BEACH-TRACK MONITORING FOR TURTLE-NESTING

Marine-CoMMS
Conservancy Management Monitoring System

The Nature Conservancy
Protecting nature. Preserving life.
**Aim**

The aim of Turtle-nest monitoring in Marine-CoMMS is to provide simple indicators of abundance and trends of nesting Turtles visiting beaches. The method uses counts of tracks and nests along specific nesting beaches as a measure of nesting female Turtle abundance. Regular and consistent data collection and a measure of the level of effort involved in looking for tracks and nests (nesting-beach patrol effort) is essential in order to interpret trends over time.

It is important to note that these indicators (tracks and nests) are not an absolute measure of the Turtle population abundance or number of individuals in a population. This simple method is considered appropriate for the capacity and context of Community Conservancies in northern coastal Kenya.

Estimates of live and dead hatchlings will also be collected when encountered with a view to understanding levels of predation at different nesting beaches and adapting management to improve survivorship of hatchlings.

Data is analysed in the Marine-CoMMS database to provide information on distribution and trends in abundance of nesting species. Conservancies will work closely with KWS and WWF to provide information on nests and enhanced protection of nests and turtles.

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**Nesting Turtle Species**

The most common species nesting on beaches in northern coastal Kenya are Green Turtles (*Kasa wa kawaida*), with occasional or very rare nesting by Hawskbill (*Ng’amba*) and Olive Ridley Turtles (*Kigange*). Leatherback (*Chasa*) and Loggerhead Turtles (*Iladhi*) are not known to nest in this part of Kenya. Most nesting occurs between March to September with a peak in April to June during the rainy southeast monsoon season. Average incubation duration is approximately 55 days.
<table>
<thead>
<tr>
<th>Relative scale</th>
<th>Species</th>
<th>Key features</th>
<th>Tracks</th>
</tr>
</thead>
<tbody>
<tr>
<td>av 100cm</td>
<td>Green Turtle</td>
<td>Large</td>
<td>Parallel marks</td>
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<tr>
<td></td>
<td><em>Kasa wa kawaida</em></td>
<td>Green shell</td>
<td>Heavy/deep marks in sand</td>
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<td></td>
<td></td>
<td>Wide track</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Nest far from high tide mark</td>
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<tr>
<td>av 75cm</td>
<td>Hawksbill</td>
<td>Beak like a parrot</td>
<td>Alternate tracks</td>
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<tr>
<td></td>
<td><em>Ng’amba</em></td>
<td>Small</td>
<td>Light marks in sand</td>
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<tr>
<td></td>
<td></td>
<td>Brown shell</td>
<td>Narrow track</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Nest close to high tide mark</td>
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<tr>
<td>av 70cm</td>
<td>Olive Ridley</td>
<td>Small</td>
<td>Alternate tracks</td>
</tr>
<tr>
<td></td>
<td><em>Kigange</em></td>
<td>Round shell</td>
<td>Light marks in sand</td>
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<tr>
<td></td>
<td></td>
<td>Olive green shell</td>
<td>Narrow track</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Nest close to high tide mark</td>
</tr>
<tr>
<td>av 90cm</td>
<td>Loggerhead</td>
<td>Large head</td>
<td></td>
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<tr>
<td></td>
<td><em>Iladhi</em></td>
<td>Elongated shell</td>
<td></td>
</tr>
<tr>
<td>av 170cm</td>
<td>Leatherback</td>
<td>Large</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Chasa</em></td>
<td>Soft black covering</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>No hard shell</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Elongated shell</td>
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</table>
**Method**

- Early morning beach patrols on turtle nesting beaches
- Walk entire length of beach
- Walk along the most recent high tide mark so can see all FRESH tracks from the night before
- At least 3 days per week for each nesting beach during nesting season (can be consecutive nights or random nights)
- Less frequent patrols outside nesting season but should still be done occasionally (e.g. once per week)
- For remote beaches which are not easily accessible – do surveys on 3-4 consecutive nights in mid of peak nesting season

**Completing your datasheet**

Complete a data sheet every time you do a beach-patrol whether in nesting season or not – indicate ‘No’ on the datasheet for turtle tracks/nests/hatchlings if none seen (this will enable you to analyze patrol effort i.e. number of patrol days for each nesting beach)

- Name, Patrol ID, Date
- Start time and end time of survey
- Block, Location and Nesting Beach
**Tracks**

- Record number of tracks for each species found along the entire length of the beach (if unable to determine species then record as ‘unknown’); add up the total number of tracks for each species found along the entire beach.
- Note that tracks go up and back so **only record tracks going UP the beach** not the return track, include all visible tracks that have not previously been recorded (i.e. previous night and more than 1 day old).
- Mark off each track (e.g. a line in the sand across the track) after recording it, mark above the high tide line.

**Nests**

- Follow tracks up to where nests have been dug, differentiate if it is a successful nesting attempt or unsuccessful, DO NOT DISTURB OR DIG UP THE NEST (if unsuccessful nesting DO NOT RECORD AS A NEST).
- Record if new (previous night) or old (more than 1 day old, but not previously recorded).
- Record species if known – or record as ‘unknown’ if not sure.
- Record GPS location of nest.
- Give the estimated hatching date of the nest (approximately +55 days).
- Record if nest has been disturbed (evidence includes broken shells around nest, sand dug up, eggs uncovered, with predator/human footprints around the nest site etc.).
- If possible identify what has disturbed nest – human, animal, washed by tide, another turtle, or unknown cause.
Nests

- Include any other observations that may be relevant
- Report all new nests to KWS/WWF, advise them if the nest needs to be translocated if it is too close to the high tide line or threatened for another reason (do not do this yourself unless you have the expertise to do this and are requested to by KWS/WWF)

Hatchlings

- If you come across hatchlings on the beach, identify the species or record as ‘unknown’
- Count the number of live hatchlings and dead hatchlings in the immediate area
- Trace the hatchling tracks back up to the nest and mark the GPS location of the nest (note if the nest was previously recorded or not)
- It may be necessary to carefully assist hatchlings into the water

Additional Information

- Sightings of Adult/Sub-adult turtles are recorded on the WILDLIFE OBSERVATIONS datasheet
- Dead turtles are recorded on the CARCASS DATASHEET
- Tagged turtles – record tag number, pass this information on to KWS/WWF
Kasa wa kawaida/ Green
Chelonia mydas
length: 90-120 cms

Emerging track
- Simultaneous limb movement – parallel tracks
- Front flippers cut sand deeply
- Centre drag mark from tail
- Approx. 95 – 145 cm

Returning track (after laying eggs)
- Opposite front flipper marks
- Body drag not as obvious

1 claw on flippers
1 pair of prefrontal scales
4 pairs of costal scales

hatchling is dark with white margins on flippers and carapace
Kigange/ Olive Ridley

Lepidochelys olivacea

Length: 60-70 cms

Carapace wide and almost circular
6 pairs or more of costal scales

Emerging track
- Alternate tracks
- Light marks in sand
- Approx track width: 70-80 cm
- Nest close to high tide mark
- Tail drag light or not visible

Hatchling has 5-9 costal scales and is dark all over

Action of flippers

Marine-CoMMS
**Ng’amba/ Hawksbill**

*Eretmochelys imbricate*

- **Length**: 70-90 cms
- **Hatchling**: Has overlapping carapace scales and is dark (brown) all over.
- **Emerging Track**:
  - Alternate tracks
  - Light marks in sand
  - Track width: 70-85cm
  - Nest close to high tide mark
  - Tail drag absent or if present is a wavy line near the centre
- **Action of Flippers**
**Iladhi/ Loggerhead**  
*Caretta caretta*  
length: 80-100 cms  
5 pairs of costal scales, large head, 2 claws on each flipper

**Chasa/ Leatherback**  
*Dermochelys coriacea*  
length: 140-170 cms  
Leatherback has no scales, seven ridges mostly black with white spotting
**TURTLE TRACKS & NEST DATASHEET**

**Name:** ............................................

**Patrol ID:** ............................................

**Date:** ............................................

**Start time:** ............................................

**End time:** ............................................

**Block:** ............................................

**Location:** ............................................

**Nesting beach:** ............................................

**ADDITIONAL INFORMATION:**

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**TRACKS**

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<thead>
<tr>
<th>species</th>
<th>tracks</th>
<th>total</th>
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<tbody>
<tr>
<td>Green / <em>Kasa wa kawaida</em></td>
<td></td>
<td></td>
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<tr>
<td>Hawksbill / <em>Ng’amba</em></td>
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<td></td>
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<tr>
<td>Olive Ridley / <em>Kigange</em></td>
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<tr>
<td>other / unknown</td>
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**HATCHLINGS**

<table>
<thead>
<tr>
<th>species</th>
<th>nest previously recorded Y/N</th>
<th>GPS location 37M</th>
<th>UTM</th>
<th>Number live</th>
<th>Number dead</th>
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**NESTS**

<table>
<thead>
<tr>
<th>New / old</th>
<th>species</th>
<th>GPS location 37M</th>
<th>UTM</th>
<th>expected hatching date</th>
<th>Damaged Yes/No</th>
<th>Type of damage (e.g. tide, animal, human, unknown)</th>
<th>Notes</th>
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