



## Developing an approach for adaptation to climate change in the insular Caribbean - the hawksbill turtle as an indicator species

### Discussion group 1: Nesting and beaches

Relevant environmental factors:

1. Sea level rise
2. Temperature e.g. local waters, air and sand
3. Precipitation
4. Extreme weather events - intensity and frequency (e.g. storms, periods of persistent rain etc.)

What do we already know?

1. Sea level rise – beach loss (Weiss (Fish et al., 2005)
2. Sea level rise – anthropogenic implications (e.g. coastal defences)
3. Precipitation – nest cooling (Houghton et al., 2007)
4. Temperature – altered nest hatch success
5. Temperature – altered sex ratios (Mrosovsky et al., 1992)
6. Temperature – incubation duration (Mrosovsky, Baptistotte & Godfrey, 1999)
7. Temperature – remigration interval (Saba et al., 2007; Solow, Bjorndal & Bolten, 2002)
8. Temperature – inter nesting interval (Sato et al., 1998)
9. Temperature – phenology of nesting (Weishampel, Bagley & Ehrhart, 2004)
10. Temperature – yolk reserves, deformities, swim ability (Booth, 1998)

Possible questions for discussion:

1. Loss / growth in beach (width and depth)
2. Altered beach suitability e.g. slope, grain size, compactedness and albedo
3. Loss of beach vegetation
  - a) Host for egg predators?
  - b) Invasive beach vegetation
  - c) Shading effects
  - d) Moisture retention
4. Altered hatching success
5. Altered level of nest infections / infestations (relationship with humidity?)
6. Altered adult remigration intervals (sex specific?)
7. Altered inter nesting intervals (females only)
8. Altered duration males remain at the breeding ground
9. Altered clutch sizes
10. Altered clutch frequency
11. Altered nest predation
12. Altered emergence success rate (crawls that result in nest deposition)
13. Altered total reproductive investment (dumped clutches) and success (sex specific?)
14. Altered sex ratios (but see group 2)
15. Altered emergence behaviour of hatchlings
16. Altered timing of nesting season

## Key References:

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