

Chapter 9

Progress Towards the Cooperative Management of Marine Hunting in the Great Barrier Reef

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Introduction

Agenda 21, a comprehensive global action plan for the environment, was adopted by 178 governments at the United Nations Conference on Environment and Development in 1992 and was endorsed at the World Summit on Sustainable Development in 2002. Chapter 6 of Agenda 21 (Anon 1992) explicitly recognizes: 'The need for developing institutional arrangements for integrated coastal zone management which involve indigenous peoples to ensure the ecologically sustainable use of marine and coastal resources through establishing a process which empowers indigenous people, strengthens their participation in policy formulation and involvement in natural resource management'.

There are inevitable challenges in developing such arrangements. These challenges are particularly great for threatened species of considerable cultural and dietary value to indigenous people. In developed countries in particular, the wider community often perceives indigenous hunting as a major threat to wildlife, particularly charismatic megafauna, even when there is little scientific basis for this perception (Bomford and Caughley 1996; Freeman et al. 1998). There is resultant tension between indigenous peoples, policy-makers, day-to-day managers, conservationists, and researchers. Indigenous people perceive that they are competing with conservationists for wildlife and are concerned about their future access to prey species and the survival of important components of their culture. Conservationists and researchers are concerned about overexploitation, potentially leading to local extinctions. Policy-makers and day-to-day managers have statutory responsibilities to conserve threatened species.

Two species of marine megafauna, the green turtle, *Chelonia mydas*, and the dugong, *Dugong dugon*, are of considerable cultural value to coastal Aborigines and Torres Strait Islanders in northern Australia (Johannes and MacFarlane 1991), including the Great Barrier Reef (GBR) region. The meat of both species is ranked

highest among traditional foods. Hunting practices and prowess represent important aspects of Aboriginal and Islander traditions. The species are often hunted together using similar equipment.

Both species also have high conservation values and are threatened with extinction in many parts of the world. The green turtle is listed as 'endangered' by the World Conservation Union, the dugong as 'vulnerable' (Hilton-Taylor 2000). The green turtle is listed as 'vulnerable' and the dugong categorized as a 'listed marine species' under Australian legislation (Environment Protection and Biodiversity Conservation Act 1999). Both species are listed as vulnerable under Queensland state legislation (Qld Nature Conservation Act 1992). The Great Barrier Reef Marine Park Authority (GBRMPA) has statutory obligations to protect these threatened species, especially as the importance of the GBR region as habitat for dugongs and sea turtles was one of the reasons for its World Heritage listing (GBRMPA 1981). Australia also has obligations to protect these species under several other international conventions including the Convention on Biological Diversity, the Convention on the Conservation of Migratory Species, and the Convention on the International Trade of Endangered Species of Wild Fauna and Flora (CITES) (Stokes and Dobbs 2002).

As a signatory to the Convention on Biological Diversity, Australia also has obligations to 'protect and encourage' marine hunting by indigenous communities as 'customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements' and 'to respect, preserve and maintain the knowledge, innovations, and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity'. Thus there is a tension between the need to protect threatened species and traditional cultures, lifestyles, and values.

The wider Australian community does not, in general, support special hunting rights for indigenous peoples. This situation creates problems for indigenous communities, placing them on the defensive when it comes to hunting matters. For example, Ponte et al. (1994) found that only 61% of the 400 people surveyed in north Queensland coastal cities approved of indigenous hunting in national parks, and that 75% of those that approved, only did so if pre-European weapons were used. The major reason for this disapproval of traditional hunting was an objection to Aboriginal peoples having special privileges. A much lower proportion of individuals were concerned about the sustainability of traditional hunting.

This review describes two decades of the journey towards the cooperative management of indigenous marine hunting by Hope Vale Aboriginal community, a major dugong and turtle hunting community in the remote Cape York region (Fig. 9.1), and the policy-makers and day-to-day managers who are responsible for the management of the adjacent Great Barrier Reef (GBR) World Heritage Area.

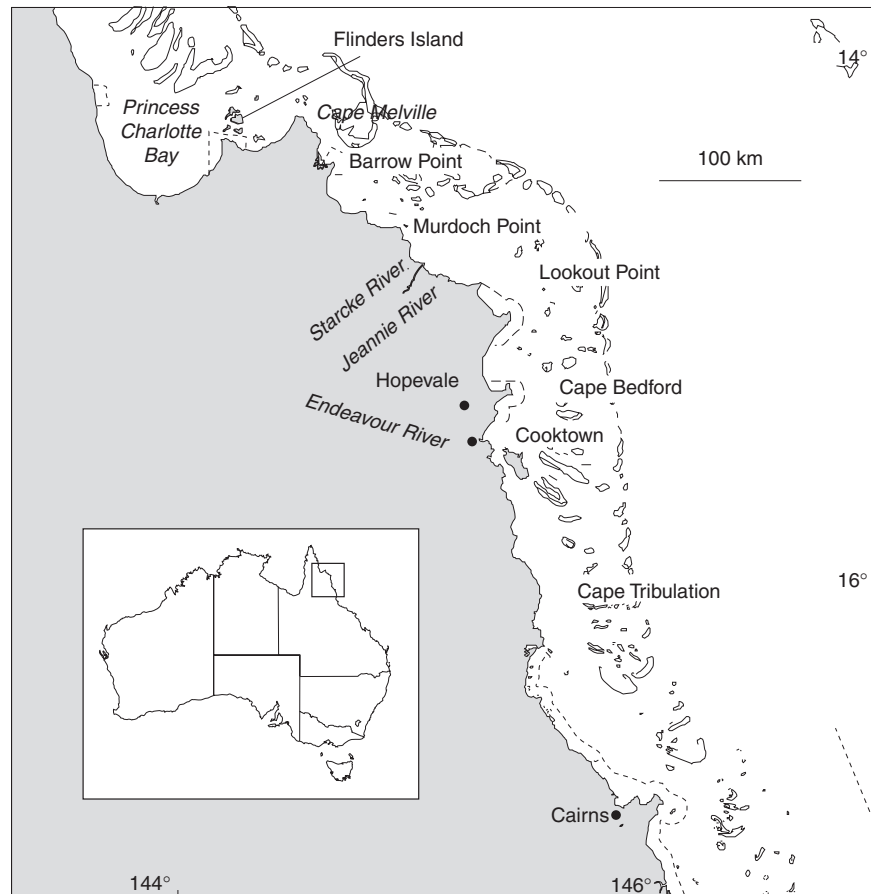


Figure 9.1 Map of the Hope Vale area illustrating the place names mentioned in the text.

Site profile

The Cape York region of Queensland in Australia is large (150 000 km²), supports a very small human population (~15 000 including 10 000 Aboriginal people) and has high biodiversity values. Hope Vale Aboriginal Community is situated about 45 km north of Cooktown on the east coast and 26 km by road from the coast adjacent to the GBR World Heritage Area (Fig. 9.1).

Hope Vale is the hometown of the Guugu Yimithirr people. The community has a population of about 1200 people. Their average income is low by Australian standards: 63% of Aboriginal people on Cape York have annual incomes of less than US\$8500. Altman (2004) points out that this value ignores the contribution of the customary sector of the economy, which is not monetized and therefore not

quantified or recognized in mainstream terms. Most people are dependent on social welfare payments from the Australian government that are largely delivered by the Commonwealth Government's Community Development Employment Program (CDEP), which is administered by the Hope Vale Aboriginal Council as part of its local government responsibilities (Altman and Gray 2000). Scheme participants generally work part-time for wages on community-orientated jobs (Arthur 1999). Several part-time community rangers are employed under this program in an attempt to undertake the day-to-day management of the community's land and sea country.

CDEP participants combine this 'working for the dole', with other activities including customary hunting and fishing as they see fit. Dugong and turtle hunting are very important customary practices. Most dugong hunting and butchering occurs north of Lookout Point (Fig. 9.1). Turtle hunting is more widespread, mostly occurring on inshore and offshore reefs. Turtles are usually brought back alive and butchered near beach camps on the coast near the community.

The management context

Prior to 1870, the Guugu Yimithirr people maintained one language but traditionally occupied land that was divided into about 37 separate family groups, within 15 clan estates, where each was protected by a strict set of laws governing belief and land title. Today the clans and family groups are still responsible for their traditional land and sea countries and thus are the potential partners in co-management with the managing agencies.

The Commonwealth (national) and Queensland (provincial) governments share statutory responsibility for this region. GBRMPA determines the policies that govern the operation of the GBR Marine Park, which ends at the low water mark. The extensive intertidal region is under the jurisdiction of the Queensland government and is in the GBR Coast Marine Park. The land is under state (local government) jurisdiction. The complexity of these jurisdictional arrangements have made it difficult to develop a satisfactory legal framework to manage indigenous hunting, especially as the legal situation surrounding the rights of indigenous Australians has been (and still is) extremely complex, controversial, and volatile.

In 1992, the Australian High Court made the landmark decision to recognize the potential existence of native title (*Mabo v The State of Queensland No 2* (1992) 173 CLR 1). This decision provided a new framework for the recognition of indigenous rights to land, sea and wildlife, and gave the indigenous peoples some bargaining power over the management of their traditional lands (Davies et al. 1999). The High Court of Australia confirmed the potential for native title to exist over customary sea country in October 2001 (*Commonwealth of Australia v Yarmirr* (2001) HCA56 (11 October 2001)). The High Court determined that native title over the sea, in the case on which their judgment was based, was not exclusive, and that interests of importance specifically include traditional hunting of dugongs and turtles. This

precedent has been confirmed in a subsequent sea-country determination. Although the existence of native title in the sea country of the Guugu Yimithirr people has not been confirmed at the time of writing this review, the potential for such recognition has complicated negotiations about the management of dugong and turtle hunting since the early 1990s.

Towards cooperative management

GBRMPA initiatives: 1983–1996

As part of the process of drafting plans to zone or rezone the GBR Marine Park, the GBRMPA is required to formally consult with stakeholders. In their submission, regarding the initial zoning of the section of the park spanning the sea country of the Guugu Yimithirr people, Marsh and Heinsohn (1982) expressed concern over the possible overexploitation of dugongs in the Starcke River region (Fig. 9.1). As a result, GBRMPA staff met with members of the Hope Vale community on several occasions to explain the zoning plan with its requirements for permits for traditional hunting (Smith and Marsh 1990). There were problems with these negotiations resulting from: (1) the inherent problems of public meetings in Aboriginal communities; (2) a lack of understanding of the community dynamics by agency staff; and (3) the hunters' reluctance to voice their concerns about the marine park. As a result, most of the negotiations were conducted between GBRMPA staff and members of the Hope Vale Community Council, not all of whom were conversant with or representative of the hunters' perspective (Smith and Marsh 1990).

GBRMPA first implemented a dugong permit system in 1983 (Smith and Marsh 1990). On the basis of scientific advice, 20 individual permits were issued prior to a four week open hunting season in January 1984. The permit conditions were: (1) one dugong per hunter, or a quota of 20 for the community for the season; (2) no female dugongs with attendant calves to be taken; (3) no firearms to be used; (4) catch data sheets to be completed and returned; (5) the permits to be available for inspection within the park; and (6) the permits to be valid only north of the Endeavour River (Fig. 9.1). The permits were allocated on a first come, first served basis. No permits were issued for turtles; their harvest continued to be unregulated. GBRMPA advised the community of possible penalties for infringement of permit conditions under the relevant legislation.

The introduction of the dugong hunting permit system at Hope Vale by this managing agency resulted in widespread apprehension, confusion, and misconception in the community regarding the existence, function, and regulation of the GBR Marine Park (Smith and Marsh 1990). The Hope Vale people felt victimized as at that time, GBR Marine Park regulations on dugong hunting were applied to them but not to members of the other east coast Aboriginal communities. In addition, at that time, there was limited control over other anthropogenic effects on dugongs such as commercial gill netting and shark meshing for bather protection (Marsh

2000; Marsh et al. 2005). Community members considered the permits to be a serious infringement of their traditional hunting rights. There was dissatisfaction with the number of dugongs allowed per permit and the permit allocation arrangements. Some non-hunters received permits while known hunters missed out, exacerbating pre-existing tensions within the community. There was also general dissatisfaction with the manner in which some management officers interacted with community members. Thus, the introduction of a dugong permit system at Hope Vale resulted in the community being hostile towards the management agencies (Marsh et al. 1984), a bad start from which it has been difficult to recover.

Although minor alterations were made in the method of distributing the permits for the 1985 and 1986 hunting seasons, the general discontent remained. These management developments raised the awareness of Hope Vale residents to the government's concern for the management and conservation of dugongs. They also resulted in a disproportionate amount of attention being focused on dugong hunting, so that the quota became a target (Smith and Marsh 1990).

After an extensive period of research in the community, Smith recommended a hierarchical list of management options (Smith 1987; Smith and Marsh 1990). In increasing severity, they were: (1) community dugong hunting permits; (2) declaring current dugong hunting areas as official hunting areas; (3) closed seasons; and (4) quotas. This broad management system was designed to allow each indigenous community hunting in the GBR Marine Park to be covered by the same scheme, but had the flexibility to cater for both community circumstances and specific circumstances. It also allowed for different options as circumstances changed.

The Marine Park Authority adopted these recommendations but in practice applied them only to the Hope Vale community. Between 1986 and 1991, GBRMPA issued permits for dugong hunting to the Hope Vale Aboriginal Council for the whole community. The area used by the community for hunting was informally designated as the hunting area. This designation served two functions: (1) recognition of Aboriginal hunting rights for the area; and (2) a disincentive for the community to expand hunting into other areas (should the means become available) until the status of the dugong population was confirmed. The day-to-day management agency was responsible for maintaining catch records for the community. Provision was made for the collection of dugong skulls, or at least the tusks, and any available capture information. The first permit for turtle hunting was issued in December 1986 and four community permits had been issued to the community council by 1996, each for approximately one year and for an unspecified number of turtles.

No permits for dugong hunting were issued between February 1991 and November 1997 when the practice of issuing permits was resumed at the request of the Hope Vale Community. This request was prompted by an incident in late 1996 when a community resident allegedly killed up to 11 dugongs in one hunting session. Reports of this incident caused concern in the community (and amongst the management agencies). The incident was investigated but there was insufficient evidence to mount a prosecution (Smith 1998).

Cooperative initiatives: 1997–1999

The community approached GBRMPA after this alleged incident, specifically requesting assistance to develop a plan to enable the community to manage their turtle and dugong hunting. While this incident was a catalyst, the Guugu Yimithirr people, and especially the elders, had become increasingly aware over several years of the need to manage hunting. Their concern was prompted by both their perception of reduced numbers in local populations of both turtles and dugongs, and developments elsewhere in the GBR region. Scientific evidence that dugong numbers had declined along the urban coast of the GBR (Marsh et al. 1996) led to a ban on the issue of permits for traditional hunting south of Cooktown (Fig. 9.1) by the Great Barrier Reef Ministerial Council in 1997 and the declaration of a series of dugong protection areas (Marsh 2000). As one elder from Cape York put it (Williams 1996): ‘You know my boy them dugong are in trouble down south, it can happen up here if I don’t start looking after them now’.

The Hope Vale Natural and Cultural Resource Management Office, through its coordinator, became a driving force behind the development of a hunting management plan. The community invited the managing agencies for the GBR region (the GBRMPA and the Queensland Parks and Wildlife Service) to become involved. This stimulated in-kind support, including the implementation of the dugong information and education strategy in indigenous communities (Hunter and Williams 1997), training for rangers in permit allocation (Hunter 1998), and a contractual agreement to fund a consultant to collate all previous work undertaken into a draft plan for community feedback.

As explained by Nursey-Bray (2000), the consultation process for the plan involved key hunters from the relevant clan estates, key traditional owner representative organizations, and members of the local Turtle and Dugong Hunting Management Council, which was established during the planning process to:

- Ensure that sustainable hunting practices are maintained and implemented
- Ensure that traditional knowledge about turtle and dugong hunting and species are maintained and handed down to the youth of the community
- Ensure that the Turtle and Dugong Hunting Management Plan is implemented and practised (HVAC 1999)

The local native title representative body, the Cape York Land Council, was integrally involved, allowing one of its key staff members to work on the plan intermittently for almost a year (Nursey-Bray 2000). The plan was reviewed by the council’s lawyers and was read and commented on by the council’s senior staff, including traditional owners of country in the region that had sufficient qualifications and expertise to comment on native title considerations. The Cape York Land Council also funded the production and printing of the plan. During the planning process, a workshop was held to explain the draft plan to key non-indigenous stakeholders, including representatives of government agencies, NGOs and researchers.

Box 9.1 Principles underlying the Hope Vale Turtle and Dugong Hunting Management Plan

- (1) Recognition of traditional owner and historical owner custodianship of marine estates.
- (2) Recognition of sea rights.
- (3) Recognition and commitment to community responsibility for sea management.
- (4) Recognition of cultural importance of indigenous hunting.
- (5) That any curtailment of hunting will not be accepted if it diminishes native title in any way.
- (6) Recognition of the knowledge of the elders past and present about both turtle and dugong and traditional hunting.
- (7) Recognition of traditional knowledge and its incorporation and acknowledgement where possible into the plan.
- (8) That the plan reflect and be part of the tradition of transmission of hunting knowledge over time.
- (9) That hunting traditions are maintained.
- (10) That this plan is part of a wider planning process both indigenous and non-indigenous. This includes processes of sub-regionalization, land and sea management, plan development and legislative and other policy directions.
- (11) Whilst this community will accept responsibility for managing its impact upon these species, it expects other sectors, which impact on the turtle and dugong to do likewise.

Staff members of the managing agencies were closely involved in the process (Smith 1998; Nursey-Bray 2000).

A Guugu Yimithirr Bama Wii – Girrbithi and Ngawiya – A Turtle and Dugong Hunting Management Plan (HVAC 1999) was formally endorsed by the signatures of 38 community members including: the chair of the key local corporations and the local council; 19 elders; a representative of the local Elders Justice Network; the chair and several members of the local Turtle and Dugong Hunting Management Council; the project and plan convenor; and the community rangers.

The plan's underlying principles indicated that it was an important step forward by the community to secure outside acceptance of its ability to enter into the marine management arena and to demand to be respected and involved on its own terms (Box 9.1).

These aspirations assert the indigenous rights of use that provided the momentum for the plan. They are also the embodiment of the assumption of the Guugu Yimithirr of their right and ability to manage their sea country and its wildlife resources effectively (Nursey-Bray 2003). The vision of the Hope Vale plan is: 'To develop and implement controlled and sustainable hunting practices that will minimize

the impact on, and contribute to the protection and survival of dugong (Girrbithi) and turtle (Ngawiya) species for the enjoyment and use of future generations' (HIVAC 1999).

This vision is accompanied by a supporting statement that the plan would in no way compromise native title. The plan clearly states (HVAC 1999) that it is to be considered a living document that will: 'Remain flexible and open to amendment at all times, subject to community, review, evaluation and appropriate consultations in order to anticipate and incorporate changes in native title issues, legislation and community needs as appropriate and desired by the Hope Vale community'.

The plan has five objectives (Box 9.2). Together with the vision, they articulate the community's aspirations. The plan opens with a dedication to the elders and subsequently a number of statements from traditionally-affiliated and historically-associated individuals from across the community and clans that express support for the document. These statements are a strong affirmation that the community drove the planning process (Nursey-Bray 2003). They also express the key priorities that informed the planning at all times. These have included the wish for community by-laws, the need to maintain traditional and historical associations with culture and identity, the important role of elders, the importance of sharing responsibility, and the need to work together and maintain community ownership of the plan.

The establishment of the Turtle and Dugong Hunting Management Committee was a very important step in plan development and was an acknowledgment of the need for the indigenous community to be involved in management. The committee's

Box 9.2 Objectives of the Hope Vale Turtle and Dugong Hunting Management Plan (HVAC 1999)

- (1) To develop a controlled indigenous hunting regime for Dugong (Girrbithi) and Turtle (Ngawiya) through careful planning, monitoring, and management.
- (2) To protect dugong and turtle habitat by managing the activities carried out on the land and sea by both Traditional Owners and visitors according to the desires of the Traditional Owners.
- (3) To maintain the activity, knowledge, and skill of traditional hunting for turtle and dugong ensuring that this important cultural activity is continued through future generations.
- (4) To assist the community to develop and/or reinstate customary laws to manage traditional hunting in conjunction with State and Commonwealth legislation.
- (5) To revitalize respect for the law and sea management aspirations of individual clan groups and identify ways in which these groups can work together to ensure the survival and prosperity of dugong and turtles.

membership aimed to include all representative agencies and bodies at Hope Vale, to be across clan groups, and to reflect the whole of community aspirations (male and female) about traditional hunting. This group decided to take responsibility for the plan and its implementation and worked together to develop the vision statement and definition of roles (Nursey-Bray 2000).

The community decided to use the same management tools that had characterized the earlier initiatives by the managing agencies including: a hunting region that was the same as that defined under the community permits issued by GBRMPA; a defined hunting season over the summer holidays (15 December to 15 February); community hunting permits as issued by GBRMPA for 20 dugongs and 25 turtles (similar numbers to those authorized by the original GBRMPA community permits that reflected contemporary scientific advice). The plan also reflected important new developments that asserted community responsibility and control including:

- A body representative of hunting interests in the community, the Turtle and Dugong Hunting Management Council that includes representatives of traditional owners, hunters, community rangers, and the Elders Justice Network to determine who receives hunting authorities under the community permits, who should get punished for breaches, and the resultant penalties.
- A community license framework with hunting authorities (to be provided by GBRMPA) to be distributed through the Natural and Cultural Resource Management Office by the rangers and coordinator.
- Penalties for infringement including a mix of Aboriginal justice and prosecution by the managing agencies (for third or serious offences).
- Hunting authorities limited to one per immediate family with disputes over allocation referred to mediation and resolution by the Turtle and Dugong Hunting Management Council.
- A ban on non-indigenous people participating in hunting expeditions.
- Provision of special hunts for funerals but
- A ban on hunts for weddings and birthdays.
- Provision of a special hunt each year to provide meat for the old people in the community.
- Butchering rules for turtles that address animal welfare concerns.
- Bans on taking turtle eggs, and removing a turtle shell from the butchering site.
- A recommendation that two rangers be employed each year to monitor the hunt and enforce the plan.
- A requirement for hunters to check in with rangers on return from a hunt to ensure that catch information is recorded.
- A requirement that the plan apply to all people living within the Hope Vale local government region as well as to relevant groups living outside this jurisdiction.

The plan did not designate specific responsibilities and timelines for its implementation. It did, however, make a series of 17 recommendations that were designed to facilitate the implementation process.

The Hope Vale primary school was involved throughout the project. All artwork included in the final document was done by the children as part of an art competition featuring turtles and dugongs. This competition was run in conjunction with an education program about the values of turtles and dugongs. The final launch of the plan took place at the school assembly, and concluded with the children singing a song about turtle and dugong hunting protection and management, and a community barbeque. This whole process: (1) promoted an awareness amongst the children (the future hunters) about the plan and the importance of hunting management; (2) created a sense of ownership by the children through the inclusion of their artwork in the final document; and (3) involved the adults as parents, facilitating community pride in the project (Nursey-Bray 2000). This pride was strengthened six months later when the community's plan was awarded the Australian Prime Minister's Community Environment Award 2000.

The post-planning period: 1999–2001

After the plan's launch, Hope Vale community faced many challenges including the death of key elders and individuals, who had championed the plan in the community, personnel changes in the coordinators and rangers employed in their Natural and Cultural Resource Management Office, a complete turnover of staff at the Indigenous Policy Liaison Unit at GBRMPA, who had championed the plan in that agency, and a lack of resources for implementation. Despite being a member of the government that had awarded the Australian Prime Minister's Community Environment Award 2000 to the plan, the then Commonwealth Minister for the Environment effectively prevented GBRMPA from issuing community hunting permits as required by the plan, allegedly because he feared backlash from conservation groups. Changes to the case law regarding native title also altered the community's political landscape and the legal position of traditional marine hunting. In addition, new national environmental legislation (Commonwealth Environmental Protection and Biodiversity Conservation Act 1999) strengthened and clarified GBRMPA's position with respect to the protection of the GBR region's World Heritage values, including dugongs and turtles.

As a result of these developments, the Hope Vale Turtle and Dugong Hunting Management Plan was not implemented effectively, despite the enthusiasm evident at its launch in late 1999, and the subsequent accolade from the Australian Prime Minister. Several meetings involving both the community and staff of the managing agencies were convened in 2000 and 2001 to address the issue of implementation. None of the 13 relevant recommendations were fully addressed.

Subsequent developments

Although western scientists have been concerned about the sustainability of the indigenous harvests of the stocks of dugongs and turtles in the Cape York region

and adjacent Torres Strait for many years, the scientific evidence of overharvest has strengthened recently (Limpus 1999; Chaloupka 2002, 2003; Marsh 2003; Heinsohn et al. 2004; Marsh et al. 2004, 2005). Despite numerous attempts to present the scientific information in an accessible format, many indigenous people still do not accept this evidence. In addition, a survey of indigenous fishing in northern Australia (Henry and Lyle 2003) produced controversial estimates of the magnitude of the take of dugongs and turtles. These estimates raised the public profile of the issue and polarized the positions of some conservationists and indigenous groups.

In 2003, the Australian Minister of Environment instructed that the matter of this overharvest be addressed with high priority. The Marine and Coastal Committee of the Natural Resource Management Ministerial Council established a cross-jurisdictional task force on dugong and marine turtle populations and asked that it develop a national approach to assist in ensuring that the indigenous harvests of dugongs and marine turtles is sustainable and legal. The task force included representatives from Commonwealth, State and Territory government departments and agencies responsible for environment, natural resource management, and indigenous issues. The Ministerial Council subsequently endorsed the National Partnership Approach, which was released in November 2005. The approach contains five goals supported by a number of objectives and also outlines possible activities that could be used to implement it (<http://www.deh.gov.au/coasts/species/turtles/national-approach.html>). These goals are:

- (1) Improve the information base available to indigenous communities for managing the sustainable harvest of turtles and dugongs.
- (2) Respect for indigenous and non-indigenous knowledge and management.
- (3) Improve education and awareness.
- (4) Identify the economic, social, and cultural factors that may contribute to unsustainable harvest levels and identify and implement measures to address them.
- (5) Protect sea country resources.

Both Commonwealth and State management agency staff are currently consulting with traditional owners about the management of the dugongs and green turtles in relation to all anthropogenic effects, not just indigenous hunting. In addition, considerable government funding from the National Heritage Trust has recently been earmarked for community-based management and catch monitoring initiatives for dugongs and green turtles across some of the remote regions of northern Australia, potentially assisting with the problem of resources that was one of the impediments to the implementation of the Hope Vale plan and of most co-management initiatives with indigenous peoples in Australia (Davis et al. 1999).

Within the GBR region, the relevant management agencies are attempting to address all known human effects on sea turtles and dugongs (Marsh et al. 2005). The 2003 GBRMP Zoning Plan (GBRMPA 2004), which is a statutory document,

specifically makes provision for Traditional Use of Marine Resource Agreements (TUMRAs) (Havemann et al. 2005). Guidelines for establishing TUMRAs are being established in consultation with indigenous representative bodies. TUMRAs are envisaged as the primary mechanism for reconciling traditional use of the marine environment including hunting with the conservation of biodiversity by encouraging indigenous peoples to exercise their stewardship role in conservation in a culturally appropriate and scientifically robust manner. TUMRAs will also be consistent with the Commonwealth Native Title Act 1993. Each TUMRA will describe how an individual indigenous group would like to manage the traditional use of marine resources in its sea country. Once such an agreement is finalized, parties to a TUMRA can apply to GBRMPA to have it accredited. As part of the TUMRA process, communities such as Hope Vale will be encouraged to develop management arrangements for dugong and turtle hunting. The Hope Vale Turtle and Dugong Management Plan will presumably be reviewed and revised as necessary as part of the process of accrediting the two TUMRAs foreshadowed for the sea country of the Guugu Yimithirr people.

Discussion and conclusions

Over the last 20 years, members of Hope Vale community and the agencies with statutory responsibility for that community's sea country have come a long way both together and separately in their attempts to address the difficult issue of sustainable marine hunting of dugongs and green turtles (Marsh et al. 1984; Baldwin, 1985, 1988; Smith and Marsh 1990; Williams 1996; Benzaken et al 1997; Hunter and Williams 1997; Hunter 1998; Nursey-Bray 2000, 2003; Marsh 2003). Considerable cash and in-kind investments by government agencies (particularly GBRMPA), the community and other sources (such as the Pew Charitable Trust Foundation and James Cook University) have underwritten this progress. However, most of this support has been spent in negotiations with the community and in scientific research rather than in helping the community with on-ground management initiatives.

The process of producing A Guugu Yimithirr Bama Wii – Girrbithi and Ngawiya – the Hope Vale Turtle and Dugong Management Plan, was a significant achievement by Hope Vale community. Hope Vale was the first major dugong and turtle hunting community in northern Australia to have produced a comprehensive plan for managing marine hunting. Some other remote indigenous communities are now viewing this plan as a prototype for their own initiatives.

The present national approach to the problem, the development of TUMRAs in the GBR region and the re-zoning of the GBRMP (Marsh et al. 2005) potentially overcame several of the major concerns of the Hope Vale community: (1) hunting regulations were applied to them but not to members of other indigenous communities; (2) their plan was not recognized in law; (3) resources to implement their plan were extremely limited and short-term; (4) there was a perceived emphasis by the managing agencies on indigenous hunting rather than all anthropogenic

effects; (5) there was a focus on indigenous hunting rather than more generally on the management of sea country.

Many lessons have been learned as a result of this complex journey towards the cooperative management of indigenous marine hunting by Hope Vale Aboriginal community and the policy-makers and day-to-day managers who are responsible for the management of the adjacent Great Barrier Reef World Heritage Area. These lessons need to be distilled to inform other attempts at managing marine hunting and fishing, especially of threatened species of cultural significance. My list of such lessons follows:

- Management of the use of marine resources of indigenous peoples should address the dual imperatives of social justice and biodiversity conservation. In a developed country such as Australia, the major concern is long-term employment and capacity building rather than food security.
- Management of the sea country of indigenous peoples should not concentrate on hunting or fishing in isolation. Indigenous peoples wish to be involved in all aspects of the management of their country in a manner that they consider culturally appropriate and that uses their traditional knowledge.
- It is important for managing agencies to spend time in culturally appropriate education and extension programs before management initiatives are negotiated. Communities must understand a problem if they are to respond effectively.
- When dealing with a matter as symbolic of cultural identity as indigenous hunting of megafauna, it is important to develop a management framework at a regional scale. If individual communities are treated as a prototype they will resent an initiative that does not apply to other communities. Communication between communities, even isolated communities in remote areas with a low socio-economic base, is now fast and efficient. Another imperative for implementing management at a regional scale is that both dugongs and sea turtles undertake extensive movements (Marsh et al. 2004).
- Community-based initiatives must have the potential for formal legal recognition. Communities are unlikely to be able to enforce community-based management initiatives today without such support.
- Indigenous communities are understandably wary of initiatives that they consider threatening to their aspirations. In Australia, this includes native title aspirations. Thus management initiatives should acknowledge these concerns.
- Management initiatives should be culturally appropriate and developed by the community and the managing agencies together. Successful initiatives are an iterative mixture of both top-down and bottom-up strategies. Top-down initiatives from managing agencies are important for statutory support, capacity building and resources. Bottom-up initiatives from the community are an essential prerequisite for community ownership and control. Features of effective indigenous community wildlife management in Australia have been identified by Davies and colleagues (1999).

- Management arrangements need to be flexible and adaptive, allowing the management partnerships to grow iteratively in a distinct cycle, which treats management intervention as a hypothesis for testing and evaluation. This approach allows all parties to test their assumptions systematically and to measure how well the arrangements have worked and improve them if necessary. Robinson and colleagues (in press) outline a suggested process. Thus successful co-management initiatives are likely to take many years to develop.
- The problem and the proposed solution have to be owned by many people in both the community and the managing agencies, rather than a few champions. An initiative must have the capacity to survive changes in personnel.
- Negotiations about management of sea country must be conducted in a manner that allows all parties to participate on an equal footing, and to respect each other's aspirations. Jones (2004) provides practical advice on how to set an effective negotiation table in such circumstances.
- Planning management initiatives is much easier than implementation, which requires resources and community capacity. The resources required for implementation should ideally be available before planning is completed to capitalize on the momentum generated during the planning phase and as an incentive during the negotiation process.
- Although, as explained above, some funds have been provided by the Australian Government to support community-based management of dugongs and sea turtles in northern Australia, this funding is project-based and short-term. A secure long-term funding base is required. Altman (2003) notes that: 'supporting indigenous economic futures on country has the potential to generate benefits not just for Aboriginal people but also for a variety of national stakeholders'. The development of local indigenous natural resource management of land and sea country in the remote regions of northern Australia is a potentially cost-effective option (Smith 2004). Such an initiative has the potential to provide employment opportunities in communities that are at present largely dependent on social security to manage remote areas that are currently managed largely by benign neglect. Using locals should be much more cost-effective than meeting the logistical challenge and expense of relocating management agency staff from other areas, either permanently or on an expeditionary basis.
- Australian indigenous communities do not trust western research or researchers. Nonetheless, because research is conducted over many years, it provides a valuable opportunity to build trust by following agreed protocols and should be considered as part of the community education and extension process. Meaningful indigenous participation even extending to 'co-managed' research at all levels of the research process from framing and prioritizing the questions, designing the research protocol, collecting and analyzing the data, and disseminating the results helps to build trust in the outcomes of the research process, especially if the results can be set in the context of relevant traditional knowledge (Innes and Ross 2001).

References

- Anonymous (1992) *Agenda 21, Rio Declaration on Environment and Development*. <http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm>
- Altman, J.C. (2003) *Peoples on Country, Healthy Landscapes and Sustainable Indigenous Economic Futures: the Arnhem Land Case*. Paper presented at the International Association for Landscape Ecology World Conference 2003.
- Altman, J.C. (2004) Development options on Aboriginal land: sustainable indigenous hybrid economies in the twenty-first century. In: G. Ward, S. Davies and G. Gray (Eds) *The Power of Knowledge, the Resonance of Tradition*. Aboriginal Studies Press, Canberra.
- Altman, J.C. and Gray, M.C. (2000) *The Effects of the CDEP Scheme on the Economic Status of Indigenous Australians: Some Analyses Using the 1996 Census*. Centre for Aboriginal Economic Policy Research, Australian National University, Discussion Paper 195.
- Arthur, W.S. (1999) *Careers, Aspirations and the Meaning of Work in Remote Australia: Torres Strait*. Centre for Aboriginal and Economic Policy Research, Australian National University, Discussion Paper 190.
- Baldwin, C. (1985) *Management of Dugong: an Endangered Marine Species of Traditional Significance. The Need for User Involvement in an Integrated Program of Research, Management and Education*. Great Barrier Reef Marine Park Authority, Townsville, Technical Report 1.
- Baldwin, C. (1988) Management of dugong: an endangered marine food species of traditional significance: the need for user involvement in an integrated program of research, management and education. In: F. Gray and L. Zann (Eds) *Workshop on Traditional Knowledge of the Marine Environment in Northern Australia*. Great Barrier Reef Marine Park Authority, Townsville, Workshop Series 8.
- Benzaken, D., Smith, G. and Williams, R. (1997) A long way together; the recognition of Indigenous interests in the management of the Great Barrier Reef World Heritage Area. In: *State of the Great Barrier Reef World Heritage Area Workshop*. Great Barrier Reef Marine Park Authority, Townsville.
- Bomford, M. and Caughley J. (Eds) (1996) *Sustainable Use of Wildlife by Aboriginal Peoples and Torres Strait Islanders*. Australian Government Publishing Service, Canberra.
- Chaloupka, M. (2002) Stochastic simulation modelling of southern Great Barrier Reef green turtle population dynamics. *Ecological Modelling*, **148**: 79–209.
- Chaloupka, M. (2003) *Phase 2: Development of a Population Model for the Southern Great Barrier Reef Green Turtle Stock*. Great Barrier Reef Marine Park Authority, Research Publication 81.
- Davies, J., Higginbottom, K., Noack, D., Ross, H. and Young, E. (1999) *Sustaining Eden: Indigenous Community Based Wildlife Management in Australia*. International Institute for Environment and Development, London.
- Freeman, M.M.R., Bogoslovskaya, L., Caulfield, R.A., Egede, I., Krupnik, I.I., Stevenson, M.G. (1998) *Inuit, Whaling and Sustainability*. Altamira Press, Lanhan MD.
- GBRMPA. (1981) *Nomination of the Great Barrier Reef by the Commonwealth of Australia for Inclusion on the World Heritage List*. Great Barrier Reef Marine Park Authority, Townsville.

- GBRMPA (2004) *Great Barrier Reef Marine Park Zoning Plan 2003*. Great Barrier Reef Marine Park Authority, Townsville.
- Havemann, P., Thieret, D., Marsh, H. and Jones, C. (2005) Decolonising conservation? Traditional use of marine resource agreements and dugong hunting in the Great Barrier Reef World Heritage Area. *Environmental and Planning Law*, **22**: 258–80.
- Heinsohn, R., Lacy, R.C., Lindenmayer, D.B., Marsh, H., Kwan, D. and Lawler, I. (2004) Unsustainable harvest of dugongs in Torres Strait and Cape York (Australia) waters: two case studies using population viability analysis. *Animal Conservation*, **7**: 417–25.
- Henry, G.W. and Lyle, J.M. (Eds) (2003) *The National Recreational and Indigenous Fishing Survey, July 2003*. Australian Government Department of Agriculture, Fisheries and Forestry, Canberra. http://www.ffa.gov.au/corporate_docs/publications/pdf/fisheries/final_recsurvey_report.pdf
- Hilton-Taylor, C. (2000) *The 2000 Red List of Threatened Species*. IUCN, Gland, Switzerland.
- Hunter, B. (1998) *Community Based Management Initiatives for Marine Turtle and Dugong*. Report to Great Barrier Reef Marine Park Authority, Townsville.
- Hunter, B. and Williams, R. (1997) *Sustainable Hunting: In Search of a Solution*. Sea Turtle Management and Conservation in Northern Australia Workshop.
- HVAC (1999) *A Guugu Yimithirr Bama Wii – Girrbiti and Ngawiya – A Turtle and Dugong Hunting Management Plan*. Hope Vale Aboriginal Community, Hope Vale, Australia.
- Innes, J., and Ross, H. (2001) *Co-managed Research as a Strategy for Informing the Development of Indigenous and Government Management Partnerships over the Great Barrier Reef*. International Association for the Study of Common Property Inaugural Pacific Regional Meeting, Brisbane, QLD. Available at Digital Library of the Commons, <http://dlc.dlib.indiana.edu/documents/dir0/00/00/07/03/index.html>
- Johannes, R.E. and MacFarlane, J.W. (1991) *Traditional Fishing in the Torres Strait Islands*. CSIRO Division of Fisheries, Hobart.
- Jones, C. (2004) Is there a future for coexistence? A question of strategy. *Indigenous Law Bulletin*, **6**: 15–18.
- Limpus, C. (1999) *Green Turtle, Chelonia mydas in Queensland: Population Status and Sustainable Harvest, September 1999 Review*. Report to Queensland Parks and Wildlife Service, Brisbane.
- Marsh, H. (2000) Evaluating management initiatives aimed at reducing the mortality of dugongs in gill and mesh nets in the Great Barrier Reef World Heritage Area. *Marine Mammal Science*, **16**: 684–94.
- Marsh, H. (2003) *Progress Towards the Cooperative Management of Marine Hunting by a Remote Indigenous Community and Government Agencies in the Great Barrier Reef Region*. GBRMPA/JCU Final Report, Townsville.
- Marsh, H., and Heinsohn, G.E. (1982) *Zoning the Cairns Section of the Great Barrier Reef Marine Park for the Conservation and Management of Dugongs (Dugong dugon)*. Report to Great Barrier Reef Marine Park Authority, Townsville.
- Marsh, H., Smith, A. and Kelly, G. (1984) *Dugong Hunting by Members of the Hopevale Aboriginal Community and the Initial Reaction to the GBRMP and the Dugong Permit System*. Report to the Great Barrier Reef Marine Park Authority, Townsville.

- Marsh, H., Corkeron, P., Lawler, I.R., Lanyon, J.M. and Preen, A.R. (1996) *The Status of the Dugong in the Southern Great Barrier Reef Marine Park*. Great Barrier Reef Marine Park Authority, Townsville, Research Publication 41.
- Marsh, H., Lawler, I., Kwan, D., Delean, S., Pollock, K. and Alldredge, M. (2004) Aerial surveys and the potential biological removal technique indicate that the Torres Strait dugong fishery is unsustainable. *Animal Conservation*, **7**: 435–43.
- Marsh, H., De'ath, G., Gribble, N. and Lane, B. (2005) Historical marine population estimates: triggers or targets for conservation? The dugong case study. *Ecological Applications*, **15**: 481–92.
- Nursey-Bray, M. (2000) *A Guugu Yimmithirr Bama Wii Ngawiya and Girrbithi, The Turtle and Dugong Hunting Management Plan – Hopevale, a Background Report*. Consultancy report to the GBRMPA and Hope Vale Aboriginal Council.
- Nursey-Bray, M. (2003) Fishing for answers: the incorporation of indigenous knowledge in Australia: developing cross cultural literacy. In: N. Haggan, C. Brignall and L. Wood (Eds) *Putting Fishers Knowledge to Work, A Fisheries Research Centre Report*, Vol. 11. VUBC, Vancouver, Canada.
- Ponte, F., Marsh, H. and Jackson, R. (1994) Indigenous hunting rights – ecological sustainability and the reconciliation process in Queensland. *Search*, **25**: 258–61.
- Robinson, C.J., Ross, H. and Hockings, M. (in press) *Development of Co-operative Management Arrangements in the Great Barrier Reef; an Adaptive Management Approach*. CRC Reef Research Centre, Technical Report 55.
- Smith, A. (1987) An Ethnobiological Study of the Usage of Marine Resources by Two Aboriginal Communities on the East Coast of Cape York Peninsula, Australia. PhD thesis, James Cook University, Townsville.
- Smith, A.J. and Marsh, H. (1990) Management of traditional hunting of dugongs (*Dugong dugon* (Muller, 1776)) in the Northern Great Barrier Reef, Australia. *Environmental Management*, **14**: 47–55.
- Smith, B.R. (2004) *Some Natural Resource Management Issues for Indigenous People in Northern Australia*. Paper presented at the Arafura Timor Research Facility Forum: Research in the Arafura Timor Seas, Australian National University, Canberra. http://www.anu.edu.au/nie/events/2004_atrf/paper_smith.html
- Smith, G. (1998) *The Hope Vale Hunting Management Plan, Guugu Yimmithirr Bama Wii, Community Strategy for the Management of Traditional Hunting*. Report to Great Barrier Reef Marine Park Authority, Townsville.
- Stokes, T. and Dobbs, K. (2002) *Fauna and Flora of the Great Barrier Reef World Heritage Area*. Report to Great Barrier Reef Marine Park Authority, Townsville.
- Williams, R. (1996) Who's listening and who's learning? Aboriginal and Torres Strait Islander knowledge of turtle and dugong in the Great Barrier Reef Marine Park region. In: *Ecopolitics IX, 1–3 September 1995, Northern Territory University, Darwin*.

