

# KEY ISSUES TO BE ADDRESSED IN THE ZONATION OF THE WAKATOBI MARINE NATIONAL PARK

Richard Unsworth M.Sc, Coral Reef Research Unit, University of Essex  
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## Introduction

This brief summary document describes the key points of 10 years research by Operation Wallacea within the Wakatobi Marine National Park. Research has focused on the marine environment, and the way of life and opinions of the local people. It is also a consequence of extensive dialogue and friendship between Operation Wallacea and the different cultural peoples of the Wakatobi. Research conducted has important implications for future zonation of the park.

## Degrading reefs and a collapsing fishery

Operation Wallacea's surveys of the Wakatobi coral reefs (1996 to 2005) and the Kaledupan reef fisheries (2002<sup>1</sup> and 2004<sup>1</sup>) have identified several indicators of a deteriorating and collapsing fishery.

- Many commercially exploited fish species at many sites have decreased in size and abundance since 2001.
- Loss of species', reduction in catch weight and species specific reduction in average size of fish since 2000; and more generally since fishers started fishing (fishermen opinion surveys).
- Loss of majority of near shore predators (shark, tuna, trevally) between 1996 and 2002.
- Average size of individuals from many reef species' caught using all fishing techniques are well below the size of maturation (spawning).
- Some fisheries below a commercially sustainable level between 2002 and 2004.



Figure 1. Over-exploitation of sharks within Wakatobi MNP (Picture Dr. D May 2002)



Figure 2. Reef damage from bomb fishing on a Kaledupa reef 2004 (Picture Prof. J. Crabbe)

- Fishers increasingly exploiting reefs further distances from home.
- Increasing reliance on high intensity ecologically destructive techniques such as fish fences (Sero).
- Destruction and alteration of essential juvenile fish and invertebrate habitats (seagrass and mangrove).
- A high level of habitat destruction (cyanide and bomb fishing) reducing fish numbers on local scales.
- Coral reef monitoring programme within the Kaledupa stakeholder area shows some reefs to be healthy (North Hoga) whilst those closer to Kaledupa and Sampela rapidly declining due to high intensity fishing techniques such as the use of fish fences (Sero).

<sup>1</sup>May, D (2003) A Preliminary Assessment of the Small-Scale Tropical Fisheries of Kaledupa Island, Wakatobi Marine National Park, SE Sulawesi, Indonesia. Operation Wallacea Technical Report. [www.opwall.com](http://www.opwall.com)

## Key Recommendations

The currently proposed (from approximately 1998) management plan (figure 3) contains many suggestions that with further management, funding, dialogue, and cooperation with local people could provide genuine opportunities to effectively manage the park.

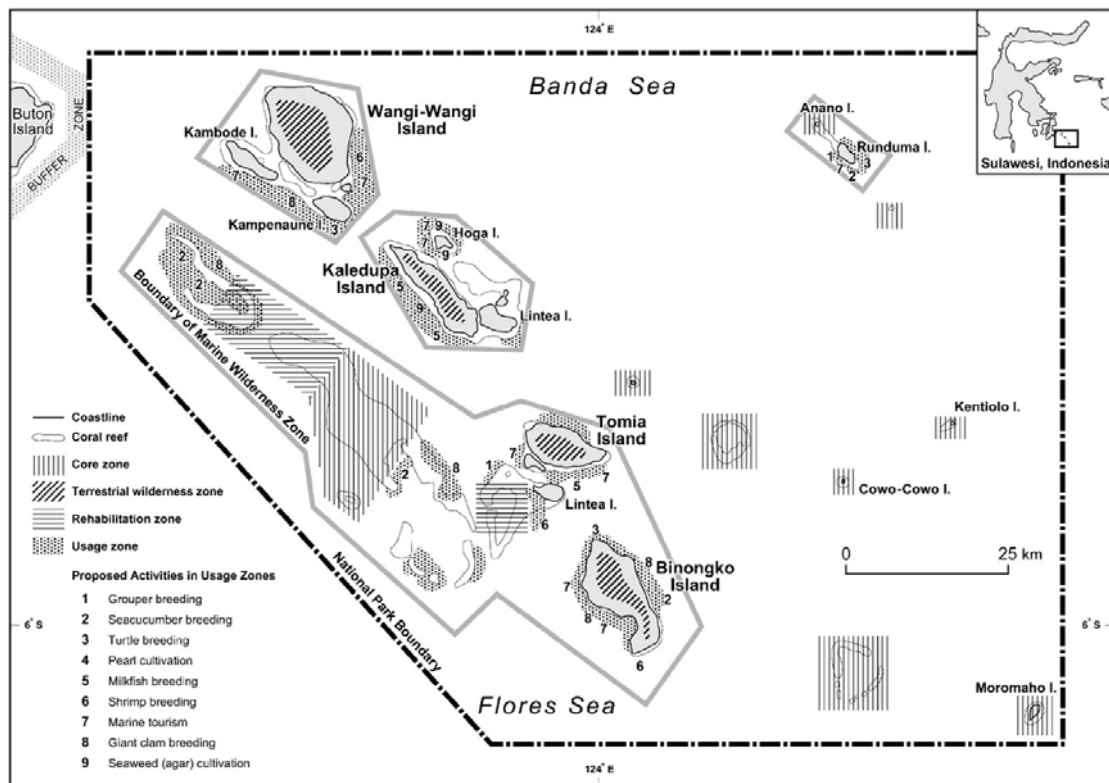


Figure 3. Current proposed Wakatobi MNP management plan (Clifton 2003)

## No-Fishing Areas

- The use of Core Zones (No-Fishing Areas) is a key method of conserving the diversity of the marine park whilst increasing the productivity of the local fishery. This strategy has already been successfully employed in other areas worldwide.
- High diversity and fishery productivity exist within key areas which include the outer lying islands and atolls (Roendoema, Anano, Kerang Roendoema, Moro Maho, Kentiolo), the area on the eastern coast of Kaledupa (particularly Hoga Island,; and sites surrounding sections of Tomia. These areas need to be preserved as Core Zones (No-Fishing Areas) where fishing is prohibited. Other diverse and productive areas exist but those mentioned should be the priority for conservation.
- For long-term survival of the Wakatobi MNP fishery, 30% of the total coral reefs, seagrass beds and mangroves need to be assigned and controlled as No-Fishing Areas.
- For a 30% fishery closure the location of the remaining No-Fishing Areas (outside of those proposed above) should be decided based on consultation with fishers and not solely on the basis of fishery and biological science information.

- The use of small (>500m length) No-Fishing Areas as part of a network of such areas are a viable alternative as these can be developed upon the practical considerations of local user groups (e.g. as was the development of the Hoga No-Fishing Area).

### Boundaries of the Wakatobi MNP

The existing boundaries of the Wakatobi MNP should remain. The whole area is an important breeding site, resident habitat and migratory route for 32 recorded Whale and Dolphin species, some of which are IUCN endangered species. In the long-term such populations are a key asset for tourism.

### Grouper Aggregation Sites

Currently two known sites of grouper aggregation (See figure 4) are highly exploited. These sites are in urgent need of protection preferably through No-Fishing Areas. Other aggregation sites may well exist that have yet to be identified, these are also likely under threat, research currently being undertaken by WWF/TNC will determine the location of these sites allowing for their future management.



Figure 4. Known grouper aggregation sites (May 2003)

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### Kaledupa Stakeholder Area

The development of the Kaledupa Stakeholder Area of the Wakatobi MNP represents a genuine opportunity to develop a sustainable well managed fishery created by local fishers and politicians utilising advice from the Wakatobi MNP fisheries department and external NGO scientists. This is the subject of proposals currently under consideration by COREMAP.

### Hoga Island Research Zone

- Operation Wallacea have conducted 10 years of research and monitoring from the Hoga Marine Research Centre. As a coral reef research and training centre its facilities are second to none within SE Sulawesi.



- The centre can provide the National park with facilities focused on training of park rangers, educating fishers and other key fishery stakeholders, and enabling the exchange of expertise between globally recognised coral reef scientists (currently utilising the facilities), local students and Indonesian reef scientists. The further development of this facility as an education and training centre are currently under the consideration for funding by the COREMAP Programme.
- Hoga Island is an area of outstanding natural beauty, highly appreciated and utilised by local communities. It is the belief of Operation Wallacea that this area should be zoned for Research. Such a strategy together with limited and controlled ecologically based tourism utilising existing

tourist facilities is a means of incorporating the needs of all stakeholders.

- Any further development of tourism on Hoga could disturb the natural beauty of the Island. Hoga as a research zone would enable the growth and continued economic benefits of the Hoga marine research centre to the local community. This would also allow small scale community led tourism within neighbouring localities to utilise the Island on a daily basis for the key attractions of natural beauty, ecological diversity, peace and tranquillity. As a research zone the tourism assets of Hoga will be safeguarded and continue to be appreciated and utilised by the local population of the Wakatobi.



Figure 6. Existing tourist facilities on Hoga are poorly utilised (L Cullen 2004)

### Alternative Income Streams

- Large scale zonation and management of the Wakatobi MNP has the potential in the long-term to increase tourism, increase fishery earnings, and conserve the biodiversity and fishery for future generations. Implementation of No-Fishing Areas and fishery management should take notice of the needs of the local fishers whose short-term livelihood is potentially under threat.
- Zonation and management needs to consider the needs for increasing the capacity of sustainable aquaculture (e.g. grouper and sea cucumber ranching, live coral growth). These activities on a large scale are potentially damaging, if conducted in specially designated zones in a sustainable fashion and at a low intensity they can be a means of increasing the income of local fishers.

### Key Points

1. The success of a new zonation plan needs the will of the local population, which will require it to be flexible to enable many important local scale decisions to be made on a case by case basis together with local users.
2. Research and monitoring of the park is the means to assess the parks success, there also remains a great deal of scientific information that is still required to enable the park to develop a sustainable long-term future. Utilisation of the Hoga marine research centre will enable further research, education and training of local users and authorities.
3. Tourism is the only means of fully developing the economic potential of the park, for this to be a long-term solution this needs to be sustainable small scale community led initiatives.
4. Sustainable well managed aquaculture provides a real alternative to fishers as a source of developing and increasing their income.

*“Reef scientists need to heed the precautionary principle, embodied in Principle 15 of the Rio Declaration (Earth Summit 1992): Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation”*

(Michael J. Risk 1999 – Global Coral Reef Expert)