7. Tools for visitor management

7.1   A toolbox of strategies and tactics

This chapter concentrates on the management of park visitation that already exists, and is occurring at levels that justify intervention of some sort. Note though that, while well-established protected areas in developed countries often receive large numbers of visitors, newly established ones can struggle to attract them. This is especially so in some developing countries, where protected areas often depend on tourism income, and the number of visitors may be too low to provide even a small portion of the necessary income to run the park. Therefore strategies to manage the problems of large numbers of visitors in some protected areas often need to be complemented by other strategies designed to attract them to other areas.

Managers have at their disposal a wide array of strategies to manage the impacts of park tourism. Their choice will be determined by any restrictions that legislation or agency policy places upon them, by the efficiency and appropriateness of the management strategy, and the resource implications. The main features of these strategies to control, influence and mitigate visitor impacts are described below.

Highway in Fiordland National Park, New Zealand

Roads and other transport facilities are critical determinates of the locations and levels of park tourism use. ©*Paul F. J. Eagles*

Broadly speaking there are four strategic approaches which can be used to reduce the negative impacts of visitors on protected areas:

1. *Managing the supply* of tourism or visitor opportunities, e.g. by increasing the space available or the time available to accommodate more use;

2. *Managing the demand* for visitation, e.g. through restrictions of length of stay, the total numbers, or type of use;

3. *Managing the resource* capabilities to handle use, e.g. through hardening the site or specific locations, or developing facilities; and

4. *Managing the impact* of use, e.g. reducing the negative impact of use by modifying the type of use, or dispersing or concentrating use.

Table 7.1 sets out a list of possible strategies and options for managing visitor numbers and coping with high levels of use. These and other approaches are expanded upon in the rest of this chapter.

Table 7.1 Strategies and tactics for managing high levels of use

Strategy	Management tactics and techniques
1. Reduce use of the entire protected area	1. Limit number of visitors in the entire protected area 2. Limit length of stay 3. Encourage use of other areas 4. Require certain skills and/or equipment 5. Charge a flat visitor fee 6. Make access more difficult in all wilderness
2. Reduce use of problem areas	1. Inform about problem areas and alternative areas 2. Discourage or prohibit use of problem area 3. Limit number of visitors in problem areas 4. Encourage/require a stay limit in problem areas 5. Make access harder/easier to areas 6. Eliminate facilities/attractions in problem areas, improve facilities/attractions in alternative areas 7. Encourage off-trail travel 8. Establish different skill/equipment requirements 9. Charge differential visitor fees
3. Modify the location of use within problem areas	1. Discourage/prohibit camping/use of horses 2. Encourage/permit camping/horses in certain areas 3. Locate facilities on durable sites 4. Concentrate use through facility design or info 5. Discourage/prohibit off-trail travel 6. Segregate different types of visitors
4. Modify the timing of use	1. Encourage use outside of peak use periods 2. Discourage/ban use when impact potential high 3. Fees in periods of high use/high impact potential
5. Modify type of use and visitor behaviour	1. Discourage/ban damaging practices/equipment 2. Encourage/require behaviour, skills, equipment 3. Teach a wilderness ethic 4. Encourage/require a party size and/or limit on number of horses 5. Discourage/prohibit horses 6. Discourage/prohibit pets 7. Discourage/prohibit overnight use

Strategy	Management tactics and techniques
6. Modify visitor expectations	1. Inform visitors about appropriate wilderness/PA uses 2. Inform about potential conditions in wilderness/PA
7. Increase the resistance of the resource	1. Shield the site from impact 2. Strengthen the site
8. Maintain/ rehabilitate resource	1. Remove problems 2. Maintain/rehabilitate impacted locations

Source: Manning, 1979; Cole *et al.,* 1987.

The following section discusses some of the key tools for visitor management used by protected area managers.

7.1.1 Seasonal or temporal limit on use level

Definition: *Use limits* are direct restrictions on the number of people that may enter a recreation area.

Examples:

■ when all camp-sites are occupied, other people are not permitted access;

■ to limit the number of day users, managers can restrict the size of car parks; and

■ where public transport is a major means of access, it is possible to set a limit on bus numbers, size of boats or frequency of trains.

Frequency of use: Use limits are commonly applied in wilderness hiking, canoeing situations and access to historic buildings and sites. They are becoming more common in front country situations.

Benefits: Use limits maintain use at a predetermined level, potentially controlling biophysical and social consequences of fast growing, or excessive use levels.

Costs: Use limits tend to generate controversy, particularly in how they are implemented, so the process used to determine the use limit is critical. Restriction of access to an area has financial costs. The costs of enforcement can be high, especially in the early stages.

7.1.2 Group size limit

Definition: *Group size* limits the maximum number of people in one group of tourists or recreationists travelling together.

Examples:

■ a limit is set to the number of people that can camp together on a back-country camp-site; and

■ a limit is set to the size of party that is permitted to snorkel on a coral reef.

Frequency of use: Group size limits are commonly used in many back-country, dispersed recreation and remote zones of protected areas.

Benefits: Larger group sizes tend to have greater social and biophysical impacts; group size limits reduces these impacts. Over time, users become familiar with the limits and adapt their expectations of the site accordingly.

Costs: The approach restricts access to any area for larger groups, which has cost implications. Tourism operators may not welcome the imposition of limits. The administrative costs of enforcement and the educational costs can be high.

7.1.3 Pre-assignment of recreation site

Definition: *Pre-assignment* (through pre-registration or pre-booking) involves the allocation of individual sites to specific individuals or groups before entry into a recreation area, much like a reserved seat on a passenger aircraft.

Examples:

■ pre-booking a camp-site; and

■ pre-booking entry to an historic site.

Frequency of use: This approach is becoming more common at car camping sites, back-country camp-sites, river access sites, historic sites and trekking trails. When demand is high, pre-registration for use is desirable for both the users and the managers. The big issue is the method used for pre-registration. Agencies use telephone, mail and increasingly, the Internet. Six months is a common maximum length of time between the first time allowed for pre-registration and use.

Benefits: This approach optimises use of sites with known area and limited capacity, and minimises inter-party competition. The technique spreads the number of visitors over time but yet assures them access. Knowing the level of demand well in advance, the manager is able to assign appropriate staff levels, supplies and equipment. Pre-registration is highly appreciated by most park visitors.

Costs: There can be a substantial management cost for the pre-registration procedures. Fees are often used to recover these costs. This approach requires all potential visitors to know the rules and procedures for pre- registration, and so can be problematic for foreign tourists. It assumes all visitors will comply and has limited flexibility for accidental violations.

Fox Glacier, Westland National Park, New Zealand

Dynamic physical phenomena, such as an active glacier front, attract people into dangerous situations. ©*Paul F. J. Eagles*

7.1.4 Area closures

Definition: *Area closures* include prohibiting all, or some types of, tourist use of particular areas.

Examples:

■ prohibiting camping in a designated part of the park;

■ allowing camping only at specific sites;

■ closing an area to all recreational use;

■ requiring a permit before entry to the area; and

■ prohibiting camping within certain distances of surface water.

Frequency of use: Area closures are common at historic sites and museums and other high use locations, such as near visitor centres at high-altitude locations. They are used in protected areas at environmentally sensitive sites, near wildlife concentrations, or in the habitat of endangered species. Usually visitors are provided with reasons for the closure, but this can be counterproductive if the features are attractive and encourage use.

Benefits: If closures are obeyed, all direct human influences and negative impacts at the site are removed.

Costs: This approach restricts visitor freedom. It requires explanation and enforcement.

7.1.5 Restrictions on the use of fire

Definition: *Fire restrictions* aim to reduce the visible and biological effects of using fire.

Examples:

■ fire may be prohibited entirely;

■ fire may be permitted only in designated sites;

■ fire of a certain type may be forbidden (e.g. green wood or locally collected firewood); and

■ in high altitude situations, fire may be allowed only with stoves fuelled by gas.

Frequency of use: Fire restrictions are frequently used in front country, less frequently in back-country. Occasionally, fire prohibitions are implemented in periods of high fire danger.

Benefits: This approach significantly reduces the potential of wildfires, reduces fuelwood use, and reduces ecological impacts due to wood gathering. The sale of campfire wood can be a lucrative source of income for parks.

Costs: The costs of fire prohibition include enforcement and loss of the experience value associated with campfires. Some parks have the legal authority to collect costs from those tourists who cause wildfires. If wood collection is prohibited, but fires are permitted, some alternative supplies of wood must be made available.

7.1.6 Restrictions by group characteristics

Definition: The *characteristics* of *groups* are used to prohibit entry.

Examples:

- groups with certain equipment, e.g. guns, vehicles; and
- groups planning to undertake certain activities, such as orienteering or hunting.

Frequency of use: Nearly all national park and other recreation areas employ restrictions on some visitor group types. Most frequent are prohibitions on the use of motorised or mechanised conveyances, such as powered boats, all-terrain vehicles and bicycles. Some backcountry areas prohibit users on horse.

Benefits: Significant reductions in biophysical impacts and visitor conflicts; increased visitor safety and satisfaction for those who gain access.

Costs: Reduction in some visitor freedom and accessibility occurs. Information must be provided on the restrictions, and enforcement is required.

7.1.7 Length of stay limits

Definition: *Length of stay limits* set the amount of time an individual or group may stay in a recreation area.

Examples:

- no-one may stay overnight; and
- no-one may stay longer than three nights at any one place.

Frequency of use: Length of stay limits are frequent in areas with more demand than supply. Along linear features, such as trails and rivers, users are required to move camp-sites every night, in order to keep the flow of people moving through the area.

Benefits: Increased accessibility to the area for more visitors.

Costs: This approach reduces the opportunity for visitors to enjoy longer visits to the area. There are enforcement and administrative costs.

7.1.8 Technology requirements

Definition: *Technology requirements* make it mandatory that tourists carry specialised equipment for environmental or safety reasons.

Examples:

- visitors must be prepared for cooking with gas stoves only (i.e. no wood burning);
- visitors must be prepared for personal waste disposal (e.g. portable toilets); and
- visitors must have appropriate safety equipment.

Frequency of use: It is becoming common on specialised sites, such as white water rivers and other wilderness settings, to demand certain levels of equipment and supplies. For example, since some wilderness parks ban bottles and cans, this effectively requires that all supplies must be carried in burnable containers, thereby reducing the amount of garbage. Some protected areas require all hikers to carry remote sensing devices to enable easier rescue, if lost.

Benefits: This approach can reduce biophysical impacts, and increase safety levels.

Costs: There is an administration and enforcement requirement. Education concerning proper use of technology is needed. The equipment may be expensive.

7.1.9 Trip scheduling

Definition: *Trip scheduling* involves establishing the location and timing of individual group use of a recreation area.

Examples:

■ timing of raft launches on rivers;

■ group naturalist tours of wildlife concentrations; and

■ designated times for viewing historic sites, interpretive films and displays.

Frequency of use: Trip scheduling is common in front-country situations involving historic resources and visitor centres. It is used occasionally on white water rivers, especially in conjunction with camp-site assignments. It is appropriate for sensitive wildlife species that are easily disturbed by visitors at certain times.

Benefits: Trip scheduling can reduce congestion; provide opportunities for solitude; facilitate interpretation; and reduce competition for limited space. This approach can make management much easier, since it results in a fairly constant and predictable stream of visitors.

Costs: Visitors lose the freedom to see what they want when they want. There are costs to administer schedules and permits. Personnel costs for tours may be high.

7.1.10   Barriers

Definition: A *barrier* is a deliberately established obstacle to visitor movement.

Examples:

■ a fence to keep people out of the breeding grounds of rare species;

■ a ditch to keep people from walking into a sensitive wetland; and

■ a low barrier to keep vehicles off the grass.

Frequency of use: This technique is common in front country, uncommon in back-country. Not all barriers need to be obvious. There are many park facility designs that allow for the construction of effective, but unobtrusive barriers.

Benefits: There is a reduction of visitor impacts, reduction of vandalism, and efficient movement of people through a site.

Warning Sign, Hawaii Volcanoes National Park, USA

High levels of physical danger to park visitors require active risk management, including abundant information. © *Paul F. J. Eagles*

Costs: The costs include reduction of visitor freedom to walk/drive wherever they want, construction and maintenance costs and enforcement. Poorly designed barriers can be an unwelcome visual intrusion.

Royal Albatross Centre, New Zealand

A visitor centre is a very effective component of the visitor interpretation programme in many parks.
©Paul F. J. Eagles

7.1.11 Site hardening

Definition: *Site hardening* involves constructing facilities and locating trails and roads to reduce the impacts of visitors on sensitive soils and vegetation, and to help meet the visitors' needs for usable access.

Examples:

■ hard surfacing materials used to reduce erosion on trails; and
■ hard topping of roads.

Frequency of use: This approach is widely used where the natural surface is unable to cope with the pressures of feet and wheels. It is seldom used in back-country situations.

Benefits: Hard surfacing is effective in reducing erosion; and may reduce maintenance costs.

Costs: The approach is relatively expensive. It can be unsightly and out of character, and can cause damage to vegetation if the wrong materials are used. Especially in areas defined as natural zones in the management plan, paved roads and other hard surface features will be incongruous.

7.1.12 Park information (see also section 7.5 below)

Definition: *Park information* involves the provision of data, facts and advice to visitors concerning the park, its biology and geology, locations of visitor facilities, rules and regulations, and appropriate behaviour.

Examples:

- leaflets, books, maps etc.;
- website, local radio;
- signs, information points;
- visitor centres;
- Internet web sites; and
- face-to-face provision of advice.

Frequency of use: The communication of park information is commonly used. Nearly all protected areas contain some level of information about some aspect of the area. Those parks with insufficient funds often depend upon private sector tourism operators to provide most of the information.

Benefits: The benefits include data, facts and advice which help inform the visitor of what is happening where in the park. It may result in more visitors adopting appropriate behaviours that will reduce impacts and provide the visitors with a more satisfying visit.

Costs: Some forms of information provision are costly. There are personnel, printing and display costs. Information is not universally effective. Brochures, signs and other messages must be placed where visitors will take notice of them. They must be presented in the appropriate language for the visitors, at an appropriate level of educational attainment. The use of the Internet is a very cost-effective way of distributing information very broadly for a low cost. When parks do not provide their own information, they run the risk of others providing inaccurate or misleading information.

Visitor Interpretation in Great Barrier Reef Marine Park, Australia

Visitor learning and satisfaction are highly influenced by effective interpretation programmes.
©Paul F. J. Eagles

7.1.13   Interpretation (see also section 7.5 below)

Definition: *Interpretation* involves providing information to visitors in such a way that they will be stimulated to learn more and gain more appreciation. Thus interpretation is more than the presentation of data and facts (see Information), but includes weaving them together so that visitors come to understand, and appreciate the values for which the park was established.

   Examples:

   ■ nature trails and trail-side signs;

   ■ field guides, trail leaflets, maps;

   ■ guided walks or tours; and

   ■ interactive displays, interpretation centres.

   Frequency of use: In wealthier countries, many protected areas provide some type of interpretive materials. In developing countries, protected area managers rarely have the resources for more than modest interpretive provisions. In many places, the private tourism sector also provides interpretation through specialised programmes and guides.

   Benefits: The primary benefit from effective interpretive programmes is a visitor population which gains understanding and appreciation of the protected area. This in turn can help reduce visitor impacts and provide greater public support for the park.

   Costs: The costs of interpretation vary depending on the interpretive methods used. Brochures are relatively inexpensive, whereas major interpretive centres are expensive to construct and operate, though they may be very popular. Visitors to protected areas often pay for their interpretation, through the purchase of programmes or materials. Guiding services are a major source of employment in many protected areas.

7.1.14   Differential pricing (see also section 7.4 below)

Definition: *Differential pricing* involves establishing two or more prices for the same recreation opportunity.

   Examples:

   ■ higher fees during peak holiday periods;

   ■ differential fees according to location or outlook of accommodation;

   ■ discounts for children and pensioners; and

   ■ differential charges for park entry, so that foreign tourists pay more than residents do.

   Frequency of use: Most park systems use some form of differential pricing, which combines an element of social justice (e.g. differential charging rates for less privileged groups), market response (e.g. raising prices when demand rises), and management tactics (e.g. to help redirect visitor pressures).

   Benefits: Differential pricing can redistribute use levels, achieve a social purpose and maximise income in periods of peak demand.

Costs: Differential pricing policies are more complicated to administer, may cause confusion amongst employees and guests, and resentment when the reasons for use are not clearly communicated.

7.1.15 Visitor and/or operator qualifications

Definition: *Visitor and/or operator qualifications* means limiting entry only to those possessing required qualifications.

Examples:

■ scuba divers must be qualified to use a marine protected area;

■ ecotour leaders must have a certificate of competence; and

■ users of the protected area must be accompanied by a qualified local guide.

Frequency of use: Specialised qualifications are common for high-risk activities, such as scuba diving or mountain climbing. They are common too, for commercial businesses that provide guide services to visitors. Some African game parks allow their visitors to view game only from a specialised vehicle with qualified guides, while tours on foot are often permitted only with an armed guard.

Benefits: This approach is attractive to the protected area manager. Only those with the necessary training, equipment and group co-ordination are allowed. It increases local employment in training and guiding. When visitors are more competent, they pose less threat to protected area values and make fewer demands on the time of staff. When operators, such as guides, are licensed, managers have additional control over tourism operations. Qualified operators provide better services to visitors. Major benefits are higher levels of safety, and lower search and rescue costs.

Costs: Arrangements of this kind are challenging to set up and require external systems of qualification, certification and verification. The development of the proper requirements may involve difficult negotiations with the user groups. The enforcement costs can be high.

7.1.16 Tourism marketing

Definition: *Marketing* is the practice of connecting people's demands with a supply of goods and services.

Examples:

■ web site information for tourists;

■ briefing of tour operators; and

■ agreements on protected area promotion by the national tourist agency.

Frequency of use: It is important for protected areas to develop a market of customers that are interested in the environments and services that they can offer. Yet protected area managers seldom use professional marketing to develop the appropriate tourism market. This is changing, as protected area managers develop an understanding of marketing, and staff trained in tourism enter park agencies. The best approach is *target marketing*, (i.e. going after the sector of the population that is most suitable for the resources, the services and the products available). Protected area managers can also consider *de-marketing*, that is trying to convince potential park visitors to go elsewhere

by reducing promotional activities or promoting alternatives. Some parks in a system encourage visitors to visit other parks in the same system.

Benefits: Higher incomes result when the visitors are interested in, and agree with park management policies. Lower conflict occurs when the visitor suits the environments and services available within the protected area.

Costs: While protected area management should aim to understand their visitors' characteristics, wants and needs, research and advertising can be expensive.

7.2 Zoning in protected areas

Protected area managers face a strategic choice between *concentrating* or *dispersing* recreational use. Often, a dispersal strategy is chosen to deal with negative impacts in a small area or several areas, and this will work effectively in biophysical settings that are relatively resilient to use. But such a strategy is less effective in more sensitive settings, where damaging impacts may just be spread more widely by this approach. A concentration strategy focuses recreational use on small areas with high levels of management, thereby confining the impacts, although their occurrence will be more intense. Since a concentration strategy places development in small areas, it may effectively discourage visitors from gaining access to other parts of the protected area.

Zoning is the principal method used to deploy visitors, and hence it is critical in achieving the appropriate combination of concentration and dispersal. It is designed to allocate geographical areas for specific levels and intensities of human activities and of conservation. Typically, it involves a range of spatial zones with varying levels of intensity of human activity (and therefore development). At one end are developed areas, such as service centres or, in the case of protected landscapes, villages or towns with a strong emphasis on tourist provision; at the other end are remote and even wilderness areas with effectively no development at all.

Zoning can also be temporal, that is an area set aside for different uses at different times, within the course of the day, over the week or seasonally.

Zoning requires two steps:

1. A *descriptive* step, which identifies important values and recreational opportunities. It requires an inventory of resource characteristics and types of existing recreational opportunities.

2. An *allocation (prescriptive)* step, in which decisions are made about what opportunities and values should be provided where in the protected area. It involves managers working with operators, visitors and other stakeholders to determine what should be protected, what facilities will be provided, what programmes should be set up, and where and when.

There are several benefits of zoning:

1. The process of zoning helps managers, operators, visitors and local communities to understand what park values are located where;

2. Zoning oriented to establishing standards of acceptable human impact helps to control the spread of undesirable impacts; and

3. Zoning provides a better understanding of the distribution and nature of different recreation and tourism opportunities within and around the protected area.

Zoning should apply to all activities occurring within a protected area: conservation, other land uses, and of course recreation and tourism. The zones, with the policies applied to them, should appear in the protected area management plan and thus guide the way in which the area is managed.

For tourism, zoning involves decisions about what type of recreational opportunity will be provided, and where. For example, should some provision be highly developed in character? Should provision be made elsewhere for more basic conditions, requiring survival skills, for example? Typically, zoning of this type is based on the degree of impact which a type of recreation causes. This, of course, requires a sound information base related to the function and sensitivity of ecosystem structure, as well as the opportunities and impacts of existing and potential visitor experiences.

Useful frameworks when considering zoning include the Recreation Opportunity Spectrum (ROS – section 6.3.1 above) (developed in the USA) and the Tourism Opportunity Spectrum (TOS) (developed in Australia). Both the ROS and TOS operate at the large-scale, involving whole landscapes extending well beyond protected areas in categories I to IV. Though these areas may be beyond the protected area managers' mandates, every effort should be made to co-ordinate recreation and tourism planning across this wider scale so that there is a sub-regional context for provision within a protected area.

Many park agencies have standardised zoning frameworks that are applied to all protected areas across their system. The national parks zoning system in Canada is an integrated approach by which land and water areas are classified according to ecosystem and cultural resource protection requirements (Table 7.2). Each zone is considered for its suitability and capability to accommodate visitors for a range of opportunities. The result is a framework for the area-specific application of policy directions, such as those for resource management, appropriate activities and research. Thus, zoning provides direction for the activities of managers and visitors alike. Box 7.1 is a practical example of the application of zoning theory to a particular protected area.

Lava Flow, Hawaii Volcanoes National Park, USA

The continuous flow of lava in Hawaii National Park attracts large numbers of visitors to a very dangerous situation. Management must deal with high levels of risk. ©*Paul F. J. Eagles*

Table 7.2 Parks Canada zoning system summary

Zone class	Zone purpose	Boundary criteria	Management framework	
			Resources	**Public opportunity**
I Special preservation	Specific areas or features, which deserve special preservation because they contain or support unique, rare or endangered features or the best examples of features.	The natural extent and buffer requirements of designated features.	Strict resource preservation	Usually no internal access. Only strictly controlled and non-motorised access.
II Wilderness	Extensive areas which are good representations of each of the natural history themes of the park and which will be maintained in a wilderness state.	The natural extent and buffer requirements of natural history themes and environments in areas of 2,000ha and greater.	Oriented to preservation of natural environment setting.	Internal access by non-motorised means. Dispersed activities providing experiences consistent with resource preservation. Primitive camping areas. Primitive, roofed accommodation including emergency shelters.
III Natural environment	Areas that are maintained as natural environments and which can sustain a minimum of low-density outdoor activities with a minimum of related facilities.	The extent of natural environments providing outdoor opportunities and required buffer areas.	Oriented to preservation of natural environment setting.	Internal access by non-motorised and limited motorised means, including in the north, authorised air charter access to rivers/lakes, usually dispersed activities, and with more concentrated activities associated with limited motorised access. Rustic, small-scale, permanent, fixed-roof accommodation for visitor use and operational use. Camping facilities are to be the semi-primitive level.
IV Recreation	Limited areas that can accommodate a broad range of education, outdoor recreation opportunities and related facilities in ways that respect the natural landscape and that are safe and convenient.	The extent of outdoor opportunities and facilities and their area of immediate impact.	Oriented to minimising impact of activities and facilities on the natural landscape.	Outdoor opportunities in natural landscapes or supported by facility development and landscape alteration. Camping facilities will be of the basic serviced category. Small and decentralised accommodation facilities.
V Park services	Towns and visitor centres in certain existing national parks, which contain a concentration of visitor services and support facilities as well as park administration functions.	The extent of services and facilities and their immediate area of impact.	Oriented to emphasising the national park setting and values in the location, design and operation of visitor support services and park administration functions.	Internal access by non-motorised and motorised means. Centralised visitor support services and park administration activities. Facility based opportunities. Major camping areas adjacent to, or within, a town or visitor centre to the basic serviced category. Town or visitor centre.

**Box 7.1 Saguenay–St. Lawrence National Marine Park, Québec, Canada:
An example of a marine park using a standardised zoning system**

In April 1990, the governments of Canada and Québec signed a federal-provincial agreement providing for the establishment of the marine park at the confluence of the Saguenay River and St. Lawrence Estuary. The agreement stipulates that both levels of government retain their respective jurisdictions over the area and will work towards its protection. The management plan confirms the stated objectives of both govern-ments to involve the public in the management of this area through a co-ordinating committee. Complementary legislation was prepared at the federal and provincial levels for park establishment and management.

The Saguenay Fjord and St. Lawrence Estuary National Marine Conservation Areas of Canada consist of a series of islands scattered along an 80km stretch of the St. Lawrence River. Each island is managed as a distinct environment with facilities ranging from docks, trails, camping facilities, a boat launch, interpretive displays and day-use areas. This park manages four of the five zoning classes described in Table 7.2.

There are nine Special Preservation areas intended to protect sites that represent both the natural and cultural heritage resources of the Thousand Islands region. Wilderness (Class 2) is not an appropriate zone for St. Lawrence Islands because the park only encompasses 869ha and a wilderness zone requires a land mass of 2,000ha or more. It is, in fact, Canada's smallest National Park.

There are many areas that have been zoned as Natural Environment (Class 3), to provide a variety of opportunities for visitors to experience the Park's natural values through low-density outdoor activities, and appropriate facilities and services. These facilities include picnic shelters, primitive camp-sites, trails, interpretive panels, toilets, and docks.

There are also Recreation (Class 4) areas, for outdoor recreation and related facilities. A full range of visitor uses is permitted in this zone.

The least protective zone for a park is Zone 5 – park service areas. These areas provide a place for visitors' services, support facilities and the administrative func-tions required to manage and operate the park.

7.3 Transportation management

The complex challenges of transportation within protected areas were addressed in Section 5.3. Some solutions to these problems can be achieved through zoning. For example, the zoning policies within the management plan should also address trans-portation matters, such as:

- regulations governing numbers, types and speed of road vehicles;
- the use of public transport to reach and travel within the protected area;
- corridors indicating where off-road vehicles, boats and aircraft may move; and
- the times at which movements can take place.

All this requires proper legislative regulation and policing.

> **Box 7.2   Traffic/visitor management techniques used in protected areas**
>
> **Road closure**: for part of the year no vehicles allowed.
>
> **Full public transit**: in special sites, all visitors must use public transport. This may include the park employees and the employees of businesses in the park.
>
> **Partial public transit**: where some visitors (certain segments, or those to certain park destinations) may be required to use public transport.
>
> **Optional public transit**: where visitors are encouraged to use shuttles or transit systems, but not compelled. There may be incentives (e.g. free guided walks for public transport users).
>
> **Special use fees**: fees for public transport are sometimes incorporated into the park entry charge, or identified as a special charge.
>
> **Specialised transit**: may be used for unique environments, such as an historic railway, an aerial car or a passenger boat.
>
> **Restricted type of transport**: may be used. For examples some lakes have prohibition on all powered boats.
>
> **Educational information**: about potential impact of human transport on the park, via signs, exhibits, and recommended behaviour.
>
> **Integrated systems**: of all public transport systems and tours (e.g. guided walks linked to bus times).
>
> **Partnerships**: collaborating with other transport agencies outside protected areas, communities and governments.
>
> **Road hierarchies**: hierarchies of the road network (with appropriate signing) to encourage the use of the most appropriate roads by the different types of road user (e.g. priority traffic, vacation traffic), or at different speeds.
>
> **Technology**: computer screens showing public transport network (and waiting times) at key locations.

Many tools are available for managing traffic etc. Box 7.2 shows a range of them which have been used in a number of protected areas.

7.4 Pricing for visitor management

As briefly noted in section 7.1.14, charging visitor fees can fulfil several management objectives. Examples include: earning income, decreasing use, increasing use, moving use to an alternative area or time, creating an attitude of respect, or (in the case of differential fees) achieving some desirable social purpose, such as favouring local residents or encouraging less privileged sectors of society to use protected areas.

High fees can be used to lower visitation and reduce congestion and/or ecological damage at sensitive sites. Fees can be used to distribute visitors away from heavily-used places or peak times. For example, in Tasmania, national park entry fees are higher on holidays (AU$12 vs. AU$5 per person; and AU$30 vs. AU$9 per vehicle). Similarly, in the US, the White River National Forest charges a US$5 fee per person on weekends for

cross-country skiing and snowmobiling, but only a US$2 fee during the week (Lindberg, 2001). People are much more likely to value something they pay for. Some parks have found that they had to increase the fees for their interpretive programmes before people were persuaded to attend: it appeared that visitors were not convinced that suitable programme quality was present until commensurate fees were in place.

Experience indicates that modest fees generally do not have a significant effect on park visitation. Nevertheless, the impact on visitors of raising charges should be monitored and changes introduced if necessary – in other words, take an adaptive management approach.

There is evidence that people will be put off (and go elsewhere) if the entrance fee to a protected area is a large proportion of the total trip cost, such as would often be the case with local visitors who have few travel costs to meet, or when the fee is quite large. However, where the cost of visiting the destination is only a small proportion of the total trip cost, fees may have very little influence. This is a particularly important consideration for protected area managers in developing countries which receive large numbers of long haul visitors from wealthier parts of the world.

Increases in fees, or the introduction of new fees, are best done with the clear intent of improving services for visitors. Park visitors are much more willing to agree to pay when they can see that the fee revenue is used to provide a product or service.

Insufficient warning of fee changes is a common concern of the tourism industry, since operators need to be able to incorporate this cost of doing business into their tour package prices, which are established at least a year or two ahead of delivery. Lindberg

Glass bottom boat, Great Barrier Reef Marine Park, Australia

Provision of effective and safe means of visitor transport combined with interpretation is important in visitor management. ©*Paul F. J. Eagles*

(2001) reports that the Great Barrier Reef Marine Park Authority decided to increase the environmental maintenance charge for tourists on commercial tours. The industry strongly opposed this, and the Government backed down. While the size of the planned increase was part of the problem (from AU$1.00 to AU$6.00), the timing was also a problem. It did not allow operators to incorporate this increase into tours that were sold more than a year in advance. A common industry recommendation is for at least 18 months prior warning of price increases.

The staff employed to collect fees can also inform, regulate and count visitors, and can contribute to educational and other functions. This is always important, but particularly so if fees are being used as a management device, when every opportunity for public contact should be taken to inform visitors of the purpose behind the fee or levy.

7.5   Regulation of visitor use

In general, there is also a choice between a strategy of *direct regulation, directive measures* and *indirect measures.*

Direct regulation of visitor behaviour relies on the force of law. It therefore requires that the legal powers be in place to adopt the regulations, and to enforce them with appropriate penalties. Regulations enforcement may rely on a firm, policing approach, or managers may decide that violation of a regulation is an opportunity to educate visitors. Either way, enforcement of the rules is important: if it is absent, protected area management will lack credibility and be undermined.

Trail Erosion, Hohe Tauern National Park, Austria

What level of trail erosion is acceptable? What procedure is in place to determine the Limits of Acceptable Change?
©Paul F. J. Eagles

Directive measures include design features that gently guide, but do not force, visitors in desired directions. Nature trails are often directive: their layout, trail surface preparation, and signage guides visitors towards desirable features, while at the same time subtly guiding people away from other features. Many of the approaches described in the previous section fall under this heading.

Indirect measures aim to make the visitor aware, but leave the decision to him or her on where to go and what to do. A strategy based on indirect measures will use information, interpretation and various learning opportunities (see next section) so that the visitors will adopt and employ the desired behaviour. The effectiveness of indirect measures depends on co-operative tourism operators, the general level of education and other characteristics among the visitors, and choosing the appropriate communication medium for particular messages.

In practice, of course, a combination of direct regulations, directive measures and

indirect measures is usually used: many managers employ indirect or directive measures first, and with the majority of visitors, and fall back on regulation where these fail.

Table 7.3 sets out a range of problem situations requiring management action, and the degree to which they are likely to be responsive to a strategy based on the indirect measures of information and education alone.

Table 7.3   Using information and education to assist in solving management problems

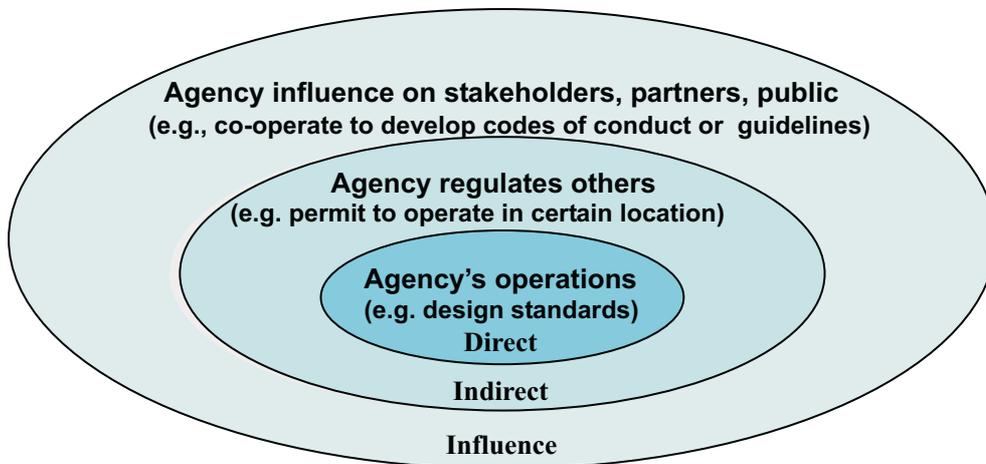| Type of problem	Example	Potential effectiveness of information and education	
Illegal actions	Collecting fish, birds or other wildlife Use of wilderness zone by motorised vehicles	Low	
Unavoidable actions	Human body waste Loss of ground cover vegetation in camp-site	Low	
Careless actions	Littering Noise or other nuisance activities	Moderate	Increased effectiveness of education
Unskilled actions	Touching coral when diving Selecting inappropriate camping spot	High	
Uninformed actions	Boating too close to marine mammals Collecting dead wood for firewood	Very high	

Source: Modified from Manning and Lime, 2000.

Protected agency managers are not able to solve all the problems which may affect the protected area, particularly when they originate from outside it. The degree of control they can exercise is at three levels, as shown graphically in Figure 7.1:

1. The agency has *direct control* over its own operations, and can thereby minimise any negative impacts (e.g. by adhering to certain minimum standards for visitor centre or trail construction);

2. The agency can have an *indirect impact* on the activities of others (e.g. it may require or prohibit private sector tourism operators from undertaking certain activities); and

3. The agency can *influence* others – individuals, agencies, communities, operators, etc.

In respect of level 3, where the agency exercises influence but no form of control, it should employ collaborative approaches based on partnerships with other interests which can help it achieve its aims.

**Figure 7.1   Protected area managers' spheres of influence on
tourism activities**

Agency influence on stakeholders, partners, public
(e.g., co-operate to develop codes of conduct or guidelines)

Agency regulates others
(e.g. permit to operate in certain location)

Agency's operations
(e.g. design standards)

Direct

Indirect

Influence

Source: Wight, 2002b.

Voluntary arrangements made between the protected area agency and partners are
now widely used. They may arise out of the initiative of the protected area manager, or of
a particular group which has an interest in the protected area. The scope for using such
voluntary arrangements is very wide, but success depends on a good understanding of
the other stakeholders' perspectives. Therefore protected area managers and their staff
should develop the communication and negotiation skills needed to build good re-
lationships, and to persuade other stakeholders to co-operate for the benefit of the
protected area as well as doing so in their own interests.

Codes of practice, charters and certification schemes can underpin such voluntary
arrangements. In relation to tourism and protected areas, these can be of several kinds:

- *Systems of standard setting and certification* applied to the tourist facility and/or
  provider. The Green Globe 21 scheme (see Box 3.1) is one such system; another is
  described in Box 7.3.

- *Charters, which set general principles for tourism in protected areas.* An example
  of a regional system of this kind in Europe, the European Charter for Sustainable
  Tourism in Protected Areas, is described in Appendix E, though in its develop-
  ment it is moving towards the next type of scheme.

- *Systems of standard setting and certification applied to protected areas*, ensuring
  that both the site itself and recreation within it are properly managed. Another
  example of a regional system in Europe is shown in Box 7.4 below.

- *Advisory codes for visitors,* which indicate appropriate behaviour in protected
  areas.

Box 7.3   Pacific Rim National Park Reserve, Canada; Voluntary Guidelines for Marine Tourism Operators

The Pacific Rim National Park Reserve, located on the west coast of Vancouver Island, British Columbia, is in three parts, and includes sand beaches, an island archipelago, old-growth coastal temperate rainforest, and significant archaeological sites. Its territory extends offshore to include a marine component of approximately 155km². However, management had little control over marine tourism operators within the area despite its legal status as a park reserve. Staff could only provide ecotourism and other commercial operators with recommendations and guidelines.

The manager's major objectives were to develop guidelines for the tourism industry, specifically commercial operators, which would assist in managing the natural resources of the area, particularly its wildlife. Management challenges included:

- Operators who were constantly pushing the park reserve for more access, greater numbers, or uses considered inappropriate for the park by agency staff;
- Some operators who were unwilling to adapt to change, or accept that the creation of the park was intended to increase protection;
- Insufficient park management resources (dollars, staff, time);
- Visitor pressures increasing as the off-season gained in popularity; and
- Difficulties in getting all players together on a regular basis (cost, distance, time commitment).

The manager decided to take a collaborative approach to developing cooperation, so as to influence the activities of tourism stakeholders, and solve or prevent potential problems. Staff worked with marine operators to develop an extensive package of voluntary guidelines. They were particularly concerned because the area is recognised as being vulnerable, unique and ecologically sensitive. The aim of the proposed guidelines is to provide strong protection to essential habitats, and to minimise disturbance to whales foraging in high and low tide conditions. Guidelines were developed for:

- Shoreline wildlife viewing;
- Seabird viewing;
- Seal and sea lion viewing;
- Killer whale/Orca viewing;
- Gray and Humpback whale viewing; and
- Grice Bay (a particularly sensitive location).

The Pacific Rim Guidelines not only covered wildlife viewing in general, but also detailed aspects of relevance to marine wildlife viewing such as: Getting into Position; Viewing; Leaving the Area; Distance Viewing; and Waiting. The voluntary initiative resulted in a set of documents related to key sensitive species in the region, and to a sensitive habitat.

By no means have all the problems been solved. For example, issues which remain to be resolved include: location of group camping areas and the identification of outfitting services to maintain the wilderness character and visitor experience. However, the collaboration has:

- Generated cooperation between agency and operators, and between operators themselves;
- Developed a willingness among visitors to adhere to the viewing guidelines and codes of conduct on a voluntary basis;
- Initiated regular information exchanges between operators and protected area staff; and
- Developed respect between agency staff and operators.

Box 7.4   PAN Parks, Europe

The PAN (Protected Areas Network) Parks Initiative began in 1997 with encouragement from WWF. The idea of this initiative was "to introduce a marriage between nature conservation and tourism on a European scale" (Hogan, 2000). The initiative aims to put the economic value generated through tourism into the protection of Europe's nature. 17 PAN Parks had been recognised by 2001. These are protected areas in Europe that met certain agreed standards, principles and criteria. Visitors to them know that conservation will be undertaken to the highest standards. Aware of the dangers of overwhelming protected areas with tourism, PAN Parks partners endorsed a decision that the minimum size of a PAN Park will be 25,000 ha, of which 10,000 ha will be a core zone, "off limits to visitors and free of management intervention".

Web site: http:// www.panparks.org

7.6   Information and interpretation

Potential and existing park visitors often require information. This varies from simple information on park location, times of operation and fees, to much more complex interpretation of cultural history and local ecology. Interpretation and education go beyond simply informing, towards developing an understanding and appreciation. There are three fundamental objectives of interpretation – to promote management goals, to promote understanding of the agency, and to improve understanding of the protected area (see Table 7.4). To be used as a visitor management tool, interpretation has to affect visitors' behaviour, and in order to do this, motivate through an appeal to human needs and emotions.

Table 7.4 Interpretation objectives

Goal	Comments
Management goals	• Provide information to visitors on management policies. • Direct behaviour towards acceptable practices. • Encourage behaviour that minimises negative environmental impact and maximises positive impacts.
Promote understanding of agency	• Assist with creating positive public relations for the agency. • Develop positive public attitude towards protected area agency, staff members, policies and management. • Assist park management in carrying out new policy initiatives.
Understanding of park	• Develop awareness, appreciation and understanding of park cultural and natural environments. • Develop heightened visitor satisfaction with recreation experience.

Source: Sharp, 1976.

Since the concept of a protected area first developed in its modern form, many authors, poets and painters have provided their interpretations of the meaning of parks and their environments. The provision of such interpretation by protected area agencies themselves began in the early years of the last century, with the initiation of education programmes for visitors. Over time, these grew in number and sophistication. By now,

many protected area managers have become very professional in the supply of educational material to visitors, and many visitors, at least those in developed countries, have developed high expectations in this respect.

Protected area agencies should develop an information and interpretation policy. The goals set by the policy should aim to meet the needs of both the visitor and the manager. Many protected areas will require an interpretive plan to implement the policy. Table 7.5 provides a brief summary of the main interpretation techniques that should be considered in preparing the plan.

Table 7.5 Interpretation techniques

Technique	Comments
Personal services	Provide information directly to visitors by park staff or private individuals. Information duty at park gate, trail head and visitor centre. Special programmes such as guided walks, campfire programmes and theatre dramas. Personal services are highly effective, can adapt to a wide range of circumstances, but are very expensive per visitor contact.
Non-personal services	Provide information to visitors using technology. Wide range of technology available, including publications, signs, films, Internet sites and radio broadcasts. Non-personal services are less effective than personal services, are less adaptable to questions and changing circumstances. Non-personal services can make information widely available at a relatively low expense per visitor contact.
Supporting activities and facilities	Common facilities include: visitor centres, outdoor amphitheatres, nature trails, information boards, signs. Common activities include: highly trained interpretive specialists, media specialists, specialised audio and visual equipment, programme effectiveness evaluation. Many interpretive programmes involved park staff, private tour guides and volunteers. All the various types of services must be coordinated within an overall interpretive plan.

Source: adapted from Sharp, 1976.

Visitors require some basic information before they arrive, for example about the existence of the protected area, how to get there, what it will cost, the natural and cultural resources of the park, and its facilities and programmes. It is critical that suitable expectations are set in advance, so that upon arrival the visitor is aware of what can and cannot be experienced. Protected area managers have a responsibility to help create appropriate expectations.

Once people get to the park their needs change, becoming more detailed and complex. They will want to know more about the resources and facilities available, what activities are permitted or forbidden, and about safety and security. As their understanding of the area grows, visitors show more curiosity about its natural environment and history, about the culture of people living in or near the protected area, and about the visitor's role. This is the demand to which interpretation should respond. The result of well

planned interpretation should be a more fulfilling visitor experience for thousands of people.

But, as already noted, interpretation also has a strong role in the management of visitors and of their impact on resources. It can be used to modify human behaviour so that it is appropriate to the area; in so doing, the environment and cultural heritage resources are better protected and supported.

Early interpretation services were usually provided to the visitors at little additional cost, and without levying a user fee. As the public appetite for information and education grew, many agencies found it too expensive to provide the full range of information and interpretation services themselves, let alone to provide these free of charge. All such services cost money, but few agencies can meet the full cost. While some protected areas have just cut back on interpretation provision, alternative approaches are possible, several of which are listed in Table 7.6.

Table 7.6 Information and interpretation management approaches

Approach	Comment
Free information provision	- Basic information provision by park staff, local communities, tour operators and non-governmental organisations at no direct cost to the consumer.
	- Used for travel directions, safety, programme availability, and information on cultural and environmental services.
Park user pay principle	- Provided to those who pay directly for the services.
	- Used for value-added programmes, such as specialised personal services, books, art, film, drama, and databases.
	- Widely accepted by visitors when the cost is clearly tied to the service.
Non-profit, friends groups	- Many parks encourage the development of community groups to provide interpretive services.
	- Costs are covered by volunteer donations and payment by users.
	- Provides park visitors with the ability to contribute to the park, with time, money and influence.
Profit-making tourism sector	- Tour companies provide a specialised guide paid for by a user fee.
	- Critically important in protected areas that are structurally unable to operate cost recovery operations.
	- Many companies provide information to attract consumers, with the costs recouped by a later sale of a product or a service.

With the development of information technology and the use of multi-media techniques, some interpretation has become very sophisticated. While this can be an effective way of transmitting information to visitors, many of whom have access to similar technology in their work place and at home, there are dangers:

■ it is often expensive to install, even if the cost of some IT equipment is falling, and therefore rarely appropriate in developing countries;

■ its protection may need additional security (e.g. from fire, flood or theft);

■ it will make on-going demands for energy that may be at variance with green energy policies; and

■ upkeep of such equipment requires skilled maintenance (nothing is more depressing than some sophisticated display that does not work).

But perhaps the most important concern is that the medium can get in the way of the message. Nature is something often best appreciated in the natural environment itself. While the use of cutting-edge information technology to put across environmental or cultural messages within an information centre may be superficially impressive, it can be a barrier between visitors and nature rather than a bridge to it. Outstanding tourist experiences, watching geese gather at dusk, for example, can never be replicated by technology.

Nonetheless, providing there is a realistic awareness of the limits of technology as an aid to interpretation, it can help resolve certain visitor management problems, as shown in Box 7.5.

Box 7.5 ArchaeoLink Prehistory Park, Scotland, UK. An example of technology assisting with visitor management problems

ArchaeoLink is a 40-acre (18ha) prehistory park in Scotland. It is a tourist attraction and educational venue for a range of visitors. It has an "underground" interpretive centre in a huge earth mound, as well as an outdoor component, with Pictish farmstead, a Roman Marching Camp, and hill fort. Indoor elements include interactive computer educational tools.

The computer software "ArchaeoQuest" was tailor-made for the site, and has two elements, Browse, and Quest. The Browse feature allows visitors to look at all the sites in the region. Icons on the map represent various types and periods of archaeological site (e.g. stone circles, hill forts, the Picts or Symbol stones). Further information is available via images, detailed dossiers, a video display or a map. This allows visitors to determine which types of sites are most interesting.

Quest is intended to assist the tourist in visiting the sites of interest to them. It allows the visitor to enter personal details, and to respond to visitor interests as well as to advise on site conditions. The categories of visitor question include:

- Party size – 1; 2; 3–4; 5–12; 13–20; over 20
- Level of fitness – low, average, high
- Mode of transportation – foot, bike, car, coach, public transportation
- Time available – up to 1 hour, <3 hours, <6 hours, 1 day, more than a day
- Level of archaeological knowledge – low, average, high
- Eventual destination today – a series of regional options is presented for selection on the map
- Topics of interest – a menu of choices is presented. Choices are the same as in Browse

Once visitors answer these questions, the on-screen map shows an individualised proposed route. Part of the analysis includes site constraints (e.g. if there is inadequate parking for certain sizes of parties, sites which would match in every other way are eliminated from the route selection). This allows the programme to manage visitor parties and vehicles by matching these to resource constraints. This software has potential to be further modified to manage visitors to destinations at many scales. It is of educational, entertainment and information value, gives improved visitor satisfaction, and helps manage resources.

Source: Wight, 2002a.
Web site: http://www.archaeolink.co.uk/home.htm