

2.0 A REVIEW OF RELATED LITERATURE

2.1 Recreational Opportunity Spectrum and Limits of Acceptable Change (Experience-based Approaches to Management)

A major goal of outdoor recreation planning and management is to provide opportunities for people to realise desired recreational experiences whilst maintaining the resource base from which the opportunities are provided (Paradice 1985). A framework developed by the US Forest Service in the early 1970s to accomplish this goal is the Recreational Opportunity Spectrum (ROS) (Clark & Stankey 1979). Over the years, the ROS has been used to manage and understand the diversity of experiences and activities sought by users in many different environmental areas. The ROS provides for a spectrum of experiences ranging from those that apply to high intensity developed areas at one end of the scale, to the provision of solitude and freedom in preserved natural environments at the other. Within this spectrum of setting classifications it is generally assumed that different social and biophysical conditions may be more or less important and or acceptable to users (Shafer et al. 1998).

Utilisation of an experience based management approach such as the ROS to regional tourism planning in the GBRMP was identified in the early 1980s (Shafer et al. 1998). Throughout the years there has continued to be discussion regarding the need to provide environmental settings that satisfy a spectrum of reef experiences and activity opportunities (Kenchington 1990; Scherl et al. 1997). To date there has been little research to further understand the potential for systematic management of recreational and tourist activities based on this approach in the GBRMP (Shafer et al. 1998).

In the context of the ROS, it is important to understand what experiences people are receiving in a setting. Previous studies have found that different visitors desire and expect different attributes from a recreational setting (e.g. Driver & Cooksey 1980; Manfredi et al. 1980; McLaughlin & Paradice 1980). Measuring what people receive from a trip to a natural place can be accomplished in terms of the benefits received (Driver & Brown 1978; Driver et al. 1987a). For example, being in a natural environment, having some excitement and being close to friends and family may be regarded as some of the benefits that people might receive from different types of settings (Driver et al. 1987). For managers, the goal is to implement planning strategies to accommodate the needs of the present and potential visitors whilst taking into consideration the ability of the resource to provide such opportunities (Paradice 1985). Shafer (1969) suggests that the aim is not simply just to manage for the average experience but to provide opportunities and benefits that cater for everyone.

Identifying standards of acceptable conditions in relation to received benefits ties into a concept developed over the past two decades referred to as the Limits of Acceptable Change (LAC). As a supplement to carrying capacity, the LAC is based on the premise that unchecked recreational use of an area can build to a point that diminishes the quality of both the natural environment and the recreational experience. Managers using the LAC approach should develop and describe the recreational opportunities that will be provided, identify the ecological and social factors that are likely to change and then select indicators which can be used as a gauge to determine the appropriate amount of change (Stokes 1991). Extensive lists of items used as indicators of the condition of natural and social resources have been developed from years of research in terrestrial environments (e.g. Whittaker 1992; Watson & Cole 1993 in Shafer et al. 1998). Only recently have studies been undertaken to determine such indicators as they exist in the GBRMP environment (Shafer et al. 1998).

2.2 Conditions Influencing Users' Experiences

In marine environments and tourist settings, social and environmental conditions need to be better understood in the carrying capacity and the LAC framework. For managers the challenge is to measure how visitors feel about an experience and place so that parts of the experience or conditions relating to an environment can be selected and monitored for acceptable change over

time (Shafer et al. 1998). Previous research in land-based environments has suggested that overcrowding, noise, weather conditions, environmental degradation and an inappropriate mix of facilities are all conditions that may detract from users' experiences in certain environments (e.g. Anderson et al. 1983; Daniel & Boster 1976; Dellora et al. 1984). In marine environments (reef and island areas), conditions experienced may be similar to those found in terrestrial environments. These conditions and their effects upon people's experiences are discussed briefly below.

2.2.1 Other People and Human-made Structures

Social carrying capacity has been described as a level of use beyond which other users negatively affect a person's experience in an environment (Paradice 1985). Several studies have revealed that the presence of other people and clearly visible human-made structures can cause significant concern amongst some wilderness users. Large numbers of people in a natural setting have been judged as intrusive and found to degrade users' perceptions of the natural beauty of an environment (Ulrich 1993; Daniel 1990; Zube 1974). Previous research has also indicated that visitors are more likely influenced by evidence of inappropriate human behavior such as littering, noise or environmental destruction (Roggenbuck et al. 1993; Shafer & Hammit 1995). Earlier research has shown that the variety in activities pursued, settings, previous visitation and personal expectations of different users makes a single desirable level of use very difficult to determine (Graefe et al. 1984; Stankey & McCool 1984). Factors such as the numbers and types of structures (e.g. boats, aircraft, motor vehicles), the distance between them, and the number of people they support are all examples of 'social conditions' which may have an impact upon users' experiences (Stankey 1973; Roggenbuck et al. 1993; Manning et al. 1996). The influence of crowding and human-made structures on visitors' experiences at reef and island environments has been recognised as an issue requiring specific research attention in the GBRMP.

2.2.2 Noise

The rapid spread of human-produced noise throughout national parks and wilderness areas in the United States has been recognised as a serious problem in terms of its impact upon recreational users and their activities (Dellora et al. 1984; Mace et al. 1999). Noise is defined as an unwanted sound. As such, when sounds encountered are loud, unpredictable, uncontrollable and considered inappropriate for a given area, the 'noise' will most likely be considered annoying and detract from other preferred experiences such as the enjoyment of nature (Mace et al. 1999). Driver et al. (1987b) suggest that the primary reasons people visit a national park, forest or outdoor recreational environment is to escape the noise and stresses of urban lifestyle. It is of no surprise that noise pollution in natural environments has been classified as an environmental stressor.

Research has shown that noise in natural environments can have a significantly negative impact on recreational experiences by interrupting people's feelings of solitude and tranquillity (Kariel 1990; Kaplan 1995; Kaplan & Talbot 1983). A study undertaken in Australia by Dellora et al. (1984) on fourwheel drive users, bushwalkers, picnickers and other recreationists, found that noise (from motorbikes) was the main cause of recreational conflict. Technological noise related to motorised vehicles, chainsaws and aircraft has also been rated as annoying and disruptive to visitors surveyed in national parks in Canada (Kariel 1990). Kariel (1990) suggested that human induced and technological sounds 'should be kept generally low in outdoor recreation-type environments in order to safeguard a recreational milieu' (p. 148).

There have been very few studies that have dealt with the issue of noise on social amenity in Australian national parks or other environmental areas. In the GBRMP it is likely that some sites are prone to experiencing regular noise from crowds of visitors, commercial vessels, dinghies, jet skis, helicopters and airplanes. Little research to date has investigated how noise, and different sources of noise, influence people's experiences and images of a setting in Marine Park areas.

2.2.3 Aircraft Activity

Aircraft activity generates noise. In America the issue of aircraft overflights in national parks and wilderness areas has been a focus of attention for many years. In 1987 the National Parks Overflight Act (Public Law 100-91) was passed which required the National Park Service and the Forest Service to identify 'acceptable levels' of aircraft overflights in federal wilderness areas (Mace et al. 1999). This requirement led to an increase in research investigations that examined the many facets involved with aircraft overflights in wilderness areas. Areas examined varied greatly with regards to the frequencies of overflights, visitation rates, aircraft types, decibel levels, and range of aircraft sound exposures. Sensitivity to aircraft sound was shown to be site and setting specific. The Grand Canyon has become an area of significant interest in aircraft research on visitor experience. In a study by Tabachnick et al. (1992) the Grand Canyon was ranked the highest in terms of noise exposure and frequency of aircraft flights; with 36 independent operations providing sightseeing and helicopter rides. Findings from aircraft research at the Grand Canyon has resulted in a number of new regulations to minimise the effects of aircraft overflights to recreational users in the United States.

Negative attitudes have been expressed towards seeing and hearing airflights in wilderness areas (Tarrant et al. 1995). Tarrant and colleagues (1995) suggested that even low levels of aircraft noise could be evaluated negatively. Investigations have shown that aircraft noise represents undesirable sounds of urbanisation, and has strong effects on the quality of visitors' experiences (e.g. solitude and tranquillity) and interferes with the perceived aesthetic quality of landscapes (Mace et al. 1999). A review of previous airflight research has reflected that noise has a psychological effect upon people's motivation and performance (Smith 1989; Smith & Stansfield 1986), as well as their physiological behavior (Berglund et al. 1990). However, the primary impact of aircraft activity upon users of natural environments is not necessarily noise related. There may also be a number of non-acoustical factors that relate to sight. Visibility of aircraft flying over or of condensation trails from aircraft may impact upon the users of natural environments (Berglund et al. 1990; Shultz 1978).

2.2.4 Weather and Biophysical Conditions

Physical conditions related to weather have never been regarded as a significant factor in the studies of recreation or tourism experiences. In marine environments, weather conditions may have a significant influence on user activities and experiences. Sea conditions in marine recreation are important as the sea serves as the travel medium and prevailing winds can significantly determine whether sea conditions are smooth or rough. For people who have had little experience with ocean travel, rough seas can result in an uncomfortable boat trip and motion sickness. In sites where swimming and snorkelling are popular activities, water visibility, air and water temperatures have direct associations with people's experiences of the visit (Shafer et al. 1998). As such, weather conditions, wind strength, temperature and sea conditions may well be factors that strongly influence visitor satisfaction and images of an island or reef destination.

Biophysical conditions associated with an area also may have an affect upon people's experiences and their perceptions of a location. For example, studies have shown that certain features of an environment such as its vegetation, geology and wildlife can be major indicators of natural conditions that influence users' experiences and evaluations of a site (Hammit & McDonald 1982; Shafer & Hammit 1995). In marine environments, the sizes, colours and quantities of corals and fish may influence people in much the same way that colour, size and quantity of terrestrial wildlife influence people (Shafer et al. 1998). The selection of good condition indicators such as those discussed above, congruent with experience dimensions, will assist managers with their attempts to provide quality environments for users.

Through this report we have attempted to measure some of the relative influences of various conditions upon people's experiences whilst visiting Whitehaven Beach.