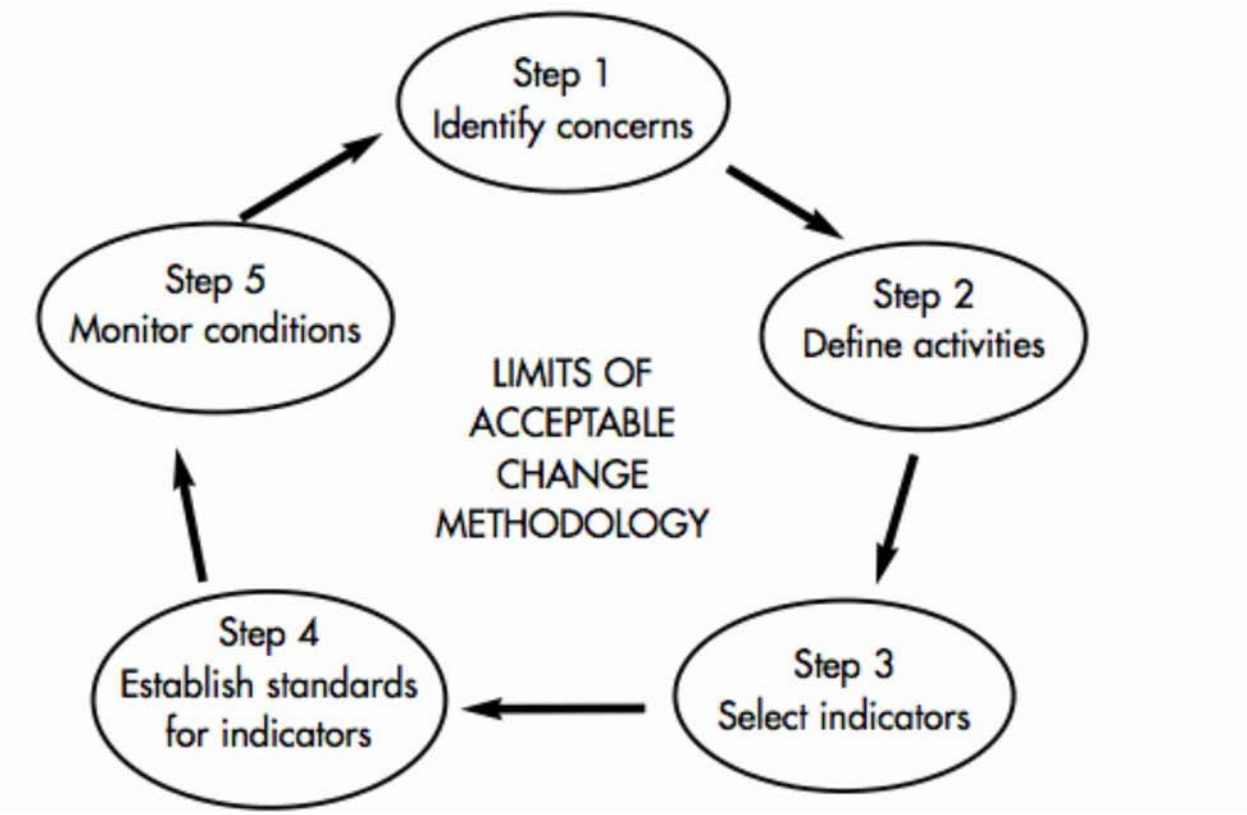


## KEY POINTS FOR ADDRESSING VISITOR IMPACTS

- Make sure all staff now how to welcome and deal with visitors through appropriate training, particularly for those who will act as guides; enforce regulations in a friendly manner.
- Make available codes of conduct for particular activities, and ensure that MPA personnel are familiar with them and can explain why certain activities and behaviors are not allowed.
- Provide details on when and under what circumstances photography is appropriate and how visitors can best interact with local communities.
- Ensure impact and benefits of visitors are monitored; bring the LAC approach into the planning framework for the MPA if appropriate; if doubt exists that damage may be occurring due to visitors, use the precautionary approach and limit numbers.
- Provide activities to involve visitors and opportunities for them to help either financially or in kind; provide a guest book and ask for suggestions.
- If appropriate, consider developing a Visitor Risk Management Program as part of the emergency procedures for the MPA.

*Source: Managing Marine Protected Areas: A Toolkit for the Western Indian Ocean*

## Steps to Implementing the Limits of Acceptable Change Methodology

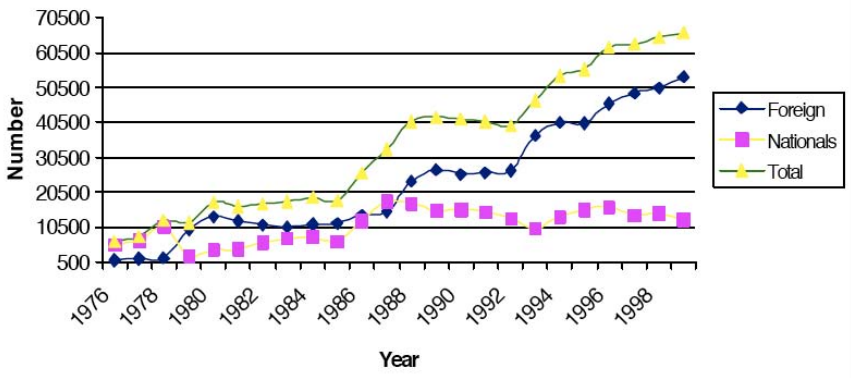


# CASE STUDY: VISITOR NUMBERS AT THE GALAPAGOS ISLANDS

Rare and unique places are highly valued by tourists and have often been successfully developed for ecotourism, which is the case for the Galápagos Islands. The first cruise ship, the "Lina A," arrived in the islands in 1969 and tourism has been increasing continuously ever since. Though there were fewer than 5,000 visitors in 1970, the number increased to more than 66,000 in 1999. The increase in tourism has seen a concomitant increase in infrastructure, e.g., boats and hotels.

Today, tourism is the main economic activity of the archipelago. Most tourists travel by air to the islands of Santa Cruz or San Cristóbal. Tours then leave from the Baltra airport near Santa Cruz or the two main port towns near the airports. Tourism activity is most important on Santa Cruz island because it is the commercial center of the islands and the location of the GNPS headquarters and the CDRS. The number of ships and hotels has increased since 1972. There are 23 places to lodge on the island of Santa Cruz, 11 on San Cristóbal, six on Isabela and one on Floreana. Tourism is now mainly on live-aboard boats; since visitors travel largely by boat, and eat and sleep on board, the need for significant tourist infrastructure on outlying islands is greatly reduced. In 1972, there was a single ship with the capacity of providing overnight accommodation; by 1984 there were 54 ships, and in 2000, 80 ships were registered. The passenger capacity of the ships increased from 597 in 1981, to 1,729 in 2000. The growing number and size of charter boats is generating a different kind of impact and leading to congestion at some visitor sites.

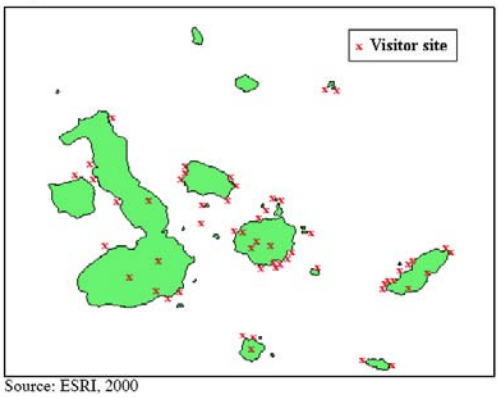
**Figure 2 Visitors to Galápagos NP 1976-1999**




Sources: Carrasco, 1992; GNPS, 2000

The GNPS assumed management of tourism on the islands in 1974, and between then and 1977 the park Management Plan led to establishment of **visitor sites** on many of the islands, delineation of paths and the determination that tourists be accompanied by guides. Most of the visitor sites can be accessed only by ship, so visits are primarily done in organized groups with a certified guide. In 2000 there were 56 terrestrial visitor sites and 62 marine visitor sites.

Map 3 Visitor sites




Source: ESRI, 2000

Since 1975, the GNPS has managed a guide certification program. Guide training courses are given in collaboration with the Charles Darwin Research Station. Guides play a strategic role in park management; they help enforce park regulations and provide tourists with information on the conservation programs carried out by the Galápagos NP and the research station.

## Visitor Carrying Capacity

In 1973, the Management Plan of the Galápagos NP established a maximum number of 12,000 tourists per year to the islands. Due to growing demand, this number has been increased several times. In 1978, the number was increased to 14,700 visitors, and again in 1982 to 25,000. Currently, there is no limit on the total number of visitors allowed to visit the Galápagos NP. In lieu of a total visitor limit, the Management Plan established a specific carrying capacity for each of the terrestrial visitor sites, a key tool for effective management and conservation of the sites. The methodology for defining the carrying capacity was first applied in 1984 and then was improved and partially applied in 1991.

In 1996, the Galápagos NP Management Plan applied a revised methodology specially suited for the unique characteristics of the Galápagos NP. The carrying capacity of a site is determined after studying several factors, including: timing of the visit, length of the visit, area available, erosion susceptibility, number of people in the group, precipitation and tidal patterns, and management capacity.

The GNPS manages the number of people visiting the sites by using a "fixed itinerary" system for ships carrying 20 or more passengers. This system, started in 1978, initially focused on 90+ berth vessels, but in 1990 it was expanded to include all ships with more than 20 passengers. Each ship annually receives a compulsory site schedule from the park, which allows the GNPS to control the number of visitors at each site. Ships with fewer than 20 passengers have an open itinerary, which gives the GNPS the flexibility to move visitors from overused sites to under-used ones. There is some flexibility in this mechanism as ships are frequently granted changes in their schedule.

**Visitor numbers to the Galápagos NP are monitored in three ways:**

1. **Visitor information cards** (on arrival, each visitor provides their age, nationality and other general information).
2. **Reports by ships** on the number of tourists carried per trip.
3. **Reports from the guides** (for each trip the guide must submit a report on the number of tourists aboard, the duration of the visit, and the sites visited).

*Source: The Nature Conservancy. Visitor Use Fees and Concession Systems in Protected Areas: Galapagos National Park Case Study. April 2001. Ecotourism Program Technical Report Series, Number 3.*



## CASE STUDY: MANAGING VISITORS AT THE SEYCHELLES
### Ecotourism principles for Cousin Island Special Reserve

About 11,000 people visit Cousin Island, Seychelles, each year to see the seabird breeding colonies, the endemic terrestrial birds, a restored coastal forest, and nesting hawksbill turtles. Cousin Island has been recognized through ecotourism awards from British Airways and Conde Nast Traveller. Nature Seychelles (the local management agency) has a tourism policy and a Tourism Code of Practice. The ecotourism operation on Cousin has been aligned to eight principles defined under the International Ecotourism Standard for Certification developed by a partnership comprising the Ecotourism Association of Australia, the Cooperative Research Centre for Sustainable Tourism of Australia, and Green Glove (a program of the World Travel and Tourism Council). The facilities have not been certified, but the aim is to ensure that they ultimately meet ISO 4001 Standards. The principles are:

**Natural area focus**: The aim of a tour is to see very tame birds and wildlife – a unique experience for visitors.

**Guide training**: The Wardens are trained as guides and are bilingual (English and French), ensuring visitors increase their appreciation of nature.

**Limits on Tourist Numbers and Activities**: Guided tours are limited to half days, four days a week; there is no picnicking, overnight accommodation, or taking of specimens or souvenirs; distance is kept from nesting birds and turtles; mooring buoys have been installed; and the reserve uses solar power. Wardens may stop anyone suspected of violating Reserve Regulations.

**Direct contribution to conservation**: Revenue generated from landing fees (US$25 for overseas visitors) and sale of T-shirts, drinks and postcards covers most Reserve management costs, some goes to conservation and environmental education.



# Management Options for Managing Visitor Impacts

**Reduce use of the entire protected area**

- Limit numbers of visitors in the entire protected area.
- Limit length of stay in the entire area.
- Encourage use of other areas.
- Require certain skills and/or equipment.
- Charge a flat visitor fee.
- Make access more difficult to the entire area.

**Reduce use of problem area**

- Inform about problem areas and alternative areas.
- Discourage or prohibit use of problem areas.
- Limit numbers of visitors in problem areas.
- Encourage/require a stay limit in problem areas.
- Make access harder/easier to problem areas, or improve access to other areas.
- Eliminate facilities/attractions in problem areas, or improve in other areas.
- Establish different skill and/or equipment requirements
- Charge different visitor fees for different areas.

**Modify the location of use within problem areas**

- Segregate different types of visitors – e.g., use zoning.
- Discourage/prohibit camping or anchoring in certain sites, & encourage in others.
- Locate facilities on durable sites in the problem area.

**Modify the timing of use**

- Encourage use outside of peak use periods
- Discourage or ban use when impact potential is high
- Charges fees in periods of high use or of high impact potential

**Modify type of use and visitor behavior**

- Discourage or ban damaging practices/equipment
- Encourage or require certain behavior, skills, equipment

**Modify visitor expectations**

- Inform visitors about appropriate protected use areas
- Inform about potential conditions in protected area

**Increase the resistance of the resource**

- Shield the site from impact
- Strengthen the site

Source: Drumm, Andy. Alan Moore, Andrew Sales, Carol Patterson, and John E. Terborgh. 2004. *Ecotourism Development: A Manual for Conservation Planners and Managers. Volume II. The Business of Ecotourism Development and Management.* The Nature Conservancy, Arlington, Virginia, USA.



# Best Management Practices for Mangroves and Reefs

## BEST MANAGEMENT PRACTICES FOR VISITING MANGROVES

- Construct a boardwalk for easy and safe access to mangroves.
- Fill existing paths with gravel or stone to encourage their use instead of alternate routes.
- Encourage snorkeling during slack high tides, visibility will also be best then.
- Use non-motorized vessels like kayaks or canoes when possible to minimize noise and pollution.

Source: Managing Marine Protected Areas: A TOOLKIT for the Western Indian Ocean

## BEST MANAGEMENT PRACTICES FOR VISITING REEFS

- ☐ Reef visits should be planned in advance, taking account of the tide, particularly reef walks which can only be done at low tide.
- ☐ Pre-departure briefings by tourism operators or MPA personnel should be essential, using or adapting existing codes-of-conduct for visitors.
- ☐ Regular meetings can be held with boat and dive operators to inform them of MPA activities and opportunities for participation and to discuss visitor issues; if appropriate support can be given to local communities to set up reef tourism operations.
- ☐ Responsible boat management should be required.

Source: Managing Marine Protected Areas: A TOOLKIT for the Western Indian Ocean

# *Top Tips for Preserving the Coast: A Beach-Goer's Guide*

*More than half the U.S. population lives along the coast and the average American spends 10 recreational days a year at the coast. With so many people at the coast, beaches can fall victim to the strain. You can reduce the impact you have on the beach by following these tips:*

1. ***Stay off beach dunes and grasses.*** Beach dunes are the first line of defense against coastal storms and dune grass protects shoreline homes and businesses from erosion. When people walk, drive or bike over them, the dunes can collapse and leave the property behind them vulnerable.

2. ***Watch for public access signs.*** These signs, posted by your state's coastal program, indicate places — beaches, public piers, walkways, and parking lots — open to everyone.

3. ***Don't drive on the beach.*** Beaches are fragile! The sand, shells, grasses and animals that make up a beach can be crushed and destroyed under the weight of vehicles.

4. ***Pick up after your dog.*** Pet waste is a natural fertilizer that encourages marine plants to grow out of control, killing crabs and other fish and damaging the entire food chain. It means higher seafood prices and unemployment in coastal towns!

5. ***Clean up the beach.*** Pick up trash, even if it's not yours, and dispose of it in trash receptacles.

6. ***Never throw cigarettes onto the ground or out the car window***, especially at the beach. Rainwater washes everything on the ground into rivers, bays and eventually to the beach. Cigarette filters don't break down and can cause harm to sea birds, and the entire food chain.

7. ***Never leave fishing line*** or hooks on the beach. Fishing line strangle marine animals. Hooks kill the fish that eat them and pose a threat to other people and animals walking on the beach.

8. ***Cut loops*** from six-pack yokes and other plastic items before disposing of them in trash receptacles. Marine animals swallow or become intangled in plastic and die, which threatens our entire food chain.

9. ***Recycle the containers you use at the beach.*** Recycling reduces waste and marine pollution.

10. ***Participate in coastal cleanup campaigns.*** If your city doesn't have one, start one! Call the Center for Marine Conservation's Marine Debris Information Office at (202) 429-5609 to learn how.

*Pass the word on to other beach-goers.*

# A Boater's Bible: 10 Tips for Preserving the Coast

*With thousands of people enjoying boating every year, recreational boaters can inadvertently contribute to the marine pollution problem, especially in back bays and rivers. You can reduce your boat's amount of pollution by following these tips:*

1. Avoid using toxic TBT paints. Use the safer alternative antifouling paints available at your local marina or boating store.

2. Keep a garbarge receptable on board, keep it covered, and make sure everyone on board uses it. If you dispose of your garbage at a marina, follow their recycling rules. If your marina does not recycle, encourage them to start a recycling program.

3. *Never* discard fishing line overboard.

4. Avoid bringing disposable plastic products on board, especially plastic bags and six-pack rings. Not only are these products harmful to marine animals, but they also tangle boat props, clog intakes, and litter beaches.

5. *Never* throw cigarette butts overboard. Studies show that filters, which don't break down in the marine environment, are harmful to sea birds and the entire food chain.

6. Don't discharge human waste directly into the water. If you have an installed toilet, be sure to use the nearest dewage pump-out facility rather than discharging waste at sea. If you own a portable toilet, empty it in a restroom. If your boat doesn't have a toilet, buy one at a local marine retailer!

7. When filling your boat's gas tank, avoid spilling or overflowing gasoline into the water.

8. Make sure your motor doesn't leak gas or oil into the water. Don't drain engine fluids into the water.

9. Place a bilge "pillow" — an oil absorbing sponge available at marine stores — in your bilge to remove oil from your bilge water before discharge.

10. When cleaning your boat, use a *non-phosphate* detergent and a scrub brush.

*Pass along these suggestions to other boaters*!


Sea Smart
Dive Smart

## *As an Environmentally Responsible Diver...*

**I dive within the limits of my ability and training.**

**I am careful about what I touch underwater.**

**I do not break plants or coral or collect "souvenirs."**

**I respect environmental laws and game limits.**

**I collect and dispose of trash I find while diving.**

**I let dive buddies, resorts, and dive operators know how I feel about environmental responsibility.**

**I never dive in a manner that would hurt the environment.**

**I use mooring buoys whenever available or anchor in areas free of live bottoms.**

**I am considerate of ocean wildlife.**

*Text Courtesy of:* DEMA

## Types & Examples of Tourist Impact Indicators

**Basic types of indicators:**

1. **Environmental (Biophysical)**
2. **Socio-cultural aspects**
3. **Visitor Experience**
4. **Economic**
5. **Managerial (Infrastructure)**

**1. Examples of *environmental* indicators:**

- Soil erosion at a particular site
- Site spreading (vegetation loss) in campgrounds or along trails
- Sea floor litter at mooring sites
- Stress on a particular wildlife species (nesting success, animal aggression against visitors, etc.)
- Illegal fires or campfires
- Landslides along a road
- Coliform bacteria count in river X, beach X
- Visibility from point X
- Number of damaged trees in picnic area

  *…etc….*

**2. Examples of *visitor experience* indicators:**

- Number of encounters with other groups per day
- Number of safety violations per month
- Number of complaints about noisy visitors
- Number of students using area for environmental education
- Number of illegal hunters encountered in location X
- Percent of visitors pleased with their visit to the area/site
- Evidence of human waste
- Number of return visitors
- Visitor perception of naturalist guides

*…etc….*

**3. Examples of *economic* indicators:**

- Number of ecotourism entrepreneurs in neighboring communities
- Amount of entrance fees collected in a month
- Average length of stay in the site/community
- Overall contribution of ecotourism to site's budget (percentage)
- Level of tourism employment
- Level of investment in local public services and facilities

*…etc….*

**4. Examples of *socio-cultural* (on communities) indicators:**

- Maintenance of traditional practices
- Change in population
- Reports of negative behavior by visitors toward residents
- Change in crime rate
- Number of visitors at local cultural events/sites
- Perception of guides of sustainable tourism activity
- General perception of residents of sustainable tourism activity

*…etc….*

**5. Examples of *managerial (infrastructure)* indicators:**

- Number and length of trails
- Amount of time spent on infrastructure maintenance
- Amount of graffiti found in campgrounds

*…etc….*

Drumm, Andy. Alan Moore, Andrew Sales, Carol Patterson, and John E. Terborgh. 2004. Ecotourism Development: A Manual for Conservation Planners and Managers. Volume II. The Business of Ecotourism Development and Management. The Nature Conservancy, Arlington, Virginia, USA.

# Examples of Standards for Indicators

**Biophysical (Environmental)**

- 30% bare ground at campground X
- Minimum of five nesting robins along the Riveridge Trail
- Three illegal campfires in the Blue Spring area during the calendar year
- Two landslides along five-kilometer stretch of entrance road from January-March
- Ten-mile visibility from summit of Green Mountain on a clear day
- Three new damaged trees in picnic area during period of June-Sept.

**Visitor Experience**

- One encounter with other groups during a day in the primitive zone
- Five visitor complaints per month about noisy visitors
- 100 students receiving environmental education classes at the visitor center
- 90% of visitors who indicate that they were “very satisfied” or “satisfied” with their visit to the area/site
- Three visitors who indicate that they were disturbed by evidence of human waste in inappropriate locations

**Economic**

- Two new ecotourism entrepreneurs in the Machalilla community in the next year
- $50,000 collected in entrance fees during the year
- Three-day average length of stay in the site/community
- Sustainable tourism revenue contributes 25% of site’s overall budget

**Socio-cultural (on communities)**

- Typical local food is served in 50% of local restaurants
- Three negative reports of visitor behavior in the community per year
- Two robberies per year in the Machalilla community
- 25% of site visitors who also visit local cultural events/sites

**Managerial (infrastructure)**

- Total length of available trails increase 10% yearly for six years
- Site personnel spend 50% of their time on infrastructure maintenance
- Three examples of graffiti found in campground during three-months

Drumm, Andy. Alan Moore, Andrew Sales, Carol Patterson, and John E. Terborgh. 2004. *Ecotourism Development: A Manual for Conservation Planners and Managers. Volume II. The Business of Ecotourism Development and Management.* The Nature Conservancy, Arlington, Virginia, USA.



## Some LAC Indicators for Komodo National Park

The following are a small selection of the LAC indicators and standards developed by the management of Komodo National Park (Indonesia) for a wide range of possible visitor activities.

### Activity : Komodo Dragon Watching

| Impact | Indicator | LAC | How | When | Who | Where | Mitigation Strategy |
|---|---|---|---|---|---|---|---|
| 1. Change of behavior of komodo dragons, they turn less wild | Komodo dragons seen in area of public kitchen and restaurant or service area | No komodo dragons at public kitchen and res-taurants | Direct observation | Every day | Rangers, interpreters, managers of conservation area | Service areas at Loh Liang and Loh Buaya | - Studies to keep komodo dragons from public kitchen and restaurants.<br>- Put up fence around service area (based on studies).<br>- System of handling garbage and waste water. |
| 2. Visitors dissatisfied because they do not see wild komodo dragons | Total number of visitors ' complaints for not seeing wild komodo dragons | Max. 2% of visitors complain per month | Report | Every time there is complaint from visitor | Concession nairesinterpreters, rangers, tour operators report to section head and then to PUC | Loh Liang, Loh Buaya, Labuan Bajo | - Build wildlife drinking tubs/basins around trail, designed as naturally as possible, to concentrate preys of komodo dragons.<br>- Open existing alternative trails.<br>- Make new trails. |

### Activity : Research and Training

| Impact | Indicator | LAC | How | When | Who | Where | Mitigation Strategy |
|---|---|---|---|---|---|---|---|
| 3. Change in komodo dragon's behavior | Tame komodo dragons | No tame komodo dragon | Reports from researchers and rangers | Every research activity | Concession-naires, researchers, rangers | Research location at Loh Liang and Loh Buaya | Every research activity to be accompanied by ranger. |
| 4. Damage on vege-tation | Quality of damage | Max. of 2% damaged vegetation of total area under study (complete description of application mechanism of research prepared separately (including design check) | Measure with measuring tape. | While conducting research | Concession-naires, rangers, research technicians. | At research location at Loh Liang and Loh Buaya. | - Temporarily stop research activity and evaluate research design.<br>- Involvement of officer who understand prepared design & agreement in undertaking research. |

## Activity: Snorkeling

| Impact | Indicator | LAC | How | When | Who | Where | Mitigation Strategy |
|---|---|---|---|---|---|---|---|
| 5. Damage of coral reefs | Percentage of dead corals in snorkeling area | 0% damage of coral reefs in 2000 | Assessment (with measuring tape) using line transect method | Twice a year, of which once during peak season | Technicians, dive operators, rangers, visitors | Snorkeling locations: Pantai Merah, Batu Bolong – Tatawa, Gililawa, Loh Dasami, Padar-Pillar Steen | - Companionship by rangers who are experts in snorkeling.<br>- Extension for crew (&captain) and owners of tour boats.<br>- Required use of life jackets for those who can not swim well.<br>- Limit number of Pantai Merah users according to studies on carrying capacity<br>- Conduct studies on causes of damage and restoration measures. |
| 6. Water Pollution | Salinity and pH Turbidity level | - According to environment standard of clean water (salinity 28-32 and ph 7-8)<br>- According to environment standard of beaches for tourist activities (swimming) | - Take samples<br>- Measure with secchi disc (measuring tool for water clarity).Direct observation. | - Twice per year, of which once during peak season<br>- Twice per year, of which once during peak season | - Rangers, technicians, researchers<br>- Rangers, technicians, researchers | - Snorkeling locations: Pantai Merah, BatuBolong – Tatawa, Gililawa, Loh Dasami, Padar-Pillar Steen<br>- Snorkeling locations: Pantai Merah, BatuBolong – Tatawa, Gililawa, Loh Dasami, Padar-Pillar Steen | - Apply open-close area system.<br>- Apply penalty to polluters. |

## Activity : Village Visit

| Impact | Indicator | LAC | How | When | Who | Where | Mitigation Strategy |
|---|---|---|---|---|---|---|---|
| 8. Disap-pearance of indigenous culture | Frequency of traditional art performances | Art performances minimum 2x per year | Survey on people of Komodo Village | Twice per year, one of which during peak season | Village head, rangers, technicians | Komodo Village, Rinca Village | - Extension for communities on tourism awareness in framework of preserving local culture.<br>- Establish art gallery. |
| 9. Dissatis-faction of visitors due to dilapidated condition of villages. | Visitor's complaints | No visitor's complaints | Impression cards | Every visit | Village head, rangers, visitors. | Komodo Village, Rinca Village,.Information center/visitor center | - Visitorconditioning.<br>- Conditioning Komodo villagers.<br>- Stop visits to Komodo Village until dilapidated condition overcome. |
| 10. Population increase due to migration | Increase in population from 2004 due to migration. | No population increase due to migration | Population census | Once a year | Village head, rangers | Komodo Village, Rinca Village | Prepare Village regulation according to zonation direction of Komodo National Park on Traditional Residential Zone including restriction on population number. |

*Source: Public Use Document - Komodo National Park, 2005.*



# Adaptive Management:

## A Tool for Conservation Practitioners

**The Roots of Adaptive Management** Conservation takes place in complex systems. Over the past few decades, different disciplines dealing with complex systems have developed convergent approaches to using applied science to take action in the face of uncertainty. As shown in the following diagram, examples of these approaches include "social learning," "reflective practice," "learning organizations," and "adaptive management." FOS uses the term "adaptive management" to refer to the approach that we use. Click on a compartment in the diagram below to see the full citation.

**What is Adaptive Management?** Adaptive management is a relatively new concept - one that has only recently begun to gain popularity in the mainstream conservation community. But what is it? Some people may ask, "Isn't adaptive management simply good management? Doesn't it merely involve trying something and then if it doesn't work, using your common sense to adapt and try something else?" We believe that adaptive management is good management, but that not all good management is adaptive management. We also believe that adaptive management requires common sense, but that it is not a license to just try whatever you want. Instead, adaptive management requires an explicitly experimental - or "scientific" - approach to managing conservation projects as outlined in the following definition:

**Adaptive management incorporates research into conservation action. Specifically, it is the integration of design, management, and monitoring to systematically test assumptions in order to adapt and learn.**

This definition can be expanded:

- Testing assumptions is about systematically trying different actions to achieve a desired outcome. It is not, however, a random trial-and-error process. Instead, it involves first thinking about the situation at your project site, developing a specific set of assumptions about what is occurring and what actions you might be able to use to affect these events. You then implement these actions and monitor the actual results to see how they compare to the ones predicted by your assumptions. The key here is to develop an understanding of not only which actions work and which do not, but also why.
- Adaptation is about taking action to improve your project based on the results of your monitoring. If your project actions did not achieve the expected results, it is because either your assumptions were wrong, your actions were poorly executed, the conditions at the project site have changed, your monitoring was faulty - or some combination of these problems. Adaptation involves changing your assumptions and your interventions to respond to the new information obtained through monitoring efforts.
- Learning is about systematically documenting the process that your team has gone through and the results you have achieved. This documentation will help your team avoid making the same mistakes in the future. Furthermore, it will enable other

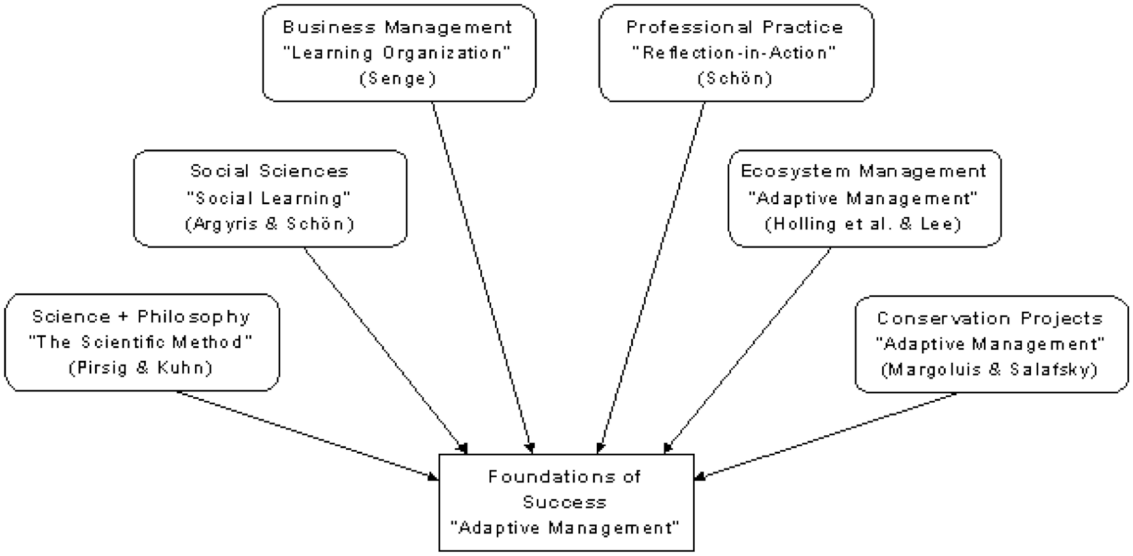
people in the broader conservation community to benefit from your experiences. Other practitioners are eager to learn from your successes and failures so that they can design and manage better projects and avoid some of the hazards and perils you may have encountered. By sharing the information that you have learned from your project, you will help conservation efforts around the world.

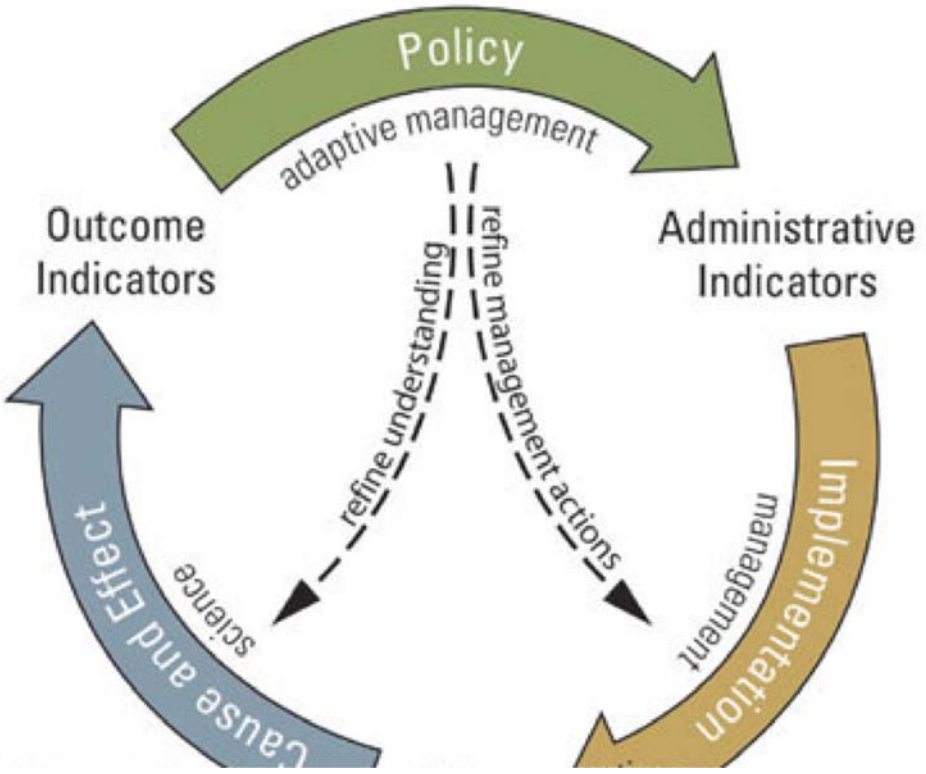
Our definition of adaptive management includes a framework of specific **conditions** that warrant an adaptive management approach, **steps** for the process of adaptive management, and **principles** for the practice of adaptive management.

**Conditions That Warrant an Adaptive Management Approach**
Condition 1. Conservation Projects Take Place In Complex Systems
Condition 2: The World is a Constantly and Unpredictably Changing Place
Condition 3: Our "Competitors" are Changing and Adapting
Condition 4: Immediate Action is Required
Condition 5: There is No Such Thing as Complete Information
Condition 6: We Can Learn and Improve

**Steps in the Process of Adaptive Management**
START: Establish a Clear and Common Purpose
STEP A: Design an Explicit Model of Your System
STEP B: Develop a Management Plan that Maximize Results and Learning
STEP C: Develop a Monitoring Plan to Test Your Assumptions
STEP D: Implement Your Management and Monitoring Plans
STEP E: Analyze Data and Communicate Results
ITERATE: Use Results to Adapt and Learn

**Principles for the Practice of Adaptive Management**
Principle 1: Do Adaptive Management Yourself
Principle 2: Promote Institutional Curiosity and Innovation
Principle 3: Value Failures
Principle 4: Expect Surprise and Capitalize on Crisis
Principle 5: Encourage Personal Growth Principle
6: Create Learning Organizations and Partnerships
Principle 7: Contribute to Global Learning
Principle 8: Practice the Art of Adaptive Management




*Excerpted from: Adaptive Management: A Tool for Conservation Practitioners by Nick Salafsky, Richard Margoluis, and Kent H. Redford. http://www.fosonline.org/Adaptive_Management1.cfm*

## ADAPTIVE MANAGEMENT EXERCISE
## Range of Possible Management Actions in Response to Impacts From Visitor Use

**HABITAT** _____

| | DESCRIBE IN DETAIL WHICH MANAGEMENT ACTIONS YOU ARE GOING TO USE AND WHY |
|---|---|
| increase the supply of recreational opportunities, areas, and facilities to accommodate increased demand | |
| reduce public use at specific sites, in individual management zones, or throughout the park | |
| modify the character of visitor use by controlling where the use occurs, when the use occurs, what type of use occurs, or how visitors behave | |
| alter visitor attitudes and expectations | |
| modify the resource base by increasing the durability of the resource or by maintaining or rehabilitating the resource | |
| site management (e.g., facility design, the use of vegeta- tion barriers, site hardening, area/facility closure) | |
| rationing and allocation (e.g., reservations, queuing, lotteries, eligibility requirements, pricing) | |
| regulation (e.g., the number of people/stock, the location or time of visits, activity, visitor behavior, or equipment) | |
| deterrence and enforcement (e.g., signs, sanctions, personnel) | |
| visitor education (e.g., promote appropriate behavior, encourage/discourage certain types of use, provide information regarding use conditions) | |

## TIPS – TIPS – TIPS – TIPS – TIPS – TIPS – TIPS – TIPS – TIPS – TIPS – TIPS

To aid planners and managers in selecting among the many management tactics, there are several questions or selection criteria that may make decisions easier. Answers to these and related questions can help to assess the trade-offs or the costs of competing actions:

1) Does the tactic adequately address the underlying cause of the impact or visitor use problem?
2) How effective is the tactic likely to be in resolving the impact in question?
3) Is the tactic likely to lead to the creation of new problems?
4) Is the tactic subtle or obtrusive in terms of visitors being aware that they are being managed?
5) Is the tactic direct or indirect in terms of how it impacts or influences visitor behavior?
6) Does the tactic preserve visitor freedom of choice?
7) Does the tactic affect a large or small number of visitors?
8) Does the tactic affect an activity to which some visitors attach a great deal of importance?
9) Are visitors likely to resist the management action?
10) What are the costs to managers in implementing andadministering the tactic?



# LEVELS OF STAKEHOLDER INVOLVEMENT

Merely identifying stakeholders is not sufficient to ensure that they will be involved in the coastal resource planning process. Participation means taking part in an activity. True participation requires that the local community has some authority in the management of coastal resources and that the community concerns are incorporated in the planning process for Marine Protected Areas (MPAs). Participation leads to empowerment, as community members learn about resource management issues and are involved in finding and implementing solutions to coastal resource issues in their communities.

**Participation is a learned skill** on the part of individual community members and depends on their ability to confidently articulate their concerns and visions and take an active role in MPA efforts. The true level of participation also depends on the ability of community members to negotiate with the political and economic interests involved and the political will of the government to act in the long-term interest of the people.

The **community organizer (CO)** is a person who can work with local community members to increase their capacity to actively participate while not detracting from the community role in any manner; the LGU or NGO can assist the community in identifying an appropriately trained individual to serve as the CO in the community.

An analysis of individuals, groups, and institutions that can influence plan success should be conducted to determine the best approach to involve them in the MPA planning process. This should include an evaluation of:

- Characteristics of the individual or group (religious, cultural, and economic factors);
- Position of the individual or group (status, function, organizational structure);
- Current situation of the individual or group and the problems they face;
- Strengths and weaknesses of the individual or group (knowledge, commitment, ownership, dependence);
- Interests, needs, goals of the individual or group;
- Expectations and fears of the individual or group;
- Capabilities and skills of the individual or group;
- Availability of resources of group or institution; and
- Goals and mandates of the institution or organization in relation to coastal resource issues.

Throughout the MPA process it is important to assess the level of participation. At what stages in the process are people participating? Who is participating- is it just the community leaders or are many individuals involved? To what extent does an individual in the community have control over decisions related to MPA? Are there significant political, social, or administrative obstacles to successful participation?

| Type of Participation | Description |
|---|---|
| 1. Passive participation | People participate by being told what is going to happen or has happened. It is a unilateral announcement by the administration or project manager, without listening to people's responses. |
| 2. Participation by information giving | People participate by answering questions posed by extractive researchers using questionnaire surveys or similar approaches. People do not have the opportunity to influence proceedings. |
| 3. Participation by consultation | People participate by being consulted, and external agents listen to their views. Such a consultative process does not usually concede any share in decision-making. |
| 4. Participation for material incentives | People participate by providing resources, such as labor or information, in return for food, cash, or other material incentives. |
| 5. Functional participation | People participate by forming groups to meet predetermined objectives related to the project. Such involvement often occurs after major decisions have been made. These groups tend to be dependent on external initiators and facilitators. |
| 6. Interactive participation | People participate in joint analysis, which leads to action plans and the formation of new local institutions or the strengthening of existing ones. These groups take control over local decisions, and so people have a stake in maintaining structures or practices. |
| 7. Self-mobilization | People participate by taking initiatives independent of external institutions for resources and technical advice they need, but retain control over how resources are used. |

With no leadership or commitment to effect change, existing conditions will continue, or more likely, get worse over time. A strong commitment to changing existing conditions, understanding of the problem, and leadership are required to help communities initiate the process required to change their situation. Making the decision to go down the path towards better coastal management takes energy, hard work, and time, but will lead to improved conditions. Communities need to envision a better future, become organized, participate in planning and implementation, and have a higher awareness of environmental issues.

*Source: The Philippine Coastal Management Guidebook No. 4, Involving Communities in Coastal Management, 2001; Managing Marine Protected Areas: A TOOLKIT for the Western Indian Ocean. 7-8 pp.*



## HYPOTHETICAL SITUATIONS OF STAKEHOLDER INVOLVEMENT

Directions

Please read each of the following situations, and then answer the following questions for each situation.

1. What groups or individuals were involved in the project activities described in each situation?
2. In what ways were they involved?
3. What were (and might be) the benefits of their involvement?
4. What problems might arise in the future?

Situation One

In the annual assessment of a government-run protected area management project, a team of evaluators was engaged from a major university. The evaluators explained the basic outline of the evaluation to the local community and then administered questionnaires. They also interviewed a few community leaders. The evaluators then presented the main findings to a group of community members. They then returned to the university to write up their report that they then distributed to project donors.

Situation Two

A local NGO was given a contract to develop a land use plan to be used to develop a Marine Protected Area management (MPA) project. The NGO asked community leaders to identify three community members to participate on the team along with three NGO staff members. The team met several times to develop the land use plan. At times they broke into pairs to carry out the study and the full team met to analyze the results. They then presented the results to the wider community at various community meetings and discussed recommendations to be included in the MPA project.

Situation Three

A major marine protected area management scheme is underway. The plan calls for building capacities of local communities so that they can be actively involved in carrying out major aspects of the project. They are involved at some level in all phases of the management plan. Government and local NGO staff members are monitoring the plan and determine what is succeeding and what aspects need changing. Community members are consulted on these decisions, as the monitoring team feels necessary.

Situation Four

Local communities approached local officials about problems they were facing from run-off from a nearby food-processing plant. A committee composed of community members, local officials, government extension workers, and local NGOs assessed the situation. They developed a proposal to secure a grant to help then scientifically monitor environmental indicators. Once funding was received, a community management committee was established. Committee members received training in a number of areas.

The committee met with NGO managers monthly to review progress and to plan future activities. During the first few months of the project, meetings were held to jointly determine indicators of success and to set up a project monitoring system. Community members were employed as natural resource management para-technicians and community development extension workers were trained in information-gathering techniques.

Every six months members of the management committee and the NGO staff analyze the information gathered and present the findings to the wider community. Joint decisions are then made about putting the recommendations into practice.

Source: Francis, J., Johnstone, R., van't Hof, T., wan Zwol, C. and Sadacharan, D. (editors). Training for the Sustainable Management of Marine Protected Areas: A Training Manual for MPA Managers. CZMC/WIOMSA. 115 p.

# Questions on 'Selo! Selo! Big Fella Canoe' DVD

**Write your answers for 1-7 below during the video:**

1. What were the expectations of the local people of Lamen Bay in regard to the visit by the Fair Princess?

2. What were the local people's reasons for wanting the cruise boat to come to their island?

3. For what reason did it appear to you (most likely) that the tourists chose to holiday on the Fair Princess?

4. Using the information available, do you think the Vanuatuan's planned effectively for the visit?

5. Using the information available, do you think the cruise liner organisers planned effectively for the visit?

6. What were the main problems encountered?

7. What changes to the tour itinerary could be made by both the 'host' and the 'guest' to ensure mutually pleasing outcomes in the future?