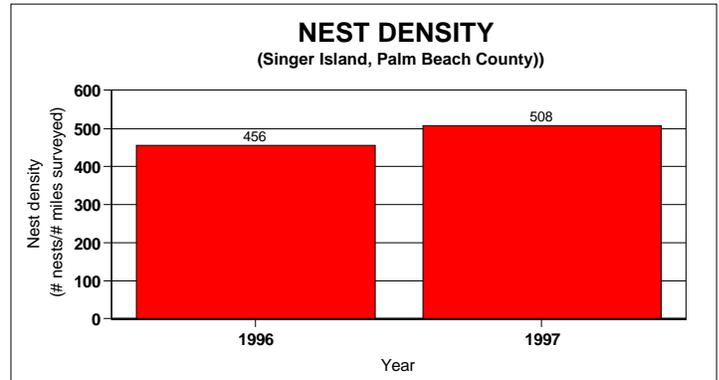
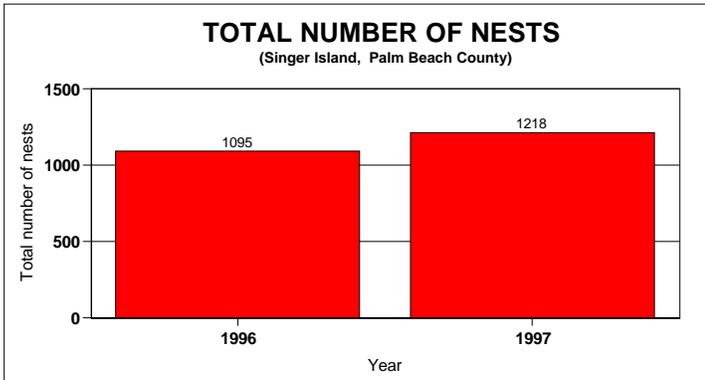


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with Palm Beach County Sea Turtle Protection Standards  
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