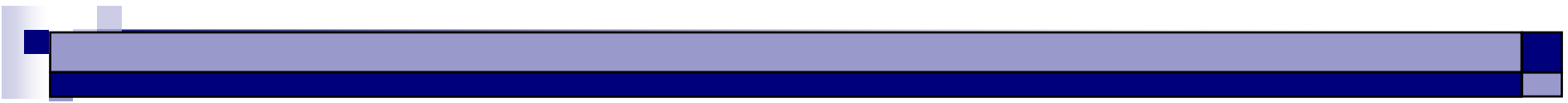


The Ecology and Conservation of Sea Turtles in Jamaica

Presentation for the Jamaica Environment Trust
“Environmental Sustainability in Hotels Workshop”
December 16, 2008

by
Andrea Donaldson
Ecosystems Management Branch, National Environment and Planning Agency



Topics

- Introduction
- General Description and Special Adaption
- Taxonomy
- Distribution
- Diet and Feeding Habits
- Life History and Nesting Behaviour
- Status in Jamaica
- Global Status-Caribbean Region
- WIDECAST
- Conservation Concerns
- Conservation Strategies
- Why Monitor Nesting Beach
- What Can You Do?

Introduction

- World's largest living reptiles along with the Komodo dragon and Saltwater crocodile
- Travel throughout the world's oceans
- Existed for over 100 million years!
- All sea turtles are endangered or critically endangered internationally
- Without conservation local extinction may occur



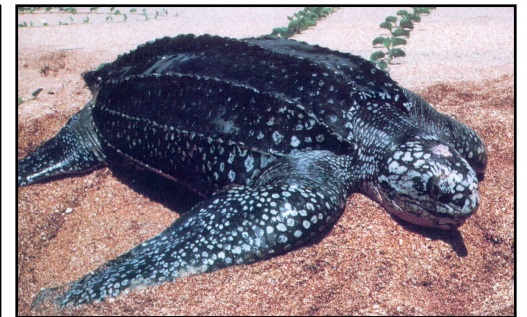
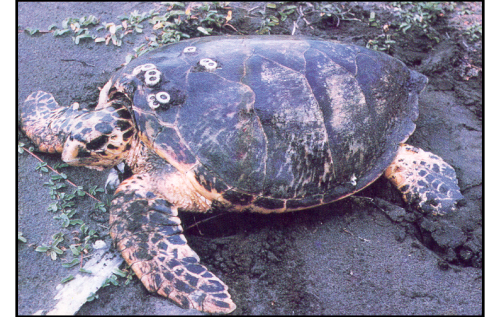
General Description and Special Adaption

- belong to the class Reptilia (also includes snakes, lizards and crocodiles)
- live within a bony shell (carapace)
- they have no teeth and their jaw shape is adapted to their diet
- they are cold-blooded animals
- they use their flipper for digging their nest
- some species travel long distances e.g. one tagged female travelled over 5,000 km from French Guiana to Newfoundland in 128 day
- can dive to great depth, for long periods
- usually only females come ashore to lay eggs but males and have been known to come onto land to bask and escape predators



Taxonomy (types)

- Six species of sea turtle are found in the Wider Caribbean (7 in the world):
 - Hawksbill (*Eretmochelys imbricata*)
 - Green (*Chelonia mydas*)
 - Loggerhead (*Caretta caretta*)
 - Leatherback (*Dermochelys coriacea*)
 - Kemp's Ridley (*Lepidochelys kempii*)
 - Olive Ridley (*Lepidochelys olivacea*)



Distribution

- Sea turtles are global travelers
- Different species have different migratory patterns.
- Also populations of the same species may display different migration patterns.
- Some populations nest and feed in the same general areas while others migrate great distances.



Diets and Feeding Habit

■ Food preferences and resources:

- ☐ jaw structure indicates their diet
- ☐ Hawksbills' jaws are adapted for getting food from crevices in coral reefs - sponges, tunicates, shrimps, and squids.
- ☐ Green sea turtles have finely serrated jaws and feed on seagrass and algae
- ☐ Loggerhead and Ridley's jaws are adapted for crushing and grinding-crabs, mollusks, shrimps, jellyfish, and vegetation
- ☐ Leatherbacks have delicate scissor-like jaws to feed on jellyfish, tunicates and soft-bodied animals



Life History and Nesting Behaviour

Nesting Cycle

- The female crawls onto the beach
- Selects nest site
- Clears the area (body pit)
- Digs a chamber
- Lays the eggs
- Covers the chamber
- Disguises the area
- Orients herself towards the sea
- Re-enters the water



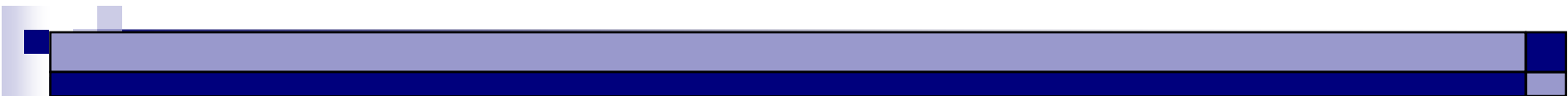
- Hatchlings dig their way up out of the nest
- Orient themselves towards the sea (brightest point)
- Enter water where they feed and mature into adults
- Adult females return to the same beach they were born to lay their eggs
- Lay several nests per season
- Lay between 500 and 1000 eggs per season



Status in Jamaica

- Jamaica's sea turtle stock has been in decline since the 1980s.
- The Hawksbill Turtle has replaced Green Turtle as the most abundant species; the other species are very rare.
- The decline has been attributed to unsustainable exploitation of the nesting females and their eggs and disturbance of nesting habitats





Global Status-Caribbean

- Hawksbill and Green Turtles in the Caribbean
 - Greens declined by 96% in the pass 400 years
 - Hawksbill nesting has declined by more than 60% in Mexico in the past 5 years
- Loggerheads in the Atlantic
 - nesting has declined by more than 50% in the past 5 years in Florida
- Kemp's Ridleys throughout their range
 - small population has declined more than 50% in less than 50 years

WIDECAST

(Wider Caribbean Sea Turtle Conservation Network)

- International NGO established in 1981
- Works with country coordinators in more than 40 Caribbean nations and territories
- Work with governmental and non-governmental stakeholders and the private sector
- Helps produce countries Sea Turtle Recovery Action Plan



WIDECAST

Wider Caribbean Sea Turtle Conservation Network



Conservation Concerns

■ At sea:

- ☐ trash ingestion
- ☐ entrapment in shrimp and fish nets
- ☐ water pollution
- ☐ Illegal hunting
- ☐ decline in quality and extent of reefs and other habitats used by turtles for food and refuge.



■ On land:

- coastal development and changes to beach topography (groyne construction, coastal roads, sand mining, etc. and natural factors (hurricanes, storms).
- oil and solid waste pollution
- increasing human presence (tourist, crab-catchers, fishermen etc.)
- increasing presence of rats, mongoose, cats and feral dogs.
- noise and activity of people on the beach
- artificial lighting on beaches
- illegal harvesting

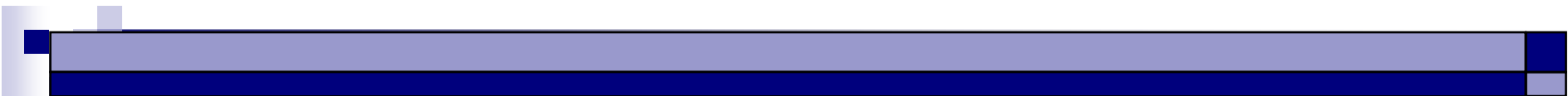


Conservation Strategies

■ Laws

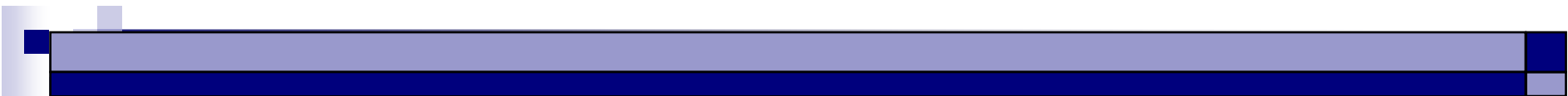
- Caribbean sea turtles protected under the Wild Life Protection Act
- All turtles listed as Schedule 1 under the Endangered Species (Protection, Conservation and Regulation of Trade) Act
- Lighting conditions instituted as condition of Environmental permits issued under the Natural Resources Conservation Authority Act and on Beach Licences





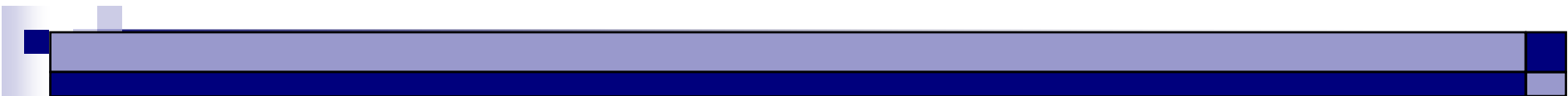
■ Lighting Conditions

- Lighting conditions adapted from those developed in the United States for their nesting beaches.
- standards for artificial light sources visible from the sea on the land adjacent to the licensed area:
 - All external artificial light fixtures on the beach shall be designed and positioned so that:
 - The point source or any reflective surface of light fixtures is not directly visible from the beach.
 - Areas seaward of the frontal vegetation are not directly or indirectly illuminated.
 - Areas seaward of the frontal vegetation are not cumulatively illuminated.
 - Fixtures in direct line of sight from the beach shall be designed to be:-
 - Shielded down-light only fixtures or recessed fixtures having low wattage 580 lumens or less (i.e., 50 or watts less) “bug” type bulbs and non-reflective interior surfaces. Other fixtures that have appropriate shields, louvers or cutoff features.
 - Fixtures mounted as low in elevation as possible through use of low-mounted wall fixtures, low bollards and ground level fixtures.
 - Floodlights, up-lights or spotlights for decorative and accent purposes that are directly visible from the beach or which indirectly or cumulatively illuminate the beach shall not be used.
 - For high intensity lighting applications such as providing security and similar applications shielded low-pressure sodium vapour lamps and fixtures shall be used.



■ Education and Awareness Programme

- ☐ Presentations on sea turtle biology and conservation measures
- ☐ Techniques for monitoring nesting beaches
- ☐ Seminars/workshops, including conflict resolution among stakeholders
- ☐ Training in nesting beach survey
- ☐ Conducting nesting beach survey's
- ☐ Satellite tracking of females Hawksbill turtles to determine their migration pattern after completion of their nesting cycle.



Why monitor Nesting Beaches

- Estimates numbers of nesting females
- Provides information for conservation strategies
- Deterrent for poachers and predators
- Can obtain other important information about sea turtles

What to Do?:

1. Walk shoreline looking for turtle tracks
2. Determine the species of sea turtle based on the tracks



Hawksbill and Loggerhead – track less than 1m wide

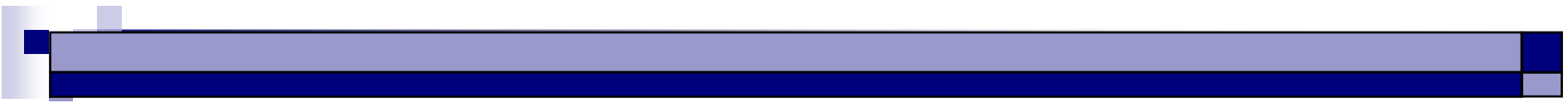


Green – track approximately 1m wide



Leatherback – track greater than 1m wide

3. Determine the type of activity the female turtle has made.
 - ☐ Dry Run
 - ☐ Attempt
 - ☐ Unconfirmed Nest
 - ☐ Confirmed Nest
4. Estimate the date that the turtle came up onto the beach. This is the activity date.
5. Mark the nest with flagging tape
 - ☐ Write the activity date and flag number on the tape and secure it near to the nest
6. Erase all tracks



What can you do?

- during the peak nesting months, whenever possible, keep lights turned off;
- know the sea turtles that visit your beach in order to know when to turn off beach lighting.
- light visible to an observer is likely to affect hatchlings; reduce the number of lights near the beach to a minimum by lowering, shielding, recessing and/or redirecting light sources; low-mounted lights projecting down are preferable to lighting that shines upwards;
- for security use motion sensor lights which only come on when the area is approached;
- place dark tinting on windows visible from the beach or draw curtains after dark;
- replace existing light fixtures with low pressure sodium vapour or yellow Incandescent light bulbs at a low wattage;
- plant vegetation which will help block the light from filtering unto the beach.

Example of light fixtures



Thank You

