

# Staff Papers

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## **Monitoring activities in the GBR, challenges and opportunities. [Abstract]**

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## Values do matter: managing cultural and social diversity leads to better protection

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Values are social constructs arising from beliefs systems which provide individuals and society with a framework for organising and interpreting their surroundings and for acting according to agreed social norms. Valuing selected aspects of the natural or social environment is giving those aspects special significance according to shared beliefs about their importance. Environmental values therefore are not properties of the environment *per se*, but rather a statement by the beholder (individuals, groups, cultures society) of their importance. In environmental management, 'values' are defined as valued attributes of the natural environment for their ecological, social, economic and cultural significance.

According to the GBRWHA Strategic Plan vision, stakeholder agencies have the responsibility to maintain and enhance the GBRWHA aesthetic, ecological cultural and social value. Managing for a range of 'values' requires both knowledge of those values as well as equitable processes to maintain present and future values and opportunities for the local, national and global communities.

Developing an inventory of GBR 'values' (to whom, why, what, where) is the first step from which tools can be developed to assist decision making. Once identified, 'values' may be 'mapped' and integrated with other information such as distribution of reef use and reef ecology. Subjective maps of 'values' will assist the decision making process by making explicit what underpins stakeholder positions including the identification of areas of potential conflicts and common grounds. While values may be 'mapped' according to who holds them, geographical location or nature of interest, their weighting in decision making is problematic. Economic tools have been developed to address this issue either by assigning a dollar value to values traditionally not traded in the market (eg intrinsic value, ecological value, subsistence value) and by developing decision support tools such as multicriteria analysis and use allocation criteria based on highest economic value. While these techniques will assist the decision making process, they should not replace participatory decision making mechanisms where stakeholders' values are negotiated and traded off to achieve agreed outcomes.

The current status of knowledge on GBR values has been acquired through agencies' public participation exercises, commissioning research studies and post graduate research. Relevant information can also found in various databases. While information on values associated with direct use is available (eg tourism and recreation studies, economics studies) and has been compiled in various databases (eg Human use database, department of tourism database), its use is limited to identify patterns and trends because of the scale and scope of those projects. Overall, the information base is incomplete particularly as it relates to values associated with indirect use (eg global and national community), non use (eg cultural, conservation) and values of those excluded from participatory processes. An integrated approach is required to ensure that time series at a range of scales can be developed in key areas such as World Heritage, recreation and tourism, indigenous use and economics. Recent reports to address GBR wide values include the economic value of the GBRWHA (Driml 1993), the development of a inventory of World Heritage values, and a national survey of public perception of wilderness in the GBR.

## Monitoring activities in the GBR, challenges and opportunities

1995/34  
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To implement the 25 years GBRWHA strategic Plan vision of management for ecologically sustainable use, stakeholder agencies need to take a holistic definition of the GBR to include both its physical and human components and their interactions. Managing for ecologically sustainable use is more than managing to minimise ecological impacts of direct uses but also managing to minimise social, cultural and economic impacts, ensure equitable opportunities for use and maintain and enhance a socially desirable range of values.

While GBRMPA planning and management activities have concentrated on managing uses and impacts of uses, research effort to date to assist decision making have emphasised developing an understanding of the GBR ecosystem, and monitoring major ecological impacts of reef based activities. This has not been matched by the development of an information base of reef activities and reef values. As a result the information available is often inadequate to

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respond to management needs. Understanding reef use and values is essential to manage ecological impacts on the GBR, but most importantly to anticipate those impacts by understanding direct and proximate causes and respond through appropriate management actions.

Relevant information is found in reports and databases scattered in various government agencies and organisations including GBRMPA. Some have a direct focus on the Area (eg reef visitation, reef values, visitor characteristics and experiences, involvement in decision making, economics of reef based activities), others provide contextual information (eg regional and national socio demographic and economic analysis). This paper will only focus on describing the status of existing information on reef use and initiatives to address the need for an integrated approach to the development of long term datasets. Reef values are discussed in a separate paper.

A number of constraints make the existing information difficult to use for management. They relate to information content and format, adequacy of reporting mechanisms and the sensitivity of information. Useability of information often depends on its format, method of collection, accuracy, completeness, scale and purpose. Even when the information is available, there is rarely mechanisms in place for timely reporting on essential parameters in a user friendly format. Furthermore the sensitive nature of the information necessitate the establishment of information protocols for its collection, storage and use, within and between agencies.

Initiatives have been taken by the CRC reef, GBRMPA and others to address the long term information needs. CRC projects on visitor statistics is described elsewhere in this workshop. This paper presents discusses a GBRMPA project which aims at developing GBR wide basic reef use statistics and gives a demonstration of the type of information outputs that can be generated using two databases - the GBRMPA EMC database and the Aerial surveillance database- to look at spatial and temporal pattern of use (tourism, commercial fishing and private use). This project is the first step towards the establishment of long term datasets, further steps will have to address information gaps and identify appropriate strategies for future data collection.

## 1995/ 28 Water Quality Monitoring in the GBR Region

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Water quality monitoring programs in the GBR region are primarily focussed on sediment and nutrient concentrations in the water column. Far fewer results are available from monitoring of persistent organic compounds, trace metals or hydrocarbons or from the sediment or biota compartments.

Relatively comprehensive monitoring of the river discharge of sediment and nutrients has occurred over the last decade. Results show the extreme temporal variability in these inputs. Limited monitoring of nutrient upwelling at the shelf-break, nutrient content of rainfall and nitrogen fixation over the last few years has allowed first order estimates of a nutrient budget for the central GBR.

Results from biological oceanographic research into nutrients from the last 15 years has allowed a synthetic monitoring data set to be constructed for a large part of the GBR lagoon. This shows the lack of temporal trends in nutrient concentrations over this period but does quantify some cross-shelf and latitudinal spatial trends. These trends are corroborated by results from the long-term chlorophyll monitoring program, now in its fourth year, and the AIMS long-term monitoring program for nutrients and chlorophyll.

Results from long-term nutrient programs listed above are for 'ambient' conditions in the GBR lagoon and are supplemented by specific monitoring programs during river flood plume conditions. Results are highlighting the extreme sediment and nutrient concentrations found in these plumes and the oceanographic/meteorological control of the dispersion of the plumes.

Few monitoring surveys for chlorinated hydrocarbons, pesticide residues, trace metals and petroleum hydrocarbons have been carried out in the last decade. Low levels of these contaminants were generally found in surveys conducted between 1975 & 1985. The Torres Strait Baseline Study is the largest recent program examining any of these contaminants (trace metals).