



Potential Octopus No-Take-Zones /Marine Protected Area Preliminary Survey Report

On 09/09/2008 and 10/09/2008 four observers from ReefDoctor conducted random timed swims of between 15 and 30 minutes at each of 4 suggested octopus NTZs and at 1 proposed potential Marine Protected Area. At the proposed NTZs the observers were looking for evidence of octopus holes or potential octopus habitat areas, such as sandy bottom with areas of rubble, broken coral rubble or other areas suitable for burrowing. At the proposed MPA the focus was on live coral cover, other benthic cover and fish biodiversity.

Potential Octopus NTZs:

MAROMBORY:

East end of site GPS : S23°10.069 E043°35.451

West end of site GPS : S23°10.040 E043°35.157

North end of site GPS : S23°09.970 E043°35.317

South end of site GPS : None taken: not clear where site ends and Ankeriky begins

This site is some 500m in length W-E by 300m N-S as indicated by a visual measurement using a local fisherman's line-of-sight and GPS way marking. It includes one of ReefDoctor's monitoring sites 'Beantitsy' within its boundaries. Hence it is similarly covered in large percentages of healthy *Montipora* sp. foliose coral.

4 surveyors conducted a 15 minute timed swim in N,S,E and W sections of area. On 09/09/2008 at 10am depths averaged 3m.

One observer reported that the east end of the area contained large patches of rock and rubble with fleshy macro algae overgrowing. The remaining 3 observers reported good live foliose coral cover. Despite the fact that the healthy foliose coral might not provide the optimum habitat for octopus, enough interspersing sandy areas, rubble strewn areas and broken coral areas exist here to potentially shelter. In addition, the shallow depths might allow easy harvesting during 'open' periods.

ANKERIKY:

North of area GPS : S23°10.222 E043°35.238

Eastern edge of area GPS S23°10.179 E043°35.470

South of area GPS : S23°10.471 E043°35.254

West edge of area GPS S23°10.393 E043°35.118

The most northerly waypoint recorded with GPS for this site based on local knowledge was just over 100m south of Marombory, leading to a degree of confusion as to where one 'site' ends and another begins. Ankeriky is an area some 400m long N-S by 700m E-W. Protection of both this site and Marombory might then lead to a zone almost 1km² being intermittently closed.

The same surveyors conducted the 15 minute timed swim. At 11am on 09/09/2008 the depth was 2m.

The eastern part of the area was observed to contain sand and seagrass with small patches of coral rubble covered with fleshy macro algae. The other 3 observers reported rock and rubble with sandy patches. The western part closest to the barrier reef had many small rounded rocks (perhaps of coral origin and weathered due to wave action), these were covered in coralline algae. There was also a great deal of fleshy macro algae. Many holes suitable for octopus occupation were observed.

ANTSANIRA:

South of area GPS : S23°10.501 E043°36.114

North of area GPS : S23°10.378 E043°36.194

East of area GPS : S23°10.472 E043°36.264

West of area GPS : S23°10.420 E043°36.092

This area is further east, closer to the shore. It is a mainly sandy area of roughly circular shape with a diameter of just under 300m, a maximum depth of 5m was recorded on 09/09/2008 at 12.00.

Interspersed among the sandy area were large coral bommies rising up to within 1m of the surface in some cases. These bommies were mainly of dead coral, though some encrusting Porites was observed. The observers generally considered this area less suitable for octopus fishery as the depth would make harvesting more difficult and many fewer potential octopus habitats were observed.

AKARAMPONA:

GPS S23°14.034' E043°36.414'

This southern site is accessed from the exterior of the lagoon and consists of 'spur and groove' formations of rock and coral sloping down from the barrier itself at depths of <1m at 11am on 10/09/2008 to sandy channels at 9-14m. Coral cover was considered good with many *Acropora sp.* of digitate and tabular morphologies, particularly in the shallow zone. Two interesting facts were noted: the presence of extremely dense red fleshy macro algae overgrowth along the sloping walls of the 'grooves' and extensive colonies of zoantharians of *Palythoa sp.* on the reef flat. In fact almost the entire shallow, flat reef top was carpeted in these zoantharians.

This site seems particularly suitable as an octopus NTZ since it offers both shallow areas with plenty of crevices and also access to deeper water where the females spawn (ref: Georgie B.V.)

Potential MPA:

ANDABOTIRA :

GPS Northern edge of site : S23°11.208' E043°35.411' Southern edge of site : S23°11.322' E043°35.387'

GPS Western edge of site : S23°11.273' E043°35.337' Eastern edge of site : S23°11.278' E043°35.408'

Also known locally as "The Piscine Naturelle", this is an elongated oval-shaped area of sand and seagrass surrounded by coral reef. The site runs in a NE-SW direction for some 200m and is 120m across at its widest point. On 09/09/2008 at 9am the depth in the centre of the sandy bottom was recorded at 6.5m. The sand is enclosed by shallow reef flat to the south and east, while the west side is a slope of broken branching coral rubble and the north consists of boulders of rock and live coral. All areas except the west had many live coral colonies notably : *Acropora, Pavona, Porites, Montipora*. Areas of dead were many large rocks with good coral cover and many juvenile fish. Few bio-eroder urchins were seen, except one *Acanthaster planci* the Crown-Of-Thorns starfish. Also observed were banded coral shrimp and lobsters.

A 30 minute timed swim was conducted by 4 observers on the same date as above and general impressions were that the area has potential for a Marine Protected Area based on the good coral coverage, the shallow depths and the ease of access from Ambalaboy and Ifaty :all factors making this a suitable site for tourist visits. The presence of so many juvenile fish would appear to indicate this is a "nursery" area and it could therefore benefit fish stocks if fishing here were to be curtailed.

SCUBA surveys at this site are proposed for the week commencing 22/09/2008 to conduct 50m fish and benthic transects.

A note on the attached satellite image: Unfortunately the ArcView software malfunctioned and the map below doesn't give a true representation of each site's location in relation to each other. This is particularly true of Marombory/Beantitsy and Ankeriky which appeared almost equidistant from the barrier reef when visited but the image shows Ankeriky almost 1km further west, so there seems to be an anomaly here. Similarly Andabotira appears to be on the barrier and Akarampona way off it. When in fact the reverse is true.

Ireo Reserva, Voavavinam - Pokonolona

