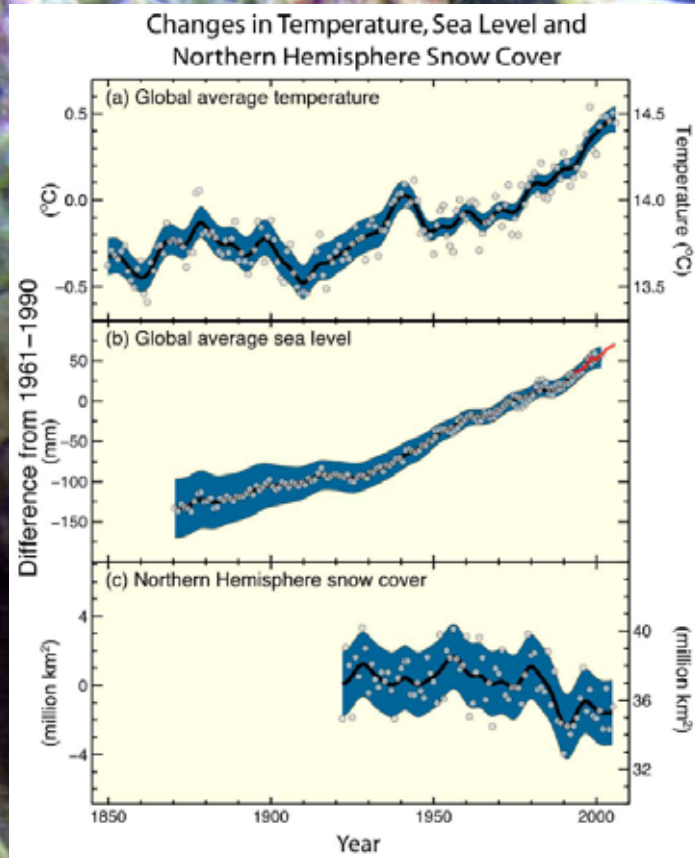




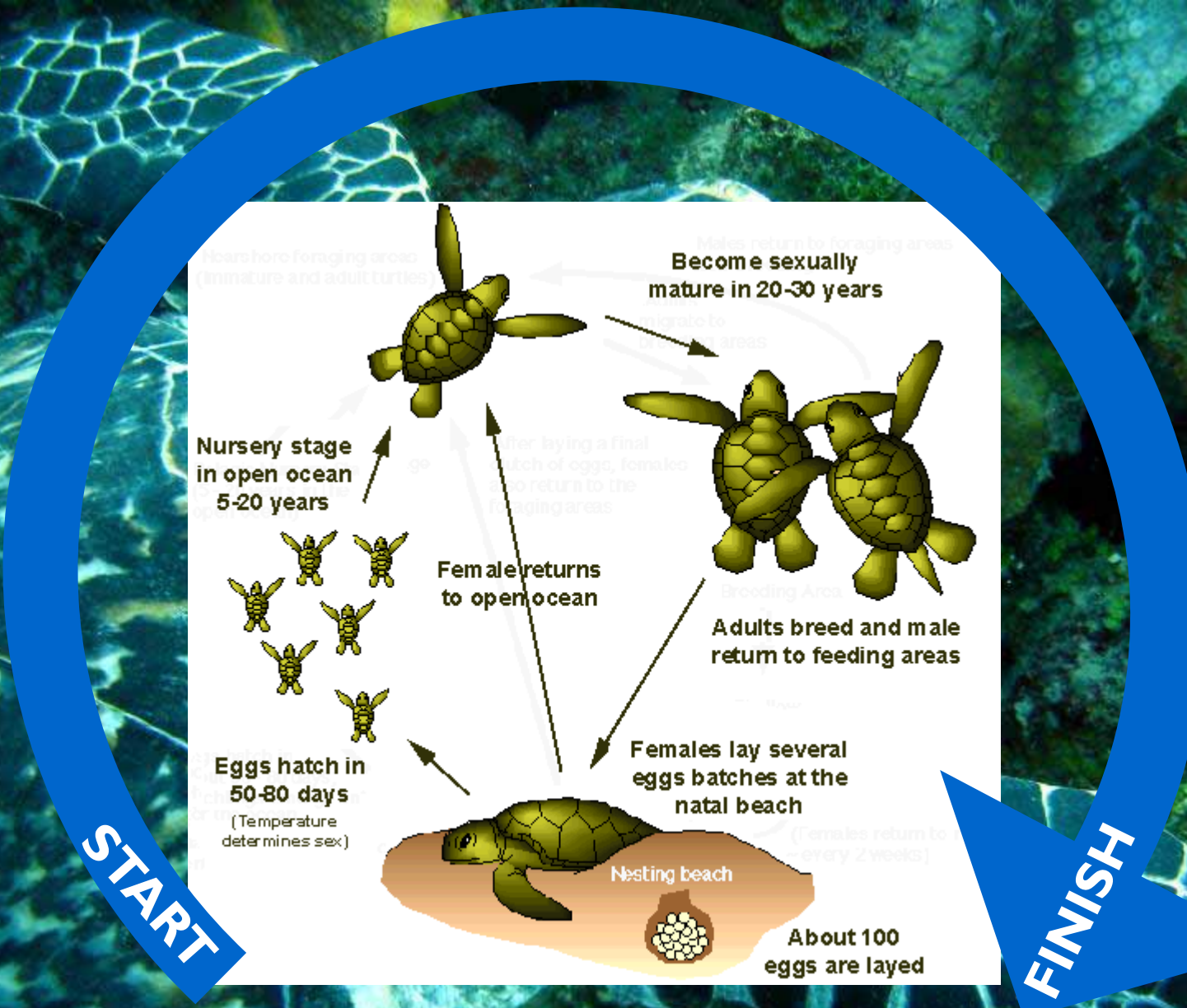
How can marine turtles provide
an indicator of climate change
effects on Caribbean
coastal resources?



Dr Lucy Hawkes, WWF Belize
Marine Turtle and Climate Change Program Leader



The climate is changing...







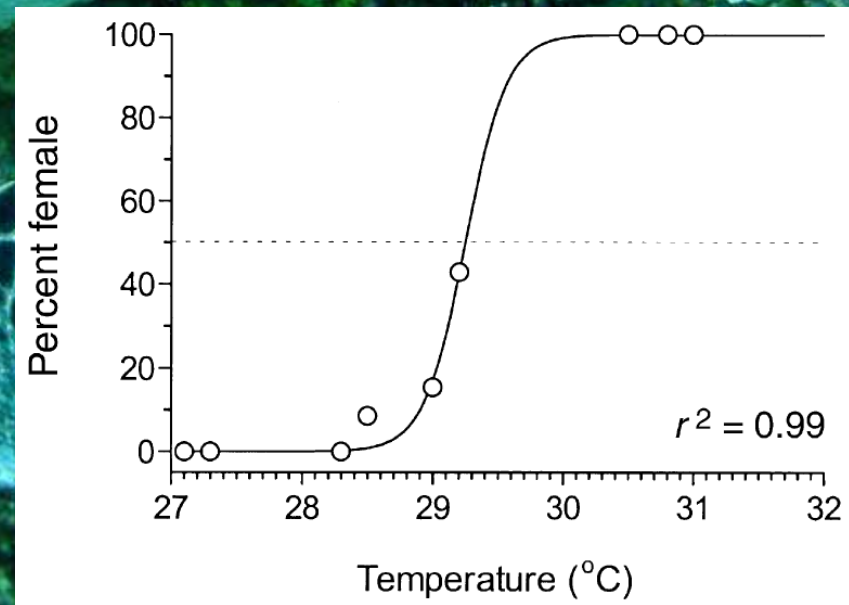
Climate factors :

1. Temperature
2. Sea level
3. Storms
4. Rain



Temperature :

1. Physiology
2. Survival
3. Prey
4. Sex ratios





Sea level :

1. Beach loss
2. Reef health



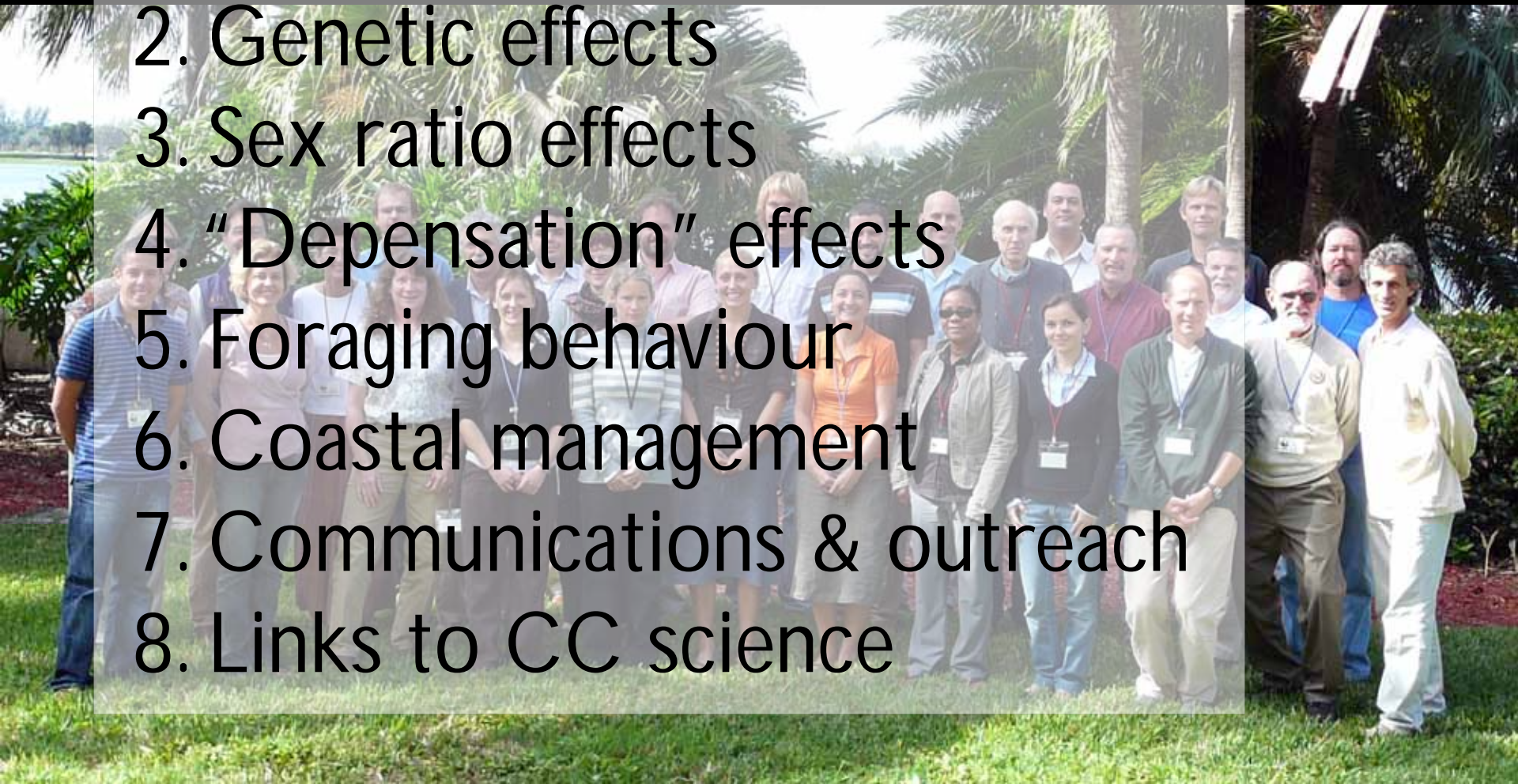
Storms & rain :

1. Nests lost
2. Beach loss
3. Migration



The ACT initiative :

1. Nest site selection
2. Genetic effects
3. Sex ratio effects
4. "Depensation" effects
5. Foraging behaviour
6. Coastal management
7. Communications & outreach
8. Links to CC science





Map layers :

Caribbean shoreline

Beach slope, width, elev., aspect

Where do turtles nest?

What CC do we expect?

Sea level rise

Coastal development?

Coral reefs

Hurricane tracks





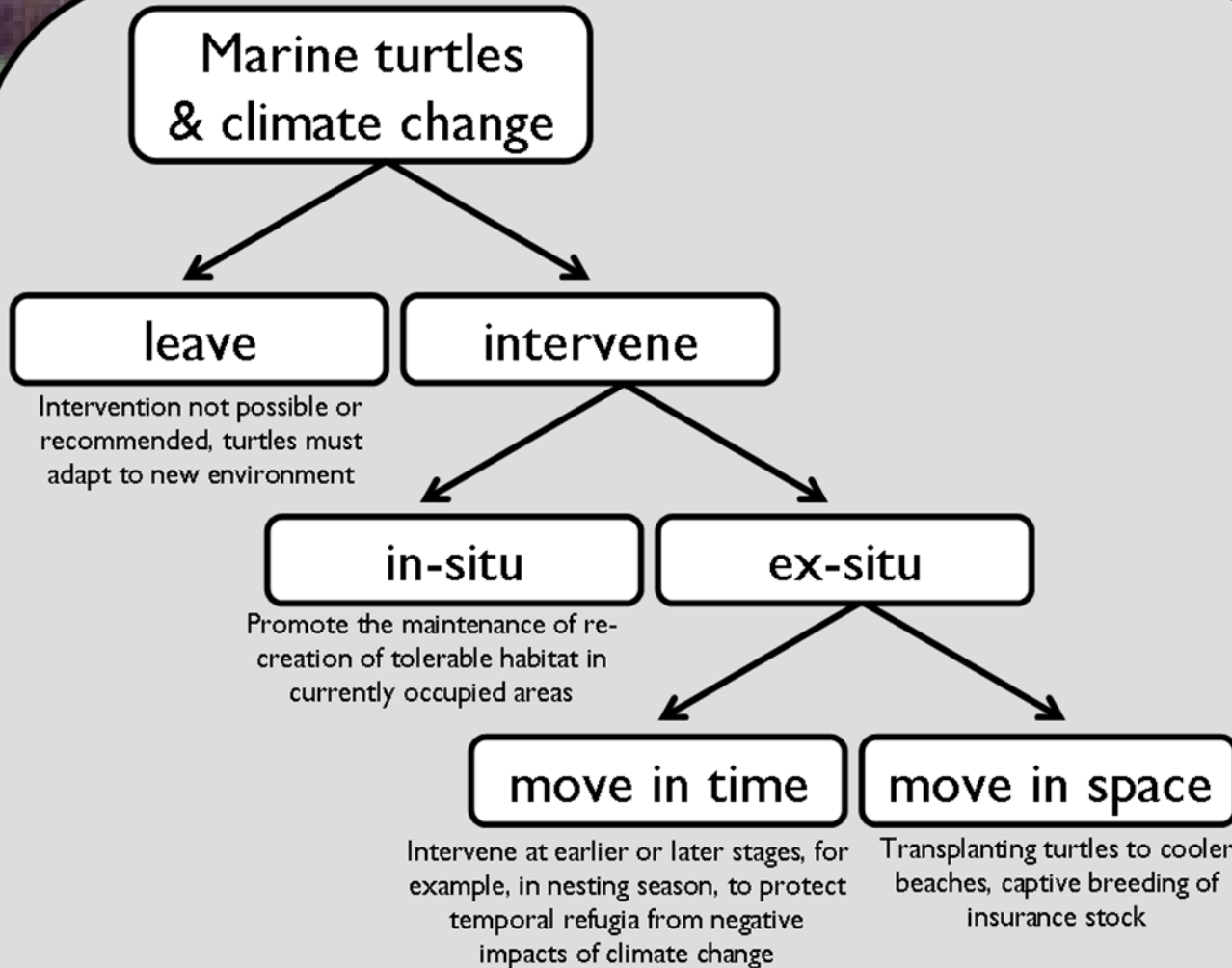
A GIS tool:

1: Which bits of turtle nesting beach are **MOST** likely to be lost

Support these using a “triage” approach
Rebuild them, fix them and maintain them

2: Which bits of turtle nesting beach are **LEAST** likely to be lost

Enhance these using MPA's, coastal setbacks, smart
Development regulations, eco-tourism



Based on suggestions by N Mrosovsky



What benefits marine turtles benefits people
What benefits marine turtles benefits the ecosystem

Top down AND bottom up approach
Safeguarding resilient areas AND triage approach

Lessons from this project to other regions / species
Tools that are useful for other regions / species



MACARTHUR
The John D. and Catherine T. MacArthur Foundation

<http://www.panda.org/lac/marineturtles/act>

lhawkes@wwfca.org

Photo: Malcolm Nobbs