

Inventory and Preliminary Abundance Estimates of Cartilaginous Fishes (Class Chondrichthyes) in Tubbataha Reef Natural Park (TRNP)

Moonyeen Nida R. Alava

Team Leader, TMO-CIP Shark Research

Address: Conservation International –Philippines, 6 Maalalahanin St., Teachers Village West, Quezon City, Philippines 1101

Tel: +63 (2) 924-8235; +63 (2) 433-8429; +63 (2) 433-5129; Fax: +63 (2) 435-6446; Mobile: +63 (920) 904-1102

Tubbataha Reefs Natural Park Tubbataha (TRNP) supports a complex and diverse assemblage of marine flora and fauna. Marine faunal group of interest for this study are the sharks which, as apex predators, are considered good indicators of ecosystem health. Baseline on shark species and population abundance in TRNP, however, has never been established, thus highlighting the need to do apex predator assessment. The objectives of this study are: 1) to determine the diversity of sharks in TRNP by conducting species inventory based on secondary data as reported by tourist and divers and TRNP field staff and on actual encounters during surveys; 2) to establish baselines on population abundance and/or encounter rates using distance sampling technique along a 50-m long transect in 14 sampling sites at depths of 10-14m, typically between the coral reef edge and blue waters in the North and South Atolls and Jessie Beasley; and 3) to assess current and future threats to the faunal group to better inform and improve on current management plan and strategy.

A least 19 species sharks and rays have been reported to be present in TRNP based on park rangers and divers reports, eight of which were encountered during the actual surveys conducted in 8-13 April and 8-9 June 2011. A total of 200 encounters were recorded within a total transect length of about 19.85 km, with transect lengths ranging from 302.55 to 638m per site (Average: 381.82m). Initial analysis show the white tip reef shark *Triaenodon obesus* as the most frequently encountered (at 159 encounters or 79.5% of total encounters), followed by grey reef shark *Carcharhinus amblyrhynchos* (31 encounters, 15.5%). Other species encountered include Blacktip reef shark *Carcharhinus melanopterus*, Manta ray *Manta birostris*, Shark ray *Rhina ancylostoma*, Blue-spotted stingray *Neotrygon kuhlii*, Silvertip shark *Carcharhinus albimarginatus*, and Spotted eagle ray *Aetobatus* sp. (ranging from 1 to 4 encounters, or only 0.5 to 2% of total encounters). An off-effort sighting of tiger shark *Galeocerdo cuvier* was also recorded in one site. **Standardizing the belt transect width at 10 m, the population density of white tip reef sharks were calculated to be 11 individuals/km².**

Threats to the population largely come from illegal shark fishing in TRNP, with at least two incidents occurring within a 10-month period (i.e., in March and December 2010). Initial recommendations include strengthening enforcement support and continuing shark survey and monitoring to establish trends that will contribute to measuring effectiveness of management of TRNP as well as development of a shark-focused conservation and management program in TRNP that will connect scientific work with conservation actions and outreach that will involve various stakeholders and publics.