Adaptive Management

Description
Adaptive management has been described as a process of learning by doing. It is an iterative process through which greater understanding of natural resource systems can be developed and management approaches tested over time until the best management options are reached.

Adaptive management takes a systematic, experimental approach to planning the management of specific areas and issues, including the planning and management of tourism in natural areas. It is based on clear predictions about the outcomes of such management in tandem with ongoing monitoring to test and help evaluate these predictions. It allows policy developers and natural resource managers to make decisions about the management of complex systems, often at short notice and with initially limited information on which to base decisions.

How and when the tool is used
Adaptive management was developed in North America in the 1970s. It is a useful tool for making decisions when there are a variety of stakeholder and other organisational views about management processes and outcomes. It is also a useful tool when managers either do not have all the information required to make full decisions on how to best manage a natural resource, or the mix of outcomes sought makes decisions difficult. Adaptive management has long been recognised within business as a strategy that encourages good decision-making in the context of uncertain economic and market conditions. While such approaches have been advocated for environmental management for some time, adaptive management has only recently been employed to support the management of natural resources. In particular, it is used under the Resource Management Act (RMA) framework to assist with the development of conditions placed on resource consents when complex changes are likely over time.

Components of adaptive management include:
- taking a holistic/consultative approach, acknowledging that the tourism resource is part of a complex system with bio-physical, social and economic components;
- identifying the values and interests of all stakeholders (see stakeholder analysis);
- understanding the bio-physical, social and economic dimensions of the problem and the impacts of management regimes on all stakeholders (see Environmental Impact Assessment (EIA) and cumulative effects assessment);
- development of models based on a collective understanding of the stakeholders, which are used to assess gaps in information and predict outcomes from alternative management strategies;
- development of natural resource and tourism management plans by stakeholders to meet outcomes and generate new information to fill any gaps;
- specific inclusion of feedback loops from monitoring back to research, objective-setting, policy development and tourism planning;
- implementation of management plans, usually anticipating that results will be monitored, information analysed, and management adapted accordingly;
- ongoing modification of the management strategy as the system is more comprehensively and collectively understood.

Monitoring and evaluation of the adaptive management process is integral to the process itself. For instance, monitoring is used overtly in conjunction with adaptive management to help evaluate the effectiveness of implemented management strategies as processes lead to better understanding of the natural resource base. This integrated and iterative process enables further refining of the actions to be taken, leading ultimately to best management practice.

Application
Adaptive management of tourism resources is useful when it is recognised that, despite constraints of time and available information, it is unsatisfactory to postpone actions. It is also useful when stakeholders’ knowledge of systems and views about outcomes sought are not the same. Adaptive management actively encourages incorporation of the values and perspectives of all stakeholders and knowledge that is both professional and non-professional. The approach recognises the role that stakeholders can play in helping to generate solutions to management issues and encouraging ownership of the problem. It also helps enable
the system to be more flexible in responding to new stresses, while allowing stakeholders to collectively work towards further changes. Thus, the identification and involvement of all relevant stakeholders is crucial to a successful application of an adaptive management regime.

Many of the other tools for visitor management and setting limits, especially Limits of Acceptable Change (LAC), contain elements of adaptive management. For example, a recent study to assess limits of acceptable change in Mason’s Bay, Stewart Island, was based on intensive data collection on hut usage and visitor experience, in order to suggest acceptable visitor management regimes.

Adaptive management has been used in New Zealand for the management of natural resources relevant to tourism. Some examples of these applications include:

- a recommendation to the Ministry for the Environment by Hamilton Integrated Management to use an adaptive management approach to deal with algal blooms in Lakes Rotorua and Rotoiti, an important tourism resource that is dependent on high water quality;
- the identification of adaptive management by the Ministry for the Environment as a preferred approach for setting future national ocean priorities, and use of the approach as a framework to identify specific actions needed to generate information, tools and concepts including marine conservation;
- contracting of the Cawthron Institute (Nelson) by Meridian Energy to implement an adaptive management programme for environmental monitoring of marine resources in Doubtful Sound;
- research by Department of Conservation on adaptive management as a strategy to restore New Zealand forests affected by deer;
- an eight-year adaptive management programme initiated by Department of Conservation involving two treatment areas and one non-treatment area in similarly sized forest fragments containing kokako in the central North Island;
- a case study on information-sharing for South Island high country land use management, described as a specific approach with a number of key steps to develop knowledge and take action accordingly;
- specialised fishing regimes in high-quality back-country trout fisheries such as the upper Oreti, Greenstone and Caples Rivers are set in conjunction with additional angler registration requirements so that angler numbers and angler satisfaction can be closely monitored on a seasonal basis. The management and monitoring regimes are designed to enable the fishery to be managed to maintain high satisfaction and prevent overuse by anglers.

Our Evaluation
Adaptive management provides an effective process for building knowledge about a natural resource context for tourism activity while continually monitoring the effectiveness of particular management approaches. It also acknowledges that managers’ and stakeholders’ understanding of changing natural systems on which tourism is based is often incomplete and a degree of flexibility is required in decision-making. Adaptive management is inherently an integrative approach and can, and needs to be, used in conjunction with other tools.