Overview...

- No precedent
- Variations among species
- Habitat contrasts
- Range of impact scenarios
- On site vs. shifted distributions
- Expectations and strategies for six species
Birds of the Florida Keys

- ~300 species
- 43 migrants of conservation concern
- 15 wading birds
- 13 shorebirds
- 18 raptors
- 129 wintering
- 132 breeding
Satellite-derived locations of Short-tailed Hawk #16084 from capture on 11 Nov 2000 through 15 Sept 2002

Seasonal locations of Short-tailed Hawk 16084
- Early winter 00
- Early winter 01
- Fall mig 01
- Late winter 00
- Late winter 01
- Spring mig 01
- Spring mig 02
- Summer 01
- Summer 02

200 Miles
Northern Harrier
Swallow-tailed Kite
Southbound migration of 34 Swallow-tailed Kites Tracked by satellite from 2002 to 2006.
Southbound and Northbound migration of 34 Swallow-tailed Kites tracked by satellite from 2002 to 2006
CONCLUSIONS AND RECOMMENDATIONS

- Human threats to foraging habitat
- Adult survival
- Effects of SLR and storm surge on nesting and foraging habitats
- Disturbance at nesting colonies
- Hunting on the Caribbean winter range
Great White Heron
Initial results and concerns

• Small, isolated, declining population
• Expansive seagrass beds
• Human disturbance at nesting colonies
• Dispersal and mortality of immature herons
• Effects of SLR on foraging habitat
• Reproduction differs between Florida Bay and lower Keys
Possible management interventions

- Breeding productivity on islands
  - Human disturbance
  - Habitat degradation
  - Predation by invasives
- Roosting beaches
- Migration stopover
- Monitoring
Comparison of monitoring methods for Short-tailed Hawks in Florida

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<tr>
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<th>Road</th>
<th>Boat</th>
<th>Helicopter</th>
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<tr>
<td><strong>Efficacy</strong></td>
<td>+++</td>
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<td><strong>Cost</strong></td>
<td>+++</td>
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* Road surveys could detect a 50% decline in 16 years with a statistical power of 0.83.
Summary

• Accommodate substantial variation in ecology and habitat associations.
• Identify and protect potential future range.
• Intensify present management planning and implementation.
• Adaptively manage like never before – hedge our bets.
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