

# EDUCATION:

## Visitor Management Tool to reduce Direct Ecological Impact Resulting from Marine Tourism

### Case Study: Con Dao, Vietnam



Master thesis in International Fisheries Management  
(30 credits)

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*"Errors, like straws, upon the surface flow;  
He who would search for pearls, must dive below"*

*("All for love" by John Dryden)*

## ABSTRACT

Education is frequently used within visitor management, as a soft approach to fulfil different objectives e.g. increase awareness, alter behaviour. This thesis attempts to shed some light regarding *how* it can be used to reduce direct ecological impacts. For such to take place the tool needs to result in behavioural change(s) i.e. reduce destructive actions. In many situations though, education is not as a sufficient motivator for such. This might imply that the "win-win" situation, main reason for the tool's stated efficiency, is seldom reached. Main emphasis of the thesis is to centralize this problem. The explorative approach has led to findings, which will hopefully aid future visitor management. These include; initial explanation of varying efficiency of the tool(s) e.g. destructive actions lead to benefits, *how* can educational tools alter the benefits; and ultimately zoning the need for educational tools. It also questions the routine manner of incorporating imprecise objectives within management e.g. *need for education*, and *change visitors' behaviour*, which will solely lead to resource loss. Many models link education with behavioural change. Few, if any can be *directly* used as a practical tool within visitor management. Since one cannot expect managers to grasp the jungle of existing theoretical frameworks, this thesis initiates the process of developing such.

Second part of the thesis applies all prior findings to a case study location: Con Dao, Vietnam. Current use of educational tools is very limited, and since extensive tourism development is about to take place in this archipelago; improved visitor management is essential. Fieldwork revealed situations where educational implementations would benefit management; and in-depth interviews provided insight to visitors' opinions and experiences regarding in-formal education on Con Dao. Ultimately, recommendations for future use of educational tools are presented.

*Key Words: Marine tourism, Direct impact, visitor management, Education, Con Dao: Vietnam*

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Front picture is taken in Mariana Islands, Guam by David Burdick.  
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## 1. INTRODUCTION

### 1.1 Research Background

Tourism is one of the world's largest industries (Wadhawan. 2008). Marine tourism constitutes almost 50% of annual tourism revenue (figures from 2004), on a global scale, and is rapidly increasing (Fitzpatrick. 2005; Wadhawan. 2008). Such a magnitude in development leads to different anthropogenic stress factors. Activities within the marine tourism branch can lead to direct environmental impacts, as stated by numerous articles (Hof. 2001; Buckley. 2003; Shivilani. 2007). Proper management can reduce these impacts (Ceballos-Lascurain. 1996; Airey. 2007), as well as give incentives for conservation of marine habitats and organisms.

*Carrying capacity* is a concept within management, i.e. what is the amount of visitors that a location can hold before environmental damage occurs (Ceballos-Lascurain. 1996; Hawkins & Roberts. 1997). Different factors can alter the ecological carrying capacity, for instance, the regional biological context as well as external anthropogenic impacts. Therefore, since the ecological carrying capacity is not fixed, it may be increased by changing visitors' behaviour (Hawkins & Roberts. 1997). This is the factor linking education to carrying capacity. Increased environmental awareness is a mean to release the actual pressure on the surrounding environment (Holden. 2000). Education is, according to a number of reports, the most efficient management tool to change visitor behaviour and subsequently reduce the direct environmental impact (Alcock. 1991; Orams. 1993).

### 1.2 Case Study Context

The establishment of MPA (marine protected areas) networks, on a global scale, is currently taking place (UNEP-WCMC. 2008). Vietnam is a nation in the process of such a network, with a number of locations acquiring MPA status; as well as developing extensive marine tourism (Canh. 1997; McEwin *et al.* 2008). This combination introduces a number of challenges. Therefore, all possible tools to facilitate the development of such a combination are beneficial to



increase management efficiency. Since this development in Vietnam is in the initial phase (McEwin *et al.* 2008), the choice of case study location contributes to the research significance.

### **1.3 Researcher Context**

The author of this thesis has gained experience within the tourism industry, both through an academic perspective and work experience. Employment as a marine guide has contributed to a reflection regarding educational materials and methods. Such a personal insight, in combination with a degree in tourism development, has proven valuable throughout the research process, but is not without challenges (explained later in this chapter). The author's lack of in-depth knowledge in social science theory, has shown to provide both advantages and limitations all through the research process. Some of the academic boundaries have been excluded, potentially resulting in some unorthodox approaches to answer research questions.

### **1.4 Problem definition & Research question**

This thesis is focusing on the *direct impacts* resulting from the *marine tourism* industry, and is limited to how *education* as a visitor management tools can reduce these effects. The author is aware of the indirect impact resulting from marine tourism, and that the negative effects on the environment are of substantially higher magnitude compared to direct impacts. Although educating visitors may reduce these impacts as well, this will only be discussed briefly since a more thorough inclusion of indirect impacts is beyond the scope of this paper. Education though, is a broad concept and there is an obvious need to define the objectives to a greater extent i.e. what differentiates the use of the tool for attitude change vs. behavioural change. Only after this establishment, can necessary implementation of subsequent action be simplified. How can one decide about the most appropriate material / method for each case? Since the education programme differs, not only with objectives, but with the target group - how can the most efficient educational tool be found considering the diversity of tourists as a *target group*? The emphasis of the research problem is how education

can increase the ecological carrying capacity within an area. Such a complex issue has been addressed through an explorative approach. The below stated research questions have all emerged throughout the thesis process, from the initial primary question:

*RQ How can education change tourists' behaviour and thereby contribute to a more sustainable use of marine resources within the tourism industry?*

To answer the primary research question (RQ), a set of secondary sub questions have been developed.

- rq1 How can education be used *efficiently* as a mean to change visitor behaviour
- rq2 How does the use of educational tools change with regional/managerial context?
- rq3 How can the most efficient educational tool be found considering the heterogeneity of tourists as a target group?

These research questions have been identified to fulfil the following objectives of the thesis:

#### *Objective*

1. Establish baseline knowledge regarding education as a visitor management tool
2. Identify the most efficient educational tools, for reducing direct impact on the marine environment
3. Apply findings to the case study location (simplify implementation within the Con Dao ecotourism development plan)

Obviously there are linkages between all objectives, and the above table is merely outlined for a simplified overview. The strategies chosen to accomplish each objective can be seen in the methodology section.

### **1.5 Research Significance**

A partial solution to the negative impact, caused by the rapid tourism development, is thought to be *sustainable tourism* (Mowforth & Munt. 2003). To combine the term sustainability, with an industry that utilizes marine resources, management tools are required (Airey. 2007).

Education is considered one of the most effective tools to decrease the environmental impact (Alcock. 1991; Orams. 1993, 1997), but lack of educational evaluation might limit the efficiency. Many answers are already in practice, but in spite of this, problems concerning the practical use of education within management are plentiful. Therefore, the aim of this thesis is to compile knowledge and experiences from different sources on a global scale. Since education programmes differ, not only with objectives but with target groups, it is essential to establish guidelines to the choices of appropriate material/method considering the challenges and opportunities of each. By highlighting what has already been tried out, the use of education can be simplified; resulting in a more efficient resource allocation within management.

There is no need to re-discover solutions, but there is an obvious need to make the transition to the second level more straightforward. The research within this thesis is therefore a significant aid to present and future marine tourism management. The aim of the research is to add to the understanding of the diversified tool *education*.

## **1.6 Research Limitation**

Different limitations have been used in this thesis. The research emphasise the link between *direct environmental impacts* and *changing visitors' behaviour*, both in the context of marine tourism. Due to the magnitude of marine tourism; tourism activities within marine protected areas (MPAs) are, whenever possible, highlighted.

The theoretical concepts discussed in this thesis are complex. Therefore the aim is not to reveal all aspects of learning theory, behavioural models, nor carrying capacity concept. The scope of this work is merely *how* education can be used to increase ecological carrying capacity, and briefly present different possibilities to *what* kind of educational tools can be used for such.

## 2. METHODOLOGY

### Summary

To maximise the outcome of this explorative research, a combination of data gathering methods have been utilized. Secondary data, from e.g. literature review, are strengthened by primary data gathered mainly in situ. Data of both qualitative and quantitative character, as outlined in table 1, were accumulated through numerous literature sources e.g. articles, books, documents, reports and multimedia. Part of mentioned sources was obtained through conference attendance, workshops, informal and formal interviews (direct/through e-mail) with different stakeholders, as well as observation during fieldwork. Collection of data has been continuous and new insight led to modifications of initial research questions. This necessitated an adaptable approach; providing vital flexibility throughout the research process (Bunce & Pomeroy. 2003).

**Table 1:** Simplified overview of thesis methodology

<i>Objective</i>	<i>Data</i>	<i>Approach</i>	<i>Purpose</i>	<i>Method</i>	<i>Activity</i>
1,2,3	Secondary	Quantitative	Explanatory/ Descriptive	Literature Review	
1	Secondary	Qualitative	Exploratory	Literature Review	
1,4	Primary	Qualitative	Exploratory	Case Study	In-depth interview
1,2,4	Primary	Qualitative	Exploratory/ Descriptive	Case Study	Observation
1,2,3,4,5	Primary	Qualitative/ Quantitative	Exploratory/ Descriptive	Interview/ Dialogue	Formal, Informal

### 2.1 Introduction

New data is not always a necessity to come up with new findings. Sometimes it is enough to put already existing material together, to get a new perspective on old realities.

The multidisciplinary character of visitor management has an important relevance to the structure of this thesis. Research differs, to a certain extent, with disciplines e.g. biology and

social science. Since the thesis includes topics such as e.g. conservation in the process of tourism development; a multifaceted issue under current debate, a diversity of fields must be taken into account. Although many perspectives can be included to explain such complex questions within management, at the end of the process social science methodology has been emphasised during this thesis. Another focus of the research has been the extensive use of secondary data sources, supplemented by primary data from interviews and observation to draw conclusions (Blaxter *et al.* 2006).

The purpose of this thesis is to contribute to more efficient visitor management. According to Boyacigiller and Adler (1994):

*"...research methods are driving knowledge production rather than the problems and needs of managers, policy makers..."* (p.270)

This is a description of some current problems encountered within social science research. The choice of exploration through qualitative research suits the needs of many management problems (Ali. 1998), and research methods have been chosen accordingly.

## **2.2 Research Design**

The purpose of this thesis is mainly explorative; therefore a qualitative methodology has often been applicable (Cargan. 2007). The use of a case study, for example, has many benefits for such a purpose. Factors of importance for a qualitative process are e.g. flexibility and field proximity (Ali. 1998). As seen below, many activities can be used to address exploratory research; both of quantitative and qualitative character. Despite this, the purpose to explore, by its nature, rely mainly on qualitative data. This has proved to be an advantageous research design in the search to answer the research question.

**Table 2:** Exploratory research design, Modified figure.  
(University of Minnesota. 2008)

	<i>Use</i>	<i>Type</i>
Exploratory	Formulate problems more precisely	Literature search
Research	Develop hypotheses	Experience survey
	Establish priorities for research	Interviews
	Eliminate impractical ideas	Analysis
	Clarify concepts	
	Observation	

Using quantitative research to outline generalisations is beyond the scope of this thesis. Instead, appropriate quantitative data have been used to e.g. support qualitative findings, as well as provide background information. As seen from table 2, an explorative method is chosen for such a purpose (Tellis. 1997).

## 2.3 Data Collection

This thesis relies on a range of data collection methods i.e. triangulation, to overcome the limitations of each; a common approach within social science research (Gillham. 2000; Blaxter *et al.* 2006). Such a divergence of methods was used to verify collected data and increase validity, but it also imposed difficulties (discussed under *challenges*).

### 2.3.1 Interview - Informal & Formal

Interviews were conducted to provide essential qualitative information. This was especially important during the case study research, when in-depth interviews provided vivid insights to the location's current management situation, information not always found elsewhere. When time was not a limiting factor, semi-structure was preferred, due to its flexibility (Gillham. 2000). Although main topics and key questions were decided pre-meeting, the interview guide enabled modification throughout the process. This ensured adaptability to the situation and person being interviewed, reducing possible interview fatigue in more formal settings; maximising the outcome (Bunce & Pomeroy. 2003). The majority were conducted at

formal location e.g. office, conference. More informal conversations were also carried out, lacking structure to even higher extent. These were sometimes used to merely become acquainted with certain issues.

#### 2.3.1.1 Sampling technique

The sampling technique used to attain necessary data was of *purposive* sort (Deflem. 1998). This was a beneficial technique to support chosen explorative research design and case study methodology. Some of the informants were able to contribute with new information and/or new contacts, while others merely provided support to attained data.

#### 2.3.1.2 Informants

This thesis relies on a number of informants; some considered key informants (Bunce & Pomeroy. 2003). All informants are listed here (key informants in italics):

- *Tourists* (1, 2)
- Managers (1)
- Dive Instructors (1, 2)
- Researchers (1)
- *Educators* (1, 2)
- NGOs (RIMF<sup>1</sup>, WWF<sup>2</sup>) (1)
- Conservationists (1)
- Consultants (1)
- Tourism operators (2)

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<sup>1</sup>Research Institute for Marine Fisheries  
<sup>2</sup> World Wildlife Fund

Data contribution was mainly direct (1) but also indirect (2) as a result from observation.

The method used for most informants, beside key groups, was focused interviews i.e. a more rapid form of interviewing with a narrower selection of questions (Tellis. 1997). The purpose was e.g. to cross-check data from differing sources. Relevance of informants' final contribution differed. If time and resources would have admitted, increased number within the key informant groups would have been included, since collected data did not reach saturation (Bunce & Pomeroy. 2003).



### 2.3.2 CASE STUDY Research

The case study was included in the thesis to provide information about present gaps, as well as possible future application of any research findings. Flexibility, mentioned in the beginning of this chapter, has been invaluable during the case study research. Circumstances changed during the whole process (pre-visit, on site, post-visit). Conducting two separate fieldwork periods, with 6 months apart, was very beneficial. As a result research questions could be modified prior to the second period, based on findings from the primary one (Tellis. 1997; Gillham. 2000).

#### 2.3.2.1 Geographical Scale

A variety of destinations, within Vietnam, were visited during the case study periods: Hanoi, Con Dao, Hai phong, Nha trang. The two locations mentioned last were only visited during the first fieldwork period, while Hanoi and Con Dao were included in both separate timeframes.

#### 2.3.2.2 Temporal Scale

Two separate field periods were conducted, each during 4 weeks duration. First fieldwork was completed in September 2007, while second period was carried out during April 2008; introducing the opportunity to explore locations during different seasons and degree of tourism ((Bunce & Pomeroy. 2003).

Data collection tools during different phases, i.e. pre-visit (1), on site (2), and post-visit (3):

<i>Phase</i>	<i>Process</i>	<i>Activity</i>
1.	Preparation	Arrange meetings with informants Increase knowledge (secondary data) Increase knowledge (primary data) Conference attendance
2.	On site	Interviews (informal/formal, In-depth) Observation (different techniques) Conference attendance Workshop participation
3.	Follow-up	Follow project development Follow-up contact with informants

### 2.3.2.3 Observation

Different strategies were used for different objectives. In some instances, data was retrieved from complete observation, most of the times though; the role as a complete participant was exercised (Cargan. 2007). Since one can not observe all factors, selecting key indicators before the fieldwork period simplified procedure. These indicators were:

- Current use of educational tools
- Current marine tourism activities offered

The main objective for case study observation was, despite the explorative design of this thesis, limited to answer the question *what/which* and not *why* (Ali. 1998). *How* the tourists behaved were not stressed due to lack of resources, although such baseline information would have provided valuable information regarding the efficiency of future educational tools to change visitor behaviour. Only in limited instances are such included, when thought to increase understanding

### 2.3.2.4 In-Depth Interview

The aim of in-depth interviews with tourists on Con Dao, was to reveal lack and limitations of current educational tools, all in an attempt to facilitate future visitor management. Targeting tourists, required no need for sampling technique. This merely due to very limited amount of visitors found in case study location. Sampling relied heavily on availability and to a lesser extent convenience (Blaxter et al. 2006). All individuals addressed, but one tourist, were willing to participate in the in-depth interview. This resulted in:

- 10 tourists on Con Dao (key informant)

A semi-structure was applied, and the interview guide included themes such as: current marine awareness, resource valuation, and experience of educational tools.

All interviews were conducted in English, which presented limitations in some situations. Although, during interviews with tourists other than the domestic; this was actually an asset in many occasions. It contributed to comfort, trust and familiarity. Being interviewed is most likely not of highest priority when one is on vacation, therefore the author strived to make the interview procedures resemble informal conversations (Gillham. 2000); since such was thought to benefit the visitor-researcher interaction (Bunce & Pomeroy. 2003).

The duration of the interviews varied between approximately ½ - 1 hour. When the process employed a more conversational structure more time was required. The informants were interviewed one at a time (two exception; 2 friends and one couple). The locations for the interviews were more informal, compared to other interviews. Throughout the process, data was documented directly, through written notes taken by the researcher. Special emphasis was put on direct quotes, for the strength of its direct use.

#### **2.4 Challenges**

The use of methodological triangulation poses many challenges (Blaxter *et al.* 2006). Instead of allocating all resources to increase the outcome of one selected, such an array of different data gathering methods may lead to limited success of each. The researcher's lack of previous experience in different data gathering techniques e.g. interviews, observation only add to the risk of such an efficiency decrease. In spite of this, triangulation was used based on research objectives.

The flexibility, mentioned earlier, was partially demanding and required extra attention to keep the research objectives in focus (Gillham. 2000). In some situations e.g. using semi-structured interviews, it may even have reduced the reliability due to situation/interview adaptation (Deflem. 1998). Not only might the key-informants have been interviewed differently, but the risk of altering the outcome just due to the presence of the researcher also have to be taken into consideration (Blaxter *et al.* 2006).

Observation can also take place during the interviews (Deflem. 1998). Whenever the observation occurs, the risk just mentioned is always present (Gillham. 2000).

The choice of Vietnam as a case study location, led to site specific challenges. For instance, information was not always accessible, and data differed between sources. The language barrier is obvious. Time of fieldwork coincided with the initial phase in the tourism development succession, which resulted in limitation of key informants (tourists). This challenge was counteracted, to some extent, since more tourists were present during the second fieldwork period. Important to note, though, is that the current deficiency of tourists in the case study location, is also the reason why Con Dao was chosen; adding to the research significance of simplifying the use of the educational tool *before* it is too late.

### 3. THEORETICAL CONCEPTS

#### 3.1 Tourism Development

The industry of tourism is rapidly growing and now recognized as one of the leading industries globally, and still the massive expansion rate continues (Wadhawan. 2008). The development, according to the World Tourism Organization (WTO), and their vision forecast for 2020 can be seen in figure 1.

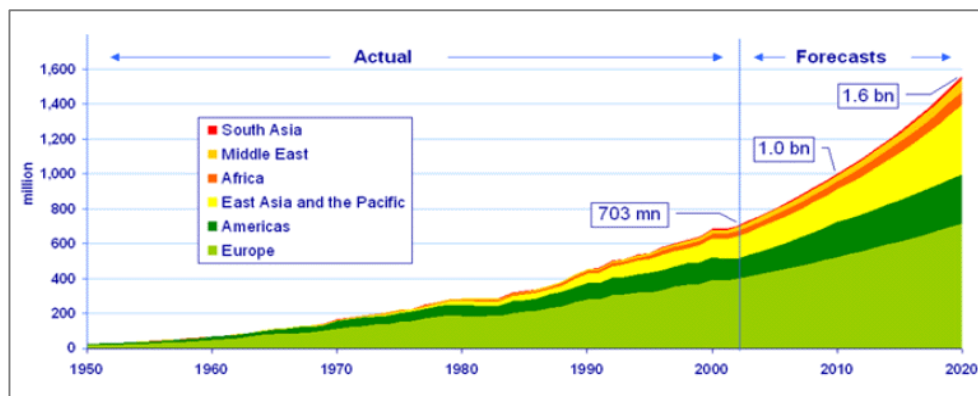


Fig.1: Total number of tourist arrivals  
(UNWTO. 2009)

#### 3.2 Limiting the Concept

Tourism can be a somewhat confusing phrase since it includes all travelling, regardless of the purpose. This complexity can be seen in one of the definitions of tourism i.e.:

*"Movement of people, spatially and temporally, out of their own communities for leisure and business purposes"* (BCC. 2009)

Although above tourism definition includes a combination of *leisure* and *business purposes*, this thesis will focus on the recreational aspect of the industry only. Another limitation of the research, as stated before, is the focus on marine environments and tourism activities taking place in such locations.

### 3.3 Marine Perspective

Within the whole of this industry, marine tourism is an essential contributor to its fast growth (Orams. 1999). The global revenue from marine tourism was estimated to approximately € 168bn in 2004 (Fitzpatrick. 2005), compared to total global tourism revenue of € 385bn (2004) (Wadhawan. 2008).

Revenue from tourism in nations with coastal location, results in substantially higher proportion of the GNP (BCC. 2009). Reef based tourism, in particular, has a high value (Burke *et al.* 2002) and revenue growth have been especially noticeable in locations that inhabit coral reefs (Van't Hoff. 2001; Shivilani. 2007).

The definition marine wildlife tourism includes all interactions taken place between the visitor and the aquatic milieu, stretching from habitats found in the open oceans to coastal areas, including estuaries (Earhart *et al.* 2007). The activities within the definition are usually considered to be restricted to non-consumptive (sometimes mentioned as non-extractive) utilization. That is, the biotic and abiotic resources are valued for their pure existence, with externalities such as e.g. beauty taken into account. This leads to exclusion of consumptive activities such as hunting, collecting, harvesting (Miller. In press); an exclusion adopted throughout the thesis.

#### 3.3.1 Tourism in Marine Protected Areas

For a majority of assigned marine protected areas, conservation of species/ecosystems is one of the main objectives (Browning *et al.* 2005). Since these natural resources are often the very purpose for visitation, increased tourism in these locations is the result. This could be an increase in divers alone (Gubbay & Welton. 1995), or an overall increase in different marine tourism activities (Badalamenti *et al.* 2000). In some instances, development of MPAs have taken place after the increase in tourism e.g. in Quintana Roo, Mexico (Wilson. 2006). No matter which comes first, an MPA status or tourism growth; sustainable tourism development is essential to fulfil the above mentioned objective.

### 3.4 Sustainable Tourism

The current development within marine tourism is not limited to a quantitative progress, but also entails different approaches to increase the sustainability of the industry (Holden. 2000).

Sustainable tourism can be defined as;

*"Sustainable Tourism Development meets the needs of present tourists, host regions while protecting and enhancing opportunity for the future. It is envisaged as leading to management of all resources in such a way that economic, social and aesthetic needs can be fulfilled while maintaining cultural integrity, essential ecological processes, biological diversity and life support systems"* (WTO. 1995).

It is widely believed that sustainable tourism is to benefit both the industry development itself, as well as earlier discussed conservational aims (Eagles *et al.* 2002).

#### 3.4.1 Sustainability & Impacts

The whole idea of sustainable tourism is questioning the tourism development model of Miossec and Butler, which state that *attraction degradation* is the outcome of any tourism development; thereby leading to visitor decline (Pearce. 1989).

A comparable term to sustainable tourism is *Minimum Impact Tourism* (BCC. 2009). This term includes the key to avoidance of attraction degradation i.e. minimizing the impact. Tourism development leads to different types of impacts (Ceballos-Lascurain. 1996; Eagles *et al.* 2002), an essential fact whenever attempting to fulfil the sustainability concept.

### 3.5 Impacts

The impacts from marine tourism are numerous. The decline in global coral reef distribution, for instance, is stated as a consequence of extensive tourism expansion in coastal areas (Wilson. 2006). The fact that all marine tourism activities depend on natural resources, to different degrees, makes the link obvious: Marine tourism results in impacts (Cater & Cater. 2007).

**Table 3:** Marine tourism – linkages between visitors, the environment, and ultimately risk of impact (Orams. 1999)

<i>Characteristics</i>	<i>Class I Easily accessible</i>	<i>Class II Accessible</i>	<i>Class III Less accessible</i>	<i>Class IV Semi-remote</i>	<i>Class V Remote</i>
Experience	Much social interaction with others High degree of services and support Usually crowded	Often contact with others	Some contact with others	Peace and quiet, close to nature Safety-rescue available Occasional contact with others	Solitude Tranquility Closeness to nature Self-sufficiency
Environment	Many human influences and structures Lower-quality natural environment	Human structures/influences visible and close by	Few human structures close by – some visible	Evidence of some human activity, e.g. lights on shore, mooring buoys	Isolated High-quality Few human structures/influences
Locations	Close to or in urban areas Beaches and intertidal area	Intertidal → 100 metres offshore	100 metres → 1 km offshore	Isolated coasts 1–50 kms offshore	Uninhabited coastal areas > 50 kms offshore
Examples of activities	Sunbathing People watching Swimming Playing games Eating Skimboarding Sightseeing	Swimming Snorkeling Fishing Jet-skiing Non-powered boating Surfing Para-sailing Windsurfing	Usually boat-based Sailing Fishing Snorkel/scuba diving	Some scuba diving Submarining Powerboat (offshore equipped) Sailing – larger sailboats	Offshore sailing Live-aboard offshore fishing Remote coast sea-kayaking

←←←←←  
Intensity of use  
←←←←←  
Human impact

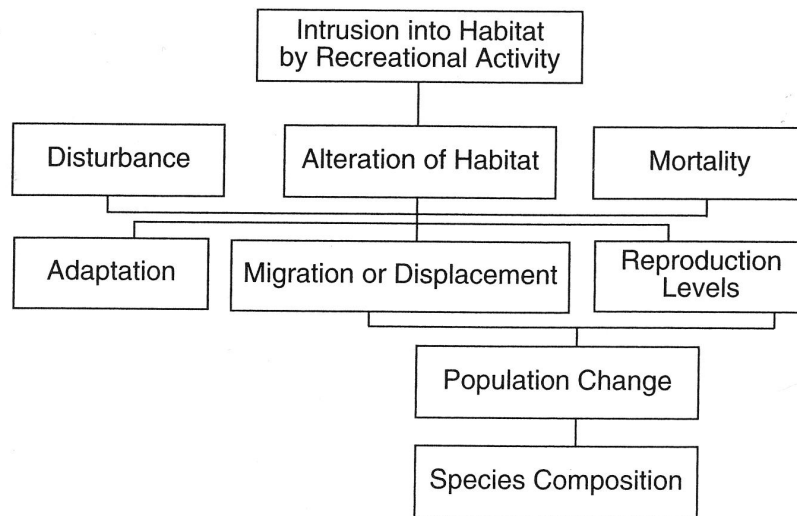
Not all impacts are of negative character, but since the negative impacts are presenting the challenge to sustainable tourism development; they will also be the centre of attention in following chapters.

### 3.5.1 Ecological Impacts

Ecological impacts include a spectrum of different effects, from disturbance all through to mortality (fig.2). These impacts can be the result of indirect<sup>3</sup> and/or direct human action; the latter includes direct anthropogenic interactions with marine resources (Shivlani. 2007).

<sup>3</sup> Consuming seafood at the restaurant is example of an indirect ecological impact





**Fig. 2:** Potential ecological impacts resulting from marine tourism  
(Kuss *et al.* 1990)

### 3.5.2 Direct Impact

These impacts can be the negative outcome followed by visitors' pure presence or activities that lead to deliberate or accidental impacts (Van't Hoff. 2001) Marine tourism activities such as e.g. diving/snorkelling, trampling, glass-bottom boats, wildlife viewing; may all result in ecological direct impacts (Van't Hoff. 2001). The correlation between certain activities, in a coral reef context, and risk of direct ecological impact(s) can be seen in table 4.

The extent of impact differs due to multiple factors e.g. time frame of occurrence, site specific characteristics<sup>4</sup>, magnitude of activity, amount of stressors working in synergy (Shivlani. 2007).

As stated previously, even non-consumptive activities lead to impacts. Some even believe that, considering the extensive tourism growth, non-consumptive impacts are prone to out compete impacts resulting from consumptive activities (Shivlani. 2007).

<sup>4</sup> Corals living in low wave areas e.g. outer part of reef flat, are more vulnerable to impacts compared to species inhabiting high energy areas e.g. reef crest (Shivlani. 2007).

**Table 4:** Selection of marine tourism activities, and their potential risk of direct ecological impacts (focus on coral species) (Van't Hoff. 2001).

<i>Activities with direct impacts</i>	<i>Actual and/or potential impacts</i>
Snorkelling	Physical damage (breakage, lesions) Kicking up sediment
SCUBA diving	Physical damage (breakage, lesions)
Motor boating/ Yachting	Physical damage from anchoring Physical damage from boat grounding
Collecting	Contributing to over-exploitation of marine resources

#### 3.5.2.1 Direct Impact Relevance

Although indirect impacts may be the substantial cause for e.g. the global decline of coral reefs, the essential *synergy* between the two types of impacts needs to be recognised. Direct impact may, for instance, decrease the tolerance against disease (Shivlani. 2007). Another aspect is the *cumulative effect* of impacts i.e. increasing use may result in damage not seen during low use intensity (Hawkins & Roberts. 1997) Therefore, the significance of reducing direct ecological impacts needs to be highlighted. Means and ways to decrease these should, whenever possible, be included in marine resource management.

### 3.6 Visitor Management

According to Shackley (1990): "*anyone who wants to ensure the survival of the species would be well advised to avoid visiting them*". Since total avoidance, for obvious reasons within tourism development, is not always a realistic choice, it is essential for management to find efficient tools to reduce existing stress levels. For many activities e.g. seal swim; tourists seek level of high interaction, while low avoidance indicates a more positive outcome for the seals (Boren *et al.* 2007). The answer lies in appropriate management tools, possibly differing with each case, and their ability to find a compromising solution between these two extremes.

### 3.6.1 Visitor Management Tools

Management tools are chosen according to *what* is being managed;

- Resources
- Impacts
- Visitors

Although a combination of the above is a necessity to reach sustainability (Ecotourism. 2008), this research presents tools used for visitor management. Table 5 presents examples of different types of visitor management techniques, each with strengths and weaknesses, changing the appropriateness with context.

**Table 5:** Different techniques within visitor management  
(Eagles *et al.* 2002)

<i>Visitor Management Techniques</i>
--------------------------------------

- |  |
|--|
| <ul style="list-style-type: none"> <li>▪ Reduce use if the entire protected area</li> <li>▪ Reduce use of problem areas</li> <li>▪ Modify the location of use within the problem areas</li> <li>▪ Modify the timing of use</li> <li>▪ Modify the type of use and visitor behaviour</li> <li>▪ Modify visitor expectations</li> <li>▪ Increase the resistance of the resources</li> <li>▪ Maintain/rehabilitate the resource</li> </ul> |
|--|

The aim of all techniques above is to reduce visitor impacts in a location. Different strategies can be used to fulfil this. According to Oram (1999), management strategies can be divided in 4 groups – physical e.g. trail, regulatory e.g. speed limits, economic e.g. user fee, and educational e.g. poster. Protection of marine resources is the overall objective for most of the MPAs today (Browning *et al.* 2005), a high aim in need of a multitude of techniques and strategies. The MPAs in South East Asia, inhabiting coral reefs, are currently lacking efficient management; with only 14% rated as such (Burke *et al.* 2002). Since extensive resources are often lacking, it is essential to increase the efficiency of the educational tools in use.

3.6.1.1 Tool Efficiency

So far, the main strategy used to minimise direct anthropogenic impacts, within marine tourism, has been regulation (Miller. 2007). Although, direct control are becoming replaced by indirect control strategies to a higher degree than before. Instead of relying on mechanisms to force behavioural change, some indirect strategies e.g. education and code of conduct depend on behavioural change through voluntary decision (Orams. 1993). This is an essential component of soft approaches, which are recognised as more efficient visitor management tools (see fig.3).

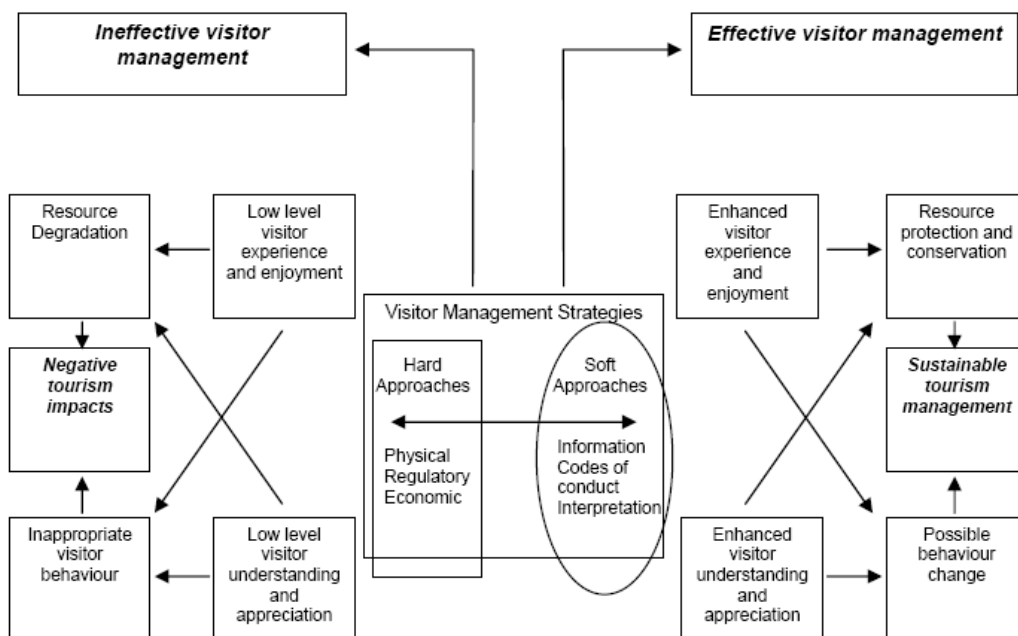
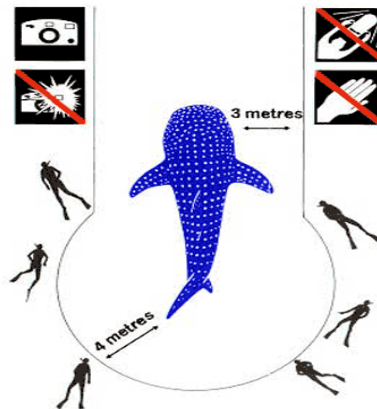


Fig.3: Visitor management strategies (Airey. 2007)

The efficiency of education is also probably due to the “win-win” characteristics described by many (Forestell. 1990; Orams. 1999; Browning *et al.* 2005) i.e. the outcome is (hopefully) same as when using regulations or other direct mechanism, but education also enriches the visitor’s experience in a positive sense (Bramwell & Lane. 1993; Orams. 1997), *motivating* the behavioural change.

The code of conduct for swimming with whale sharks in Australian waters, for example, tries to minimise inappropriate behaviour. As seen in figure 4, swimmers are not allowed to e.g. touch, ride,

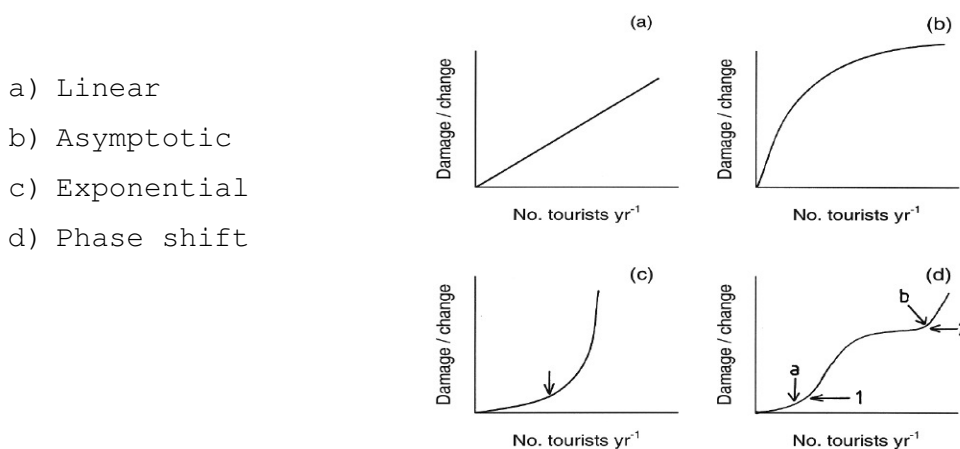
photograph with flash, exceed the limit of 10 visitors at a time. Some of these points, especially the last one, are easy to implement since they enhance visitor experience; while the former benefits from education. Awareness will facilitate the code of conduct process and compensate for the loss of some aims with wildlife interaction; and may ultimately reduce direct impact on marine resources.



**Fig.4:** Code of Conduct for the activity of swimming with whale sharks, Australia (DEC. 2009)

### 3.6.1.2 Carrying Capacity

Visitor impact may result in different ecosystem reactions. That is, as seen in figure 5, the relationship between use and damage/change varies. The figure shows carrying capacity thresholds in graph c) and d), indicated by the arrows. Exceeding these limits will lead to area deterioration (see definition above) etc. Since there are no obvious thresholds in graph a) and b), the decision of limits is more subjective in these instances (Hawkins & Roberts. 1997).

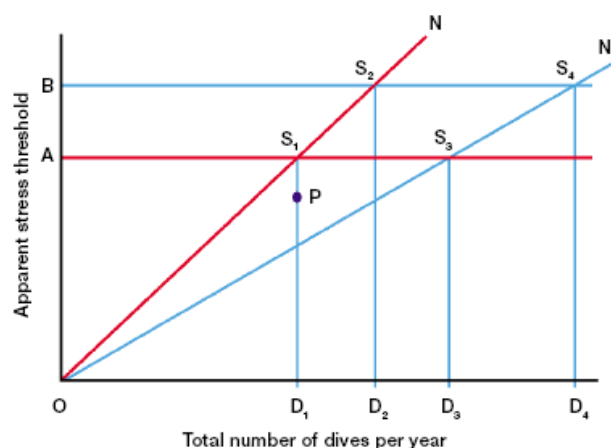


**Fig.5:** Different ecosystem reactions, to visitors' ecological impact (Hawkins & Roberts. 1997)

The concept carrying capacity has been in use within tourism research since 1980s, to assess impact limitations (Holden. 2000). A definition of Tourism carrying capacity (TCC) is:

*«The maximum number of people that may visit a tourist destination at the same time, without causing destruction of the physical, economic, socio-cultural environment and an unacceptable decrease in the quality of visitors' satisfaction" (WTO)*

When applied to tourism estimations, carrying capacity entails different components. According to O'Reilly (1986), there are four elements: social, economical, psychological and environmental. The latter is sometimes referred to as biophysical or ecological carrying capacity. The latter puts the focus on natural assets (Ceballos-Lascurain. 1996), i.e. marine resources within this thesis. Different activities lead to different impacts and therefore affect ecological carrying capacity; but the impact can also differ with same activity, depending on use. Figure 6 is illustrating how a marine activity, in this case diving, relates to environmental stress (Dixon *et al.* 1993). Letter A indicates stress level when environmental deterioration start to occur. Different management tools e.g. education can increase this level to stress threshold B, by reducing stress/dive (line ON1 replaces ON); thereby also increasing the total number of dives from D1 to D2.



**Fig.6:** Illustrating the flexibility of ecological carrying capacity (See text for more information (Dixon *et al.* 1993))

Different management tools can be used to increase the effective carrying capacity of an area. The combination of soft and hard approaches (see fig.3), can shift the carrying capacity from S1 to S4, also shifting the amount of divers from D1 to D4. In this case the soft approach entailed *education of divers*; and hard approaches was compromised by e.g. dive site rotation and regulation of dive activities e.g. no gloves, no camera (Dixon *et al.* 1993).

Most of previous research, focusing on marine tourism activities, has an emphasis on carrying capacity estimates for diving. Estimations made by Dixon *et al.* (1993) led to a threshold amount of 4,000 - 6,000 dives per site annually, a limit used by many as a rule of thumb. Such a rule is a simplified reality, since there are variations within each activity as well i.e. different types of dive behaviour result in diverse impacts. At this time it is apparent that the level of damage is more affected by visitors' behaviour than the actual number visiting the location.

Although attractive, the concept of carrying capacity can be difficult to implement within management (Paz *et al.* 2003). Therefore this thesis will not relate to the concept carrying capacity for a quantifying purpose. Instead, emphasis will be put on the use of educational tools to increase a location's ecological carrying capacity. Ultimately, the flexibility found within the concept carrying capacity will be centralized; this as an attempt to provide management with a more hands-on approach.

#### 3.6.1.3 Education

Management of marine environments is fairly new, and education in these settings is in its infancy, with limited experience as a result (Kaza. 1995). Implementations have been most extensive within MPAs (Browning *et al.* 2005), but education as a management tool is still underutilized (Miller. 2007). Therefore there may be much gain according to the stated efficiency of the tool, when used properly.

This work will focus on in-formal environmental education. Contrary to formal education, the emphasis is on education out of the academic context (Browning *et al.* 2005). The centre of attention will be on educating tourists about the marine environment; a setting where educational programmes often use the approach of *learning through experience*. Even though education and interpretation are different concepts, they are often used as one (Lück. 2003) and for simplicity so will this thesis.

In the late 1950s', Freeman Tilden laid the first framework for the use of environmental interpretation within tourism. In his book, "Interpreting our Heritage", basic principles was formalised i.e. interpretation can lead to an enhanced experience for the visitor, as well as increased concern for the location/species (Tilden. 1957). The importance of education, as a mean to reach sustainable development goals, is currently recognised. Agenda 21 stated: "*formal and non-formal education is indispensable in changing people's attitudes so that they have the motivation to assess and address their sustainable development concerns*". At present, educational programmes are becoming more widely used as a mean to reach sustainability within tourism (Orams. 1995). Such a development can be accomplished through a variety of educational objectives, as presented in table 6.

**Table 6:** Use of education to increase tourism sustainability (Olsder & Van der Donk. 2006)

#### *Objectives of education in sustainable tourism*

■ Enriching the visitor's experience

■ Increase awareness

Assisting visitors to develop a keener awareness, appreciation and understanding of the site they visit. Educated tourists can also put pressure on operators, by using consumer power (Browning *et al.* 2005); in this case through ethical consumerism.

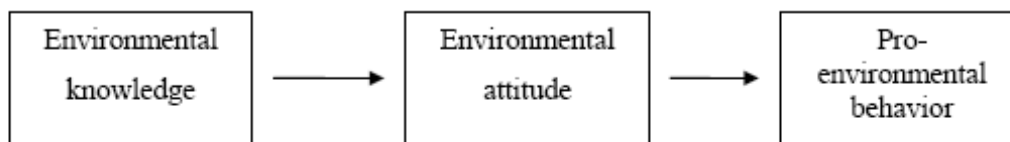


- Reduce destructive behaviour

Encourage well-considered use of the resource by visitors. Education can be used to reduce the need for regulations as well as facilitates compliance with existing regulations (Bramwell & Lane. 1993) e.g. code of conduct standards.

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According to many, education is even thought of as one of the most efficient tools to change visitor behaviour, and thereby reduce the direct ecological impact (Alcock. 1991; Orams. 1993, 1997). One of the first models trying to explain how education may lead to behavioural changes can be seen in fig. 7. According to this, increased knowledge will lead to attitude change, and both are prerequisites for action correction.



**Fig.7:** A model describing how education may lead to altered behaviour (Kollmuss & Agyeman. 2002)

To increase ecological carrying capacity it is essential to reach the last step in fig. 7. Therefore educational tools that actually lead to *action* are a necessity. It is challenging to request actions that reduce '*short-term interest for long-term gain*' (Browning *et al.* 2005). This is especially true within tourism, when visitors are paying the direct cost for long-term benefits; a fact that may be difficult to accept during vacation. Education provides incentives for the demanding objective of reducing destructive behaviour; benefiting sustainable use in a long-term perspective.

### **3.7 Following Chapters**

In spite of all known positive attributes of education as a visitor management tool, there are plenty of challenges within the implementation process. The main one being that very few have assessed the efficiency of a certain technique. A statement from Orams (1999), about education, reveals the need for deeper understanding: "*Many claim it is the answer, very few apply it, and even fewer test its effectiveness*". Due to a lack of evaluation, more work to determine different tools and their overall output within different context would be beneficial to future management programmes. The following chapters will start the process, by exploring different educational tools and practical application. To some extent, the author disagrees with the above statement. At present, many understand the importance of including education within tourism, as well as management. The problem lies within the fact that; many apply it, but few have enough knowledge to use educational tools efficiently. Without such, a waste of important resources will always be the result.

## 4. EDUCATION

### 4.1 Introduction

In spite of positive statements regarding soft approaches in visitor management, visitor education is currently both underutilized and/or used in an improper way (Browning *et al.* 2005). At present, all messages to stimulate behavioural change, within the context of marine tourism, are usually presented with the topping of marine activities or other positive additions. Maybe it is this topping, and not always the message that leads to altered visitor behaviour.

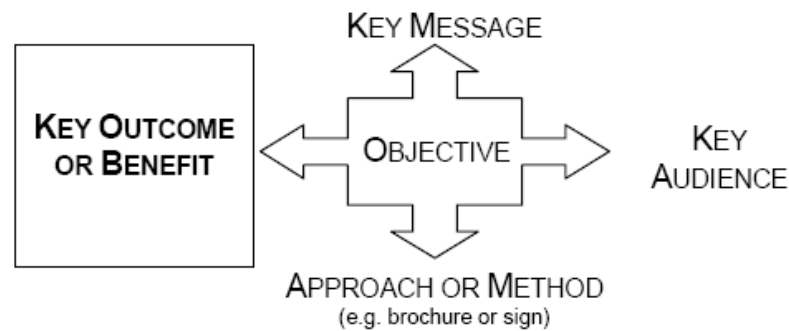
Effort to increase knowledge and interest in conservational issues are always included in educational programmes; but is that essential to reduce direct impact? Could it be that a shortcut, to the high ambition of stimulating environmental interest, actually exists? While working to achieve the green long-term goal, maybe there are other, more efficient means that can be used to reach sustainable resource use *today*.

A visitor's positive response to a conservational message may be found separate from the message; and perhaps a new angle of addressing the problem, of direct impact, would be beneficial. If effort is placed on other factors, than to provide the messages we *want* visitors to be stimulated by, the efficiency of educational tools could probably be increased. The rest of the thesis will address this statement. Before diving into this new viewpoint, it is essential to briefly outline the link between a reduction in direct impacts and the use of educational programmes.

### 4.2 Educational Programme Procedure

#### 4.2.1 Key Outcome

One of the primary tasks of an educational programme is to clarify the aim, or preferred key outcome from education (Department of resources and environment, Victoria. 1999). The key outcome will then initiate the establishment of objective(s).



**Fig.8:** Important factors to be included in educational programmes (Department of resources and environment, Victoria. 1999).

# The general key outcome, discussed in the thesis is "*Reduction of direct ecological impacts resulting from marine tourism activities*"

#### 4.2.2 Objective

A common problem is that the objective(s), to reach the outcome, are unclear (Ceballos-Lascurain. 1996). By following the *SMART* procedure, these problems can be minimised. The objective should be:

- S* Specific
- M* Measurable
- A* Action Oriented
- R* Realistic
- T* Time Focused

Evaluation purposes i.e. assessing education success, should be emphasised in the future (Kim. 2008). For such, the measurable factor is of special importance (Department of resources and environment, Victoria. 1999). Setting the goal to *visitors acting in a pro-environmental way* (as seen later in this section), is often difficult to assess. Instead it may be beneficial to aim for below mentioned objective. This would provide clearer linkage to the key outcome.

# The general objective, discussed in the thesis is *"Reduction of destructive visitor behaviour"*

#### 4.2.3 Key Message

According to observations made by Monroe & DeYoung (1993):

*"...the environmental education field had moved away from a message-driven focus, where the main concern was comprehension of the issues, to an effects-driven focus, where a stronger focus on behavioural outcomes was added"* (p. 182)

Key messages within this thesis are all an attempt to reach the key outcome i.e. reduce direct ecological impact. For such to take place, the educational tools need to result in reduced destructive behaviour.

#### 4.2.4 Key Audience

*"you gotta reach 'em in order to teach 'em"* (Davison *et al.* 1993). For education programmes to reach the key outcome it has to be designed with the key audience in mind. Different characteristics between and within visitor categories all affect education efficiency, as seen in table 7 (Ballantyne *et al.* 1998). It is essential to determine the target group i.e. in this scenario the visitors causing the direct ecological impact.

##### 4.2.4.1 Visitor Characteristics

The categories in table 7 can be further divided into specific visitor characteristics. By linking these characteristics to their risk of negative ecological impacts, the choice of most effective educational tools will be simplified.

**Table 7:** Different categories of visitors to natural areas  
(Olsder & Van der Donk. 2006)

<i>Category</i>	<i>Typical attributes</i>
Explorer	Individualistic, solitary, rejects purpose-built tourism facilities in favour of local ones
Backpacker	May qualify as travel experience rather than understanding local culture. Requires low-cost facilities
Backpacker plus	Often experienced travellers, higher budget, genuine desire to learn about culture and nature and require good information
High volume	Often inexperienced at travelling, enjoy superficial aspects of culture and natural scenery and wildlife if easy to see, need good facilities
General interest	Usually have limited time available for holiday, keen on wildlife when not too hard to see. Need good facilities, although may accept basic conditions for short periods
Special interest	Dedicated to a particular hobby, require special facilities (e.g. dive boat, bird watching guides). Accept discomfort and long travel when necessary to achieve aims, may engage in active involvement (e.g. environmental research projects). Prefer small groups

Divers, for example, belong to the category *Special Interest*. Below is a table (8) with a selection of characteristics that may lead to increased ecological impacts.

**Table 8:** Different visitor characteristics that may lead to increased direct ecological impact. **(1)** Barker & Roberts. 2004; Uyarra & Côté. 2007 **(2)** Davis *et al.* 1995 **(3)** Uyarra & Côté. 2007

<i>Characteristics</i>	<i>Comment</i>
Underwater Photographer (1)	Impact differs with experience <sup>5</sup>
Open Water (2)	Inexperienced e.g. buoyancy control
Cryptofauna Viewing (3) e.g. Seahorse, seadragon	Damage is local

### 4.3 Multitude of Techniques

Since the key message is to promote a behavioural outcome, and not just comprehension of an issue, the educational tools need to be chosen accordingly. There is a variety of techniques that may be used to alter behaviour e.g. through direct communication, as well as indirectly by developing the identity of a site (White & Vogt. 2000). The latter may change visitors' behaviour since the environmental concern and interest is apparent, and educating by example is a strong method.

#### 4.3.1 Techniques to Fulfil Objectives

To address a specific objective, all techniques have strengths and weaknesses, an important fact that has to be taken into account. Some may reach a larger audience (Browning *et al.* 2005); others may be chosen due to its high level of reliability. An assessment of different educational tools can be seen in table 9. General guidelines like this can simplify visitor management.

<sup>5</sup> Results by Rouphael & Inglis (2001) indicate a difference within the group. More experienced photographers lead to higher degree of ecological impact. Such differences could not be seen by Barker & Roberts (2004).

**Table 9:** Overview of some techniques to reach target audience in marine tourism settings (Orams. 1999)

<i>Techniques</i>	<i>Description</i>	<i>Examples</i>	<i>Implication</i>
Printed material	Distributing printed material to visitors which describes/ encourage appropriate behaviour	Brochures handed to all visitors which prompt them to e.g. take rubbish home	Need access to visitors before and during visit
Low-power radio	Broadcasting important information to visitors via AM radio band	Messages about weather, pollution or recent problem in area	Need access to visitors before and during visit
Signs	Displaying printed messages in appropriate locations	"Dunes being rehabilitated - please stay on track"	Important that wording is positive and sign does not detract from experience
Visitor centres	Structure which forms local point for area's education effort	Marine Park Visitor Centre	Major financial cost
Personal Interpretation e.g. guiding	Communication programme from staff to visitors	Guided walk to seal colony	High quality of person's teaching skills imperative
Activities	Any activity designed to entertain and educate	Instruction in surf life-saving techniques	High quality of person's teaching skills imperative
Personal contact	general contact and communication between staff and visitors	Answering questions about the best beaches/reefs to visit	Availability of staff critical

#### 4.3.1.1 Strengths of techniques

Here is a brief presentation of some of the techniques' strengths, with earlier stated objective in mind.

#### Personal interpretation

##### *Valuable flexibility*

The possibility to find the interest of a certain visitor, and custom make the educational tool thereafter, as well as the ability to adapt the information in situ (Howes & Ingamells. 1994); both provide valuable flexibility that may increase efficiency. One factor that needs to be taken into consideration though, is that the efficiency varies with groups size e.g. during guided seal safaris,



the seal responses (i.e. direct ecological impact) increased with increasing amount of visitors being guided (Boren *et al.* 2007).

## Visitor centre

### *Easy input*

The following statements regarding visitor centres are examples of the technique's strengths: "Centralize the education programs", "One-stop shop for information" (MPA news. 2007). Visitor centres provide easy access to information, and high level of reliability; two important factors capable of presenting the key message in an efficient manner.

### *Easy change*

Visitor centres can also affect tourist distribution i.e. by presenting site information; sensitive locations can be replaced by more resilient alternatives (Cooper. 1991). Providing wildlife interactions of different kinds e.g. aquariums, virtual tours can make the visitor centres attractive as tourism destinations of their own, and substitute some of the in situ activities. Some can even provide more extreme visitor redirection i.e. replace outdoor activities all together (MPA news. 2007). Although the latter maximize the reduction of direct ecological impacts, it is usually not a viable answer within most MPAs, due to high resource demand and visitors different priorities.

## Printed material

### *Throughout the phases*

This technique includes e.g. leaflets, brochures and posters. The strength is that the materials can be used within all three important phases of education i.e. during pre contact, contact and post contact (Forestell & Kaufman. 1990). Since they can be brought out of the site location, one visitor's use in the post contact phase can be linked to another potential future visitor's pre contact phase (Kaza. 1995).

## Signs

### *Located at site*

They provide excellent means of repeating key messages provided through other techniques (ITMEM. 2006). Since they are located on site, they can also target the self-guided visitors (Kaza. 1995).

Trails e.g. diving/snorkel; affect the location of activity (Kaza. 1995) i.e. redirection to more resilient areas. Another strength is that visitors may experience the resources below without any direct marine interaction. In Gemstone Bay, New Zealand, a snorkelling trail was installed in 2004, including buoys with conservational messages on the surface (DOC. 2009); a way of repeating the key message in a more appealing way, through the excitement of reaching the messages.

## **4.4 Behavioural changes**

### 4.4.1 Interventions

According to Zimmerman (1996), a combination of educational tools is needed to reach changes in behaviour. The effectiveness of environmental interpretation, for instance, can be increased through the support of behavioural interventions e.g. verbal appeal (1) or role modelling (2). These interventions; 1 = e.g. "don't approach the seal..." and 2 = e.g. show appropriate behaviour, may both increase tool efficiency. The latter is a form of *educating by example* (Pers. comment from Guide on Whale watching). A powerful tool that can also provide other positive effects e.g. increased enjoyment as stated after a marine mammal tour:

"If the plastic bag had not been retrieved that would have been what I remembered most about my experience, but because you went back and got it I remember your wonderful care for the dolphins and other wildlife" (Lück. 2003)

In this instance, the statement was based on the woman's marine awareness prior to the activity. This clearly indicates that for

visitors with awareness from before, educating by example is also a mean to keep the trust and respect of visitors.

#### 4.4.1.1 Positive and Negative triggers

Interventions of different sort can *hasten* behavioural change. The 4E model includes a variety of these (Defra. 2008), and they may all catalyse the process of reducing destructive behaviour.

- 1) *Enable* e.g. Provide information
- 2) *Engage* e.g. Personal contact/enthuse
- 3) *Exemplify* e.g. Leading by example
- 4) *Encourage* e.g. Reward, social pressure

Environmental interpretation is usually used to enhance visitor experience. An important fact though, is that some interventions are of other character. Increasing guilt, for instance, is another way of altering behaviour and its power should not be underestimated (Ballantyne & Packer. 2005). It can be initiated by educators, but also be the result out of their control; peer pressure, for instance, can be an effective originator of such (Hudson. 1984). Despite this, positive rewards are most commonly linked with education as an efficient visitor management tool. These can, according to Ham (1992), be differentiated between external rewards e.g. certificates and internal rewards e.g. self-enrichment. Sources that may motivate action are, as explained, diverse; usually a variety is included in interpretation models.

#### 4.4.2 Current Models

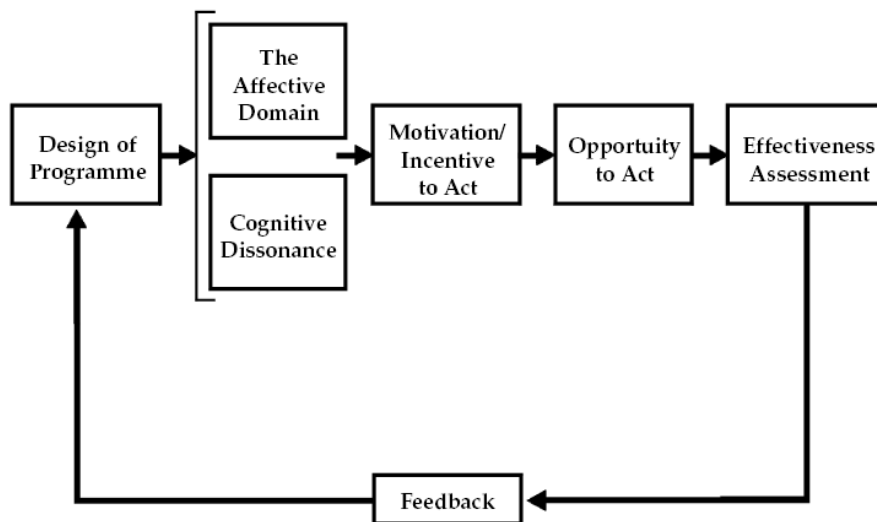
##### 4.4.2.1 Linear Behavioural model

The simple linear model, shown in figure 7, assumes that increased knowledge ultimately leads to changed behaviour. This is no longer the assumption, and the linkages seem to be more complex (Orams. 1999; Kollmuss & Agyeman. 2002). So, if increased awareness is not sufficient to motivate a behavioural change, another stimulus is needed. According to some, this is found within the field of emotions (Orams. 1997); as the statement of Jacques Cousteau implies "people protect what they love". Therefore, close connections to

wildlife may provide strong incentives for visitors to alter behaviour (Kollmuss & Agyeman. 2002; Falk et al. 2007). Although, maybe close wildlife encounters hasten behavioural change for other reasons than *emotions* as motivator, as seen later in the chapter.

#### 4.4.2.2 Interpretation Model

The visitor interpretation model in figure 9, includes the emotional factor (affective domain) mentioned above. This model also includes the cognitive dissonance as a mean to change visitor behaviour changes i.e. increase peoples' curiosity and initiate a process of thinking.

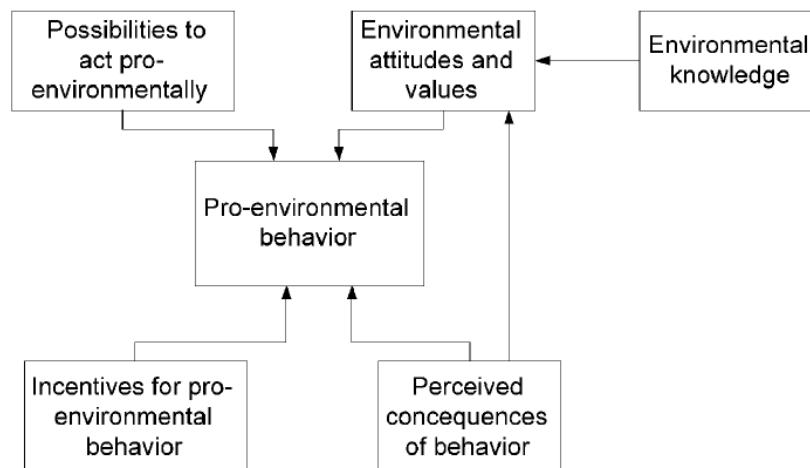


**Fig.9:** Factors to be included in an efficient educational programm (Orams. 1995)

According to the model, these two factors in combination with a presentation of the environmental problem, actions to solve it, and providing opportunities for the actions; are all needed for an efficient educational programme (Orams. 1997).

#### 4.4.2.3 Pro-environmental Behaviour model

Pro-environmental behaviour is a term used by many (Fietkau & Kessel. 1981; Hines et al. 1986). It is a high aim to include in visitor management.



**Fig.10:** Model of ecological behaviour  
(Fietkau & Kessel. 1981)

#### 4.4.3 Current Models and Management

There are many models, as well as theoretical information about education and its use to induce behavioural changes. Despite this, it seems that none can be easily used within management. Even though they all include phrases like e.g. “incentives to act”, “motivation” there is a need to be more precise. Why are incentives needed? How much is needed? How can variations amongst visitor receptiveness be explained? And maybe the most important question for future management: If the incentives/motivation is working to alter behaviour, is it because the educational programme is working the way we imagine?

A paper by Kim (2008) emphasises the need of future research to address *how* education works within management, and not just *if* education works; the exact focus of this thesis. Without such information, practical application in different settings is not possible. The action to change behaviour is stated by many as complex (Orams. 1999; Kim. 2008), and motivational factors differ. Special circumstances found within the context of tourism also present additional challenges, including:

1. State of mind
2. Geographical Location
3. Time frame

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Detailed explanation to above points

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1. There may be a limited wish for lectures.
    - *Presenting environmental issues* (mentioned in fig.9), may not be in the interest of visitors' (Hodak. 2008).
    - *Actions to solve them* (mentioned in fig.9), e.g. "don't collect shells" may not be a message of priority during recreational state
  2. It may be more difficult to create emotional concern and motivation in an environment away from home (Pers. comment from guide Whale watching). Environmental concern may be increased for species/ habitats that one has a closer connection to e.g. bay close to home.
  4. Difficulty of educating transient public and to experience educational key outcomes, a longer time perspective is usually needed (Browning *et al.* 2005). Is it even enough time to trigger the affective domain?
- 

All the above challenges may reduce target audience receptiveness, possibly affecting the efficiency of educational tools. Due to this, stated motivational factors within some current models are not always sufficient to induce action. In addition, current models do not explain why educational efficiency varies (Kim. 2008). Table 10 links efficiency with typical problems; then again it may not be a surprise that education is more effective in stimulating a reduction of uninformed actions (some) compared to unavoidable actions. Nevertheless, other factors need to be included, to increase the accuracy of below statements. For example: 'boating to close to marine mammals'. Presenting information will not always provide enough incentives to reduce this destructive behaviour.

**Table 10:** Practical application of educational tools within management, and its possible efficiency (Eagles *et al.* 2002).

<i>Type of problem</i>	<i>Example</i>	<i>Potential effectiveness of Information and education</i>
Illegal actions	Collecting e.g. fish Using closed zones	Low
Unavoidable actions	Human body waste	Low
Careless actions	Littering, Noise	Moderate
Unskilled actions	Touching corals when diving	High
Uninformed actions	Boating to close to marine mammals	Very high



To find the answer of efficiency variations, one needs to locate the deviations within each group e.g.

*How come information is sufficient to reduce the uninformed actions of some visitors, while such an incentive is not adequate for others?*

Knowledge regarding which tool works when, where and for whom, presents the key to efficient use of educational tools. There is a current need to pinpoint the problem of educational tools and their efficiency variations. Since current models do not provide adequate information to explain these factors, within the context of tourism, following sections will present a first attempt to do so.

4.4.3.1 Need for Simplified model within management

Within management; is it actually important *how* the key outcome is reached, or should we focus on the outcome itself? To increase the efficiency of education within visitor management tool, this thesis will address the issue in a somewhat different way. The focus will be to maximize the key outcome i.e. reduce direct ecological impacts resulting from marine tourism activities. According to the author, the objective to reach this i.e. *reduction in destructive behaviour,*

is not the same as aiming for *increased pro-environmental behaviour*, nor is it the same as *changing behaviour*. The last aim is seen in most educational programmes/models currently used to reach the key outcome. Motivating visitors to increase their environmental interest and e.g. join an environmental organization or choose a "green" resort is not the same as asking people *not* to act e.g. don't go too close to wildlife. A reduction of direct ecological impacts relies, in most instances, on the latter.

#### 4.4.4 Giving up benefits

"When the interpreter comes to understand the basis of the ignorance of his visitor, he is prepared to deal with that auditor's *understanding*" (Tilden. 1957)

In most literature reviewed, education is looked upon as something positive for the visitors. A soft approach that provides the "win-win" situation often mentioned (i.e. enhancing experience of visitors while saving the resources). It is an important realization though, that the part of education trying to reduce direct impact, is still not a positive addition in most instances. Even if education is more visitor oriented compared to hard approaches e.g. strict regulations, the message still involves environmental ethics through regulatory signs (Lassiter & Miller. 2007); visitors are still asked to give something up most of the times. Some of these examples can be seen here:



**No chasing or touching marine wildlife** – This can cause great stress to any animal and by touching certain species, you can transmit diseases or remove protective coatings on fish, mammals, invertebrates and other species. Look but never touch and try not to get too close.



**No collecting dead or live marine life** – Removing species that would normally breakdown and be recycled into the sea, leaves other animals without nutrients and elements that they need for growth. Even empty shells on the beach play their part. Take nothing.

**Fig.11:** Green Fins Guidelines for Environment friendly Diving and Snorkelling (GreenFins. 2009)



So, even if education is used to explain why regulations are needed (combination of hard and soft approach), the question still exists: is this additional information enough as incentives to alter behaviour? Asking visitors *not* to photograph hatchlings during a turtle watch, as in guidelines for turtle watch (CORAL. 2009), is requesting a lot. Suggesting time limitations of many visitors highest aim i.e. interaction with wildlife, follows the same path (Birtles *et al.* 2002). Below is the introduction to Green Fins 4 explanation why fish feeding should not be

*"It's an entertaining and interactive marine experience for the diver, and an easy meal for those beautiful fish, so what's the problem? It is now generally accepted that despite being a 'once in a lifetime experience', feeding of marine fish is a bad idea for everyone, including divers, fish and the ecosystem"* (GreenFins. 2009)

Even though this text is followed by information *why* above behaviour cause destruction, it clearly indicates that much can be at stake. Obviously the degree of giving something up differs i.e. for some great loss is not at stake. This varies with e.g. visitor characteristics, aim of marine activities. These factors, as well as means to address different situations within visitor management will now be in focus.

#### 4.4.5 New Angel for Future Management

##### 4.4.5.1 Introduction

A problem often mentioned within the management of fisheries in marine protected areas, is that the person paying the cost differs from the one experiencing the gain of an action i.e.:

$$\text{Cost} > \text{Gain}$$

In the context of tourism, the above scenario might explain part of the unsuccessful alteration of visitor behaviour. Contrary to the above scenarios; to reduce direct impact within tourism, behavioural alterations are greatly dependent on voluntary action/non-action.

Therefore, as long as the cost is higher, the behaviour will stay unchanged. Or a powerful tool(s) is needed, to voluntarily let go of a benefit even if the cost remains high. It is essential to realize these implications. When someone is asked to pay the cost e.g. by not touching an organism, what is the gain from that action? The ecological benefit, the main reason for reducing direct impact, is often not adequate. Even if ecological benefit is a mayor part of the visitors' enjoyment, it is usually an expected state of chosen location and not perceived as an immediate gain of "your non-action". A mayor part of the problem is that the negative outcome of a destructive behaviour is usually not seen instantly; much the same reasoning as 'tragedy of the commons' (Hardin. 1968). So, visitors can ignore paying the individual cost and still enjoy the ecological benefit. Therefore, it is important to find tool(s) to provide the short-term incentives.

#### 4.4.5.2 Games provided the answer

When visitors are asked to reduce destructive behaviour i.e. reduce current benefits, educational tools are not always efficient. The experience, by many visitors, is that gain is still lower than cost. This thesis has used an explorative approach to adress this challenge. How come educational tools only seem to work in some instances? It was not until the end of the thesis process, part of the answer was more easily seen; from a study with children included. Their behavioural responds were more direct, not hidden away in societal rules etc. Research by Littlefair (2003) stated:

*"Another interesting aspect noted by the researcher was that children were generally very enthusiastic to 'help out' the guide and pick up litter after the verbal appeal was made by the guide. ...the children seemed to be racing each other as if in a game to see who could get to the litter first or pick up the most litter...Interesting contrast to the issue of shortcutting, where children were often the most destructive and least likely to comply." (p.120)*

Picking up litter was a reward in itself, especially since it was considered a game. No need for additional educational tools to increase efficiency. On the other hand, the cost of giving up shortcuts is higher. It is a game and adventure of its own. The educational tools offered were therefore not enough to reduce this behaviour. To alter the behaviour of adults was more efficient; probably since the benefit of the destructive behaviour was lower i.e. reduced cost to give up such behaviour.


#### 4.4.6 Motivation to act or not act

“The un-practiced eye of the novice visitor is often a bored eye”  
(MPA news. 2007<sup>2</sup>)

Although stated by a person with extensive experience within visitor education and MPAs, above opinion shows a typical elitism within current natural education. Instead, to reach the key outcome (mentioned earlier) there is a need to place visitors' interests in focus. Current methods and models, all aim to change visitor behaviour as a response to e.g. increased knowledge, awareness and/or emotions towards environment; factors that summarize what *others* think should motivate change. The latter may not be the most effective way.

**Table 11:** Outcome indicators (Orams. 1995)

<i>Factor to manage</i>	<i>More desired state</i>
Tourist	Satisfaction/enjoyment Education/Learning Attitude/Belief change Behavioural/Lifestyle change
Marine Environment	Minimise Disturbance Improve habitat protection Contribute to the long-term health and viability of the ecosystems



Even if the natural resources are in the obvious interest of managers, guides etc. they are perhaps not a priority of visitors. For instance, a survey<sup>6</sup> stated "lack of concern for a joint responsibility" as one of the main reasons for the problem of marine littering (Save the north sea. 2009). According to this thesis, such a concern does not even have to be a prerequisite to reach the key outcome. Instead, it is essential to take a closer look at visitors' and their actual interests.

#### 4.4.6.1 Centralize Tourists' Priorities

Even though "Inadequate attention to visitor motivation" has already been recognised as a factor that may limit the efficiency of educational tools (Ceballos-Lascurain. 1996), this problem remains in most situations. "Why is it important for protected areas to educate their visitors?" This question resulted in the answer: "Parks...provide an outdoor classroom that people visit not because they have to, but because they want to." (MPA news. 2007<sup>2</sup>). This answer implies that visitors want to be educated, but even if visitors spend time in marine protected areas due to a choice of their own, that is not the same as choosing an outdoor classroom. The priorities of tourists are often somewhat different compared to the aims of environmental education.

"In most cases, tourists are swayed by the desire to capture pictures or to see wild marine species, while ignoring the substantive ecological information presented. That is, the visual stimulus overshadows any increase in ecological awareness or knowledge" p. 61 (Wiener. 2006)

The above statement includes such strong formulations as *ignoring a message*. How come visitors' chosen stimulus overshadows the choice of educators? The answer lies within the question. Sam Ham (1992) described it as: "Boring or excessively difficult information causes the brain to look for more gratifying information elsewhere". So,

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<sup>6</sup> The survey was conducted 2002-2004, and included interviews 3000 people in the north sea region (fishermen, shipping, recreational boat owners) regarding e.g. littering behaviour (Save the north sea. 2009).

instead of focusing on why we think visitors should change their behaviour, maybe the emphasis should be on the choices of the target audience; an approach that will probably increase outcome efficiency. Important to note though, is that the priority of visitors is not always clear. For instance, survey results by Lück (2003), revealed that fewer visitors *strongly agreed* with the statement "I enjoy learning about wildlife during my holiday" compared to "learning new things/increasing my knowledge (importance for holidays in general)". Is such a difference an indicator that visitors want more information, or are they aware that they *should* want more information? Perhaps we expect education to be a part of our experience, that's what we pay for, no? The word 'enjoy' is not always linked to the thoughts of education, a fact also seen in a survey by sea world. Even though the "opportunity to learn about wildlife" was graded as important for the visits, many factors were considered more important e.g. "Having fun and being entertained", "a chance to see wildlife I don't normally see", "escaping from the pressure of daily life" (Saltzer. 2001).

#### 4.4.7 Benefits of Destructive Behaviour

By centralizing the priorities of visitors, one has to realize the benefits of destructive behaviour. For example, according to a survey, the top three answers to "important features of a wildlife tourism experience" were (Saltzer. 2003):

1. Seeing wildlife in their natural environment
2. Seeing rare, unique or unusual wildlife
3. Being able to get close to wildlife

Here is a brief introduction to these destructive behaviours, which are often coupled with high benefits within marine tourism.

##### 4.4.7.1 Closeness

For many, the final distance to an animal is of importance when experiencing the wild i.e. the closer the better (Curtin. 2006). Activities that include swimming with animals e.g. seals, dolphins and sharks are maybe the most extreme in highlighting this closeness; as a swim is consider successful if the target animal

comes close to and interact with the swimmers (Boren *et al.* 2007). A study focusing on shark dive experiences, revealed that "being close to the shark was particularly memorable" for all the participants (Dobson. 2007). This aim of marine wildlife experiences is also apparent within whale watching. Before the activity starts, one of the most common questions (experienced by the author of this thesis, while working on whale safaris) is: "How close do we actually get to the whale?" Personal experience is the main reason why the author of this thesis find other results, stating that "proximity to whales had no significant effect on participant satisfaction with the overall experience" (Orams. 2000) quite surprising.

#### 4.4.7.2 Touching

Touching is a natural outcome of getting close to the animal, and even considered "a primary way in which humans can interact and gain a better understanding of their environment" (Shackley. 1996). The desire of getting close enough to touch wildlife is strong and can be seen in so many instances e.g. our desire to help the newly hatched marine turtles to the water, touching the whales from the zodiac, picking up the sea star and so on. The high aim of close + touching, was easily seen when visitors at sea world were asked how the wildlife experience could be improved, and the most frequent suggestion was "more animal-human interaction" (Saltzer. 2001). In another survey by Saltzer (2003), the aim of touching wildlife came very low on the list, compared to other factors of importance for the experience. Maybe this can be linked with the fact that we know *touching wildlife* is not something we should want. Since the aim was one of 13 listed, others were chosen first; maybe as a result of high awareness. Another survey though, with no given options, the open-ended question "write three features you are looking forward to, when diving with dolphins" resulted in high percentage responding "touching dolphins" (O'Neill *et al.* 2004); once again indicating there is a high benefit of touching marine wildlife. The desire can even be enough to ignore rules and regulations against the behaviour e.g. "despite manatee harassment legislation, many will pet stroke and attempt to ride the animals" (Shackley. 1990).

#### 4.4.7.3 Species specific Benefits

One can actually rank *species* by the benefit from interaction i.e. some species are more valued by visitors than others. Three categorical groups can be mentioned:

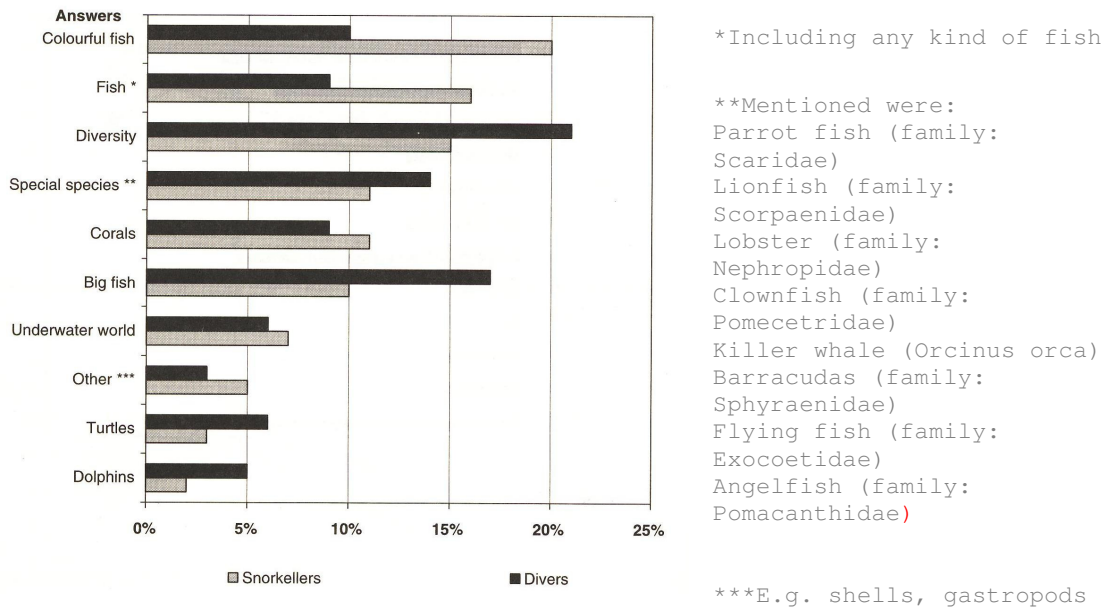
- Mega fauna species
- Iconic species
- Rare, Cryptic

Some species belong to all three categories e.g. dugong.

*Mega fauna:* Many sources of literature acknowledge the importance of mega-fauna as marine attractions (Bentrupperbäumer. 2005). Diving and snorkelling, for instance, are activities that have clear tendencies to offer trips to experience the mega-fauna (Shivlani. 2007) e.g. manta ray, hammerheads, whale sharks.

*Iconic species:* Species that are more likely to attract visitors due to their popularity e.g. corals, dolphins, marine turtles and white sharks are all called iconic species (Smith *et al.* 2006). This, in combination with their amazing aesthetics, is probably part of the popularity of nudibranchs amongst divers.

*Rare/cryptic species:* Popular dive attractions also include rare species e.g. tresher shark or cryptic species e.g. sea dragon, sea horse (Shivlani. 2007; Uyarra & Côté. 2007). Reynolds & Braithwaite (2001) coupled the popularity of endangered species with the feeling that one needs to see these animals while they are still around. There have been indications that encounters with rare species may lead to increased benefits, possibly due to high cost of resources and time spent in the search, a fact stated by a diver: "I do like diving with the smaller species as well...cat sharks are really cool as you have to work hard to find them amongst the kelp" (Dobson. 2007).



**Fig.12:** Different species of marine organisms valued during diving (Gössling et al. 2008)

In figure 12, species from all the above groups can be seen, in an attempt to capture species which increase the experiences of divers and snorkellers. Iconic species are characterized by e.g. dolphins, coral and mega-fauna by e.g. big fish and orca. The latter can be found in the “special species” category, which also comprise many rare/cryptic species.

With these visitor aims in mind, the challenges arising from following request should be obvious: “Don’t queue to photograph a rare subject such as a seahorse, or take too many shots of each animal” (GreenFins. 2009<sup>2</sup>) This may be especially true for ecotourists which have a special interest in wildlife and investment may be high. A study by Weaver (2002) showed ecotourists’ strong agreement with the statement “I would be willing to go on a long hike in miserable weather if this was my only opportunity to see a unique plant or animal of interest to me”.

#### 4.4.8 Altering the Benefit

The benefit equals the cost to reduce the destructive behaviour. The reason for unsuccessful reduction of destructive behaviour, mentioned earlier, was explained by the equation: Cost > Gain

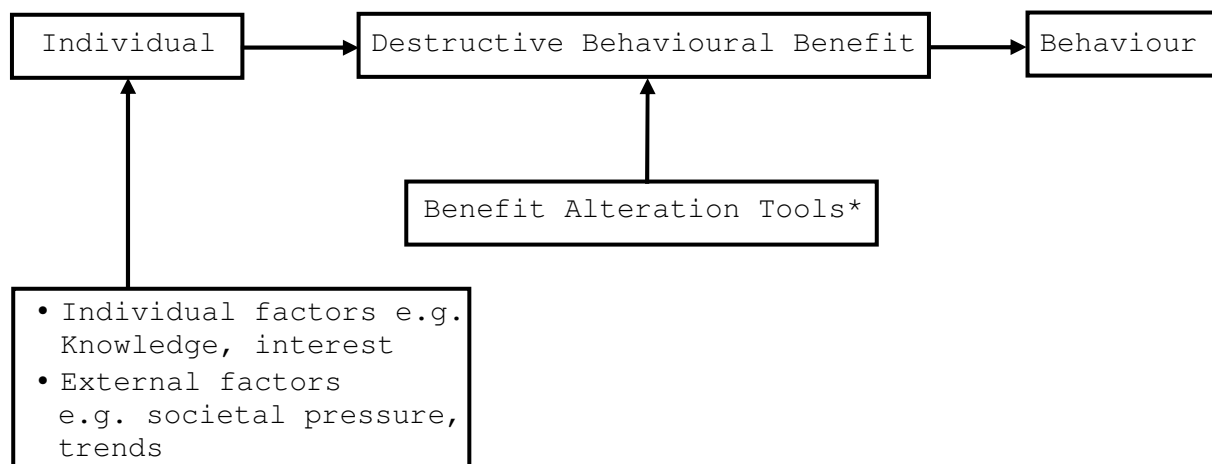


The condition of success:

$$\text{Cost} \leq \text{Gain}$$

To reach such, the benefit of destructive behaviour needs to be altered. The alterations focus on the left side of the equation, this is to increase efficiency by addressing the true problem i.e. the benefits from destructive behaviour. Benefit alteration can take place in two different ways: reducing the benefit and/or compensating its loss.

#### 4.4.9 Simple Model for practical application



\* Beneficial loss Compensation  
Beneficial gain Reduction

**Fig.13:** Model to simplify practical application; to reduce destructive behaviour, and as a result ecological direct impact, through the use of educational tools within tourism. The first box indicates resources that may be used for a more long-term behavioural change

#### *Benefit Alteration Tools*

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In most instances, it is a combination of reduction and compensation that lead to altered behaviour.

*Benefit Compensation:* Increase the gain of acting in a sustainable manner is too wide of a goal. By focusing on the benefit of the destructive behaviour, and the compensation for that loss; the gain is quantified. Such an approach can simplify resource allocation and minimize resource loss. For instance, to give up the benefit of approaching a manatee, educational tools need to compensate for lost value by offering other rewards.

*Benefit Reduction:* The beneficial gain of the destructive behaviour can also be reduced. By increasing a visitor's sense of guilt, for example, the benefit of conducting the inappropriate action is lower. This could be the result of e.g. peer-pressure, authority. Guilt is a strong mechanism and could be the reason why self-reported behaviour is exaggerated compared to actual behaviour (Littlefair. 2003). This is a negatively induced reduction, but positively induced reduction e.g. feeling proud to say no to destructive behaviour, can also be used. This latter is part of the reason why individuals with a high environmental interest has reduced benefits from destructive behaviour (see section 5.4.7.8). Some methods might stimulate negatively or positively induced responses, depending on the visitor. Like one technique mentioned in a best practice guidelines for guides, by Green Fins (GreenFins. 2009): "Adhere to green fins 'friendly diving and snorkelling guidelines' and act as a responsible role model for guests". Acting as a responsible role model might lead to a sense of guilt if conducting the destructive behaviour for some visitors, while other experiences it as strengthening the belief that destructive behaviour is negative.

#### 4.4.9.1 Tool Efficiency

Based on this simplified model, differences in tool efficiency may actually be explained e.g.

Personal Interpretation > Printed Material (1>2)

Tool	Tool efficiency	Compensation*	Reduction**
1	High	High	High
2	Low-Average	Low	Low

\*

*Personal Interpretation*

Experience enhancement - a sense of plentiful compensation  
 \*\* Guilt and/or reassurance increase with guide presence e.g. it reduced visitors destructive behaviour and as a result "avoidance responses from seals" decreased during seal viewing on land (Boren et al. 2007). These factors can be linked to the level of authority or trust, a characteristic that varies with the guide (Marion & Reid. 2007)

\*\*

*Printed Material*

Easier to ignore the message, compared to e.g. guide or signs (=on site)

Above information regarding compensation and reduction, also explain the variable efficiency of personal interpretation (mentioned earlier), corresponding with group size i.e. more visitors lead to decreased efficiency. The compensation decreases due to less time/focus on each participant, and reduction decreases as a result of reduced control of and/or time with each individual within the group.

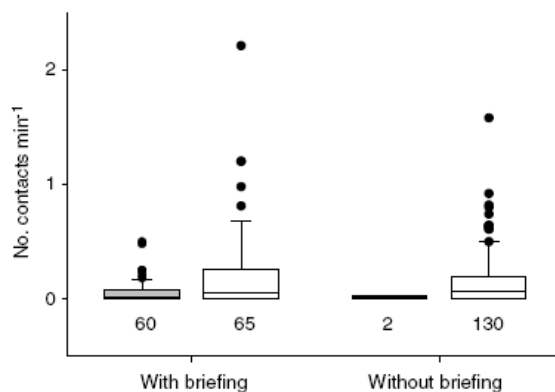
#### 4.4.9.2 Efficiency Variations within the Tool

Important to note, is that each tool entails a variety of techniques, each coupled to specific benefit alterations.

A study by Barker & Roberts (2004) presents variations found within the tool Personal Interpretation/Guiding. Fig.14, illustrates results regarding effectiveness of direct interventions by dive leader vs. dive briefing by dive leader. The study compared different tool combination (n = sample size):

1. Briefing + Dive leader intervention (n = 60)
2. Briefing (n = 65)
3. Dive leader intervention (n = 2)
4. No tools used (n = 130)

The results show little reduction in contact rate after briefing, while leader interventions reduced the destructive behaviour more efficiently. Dive leader interventions can probably both increase compensation (e.g. increased personal attention), as well as reduction (e.g. heightened sense of guilt). In this scenario, the short environmental briefing provided ("one sentence") was not enough to motivate non-action. Although other studies have seen high reduction of contacts after briefing, so efficiency variations exist.



**Fig.14:** Linking briefing and intervention with divers' contact rate (Barker & Roberts. 2004)

This study, due to a low sample size coupled to responses from leader intervention alone (n = 2), does not provide enough information to state that; briefing + interventions > interventions. It is a comparison between two techniques, more than tool combinations.

#### 4.4.9.3 Tool Combination Increases Efficiency

The model also explains why efficiency often increase with tool combinations e.g. experiencing live animals in combination with an interpretive talk provide higher compensation, as well as increased reduction e.g. guilt and/or care is most likely enhanced after interaction with animals. The above mentioned tools were assessed during a survey at Oregon Coast aquarium, with educational tool

combination resulting in visitors increased willingness to change their behaviour in environmentally responsible ways (Hodak. 2008). This can be seen as number 3 in table 12. As mentioned before though, stating a behavioural change may not correlate to an actual behavioural change.

**Table 12:** Different techniques to alter visitor behaviour and their efficiency (Hodak. 2008)

Educational Tool	Efficiency
1. Experience live animals	
2. Interpretative talk*	
3. 1+2	3 > 1 or 2

\*Included conservational messages

#### 4.4.9.4 Tool Combinations and Varying Efficiencies

If tool combinations often increase efficiency, and there is differing efficiency between/within tools; different combinations will subsequently also lead to different outcomes. A study by Littlefair (2003) in terrestrial environment, presented following results:

Tool combination

1. Interpretation incl. verbal appeal
2. Interpretation incl. role modelling\*(show appropriate behaviour)
3. 1+2

**Table 13:** The most efficient educational tool combination, in order to reduce a specific destructive behaviour (Littlefair. 2003)

Problem	Most efficient Tool combination
Shortcutting	3
Litter	3 or 1 (3=1)
Noise	Neither led to significant behavioural change

#### 4.4.9.5 Different Outcome for Different Visitors

Above results provide interesting aspects. First of all, additional tools do not necessarily lead to increased efficiency, as seen with the litter problem. Translating these findings to the new model, role modelling provides enough compensation and/or reduction to reduce shortcutting, but is unsuccessful to address the problem of litter. There might be an extra cost coupled to the latter found in the request to act i.e. pick up litter. The study stated the inefficiency of role modelling to reduce the litter problem as:

*"Role modelling was not effective in increasing the amount of litter picked up because picking up litter is a behaviour that is clear. Thus, role modelling provided no additional benefit"* (Littlefair. 2003. p.122)

According to the "new" simplified model in this thesis, this is not necessarily the answer of found inefficiency. For visitors in the survey, the additional benefit of role modelling was maybe not just enough to motivate picking up litter, but that is not necessarily true for other visitors. Therefore, comparing actual behaviour of true eco-tourist would have been an interesting addition to the survey i.e. role modelling would perhaps be more efficient used for such an audience. Within such group, maybe the guide's action of picking up litter would be sufficient to stimulate visitors to do the same. Since proving ones environmental responsibility is, most likely, stronger for an eco-tourist (possibly also stronger with audience around); role modelling might lead to higher efficiency within such a group.

#### 4.4.9.6 Partial Behavioural Change

Some tool combinations provide a degree of behavioural changes. For instance, tool combinations (verbal appeal + role modelling) led to just a brief reduction in noise level (Littlefair. 2003). Maybe current compensation and/or reduction were not enough for more extensive changes, as may be the case with partial behavioural changes. Such an outcome was seen after an educational programme (workshops) in the Philippines, aiming to replace the use of cyanide

with other alternatives, during aquarium fish collection (Pajaro. 1994). Even if 29%, of the local fishermen that attended the workshops shifted to nets, the majority only reduced the intensity of cyanide.

4.4.9.7 Resource Demand varies with Green Interest

In the context of tourism, the demand for educational tool to reach the key outcome "reduction in direct ecological impact" differs with visitors. The level of interest in the environment seen in fig.15, can be one influencing factor. A special eco-tourist may perhaps experience more intrinsic rewards from *not* acting in a destructive manner, thereby minimizing the need for outer benefit compensation/reduction.

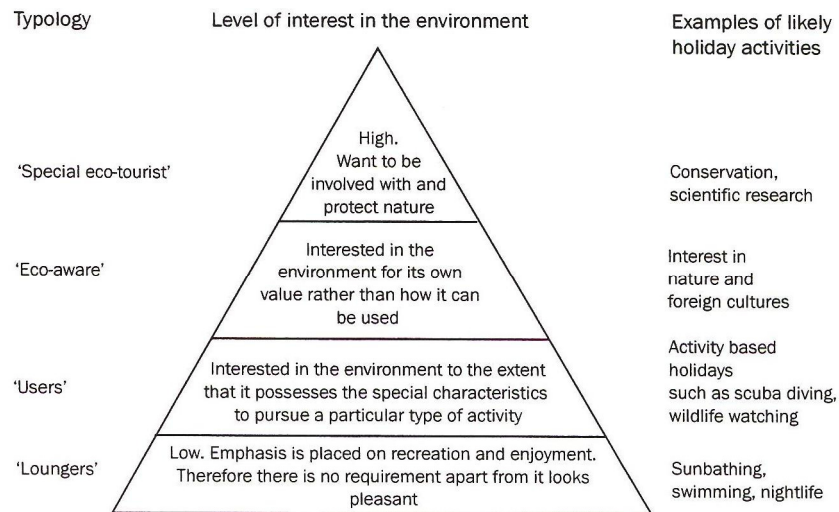


Fig.15: Visitors and their degree of environmental interest (Cleverdon. 1999)

According to Swarbrooke & Horner (1999), sacrifices e.g. attaining information regarding environmental issues, boycotting products, paying to be a volunteer; increase from *loungers* to *special eco-tourist*. The word sacrifice is somewhat confusing; it implies giving something up that is wanted, with no reimbursement. According to the author and the simplified model, this is not the case in the context of visitor behaviour. In reality, sacrifices seem to have little to do with environmental interest. Instead, a green interest may lead

to reduced benefits from destructive behaviour; resulting in reduced cost to give up the destructive behaviour. This would explain above model's notion:

Eco-tourist destructive behaviour < longer destructive behaviour

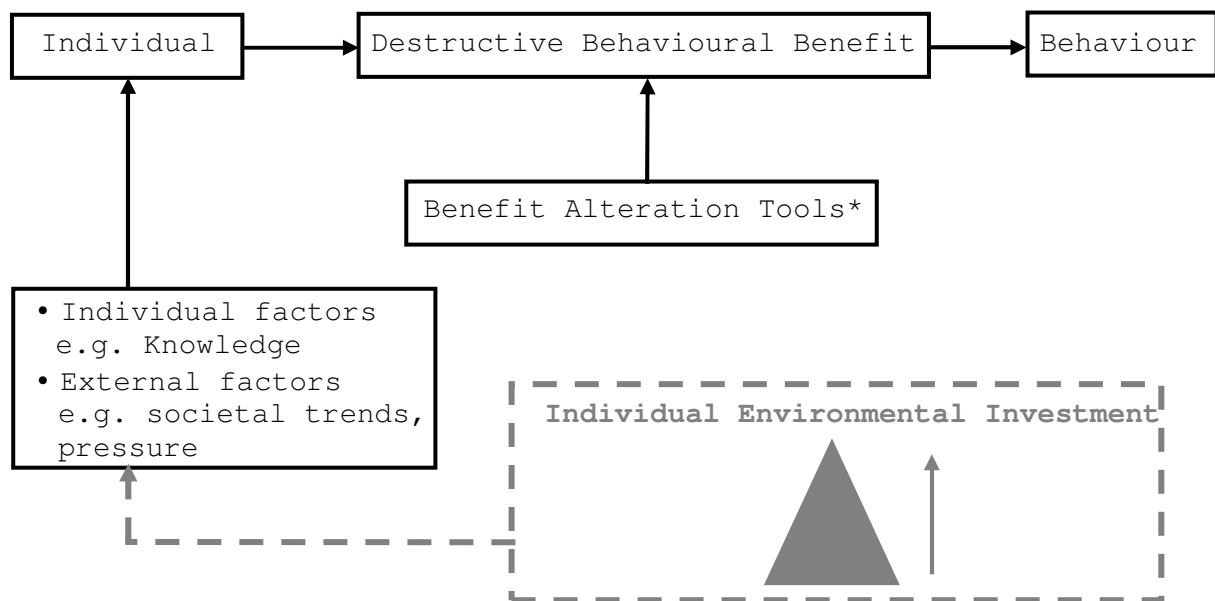
An essential realization though, is that ecotourists do not always have a high environmental interest and as a result a lower benefit from destructive behaviour. Such an assumption within visitor management will lead to reduced efficiency of educational tools. In fact, for many ecotourists the opposite is the case (Cater. 1993). Instead, the thought of 'individual environmental investment' is used within the simplified new model for increased accuracy.

#### 4.4.9.8 Environmental Investment

A phrase that might summarize the opinion of many visitors with a lower environmental interest is: "We're here to enjoy nature, not worry about the environment" (ITMEM. 2006). For visitors with a high environmental interest, 'worry' can be translated to caring for their investment, and is part of their identity. Therefore they will e.g. take pride in adjusting their actions accordingly. So, due to the high environmental investment, the benefit of the destructive behaviour is often reduced prior to the activity. Such a reduction in benefit was expressed by some of the participants on a whale shark dive; where the idea of touching the animal was viewed as unethical (Dobson. 2007). For others, not even joining an eco-tour is the same as having high individual environmental investment. For example, visitors experiencing Antarctica may have invested *financially*; which is not the same as high individual environmental investment. In such a scenario maybe the expenses even lead to higher benefits deriving from destructive behaviour e.g. taking photograph, getting close to wildlife. Another factor, that may increase direct impacts in such a scenario, is ecotourists' (claimed to be) wish to experience new destinations. This pattern of not returning to same locations has been named 'this year the Galapagos next year Antarctica' syndrome by Cater (1993).



Individual environmental investment is the factor empowering the opinion that destructive behaviour is wrong, thereby reducing the benefit. In some instances though, the visitors do not perceive a destructive behaviour as damaging to nature. In such an occasion the environmental investment can actually be the reason that limits the effectiveness of educational tools; either by increasing the benefit or unwillingness to listen to messages due to perceived specialist knowledge (Garrod & Wilson. 2003) e.g. I know more than the guide about this issue, and my action is not destructive. An example of the latter was seen in a survey by Hodak (2008). A respondent explains the reason for not being willing to change behaviour to more 'green' (instead of Yes/already...) accordingly "As a biologist, I've been exposed to these types of issues before". Anything less than a very knowledgeable guide, who might earn the respect from these more demanding visitors, will not provide adequate means for neither reduction nor compensation.



\* Benefit Compensation  
Benefit Reduction

**Fig.16:** Model to simplify practical application; to reduce destructive behaviour, and as a result ecological direct impact, through the use of educational tools within tourism

According to above thoughts, one might think that environmental awareness is the key to reduced direct impact. The reason for the new simplified model though, is that many visitors may not have an environmental interest, and for even less the interest is strong enough to affect identity. For those who invest in environment, increased knowledge and awareness might be enough to alter behaviour. Due to this, educational tools to increase knowledge should be used parallel to other tools, hopefully also affecting low investors in the long-term.

#### 4.4.9.9 Practical Application - Zoning the Need

The model explains why the affective domain i.e. emotions are powerful inclusions in effective educational programmes. Emotions lead to reduced benefit as a result of both negatively induced reductions e.g. guilt and positively induced reductions e.g. caring for wildlife might lead to desire to save it. Wildlife interactions are also excellent means of benefit compensation. In spite of this, *environmental concern* is not always enough to motivate behavioural changes (Blake. 1999). The model also explains why this might be the case, and how to overcome the problem. In instances where the benefit from destructive behaviour is zero or low, information might be adequate to reduce impact. When the benefit is higher, affections can also be added; which might be enough to stimulate another behavioural outcome. This can be the case even if the visitor has no environmental interest; guilt (for instance) relies on other aspects. For even higher benefits, activities can be used to compensate for the beneficial loss.



\*note that activities are not always more effective than benefit reduction tools, this is just an example.

Behaviour that leads to high benefit might require all of the above i.e. use a combination of reduction and compensation, or maybe just one of the two. Since impact and benefit both differ with activity and visitor, there is a divergent demand for benefit alteration tools. Even though, a simple table can provide an overview of current problems i.e. which location has the most severe impacts on the marine resources, which activities led to the damage, which visitor group are conducting the activities. Although the impact may be high, the benefit from conducting the destructive behaviour is not necessarily so.

**Table 14:** Assessing the need for benefit alteration tools, by combining direct ecological impact and visitors' benefit from destructive behaviour.

Destructive Behaviour	Need for Benefit alteration tools
High impact + high benefit	High
High impact + low benefit*	Medium
Low impact + high benefit	Medium
Low impact + low benefit	Low

\*Even though benefit is low, uninformed behaviour can still lead to extensive problems e.g. noise level on turtle nesting beach.

Visitor management should zone the need for educational tools. Without such, how can resources ever be used in most efficient way? The assessment in table 14, can be part of such zoning effort. This would simplify the process of choosing appropriate educational tools for different situations.

#### 4.5 Conclusion

This thesis focuses on marine tourism settings. The informal education taken place within such a context usually pertain two different elements: increase visitors enjoyment, as well as teach them something (Moscardo & Pearce. 1986). The thesis does not question the use of any as such, but it stresses the importance to know which of these two elements that actually motivate visitors to reduce their direct impact. The new simplified model explains how both these separate parts may work i.e. in some instances maybe information is sufficient. According to Dearden (2007): "In general, visitors who are educated about park values are much less likely to violate park regulations because they will have greater understanding of the reasons behind them." (MPA news. 2007<sup>2</sup>). This might be true if the benefit from destructive behaviour is low, but other benefits of education can motivate visitors in instances when it's not. Lück (2003) initiated the important process with the question "do tourists want to be educated? If information alone lead to an increased wildlife experience e.g. "according to research, dolphin interaction increase when the animals had a choice between interacting or not" (Constantine & Baker. 1999), maybe then would information be enough to motivate behavioural change; a true win-win situation as result. During many instances though, visitors need a stronger incentive to reduce the destructive behaviour. In such situations, changing visitor behaviour can be achieved even with a lack of will to be educated; a scenario when education is more powerful used as a mean of 'distraction' in a way i.e. compensate for their loss of a benefit

Whether education is used for benefit reduction or benefit alteration, the biology of marine resources is always stressed. Tourists are a heterogeneous group (Ceballos-Lascurain. 1996), still the majority of educational tools focus on such limited biological input(s). Even ideas of broadening the educational offer e.g. Hoyt's idea of whale ecology tours replacing whale watching tours, provide little upgrading for those without an interest in biology (Littlefair. 2005). New disciplines are starting to appear e.g. art, but still very limited in distribution. Compensation can be of

little use as long as educational tools do not provide information/enjoyment that are of interest for the visitors. Browning et al. (2005) wrote following about education "without it how can we expect individuals (e.g. tourists) to compromise short-term interest for long-term gain?" Unfortunately, solely *including education* is an action too wide, to work efficiently.

This thesis has attempted to simplify the use of more efficient educational tools within visitor management. By no means, is it presenting final solutions, instead the author sees it as an initiation of a crucial process.

PRACTICAL APPLICATION

CASE STUDY

## 5. CASE STUDY - CON DAO, VIETNAM

### 5.1. Introduction

The tourism development strategy on Con Dao has set a high aim for 2020, with 1-1,5 million visits annually (SEA. 2007). Such amount of visitors demand increased visitor management. The purpose of this thesis is neither to question nor support the decision. Instead, focus is put on practical advice i.e. how to reduce visitors' impact through the use of education; and this in a more efficient manner. The exploration, throughout this process, has led to findings regarding educational tools within visitor management. With such as base, this practical application will provide recommendations, and hopefully benefit the general educational design.

### 5.2. Vietnam Overview

#### 5.2.1 Marine Resources and Protection

The biodiversity found in Vietnam is very high (Vietnam Agenda 21. 2008), with e.g. more than 300 reef-building coral species (Tuan & Long. 2003). For the nation's economy, marine resources are extremely valuable (Vietnam Agenda 21. 2008). Unfortunately such an appreciation has also led to negative impacts, and especially coral reefs have been damaged by human impact (Tuan & Long. 2003). To manage these impacts, the coral reef national action plan to 2015 was initiated, with an objective to include "conservation, recovery and sustainable use" (Tuan *et al.* 2005).

Marine conservation does not have a long tradition in Vietnam (MoFi. 2008; MONRE. 2005), resulting in a general lack of marine awareness (Cheung *et al.* 2002). The theory of marine protected areas (MPA) is also a relatively new initiation in the nation (McEwin *et al.* 2008). Since proper management was lacking for established protected areas with marine component, the Ministry of Fisheries (MoFi) was authorized to develop Vietnam's network of MPAs; a plan still waiting for governmental approval (Cheung *et al.* 2002). Such a network will hopefully lead to attitude changes concerning marine environmental protection (McEwin *et al.* 2008). According to this

plan, 15 MPAs will be established during near future (MoFi. 2008), these include new MPAs as well as previously established ones in need for area expansion and/or management strengthening. Con Dao is being highly prioritized for the latter (Cheung *et al.* 2002).

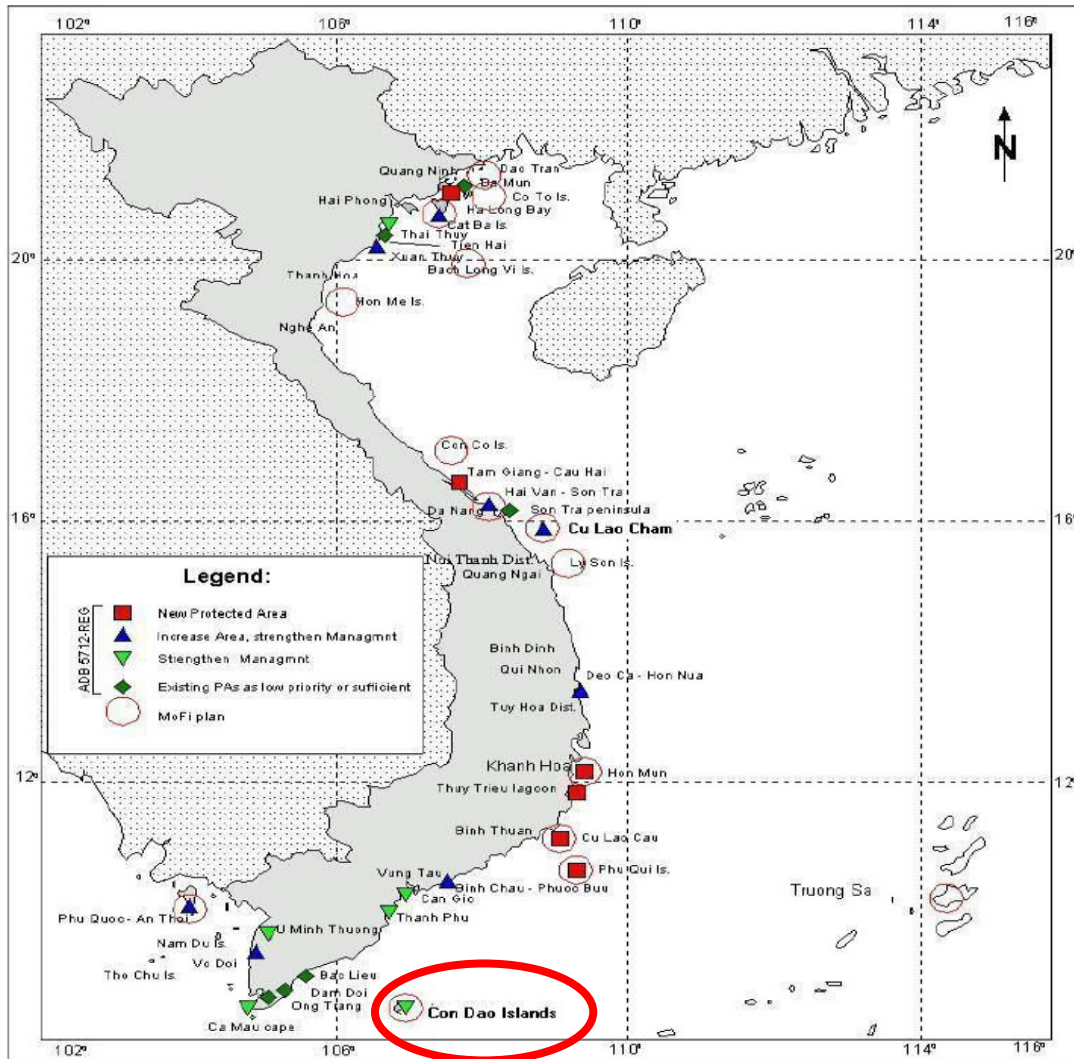


Fig.17: Map of Vietnam showing the location of selected priority marine protected area sites (MoFi. 2002)

So far, some sites have already received new/improved MPA status e.g. Na Tang Bay, Cu Lao Cham, Phu Quoc (McEwin *et al.* 2008). Many of the proposed (or existing) MPAs are found in locations also included in Vietnam’s master plan for tourism development (1995–2010) (Tuan & Long. 2003). For instance, the most important AIG for Cu Lao Cham is tourism (MoFi. 2008). This paradox; of protecting marine resources, while tourism development takes place leads to



challenges in Vietnam, as in most places. The complexity is strengthened by the fact that marine conservation receives less consideration than terrestrial protection in Vietnam (MONRE. 2005). Unfortunately, current management efficiency is also reduced due to other factors e.g. lack of capacity, funding, low educational level of staff (Cheung *et al.* 2002). Aware of the many problems, sustainable tourism considerations are increasing in Vietnam (Gurung & Phuong. 1999). Without such, marine resources will be negatively affected by direct and indirect impacts, risking future tourism revenue.

### 5.2.2 Tourism

Within the last few years, tourism growth has been rapid within Vietnam ((MONRE. 2005); with two thirds amounting from marine tourism (MPAnet. 2008). Coral reefs have gained greater attention within the nation's marine tourism development; a trend seen within both international and domestic tourism (Tuan & Long. 2003). In fact, locations with coral reefs are considered key sites e.g. Con Dao, to name one (Tuan & Long. 2003). Tourism growth can be seen within all current MPAs, and in Nha Trang Bay MPA the increase is substantial (McEwin *et al.* 2008). Con Dao is expected to be one of the next locations to experience extensive tourism development (Tuan *et al.* 2005). The potentials for tourism within the country are plenty (MONRE. 2005), and in spite of all tourism growth taking place, some still claim it "does not match its potentials" (MPAnet. 2008). Partial solution for a more successful marine tourism development may include; *value added* i.e. improved tourism products and services (McEwin *et al.* 2008). Many activities are taken place to overcome current limitations e.g. language skills for tour guides (MoFi. 2008) and ecotourism projects. Ecotourism development in Vietnam has a high potential (MONRE. 2005), and the concept is currently going through a rapid expansion in the country (Gurung & Phuong. 1999). Ecotourism is often considered as a solution to the paradox mentioned above i.e. development in combination with conservation (Lindsey & Holmes). Even in the country's action plan for biodiversity protection, ecotourism development is prioritised (Vietnam Agenda 21. 2008).



### 5.3.1. Con Dao National Park

In 1993, the nature reserve (since 1984) was declared a national park (CDNP. 2008), with the additional inclusion of marine environments (Tuan & Long. 2003). So, the archipelago already has MPA status. In fact, conservation and management in Con Dao is considered as nation's best (Burke *et al.* 2002; Tuan & Long. 2003); this can be seen as the highest Reef Management Index (RMI) in the country i.e. 3.25 out of 5<sup>7</sup> (Tuan *et al.* 2005). In spite of this, the combination of Con Dao being chosen as *highest priority conservation area* (CD project) and hopefully as a future model of sustainable tourism practices (Burke *et al.* 2002); tools to increase visitor management is of importance. This is especially apparent due to the aim of Con Dao tourism development plan (2000-2010) of increasing visitor amount 1-1,5 million visits annually by 2020 (SEA. 2007). Although Con Dao archipelago is known for more than biological diversity, for example the site provides both historical and cultural provide importance (McEwin *et al.* 2008), emphasis will be put on the first; since such use has a more obvious link to direct ecological impacts.

### 5.3.2. Sustainable tourism vs. ecotourism

A document focusing on tourism strategy for Con Dao, stated:

"...engagement in eco-tourism as an alternative to non-sustainable use of resources" (CD project Tourism)

An important notice though, is that ecotourism and sustainable tourism development is not equivalent. Ecotourism needs to be sustainable, but sustainable tourism is not necessarily eco-based (according to definition). Sustainable tourism is planned for Con Dao in general, and ecotourism activities within the park boundary (CD project Tourism). Regardless of definitions, both are in need of management tools to reduce direct impact by altering visitors' behaviour, although the extent and variation of educational tools may differ. For example: larger amounts of visitors can be included

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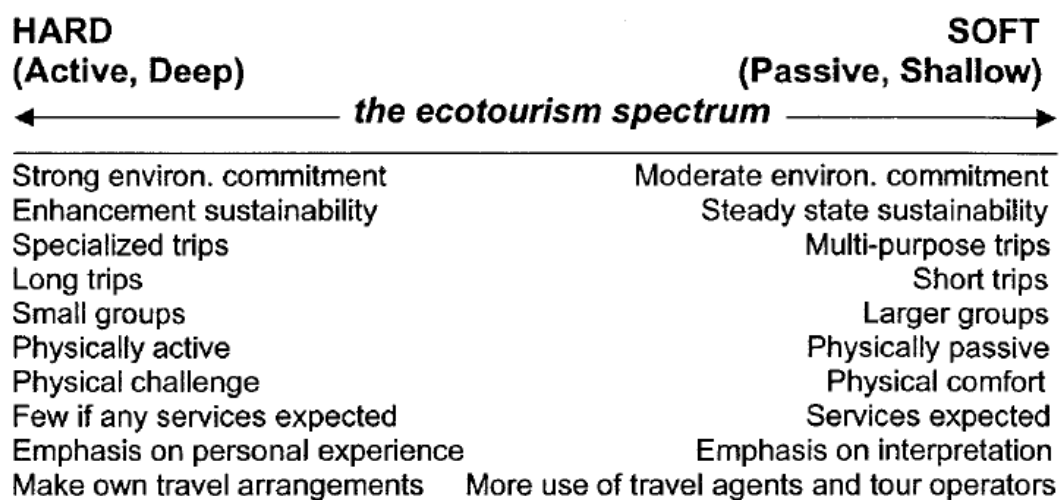
<sup>7</sup> Con Dao is amongst the MPAs with highest management effectiveness within South East Asia (Burke *et al.* 2002)

in sustainable plans, since the carrying capacity limit is flexible (as explained in earlier section), affecting the feasibility of resource demanding tools; possibly resulting in other management needs. Also, according to the new simplified model, sustainable tourism is not dependent on increased visitor awareness. Within ecotourism though, education is an important factor within the definition; and therefore essential for more than possible reduction of impact.

#### 5.3.2.1. Eco-Tourism

Current tourism plans for Con Dao includes ecotourism development (CD project Tourism). According to Dr. Nguyen Chu Hoi (Deputy head of the Vietnam Sea and Islands General Department), the nation's marine tourism industry lack unique and high value products and services (MPAnet. 2008). Partial aim of the eco-tourism master plan answers to this; *"to distinguish the archipelago as a unique tourism site within the country"* (CD project Tourism). Such a high goal has no room for misuse of the ecotourism definition, as is often the case (ITMEM. 2006). For example, as part of stated ecotourism activities on Con Dao, nesting sea turtles as well as hatchlings have been kept for long periods to simulate encounters for arriving visitors (Giang. 2006). Needless to say, such exploitation of the term eco (i.e. green washing) can truly jeopardise the high ambition of the plan. Cater (1993) states a need for careful ecotourism development; *"Unless it is properly managed, the impacts of ecotourism may be worse than those of mass tourism to clearly defined and confined resorts"*. According to Giang (2006), sites chosen for future eco-tourism activities *"are challenging sea turtle conservation"*. If conducted correct though, it could possibly benefit conservation, and vice versa. Visitors may be more likely to alter behaviour if *included* in marine conservation, and can contribute to sustainable protection in the long-term e.g. conduct monitoring, relocate eggs, and/or donate economical resources (MoFi). For these benefits to take place, all ecotourism activities need to be carefully monitored - an action stated to strengthen MPA management (Cheung *et al.* 2002).

A strategy to target the expected growth of international visitors is to centralize low volume, high value products/services e.g. ecotourism (CD project Tourism). Visitor characteristics and their differing resource valuation lay behind such a strategy, as seen in next section. Since visitors value different things, different practices conducted by others may lead to disapproval. Ecotourists did not generally agree with the statement "If I encountered someone who was behaving in an environmentally irresponsible manner, I would just ignore it" (Weaver. 2002). This can lead to conflict between general visitor groups as well as between locals and visitors (Lindsey & Holmes.). To reduce such a risk on Con Dao, attention should be given to differences between the planned sustainable tourism development, and eco-tourism focus within park boundaries. Essential differences also occur *within* visitor groups, as shown in fig.19.



**Fig.19:** Characteristics of hard and soft ecotourism as ideal types  
(Weaver. 2002)

This also means that risk of impact may differ within the group e.g. higher environmental commitment ("investment" in earlier chapter) can lead to reduced benefit from destructive behaviour. At the same time; the choice of specialized trips, emphasis on personal experience (see figure 18) may imply that there is a lot a stake. For example, some visitors may justify destructive behaviour if the

experiencing includes rare species. Next section will provide information as to *how* such differing scale of impacts can be incorporated in management.

### 5.3.3. Risk of Impact Assessment

To enhance the protection of marine resources, it is important to review current/future visitor characteristics, assess their valuation of resources, choice of activities (Lindsey & Holmes). and finally assess the risk of impact(s), based on these factors. This, in combination with biological context, can then be used to evaluate the need for educational tools.

#### 5.3.3.1 Visitor characteristics

Developing Con Dao into a "world-class tourism destination" (CD project Tourism), is stated as a goal for the archipelago. At present, domestic visitors outweigh the international market (Cheung *et al.* 2002), and awareness of differences between the two is necessary. Results from a visitor survey in Hon Mun MPA can provide some useful findings, which can then be assimilated in the development of educational tools in Con Dao (Lindsey & Holmes). Key findings included;

- International visitors had higher educational level (on average), compared to domestic visitors
- International visitors valued e.g. reduced litter to higher extent
- International and domestic visitors use the MPA in different ways

In Hon Mun MPA, international visitors are thought to outweigh domestic ones in the future (Lindsey & Holmes.). This is a predicted situation for Con Dao as well, strengthening the need to understand the differences between the two. Another factor, that may affect the amount of direct impact, is environmental investment. Ecotourists, as a group, usually have a higher 'green' investment, compared to general tourists.

*The Ecotourist:* The International Ecotourism Society has, based on survey results, created an ecotourist profile:

Age: 35-54  
Gender: 50% female / 50% male  
Education: 82% had a university degree

Cost was a flexible factor, and changed with ecotourists' age, as well as experience (experienced ecotourist<sup>8</sup> were willing to spend more); as did activities, which also changed with gender. Experienced ecotourists preferred; to travel as a couple (60%), and trip duration of 8-14 days (TIES. 2000). Another survey showed ecotourists' high agreement with the statement "I want to learn as much as possible about the natural environment of sites that I visit while I am there" (Weaver. 2002); which may indicate visitors' expectation of educational tools.

It is important not to be blinded by eco anticipations (on two levels; consumers demanding eco services from ecotourism providers, and the latter expecting eco interest from consumers). Consumers, other than ecotourists, may also show interest for eco products/services. As already mentioned, the environmental commitment varies within the group. The TIES survey also found that less educated people are becoming increasingly interested in ecotourism i.e. the industry is no longer as exclusive (TIES. 2000).

#### 5.3.3.2. Resource Valuation

Con Dao is considered a pristine wildlife experience: "From various documents is obvious the unique biodiversity presents the main attractiveness of the area for visitors, especially foreign visitors" (SEA. 2007). At present, domestic visitors outweigh the international market on Con Dao, and the prime focus is historical/cultural attractions (Cheung *et al.* 2002). Since the number of international visitors is thought to increase rapidly in the future, it is beneficial to assess their resource valuation. In Hon Mun MPA, a larger proportion of the international visitors, compared to

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<sup>8</sup> Tourists which have participated on one/more ecotourism trip(s)

domestic, planned to visit the beach regularly. This, in combination with the educational differences mentioned, may be the reason why international visitors were also more negatively affected by beach litter (Lindsey & Holmes). Such appreciation of clean beaches can be seen in other surveys (BCC. 2009<sup>2</sup>) and were also revealed from the in-depth interviews responds (during fieldwork). At the same time, results from Littlefair (2003) showed that the behaviour of littering was difficult to change; stating an important aspect within visitor management and possible need for increased educational tools. For ecotourists, the most important factors of valuation are; "wilderness setting" followed by "wildlife viewing", according to TIES survey mentioned above (TIES. 2000). Since beach litter may affect ecotourists to an even higher extent, compared to international visitors; more educational resources, to reduce littering, may be prioritized.

#### 5.3.3.3. Impacts

Tourism development on Con Dao is in an early phase (McEwin *et al.* 2008). Therefore direct impact resulting from marine tourism has been limited. Natural events have had more severe impacts on marine resources, especially coral reefs; typhoon Linda (1997), coral bleaching (1998) and toxic seaweed (CD project; Tuan & Long. 2003)), and to some extent crown-of-thorns predation (DeVantier. 2002). Impacts work in synergy (Burke *et al.* 2002; Shivilani. 2007), therefore any future anthropogenic damage, can not be addressed in isolation, but needs to consider natural impacts as well e.g. risk of regular typhoons. According to surveys taken place after the events mentioned above, coral recovery is slow in some sites (DeVantier. 2002; Tuan & Long. 2003), affecting impact resilience (Shivilani. 2007). High impact sites need to recover (CD project), but this does not have to mean exclusion of tourism experiences. Coral rehabilitation demands resources (Tuan *et al.* 2005); and tourism can contribute to such, as long as visitor impact is restricted and does not counteract the benefits. Use the health status as part of visitor education and increase marine awareness. Impact can still be limited, or even stopped i.e. in-situ experiences are not always a necessity.



As explained later in this chapter, tourism may be used as a tool for many current management challenges e.g. lack in monitor continuity, conservation funding (CD project), local participation (CD project Tourism). Ecotourism, especially, is often seen as the solution to many of the problems; an important realization though is that ecotourists do not necessarily lead to reduced visitor impact. According to Cater (1993), ecotourists generally lead to even higher impact compared to regular visitors. Even though such a statement can be questioned, there are apparent impact differences within the group, a fact that needs to be included within visitor management.

#### 5.3.4. Visitor Management

Compared to most other current/proposed MPAs in Vietnam, Con Dao's management situation is more optimistic. For example, 16 of the 63 park staff members have higher formal education i.e. university degrees (CD project), coral monitoring activities was initiated already in 1998 ((Tuan & Long. 2003) and nesting marine turtles have been monitored since 1995 (Mofi). In spite of this, existing challenges will only be magnified with tourism development and its high future goal. For instance; to sustain nesting marine turtles around Con Dao, beach management has been mentioned by Giang (2006) as highest priority. If such concern exists at present stage, one can assume that an increase in tourism will only strengthen it - especially considering how high international visitors value beach use in e.g. Hon Mun MPA (Lindsey & Holmes). Regulations exist within the national park e.g.

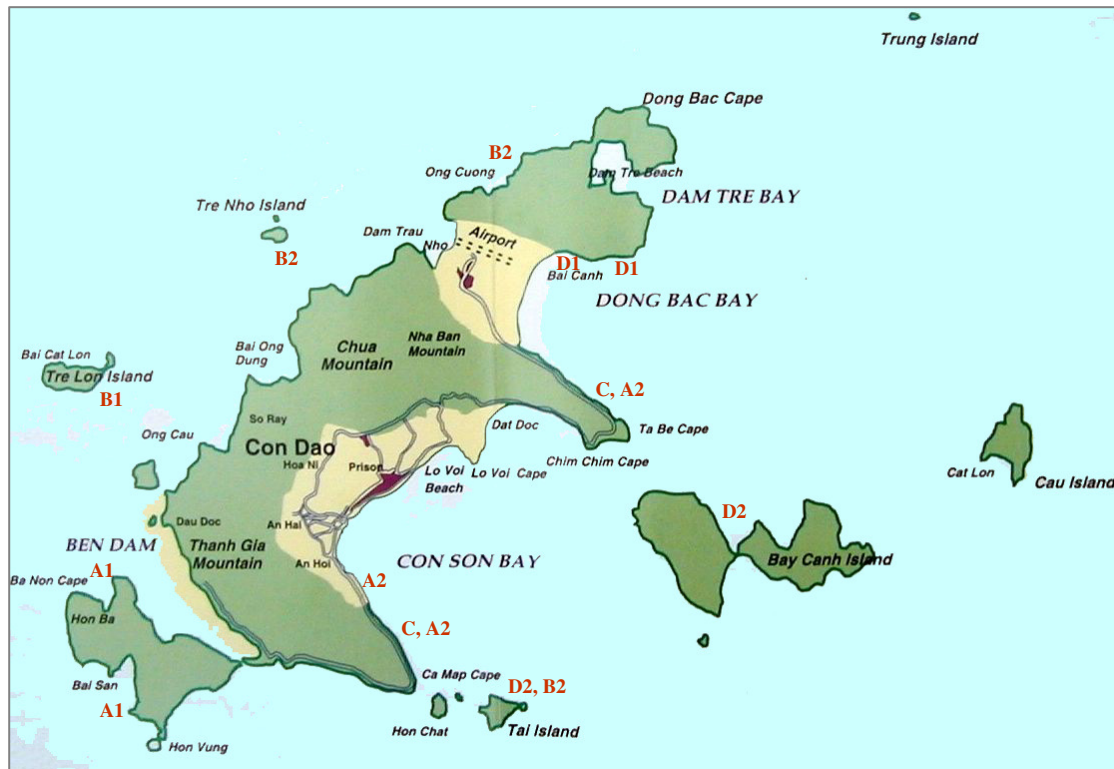
8. *"Visitors may not enter or swim near the turtle nesting beaches after 4:00 pm during breeding season"*

9. *"During sea turtle observation tours, guests must follow any directions from Park Rangers"*

(CDNP eco-tourism guidebook). To reduce direct impact though, it is essential that visitors respect and obey the regulations. To increase the efficiency of such, an improvement of educational tools, currently in use, may be advantageous. Before designing an educational programme, there is a need to assess the problem(s) and



*Resource Impact:* According to a report by DeVantier (2002) there are 15 key conservation sites for the protections of coral species around Con Dao archipelago. After comparing fig. 20 and fig. 21, many matches can be found between popular dive/snorkelling sites and prioritized locations for protection.



**Fig.21:** Coral conservation sites – 16 sites in 10 key locations (DeVantier. 2002)

Many of these sites can be reached easily by visitors, possibly affecting risk of impact and therefore need for educational tools. Some coral species e.g. *Acropora*, are more affected by natural events such as storms etc. (Tuan *et al.* 2005) characteristics that need to be included when 'zoning educational needs'. In the same way, factors like larval connectivity need to be included, even though direct impacts from visitors may be low (Burke *et al.* 2002). This just demonstrates the need to combine visitor impact with biological context.

#### 5.3.5.2. Marine Turtle

##### *Resource Valuation:*

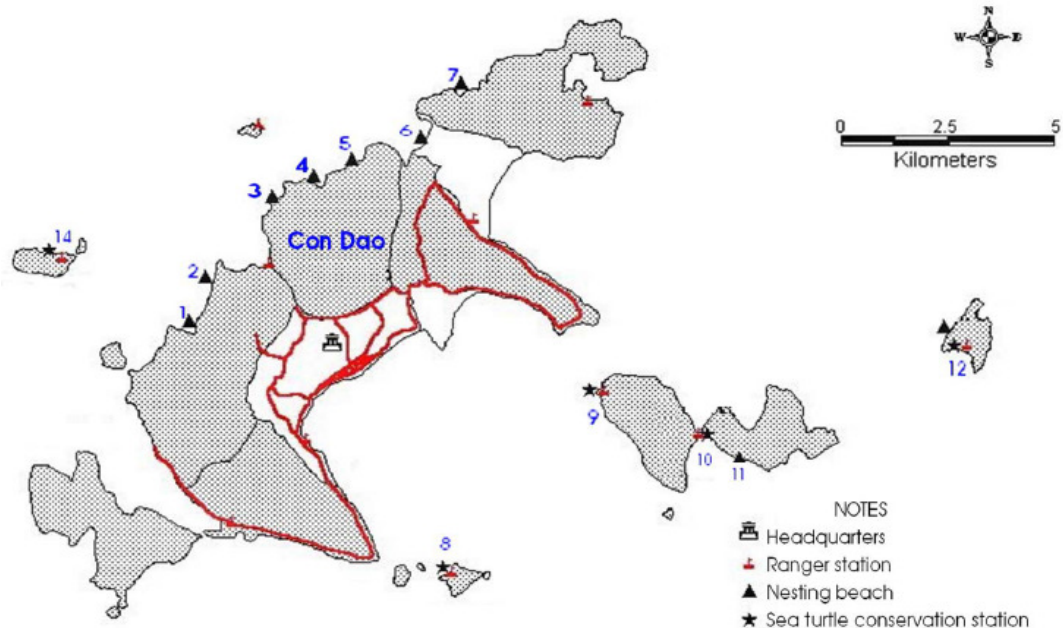
“Marine turtles are second best asset on Con Dao - after corals”, according to a Vietnamese visitor (Young male interviewed during fieldwork).

This clearly indicates species valuation. Several species of marine turtles can be found around Con Dao, since the waters provide both foraging and nesting grounds; the latter is the case for the green turtle (most abundant) (MoFi). Beaches that still attract marine nesting turtles are usually undeveloped. This is perhaps the reason why green turtles have declined everywhere in the country except around Con Dao (MoFi); clearly adding to the species characteristics as key species, and being unique. Although green turtle populations around the islands are not facing current threat from the marine tourism (MoFi. 2002/2003), there is definite need for attention since the industry has been pointed out as the biggest non-consumptive threat in Vietnam (by-catch excluded) (MoFi). Growth in marine tourism, in other parts of Vietnam, has led to an increase in; boats, noise, light, marine debris, pollution, obstruction (e.g. beach chairs that hinder nesting females (MoFi; MoFi. 2002/2003). Since the tourism season in Con Dao coincides with green turtles' breeding season (Giang. 2006), care should be taken. Another threat, to marine turtle populations around Vietnam, is turtle shell products being sold as souvenirs to domestic, as well as international visitors (MoFi).

Though green turtles are not declining around Con Dao, the proportion of false nests has been shown to increase during nights with turtle watching (Giang. 2006). So even if current visitor impact is generally low on Con Dao, the high appreciation of the species, the abundance and easy access to these otherwise rare species and benefits from destructive behaviour e.g. camera flashes, touching; all indicates a need for management. Although current risk of impact may not result in a “code red” situation (see new simplified model in chapter 4), a statement by Giang (2006); “We can not control tourists who picnic over night on beach that there is

not any ranger station” clearly indicates why enhanced educational tools are needed to prevent future problems from tourism development.

*Resource Impact:* As seen from the map in figure 22, easy accessibility is a threat not only to coral reefs around Con Dao, but also to nesting green turtles. The majority of nesting beaches are in easy reach for visitors. Highest nesting rates are found on islands e.g. Bay Cahn (# 9, 10), # 8, # 12 and # 14; which has resulted in increased management of visitors, as well as park ranger stations; providing some control of visitor behaviour.



**Fig.22:** Green turtle nesting beaches in Con Dao (Giang. 2006)

Despite current control, it is clear that increased educational tools can benefit marine turtle conservation in a variety of situations. For instance, a similar map as above, with marked nesting beaches, is found in a brochure for visitors. Such information may encourage visitors to find this key species by themselves instead of joining a ‘sea turtle observation tour’. The question then is: who is likely to choose self-guided activities? Is it visitors with high environmental interest, who will therefore

obey regulations found on signboards (currently lacking), or is it the visitors with destructive behaviour; the latter indicating the need for more efficient educational tools e.g. more efficient signs on site, repetitive message pre-visit to the beach. Caution is also needed on sites without easy access and/or park ranger station. The latter does not necessarily ensure reduction of visitors' destructive behaviour, much due to current lack of efficient materials and techniques.

*Possibilities:* Whether to relocate visitors during high season or provide alternative attractions during the potential spatial and seasonal closures, mentioned in the Marine turtle conservation action plan (MoFi); in-situ experiences are not always needed. An opportunity would be to use part of monitoring activities i.e. tracking project, and provide visitors with the chance to follow a tagged female turtle (from a distance). This activity can also gain visitors interest pre- and post- visit to Con Dao. Observing the turtles' migration route can also help understand the need for protection of several different habitats e.g. foraging and breeding, as well as international cooperation (Giang. 2006; MoFi), A simple map of a tagged female's migration route may serve the purpose.

Other opportunities involve more direct participation. For example, the park's relocation of nests to hatchery (MoFi) can be used efficiently to involve visitors. The experience CDNP has gained, regarding turtle conservation, is an excellent resource that can be used within tourism development. At the moment, current research feels very detached from visitors' experience. Integrating the two, does not only exhibit a green profile of the destination, but would also create incentives for behavioural changes (according to the new model) and compliance with future fee structures.

Since most mentioned possibilities involve direct interaction with guide and/or ranger, it is essential to also provide possibilities and incentives for self-guided visitors (see section 5.3.6 for brief presentation).

### 5.3.5.3. Dugong

*Resource Valuation:* Since Con Dao is stated as the only area, nationwide, where the endangered dugongs are sighted on a regular basis; this adds to its uniqueness (Cox. 2002). At the moment, Dugongs work as an icon species to attract visitors. What is important though, is to make sure visitors' expectations are kept on a realistic level. According to Cox (2002), the number of Dugongs around Con Dao archipelago may be limited to only 10 individuals. In spite of this, this rare species can help attract tourism benefits.

In an interview concerning Vietnam's marine tourism development, Mr Luu Nhan Vinh (Tourism Company director) stated: "Our sea tourism products are now not unique for localities or the country" (MPAnet. 2008). So, as often in visitor education, use the unique and/or popular icon species, and their popularity can then be used to intrigue interest for remaining marine life. Dugongs definitely have that potential, but needs to be used appropriately.

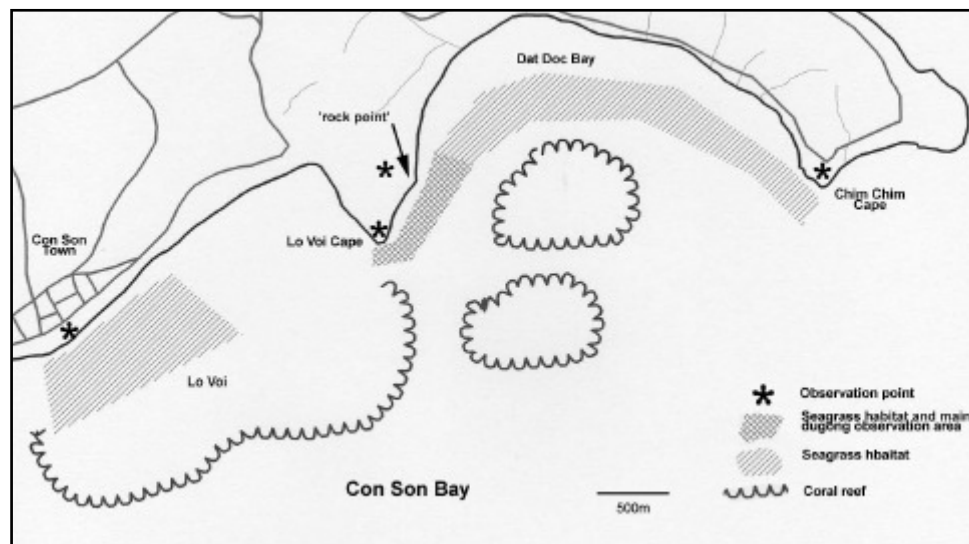


Fig.23: Sites of seagrass and dugong occurrence on Con Dao  
(Cox. 2002)

*Resource Impact:* Dugongs are highly valued; an appreciation that may increase risk of direct impacts. This is especially true in combination with its rare status, shy behaviour (Cox. 2002) and visitors' easy access to the bay(s). Figure 23 illustrates the location of Con Son bay, which is closest to current tourism development centre and town.

*Possibilities:* First of all, make sure visitors' expectations are realistic. Some brochures already include messages like:

"Don't expect to see lots of wildlife, Con Dao National Park is not a zoo"

Although, most of this information focuses on terrestrial habitats, and if you don't read specific material thoroughly, this important message is totally hidden. Contrary to the above rare insight, most messages use the icon species to such an extent that visitors expect dugong encounters e.g.

"Come to Con Dao National Park to see Dugong!" (Thi. 2008)

Due to this, it would be beneficial to present data of sightings from previous surveys (e.g. table found in Cox's study). Such could be provided both at the National Park, as well as on observational sites. At the latter; a logbook, where visitors can record their sightings, may contribute to data collection as well as stimulate participation in research and protection. Observational sites can include platforms in seagrass areas, as Cox (2002) mentions within possible future research. To separate the activity even further from the shy animals, one solution could be to make Lo Voi Cape (see fig.23) into a more permanent observation point. In either case, a sign describing typical behaviour (surface time etc.) should be added. To simplify observation and engage visitors, a permanent binocular can also be installed; something like the Vigia's lookout tower in the Azores.



#### 5.3.5.4. Conclusion - Practical Application of model

The essential information is that many wildlife attractions are in easy reach for visitors. To increase visitors' awareness of park rules and regulations, a priority should be to make sure a 'visit to the park office' is a natural stop *before* any other activities. This is one way to reach the target audience and affect visitors' choice of site, as well as start the process of behavioural alteration prior to any direct encounters.

Due to limitations in educational resources, emphasis should be put on 'red code' situations (see section 4.4.7.9) - where direct impacts are high, and visitor behaviour possibly more difficult to alter, due to high benefits from destructive actions. Such prioritization will simplify resource allocation to reach the objective mentioned in the very beginning of this thesis:

# "*Reduction of destructive visitor behaviour*"

In the same way *zonation* is used as a management tool to combine geographical areas with specific use; it would also simplify visitor management by zoning the need for education through risk of impact assessment. Sites with high direct impacts are in more need of efficient educational tool(s) and in such cases, personal guides/contacts may be useful to alter behaviour. Since these tools are resource demanding, probably part of the reason why 'personal contact' is more widespread in developed countries (Kaza, 1995), it is beneficial to assess the actual need for inclusion. The solution is not always straight forward e.g. *international visitors in Hon Mun MPA are more negatively affected by experiencing beach litter, compared to domestic visitors* (Lindsey & Holmes). Such a result may be perceived as though international visitors' direct impact i.e. littering is less, and therefore require reduced educational tools. This is not necessarily true; direct impact can still be high, even though its effect is recognised and disliked by the visitor. Another factor affecting resource allocation is tourism seasonality i.e. more resources during peak seasons should be allocated to address risk of increased direct impacts. The nesting period of key species

like the green turtle sometimes coincide with visitors' high season; ultimately increasing the need for educational tools.

Since Con Dao is a national park, as well as MPA, wildlife conservation is essential. Protecting marine resources include important locations such as biodiversity hotspots, as well as sites with total protection (CD project Tourism). Next section will incorporate these factors, to present additional possibilities within visitor education.

#### 5.3.6. General Possibilities

The concrete possibilities above focus on key species currently used to attract visitors, within marine tourism around Con Dao. Some general thought can be applied to these, as well as other marine life experiences.

##### 5.3.6.1. Green profiling

Cousteau claimed that;

"people protect and respect what they like, and to make them like the sea, they should be filled with wonder as much as informing them" (Cousteau)

If such a statement is true, Con Dao National Park could benefit by including some "wow" factors. That is, at present the park office provide information but lack interpretive tools. To alter destructive behaviour, information stating species name, abundance etc. is most likely insufficient. Cousteau tried to use experiences in an effort to expand traditional didactic approaches (Cousteau). According to the model (destructive behaviour alteration), two different methods can be used: compensation or reduction (i.e. providing something similar/better than benefit from destructive behaviour or reducing the benefit). Providing information only, will according to such limit any changes to visitors with a *low* benefit from the destructive behaviour. In most instances, as described in previous sections, this is not the case. Demonstrating a "green profile" all around the archipelago is also of importance to reduce

direct impact. This can include e.g. eco-toilets (McEwin *et al.* 2008), a guide picking up litter (form of role modelling), or a cleanup of "crown of thorn starfish", an activity taking place in Hon Mun MPA (Tuan *et al.* 2005). Even though lack of environmental concern might trigger some visitors to behave in an enhanced pro-environmental way, this is not the norm, and for obvious reasons not a method to be used within sustainable tourism development. Green profiling is not only beneficial to the sustainability of the industry, it is also an essential factor within eco-tourism; the niche designed for Con Dao National Park. Besides a green profile, inclusion of culture is also part of the ecotourism definition. A strategy mentioned for Con Dao development is exactly that; "to better link traditional techniques and cultures to conservation projects in protected areas" (CD project). This is essential, not only from an educational point of view, but also for the sense of inclusion. For the moment, visitor experiences are very separated from the community, with no visible interaction. Why not use the knowledge of local fishermen to provide the important message of marine conservation? If ecotourism is the aim, such local insight is much more valued than a commercial Disneyworld. The complex term ecotourism can be confusing, but one needs to remember that the definition includes more than pure biology.

Value can be added to products/services by the use of knowledge already in the area; which provides exotic insight/experiences for international visitors. For example, locals, who used to make their livelihood from diving/low tide sites to collect marine resources (McEwin *et al.* 2008), may share that knowledge as an AIG activity. That would provide a combination of resource information as well as culture. Maybe such activities can also increase the number of locals interested in shifting to tourism as AIG source, currently a low figure in parts of Vietnam. The explanation is partly that locals do not perceive their skills to be enough for the industry demands (McEwin *et al.* 2008). Offering snorkel tours may bring a whole new dimension to the visitors if conducted by a previous collector. It may even provide a whole new understanding to the reason behind marine resource conservation. Not all visitors are

persuaded by pure biological reasons, but require other input as compensation/ reduction (factors in model) e.g. the situation of locals.

#### 5.3.6.2. Transparency

The significance of informing visitors about marine conservation efforts, is often stated e.g.:

“...explaining the values and aims of the program is just as important as trying to control negative impact” (MONRE. 2005).

Not only will it contribute to the destination's green profile, as mentioned earlier, but it will also increase visitors' trust and fee acceptance; and their overall support of the MPA (Lindsey & Holmes). Project activities, such as need to inform visitors about their contribution, already exist. This is especially important for the reliability of planned “con Dao archipelago trust fund” (CD project). It is also part of the benefit alteration model; to provide compensation (We don't mind helping out, but we do require something in return), as well as reduction (through a better understanding of the situation). Transparency concerning objectives is also essential, especially since visitors are often asked to give up a benefit e.g. “don't take picture of the nesting sea turtle”.

#### 5.3.6.3. Volunteers

Green profiling demands resources, and volunteers are an excellent mean to reduce cost. They can contribute to long-term monitoring as well as personal interpretation, which is one of the more efficient tools to reduce impact (Kaza. 1995).

*Monitoring:* Volunteers can simplify monitor continuity (often a lack of staff/funds). In Cu Lao Cham MPA, a network of volunteers has assisted the management through field surveys etc. (McEwin *et al.* 2008). Monitoring is such an important aspect of management, and can be done through diving (as suggested by both dive masters and instructors during fieldwork), snorkel surveys (Coral List. 2009), assessing numbers of nesting female turtles and hatchlings, invertebrates. Even though monitoring efforts around Con Dao is of

high level compared to most MPAs, the importance of using local stakeholders for the activity has now been recognised on a national level (Tuan & Long. 2003). Inclusion of visitors may assist in raising future monitoring capacity; of importance since e.g. current information about marine turtles and their threats is insufficient in Vietnam (MoFi). Although, it is important to keep in mind that the duration of stay, may need to be of a certain time extent; in order to get high quality results and compensate for resources to train individuals.

*Personal Interpretation:* Currently, as previously mentioned, visitors are detached from ongoing research on Con Dao. Volunteers can inform visitors about surveys, and provide guidance for practical participation. They also serve the purpose of educating by example, being authority figures and role models; all tools to alter destructive behaviour.

#### 5.3.6.4. Iconic Species

These species can be used to increase visitors' environmental awareness and/or reduce destructive behaviour. According to Earhart *et al.* (2007), they even "have the potential to determine the future or demand of tourism in an area". In spite of this, one needs to be aware of the risk of exclusively incorporate mega-fauna, unique and endemic species within wildlife experiences. Used correctly though, they can benefit entire ecosystems. For instance, the fulmar has been used in an effort to save the North Sea; one species represents the need of e.g. reducing marine debris, and work together across borders. In Con Dao, the marine turtle is an excellent equivalent. International cooperation is rarely noticed on Con Dao, and the archipelago feels very isolated. Perhaps a "bigger picture" perspective can enhance the sense of personal responsibility.

#### 5.3.6.5. Research Insight/Participation

More obvious connection(s) to ongoing research may lead to many benefits e.g. clearer green profile; increase both the quality of offered services, as well as compensation/reduction possibilities. The *national park* status raises visitors' expectations to learn about conservational projects and maybe even participate.

*Resource Rehabilitation:* Enabling marine resource rehabilitation is sometimes essential. Although not currently recognised as urgent within Vietnam (MONRE. 2005), the project within Con Dao includes a coral reef area of 20 ha to be rehabilitated (CD project). This is an important aspect of conservation, and its lack may lead to future challenges (MONRE. 2005). Current shortage may possibly change if rehabilitating ecosystems provided more benefits, other than just biological; if such, the problem could be used. For example, bleached corals are not useless as resource within tourism just because colours and associated wildlife are lacking; it is just another type of educational resource. Whether experiences are in-situ/out of site the corals can be used to gain insight in environmental problems etc. (Healthy vs. Damaged). As SEA (2007) states though, any activities taken place in Ecosystem Regeneration Zones, should be small-scale and high-value.

The same approach could be used with coral farming activities. If such would to be based in Con Dao, the activity can be used for green profiling as well as an educational opportunity. *Special interest activities*, mentioned as a strategy for tourism development on Con Dao (CD project Tourism), may include much more than the obvious. Instead of just fronting "pristine paradise" environments, coral bleaching/farming offer a "behind the scene" activity; providing a sense that you gain more than expected. That could reduce visitors' direct impact by both compensation and reduction according to the model. In an area of excellent health, visitors may think their action will lead to little damage e.g. "taking a shell can't be that bad". If they instead have seen the acute problem, guilt or the will to assist can work as a reduction factors (of the benefit from the destructive behaviour), or the activity itself may work as compensation i.e. time that could be used for destructive behaviour is spent on other things. For obvious reasons in-site experiences should be limited to let resource recover, but other means (as mentioned before) can compensate for reduced accessibility.

### 5.3.7 Educational Tools

“Identify and collect available awareness raising materials from other sites and sources...” is stated as a mean to improve MPA management within Vietnam (McEwin *et al.* 2008). Absolutely, recycle the knowledge and material already out there, *but* make sure they serve their purpose; otherwise saved resources initially, can lead to an even higher waste at the end. Recycled material, which work efficiently in one region, may change with context. The proposed model in earlier chapter is thought to simplify the process of transferring tools across contextual differences. No matter which tools are in use, it is essential to reduce scattered messages, since it can affect efficiency of both isolated use, as well as tool combinations.

Networking is a continuation, as well as a platform, to recycle tools. For instance, dive operators are usually not included in management discussions, although they are key stakeholders in many locations. In Hon Mun MPA they contribute economically, since divers/ snorkellers pay fee, as well as being the ones who truly benefit from resource conservation. Brief, informal discussions with this stakeholder have been held occasionally within management in Vietnam (McEwin *et al.* 2008). From observation on Con Dao, it is easy to see the challenges of closer cooperation, even though the benefits are obvious. In Cu Lao Cham, dive operators have demonstrated interest in MPA participation (McEwin *et al.* 2008). It has been stated that CDNP “shown great capacity in coordination with other department and institutions in the province” (CD project); but don’t forget resources that are close by – simple is often overlooked.

#### *Web camera*

Sensitive locations such as biodiversity hotspots/total protection/recovery sites can be used for educational purposes through the use of web cameras. Visitor flow can be redirected away from sites, providing close wildlife encounters with reduced direct impact. It is also an easy way to reach visitors pre-and post visit; prolonging the message.

### *Web page*

At the moment it is practically impossible for visitors to find CDNP homepage. Only 1 (out of 10) of the in-depth interviewees had found info about CD through CDNP. The page also needs interactive elements, updated information, and marine resource insight. Instead of using it as an instrument to provide information about activities, use it as a channel to link ongoing science with visitors. Connect the two already before people arrive, which would state the importance of marine conservation more clearly. Both success stories and problems should be included, each contributing to benefit reduction/compensation in its own way.

### *Newsletter*

Information about marine conservation efforts does not only provide visitors with experiences out of site, but also benefit a green profiling. It can also be used as a mean to add to transparency for any donated resources/fees.

### *Shoreline Trail*

A shoreline trail provides an excellent educational opportunity around Con Dao, since the coastline often includes difficulty reaching the ocean. Information and experiences are presented away from marine resources.

### *Snorkelling Trail*

Information on buoys (as the New Zealand example, mentioned before), provides both compensation and reduction; and may therefore be an efficient tool. The additional information might be sufficient for visitors with low benefit to respect regulations, and the added activity (of reaching the message) may provide extra motivation, needed to alter the behaviour of visitors with a higher benefit from destructive actions.

### *Observational sites*

Once again, the high coastline around Con Dao provides excellent opportunities for such sites. Additional facilities e.g. binoculars and information, would simplify wildlife encounters from a distance,



reducing risk of direct impact (As already mentioned in the Dugong section). Observational towers are often mentioned as tool in terrestrial environments. Why not use a similar approach below the surface i.e. submerged platform?

### *Hotel Presentations*

Simplify information intake. By bringing information to visitors, the activity as such leads to an experience (mentioned as compensation in the model). Con Dao is an excellent arena for these kinds of activities, since evening activities are lacking at the moment. In-depth interview revealed apparent wish for more activities to take part of during this time.

### *Message*

Information about regulations, currently seen on many signs e.g. don't litter (wwf sign on Bay Cahn, and rule number 5 in the CDNP ecotourism folder: "As with all nature reserves, please respect the environment by not littering, but disposing of waste in the proper receptacles), is not always sufficient to reduce impact. More powerful messages are needed, especially true on sites reached by self-guided visitors. For example, instead of the don't litter sign; add a picture of litter found in turtle stomach or "did you know" facts - including the educational aspect.

The personal messages also need to be strengthened. For example, a dive briefing with the message; "Don't touch anything I don't touch" (experienced by the author in Hon Mun MPA) could easily be made more powerful. The message, as it was, is a pure regulative message and relies on the authority of the instructor. A short explanation *why* the rule is needed may result in increased visitors/divers reached by the message. Other examples of more powerful messages may include; beach clean ups and exhibitions with recycled material. These can link tourism and local schools in joint efforts, as well as front a green profile.

### *Visitor Centre*

It is so important to facilitate information intake, and a visitor centre is one way of centralizing all. The centre can also redirect visitor flow to different sites, an important aspect considering the high amount of visitors set as future aim. It can even be used to simplify *complete* reduction of direct impacts. A visitor centre "provides an alternative means of accessing the environment, especially those sensitive areas that are closed to the public" according to Tagliareni, an education and outreach coordinator for a marine sanctuary (MPA news. 2007).

Visitor centres have been mayor contributors to the success of demonstration MPAs in Vietnam (McEwin *et al.* 2008). Currently, Con Dao National Park office works as a visitors centre. A very important fact though, is the difficulty to find the office, indicated by 3 in-depth interviewees e.g. "...did not know about the centre, otherwise maybe we would have visited it". When visitors do find the office/centre, the information presented is limited. During the in-depth interview, a Vietnamese visitor (M, 25) stated this about centre's personal information; "if you don't ask, they don't tell...". Library, research insight, etc. would provide visitors with more than "best snorkelling site". Also, updating information (i.e. information flow) can motivate re-visitation to the centre. For example, sighting information, tip of the day, join us on a beach clean up, news etc. all provide visitors with reasons to use the park office as a natural starting point. Most importantly, it makes it *easier* for visitors to find information and/or participate. Visitor centres can be used to alter behaviour through both compensation and reduction, thereby increasing visitor management efficiency, and should therefore be prioritized.

### *PSA video (public service announcement)*

In-depth interviewees were asked "How would you prefer to be informed of marine awareness, regulations, general biology etc?" One of the respondents<sup>9</sup> gave the suggestion; to use the flights and

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<sup>9</sup> Young German woman, working in Hanoi

airport on Con Dao for the marine conservation message. While visitors wait for their luggage, they have the time for informational input, and it would provide excellent introduction to do:s & don't:s. This may also be used as a mean to reach visitors who will not visit the national park office. This is already in practice when you travel to Hawaii. The Hawaii Reef Etiquette video is shown on all flights run by Aloha Airlines (ENS. 2006). This video has been commented:

“For the most part, tourists to Hawaii aren't maliciously trying to damage coral or interfere in natural reef processes. They just don't know any better. This video fills an important gap. I particularly like how it doesn't beat people up while on vacation, but invites them to learn and protect” (MacPherson. 2007)

This approach can, of course, also be translated to cruise ships and planned port in Con Dao (CD project Tourism); which may perhaps be an even more important arena. These visitors stay for a very limited amount of time, and a visit to a visitor centre may not always be included.

#### *Contests, Festivals, Art exhibitions etc.*

Contests, festivals and similar are often used to increase awareness of locals. These could be integrated with tourism and benefit a wider purpose. For example, photo contests have been used to support MPA development (Tuan *et al.* 2005; MoFi. 2008); why not exhibit the pictures for locals as well as tourists (perhaps different channels/arenas). That could provide marine inputs from other sources than just pure biology. There is a definite lack of interdisciplinary thought within marine education. The *Sea Festival*, arranged in Ba Ria-Vung Tau province, was an initiative to link locals and visitors with marine appreciation through interdisciplinary fields (Ba Ria - Vung Tau Newspaper. 2006). Such an approach is essential for educational settings within tourism. People respond to different incentives, and even though the aim is to protect marine environments, the *environment* (marine resources) is not necessarily the most efficient mean to reach such goal.

### 5.3.8. Overall Recommendation

Many different tools and methods have been discussed in this thesis. Practical application though, is not just straightforward. Targeting different visitors, with possible differences in green interest (investment according to model); demands more information to be added before choice of tools. As mentioned in the beginning, ecotourists differ compared to regular visitors, in the same way that domestic tourists' value/use/perceive environmental problem differently compared to international tourists. Con Dao's aim to combine these, demand systematic assessment of most efficient educational tool combination.

As a result of the above, offering particular souvenirs may for example be a challenge. Some visitors may demand it, while others are offended by the sight. Obviously endangered or threatened species e.g. some coral species, marine turtles should not be sold anywhere, in spite of increased demands as a result of marine tourism in Vietnam (MoFi. 2002/2003). Currently, many souvenirs made out of marine resources can be found on Con Dao, witnessed by all in-depth interviewees. This, in spite of information found within a tourism brochure for Con Dao: "Don't buy shells or any other animal products as souvenirs. This encourages demand for often rare or endangered species". To make the issue even more complex, producing shell-curtains as souvenirs is now recommended as AIG in Vietnam, as long as the shells are not "exploited from the core zone" (McEwin et al. 2008). One of the in-depth interviewees (Australian, male, 25) showed awareness of the impact complexity by saying "I think shell souvenirs had a high damage on marine environment, *if not farmed*". Demanding visitors to attain 'shell origin insight' is far from simplifying the process of acting sustainably. The overall result is a reduction of green profiling, scattered messages as well as risk of conflict between eco-tourists, general tourists and locals. This makes it even more difficult for visitors to choose products/services that are not damaging for the marine environment, contrary to the advice in this section. Visitor education is so much more than just direct information, and the power of *educating through example* should not be forgotten. Interpretation can also be used for

benefits other than mentioned objective e.g. encourage visitors to stay longer, by presenting new opportunities and experiences of the marine environment (Bramwell & Lane. 1993).

As mentioned previously, some believe high quality tourism services are currently lacking in Vietnam. Quality assessments for special products have been recommended within management (McEwin *et al.* 2008), and assessing tourism services would be a challenging continuation of such. The *personal responsibility* (that visitors are often faced with), should be re-directed to tour operators; which may be a more efficient solution to reduce direct impact. This could be done through certifications, awards, best practices or similar (Burke *et al.* 2002). These tools also simplify the process for visitors who want to take on personal responsibility, but need guidance.

Regardless of visitor kind, it has to be easy to alter behaviour, so easy the action may not even be realized; still the win-win situation of educational tools is achieved. This notion should be included in visitor management, since the ultimate results is increased efficiency to reach the objective i.e. reduce direct impact.

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