Project Update: April 2012

Assessment of habitat suitability for nesting:

All of the major motu (cays) were assessed for signs of nesting. The evidence included body-pits and sites where sand or *kirikiri* (coral rubble) had been heaped up during the egg-laying process (oviposition). Only a small number of recent tracks were found, which suggests that nesting is seasonal – and that it ends before April. Ease of access from the ocean or lagoon was taken into consideration and nesting 'hotspots' were identified.

Maps were prepared showing the nesting areas and also the sites that were unsuitable for nesting: as the ocean is a dynamic habitat these could change in different years. Nine motu had been used for nesting but it was difficult at times to determine the exact year-of-lay: some nests could have been 5 years old. We found over 180 confirmed nests and a further 80 possible nests.

Nesting excavations:

Nests that had obviously hatched were excavated to determine egg success. Empty eggshells were counted: success-rates are high – typically over 90%. A few nests had several unhatched eggs: some of these were discoloured (microbiological agents) or were unfertilised. Occasionally a late-stage embryo was found (i.e. dead-in-shell). Six nests still had one or two live hatchlings in the sand column or egg-chamber: this shows that oviposition occurred in February 2012, as incubation is around 60 days.

The state of decomposition of eggshells showed that some nests were indeed laid in earlier years: bright white shells were from 2012, yellowish ones perhaps from 2011, and the desiccated brown remnants may have been laid 5 years or more ago.

All nests were laid by green turtles *Chelonia mydas*.

In-water surveys:

It was not possible to SCUBA dive so all marine surveys were achieved by snorkelling. At times the underwater visibility was poor: this was affected by the wind strength and direction (suspended sediment) and sunlight levels. We concentrated on surveys around bommies (coral heads) and noted the presence and behaviour of turtles. The principal objectives were to determine the species, size-classes and sex of turtles and then to note the habitat purpose (e.g. foraging, resting, or developmental areas).

We had 39 underwater sightings of turtles: these had all been green turtles and included juveniles, adult males and adult-sized females. On one of our last surveys we noticed a juvenile hawksbill turtle *Eretmochelys imbricata* resting on the sand in about 15 m of water. This species is Critically Eendangered and extremely rare in the Cook Islands so this was an important finding.

Local researchers:

A particularly gratifying aspect of this expedition has been that several teenagers have worked closely with us. They are very keen to learn and have been excellent research assistants. This bodes extremely well for the future as we establish a network of local turtle monitors in each of the Outer Islands. These young Palmerston Islanders will help to present our research findings to the community at our leaving feast next week.