MANAGING FOR ECOLOGICALLY SUSTAINABLE TOURISM USE OF THE GREAT BARRIER REEF WORLD HERITAGE AREA

Michael Vanderzee
Great Barrier Reef Marine Park Authority (Australia)

Abstract: The Great Barrier Reef World Heritage Area is an increasingly popular national and international tourist destination with visitors attracted by the natural setting and values of the area. Since the establishment of the Great Barrier Reef Marine Park in 1975 when tourism was a relatively minor use, tourism use has increased from an estimated 150,000 visitor days per annum in the early 1980s to 1.5 million visitor days in 1994-5. Tourism is now the main commercial use of the Marine Park with an estimated annual economic value to the region of over $A1 billion.

For the past 20 years, the Great Barrier Reef Marine Park Authority (GBRMPA) has managed tourism use in the Marine Park through the use of zoning plans, environmental impact assessment and permitting of individual operations and education programs. Rapid increases in the level and intensity of tourism use over the past three years, particularly in the offshore Cairns and Whitsunday Island areas, have challenged the existing approach and have resulted in a recognition of the need to manage the cumulative environmental and socio-economic impacts of intensive tourism use.

The Authority is adopting a strategic reef-wide approach to the management of tourism use in order to deal with issues such as anchor damage to coral, displacement of existing users, protection of indigenous cultural and heritage values, and the maintenance of a diverse range of tourism values and settings, while continuing to focus on its primary goal, the protection of the natural values of the Great Barrier Reef. This paper presents an outline of the issues currently facing the Authority in managing tourism use and proposes an approach to ensure that tourism use of the Great Barrier Reef remains sustainable.

Keywords: marine tourism, Great Barrier Reef, ecologically sustainable tourism, tourism use management

Introduction

The Great Barrier Reef World Heritage Area

The Great Barrier Reef consists of 2,900 individual reefs and 250 cays off the north-east coast of the State of Queensland, Australia. The reef extends for more than 2000 kilometres from just south of the Tropic of Capricorn northwards into the Torres Strait (Figure 1). The scale and diversity of the habitats offered by the Great Barrier Reef and the great number and diversity of species that they support make it one of the world's most spectacular marine ecosystems. Its location some distance offshore from a coast with relatively low population has meant that until recently it has been exposed to low levels of use.

The Great Barrier Reef Marine Park and the Great Barrier Reef Marine Park Authority (GBRMPA) were established by the Australian Commonwealth Government through legislation in June 1975. The Marine Park is a multiple objective marine protected area, covering more than 345,000 square kilometres and for management purposes is divided into four Sections. The concept of the multiple objective Marine Park is based on achieving the conservation and protection of the Great Barrier Reef while allowing for ecologically sustainable use for tourism, fishing, boating, diving, research and by traditional inhabitants.

GBRMPA has the major responsibility for the protection, conservation and management of the use of the Great Barrier Reef. The integrated management of the Great Barrier Reef Marine Park across the Commonwealth/State jurisdictional boundaries is achieved through agreements and complementary legislative and management arrangements between GBRMPA and the Queensland State Government through the Queensland Department of Environment (see Kenchington, 1990).

In 1981 the Great Barrier Reef Region was inscribed as a property on the World Heritage List on the basis of its outstanding natural values and its integrity as a self-perpetuating ecological system. The World Heritage area is also of significant cultural and historical importance (DEST, 1995). Under Article 4 of the Convention for the Protection of World Cultural and Natural Heritage (UNESCO, 1972), the listing of the Great Barrier Reef Region as a World Heritage property means that Australia accepts an obligation to "do all it can to identify, protect, conserve, present and transmit to future generations the natural and cultural heritage situated on its territory."

The Great Barrier Reef World Heritage Area (the Region) includes the Great Barrier Reef Marine Park (93% of the World Heritage Area), Queensland waters not in the Marine Park (2%) and islands (5%) and extends from the low water mark on the Queensland coast to beyond the continental shelf. Activities in the Region are managed by many agencies, with GBRMPA having the major and most wide-reaching responsibility for its management.

Use of the Great Barrier World Heritage Area

The major uses of the Great Barrier Reef Marine Park are commercial tourism, commercial fishing, recreational boating and fishing and traditional use by Aboriginal and Torres Strait Islander communities.
Figure 1. Great Barrier Reef World Heritage Area.
The use of the Great Barrier Reef World Heritage Area and the adjacent coastal hinterland has changed substantially in nature, extent and intensity over the 20 years since the establishment of the Marine Park. It is anticipated that the future demand for use of the Region will increase in extent and complexity. The past 20 years have also seen a substantial increase in community awareness and expectations in relation to the conservation and protection of areas of international importance such as the Great Barrier Reef.

In the Marine Park, GBRMPA faces specific challenges in managing a large and growing reef based tourism industry and increasing commercial and recreational fishing pressure. In addition, the number of rapidly growing adjacent urban and agricultural areas, the continued demand for of integrated coastal and island based tourist and residential developments and the downstream effects of agricultural land use present significant challenges for the future management of the Great Barrier Reef World Heritage Area (McPhail, 1996).

In the past GBRMPA's role in managing use, including tourism use, in the Marine Park was focussed on managing ecological impacts (Kelleher & Dinesen, 1993). It is now clear that in order to properly meet Australia's World Heritage obligations GBRMPA must adopt a more strategic approach to the management of use of the Great Barrier Reef World Heritage Area which takes into account both environmental and socio-economic factors.

An Overview of Tourism Use

Over the past twenty years, Reef based tourism has grown from a relatively minor use when the Marine Park was established in 1975, with an estimated 150,000 visitor days per annum in the early 1980s (Clannaghould, et al., 1984; Drum, 1987) to become the main commercial use of the Marine Park, with 1.5 million visitor days in 1994-5. Tourism is now the major commercial use of the Great Barrier Reef and contributes an estimated direct and indirect economic value to the region of in excess of $1 billion per annum (estimate based on Drum, 1994).

The Tourism Industry

The operational capacity of the reef based tourism industry has grown at an average of 10% per annum between 1985 and 1995 with estimates of increases in the Cairns region of up to 30% per annum at the height of expansion in the 1980s (Dinets, 1995). There are current projections for growth over the next decade of between 3% and 11% per annum (Tourism Forecasting Council, 1996 and industry estimates). There has also been a corresponding increase in the number of operators, diversity of services and the development and use of new technology. While the marine based tourism industry on the Great Barrier Reef has expanded rapidly over the past 10 years, it is capital and labour intensive and remains highly susceptible to changes in national and international economies, marketing strategies, preferences in holiday destinations and local weather.

The Great Barrier Reef tourism industry is made up of a diverse range of operations, the majority being vessel based, offering a wide range of activities including scuba diving, snorkelling, fishing, game fishing and coral viewing. Specialist vessels such as glass bottom boats, semi-submersibles and large permanently moored pontoons with specially constructed underwater observatories to allow visitors, not able swim, to experience the reef without having to enter the water. The majority of operations can be assigned to one of the industry sectors described in Table 1.

Tourism Use

Based on GBRMPA permit and use data, in 1994-5 there were 864 permitted tourist programs in the Marine Park with a permitted capacity of over 10 million visitor days per annum. In the above period, the conduct of these programs involved 751 separate tourism operators, the use of 1348 permitted vessels and 23 major structure based operations, the conduct of 36 aircraft-based operations as well as the marine based activities associated with at least 20 major tourism resorts located on islands within the Marine Park.

While the marine tourism industry is able to operate throughout most of the Region, tourism use is actually highly concentrated in the offshore Cairns area and the Whitsunday Islands, in the Cairns and Central Sections of the Marine Park. Based on use data returns supplied by tourism operators to GBRMPA, 95% of all permitted tourism use occurs within the 5% of the Marine Park in the offshore Cairns and Whitsunday areas.

In the offshore Cairns area an estimated 50% of tourists travel out to the reef on day trips aboard large vessels (up to 400 passengers) to one of eight permanently moored tourist pontoons. The remainder use smaller vessels that specialise in diving or fishing trips to specific reefs, islands and cays. This area, with its international airport at Cairns, caters for the majority of inbound international tourists visiting the Great Barrier Reef. The other area of intensive use, the Whitsunday Islands, is popular with domestic and younger international visitors. The area supports a substantial amount of vessel based tourism around the eight island based resorts. Offshore there is one large tourist pontoon based operation at Hardy Reef. The sheltered waters of the Whitsundays make it an extremely popular area for bareboat yacht charters, with nearly 300 vessels available for charter. The remainder of Marine
Table 1. Major sectors of the Great Barrier Reef marine tourism industry.

<table>
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<th>Vessel based day trip tourist operations - vessels undertaking day trips to the reef and islands (these can range from small yachts and powerboats of 10m or less with less than 12 passengers to vessels of more than 35m with up to 400 passengers). These operations can be further characterised into one of the following categories:</th>
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<td>* Site specific operations* - offer a regular service (usually daily) to a specific place on one or more reefs</td>
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<tr>
<td>* Area specific operations* - offer a more or less regular and often advertised service (daily or sometimes over several or more days) to a range of reefs</td>
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<tr>
<td>* Roving operations* - offer services at demand or opportunity, most of which are restricted to no more than two days access in any seven period to any specific site</td>
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| Extended vessel based tourist operations - these involve vessels of between 12m and 75m with between 6 and 160 passengers undertaking extended trips of usually a few days and up to two or more weeks throughout the reef with overnight stays usually in a number of different locations. |

| Bareboats for charter (with or without crew) - this is a sector primarily based in the Whitsunday Islands and to a lesser extent in other areas. Yachts and power boats of between 8m and 15m with capacity for 4 to 10 passengers are usually available for bareboat charter within a restricted area. |

| Cruise ships - a number of large (greater than 10,000 gross tonnes) foreign flag cruise ships pass through and anchor overnight in the Marine Park and provide a range of tourism experiences in conjunction with island resorts and pontoon based operations. |

| Aircraft based tourist operations - involving the use of conventional aircraft, seaplanes, helicopters and more recently ultralight aircraft for sightseeing, transfers to cays, islands, vessels and resorts. |

| Structure based tourist operations - involving the use of structures, such as tourist pontoons, underwater observatories or in a limited number of cases vessels with overnight accommodation, permanently moored at a reef. |

| Resort and other shore based tourist operations - there are a number of major resort based operations in the GBRMPA. These are mainly island based resorts but there are also a number of mainland based resorts adjacent to the Marine Park., also includes beach based activities such as waterskiing, jet skis, small dinghies and parasailing. |
Park (almost 90% by area) receives only 5% of the overall tourism use.

Current Framework for Tourism Use Management

Unlike the management of the other major categories of reef-based use which are jurisdictionally complex and involve a number of agencies, tourism use within the region is primarily managed by GBRMPA and the Queensland Department of Environment. No other agency has responsibility for the broad regulation and management of marine-based tourism use within the Great Barrier Reef World Heritage Area. The management of land-based island and coastal tourism resort development within and adjacent to the Great Barrier Reef World Heritage Area is jurisdictionally complex and such developments can have significant influence on tourism use in the region.

The primary tools used to manage tourism use in the Marine Park to date have been:
- zoning plans;
- environmental impact assessment; and
- permits.

Keachington (1990) comprehensively describes the framework for the management of the use of the Great Barrier Reef Marine Park and the following is only intended to provide a brief context and a description of the major tools and their implications for tourism use management.

Zoning Plans

Zoning Plans are the primary tool for managing use allocation in the Marine Park but provide only limited guidance for the management of tourism use. Tourism operations can be conducted in all zones other than the highly protected Preservation and Scientific Research Zones of the Marine Park and in some island national parks where access by the general public is not permitted. Zoning plans do require that all commercial tourism operators hold a Marine Parks permit. Zoning plans have provided a useful basis for the establishment of the Marine Park and the broad management and regulation of a range of uses including tourism. At the time of the establishment of the Marine Park, little was known of the nature and possible impact of tourism use and therefore the requirement under the zoning plans that all tourist operations required permits was a useful mechanism for obtaining a more detailed understanding of the industry and its operations.

Zoning plans also restricted extractive uses such as commercial fishing within the Marine Park, and over time a substantial part of the tourism industry has focused its activities in these non-extractive zones reducing the likelihood of conflict between these two major uses of the Marine Park. The most recent zoning plan for the Cairns Section of the Marine Park was the first time a zoning plan had been used to specifically address the effects of tourism use through the introduction of a “No Structures Subzone” with the objective of maintaining some areas in the Marine Park free of permanently moored structures (GBRMPA, 1992).

Environmental Impact Assessment

Before granting a permit as required under the Zoning Plan, the Great Barrier Reef Marine Park Regulations (Regulation 26) require the assessment of every proposal to determine the likely impact on the Reef and the Marine Park. The regulations further require that any impact assessment must address a set of statutory criteria (Reg. 13AC(4)). The majority of applications are individually assessed by or on behalf of GBRMPA by the Queensland Department of Environment. Commercial tourism in adjacent Queensland Marine Parks is similarly administered by the Queensland Department of Environment and most proposals are jointly assessed. In the case of large proposals such as new resorts or major works which have potentially significant impacts, other Commonwealth and Queensland environmental legislation may require additional formal environmental impact statements to be prepared by the proponent. While providing a useful mechanism for the identification and mitigation of the impacts of individual operations, this case by case approach has not been able to address the cumulative impacts of operations.

Permits

Subject to the assessment finding that the impacts of a proposal are not unacceptable, a Marine Parks permit may be granted subject to conditions which control the location, use, access and activities of a marine tourism operation. The majority of conditions are to ensure that the impacts or potential impacts of the ongoing operation are minimised. Normally joint permits are granted by both agencies for up to six years and are able to be transferred for the remaining period of the permit. Marine Park permits have become increasingly complex and prescriptive since they were first granted in 1981. This is not unexpected given increasing knowledge of the area and the likely impact of individual activities, and overall increases in the level of use.

Dinesen (1995) summarises the issues that led to a review of the permit system. The review arose following calls from the industry and a recognition of the untenable
resource demands required to deal with the increasing number and complexity of permit applications. The review identified the need to simplify permits and to develop alternative mechanisms for tourism use management including regulatory changes, more detailed regional and site planning and the development of voluntary codes of practice with industry.

In the absence of more detailed regional or local plans, zoning plans have only provided very general guidance for tourism use management and the case by case grant of permits has been the only mechanism available for the allocation of areas and sites for specific uses and operations. While a number of site and regional plans have been developed, these have been of somewhat limited benefit in the management of permitted use.

Critical Issues in Tourism Use Management

Increasing tourism use of the Marine Park and World Heritage area raises a number of critical management issues and concerns. Many of these issues flow from increases in the intensity and concentration of tourism use in some areas of the Marine Park and World Heritage area. Nonetheless, these are issues for which solutions are required to ensure ecologically sustainable tourism use and the conservation and protection of the Great Barrier Reef.

Cumulative Impacts of Tourism Use

The current approach to managing tourism use has provided a reasonably effective system to manage the direct and predictable impacts of each proposed operation and provides maximum flexibility for individual operations. However, it has a limited ability to identify or manage the cumulative impacts of many operations on the environment and on other uses and values of the Great Barrier Reef. Consequently, a complex use such as tourism, that may have significant cumulative impacts, is managed almost entirely through the case by case assessment of individual applications for permits.

Current research information on the impacts of tourism use tends to relate mainly to the ecological impact of daytrip, high intensity use associated with pontoon structures, and in general points to such uses having only limited and manageable ecological impacts (Aylings & Aylings, 1994; Sweatman, 1996). While these types of operations service a high percentage of the visitor demand in the GBRMP, they are a small percentage of the total operations permitted in the GBRMP, and there is little information available on the impacts of the multitude of smaller operations operating in the GBRMP. The current concern about unsustainable levels of anchor damage in the more intensively used parts of the Great Barrier Reef as a result of tourism and recreational use is an obvious example of cumulative impacts not being able to be managed through existing mechanisms. In the absence of strategic and cumulative impact assessment, permits have been granted on the assumption that each operation individually is unlikely to cause unacceptable or unmanageable impacts.

Latent Capacity

Current permitted tourism use of the Marine Park is in the order of 10 million visitor days per annum. Based on data returns supplied by operators, in compliance with requirements of the Environmental Management Charge, the actual level of use in 1994-5 was 1.5 million visitor days. There is considerable concern about this difference between the levels of permitted and actual capacity, or 'latent capacity'. It is only since the introduction of the Environmental Management Charge (EMC) in mid-1993, with a mandatory statutory requirement to supply quarterly data returns based on daily logbook entries, that reasonably accurate use data has been available.

The data collected to date also shows that 25% of permitted tourism operations did not operate in the Marine Park at all in 1994-5. In the intensively used Cairns Section, 46% of vessels permitted to operate did not do so at all over the that period (Honchir, 1996). Of greater concern was that nearly 80% of the operations were operating at less than the financial viability threshold of 60% capacity (Coopers & Lybrand, 1990).

While there may be reasonable explanations for some of the latent capacity, for example the seasonal nature of operations and the allowance for some growth in demand when applying for a six year permit, there is significant concern about the ability to manage a possible three-to-five-fold increase in actual use, particularly in the already intensively use areas.

Displacement of Indigenous, Recreational and Tourism Users

Rapid growth and expansion of tourism use particularly in the vicinity of Cairns, Port Douglas and the Whitsundays has resulted in the displacement of indigenous people from areas used for traditional hunting and fishing and other cultural purposes. While the statutory assessment criteria require assessment of the impact of proposals on the cultural and heritage values of traditional inhabitants, it has been difficult to obtain detailed and sometimes culturally sensitive information to allow these issues to be adequately addressed. The presence of tourists often discourages the use of areas for hunting. The situation has become even more complex with the lodging of several land and sea claims under recently introduced federal Native Title legislation.
In the vicinity of major population centres that are also popular for tourism there has been ongoing displacement of recreational boaters and fishers, commercial fishers and sections of the tourism industry. Areas have been closed to extractive uses such as fishing to protect their natural values and non-extractive uses such as tourism. Structure based operations and those using permanent moorings have displaced other tourism operations or have resulted in a change in the level of use to the extent that recreational users and existing tourism operators have had to move further afield to find suitable remote or less intensively used sites.

The Need to Maintain A Diversity of Settings and Experiences

The tourism industry is the primary vehicle for the presentation of the Great Barrier Reef World Heritage Area. In order for Australia to properly meet its World Heritage obligations to present and transmit the World Heritage values to present and future generations there is a need to maintain a diverse, resilient and productive ecological system while providing for a diverse range of experiences and uses.

Increasingly intensive use of some parts of the Great Barrier Reef has resulted in at least the localised loss of opportunity to access a diverse range of experiences and settings. Existing structure based operations allow for large numbers of people to access the Great Barrier Reef with minimal impact. Similarly a range of smaller operations allow for visitors to access a range of sites in smaller groups or individually. However the increasing intensity of use in these areas reduces the ability of both tourists and recreational and other users to have access to more remote experiences free from other users. The availability of a diversity of settings is a fundamental part of maintaining a diverse and innovative tourism industry on the Great Barrier Reef. Equally there is a need to ensure a range of settings are available for a range of other recreational and cultural uses such as fishing, boating and traditional use.

In a survey conducted for GBRMPA as part of the zoning review for the remote Far Northern Section of the Marine Park, AGB McNair (1995) found strong community support for the retention of the remote and undeveloped nature of the Great Barrier Reef free of significant levels of tourism use. There was also strong demand from both the tourism industry and recreational users to maintain areas for wilderness diving, yachting and recreation.

Site Allocation

At present there is no specific site allocation mechanism and the decision to allocate a site is based on a first come first served basis through the grant of a permit. In the intensively used areas there is now clearly a limit to the ability to grant further access to specific sites based on many of the concerns raised above. With any limitation on access to sites there is a need to develop a fair and equitable basis for the allocation of a limited resource.

Coastal Tourism Resort Development

There are a number of controversial coastal development proposals for tourist resorts on islands within the Great Barrier Reef World Heritage Area and on the coast immediately adjacent. The planning, assessment and approval processes for such proposals are largely the responsibility of Queensland State Government agencies. These proposals are therefore not always outside the direct jurisdiction of GBRMPA, yet there is an expectation that the agency act to protect the values of the Marine Park and World Heritage Area from the actual and perceived impacts of such proposals. Many of these proposals have developed in the absence of appropriate regional planning processes which would normally identify appropriate sites and consider the regional environmental and social impacts of such developments. In the absence of such strategic land use decisions, this has left both Commonwealth and State governments dealing with proposals reactively on a case by case basis within an extremely complex jurisdictional, legislative and political environment.

Addressing the Issue

GBRMPA is addressing these critical issues through a number of approaches including the following:

Better Information for Management

Introduction of the Environmental Management Charge

The EMC was introduced by the Commonwealth government in mid-1993 as a means of recovering some of the cost of the management of tourism use of the Marine Park. In simple terms there is a charge of $A1 per person per day when they visit the Marine Park as part of a commercial tourism program. In 1994-5 the EMC charge generated $A1.5 million. Of the revenue generated, 75% is used to fund research through the CRC Reef Research Centre into the ecologically sustainable development of the Great Barrier Reef World Heritage Area. The remaining 25% is used by GBRMPA to fund tourism use management and training for the industry and other users.

As part of the EMC requirements operators record daily logbook data on the localities visited, the number of passengers and the nature of the activities undertaken. This data has been extremely valuable in gaining a detailed understanding of the level and nature of tourism use of the Great Barrier Reef. The data is being used extensively in the development of plans of management and in research into tourism use.
Establishment of the CRC Reef Research Centre. The CRC Reef Research Centre (CRC) was established in 1993. The CRC is funded by Commonwealth and Queensland Government resource management and industry agencies and involves the fishing and tourism industries, research institutes and James Cook University. The establishment of CRC and the basis of initial funding through the EMC has substantially increased the capacity to conduct research related to the ecologically sustainable use of the Great Barrier Reef including tourism use. There is a substantial seven year research program dealing with a range of environmental, social, industry, training, education and related research issues. A number of useful reports relating to tourism use have been produced to date.

Industry based research. The Reef Tourism Industry Council based in Cairns received federal government funding in 1995 to initiate an industry based research program, Reef Tourism 2005, to develop a Strategic Plan for the future development of the Cairns regional marine tourism industry. The program is being supported by GBRMPA and will provide valuable information on the economic and other aspects of the industry that are at present not well understood.

Development of New Management Tools

Amendment to legislation to allow for statutory plans of management. In mid-1995, the Great Barrier Reef Marine Park Act was amended to allow for the development of statutory plans of management for areas, species and ecological communities. This is a significant step as it allows for the development of legally binding detailed plans for areas and sites. Importantly there is also a provision to call for a moratorium on the grant of all or particular types of permits for a period of up to 12 months while plans are being prepared.

Development of Statutory Plans of Management. Eleven plans of management are currently being prepared for areas in the Marine Park. Eight of these are for intensively used or sensitive areas in the offshore Cairns and Port Douglas region, the plan of management for the Whitsundays is a review and refinement of the existing draft plan to enable the plan to be implemented as a statutory plan. Given that 95% of all tourism use of the Great Barrier Reef Marine Park occurs within these areas, the plans will play a significant role in the management of tourism use.

The plans are specifically addressing the issues of anchor damage, latent capacity, displacement of other users, and the need to maintain a range of values, settings and experiences through the development of site mooring plans, regulation of the level and nature of access to specific sites and management areas and by providing a range of settings for tourism, recreational and traditional use. While the plans may place limits on the number and nature of tourism operations at specific sites within the intensively used areas of the Marine Park, there is likely to be significant scope for growth by existing operators at those sites.

Development of use settings. As part of the development of the above plans of management and the review of the Far Northern Section Zoning Plan there has been a clear recognition of the need for the development of broadly applicable use settings in addition to the existing zoning provisions in Zoning Plans. Kenchington (1991) describes the initial attempts made to introduce settings as part of the review of the Cairns Section Zoning Plan. After consultation this resulted in a more limited approach with the introduction of a No Structures Subzone with the intention to leave some areas free of structures and therefore intensive tourism use. It is likely that in the near future there will be a range of use settings that can be applied on a reef wide basis with the detailed implications of such settings being able to be determined through specific zoning or management plans as appropriate.

Site allocation mechanisms. With limits to levels of access to specific sites being proposed in plans of management GBRMPA can no longer rely on the first come first serve approach to the allocation of sites. Alternative site allocation mechanisms are being investigated as are the likely economic implications of options for the industry and modifications to existing impact assessment and permitting processes. Mechanisms will need to be introduced as part of the implementation of the above plans of management, and this will have broad implications for future site allocation and reduce the current reliance on permit decisions for site allocation.

Introduction of Best Environmental Practices. Education is an integral part of managing the Great Barrier Reef World Heritage Area. To increase awareness of how to minimise the impact of activities on the environment, GBRMPA with the Queensland Department of the Environment and reef users including the tourism industry, have jointly developed a guide to the Best Environmental Practices (BEPs) for a range of reef uses. These address a number of activities including waste disposal, anchoring, diving, reef walking, whale watching and fish feeding. The aim of BEPs is to complement existing regulatory mechanisms by increasing awareness of both commercial and recreational users on how to conduct activities on the reef in an environmentally responsible manner.

Introduction of training programs for tourism operators. A tourism industry education program has been jointly developed by GBRMPA and the tourism industry to meet the reef education needs of industry staff and visitors to the Great Barrier Reef. The program has been developed to provide both a self learning introductory course for new staff supported by manuals and videos and an accredited
certificate course recognised by the industry and educational institutions. It addresses the need to provide the basis of quality presentation of the World Heritage area to a dispersed and diverse industry with high staff turnover. The courses will be offered in a number of centres in North Queensland allowing staff to continue training even though they may change locations or employers. The development of the program has been resourced through the use of EMC funds and is provided to industry on a cost recovery basis, with senior industry staff now trained to deliver the course and GBRMPA supplying back up support and materials.

Greater Community and Industry Involvement

GBRMPA needs broad community support for its approach to tourism use management. It has assisted in the establishment of a number of multi-sectoral and indigenous regional consultative bodies with the aim of improving communication between the managers and user and interest groups. GBRMPA is also working with regional and sectoral tourism industry associations.

Regional Marine Resource Advisory Committees. Eleven Regional Marine Resource Advisory Committees (RMRAC) now operate in Queensland coastal towns. Each RMRAC structure varies but usually comprise of at least one representative from tourism, recreational & sporting fishing, commercial fishing, Aboriginal & Torres Strait Islanders, conservation groups and representatives of relevant government agencies. The aim of the committees is to provide advice to marine resource management agencies based on local expertise and a channel of communication between the various user and interest groups. These committees have provided a very useful forum for identifying and addressing use conflict issues and are able to give a balanced response on regional planning and management proposals.

Aboriginal Councils of Elders. A number of Aboriginal Councils of Elders have also been established (Cook, 1994). The elders on these councils are able to speak for their respective traditional land and sea country. Initially these councils dealt primarily with traditional hunting issues but are now increasingly consulted in regard to traditional cultural and heritage issues by both management agencies and those wanting to conduct activities that may have some impact on sites and values of importance to the traditional inhabitants.

Establishing tourism industry liaison networks. GBRMPA is working with a number of regional and sectoral marine tourism associations in the course of developing plans of management and more recently through participation in a regional industry strategic planning project. GBRMPA has also identified the need to liaise with the broader regional tourism industry through regional, state and national tourism advisory bodies. GBRMPA is also developing closer working relationships with the tourism industry, relevant government agencies and stakeholders to encourage their greater involvement in the management of tourism use at a strategic level. A working group is being formed with representatives of key sectors of the industry and the Commonwealth and Queensland Departments of Tourism to review tourism use management at a strategic level and to provide advice to GBRMPA on tourism use issues on a reef wide basis.

Adopting a More Strategic Approach

Addressing tourism management as a critical issue. The existing approach to management of tourism use has largely been as either one of a number of issues to be addressed through the five to ten yearly section based zoning plan review processes, or through responses to individual permit applications. More recently the development of area or regional management plans has allowed tourism use to be addressed more specifically at this level, but again among a range of other issues. The existing approaches have not facilitated a focussed reef wide strategic approach to the management of tourism use. Equally the industry which is relatively new, has only recently begun to take an organised and strategic approach to representing its interests. There is a need on the part of both managers and the industry to have a better joint understanding of the factors that drive and limit tourism use of the Great Barrier Reef as a whole and of specific sectors.

Co-ordinated application of tools to address issues. Given the complexity of tourism use management in the Great Barrier Reef World Heritage Area, and the range of different issues to be addressed, there is a need for GBRMPA to adopt an overall strategic approach to the management of tourism use of the Great Barrier Reef World Heritage Area. The use of existing and new management tools needs to be co-ordinated to achieve both the short term objectives of ensuring ecologically sustainable tourism use in the more intensively used areas but also to provide a sound basis for the future management of tourism use in the Great Barrier Reef World Heritage Area as whole.

Closer working relationships with the tourism industry at a strategic level. Closer working relationships with the tourism industry at a strategic level are essential for the successful future management of tourism use. The role of GBRMPA is to manage tourism use and not the tourism industry, but it recognises that management decisions can have a substantial effect on the industry. Equally there are mechanisms available to the industry for addressing some issues that can only at best be crudely addressed through a regulatory approach. While there are clearly areas where either GBRMPA or the industry has primary if not sole
responsible, there are many areas that can benefit from a joint approach to the management of tourism use.

The 25 Year Strategic Plan for the Great Barrier Reef World Heritage Area. The 25 Year Strategic Plan for the Great Barrier Reef World Heritage Area (GBRMPA, 1994) adopted by GBRMPA, other government agencies and all major stakeholders in 1994 establishes the long term objectives for the management of the Great Barrier Reef World Heritage Area and identifies the critical issues to be addressed. It identifies the roles and responsibilities of all agencies and stakeholders and establishes a number of partnerships between GBRMPA and relevant agencies and stakeholder groups for achieving agreed objectives and outcomes. The 25 Year Strategic Plan provides the framework for the management of major reef based and adjacent coastal land uses to ensure that Australia's obligations for the protection, conservation and presentation of the outstanding natural and cultural values of the Great Barrier Reef World Heritage Area and its transmission to future generations are met.

Development of a tourism use management program. GBRMPA is developing a tourism use management program to co-ordinate the use of the wide range of existing and recently developed management tools and activities currently being undertaken across the organisation in the management of tourism use. The agency is adopting an issues based approach to the existing tools based approach to the management of the range of critical issues identified in the Strategic Plan. This will allow tourism use management to be addressed in its own right rather than as one of a number of issues in a large planning process or on a case by case basis in the course of a permit application.

Conclusion

The development of GBRMPA's approach to managing tourism use has clearly proceeded through a number of phases and in many ways has mirrored the development of the Great Barrier Reef tourism industry. At the time of establishment of the Marine Park and the listing of the World Heritage Area, there was little perceived need to manage tourism use other than to restrict access to protected areas, to minimise potential use conflict through zoning plans and manage impacts by case by case assessment and permits. The absence of any more detailed use settings and site allocation mechanisms meant that the permit decision was a de facto use setting and allocation decision tool.

With the rapid increase in tourism use in the 1980s and 1990s the lack of specific mechanisms to manage tourism use were recognised and initial attempts were made to begin to address the issue of tourism use management.

There was only limited success due to the lack of appropriate statutory tools and a reluctance to address the broader social-economic aspects of use management.

With further increases in the intensity and concentration of tourism use in offshore Cairns and Whitsunday Islands it became clear that the existing mechanisms were inadequate to address the concerns expressed by tourism industry, recreational users and Aboriginal and Torres Strait Island people. GBRMPA has recognised that in order to properly meet its World Heritage obligations it must take into account both the environmental and socio-economic impacts of tourism use.

The development of these new tools and the initiation of processes to encourage greater involvement by the tourism industry and other stakeholders in management at the strategic level will provide the basis for a reef wide issues based approach to the management of tourism use. GBRMPA believes that with the increasing level and complexity of tourism in the Great Barrier Reef World Heritage Area the successful management of tourism use will require a co-ordinated application of the full range of available management tools. The 25 Year Strategic Plan for the Great Barrier Reef World Heritage Area provides a useful and widely accepted basis for ensuring ecologically sustainable tourism use consistent with our primary objective—the protection and conservation of the unique natural and cultural values of the Great Barrier Reef.

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RECREATION COASTAL
MANAGEMENT IN VICTORIA,
AUSTRALIA: REVIEWS LEADING
TO ACTIONS

John Tower
Victoria University of Technology (Australia)

Abstract: The Australian Resource Assessment Commission's Coastal Zone Inquiry (1993) and the Victorian Coastal Recreation Study (1993) provided strong recommendations for making improvements to coastal management. Now that it is over two years since these studies have been completed, there is a need to reflect on what was recommended and to analyse how the recommendations have been implemented.

The Australian state of Victoria will be used as a case study to understand how coastal and recreation management issues are developing. The Victorian Coastal Management Act 1995 set a framework for a new system of coastal management for Victoria's 2000 km coastline. The establishment of the Victorian Coastal and Bay Management Council and the eventual establishment of three Regional Coastal Boards is an Australian first that intends to restore common sense and coordination to the management of Victoria's coastline by consolidating the 29 Acts of Parliament that guide coastal management activities.

The rhetoric and intentions of the new management approach sounds encouraging. This investigation will briefly review what led to the changes in management, explain how these management changes are being implemented and explore the impact of these management changes on Victoria's coastal activities. The impacts of the changes will be analysed through looking for tangible outcomes based on input from a variety of stakeholders in Victorian coastal services.

Keywords: coastal management recommendations, Victoria, Australia

Introduction

Australia's 36,700 kilometre coastline provides the highest proportion of recreation and tourism opportunities in the country. Prior to the early 1990s the coastal regions were taken for granted and demanded little attention from a comprehensive planning, development and management perspective.

In 1991, The Injured Coastline, the report of the Australian House of Representatives Standing Committee on Environment, Recreation and the Arts released the report, The Injured Coastline, which identified the degradation of the nation's coast. Subsequent to this inquiry other initiatives were undertaken to further understand the state of the coast.

The Resource Assessment Commission's Coastal Zone Inquiry

The expectation of the Resource Assessment Commission's (RAC, 1993a) Coastal Zone Inquiry (CZI) was to focus very specifically on the management issues that are important for the integration of the various services that are involved in Australia's coastal areas. There was a call for a national approach which would provide cooperation among the various agencies responsible for coastal activities through agreed, defined and respected roles and responsibilities in the interests of the nation as a whole.
The approach to bring about this cooperative partnership was to be built around all levels of government agreeing on national objectives and national principles for achieving them; with individual States formulating their own objectives and principles; and local Councils formulating their own objectives and principles. The consistency among all these approaches is for the nationally agreed objectives and principles to set the direction and parameters for the other tiers of government (RAC, 1993b).

The emphasis of the proposed management for the Coastal Zone was a focus on "integrated resource management." This "implies a particular focus on the interactions between various activities and resource demands that occur within the coastal zone and between coastal zone activities and activities in other regions" (RAC, 1993c p. 2, quoting OECD 1991).

The Victorian Coastal Recreation Study

The Victorian Coastal Recreation Study (VCRS) was an initiative of Surf Life Saving Victoria to develop a database of demographic and beach usage patterns. The study aimed to assess community needs in relation to issues of recreation, tourism and safety along the Victorian coastline.

Although management systems were beyond the initial realm of the VCRS, recommendations were presented regarding improvements to existing management. The key management issues were:
- a need for a review of management that would provide a new approach for the development and delivery of services;
- a new management system based on the principles of local input and control utilising agreed guidelines and performance outcomes; and
- a new management system which includes local, regional, state and national coast management plans that incorporate input from all interested agencies.

The nature of the recommendations regarding management from the VCRS are very similar in their intent and content to the integrated resource management directions from CZI. In fact both investigations identified a need for a national direction with scope for state, regional and local interpretation of issues that are relevant.

New Policy Directions

The reviews of the early 1990s has lead to new initiatives which are designed to address the various coastal management issues in a realistic political environment.

The Commonwealth Coastal Policy

In May 1995, the Australian Commonwealth Government released its Coastal Policy document entitled Living on the Coast (Department of the Environment, Sport and Territories, 1995). The range of initiatives that the Commonwealth Coastal Policy outlines are too numerous to summarise here but there are a few policy directions that need to be identified to highlight the changes that will be impacting on the local delivery of services.

Goals, Objectives and Guiding Principles: The RAC Report (1993a) called for an integrated resource management approach. The previous lack of integration across various coastal management agencies has been a repeated claim that has hindered coastal management. The Goals, Objectives and Guiding Principles of the Commonwealth provide a framework that sets the National Agenda in Coastal Management. In particular the policy provides:
- "facilitation of the continued development and implementation by all spheres of government of cooperative initiatives to deal with coastal management issues that confront all jurisdictions; and
- promotion of community participation in coastal zone matters" (Department of the Environment, Sport and Territories, 1995, p. 4).

Intergovernmental Coastal Technical Group: The Commonwealth, States and Australian Local Government Association will be involved in the Intergovernmental Coastal Technical Group. This will be fundamental in the initiative to encourage cooperation between all spheres of government to improve coastal management.

Broad Directions with Local Controls and Actions: The cliché concept of "think global, act local" is well entrenched in the policy directions of the Commonwealth Coastal Policy. It includes a number of initiatives such as a community coastal action program which among other things will:
- provide opportunities and resources for local residents, volunteers, community groups and businesses to participate in coastal management activities such as enhancement of sustainable tourism, recreation and other activities;
- database development of resources for the collection and dissemination of necessary technical information to increase support for the decision-making process; and
- professional development activities that will increase the skill level and knowledge of relevant government officers, resource development sector and community groups.

These directions will act to encourage and support the local management of coastal resources through the support of Australia’s national government. The provision of resources, information and training will increase the likelihood of improved coastal management.
Victorian Coastal Management Act

The Australian state of Victoria’s Coastal Management Act 1995 is designed to, among other things, “provide for coordinated strategic planning and management for the Victorian coast.”

The Victorian coast covers 2000 kilometres and “contains important features of ecological, geological and scientific interest together with landscapes of scenic, archaeological and cultural significance” (Birrell, 1995). Its management is under the control of around 160 agencies, most of whom are Committees of Management that are appointed by the State Government (many of these Committees of Management are actually the relevant municipal government).

The objectives of the act are designed to:

- develop plans, management systems and coastal strategies for resources on a sustainable basis for recreation, tourism, conservation, commerce and similar other uses;
- protect and maintain areas of environmental significance;
- facilitate the development of facilities for recreation and tourism;
- maintain and improve coastal water quality; and
- improve public awareness and understanding of the coast and encourage public participation in coastal planning and management activities (Victorian Coastal Management Act, 1995).

A key component of the Act is the establishment of the Coastal and Bay Management Council and Regional Coastal Boards. The Coastal and Bay Management Council will have as one of its first priorities the preparation of the state’s coastal strategy. The Regional Coastal Boards will facilitate the regional coastal planning and coordination through development of Coastal Action Plans as well as act as a forum and provide advice on a number of coastal issues.

The existing agencies currently involved in the management of the coast will continue to operate but instead of assuming their responsibilities in a policy vacuum they will be expected to develop their roles with the strategic directions of the Coastal Council and Regional Boards.

Rhetoric to Reality

Much of what has happened in the first half of the 1990s has focused on the establishment of a framework for the improvements to the management of the country’s coastline. The state of Victoria’s initiatives are a good illustration of how the reviews and policy statements have been implemented.

Increase in Resources

Probably the most important element that has evolved from the reviews and subsequent policy development has been the “awareness raising exercise” of coastal issues. The coast is now on the National and State agenda. The reviews have raised the profile of coastal issues and provided direction for new resource allocations. Increased funding from both the Commonwealth and state governments has assisted in the development of coastal management initiatives at a local level. The funds for 1995-96 were increased with a number of new initiatives and it is foreshadowed that budgets for the next few years will continue to grow. The fact that these budgets are increasing in the public sector is contrary to many of the trends in other government services. “Razor Gangs” and budget rationalisation are the norm so the fact that Coast Action funding is increasing reflects how much coastal management initiatives have raised their profile.

Coastal and Bay Management Council

The Victorian Coastal and Bay Management Council was established in August 1995. The Council comprises six community representatives with expertise in conservation, tourism, recreation, commerce, indigenous people’s interests and community affairs, one local government representative and three State Government representatives. Its first main function is the establishment of the state’s coastal strategy.

Although it is too early to determine, one hopeful outcome of the coastal strategy is assistance to local coastal management. In the past the Committees of Management have had little, if no, direction in their day to day management decisions. The strategic plan may provide the management outcomes which should be the focus for the Committees of Management’s local coastal plans.

Committees of Management

Committees of Management remain as the main management authority for coastal areas in Victoria, but there have been a number of changes that are generating improvements to management practice.

Changes to Local Government

Within Victoria there has been a rationalisation of the number of local government authorities from over 200 municipalities to just 78. This has had an impact on coastal management because in a number of areas the local municipal council is the designated Committee of Management. In some areas the reduction of local municipalities has led to the rationalisation of the committees of management and also
led to the local council replacing existing community based Committees of Management. The consolidation of the management to the local government sector has helped to increase the professionalism and general resource base that can be allocated to coastal management issues. Some people have suggested that the changes to local government will eventually lead to the local councils being designated as the Committees of Management across the state but it will be some time, if ever, before this happens.

**Amalgamation of Committees of Management.** In a number of areas there has been an amalgamation of the small existing committees to form larger and more efficient committees.

The rationale for amalgamating the Committees of Management is based on the introduction of some economies of scale and widening the resource base. The evolution of a more regional perspective through this amalgamation has encouraged greater cooperation and sharing of resources.

**Coast Action Program**

The Coast Action Program is a Victorian initiative to support locally based agencies to undertake coastal improvement activities. In 1995-96 $340,000 has been allocated to 72 different foreshore projects and this is likely to double in 1996-97 financial year. The grants made to local groups range to several thousand dollars to less than $10,000.

Many of the groups who have been funded through this program include community-based agencies such as “Friends of...” groups, local government and Committees of Management. This type of financial support encourages community groups to undertake activities that capitalise on the energy of volunteers and helps to raise awareness of coastal issues. The types of projects that have received support include environment protection and improvement projects and recreation development projects.

**On ground coordinators.** The state Department of Natural Resources and Environment has allocated funds to employ “on ground coordinators” to work with community groups and Committees of Management. These people have a role of offering technical advice and support for projects to be developed. Through working with the local groups there is the potential to tap into the resource base of volunteers as well as to get projects developed within national, state and regional policy directions.

**Information and Awareness**

One of the initiatives within the *Victorian Coastal Management Act 1995* is to raise awareness and understanding of the coast.

**Word of mouth.** One of the mechanisms that is difficult to manage but is essential in raising awareness is to encourage people to talk to friends, colleagues, etc. about issues of the day. At the community level the range of local projects supported through the Coast Action Program has helped to address and raise issues of concern. It is a logical conclusion that many of the people who are involved in the Coastal Action Projects and the people who work with Department of Natural Resources and Environment’s coastal coordinators are having their awareness of issues raised. Although this is not necessarily raising the coastal profile through the mass media, it is raising the awareness and increasing the information base for key decision makers.

**Formal networking activities.** In the past there has been very little opportunity to share information and experiences regarding coastal management. Recently, forums have been presented to assist individuals involved in coastal Committees of Management to share their experiences and to discuss how they are addressing different issues. The success of these events and the goodwill that is being generated among groups will encourage more information sharing and networking among groups and individuals involved in coastal issues.

**Community Involvement in Management Decisions**

The number of people directly involved in coastal management has decreased due to the amalgamation of local government and rationalisation of community based Committees of Management. However, the opportunities for community input to coastal management issues is likely to increase due to a commitment to have more community involvement.

The Coast Action Program has provided support for “Friends of...coast groups” which will encourage more people to be involved in local coast development activities.

Current Committees of Management also seem to be committed to increase their dialogue with various coast based groups such as surf life saving clubs, board riders clubs, etc. The amalgamation of councils and coastal Committees of Management has provided them with the resources to be able to maintain a better relationship with community groups.

**Understanding the Developments**

The lessons to be learned from Victoria’s coastal management initiatives need to be placed into a context so others involved in coastal management issues can learn from what is happening.
It appears that the intention of the new coastal management approach is the implementation of "integrated resource management" as outlined in the Coastal Zone Inquiry and the "Living on the Coast" documents. An interpretation of the process based on community development principles provides a context that can be easily interpreted in a variety of other settings to address coastal management challenges.

Community Development

Much of what is happening in the development of coastal management in Victoria can be placed into the context of community development. Community development is a process of social action in which people organise themselves and take action that will address issues that are important to them with a minimum reliance on outside resources (Hochman, 1986). Although the content of the different reviews have not specifically embraced the concept of community development there are features from this type of process that is leading to the success of the actions along Victoria's coast.

Ward (1986) indicated that there are five steps to the community development process:

1. Identification of a problem. The reviews and studies of the early 1990's have helped to do this on a state and national level. Local initiatives are helping to do this at the local level.

2. A process of learning takes place. This process has been happening subsequent to the reviews as local groups and government reflect on the issues that are important to them. Within Victoria the amalgamation of local councils and the rationalisation of some of the existing coastal Committees of Management have assisted them to learn about the issues and identify how to proceed with their coastal management tasks.

3. Objectives and strategies are formulated and the groups take the time to learn how to address and implement these actions. This is the current level of development in Victoria. The National direction has been established through the "Living on the Coast" policy document. The state directions and plans will be implemented soon through the Strategy Plan from the Coastal and Bay Management Council. Subsequent to this, it is expected that the Regional Coastal Boards and the specific coastal Committees of Management will prepare their coastal plans for implementation.

4. Actions are taken, and

5. The whole process is evaluated. It is too early for the impacts of this to be recognised but there does appear to be the potential for this to happen as the coastal management developments are implemented across the state. There is a commitment for ongoing monitoring and evaluation provided the coast remains on the National and State agenda.

The role of the "on-ground coordinators" is another aspect that reinforces the mechanisms of community development. A worker operating with community development strategies functions as a facilitator who advises and encourages community action without actually implementing the specific actions themselves. The use of these workers is not essential but it does assist in helping the local groups to develop and implement actions that fit within the wider national and state objectives.

Conclusion

It is encouraging to see the enthusiasm and optimism in which individuals involved in coastal management issues are embracing the new challenges. The answer to the question "are the reviews leading to actions?" is a resounding yes. Although much of what is being developed is moving slowly and the new programs are being expanded at a cautious rate, there is real progress in what is being developed. The increase in awareness and the funds that are being targeted towards coastal issues are having an impact and are influencing the service delivery at the local level. There have been a number of significant actions since the reviews of the early 1990s.

The keys of success that need to be considered as others try to learn from what Australia and Victoria are trying to do can be summarised by the following points:

- provide a national and state level policy guide that can be implemented at a local level;
- encourage local and community input to address local and regional issues that fit within the broad policy directions;
- encourage a community development process so the actions that are being implemented are "owned" by those who will feel the impact of the actions; and
- provide adequate resources over a sufficient period of time so new initiatives can be put into operation and become the new methods by which services are managed and delivered.

References


FRAMEWORKS FOR DECISIONMAKING IN MANAGEMENT

George H. Stankey
People and Natural Resources Program (United States)

Roger N. Clark
People and Natural Resources Program (United States)

Abstract: Knowledge of the number, location, and condition of sites for tourism and recreation purposes can assist managers and planners in identifying alternatives and evaluating the consequences of other resource aids in developing strategies to prevent or mitigate undesirable impacts, while taking advantage of positive changes to provide a range of desirable public benefits. A generic problem confronting planners and managers in many areas is that many of these potential sites are widely dispersed over large areas, making field inventories expensive. More problematic, however, is the lack of a framework that identifies the key attributes and conditions of sites that make them valuable for tourism and recreation. This paper notes a case study in which the utilization of the correct decisionmaking framework would have facilitated the development and change of the Lake Kachess area in the Cascade Range east of Seattle, Washington.

Keywords: planning framework, decisionmaking variables, limits of acceptable change

Introduction

A number of years ago, we published a monograph entitled The Recreation Opportunity Spectrum: A Framework for Planning, Management, and Research (Clark and Stankey, 1979). As we were completing the final version of the paper, we found ourselves struggling for a way to communicate to readers a sense of the kinds of problems with which the recreation opportunity spectrum was intended to deal. We settled on a short preface that sketched out the history of development and change around the Lake Kachess area in the Cascade Range east of Seattle, Washington. The preface described how, over about 75 years, the area had evolved from a remote and primitive setting to one characterized by modern, intensive development. Once used by only a few, today the area supports very high use levels. Yet, over this period of change, it was our contention that visitors to Lake Kachess were happy with what they found.

Our paper went on to point out that many of the changes that had occurred at Lake Kachess had been the result of managerial responses to emerging problems. More visitors led managers to establish more sites; increased use levels led to increased resource impacts, so various engineering and hardening actions were undertaken. When sanitation problems were imminent, first pit toilets, then vault toilets were installed. And so on. But again, with each management response, new people arrived, happy with what they found.

Lake Kachess, we suggested, reflected an example of what has been described as the “tyranny of small decisions.” The transformation of the area from a little-used, primitive recreation venue to an intensively used and developed location did not occur overnight, but in “small” increments; a change here, a change there; some purposeful, others not; some within the control of area managers, others imposed externally. Collectively, however, they constituted a substantial shift in the kind of place Lake Kachess offered recreationists.

The story of Lake Kachess has its analogue in coastal and marine tourism management. Kuta Beach in Bali or Waikiki in Hawaii reveal a similar evolution in the kind of opportunity provided and the type of tourists served. The speed with which such changes unfold and the extreme difficulty (if not impossibility) of reversing them means that it is important that we have a capacity to think about and to appropriately frame issues, possibilities, and implications in such a manner so as to minimize the likelihood of undesirable change while maximizing the likelihood of desirable and thoughtful change. To what experience and criteria might we turn to in striving to develop a framework to help us achieve such ends?

Are the settings offered at Lake Kachess, Kuta Beach, or Waikiki today the “right” ones? Do they represent what should have been provided? Or, did somewhere along the way we lose a more valuable setting? Or, further still, is the “best” setting yet to come?

Obviously, these are problematic questions. There are no right or wrong answers to them. However, what we do know is that the changes at Lake Kachess, Kuta Beach, or Waikiki benefited some visitors, were irrelevant to others, and were the reason why others decided to no longer return. In short, each change benefited some and penalized others. But as above, typically such changes simply “happened”, that is, they were not the result of an explicit, deliberate, and conscious action but rather simply reactions to problems.

Frameworks for “Wicked Problems”

In our combined 50 years in outdoor recreation research, we have become increasingly convinced that one of the most important contributions we and our colleagues can make to managers and policymakers is the development of conceptual frameworks within which the kinds of issues embodied in the Lake Kachess example can be approached. Notice we do not say “solved”, solved seems to imply that somewhere out there exist “right” answers. However, few of these kinds of issues
have “right” answers; in fact, typically there are many possible “right” answers. Problems of this character have been described as “wicked”; i.e., “wicked” in a meaning akin to that of ‘malignant’ (in contrast to ‘benign’ or ‘vicious’ (like a circle) or ‘tricky’ (like a leprechaun) or ‘aggressive’ (like a lion, in contrast to the docility of a lamb). We do not mean to imply malicious intent” (Rittel and Webber, 1973).

Wicked problems are common in the natural resource field, including recreation and tourism management. In part, this is because of the fundamental quality of what makes a problem “wicked” in the first place. For example, as we consider the problem of identifying the “right” kind of setting for Lake Kachess today, it makes a great deal of difference if we consider outdoor recreation demand and supply only within the central Washington Cascades, versus the state of Washington, versus the Pacific Northwest region, and so on. What is the appropriate scale our analysis should include? Here we encounter a fundamental characteristic of a wicked problem; it has no “stopping rule,” no clear bounds to the problem and its analysis (Allen and Gould, 1986). And any choice of bounds or limits can be criticized, from one perspective or another, as favoring some kind of outcome.

A framework, the dictionary tells us, is “a structure for supporting or enclosing something else, especially a skeletal support used as the basis for something being constructed; it is a fundamental structure, as for a written work or a system of ideas.” Frameworks, as we use the term, provide a “mental scaffold” that provides a way of thinking about problems; they help us “frame” the issue, consider alternatives, understand relationships, and consider implications. They help us think about alternative ways in which problems can be stated, of who might be affected by decisions, and of important links with other actors, events, and institutions. Finally, frameworks operate to help make explicit the assumptions under which our actions are undertaken.

To illustrate the role of frameworks, we turn to the substantive issue of how tourism might be better integrated with environmental protection. This is a recurring issue in discussions about tourism development around the world (including discussions at this Congress) and provides a setting in which the question can be considered as to how a useful framework might be developed.

Key Characteristics of Planning Frameworks

We would argue that any effective framework must accommodate three key characteristics of an issue such as integrating tourism and environmental protection. These include:

- The interface between tourism and environmental protection ultimately involves trade-offs among competing socio-cultural values (e.g., there are trade-offs between the provision of economic benefits to local communities and the protection of bio-diversity);
- Complex, interdisciplinary, and “wicked” problems cannot be resolved through simple, reductionist, or linear approaches; and
- Because decisions ultimately involve the exercise of social choice, planning decisions and implementation processes must accommodate the full range of stakeholders.

The core idea embodied in the three points above is that natural resource management in general, and tourism management in particular, are socio-political activities; they involve the production and distribution of differing sets of values and an associated differential distribution of who benefits and who pays. Some values are readily measurable in settings such as the marketplace; others are extremely difficult to define and measure, but nonetheless are just as “real.” All decisions or choices involve benefits; all involve costs. Working through this extraordinarily complex algorithm requires innovative and integrative approaches; traditional ways of “doing business” are simply inadequate.

Such aspects became apparent to us as we developed the Recreation Opportunity Spectrum concept. They also have been key ideas in developing a framework within which the generic problem of establishing an appropriate relationship between recreation and tourism use and associated environmental impact has been addressed. Both recreation and tourism managers have long been concerned with this latter issue. The question of “how much use is too much use?” has likely occupied as much attention among managers, researchers, and policymakers over the past 30 years as any other single issue. Typically, the concept of “carrying capacity” has been tabled as the framework within which such a question can be addressed. However, for a variety of reasons which reach beyond the purpose of this paper, the carrying capacity idea has proved largely ineffective in helping develop policies for mitigating the relationship of use and impact (despite a history of research that transcends 30 years and over 2,000 publications!).

The Importance of Asking the Right Questions

It is not too much to ask why this is so. We would suggest that, first of all, the answer rests in the nature of the underlying question. That is, the question of “how much use is too much use?” presumes a determinable answer. However, what we have found, and which in a sense is the experience revealed in the Lake Kachess example, is that most areas have a variety of capacities. Depending upon what kind of objectives and experiences are important, the resultant answer can vary considerably.
Thus how the question is framed is crucial. Getting the question right is the first and perhaps most crucial step in developing means of coping; in short, if we don’t ask the right question, it is virtually impossible to get the right answer (Clark and Stankey, 1991). And in considering the importance of getting the question right, it quickly becomes apparent that the question of who gets to participate in framing the question(s) is equally significant. People from different experiences, backgrounds, and perspectives will identify different questions. Thus, the nature of the forums in which questions are identified is critical; venues that are “closed” to participation, either through deliberate restrictions, oversight, or through subtle restrictions on the nature of participation (e.g., only written input, with supporting data, is considered) effectively constrain the question formulation stage. In our example here, it was only when we began to think of the issue (i.e., the relationship of recreation/tourism use to environmental impact) as a socio-political problem, involving decisions and choices affecting the allocation and distribution of values and public access to resources, as opposed to a biological problem, that we began to see that new approaches to framing the basic question and, accordingly, the most appropriate approach to problem resolution, would be required.

“No Choice” is Not a Choice

Because recreation/tourism sites possess a variety of capacities, by implication; a variety of choices exist as to what kind of activities, opportunities, and experiences might be provided at a given location. Any given choice will facilitate and favor some while disadvantaging others. Each choice will lead to a differing stream of consequences and implications. Moreover, any choice (including “no decision”) will lead to change because we are dealing both with dynamic ecological and social systems, the idea that we can maintain the status quo is not possible.

The basic point is that choices are necessary and inevitable and those choices produce consequences and implications. Most importantly, the judgments exercised in making those choices will reflect the values of those who participate in making the decisions. However, the consequences of those choices often reach far beyond the limited circle of decision makers; the failure to consult with and involve those affected by decisions means the ability to implement successfully such decisions is increasingly problematic. Thus, for a process to be sustainable (i.e., implementable), it is necessary that the processes through which choices are made must integrate the perspectives and values of a wide range of stakeholders (Lang, 1990).

Choices Need to be Informed

It is also necessary that the process be informed. By this, we mean that it takes into account the best available knowledge. In the case of developing a framework for resolving conflicts between recreation/tourism use and environmental protection, it was important that a solid understanding of the relationship between use and impact exist; in what ways and amounts did environmental conditions change in response to differing types, amounts, and distributions of use? A substantial literature on this issue has emerged over the years and this provided a sound base from which to work. However, such relationships are highly idiosyncratic and site-specific. Thus, we also supplemented our understanding of this relationship with the knowledge and observations held by people who lived, worked, and played in these settings. In short, we acknowledged that there are a variety of ways of “knowing” and this informal (experiential or indigenous) knowledge was crucial to building a comprehensive understanding.

By opening up the process to such knowledge, two important benefits were gained. First, it helped encourage “mutual learning” among all the participants: researchers, managers, and citizens. Each came to understand that others held important knowledge and that they could learn from one another. Ironically, scientists, who were at least initially most reluctant to accept this precept, found that the more open approach led to an increased appreciation on the part of citizens about their specialized knowledge and a heightened level of legitimacy about that knowledge. Second, it served to create a sense of understanding and support among various stakeholders, thereby increasing the likelihood that decisions would enjoy political support and that science underlying the decision would, in fact, be used.

The Limits of Acceptable Change Framework

From these fundamental qualities of a framework came the idea of the Limits of Acceptable Change (LAC) as a framework for examining the relationship between recreation use and environmental impact (Stankey et al., 1985). It addressed the kinds of questions with which many had long struggled using the carrying capacity model. However, the LAC was grounded in a fundamentally different question; rather than asking “how much use is too much use,” it asked “what conditions do we desire?” Such a question acknowledged both the idea that we faced social choices as well as the inevitability of change. It also shifted attention away from a focus on inputs (e.g., amounts or types of use) to a focus on outputs (i.e., the conditions that we sought to maintain or achieve).

It did this by joining the technical planning process (one with which most managers and planners were familiar and comfortable) with a socio-political process as a means of identifying the objectives that the planning effort ultimately sought to achieve as well as building the political consensus...
necessary to successfully implement the plan. In joining these two distinctive yet essential processes, the LAC process helped facilitate four specific activities:

1. It created a forum in which the kinds of conditions judged to be acceptable and appropriate for a given location could be specified. This was largely a prescriptive phase, concerned with questions as to what should be.

2. It created a setting in which an analysis of the relationship between desired conditions (identified in Step 1 above) could be compared to existing conditions. This phase largely focused on the acquisition and utilization of knowledge, whether obtained from science or from the informal knowledge of stakeholders.

3. It created a process through which alternative choices could be tabled and debated; specifically, these choices took the form of alternative management proposals for an area. Thus, it took information developed in Step 1 (i.e., differing conceptions as to what was acceptable and appropriate), fashioned these into differing management alternatives, and fostered discussion as to the consequences, both environmental and social, associated with each alternative.

4. It created a process through which continuing monitoring and evaluation could be undertaken. This created a feedback loop to the overall planning process, a particularly important feature given the relatively high levels of uncertainty surrounding our knowledge. This phase also created an opportunity for continual learning and adaptation.

In summary, the LAC framework, as illustrative of any useful framework, is at its core, nothing more than a framework for thinking about problems. Although many specific frameworks to deal with the problem of use and environmental impact could be developed (e.g., there are now at least four major derivative versions of the LAC in use by recreation and tourism managers), they all share certain basic qualities. These include:

1. They provide a systematic, traceable set of procedures. Simply put, they are visible and replicable, with underlying assumptions and rationale specified.

2. They utilize the best available knowledge, from whomever holds it. Again, in short, they "value knowledge, not who holds it" (FEMAT, 1993).

3. They have a capacity to adapt to changing conditions, demands, and knowledge. They reject a "black box" approach to planning.

4. They recognize the fundamental socio-political nature of the planning process and provide a setting in which expressions of value are sought and utilized.

5. They are ongoing, non-linear, and inclusive of the full range of interests. In such frameworks, planning is seen as an iterative process, where the relationship between knowledge and values is constantly undergoing change.

Conclusion

As we suggested at the outset, frameworks provide a necessary structure within which scientific knowledge, public values, institutional considerations, economic factors, and other decision-making variables can be placed, connected, and tested. Given that alternative choices always exist, frameworks should facilitate a thoughtful presentation and discussion of the different consequences and implications associated with different decisions and actions. They are also useful in testing the significance of alternative assumptions about such things as future demand and supply, shifts in public policy, costs, and so forth. They help create a visible and traceable record of how and why decisions have been taken (and others rejected), making it possible to reconstruct the rationale for previous actions and to determine whether earlier decisions should be revisited.

When such frameworks are lacking, we see the kind of scenario revealed in our story of Lake Kachess occurring repeatedly. Decisions that are purely reactionary are undertaken, often with little understanding of the long-term consequences associated with them. And with such decisions comes an increased likelihood that important recreation and tourism experiences as well as environmental values are lost inadvertently, perhaps irreversibly. These are costs that tourism and recreation managers and planners should take every step to prevent from occurring.

References


Pacific Northwest Forest and Range Experiment Station. 32 pp.


REGULATORY COMPLEXITY: AN EXAMINATION OF HAWAII'S PERMIT STRUCTURE FOR COMMERCIAL OCEAN RECREATION

Athline M. Clark  
State of Hawaii, Department of Land and Natural Resources (United States)

Craig D. MacDonald  
State of Hawaii, Department of Business, Economic Development and Tourism, Ocean Resources Branch (United States)

Abstract: In Hawaii, permits are part of a broader regulatory framework that includes state statutes, state administrative rules and county ordinances, and the issuance of citations for violations of regulations. The current permit structure that relates to ocean access is multi-jurisdictional. The associated complexity makes it difficult for commercial operators, who are required to obtain these permits, to comprehend and comply. This situation has resulted in confusion in the marketplace and has caused the public, the commercial ocean recreation businesses, and the regulatory agencies considerable concern.

This paper examines Hawaii's regulatory structure from the perspective of permit requirements for commercial ocean recreation access to the resource. The objectives of the analysis are: 1) to review and summarize the major types of permits issued by key state and county agencies in Hawaii, and 2) to clarify the decision processes for obtaining these permits. This work establishes the basis for formulating a regulatory regime which simplifies existing complexity and eliminates confusion for a more efficient permitting process.

This analysis is based on a series of five facilitated workshops involving 17 state and county regulatory agencies, at which permit procedures were reviewed and methods to improve the regulatory process were discussed. This work was initiated after several years of receiving an increasing number of requests from commercial ocean recreation businesses for clarification on the types of permits required to operate legally in the state of Hawaii and the sequence in which these permits needed to be obtained.

Keywords: Hawaii, commercial ocean recreation, permitting process, regulatory structure, jurisdiction

Background

Since 1987, when the Governor's Task Force on Ocean Resources Tourism Development was established to review issues surrounding the ocean recreation industry (Governor's Ocean Resources Tourism Development Task Force, 1988; MacDonald and Corbin, 1989), confusion about the regulatory framework, particularly the permit system, has been a major problem in managing commercial ocean recreation in Hawaii. Later assessments (Clark and MacDonald, 1991; Hawaii Ocean and Marine Resources Council, 1991) confirmed this earlier finding.

Hawaii's ocean recreation industry has seen phenomenal growth in the past ten years, generating annual revenues of $128 million in 1981, $269 million in 1986 and $560 million in 1990 (MacDonald and Markrich, 1992; MacDonald and Deese, 1995—Appendix C). Annual revenues of nearly $750 million and $800 million have been projected respectively for 1995 (MacDonald and Markrich, 1992) and 1988 (MacDonald et al., 1995). In general, the economic value and impact of this industry are well documented (also Markrich, 1993). Additionally, the commercial ocean recreation industry is an important component of the lifestyle of Hawaii's residents, as it includes competitive events and spectator attractions such as canoe, kayak and yacht racing, surfing contests, ocean swims, fishing tournaments, etc.

For several years, the Ocean Resources Branch (ORB) of the State of Hawaii's Department of Business, Economic Development and Tourism (DBEDT) received an increasing number of requests from commercial ocean recreation businesses for clarification on the types of permits required to operate legally in the state of Hawaii and the sequence in which these permits needed to be obtained. To address these concerns, ORB began researching the requirements necessary to obtain these permits, at which time it became apparent that there were numerous problems with the process of permit application and issuance. These problems arose from a highly complex regulatory structure in need of better integration, one that was largely multi-jurisdictional in nature and lacked clear and concise guidelines to lead a prospective permitee unambiguously through the process.

Regulatory Structure

Commercial ocean recreation activities in Hawaii occur on almost all islands. These types of activities range from renting masks, fins and snorkels or beach mats to selling catamaran rides, canoeing lessons or a host of other activities based off of state and county public lands and waters. Access to the water is gained through state harbor facilities and boat ramps, county or state beach parks or across state conservation lands (all lands seaward of the high wash of the waves).

Depending on the type of commercial activity occurring and the place of origin, both state and county permits may be required. A brief summary of the regulatory structure, as constituted by the respective agencies' jurisdictions and their most relevant functions, is described below:
State of Hawaii

Department of Land and Natural Resources (DLNR). All commercial activities occurring out of small boat harbors, boat launch ramps or on the waters of the state are regulated by the Division of Boating and Ocean Recreation (DOBOR).

All commercial activities originating out of state parks are permitted by the State Parks Division.

All commercial activities occurring on or crossing state conservation lands are regulated by the Land Management Division (LMD).

Some commercial activities in specifically designated Marine Life Conservation Districts (marine parks) are regulated by the Division of Aquatic Resources (DAR).

Enforcement for violation of state regulations or permits is carried out by the Division of Conservation and Resources Enforcement (DOCARE). The State Marine Patrol was transferred to DOCARE in July 1996 from the Department of Public Safety. DOCARE is now responsible for enforcing all state boating and ocean recreation regulations.

Department of Transportation (DOT). Certain commercial harbors under the jurisdiction of the DOT Harbors Division (DOT-Harbors) support commercial ocean recreation activities. DOT-Harbors issues permits for these activities. On Oahu, both Honolulu Harbor and Kewalo Basin support major commercial ocean recreation activity. On the neighbor islands, minimal commercial ocean recreation activity is based out of commercial harbors.

Department of the Attorney General (AG). Violations of state regulations or permits are prosecuted by this department. AG representation was a necessary component of the facilitated workshop process, to assist in clarification of regulatory authority.

Office of State Planning. Hawaii’s Coastal Zone Management (CZM) Program works in partnership with the counties by placing special controls on developments along the shoreline. These shoreline controls are exercised in designated areas called “special management areas” (SMA). Each county determines whether or not a commercial ocean recreation activity is considered a development, thus requiring a permit in the SMA. The CZM Program was transferred to DBEDT in July 1996.

Counties

In Hawaii there are four counties: the City and County of Honolulu, Hawaii County, Maui County (inclusive of the islands of Maui, Molokai, Lanai and Kahoolawe) and Kauai County (inclusive of the islands of Kauai and Niihau).

Planning Departments. In the counties of Hawaii, Maui and Kauai, the Planning Departments work in partnership with the state CZM Program to administer Hawaii’s CZM Law through SMA designation and to provide permit reviews. On Oahu, the City and County of Honolulu’s Department of Land Utilization (DLU) works with the CZM program in this capacity.

Departments of Parks and Recreation. In the City and County of Honolulu as well as the counties of Hawaii and Maui, the Departments of Parks and Recreation may require permits for commercial activities occurring in county parks. In Kauai County, permit authority for commercial activities in county parks rests with the Planning Department.

Providing for Interagency Cooperation

In 1992, the Coastal and Ocean Management Policy Advisory Group (COMPAG) was established by then Governor John Waihee to provide oversight for implementation of the Hawaii Ocean Resources Management Plan and to provide input to Hawaii’s Coastal Zone Management Program. Membership in COMPAG was comprised of the directors or designated representatives of all state and county agencies with programmatic interest in coastal and ocean affairs. ORB represented DBEDT on the COMPAG, presented the regulatory concerns expressed by businesses regarding ocean access and permit requirements, and proposed a series of actions to help clarify and possibly streamline how permits were issued. The proposed actions are listed below.

1. Review and summarize the types of jurisdictions that exist and identify all state and county agencies that issue permits for ocean access.
2. Outline, as examples, some of the problems that exist in obtaining permits.
3. Obtain approvals from heads of all appropriate agencies to have key staff participate in a group process to rectify problems and increase effectiveness and efficiency of the permit system.
4. Conduct a series of facilitated workshops to formulate options for a more coordinated and comprehensive permit system.
5. Present findings and options to the COMPAG for collective review and approval.
6. Formalize an integrated permit process that is agreed to by all respective state and county interests, that addresses all regulatory requirements and that meets the needs of the agencies and businesses alike.
7. Work with the regulatory agencies to better inform ocean recreation businesses of the permit requirements and application process.

Clarifying the Permit Process

With concurrence of the COMPAG, ORB invited representatives from each of the agencies listed above to participate in a series of five facilitated workshops during 1992. The significance of the workshops was evidenced from the beginning by the commitments each agency gave to participating. For the first time ever, all 17 state and county regulatory agencies involved in issuing permits for commercial ocean recreation activities were discussing the process with each other. This alone accomplished much to open lines of communication that had not otherwise existed.

From the outset, it became apparent that so many different variables existed in determining when a permit was needed and what defined its issuance, that a great portion of each meeting was taken up having each agency define its permit policies and procedures for the rest of the group. To lay the foundation for analysis, representatives were given standardized matrices on which to record their permit requirements. Representatives were asked to work closely with their agencies to obtain full concurrence on the information they provided. Often, if a state agency had multiple offices and issued permits in more than one county, this meant meeting with representatives from each office to obtain the complete picture. In several cases, it was reported back that the same state agency had been processing the permit differently in each county, as different offices of the agency were not all using the same forms or criteria for issuance.

Having the participants work through the matrices with their agencies and obtain consensus had two important outcomes: 1) it encouraged each agency to work towards a standardized methodology for issuing permits in cases where such did not exist, and 2) it enabled each agency to develop clearer policies on why and how they issued permits. Even in cases where policy was thought to be consistent, the sharing of situations between the regulatory authorities often resulted in an agency realizing it had never had to deal with a type of situation before and would need to rethink its policy to include the newly introduced variables.

"Commercial Ocean Recreation" Defined

In the process of each agency reviewing how and why they issued permits and more clearly articulating their policies for the rest of the group, it became obvious that even how commercial ocean recreation was defined varied from agency to agency. Throughout the series of meetings, the following definition of commercial ocean recreation was crafted and redrafted until it met with the entire group's approval.

- "Commercial ocean recreation" is defined as the utilization of ocean resources for ocean recreation-related activities or services, where the person receives compensation for the activities or services, except for the transport of commodities and passengers under Public Utilities Commission (PUC) license for international or interstate commerce.
- "Ocean resources" include but are not limited to the submerged lands, beaches, shoreline, living resources or water surface or columnary any other designated area.
- "Ocean recreation-related activities or services" include but are not limited to those activities or services designed for profit such as: a) exchange, buying or selling commodities, or rental of equipment; b) providing of services (vessel, charters, diving, food service operations, and/or guided tours, etc.); and c) utilizing ocean resources (access, living and/or other designated use, etc.).
- "Person" includes but is not limited to an individual, firm, partnership, corporation, trust, association, joint venture, organization, institution, or any other legal entity.
- "Compensation" includes but is not limited to monetary fee or in-kind services, e.g. exchange of services.

Of note, this definition was used recently by the Maui County Planning Department as the basis to draft new rules for issuing permits for commercial ocean recreation activities in county parks.

Outcomes of Analysis

Permit Types

Permits required for ocean recreation businesses are classified into two broad categories based on whether the activity to be permitted occurs in the ocean or on land. If access to the ocean is through a state facility, only state permits are involved; if access includes crossing public lands, both state and county permits may be required. In all there are 46 major permit types based on the classification scheme erected, plus numerous minor ones, that control commercial ocean recreation businesses operating from state and county lands and on state waters.
The following tables were developed for activities. If a business is considering a structure or development, a whole set of other permits may be required (e.g., construction permits, grading permits, United States Army Corps of Engineers permits, etc.). Additional consideration must be given to compliance with Chapter 343, Hawaii Revised Statutes, in meeting the requirements for an environmental assessment or an environmental impact statement.

Table 1 provides an overview of the major types of state permits required for operating on the ocean or accessing the ocean through a state harbor or boat launch facility. Table 2 provides details of just the commercial use permits required for state harbor facilities, slips and boat ramps. Similar matrices summarizing the details of the other ocean permit types have been prepared as well but are not presented.

Table 3 provides an overview of the major types of state and county permits required for operating from the land. Permits particular to Hawaii County are provided as an example of county requirements. Related, and in some cases additional types of permits exist for Maui and Kauai Counties and the City and County of Honolulu. Table 4 provides just the details of the SMA permits issued by Hawaii County. Similar matrices summarizing the details of other permit types listed in Table 3 have been prepared as well but are not presented.

Permit Process

Diagrams outlining the decision process for obtaining a commercial ocean recreation permit from the State and Hawaii County, are depicted respectively in Figures 1 and 2. Hawaii County is shown as an example because of the relative simplicity of its process. The processes for Maui County and the City and County of Honolulu are much more complex by comparison. In all counties, determination of whether or not a commercial ocean recreation activity is appropriate is based first on zoning district designation. If the activity proposed is in an inappropriate zone, the activity will be denied and no county permits will be issued.

For the purposes of graphic presentation in Figure 2, zoning determinations are shown as preceding SMA determinations. Under state CZM law, if an activity is "development" within an SMA, the SMA must precede other permits. However, whether zoning and SMA determination are processed serially or concurrently depends upon the practice of each county. If the activity is "development" in an SMA, the county SMA determination must precede any state permitting. If not, county zoning will still apply, but any state permitting can proceed independently without waiting for the county zoning determination.

Depending on the type of commercial activity proposed and where the activity originates (e.g., off a beach, out of a harbor), it can take from a few months to several years and a significant financial investment to obtain the necessary permits. These up-front costs (time and money) relate to permit application, while additional expenses may be incurred once the permit is obtained. These expenses can be $900 per year for a City and County of Honolulu Parks and Recreation permit or over 2% of a company's annual gross revenues for some state DOBOR permits (see also Table 2).

Status and Conclusions

The workshops led to general agreement on the basic process for obtaining permits and the sequence in which they needed to be obtained. Single points of contact for all permits were identified; DLNR-DOBOR for state permits and the Planning Departments for the counties of Kauai, Maui, and Hawaii, or the Department of Land Utilization for the City and County of Honolulu. This does not mean that these agencies would be the only ones to issue permits. However, it does define a starting point and a place for businesses to go for information about which permits are needed.

The opportunity to formally institutionalize this basic process within DLNR has been delayed due to the major review and revisions being made to that agency's conservation district use regulations and application process. After several years, this situation still is not completely resolved.

Standardization of permit processing procedures in each agency led to administrative homogeneity and greater consistency in implementation. Asking each agency to develop clear policies on why and how it issued permits has clarified ambiguities regarding when a permit is needed. These actions have resulted in less confusion among the commercial ocean recreation businesses and the regulatory agencies.

Although the workshops achieved clarity of process as represented by Figures 1 and 2, streamlining or simplification to achieve greater efficiency in the issuance of commercial ocean recreation permits is yet to be achieved. This will require further agreement among all agencies involved. Resolution of these workshops for that purpose is highly desirable. It would also seem appropriate for such a group to evaluate the apparent lack of cohesive state policy on commercial ocean recreation,
Table 1. Overview of major state permit types for ocean recreation businesses operating in the ocean. Acronyms are explained in the text.

<table>
<thead>
<tr>
<th>AREA (Ocean)</th>
<th>PERMIT (Type)</th>
<th>CONTACT AGENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>State harbor facilities, slips and boat ramps [see Table 2 for details]</td>
<td>*Commercial use permit(s)</td>
<td>DLNR-DOBOR (for small boat harbors)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DOT-Harbors (for commercial harbors)</td>
</tr>
<tr>
<td>Non-designated ocean recreation management areas</td>
<td>*DOBOR permits</td>
<td>DLNR-DOBOR</td>
</tr>
<tr>
<td></td>
<td>*No controlled ocean sports¹</td>
<td></td>
</tr>
<tr>
<td>Designated ocean recreation management areas</td>
<td>*Special commercial operating area permit for controlled ocean sports</td>
<td>DLNR-DOBOR</td>
</tr>
<tr>
<td></td>
<td>*Commercial permit for all equipment (except beachmats, bodyboards, masks, fins and snorkels)</td>
<td></td>
</tr>
<tr>
<td>Marine life conservation districts (MLCD)</td>
<td>*Commercial use permit (currently required at Old Kona Airport MLCD only)</td>
<td>DLNR-DOBOR w/DAR</td>
</tr>
<tr>
<td>Ocean waters events</td>
<td>*Ocean waters events permit²</td>
<td>DLNR-DOBOR</td>
</tr>
<tr>
<td></td>
<td>*If involves commercial harbors</td>
<td>DLNR-DOBOR w/concurrence of DOT-Harbors</td>
</tr>
</tbody>
</table>

¹ Controlled ocean sports are: thrillcraft, parasailing operations, commercial water sledding and high speed motorized vessels

² Depending on where the activity occurs, related land-based permits (e.g. County Parks permit, SMA permit, etc.) must also be obtained.
<table>
<thead>
<tr>
<th>PERMIT</th>
<th>ALLOWED USES</th>
<th>AGENCY</th>
<th>REQUIREMENTS</th>
<th>RESTRICTION(S) AREA</th>
<th>MONTHLY FEE(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial use permit in small boat harbor</td>
<td>Moor in small boat harbor</td>
<td>DLNR-DOBOR</td>
<td>Proof of: 1) Ownership 2) Vessel dimensions 3) Registration/documented 4) Coast Guard capacity 5) Master's certificate 6) Insurance</td>
<td>Specific harbor assigned</td>
<td>2x mooring fee or 2% of the gross</td>
</tr>
<tr>
<td>&quot;Vessel Moored Elsewhere&quot; (VME) outside harbor area</td>
<td>Use of small boat harbor for loading and unloading</td>
<td>DLNR-DOBOR</td>
<td>Same</td>
<td>Same</td>
<td>VME: $100 or 2% of the gross</td>
</tr>
<tr>
<td>Launch Ramp Use permit</td>
<td>Use of launch ramps</td>
<td>DLNR-DOBOR</td>
<td>Proof of: 1) Ownership 2) Registration/documented 3) State co-insured</td>
<td>As defined on permit</td>
<td>$75 or 2% of the gross</td>
</tr>
<tr>
<td>Commercial use permit in commercial harbor</td>
<td>Pick up and drop off passengers in commercial harbor</td>
<td>DOT-Harbors</td>
<td>Proof of: 1) Ownership 2) Vessel dimensions 3) Registration/documented 4) Coast Guard capacity 5) Certificate of inspection if more than 6 passengers 6) Master's certificate 7) Insurance</td>
<td>Commercial harbors within applicable district/island</td>
<td>$115 or 2% of the gross</td>
</tr>
<tr>
<td></td>
<td>Moor in commercial harbor</td>
<td>DOT-Harbors</td>
<td></td>
<td></td>
<td>[1 whichever is greater]</td>
</tr>
</tbody>
</table>
Table 3. Overview of major state and Hawaii county permit types for ocean recreation businesses operating from the land. Acronyms are explained in the text.

<table>
<thead>
<tr>
<th>AREA (Land)</th>
<th>PERMIT (Type)</th>
<th>CONTACT AGENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>State:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seaward of the shoreline to the end of state jurisdiction¹</td>
<td>• DOBOR permits</td>
<td>DLNR-DOBOR</td>
</tr>
<tr>
<td>State parks</td>
<td>• DOBOR permits</td>
<td>DLNR-DOBOR w/State Parks</td>
</tr>
<tr>
<td></td>
<td>• SMA approval</td>
<td>County Planning Departments</td>
</tr>
<tr>
<td>State Land Use Districts: Conservation</td>
<td>• DOBOR permits (if no structure involved)</td>
<td>DLNR-DOBOR</td>
</tr>
<tr>
<td></td>
<td>• Temporary variance (if structure is for less than one year)</td>
<td>DLNR-LMD</td>
</tr>
<tr>
<td></td>
<td>• Conservation District Use Permit (if permanent structure)</td>
<td>DLNR-LMD</td>
</tr>
<tr>
<td></td>
<td>• SMA approval</td>
<td>County Planning Departments (or DLU)</td>
</tr>
<tr>
<td>State Land Use Districts: Agricultural and Rural²</td>
<td>• State Land Use Commission Special Use permit (less than 15 acres)</td>
<td>County Planning Departments (or DLU)</td>
</tr>
<tr>
<td></td>
<td>• State Land Use Commission permit (more than 15 acres)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• SMA approval</td>
<td></td>
</tr>
<tr>
<td>State Land Use Districts: Urban</td>
<td>• All urban districts are managed by County Zoning Codes</td>
<td>County Planning Departments (or DLU)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hawaii County:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zoning areas: Residential, Residential/Agricultural, Agricultural, Unplanned Industrial</td>
<td>• Commercial ocean recreation businesses not permitted except with Use permit approval</td>
<td>County Planning Department</td>
</tr>
<tr>
<td></td>
<td>• SMA permit (see below)</td>
<td></td>
</tr>
<tr>
<td>Zoning areas: Resort, Commercial</td>
<td>• Commercial ocean recreation businesses permitted outright with area plan approval</td>
<td>County Planning Department</td>
</tr>
<tr>
<td></td>
<td>• SMA permit (see below)</td>
<td></td>
</tr>
<tr>
<td>Zoning areas: Open</td>
<td>• Use permit</td>
<td>County Planning Department</td>
</tr>
<tr>
<td></td>
<td>• SMA permit (see below)</td>
<td></td>
</tr>
<tr>
<td>Zoning areas: All</td>
<td>• Use permit</td>
<td>County Planning Commission</td>
</tr>
<tr>
<td></td>
<td>• SMA permit (see below)</td>
<td></td>
</tr>
</tbody>
</table>
Table 3. Overview of state and Hawaii county permits for ocean recreation businesses operating from the land (continued):

<table>
<thead>
<tr>
<th>AREA (Land)</th>
<th>PERMIT (Type)</th>
<th>CONTACT AGENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special Management Area (SMA)</td>
<td>•Exempt</td>
<td>County Planning Department</td>
</tr>
<tr>
<td>[see Table 4 for details]</td>
<td>•Minor permit (if determined to be development and involves structures and/or land improvements)</td>
<td>County Planning Department</td>
</tr>
<tr>
<td></td>
<td>•Major permit (if determined to be development and involves structures and/or land improvements)</td>
<td>County Planning Department (also need County Planning Commission approval)</td>
</tr>
<tr>
<td></td>
<td>[If only transiting, and if located in appropriate zoning area, no SMA approval is required]</td>
<td>County Planning Department</td>
</tr>
<tr>
<td>County parks</td>
<td>•Concession agreements, e.g. food service, snorkeling equipment rental (awarded to high bidder through public bidding process)</td>
<td>Department of Parks and Recreation</td>
</tr>
<tr>
<td></td>
<td>•SMA permit (see above)</td>
<td>County Planning Department</td>
</tr>
<tr>
<td>Shoreline Setback Area</td>
<td>•Shoreline Setback approval (if involves minor structures and/or activities)</td>
<td>County Planning Department</td>
</tr>
<tr>
<td></td>
<td>•Shoreline Setback Variance permit (if involves major structures and/or activities)</td>
<td>County Planning Department</td>
</tr>
</tbody>
</table>

State Notes:
1 Counties have the authority under Chapter 205A, Hawaii Revised Statutes, to change their boundaries to seaward of the shoreline. None have done so thus far, but an additional set of requirements may be added should any county choose to do this.

2 Also see County Zoning Codes for activities occurring in Agricultural and Rural State Land Use districts.

Hawaii County Notes:
In all districts: yacht harbors, boating facilities and other major recreational uses including accessory uses, may be of a commercial or non-toxicous industrial nature. The intent of this permissive regulation is to allow, where appropriate, major recreational developments having complete and homogenous facilities. None of these uses may be established in any "Open district" unless the proposed use, in its entirety, is compatible with the stated purpose for adopting the Open district.

Open District:
"Purpose and applicability. The Open district applies to areas that contribute to the general welfare, the full enjoyment, or the economic well-being of open land type use which has been established, or is proposed. The object of this district is to encourage development around it such as a golf course, county club, and park, and to protect investments which have been or shall be made in reliance upon the retention of such open type use, to buffer an otherwise incompatible land use or district, to preserve a valuable scenic vista or an area of special historical significance, or to protect and preserve submerged land, fishing ponds, and lakes (natural or artificial tide lands)." Reference: Hawaii Zoning Code (Chapter 25).
<table>
<thead>
<tr>
<th>Processing Area</th>
<th>2000 (ft)</th>
<th>SMA (see county maps)</th>
<th>Planning Department</th>
<th>SMA Exempt</th>
</tr>
</thead>
<tbody>
<tr>
<td>$2000 (ft)</td>
<td>None</td>
<td>SMA (see county maps)</td>
<td>Planning Department</td>
<td>SMA Exempt</td>
</tr>
<tr>
<td></td>
<td>Fee(s)</td>
<td>REQUIRMENTS</td>
<td>AGENCY</td>
<td>ALLOWSD USES</td>
</tr>
</tbody>
</table>

Table 4. Details of the Special Management Area (SMA) permits issued by the Hawaii County for ocean recreation businesses operating from the land.
Figure 1. Diagram of the decision process for obtaining a commercial ocean recreation permit from the State of Hawaii. Acronyms are explained in the text.

Figure 2. Diagram of the decision process for obtaining a commercial ocean recreation permit from the County of Hawaii. Acronyms are explained in the text.
which should include recognition of environmental needs, carrying capacity constraints and existing and future opportunities.

Acknowledgments

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References


USING BRITISH COLUMBIA'S COASTAL TOURISM RESOURCE INVENTORY IN LAND USE AND TOURISM PLANNING

Pieter Bekker
Ministry of Small Business, Tourism and Culture (Canada)

Abstract: The government of British Columbia has a strong tourism mandate which includes ensuring that tourism interests are reflected in land use and resource planning processes. Tourism marketing for the province is based on the "SUPER, NATURAL BRITISH COLUMBIA" theme which highlights scenery, wilderness, fish and wildlife, mountains, forests and coastline.

In recognition of the relationship between tourism and natural resources, the tourism ministry developed a map-based tourism resource inventory methodology that uses geographic information systems (GIS) technology, and applied it to the entire 27,000 kilometers of Canada's Pacific coastline. The inventory shows the relative strength of individual areas to support a variety of tourism activities and developments.

Strategic in design, the coastal inventory has been used for land use planning including the identification and ranking of candidate protected areas, special management areas and priority tourism use and development areas. The GIS-based inventory is the first of its kind in Canada. It encompasses existing tourism use as well as capability for future use.

Tourism capability is derived through computer modeling developed in consultation with the tourism industry. Modeling inputs consist of data bases depicting values important to tourism. Each model defines the combination of natural and cultural resources, and infrastructure needed to support specific tourism products such as coastal cruising, kayaking, resort development and sport fishing. When existing use is overlaid with capability, future use and development opportunities emerge.

The inventory has proven valuable for the development and implementation of land use plans. Its use in pin-pointing tourism development opportunities appears worth. Such inventory shortcomings will be addressed to the extent possible through regular updating. A methodology for more detailed tourism resource inventories which focuses on priority tourism areas is now being developed.

Keywords: coastal tourism inventory, land use planning, GIS, tourism resources

Context

Tourism on British Columbia's Coast

British Columbia, Canada's western-most province, is renowned for its natural beauty and ecological diversity. One million square kilometers in size, it harbors numerous mountain ranges including the Rockies, magnificent forests, lakes, rivers, valleys and plains, and the greatest variety of wildlife species in North America. Increasingly important to its strong tourism industry is the 27,000 kilometers of predominantly wild and remote Pacific Coast which attracts more visitors and residents every year (Figure 1).

A majority of British Columbia's population lives along or near its southern coast with Vancouver (the Province's economic center) and Victoria (its capital) housing 56% of the province's 3,750,000 people. Other communities including Aboriginal communities, are much smaller, relatively isolated, and widely scattered along its shores.

Already known for the Inside Passage, a sheltered inland waterway stretching from Washington state to Alaska and frequented annually by numerous cruise ships, the coast has also been a sport fishing and more recently, whale watching Mecca. The West Coast Trail, a rugged, 60 kilometer hike through coastal rain forest and along surf-pounded beaches, is consistently in high demand. Kayak and charter boat tours are becoming popular activities in even the remotest coastal locations. The Queen Charlotte Islands contain South Moresby/Gwaii Haanas National Park, known as "the Galapagos of the North" for its species richness and diversity.

The Province markets itself as "Super, Natural British Columbia," a tourism theme that capitalizes on its striking natural features. The catchwords "Clean, green and safe" also apply. Total visitor expenditures in 1994 were an estimated $6.3 billion, with the industry growing at roughly the same rate as the economy at 5.1%. Visitor expenditures in marine tourism in the same year were approximately $670 million (excluding ocean-front accommodation), a 40% increase from 1989.

Because of its many natural and cultural assets, British Columbia has certainly had its share of land use controversies. The Province is 95% Crown (publicly) owned, therefore debates and decisions on land use and resource management have been hot and recurring. The most recent (and hottest) land use controversy has been in Clayoquot Sound. Situated on Vancouver Island's west coast, the Sound contains snow-capped mountains clothed with old growth forest, fjords, numerous islands and Pacific Rim National Park, famous for Long Beach which attracts nearly one million visitors annually. Proposed logging, First Nations' rights and environmental concerns catapulted the area onto the world media stage several years ago.
Figure 1. Location of coastal tourism resource inventory.
Land Use Planning

Land use conflicts have raged throughout the Province for the past 25 years. To bring certainty to all sectors, the Provincial government initiated land use planning processes that engage all stakeholders in interest-based negotiations. Simply stated, all those with a direct stake in an area's land use participate in the planning process by identifying their interests, representing them in negotiations, and together arriving at a plan all can hopefully accept. The goal is consensus.

Participants generally work with four land use zones: Protected Areas (Parks), Low Intensity areas (where scenery, wildlife, cultural, recreational/tourism and biodiversity have priority), Integrated resource areas (where all resources have equal priority), and Enhanced Resource Use areas (where resource development has priority). Private land is not included in the negotiations. The overall objective behind the land use planning is to provide greater certainty for all. Another is to have a representative 12% of the Province set aside in Protected areas. To diversify and maintain a vibrant economy is also of key importance. In short, sustainable development is the goal. Treaty negotiations with First Nations has also started in earnest recently, with jurisdiction over land and resources a key ingredient.

To be part of the land use negotiations, the various stakeholders must identify their interests and values, map them if possible, and decide what type of land use and resource management is appropriate to maintain those values. Although theoretically easy, this work had never been done for tourism.

In the planning process, a Geographic Information System (GIS) is used to overlay the various stakeholder maps. Where land use interests are compatible or in conflict then becomes apparent, with the conflicts addressed through principled negotiation.

Inventory Development and Use

The province recently revised the provincial Tourism Act, enabling the Ministry of Tourism to reflect tourism interests in land use plans and resource management decisions. In response to the need to have tourism interests represented in land use planning, the Ministry set out to develop a methodology to inventory and map those lands and resources important to tourism, and to apply it to the entire coastline of British Columbia.

Developing The Methodology

Key in developing the inventory methodology was the establishment of a steering committee comprised of representatives from each of the major coastal tourism sectors including cruise ships, marinas, charter boats, sport fishing lodges, kayaking, and wildlife viewing. Government agencies with a coastal jurisdiction (Environment, Parks, Lands, Forests, Aboriginal Affairs, Federal Department of Fisheries and Oceans) were also invited on the committee. Another key decision was to use GIS to store, manage, update and analyze the gathered information. A number of operating criteria were established to guide inventory development. They were:

- the use of existing resource data wherever possible;
- capacity to conduct tourism resource analysis at a broad planning scale of 1:250,000;
- consistency with the Province's emerging corporate GIS standards;
- a credible and rigorous approach to information assembly, and;
- ease of data updating.

In considering what to include in the inventory, the essential question is which resources are important to the tourism experience being sought? For example, an area where the natural resources provide good capability for an exclusive sport fishing lodge experience may be defined as follows in Table 1.

<table>
<thead>
<tr>
<th>ESSENTIAL RESOURCES (necessary for product to exist)</th>
<th>QUALIFYING RESOURCES (define product's level of quality)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• larger fish within traveling distance from lodge</td>
<td>• scenic setting</td>
</tr>
<tr>
<td>• sheltered waters for float plane use and boat moorage</td>
<td>• other nearby activities to</td>
</tr>
<tr>
<td>• remoteness (greater than 1 km away from road access)</td>
<td>• enjoy besides fishing (e.g., beach, trails)</td>
</tr>
<tr>
<td></td>
<td>• wildlife to view</td>
</tr>
<tr>
<td></td>
<td>• heritage resources</td>
</tr>
</tbody>
</table>

The tourism resource inventory contains a series of resource maps which represent the important resources identified, as above, for all important tourism products. A map showing the location of marine mammals for example, was prepared from existing surveys conducted by the Federal Department of Fisheries and Oceans. A map of coastal old growth forests, useful for scenic analysis, was created from satellite imagery.
For the coastal inventory, the following products were analyzed in this manner:

day cruising                  day sport fishing
multi-day cruising           multi-day sport fishing
small cruise ship            mannas
day kayaking                 heritage/culture
multi-day kayaking           lodge/resort

The combination of resources needed to support any given product were arranged in a model (Figure 2) so that the level of capability (high, medium or low) could be assessed. The model in turn was translated into an algorithm for the GIS to use, to produce a resulting product capability map. These capability maps (Figure 3 (see Figure 1 for location)) were reviewed with the steering committee and based on their input, the models were adjusted until the maps depicted real life as closely as possible. The individual product maps could, in turn, be combined to produce an overall capability map.

Using the Inventory

To date, the inventory has been used for identifying, delineating and ranking candidate coastal protected areas, in regional and sub-regional land use planning, and to a limited degree in tourism planning and treaty negotiations with First Nations.

Land use planning outcomes have been encouraging for tourism. For example the majority of areas important to tourism on Vancouver Island’s rugged west coast have either become Protected Areas or Low Intensity Areas (where non-extractive resource use has priority). The industry therefore has greater certainty that resources will be managed to maintain their value to tourism. Major tourism facility development is focused on private lands on the island’s east coast. The social acceptability of developing low impact facilities in Low Intensity Areas (and perhaps even in Protected Areas) will be explored through land use plan implementation.

Two tourism maps are submitted into any given land use planning process. The first is overall capability as described above. The second is an existing use map (Figure 4) which depicts the location of all tourism facilities and areas frequented by tourists. A typical use area will show the location of a lodge or resort and access route to it, the land and water areas which clients use for various activities, and the scenery, natural and cultural features that provide the setting for the activity.

When existing use and capability are compared, initial assessments of unused capability and potential development opportunities can be made. Data collected when inventorying existing use includes capacity and utilization information, therefore the ability of existing infrastructure to absorb additional use can be estimated before new development is considered. Sustainable development principles are adhered to in such analyses.

Lessons Learned

What have we learned so far? In terms of the inventory, the decision to follow the predetermined criteria was sound. Relying on existing data wherever possible meant that costs to compile the inventory were reasonable in comparison to the costs of bringing the interests of many other sectors forward. It cost approximately $6.00/km of shoreline to compile the original inventory, and updating costs are approximately $1.00/km/year. Using other agencies’ data in the inventory also translated into them accepting our inventory results more readily (a nice thing in negotiations where unacceptable data has no relevance). The 1:250,000 scale proved highly useful because the land use planning processes ended up using that scale, and it allowed us to cover extensive areas quickly.

We found that the inventory’s main strength is its ability to objectively compare one area’s tourism capability to all other areas. It does not state how much better a high capability area is compared to a moderate or low capability area. However what can be said is that all else being equal, it is better. The inventory has also proven useful in isolating areas where tourism values are concentrated, that contain the resources to support a variety of activities at high quality levels and therefore warrant special management, consideration or protection.

A methodology is now being developed to inventory these areas at a detailed 1:20,000 scale. Detailed inventories will identify specific tourism development opportunities and operational resource management requirements to maintain the area’s value for existing operators. The 1:250,000 scale tourism inventory has been unable to do this except in broad terms. Just as important is its ability to identify areas not important to tourism in which other resource interests can operate more freely without jeopardizing tourism experiences.

In terms of GIS, the inventory complied with all emerging corporate GIS standards, which ensured fairly easy data transfers between Tourism and other agencies, and made analysis in land use planning processes simpler. Using GIS has made data updating quick as well. The costs of acquiring a state-of-the-art GIS that could perform the required business functions was expensive however. The training curve needed to attain operational efficiency was also steep and at times, frustratingly long. A bonus of GIS that has surpassed all expectations, is that after using it for several years, data managers now can produce very high
Figure 3. Modelled fish lodge capability.

Figure 4. Tourism existing use and resources.
quality maps that are both easy to read and pleasing to view. The analytical capability that GIS provides allow us to get maximum value out of the data, and has enriched our work.

Uses and Outcomes

The coastal tourism resource inventory has been used in a variety of land use planning applications. In hindsight, our initial decision to develop the inventory in consultation with the tourism industry was wise because in planning processes, the industry knew where the data came from, what it meant, and how to interpret it. There was therefore acceptance of the inventory findings. The inventory was also accepted by other government agencies because it was built, in part, from data they had initially provided.

The key tourism interests, “the bottom line” in land use negotiations, have been to protect those resources that the existing tourism industry relies on. In an era characterized by increasing demands on finite resources, the maintenance of the status quo for tourism is sometimes a feat in itself.

A second priority in land use planning, is to maintain areas that have future tourism potential. For much of the sparsely inhabited and wild coast of British Columbia, future capability appears at least as important as present use. Some existing tourism operators however, see future growth as additional competition to their own businesses, therefore do not heartily support it.

In addition to inventorying the coast, the entire 100,000 square kilometers of the Province has been inventoried as well, allowing us to now look at a provincial overview of tourism capability and use. The cost of this was approximately $1/square kilometer. The intent is to update it every three years while the information is in demand.
A GIS-BASED APPROACH TO INTEGRATED MARINE TOURISM PLANNING IN INDONESIA

Ian M. Dutton
Ministry of Home Affairs (Indonesia)

John P. Duff
Ministry of Home Affairs (Indonesia)

Sapta Putra Ginting
Ministry of Home Affairs (Indonesia)

Abstract: The Indonesian archipelago comprises some 17,500 islands. These have a coastline of roughly 81,000 km (the world's second longest after Canada), and form the basis of an extensive Exclusive Economic Zone (5.8 million km²). In view of the diversity, economic importance and sheer extent of coastal ecosystems and resources, current National development planning places considerable emphasis on coastal and marine resources management.

This emphasis is being articulated in both sectoral and cross-sectoral planning initiatives. Amongst the latter is the Marine Resource Evaluation and Planning Project (MREP) which is one of the most significant integrated coastal and marine planning projects undertaken to date in the Asia-Pacific region. The MREP Project will produce a range of strategic, spatial zoning, resource management and contingency plans for priority areas within ten of the 27 Indonesian Provinces. In combination, and via linkages to other resource studies and development plans, MREP plans will form a comprehensive planning framework for sustainable coastal and marine resource use.

Tourism is rapidly emerging as a significant resource use in most MREP Provinces—the project will thus play an important guiding role in tourism development, particularly in those Provinces for which tourism master plans have not been prepared and where development options are not constrained by an existing pattern of tourism development. This paper describes the approaches to integrated coastal and marine planning which are being employed within MREP and their relationship to tourism development. A key component of the planning approaches being employed is the use of geographic information systems (GIS) to assist in the definition, analysis and presentation of various planning options. GIS tools have not been widely used to date in tourism planning, but offer considerable potential and power. This paper describes some of the potential and pitfalls of GIS use for this purpose.

Keywords: Indonesia, GIS, comprehensive planning, tourism development

Introduction

The Context for MREP

With its limited land area (1.9 km²), vast tropical marine estate and coastline, large (190 million) and unevenly distributed population and rapidly growing economy, Indonesia faces many opportunities and challenges (Dahuri, 1995). Until relatively recently, national strategic planning was focused primarily on development of land and freshwater resources—an understandable focus in view of the need to secure food supplies, to stimulate industrial activity and to enable Indonesia to develop an internationally competitive economy. The first long-term (25-year) development plan, which ended in 1993 was highly successful in this regard. Indonesia achieved self sufficiency in rice production (the national staple food) and its economy now ranks with the other “Asian tigers” as one of the world’s fastest growing.

In the course of preparing for the second long term development plan a re-appraisal was made of the role of various sectors and resources in the national development process. As part of that re-appraisal, it was recognised that marine and coastal resources should be given greater strategic emphasis in the national economic development process (Sloan and Sughardy, 1994). A 1987 BAPPENAS study revealed that these sectors and resources account for 22% of national GDP and have the potential to make an even more significant contribution, particularly in the Eastern Provinces.

Long term (25-year) development plans are implemented by a series of 5 yearly development plans (Repelita). In Repelita VI (1994-1999), marine and coastal resource development has been identified as a priority focus within the strategic context of national development (PCA, 1993) and is readily linked to other strategic planning objectives relating to economic diversification (including tourism development), regional development, community involvement and technology transfer. In order to meet these targets, the government has formulated a series of coastal resource inventory, planning and institutional strengthening projects. One of the first of these to be implemented has been the Marine Resource Evaluation and Planning (MREP) Project. The overall goal of MREP is to "...plan and manage marine and coastal environments and resources in order to meet Indonesia's objective of sustainable development" (ADB, 1992). Specifically, the project aims to:

* improve the marine and coastal planning and management capability of the ten Provinces included in the project (see Figure 1); and
Figure 1. Location map of the project area.
• further strengthen the existing marine and coastal information system with a view to maximising the benefits to be obtained from the optimal use of marine and coastal resources.

The project is funded by a loan from the Asian Development Bank complemented by national funding. The project commenced in 1993 and is scheduled for completion in 1998. Consistent with the dual project aims, the project is structured in two parts, as shown in Figure 2. This paper primarily describes MREP activities within the sphere of Part A of Figure 2 as these are most directly concerned with integrated planning, although it is noted that Part B activities are closely interwoven with Part A activities as Part B agencies provide the data on ecological systems and processes and the information systems platforms to support planning activity.

Tourism in Indonesia

The East Asia-Pacific (EAP) Region has become one of the leading global tourism regional growth destinations, with average annual growth rates of nearly 9% in the 1980s and early 1990s. As a result of this growth, the EAP Region now receives around 7% of the global tourism market (compared with 3% in 1980).

Within the EAP Region, Indonesia has been particularly successful in attracting tourists and tourism investment (Hobson, 1994). Growth in inbound tourism was the highest in the region in the 1980s (up to 20% per year) and continued strongly in the 1990s (around 11% per year). Despite a recent slowing in growth rates (7% in 1995), as shown in Figure 3, Indonesia now enjoys a strong market base (more than 4 million visitors) and there are high expectations for continued strong growth (Anon., 1995). While data on domestic tourism are limited, Dutton (1994) notes that there has been strong growth in intra-regional travel and a significant increase in demand for a wide range of recreational activities, particularly in coastal locations. These trends parallel a rise in living standards and reflect a growing interest in non-traditional leisure activities. Despite these trends, he does, however, note that commercial marine tourism activities remain dominated by foreign tourists and that these activities are concentrated in Bali and Java.

Repelita VI proposes to support and encourage tourism development, particularly in Eastern Provinces, via a mixed strategy (PCA, 1993) of:
• environmental and cultural conservation and enhancement;
• integrated planning and coordination of private and public sector investment;
• improvement of facilities, infrastructure and promotion;
• community involvement and participation; and
• education and training.

Coastal and Marine Tourism Planning

An Emerging Synergy: ICAM and Tourism Planning

As noted by Dutton and Hall (1989), successful tourism development can occur by chance, by design and by a combination of both. Wong (1991) notes the influence of "chance" factors in the development of the Pattaya coastal resort area in Thailand. Such developments are usually the result of a short term opportunities and are typically less robust in that they fail to adequately consider the relative balance of economic, ecological and social factors which determine the sustainability of tourism development. Auyong (1995) notes that while these factors are often diverse and difficult to fully take into account in tourism planning, integration of these factors by careful design of tourism development is essential if that development is to be sustainable over time.

Sustainable tourism development can thus considered as conceptually similar to emerging principles of integrated coastal area management (see, for example, Boelzert-Suominen and Cullinan, 1994) in that both require active, multi-level, multi-sectoral, adaptive and ongoing planning. There are relatively few examples of such integrated planning within Indonesia, the EAP region, or globally (Auyong, 1995). However, there is obvious potential for cross fertilisation of approaches to general coastal area management and coastal and marine tourism planning, particularly in view of the pre-eminent role of coastal locations in the EAP region as foci for tourism development (Wong, 1991).

The Tourism Market System as a Basis for Integrated Planning

As a means of forcing a re-appraisal of traditionally supply-driven approaches to tourism development, Dutton and Hall (1989) proposed that the tourism market system should be re-oriented to place greater emphasis on the tourist experience, as indicated in Figure 4. They argued that the tourist experience is the pivotal factor in the interaction between demand for and supply of tourism products and the major determinant of the success and sustainability of tourism operations.

As illustrated clearly in numerous global case studies of marine and coastal tourism (see, for example, Wong, 1991; Hitchcock, King and Parnwell, 1993; Harnott and Saenger, 1995), a great many factors influence the long term development of coastal and marine tourism. In all cases, it is apparent that while supply of facilities, attractions and services can meet or encourage tourism demand, ultimately
MREP
(Marine Resource Evaluation and Planning Project)

Figure 2. The functional structure of MREP.
Figure 3. Growth in visitor arrivals to Indonesia 1983-95 (RDC, 1994).

Figure 4. Simplified tourism market system (Dutton, 1996).

Figure 5. Framework for integrated coastal and marine planning (MREP, 1995: Part A Konsultan Tim and Bappeda SulSel).
it is the tourist experience which determines whether these developments will continue to be viable and sustainable. This principle was reinforced in Indonesia in 1995 when a reported cholera outbreak in Bali led to the cancellation of bookings by a large number of Japanese tourists and resulted in significant employment and income losses (Anon., 1995).

Such events reinforce the importance of both understanding the full range of potential influences on tourism demand (the various factors outlined in Figure 4), of designing appropriate images and products to meet tourist expectations and to maintain a capacity to adjust both in the light of experience. In short, it is clearly not sufficient to view tourism planning as a "one off" activity—planning must be an ongoing process, constantly refined to meet (and where possible anticipate) market trends (Dutton, 1996).

The Role of MREP

MREP does not specifically target tourism planning, as tourism is just one of the myriad of coastal resources uses which occur throughout Indonesia. Rather, the project is seeking to define the most appropriate uses for currently unplanned coastal and marine areas and to ensure that all such uses are founded on sustainable use principles. In some areas of the ten MREP Provinces, notably Bali, Lombok and North Sulawesi, tourism is a dominant use of coastal and marine areas and is thus given special attention. In other provinces, there is considerable interest in tourism as a form of economic diversification and as a complement to existing or proposed conservation initiatives.

MREP thus incorporates numerous activities which are of direct and indirect relevance to development of coastal and marine tourism in Indonesia. These elements reflect the project aims described earlier. Via the combination of all project components outlined in Figure 2, MREP is providing:

- extensive training (both national and overseas) of Provincial staff in the theory and techniques of integrated planning and in related fields (e.g., use of information technology). With increasing emphasis on decentralisation of decision-making authority to the Provincial level, it is essential that Provincial planning agencies (BAPPEDA) have sufficient expertise to formulate and implement the suite of plans necessary to achieve National, Provincial and local development aspirations. One key aspect of the training program to date has been to develop an "in-country" training capability in various Universities and institutions which will enable training efforts to be sustained beyond the notional project life.

- legal and institutional reform and support necessary to achieve an integrated and sustainable approach to coastal and marine resource use. One of the most significant initiatives in this regard has been the formal establishment of Provincial Task Forces and Steering Committees in each Province. These multi-agency forums provide active oversight of planning activity and an unprecedented opportunity for information exchange and transfer between agencies which had previously worked primarily on a sectoral basis.

- a structured and holistic multi-level planning framework for integration of planning effort in coastal and marine areas. At a National Technical Workshop in November, 1995, the Integrated Coastal and Marine Planning framework outlined in Figure 5 was formally endorsed as the basis for Provincial planning (MREP Konsultan Tim and BAPPEDA SulSel, 1995). This framework provides a systematic basis for broad level strategic and zoning planning which then establishes a basis for tourism and other kinds of sectoral management.

- technology, tools and resources to support planning efforts of National and Provincial agencies. These range from "state of the art" survey tools, information systems hardware and software to more basic, but equally essential, physical facilities and equipment.

- an improved information base for decision-making. Via the work of academic, research and technical institutions, contractors and NGOs, a vast range of information has been acquired. Much of this information is spatially referenced (a requirement for processing by geographic information systems), acquired via a range of survey techniques (remote sensing to ground studies), interdisciplinary (spanning the physical, biological and social sciences) and available in a range of formats (digital to hard copy). Given the scale of the areas included in the project (the Provincial coastal and marine management areas shown in Figure 1 range in size from five to 20,000 square kilometres), diversity of environments, resources and uses studied and lack of precedent for this type of effort in many areas, the resultant databases are of immense national significance.

The Use of Geographic Information Systems in MREP

The Use of Geodata in Planning

There is an active and ongoing discourse within the discipline of planning regarding the most efficient and effective basis for data use within any planning activity (see, for example, Crapper, 1981; Green, Rix and Cadoux-Hudson, 1994). As experience with those few studies which have maintained records of data use efficiency has shown, inefficient use of data can lead to, at best, wastage of resources, and, at worst, ineffective plans (Dutton, 1992).
Questions about the most appropriate data for, and the role of data in, any planning study are best addressed on a project by project basis, although there is emerging agreement that the selection of appropriate data processing systems can be as important as the selection of appropriate data. In this regard, the relatively recent advent of powerful automated spatial data processing systems has greatly enhanced the suite of options available for data processing and paved the way for closer integration of the data analysis and plan formulation stages of a planning study. Contemporary geographic information systems (GIS) enable data users to directly interrogate data sets without recourse to specialist input from data providers, although, such input may still be necessary to ensure proper interpretation of results. More importantly, given that the majority of data which are of interest in the fields of coastal area management and tourism planning can be spatially (or “geo”) referenced, modern GIS systems allow for integration of data, analysis of trends, evaluation of options, visualisation and presentation of results in novel ways, covering larger areas and providing outputs in shorter time frames than traditional (typically manual) methods (a particular advantage in studies where data may be re-processed regularly). Caution is, however, needed in the application of GIS technology, particularly where experience in spatial planning is limited, or where such technology is not widely available and fully understood - both conditions apply in Indonesia at present.

GIS Databases for MREP

In the process of implementing MREP, data collection agencies initially developed a series of prototypes designed to test the suitability of GIS applications for specific planning applications. These training exercises enabled the adequacy of data to be evaluated and developed dependency in use of the standard project software (ARC/INFO). Following these initial trials, a combined prototype was developed (MREP Secretariat, 1995) which established data standards and structure in a format suitable for further application and development by Provincial planners. The essential structure of that prototype is shown in Figure 6.

As indicated in Figure 6, it is proposed that the combined prototype will be further refined and developed within the specific application environment of Provincial planning agencies. That process has now begun, with the development of planning information systems (PIS). The PIS will extract selected data layers from the combined prototype (Figure 6) and use these data initially for the production of a series of 1:250,000 zoning plans in each of the Provincial Marine and Coastal Management areas (Figure 1). The PIS can then be used for more detailed (1:50,000 or finer) forms of planning (notably the other levels of the planning framework shown in Figure 5).

Figure 7 shows the broad structure of the MREP PIS. Within the “Thematic Layer” of the PIS, it is proposed to combine data on a range of biophysical and socio-economic attributes. These data can then be overlain or otherwise combined for the purposes of:

- Evaluation-testing of scenarios, assessment of data quality, detection of trends, etc.;
- Prediction-projection of scenarios, modeling of ecosystems, species distribution, human impacts, etc.;
- Management-formulation of management zones and schemes, etc.; and
- Formulation of new projects

Applications of the MREP GIS for Tourism Planning

As indicated above, while MREP does not specifically focus on tourism planning, the information systems and various plans being developed will have a range of direct and indirect implications for tourism planning. Direct applications include:

(a) Production of inventories of existing tourism facilities, attractions and activities. Not all Provinces currently have these data available in spatially referenced or digital form, nor are all the data readily available to key decision making agencies. This 'product' will thus improve both the information base for decision making as well as enable further, more systematic analysis of development needs and impacts (in terms of tourism impacts on other resource uses and vice versa).

(b) Identification of coastal and marine areas which are suitable for tourism uses. This component of the zoning process obviously will have a significant effect on the availability of areas and resources for different types of tourism development and activity. This 'product' will significantly enhance the ability of National and Provincial agencies to develop locally viable tourism industries, to further assess tourism development options in new development areas, to assess the tourism carrying capacity of potential development sites and to promote investment opportunities.

(c) Modeling of development options at sub-regional and local scale. While the PIS will have a minimum resolution of 1:250,000, many of the data in the Thematic Layers will be input at a scale of 1:50,000, thus enabling more detailed analysis of tourism development options. For example, by combining various environmental (e.g., beach, climate, biotic) thematic layers, infrastructure (e.g., distance to transport nodes, from airport, etc.), legal (e.g., land ownership), social (e.g., availability of labour force) and other decision criteria it will be possible to assess the feasibility of supply of various types of tourism development at the sub-regional/local scale. These data can then be further evaluated in terms of demand.
Figure 6. The combined MREP GIS prototype (MREP Secretariat, 1995).

Figure 7. General Structure of the MREP PIS (Dutton, 1995).
analyses (some of which may supply additional evaluative criteria—for example, relating to consumer preferences) to facilitate product development.

(d) **Definition of areas of current and potential conflict.** In the course of development of zoning plans for each management area, areas of conflict (actual or potential) between tourism and other resources (fisheries, industry, etc.) and even between different types of tourism activity (e.g., diving vs. fishing) can be identified. While not all of these may be readily resolved by zoning, this 'product' of the GIS will enable appropriate forms of planning intervention at each level of the Provincial planning framework to be assessed and should facilitate effective integration of tourism planning with other sectoral planning.

(e) **Identification of key areas for more intensive planning effort (management plans, master plans, site plans, etc.).** By identifying conflict areas and other areas which need more specific planning attention, the GIS can be used to evaluate management options and model the impacts of various types of change.

(f) **Assessment of the social, economic, environmental or other costs (including opportunity costs) of tourism development proposals.** The MREP database will be maintained within a Provincial Data Centre by each regional planning agency and will be available for spatial analysis of future development proposals. With experience, it should be possible to incorporate some of the power of GIS technology into future environmental impact assessment and other types of feasibility studies.

(g) **Monitoring of development patterns.** All of the data layers being developed within MREP are supported by extensive metadata—these will form an important basis for development/change monitoring.

Potential (indirect in that they are not part of the immediate domain of MREP) applications of the GIS for tourism planning are equally diverse. They range from the production of promotional materials (using map and other graphic outputs from the GIS or combinations of maps and images and text) to the use of the GIS/PIS for innovative research purposes (e.g., assessing tourism impacts on migratory marine species).

**Lessons and Directions**

Most of the potential applications of the MREP GIS for tourism planning described above have not yet been fully realized. At the time of this presentation, these capabilities are still being developed, formats and standards for data management are being developed, application frameworks (the final content and structure of the PIS) are still under development and source data are still being collected or compiled prior to conversion to digital format. Training programs in the use of GIS systems and integrated planning methods are underway and development of administrative procedures for maintenance of a Provincial GIS capability is also continuing.

Nonetheless, various demonstration and training exercises have conclusively demonstrated the appropriateness of GIS systems for the types of applications outlined above. Evaluation of these exercises has enabled revision of database and GIS design prior to completion of the full system, thus leading to cost savings and more efficient use of resources. Some of the data sets already produced have also enabled Provincial planning agencies to deal with current coastal and marine tourism development issues on a more informed and confident basis.

With completion of Province-wide coastal and marine management strategies, which are the foundation of integrated planning framework outlined in Figure 5, by the end of 1996, each MREP Province should be well placed to clearly articulate strategic directions for tourism development. These will then form the basis of more detailed planning effort (zoning and management plans) in the remaining two years of the project.

For organisations interested in developing similar capabilities, the following guidance can be provided, based on the initial experience of MREP:

- It is essential to establish and maintain a close dialogue between data collectors and data users from the earliest possible stages of a GIS-based planning study. In this way, data needs can be clearly targeted, enabling more focussed data collection and increased data use efficiency. Such dialogue is essential to the effective use of GIS technology as data are the most expensive part of a GIS.

- While GIS systems provide considerable power and flexibility, the learning curve for sophisticated software such as ARC/INFO is relatively steep. To fully utilise such software requires a considerable investment in training and must be reinforced by 'on the job' experience in using local datasets. For complex activities such as integrated coastal and marine planning, it may be desirable to develop experience in planning techniques using manual methods initially so that the context of later GIS use is properly understood.

- Many of the concepts relating to integrated planning (from coastal management and tourism) which are freely debated in the literature are more difficult to operationalise in a day to day decision-making context. In this regard, Indonesia is developing an approach which is based on global best practice, but which has a form and interpretation which is specific to the national socio-cultural context. Any global 'models' should thus be carefully evaluated in the light of local needs, culture and practice before adoption or adaptation.
Although this point has already been made above, it is worth reiterating the importance of a process-oriented approach to planning. Even at this early stage of MREP plan development, it is apparent that the planning process being established will need to be refined and continually developed in the long term - it is not merely sufficient to construct a GIS database: such data must be linked with ongoing planning effort, maintained and updated over time. To achieve this will require establishment of an institutional capacity for planning and information management which is beyond the immediate MREP project horizon.

Finally, although not a core component of MREP, tourism planning is proving to be a key consideration in the development of integrated coastal and marine plans. Instead of dealing with tourism as a separate activity, MREP is overtly seeking to integrate tourism development within a broader planning framework which emphasizes the sustainability of resource use. Such an approach has the potential benefit of enabling co-ordinated decision making and facilitating resolution of conflicts between tourism and other competing land/sea uses.

Conclusion

Indonesia is now at a key stage in development of its vast resources. Increasing attention is being given to marine and coastal resources and to the development of sustainable approaches to resource utilization. The MREP Project is playing an important role in improving understanding of resource availability, in assisting in the development of resource utilization strategies and in developing an ongoing institutional capability for information management and integrated resource planning.

Geographic information systems technologies are a central component of the MREP project and have already proven to be of potential value for both broad scale spatial planning (zoning) and for more detailed sectoral or spatially-oriented planning, including tourism planning. Although GIS technology must be applied carefully in order to achieve short term outputs, this investment is likely to return considerable long-term benefits if ongoing planning effort is sustained.

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