



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

Discussion Group 4: Adaptation, policy and management

Relevant environmental factors and effects:

1. Sea level rise (loss of beach habitat – coastal squeeze)
2. Temperature (Beach temp. change, coral bleaching)
3. Precipitation
4. Extreme weather events - intensity and frequency (Loss of beach area, inc. rainfall, reef damage; (Tompkins, 2005)
5. Ocean acidification (Loss of reef structure – sand deficit, loss of protection)

Other stressors on system:

1. Development
2. Pollution
3. Over-fishing
4. Invasive species
5. Population growth (humans)

What do we already know?

1. Areas differ in vulnerability (Burke & Maidens, 2004; Fish et al., 2005)
2. Habitat quality both economically and ecologically important (e.g. tourism (Fish et al., 2007; Uyarra et al., 2005)
3. Impacts can be avoided, reduced or delayed through adaptive management
4. Proactive, integrated management more effective than reactive, standalone efforts

Possible topics for discussion:

1. Management options and impacts on hawksbills
 - a. Beaches
 - i. Protect – coastal defences
 - ii. Accommodate -
 - iii. Retreat – setbacks, managed retreat
 - b. Reefs / Seagrass
 - i. Regional networks of marine reserves
 - ii. Reduce land-based pressures
 - iii. Sustainable fisheries
 - c. Tackle climate change
2. Value of adaptive management
3. Limits to adaptation
 - a. Lack of integrated coastal zone management
 - b. Conservation compliance

- c. Political / societal will
- d. Institutional structure / governance
- e. Lack of data to predict impacts
- f. Complexity of interdependent systems
- g. Information availability/exchange
- h. Absence of climate change component in management plans

4. Tools to support coastal adaptation assessments

Key References:

Burke, L. & Maidens, J. (2004). Reefs at risk in the Caribbean. In (ed W.R. Institute), p 80, Washington, D.C.

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Tompkins, E.L. (2005) Planning for climate change in small islands: Insights from national hurricane preparedness in the Cayman Islands. *Global Environmental Change*, **15**, 139-49.

Uyarra, E., Cote, I.M., Gill, J.A., Tinch, R.R.T., Viner, D. & Watkinson, A.R. (2005) Island specific preferences of tourists for environmental features: implications of climate change for tourist dependent states. *Environmental Conservation*, **32**, 11-19.