C.A.P.E. ESTUARIES PROGRAMME

Sustainable Tourism in Estuaries of the Cape Floristic Region

G.2

C.A.P.E. Estuarine Management Guideline

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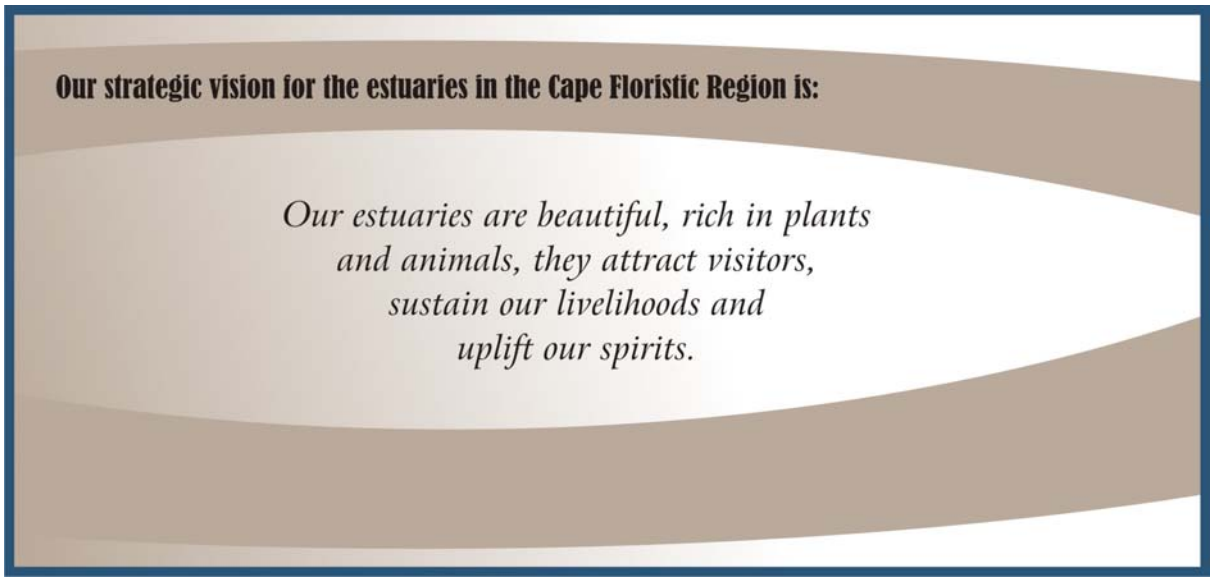

C.A.P.E. Estuaries Guideline 2: Sustainable Tourism in Estuaries of the Cape Floristic Region

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Sustainable Tourism

Table of Contents

This Guideline document constitutes a part of a suite of documents for developing a local Estuarine Management Plan as discussed in a Framework for a generic Estuarine Management Plan by L van Niekerk and S Taljaard. It should also be read in conjunction with "C.A.P.E. Estuaries Guideline 4: Preliminary zoning of human use of C.A.P.E. Estuaries based on sensitivity mapping and carrying capacity" by A Theron; "C.A.P.E. Estuaries Guideline 5: Guidelines on Promoting appropriate Water Quantity & Quality Management in the Estuaries" by S Taljaard and L van Niekerk and "C.A.P.E. Estuaries Guideline 7: Sustainable fishing in estuaries" by S Lamberth

1. Introduction

Broad and practical guidelines for local environmental officers and conservation managers are presented here, focussing on sustainable tourism in estuaries. These guidelines form part of an estuarine management plan (EMP) and guidelines for individual EMPs in the Cape Floristic Region (CFR) of South Africa.

Hay (2005: pp11) defines estuaries as *"part of a river or lake that interacts directly with the sea. This creates a unique environment where fresh and salt water mix, that is sheltered from the direct wave action of the sea and where nutrients from both the catchment and from the sea is deposited. While usually areas of relative calm they are also subjected to flooding and to the action of storms at sea. The net results is an ecosystem that his highly productive but that is also subjected to rapidly changing conditions."* Estuaries vary in the level of their interaction with the sea. For example, some estuaries in the CFR are open all the time (e.g. Breede), while others close temporarily (e.g. Groen), some are estuarine lakes (e.g. Swartvlei), and others are estuarine bays (e.g. Kynsna) (Breen and McKenzie, 2001).

Tourism activities that take place in estuaries can include recreational fishing, swimming, watersports (e.g. canoeing, boating, surfing, jet-skiing, paddle skiing, surf-skiing), hiking, mountain biking, and horse riding. Tourists engaging in these activities, and also infrastructure development associated with them, may have positive or negative impacts on the estuarine environment. In addition, some tourism activities may conflict with others, or with non-tourism activities (e.g. estuary use by local communities).

These sustainable tourism guidelines were developed from existing information about the type of tourism that takes place in the CFR, best practice for activities in estuarine regions, and international best practice. Therefore it should be recognised that they are not the result of local participation and site visits, and should be considered as general, rather than site specific guidelines with local stakeholder buy-in. However, they can be used as a generic and practical framework from which to develop guidelines for individual estuaries.

2. Background to Sustainable Tourism

2.1 An overview of sustainable tourism

In the year that the Bruntland Report was published and the term 'sustainable development' was coined, Krippendorf argued that the world needed a new, less exploitative form of tourism that could be evaluated in relation to its capacity to contribute to gross national happiness, by measuring, " . . . higher incomes, more satisfying jobs, social and cultural facilities, and better housing" (Krippendorf, 1987). The concept of 'sustainable tourism' has evolved since Krippendorf's statement was made, and later Butler (1993: 29) defined 'sustainable development in the context of tourism' as:

" . . .tourism which is developed and maintained in an area (community environment) in such a manner and at such a scale that it remains viable over an indefinite period and does not degrade or alter the environment (human and physical) in which it exists to such a degree that it prohibits the successful development and wellbeing of other activities and processes."

This definition acknowledges that tourism was unlikely to be the sole consumer of resources, and that tradeoffs with other activities and industries should cumulatively be sustainable (Wall, 1997). In the case of tourism in estuaries, this is appropriate because activities by residents and for commercial purposes also take place.

One of the outcomes of the Rio Earth Summit was a global action plan called Agenda 21. In relation to tourism, Agenda 21 promoted the, *" . . . formulation of environmentally sound and culturally sensitive tourism programmes as a strategy for sustainable development"* (United Nations, 1992). In 1999 the seventh Commission on Sustainable Development promoted a more balanced approach to sustainable tourism by the private sector. The commission called on the tourism industry to:

" . . . promote sustainable tourism development in order to increase the benefits from the tourism resources for the population . . . and maintain the cultural and environmental integrity of the host community; . . . promot[e] linkages within the local economy in order that benefits may be more widely shared; [emphasising] greater efforts [for] employment of the local workforce, and the use of local products and skills" (ibid).

In reality the implementation of sustainable tourism in reality has been slow. Reasons for this include that asking whether tourism is, or is not, sustainable is not practical because, " . . .sustainable tourism is not an inherent characteristic of any existing form or situation, but a goal that all tourism must strive to achieve" (Clarke, 1997: 224). Instead of searching for finite answers, Clarke (1997) suggests that researchers should look into how tourism can develop sustainably. Sustainable tourism should also be regarded within the context of the value systems of those involved and the societies in which the tourism exists if it is to be achieved (Butler, 1998). Therefore definitions of sustainable tourism will be vary between destinations, and for the purposes of these guidelines, will vary in different estuaries and also for different communities and stakeholders.

Some of the complexities of 'sustainable tourism' led to the promotion of 'responsible tourism'. Responsible tourism places the onus on tourism developers to demonstrate that they are operating in a responsible manner, given current knowledge and best practice. Practicing 'responsible' tourism on an operational basis becomes the mechanism by which 'sustainable' tourism can be achieved in the long-term (Spenceley, 2003).

2.2 Responsible tourism in South Africa

The South African White Paper on Development and Promotion of Tourism in South Africa outlines the key elements of responsible tourism (DEAT, 1996):

- Developing, managing and marketing tourism in ways that create competitive advantage;
- Assessing and monitoring the environmental, social and economic impacts of tourism developments, and openly disclosing information;
- Ensuring the active involvement of communities that benefit from tourism, including their participation in planning and decision-making and the establishment of meaningful economic linkages;
- Maintaining and encouraging natural, economic, social and cultural diversity;
- Avoiding waste and over-consumption, and promoting the sustainable use of local resources.

In 2002, the Department of Environmental Affairs and Tourism published the National Responsible Tourism Guidelines, building on the White Paper and reflecting a vision to manage tourism in such a way that it enhances the quality of life of all South Africans (DEAT, 2002). The Responsible Tourism Guidelines outline a set of guiding principles for economic, social and environment responsibility with a series of overall objectives, including the following:

Economic objectives	*Social objectives*	*Environmental objectives*
▪ *Assess economic impacts as a pre-requisite to developing tourism* ▪ *Maximising local economic benefits – increasing linkages and reducing leakages* ▪ *Ensure communities are involved in and benefit from tourism*	▪ *Involve the local community in planning and decision-making* ▪ *Assess social impacts as a prerequisite to developing tourism* ▪ *Maintain and encourage social and cultural diversity* ▪ *Be sensitive to the host culture*	▪ *Assess environmental impacts as a prerequisite to developing tourism* ▪ *Use local resources sustainably, avoid waste and over-consumption* ▪ *Maintain and encourage natural diversity*

Source: DEAT, 2002

The implications of tourism in sensitive estuarine regions relate to the planning, development and operation of tourism facilities and activities. These should take place in a responsible manner to promote sustainable tourism. The generic guidelines laid out in this document aim to provide local environmental officers and conservation manages with practical guidance that will facilitate sustainable tourism, and a basis for developing site specific guidelines for estuaries under their stewardship.

The Noetsie tourist chalets on part of the Whale Trail in De Hoop nature reserve, located by the estuary of the Klipdrifsfontainspruit

Photograph © Anna Spenceley, 2006

3. Guidelines for Sustainable Tourism in Estuaries of the Cape Floristic Region

Tourism activities that take place in estuaries may include recreational fishing, swimming, watersports (e.g. canoeing, boating, surfing, jet-skiing, paddle skiing, surf-skiing), hiking, mountain biking, and horse riding. Infrastructure development may be associated with these activities, and this can have positive or negative impacts on the estuarine environment. In addition, the practice of some tourism activities may conflict with others (e.g. jet-skiing disturbs recreational fishing). Therefore guidelines have been drawn up that related to each of these activities, and are preceded by a policy and planning section, and also generic guidelines for tourism in estuaries.

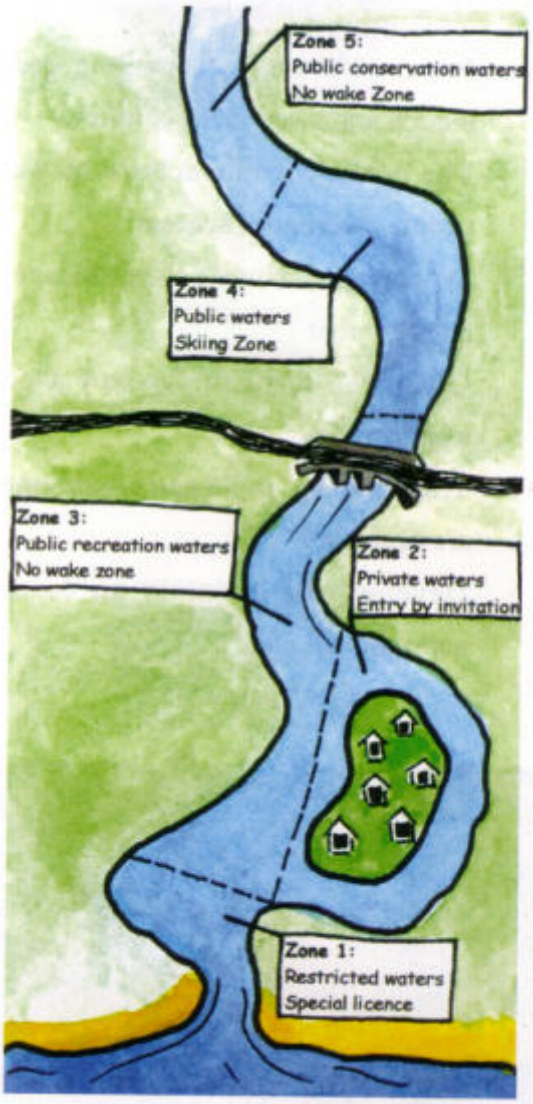
3.1 Policy and planning guidelines for sustainable tourism in estuaries

3.1.1 Issues for sustainable tourism

Planning processes vary, and are largely driven by wants and needs of local communities. Integrated Development Plans are used by municipalities to guide development. However, outside protected areas, planning does not generally take biodiversity conservation into account, unless conservation areas have a major role in the local economy. There are problems with this approach though, and for example in the tourism-dominated Knysna estuary, where the major attraction is the natural environment, natural areas continue to give way to marina developments at the expense of biodiversity

conservation (Turpie, 2004). In addition, the functioning and value of estuaries is generally not well understood by planners, and perceptions of problems are often limited to high E. coli counts which threaten tourism (Turpie, 2004). Conservation mangers may consider initiating consultation and evaluation processes with municipalities and conservation authorities to establish Marine Protected Areas (MPAs). MPAs often result in increased protective measures for an area (TOI, 2004).

Figure 1



An example of recreational zoning
(Illustration: Lauren Glennie)

Source: Breen and McKenzie, 2001

Effective coordination and communication between stakeholder institutions is also very important, particularly for co-management of estuarine resources (Wood *et al*, 2004). Fair and complementary treatment of different subsistence and recreational groups ensures that one particular group is not favoured.

Estuaries can be zoned for different activities. These activities may include recreational and subsistence fishing activities and non-consumptive activities. Effective zonation can only be achieved through a public participation process where the requirements and rights of all individuals are taken into consideration. Zonation can either be spatial (e.g. separate fishing and skiing zones or separate recreational and subsistence fishing zones) or temporal (e.g. skiing and power boating only allowed at certain times) (see Figure 1). Multiple access points can reduce encounters and conflict between user groups, but also make enforcement and monitoring more problematic. The number of access points ultimately depends on available manpower and capacity (Wood *et al*, 2004). Establishing controlled access sites facilitate monitoring and allow managers to control of levels of tourism, and areas of access in relation to the size and sensitivity of a particular estuary (adapted from Wood *et al*, 2004).

Zones established may include sanctuary areas for threatened sedentary species (e.g. bloodworm, proboscis worm and mangroves) (Wood *et al*, 2004) or breeding areas for

coastal bird and fish species. Sanctuaries should be located in areas that are not used for recreational activities such as fishing, skiing and power boating (Wood *et al*, 2004).

Guidelines for local environmental officers and conservation managers

Planning:

- Follow the framework provided by the generic Estuarine Management Plans (EMPs) developed for the Cape Floristic Region to establish a participatory planning process incorporating all interested and affected parties to develop appropriate spatial and temporal zonation for specific estuaries.
- Plan areas for controlled access to the estuary, using sensitively designed access infrastructure such as paths, roads, boardwalks and slipways.
- Explore options for developing Estuarine Protected Areas (EPAs) or Estuarine Conservation Areas (ECAs) in estuaries of particular conservation importance.
- Precede any infrastructure development by considering the local IDP and Environmental Impact Assessment (EIA) legislation.

Regulations:

- Enforce zonation using regular patrols of estuaries, and apply penalties for non-compliance.
- Ensure that developments and activities in the estuary are permissible as specified in the EMP of individual estuaries and under existing legislation.

Education:

- Provide information to tourists on the different zones in estuaries using maps and signs.
- Educate planners in local municipalities regarding the ecological, social and economic importance of estuaries.

3.2 Generic guidelines for tourism in estuaries

3.2.1 Issues for sustainable tourism

There are certain issues that are relevant to establishing responsible tourism practices in estuaries, regardless of the type of tourism activity taking place. These generic guidelines should be considered by environmental officers and conservation managers in all estuaries where tourism takes place.

Guidelines for local environmental officers and conservation managers

Regulation:

- Enforce legislation pertaining to activities that impact on estuary ecosystems and their functioning (e.g. National Environmental Management Act No 107 of 1998 (NEMA), Environmental Conservation Act No 73 of 1989, Agricultural Resources Act No 43 of 1983, etc.) (Wood *et al*, 2004).

Communication and cooperation:

- Promote communication and co-operation between local, provincial and national authorities (Wood *et al*, 2004) and other stakeholder institutions.
- Promote co-operative management through community involvement (Wood *et al*, 2004)

Infrastructure:

- Control pollution and waste emissions from recreational activities including sewage, detergents, agricultural runoff, urban runoff, industrial waste, solid waste and fossil fuels

(Taljaard 2007, Wood *et al*, 2004).

- Control erosion and runoff associated with tourism infrastructure development (e.g. roads, tourism developments, slipways) (Taljaard 2007, Wood *et al*, 2004).
- Provide appropriate and suitably located toilet and waste disposal facilities (including wildlife-proof bins).

Education:

- Promote estuarine awareness and instil a feeling of social responsibility towards estuaries through advertising & marketing and education of managers (including conservation management staff), user groups and the general public (Wood *et al*, 2004).
- Promote alternatives to consumptive exploitation, such as catch and release fisheries and bird watching (Wood *et al*, 2004).

Research:

- Identify and monitor consumptive resources, their value, and the present levels of exploitation in all systems (Wood *et al*, 2004).
- Generate database on historic and current biophysical and socio-economic characteristics to facilitate monitoring programmes (Wood *et al*, 2004).
- Incorporate research findings and recommendations arising from research programmes into management plans (Wood *et al*, 2004).

Specific tourism and recreation activities can have particular environmental impacts on estuarine environments. To provide environmental officers and conservation managers with guidelines for the main recreational activities, the following guidelines have been divided into sections on tourism development, boat operation, swimming and snorkelling, recreational fishing, and hiking.

3.3 Guidelines for tourism developments in estuaries

3.3.1 Issues for sustainable tourism

Developing tourism accommodation and other facilities in and adjacent to estuaries needs to be aligned with national legislation for development planning (e.g. Environmental Impact Assessment legislation), and local IDPs, but also has certain considerations that are specific to estuaries.

Guidelines for local environmental officers and conservation managers

Infrastructure:

- Carefully consider the construction site selection and site and building design (including setback distance from the estuary, tides and flood levels, dune integrity, water and wastewater management systems, drainage, etc.) (UNEP, 1997).
- Align developments with agreed zonation for the estuary as stipulated in the local EMP and IDP.
- Apply standards for resort ambience (UNEP, 1997) that are acceptable to local stakeholders (i.e. density, building height, landscaping, etc.).
- Manage construction activities and contractors, with penalties for damaging environmental features outside the development zone.
- Plan and carefully locate supporting infrastructure (transportation and road networks, waste collection and disposal, staff housing, etc.) (UNEP, 1997).
- Avoid direct discharge from the development, and associated drains, roadways, and parking areas into estuaries (Taljaard 2007, UNEP, 1997).
- Design wastewater system to allow the separation of grey water from sewage; and adequate treatment and disposal of sewage effluent to prevent ground or surface water

contamination. Consider the development of reed bed systems, which are low maintenance, require no energy or chemicals, and which provide additional wetland habitat for local fauna (UNEP, 1997).

- Do not remove dune vegetation, mangroves, seagrasses (UNEP, 1997), reeds or other flora that protects the integrity of the estuary.

3.4 Boat operation guidelines

3.4.1 Issues for sustainable tourism

Motorised boats, jet-skis, sailing boats, paddle skis, surf skis, kayaks, canoes and surf-boards are types of boat craft that have potential to cause negative impacts on estuarine ecosystems. For example, boat anchors, and their chains or ropes, can damage near-shore estuarine ecosystems. In addition to physical damage to aquatic plants, boat anchors and propellers can disturb sediment which clouds water limiting the sunlight available for aquatic plants to photosynthesise (Theron, 2007; TOI, 2004).

Old or poorly maintained boat engines can be a source of pollution (TOI, 2004). Oil and fuel is toxic to flora and fauna, and leaks can degrade the health of the ecosystem. In particular, the toxins may harm aquatic and shoreline plants, invertebrates, fish, birds and mammals. Extensive degradation may make the area less attractive to some tourists.

Riparian habitats tend to be sensitive and should be protected from impacts associated with vehicles and boat mooring sites (Theron, 2007; Wood *et al*, 2004). For example, shore erosion can be caused through repeatedly accessing an estuary from same location to embark and disembark their boats or canoes. This can be a particular problem in reed and mangrove areas. Mangroves provide stability for the shore and also breeding and nursery areas for fish. Jetties tend to alter the pattern of deposition and erosion in a causeway. Therefore care should be taken to design, locate and construct them in such a way that they do not detrimentally alter the shoreline (i.e. cause more erosion than they are designed to prevent) (Pers. com. M. McKenzie, 2007). They can also obstruct boats and the natural character of the shoreline (Breen and McKenzie, 2001). Power boats and jet-skis used for recreation and fishing are responsible for a small proportion of overall damage due to wave action (bank erosion), noise pollution and fuel/oil spills. Local by-laws can restrict engine size (horsepower), have go-slow or wake free zones or ban powered craft altogether. Many municipalities have built-in costs for boat licenses that vary according to horsepower – this money should be used to fund management costs (Wood *et al*, 2004).

Guidelines for local environmental officers and conservation managers

Infrastructure:

- Develop jetties or install mooring buoys with permanent lines, to allow boaters to fix their position without dropping anchors (TOI, 2004), and control the number of places where tourists can access the estuary. Use designs and jetty-site locations that will not damage the shoreline by exacerbating erosion.
- Establish designated channel markers to indicate areas for boat users to avoid (TOI, 2004), such as sensitive estuarine vegetation, shallow regions, or wildlife habitats.
- Provide safe areas for boat users to dispose of waste oil and other hazardous chemicals (TOI, 2004).

Regulations:

- Prohibit power boating or impose engine size restrictions (Theron, 2007; Wood *et al*, 2004).

- Restrict recreational activities such as skiing and powerboating to certain times of the day to avoid user group conflict (Wood *et al*, 2004).
- Establish and enforce appropriate speed limits for motorised boats and jet-skis (Theron, 2007).
- Establish no-discharge zones in ecologically and economically important areas (TOI, 2004).
- Ensure refuelling or waste oil disposal only takes place at a dock, rather than on the water where it could spill into the estuary (TOI, 2004).
- Consider inspecting motorised crafts before they enter the estuary, to ensure they are well maintained.
- Limit the number of boats on an estuary to reduce impacts due to noise and wakes. This action would be more effective on systems with limited access points, as monitoring multiple points is very difficult (Wood *et al*, 2004).
- Establish safety or exclusion zones around riparian habitats to prevent or limit access (Wood *et al*, 2004).

Education:

- Educate tourists to use their boats responsibly, and make them aware of the potential impact of irresponsible boat use on the local environment.
- Depending on the nature of the particular estuary, consider developing interpretation centres, brochures, signs or having a local guide provide information about responsible boat use.
- Explain to tourists how to use mooring buoys, and jetties before they set out.
- Provide signage to inform boat users of the speed limits, and the reason for the limits.
- Encourage owners to have their motorised boats regularly serviced to check for chemical leaks, and replace old two-stroke engines with cleaner and more efficient four-stroke engines (TOI, 2004).
- Encourage boat users to use non-toxic oils where possible, and to carry sponges to absorb hazardous chemical spills (TOI, 2004).
- Discourage boat users from pumping oily bilge water or other hazardous substances into the estuary (TOI, 2004).
- Educate boat owners to use non-toxic paints on boat hulls (e.g. those that do not contain biocides or heavy metals) (TOI, 2004).
- Provide boat users with simple waterproof navigation and location charts (TOI, 2004), indicating shore access points, speed limits, and designated channels.
- Educate boat users to dispose of litter in wildlife-proof bins, rather than throwing it overboard.
- Encourage boat users to use land-based toilet facilities before their boat trips (TOI, 2004).

Impacts of overuse in estuaries by boat users

At Bushmans Estuary, in the Eastern Cape, over the Christmas period it is not unusual to see 400 motorised boats making use of the system. A direct impact borne out by recent research is that when this number of boats is around fish simply leave the system. When fish disappear so do the other animals that feed on fish. Boats also cause significant wave action that erodes the banks of the estuary. It needs to be emphasised that the use of motorised boats and jet-skis on small estuarine systems has a severe impact and this activity should be discouraged.

Source: Hay, 2005: pp19

3.5 Swimming and snorkelling guidelines

3.5.1 Issues for sustainable tourism

Popular estuarine areas and near-shore swimming and snorkelling can disrupt the estuary bottom. Contact by body parts and fins can crush and kill bottom dwelling organisms and

their habitats. Sediment can be stirred up, which can disturb estuarine ecosystems and smother organisms. Where disturbance is extensive, the feeding and breeding areas for estuarine wildlife (such as fish) damaging the key attraction for tourists to snorkel there. Often tourists like to feed fish, monkeys or birds, but this can lead them to become habituated to people, dependent on this supplemental food, and it can affect population size and change their behaviour (TOI, 2004).

Guidelines for local environmental officers and conservation managers

Infrastructure:

- Install mooring buoys with permanent lines (TOI, 2004), which allow snorkellers to identify interesting sites, and to encourage visitation to particular sites

Education:

- Discourage tourists from feeding wildlife, particularly fish, primates and birds, and help them understand how feeding can actually damage the fauna (TOI, 2004).
- Encourage a no-contact policy for snorkellers and swimmers, and consider providing floatation materials for them (TOI, 2004).

3.6 Recreational fishing guidelines

3.6.1 Issues for sustainable tourism

Recreational fishing, compounded by commercial and subsistence fishing, has led to over harvesting of many marine species in certain areas (Lamberth 2007; TOI, 2004), such as crustaceans like abalone and mussels; crayfish and lobster; and game fish. Spear fishers often target larger fish, so reducing the reproductive capacity of particular species (TOI, 2004). Over-harvesting, and fishing during breeding seasons, can affect the population growth potential of particular species (e.g. crayfish and lobster). Poor compliance with fisheries regulations, e.g. exploitation of juvenile (undersize) fish and exceeding bag limits (Wood *et al*, 2004) can exacerbate this. Users often do not accept responsibility for their actions with regards to their contribution to decline of natural stocks (Wood *et al*, 2004). Often there is a lack of monitoring on most systems, i.e. no historical database to provide baseline assessments of fisheries, trends of fisheries statistics. Where they do exist, they are often for large systems, rather than small estuaries (Wood *et al*, 2004). Declines in particular species can have negative implications for conservation and tourism, by reducing the health and integrity of entire estuarine ecosystems (TOI, 2004).

Guidelines for local environmental officers and conservation managers

Infrastructure:

- Provide environmental education material on threatened or endangered species, harvesting seasons and catch sizes (e.g. signage)
- Provide waste disposal facilities for fishing line, nets and hooks.
- Minimise impacts on associated sensitive habitats found adjacent to bait collection areas (e.g. salt marshes), by constructing walkways (Wood *et al*, 2004).

Regulations:

- Identify potential Estuarine Protected Areas (EPA) for the conservation of over-exploited linefish species (e.g. dusky kob and white steenbras). These areas must include the mouth and adjacent marine environment (Wood *et al*, 2004).
- Establish sanctuary areas where threatened invertebrate and floral species occur (Wood *et al*, 2004).
- Enforce legislation on seasons for harvesting particular estuarine species, catch sizes, and harvesting of threatened or endangered species (TOI, 2004).
- Enforce, through compliance monitoring, existing legislation under the Marine Living Resources Act, e.g. permits, catch restrictions, use of cast nets etc. Penalties need to be severe and convictions need to be secured (Wood *et al*, 2004).
- Eliminate illegal activities (e.g. crab trapping and netting of swimming prawns) (Wood *et al*, 2004).
- Regulate fishing so that catch-and-release fishing is practiced for threatened or endangered fish species (TOI, 2004).
- Regulate the catch size of spear fishers, or ban the practice for over-fished, threatened or endangered fish species (TOI, 2004).
- Disallow capture of linefish species (e.g. grunter) with cast nets, seine nets, gill nets and traps (Wood *et al*, 2004).
- Control access to bait collecting areas. Rotate bait collection areas to be on an annual basis to allow for recovery. Restrict collection of mud prawn, sand prawn, bloodworm, pencil bait and tapeworm only during daylight hours and using to only legal implements (Wood *et al*, 2004).
- Control the number of fishing competitions (Wood *et al*, 2004).
- Reduce fishing effort by controlled access or increased access costs (Wood *et al*, 2004).
- Enforce penalties for fishers who litter equipment (e.g. line, nets, hooks).
- Ensure that fines and penalties are sufficiently harsh to act as a deterrent (Wood *et al*, 2004).

Education:

- Educate tourists to avoid spear fishing and encourage them to practice catch-and-release fishing instead.
- Encourage tourists to use their common sense, and avoid spawning fish, reproductive seasons or harvesting young animals, and also avoid harvesting entire schools of fish (TOI, 2004).
- Provide information to tourists urging them not to purchase fish or crustacean species (a) out of season (b) if they are undersized, (c) if they are threatened or endangered species (TOI, 2004).

Catch and release fly fishing in the Mtentu Estuary, KwaZulu-Natal

The Mtentu Estuary is located within the Wild Coast SDI in the Eastern Cape of South Africa, and forms the northern border of the Mkambati Nature Reserve. In 1997 the NGO Pondo Community Resource Optimisation Programme (PondoCROP) invited the private sector operator UFUDU to visit the area on behalf of the Amadiba Coastal Community Development Association (ACCODA), to investigate the possibilities of operating a non-consumptive fly-fishing operation in the Mtentu River. The Mtentu River was declared a Marine Reserve in 1991 and PondoCROP and UFUDU had to negotiate with the government's Marine and Coastal Management (MCM) directorate and the Eastern Cape Nature Conservation in order to obtain exemption for the operation. ACCODA was granted the permit, and UFUDU operated for an experimental three-month period in 1999, followed by a one-off season in 2000. Subsequently, UFUDU initiated a three-year arrangement in 2001 to continue their seasonal operations. Until recently, UFUDU's fishing camp offered tourists the opportunity to experience top quality catch-and-release fly-fishing in a simple setting with high-quality service. They charged R880 per day predominately to a domestic client base of keen fishermen and their families. Tourists catch species including Giant Kingfish, Big Eye Kingfish, Springer, River Bream and Kob. UFUDU's role is to operate the commercial operation in partnership with ACCODA representatives, and to employ local people.

Sources: Spenceley (2003), Anon (2002)

3.7 Guidelines for hiking in estuaries

3.7.1 Issues for sustainable tourism

Hiking takes place in estuaries, and on trails that traverse estuaries across the Cape Floral Kingdom. A good example is the Otter Trail in the Tsitsikamma National Park. This trail winds along coastal paths, beaches and across estuaries and rivers along South Africa's south coast. One particular crossing on the Otter Trail, the estuary of the notorious Bloukrans river must only be crossed at low tide because of the danger of being washed out to sea.

Hikers, particularly in large numbers, can have negative impacts on the estuarine environment, but conservation managers and environmental officers can provide information and infrastructure to minimise these. In particular, consideration should be given to accommodation facilities, trails, use of fire, waste disposal, water use, and the collection of natural resources.

Guidelines for responsible hiking are similar for other activities, such as mountain biking and horse riding. However, conservation managers and environmental officers must consider the different access issues required for these activities (e.g. different paths and trails for different activities)

3.7.2 Guidelines for local environmental officers and conservation managers

Infrastructure:

- Develop walkways for hikers to control access through sensitive habitats, and ensure they do not trample delicate vegetation (Wood et al, 2004).
- Develop trails suitable for mountain biking and bridleways for horse trails where there is sufficient demand, to control access, levels of use and also demarcate areas of impact and maintenance. These trails may be compatible for more than one activity, but suitable signage should be provided to tourists about other users.

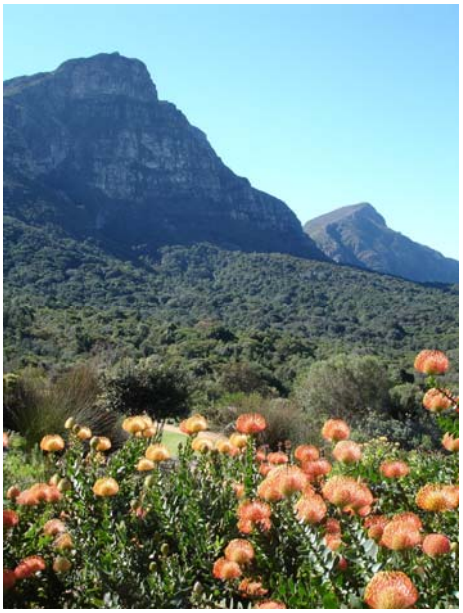
- Where necessary, develop responsibly planned and constructed infrastructure to assist tourists traversing estuaries (e.g. avoid causeways and rather consider low-impact bridges [e.g. suspension bridges across short distances]).
- Where possible avoid developing bridges and instead encourage local small ferry businesses to assist tourists and residents traversing estuaries.

Regulations:

- Enforce fines and penalties for dropping litter, collecting natural resources (e.g. firewood, flowers) and starting fires.
- Provide and enforce zoned areas for hikers to camp, which have appropriate ablutions and waste disposal facilities.

Education:

- Encourage tourists to stay away from bird colonies and other groups of animals by providing them with information and signage.
- Inform tourists that plants should be left to flourish in their natural environment. Taking cuttings, seeds and roots is not permitted in reserves (Anon, undated).
- Tourists should be warned about the danger of fire (particularly discarding matches and cigarettes) in fynbos areas during the dry winters. Camping fires should only be made within designated areas.
- Inform tourists that they should not litter, and rather 'leave only footprints'. All waste should be carried out to suitable waste disposal facilities.
- Encourage tourists to carry a First Aid kit and a cellphone for emergencies (Wight, 2000). Ensure that they are given emergency contact numbers. Inform tourists of areas with and without cellphone network coverage.
- Ask tourists to avoid using pollutants such as detergents in streams or springs. If no toilet facilities are available, make sure they are at least 30 meters away from water sources, and bury or cover waste (Anon, undated).
- Provide information to tourists regarding dangerous estuary crossings, and information on low and high tides so that they can plan their hikes safely.



Fynbos in the Cape Floristic Region

Photograph © Anna Spenceley, 2006

4. Management Recommendations for Implementing and Improving the Guidelines

These broad and practical guidelines are designed as a source of generic best practice in sustainable tourism for local environmental officers and conservation managers. As mentioned earlier, they were developed from existing information rather than as a result of local participation and specific estuary conditions. Implementation of the guidelines on specific estuaries should be preceded by co-management discussions with local tourism, commercial and residential stakeholders. These should be used to debate and agree on the particular recreational uses and environmentally sensitive issues relating to particular estuaries.

Guidelines for local environmental officers and conservation managers

- Engage, communicate and coordinate with local tourism and non-tourism stakeholders to develop agreement and buy-in on estuarine guidelines, and to address locally relevant issues, pressures and environmental considerations (Hay and McKenzie, 2005).
- Develop guidelines for the biophysical and socio-economic environment. These should consider national and provincial legislation, policies and plans that influence the marine, riverine and terrestrial environments (Hay and McKenzie, 2005).
- Establish indicators for sustainable tourism in the estuary, using a participatory process (e.g. use the WTO's "Indicators of Sustainable Development for Tourism Destinations: A Guidebook." The indicators may relate to particular tourism activities, such as infrastructure development, boating, fishing and hiking.
- Plan and implement realistic and cost effective monitoring programmes for the sustainable tourism indicators developed, which are appropriate to their capacity.
- Monitoring needs to include the development of long term data sets of environmental factors (e.g. water quality, erosion, flora and faunal populations and species diversity), and also compliance of recreational activities in accordance with regulations (Taljaard 2007; Hay and McKenzie, 2005).
- Encourage communities to accept partial responsibility for the success of estuarine guidelines by being involved in monitoring programmes. In addition, appropriate incentive measures that can be used to encourage community participation and user compliance need to be highlighted. Community members can also be used during peak holiday seasons to assist authorities whose capacity at those times is severely limited (Wood *et al,* 2004).
- Assessment and evaluation should establish the impact of specific activities and development, and help to test critical limits and targets set for particular activities (Taljaard 2007; Hay and McKenzie, 2005)
- Develop a safety and risk management plan. Basic elements of a safety/risk management plan are: identifying and addressing all occupational health, safety and welfare issues; ensuring all staff have the qualifications and safety training they need; regularly reviewing and addressing all security and safety issues of staff, volunteers and visitors; written procedures to cover emergency situations (e.g., fire, flood, evacuations, wildlife problems, sickness) (Wight, 2000)
- Develop staff manuals to help with quality control, and also to detail the philosophy and expectations (Wight, 2000) for tourism management in estuaries.
- Take responsibility for increasing capacity to understand and enforce guidelines, by taking appropriate training and skills development courses.
- Incorporate flexibility and adaptive management principles into sustainable tourism guidelines, by specifying how they can be changed in relation to new information, with realistic timeframes for regular review (e.g. every 5 years).

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